

Stewart-Amos
Owner's Manual



STARFIRE S-4C

SAFETY, OPERATION MAINTENANCE MANUAL



SN 4001 AND UP

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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.

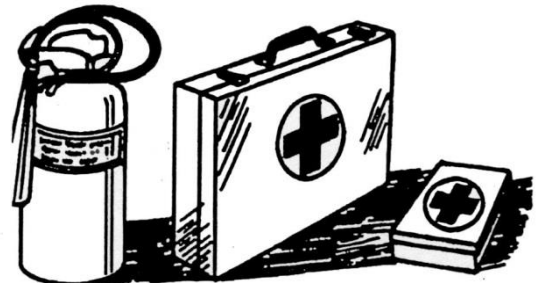
Start engines only from operator's station with transmission in park.

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.

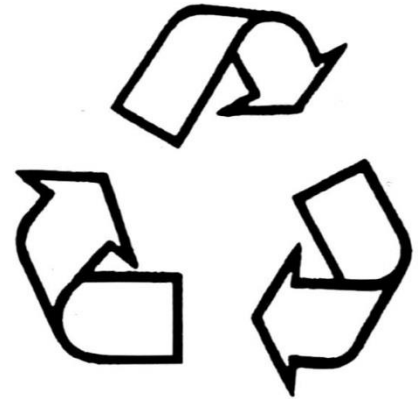
Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

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 parts 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.

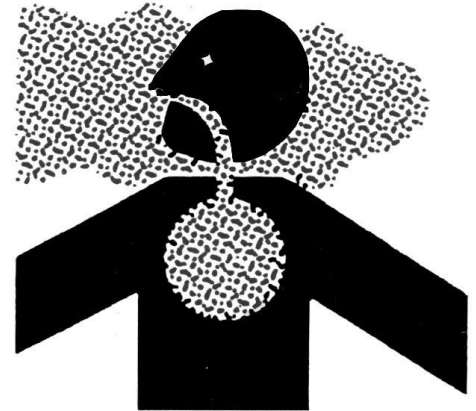


AVOID HARMFUL ASBESTOS DUST

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 the n 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

MFD BY:	STEWART-AMOS
	SWEeper CO
DATE OF MFR: MO.	11 YR. 2013
GVWR:	8845 KG (19,500 LB)
GAWR-FRONT:	
	3300 KG (7275 LB)
WITH	225/70R/19.5 TIRES,
	19.5X6.00 RIMS, @ 660 KPA
	(95 PSI) COLD SINGLE
GAWR-INTERMEDIATE(1):	
	KG (LB)
WITH	TIRES,
	RIMS, @ KPA
	(PSI) COLD
GAWR-INTERMEDIATE(2):	
	KG (LB)
WITH	TIRES,
	RIMS, @ KPA
	(PSI) COLD
GAWR-REAR:	
	6196 KG (13,660 LB)
WITH	225/70R/19.5F TIRES,
	19.5X6.00 RIMS, @ 660 KPA
	(95 PSI) COLD DUAL
THIS VEHICLE HAS BEEN COMPLETED IN ACCORDANCE WITH THE PRIOR MANUFACTURERS' IVD, WHERE APPLICABLE. THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS, (AND BUMPER AND THEFT PREVENTION STANDARDS, IF APPLICABLE) IN EFFECT IN:	
MO.	XX YR. 2013
VEHICLE IDENTIFICATION NUMBER:	
JALE5W163D730XXXX	
VEHICLE TYPE:	
SWEEPER TRUCK S/N 40XX	

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° C (212° 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 too 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.

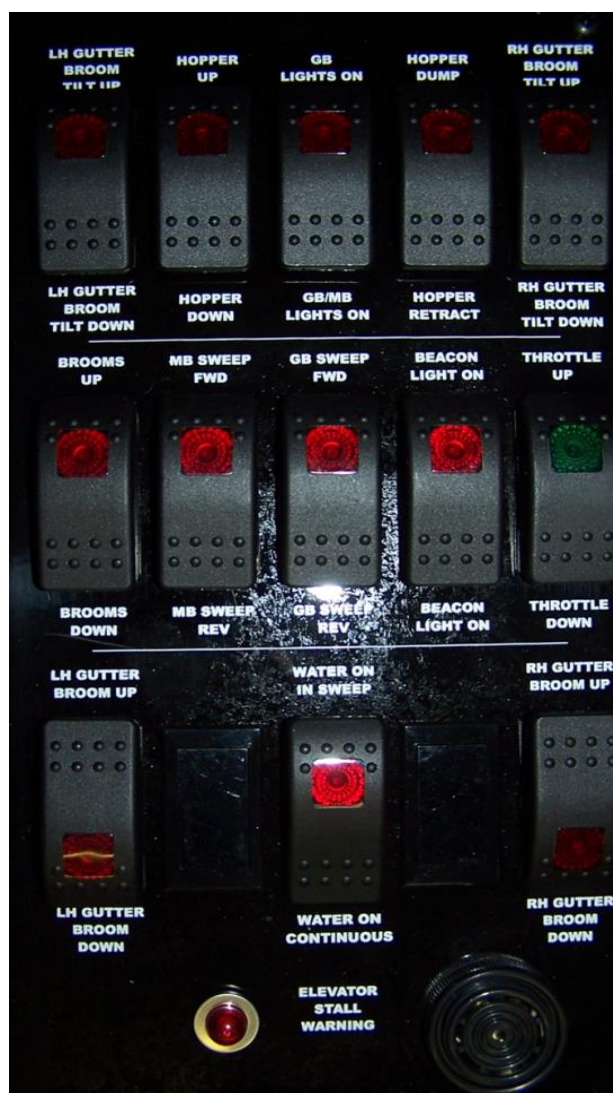
HOPPER DUMP / RETRACT – This switch controls the hopper dumping function. The hopper can be dumped at any height in the lift cycle. When the hopper has been raised to the desired height, press and hold the switch in the “HOPPER DUMP” position until the hopper is fully tipped with the door open. To return 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, therefore 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° – 202° 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.

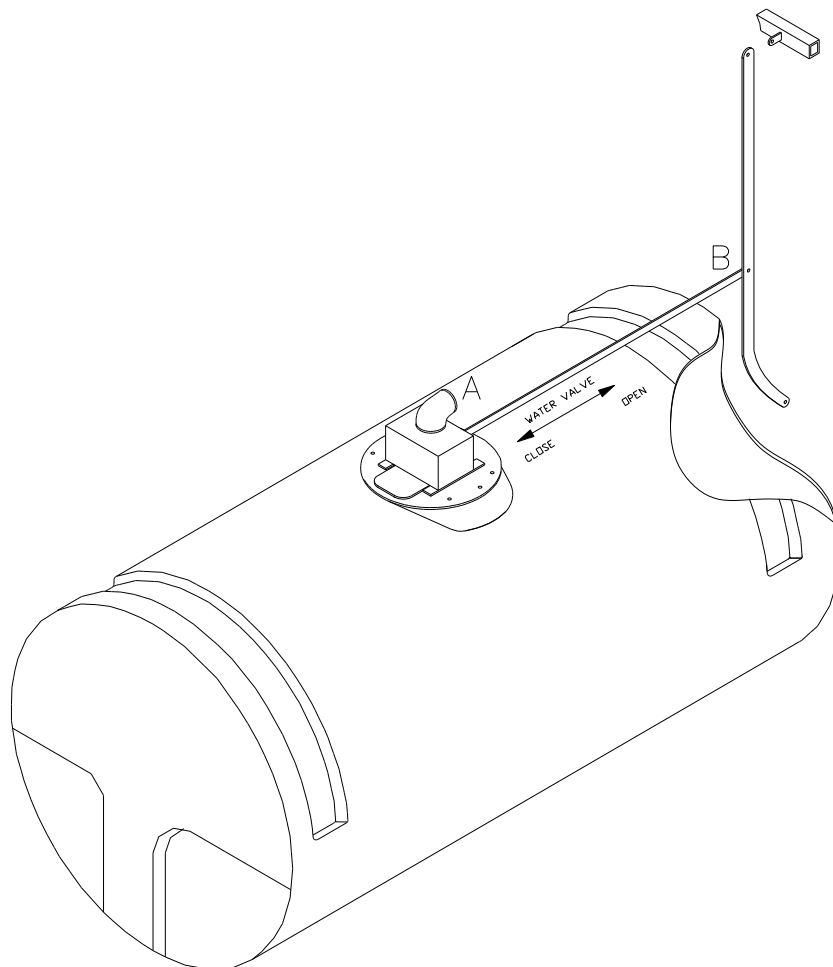


Figure 4: Water Tank

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.

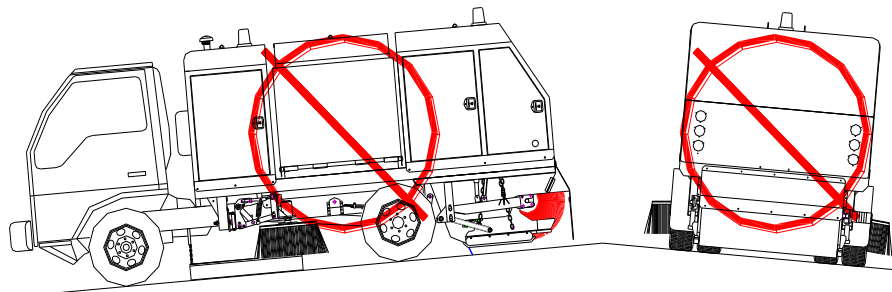
NOTE: The hopper is capable of being dumped at any height and can be raised or lowered while dumping, provided the sweeper is being operated on level ground.

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

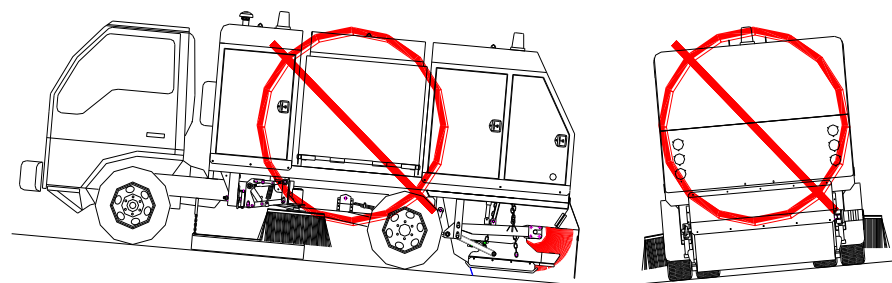
When the hopper is empty, return it back to its home position by retracting the hopper using the HOPPER DUMP/RETRACT switch and lowering the hopper with the HOPPER RAISE/LOWER switch.

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.

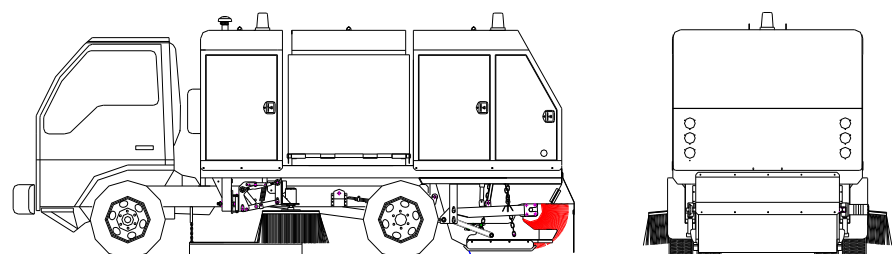
NOT A SAFE HOPPER LIFT AND/OR DUMP ANGLE



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 -35⁰ 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 (40°F).

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

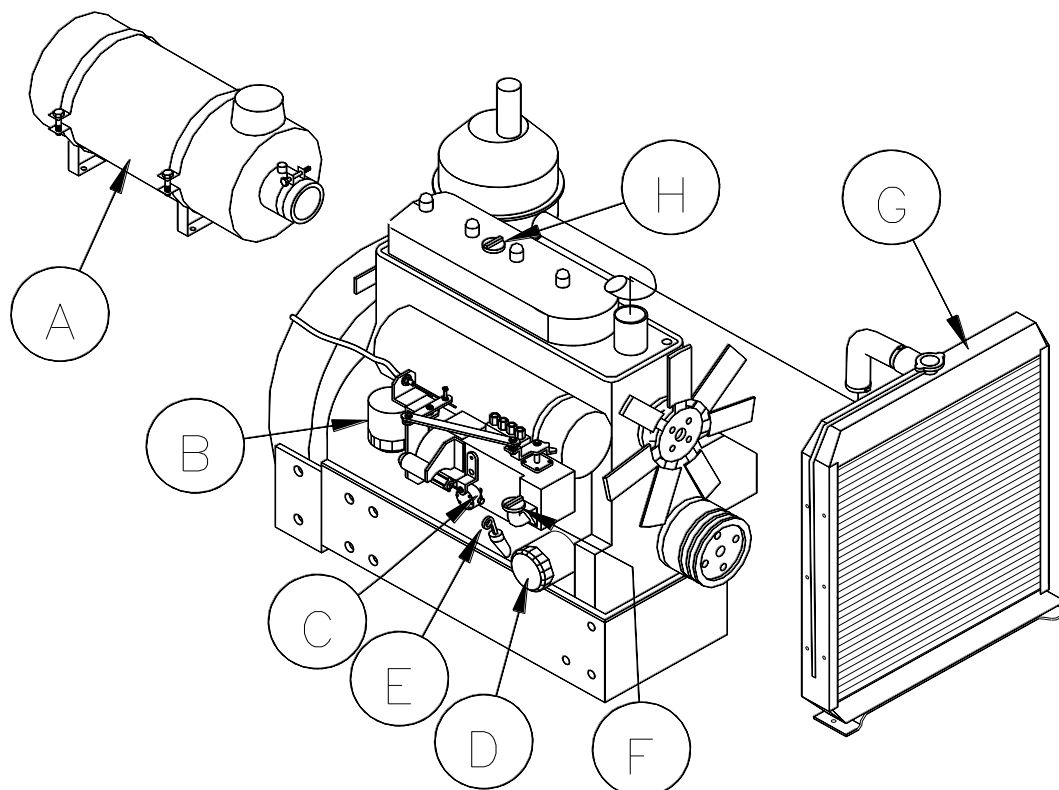
Daily

(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	SA ALT P#
small hyd. oil filter	1416		P551551	P1653A	85259	BT839-10	AE-10	
V2403								
engine oil	1106	HH164-32430	P550939	PH7328	85307	B7152		2245
outer air filter	1390		P822768	CA9246	88489	RS3988		2238
inner air filter	1391		P822769	CA9246SY	88490	RS3703		2239
fuel filter	1108	16631-43560	P502163	P9458	86398	BF7967		2246
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 3° - 5° 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 3° - 5° 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.

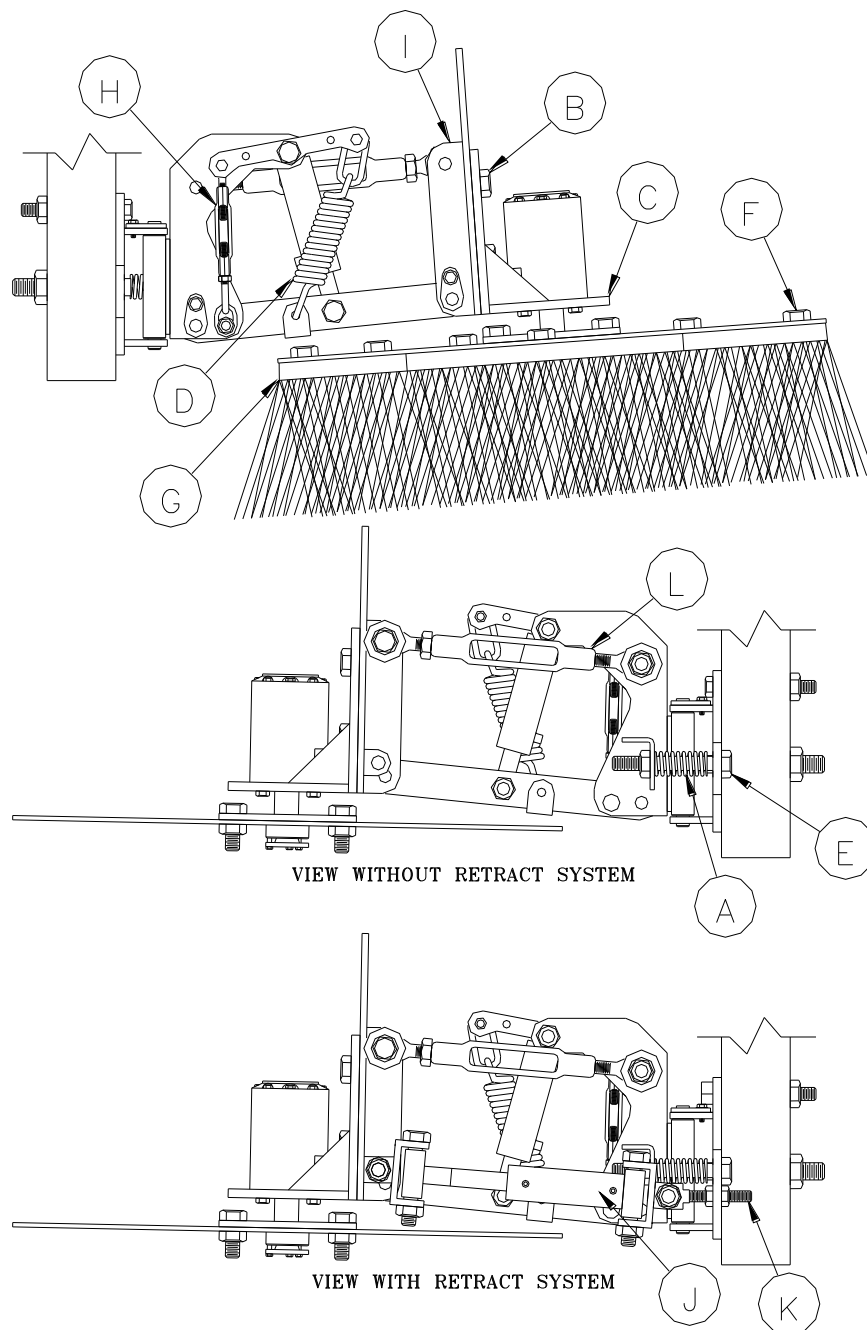
Gutter Broom Impact Protection Spring

(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.



- | | |
|------------------------------|--------------------------------|
| A. IMPACT SUPPRESSION SPRING | G. BRUSH SEGMENTS |
| B. SIDE TILT ADJUSTMENT BOLT | H. SUSPENSION ADJ. TURNBUCKLE |
| C. MOTOR BRACKET | I. LINKAGE MOUNT |
| D. SUSPENSION SPRING | J. RETRACT CYLINDER |
| E. PATH WIDTH ADJ. BOLT | K. RETRACT ADJ. BOLT |
| F. SEGMENT RETAINING BOLTS | L. FRONT/BACK ANGLE TURNBUCKLE |

Figure 6: Gutter Broom Assembly

FRONT OF SWEEPER

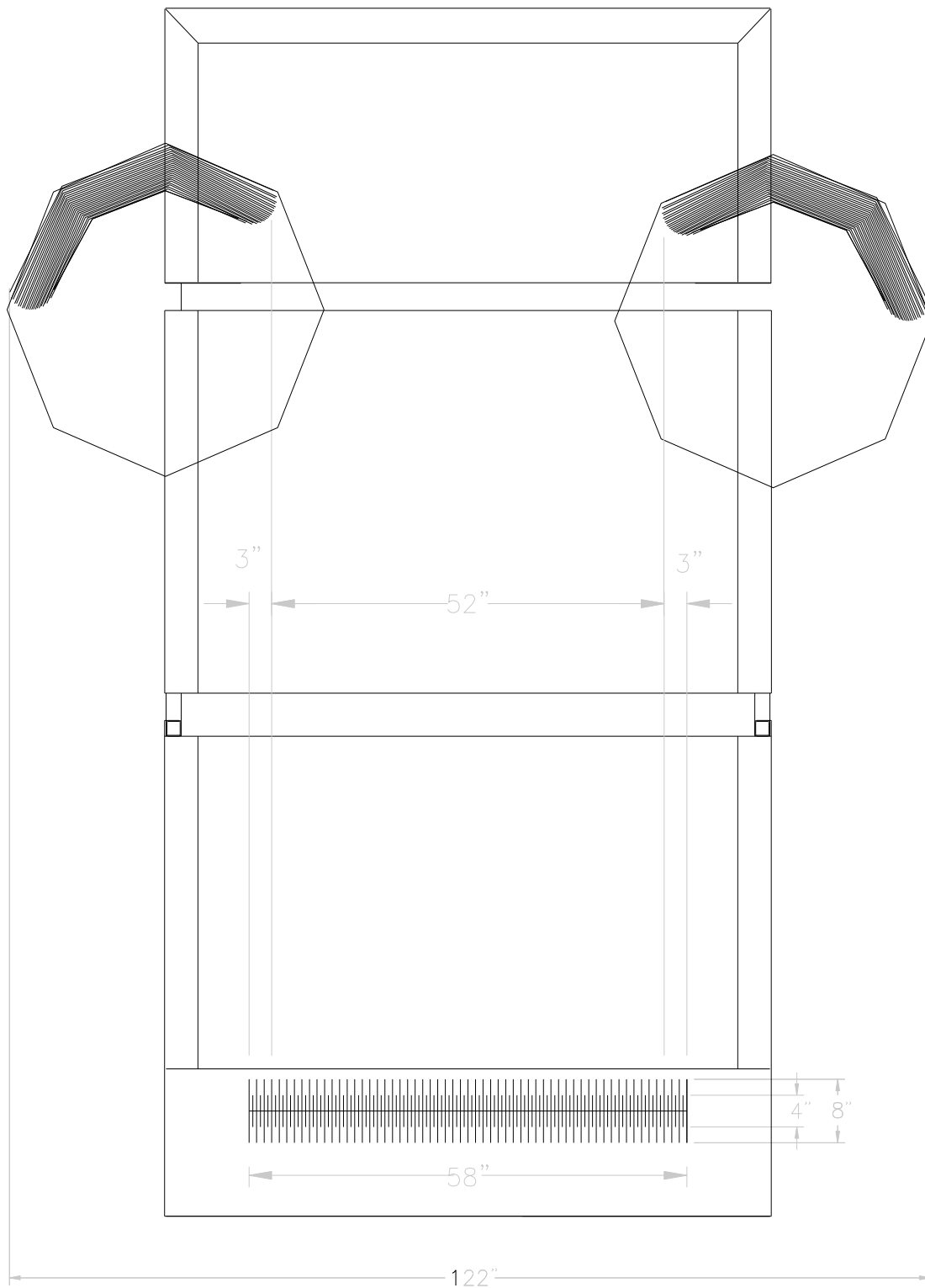


Figure 7: Correct Broom Pattern

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

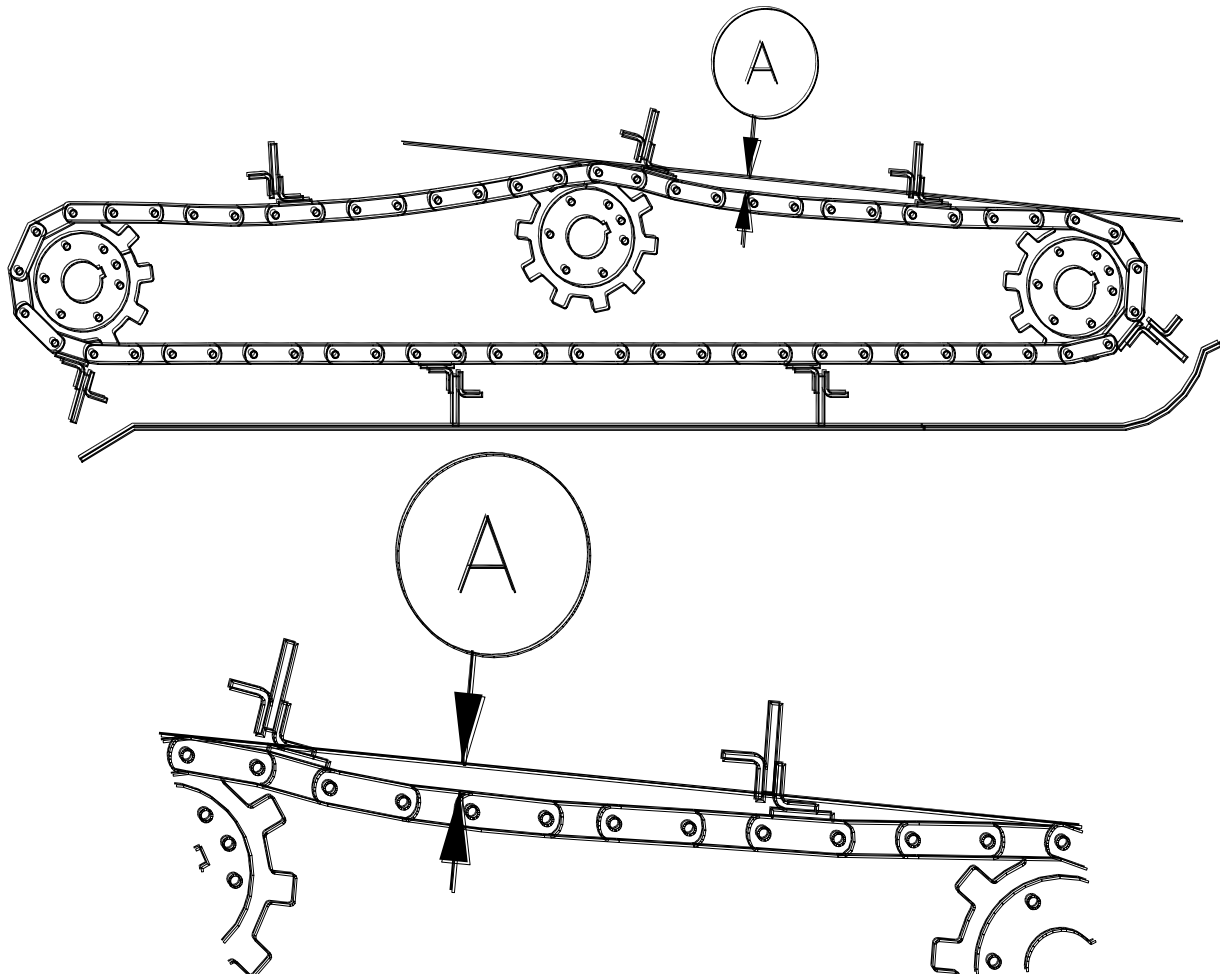
1. Loosen bolts on bearing (H).
2. Loosen lock nut (G).
3. Tighten bolt (F) until desired chain tension is reached.
4. Tighten bolts on bearing (H).
5. Tighten lock nut (G).

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*)



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).

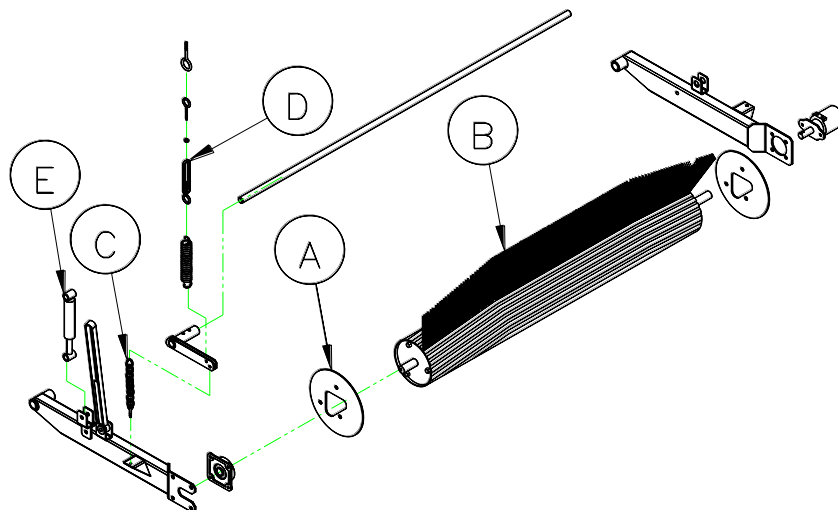
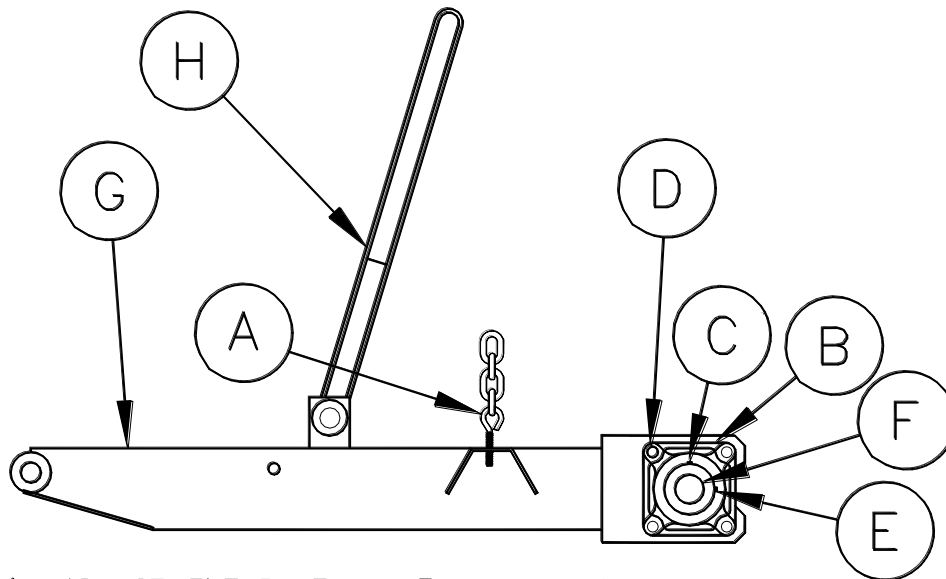


Figure 10: Main Broom Assembly

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.



