

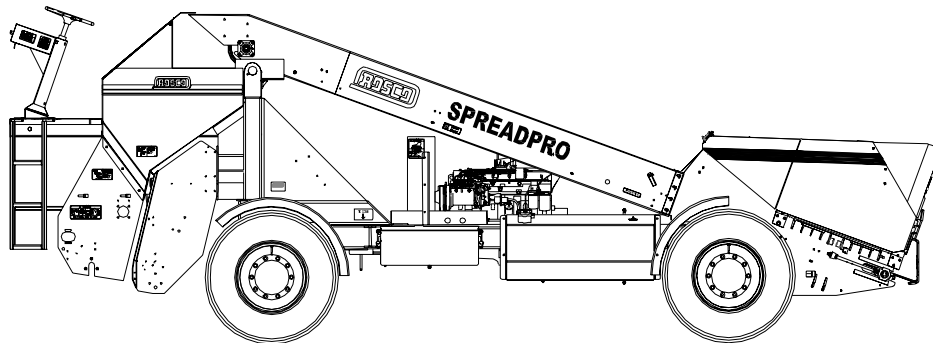


SPREAD PRO Aggregate Distributor

**OPERATION, SERVICE & PARTS
Manual Part No. 73092-01**

For Serial No. 41578 and later

Published 07-01-05



NOTE: It is the responsibility of the customer or user's management to train, educate and supervise employees in the proper operation and maintenance of this equipment.

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LIMITED WARRANTY POLICY AND PROCEDURES

EFFECTIVE FOR UNITS SHIPPED AFTER DECEMBER 1, 2001

A. WARRANTY

1. If a defect in material or workmanship is found and the authorized Dealer is notified during the warranty period, ROSCO will repair or replace any part or component of the unit or part that fails to conform to the warranty during the warranty period.
2. The warranty will begin upon the completion of the warranty form by the initial customer and will expire after twelve (12) months have passed. The Warranty Card must be filled out within ten (10) days of delivery of the unit.
3. Engines and truck chassis are warranted by their manufacturers and may have warranty coverage that differs from that of ROSCO.
4. Replacement parts furnished by ROSCO are covered for the remainder of the warranty period applicable to the unit or component in which such parts are installed.
5. ROSCO has the right to repair any component or part before replacing it with a new part.
6. All new replacement parts purchased by a ROSCO dealer will carry a six (6) month warranty. Remanufactured parts purchased by a ROSCO dealer will carry a ninety (90) day warranty.

B. LIMITATIONS

ROSCO has no obligation under this warranty for:

1. Any defects caused by misuse, misapplication, negligence, accident or failure to maintain or use in accordance with the most current operating instructions.
2. Unauthorized alterations.
3. Defects or failures caused by any replacement parts or attachments not manufactured by or approved by ROSCO.
4. Failure to conduct normal maintenance and operating service, including without limitation, providing lubricants, coolant, fuel, tune-ups, inspections or adjustments.
5. Unreasonable delay, as established by ROSCO, in making the applicable units or parts available upon notification of a service notice ordered by ROSCO.
6. The warranty responsibility on all engines and/or truck chassis rests with the respective manufacturer.
7. ROSCO may have support agreements with some engine and/or truck chassis manufacturers for warranty and parts support.

LIMITED WARRANTY POLICY AND PROCEDURES

C. ITEMS NOT COVERED

ROSCO is not responsible for the following:

1. Charges for travel time, mileage or overtime.
2. Charges related to transporting the product to and from the place at which warranty work is performed.
3. Airfreight charges related to transporting repair parts to the place at which warranty work is performed.
4. All used units or used parts of any kind.
5. Repairs made necessary by normal wear and tear or brought about by abuse or lack of maintenance of the equipment, except for premature failures, conveyor chains, polytrack pads, and track rails.
6. Attachments not manufactured or installed by ROSCO.
7. Liability for incidental or consequential damages of any type, including, but not limited to lost profits or expenses of acquiring replacement equipment.
8. Miscellaneous charges.

D. OTHER WARRANTIES

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED, STATUTORY AND IMPLIED WARRANTIES APPLICABLE TO UNITS, ENGINES OR PARTS, WITHOUT LIMITATION, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT OR WARRANTY, OR ALLEGED NEGLIGENCE OR LIABILITY WITHOUT FAULT, SHALL ROSCO BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF PROFIT OR REVENUE, COST OF CAPITAL, COST OF SUBSTITUTED EQUIPMENT, FACILITIES OR SERVICES, DOWN TIME COSTS, LABOR COSTS OR CLAIMS OF CUSTOMERS, PURCHASERS OR LESSEES FOR SUCH DAMAGES.

GENERAL INFORMATION

This manual has been compiled to assist the owner and/or operator with the correct operation and routine preventive maintenance procedures for the SpreadPro as manufactured by ROSCO Manufacturing Company. A parts book is also included in this manual to allow for the accurate ordering of repair parts from authorized ROSCO Dealers/Distributors.

THIS MANUAL HAS BEEN ORGANIZED INTO SIX (6) MAJOR SECTIONS:

- | | |
|-----------------|--------------------|
| 1. INTRODUCTION | 4. MAINTENANCE |
| 2. SAFETY | 5. TROUBLESHOOTING |
| 3. OPERATION | 6. PARTS BOOK |

The Table of Contents, located at the beginning of this manual, gives an overview of these sections. In addition, a Table of Contents page is located at the beginning of each of these sections with more detail on their major subsections.

In order to receive the performance and efficiency that has been designed into the SpreadPro, it is very important that you:

- A. Read this manual thoroughly before operating or servicing the Chipspreader.
- B. Keep this manual in a convenient place for ready reference.
- C. Do not attempt to make repairs or adjustments you do not understand. If you require additional information or service, contact your authorized ROSCO Dealer/Distributor.

Throughout this manual references are made to the **LEFT SIDE** and **RIGHT SIDE** of the Chipspreader. These terms are used as the SpreadPro is viewed from the driver's seat, facing forward.

SERIAL NUMBER - It is important to know the Serial Number of this equipment. The Serial Number Plate is located on the left side of the unit's main frame inside the left front wheel. Record the Serial Number in the space provided below. Use the Serial Number in all correspondence referring to the SpreadPro and when ordering parts.

Model _____

Serial Number _____

Production Year _____

DESIGN SPECIFICATIONS - ROSCO Manufacturing Company reserves the right to make design or specification changes without prior notification or to make any other improvements without incurring obligations to add them to any machine in existence.

TECHNICAL INFORMATION - ROSCO Manufacturing Company is continuously improving its products. The technical information found in this manual was correct at the time it was approved for publication. However, if you find differences between your Chipspreader and the information contained in this manual, please contact your local authorized ROSCO Dealer/Distributor.

AGGREGATE SELECTION AND APPLICATION

The SpreadPro Chipspreader is capable of spreading aggregates ranging from sand to 1 inch (25.4 mm) stone in the surface treatment of asphalt pavements. Such treatments are used to seal the asphalt surface from weathering problems caused by water and air permeation, and as an aid in preventing traffic wear to the pavement, extending the pavement life while providing a better non-skid type surface.

The SpreadPro Chipspreader produces a higher duration chip seal because of the mat produced. The mesh covered spreadroll pulls the aggregate out of the hopper onto the scatter plate. The scatter plate deflects the aggregate slightly to the rear as it falls down onto the asphalt, producing a uniform mat. This uniformity can be produced over a wide range of spreading speeds.

TYPES OF TREATMENTS

Usually, there are three types of asphalt/aggregate surface treatments used. The three treatments are:

Single Surface Treatment - This treatment is used to prevent wear, and aid in waterproofing a surface. It involves a single pass of sprayed asphalt followed at once by a single layer of aggregate.

Multiple Surface Treatment - This treatment provides greater surface protection against both traffic wear and weather. It is made by using two or more alternating layers of asphalt and aggregate. Each succeeding layer of aggregate should be no more than one half the size of the aggregate in the preceding layer.

Sand Seal - This treatment is used to provide a tight seal against the weather and to make the surface more skid resistant. Its construction is comparable to a Single Surface Treatment.

MATERIAL SELECTION

In general, the majority of **hard** aggregates can be used for aggregate/asphalt surface treatments. Aggregate for sand seal treatment may consist of sand or screenings. However, all aggregate should meet certain requirements.

1. It should be as uniform in size as is economical. Generally, the biggest particle should be no more than twice the size of the smallest particle.

2. Aggregates of 1/2 inch (13 mm) or less provide a quieter, smoother road surface. Larger aggregate will provide a more skid-resistant surface, but will create more noise so is most often used in non-populated areas.

3. The best aggregate shape is cubical. Flat or elongated shapes may be completely buried in asphalt that is needed to hold cubical shaped aggregate. Therefore, the fewer flat or elongated shapes in the aggregate the better.

4. Aggregate must be clean. Coatings of dust, silt or clay prevent adhesion to the asphalt and interfere with uniform spreading. Both problems will lessen the life of the surface treatment.

5. Aggregate should be as dry as possible and warm. Dry aggregate will adhere to the asphalt better. Surface treatments are best applied when the temperature is 50°F (10°C) or above. The surface being treated should also be dry and warm.

6. Dry sand is best for most application. Sand naturally holds and attracts water which makes even application difficult. Wet sand will bridge and therefore may not flow as required.

AGGREGATE SELECTION AND APPLICATION

SPREADING THE AGGREGATE

The following steps should be taken to assure a successful asphalt/aggregate surface treatment.

1. Have all aggregate on hand before starting treatment.
2. Cover sprayed asphalt with aggregate within 30 seconds of spraying.
3. Spread aggregate evenly. Aggregate will not stick more than one particle thick and excess may actually loosen adhered aggregate by the action of the traffic on the surface.
4. The gate opening should be at least 2 times the size of the aggregate for uniform feeding (i.e. 1/2 inch aggregate would have a gate opening of 1 inch). However, the gate opening will vary with the size of aggregate used and the uniformity of the aggregate. Use the 2 times aggregate opening as a starting point and test the spreading rate (see Starting Spread Rate) before starting each job to make any adjustments needed.

Starting Spread Rate

To determine an acceptable starting rate, completely cover a 3 foot by 3 foot (1 meter by 1 meter) board with the aggregate to be used, in a layer one stone deep. Then remove the aggregate and weigh it. This will give you the pounds per square yard (kg per square meter) required. This rate may need to be adjusted on the job, but remember not to use more aggregate than is required for the job.

Checking the Application Rate

To check the application rate the Chipspreader, with truck attached, may be driven over a square yard (square meter) of cloth and the aggregate weighed. This will give you the rate actually being spread.

Another test is to measure the area that a weighed truckload of material covers. Divide the weight of the load in pounds (kg) by the area covered in square yards (square meters). This will give you the pounds per square yard (kg per square meter).

Example:

Rate required: 25 lbs / sq. yd. (11 kg/sq.m).

Truck load weight: 12,000 lbs (approx. 5400 kg).

Area covered: 300 ft. x 12 ft. = 3600 sq. ft. = 400 sq. yds. (approx. 90 m x 4 m = 360 sq. m).

Actual rate: 12000 lbs / 400 sq yds = 30 lbs / sq. yds. (5400 kg / 360 sq. m = 15 kg / sq. m).

The actual rate is higher than needed so adjustments must be made. To adjust the rate the gate opening can be changed or the speed can be adjusted. Retest for rate accuracy.

ROLLING

Chip seal treated surfaces should be rolled with pneumatic-tired rollers *only*. Pneumatic-tired rollers provide even pressure to all particles and slight depressions in the surface. **Do not use steel drum rollers.** Steel drum rollers will bridge over any small depressions in the surface or smaller particles of aggregate. They also crush softer particles and degrade the surface.

FINISHING THE TREATED SURFACE

Light brushing with a rotary powered brush should be done to clean the surface of excess aggregate before traffic flow is restored. Allow sufficient time for the asphalt to set and bond before sweeping. Early morning is a good time to do the surface that was treated the previous day.

MACHINE SPECIFICATIONS

ROSCO Manufacturing Company reserves the right to make design or specification changes without prior notifications or to make any other improvements without incurring obligations to add them to any machine in existence.

ROSCO Manufacturing Company is continuously improving its products. The information found in this manual was correct at the time it was approved for publication.

DIMENSIONS

WHEEL BASE	149 in. (378.5 cm)
OUTSIDE TURNING RADIUS	26 ft. 6 in. (808 cm)
INSIDE TURNING RADIUS	17 ft. 6 in. (533.4 cm)
HEIGHT	105 in. w/o cab (266.7 cm); 126 in. w/cab (320.04 cm)
SPREADING WIDTH	112 in. retracted (284.5 cm); 196 in. extended (497.8 cm)
MINIMUM GROUND CLEARANCE	9.75 in. (24.8 cm)
OVERALL LENGTH	28 ft. 6 in. w/cab (868.7 cm)
TRACK WIDTH, front	76.5 in. (194.3 cm)
TRACK WIDTH, rear	94.75 in. (241 cm)
WEIGHT	24,000 lb (10,886.2 kg)
TIRE SIZE (Std)	425 x 65R x 22.5

DRIVE TRAIN

ENGINE:

Type	6-cylinder, water cooled Diesel
Make and Model	Cummins 6QSB5.9
Power @ 2200 RPM	205 HP (160.3 kw)
Ignition System	12 volt
Battery (two)	12 volt (950 CCA Rated)
Alternator	95 Amp Rated
Air Cleaner	Dry Type, Dual Element
Oil Filter	Full Flow
Oil Capacity	4.3 U.S. gal. (16.3 L)
Idle Speed	900 RPM
Fuel Tank Capacity	80 U.S. gal. (302.8 L)
Cooling System Capacity	32 U.S. qts. (30.3 L)

STEERING:

Type	Full Hydraulic, Orbitrol Motor, w/Automotive Steering Wheel
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HYDROSTATIC DRIVE SYSTEM:

Pump, Make and Model	Sauer/Sundstrand 90 Series
Pump Displacement (2)	4.57 CIR (75 cc)
Motor, Make and Model	Sauer/Sundstrand 51 Series
Motor Displacement (1)	9.76 CIR (160 cc)
Axle Drive/Steering (24:975:1)	ITL SD80

CONTROL HANDLE	Sauer/Sundstrand EDC
Hydraulic Reservoir	50 U.S. gal. (189.3 L)
Fluid Type	ISO 68
Filter(s)	10 Micron, Spin-on Type
Oil Cooler	Flow-Thru Type

MACHINE SPECIFICATIONS

AUXILIARY SYSTEMS

PUMP (Steering)	.97 CIR (29 cc) Gear
PUMP (Tandem w/Flow Control - Conveyors)	2.3 CIR (38 cc) Gear
PUMP (Tandem w/o Flow Control - Feedroll and Cylinders) ..	1.6 CIR (49 cc) & .97 CIR (29 cc) Gear
MOTOR, Conveyor (2)	24 CIR (392 cc) Gerotor
MOTOR, Spreadroll (3)	Gerotor

CONVEYORS (2), Heavy-Duty Belts

WIDTH	24 in. (61.0 cm)
TROUGHING ROLLERS	Set at 20°
HEAD PULLEY	12 in. (30.5 cm) dia. crowned rubber covered
CONTROL	Automatic or Manual single operator
SPEED	0 to 550 ft/min. (0 to 167.6 m/min.)

MISCELLANEOUS EQUIPMENT

INSTRUMENTATION	Oil Pressure, Coolant Temperature, Voltmeter, Hourmeter, Hydraulic Temperature, Fuel Level, Tachometer, Air Pressure
ENGINE WARNING SYSTEM	Low Water Level, High Coolant Temperature/Low Oil Pressure, High Hydraulic Temperature, Low Air Pressure
SEAT	Suspension and Seat Belt (Std.)
AUXILIARY SEAT	Cushion (no suspension) includes lockable Storage Box
DYNAMIC BRAKING (Rear)	Air Maxie
SERVICE BRAKES (Front)	Air Over Hydraulic Power Assist Disc
PARKING BRAKES (2 Rear)	Spring Applied/Air Release
HORN	12 volt
BACK-UP ALARM (Std.)	5db above Ambient to 112 db
LIGHTS	Headlamps, Stop, Tail, Turn Signals, Four-Way Flashers, Folding Mount Strobe Light

HOPPERS

FRONT HOPPER (Outside Width)	120 in. retracted (304.8 cm) 199 in. extended (505.5 cm)
FRONT HOPPER (Capacity)	3.2 yd ³ (2.4 m ³) maximum of 9,400 lb (4,264 kg)
REAR HOPPER (Outside Width)	114 in. retracted (289.6 cm) 141 in. extended (358.1 cm)
REAR HOPPER (Capacity)	4.5 yd ³ (3.4 m ³) maximum of 11,700 lb (5,307 kg)

OPTIONAL EQUIPMENT

ENGINE	230 HP (171.5 kw) Cummins 6QSB5.9
CAB	Tinted Safety Glass, Removable Windows and Door, Door Lock, Fresh Air Pressurized, and Windshield Wiper
CAB AIR CONDITIONER	
FOUR WHEEL DRIVE	
20' VARIABLE SPREAD HOPPER	

SECTION II

SAFETY

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SAFETY WORDS AND SYMBOLS

SAFETY ALERT SYMBOLS

This Safety Alert symbol means
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on the SPREADPRO decals, and in this manual. When you see this symbol, be alert to possible danger that could result in serious injury or death.

Why is SAFETY important to you ?

- Three Big Reasons:**
- **Accidents Disable and Kill**
 - **Accidents Cost**
 - **Accidents Can be Avoided**

SIGNAL WORDS

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety message. The appropriate signal word for each message has been selected using the following guidelines:

DANGER

An immediate and specific hazard which **WILL** result in severe personal injury or death if the proper precautions are not taken.

WARNING

A specific hazard or unsafe practice which **COULD** result in severe personal injury or death if proper precautions are not taken.

CAUTION

Unsafe practices which **COULD** result in personal injury if proper practices are not taken, or as a reminder of good safety practices.

EQUIPMENT DAMAGE SYMBOL

Throughout this manual, whenever you see this “Broken Bolt” symbol, it means:



ATTENTION: Equipment on the machine could be damaged through improper performance of an operation, maintenance or repair procedure.

OPERATOR QUALIFICATIONS AND CONDUCT

CHIPSPREADER OPERATORS

Operation shall be limited to persons with the following minimum qualifications:

1. Designated persons. This means the operator is selected or assigned by the employer or the employer's representative as being qualified to operate the Chipspreader.
2. Trainees under the direct supervision of a designated person.
3. Maintenance and test personnel (when it is necessary in the performance of their duties).

No one other than the personnel specified above shall operate the Chipspreader, with the exception of persons such as oilers, supervisors and those specified persons authorized by supervisors whose duties require them to do so, and then only in the performance of their duties and with the knowledge of the operator or other appointed person.

QUALIFICATIONS FOR OPERATORS

1. Operators shall be required by the employer to pass a practical operating examination. All operators must meet state licensing requirements including but not limited to a (CDL) commercial driver's license and a hazardous material handling license.
2. Operators and operator trainees shall meet the following physical qualifications:
 - a. Vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses.
 - b. Ability to distinguish colors, regardless of position, if color differentiation is required for operation.
 - c. Adequate hearing, with or without hearing aid, for the specific operation.

3. Evidence of physical defects or emotional instability which could render a hazard to the operator or others, or which, in the opinion of the examiner, could interfere with the operator's performance, may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgments and tests may be required.

4. Evidence that an operator is subject to seizures or loss of physical control shall be sufficient reason for disqualification. Specialized medical tests may be required to determine these conditions.

5. Operators and operator trainees should have normal depth perception, field of vision, reaction time, manual dexterity, coordination and no tendencies to dizziness or similar characteristics.

6. In addition to the above listed requirements, the operator shall:
 - a. Demonstrate the ability to comprehend and interpret all labels, operator manuals, safety codes and other information pertinent to correct Chipspreader operation.
 - b. Possess knowledge of emergency procedures and ability to implement them.
 - c. Demonstrate to the employer the ability to operate the specific type of equipment.
 - d. Be familiar with applicable safety regulations.
 - e. Understand responsibility for maintenance requirements of the Chipspreader.
 - f. Be thoroughly familiar with the Chipspreader and its control functions.
 - g. Understand the operating procedures as outlined by the manufacturer.

OPERATOR QUALIFICATIONS AND CONDUCT

CONDUCT OF OPERATORS

1. The operator shall not engage in any practice which will divert his/her attention while actually engaged in operating the Chipspreader.
2. Each operator shall be responsible for those operations under the operator's direct control. Whenever there is any doubt as to safety, the operator shall consult with the supervisor.
3. The operator should not leave the Chipspreader when material is being loaded or unloaded.
4. If there is a warning sign on a switch, engine control or component, the operator shall not close the switch, start the engine or use the component until the warning sign has been acknowledged and corrected by the appropriate person.
5. Before operating the Chipspreader, the operator shall see that all controls are in the OFF or neutral position and that all personnel are in the clear.

YOU are responsible for the safe operation and maintenance of your ROSCO SpreadPro Chipspreader. You must ensure that you and anyone else who is going to operate, maintain or work around the machine, be familiar with the **operating** and **maintenance** procedures and all related **safety** information contained in this manual.

6. In accordance with OSHA regulations 1928.51 and 1928.52, operating instructions must be provided initially to operators/employees before allowing them to operate the Chipspreader and should be reviewed annually thereafter.

The most **IMPORTANT** safety device on this equipment is a well trained and safe operator. It is his/her responsibility to read and understand all safety and operating instructions in this manual. A person who has not read and understood all operating and safety instructions is not qualified to operate the Chipspreader. An untrained operator

exposes himself/herself and bystanders to possible serious injury or death. **All accidents can be avoided!**



WARNING: *DO NOT* modify the Chipspreader in any way. Unauthorized modification may impair function and/or safety, causing severe injury or death. It may also affect the working life of the equipment.

ROSCO Manufacturing Company assumes NO LIABILITY for accident or injury incurred through the improper use or modification of this equipment.

SAFETY PRECAUTIONS

GENERAL SAFETY PRECAUTIONS

1. Read and fully understand the Operator's Manual and the Safety Decals on the machine before trying to operate or service this equipment.



2. Have a first-aid kit available and **know how to use it.**



3. Keep a "charged" fire extinguisher within reach whenever you work in an area where fire may occur. Have the correct type of extinguisher for your situation and **know how to use it:**

Type A: Wood, paper, textile and rubbish

Type B: Flammable liquids

Type C: Electrical equipment



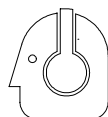
4. Wear safe work clothing. It should be well fitted and in good repair. Do not wear rings, wrist watches or loose fitting clothing when working on machinery. They could catch on moving parts and pull you into the machinery, causing serious injury. Wear sturdy, rough-soled work shoes, safety glasses and any other protective gear that is warranted by the work environment.



5. Keep work area organized and clean. Wipe up oil spills of any kind. Keep tools and parts off floor. Eliminate the possibility of a fall which could result in serious injury.



6. Wear appropriate ear protection for prolonged exposure to excessive noise. Permanent loss of hearing can result from prolonged exposure to loud noise.



7. After servicing and/or adjusting the machine, reinstall safety devices, guards or shields. Remove and store all tools, parts, or servicing equipment that were used.

8. **Do not hurry!** Use recommended hand holds and steps with at least three points of support when getting on and off the Chipspreader. Keep steps, floor, hand holds and controls clean and free from grease. Face the machine when climbing up and down and never jump off or dismount while the machine is in motion. Falls from the machine can cause serious injury.



9. Do not permit riders on the Chipspreader other than those provided with a specific seat and seat belt. Death or serious injury can occur due to riders falling off or under the machine while it is in motion.

10. Do not get in or on top of the Spread Hopper when the Chipspreader is in operation and/or moving.

11. **DO NOT** go under the vehicle when the engine is running.

12. **Do not smoke** around machine. Fuel, emulsion and the fumes from both can explode when exposed to flame or heat from smoking or other sources.



13. Always wear your seat belt when travelling.

PRE-OPERATION

1. Follow the Pre-Operation instructions in the **Operations Section** of this manual before operating the machine. Be sure all controls and gauges are operating properly before starting a job. Do not operate the machine if any of the warning buzzers/lights are ON. If any malfunctions are found prior to or during operation, **shut down the machine and report the problem to a supervisor.**

2. Keep all hydraulic lines, fittings and couplers tight and free of leaks. Leaking fittings are a fire hazard.



3. Hydraulic fluid under pressure can pierce skin, causing serious injury or toxic reaction. **Do not feel for hydraulic leaks with your hands.**



SAFETY PRECAUTIONS

4. Before starting or operating the machine, be sure that all controls are OFF or in the neutral position. Clear the area of people. Death or serious injury can occur to bystanders if they are crushed under a moving machine or hit by debris.

5. **Know and understand** the job site traffic flow patterns and obey flagmen, road signs and signals.

6. When transporting the machine, **know and use** all required signal devices. Use tail lights, Slow Moving Vehicle signs and warning beacons when on public roads. Provide an escort when necessary.

7. Do not allow riders on the machine when transporting. Death or serious injury can occur if riders fall off or under the machine while it is in motion.

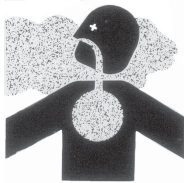
8. Clean reflectors and lights before transporting, to avoid collisions with other traffic.

STARTING AND STOPPING PRECAUTIONS

Before Starting

1. Walk around the machine to make sure there is no one working on the machine or in the path of the machine. Do not start the machine until the area is clear. Death or serious injury can occur to bystanders from being crushed under a moving machine or being hit by debris.

2. Do not operate the engine in an enclosed area without proper ventilation. Exhaust gases are orderless and poisonous. Death can occur due to lack of oxygen.



3. Do not bypass the Chipspreader's neutral-start system. The system must be repaired if it malfunctions.

4. Check brakes, steering, lights and other control devices before starting. Be sure parking brake is applied, the Forward/Reverse control is in neutral and the right side arm rest is down. Turn off conveyor and hopper controls.

5. Stopping distances must be anticipated for all conditions. If stopping on a grade, the distance

needed to come to a stop will be longer. Familiarize yourself with the job site so you can anticipate these variables.

6. Adjust, secure and latch the seat belt. Do not start or operate the machine except when seated in the operator's seat.

When Parking

1. Park the Chipspreader on level ground whenever possible, and always apply the parking brake. On grades, park the Chipspreader with the wheels securely blocked.

2. Before leaving the operator's station, place the Forward/Reverse handle in neutral, turn off all accessories, conveyor and hopper controls, set the parking brake and shut off the engine.

3. Remove the ignition key when leaving the Chipspreader parked or unattended.

BRAKING PRECAUTIONS

1. The operator must become accustomed to using the Hydrostatic Transmission to assist in the braking responsibility. This is done by moving the Speed/Direction Joystick into the neutral position before applying the Service Brakes with the foot pedal.

2. The Service Brakes alone are not sufficient to stop the Chipspreader if it is operating in a Forward or Reverse drive mode.

ATTENTION: Do not engage the park brake while the machine is in motion. Instantaneous damage will occur.



3. The Chipspreader is designed to operate on new seal coat surfaces. Reduced braking capability is used to prevent scuffing the surface. Use caution when stopping on other surfaces, particularly when towing a truck or going downhill. Larger trucks, slippery surfaces or steep grades will require longer stopping distances.

SAFETY PRECAUTIONS

NOTE: In some cases, the truck should assist in stopping. Familiarize yourself with these variables so that you can anticipate when a longer stopping distance is required.

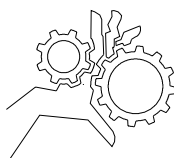
OPERATING PRECAUTIONS

1. Know and use the hand signals required for each job and know who has the responsibility for signaling.

WARNING: *Do not stand between the equipment and the truck while the truck is in the process of being coupled with the Chipspreader. Death or serious injury can result from being crushed between the two machines.*



2. Keep hands, feet, hair and clothing away from moving parts. Death or serious injury can occur from entanglement in moving parts.



3. Do not leave the machine unattended. Never allow anyone to reach into the machine while it is operating.

4. Do not go under the machine when the engine is running. Death or serious injury can occur if one becomes crushed by or entangled in moving parts.

5. Do not allow anyone to ride on the hopper.

6. Do not operate the machine when a warning buzzer or light is ON. Observe all gauges or warning instruments. If malfunctions are found, shut down the machine and report the problem for resolution. If the malfunction causes loss of control, stop the Chipspreader motion as quickly as possible, apply parking brake, and keep machine securely parked until malfunction is corrected or the machine can be safely towed.

7. Do not tow the Chipspreader, except to remove from road or to load on a trailer. When towing with the Chipspreader, ONLY use the Rear Truck Hitch.

8. Be alert for hazards and obstructions such as ditches, trees, cliffs, overhead power lines or areas where there is danger of sliding. Be aware of and

understand the job site traffic flow patterns and obey flagmen, road signs and signals.

9. On all road surfaces, stopping distances must be carefully anticipated, especially when towing a truck and/or going downhill. The larger the truck being towed or the steeper the grade, when going downhill, the longer it will take to stop the Chipspreader. In some cases the truck being towed should assist in braking. (Advise the truck driver of this requirement.)

10. Drive the machine with care. Make sure speed is compatible with road and weather conditions. Use caution on rough ground, slopes or when turning.

MAINTENANCE PRECAUTIONS

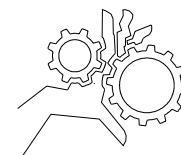
1. DO NOT attempt repairs unless trained. Refer to manuals and experienced repair personnel for help.

2. Clear the area of bystanders when carrying out any maintenance, repairs or adjustment.

3. Always wear safety glasses and other required safety equipment when servicing or making repairs.



4. Never wear baggy or frayed clothing when working on the machine. Loose garments can become entangled in moving parts, pulling the person into the machine, causing serious injury or death.



5. Before working on the machine, securely block the machine or any components that may fall. To prevent unexpected movement, block any working components while repairs are being made.

6. Do not lubricate or perform mechanical adjustments while the Chipspreader is in motion or while the engine is operating. If such service is necessary, place Forward/Reverse control in neutral, apply parking brake, turn engine OFF, wait for all moving parts to stop, place equipment in a safe position, securely block the wheels and use **extreme caution**.

SAFETY PRECAUTIONS

7. Disconnect the battery before working on the electrical system. Be sure electrical outlets and tools are properly grounded.

8. Do not make repairs on pressurized fluid, gas or mechanical components until the pressure has been released. Use extreme caution when removing radiator caps, drain plug, grease fitting or pressure taps. Park the machine and let it cool before opening a pressurized compartment.

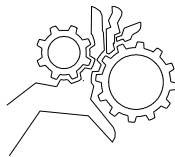
9. When inflating tires, use a self-attaching inflation chuck with remote shut-off and stand clear of the tire. A tire can explode with great force.



10. Whenever servicing or replacing hardened pins, etc., use a brass drift or other suitable material between the hammer and pin.

11. Keep brakes and steering systems in good operating condition.

12. Reinstall safety devices, guards or shields after adjusting and/or servicing the machine. If a safety device, guard or shield is missing or damaged, replace the item before operating the unit. Death or serious injury can occur from entanglement in moving parts.

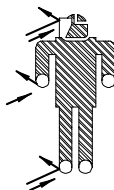


13. Follow good shop practices. Keep service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light for the job at hand.

14. After servicing, remove and store all tools, parts or servicing equipment that were used.

HOT MATERIAL PRECAUTIONS

1. Wear protective gear for face, hands, feet and body when operating the Chipspreader.



2. Allow the machine to cool before repairing or servicing working components.

3. When hot asphalt touches skin, flush area immediately with cold water. Do not apply ice directly to the affected area. **DO NOT ATTEMPT TO REMOVE ASPHALT CEMENT** with products containing solvents or ammonia. Natural separation will occur in about 48 - 72 hours. **Get medical attention as soon as possible!**

4. Do not remove radiator cap, drain plugs, or service grease fittings or pressure taps when engine is hot. Add coolant to the radiator and perform other service only when the engine is stopped and fully cooled.

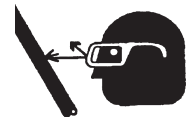


HYDRAULIC SYSTEM PRECAUTIONS

1. Make sure that all components are in good working condition. Replace any worn, cut, flattened or crimped hoses and metal lines.

2. Do not attempt makeshift repairs using tape, clamps or cements. The hydraulic system operates under extremely high pressure and such repairs could fail, causing serious injury.

3. Wear proper hand and eye protection when searching for a high pressure leak. Use a piece of wood or cardboard as a back stop to isolate and identify leaks. Do not use your hands. Relieve pressure from the system before disconnecting lines, hoses and/or valves. Before reapplying pressure to a hydraulic system, be sure all lines, fittings and couplers are tight and in good repair.