- | | |
|-----------------------|--------------------------|
| A. ADJUSTMENT BOLT | E. GREASE NIPPLE |
| B. MAIN BROOM BEARING | F. MAIN BROOM SHAFT |
| C. SET SCREW | G. MAIN BROOM ARM |
| D. RETAINING NUT | H. MAIN BROOM LIFT STRAP |

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).

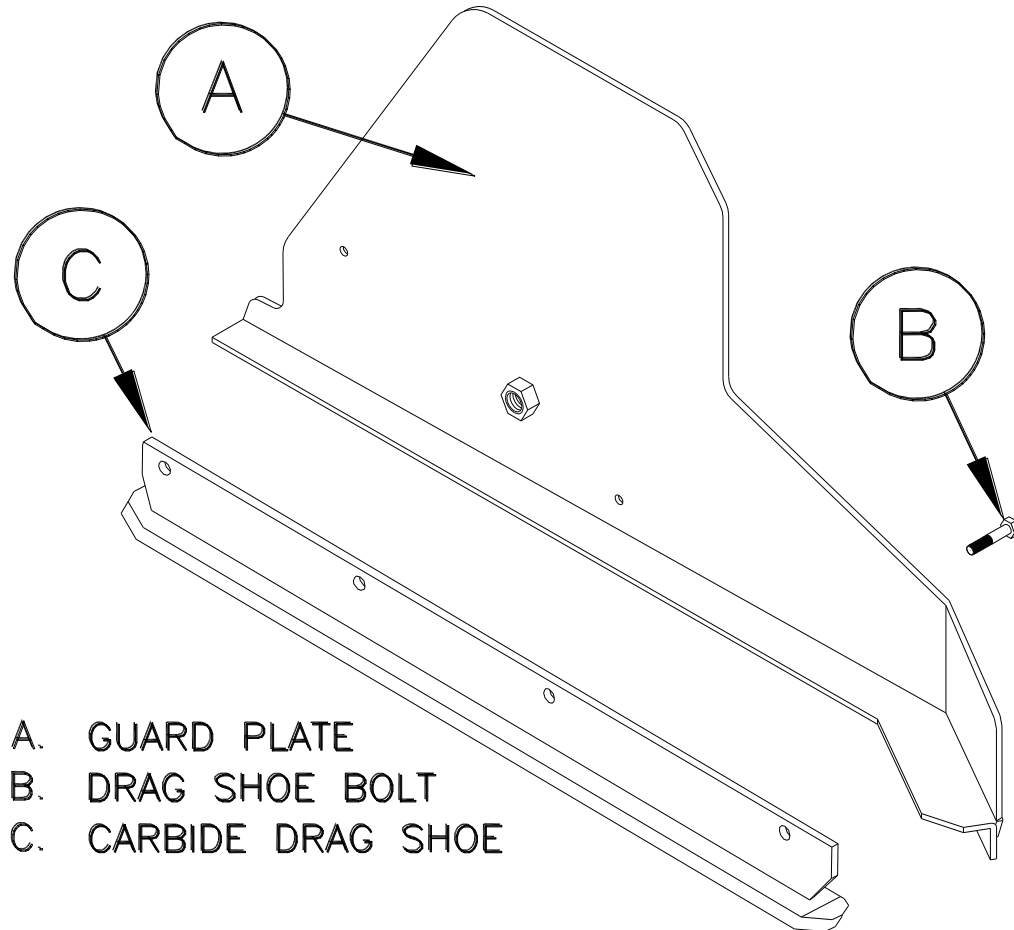


Figure 12: Carbide Drag Shoe

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 very 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.

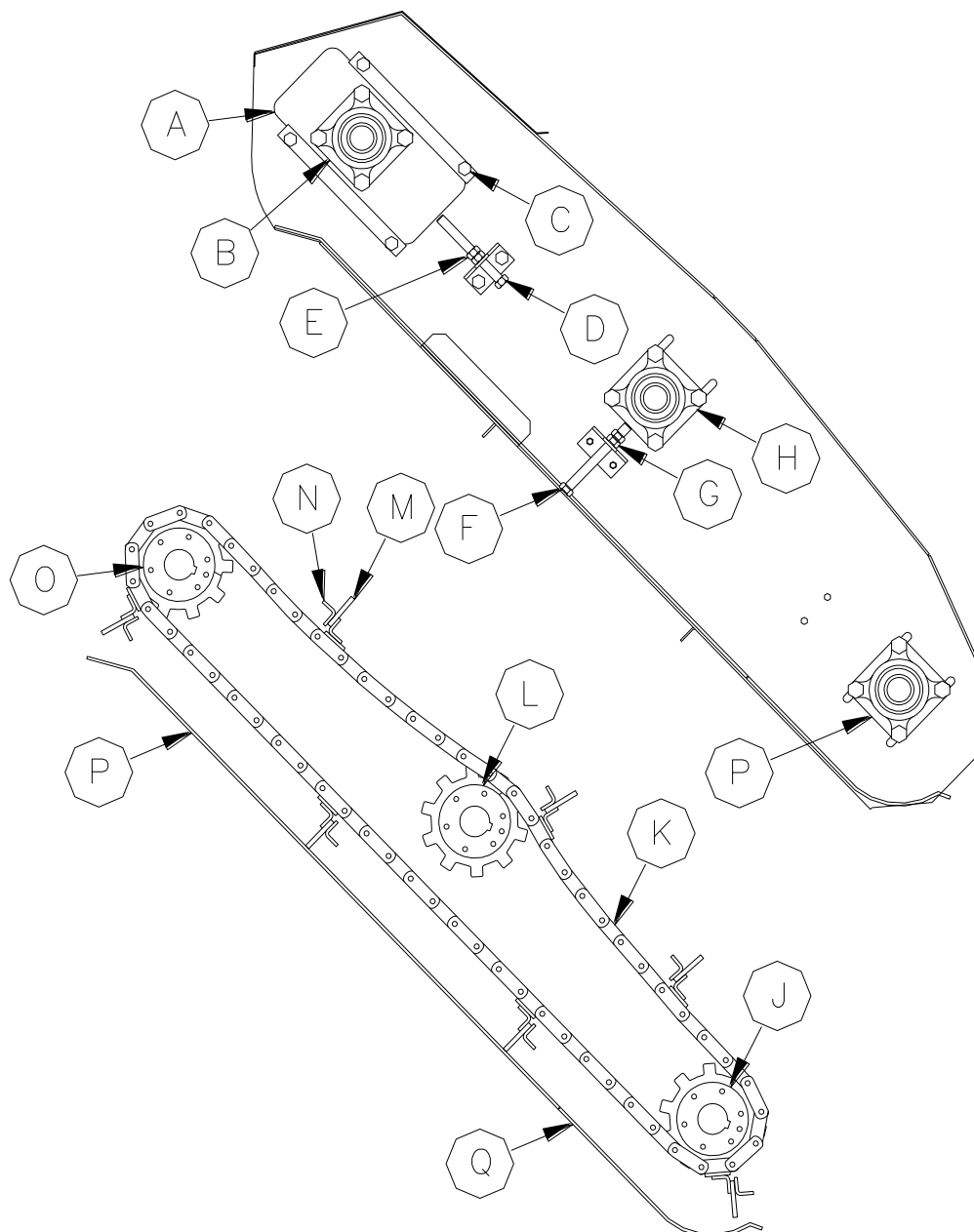
14. Adjust center shaft using adjustment bolt (F) until the sprocket touches the chain.

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

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.

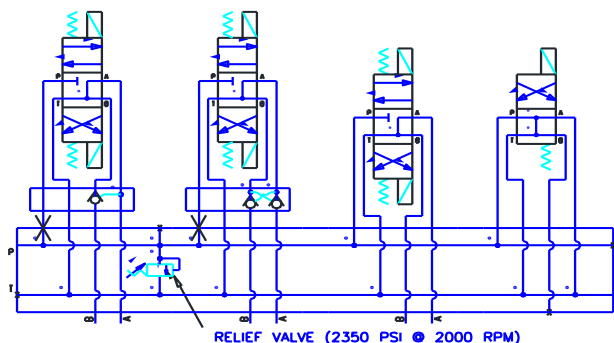
Hydraulic Pressure Adjustment

(for RH VALVE STACK (Passengers Side))

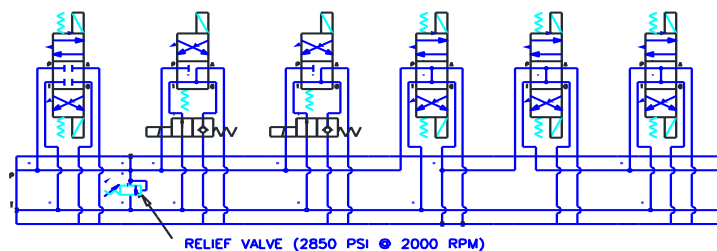
(set pressure to 2,850 psi @ 2 000 rpm)

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)

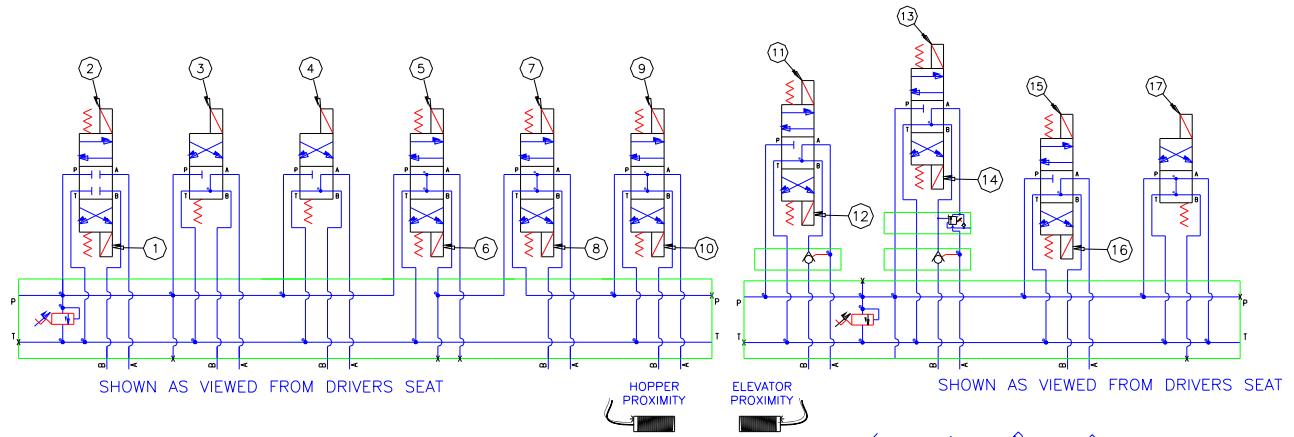
1. Install a 0-5000 psi pressure gauge in test port A on top of valve.
2. Remove cap from the relief valve.
3. Take engine to 2,000 rpm.
4. Push hopper dump switch and dump hopper until cylinders are bottomed.
5. While holding switch, read pressure gauge.
6. Turn relief screw clockwise to increase pressure 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 LOWER	LH GB RAISE	RH GB LOWER (FLOAT)	RH GB RAISE	LH GB SWEEP FORWARD	RH 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	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.		<input type="checkbox"/>
2	Check Engine Oil (dipstick) and Coolant Levels on BOTH Engines.		<input type="checkbox"/>
3	Check Hydraulic Oil Level on the site tube on side of hydraulic oil tank.		<input type="checkbox"/>
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		<input type="checkbox"/>
5	Check ALL tires for proper inflation and tread wear.		<input type="checkbox"/>
6	Check that Back-up Alarm, Lights, and Strobes are working properly.		<input type="checkbox"/>
7	Clean water system filter. Inspect water system spray nozzles. Clean, if necessary.		<input type="checkbox"/>
8	Check sweeper functions for proper operation. "Note" any exceptions.		<input type="checkbox"/>
9	Check broom sweeping pattern of side and main brooms. Correct any bad pattern.		<input type="checkbox"/>
10	Service truck chassis - refer to Owners Manual.		<input type="checkbox"/>
11	Check power steering, transmission, and windshield washer fluids.		<input type="checkbox"/>
12	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.		<input type="checkbox"/>

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.		<input type="checkbox"/>
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.		<input type="checkbox"/>
3	Grease elevator shaft bearings and main broom stub-shaft bearing with EP2 grease.		<input type="checkbox"/>
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.		<input type="checkbox"/>
5	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.		<input type="checkbox"/>

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:			

		<u>Done:</u>
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.	<input type="checkbox"/>
2	Perform the DAILY ROUTINE.	<input type="checkbox"/>
3	Grease the pivot point on the main broom and gutter broom "arms".	<input type="checkbox"/>
4	Perform an extra thorough cleaning of the hydraulic oil cooler.	<input type="checkbox"/>
5	Service truck chassis - refer to Owners Manual.	<input type="checkbox"/>
6	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.	<input type="checkbox"/>

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.		<input type="checkbox"/>
2	Replace hydraulic oil filter - Write Date and Hours on filter housing.		<input type="checkbox"/>
3	Clean hydraulic oil tank breather filter.		<input type="checkbox"/>
4	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.		<input type="checkbox"/>

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

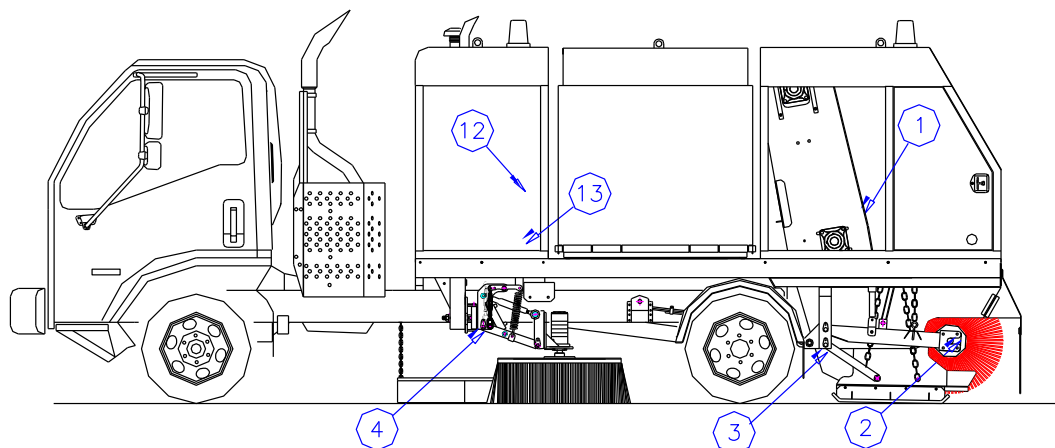
Sweeper S/N:	Date:	Hours:	Miles:
This CHECKLIST PERFORMED BY:			
			Done:
1	Perform a 250 hour Maintenance Routine.		<input type="checkbox"/>
2	Change Hydraulic Oil per Manual.		<input type="checkbox"/>
3	Grease chassis per "Owners Manual" including front steering linkage, U-joints, bearings, and king pins.		<input type="checkbox"/>
4	Check elevator chain for adjustment.		<input type="checkbox"/>
5	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.		<input type="checkbox"/>

NOTES and REMARKS:

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

S-4 SERVICE POINTS

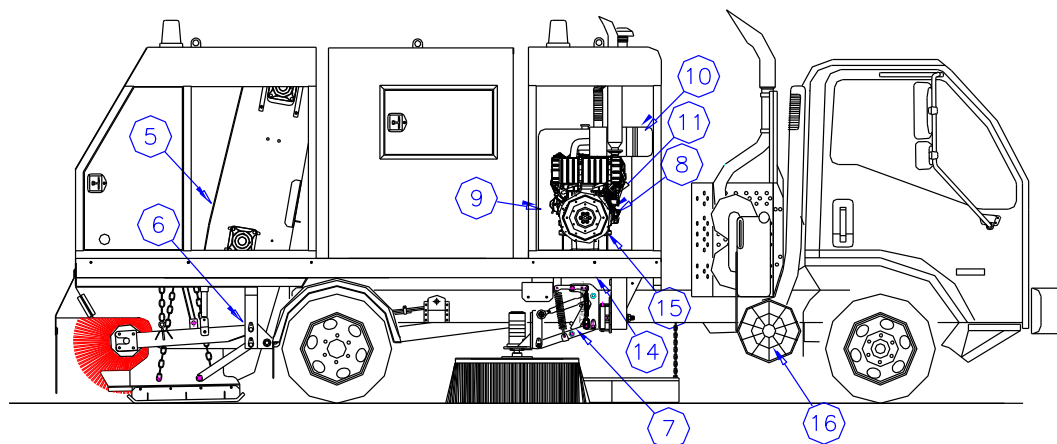
DRIVERS SIDE SERVICE POINTS



SWEPPER 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

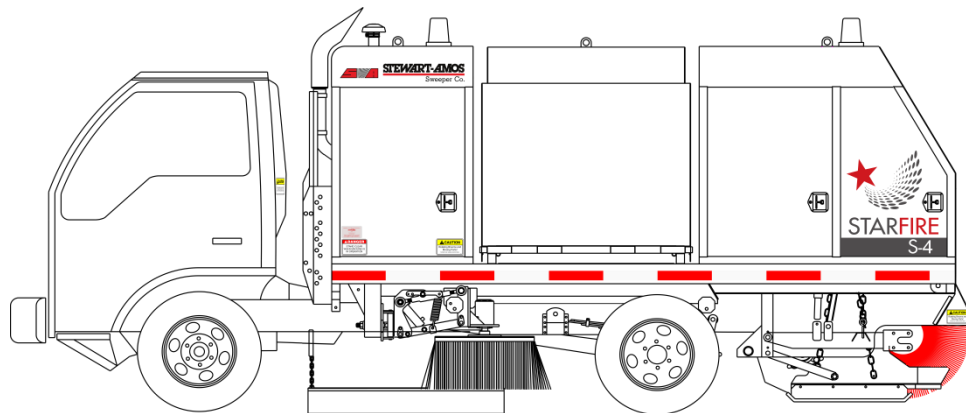
PASSENGER SIDE SERVICE POINTS



STARFIRE

S-4c

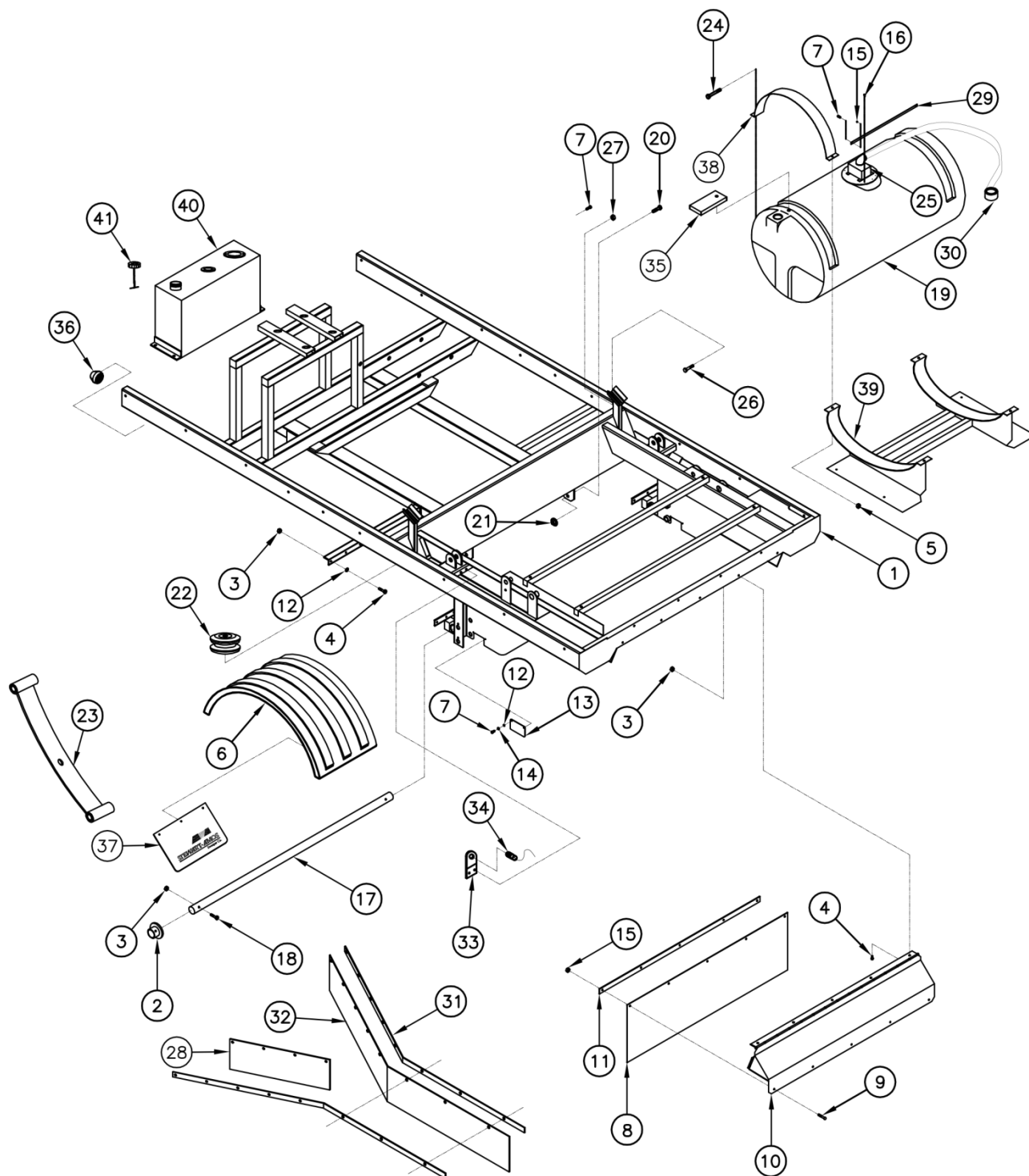
PARTS MANUAL



SN 4062 & up
Last updated July 2015

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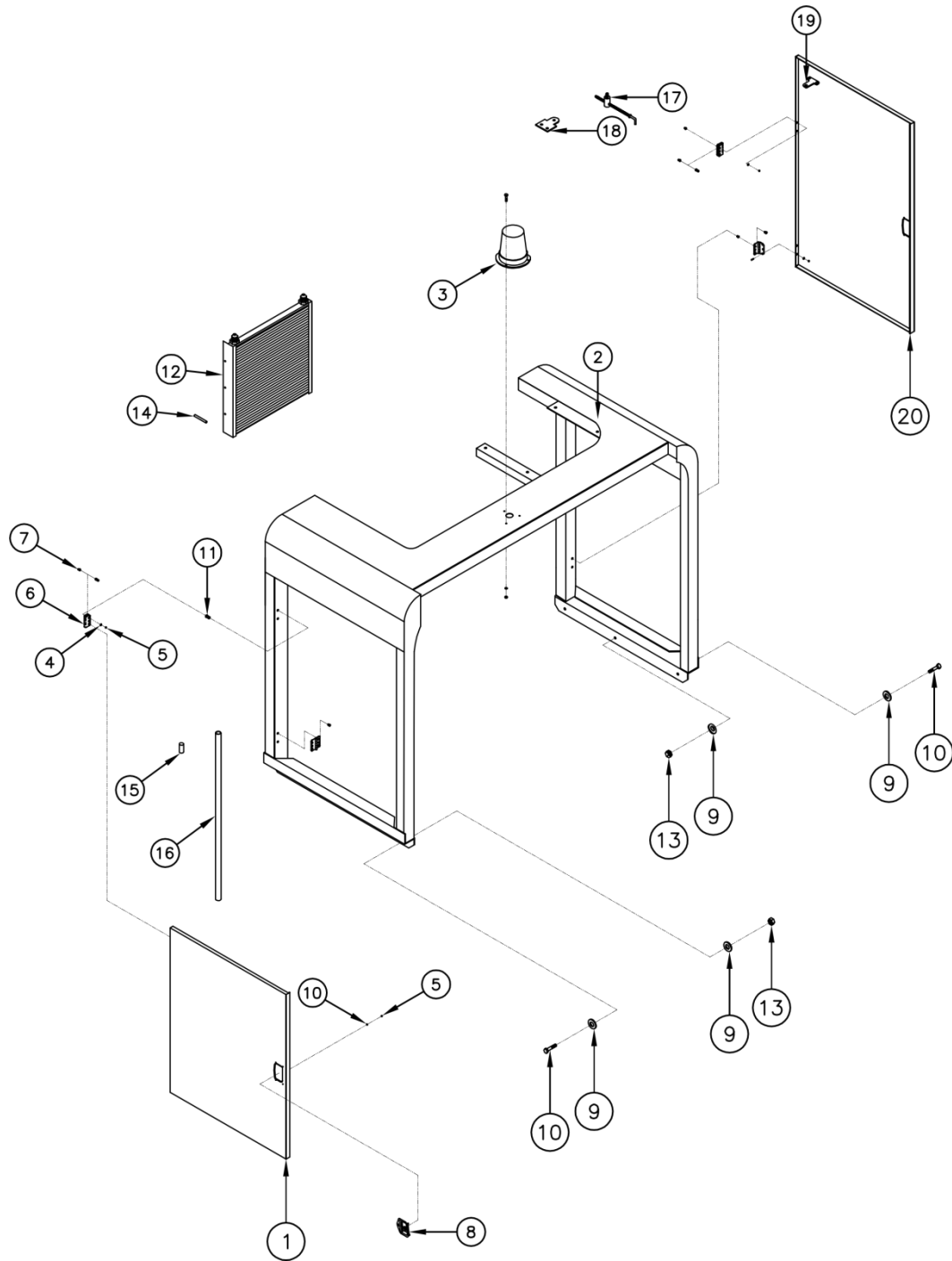
MAINFRAME ASSEMBLY



MAINFRAME ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	46010	MAIN FRAME WELDMENT	1
2	43129	ELEV CENTERING BUSHING	2
3	1502	NUT	17
4	1535	BOLT	17
5	1505	NUT	4
6	1143	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	1730	BOLT	4
21	1740	NUT	4
22	1125	TIMBREN	1
23	1200	ISUZU LEAF SPRING	2
24	1843	BOLT	4
25	42065	WATER VALVE	1
26	1546	BOLT	2
27	1640	NUT	2
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	42507	PROXIMITY MOUNT	1
34	1087-3	PROXIMITY SWITCH	2
35	42214	FILL RELIEF RUBBER	1
36	1915	WORK LIGHT	3
37	42121	MUD FLAP	2
38	42220-06	WATER TANK STRAP	2
39	42220	WATER TANK MOUNT	1
40	49006	FUEL TANK	1
41	9265	FUEL TANK CAP	1