4. Pressurized hydraulic fluid or oil has sufficient force to penetrate the skin which can cause infection or serious toxic reaction. If injured by a concentrated high pressure stream of hydraulic fluid, seek medical attention immediately.



SAFETY PRECAUTIONS

REFUELING PRECAUTIONS

1. Handle fuel with care. It is highly flammable. Do not smoke when refueling and never refuel near an open flame. Never refuel when the engine is running. Clean up spilled fuel before restarting the engine. Death or serious injury can occur due to explosion and/or fire.



2. When refueling, keep the hose nozzle or the funnel and container in contact with the metal of the fuel tank to avoid the possibility of an electrical spark igniting the fuel.



3. Do not overfill the fuel tank. Allow room for expansion to reduce the risk of fuel expanding and spilling from the tank.

4. Prevent fires by keeping the machine clean of accumulated debris, grease and spilled fuel.



5. Fill the fuel tank outdoors to reduce the risk of fuel accumulating and causing a fire or explosion.



6. Do not spill fuel on hot components. Maintain control of the fuel nozzle when filling the tank. Fire can result when fuel contacts hot components.



7. Tighten fuel cap securely. If the fuel cap is lost, replace with the original manufacture's approved cap. Using a non-approved cap without proper venting may result in pressurization of the tank.

8. Use the correct fuel grade for the operating season.

BATTERY PRECAUTIONS

1. Keep all sparks and flames away from batteries. Gas given off by electrolyte is explosive.eyes.

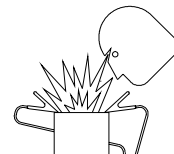


2. If you come in contact with battery electrolyte solution wash off immediately with water. Chemical burns can cause injury or blindness.

3. Always disconnect the battery ground cable before working on the electrical system to avoid injury from spark or short circuit. Electrical shock and burns can occur.

4. Do not tip batteries more than 45 degrees, to avoid electrolyte loss and contact with solution. Chemical burns can cause injury.

5. Wear safety glasses when working near batteries. Battery acid in the eyes can cause blindness



6. Use jumper cables ONLY in recommended manner. Improper use can result in battery explosion or unexpected Chipspreader motion.



TIRE PRECAUTIONS

Follow all procedures and safety instructions. Wall charts containing mounting and demounting instructions for all rims are available through the United States Department of Transportation (DOT), Washington, D.C.



WARNING: DO NOT mount or demount tires without proper training. A violent explosion like a bomb can occur.

NOTE: When in doubt have a qualified tire dealer or repair service perform required tire maintenance.

Inspection

1. Clean rims and repaint to stop detrimental effects of corrosion and facilitate checking and tire mounting. Be very careful to clean all dirt and rust from the lock ring and gutter. This is important so that you can secure the lock ring in the proper position.

2. Check rim components periodically for cracks. Replace all cracked, badly worn, damaged and severely rusted components with new parts of the same size and type.

SAFETY PRECAUTIONS

3. DO NOT, under any circumstances, rework, weld, heat or braze any rim components that are cracked, broken or damaged. REPLACE them with like parts.

4. If you are not sure about proper mating of tire and wheel parts, consult a rim and wheel expert. This may be the person servicing your equipment or the rim and wheel distributor in your area. Mixing parts of one type with those of another is potentially dangerous.

5. Do not reinflate a tire that has been run flat without first inspecting the tire, tube, flap, rim and wheel assembly. Double check the side ring and the "O ring" for damage and make sure that they are secured in the gutter before reinflating.

Demounting

1. Remove valve core to exhaust all air from tire. ALWAYS exhaust all air from tire prior to removing rim components or wheel components such as nuts or rim clamps.

2. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

3. Do not attempt to demount a tire unless you have the proper equipment and experience to do the job.

Mounting And Inflation

1. Do not inflate a tire before all components are properly in place. Place tire in a safety cage and inflate to approximately 10 psi. Recheck components for proper assembly. If assembly is wrong, deflate and correct.

2. NEVER hammer on an inflated or partially inflated tire/rim assembly. If assembly is proper at 10 psi, continue to inflate to fully seat the tire beads. Then completely deflate the tire to prevent localized overstretching of the tube. Reinflate to recommended operating pressure.

3. NEVER sit on or stand in front of a tire/rim assembly being inflated. Use a self attaching inflation chuck with remote shutoff, and make sure inflation hose is long enough to permit the person inflating the tire to stand to the side of the tire.

4. Do not hammer components with steel hammers. Use rubber, lead, plastic or brass faced mallets if it is necessary to tap components together.

5. Do not inflate tires beyond the tire manufacturer's recommended inflation pressure.

Servicing Tire And Rim On Vehicle

1. Do not try to drive an assembled or partially assembled tire/rim over a cast spoke wheel by hammering. STOP. Deflate and examine to determine the reason for the improper fit. Look for distortion or components that are not properly locked or seated.

2. Block the tire and wheel on opposite side of the vehicle before you place a jack in position.

3. Put hardwood blocks under the jack regardless of how hard the ground is. To reduce the risk of injury or death from crushing, **always** support the vehicle with blocks or preferably jack stands in case the jack should slip.

Operation

1. Never run a vehicle on one tire of a dual assembly. The carrying capacity of the single tire and rim is dangerously exceeded, and operating a vehicle in this manner can result in damage to the rim and tire.

2. Do not operate the machine with loose wheels or rims. Check wheel nuts periodically for proper tightening torque.

Refer to the Bolt Torque chart at the end of the **Maintenance** section of this manual.



WARNING: Mismatched rim and tire parts can cause a dangerous explosion, resulting in SEVERE injury or death.

SAFETY PRECAUTIONS

TRANSPORT PRECAUTIONS

1. Always comply with local regulations regarding moving equipment on public roads and highways.
DO NOT DRINK AND DRIVE.

2. When transporting a Chipspreader, know and use required signaling devices. Use tail lights, Slow Moving Vehicle signs and/or a warning beacon when traveling on public roads. Provide an escort for roading when required.

3. Make sure that all lights and reflectors comply with state and local regulations. Make sure that they are clean, in good working order and can be seen clearly by all overtaking and oncoming traffic.

4. Do not permit riders on the Chipspreader. Death or serious injury can occur when riders fall off or under the machine while it is in motion.

5. Do not exceed legal speed limits and wear your seat belt. Reduce speed on rough roads and surfaces, and when making turns.

STORAGE PRECAUTIONS

1. Store the Chipspreader in an area away from human activity.

2. Do not permit children to play on or around the stored machine. Serious injury can occur from falling from the machine.

3. Make sure the unit is stored in an area that is firm, level and free of debris.

4. Store the machine inside a building or cover securely with a weatherproof tarpaulin.

SAFETY DECAL CARE AND INSTALLATION

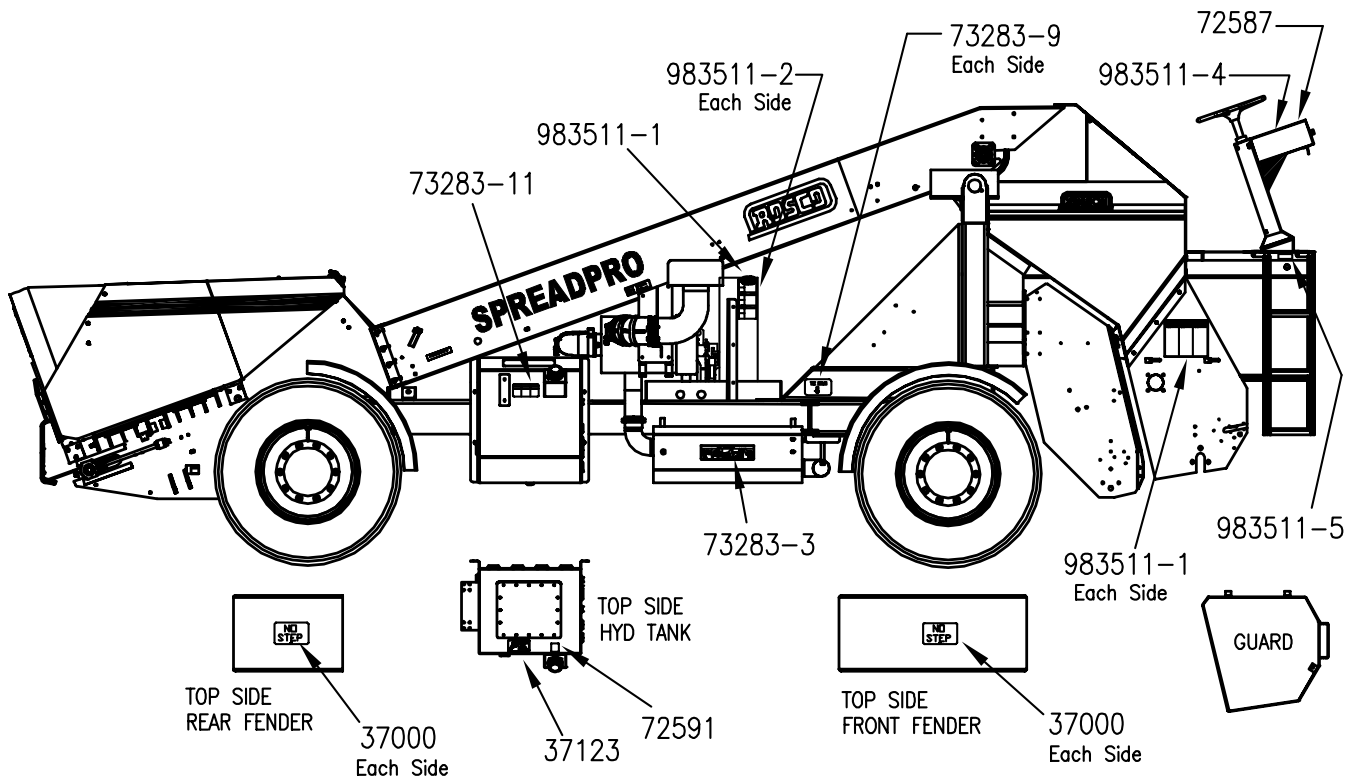
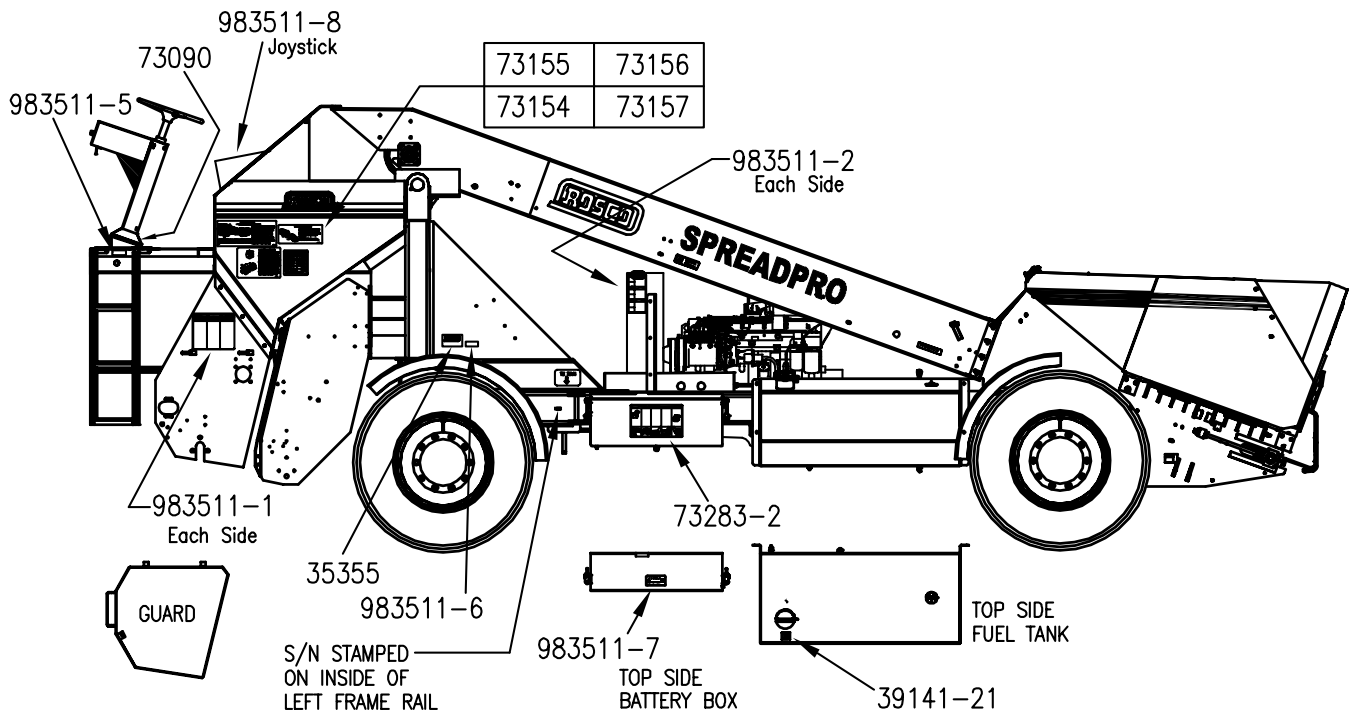
SAFETY DECAL CARE

1. Become familiar with the content and the position of each Safety Decal. **Important information is written on the decals.** The location and description of each safety decal is described or illustrated on the following pages.
2. Keep Safety Decals and signs clean and legible at all times.
3. Replace decals and signs that are missing or cannot be read easily.
4. When replacing parts that previously displayed a safety decal, be sure to replace any decals that were on the original part.
5. Obtain Safety Decals or signs from your authorized ROSCO Dealer.

DECAL INSTALLATION

1. Be sure that the installation area is clean and dry. Use hot, soapy water to clean and dry the area thoroughly before installing decals.
2. Decide on the exact position by taking measurements and test fitting before you remove the decal paper backing.
3. For decals with no top protection paper, decide on the location for the decal and remove the smallest adhesive backing of the split backing paper.
4. Align the decal over the specified area and carefully press the small portion with the exposed adhesive backing into place.
5. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
6. Use a pin to pierce small air pockets and smooth out using a piece of the decal backing paper.
7. If the decal has a protective top paper, use hot, soapy water on the surface to which the decal is being applied. Leave wet. After deciding on the decal location, remove the backing paper and soak the decal in clean soapy water before application. This will help to alleviate air bubbles in the finished decal.
8. Smooth the decal into place with a sponge, and check for air bubbles. Small air pockets may be pierced with a pin and smoothed out. When the decal is completely smoothed out, carefully remove the top paper.

SAFETY DECAL LOCATIONS

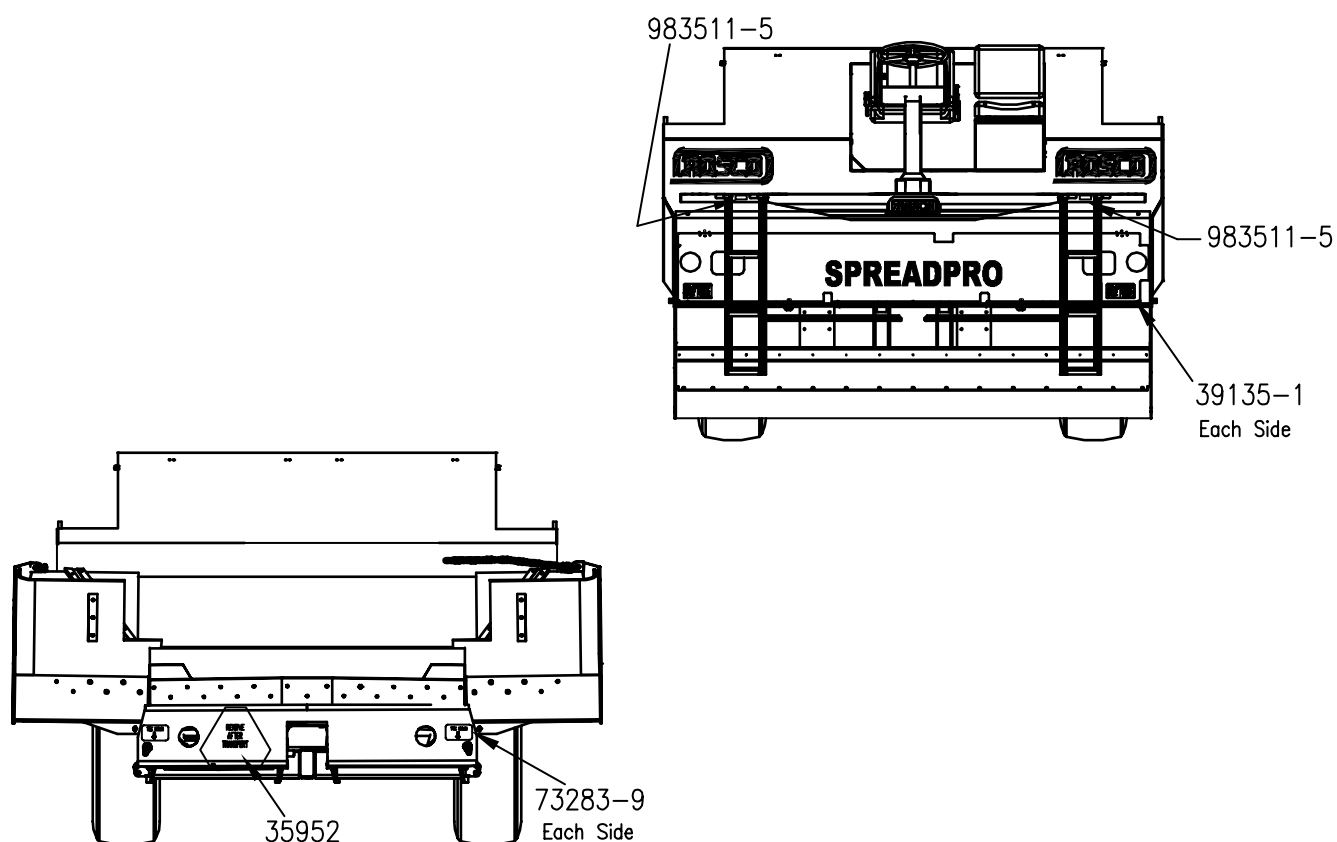


SAFETY DECAL LOCATIONS

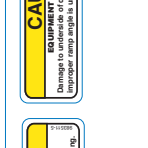
DECAL KIT #983511

Decal #	Description	Location
37000	No Step	Top of front & rear fenders, each side
37123	Contents Under Pressure	Top of hydraulic tank
39135-1	Slip, Fall	Lower front of machine, each side
39141-21	Diesel Fuel	Top of fuel tank
72587	Read Operator's Manual	Top front at operator's platform
72591	Hydraulic Oil	Top of hydraulic tank
73090	Hitch Release Switch	On floor, at base of steering wheel
73283-2	Battery Explosion, Burn, Entangle	Top of battery box
73283-3	Burn, Entanglement	Top of muffler cover
73283-9	Tie Down	Side of machine behind front wheels, bottom rear corners of machine
73283-11	Hydraulic Fluids Cautions	Front of hydraulic tank
983511-1	Fall, Pinch, Entanglement	Front hopper, under the guard
983511-2	Rotating Fan, Burn	Radiator housing, each side
983511-3	Burn, Pressurized	Top of radiator housing
983511-4	Eng Exhaust, Equip Damage	Gauge console at operator's platform
983511-5	Loading Ramp	Top of ladder, each side of machine
983511-6	Patent Applied For	Left side of machine, above front wheel
983511-7	12 Volt System	Top of battery box
983511-8	Control Handle	Joystick at operator's platform

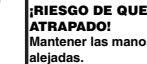
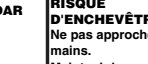
See Parts Book, section VI of this manual, for additional decals.

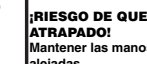
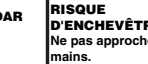


SAFETY DECALS

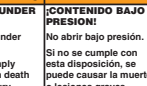
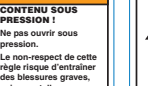
⚠ WARNING		⚠ ADVERTENCIA		⚠ AVERTISSEMENT	
	EXPLOSION HAZARD! Explosive battery gases. Keep sparks and flames away from battery. Refer to Operator's Manual for battery boosting and charging procedures. BURN HAZARD! Corrosive and poisonous battery acid. Acid can severely burn. Failure to comply could result in death or serious injury.	¡RIESGO DE EXPLOSION! La batería despiden gases explosivos. Mantener las chispas y llamas alejadas de la batería. Consultar el Manual del operador para los procedimientos de arranque con batería de refuerzo y de carga de la batería. ¡RIESGO DE QUEMADURAS! El ácido de la batería es corrosivo y venenoso. El ácido puede causar quemaduras graves. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.	RISQUE D'EXPLOSION ! Gaz de batterie explosifs. Ne pas approcher la batterie de sources d'étincelles ou de flamme. Voir le manuel d'opérations pour le renforcement de la charge et la recharge de la batterie. RISQUE DE BRÛLURES ! Acide de batterie corrosif et toxique. L'acide peut causer de graves brûlures. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.		PATENT APPLIED FOR APPLICATION NO. 9928714.6
					
					
⚠ CAUTION EQUIPMENT DAMAGE HAZARD! Damage to underside of chip spreader may occur if improper ramp angle is used for loading and unloading.					

⚠ WARNING		⚠ ADVERTENCIA		⚠ AVERTISSEMENT	
					
					
⚠ CAUTION EQUIPMENT DAMAGE HAZARD! Damage to underside of chip spreader may occur if improper ramp angle is used for loading and unloading.					

⚠ DANGER		⚠ PELIGRO		⚠ DANGER	
	FALL HAZARD! DO NOT stand in or ride on front hopper.		¡RIESGO DE CAIDAS! NO pararse sobre la tolva delantera ni viajar en ella.		RISQUE DE CHUTE ! NE PAS monter dans la trémie avant, ni se tenir dessus.
	PINCH HAZARD! Stay clear of area.		¡RIESGO DE SER ESTRUJADO! Mantenerse alejado de esta zona.		DANGER DE PINCEMENT ! Ne pas s'approcher.
	ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.		¡RIESGO DE QUEDAR ATRAPADO! Mantener las manos alejadas. Mantener los protectores en su lugar. Sustituir los protectores o escudos faltantes. Si no se cumple con esta disposición, se causará la muerte o lesiones graves.		RISQUE D'ENCHEVÊTLEMENT ! Ne pas approcher les mains. Maintenir les protections en place. Remplacer les carters et protections qui manquent. Le non-respect de cette règle entraînera des blessures graves, voire mortelles.

⚠ DANGER		⚠ PELIGRO		⚠ DANGER	
	FALL HAZARD! DO NOT stand in or ride on front hopper.		¡RIESGO DE CAIDAS! NO pararse sobre la tolva delantera ni viajar en ella.		RISQUE DE CHUTE ! NE PAS monter dans la trémie avant, ni se tenir dessus.
	PINCH HAZARD! Stay clear of area.		¡RIESGO DE SER ESTRUJADO! Mantenerse alejado de esta zona.		DANGER DE PINCEMENT ! Ne pas s'approcher.
	ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.		¡RIESGO DE QUEDAR ATRAPADO! Mantener las manos alejadas. Mantener los protectores en su lugar. Sustituir los protectores o escudos faltantes. Si no se cumple con esta disposición, se causará la muerte o lesiones graves.		RISQUE D'ENCHEVÊTLEMENT ! Ne pas approcher les mains. Maintenir les protections en place. Remplacer les carters et protections qui manquent. Le non-respect de cette règle entraînera des blessures graves, voire mortelles.

⚠ WARNING	
	ROTATING FAN BLADE! Keep hands and clothing away.
	BURN HAZARD! Do not open when hot. Allow system to cool. Pressurized cooling system. Remove cap slowly with gloves. Failure to comply could result in death or serious injury.
⚠ ADVERTENCIA ¡VENTILADOR EN MOVIMIENTO! Mantener las manos y la vestimenta alejadas.	
	¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfrie. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
⚠ AVERTISSEMENT PALE DE VENTILATEUR EN ROTATION ! Ne pas approcher les mains ni les vêtements.	
	RISQUE DE BRÛLURES ! Ne pas ouvrir à chaud. Laisser le circuit refroidir. Circuit de refroidissement sous pression. Retirer le bouchon lentement, avec des gants. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.

⚠ WARNING		⚠ ADVERTENCIA		⚠ AVERTISSEMENT	
	CONTENTS UNDER PRESSURE! Do not open under pressure. Failure to comply could result in death or serious injury.		¡CONTENIDO BAJO PRESIÓN! No abrir bajo presión. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.		CONTENU SOUS PRESION ! Ne pas ouvrir sous pression. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.

12 VOLT SYSTEM	
	



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SAFETY DECALS



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INTRODUCTION

The ROSCO SpreadPro Chipspreader, hereinafter referred to as the SpreadPro, was designed to permit operation by a single person. In addition, the SpreadPro was designed and built to handle and accurately apply all **uniform** types of aggregate up to 1 inch (2.54 cm) to road surfaces. Non-uniform materials such as sand with wet and dry spots will have an increased range of dispersal.

The SpreadPro controls the rate of application over a wide range of travel speeds. The application rate is achieved by controlling both the spread hopper roll speed (RPM) and the spread hopper gate opening.

The SpreadPro's normal operation, Spread Mode, allows the computer to control the roll speed and the gate opening simultaneously. If the computer should fail during a job, the SpreadPro can also be operated in Manual (computerless) Mode. In this mode, the operator sets the extremes of the gate opening, and the machine controls the roll speed.

To obtain the maximum performance and efficiency designed into the SpreadPro, owners and operators **must** identify and understand the function and operation of all systems and components. To achieve the best results from this unit, the operator must become comfortable with the operation of all controls and modes of operation. All functions of the unit are covered in this section and it is vital that the operator read this entire section **before** operating or servicing the unit.

Options

The SpreadPro may be delivered with various options, depending on the requirements of the job or customer specifications. This manual describes available options, some of which may not be included on your SpreadPro. Those parts of the manual referring to equipment and features not furnished with the subject SpreadPro may be disregarded.

SPREADPRO TOUR of MACHINE

The SpreadPro is a diesel engine powered, dual-range hydrostatically driven aggregate spreading machine. The hydrostatic drive system on the SpreadPro propels the unit forward and reverse at varying speeds with dynamic braking action.

A turbocharged Cummins 6QSB5.9 (205 HP or 153 kW) is the standard equipment diesel engine in the SpreadPro. A Cummins 6QSB5.9 (230 HP or 172 kW) is available as optional equipment.

The following pages will take you on a tour of your SpreadPro unit. Each main component will be explained, along with its function and major parts. The operation of the unit will be detailed later in this chapter.

REAR VIEW

The tour will start at the rear of the unit with the hitch and the rear hopper.

The Hitch

This is a spring loaded, positive locking, adjustable truck hitch. It will automatically reset to receive a truck after the previous truck has been released. This allows for hitching and unhitching of trucks without stopping the equipment. The truck hitch can telescope to 10 inches (25.4 cm) and will accept bar heights from 10 to 20 inches (25.4 cm to 50.8 cm). The hitch is hydraulically released by the operator.

On either side of the hitch, are notches placed in the bumper for tying the machine down during transport. If your machine is equipped with a light package, the tail lights will be recessed into the bumper.

Rear Hopper

The rear hopper is 11'9" (358 cm) wide. It has a capacity of 4.5 cubic yards (3.4 m³) or a maximum of 11,700 pounds (5,307 kg). The hopper has hydraulically powered paver style folding wings which are controlled from the driver's station. This allows for complete emptying of material. To prevent spillage, there is heavy duty rubber hopper sealing skirting surrounding the entire area where the hopper meets with the truck.

The wings are equipped with a transport chain which is left loose during working conditions. To prevent accidental unfolding, the chain is secured during transport and storage when the wings are folded.

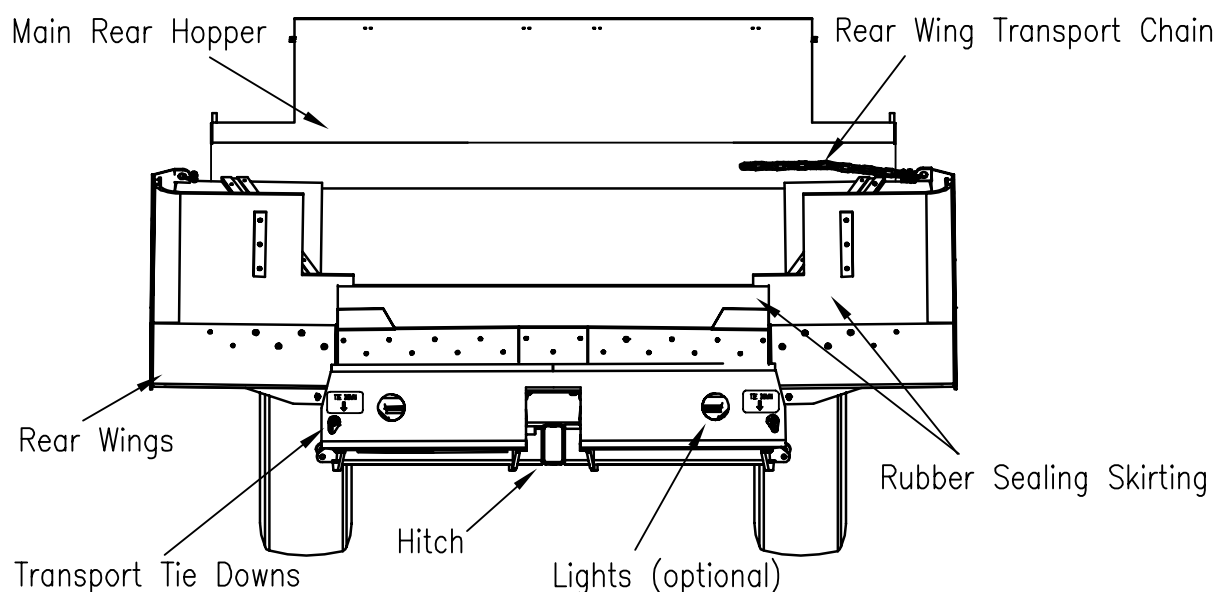


Figure 1
SpreadPro - Rear Hopper

SPREADPRO TOUR of MACHINE

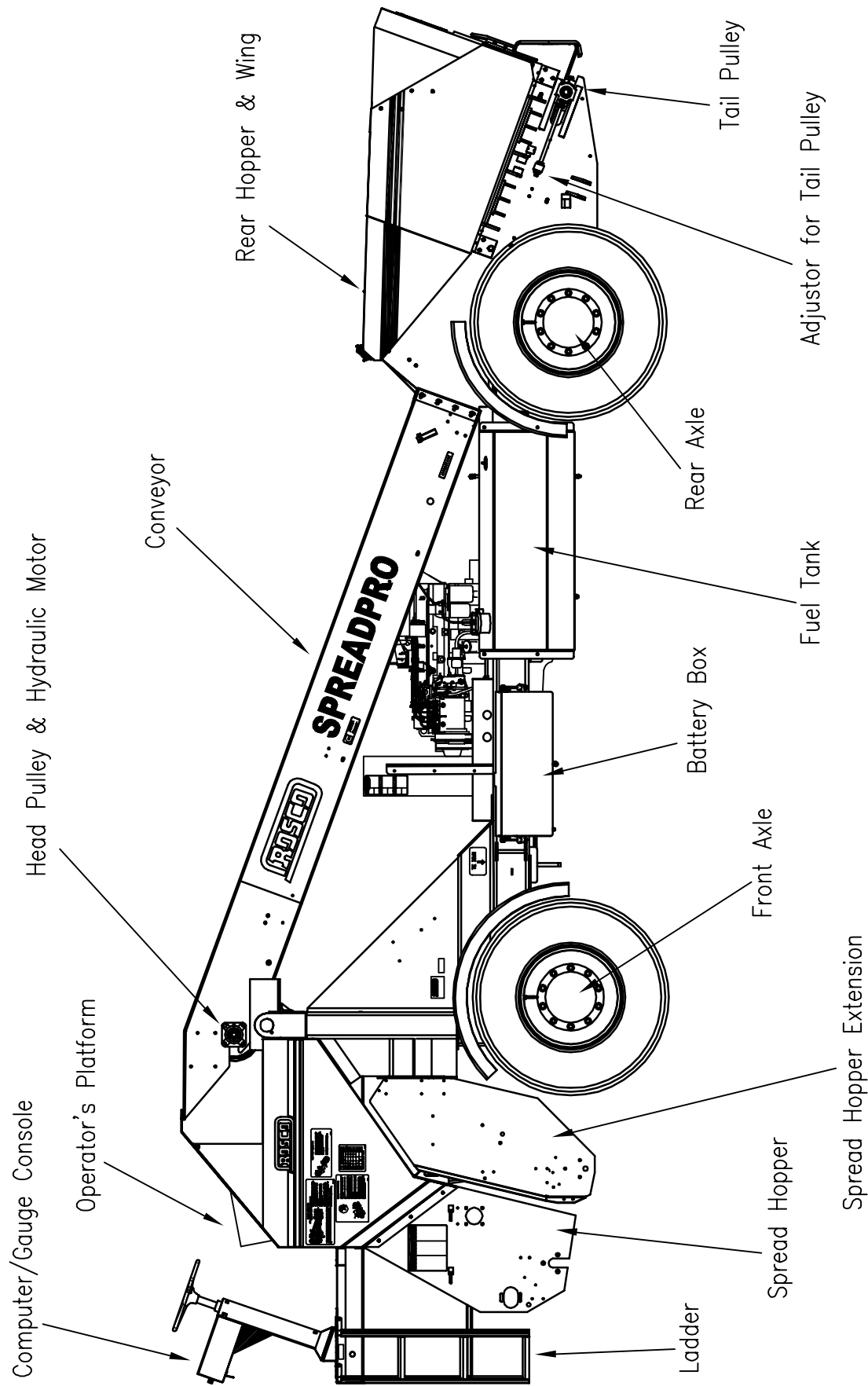


Figure 2
SpreadPro - Left Side View

SPREADPRO TOUR of MACHINE

LEFT SIDE

This part of the tour will take you down the left side of the unit. As you come around the left side from the rear of the unit you will note the following features.

Tail Pulley and Adjustor

Just below the wings are the tail pulleys for the conveyors. This pulley can be used to adjust the belt tension by using the adjuster screws located on each side of the hopper. To gain access to the inside screw, you must remove the plate in the center hopper by reaching under the machine between the hopper and the hitch. Remove the hair clip pins (2), then slide the plate slightly forward and lift out. Be sure to adjust both screws for even tension and tracking.

Conveyor

The conveyors of the SpreadPro consist of two 24" (60.9 cm) heavy duty, 4-ply nylon rubber belts. Each conveyor is powered by a high torque hydraulic motor directly connected to the head pulley. The speed of the conveyors may be controlled individually, and range from 0 - 550 feet per minute (0 - 167.64 m). They are self-cleaning and are lined at the lower end with lining (flashing) to facilitate movement of material. The alignment of the belts can be adjusted by using the slot adjustments on both the troughing and return idlers. At the top of the conveyors is a ball float that, in Auto Mode, de-activates the conveyor motors when the spread hopper is full.

Head Pulley and Hydraulic Motor

There is a head pulley located at the top of each conveyor, directly connected to the hydraulic drive motor. If conveyor tracking is necessary, re-align by sliding the outside bearing forward or backward.

Front Axle

The front axle is rated at 25,000 pounds (11,340 kg) capacity. It is a drive/steering axle with ± 5 degree oscillation and planetary drive wheel ends. It is equipped with Budd type disc wheels and 425 x 65R x 22.5 tubeless tires with highway tread. The braking system on the front axle is an oil actuated multiple wet disc type brake.

Engine

The engine on the SpreadPro is a six cylinder Cummins 6QSB5.9. It is rated at 205 HP. It has a 12 volt system with electric starter, alternator, voltage regulator and dual 12 volt batteries stored in a battery box on the side of the unit. It is also equipped with a dual element air cleaner, disposable element spin on type oil filter, heavy duty cooling system, muffler and throttle toggle switch.

The engine directly drives the air compressor and the five hydraulic gear-pumps.

Fuel Tank

The SpreadPro is equipped with an 80 gallon (302 liter) fuel tank located on the left side of the machine. The fuel tank has an electric fuel level gauge.

Rear Axle

The rear axle is rated at 22,500 pounds (10,206 kg) capacity. It is a rigid design axle. It is equipped with Budd type disc wheels and 425/65R22.5 tubeless tires with highway tread. The braking system on the rear axle is an air actuated, spring applied/air released type brake.

Sight Rod

Attaches to extension hopper on side conveyor. It is used as a guide when positioning the extension hoppers.

SPREADPRO TOUR of MACHINE

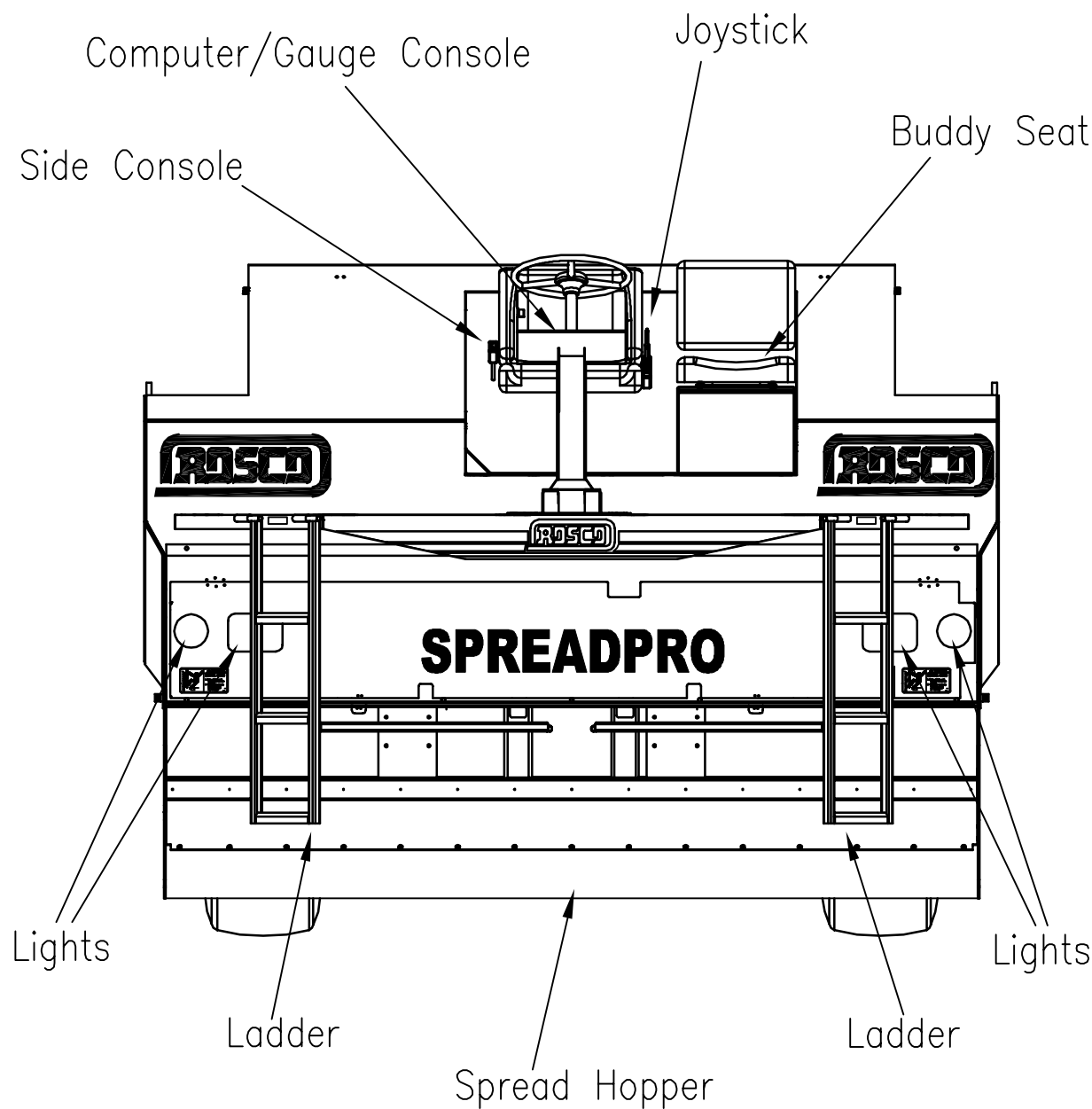


Figure 3
SpreadPro - Front View

SPREADPRO TOUR of MACHINE

FRONT VIEW

The front view shows the main operating area of the unit. As you come around the front from the left side of the unit, you will note the following features.

Operator's Platform

This is located at the very front of the SpreadPro and positioned over the spread hopper for greater view of the machine operation. The operator's platform is comprised of the operator's seat, the buddy seat, joy stick, steering wheel, side console control panel, computer/gauge console and, if the unit is equipped with an air conditioned cab, air conditioner controls. There are ladders on both sides of the operator's platform for easy access.

Spread Hopper & Extensions

The spread hopper is adjustable with the use of extensions. When fully extended, the overall length of the hopper is 16 feet (4.88 meters). The center section is 112 inches (28.45 m) wide and has nine equal width gates. The gates are controlled at the operator's platform.

The hopper also has extensions on each side. The extensions are infinitely variable in width and are controlled from the operator's platform. Each extension can be adjusted from 0 to 40 inches (0 to 101.6 cm). Each extension has a manually controlled agitator to help the aggregate flow if needed.

Both the center section and the extensions have scatter plates in front of the spread roll for controlled distribution of aggregate. On the corners of the center section hopper are the extended scatter plates. These plates are lowered manually and are used when chipping around a tight corner.

Behind the scatter plates are the spreadroll and rotary gates. There are two rotary gates on the center hopper and one on each extension. These gates control the amount of aggregate being spread. The rotary gates are controlled by the electric actuator cylinders attached to each gate.

The nine control gates are enclosed inside the hopper and are used to control the width of the spread. They are controlled by air cylinders. The air cylinders are located under the front cover on the hopper.

On the top of the spread hopper is a rejection screen. The screen has 1½ inch (38 mm) openings to catch all over-sized material and foreign material.

The capacity of the front hopper is 4.3 yds³ (3.3 m³) or a maximum of 9,400 pounds (4,264 kg).

Your machine is equipped with a Lights package. The head lights and turn signals are recessed into the spread hopper center cover.

SPREADPRO TOUR of MACHINE

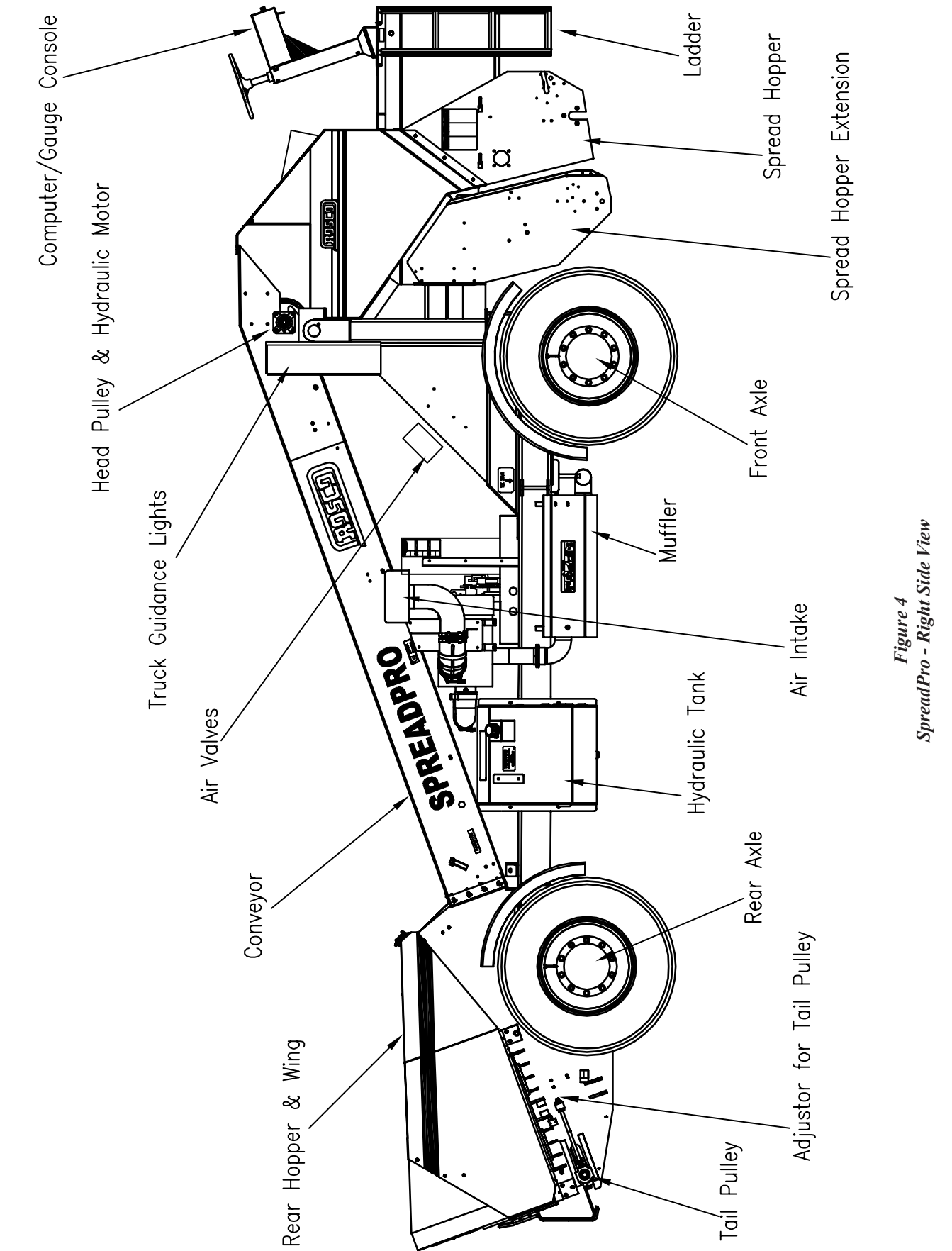


Figure 4
SpreadPro - Right Side View

SPREADPRO TOUR of MACHINE

RIGHT SIDE

This part of the tour will take you down the right side of the unit. As you come around the right side from the front of the unit you will note many of the same features that were viewed on the left side. However, the following features are only visible from the right side.

Muffler, Air Intake

On the right side of the engine you will see both the muffler and the air intake. The air cleaner is a heavy duty, dual, dry type element cleaner.

Hydraulic Reservoir

Mounted to the frame slightly behind the muffler is the 50 gallon (189.3 liter) hydraulic reservoir equipped with a sight level gauge. The hydraulic oil temperature is shown on the gauge console in the operator's platform. There are two 10 micron filters located next to reservoir.

Guidance Lights

The guidance lights are mounted near the top of the right conveyor and are used to aide the truck driver in raising, lowering, hitching and releasing the truck. The yellow arrow lights are used to aide the raising and lowering of the truck and are controlled by the operator with a switch on the joystick. The red center light is controlled with the foot switch and will flash to let the truck driver know that the hitch has been released.

SPREADPRO TOUR of CONSOLES



Figure 5
SpreadPro - Computer/Gauge Console

SPREADPRO TOUR of CONSOLES

COMPUTER and GAUGE CONSOLE

Before operating the SpreadPro, become familiar with all gauges and controls. The following brief descriptions are designed to give the operator an understanding of the location of the various controls on the SpreadPro and their functions. The numbers in parentheses () refer to item numbers in Fig. 5. More detail on the use of the control panel will be explained later in the chapter.

Engine Ignition Switch (1) - Key switch used to start the engine and provide power to the system.

Computer Display (2) - Provides information to the operator and allows for the changing of the pre-programmed settings.

Screen Select Switch (3) - Scrolls to the various screens available to the operator. It is also used in conjunction with the Data Update switch to move among computer categories.

Data Update Switch (4) - Changes the values of data such as Memory or Calibration categories. It is also used with the Screen Select switch to move among categories.

PSY CAL Switch (5) - Starts the calibration of the application rate along with the Data Update switch.

Memory Save Switch (6) - Saves new values while in the memory setup category.

Memory Switches (7) - These switches are used to select preset operating values for the application rate, rock size and speed.

Auto/Manual Switch (8) - Selects the operation of the machine.

Operating Mode Switch (9) - This switch is used only in Auto to select Spread or Travel mode.

Manual Calibration Potentiometer (10) - Helps calibrate the spread roll speed only when in Manual mode. This gives the operator the ability to increase or decrease the application rate.

Beacon Switch (11) - Turns the Beacon light on and off.

Hopper Dump Switch (12) - Cleans out the front hoppers at the end of a job or changing rock size.

System Warning Light/Buzzer (13) - The warning buzz light is connected to the Air Pressure system. If the air pressure is low (**13a**), the light will come on and the warning buzzer will make an audible sound.

Guidance Lights (14) - Work in conjunction with the truck guide lights on the rear of the unit and the switch on the joystick. The top and bottom green lights indicate that the truck guidance light for raising or lowering the truck bed is activated. The center red light activates when the operator steps on the hitch release and indicates the hitch is open.

Spreader-On Light (15) - This red light comes on when the spreadroll has been turned on or is in a standby mode for automatic restart. When the spreadroll is turned off, this light will go out.

Wing Lights (16) - There are two lights, a red light and a green light. When the red light is lit, the rear hopper wings are not fully lowered. This indicates to the operator that it is not safe to hook up to a truck. When the green light is lit, the rear hopper wings are fully lowered, and it is safe to hook up to a truck.

Park Brake Switch and Light (17) - This combination allows the operator to set the park brake with a switch. When the brake is set, the light illuminates to notify the operator that the park brake is on. When the park brake is ON, the power to the Joystick is OFF. The brake must be ON to start the machine.

Engine Status Gauge (18) - When the ignition key is turned "On" (not "Start"), this gauge lights and cycles through its four stages to check the status of the engine. After completion of the engine check, the light will extinguish.

SPREADPRO TOUR of CONSOLES

Computer Display (2) - The following information is displayed on two screens to help the operator monitor the operation of the SpreadPro:

- Water Temperature
- Volt Meter
- Oil Pressure
- Air Pressure
- Hour Meter
- Oil Temperature (Hydraulic)
- Fuel Gauge
- Engine RPM

If one of these functions requires attention, the appropriate screen will appear and the malfunctioning item(s) will flash when a preset fault level is reached.

Other items around the center console that the operator should be aware of include:

Horn Switch - Located in the center of the steering wheel operates the horn when pushed.

Brake Foot Switch - Located on the floor on the right side of the console. Operates the brakes when stepped on.

Hitch Foot Switch - Button switch located on the floor on the left side of the console. When pressed down, it opens or releases the hitch, and a large red light on the right side of the machine flashes. The hitch will then stay in that position for a short time before returning to the closed position. The large red light will flash while the operator has the foot switch depressed. This light signals to the truck operator that the hitch is being released.

Light Switch Handle - Located on the left side of the console. Turns lights on or off and provides turn signals and hazard lights.

Variable Speed Conveyor Controls - These hydraulic flow control valves permit the operator to independently adjust the speed for each conveyor. By using these controls, the operator can provide even placement of aggregate in the spread hopper and match material flow to distribution rate. This prevents the ON/OFF cycling of the conveyors when using the auto belt control.

Automatic Cut-Off Switch - The automatic cut-off switch is a limit switch located at the hopper that automatically shuts off the conveyors as needed when the unit is being controlled by a single operator. This switch is tripped when the paddle that is connected to it is pushed by a build up of aggregate. It is released as the spread hopper empties.

Engine Throttle Toggle - Controls the RPMs of the engine.

- Up 1 bump = 1400 RPM
- Up 2 bumps = 1800 RPMs
- Up 3 bumps = 2200 RPMs
- Idle = 1000 RPMs

NOTE: Bumping the toggle down when in idle or up when at 2200 RPMs will put the system out of sequence and will require turning the machine OFF and re-starting.

Air Conditioning - If your unit is equipped with air conditioning, the controls will be located on the center steering console below the steering wheel.

SPREADPRO TOUR of CONSOLES



Figure 6
SpreadPro - Right Hand Side Console Controls

SPREADPRO TOUR of CONSOLES

SIDE CONSOLE

Conveyor Control Switches (101) - There are two switches used for conveyor control. One controls the right conveyor and the other controls the left conveyor. Both switches operate the same. They have three positions which will be explained later in this chapter.

Conveyor Signal Potentiometers (102) - There are two signal potentiometers that control the right and left conveyor proportional control valves. By turning the dial on the potentiometer, the speed of the conveyors is varied. These signals are not connected to the controller, and are independent of the mode of operation of the machine.

Restart Switch (103) - This switch is connected directly to the controller. It is only operational in Spread mode. It determines if the spreadroll will be controlled by the operator or by the computer. It has no effect when the machine is in the Travel or Manual modes.

Start Switch (104) - This switch is connected directly to the controller. It is only operational when the machine is in the Spread mode. Its function is to tell the controller to start with either a straight line of material or a staggered line of material depending on the need of the job. It has no effect when the machine is in the Travel or Manual modes.

Hopper Select Switches (105) - There are three switches used for hopper selection. One switch controls the right hopper, one switch controls the center hopper and one switch controls the left hopper. The left and right hoppers have only one gate each so there are no other switches to control their gate sections.

However, the center hopper has 9 separately controlled gates that are approximately one foot each. The switch for the center hopper only enables the gates that have been individually selected by the operator.

Center Gate Switches (106) - There are 9 switches used to control the 9 - one foot gate sections of the center hopper. This allows the gates to be individually selected by the operator.

Hopper In/Out Toggles (107 & 108) - There are two toggle switches that control the position of the left and right hoppers. The switches operate the same way for either side. When the switch is in the "OUT" position, the hopper is extended. When the switch is at the "IN" position, the hopper is retracted.

There are no interlocks that prevent the movement of the hoppers in any mode of operation. However, if the hoppers are extended, the machine will not be able to use the Travel mode. If the machine is in the Travel mode and the hoppers are extended, the machine will drop out of that mode.

Manual Gate Set Switches (109) - This feature is operational in Manual mode only. There are four switches that control minimum and maximum gate openings, and adjust the upper and lower limit switches.

4-Wheel Drive Switch and Light (110) optional - This combination allows the operator to switch to 4-Wheel Drive. When the switch is on, the light illuminates to notify the operator that the unit is in 4-Wheel drive. This feature may only be used in Spread and Manual modes.

Auto-Lube System (111) optional

SPREADPRO TOUR of JOYSTICK

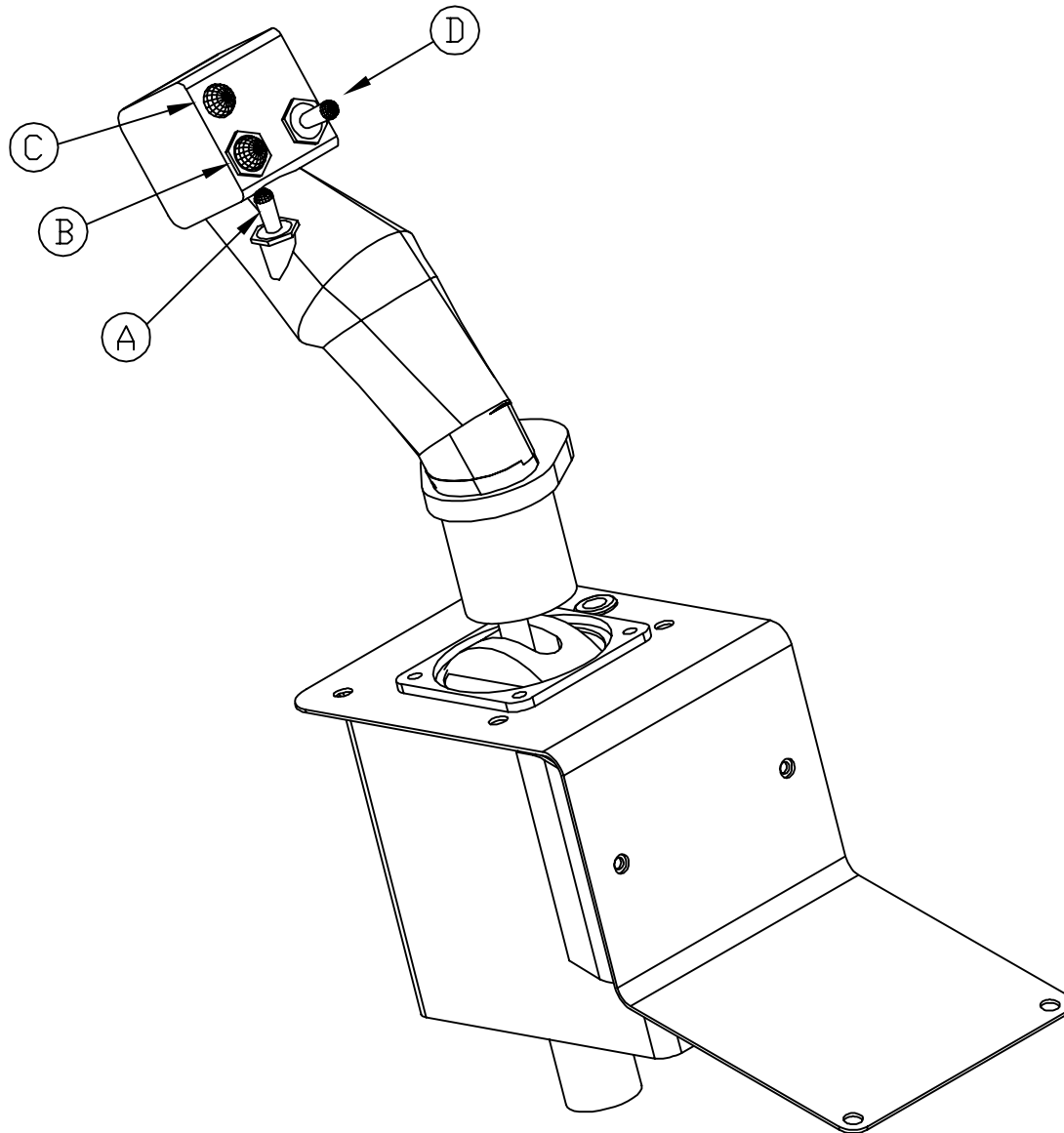


Figure 7
SpreadPro - Joystick Control Location

SPREADPRO TOUR of JOYSTICK

JOYSTICK CONTROLS

The Joystick contains several switches, a light, and two separate potentiometers that provide electrical signals relative to the position of the joystick handle.

Guidance Light Switch (A) - This switch turns on two large arrow lights on the right side of the machine. The SpreadPro operator uses these lights to signal the truck driver that the truck box should be raised or lowered to empty the material into the rear hopper. Pushing the switch up engages the truck-raise arrow and pushing the switch down engages the truck-lower arrow. This switch and the lights operate independently of the machine's mode of operation.

Spreadroll On/Off Button (B) - This push-button turns the spreadroll on and off. The spreadrolls may be operated with or without the controller. When this button is in the "ON" position, both spreadroll indicator lights will be lit, one on the Joystick and one on the Computer/Gauge Console.

Spreadroll On Light (C) - This red light comes on when the spreadroll has been turned on, or is in standby for automatic restart. When the spreadroll is turned off, this light will go out. This provides the operator with a convenient indicator of the current status of the spreadroll.

Rear Hopper Wing Switch (D) - This switch raises and lowers the wings on the rear hopper. This switch is connected directly to the solenoids that operate the rear wings. This switch operates the rear hopper wings independently of the machine's mode of operation.

Signal Potentiometers

There are two signal potentiometers in the Joystick. The signals that they provide are connected differently depending on the mode of the machine. Following is the connection path:

Spread and Travel Mode:

Pot 1: Connected to the Controller to provide a speed signal for the machine.

Pot 2: Not used.

Manual Mode:

Pot 1: Not used.

Pot 2: Connected to the electronic displacement control (EDC) of the hydraulic pump.

These signals are the key to operating the machine at a variable speed. The more the Joystick is moved in the forward direction, the faster the machine will move forward. Likewise, the more the Joystick is moved in the reverse direction, the faster the machine will move in reverse.

NOTE: In Spread mode the top speed is limited by the maximum speed preset by the operator in the computer memory.

Neutral Switch

Internal to the joystick is a switch that indicates when the joystick is in the neutral position. This switch is interlocked with many functions throughout the machine. Most importantly is that the engine **will not start** unless the joystick is in **neutral**.

Reverse Switch

Internal to the joystick is a switch that indicates when the joystick is going in the reverse direction. This switch is connected to a back up alarm, the Travel mode, and to the Controller for some of the automatic functions.

SPREADPRO TOUR of HYDRAULIC SYSTEM

HYDRAULIC SYSTEMS

The hydraulic system on the SpreadPro consists of five gear-pumps directly driven by the engine. There are independent circuits for the drive system, the conveyor systems, the steering system, the spreadroll system and the auxiliary system. This part of our tour will give the operator an overview of how each of the systems operate.

The Drive System

The drive system consists of two infinitely variable hydraulic pumps which propel fluid to the two-speed motor which is mounted on the front axle drive shaft. The hydraulic pumps are used in tandem with one pump electrically controlled by the joystick and the second pump hydraulically slaved to the first pump.

The two-speed motor will reach maximum displacement in the Spread mode allowing spreading at a range from 0 - 10 mph (0 - 16 kph). In Travel mode, minimum displacement allows travel speed of 0 - 20 mph (0 - 32 kph).

Braking System

Although the braking system is not a separate system, it is a component of the drive system which the operator should become familiar with before starting a job.

The operator must become familiar with the hydrostatic transmission assist when braking. To use the hydrostatic transmission assist, move the joystick to the neutral position before applying the brake foot pedal. The brakes alone are not sufficient to stop the SpreadPro while operating in forward or reverse.



ATTENTION: *Do not engage the park brake while the machine is in motion. Instant damage will occur.*

On all road surfaces, stopping distances must be carefully anticipated, especially when towing a truck and/or going down hill. The larger the truck being towed or the steeper the grade, the longer it will take

to stop. In some cases, the truck being towed should assist with the braking. Advise the driver of this requirement.

Familiarize yourself with these variables so you can stop the SpreadPro safely.

The Conveyor System

The conveyor system consists of a gear pump and gerotor motor for each conveyor. Each system is controlled by an electronic proportional valve. Speed of each conveyor is controlled by the Conveyor Control dials on the Side Console. Turn the dial clockwise to increase the conveyor speed.

When the Conveyor Control Switches are in either AUTO or ON position, the ball float switches at the top of each conveyor will switch the conveyors on and off, determined by material volume in the hopper. Each conveyor is independently operated.

The AUTO position controls the speed of the conveyors relative to the ground speed of the SpreadPro.

The ON position controls the speed of the conveyors using the Conveyor Control potentiometers on the Side Console.

The OFF position turns the conveyors off regardless of operating mode.

Steering System

The steering system is comprised of a pump located behind the air compressor on the engine and a steering orbitrol. This pump provides fluid to the steering orbitrol. The steering orbitrol is a non-load reaction steering unit which will hold the axle position whenever the operator releases the steering wheel.

The unit also has limited steering ability if power is lost.

SPREADPRO TOUR of AIR SYSTEM

Spreadroll System

When operating in Spread mode, the computer controls the spreadroll. The system uses a gear pump to provide fluid to three gerotor motors in series. To achieve the control, an electrical proportional valve varies the speed with the ground speed to provide consistent application rate.

Two additional motors, which are manually controlled, operate the agitating shafts in the extension hoppers.

Auxiliary System

A single gear pump provides fluid to a four port manifold valve. Two of the ports provide power to the extension hoppers by means of the two toggle switches on the Side Console.

Another port supplies power to the cylinders which raise and lower the rear hopper wings. They are controlled by a toggle switch on the joystick.

The last port is used to power the release of the truck hitch through the use of a cylinder. The control for the truck hitch release is a foot switch located on the floor of the operator's platform near the pedestal for the Computer/Gauge Console.

AIR SYSTEM

The air system is composed of an air compressor which is directly driven off the engine. The system controls the individual gates as well as the foot/park brake operation.

Air Brake System

The front brakes of the SpreadPro are air over hydraulic, actuated by the foot pedal, while the rear brakes are air only, actuated by the same pedal. If air is lost to the rear brakes, a spring will apply them.

Air Operated Individual Gate System

The individual gates are controlled by toggle switches on the side console. By opening individual gates, the operator can select the width of the spread in approximately 12 inch (30.48 cm) increments.

Electronic Actuator Operated Rotary Gate System

The rotary gates control the amount of material being spread. In Spread mode, the computer controls the rotary gate opening based on a position sensor on the rotary gates. The computer opens and closes the gates proportionally to the application rate desired.

In Manual mode, the operator must set the gate openings manually on each electronic actuator prior to operation. This is done by using the Manual Gate Set toggle switches on the Side Console.