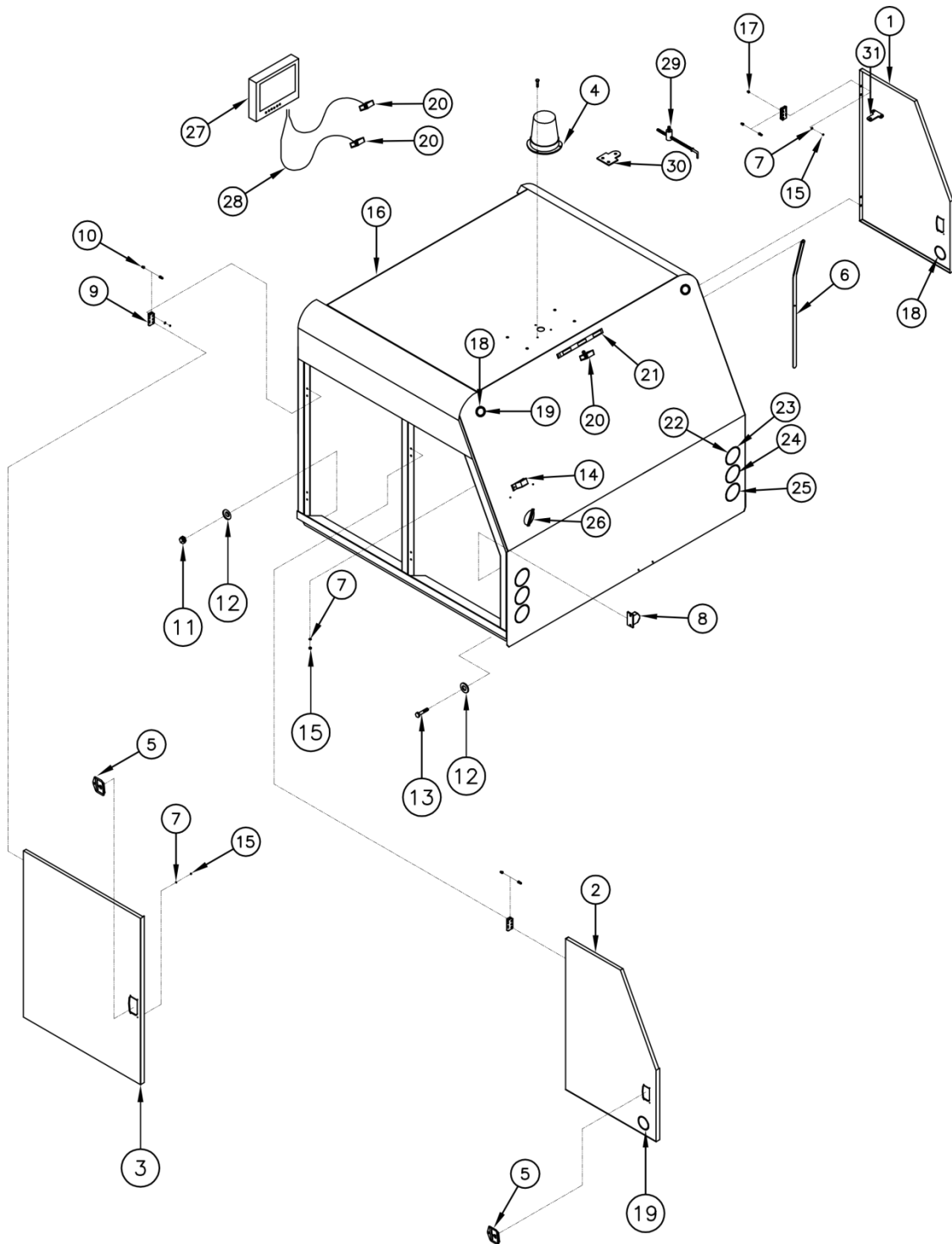
FRONT CANOPY



FRONT CANOPY ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	45302	LH LOUVER DOOR	1
2	45301	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	1955	HYD. COOLER & FAN	1
13	1503	NUT	6
14	41504	SPACER	4
	42107	LIMB GUARD <small>(NOT SHOWN OPTIONAL)</small>	1
15	1394	WATER LEVEL FLOAT	1
16	1395	CLEAR FLOAT TUBE	1
17	1861	DOOR STOP SPRING	2
18	91503	MOUNT	2
19	91502	DOOR STOP	2
20	45303	RH LOUVER DOOR	1

REAR CANOPY ASSEMBLY



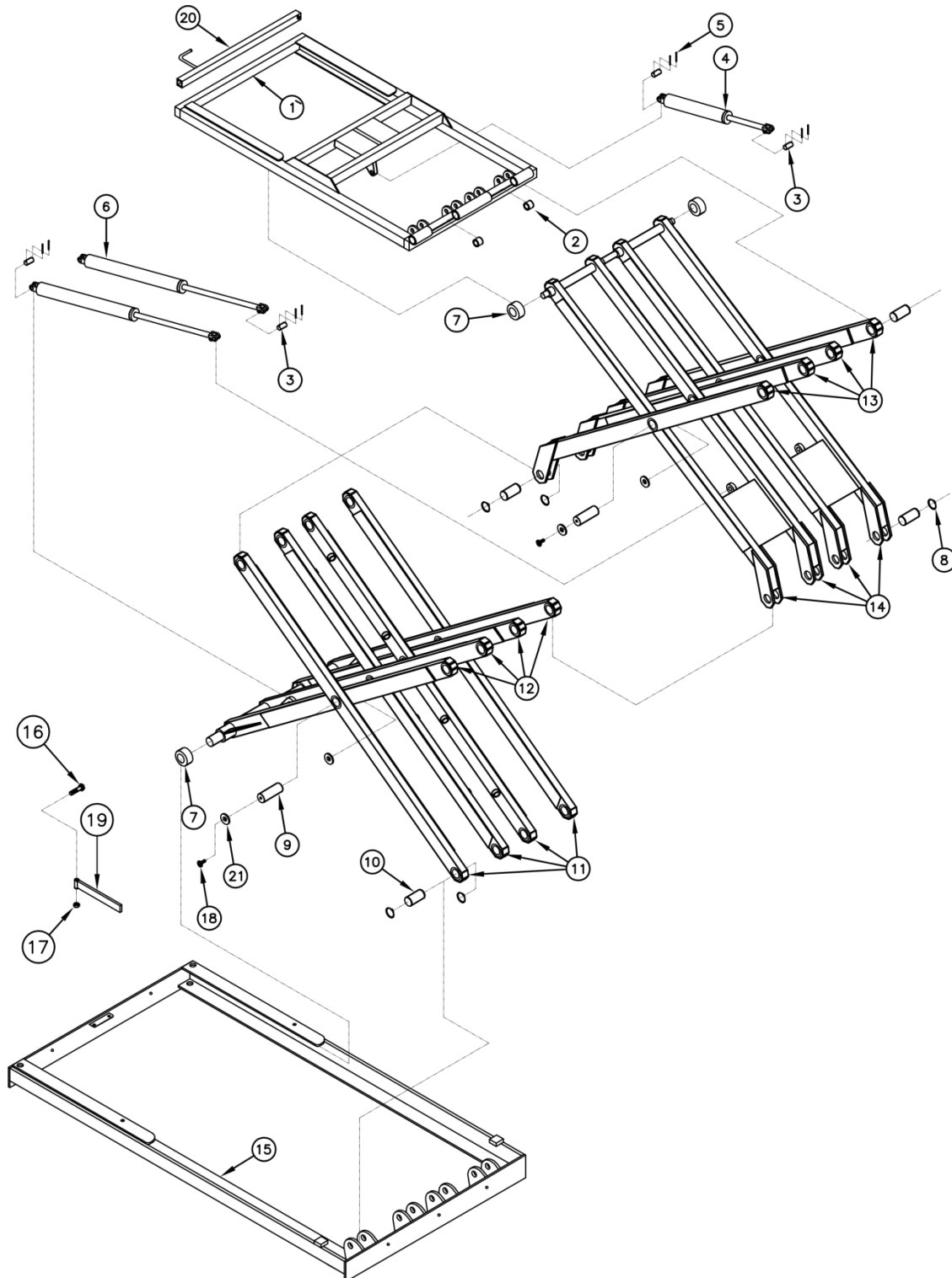
REAR CANOPY ASSEMBLY

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	44001	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	1768	CAMERA CABLE	2
29	1861	DOOR STOP SPRING	4
30	91503	MOUNT	4
31	91502	DOOR STOP	4

HOPPER ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	45001	HOPPER (RH DUMP)	1
OPT	45003	HOPPER (LH DUMP)	1
2	1185	BUSHING	8
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	8
9	62907	ACCESS DOOR	1
10	1520	WASHER	20
11	45003	HOPPER DOOR	1
12	92904	PIN	1
13	42905	DOOR LINK	4
14	1503	NUT	20
15	1530	BOLT	20
16	42915	RUBBER FLASHING	1
17	42917	UPRIGHT FLASHING	2
18	1560	BOLT	2
19	1061	CYLINDER	2
20	1558	BOLT	4
21	1583	NUT	4
	1934	OPTIONAL BIN VIB. (NOT SHOWN)	1

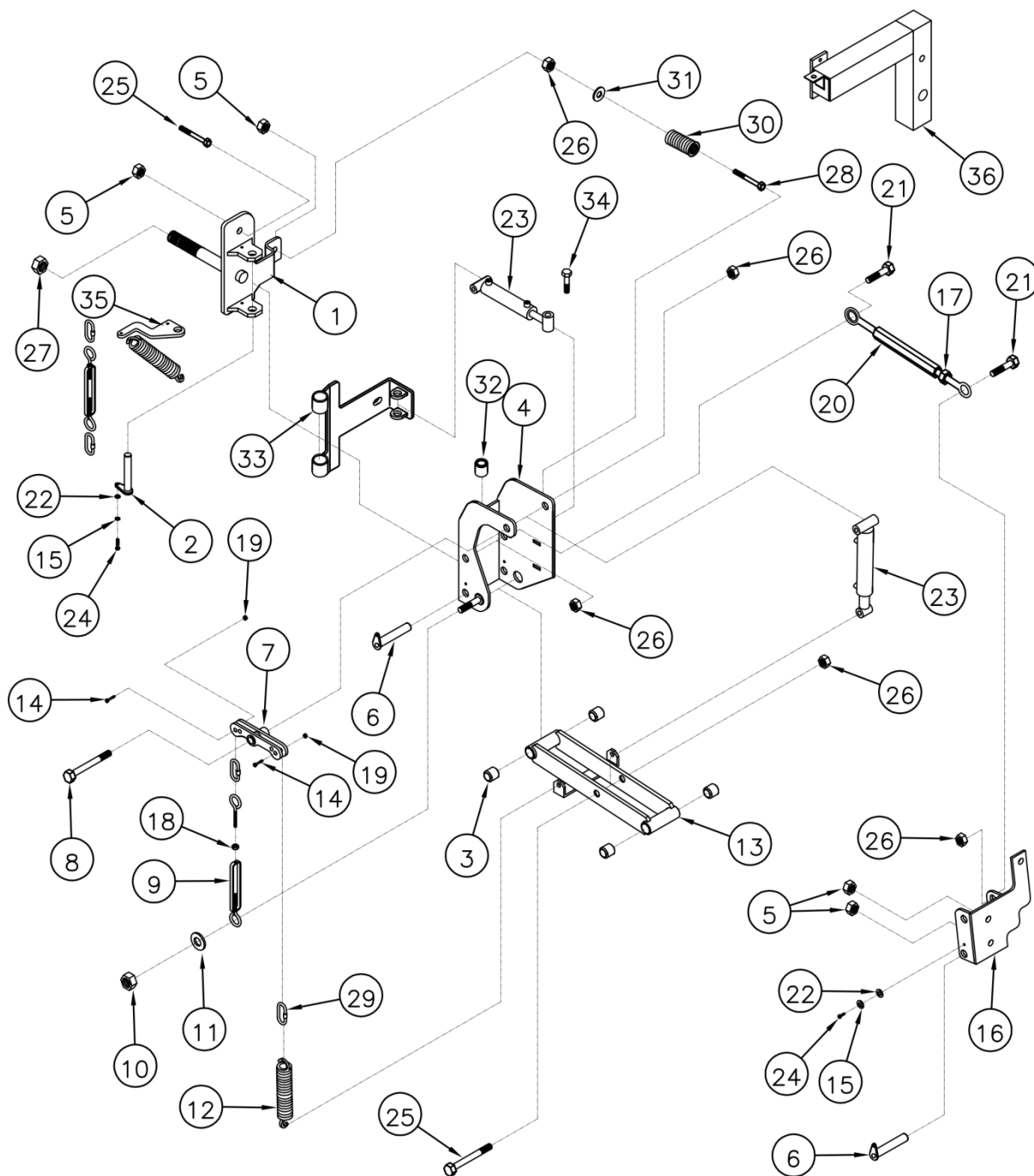
LIFT FRAME SCISSOR ASSEMBLY



LIFT FRAME SCISSOR ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	48001	HOPPER LIFT FRAME	1
2	1185	BUSHING	6
3	1621	PIN	6
4	1985	CYLINDER	1
5	1604	COTTER PIN	12
6	1059	CYLINDER	2
7	42813	SCISSOR ROLLER	4
8	1074	SNAP RING	16
9	62812	CENTER PIN	8
10	42809	SCISSOR PIN	16
11	47522	LOWER ANCHOR SECTION ASSEMBLY	1
12	47520	LOWER ROLLER SECTION WELDMENT	1
13	47530	UPPER ANCHOR SECTION ASSEMBLY	1
14	47521	UPPER ROLLER SECTION WELDMENT	1
15	47002	SCISSOR MOUNT	1
16	1573	BOLT	2
17	1507	NUT	2
18	1782	BOLT	16
19	42085	SAFETY PROP	2
20	42131	SAFETY	1
21	62813	RETAINER WASHER	16

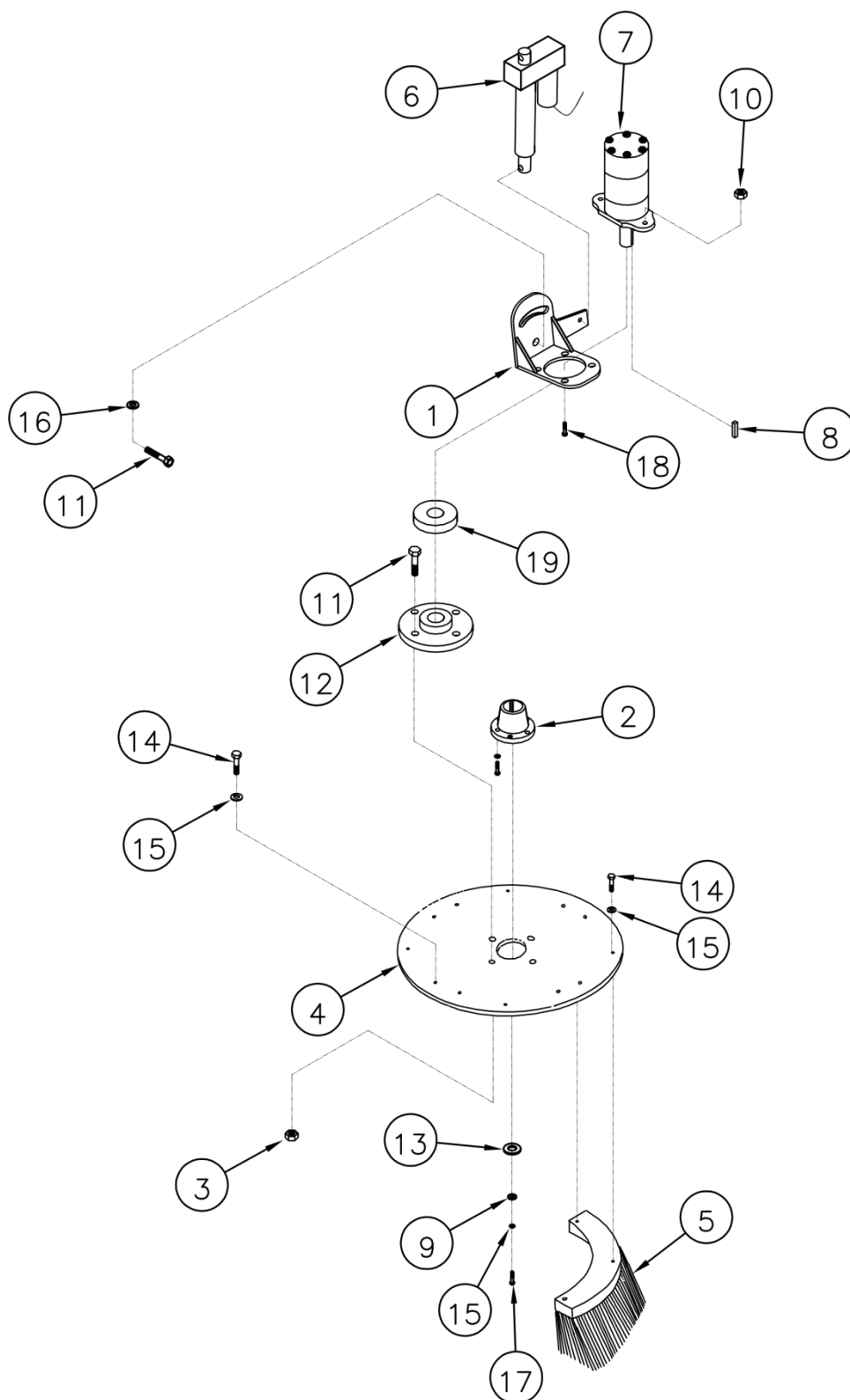
GUTTER BROOM UPPER SECTION ASSEMBLY



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	SUSPENSION 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	1576	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	47200	GUTTER BROOM MOUNT	1

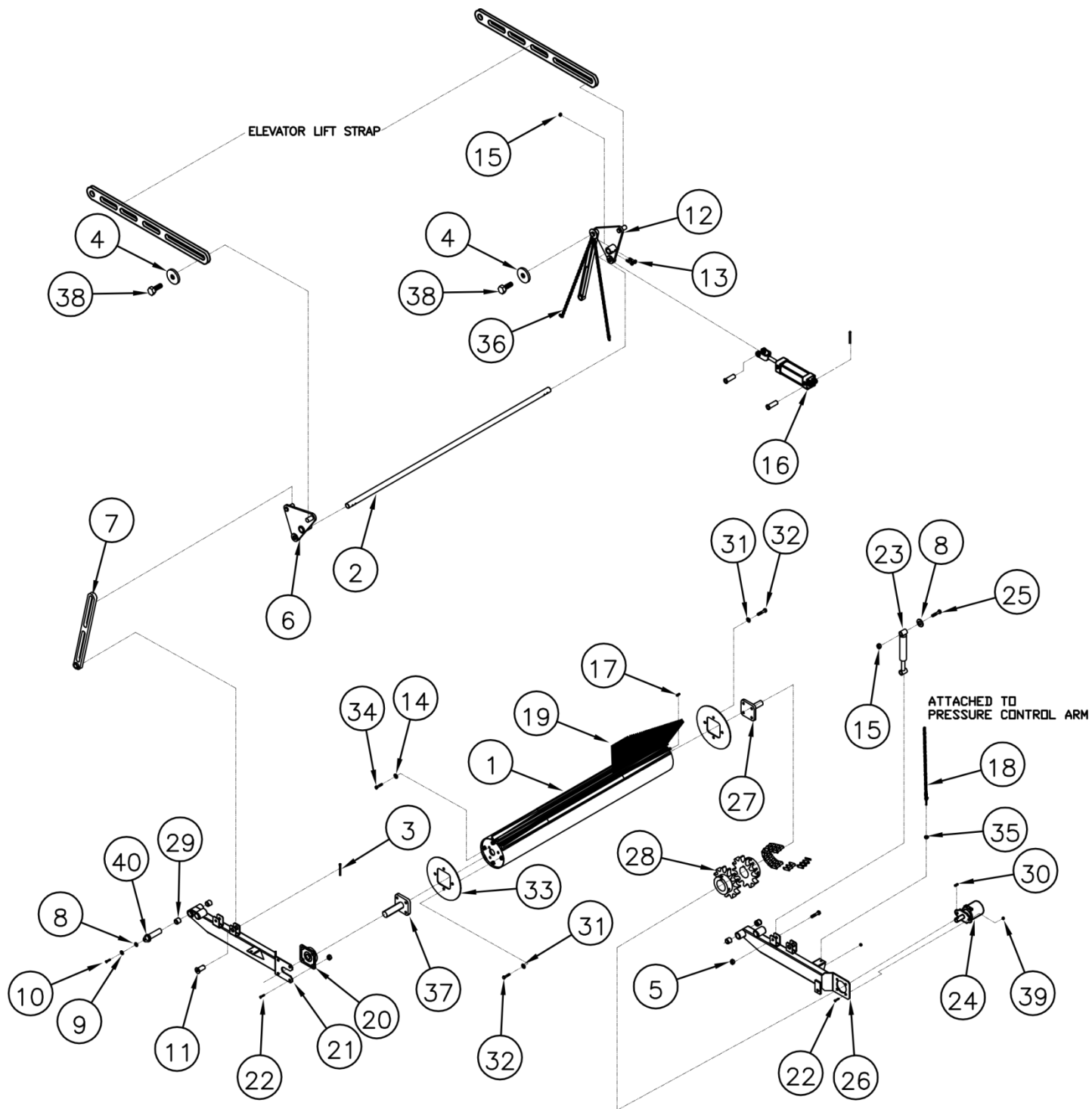
GUTTER BROOM LOWER SECTION ASSEMBLY



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

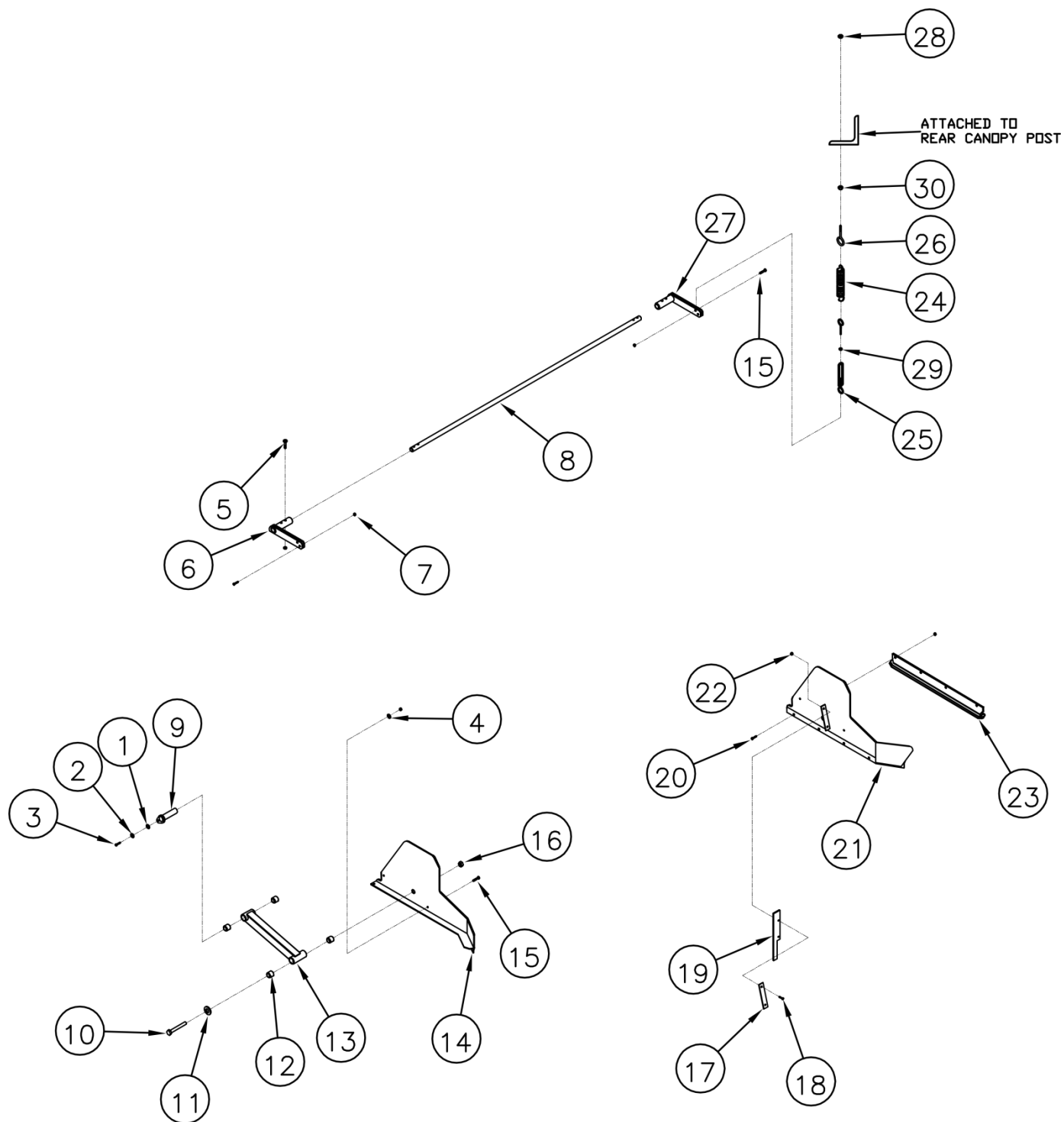
MAIN BROOM ASSEMBLY



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	61401	MB LIFT ARM (LEFT)	1
22	1546	BOLT	6
23	1046	SHOCK	2
24	3243	HYDRAULIC MOTOR	1
25	1843	BOLT	4
26	41411	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

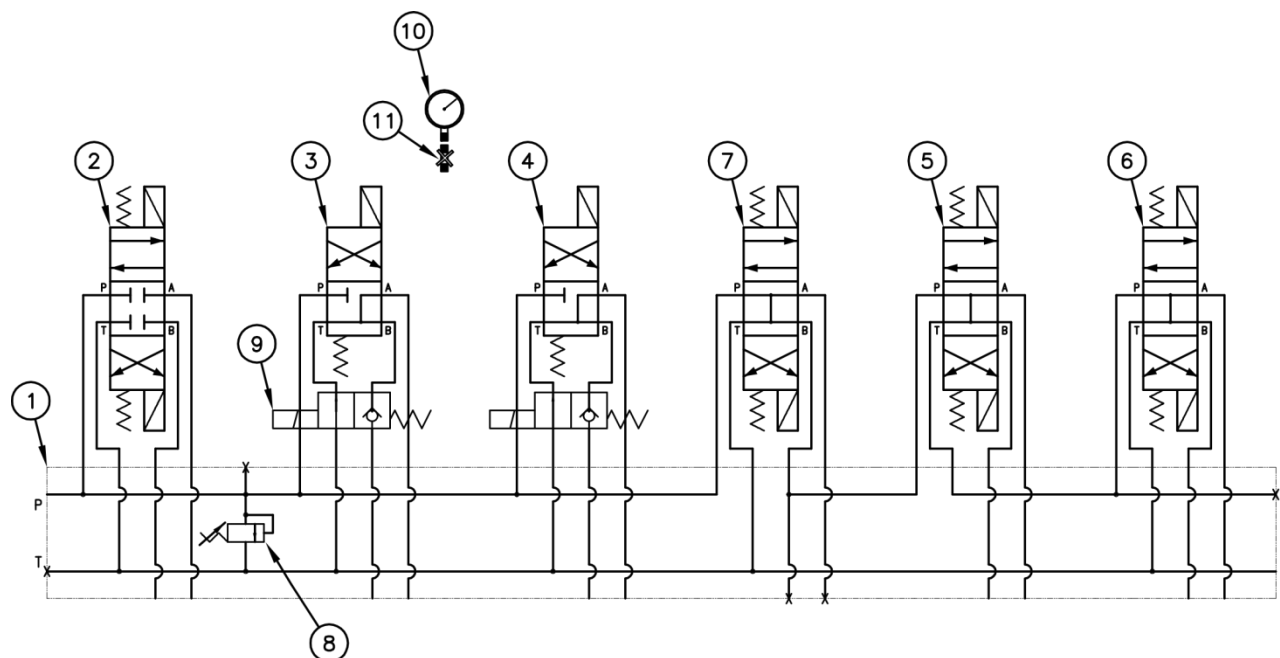
MAIN BROOM ASSEMBLY



MAIN BROOM ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	1822	WASHER	2
2	1670	WASHER	2
3	1537	BOLT	2
4	1521	WASHER	4
5	1630	CAPSCREW	4
6	41423	PRES. CONTROL ARM (LEFT)	1
7	1502	NUT	8
8	41415	PRES. CONTROL ROCK SHAFT	1
9	41401	PIN	4
10	1562	BOLT	2
11	1527	WASHER	2
12	1185	BUSHING	8
13	41429	DRAG LINK	2
14	41433	DRAG SHOE MOUNT (LEFT)	1
15	1534	BOLT	6
16	1508	NUT	2
17	41431	BACKING	2
18	1530	BOLT	4
19	42067	DIRT DEFLECTOR RUBBER	2
20	1575	BOLT	8
21	41435	DRAG SHOE MOUNT (RIGHT)	1
22	1501	NUT	4
23	1115	CARBIDE DRAG SHOE	2
24	1018	SUSPENSION SPRING	2
25	1023	TURN BUCKLE	2
26	1045	EYE BOLT	2
27	41425	PRES. CONTROL ARM (RIGHT)	1
28	1503	NUT	10
29	1640	NUT	2
30	1639	NUT	2

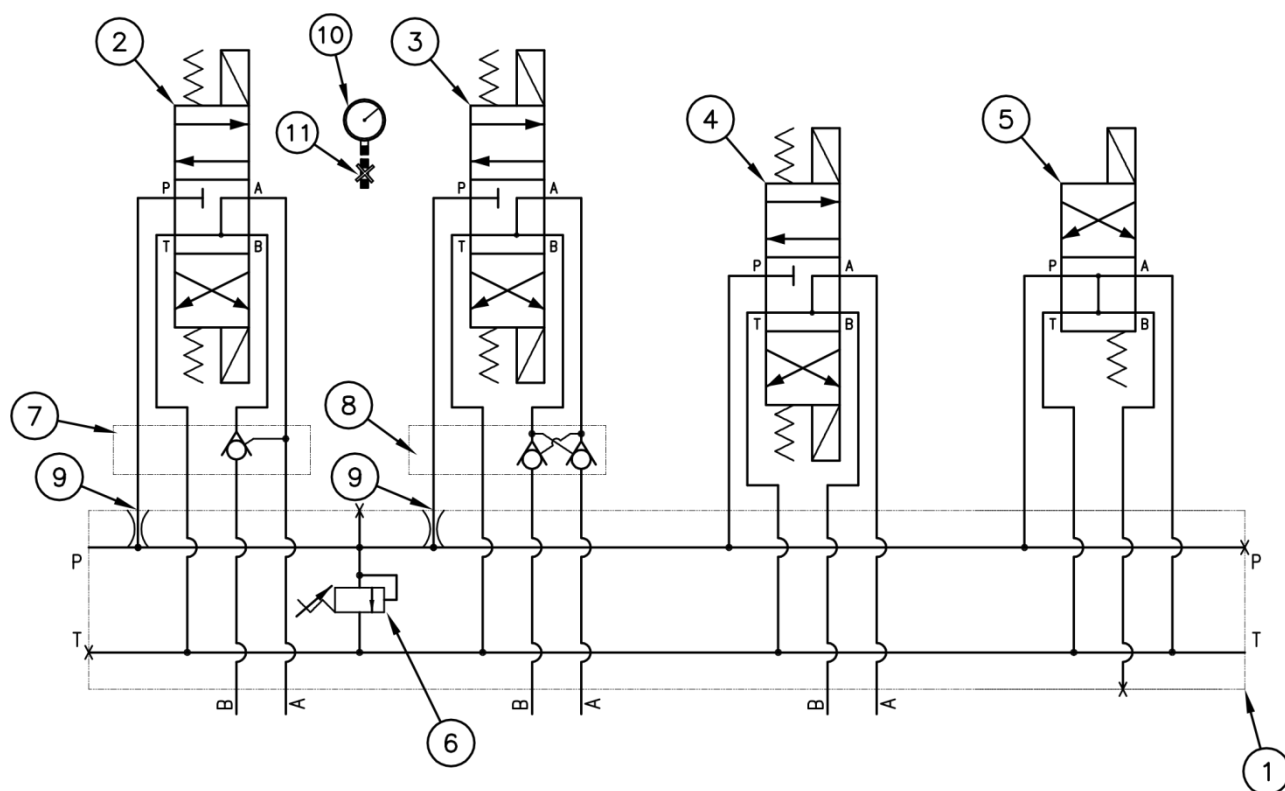
80134 VALVE ASSEMBLY



SHOWN AS VIEWED FROM DRIVERS SEAT

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

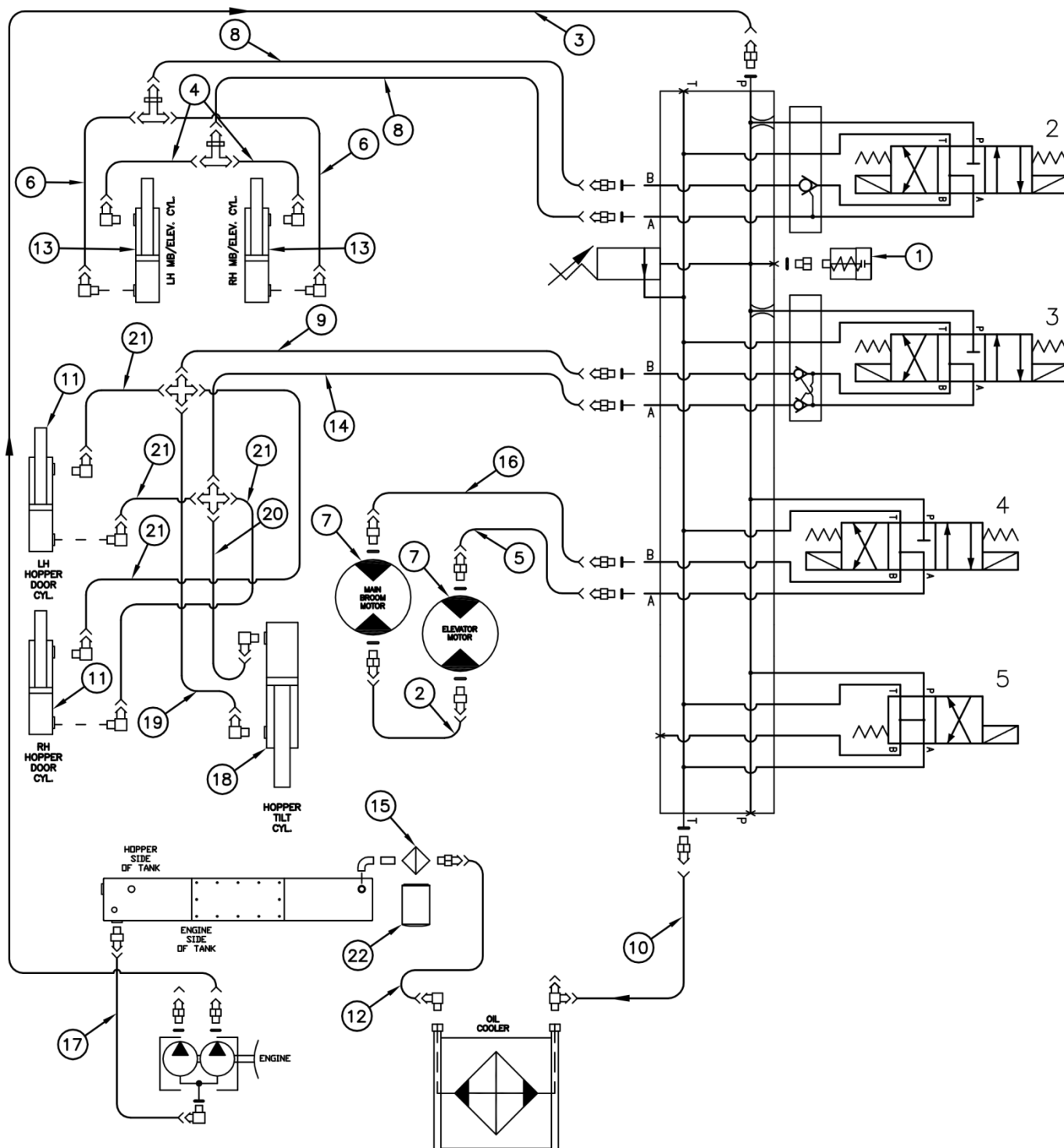
80120 VALVE ASSEMBLY



SHOWN AS VIEWED FROM DRIVERS SEAT

ITEM	PART #	DESCRIPTION	QTY
1	1287	MANIFOLD	1
2	1993	MAIN BROOM/ELEVATOR LIFT CYLINDER VALVE	1
3	1993	HOPPER TILT/DOOR CYLINDER VALVE	1
4	1993	MAIN BROOM/ELEVATOR MOTOR VALVE	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

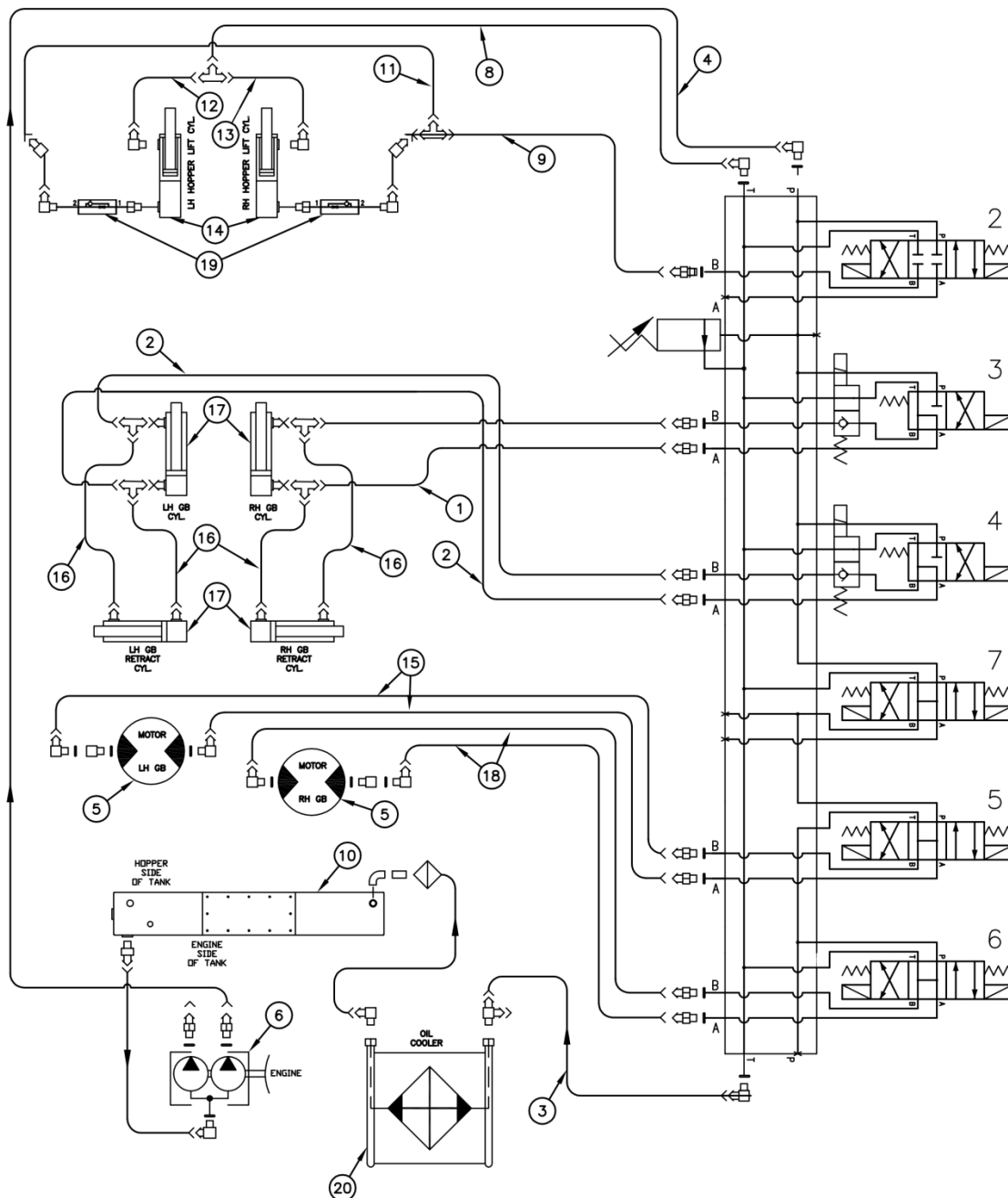


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DRIVERS SIDE HYDRAULIC SCHEMATIC

ITEM	PART #	DESCRIPTION	QTY
1	1037	ELEVATOR STALL SWITCH	1
2	1401	HOSE-MB MOTOR TO ELEV. MOTOR	1
3	1402	HOSE-FRONT OF PUMP TO LH VALVE	1
4	1403	HOSE-MB ROD TO "T"	2
5	1404	HOSE-ELEV. MOTOR TO VALVE	1
6	1405	HOSE-MB HEAD TO "T"	2
7	3243	HYDRAULIC MOTOR	2
8	1406	HOSE-MB VALVE TO "T"	2
9	1407	HOSE-HOPPER TILT VALVE TO CROSS	1
10	1408	HOSE-VALVE RETURN TO COOLER "T"	1
11	1061	HOPPER DOOR CYLINDER	2
12	1409	HOSE-COOLER TO FILTER	1
13	1043	MB CYLINDER	2
14	1410	HOSE-HOPPER TILT VALVE TO CROSS	1
15	1411	HYDRAULIC OIL FILTER BASE	1
16	1417	HOSE-MB MOTOR TO VALVE	1
17	1412	HOSE-SUCTION	1
18	1985	HOPPER TILT CYLINDER	1
19	1413	HOSE-HOPPER TILT ROD TO CROSS	1
20	1414	HOSE-HOPPER TILT HEAD TO CROSS	1
21	1415	HOSE-HOPPER DOOR CYLINDERS	4
22	1416	HYDRAULIC OIL FILTER	1

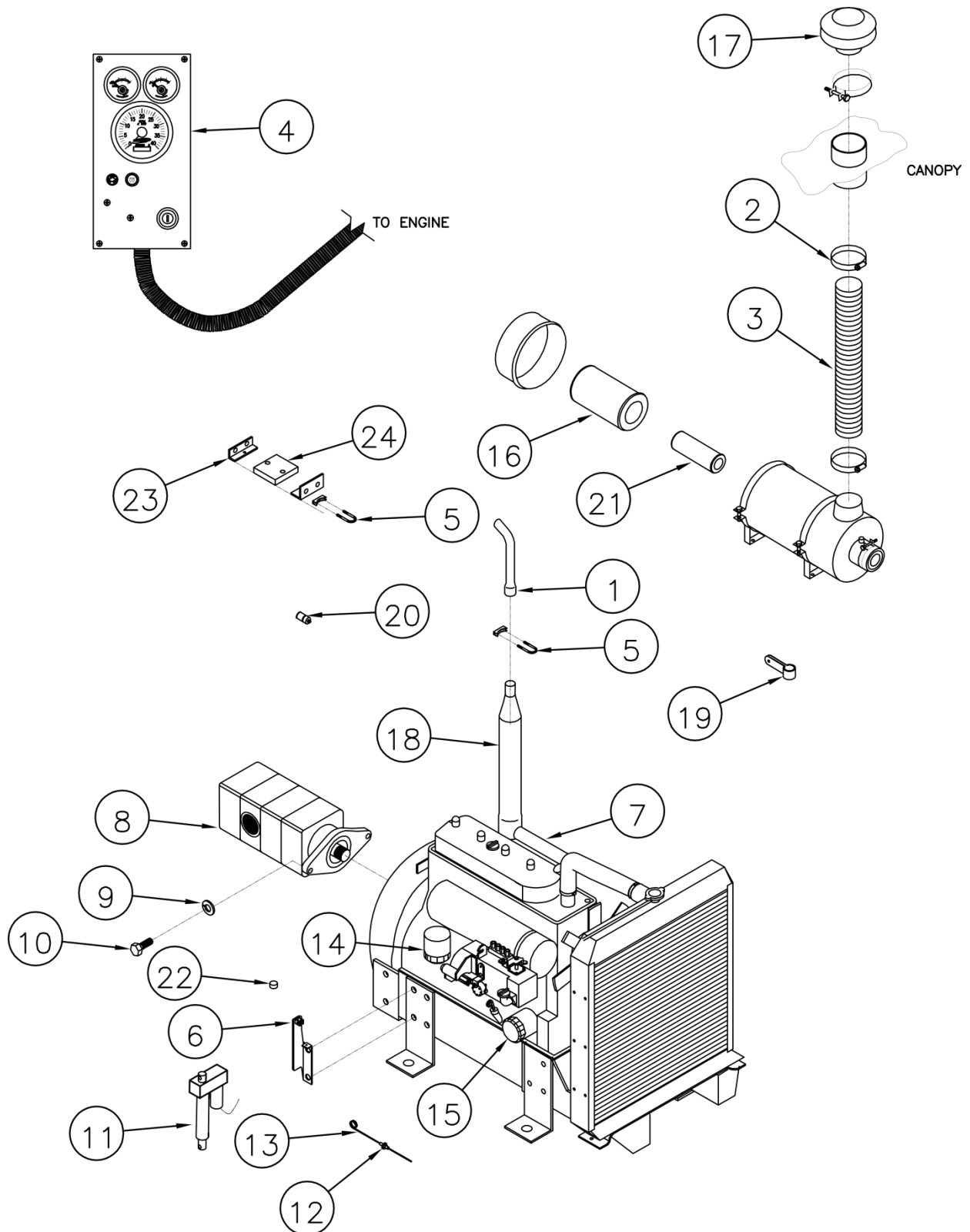
PASSENGER SIDE HYDRAULIC SCHEMATIC



PASSENGER SIDE HYDRAULIC SCHEMATIC

ITEM	PART #	DESCRIPTION	QTY
1	1431	HOSE - RH GB CYL. TO VAL.	2
2	1426	HOSE - LH GB CYL. TO VAL.	1
3	1427	HOSE - VALVE RETURN	1
4	1418	HOSE - PUMP TO VALVE	1
5	3243	HYDRAULIC MOTOR	2
6	3251	HYDRAULIC PUMP	1
8	1420	HOSE - HOPPER LIFT RETURN	1
9	1419	HOSE - VALVE TO HOPPER LIFT	-
10	44300	HYDRAULIC TANK	1
11	1421	HOSE - LIFT CROSSOVER	1
12	1422	HOSE - RETURN CROSSOVER	1
13	1423	HOSE - ROD RETURN	2
14	1059	CYLINDER	2
15	1430	HOSE - LH GB MOTOR TO VAL.	4
16	1428	HOSE - RETURN CYLINDER	4
17	1379	GB CYLINDER	2
18	1429	HOSE - RH GB MOTOR TO VAL.	2
19	2086	DIRECTIONAL RESTRICTORS	1
20	1955	ELECTRIC HYD. OIL COOLER	

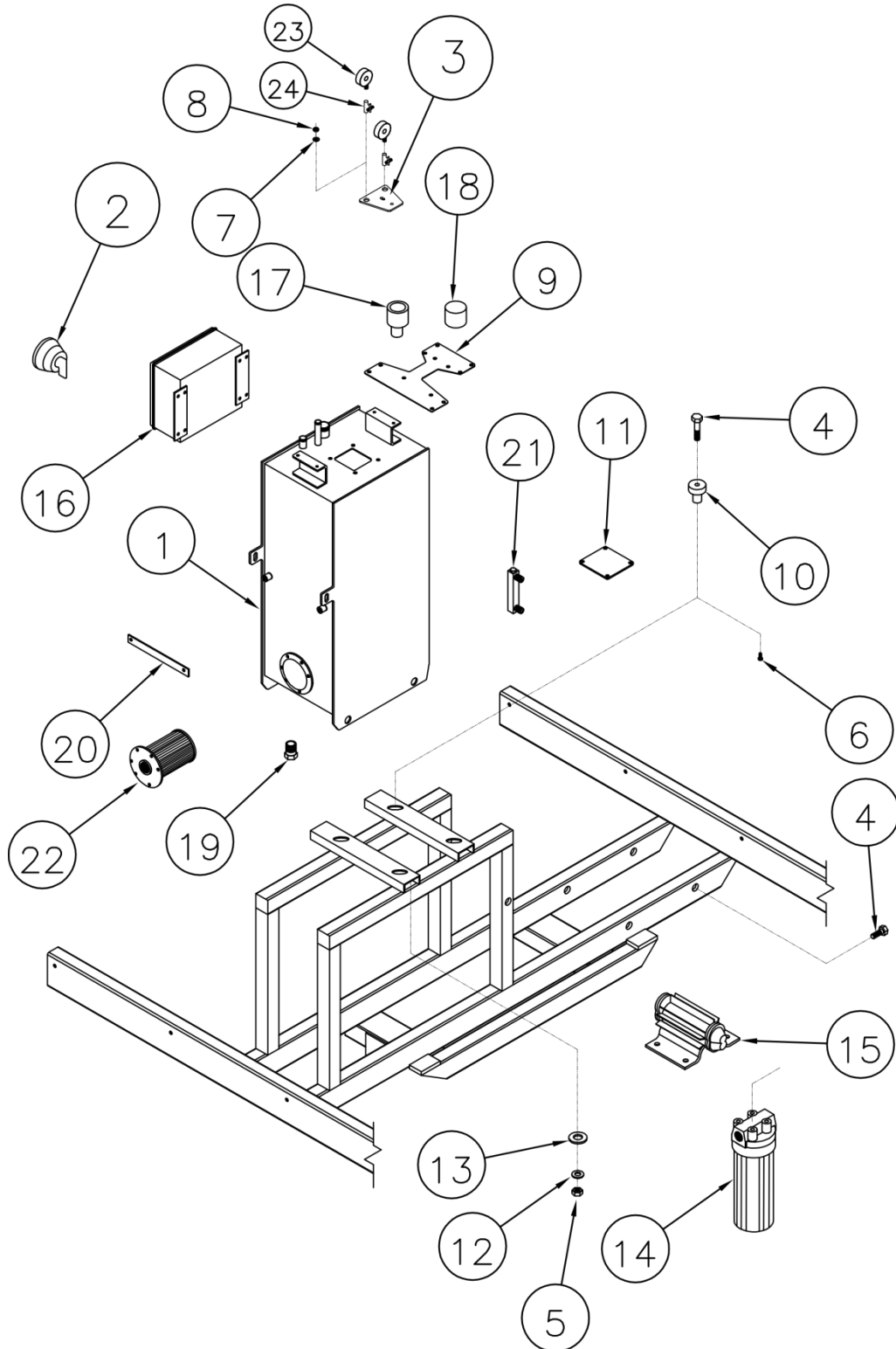
AUX ENGINE ASSEMBLY



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

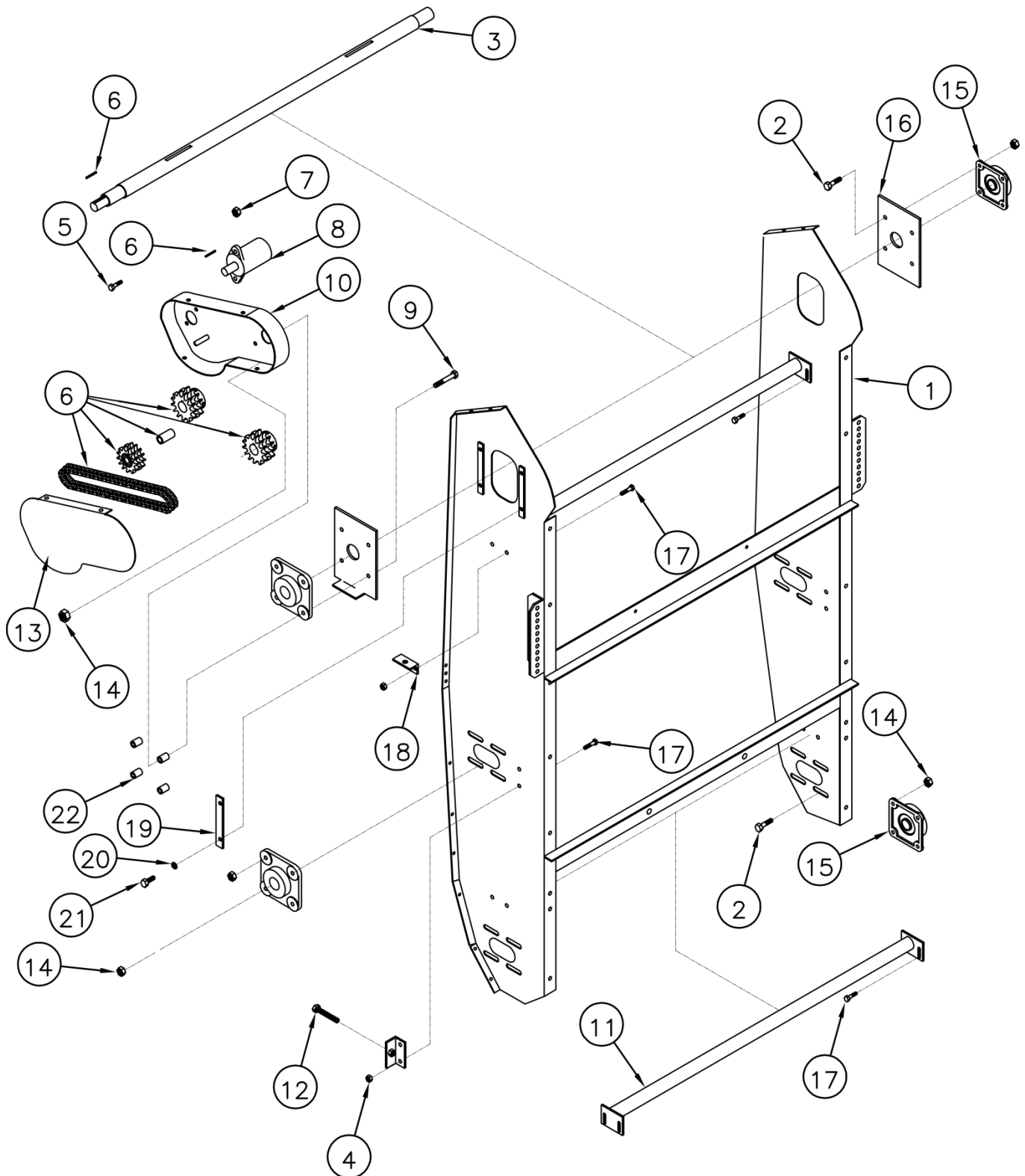
AUX ENGINE FRAME ASSEMBLY



AUX ENGINE FRAME ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	44300	HYDRAULIC TANK	1
2	9138	DISCONNECT SWITCH	1
3	42315	PRES. GAUGE MOUNT	1
4	1547	BOLT	14
5	1505	NUT	32
6	1535	BOLT	4
7	1521	WASHER	16
8	1502	NUT	16
9	44302	VALVE MOUNT PLATE	1
10	1047	ISOLATION MOUNT	4
11	44301	TANK COVER	1
12	1524	WASHER	4
13	1526	WASHER	4
14	1076	WATER FILTER	-
15	3232	WATER PUMP	-
16	2047	AUX. BOX	-
17	1177	HYD. TANK BREATHER	1
18	1178	FILL CAP	1
19	1179	MAGNETIC DRAIN PLUG	2
20	44303	HOSE TIE STRAP	2
21	1062	SITE GAUGE	1
22	1378	HYD. SUCTION SCREEN	1
23	2082	PRES. GAUGE	2
24	2078	BALL VALVE	2

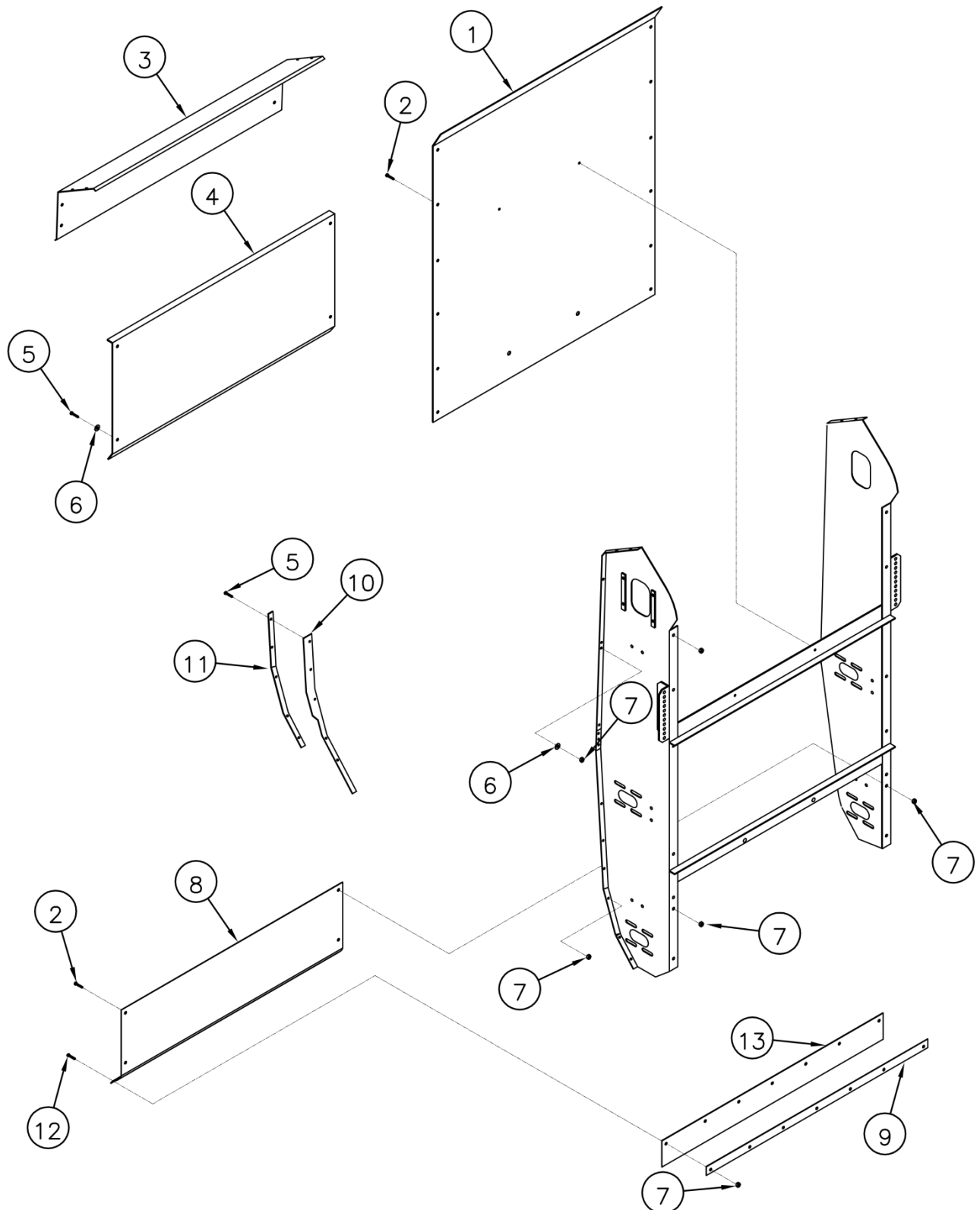
ELEVATOR ASSEMBLY



ELEVATOR ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	43103	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