SPREADPRO TOUR of COMPUTER OPERATION

COMPUTER OPERATION

Gauge Screens

Various functions are indicated in two separate screens that are accessed by pushing the Screen Select switch **up** (+). The operator may also access these screens to check their status at any time while operating the SpreadPro.

OIL PSI	H ₂ O °F	HYD °F
60	190	180

VOLT	RPM	FUEL	HOURS
14.0	1800	½	25

If one of these functions requires attention, the appropriate screen will appear and the malfunctioning item(s) will flash. The operator can override this and return to the operating screen. However, the error defining screen will reappear after 2 minutes.

The particular function requiring attention should be dealt with as soon as possible to avoid damage to the equipment and unnecessary down time.

Startup Screen

When you turn on the key switch, the display will show the Startup Screen. It displays a message that urges the operator to read the operator's manual before running the machine. This screen is shown every time the machine is powered up, regardless of the operating mode of the machine. The display screen will last for about 3 seconds to allow it to be read completely.

READ OPERATOR'S MANUAL BEFORE USE

Operating Modes

The SpreadPro has three distinct operating modes, Travel, Spread and Manual. These modes are selected by the Operation Mode switch located on the Computer/Gauge Console.

Travel Mode

When the Travel mode is selected, the display will show the Travel Screen. It displays the actual ground speed in miles per hour (MPH). This screen is for display of machine variables only. No data can be changed on this screen and there are no other screens to scroll through.

TRAVEL MODE	MPH 22.0
----------------	-------------

When in Travel mode there are several switches on the machine which will prevent the machine from operating in this mode. The right and left hopper extensions must be fully retracted, or in. The rear hopper wings must be completely upright to operate at top speed. Top speed is only allowed in forward direction. Reverse is limited in Travel mode to approximately one half of the machine's top speed. The engine RPMs must be set at 2200 to obtain the 20 mph speed. The on board controller provides protection against overspeed conditions on the machine.

Spread Mode

The Spread Mode is the main operating mode of the machine and consists of three different groups of screens to allow the operator to tailor the machine's performance to the job conditions. The three groups are the *Operating Group*, *Memory Setup Group* and *Calibrate Group*.

Operating Group

This group of three screens is the main or default screen group. The three screens within the Operating Group can be scrolled through any time the Operating Group is being displayed. They can be scrolled forward, from 1-2-3 and back to 1 by pushing the Screen Select switch up (+), or they can be scrolled backward, from 3-2-1 back to 3, by pushing the Screen Select switch down (-).

SPREADPRO TOUR of COMPUTER OPERATION

Machine Data Screen (1):

The first screen in the Operating Group has machine data on it. Across the top line is the description of the data, while the data itself is displayed on the second line. This screen is for display of machine variables only. No data can be changed on this screen.

M	PSY	SIZE	FPM
1	26	0.375	350

The "**M**" shows the memory location that has been selected. The "**PSY**" (pounds per square yard) shows the application rate that is presently set. The "**SIZE**" shows the aggregate or rock size that is presently set. The "**FPM**" (feet per minute) shows the ground speed set point when the machine is not moving (in neutral) and then shows actual ground speed of the machine when it is moving.

By showing the FPM set point while the machine is not moving, the operator can easily see what speed full throw of the joystick will be without having to look for the information, or remember what it had been set to.

Application Rate Bump Screen (2):

The second screen in the Operating Group must be scrolled to by the operator. This screen shows the same data as screen 1 with the exception that the PSY description is *flashing*. The flashing indicates that the PSY data can be changed by pushing up the Data Update switch (+) to increase, or pushing down the Data Update switch (-) to decrease the PSY.

M	PSY	SIZE	FPM
1	26	0.375	350

The Data Update switch will change the PSY by 1 pound increments. If the Data Update switch is held in the Inc (+) or Dec (-) position for less than 1 second, the rate will change by only 1

pound. However, if the Data Update switch is held in the Inc (+) or Dec (-) position for longer than 1 second, the rate will change more rapidly.

This screen is where an operator would bump the application rate up or down while spreading material. This is not a setup screen or a calibration screen. It is only used to make small changes in the application rate while spreading.

NOTE: Bumping the rate will cause both the Spreadroll RPM and the Gate Opening to change to maintain the correct application rate.

Gate Opening and Roll RPM Screen (3):

The third screen in the Operating Group must be scrolled to by the operator. This screen shows the Gate Opening that has been calculated by the on board controller, and the actual Spreadroll speed in revolutions per minute (RPM). This screen is for display of machine variables only. No data can be changed on this screen.

GATE OPEN	ROLL RPM
1.781	150

NOTE: The Gate Opening is displayed here, and the on board computer will open the rotary gates to that opening to achieve the correct application rate.

SPREADPRO TOUR of COMPUTER OPERATION

Memory Setup Group

This group of seven screens is used to set up the machine for different job conditions, and then save those variables to a memory location so they can be used on future jobs with the same requirements. The data entered using this group of screens is also essential in determining the gate opening that will be used in producing the correct application rate.

To enter the Memory Setup Group of screens, the operator must hold **down** the Screen Select switch **and** the Data Update switch at the same time for one second.

In addition to the Banner Screen, there are six screens that may be scrolled to. They can be scrolled forward, from 1 thru 6 and back to 1 by pushing the Screen Select switch up (+) or they can be scrolled backward, from 6 to 1 and back to 6 by pushing the Screen Select switch down (-).

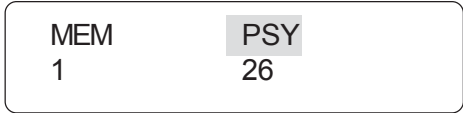
Memory Setup Banner Screen:

When the operator enters the Memory Setup Group, a banner screen will appear to let the operator know that the Memory Setup Group is now active. This screen is only shown when the Memory Setup Group is entered.



PSY Change Screen (1):

After the banner screen, the first screen in the Memory Setup Group is scrolled to by the operator. This screen shows the memory location that is active at the time the Memory Setup Group is entered, and the variable that can be changed. The PSY description is *flashing* to indicate that the PSY data can be changed by toggling the Data Update switch up (+) to increase the PSY or down (-) to decrease the PSY.

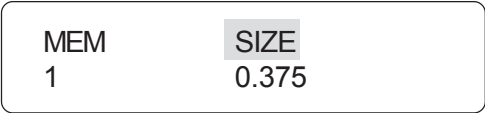


The Data Update switch will change the PSY by 1 pound increments. The minimum is 1 PSY, the maximum is 60 PSY.

If the Data Update switch is held up (+) or down (-) for less than 1 second, the rate will change by only 1 unit. If the Data Update switch is held up (+) or down (-) for longer than 1 second, the rate will change more rapidly.

Size Change Screen (2):

The second screen in the Memory Setup Group must be scrolled to by the operator. This screen shows the memory location that is active at the time the Memory Setup Group is entered and the variable that can be changed, the aggregate or rock SIZE. The SIZE description is *flashing* to indicate that the SIZE data can be changed by either toggling the Data Update switch up (+) to increase the SIZE or down (-) to decrease the SIZE.



The Data Update Switch will change the aggregate or rock SIZE by 1/8 inch increments. The minimum rock size is 1/8 inch (3.2 mm), the maximum is 1.0 inch (25.4 mm).

If the Data Update switch is held up (+) or down (-) for less than 1 second, the rate will change by only 1 unit. If the Data Update Switch is held up (+) or down (-) for longer than 1 second, the rate will change more rapidly.

FPM Set Point Change Screen (3):

The third screen in the Memory Setup Group must be scrolled to by the operator. This screen shows the memory location that is active at the time the Memory Setup Group is entered. The FPM description is *flashing* to indicate that the FPM set point can be changed by either toggling the Data Update switch up (+) to increase the FPM or down (-) to decrease the FPM.

SPREADPRO TOUR of COMPUTER OPERATION

MEM	FPM
1	350

The Data Update switch will change the FPM by 1 foot increments (30.5 cm). The minimum is 1 FPM, the maximum is 880 FPM (268 mPM). This is the speed that the machine will try to achieve when the Joystick is moved to full stroke in Spread mode.

If the Data Update switch is held up (+) or down (-) for less than 1 second, the rate will change by only 1 unit. If the Data Update switch is held up (+) or down (-) for longer than 1 second, the rate will change more rapidly.

Material Type Change Screen (4):

The fourth screen in the Memory Setup Group must be scrolled to by the operator. This screen shows the memory location that is active at the time the Memory Setup Group is entered. The MAT:TYPE description is *flashing* to indicate that the MAT:TYPE data can be changed.

MEM	MAT:TYPE
1	C

The MAT: TYPE can be only one of two values, **C** for crushed stone, or **P** for pit stone. Toggling the Data Update switch up (+) will change the material type from C to P, and down (-) will change the material type from P to C.

NOTE: The material type needs to be set to the correct value. Different materials have different flow characteristics.

Material Weight Change Screen (5):

The fifth screen in the Memory Setup Group must be scrolled to by the operator. This screen shows the memory location that is active at the time the Memory Setup Group is entered. The MAT:WGHT description is *flashing* to indicate that the MAT:WGHT data can be changed by toggling the Data Update switch up (+) to increase the MAT:WGHT or down (-) to decrease the MAT:WGHT.

MEM	MAT:WGHT
1	2700

The Data Update switch will change the MAT:WGHT by 10 pound increments (4.5 kg). The minimum is 1800 pounds (816.5 kg), the maximum is 4500 pounds (2041.2 kg).

If the Data Update switch is held up (+) or down (-) for less than 1 second, the rate will change by only 1 unit. If the Data Update switch is held up (+) or down (-) for longer than 1 second, the rate will change more rapidly.

Save or Exit Screen (6):

The sixth screen in the Memory Setup Group must be scrolled to by the operator. This screen gives the operator a choice of saving the new data to memory, or exiting the Memory Setup Group **without** saving the new data.

MEM SAVE TO KEEP
DATA DECREMENT TO EXIT

The Memory Save toggle switch will save the new data into the memory location that is active at the time the Memory Setup Group is entered.

The data that was changed during the use of the Memory Setup Group will be used by the on board computer to properly proportion the gate opening and the spreadroll speed. The computer will continue to use this information until the operator changes it by selecting another pre-set memory.

After saving the data, the display will automatically return to the Operating Group and show screen 1, (Machine Data).

To return to saved data, simply reload any of the memory settings by toggling the appropriate Memory # Toggle Switch.

Toggling the Data Update switch down (-) will exit the Memory Setup Group **without** saving the new data to memory. After exiting, the display will automatically return to the Operating Group and show screen 1, (Machine Data).

SPREADPRO TOUR of COMPUTER OPERATION

Calibration Group

The Calibrate Group consists of two screens used to calibrate, or fine tune, the actual application rate with the rate that is set in the computer. This group is used only when measuring the actual output with a measuring device. If you only wish to bump the application rate slightly up or down, use the Application Rate Bump Screen. Refer to **Operating Group, Application Bump Screen**, earlier in this section.

To enter the Calibrate Group of screens, the operator must select and hold down for one second, the PSY CAL Switch.

In the Calibrate Group there are three different screens, but only two that the operator can scroll through. These can be scrolled forward or backward, toggling the Screen Select switch up (+) or down (-).

Calibrate Banner Screen:

When the operator enters the Calibrate Group, a banner screen will appear to let the operator know that the Calibrate Group is now active. This screen is only shown when the Calibrate Group is entered.

CALIBRATE
GROUP

Calibrate Change Screen (1):

The first screen in the Calibrate Group must be scrolled to by the operator. This screen shows the memory location that is active at the time the Calibrate Group is entered and the variable that can be changed, the calibrated PSY, or ACTUAL. The ACTUAL description is *flashing* to indicate that the ACTUAL data can be changed by toggling the Data Update switch up (+) to increase the ACTUAL value or down (-) to decrease the ACTUAL value.

MEM	PSY: SET	ACTUAL
1	26	26

The Data Update switch will change the PSY by 1 pound increments (.45 kg). The minimum is 1 PSY, the maximum is 60 PSY (27.2 kg).

If the Data Update switch is held up (+) or down (-) for less than 1 second, the rate will change by only 1 unit. If the Data Update switch is held up (+) or down (-) for longer than 1 second, the rate will change more rapidly.

Save or Exit Screen (2):

The second screen in the Calibrate Group must be scrolled to by the operator. This screen gives the operator a choice of saving the new data to memory or exiting the Calibrate Group **without** saving the new data.

MEM SAVE TO KEEP
DATA DECREMENT TO EXIT

The Memory Save toggle switch will save the new data into the memory location that is active at the time the Calibration Group is entered.

The calibration data that was saved will be used by the computer to properly proportion the gate opening and the spreadroll speed to get the correct application rate. The controller will continue to use this information until the operator changes it by selecting another pre-set memory.

After saving the data, the display will automatically return to the Operating Group and show screen 1, (Machine Data).

To return to saved data simply reload any of the memory settings by toggling the appropriate Memory Toggle Switch.

Toggling the Data Update switch down (-) will exit this screen **without** saving the new data to memory. After exiting, the display will automatically return to the Operating Group and show screen 1, (Machine Data).

SPREADPRO TOUR of COMPUTER OPERATION

Manual Mode

When Manual mode is selected, the display will show the following screen. It indicates that the machine is in Manual mode, the spreadroll revolutions per minute (RPM), and the actual ground speed in feet per minute (FPM). This screen is for display of machine variables only. No data can be changed on this screen, and there are no other screens to scroll through.

MANUAL	RPM	FPM
MODE	150	880

The top speed of the spreadroll is 150 RPM and the top speed of the machine in Manual mode is 880 FPM (268.2 mPM). The engine RPMs should be set at 1800 to allow the machine to work correctly in the Manual mode.

MANUAL GATE SET SWITCHES

These 4 toggle switches on the Side Console are used to set the manual opening and closing of the rotary gates. These switches have three functions:

Function 1 - Sets the minimum and maximum gate openings for the computer to use in its calculations. To enter this mode, hold **down** the Screen Select switch and hold **up** the Data Update switch at the same time for 3 seconds or until the banner screen appears.

TECHNICIAN SCREEN GROUP

Select the gate you wish to set by toggling the appropriate memory switch on the Computer/Gauges Console.

Memory 1 is Left Extension Gate
Memory 2 is Center Left Gate
Memory 3 is Center Right Gate
Memory 4 is Right Extension Gate

On the Side Console, move the matching Manual Gate Set switch **down** (-) and hold to set the 0", or minimum gate opening. The second screen appears.

LEFT EXT @ ZERO OFFSET = 3000

Toggle the Memory Save switch on the Computer/Gauges Console to SAVE the data.

The third screen will appear to set the 3.00", or maximum gate opening.

LEFT EXT @ 3.00" RANGE = 3650

Move the matching Manual Gate Set switch **up** (+) and hold to set the maximum gate opening. Toggle the Memory Save switch to SAVE the data.

SPREADPRO TOUR of COMPUTER OPERATION

The fourth screen appears.

LEFT EXT GATE
IS CALIBRATED

You must return to the banner screen to set each gate. To do so, hold **down** (-) the Screen Select switch and hold **up** (+) the Data Update switch at the same time for 3 seconds. The same series of four screens, as described above, will appear as you set each gate.

Function 2 - Sets the gate openings for Manual operation. Refer to **Manual Mode Operation/Setup** in the Machine Operation section, later in this manual.

Function 3 - Sets limit switches in the rotary gate electric actuators.

LIMIT SWITCH ADJUSTMENT

Limit switches are set at the factory to the maximum extended length and the minimum retracted length. If adjustment is required, follow these steps: (Use a 7/32" nut driver to prevent damage to adjustment screw from over tightening.)



ATTENTION: *Do not adjust limit switches while motor is stalled or when actuator is in the extreme extended or extreme retracted position. Damage to the actuators will occur.*

1. Remove the rubber plug from the actuator housing covering the adjustment screws. Refer to diagram for location of extend and retract adjustment screws.

2. To **shorten** the **extended** length, turn the extend adjustment screw **clockwise**. Each 1/4 turn changes the actuator travel by .22 inches (5.6 mm).

3. To **lengthen** the **retracted** length, turn the retract adjustment screw **counterclockwise**. Each 1/4 turn changes the actuator travel by .22 inches (5.6 mm).

Setting Extend Switch

1. Set actuator at mid-travel, approximately 3 inches (7.6 cm) extended.
2. To shorten the length, turn the adjustment screw clockwise the number of turns required to achieve the desired decrease in stroke.
3. To lengthen, turn the adjustment screw counterclockwise the number of turns required to achieve the desired increase in stroke.
4. Run actuator to ensure limit switch shuts off power to the motor prior to actuator stall while in the desired position.
5. If further adjustment is required, repeat steps.

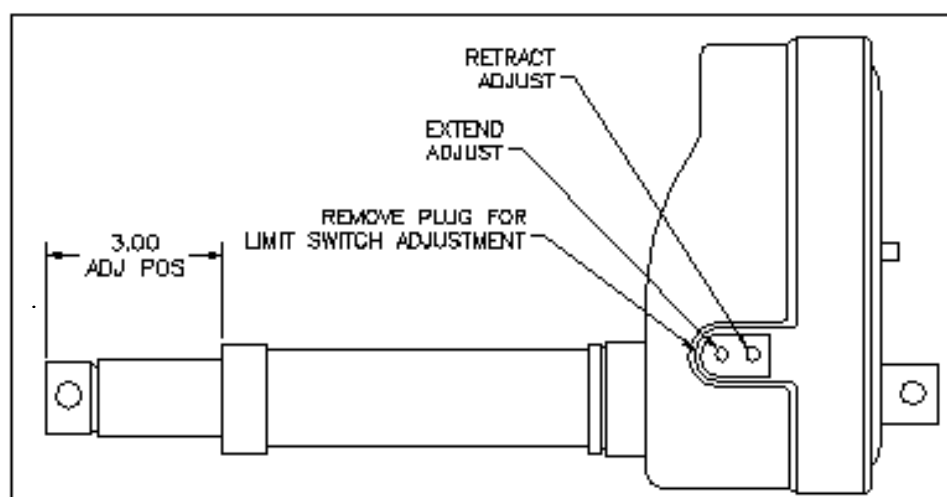
Setting Retract Switch

1. Set actuator at mid-travel, approximately 3 inches (7.6 cm) extended.
2. To shorten the length, turn the adjustment screw clockwise the number of turns required to achieve the desired decrease in stroke.
3. To lengthen, turn the adjustment screw counterclockwise the number of turns required to achieve the desired increase in stroke.
4. Run actuator to ensure limit switch shuts off power to the motor prior to actuator stall while in the desired position.
5. If further adjustment is required, repeat steps.



ATTENTION: *Use caution when adjusting the limit switches and follow the instructions provided to avoid damaging the actuators.*

SPREADPRO TOUR of COMPUTER OPERATION



PREPARATION FOR USE

TRUCK HITCH SETUP

The following procedures are necessary to prepare for initial operation. The truck hitch on the SpreadPro provides the means for the truck to be held in close proximity to the receiving (rear) hopper. The success of the entire spreading function is directly related to this hook-up, and care should be taken to ensure the accuracy of the hook-up with every truck that will be working with the SpreadPro. Refer to Figure 9 for measurement locations.

The SpreadPro has a floating hitch. The hitch will catch a bar on the back of the dump truck that is between 10 and 20 inches (25.4 to 50.8 cm) from the ground **when the truck is loaded**. This allows for a variety of truck styles and sizes to be used on the same job. The catch bar must be between 1 3/4 to 2 3/8 inches (4.4 to 6.0 cm) in diameter to be caught by the SpreadPro hitch.

For the best hook-up, the bar should hit against the hitch about 2 inches (5.1 cm) below the latch catch. If the truck bars do not widely vary in height from truck to truck, the height may be adjusted up or down for more precise engagement by loosening the hex socket head bolts located below the hitch and repositioning the hitch.

NOTE: When retightening the hex socket bolts, be sure to check each bolt several time to be sure they are all tight.

The hitch length is also extendable in 2 inch (5.1 cm) increments up to 10 inches (25.4 cm). To adjust the length, reach between the hitch and the SpreadPro body and remove the two hair pins holding the center plate in the rear hopper. The hitch adjustment pin is located below this plate. Remove the plate and pull the adjusting pin and move the hitch in or out to the proper length for the truck being used. Replace the plate and pins. The range that the truck tow bar can be ahead of the rear edge of the dump body is 20 inches (50.8 cm).

Other items to consider when setting up the truck hitch include the opening of the hitch latch and its clearance when the truck is attached.

The latch on the SpreadPro can be raised to accommodate the hook. The latch needs 10 inches (25.4 cm) of clearance above the bar to operate correctly. The hitch also has a ramp that requires 11 inches (27.9 cm) of clearance ahead of the bar.

To dump the truck into the SpreadPro, the rear box must be 36 inches (91.4 cm) from the ground **when loaded** to clear the hopper without damaging the rubber sealing skirting. The truck frame rail must be 12 inches (30.5 cm) ahead of the rear of the box to allow the dump body to be 9 inches (22.9 cm) into the hopper to avoid spilling aggregate while dumping.

When the hook-up components are set properly, the speed of the hook-up is greatly increased and the smoothness of the operation is enhanced.

PREPARATION FOR USE

SPREADPRO BAR PLACEMENT ON DUMP TRUCKS

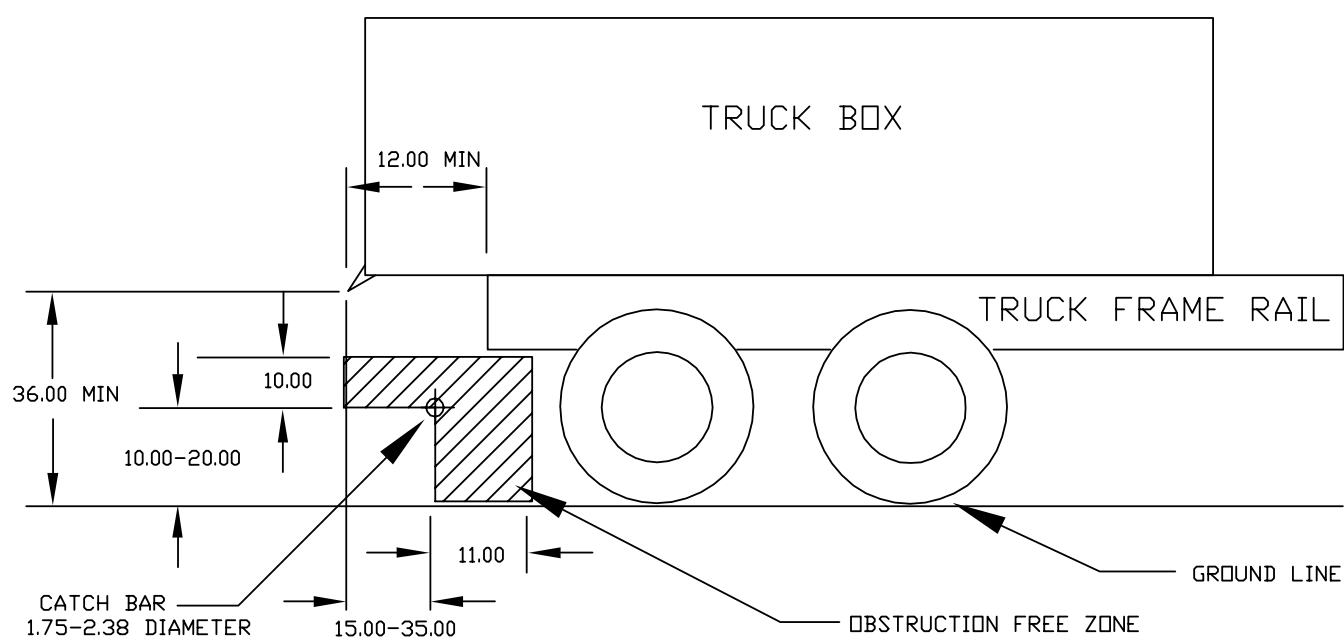


Figure 9
SpreadPro - Truck Clearances for hook-up

PREPARATION FOR USE

PRE-OPERATION INSTRUCTIONS

Before using the SpreadPro for the first time, make sure the operator is familiar with the features, controls and safety considerations of the SpreadPro.

To assure proper performance, the following inspection should be performed daily before putting the SpreadPro into operation. See the **Preventive Maintenance Chart**, in Maintenance, Section 4 of this manual for additional servicing procedures.

1. Check all fluid levels as detailed in the Maintenance chapter of this manual including the following:
 - A. Check engine crankcase oil. Add if low and do not overfill.
 - B. Check hydraulic oil reservoir. Add if low.
 - C. Check engine diesel fuel tank. Add if low.
 - D. Check engine coolant level at the radiator. Fill if low.
2. Drain the fuel/water separator on the engine's fuel filter.
3. Check the engine air filter restriction indicator. Replace filter element(s) if indicator shows red or above 35 Hg.
4. Check tire pressure. Maintain even pressure in the front and rear tires (85 PSI in the front and 80 PSI in the rear).
5. Check the SpreadPro for loose bolts or signs of leaking hoses. See **Maintenance**, Section 4 of this manual for leak inspection procedures.
6. Make sure that the air is turned on by checking the air cutoff lever on the air tanks.



ATTENTION: Know the location and function of the controls **before** starting the engine. Refer to diagrams in this section for the position of all operating controls and system monitoring gauges.

SIGHT ROD INSTALLATION

Sight Rods should **not** be installed until the job site is reached and the operator is getting ready for the first pass of the day. **Never road the machine with the sight rods installed.**

To install sight rods:

1. Move each wing out slightly so the sight rod holder will be easier to reach.
2. Loosen the wing nuts on the sight rod storage brackets on the side of each conveyor.
3. Remove the sight rods from the brackets.
4. Install the sight rods in the holders on the hopper extensions.
5. Tighten the wing nut on each holder.

The wings may be fully retracted with the sight rods installed.

LIGHTS

Operational lights, such as headlights, tail lights, turn signals and hazard lights may be included on your unit. To operate the lights:

1. To turn on the headlights, lift up the headlight lever on the left side of the steering wheel column. To turn off the headlights, lift on the headlight lever again.
2. The turn signals work the same as a car's turn signal, down for left and up for right.
3. To activate the hazard lights, pull out the switch under the headlight lever. To deactivate the hazard lights, move the headlight lever in either direction.

PREPARATION FOR USE

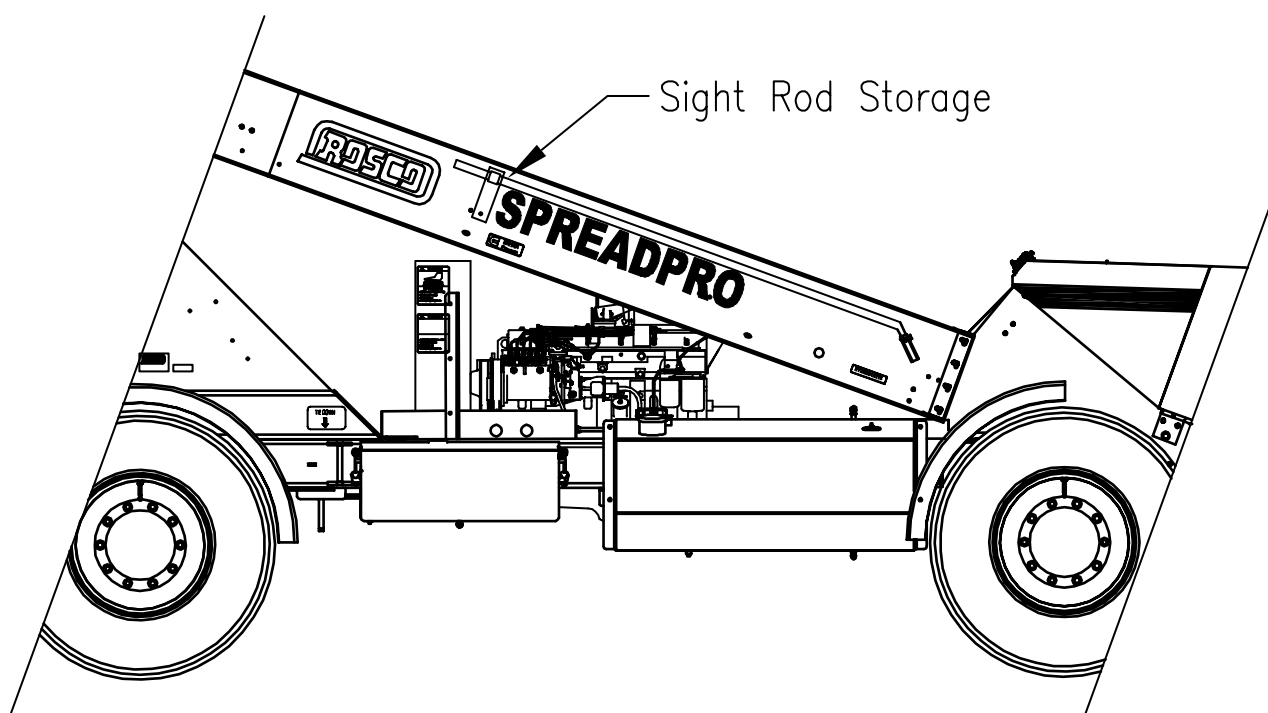
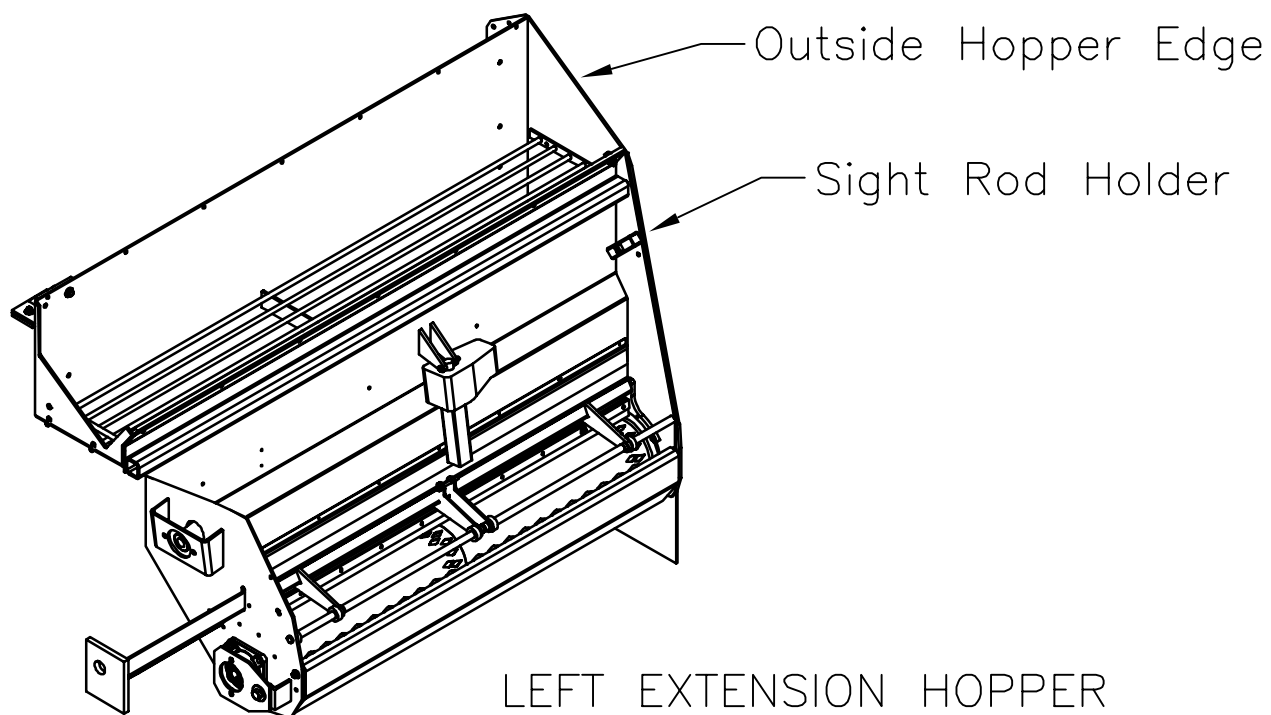


Figure 10
SpreadPro - Sight Rod Installation



LEFT EXTENSION HOPPER

MACHINE OPERATION & SETUP

The following section will give detailed instructions on the steps to setup and operate the SpreadPro in either Manual or Spread modes. Proper operation of this unit requires a thorough understanding of the capabilities and operation of all the components of the SpreadPro.

When first working with the SpreadPro, follow these setup and operating procedures **prior** to filling the machine with rock. This will enable closer inspection of the machine's characteristics and allow easier modifications during the learning process.

ENGINE START-UP

1. Sit in the driver's seat, fasten the seat belt and become familiar with the location of all the controls. Refer to **SpreadPro Tour**, earlier in this section of this manual, for an in-depth tour of the SpreadPro.