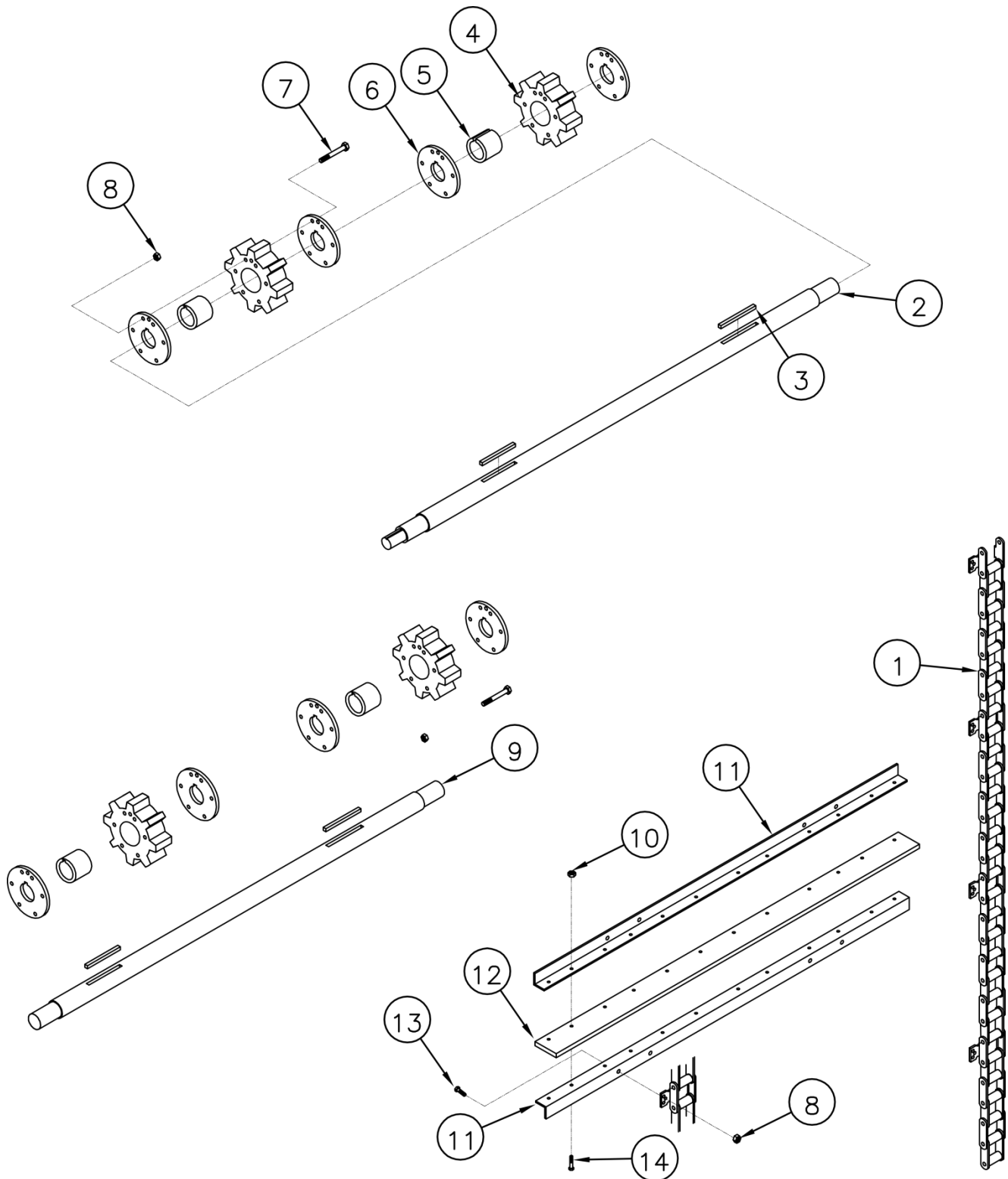
ELEVATOR ASSEMBLY



ELEVATOR ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	43111	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

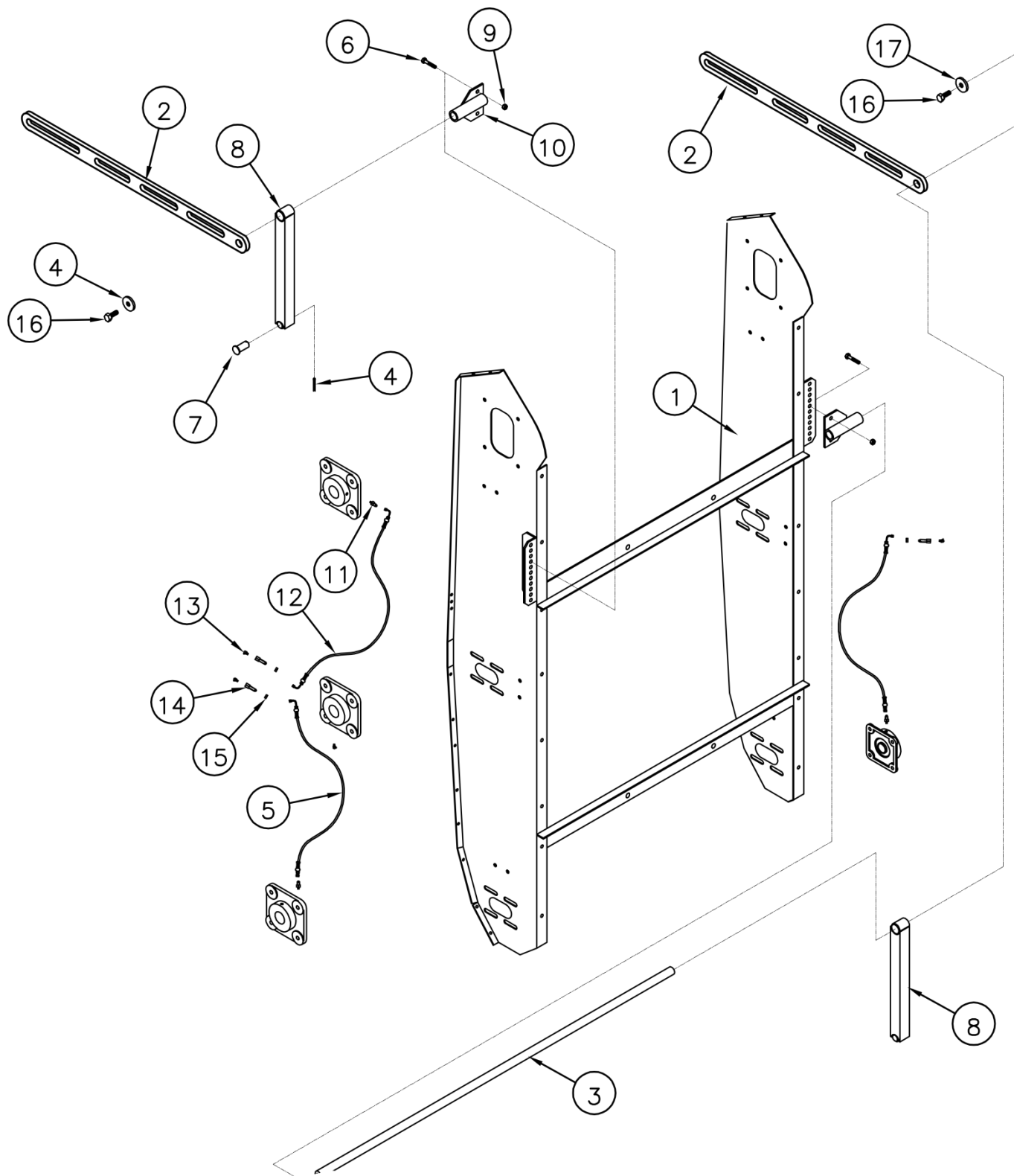
ELEVATOR ASSEMBLY



ELEVATOR ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	1007	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	14
12	41726	SQUEEGEE RUBBER	7
13	1537	BOLT	28
14	1531	BOLT	84

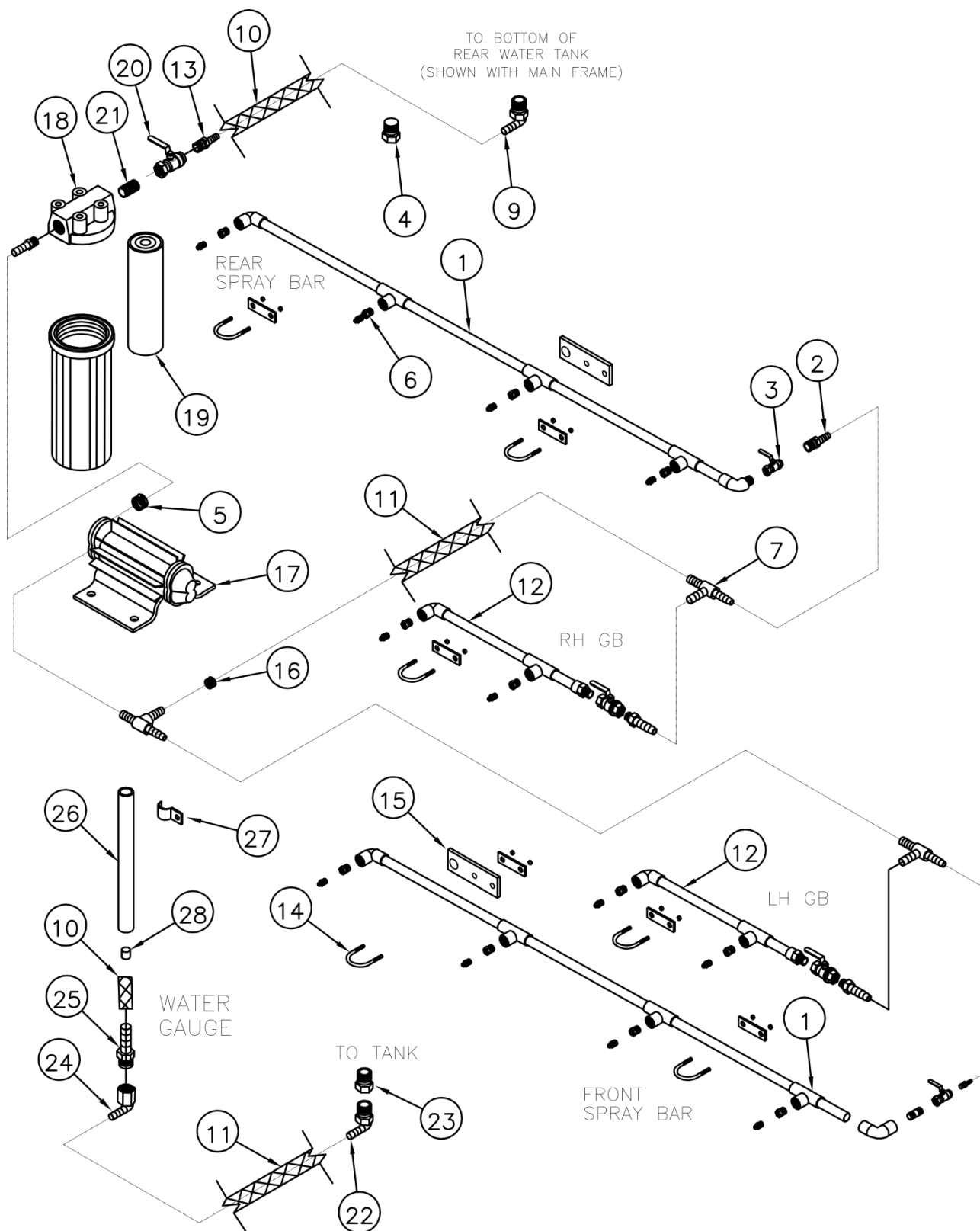
ELEVATOR LIFT ASSEMBLY



ELEVATOR LIFT ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	43103	ELEVATOR FRAME	-
2	41770	LIFT STRAP	2
3	41764	SWIVEL SHAFT	1
4	62813	WASHER	2
5	1137	HOSE	2
6	1545	BOLT	12
7	41441	PIN	2
8	41766	LIFT ARM	2
9	1505	NUT	12
10	41768	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	1782	BOLT	2

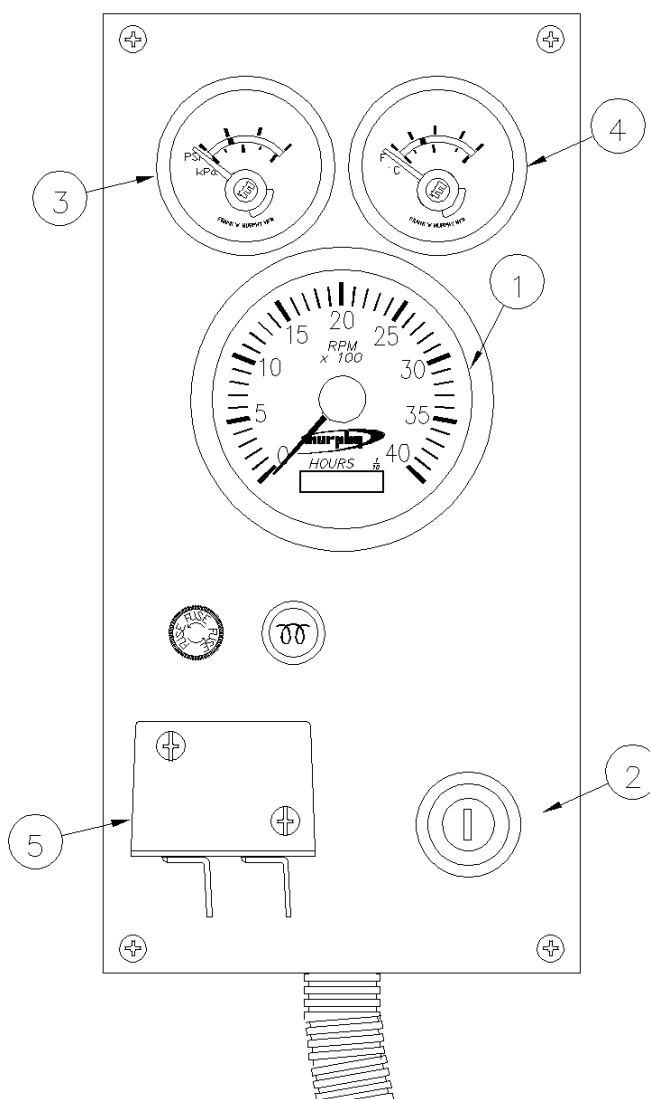
WATER SYSTEM



WATER SYSTEM

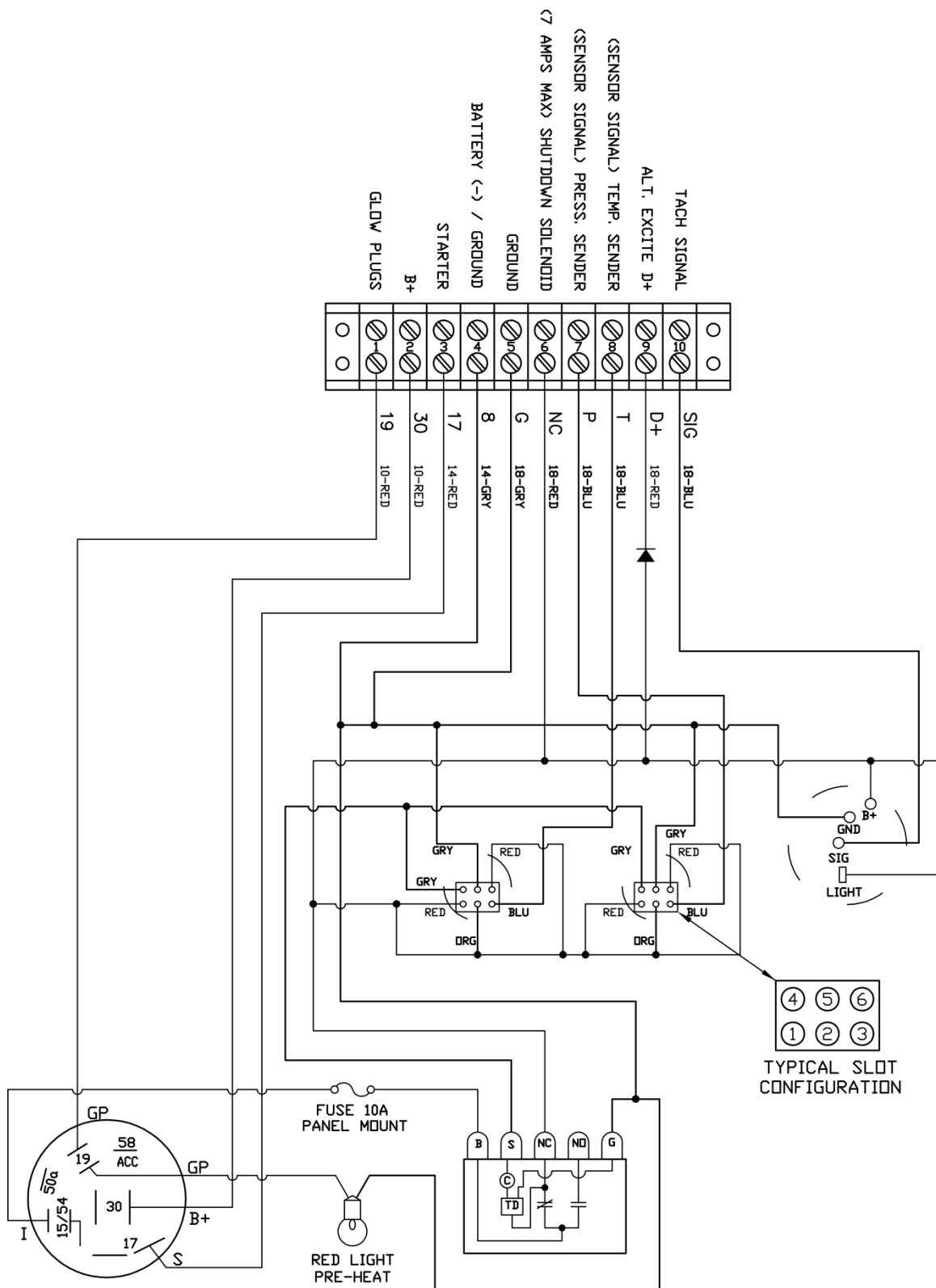
ITEM	PART #	DESCRIPTION	QTY
1	42201	SPRAY BAR	2
2	1158	HOSE BARB FITTING	4
3	1204	BALL VALVE	4
4	1187	PLUG	1
5	1203	HOSE CLAMP	4
6	9216	NOZZLE & ADAPTER	12
7	1163	HOSE BARB TEE ADAPTER	5
8			
9	1130	WATER TANK ELBOW	1
10	1165	HOSE	25'
11	1166	HOSE	30'
12	42203	GB SPRAY BAR	2
13	1167	HOSE BARB FITTING	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

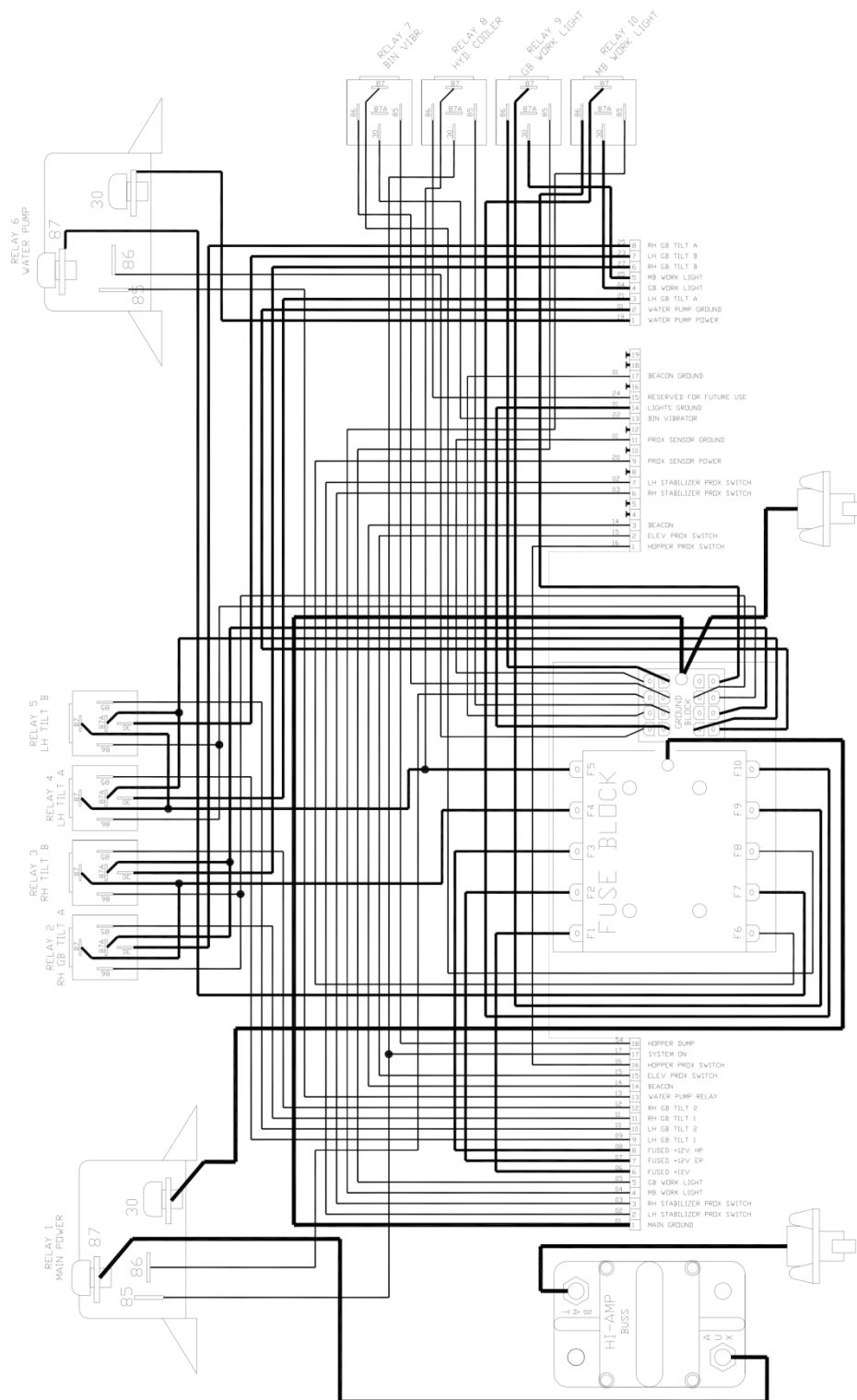


ITEM	PART #	DESCRIPTION	QTY
1	1092	TACH/HOUR METER	1
2	1095	IGNITION SWITCH	1
3	1090	OIL PRESSURE GAUGE	1
4	1091	WATER TEMP GAUGE	1
5	1094	SHUT DOWN MODULE	1

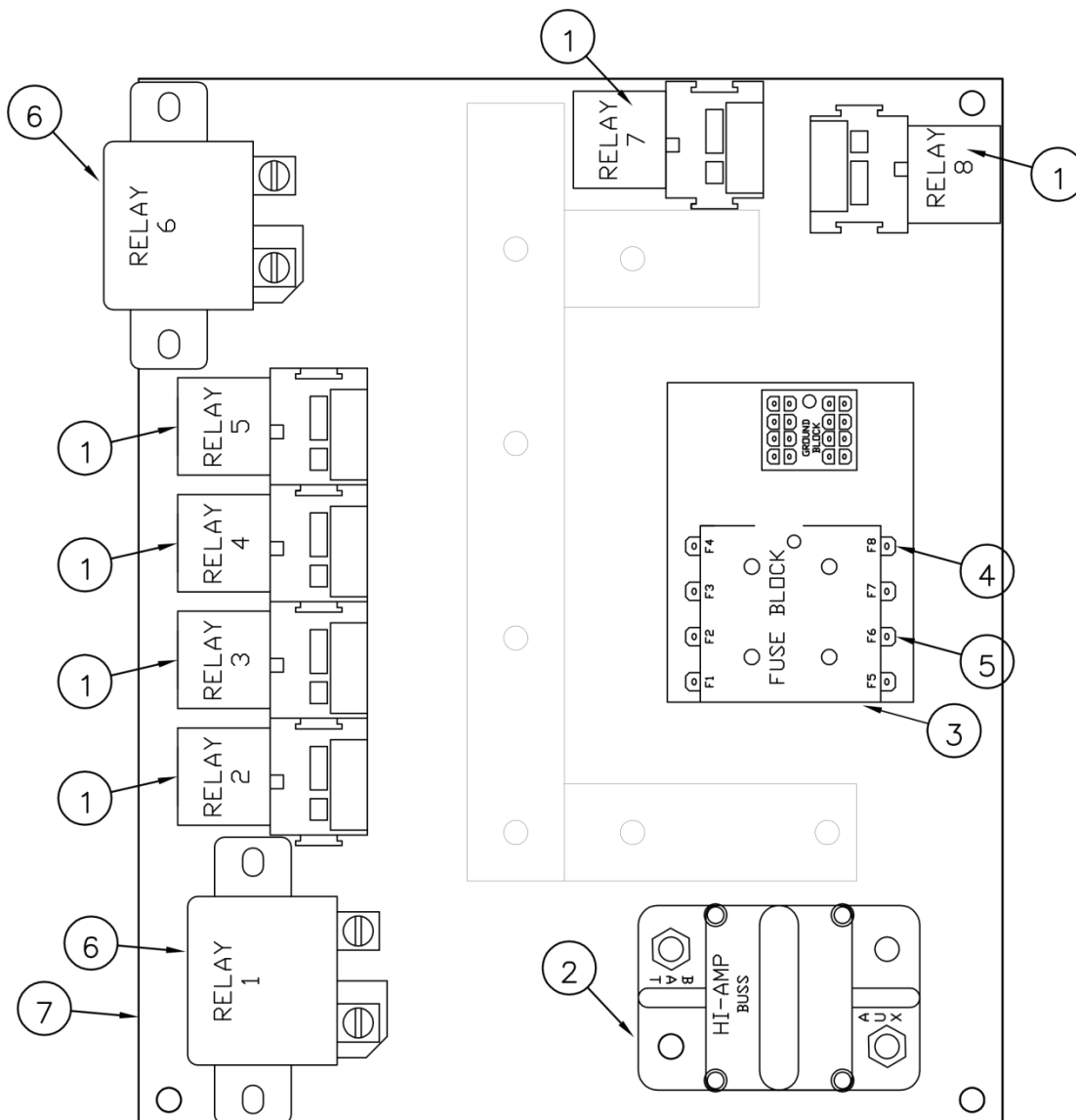
ENGINE CONTROL BOX SCHEMATIC



62555 AUXILIARY CONTROL BOX SCHEMATIC

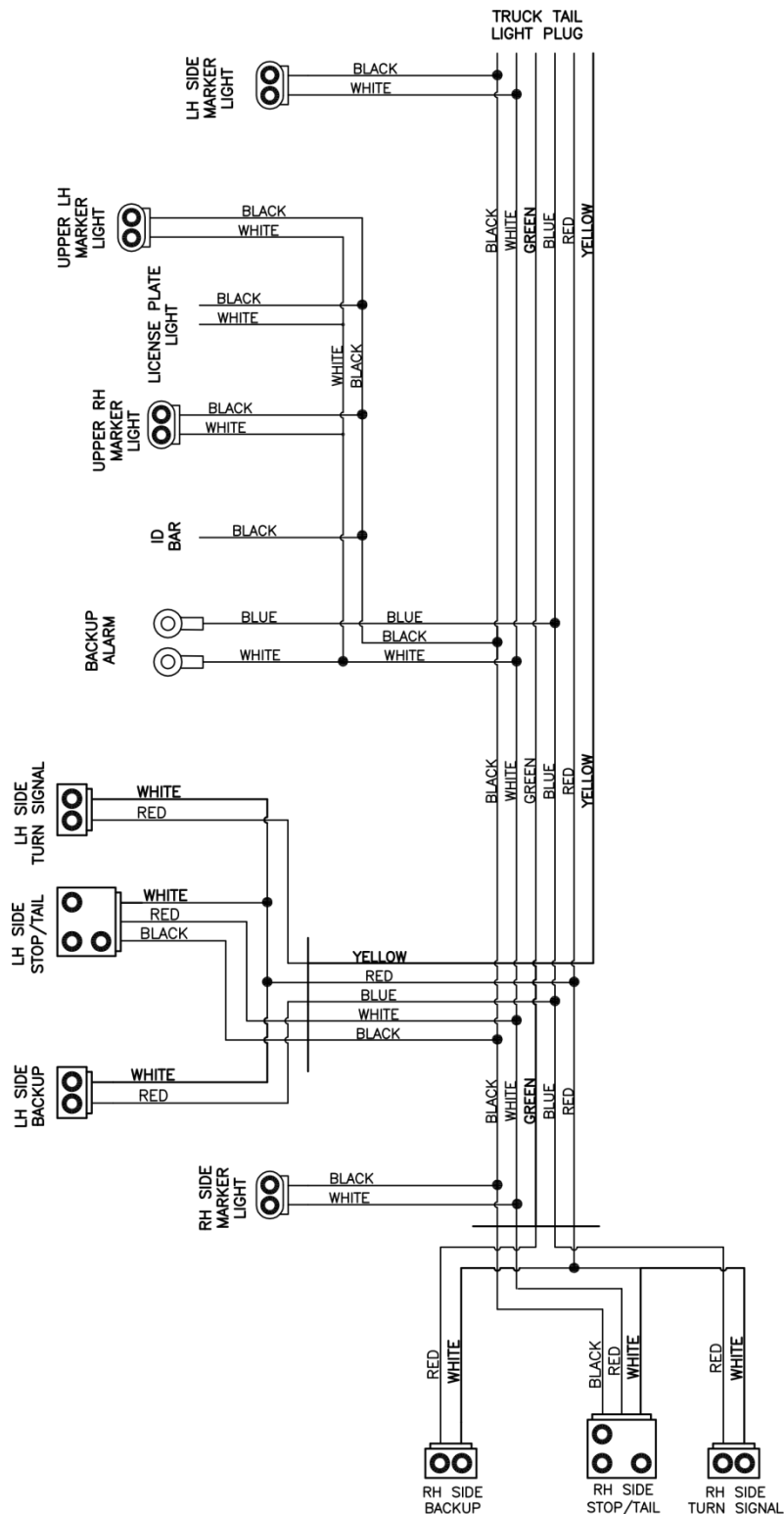


80225 AUXILIARY CONTROL BOX LAYOUT

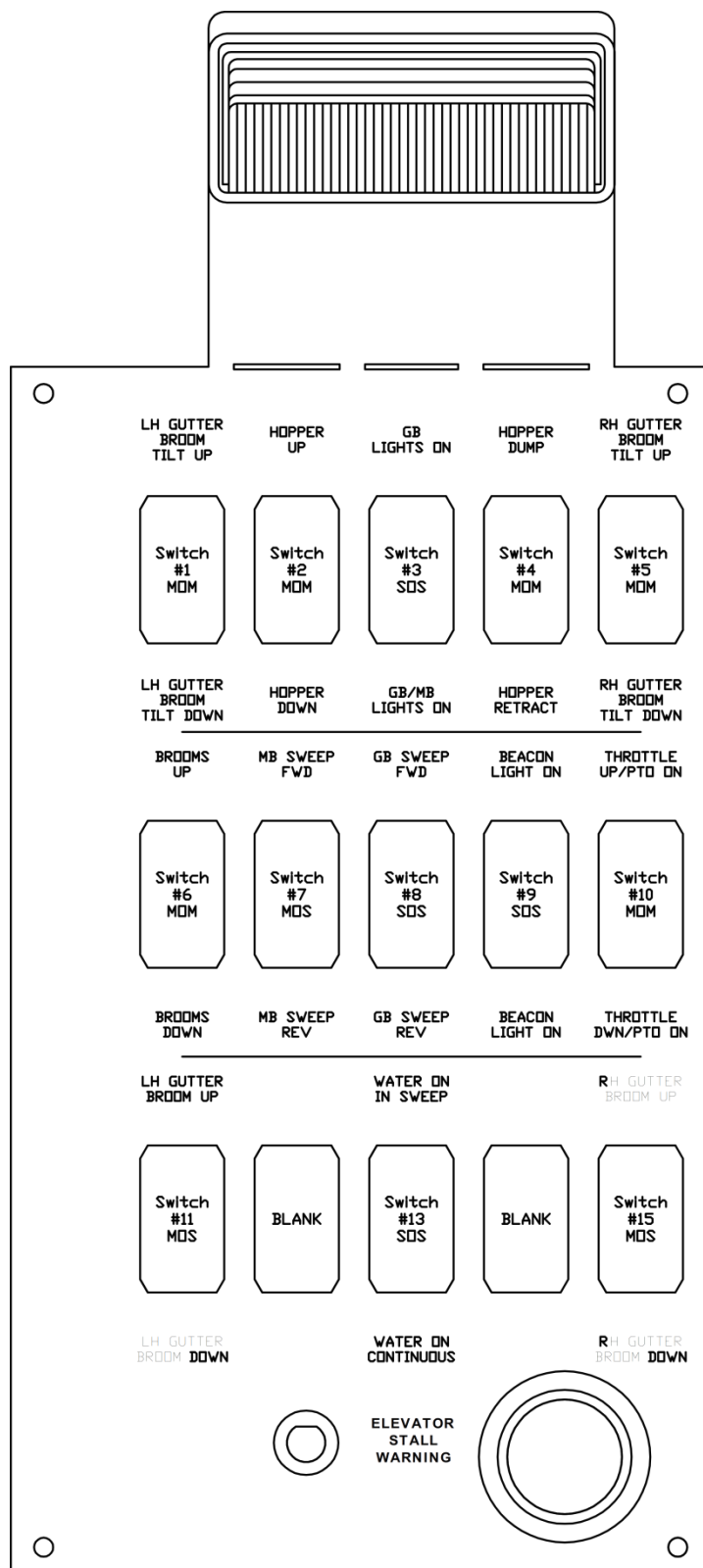


ITEM	PART #	DESCRIPTION	QTY
1	1947	RELAY	6
2	2043	CIRCUIT BREAKER	1
3	2041	FUSE HOLDER 8 POSITION	1
4	2042	FUSE 15 AMP F1-5/7/8	7
5	1193	FUSE 5 amp F6	1
6	1946	RELAY	2
7	62553	Aux. Box Mounting Plate	1
8	62551	Harness (not shown)	1

42517 REAR LIGHT HARNESS SCHEMATIC



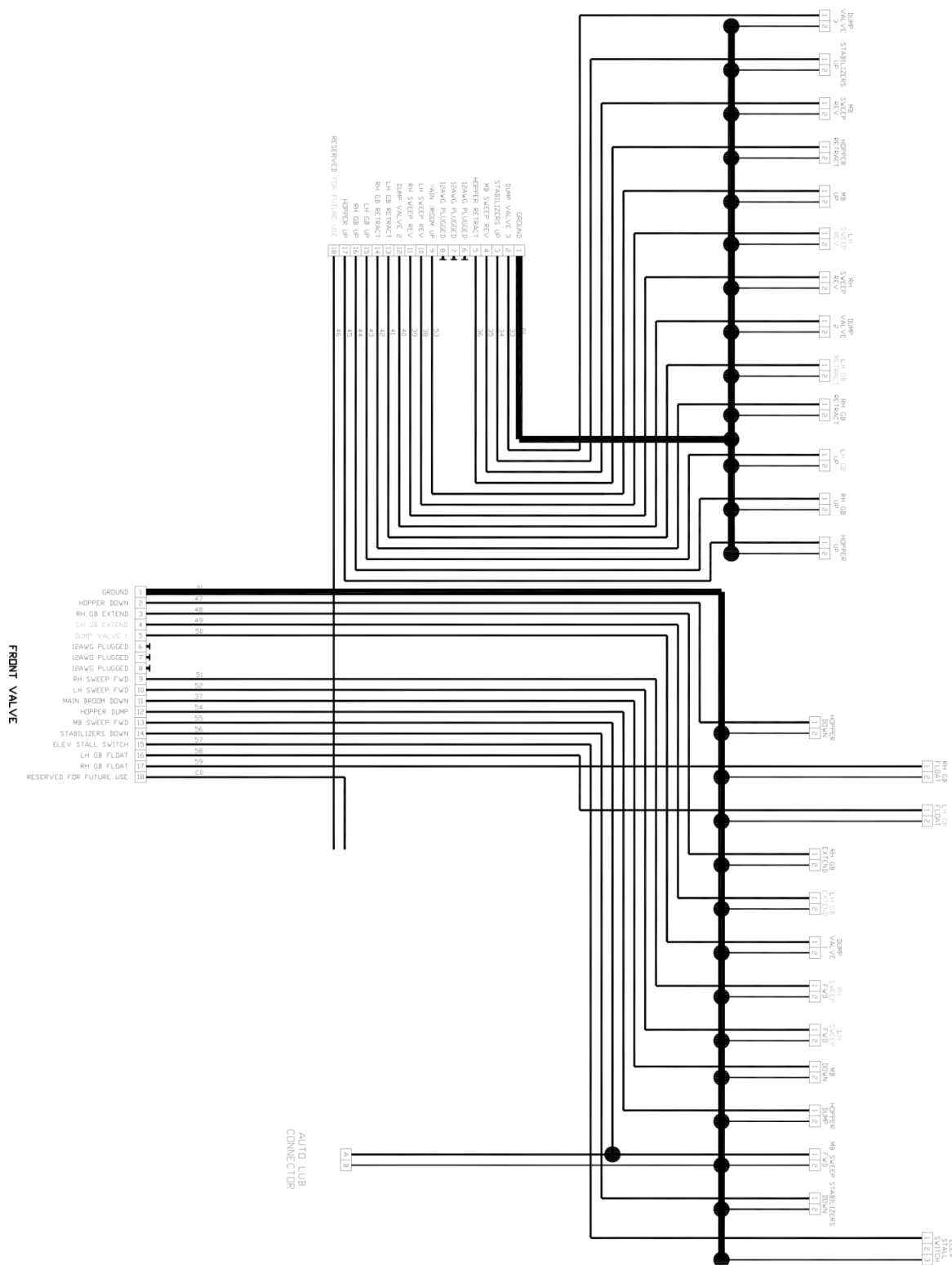
SWEEPER CONTROL PANEL



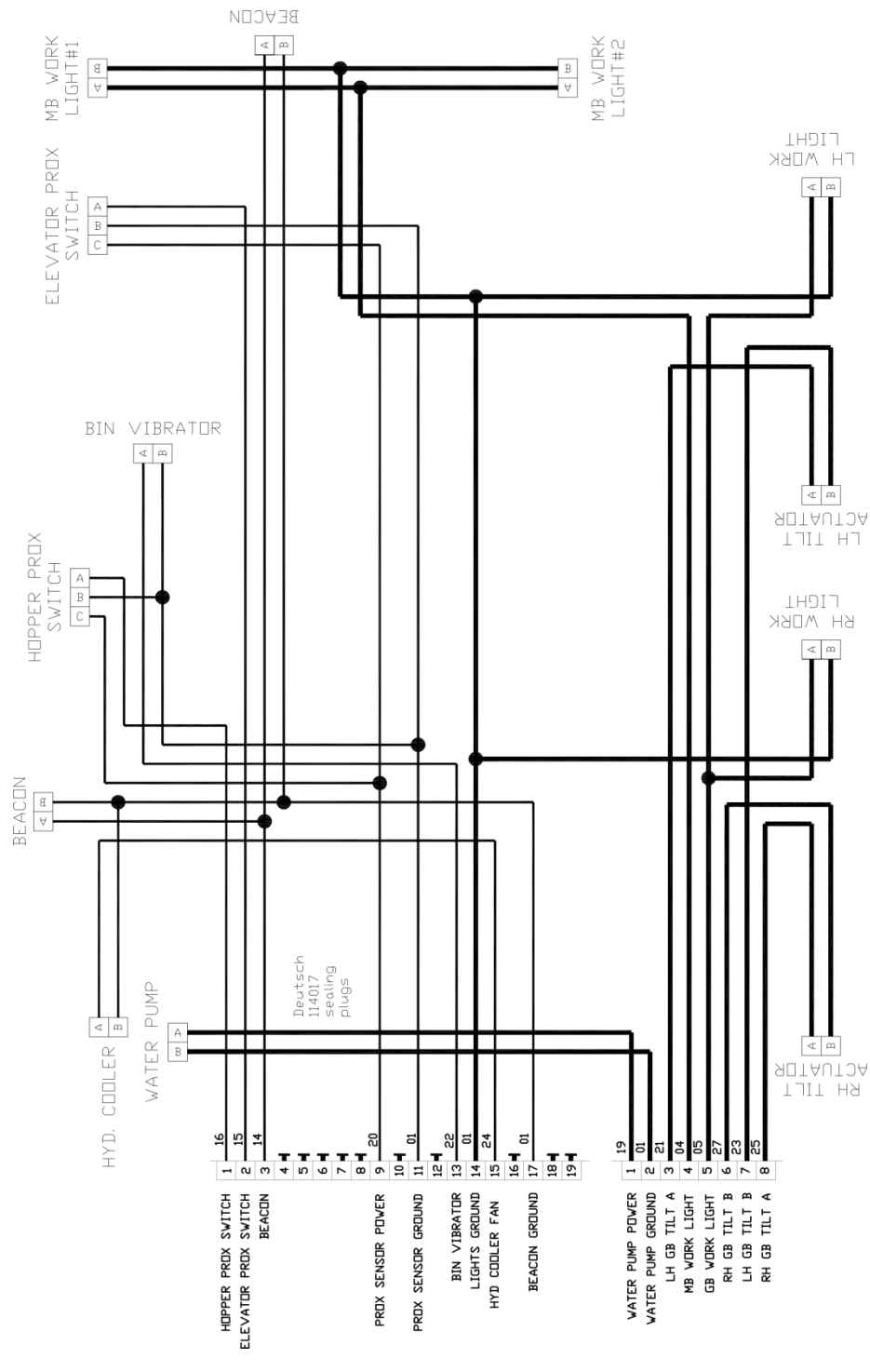
SWEEPER CONTROL PANEL

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

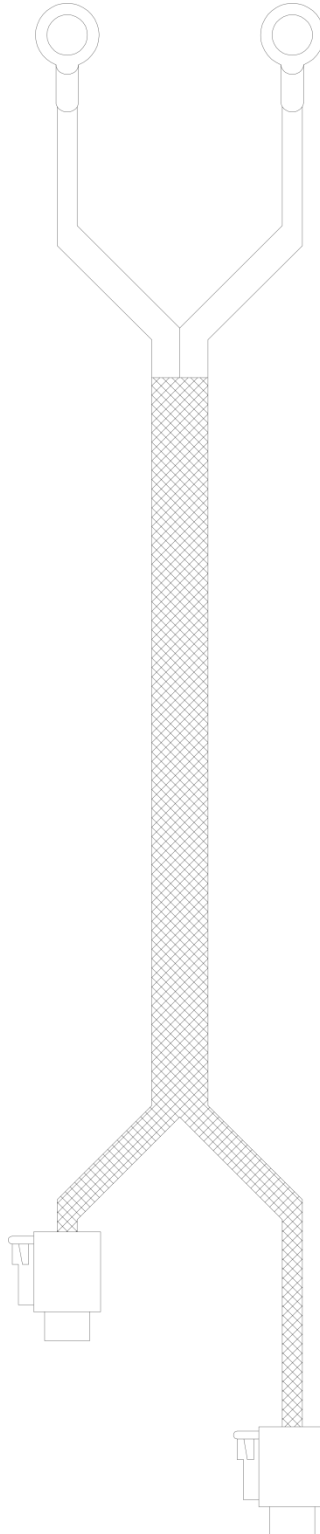
62552 VALVE HARNESS SCHEMATIC



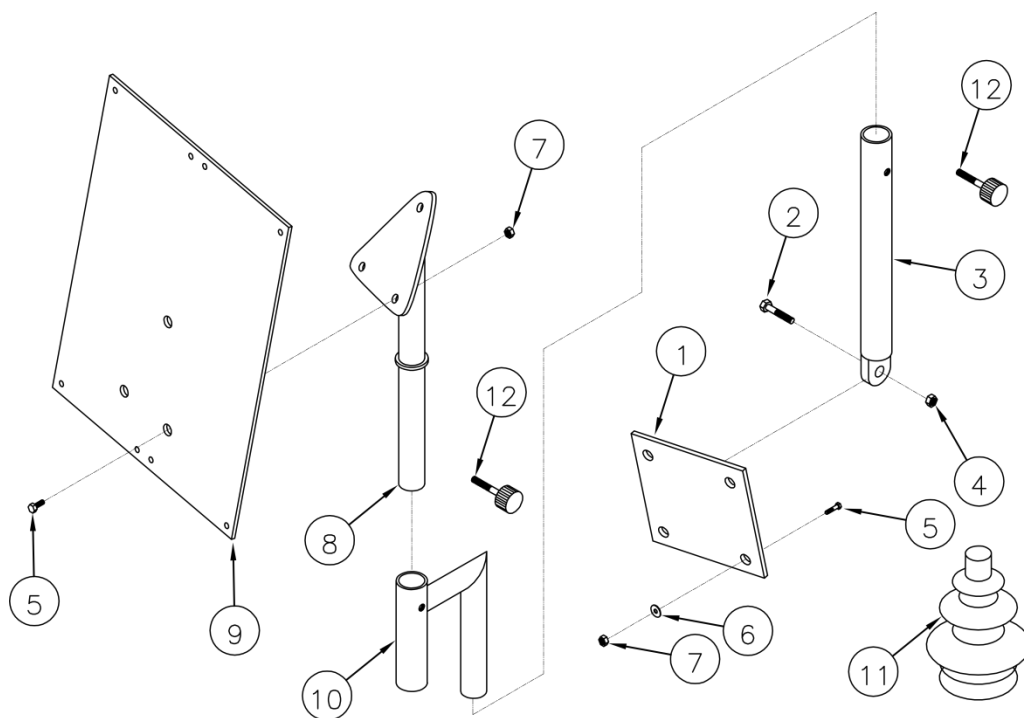
42547 BODY HARNESS SCHEMATIC



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	42510	OFFSET POST	1
11	1233	ELECT. BOOT	1
12	1194	PEDISTAL KNOB	2

S-4 DECALS

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PT # 43201 10/UNIT



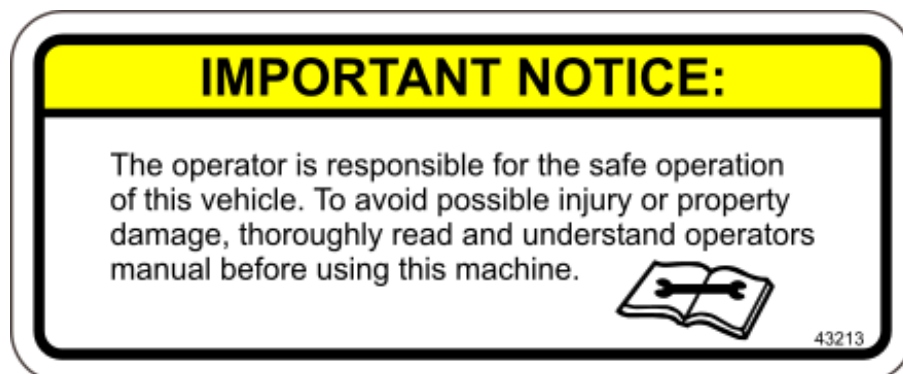
PT # 43205 4/UNIT



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

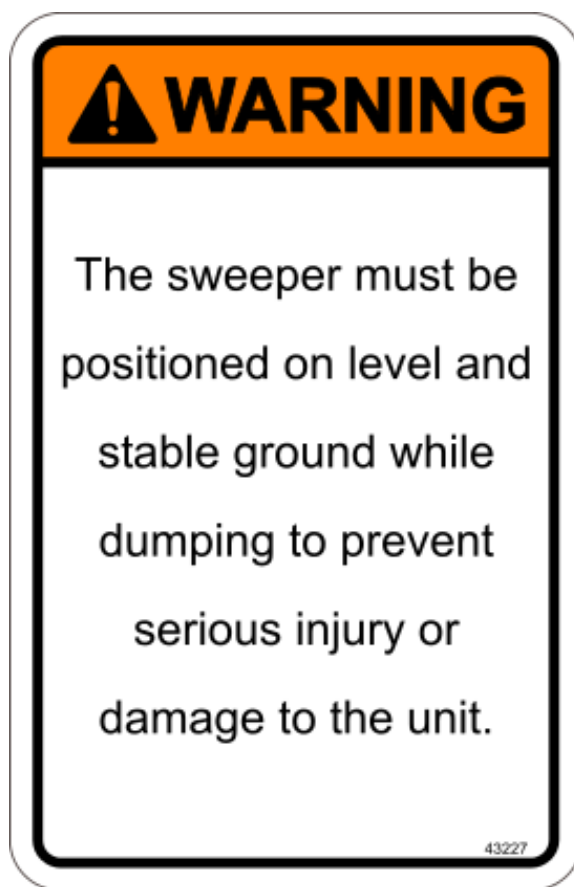
43223 5/UNIT

#

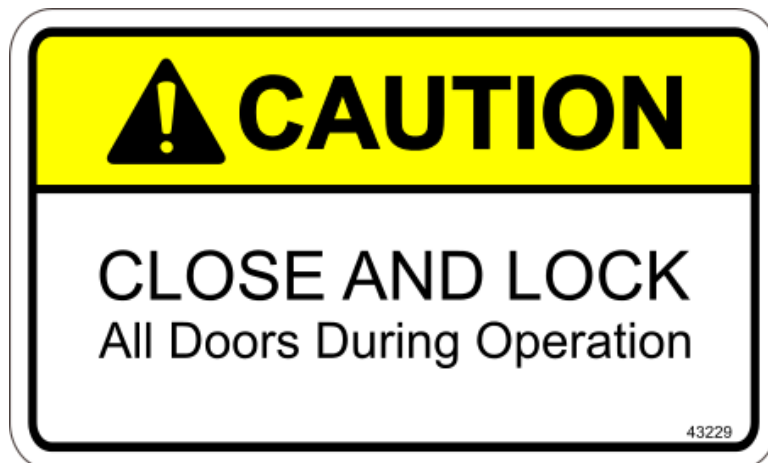
Rotating beacons / strobes and four-way flashers must be on during operation.

43225

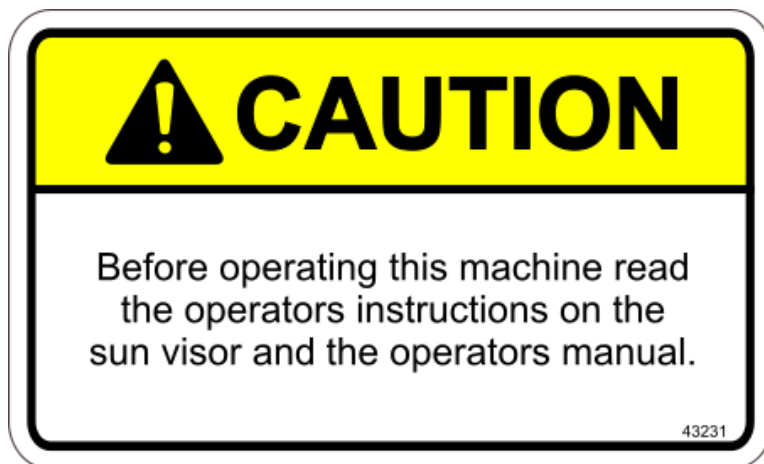
PT # 43225 1/UNIT



PT # 43227 2/UNIT



PT # 43229 7/UNIT



PT # 43231 1/UNIT



PT # 43233 2/UNIT

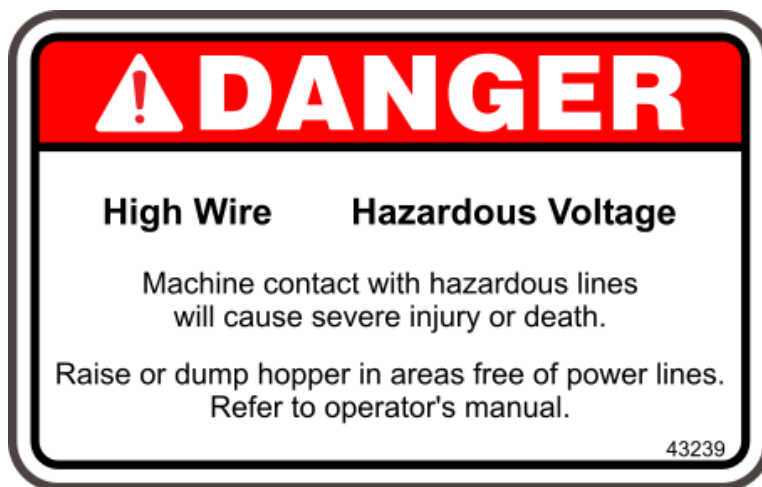
WATER ONLY

PT # 43235 1/UNIT

DUMP ON LEVEL GROUND ONLY

43237

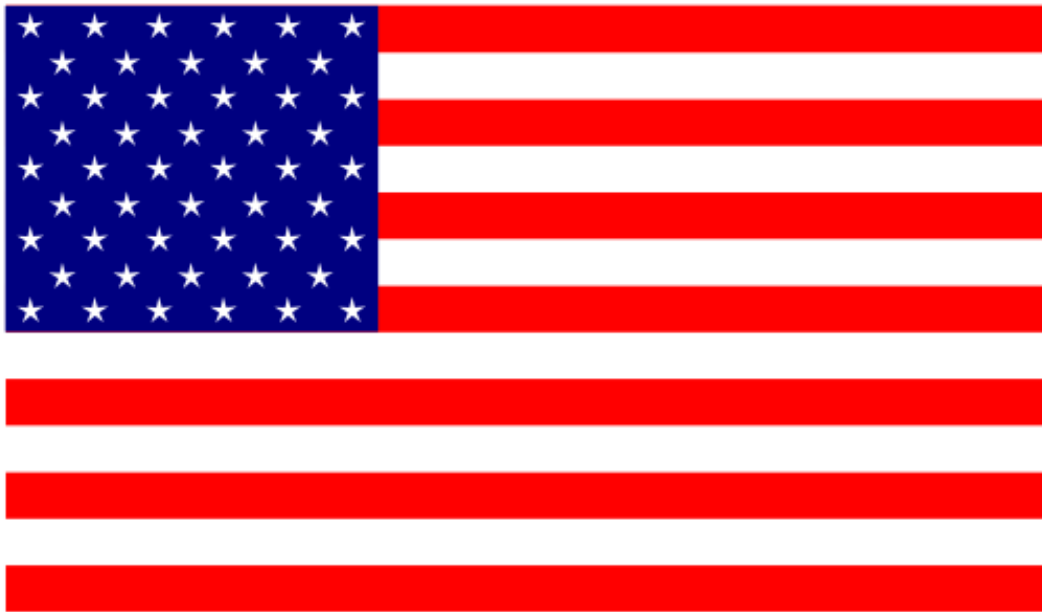
PT # 43237 1/UNIT



PT # 43239 1/UNIT

Driving at low speeds for sustained periods of time may overheat the transmission fluid. Driver should select "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