2. Turn all conveyor control switches OFF.

3. Place the Joystick in neutral (starting interlock).

4. Lower the Right Hand Armrest of the operator's seat (starting and running interlock).

5. Set the Park Brake switch.

6. Turn the engine ignition key to the "On" position. **DO NOT TURN THE KEY TO THE "START" POSITION.** The Engine Status gauge will light and cycle through its four stages. **If the Engine Status gauge fails to cycle through, refer to the Engine manufacturer's manual for troubleshooting help.**

7. Once the Engine Status gauge extinguishes, turn the key to the "Start" position. As soon as the engine starts, release the key.



ATTENTION: Do not crank the engine for more than 30 seconds at a time. Starter failure may result from continuous cranking.

ATTENTION: If the starter doesn't turn the engine over, shut off the ignition key **immediately** and make **no further attempts** to start the engine until the problem is corrected. See *Troubleshooting, Section 5* in this manual for possible solutions.



NOTE: For further troubleshooting analysis, contact your Cummins Diesel Engine service dealer.



ATTENTION: Allow the starter to cool for 2 minutes between attempts to start the engine. Failure to do so may result in burning out the starter motor.

8. The following screen will appear:

READ OPERATOR'S
MANUAL BEFORE USE

9. Check the various gauges on the Computer/Gauge Console for proper readings and investigate if any component is not functioning properly.

10. Allow air pressure to build to 100 PSI before continuing.

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

SPREAD MODE

The following section will give detailed instructions on the steps to setup and operate the SpreadPro in the **Spread** mode. Proper operation of this unit requires a thorough understanding of the capabilities and operation of all the components of the SpreadPro.

Most of the screen related functions may be performed without the engine running, however, the Engine Ignition switch must be ON. This is a good way to become acquainted with the different screens and how to move from one screen or group of screens to another.

Memory Functions

1. Move the Operation Mode switch to **Spread** mode. The computer display will show the current machine settings.

M	PSY	SIZE	FPM
1	26	0.375	350

2. Use memory switches to load data that was previously saved. If the memory settings are correct, skip to Step 11. To change data or to setup a memory location for future use, select the memory location to be used and continue.

3. Enter the Memory Setup Group by holding the Screen Select switch **and** the Data Update switch **down** (-) at the same time. The display will change to show that the Memory Setup Group is active.

MEMORY SETUP GROUP

4. Scroll to the next screen by pushing the Screen Select switch up (+). This is the PSY Change screen. PSY is *flashing* to indicate that this value can be changed. Move the Data Update switch up (+) or down (-) to set this value to the desired application rate.

MEM	PSY
1	26

5. Scroll to the next screen by pushing the Screen Select switch up (+). This is the Size Change screen. SIZE is *flashing* to indicate that this value can be changed. Use the Date Update switch to set this value to the desired rock size.

MEM	SIZE
1	0.375

6. Scroll to the next screen by pushing the Screen Select switch up (+). This is the FPM Set Point Change screen. FPM is *flashing* to indicate that this value can be changed. Use the Date Update switch to set this value to the desired chipping speed.

MEM	FPM
1	350

7. Scroll to the next screen by pushing the Screen Select switch up (+). This is the Material Type Change screen. MAT:TYPE is *flashing* to indicate that this value can be changed. Use the Date Update switch to set this value to the desired Material Type, P for pit or round stone, or C for crushed stone.

MEM	MAT:TYPE
1	C

8. Scroll to the next screen by pushing the Screen Select switch up (+). This is the Material Weight Change screen. MAT:WGHT is *flashing* to indicate that this value can be changed. Use the Date Update switch to set this value to the known Material Weight.

MEM	MAT:WGHT
1	2600

9. Scroll to the next screen by pushing the Screen Select switch up (+). This is the Save or Exit screen. To save the data that has just been

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

set, toggle the Memory Save switch up (+). To use the data without saving it to memory, push the Data Update switch down (-).

MEM SAVE TO KEEP
DATA DECREMENT TO EXIT

If data is saved, a screen will appear to confirm that the data was saved.

10. Either operation, Save or Exit, will return the system to the Operating Group, Machine Data screen. The display will show the FPM set point while the Joystick is in neutral. When the joystick is moved out of neutral, the display will show the actual ground speed of the machine.

M	PSY	SIZE	FPM
1	26	0.375	350

Start and Restart Functions

Use the Start and Restart switches on the Side Console to select the desired Start and Restart modes.

1. Start has two choices, Stagger and Straight.
 - a. **Stagger** will allow all three hoppers to start at the same time. Because the hoppers are off-set, this causes a staggered pattern of material to be applied whenever the Spreadroll On/Off button is pushed.
 - b. **Straight** will allow the computer to start the left and right extension hoppers at the correct time, causing a straight line of material to be applied whenever the Spreadroll On/Off button is pushed.
2. Restart has two choices, Manual and Auto.
 - a. **Manual** will allow the operator to restart the application using the Spreadroll On/Off push-button.
 - b. **Auto** will allow the computer to restart the application.

3. Using Auto Restart:

- a. Set the Restart switch to Auto and select the desired Stagger or Straight Start pattern.
- b. As the SpreadPro moves to the starting point, push the Spreadroll On/Off button on the Joystick to begin spreading. The Spreadroll will use the selected start pattern, and the Spreadroll On lights will illuminate on the Joystick and the Computer/Gauges Console.
- c. To stop spreading, pull the Joystick back to the neutral position. The Spreadroll On lights will still be illuminated to indicate that the Spreadroll is in "standby".
- d. Reverse the SpreadPro by moving the Joystick in the backward direction. Attach the SpreadPro to a new truck full of material.
- e. Once attached to a new truck, move the Joystick forward and the spreading begins automatically at the last stopping point.
- f. This can be repeated as many times as required.
- g. To stop spreading at anytime, simply push the Spreadroll On/Off button. This will stop the Spreadroll and turn "Off" the Auto Restart Mode.

Hopper Functions

1. Use the Hopper Select switches on the Side Console to select the hoppers that will be used while spreading. The left and right switches allow the left and right extension hoppers to run. The center switch will enable the whole center hopper. Use the individual Center Hopper Gate Select switches to select one foot increments of the center hopper. Switch one is the left most gate, while switch nine is the right most gate.

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

The next several steps require hydraulic flow and air pressure. To get these, the engine must be running. These steps work with the engine at idle, but to get a sense of how fast the hoppers move in and out, or how fast to set the conveyors, the engine should be at Spread speed or 1800 RPM. To reach this, toggle the Engine Throttle twice. Each toggle is 400 RPMs.

NOTE: When actual spreading is performed, the engine should be run at the Spread speed of 1800 RPM.

2. Use the Hopper In/Out switches on the Side Console to move the extension hoppers in and out. This insures that there are no mechanical binds which would prevent their movement. Leave them out so that the gate openings can be checked.

3. Move the rotary gates up and down to insure there are no mechanical binds. Move the Operating Mode switch from Manual (gates will go down) to Spread (gates will open to 3x stone size).

NOTE: The measurements for the gate opening are taken from the top of the mesh on the Spreadroll to the bottom of the rubber edging on each gate. Do not measure from below the top of the mesh. The resulting gate openings will be too small.

4. With the extensions out and enabled, toggle the Hopper Dump switch on the Computer/Gauges Console to clear old material out of the hopper. This may not be necessary if you are using the same material on a regular basis, or if the Hopper Dump was performed at the end of the previous job.

NOTE: If the machine has not been run in a long time, toggle the Hopper Dump switch to clear any trash that may have built up inside the hopper. It also checks to see that there are no mechanical binds on the Spreadroll.

5. Sight rods located on the sides of the conveyors can be attached to the extension hoppers at this time. See **Sight Rod Installation** earlier in this section.

6. Use the Hopper In/Out switches on the Side Console to move the extension hoppers back into the machine until they are fully closed. For the initial loading of material, the extensions should be fully retracted.

7. Use the Rear Hopper Wing switch on the Joystick to lower the rear hopper wings. Make sure that the safety chain has been released. When the rear wings are in the fully lowered position, the Wings Light on the Computer/Gauge Console will turn green to indicate that a truck can safely be accepted. When the rear wings are in any other position, the Wings Light will turn red to indicate that it is not safe to accept a truck.

8. Start the conveyors by moving the Conveyor Control switches on the Side Console to either Auto or On. Both controls use a ball float switch to shut off the conveyor when the front hopper gets full of material. However, conveyor speed is determined by different means.

a. **Auto** - The conveyor speed will vary with the speed of the SpreadPro.

b. **On** - The conveyor speed is controlled by the Conveyor Control potentiometers on the Side Console.

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

9. Set the speed of the conveyors to approximately $\frac{3}{4}$ speed by adjusting the Conveyor Control Potentiometers on the Side Console. The material flows better if the belts are run at about $\frac{3}{4}$ speed. This allows for an increase in conveyor speed should more material be needed during spreading. Operator experience and/or preference will dictate what speed to set the conveyors for specific application conditions.



ATTENTION: *Do not overfill the front hopper. Overfilling will cause excess spillage and may bind up the ball float switches. The front hopper holds enough material that overfilling is not necessary.*

Loading Functions

1. The Park Brake on the Computer/Gauge Console can be released by pushing the toggle switch down. The light will go out and the sound of released air will accompany the release of the brakes.

2. Moving the Joystick forward will cause the SpreadPro to move forward. Moving the Joystick backward will cause the SpreadPro to move in reverse. Ground speed will be proportional to the movement of the Joystick, with maximum speed at full stroke of the Joystick being the speed set at **FPM Set Point Change Screen**. Refer to **Memory Setup Group** of SpreadPro Tour, earlier in this section or the manual.

NOTE: Drive the SpreadPro around a bit to become familiar with the response of the machine to the Joystick and the sight lines of the cab design.

3. When familiar with the movement of the SpreadPro, attach to a truck by backing the SpreadPro hitch into the draw bar of the truck. The hitch setup is described in **Truck Hitch**

Setup in Preparation For Use, earlier in this section. Make sure the hitch is adjusted **prior** to connection with a truck.

NOTE: Insure connection to the truck by easing the SpreadPro forward. If the connection was made, the truck will be pulled along. Otherwise recheck the hitch adjustments and try again. Proper hitch adjustment is imperative for proper spreading operations.

4. When the truck is properly connected, use the Guidance Light switch on the Joystick to activate the large signal lights on the right side of the SpreadPro to signal the truck driver to raise or lower the bed of the truck. Guidance Lights on the Computer/Gauges Console work in conjunction with the switch on the Joystick and the large signal lights. Since the operator cannot see the signal lights from the operator's platform, the console and Joystick lights let the operator know that the large signal lights have been activated.

5. **Slowly** increase the truck bed height as you watch the material flow out of the rear hopper, along the conveyor belts and into the front hopper. Raising the truck bed too fast could cause overflow of material and excess spillage. Also watch the material flow from the conveyor belts into the hopper to get a feel for the speed of the conveyor. Here is where you would judge if it is too fast or too slow.

6. Once the front hopper is full, move the extension hoppers out to the correct spreading width.

7. As the extension hoppers are moved out, the material in the front hopper will be lowered. If Auto mode was selected for the conveyors, they will come back on to re-fill the front hopper. Automatic starting and stopping of the conveyors will continue during spreading operations.

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

Spreading Functions

1. Move machine forward by moving the Joystick forward.
2. When approaching the fresh oil, push the Spreadroll On/Off button to start the application of material. The computer will control the application rate over the whole speed range of the Joystick.

NOTE: It is not necessary to start at the maximum speed. In fact it is better to start at a slower speed and increase your speed as you feel more comfortable with the operation of the machine.

3. Use the sight rods to help maintain a straight direction and proper spreading width.
4. To change the coverage width, adjust either of the extension hoppers or any of the 1 foot gate controls for the center hopper, using the Center Hopper Gate Select switches on the Side Console. This can be done while spreading.
5. Check the level of material in the rear hopper on a regular basis and signal the truck driver by using the Guidance Lights on the right side of the machine to raise or lower the truck bed as appropriate.
6. The truck can be released at any time. The Hitch Release foot switch located by the operator's left foot will open the hitch when stepped on. It will also flash the large red signal light on the right side of the machine to let the truck driver know that they have been released. A red guidance light on the Computer/Gauges Console works in conjunction with the foot switch and large signal light to let the operator know that the hitch is opening and that the large signal light has been activated.

7. If using the Auto Restart function, see **Start and Restart Functions**, earlier in this section.
8. Continue to spread using these procedures.

Bumping The Rate In Spread Mode

While spreading material in Spread mode, it may become necessary to adjust the rate of application by a pound or two. This is referred to as bumping the rate. Should this be required, follow these simple steps.

1. While in Spread mode, the Machine Data screen will display the current machine settings.

M	PSY	SIZE	FPM
1	26	0.375	350

2. Scroll to the Application Rate Bump Screen by pushing the Screen Select switch up (+). This screen is the same as the Machine Data screen except that the PSY is flashing to indicate that this value can be changed.

M	PSY	SIZE	FPM
1	26	0.375	350

Use the Data Update switch to "bump" the rate up or down while spreading. This allows easy adjustments to the application rate.

NOTE: This value should not be changed by more than a couple of pounds in either direction. If the actual rate required is significantly different from the setup of the machine, then the machine should be setup for that rate.

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

Calibrating The Rate In Spread Mode

While spreading material in Spread mode, it may become necessary to calibrate the machine's output with the values that have been set during the Operation/Setup procedures. If this becomes necessary, follow these steps:

1. While in Spread mode, hold **down** the Screen Select switch **and** the Data Update switch at the same time, to enter the Memory Setup Group.
2. Scroll through the Memory screens to verify that the data that has been saved and is being used at this memory location is correct. Material Type and Material Weight **do** have an effect on the output of the machine.
3. Exit the Memory Setup Group, which returns the display to the Machine Data Screen.

M	PSY	SIZE	FPM
1	26	0.375	350

4. Enter the Calibration Group by holding down (-) the PSY Cal switch. The display will change to show that the Calibration Group has been entered.

CALIBRATE GROUP

5. Scroll to the Calibration Change screen by holding the Screen Select switch up (+). The screen shows two values for the PSY: a SET value and an ACTUAL value. ACTUAL is *flashing* to indicate that this value can be changed.

MEM	PSY:SET	ACTUAL
1	26	26

The SET value is the application rate that is currently in use on the machine. The ACTUAL value is the application rate in pounds per square

yard that was measured using trays, cloth, or weights and distances to accurately determine what the machine is actually spreading.

Use the Data Update switch to set this value to the measured application rate.

6. Scroll to the Save or Exit screen by pushing the Screen Select switch up (+). To save the data that has been set, toggle the Memory Save switch, or use the data without saving it by pushing the Data Update switch down (-).

MEM SAVE TO KEEP DATA DECREMENT TO EXIT
--

7. Save or Exit will return the system to the Operating Group's Machine Data screen.

M	PSY	SIZE	FPM
1	26	0.375	350

8. The display will still show the same application rate as it did prior to the calibration process. However, the Spreadroll speed and Gate Opening will change in relation to the ground speed to achieve the desired rate.

Auto Restart Adjustment

If the operator notices a significant gap or overlap when resuming a spreading application, it may be necessary to adjust the Auto Restart. To do so, push the Screen Select switch up (+) and the Data Update switch down (-) at the same time and hold for 3 seconds. The following banner screen will appear.

AUTO RESTART ADJUSTMENT USE DATA + / -

1. If there is a gap between material applications, decrease the Restart value by pushing down (-) the Data Update switch until the offset value shown on the screen is the same as the gap in the application.

MACHINE OPERATION & SETUP

SPREAD MODE (COMPUTER CONTROLLED) OPERATION/SETUP

OFFSET = 2.00"
SAVE OR SCREEN + / -

2. If there is an overlap between the applications, increase the Restart value by pushing up (+) the Data Update switch until the offset value shown on the screen is the same as the overlap in application.

3. To save the data, push down (-) the Memory Save switch.

5. Move the Joystick to the extreme rear position and push the Memory Save down (-) to save this data.

MOVE JOYSTICK BACKWARD
ADJ VALUE = XXXX

Joystick Calibration

The Joystick is calibrated at the factory and should not need adjustment. If the on board computer fails or the Joystick has been changed out, it will be necessary to calibrate the Joystick. Use the following procedure.

1. Apply the Park Brake and in Auto mode, increase the engine RPMs to 2200.

2. Push the Screen Select switch up (+) and the Data Update switch up (+) at the same time and hold for 3 seconds. The following banner screen will appear momentarily.

JOYSTICK CALIBRATION
MODE

3. With the Joystick in neutral, a value will appear. Push the Memory Save down (-) to save this data.

MOVE JOYSTICK TO CENTER
ADJ VALUE = XXXX

4. Move the Joystick to the extreme forward position and push the Memory Save down (-) to save this data.

MOVE JOYSTICK FORWARD
ADJ VALUE = XXXX

MACHINE OPERATION & SETUP

MANUAL MODE OPERATION/SETUP

MANUAL MODE

The following section will give detailed instructions on the steps to setup and operate the SpreadPro in Manual mode. The purpose of Manual mode is to have a means to complete a run if the computer fails. It is not intended as an alternate operating mode.

1. Move the Operation Mode switch to Manual mode. The Manual Mode Screen will display the actual Spreadroll speed in revolutions per minute (RPM) and the actual machine speed in feet per minute (FPM).

MANUAL MODE	RPM 0	FPM 0
----------------	----------	----------

NOTE: In Manual mode, you can not control the application rate. Your application will vary with the speed of the unit.

The Memory, Memory Save, PSY Cal, Data Update, and Screen Select switches **do not work** in Manual mode. There are no computer controlled Start and Restart functions. The Manual mode operates independently of the computer. The display indicates only that the computer is functioning.

The next several steps require hydraulic flow and air pressure. To get these, the engine must be running. These steps work with the engine at idle, but to get a sense of how fast the hoppers move in and out, or how fast to set the conveyors, the engine should be at Spread speed or 1800 RPM. To reach this, toggle the Engine Throttle twice. Each toggle is 400 RPMs.

NOTE: When actual spreading is performed, the engine should be run at the Spread speed of 1800 RPM.

2. Use the Hopper In/Out switches on the Side Console to move the extension hoppers in and out. This insures that there are no mechanical binds which would prevent their movement. Leave them out so that the gate openings can be checked.

Setting Minimum And Maximum Gate Openings

1. Set the minimum gate opening at 2x stone size, using the Manual Gate Set switches on the Side Console. Refer to **Manual Gate Set Switches**, in SpreadPro Tour, earlier in this section.

NOTE: The minimum gate opening can be adjusted upward toward 2.5 to 3 times stone size as the operator becomes familiar with the conveyor speed. Setting the gate opening too large, in conjunction with a rapid spreadroll speed, will cause the application rate to be excessive, resulting in a poor quality surface.

2. Set the maximum gate opening based on the following rule of thumb.

$$\text{Opening} = \frac{\text{Desired FPM}}{100} \times \text{stone size.}$$

Example: 400 FPM with .375 stone

$$\text{Opening} = \frac{400}{100} \times .375 = 1.5 \text{ inches}$$

Example: 500 FPM with .50 stone

$$\text{Opening} = \frac{500}{100} \times .50 = 2.5 \text{ inches}$$

3. Set Operating Mode switch to Manual.
4. Using the Manual Gate Set switches on the Side Console, adjust each rotary gate to the desired opening. This will allow you to complete the job.

NOTE: The measurements for the gate opening are taken from the top of the mesh on the Spread Roll to the bottom of the rubber edging on each gate. Do not measure from below the top of the mesh. The resulting gate openings will be too small.

MACHINE OPERATION & SETUP

MANUAL MODE OPERATION/SETUP

Hopper Functions

1. Use the Hopper Select switches on the Side Console to select the hoppers that will be used while spreading. The left and right switches allow the left and right extension hoppers to run. The center switch will enable the whole center hopper. Use the individual Center Hopper Gate Select switches to select one foot increments of the center hopper. Switch one is the left most gate, while switch nine is the right most gate.
2. Use the Hopper In/Out switches on the Side Console to move the extension hoppers in and out. This insures that there are no mechanical binds which would prevent their movement. Leave them out so that the gate openings can be checked.
3. With the extensions out and enabled, toggle the Hopper Dump switch on the Computer/Gauges Console to clear old material out of the hopper. This may not be necessary if you are using the same material on a regular basis, or if the Hopper Dump was performed at the end of the previous job.

NOTE: If the machine has not been run in a long time, toggle the Hopper Dump switch to clear any trash that may have built up inside the hopper. This also checks to see that there are no mechanical binds on the Spreadroll.

4. Sight rods located on the sides of the conveyors can be attached to the extension hoppers at this time. See **Sight Rod Installation** earlier in this section.
5. Use the Hopper In/Out switches on the Side Console to move the extension hoppers back into the machine until they are fully closed. For the initial loading of material, the extensions should be fully retracted.
6. Use the Rear Hopper Wing switch on the Joystick to lower the rear hopper wings. Make sure that the safety chain has been released.

When the rear wings are in the fully lowered position, the Wings Light on the Computer/Gauge Console will turn green to indicate that a truck can safely be accepted. When the rear wings are in any other position, the Wings Light will turn red to indicate that it is not safe to accept a truck.

7. Start the conveyors by moving the Conveyor Control switches on the Side Console to "ON". A ball float switch will shut off the conveyor when the front hopper gets full of material. Conveyor speed is controlled by the Conveyor Control potentiometers on the Side Console.

8. Set the speed of the conveyors to approximately $\frac{3}{4}$ speed by adjusting the Conveyor Control potentiometers on the Side Console. The material flows better if the belts are run at about $\frac{3}{4}$ speed. This allows for an increase in conveyor speed should more material be needed during spreading. Operator experience and/or preference will dictate what speed to set the conveyors for specific application conditions.



ATTENTION: Do not overfill the front hopper. Overfilling will cause spillage and may bind up the ball float switches. The front hopper holds enough material that overfilling is not necessary.

Loading Functions

1. The Park Brake on the Computer/Gauge Console can be released by pushing the toggle switch down. The light will go out and the sound of released air will accompany the release of the brakes.
2. Moving the Joystick forward will cause the SpreadPro to move forward. Moving the Joystick backward will cause the SpreadPro to move in reverse. Ground speed will be proportional to the movement of the Joystick.

MACHINE OPERATION & SETUP

MANUAL MODE OPERATION/SETUP

NOTE: Drive the SpreadPro around to become familiar with the response of the machine to the Joystick and the sight lines of the cab design.

3. When familiar with the movement of the SpreadPro, attach to a truck by backing the SpreadPro hitch into the draw bar of the truck. The hitch setup is described in **Truck Hitch Setup** in Preparation For Use, earlier in this section. Make sure the hitch is adjusted prior to connection with a truck.

NOTE: Insure connection to the truck by easing the SpreadPro forward. If the connection was made, the truck will be pulled along. Otherwise recheck the hitch adjustments and try again. Proper hitch adjustment is imperative for proper spreading operations.

4. When the truck is properly connected, use the Guidance Light switch on the Joystick to activate the large signal lights on the right side of the SpreadPro to signal the truck driver to raise or lower the bed of the truck. Guidance Lights on the Computer/Gauges Console work in conjunction with the switch on the Joystick and large signal lights. Since the operator cannot see the signal lights from the operator's platform, the lights let the operator know that the large signal lights have been activated.

5. **Slowly** increase the truck bed height as you watch the material flow out of the rear hopper, along the conveyor belts and into the front hopper. Raising the truck bed too fast could cause overflow of material and excess spillage. Also watch the material flow from the conveyor belts into the hopper to get a feel for the speed of the conveyor. Here is where you would judge if it is too fast or too slow.

6. Once the front hopper is full, move the extension hoppers out to the correct width.

7. As the extension hoppers are moved out, the material in the front hopper will be lowered. If the Auto mode was selected for the conveyors, they will come back on to re-fill the front hopper. Automatic starting and stopping of the conveyors will continue during spreading operations.

Spreading Functions

1. Move machine forward by moving the Joystick forward.

2. When approaching the fresh oil, push the Spreadroll On/Off button to start the application of material. The pattern that is created by the hopper positions will always be a staggered pattern when operating in Manual mode. The computer is not determining the correct timing for turning on the left and right extensions.

3. Use the sight rods to help maintain a straight direction and proper spreading width.

4. To change the coverage width, adjust either of the extension hoppers or any of the 1 foot gate controls for the center hopper, using the Center Hopper Gate Select switches on the Side Console. This can be done while spreading.

5. Check the level of material in the rear hopper regularly. Signal the truck driver by using the guidance lights on the right side of the machine to raise or lower the truck bed as appropriate.

6. The truck can be released at any time. The Hitch Release foot switch located by the operator's left foot will open the hitch when stepped on. It will also flash the large red signal light on the right side of the machine to let the truck driver know that they have been released. A red guidance light on the Computer/Gauges Console works in conjunction with the foot switch and large signal light to let the operator know that the hitch is opening and that the large signal light has been activated.

7. Continue to spread using these procedures.

MACHINE OPERATION & SETUP

TRAVEL MODE OPERATION

TRAVEL MODE

The following section will give detailed instructions on the steps to operate the SpreadPro in Travel mode. Proper operation of this unit requires a thorough understanding of the capabilities and operation of all the components of the SpreadPro.

1. Move the Operation Mode switch to Travel. The Travel Mode Screen will display the actual machine speed in miles per hour (MPH). Top speed in Travel mode is 20.0 MPH (32.2 KPH).

TRAVEL MODE	MPH 20.0
----------------	-------------

2. The Memory, Memory Save, PSY Cal, Data Update, and Screen Select switches **do not** work in the Travel Mode. There are no computer controlled Start and Restart functions. The SpreadPro is not designed to spread material while in the Travel Mode.

3. Before travelling in the SpreadPro, perform the following:

- a. Move the Joystick into the forward direction. Reverse direction will allow the machine to move, but not at full speed.
- b. Move the Engine RPM up to Travel Speed or 2200 RPM.
- c. Retract the Front Hopper Extensions **fully**.
- d. Raise the Rear Hopper Wings **fully**.

NOTE: Once the wings are fully raised, the hitch is automatically raised to a storage position. This prevents the hitch from bouncing around while travelling and helps facilitate loading and unloading of the SpreadPro for shipment.

4. The Travel Mode provides overspeed protection that will keep the machine from going faster than 20 MPH (32.2 KPH) in downhill situations.

MACHINE OPERATION

COLD WEATHER STARTING

The direct-injected Cummins diesel engine starts well in cold weather. An electric pre-heat grid type air intake heater is optional. It is installed on the top of the intake manifold cover.

Intake Air Heater (or Grid Heaters) can aid starting during cold ambient conditions. There are two phases of intake air heater operation:

Pre-heat - after key-on and before cranking the engine. The amount of time the grid heaters stay on in the pre-heat phase is a function of the intake manifold temperature at key-on.

Post-heat - just after a successful engine start. The post heat cycle is also a function of the intake manifold temperature at key-on and can operate for several minutes on very cold days as the grid heaters energize through a series of calibrated duty cycles.

There is no heat during cranking.

The intake air heaters are energized or de-energized from two relays controlled by the Engine Control Module (ECM).

A "Wait to Start" lamp is also controlled by the ECM and is illuminated to indicate that it is not the optimal time to crank the engine. This will not prohibit the engine from starting.

Coolant heater options are also available. These heaters screw into the 3/4 pipe plug located behind the oil cooler on the exhaust side of the engine.

For more information on the heater options, or for information regarding the availability of Ether Start aids, consult the Engine Manufacturer's manual.

ELECTRO MOTIVE RADIATION (EMR) INTERFERENCE

High Electro Motive Radiation (EMR) produced by citizen band radios and other sources can interfere with the function of the on board computer. EMR causes stray voltages to be induced in the signals to and from the computer. As a result, the machine could unexpectedly speed up and/or the application rate could suddenly change.



WARNING: *Do not test the machine where EMR is present, to insure that there are no abrupt movements or extreme levels of application.*

Remedies for problems caused by EMR:

1. Remove the source of the radiation.
2. Move the source of the radiation away from the computer area.
3. Shield the computer and/or the wiring in metal enclosures, particularly the power lead going to the computer.

MACHINE OPERATION

FOUR WHEEL DRIVE SWITCH (option)

The four wheel drive switch and light are located on the Side Console. The light is used as a visual indicator to inform the operator when the machine is in four wheel drive mode.

When the four wheel drive switch is in the OFF position, the indicator light will also be off. When in this mode, the front axle is providing the torque to move the machine. The rear wheel motors, while having hydraulic flow, are not providing any additional torque. Use this mode for normal chipping on average roads with small hills and curves.

When the four wheel drive switch is in the ON position, the indicator light will also be on. When in this mode, both the front axle and the rear wheel motors are providing torque to move the machine. Use this mode when extra torque is required, such as chipping on roads with steep terrain.

The machine is equipped with circuits that will only allow four wheel drive operation in the Spread mode and the Manual mode. The circuitry will not allow four wheel drive operation in the Travel Mode.

MACHINE OPERATION

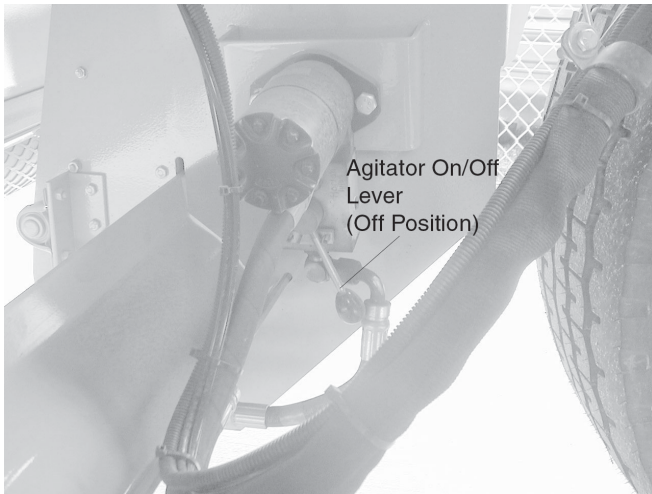
AGITATOR OPERATION

Extension Hopper Agitators

The extension hoppers are equipped with agitators that can be used to help break up material types that tend to stick together or cause bridging. These agitators are turned on or off through a manually operated valve on each extension hopper. The valve has a two-position handle that turns the agitator motor on or off. Move the handle in a clockwise direction to turn the agitator ON. Move the handle in a counter-clockwise direction to turn the agitator OFF.

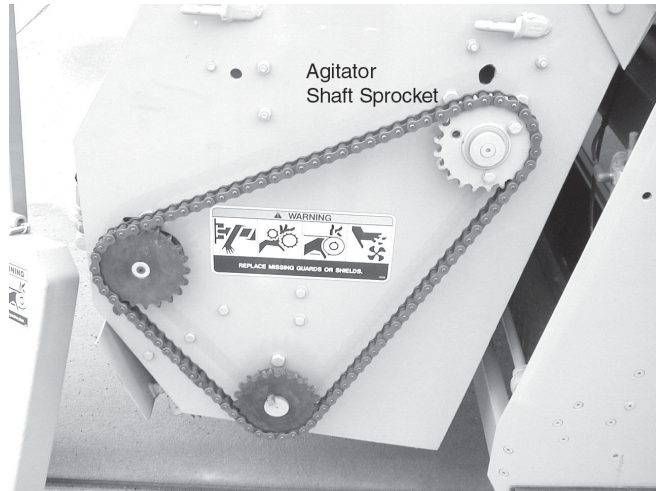
Leave the agitators turned off during normal operation. If you experience bridging or material flow problems, turn the agitators on.

Using the agitators when the extension hoppers are not used for long periods of time will cause small amounts of stone to be crushed due to the constant movement of the agitator through stationary stone.



Center Hopper Agitator

The center hopper is equipped with an agitator that can be used to help break up material types that tend to stick together or cause bridging. This agitator is chain driven by the spreadroll hydraulic motor. It can be disengaged by removing three bolts that hold the chain sprocket to the agitator shaft.



There are four steps to **disengage** the center hopper agitator:

1. Remove the safety guard that covers the chain and sprockets. This guard is located on the left side of the center hopper. To remove the guard, shift the retaining latch slide up. The slide is located inside the center hopper.

The slide will drop down so it is straight out from the pin. Slide the cover off the hinge pins to access the sprocket.

2. There are three sprockets that are encircled by the chain. One is for the hydraulic motor, one is for the spreadroll, and one is for the agitator. Use a wrench to remove the three bolts that are located on the agitator sprocket.

3. Keep the three bolts in a safe and handy place so they can be re-installed if the agitator is required at some point in future operation.