STARFIRE

S-4

PT # 43248 2/UNIT

STARFIRE

S-4

PT # 43249 1/UNIT



STARFIRE

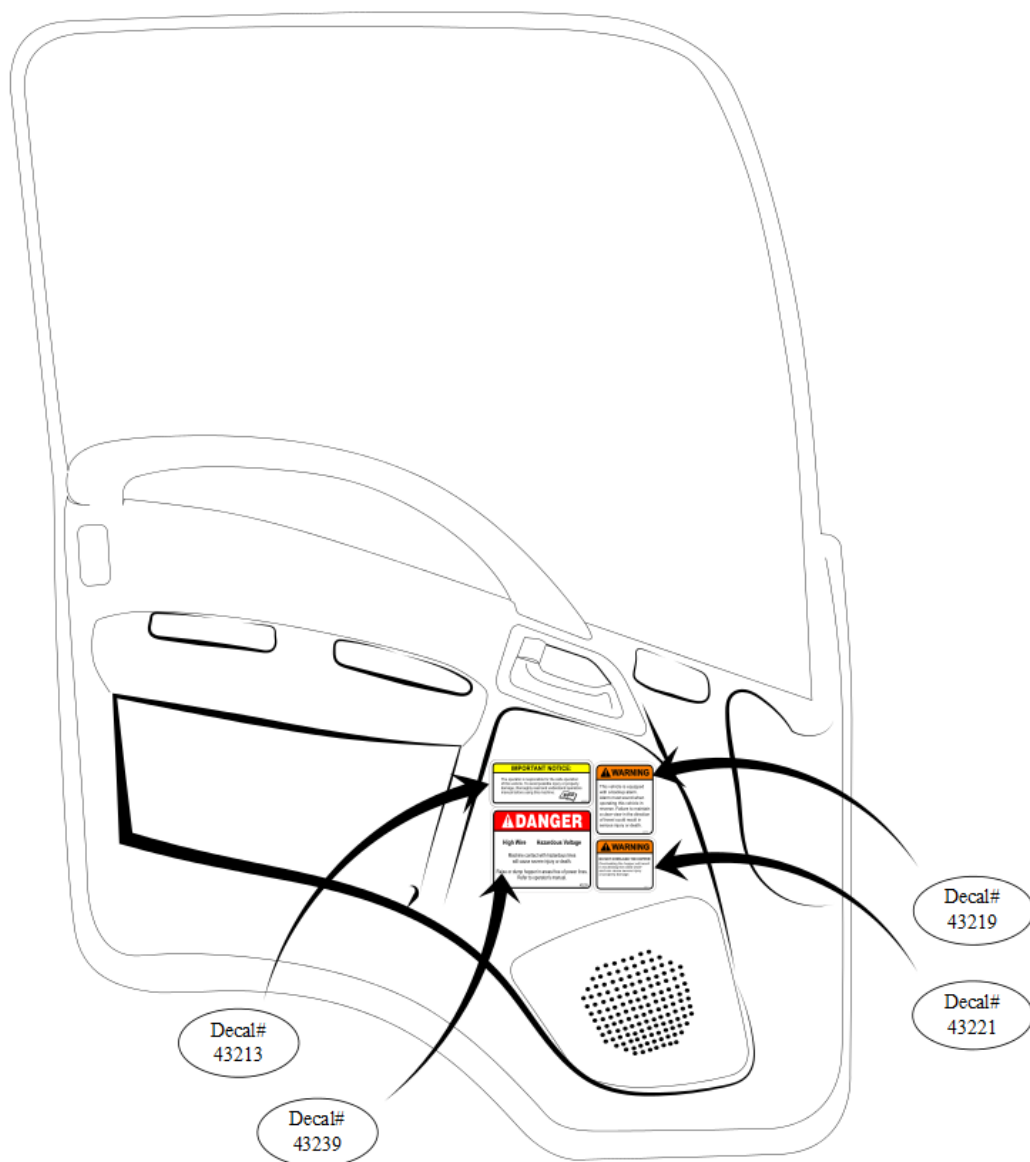
PT # 43246 1/UNIT

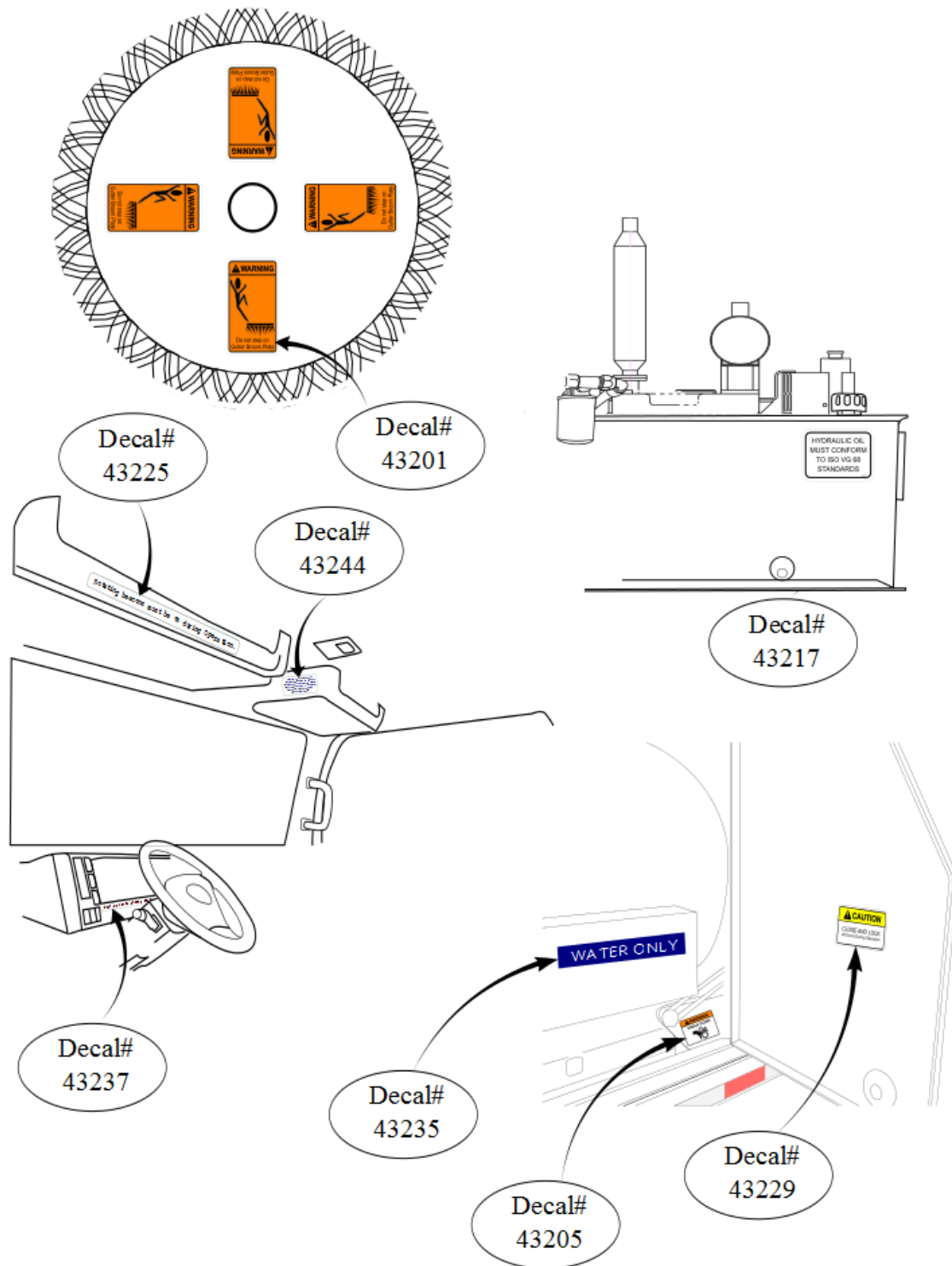
PT # 43243 1/UNIT

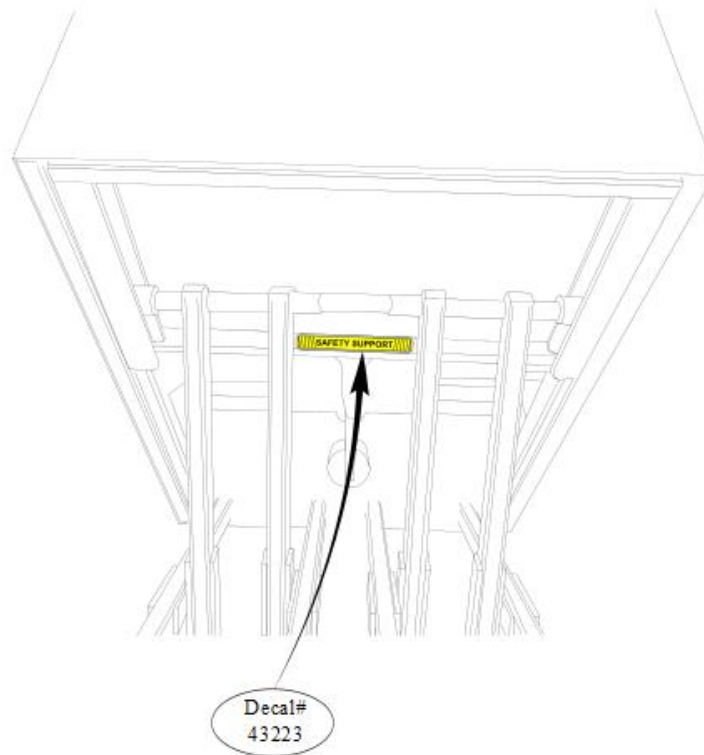
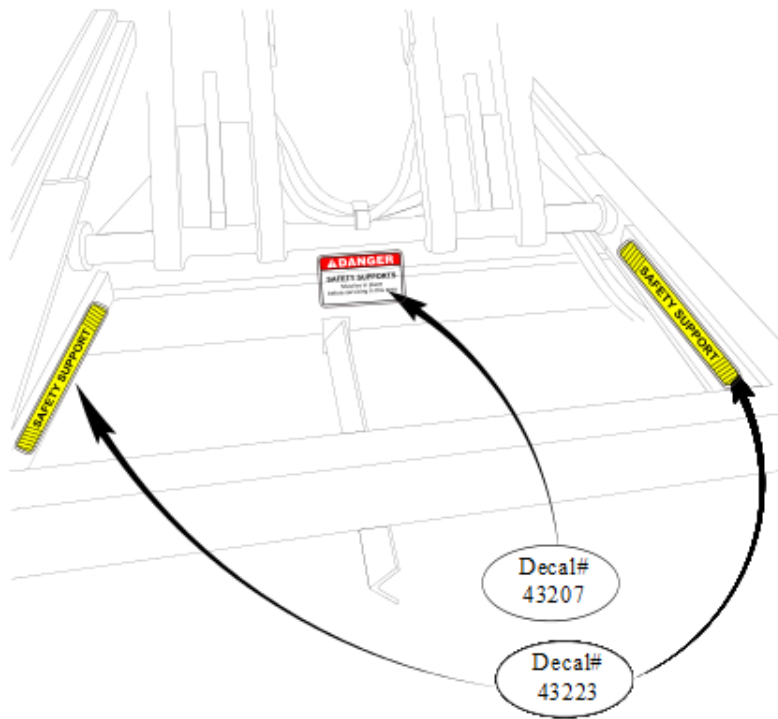


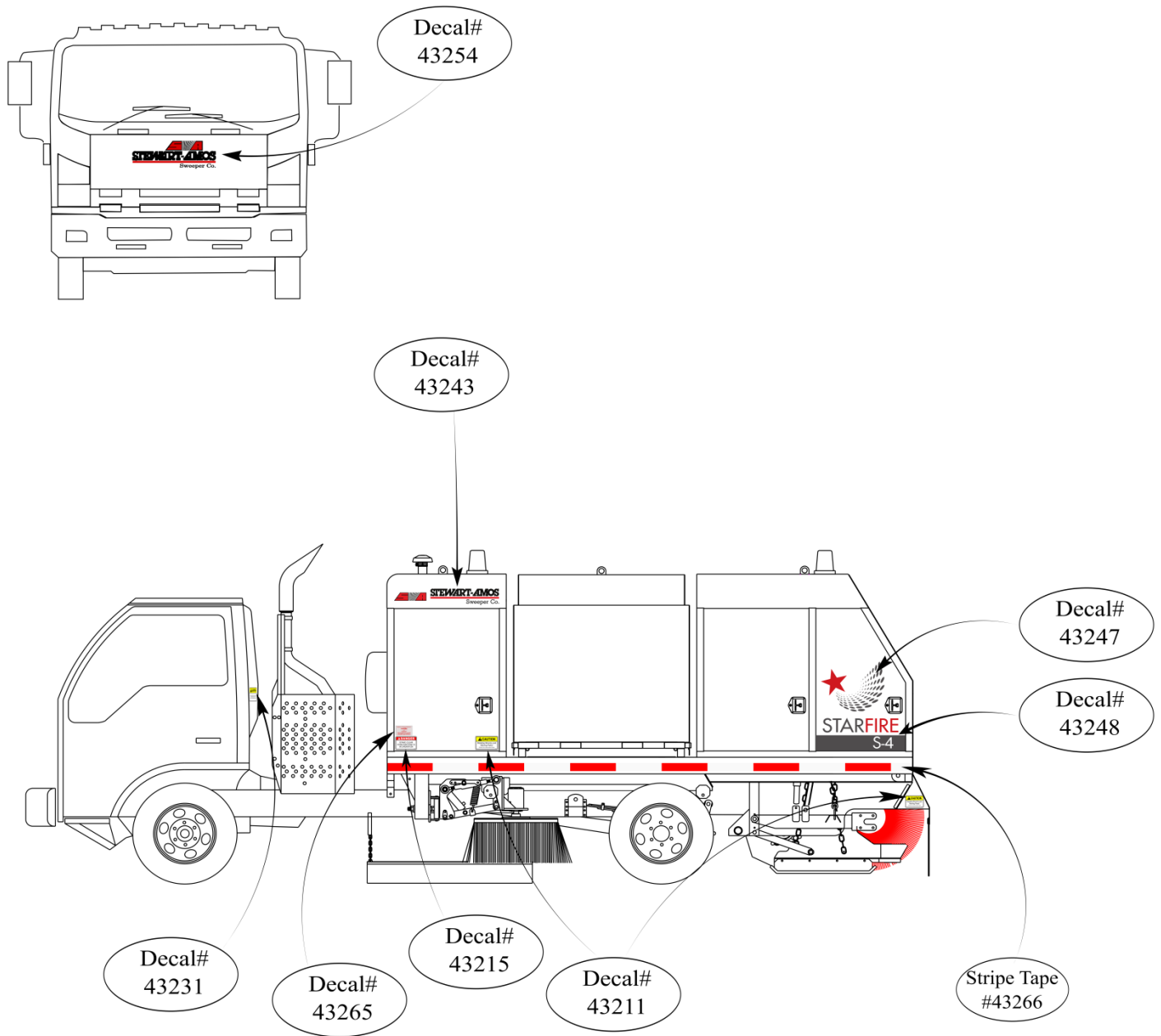
PT # 43254 1/UNIT

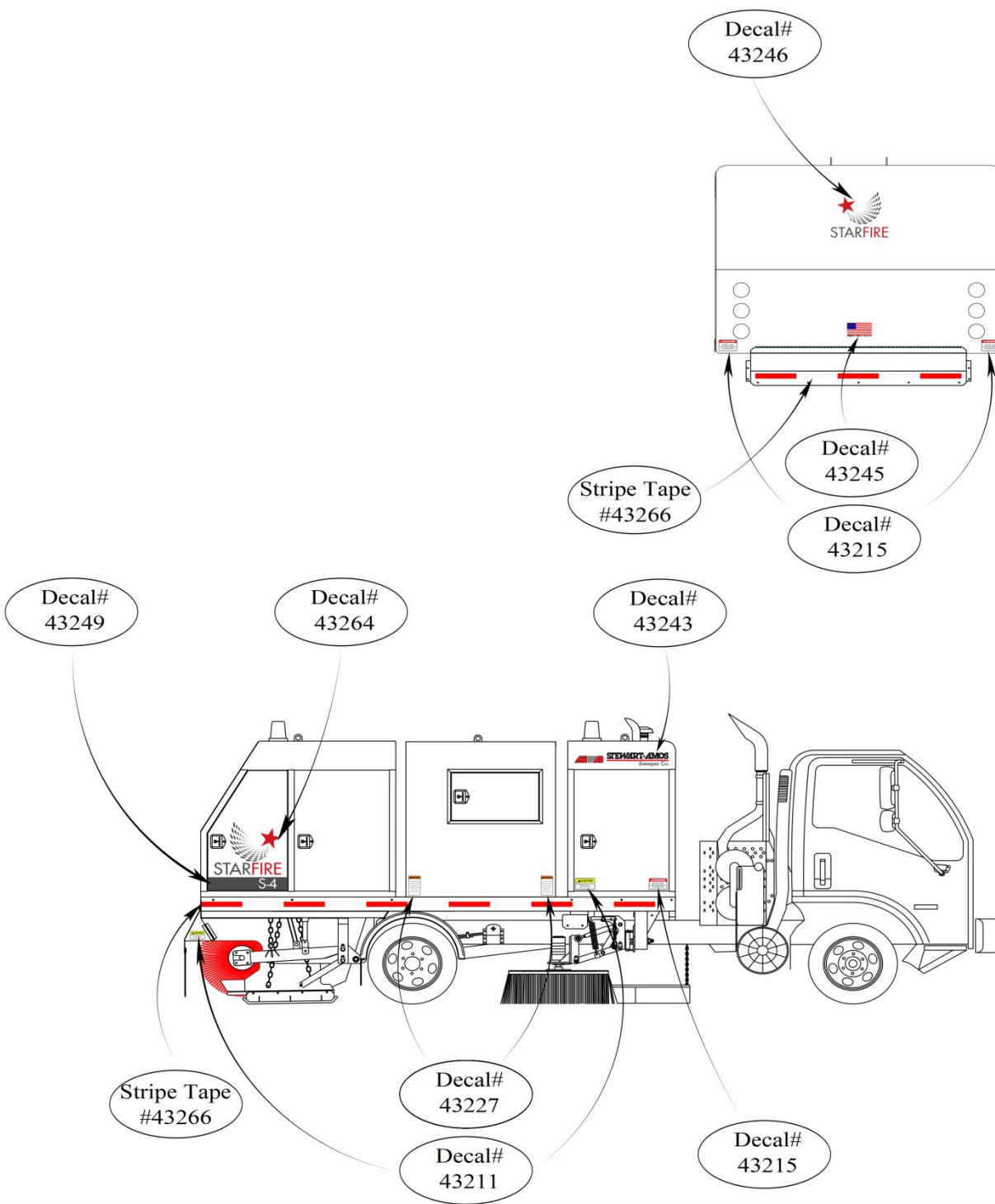












80216		SAFETY DECAL KIT	
	8	43201	DO NOT STEP
	2	43205	PINCH POINT SQ
	5	43207	DANGER SAFETY SUPPORT IN PLACE
	1	43211	CAUTION ROTATING BROOMS
	1	43213	IMPORTANT OPERATOR IS RESPONSIBLE
	6	43215	DANGER STAND CLEAR
	2	43217	HYDRAULIC OIL MUST CONFORM
	1	43219	WARNING THIS VEHICLE IS EQUIPED
	1	43221	WARNING 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.
	1	43254	Lg STEWART-AMOS DECAL

INDEX BY PAGE

PT #	DESCRIPTION	QTY	PG #
46010	MAIN FRAME WELDMENT	1	89
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1502	NUT	17	89
1535	BOLT	17	89
1505	NUT	4	89
1143	FENDER	2	89
1537	BOLT	2	89
42073	SKIRT	1	89
1534	BOLT	12	89
42060	REAR SKIRT	1	89
42075	BASE STRIP	1	89
1822	WASHER	16	89
42077	BEARING INSPECTION COVER	2	89
1670	WASHER	4	89
1503	NUT	12	89
1591	SCREW	6	89
41771	REST TUBE	1	89
1843	BOLT	2	89
1075	200 GAL. PLASTIC TANK	1	89
1730	BOLT	4	89
1740	NUT	4	89
1125	TIMBREN	1	89
1200	ISUZU LEAF SPRING	2	89
1843	BOLT	4	89
42065	WATER VALVE	1	89
1546	BOLT	2	89
1640	NUT	2	89
42101	CENTER DRAG RUBBER	1	89
42507	PROXIMITY MOUNT	1	89
1087-3	PROXIMITY SWITCH	2	89
42214	FILL RELIEF RUBBER	1	89
1915	WORK LIGHT	3	89
42121	MUD FLAP	2	89
42220-06	WATER TANK STRAP	2	89
42220	WATER TANK MOUNT	1	89
49006	FUEL TANK	1	89
9265	FUEL TANK CAP	1	89
45302	LH LOUVER DOOR	1	91
45301	FRONT CANOPY	1	91
1916	STROBE	1	91
1520	WASHER	20	91
1501	NUT	20	91
1031	HINGE	4	91
1579	BOLT	8	91
1005	DOOR LATCH	2	91

PT #	DESCRIPTION	QTY	PG #
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1955	HYD. COOLER & FAN	1	91
1503	NUT	6	91
41504	SPACER	4	91
42107	LIMB GUARD (NOT SHOWN OPTIONAL)	1	91
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1395	CLEAR FLOAT TUBE	1	91
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91502	DOOR STOP	2	91
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41612	LEFT REAR DOOR	1	93
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1822	WASHER	6	93
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1910	TURN SIGNAL	2	93
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3354	CAMERA CABLE	2	93
1861	DOOR STOP SPRING	4	93
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PT #	DESCRIPTION	QTY	PG #
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1185	BUSHING	8	95
1033	WINDOW RUBBER	37"	95
42913	WINDOW	1	95
1031	HINGE	2	95
1579	BOLT	8	95
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1501	NUT	8	95
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1520	WASHER	20	95
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42085	SAFETY PROP	2	97
42131	SAFETY	1	97
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61301	GB MOUNT (RIGHT)	1	99

PT #	DESCRIPTION	QTY	PG #
61213	PIN	2	99
1020	BUSHING	8	99
61203	GB PIVOT (LEFT)	1	99
61303	GB PIVOT (RIGHT)	1	99
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1561	BOLT	2	99
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1505	NUT	2	99
1581	WASHER	2	99
1018	SUSPENSION SPRING	2	99
41221	LINK	2	99
1540	BOLT	4	99
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41205	LINKAGE MOUNT (LEFT)	1	99
41316	LINKAGE MOUNT (RIGHT)	1	99
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1640	NUT	2	99
1503	NUT	4	99
1022	TURN BUCKLE	4	99
1559	BOLT	10	99
1822	WASHER	6	99
1379	CYLINDER	4	99
1537	BOLT	6	99
1556	BOLT	4	99
1507	NUT	14	99
1508	NUT	2	99
1574	BOLT	2	99
1042	QUICK LINK	8	99
1019	RETRACT SPRING	2	99
1526	WASHER	4	99
1185	BUSHING	8	99
61235	RETRACT PLATE (LEFT)	1	99
61335	RETRACT PLATE (RIGHT)	1	99
1560	BOLT	4	99
41230	EXTEND SPRING MOUNT	2	99
9137	LANYARD	4	99
47200	GUTTER BROOM MOUNT	1	99
41207	MOTOR BRACKET (LEFT)	1	101
41318	MOTOR BRACKET (RIGHT)	1	101
3248	1 1/2" BUSHING	2	101
1506	NUT	8	101
41227	32" PLATE	2	101
1148	GB BUSH SET FOR 32" PLATE	2	101
1078	LINEAR ACTUATOR	2	101
1683	OFFSET KEY	2	101

PT #	DESCRIPTION	QTY	PG #
1822	WASHER	2	101
1505	NUT	4	101
1549	BOLT	8	101
41209	DRIVER HUB	2	101
1526	WASHER	2	101
1540	BOLT	48	101
1670	WASHER	10	101
1525	WASHER	4	101
1537	BOLT	6	101
1546	BOLT	4	101
1014	MAIN BROOM MANDREL	1	103
41413	MAIN BROOM ROCK SHAFT	1	103
1604	COTTER PIN	2	103
62813	WASHER	4	103
1505	NUT	6	103
41405	LIFT BELL CRANK (LEFT)	1	103
41421	MAIN BROOM LIFT STRAP	2	103
1822	WASHER	30	103
1670	WASHER	2	103
1537	BOLT	2	103
41417	PIN	2	103
41407	LIFT BELL CRANK (RIGHT)	1	103
1630	CAPSCREW	4	103
1671	WASHER	6	103
1503	NUT	10	103
1043	CYLINDER	2	103
1680	KEY	1	103
41427	MAIN BROOM LIFT CHAIN	2	103
1016	MAIN BROOM STRIP SET	1	103
1030	BEARING	1	103
64501	MB LIFT ARM (LEFT)	1	103
1546	BOLT	6	103
1046	SHOCK	2	103
1843	BOLT	4	103
64502	MB LIFT ARM (RIGHT)	1	103
3213-3	MANDRELL SHAFT	1	103
80129	MAIN BROOM COUPLER	1	103
1185	BRUSHING	4	103
1683	KEY	1	103
1669	WASHER	6	103
1781	BOLT	6	103
1266	MANDRELL END PLATE	2	103
1545	BOLT	6	103
1639	NUT	2	103
41437	DRAG SHOE LIFT CHAIN	2	103
61415	LONG MANDRELL SHAFT	1	103

PT #	DESCRIPTION	QTY	PG #
1782	BOLT	4	103
1545	BOLT	2	103
41401	PIN	2	103
1822	WASHER	2	105
1670	WASHER	2	105
1537	BOLT	2	105
1521	WASHER	4	105
1630	CAPSCREW	4	105
41423	PRES. CONTROL ARM (LEFT)	1	105
1502	NUT	8	105
41415	PRES. CONTROL ROCK SHAFT	1	105
41401	PIN	4	105
1562	BOLT	2	105
1527	WASHER	2	105
1185	BUSHING	8	105
41429	DRAG LINK	2	105
41433	DRAG SHOE MOUNT (LEFT)	1	105
1534	BOLT	6	105
1508	NUT	2	105
41431	BACKING	2	105
1530	BOLT	4	105
42067	DIRT DEFLECTOR RUBBER	2	105
1575	BOLT	8	105
41435	DRAG SHOE MOUNT (RIGHT)	1	105
1501	NUT	4	105
1115	CARBIDE DRAG SHOE	2	105
1081	SUSPENSION SPRING	2	105
1023	TURN BUCKLE	2	105
1045	EYE BOLT	2	105
41425	PRES. CONTROL ARM (RIGHT)	1	105
1503	NUT	10	105
1640	NUT	2	105
1639	NUT	2	105
80134	VALVE ASSEMBLY	1	106
1293	MANIFOLD	1	106
2001	HOPPER LIFT CYLINDER VALVE	1	106
1989	LH&RH GB CYLINDER	2	106
1295	LH&RH GB MOTOR	3	106
2000	RELIEF VALVE	1	106
1990	FLOAT VALVE	2	106
2082	5000 psi GUAGE	1	106
2078	GUAGE SHUTOFF VALVE	1	106
80120	VALVE ASSEMBLY	1	107
1287	MANIFOLD	1	107
1993	MB & HOPPER & ELEV VALVES	3	107
1291	DUMP VALVE	1	107

PT #	DESCRIPTION	QTY	PG #
2000	RELEF VALVE	1	107
1994	P.O. CHECK VALVE	1	107
2010	DOUBLE P.O. CHECK VALVE	1	107
1839	1/16" RESTRICTOR	2	107
2082	5000 psi GUAGE	1	107
2078	GUAGE SHUTOFF VALVE	1	107
1037	ELEVATOR STALL SWITCH	1	109
1401	HOSE-MB MOTOR TO ELEV. MOTOR	1	109
1402	HOSE-FRONT OF PUMP TO LH VALVE	1	109
1403	HOSE-MB ROD TO "T"	2	109
1404	HOSE-ELEV. MOTOR TO VALVE	1	109
1405	HOSE-MB HEAD TO "T"	2	109
3243	HYDRAULIC MOTOR	2	109
1406	HOSE-MB VALVE TO "T"	2	109
1407	HOSE-HOPPER TILT VALVE TO CROSS	1	109
1408	HOSE-VALVE RETURN TO COOLER "T"	1	109
1061	HOPPER DOOR CYLINDER	2	109
1409	HOSE-COOLER TO FILTER	1	109
1043	MB CYLINDER	2	109
1410	HOSE-HOPPER TILT VALVE TO CROSS	1	109
1411	HYDRAULIC OIL FILTER BASE	1	109
1417	HOSE-MB MOTOR TO VALVE	1	109
1412	HOSE-SUCTION	1	109
1060	HOPPER TILT CYLINDER	1	109
1413	HOSE-HOPPER TILT ROD TO CROSS	1	109
1414	HOSE-HOPPER TILT HEAD TO CROSS	1	109
1415	HOSE-HOPPER DOOR CYLINDERS	4	109
1416	HYDRAULIC OIL FILTER	1	109
1431	HOSE - RH GB CYL. TO VAL.	2	111
1426	HOSE - LH GB CYL. TO VAL.	1	111
1427	HOSE - VALVE RETURN	1	111
1418	HOSE - PUMP TO VALVE	1	111
3243	HYDRAULIC MOTOR	2	111
1420	HOSE - HOPPER LIFT RETURN	1	111
1419	HOSE - VALVE TO HOPPER LIFT	1	111
1421	HOSE - LIFT CROSSOVER	1	111
1422	HOSE - RETURN CROSSOVER	1	111
1423	HOSE - ROD RETURN	1	111
1059	CYLINDER	2	111
1430	HOSE - LH GB MOTOR TO VAL.	2	111
1428	HOSE - RETURN CYLINDER	4	111
1379	GB CYLINDER	4	111
1429	HOSE - RH GB MOTOR TO VAL.	2	111
2086	DIRECTIONAL RESTRICTORS	2	111
1955	ELECTRIC HYD. OIL COOLER	1	111
2030	2 GPM RESTRICTOR	2	111

PT #	DESCRIPTION	QTY	PG #
1156	EXHAUST PIPE	1	113
1155	HOSE CLAMP	2	113
1049	INTAKE HOSE	30"	113
1154	EXHAUST CLAMP	2	113
42404	THROTTLE MOUNT	1	113
2077	ENGINE	1	113
3251	HYDRAULIC PUMP	1	113
1524	WASHER	4	113
1545	BOLT	4	113
1387	THROTTLE ACTUATOR	1	113
1299	THROTTLE GUIDE	1	113
1388	THROTTLE ACTUATOR CABLE	1	113
1108	FUEL FILTER	1	113
1106	ENGINE OIL FILTER	1	113
1390	ENGINE OUTER AIR FILTER	1	113
1175	RAIN CAP	1	113
1176	MUFFLER	1	113
1260	CLAMP	1	113
1104	OIL PRESSURE SENDER	1	113
1391	ENGINE INNER AIR FILTER	1	113
2076	RUBBER BUMPER	1	113
42427	MUFFLER BRACE	2	113
42429	RUBBER CONNECTOR	1	113
44300	HYDRAULIC TANK	1	115
9138	DISCONNECT SWITCH	1	115
42315	PRES. GUAGE MOUNT	1	115
1547	BOLT	14	115
1505	NUT	32	115
1535	BOLT	4	115
1521	WASHER	16	115
1502	NUT	16	115
44302	VALVE MOUNT PLATE	1	115
1047	ISOLATION MOUNT	4	115
44301	TANK COVER	1	115
1524	WASHER	4	115
1526	WASHER	4	115
1076	WATER FILTER		115
3232	WATER PUMP		115
2047	AUX BOX		115
1177	HYD. TANK BREATHER	1	115
1178	FILL CAP	1	115
1179	MAGNETIC DRAIN PLUG	2	115
44303	HOSE TIE STRAP	2	115
1062	SIGHT GAUGE	1	115
1378	HYD. SUCTION SCREEN	1	115
2082	PRES. GAUGE	2	115

PT #	DESCRIPTION	QTY	PG #
2078	BALL VALVE	2	115
43103	ELEVATOR FRAME	1	117
1577	BOLT	20	117
43113	TOP SHAFT	1	117
1503	NUT	12	117
1546	BOLT	2	117
80133	ELEV. DRIVE CHAIN ASSEM	1	117
1505	NUT	2	117
1551	BOLT	4	117
43134	CHAIN	1	117
43107	SEPARATOR	2	117
1147	BOLT	4	117
43135	COVER	1	117
1506	NUT	24	117
1030	BEARING	6	117
43125	SLIDE	2	117
1540	BOLT	12	117
43127	ADJUSTMENT ANGLE	4	117
43123	GUIDE	4	117
1671	WASHER	8	117
1533	BOLT	8	117
43115	SPACER	4	117
43111	TOP LINER	1	119
1711	BOLT	14	119
43121	CANOPY	1	119
43131	CANOPY EXTENSION	1	119
1535	BOLT	24	119
1521	WASHER	48	119
1502	NUT	50	119
43105	BOTTOM LINER	1	119
41744	END STRAP	1	119
41776	RUBBER SEAL	2	119
41710	HOLD DOWN	2	119
1713	BOLT	7	119
41772	BOTTOM RUBBER	1	119
1007	ELEVATOR CHAIN	2	121
1149	SHAFT KEY	6	121
1039	RUBBER SPROCKET	6	121
41738	SHAFT SPACER	6	121
41740	LOCK PLATE	12	121
1541	BOLT	42	121
1503	NUT	70	121
43109	BOTTOM AND MIDDLE SHAFT	2	121
1501	NUT	84	121
41728	SQUEEGEE ANGLE	14	121
41726	SQUEEGEE RUBBER	7	121