4. Replace the safety guard that covers the chain and sprockets.

During normal operation, leave these agitators turned off. If you experience bridging or material flow problems, turn the agitators on.

MACHINE OPERATION

There are four steps to **engage** the center hopper agitator:

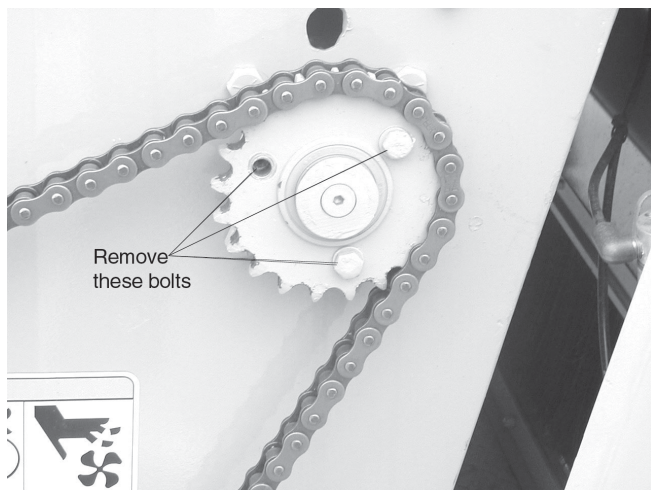
1. Remove the safety guard that covers the chain and sprockets. This guard is located on the left side of the center hopper. To remove the guard, shift the retaining latch slide up. The slide is located inside the center hopper.
2. Use a wrench to replace the three bolts in the agitator sprocket, reconnecting it to the agitator shaft. If the center hopper is full of material, it may be necessary to remove the chain so that the agitator sprocket can be moved freely around the agitator shaft in order to line up the bolt holes.
3. Replace the chain if it was removed.
4. Replace the safety guard that covers the chain and sprockets.

CONVEYOR OPERATION

The conveyor speed may be adjusted to match the spread needs of the machine. The proper conveyor speed is slightly faster than the machine spread requirements. At this speed the conveyors will run nearly continuously, stopping infrequently to insure the aggregate does not overflow in the hoppers.



ATTENTION: *Do not set the conveyor speed too high. This causes the conveyors to start and stop continuously, which shocks the system repeatedly.*



SECTION IV

MAINTENANCE

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INTRODUCTION

EFFICIENT AND SAFE OPERATION of the ROSCO SpreadPro requires that each operator reads and understands the maintenance procedures contained in this manual.

PROPERLY MAINTAINED EQUIPMENT IS SAFE EQUIPMENT! The user of this product is responsible for inspecting the SpreadPro daily, and for having parts replaced or repaired when continued use of the machine would cause damage or excessive wear to other parts. General daily inspection of the SpreadPro should include inspection for missing guards, loose bolts, fluid leaks, worn or damaged hoses, debris or dirt accumulations which could cause a potential service or safety problem.

A PREVENTIVE MAINTENANCE CHART is included at the end of this section as a guide for establishing a Preventive Maintenance Schedule for the SpreadPro.

KEEP YOUR MACHINE CLEAN! The first and most important requirement for satisfactory SpreadPro performance is a clean machine. Many failures in the field are due to equipment that has an accumulation of excess dirt to the point that even ordinary adjustments and lubrication are neglected.

DO NOT MODIFY the SpreadPro! Any unauthorized modification may impair the working life of the equipment and adversely affect the function and safety of the SpreadPro. Unauthorized modifications and repairs will void the warranty.

ENGINE SYSTEM

In addition to the following recommendations for engine maintenance, please consult the Cummins diesel engine manufacturer's Operation and Maintenance Manual. A copy of this manual was provided with the SpreadPro at the time of its shipment from the factory. If additional copies are needed, they can be obtained through an authorized ROSCO Dealer/Distributor, or through a local equipment dealer who sells or services the particular engine supplied with your SpreadPro.

Fuel Requirements

1. Use only clean, good quality ASTM No. 2-0 or No.2-D climatized diesel fuel. If the SpreadPro will be used often in cold weather (Below 20° F or -6° C), blended fuels or #1 diesel fuel is recommended to prevent gelling of the fuel filters. The use of No. 1 diesel fuel may reduce the engine performance by approximately 10%.

2. The direct -injected Cummins diesel engine starts well in cold weather. See **Cold Weather Starting** in the Operations Section of this manual for more suggestions.

Continue to drain fuel into the container until it runs clear.

3. If large amounts of contamination are found, drain the fuel tank until the lines run clear. Then, replace the filters, fill the new filters with fresh clean fuel and install.

Refer to the Cummins diesel engine manual provided with your SpreadPro for more detailed information on fuel system maintenance procedures.

ATTENTION: *Avoid using contaminated fuel. Fuel contaminated by water or dirt can cause severe damage to engine components. Fuel tanks contaminated with water will promote the growth of microbes which form a "slime" that clogs fuel filters and lines.*



Fuel Filter

Diesel engine injection systems use fuel for lubrication of close tolerance internal engine parts. Proper maintenance of the fuel filters and the fuel tank are necessary to maintain top performance and prevent damage to internal engine components.

The engine fuel filter and water separator are located on the left side of the engine. A drain valve is provided on the bottom of the water separator. (See Figure 1.)

1. Before operating the engine, use the valve to drain a small quantity of fuel from the water separator into a clean, clear container. This is a necessary daily routine.

2. If water or contaminants are found in the fuel you drained, DO NOT attempt to start the engine.

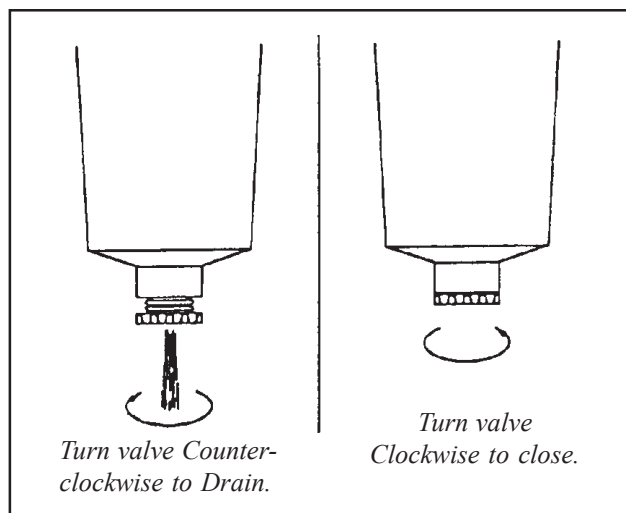


Figure 1
Engine Water Separator

ENGINE SYSTEM

Crankcase Oil



CAUTION: *Avoid prolonged and repeated skin contact with used engine oils. Such contact may cause skin disorders or other bodily injury.*

1. Check the engine crankcase oil level daily, prior to each day's use of the SpreadPro. Park the SpreadPro on a level surface when checking the oil to assure accurate measurements. When checking the oil level after the engine has been running, wait until the engine has been OFF for at least five minutes. This allows the oil to drain back to the crankcase.

2. The oil dipstick is located on the left side of the engine. If the oil measures below the "L" (low) on the dipstick, add the proper oil. Refer to the **Preventive Maintenance Chart** at the end of this chapter. After adding oil, recheck the level with the dipstick and make sure it doesn't measure above the "H" (high) mark.



ATTENTION: *Never operate the engine with the oil level below the "L" mark or above the "H" mark.*

3. Change the engine crankcase oil and filter element(s) after every 250 hours or 3 months of service. Refer to the **Preventive Maintenance Chart** and/or engine manufacturer's manual for engine oil recommendations.



CAUTION: *Avoid contact with hot engine oil. Hot oil can cause burns and personal injury.*

Air Intake System

Turbocharger engines are extremely demanding of air filter performance and sensitive to filter failure. The operator should regularly inspect the air intake system components.

The heavy-duty air cleaner is mounted on the right side of the machine. A restriction indicator is mounted on the outlet side of the air cleaner housing, near the large inlet tube to the engine.

1. Prior to daily operation, inspect all air intake system components for damage, cracked hoses, loose clamps, etc.

2. Inspect the restriction indicator several times daily during operation. If the red indicator is visible, the air cleaner element must be replaced.



ATTENTION: *Be sure to clean the inside of the air cleaner body assembly **BEFORE** removing the safety element in order to avoid introducing any contaminants into the engine intake tube.*

a. Before replacing any new element in the air filter housing, wipe the inside of the housing with a damp cloth. Replace the element and then reset the restriction indicator.

b. When replacing body assembly or rubber adaptors, torque the T-clamp to 50 inch pounds.

3. DO NOT replace the filter elements until the restriction indicator shows red or the maintenance interval has been reached.

4. Replace the primary filter element every 100 service hours. Replace the safety element during every third replacement of the primary element. Refer to the **Preventive Maintenance Chart** later in this section for the correct ROSCO part number.



ATTENTION: *Never operate the engine without an air cleaner. Destruction to internal engine components will occur within minutes.*

5. The air inlet hood should not require maintenance or service unless visual damage is noticed.

ENGINE SYSTEM

Radiator and Coolant



CAUTION: *Avoid prolonged and repeated skin contact with used antifreeze. Such contact may cause skin disorders or other bodily injury. Wash thoroughly after contact. Keep antifreeze out of reach of children.*

1. Check the engine radiator daily for rocks and/or debris. A partially blocked radiator will significantly reduce the efficiency of the radiator and could cause overheating and possible premature failure of the engine or its components.

2. Compressed air can be used to remove rocks or debris from the radiator.



CAUTION: *Wear eye protection when using compressed air. Flying debris can cause serious eye injury.*

3. Check radiator coolant level prior or each day's use of the SpreadPro (when engine is cold). The coolant level, when the engine is cold, should cover the radiator core. If low, fill with a 50% water and 50% ethylene-glycol type antifreeze.



WARNING: *DO NOT remove the radiator cap when the engine is hot. Escaping hot coolant can cause serious burns. Add coolant only when engine is stopped and fully cooled.*

4. Seasonally, or after every 500 service hours, most engine manufacturers recommended that the cooling system be flushed. Consult the engine manufacturer's manual for recommendations on the procedure and type of cleaner to use.

5. As an option, a coolant conditioner/filter assembly may be provided and mounted on the right side of the engine. This assembly has two isolation/shut-off valves for easy replacement of the spin-on element. This element should be replaced every 500 hours or 6 months of service.

6. If the engine is equipped with an optional low coolant level switch/gauge, and the coolant level is OK, visually verify that the gauge pointer is in the SAFE range. The low coolant level alarm can be tested with the engine running by twisting the black knob on the switch/gauge counterclockwise until the pointer makes contact with the bottom terminal stop. The system warning light on the driver's control panel should activate.

Battery Maintenance

The SpreadPro is factory equipped with two batteries that are sized to provide efficient starting for the diesel engine. Proper maintenance of these batteries will provide years of trouble free service.



WARNING: *Always wear eye protection when servicing batteries. Caustic solutions can cause serious injury or blindness.*

1. Starting the engine depends heavily on good cranking speed. It is important that the SpreadPro batteries are fully charged and that all cables and terminals are cleaned and properly connected.

2. Check the level of the battery electrolyte (water) regularly. Add distilled water if necessary. Do not overfill. Overfilling can cause poor performance. Maintenance-free type batteries rarely require additional electrolyte.

3. Keep the top of the battery clean. When necessary, wash with a solution of 1 part baking soda and 4 parts water and then rinse with fresh water. Do not allow the baking soda solution to enter the battery cells.

CAUTION: *Always disconnect battery ground (-) cables first and always reconnect the positive(+) cables first when servicing battery cables and when removing or replacing a battery. Remove the ground (-) cables when welding on the machine.*



ENGINE SYSTEM

4. Inspect the cables, clamps and hold-down brackets regularly. Clean and apply a light coating of grease when needed. Replace corroded or damaged parts.

5. If the engine is difficult to start or the batteries become discharged repeatedly, check the terminal connections and clean if needed. If the problem continues, test the battery with a battery tester for voltage and current draw.

DANGER: Explosive gas may remain around a battery several hours after it has been charged. Sparks or flame can ignite this gas causing an explosion which could shatter the battery and cause severe personal injury. Always shut off the battery charger before disconnecting cables from the battery terminals.



6. If the SpreadPro is to be stored for more than 30 days, remove the batteries and store them in a cool, dry place. During storage, keep the batteries fully charged and check the level of the electrolyte regularly.

Engine Belt Maintenance

1. Check the primary diesel engine belt for excessive wear, fraying and cracking every 250 service hours. Auxiliary V-drive belts should be inspected every 100 hours.

2. Adjust engine belts as required to provide proper tension. Consult the Cummins engine manufacturer's manual for correct tension instructions and specifications.



DANGER: Always shut down the engine before adjusting belts. Severe injury can result if belts are adjusted on a running engine.

3. When installing new belts, always shorten the distance between pulley centers so the belt can be installed without force. Never roll the belt over the pulley and never pry it with a tool such as a screwdriver. This will damage the belts and cause early failure.



DANGER: Keep all belt guards in place. Severe personal injury may result from contact with turning belts and pulleys.

HYDRAULIC SYSTEM

The SpreadPro Hydraulic System is the life blood of the machine. It is vital that the operator monitor all gauges and check the system as recommended. The system must also be checked regularly for leaks and worn hoses and fittings. Any problems should be repaired immediately. It is also very important to keep the hydraulic oil coolers clean and open to ensure proper operating temperature.

Hydraulic Fluid

When adding or changing hydraulic system fluid, refer to the **Hydraulic Fluids** chart later in this section. The use of hydraulic oils or fluids that DO NOT have equal characteristics to those listed could result in substandard performance or possible failure of the hydrostatic system components. If you are not sure whether a specific hydraulic fluid is suitable for use with the SpreadPro, contact your authorized ROSCO dealer or the ROSCO factory Service Department.

Hydraulic Reservoir

The hydraulic reservoir is located on the right side of the SpreadPro. The fill cap is located on the right front of the hydraulic tank.



ATTENTION: Use extreme caution when removing the filler cap to prevent any foreign matter from entering the hydraulic reservoir. Clean around the reservoir cap thoroughly before removal.

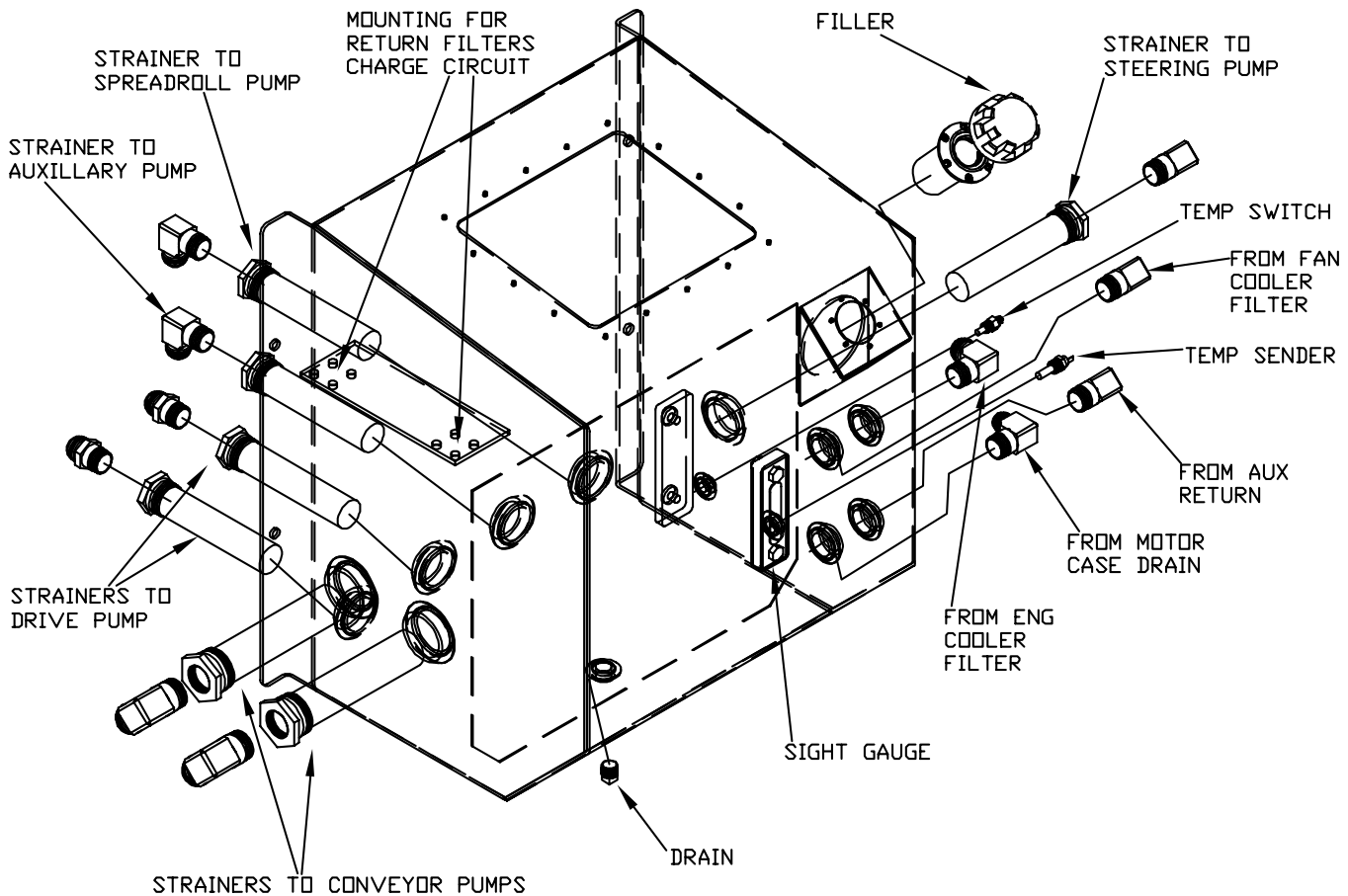


Figure 2
SpreadPro - Hydraulic Reservoir
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HYDRAULIC SYSTEM

A sight gauge is provided on the side of the reservoir to monitor the fluid level and temperature. See Figure 2 for location of sight gauge and for other component items.

1. Check the level of the hydraulic fluid prior to each day's operation of the SpreadPro. Hydraulic fluid should be visible at least half way up the glass in the sight gauge. If not, fill to this level with an approved fluid. See the **Hydraulic Fluid** chart later in this section.
2. The reservoir fill cap strainer should be cleaned each time hydraulic fluid is added or changed. Remove strainer and back flush.
3. The filler cap should be padlocked in place when practical to eliminate the possibility of tampering.
4. Condensation that may build up in the hydraulic system is capable of clogging the filter elements. This condition can lead to insufficient hydraulic fluid at the pump, which will degrade performance and possibly damage the hydrostatic pump or other system components. Therefore, check the indicators periodically.
5. To Check the indicators on the hydraulic system, warm the system to above 100° F (38° C) and be sure the engine is at full throttle. Check the charge pressure filter indicators and return filter indicators. If any indicators are in the RED area, replace the filter element(s). Refer to the **Preventive Maintenance Chart** at the end of this section for ROSCO part numbers for filter elements.

NOTE: The filter element(s) should be replaced using only genuine ROSCO replacement parts. Other parts could be substandard and cause hydraulic system failure. The use of other than approved filter elements will void the warranty on hydraulic components.

Filter Elements

For filter element change intervals, refer to the **Preventive Maintenance Chart** at the end of this section. In the following paragraphs, items listed can be found in Figure 2.

1. **System Return Filters** (not shown) - There are two filters located on each side of the engine compartment in front of the hydraulic cooler. These are spin-on type filter elements.
2. **Charge Pressure Filters** - There are two filters located on the left side of the hydraulic reservoir. These are also spin-on type filter elements.
3. **Conveyor Pump Strainers** - The two 25 GPM, 100 mesh strainers are located on the lower left side of the hydraulic reservoir. Refer to the **Preventive Maintenance Chart** at the end of this section for servicing intervals.
4. **Other Strainers** - There are five 15 GPM, 100 mesh strainers located on the back side and the right side of the hydraulic reservoir. Refer to the **Preventive Maintenance Chart** at the end of this section for servicing intervals.

Hydraulic System Checks

Before each day's use, inspect the SpreadPro for possible hydraulic leaks. A weekly check should be preformed to make sure that all fittings are secure and tight.



DANGER: Always wear eye protection when inspecting for leaks in the hydraulic system.



DANGER: Never use your hand to locate hydraulic leaks. Hydraulic fluid under pressure will pierce the skin and may cause serious infection or toxic reaction. Use a piece of wood or cardboard to isolate leaks. If hydraulic fluid has pierced the skin, get immediate medical attention.

HYDRAULIC SYSTEM

1. If leaking fluid is found, it is probably on the pressure side of the hydraulic system. Find and repair the leaking component before starting the SpreadPro.

2. Leaks on the suction side of the hydraulic system are more difficult to find. Some symptoms of suction side leakage, which causes air and/or dirt to enter the system are:

- ⇒ Foaming of hydraulic fluid.
- ⇒ Sluggish hydraulic system operation.
- ⇒ Unusual noise in hydraulic pumps or motors.

Leaking on the suction side of the system is serious, since air or dirt introduced into the hydraulic system causes rapid component wear and eventual failure.

a. If a suction side leaks is suspected, verify that all reservoir valves are fully open and all connectors and fittings are properly tightened.

b. If the problem persists, wrap the suction side hose and the connectors with a high-quality electrical tape. Start at the pump inlet and work toward the hydraulic reservoir.

c. If this technique isolates the leak, replace the defective hose assembly or fitting. Never attempt to repair hydraulic hoses and/or leave the tape attached.



DANGER: *Never attempt makeshift repairs using tape, clamps or cements. The system operates under extremely high pressure and such repairs could fail, causing serious injury.*

3. An operator should stop and inspect the SpreadPro occasionally for leaks. Some hydraulic leaks may only be noticeable after or while the unit is running.

Pumps and Motors

The hydraulic pumps and motors generally require no regularly scheduled maintenance. As stated, frequent inspection for leaks will indicate the need for service of these components. If a problem develops with a pump or motor, contact your ROSCO dealer before making any repairs so as not to void the warranty. Any repairs that are made must be in accordance with the pump or motor manufacturer's recommendations.

AGGREGATE DELIVERY SYSTEM

The aggregate delivery system consists of the rear receiving hopper, the conveyors, the front hopper, and the spread hopper. The maintenance of the aggregate delivery components will be explained in this section. Be sure to follow the instructions for adjustments and perform them as recommended.

Belt Wipers

The **conveyor belt scrapers** are mounted immediately below the conveyor head pulleys and contact the conveyor belts. They serve to remove any material sticking to the belt as it changes direction and heads back towards the receiving hopper.

1. Periodically check the clearance between the **belt scrapers** and the **conveyor belts**. Clearance should be from .25 inch to .38 inch (6.35 mm to 9.65 mm).
2. To adjust the **belt scrapers**, loosen the channel strip bolts on the scraper and move the scraper to within the appropriate clearance range.
3. If a **belt scraper** shows excessive wear, replace it with a genuine ROSCO belt scraper. Refer to the **Parts Book**, section 6 of this manual, for part numbers.

Conveyor Lagging

A standard unit will have **conveyor lagging** in the rear receiving hopper only. Your unit may be equipped with lagging the full length of the conveyor belt. The sections of **conveyor lagging** on each side of each **conveyor belt** are designed to prevent aggregate material from leaving the conveyors. They should be adjusted to touch the **conveyor belts** evenly along the entire length of the belts as far as they are lined.

1. Periodically check for clearance between the **conveyor lagging** and the **conveyor belts**.
2. Adjust the **conveyor lagging** when necessary by loosening the **channel strip bolts** and moving the **conveyor lagging skirt** to just touch the **conveyor belt**.

3. If a section of **conveyor lagging** shows excessive wear, replace it with genuine ROSCO rubber conveyor lagging. Refer to the **Parts Book**, section 6 of this manual, for part numbers.

ATTENTION: Use genuine ROSCO parts for replacement of rubber conveyor components. Using hard rubber, old conveyor belting, or any other rubber containing fabric or reinforcement, will cause rapid conveyor belt wear and eventual failure.



Lagging Skirts

The **lagging skirts** are mounted at the bottom of the **receiving hopper** and contact the **conveyor belts** immediately above the tail pulley.

1. Periodically check for clearance between the **lagging skirts** and the **conveyor belts**.
2. To adjust the **lagging skirts**, loosen the skirt mounting bolts and move the rubber skirt to just touch the **conveyor belt**.
3. If a **lagging skirt** shows excessive wear, replace it with a genuine ROSCO lagging skirt. Refer to the **Parts Catalog**, section 6 of this manual, for part numbers.

ATTENTION: Use genuine ROSCO parts for replacement of rubber conveyor components. Using hard rubber, old conveyor belting, or any other rubber containing fabric or reinforcement, will cause rapid conveyor belt wear and eventual failure.



AGGREGATE DELIVERY SYSTEM

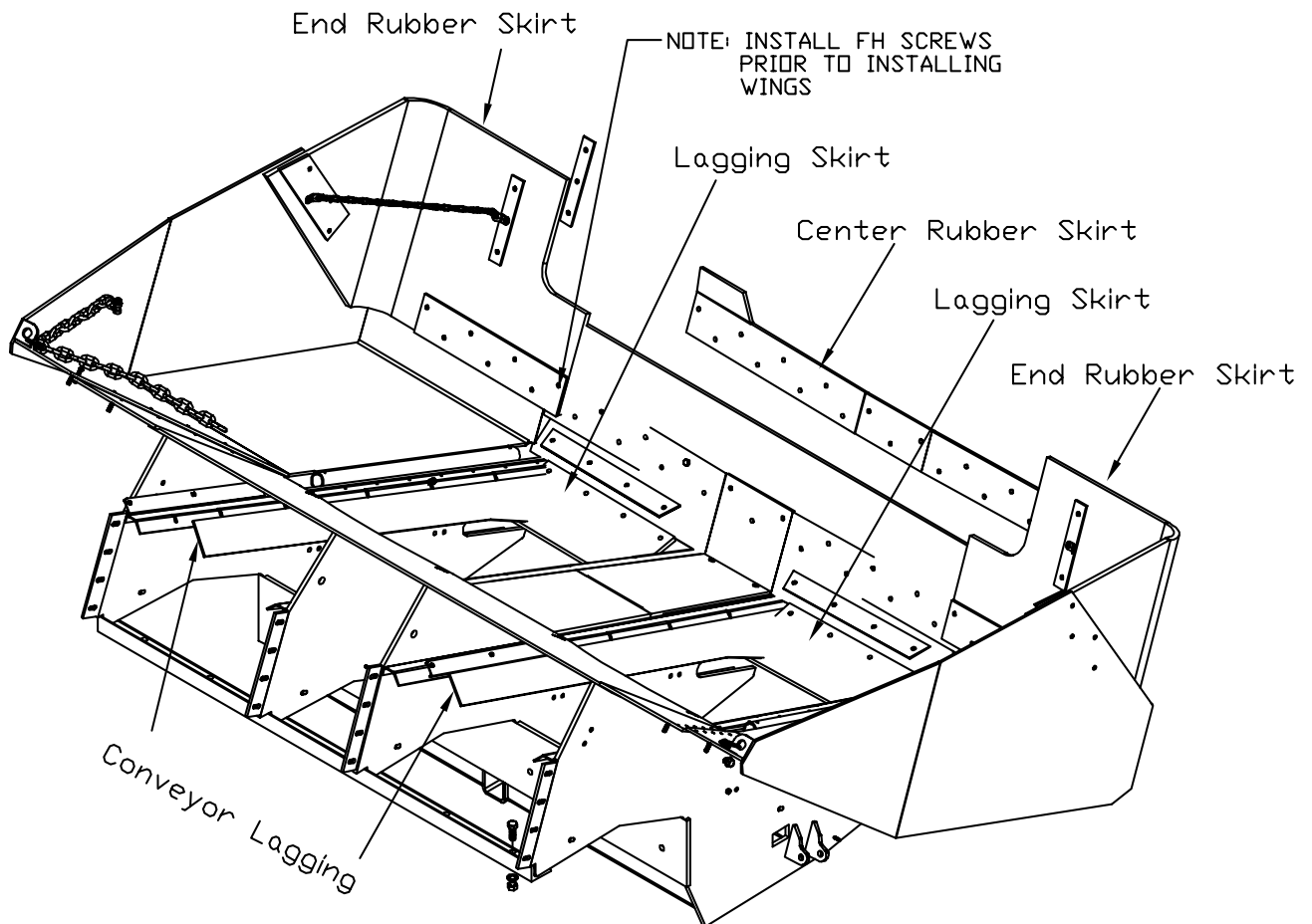


Figure 3
SpreadPro - Rear Hopper Lagging
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AGGREGATE DELIVERY SYSTEM

Hopper & Wing Skirts

There is a skirt on the rear of the hopper, **center rubber skirt**, and on each wing, **end rubber skirts**. These skirts are to help seal the connection between the rear receiving hopper and the truck while the truck is unloading.

1. Periodically check the hopper and wing skirts for wear and possible damage.
2. If a **rubber skirt** shows excessive wear, replace it with a genuine ROSCO rubber skirt. Refer to the **Parts Book**, section 6 of this manual, for part numbers.

ATTENTION: *Use genuine ROSCO parts for replacement of rubber conveyor components. Using hard rubber, old conveyor belting, or any other rubber containing fabric or reinforcement, will cause rapid conveyor belt wear and eventual failure.*



Hopper & Wing Skirt Adjustment

The rubber center and end skirts may require adjustment to properly fit the width of the trucks on the job site. If the skirts impede the flow of material from the truck or are often folded under when a truck is attached, the opening is too small.

The opening may be enlarged to accommodate the trucks by carefully cutting equal amounts from both sides of the rubber skirting. Care must be used not to cut too much of the rubber skirting as this could lead to excessive spillage because of the opening being too large.

Conveyor Belts

Proper alignment and tension adjustment of the conveyor belts is necessary to deliver proper system operation and maximum life from the components. In the following paragraphs, the numbers in parenthesis () refer to item numbers in Figure 4.

If conveyor belts become mis-aligned or slack, make adjustments as soon as possible to prevent premature wear of the belt and related components. Two pulleys in the conveyor group are adjustable:

- ⇒ Head Pulley (1)
- ⇒ Tail Pulley (3)



WARNING: *Keep clear of rotating shafts. Loose clothing or long hair may become entangled. Use patience and caution when adjusting conveyor belts.*

1. **Alignment Adjustment** - Special care is taken at the factory to align the head and tail pulleys (1 & 3) to precise alignment. To reach the inner tail pulley adjusting rod, remove the access cover in the rear hopper.

a. Have the conveyors running at a slow speed during adjustment. Since the outside tail pulley adjusters (5) are more accessible, adjust them by extending (move the belt away from the adjuster) or retracting (move the belt towards the adjuster). Use the inner tail pulley adjuster if proper alignment cannot be made by adjusting the outside tail pulley.

b. Make **small** adjustments and wait a sufficient time between changes to avoid overshooting the desired setting.

c. Once the conveyor belt is tracking at a slow speed, increase the speed and recheck. If the alignment is still correct, replace the access cover in the rear hopper. Load the conveyor with material and check results.

2. **Tension Adjustment** - Belt tension adjustment is necessary periodically since normal working stress causes the conveyor belts to stretch. This is especially true of new belts.

a. To check for slack in a conveyor belt, examine the return side of the belt running under load. Belts with too much slack will bounce excessively.

AGGREGATE DELIVERY SYSTEM

b. Remove the access cover in the rear hopper to reach the inner tail pulley. Extend both tail pulley adjusters (5) slowly and evenly only enough to eliminate the bouncing. **Do not overtighten.**

c. When tension seems correct, replace the access cover in the rear hopper. Load the conveyors and observe to be sure the tension is correct under load.

3. **Replacing Belts** - Sufficient adjustment range has been designed into the tail pulley assembly to allow for replacing a conveyor belt without pre-stretching. Belt splices should be made with No.375 x 20 plate grip fasteners. The fasteners must work on a 10" pulley radius without pulling. Using too large a fastener will tear out the belt.

NOTE: Genuine ROSCO replacement parts for the conveyor belt group are listed in the Parts Book, section 6, of this manual.