PT #	DESCRIPTION	QTY	PG #
1537	BOLT	28	121
1531	BOLT	84	121
41770	LIFT STRAP	2	123
41764	SWIVEL SHAFT	1	123
62813	WASHER	2	123
1137	HOSE	2	123
1545	BOLT	12	123
41441	PIN	2	123
41766	LIFT ARM	2	123
1505	NUT	12	123
41768	PIVOT SHAFT MOUNT	2	123
1140	FITTING	3	123
1138	HOSE	1	123
1139	GREASE FITTING	6	123
1141	BULKHEAD FITTING	3	123
1142	NUT	3	123
1782	BOLT	2	123
42201	SPRAY BAR	2	125
1158	HOSE BARB FITTING	4	125
1204	BALL VALVE	4	125
1187	PLUG	1	125
1203	HOSE CLAMP	4	125
1162	ADAPTER	12	125
1163	HOSE BARB TEE ADAPTER	5	125
1164	NOZZLE	12	125
1130	WATER TANK ELBOW	1	125
1165	HOSE	25'	125
1166	HOSE	30'	125
42203	GB SPRAY BAR	2	125
1167	HOSE BARB FITTING	2	125
1168	U BOLT	8	125
42205	SPRAY BAR HANGER	4	125
1169	HOSE CLAMP	20	125
3232	WATER PUMP	1	125
1076	PUMP NOZZLE	2	125
1117	WATER FILTER HOUSING	1	125
1172	WATER FILTER ELEMENT	1	125
1159	BALL VALVE	1	125
1160	NIPPLE	1	125
1371	HOSE BARB FITTING	1	125
1372	ADAPTER	1	125
1373	HOSE BARB FITTING	1	125
1374	HOSE BARB FITTING	1	125
1375	CLEAR TUBING	48"	125
1376	CLAMP	2	125
1377	FLOAT	1	125

PT #	DESCRIPTION	QTY	PG #
42430	FILTER MOUNT	1	125
1090	OIL PRESSURE GAUGE	1	126
1091	WATER TEMP GAUGE	1	126
1092	TACH/HOUR METER	1	126
1094	SHUT DOWN MODULE	1	126
1095	IGNITION SWITCH	1	126
1090	OIL PRESSURE GAUGE	1	126
1091	WATER TEMP GAUGE	1	126
1092	TACH/HOUR METER	1	126
1094	SHUT DOWN MODULE	1	126
1095	IGNITION SWITCH	1	126
62555	AUXILIARY CONTROL HARNESS	1	128
1947	RELAY	6	129
2043	CIRCUIT BREAKER	1	129
2041	FUSE HOLDER 8 POSITION	1	129
2042	CIRCUIT BREAKER	1	129
1193	FUSE 5amp F6	1	129
1946	RELAY	2	129
62553	Aux. Box Mounting Plate	1	129
42543	REAR HARNESS	1	130
62550	SWITCH BOX HARNESS	1	131
1101	SHOCK MOUNT	4	133
62505	SWITCH BOX	1	133
62506	PANEL	1	133
42545	PANEL DECAL	1	133
1127	STALL ALARM	1	133
1128	STALL LIGHT	1	133
1684	SWITCH (S-O-S)	4	133
1685	SWITCH (S-O-M)	3	133
1686	SWITCH (M-O-M)	6	133
1689	HOLE PLUG	2	133
1691	COURTESY LIGHT	1	133
62552	VALVE HARNESS	1	134
42547	BODY HARNESS	1	135
3225	POWER CABLE	1	136
42501	ADAPTER PLATE	1	137
1546	BOLT	1	137
42502	SUPPORT POST	1	137
1505	NUT	1	137
1531	BOLT	7	137
1520	WASHER	4	137
1501	NUT	7	137
42503	TOP MOUNT	1	137
42506	SWITCH BOX MOUNT PANEL	1	137
42510	OFFSET POST	1	137
1233	ELECT. BOOT	1	137

PT #	DESCRIPTION	QTY	PG #
1194	PEDISTAL KNOB	2	137
43201	DO NOT STEP	10	140
43205	PINCH POINT STRIP	2	140
43207	DANGER SAFETY SUPPORT IN PLACE	5	141
43211	CAUTION ROTATING BROOMS	4	141
43213	IMPORTANT OPERATOR IS RESPONSIBLE	1	141
43215	DANGER STAND CLEAR	6	142
43217	HYDRAULIC OIL MUST CONFORM	2	142
43219	WARNING THIS VEHICLE IS EQUIPED	1	143
43221	WARNING DO NOT OVERLOAD	1	143
43223	SAFETY SUPPORT	3	144
43225	ROTATING BEACONS AND STROBES	1	144
43227	WARNING SWEEPER MUST BE LEVEL	2	144
43229	CAUTION CLOSE AND LOCK	7	145
43231	CAUTION BEFORE OPERATING	1	145
43233	PINCH POINT SQ	2	145
43235	WATER ONLY	1	146
43237	DUMP ON LEVEL GROUND ONLY	1	146
43239	DANGER HIGH WIRE HAZARD VOLTAGE	1	146
43244	LOW SPEED WARNING	1	147
43245	MADE IN USA	1	147
43247	LH S-4 STARFIRE LOGO REAR CANOPY DOORS	1	148
43264	RH S-4 STARFIRE LOGO REAR CANOPY DOORS	1	148
43248	LH S-4 STARFIRE DECAL REAR CANOPY DOOR	1	149
43249	RH S-4 STARFIRE DECAL REAR CANOPY DOOR	1	149
43246	STARFIRE LOGO DECAL REAR CANOPY	1	149
43243	STEWART-AMOS SWEEPER CO.	2	150
43254	Lg STEWART-AMOS DECAL	1	150
80216	SAFETY DECAL KIT		156
80217	S-4 DECAL KIT		156

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PT #	DESCRIPTION	QTY	PG #
1005	DOOR LATCH	2	91
1005	DOOR LATCH	4	93
1005	DOOR LATCH	1	95
1007	ELEVATOR CHAIN	2	121
1014	MAIN BROOM MANDREL	1	103
1016	MAIN BROOM STRIP SET	1	103
1018	SUSPENSION SPRING	2	99
1019	RETRACT SPRING	2	99
1020	BUSHING	8	99
1022	TURN BUCKLE	4	99
1023	TURN BUCKLE	2	99
1023	TURN BUCKLE	2	105
1024	BACKUP ALARM	1	93
1030	BEARING	1	103
1030	BEARING	6	117
1031	HINGE	4	91
1031	HINGE	8	93
1031	HINGE	2	95
1033	WINDOW RUBBER	37"	95
1037	ELEVATOR STALL SWITCH	1	109
1039	RUBBER SPROCKET	6	121
1042	QUICK LINK	8	99
1043	CYLINDER	2	103
1043	MB CYLINDER	2	109
1045	EYE BOLT	2	105
1046	SHOCK	2	103
1047	ISOLATION MOUNT	4	115
1049	INTAKE HOSE	30"	113
1059	CYLINDER	2	97
1059	CYLINDER	2	111
1060	HOPPER TILT CYLINDER	1	109
1061	CYLINDER	2	95
1061	HOPPER DOOR CYLINDER	2	109
1062	SIGHT GAUGE	1	115
1074	SNAP RING	16	97
1075	200 GAL. PLASTIC TANK	1	89
1076	WATER FILTER		115
1076	PUMP NOZZLE	2	125
1078	LINEAR ACTUATOR	2	101
1081	SUSPENSION SPRING	2	105
1087-3	PROXIMITY SWITCH	2	89
1090	OIL PRESSURE GAUGE	1	126
1090	OIL PRESSURE GAUGE	1	126
1091	WATER TEMP GAUGE	1	126
1091	WATER TEMP GAUGE	1	126

PT #	DESCRIPTION	QTY	PG #
1092	TACH/HOUR METER	1	126
1092	TACH/HOUR METER	1	126
1094	SHUT DOWN MODULE	1	126
1094	SHUT DOWN MODULE	1	126
1095	IGNITION SWITCH	1	126
1095	IGNITION SWITCH	1	126
1101	SHOCK MOUNT	4	133
1104	OIL PRESSURE SENDER	1	113
1106	ENGINE OIL FILTER	1	113
1108	FUEL FILTER	1	113
1115	CARBIDE DRAG SHOE	2	105
1117	WATER FILTER HOUSING	1	125
1125	TIMBREN	1	89
1127	STALL ALARM	1	133
1128	STALL LIGHT	1	133
1130	WATER TANK ELBOW	1	125
1137	HOSE	2	123
1138	HOSE	1	123
1139	GREASE FITTING	6	123
1140	FITTING	3	123
1141	BULKHEAD FITTING	3	123
1142	NUT	3	123
1143	FENDER	2	89
1147	BOLT	4	117
1148	GB BUSH SET FOR 32" PLATE	2	101
1149	SHAFT KEY	6	121
1154	EXHAUST CLAMP	2	113
1155	HOSE CLAMP	2	113
1156	EXHAUST PIPE	1	113
1158	HOSE BARB FITTING	4	125
1159	BALL VALVE	1	125
1160	NIPPLE	1	125
1162	ADAPTER	12	125
1163	HOSE BARB TEE ADAPTER	5	125
1164	NOZZLE	12	125
1165	HOSE	25'	125
1166	HOSE	30'	125
1167	HOSE BARB FITTING	2	125
1168	U BOLT	8	125
1169	HOSE CLAMP	20	125
1172	WATER FILTER ELEMENT	1	125
1175	RAIN CAP	1	113
1176	MUFFLER	1	113
1177	HYD. TANK BREATHER	1	115
1178	FILL CAP	1	115

PT #	DESCRIPTION	QTY	PG #
1179	MAGNETIC DRAIN PLUG	2	115
1185	BUSHING	8	95
1185	BUSHING	6	97
1185	BUSHING	8	99
1185	BRUSHING	4	103
1185	BUSHING	8	105
1187	PLUG	1	125
1193	FUSE 5amp F6	1	129
1194	PEDISTAL KNOB	2	137
1200	ISUZU LEAF SPRING	2	89
1203	HOSE CLAMP	4	125
1204	BALL VALVE	4	125
1233	ELECT. BOOT	1	137
1260	CLAMP	1	113
1266	MANDRELL END PLATE	2	103
1287	MANIFOLD	1	107
1291	DUMP VALVE	1	107
1293	MANIFOLD	1	106
1295	LH&RH GB MOTOR	3	106
1299	THROTTLE GUIDE	1	113
1371	HOSE BARB FITTING	1	125
1372	ADAPTER	1	125
1373	HOSE BARB FITTING	1	125
1374	HOSE BARB FITTING	1	125
1375	CLEAR TUBING	48"	125
1376	CLAMP	2	125
1377	FLOAT	1	125
1378	HYD. SUCTION SCREEN	1	115
1379	CYLINDER	4	99
1379	GB CYLINDER	4	111
1387	THROTTLE ACTUATOR	1	113
1388	THROTTLE ACTUATOR CABLE	1	113
1390	ENGINE OUTER AIR FILTER	1	113
1391	ENGINE INNER AIR FILTER	1	113
1394	WATER LEVEL FLOAT	1	91
1395	CLEAR FLOAT TUBE	1	91
1401	HOSE-MB MOTOR TO ELEV. MOTOR	1	109
1402	HOSE-FRONT OF PUMP TO LH VALVE	1	109
1403	HOSE-MB ROD TO "T"	2	109
1404	HOSE-ELEV. MOTOR TO VALVE	1	109
1405	HOSE-MB HEAD TO "T"	2	109
1406	HOSE-MB VALVE TO "T"	2	109
1407	HOSE-HOPPER TILT VALVE TO CROSS	1	109
1408	HOSE-VALVE RETURN TO COOLER "T"	1	109
1409	HOSE-COOLER TO FILTER	1	109
1410	HOSE-HOPPER TILT VALVE TO CROSS	1	109

PT #	DESCRIPTION	QTY	PG #
1411	HYDRAULIC OIL FILTER BASE	1	109
1412	HOSE-SUCTION	1	109
1413	HOSE-HOPPER TILT ROD TO CROSS	1	109
1414	HOSE-HOPPER TILT HEAD TO CROSS	1	109
1415	HOSE-HOPPER DOOR CYLINDERS	4	109
1416	HYDRAULIC OIL FILTER	1	109
1417	HOSE-MB MOTOR TO VALVE	1	109
1418	HOSE - PUMP TO VALVE	1	111
1419	HOSE - VALVE TO HOPPER LIFT	1	111
1420	HOSE - HOPPER LIFT RETURN	1	111
1421	HOSE - LIFT CROSSOVER	1	111
1422	HOSE - RETURN CROSSOVER	1	111
1423	HOSE - ROD RETURN	1	111
1426	HOSE - LH GB CYL. TO VAL.	1	111
1427	HOSE - VALVE RETURN	1	111
1428	HOSE - RETURN CYLINDER	4	111
1429	HOSE - RH GB MOTOR TO VAL.	2	111
1430	HOSE - LH GB MOTOR TO VAL.	2	111
1431	HOSE - RH GB CYL. TO VAL.	2	111
1501	NUT	20	91
1501	NUT	36	93
1501	NUT	8	95
1501	NUT	4	105
1501	NUT	84	121
1501	NUT	7	137
1502	NUT	17	89
1502	NUT	8	105
1502	NUT	16	115
1502	NUT	50	119
1503	NUT	12	89
1503	NUT	6	91
1503	NUT	6	93
1503	NUT	20	95
1503	NUT	4	99
1503	NUT	10	103
1503	NUT	10	105
1503	NUT	12	117
1503	NUT	70	121
1505	NUT	4	89
1505	NUT	2	99
1505	NUT	4	101
1505	NUT	6	103
1505	NUT	32	115
1505	NUT	2	117
1505	NUT	12	123
1505	NUT	1	137

PT #	DESCRIPTION	QTY	PG #
1506	NUT	10	99
1506	NUT	8	101
1506	NUT	24	117
1507	NUT	2	97
1507	NUT	14	99
1508	NUT	2	99
1508	NUT	2	105
1520	WASHER	20	91
1520	WASHER	36	93
1520	WASHER	20	95
1520	WASHER	4	137
1521	WASHER	4	105
1521	WASHER	16	115
1521	WASHER	48	119
1522	WASHER	6	91
1524	WASHER	4	113
1524	WASHER	4	115
1525	WASHER	4	101
1526	WASHER	4	99
1526	WASHER	2	101
1526	WASHER	4	115
1527	WASHER	2	105
1530	BOLT	20	95
1530	BOLT	4	105
1531	BOLT	84	121
1531	BOLT	7	137
1533	BOLT	8	117
1534	BOLT	12	89
1534	BOLT	6	105
1535	BOLT	17	89
1535	BOLT	4	115
1535	BOLT	24	119
1537	BOLT	2	89
1537	BOLT	6	99
1537	BOLT	6	101
1537	BOLT	2	103
1537	BOLT	2	105
1537	BOLT	28	121
1540	BOLT	4	99
1540	BOLT	48	101
1540	BOLT	12	117
1541	BOLT	42	121
1545	BOLT	6	103
1545	BOLT	2	103
1545	BOLT	4	113
1545	BOLT	12	123

PT #	DESCRIPTION	QTY	PG #
1546	BOLT	2	89
1546	BOLT	4	101
1546	BOLT	6	103
1546	BOLT	2	117
1546	BOLT	1	137
1547	BOLT	14	115
1549	BOLT	8	101
1551	BOLT	4	117
1556	BOLT	4	99
1558	BOLT	4	95
1559	BOLT	10	99
1560	BOLT	2	95
1560	BOLT	4	99
1561	BOLT	2	99
1562	BOLT	2	105
1574	BOLT	2	99
1575	BOLT	8	105
1577	BOLT	20	117
1579	BOLT	8	91
1579	BOLT	32	93
1579	BOLT	8	95
1581	WASHER	2	99
1583	NUT	4	95
1591	SCREW	6	89
1604	COTTER PIN	12	97
1604	COTTER PIN	2	103
1621	PIN	6	97
1630	CAPSCREW	4	103
1630	CAPSCREW	4	105
1639	NUT	2	103
1639	NUT	2	105
1640	NUT	2	89
1640	NUT	2	99
1640	NUT	2	105
1642	NUT	4	99
1669	WASHER	6	103
1670	WASHER	4	89
1670	WASHER	6	99
1670	WASHER	10	101
1670	WASHER	2	103
1670	WASHER	2	105
1671	WASHER	6	103
1671	WASHER	8	117
1680	KEY	1	103
1683	OFFSET KEY	2	101
1683	KEY	1	103

PT #	DESCRIPTION	QTY	PG #
1684	SWITCH (S-O-S)	4	133
1685	SWITCH (S-O-M)	3	133
1686	SWITCH (M-O-M)	6	133
1689	HOLE PLUG	2	133
1691	COURTESY LIGHT	1	133
1711	BOLT	14	119
1713	BOLT	7	119
1730	BOLT	4	89
1740	NUT	4	89
1750	INSERT	8	91
1750	INSERT	16	93
1781	BOLT	6	103
1782	BOLT	16	97
1782	BOLT	4	103
1782	BOLT	2	123
1822	WASHER	16	89
1822	WASHER	6	93
1822	WASHER	6	99
1822	WASHER	2	101
1822	WASHER	30	103
1822	WASHER	2	105
1839	1/16" RESTRICTOR	2	107
1843	BOLT	2	89
1843	BOLT	4	89
1843	BOLT	6	91
1843	BOLT	6	93
1843	BOLT	4	103
1861	DOOR STOP SPRING	2	91
1861	DOOR STOP SPRING	4	93
1905	CLEARANCE LIGHT	4	93
1906	GROMMET	4	93
1907	ID BAR	1	93
1908	LICENSE PLATE LIGHT	1	93
1909	BRAKE LIGHT	2	93
1910	TURN SIGNAL	2	93
1911	BACKUP LIGHT	2	93
1912	GROMMET	6	93
1914	PIG TAIL	6	93
1915	WORK LIGHT	3	89
1915	WORK LIGHT	1	93
1916	STROBE	1	91
1916	STROBE	1	93
1934	BIN VIB	1	95
1946	RELAY	2	129
1947	RELAY	6	129
1955	HYD. COOLER & FAN	1	91

PT #	DESCRIPTION	QTY	PG #
1955	ELECTRIC HYD. OIL COOLER	1	111
1985	CYLINDER	1	97
1989	LH&RH GB CYLINDER	2	106
1990	FLOAT VALVE	2	106
1993	MB & HOPPER & ELEV VALVES	3	107
1994	P.O. CHECK VALVE	1	107
2000	RELIEF VALVE	1	106
2000	RELEF VALVE	1	107
2001	HOPPER LIFT CYLINDER VALVE	1	106
2010	DOUBLE P.O. CHECK VALVE	1	107
2030	2 GPM RESTRICTOR	2	111
2041	FUSE HOLDER 8 POSITION	1	129
2042	CIRCUIT BREAKER	1	129
2043	CIRCUIT BREAKER	1	129
2047	AUX BOX		115
2076	RUBBER BUMPER	1	113
2077	ENGINE	1	113
2078	GUAGE SHUTOFF VALVE	1	106
2078	GUAGE SHUTOFF VALVE	1	107
2078	BALL VALVE	2	115
2082	5000 psi GUAGE	1	106
2082	5000 psi GUAGE	1	107
2082	PRES. GAUGE	2	115
2086	DIRECTIONAL RESTRICTORS	2	111
3213-3	MANDRELL SHAFT	1	103
3225	POWER CABLE	1	136
3232	WATER PUMP		115
3232	WATER PUMP	1	125
3243	HYDRAULIC MOTOR	2	109
3243	HYDRAULIC MOTOR	2	111
3248	1 1/2" BUSHING	2	101
3251	HYDRAULIC PUMP	1	113
3352	CAMERA/MONITOR	1	93
3353	CAMERA	1	93
3354	CAMERA CABLE	2	93
4573	BOLT	2	97
9137	LANYARD	4	99
9138	DISCONNECT SWITCH	1	115
9265	FUEL TANK CAP	1	89
41205	LINKAGE MOUNT (LEFT)	1	99
41207	MOTOR BRACKET (LEFT)	1	101
41209	DRIVER HUB	2	101
41211	PIN	4	99
41215	SPRING BELL CRANK	2	99
41221	LINK	2	99
41227	32" PLATE	2	101

PT #	DESCRIPTION	QTY	PG #
41230	EXTEND SPRING MOUNT	2	99
41316	LINKAGE MOUNT (RIGHT)	1	99
41318	MOTOR BRACKET (RIGHT)	1	101
41401	PIN	2	103
41401	PIN	4	105
41405	LIFT BELL CRANK (LEFT)	1	103
41407	LIFT BELL CRANK (RIGHT)	1	103
41413	MAIN BROOM ROCK SHAFT	1	103
41415	PRES. CONTROL ROCK SHAFT	1	105
41417	PIN	2	103
41421	MAIN BROOM LIFT STRAP	2	103
41423	PRES. CONTROL ARM (LEFT)	1	105
41425	PRES. CONTROL ARM (RIGHT)	1	105
41427	MAIN BROOM LIFT CHAIN	2	103
41429	DRAG LINK	2	105
41431	BACKING	2	105
41433	DRAG SHOE MOUNT (LEFT)	1	105
41435	DRAG SHOE MOUNT (RIGHT)	1	105
41437	DRAG SHOE LIFT CHAIN	2	103
41441	PIN	2	123
41503	DOOR	2	93
41504	SPACER	4	91
41602	REAR CANOPY	1	93
41612	LEFT REAR DOOR	1	93
41614	RIGHT REAR DOOR	1	93
41710	HOLD DOWN	2	119
41726	SQUEEGEE RUBBER	7	121
41728	SQUEEGEE ANGLE	14	121
41738	SHAFT SPACER	6	121
41740	LOCK PLATE	12	121
41744	END STRAP	1	119
41764	SWIVEL SHAFT	1	123
41766	LIFT ARM	2	123
41768	PIVOT SHAFT MOUNT	2	123
41770	LIFT STRAP	2	123
41771	REST TUBE	1	89
41772	BOTTOM RUBBER	1	119
41776	RUBBER SEAL	2	119
42060	REAR SKIRT	1	89
42065	WATER VALVE	1	89
42067	DIRT DEFLECTOR RUBBER	2	105
42073	SKIRT	1	89
42075	BASE STRIP	1	89
42077	BEARING INSPECTION COVER	2	89
42081	WATER VALVE LEVER	1	93
42085	SAFETY PROP	2	97

PT #	DESCRIPTION	QTY	PG #
42101	CENTER DRAG RUBBER	1	89
42107	LIMB GUARD (NOT SHOWN OPTIONAL)	1	91
42107	LIMB GUARD	1	93
42121	MUD FLAP	2	89
42131	SAFETY	1	97
42201	SPRAY BAR	2	125
42203	GB SPRAY BAR	2	125
42205	SPRAY BAR HANGER	4	125
42214	FILL RELIEF RUBBER	1	89
42220	WATER TANK MOUNT	1	89
42220-06	WATER TANK STRAP	2	89
42315	PRES. GUAGE MOUNT	1	115
42404	THROTTLE MOUNT	1	113
42427	MUFFLER BRACE	2	113
42429	RUBBER CONNECTOR	1	113
42430	FILTER MOUNT	1	125
42501	ADAPTER PLATE	1	137
42502	SUPPORT POST	1	137
42503	TOP MOUNT	1	137
42506	SWITCH BOX MOUNT PANEL	1	137
42507	PROXIMITY MOUNT	1	89
42510	OFFSET POST	1	137
42543	REAR HARNESS	1	130
42545	PANEL DECAL	1	133
42547	BODY HARNESS	1	135
42809	SCISSOR PIN	16	97
42813	SCISSOR ROLLER	4	97
42905	DOOR LINK	4	95
42913	WINDOW	1	95
42915	RUBBER FLASHING	1	95
42917	UPRIGHT FLASHING	2	95
43103	ELEVATOR FRAME	1	117
43105	BOTTOM LINER	1	119
43107	SEPARATOR	2	117
43109	BOTTOM AND MIDDLE SHAFT	2	121
43111	TOP LINER	1	119
43113	TOP SHAFT	1	117
43115	SPACER	4	117
43121	CANOPY	1	119
43123	GUIDE	4	117
43125	SLIDE	2	117
43127	ADJUSTMENT ANGLE	4	117
43129	ELEV CENTERING BUSHING	2	89
43131	CANOPY EXTENSION	1	119
43134	CHAIN	1	117
43135	COVER	1	117

PT #	DESCRIPTION	QTY	PG #
43201	DO NOT STEP	10	140
43205	PINCH POINT STRIP	2	140
43207	DANGER SAFETY SUPPORT IN PLACE	5	141
43211	CAUTION ROTATING BROOMS	4	141
43213	IMPORTANT OPERATOR IS RESPONSIBLE	1	141
43215	DANGER STAND CLEAR	6	142
43217	HYDRAULIC OIL MUST CONFORM	2	142
43219	WARNING THIS VEHICLE IS EQUIPED	1	143
43221	WARNING DO NOT OVERLOAD	1	143
43223	SAFETY SUPPORT	3	144
43225	ROTATING BEACONS AND STROBES	1	144
43227	WARNING SWEEPER MUST BE LEVEL	2	144
43229	CAUTION CLOSE AND LOCK	7	145
43231	CAUTION BEFORE OPERATING	1	145
43233	PINCH POINT SQ	2	145
43235	WATER ONLY	1	146
43237	DUMP ON LEVEL GROUND ONLY	1	146
43239	DANGER HIGH WIRE HAZARD VOLTAGE	1	146
43243	STEWART-AMOS SWEEPER CO.	2	150
43244	LOW SPEED WARNING	1	147
43245	MADE IN USA	1	147
43246	STARFIRE LOGO DECAL REAR CANOPY	1	149
43247	LH S-4 STARFIRE LOGO REAR CANOPY DOORS	1	148
43248	LH S-4 STARFIRE DECAL REAR CANOPY DOOR	1	149
43249	RH S-4 STARFIRE DECAL REAR CANOPY DOOR	1	149
43254	Lg STEWART-AMOS DECAL	1	150
43264	RH S-4 STARFIRE LOGO REAR CANOPY DOORS	1	148
44300	HYDRAULIC TANK	1	115
44301	TANK COVER	1	115
44302	VALVE MOUNT PLATE	1	115
44303	HOSE TIE STRAP	2	115
45003	HOPPER	1	95
45003	HOPPER (LH DUMP OPTION)	1	95
45003	HOPPER DOOR	1	95
45301	FRONT CANOPY	1	91
45302	LH LOUVER DOOR	1	91
45303	RH LOUVER DOOR	1	91
46010	MAIN FRAME WELDMENT	1	89
47002	SCISSOR MOUNT	1	97
47200	GUTTER BROOM MOUNT	1	99
47520	LOWER SCISSOR, ROLLER SECTION	1	97
47521	UPPER SCISSOR, ROLLER SECTION	1	97
47522	LOWER SCISSOR, ANCHOR SECTION	2	97
47530	UPPER SCISSOR, ANCHOR SECTION	2	97
48001	HOPPER LIFT FRAME	1	97
49006	FUEL TANK	1	89

PT #	DESCRIPTION	QTY	PG #
61201	GB MOUNT (LEFT)	1	99
61203	GB PIVOT (LEFT)	1	99
61213	PIN	2	99
61235	RETRACT PLATE (LEFT)	1	99
61301	GB MOUNT (RIGHT)	1	99
61303	GB PIVOT (RIGHT)	1	99
61335	RETRACT PLATE (RIGHT)	1	99
61415	LONG MANDRELL SHAFT	1	103
62505	SWITCH BOX	1	133
62506	PANEL	1	133
62550	SWITCH BOX HARNESS	1	131
62552	VALVE HARNESS	1	134
62553	Aux. Box Mounting Plate	1	129
62555	AUXILARY CONTROL HARNESS	1	128
62812	CENTER PIN	8	97
62813	RETAINER WASHER	16	97
62813	WASHER	4	103
62813	WASHER	2	123
62907	ACCESS DOOR	1	95
64501	MB LIFT ARM (LEFT)	1	103
64502	MB LIFT ARM (RIGHT)	1	103
80120	VALVE ASSEMBLY	1	107
80129	MAIN BROOM COUPLER	1	103
80133	ELEV. DRIVE CHAIN ASSEM	1	117
80134	VALVE ASSEMBLY	1	106
80216	SAFETY DECAL KIT		156
80217	S-4 DECAL KIT		156
91502	DOOR STOP	2	91
91502	DOOR STOP	4	93
91503	MOUNT	2	91
91503	MOUNT	4	93
92904	PIN	1	95