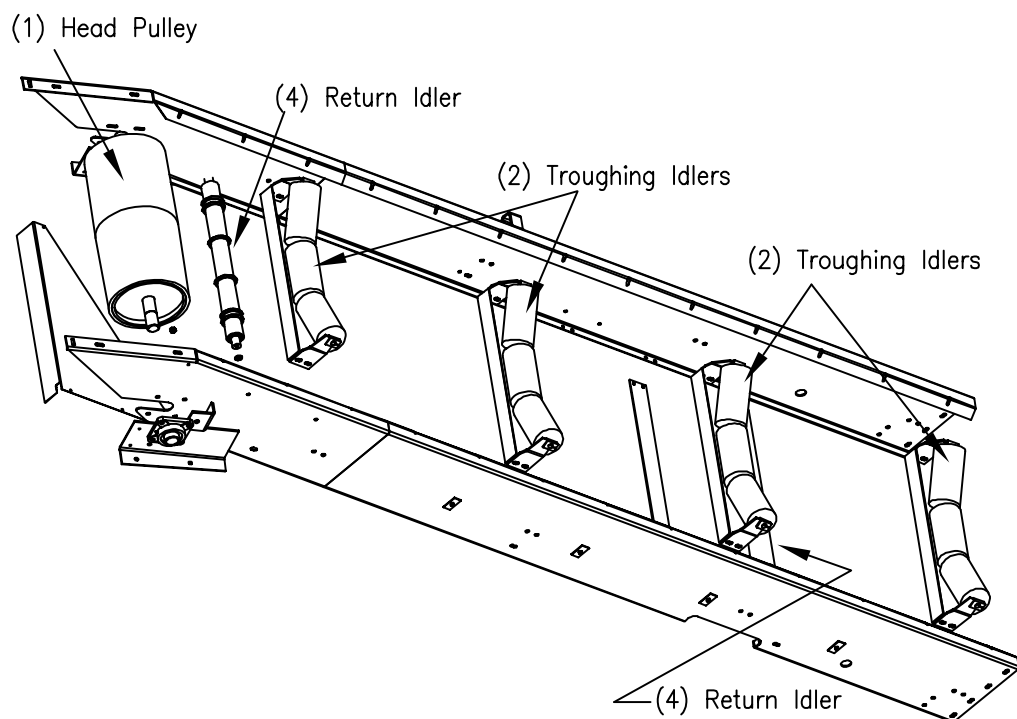
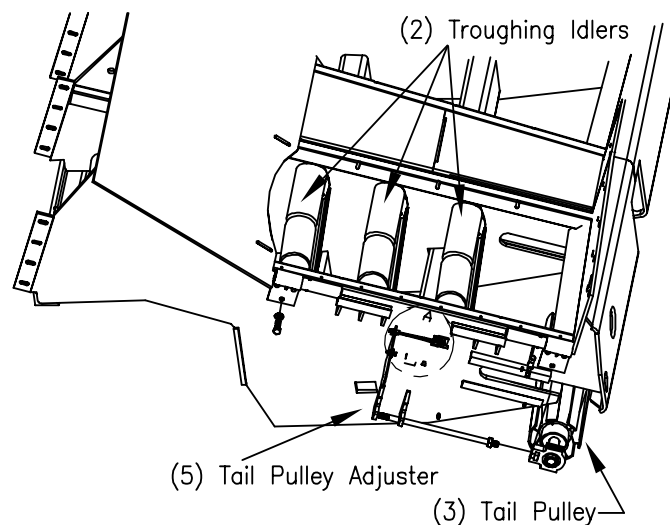


Figure 4
SpreadPro-Conveyor Pulley System
501012, 502002



MACHINE LUBRICATION

Front Axle

Grease the following points yearly or every 500 hours. The axle manufacturer recommends Mobil HP222 grease. Using an alternative grease may result in shortened service intervals. See Figure 5.

1. There are 2 grease points on each tie rod (1).
2. There are two grease points on each steering knuckle (2, 3). The top one is reached through the fender mount plate on the top of each end of the axle.
3. There are two grease points on each steering cylinder (4, 5). To reach the inner grease zerks (5) there is an extension run along the top of the axle to allow access to the side of the unit.
4. There are grease points on each wheel u-joint (6). They can be reached from the inside of the wheel.
5. There are 3 grease points on the main drive shaft. One on each u-joint (7) front and rear, and one on the drive shaft for the slide (8).

Front Axle Differential Oil

1. To check the differential oil level, remove the fill/level plug (upper plug). Oil should be level with the bottom of the fill/level hole. If necessary, top off with Mobil 424 oil. Clean and refit the fill/level plug. Torque tighten to 58 lb ft (79 N-m).
2. To change the differential oil, place catch pan under the axle. Remove the fill/level plug (upper plug) and the drain plug (lower plug). Allow time for the oil to drain out. Clean and refit the drain plug. Torque tighten to 58 lb ft (79 N-m). Fill the axle through the fill/level hole until the oil is level with the bottom of the hole. Clean and refit the fill/level plug, and torque tighten to above specification.

Front Wheel Hub Oil

1. To check the wheel hub oil level, make sure the Oil Level mark on the hub is horizontal (either 3 or 9 o'clock positions). Remove the fill/level plug. The oil level should be even with the bottom of the fill hole. Top off with Mobil 424 oil. Clean and refit the fill/level plug and torque tighten to 58 lb ft (79 N-m).
2. To change the wheel hub oil, park the machine on level ground. Block the rear wheels and raise the front wheels so the tires just clear the ground. Place a catch pan under the wheel. Rotate the wheels to bring the Oil Level mark on the hub to the vertical position with the fill/level plug at the bottom. Remove the plug and allow the oil to drain. Set the Oil Level mark to the horizontal position and fill with recommended axle oil through the fill hole. The oil should be level with the bottom of the hole. Clean and refit the fill/level plug, and torque tighten to above specification.

Rear Axle

Grease the following points yearly or every 500 hours. The axle manufacturer recommends Mobilith 007 grease. Using an alternative grease may result in shortened service intervals. See Figure 6.

1. There are no grease points on the 4-wheel drive rear axle.
2. On the 2-wheel drive rear axle there are 6 grease points.
 - a. There is a grease fitting (1) on each main arm bearing.
 - b. There are two fittings on each camshaft, one on each bushing (2, 3).

MACHINE LUBRICATION

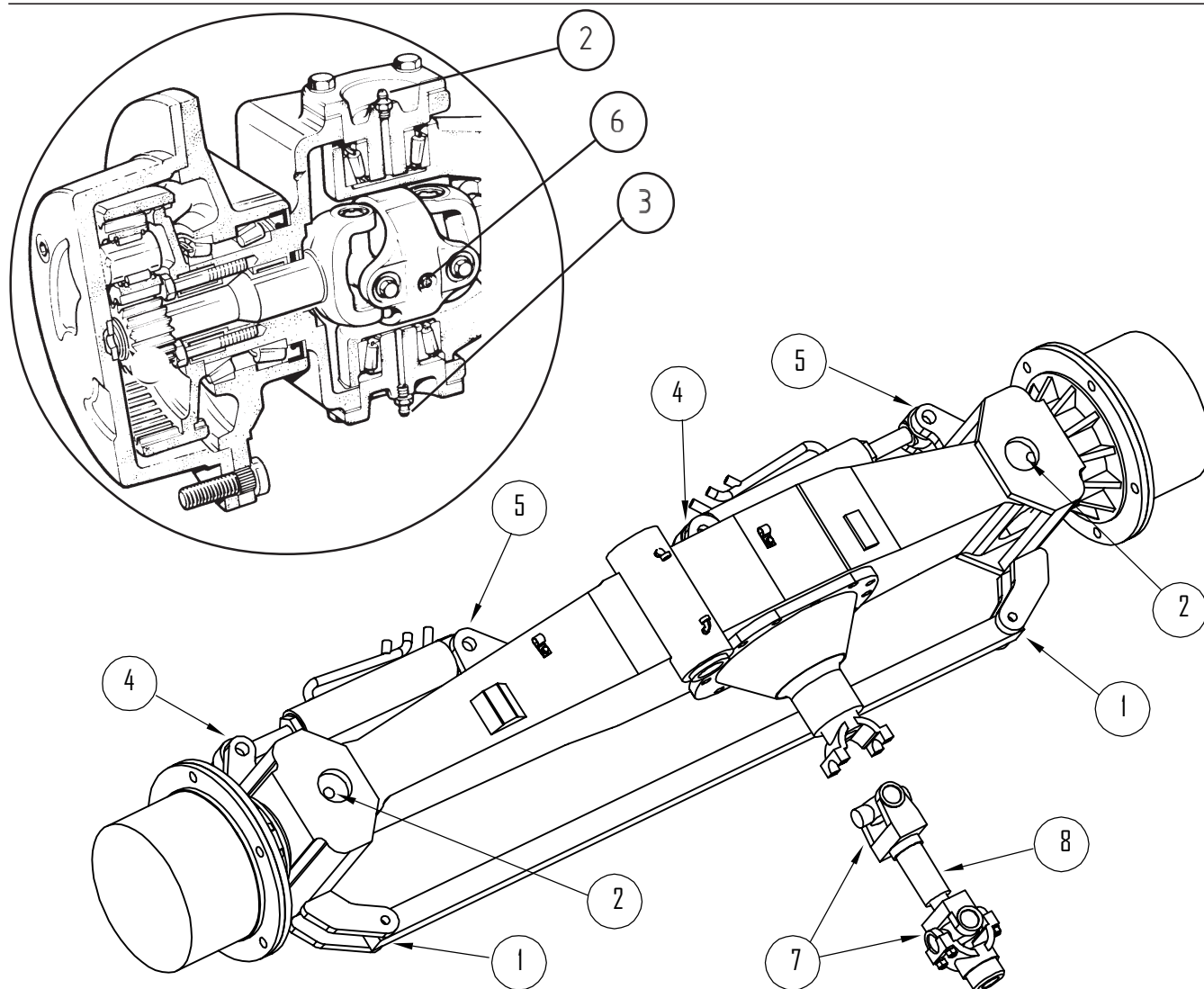


Figure 5
SpreadPro-Front Axle Lube Points
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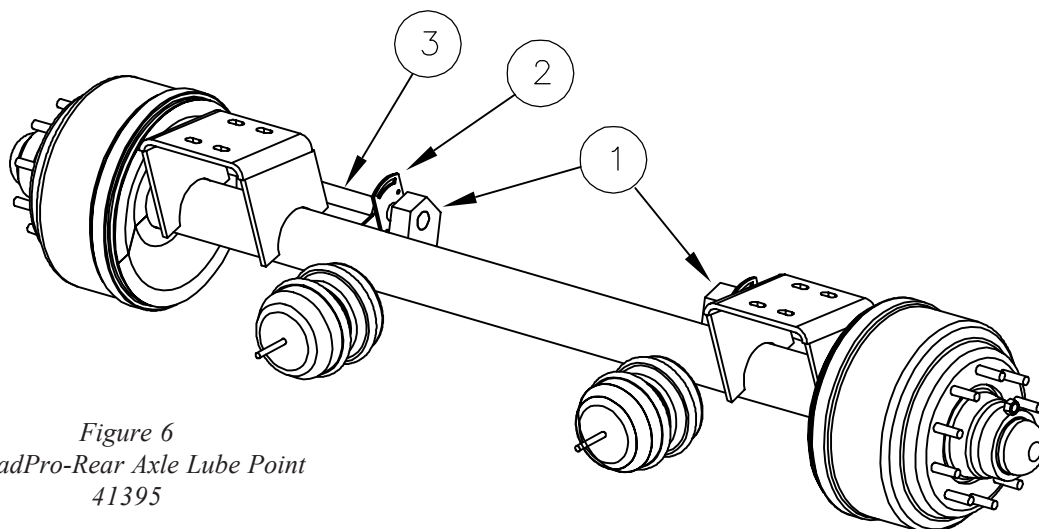


Figure 6
SpreadPro-Rear Axle Lube Point
41395

MACHINE LUBRICATION

Rear Wheel Lubrication

Any time the wheel grease could have been contaminated or whenever the hub is removed from the spindle for service or repair, the wheel grease must be replaced. For normal service the grease should be replaced twice a season or every 250 hours. The bearings should be packed to ensure that grease is forced into the cavities between the rollers, cone and cage of the bearings. Fill the wheel and hub cap with grease when reassembling.



ATTENTION: *Do not mix lithium, calcium, sodium, or barium complex greases. When changing from one type of grease to another, be sure all of the old grease has been removed.*



ATTENTION: *Failure to correctly lubricate bearings and maintain proper lubrication could cause bearing and axle spindle damage. Such damage could lead to wheel lockup or wheels coming off during operation.*

SpreadPro Lube Points

There are many lube points on the SpreadPro, which require daily lubrication. The numbers on Figure 7 indicate the lubrication points.

1. There is one grease zerk on the pivot of the hitch lock (1).
2. There are two lube points on the bearings of each tail pulley (2). The inside bearing grease fitting can be reached from one of two ways. You may either reach under the machine near the hitch or remove the access plate in the rear hopper to service this fitting.
3. There are grease fittings on each end of the wing pivot (3). They may be serviced when the wings are raised.
4. The spreadrolls in the center hopper and the extensions have fittings for service of the bearings. There are holes in the side panels of the hoppers for access.

a. The center hopper has a fitting on each end (7) under the guard. To raise the guard, shift the retaining latch slide up. The slide is located inside the center hopper. The slide will drop down so it is straight out from the pin. Then slide the cover off the hinge pins to access the grease fittings.

b. The extensions have one fitting (5) located on the outer side of the extension.

5. The agitators also have grease fittings on the bearings. As with the spreadroll fittings there are holes in the side panels of each hopper for access.

a. The center hopper has one on each end (6) and can be reached by removing the guard as in step 4.

b. The extensions each have one on the outer end of the shaft (4).



WARNING: *Always replace the guards on each end of the center hopper before operating machine. Serious injury can occur from becoming entangled in moving parts.*

6. There are fittings for greasing the bearings on the head pulleys. There is one on each side of each pulley (8).

a. The outside fitting can be reached from the operator platform.

b. To reach the inner pulley fittings, step into the hopper and reach under the guard plate to access the fittings.

SpreadPro Rotary Gate Seal

In the center hopper and on each extension there is a rubber seal on the bottom of each gate (3 in the center hopper and 1 in each extension). This seal should be inspected daily and replaced when damaged.

MACHINE LUBRICATION

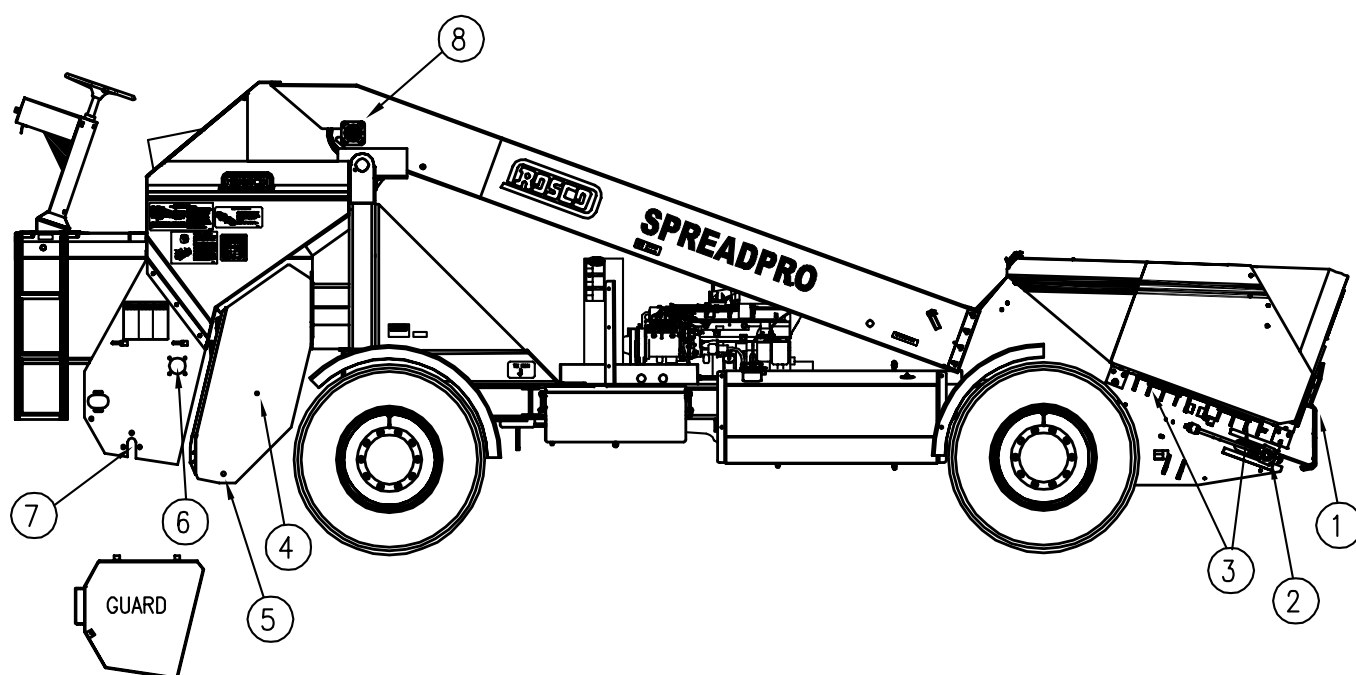


Figure 7
SpreadPro-Machine Lube Points

MACHINE LUBRICATION

Torque Hubs

The torque hubs on the rear axle should be checked periodically to make sure they contain the proper amount of gear lube.

There are two drain/fill plugs in the outer end of each torque hub. They are internal hex plugs and are removable with a large Allen wrench. When inspecting the torque hubs, follow these guidelines:

1. Check the level of the gear lube by moving the SpreadPro so that one drain/fill plug is at the 12 o'clock position and the other is at the 9 or 3 o'clock position.
2. Remove the plug positioned at 9 or 3 o'clock. The gear lube level should be just up to the bottom of the hole, indicating the hub case is at its proper half-full volume.
3. If the gear lube level is low, remove the top plug and add EP90 weight gear lube until it just begins to drain out of the lower hole. Then replace both plugs.

If necessary, the torque hubs can be disengaged for emergency towing.



WARNING: Be sure the wheels of the unit are blocked before disengaging the torque hubs for towing.

You may disengage the torque hubs by removing the two bolts (1) on the center of the hub and reversing the disengagement cap (2).

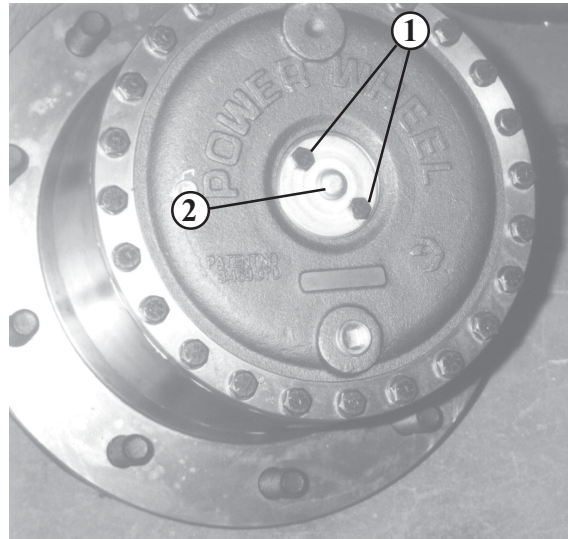


ATTENTION: When torque hubs are disengaged, the SpreadPro will free wheel. Be sure towing vehicle is attached to the SpreadPro before disengaging the torque hubs.

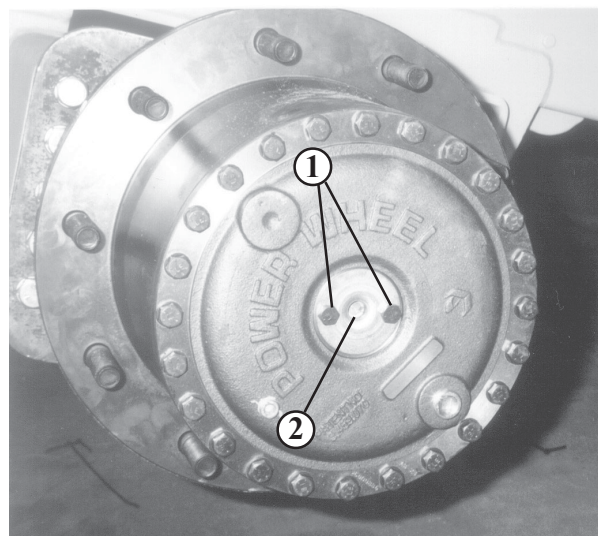


WARNING: Tow **ONLY** at speeds below 10 MPH and only for a short distance to remove from roadway. Be sure to park on level ground, as the parking brake **will not work** with the hubs disengaged.

After the towing destination is reached, the operator of the SpreadPro should keep the front brakes applied while someone blocks the wheels of the unit **before** releasing the towing vehicle and **before** dismounting the SpreadPro.



Torque Hub shown engaged for normal operation.



Torque Hub shown disengaged for emergency towing.

MISCELLANEOUS MAINTENANCE AREAS

Tires

1. Visually check the tires daily for damage or low pressure.
2. Maintain tire pressure at 80 to 85 PSI for best performance. However, operating speeds, road bed conditions, truck pulling arrangements, tire options and other operating conditions may require different tire pressure.



ATTENTION: *Never exceed the tire manufacturer's maximum recommended inflation pressure. See **Safety**, Section 2 in this manual for further information on tire maintenance.*

3. Protect the tires from exposure to petroleum products and other chemicals.

Lighting Maintenance

Be sure all lights are clean and securely mounted. Also check the following:

1. Inspect all lights daily for proper operation.
2. If a light or group of lights does not function:
 - a. Check the fuse panel located on the left side of the computer/gauge console stand for a blown fuse.
 - b. Examine all visible wiring connections, making sure that they are securely fastened.
 - c. If the light(s) still does not work, remove the lens from the light and inspect the bulb(s). Replace any that appear damaged or discolored.
 - d. If the trouble is not located, inspect the wiring harness for damage. Wiring schematics are provided in the **Parts Catalog**, section 6 of this manual, to assist in troubleshooting the SpreadPro electrical system and wiring harness.
3. If broken wires are found, solder them together and cover with a shrink wrap plastic covering to prevent contamination of the solder joint. If shrink wrap is not readily available, electrician's tape should be wrapped tightly around the solder joint to prevent a short circuit.
4. After making repairs to a wiring harness on the SpreadPro, always replace or repair the protective loom which covers the wiring to prevent future damage to the wiring harness. Examine the routing of the harness and make sure that it is not subject to the type of excessive movement which causes broken wiring. Always make sure that all wiring harnesses are securely fastened.

PREVENTIVE MAINTENANCE CHART

Identifying Codes: I = Inspect L = Lubricate R = Replace
A = Adjust S = Service

ITEM	SERVICE INTERVAL				CAPACITIES	PART NUMBER	TYPE OF SUPPLIES REQUIRED
	Daily	50 Hours	250 Hours	500 Hours			
Engine Oil	I		R		25.2 qts 23.8 L		CC/CD 15W40
Engine Oil Filter			R			72770-01	Spin-on Filter
Engine Belt	I		I/A			72770-02	Drive Belt
Engine Air Filter	I	I	R	I	Safety - Primary -	72834-02 72834-01	Cartridge Filter
Engine Fuel Filter(s)	I/S			R	Primary - Secondary -	72079 72078	Spin-on Filter
Engine Coolant	I		I		32 qts 30.3 L		50/50 Antifreeze
Opt. Engine Coolant Filter	S			R		72239	Spin-on Filter
Hydraulic Fluid	I	I	I	R	50 gal or 189.3 L Reservoir		See Hydraulic Fluids Chart
Hydraulic Oil Filters					Charge Filters (2) Return Filters (2)	34464 6442	Spin-on Filters
Hydraulic Strainers				S	25 GPM 15 GPM	33148 (2) 36123 (5)	
Front Axle Pivot & Joints				L			Mobil HP 222 Grease
Front Axle Oil				R	2.8 qts or 2.6 L		Mobile 424
Front Hubs				R	2.1 qts or 2.0 L		Mobile 424

PREVENTIVE MAINTENANCE CHART

Identifying Codes: I = Inspect L = Lubricate R = Replace
A = Adjust S = Service

ITEM	SERVICE INTERVAL				CAPACITIES	PART NUMBER	TYPE OF SUPPLIES REQUIRED
	Daily	50 Hours	250 Hours	500 Hours			
Front Brake System	I				(do not use ordinary brake fluid)		Mobil DTE 11M
Rear Axle Wheel Ends			R				Mobilith 007
Truck Hitch Lock	L						Multi-Service Grease
Tail Pulley	L						Multi-Service Grease
Head Pulley	L						Multi-Service Grease
Wing Pivots	L						Multi-Service Grease
Spreadrolls	L						Multi-Service Grease
Agitators	L						Multi-Service Grease

HYDRAULIC FLUIDS

The below recommended hydraulic oils have been reviewed by ROSCO and are recommended as replacements. It is best to use the heaviest weight oil that can be safely used for the temperature range of machine operation. If your machine will never be used at below 0° F (-18° C) temperatures, we recommend that you use a heavier weight oil.

If you are considering using an oil that is not listed, contact the ROSCO service department to obtain the specifications that the hydraulic oil must meet to provide the needed lubrication and cooling for the unit's hydraulic components.

HYDRAULIC OIL REQUIREMENTS AND APPROVED BRANDS FOR FIELD FILL:



ATTENTION: *DO NOT mix manufacturers or grade weights when adding hydraulic oil.*

Be sure hydraulic oil selection is compatible with your hydraulic system.

Be sure to use mineral base hydraulic oil.

Be sure hydraulic oil selection assistance is from a reputable supplier.

Be sure the hydraulic specifications meet or exceed the following specifications.

Hydraulic oil must provide anti-wear properties that meet or exceed those found in the API (American Petroleum Institute) classification SD, SE or CC crank case oil.

Hydraulic oil viscosity must not fall below 70 SUS (13 cs) in the reservoir under the most adverse conditions. The best viscosity is 80-300 SUS (17 cs to 65 cs). The viscosity rating at the lowest expected start-up temperature should not exceed 10,000 SUS (2158 cs).

Hydraulic oil must have rust and oxidation inhibitors that will maintain chemical stability. When changing the hydraulic oil, the hydraulic system must be completely drained. Be sure to purge or drain all hoses, cylinders, valves, motors and pumps of hydraulic oil. All hydraulic oil filters must also be changed at this time.

ISO 46 / SAE 20 AMBIENT TEMP. -15° F TO 80° F (-26° TO 27° C)	ISO 68 AMBIENT TEMP. 0° F TO 100° F (-18° TO 38° C)	ISO 100 / SAE 30 AMBIENT TEMP. 15° F TO 115° F (-9° TO 46° C)
Special Start-up Below 5° F (-15° C) Hyd Res Temp Max 165° F (74° C)	Special Start-up Below 20° F (-7° C) Hyd Res Temp Max 185° F (85° C)	Special Start-up Below 32° F (0° C) Hyd Res Temp Max 200° F (93° C)
MOBIL DTE 25	MOBILE DTE 26	MOBILE DTE AW 100/DTE 18M
CITGO AW 46	CITGO AW 68	CITGO AW 100
CONOCO PHILLIPS 46	CONOCO PHILLIPS 68	CONOCO PHILLIPS 100
CHEVRON TEXACO AW 46	CHEVRON TEXACO AW 68	CHEVRON TEXACO AW 100
SHELL TELLUS 46	SHELL TELLUS 68	SHELL TELLUS 100
EXXON NUTO 46	EXXON NUTO 68	EXXON NUTO 100

HYDRAULIC FITTING TORQUE CHARTS

Tightening Flare Type Tube Fittings

1. Check the flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second, tighten the swivel nut to the torque shown.

NOTE: The torque values shown are based on lubricated connections as in assembly.

Tube Size OD		Nut Size Across Flats		Torque Value (see note)		Recommended Turns (After Finger Tightening)	
in	mm	in	mm	N.m.	lb-ft	Flats	Turns
3/16	4.76	7/16	11.11	8	6	1	1/6
1/4	6.35	9/16	14.29	12	9	1	1/6
5/16	7.94	5/8	15.88	16	12	1	1/6
3/8	9.53	11/16	17.46	24	18	1	1/6
1/2	12.70	7/8	22.23	46	34	1	1/6
5/8	15.88	1	25.40	62	46	1	1/6
3/4	19.10	1 1/4	31.75	102	75	3/4	1/8
7/8	22.23	1-3/8	34.93	122	90	3/4	1/8

Tightening O-Ring Fittings

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face, and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown.
6. Tighten while holding body of fitting with a wrench.

NOTE: The torque values shown are based on lubricated connections as in reassembly.

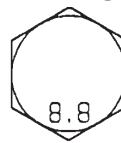
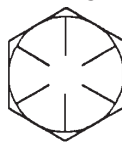
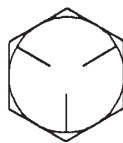
Tube Size OD		Nut Size Across Flats		Torque Value (see note)		Recommended Turns (After Finger Tightening)	
in	mm	in	mm	N.m.	lb-ft	Flats	Turns
3/8	9.53	1/2	12.70	8	6	2	1/3
7/16	11.11	9/16	14.29	12	9	2	1/3
1/2	12.70	5/8	15.88	16	12	2	1/3
9/16	14.29	11/16	17.46	24	18	2	1/3
3/4	19.10	7/8	22.23	46	34	2	1/3
7/8	22.23	1	25.40	62	46	1 1/2	1/4
1-1/16	26.99	1 1/4	31.75	102	75	1	1/6
1-3/16	22.23	1-3/8	34.93	122	90	1	1/6
1-5/16	33.34	1 1/2	38.10	142	105	3/4	1/8
1-5/8	41.28	1-7/8	47.63	190	140	3/4	1/8
1-7/8	47.63	2-1/8	53.98	217	160	1/2	1/12

BOLT TORQUE CHART

The table below gives the correct torque values for various **NON-LUBRICATED** bolts. **DO NOT** lubricate bolts unless otherwise specified in this manual. Check tightness of bolts periodically, using this table as a guide. **ALWAYS** replace hardware with an equal strength fastener. When using locking fasteners, increase torque values by 5%.

Bolt Identification By Head Markings:

ft-lb = foot-pounds
N-m = Newton-meter



Bolt Size	English				Metric			
	Grade 5		Grade 8		Class 8.8		Class 10.9	
	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m
M6					7	10	11	15
1/4	9	12	12	17				
5/16	19	25	27	36				
M8					18	25	26	35
3/8	33	45	45	63				
M10					37	50	52	70
7/16	53	72	75	100				
M12					66	90	92	125
1/2	80	110	115	155				
M14					103	140	148	200
9/16	115	155	165	220				
5/8	160	215	220	305				
M16					166	225	229	310
3/4	290	390	400	540				
M20					321	435	450	610
7/8	420	570	650	880				
M24					553	750	774	1050
1	630	850	970	1320				
M30					1103	1495	1550	2100

SECTION V

TROUBLESHOOTING

The following Troubleshooting Guide includes some problems that an operator may encounter during the course of operating the SpreadPro. It also includes some acceptable corrections to these problems. Unless otherwise noted, the problems listed here are those which an operator can diagnose and repair. See an authorized ROSCO Dealer/Distributor for diagnosis and repair of problems not listed. For specific engine and hydraulic problems not covered by this guide, please refer to the engine or hydraulic pump/motor manufacturer's manuals provided with this manual.



ATTENTION: DO NOT attempt to service or repair major components, such as the engine, hydrostatic pump or motor unless authorized to do so by your ROSCO Dealer/Distributor. ANY UNAUTHORIZED REPAIR WILL VOID THE WARRANTY.

When a problem occurs, don't overlook the simple causes. For example, a starting problem could be caused by something as simple as an empty fuel tank. After a mechanical failure has been corrected, be sure to repair or replace the component that caused the problem.

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TROUBLESHOOTING

Problem	Cause	Solution
Engine Doesn't Crank	Battery is weak or dead.	Charge or replace battery.
	Park Brake switch is "OFF".	Park Brake switch must be "ON" to start engine.
	Right arm rest is not down.	Lower arm rest.
	Neutral start switch not activated.	Put direction control lever in neutral.
	Faulty ignition switch.	Replace ignition switch.
	Faulty solenoid on starter or faulty starter.	Repair or replace.
	Faulty wiring.	Repair or replace.
Engine Cranks but Won't Start (no smoke from exhaust)	No fuel in fuel tank.	Add fuel to fuel tank.
	No voltage to fuel shut off solenoid.	Check fuel shut off voltage. (voltage should be a minimum of 9 volts with the ignition key "ON" while cranking.)
	No fuel to the injector pump.	Check fuel supply system.
	Fuel connections loose on suction side of injector pump.	Tighten all fuel filter fittings and connections from the fuel tank to the injector pump.
	Fuel filter plugged or restricted.	Replace the fuel filter(s).
	Intake or exhaust system restricted.	Check for and remove restrictions.
Engine Difficult to Start or Won't Start	Engine cranking speed too low (below 150 RPM).	Repair/clean battery terminal connections. Charge/replace battery.
	Insufficient supply of fuel to injector nozzles.	Check fuel system. Clean/replace fuel filter.

TROUBLESHOOTING

Problem	Cause	Solution
Engine Difficult to Start or Won't Start <i>(cont.)</i>	Fuel solenoid is defective.	Check/replace fuel solenoid. (See engine manual.)
	Fuel filter is plugged.	Replace the fuel filter(s).
	Air in the fuel system.	Check for air leaks in the low pressure side of the fuel system. Prime the fuel system. (See engine manual.)
	Fuel supply is contaminated.	Use a fuel of known quality.
	Intake air system is restricted.	Check for and remove restrictions.
Unit Doesn't Move with Engine Running or Moves in One Direction Only	Park Brake switch is "ON".	Turn Park Brake switch "OFF".
	The speed setpoint is set at 0.	Put a non-0 number in the computer.
	Hydrostatic pump forward/reverse relief valves not seated.	Check and turn hex nut cartridges "IN" (clockwise) to seat valves.
	No voltage to control handle.	Check fuse panel on side console panel for blown fuses. Check voltage and wiring.
	Forward/reverse relief valves are bypassing oil at low pressure.	Repair/replace relief valve cartridge(s).
	Damaged hydrostatic pump.	Repair/replace hydrostatic pump.
	Damaged hydrostatic motor.	Repair/replace hydrostatic motor.
	Faulty control handle.	Repair/replace control handle.
Unit Jerks When Operating in Forward or Reverse	Fast movement of direction control handle.	Move handle slowly when changing speed and/or direction.
	Engine speed set too low.	Run engine at 1800 engine RPM.

TROUBLESHOOTING

Problem	Cause	Solution
Unit Jerks When Operating in Forward or Reverse <i>(cont.)</i>	Low hydraulic fluid level.	Fill hydraulic fluid reservoir with correct fluid until visible in the sight gauge.
	Air leaking into hydraulic system.	Tighten/replace hoses, fittings, and/or filter(s).
	Hydrostatic pump malfunctioning.	Repair/replace the pump.
Engine Power Output is Low	Excessive load for engine horsepower rating.	Reduce load on unit by reducing ground speed.
	Operating engine at high altitude.	De-rate engine power output for altitudes above 1000 feet (305 m).
	Air intake piping is restricted or air cleaner element is dirty.	Remove restrictions. Replace air cleaner element(s).
	Fuel suction line or fuel filter is restricted.	Remove restrictions. Replace fuel filter element(s).
	Fuel return system is restricted.	Check/correct restricted fuel return system.
	Fuel transfer pump malfunctioning.	Check/replace fuel transfer pump. (See engine manual.)
	Throttle lever improperly adjusted.	Check/adjust throttle controls.
	Injector is malfunctioning.	Check/replace injector. (See engine manual.)
	Poor quality fuel.	Use a fuel of known quality.

TROUBLESHOOTING

Problem	Cause	Solution
Steering is Difficult	Low hydraulic fluid level.	Add hydraulic fluid to proper level. (See Maintenance , section 4 in this manual.)
	Hydraulic reservoir return filters contain contamination.	Check return filter(s) for contamination and replace if necessary. (See Maintenance , section 4 in this manual.)
	Hydraulic relief valve in steering circuit is set incorrectly.	Check relief valve setting. Set at 1800 PSI.
	Worn hydraulic pump.	Repair/replace hydraulic pump.
	Worn steering orbitrol motor.	Repair/replace orbitrol motor.
Hydraulic System Overheats (temperature above 220° F or 104.4° C)	Worn or damaged steering cylinder.	Repair/replace steering cylinder.
	Low hydraulic fluid level.	Fill with the correct fluid until fluid is visible in the sight gauge.
	Defective gauge or sender giving wrong temperature reading.	Replace gauge or sender.
	Primary relief valve on pump set too low.	Adjust setting to 6090 PSI on both forward/reverse relief valves. (See pump service manual.)
	High duty cycle on conveyors causing continual cycling.	Operate conveyors at slower speed.
	Plugged fins on oil cooler.	Clean fins and correct any other problems with cooling air flow.
	Hydrostatic pump malfunctioning.	Repair or replace.

TROUBLESHOOTING

Problem	Cause	Solution
Engine Oil Pressure is Low	Electrical power not being supplied to gauge.	Check fuse.
	Incorrect oil level.	Check for oil leaks. Add or drain engine oil. Check dipstick calibration.
	Oil filter plugged.	Change full flow oil filter.
	Oil diluted with fuel.	Check/replace injector, fuel transfer pump and/or injection pump.
	Oil diluted with coolant.	See authorized repair facility.
	Incorrect oil specifications.	Change oil and check oil specifications. (See Maintenance , section 4 in this manual.) (See engine manual.)
	Oil pressure sender or gauge malfunctioning.	Replace oil pressure sender or gauge.
Engine Coolant Temperature is Above Normal	Coolant level too low.	Add coolant.
	Unit operating with excessive load.	Reduce unit load so engine operates at 1800 RPM.
	Radiator fins damaged or obstructed.	Inspect radiator fins. Clean/repair or replace.
	Collapsed or restricted radiator hose(s).	Inspect radiator hoses. Replace if necessary.
	Loose fan drive belt.	Check belt tension and tighten if necessary.
	Cooling fan shroud damaged or missing.	Inspect shroud. Repair, replace or install as needed.
	Incorrect or malfunctioning radiator cap.	Check the radiator cap. Replace if necessary.

TROUBLESHOOTING

Problem	Cause	Solution
Engine Coolant Temperature Above Normal <i>(cont.)</i>	Temperature gauge or sender malfunctioning.	Repair/replace the sender or gauge.
	Thermostat stuck in closed position.	Test thermostat. Replace if necessary.
	Dirt, scale or rust in the cooling system.	Clean cooling system.
	Loose wiring, faulty connection.	Repair/replace loose wiring or connector.

Alternator Not Charging	Diode at alternator loose or faulty.	Tighten connection or replace diode.
	Alternator belt loose or broken.	Adjust or replace belt.
	Alternator malfunctioning.	Replace alternator.
	Faulty gauge or sender.	Replace gauge or sender.
	Loose wiring or faulty connection.	Repair/replace loose wiring or connector.

Instruments Won't Work	Faulty wiring.	Check/replace wiring or connector.
	No voltage to control panel.	Check fuse panel behind front door of Side Console for blown fuse.
	Computer failure.	Consult authorized dealer/distributor to replace the computer.

TROUBLESHOOTING

Problem	Cause	Solution
Parking Brake Won't Release	Engine not running.	Turn engine "ON". Engine must be running to release brake.
	Park Brake switch is "ON".	Turn Park Brake switch "OFF".
	Faulty brake switch.	Replace brake switch.
	Loose wiring to brake solenoid.	Repair/replace wiring.
	Faulty solenoid to brake valve.	Replace solenoid cartridge or coil.
	Faulty brake.	Repair/replace brakes.
Parking Brake Won't Hold	Park Brake switch is "OFF".	Red indicator light should come on when Park Brake is "ON".
	Faulty switch/wiring allowing electrical power to brake solenoid valve when switch is "OFF".	Repair/replace switch or wiring.
	Faulty brake.	Repair/replace brake(s) on rear wheels.
Unit Won't Shift to Travel Mode	Rear hopper wings are down.	Fully raise and chain rear hopper wings.
	Extension hoppers are extended.	Fully retract the left and right extension hoppers.
	Machine will not travel at high speed in reverse.	Maximum speed in reverse is 10 MPH. Travel in forward if a faster speed is required.
Conveyor Belt Not Running In the Center of the Conveyor (may run true when not loaded but not under load)	Conveyor belts out of adjustment.	Adjust belt alignment. (See Maintenance , section 4 in this manual.) Adjust belt tension. (See Maintenance , section 4 in this manual.)

TROUBLESHOOTING

Problem	Cause	Solution
Conveyor Belt Not Running In the Center of the Conveyor <i>(cont.)</i>	Trough rollers are out of alignment or not turning.	Clean debris out of the roller. Adjust. Replace roller if it has a flat spot or will not free-up.
Spreadroll Fails to Operate When Gates are Opened	Spreadrolls are shut off.	Turn on desired spreadrolls.
	Spread hopper agitator or spreadroll jammed with aggregate or foreign material.	Remove aggregate or foreign material.
	Low hydraulic fluid level.	Add fluid to proper level. (See Maintenance , section 4 in this manual.)
	Hydraulic reservoir return filters contain contamination and/or are plugged.	Remove contamination. Replace return filter(s) if necessary.
	Hydraulic relief valve in spread hopper control circuit set incorrectly.	Check relief valve setting. Set at 2700 PSI.
	Worn hydraulic pump and/or motor.	Repair/replace hydraulic pump and/or motor if necessary.
Conveyors Fail to Operate	Low hydraulic fluid level.	Add fluid to proper level.
	Hydraulic reservoir suction strainers contain contamination.	Remove contamination and clean. Replace suction filter if necessary.
	No electrical power to conveyor control solenoid valve.	Check for blown fuse in side console fuse panel.
		Check for electrical power at the conveyor solenoid valves when the dash conveyor control switch is set to "MANUAL" and the auxiliary conveyor switches are

TROUBLESHOOTING

Problem	Cause	Solution
Conveyors Fail to Operate <i>(cont.)</i>		"ON". If power is available, and the problem is not hydraulic system related, replace solenoid cartridge. If there is no power at the solenoid valves, proceed to the next step.
		Check for electrical power at the conveyor control switch and auxiliary conveyor switches. If power is available, replace switches. If there is no power, check wiring to switches. Look for shorts or incorrectly connected wires. (See wiring schematics in the Parts Book of this manual)
	Sheared key in motor/head pulley drive coupling.	Replace key.
	Faulty relief cartridge on conveyor solenoid valve.	Exchange relief cartridge with another cartridge on the machine. If the problem doesn't transfer to the other function on the machine, cartridge is OK. If the problem transfers, replace the cartridge.
	Worn hydraulic pump or motor.	Repair/replace hydraulic pump or motor.
Aggregate is Not Distributing Evenly in Spread Hopper	Sand is being used and will not flow to ends of the hopper.	Reduce the spreading width.
	Extension hopper on one side does not fill to the ends because machine is operating on a slope.	Reduce the spreading width.

TROUBLESHOOTING

Problem	Cause	Solution
Spread Hopper Gates Fail to Open	Low air pressure. Gate opener jammed with aggregate or foreign material.	Build air pressure to 120 PSI. Remove aggregate or foreign material.
Gates Will Not Open to the Same Width	Damaged or malfunctioning potentiometer linkage at the end of the actuator.	Repair, readjust or replace.
Gate Cylinder Remains Open or Closed	Air leak beyond the control valve.	Fix air leak or internal cylinder leak.
Conveyors Fail to Operate with Auto Conveyor Control	If conveyor control switch is set to "MANUAL", see problem Conveyors Fail to Operate . If conveyor control switch is set to "AUTO", possible causes are: ⇒ shorts in the electrical wiring, ⇒ wire connected incorrectly or ⇒ faulty switches.	See solution to problem Conveyors Fail to Operate . Be sure the ball switches are free from aggregate and move freely. Check for electrical power at the float switch in "AUTO" position. If there is no power, check the conveyor control switch wiring. Look for shorts or incorrectly connected wires. (See wiring schematics in the Parts Book of this manual.)
Unit Loses Power or Stops When Negotiating a Hill	Insufficient horsepower to negotiate the grade at the set speed. The unit is operating on a slope too steep for the machine to pull the load up the hill.	Slow the machine down by moving the joystick toward neutral position. When operating on slopes (11% or greater with a 50,000 lb truck) the truck operator will have to push going up hill and brake coming down. Insure that machine hoppers are fully loaded with aggregate to achieve maximum draw bar pull.

TROUBLESHOOTING

Problem	Cause	Solution
Unit Stalled On Mat	Engine failure.	Disconnect driveshaft. For 2-WD: Screw air chambers in to release rear brakes. For 4-WD: Disengage torque hubs. Remove unit from the mat.
Extensions Will Not Retract	Computer failure.	Use override buttons on auxiliary valve, behind guard on right side of machine.
Hitch Will Not Release	Computer failure.	Use override buttons on auxiliary valve, behind guard on right side of machine.
Wings Will Not Rise	Computer failure.	Use override buttons on auxiliary valve, behind guard on right side of machine.
Variable Speed Conveyor Controls Fail to Change Belt Speed.	Faulty belt speed control valve on conveyor.	Replace the valve.
	Faulty potentiometer.	Replace potentiometer.



SPREAD PRO

Aggregate Distributor

SECTION 6 - PARTS BOOK
Manual Part No. 73092-01

Begins With Serial No. 41578

Revised 07-01-05

NOTE: It is the responsibility of the customer or user's management to train, educate or supervise his employees in the proper operation and maintenance of this equipment.

ROSCO - A LeeBoy Company

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Lincolnton, NC 28092
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HYDRAULIC GROUP, 20 FT HOPPER	6.104 - 6.111
20 FT HOPPER GROUP	6.112 - 6.130
CENTER HOPPER ASSEMBLY	6.112 - 6.115
ROTARY GATE	6.116
SPREADROLL	6.117
FRONT COVERS	6.118
CENTER AUGER	6.119
EXTENSION HOPPER, LEFT HAND	6.120 - 6.121
EXTENSION HOPPER, RIGHT HAND	6.122 - 6.123
EXTENSION SLIDE	6.124 - 6.125
INDIVIDUAL 11-GATE ASSEMBLY (Including Wiring)	6.126 - 6.129
BRUSH GUARDS	6.130
230 HP ENGINE	6.131
ALPHABETICAL PARTS INDEX	6.132 - 6.140
SCHEMATICS	END OF THE SECTION
GENERAL SCHEMATIC	42528
CENTER CONSOLE	42498
SIDE CONSOLE	42499
RELAY PANEL	42501
JOYSTICK	42502
HYDRAULICS, 16 FT HOPPER	42375
AIR BRAKES	42442
INDIVIDUAL 9-GATES	42467
INDIVIDUAL 11-GATES	42228

REF: 42348

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42348		GRP,ENGINE,QSB,205HP (No Illustration)
0	33167	2.00	CLAMP,HOSE,.81-1.75,WORM,#20
0	33277	2.00	CLAMP,HOSE,.22-.62,WORM,#04
0	33280	1.00	FITT,STR 06MP-04HB,PUSH-ON
0	38579	8.00	HOSE,O6,LOW PRESS PUSH ON
0	41409	1.00	FUEL SYSTEM GROUP,6CT,QSB (See Detail)
0	42121	1.00	GRP,AIR INTAKE,6BT ENG,C/S (See Detail)
0	42132	1.00	BATTERY GRP,HCS-F,6QSB (See Detail)
0	42133	1.00	EXHAUST GRP,6QSB (See Detail)
0	42287	2.00	BRKT,OIL COOLER,LH,6BT QSB
0	42347	1.00	GRP,ENGINE SUB-ASSY,QSB,205HP (See Detail)
0	42438	1.00	BRKT,OIL COOLER,RH,6BT QSB
0	6342	1.00	FITT,STR 12MP-16HB,CRIMPED
0	71812	6.00	HOSE,05,PUSH-ON,.3125
0	72722	1.00	COOLER,OIL 30GPM 23.13X23.5
0	80038	12.00	NUT,HEX,.375-16
0	80141	2.00	WASHER,TYPE A PLAIN,.312
0	80162	12.00	WASHER,SPLIT LOCK,.375
0	80221	12.00	CSHH,.375-16X1.00,GR5
0	80350	1.00	NUT,FLEXLOC,.250-20,FULL,LT
0	80351	4.00	NUT,FLEXLOC,.312-18,FULL,LT
0	80830	2.00	CRG BOLT,.312-18X.75,GR5
0	871111605	2.00	CLAMP,LOOP,.50 OD PLSTC COVER
0	90384	5.00	OIL,SAE 15W-40,CH-4
0	90599	7.50	ANTIFREEZE
0	99448	1.00	PIPE,BUSH,06MP-04FP,STL
0	33162	2.00	CLAMP,HOSE,.44-.78,WORM,#06
0	33365	1.00	FITT,90 04MP-06HB,CRIMPED
0	33491	2.00	FITT,STR 04MP-05HB,CRIMPED
0	34798	2.00	CLAMP,LOOP,1.25 OD,NPRN COVER
0	80142	6.00	WASHER,TYPE A PLAIN,.375
0	80224	2.00	CSHH,.375-16X1.25,GR5
0	80036	2.00	NUT,HEX,.250-20
0	80160	2.00	WASHER,SPLIT LOCK,.250
0	80192	2.00	CSHH,.250-20X.75,GR5

Refer to engine manufacturer's manual for illustrations.

REF: 42347

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42347		GRP,ENGINE SUB-ASSY,QSB,205HP
0	36692-01	1.00	PUMP,HYD 4.57CIR,EDC,W/B-PAD
0	36692-02	1.00	PUMP,HYD 4.57CIR,HDC,W/B-PAD
0	71627	8.00	CSHH,.500-13X1.50,GR5
0	71638	8.00	CSHH,.625-11X1.25,GR5
0	72774	1.00	PUMP,HYD GEAR,1.65CIR
0	72775	1.00	PUMP,HYD GEAR,DUAL,2.3/2.3CIR
0	72776	1.00	PUMP,HYD GEAR,.98CIR
0	72777	1.00	PUMP,HYD GEAR,.967CIR
0	73249	1.00	ENG,DIESEL,QSB,205HP,RAD & DRV
0	80036	2.00	NUT,HEX,.250-20
0	80140	2.00	WASHER,TYPE A PLAIN,.250
0	80144	4.00	WASHER,TYPE A PLAIN,.500
0	80164	16.00	WASHER,SPLIT LOCK,.500
0	80166	8.00	WASHER,SPLIT LOCK,.625
0	80192	2.00	CSHH,.250-20X.75,GR5
0	80250	4.00	CSHH,.500-13X1.25,GR5
0	80478	12.00	WASHER,SPLIT LOCK,M10
0	80482	2.00	CSHH,M12X1.25X25,CL8.8
0	80484	6.00	WASHER,SPLIT LOCK,M12
0	80514	4.00	CSHH,M12X1.75X35,CL8.8
0	80824	2.00	NUT,HEX,#10-24
0	80914	2.00	CSHH,M12X1.75X25,CL8.8
0	80918	14.00	CSHH,M8X1.25X30,CL8.8
0	80928	4.00	CSHH,M8X1.25X75,CL8.8
0	80972	8.00	CSSH,.375-16X.75
0	80990	12.00	CSHH,M10X1.5X35,CL8.8
0	81007	1.00	NUT,HEX,M5X.80
0	81008	1.00	NUT,HEX,M10X1.50
0	871052400	2.00	MACH SCR,RH,#10-24X.50
0	871071601	2.00	WASHER,SPLIT LOCK,#10

Refer to engine manufacturer's manual for illustrations.

SPREADPRO**AIR INTAKE & EXHAUST GROUPS**

REF: 42121, 42133

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
42121 GRP,AIR INTAKE,6BT ENG,C/S			
1	36919	1.00	ADPTR,RUBBER 90,4.00 ID
2	72172	1.00	ADPTR,RUBBER 90,5.00-4.00 ID
3	73029	1.00	PRECLEANER,300-1100 CFM,6"IN
4	72834	1.00	AIR CLEANER,13 IN,590 CFM @ 8
5	72835	2.00	MOUNTING BAND,13.00 IN
6	72174	1.00	CLAMP,T-BOLT,5.34 - 5.66 ID
7	953521243	3.00	CLAMP,T-BOLT,4.00 ID HOSE
8	99945-18	1.00	TUBE,RND,4.00X3.87X18.00,HREW
9	42020	1.00	MOUNT,AIR CLEANER,HOZ PRECLEAN
10	80221	4.00	CSHH,.375-16X1.00,GR5
11	80142	4.00	WASHER,TYPE A PLAIN,.375
12	80162	4.00	WASHER,SPLIT LOCK,.375
13	80038	4.00	NUT,HEX,.375-16
14	37179	1.00	BRACKET,CRADLE
15	73135	1.00	ELBOW,EXHAUST,SR90,6.00 OD
16	73146	2.00	CLAMP,T-BOLT,5.78 TO 6.12ID
17	953521237	1.00	ADPTR,RUBBER 90,6.00 ID
42133 EXHAUST GROUP,QSB			
1	42444	1.00	SHIELD,HEAT,MUFFLER,QSB
2	73182	1.00	MUFFLER,3.50ID,9.0 DIA,29.0 LG
3	73184	1.00	PIPE,EXH,RED,3.50 OD-3.00 OD
4	73185	2.00	ELBOW,EXHAUST,90,3.50 OD/OD
5	80038	6.00	NUT,HEX,.375-16
6	80142	12.00	WASHER,TYPE A PLAIN,.375
7	80162	6.00	WASHER,SPLIT LOCK,.375
8	80224	6.00	CSHH,.375-16X1.25,GR5
9	846100266	4.00	CLAMP,MUFFLER,3.5
10	90268	2.00	HOSE,3.50ID,FLEX,METAL
11	73183	2.00	CLAMP,BAND,MUFFLER,9.00 ID

Refer to engine manufacturer's manual for illustrations.

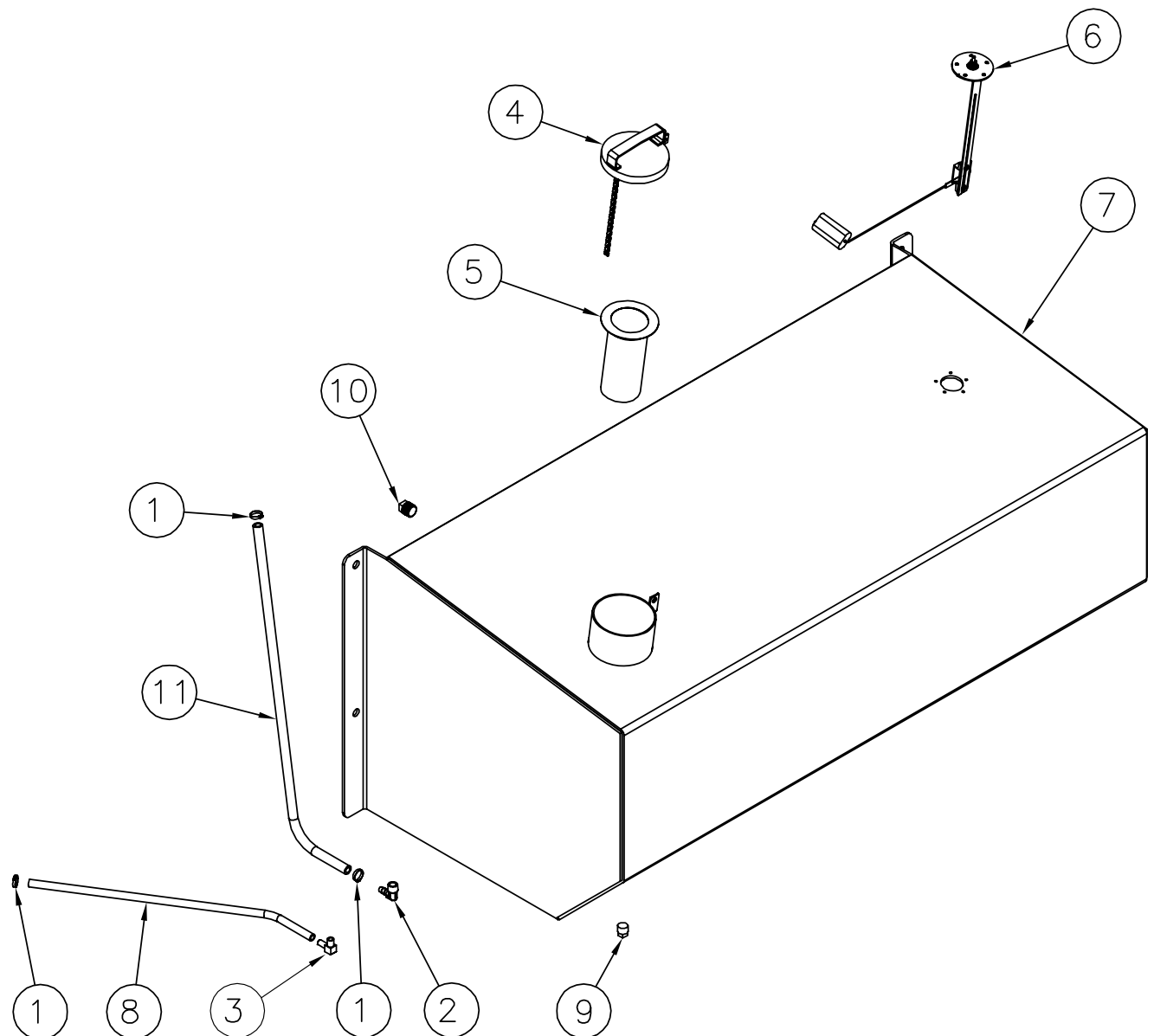
FUEL SYSTEM GROUP

SPREADPRO

REF: 41409

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
41409 FUEL SYSTEM GROUP,6CT,QSB			
1	33162	3.00	CLAMP,HOSE,.44-.78,WORM,#06
2	X304	1.00	FITT,90 06MP-06HB,CRIMPED
3	38279	1.00	FITT,90 04MP-05HB
4	34180	1.00	CAP & RING ASSY
5	34231	1.00	STRAINER,FUEL,IN FILLER NECK
6	35370-2	1.00	SENDER,FUEL LEVEL,24.00 TANK
7	41358	1.00	W/M,FUEL TANK,80 GALLON
8	71812	3.00	HOSE,05,PUSH-ON,.3125
9	99536	1.00	PIPE,PLUG,06MP,SQ HD,MI
10	99537	1.00	PIPE,PLUG,08MP,SQ HD,MI
11	38579	4.00	HOSE,06,LOW PRESS PUSH ON



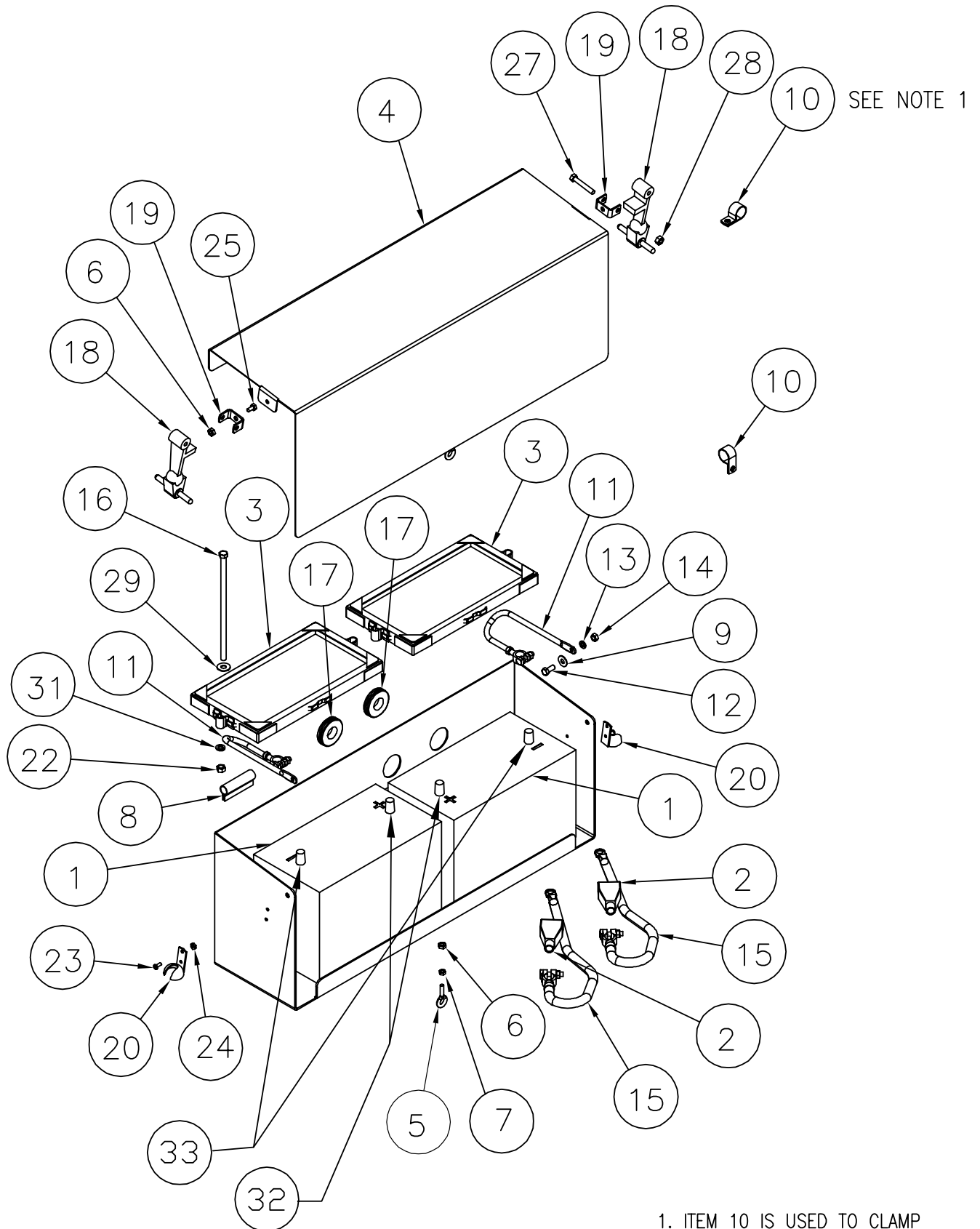
SPREADPRO

BATTERY GROUP,HCS-F,6QSB

REF: 42132

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
42132		BATTERY GRP,HCS-F,6QSB	
1	33146-6	2.00	BATTERY,12V,1000 CRK AMPS
2	70437	2.00	BATTERY BOOT,POS(RED)
3	72313	2.00	HOLD DOWN,BATTERY
4	41591	1.00	W/M,COVER,BATTERY BOX
5	80938	1.00	EYE BOLT,.250-20X1.00X.75ID
6	80350	3.00	NUT,FLEXLOC,.250-20,FULL,LT
7	80036	1.00	NUT,HEX,.250-20
8	34735	3.79	TRIM,STEEL CORE
9	80141	2.00	WASHER,TYPE A PLAIN,.312
10	33595	2.00	CLAMP,LOOP,1.00 OD,REM CUSHION
11	R442	2.00	CABLE,BATTERY,NEG,14,4GA,.406
12	80207	2.00	CSHH,.312-18X.75,GR5
13	80161	2.00	WASHER,SPLIT LOCK,.312
14	80037	2.00	NUT,HEX,.312-18
15	73290	2.00	CABLE,BATTERY,1/0,RED(+),8 FT
16	80393	4.00	CSHH,.375-16X9.50,GR5
17	35465-05	2.00	GROMMET,INSULATION,1.00ID
18	7020096	2.00	HOOK,RUBBER
19	7020097	2.00	BRACKET,ANCHOR
20	7020098	2.00	BRACKET,HOOD
22	80038	4.00	NUT,HEX,.375-16
23	871052400	4.00	MACH SCR,RH,#10-24X.50
24	80924	4.00	NUT,FLEXLOC,#10-24,FULL,LT
25	80423	2.00	CSHH,.250-20X.50,GR5
27	80212	2.00	CSHH,.312-18X2.00,GR5
28	80351	2.00	NUT,FLEXLOC,.312-18,FULL,LT
29	80142	4.00	WASHER,TYPE A PLAIN,.375
31	80162	4.00	WASHER,SPLIT LOCK,.375
32	73077	2.00	WASHER,BATTERY COROSION,RED
33	73078	2.00	WASHER,BATTERY COROSION,GREEN



1. ITEM 10 IS USED TO CLAMP
ITEM 15 POSITIVE BATTERY CABLE,
ROUTED BEHIND THE ENGINE.

SPREADPRO

COMPUTER CONTROL, ELEC GATE

REF: 42468

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42468		CONTROL,COMPUTER,ELEC GATE,QSB
1	73260	1.00	MICRO PROC,CONTROL,MASTER,"A"
2	73261	1.00	MICRO PROC,CONTROLLER,I/O,"F"
3	41422	1.00	SEAT/CONTROL GROUP (See Detail)
4	73293	1.00	MICRO PROC,CONTROLLER,I/O,"B"
5	73294	1.00	MICRO PROC,CONTROLLER,I/O,"E"
6	42494	1.00	PL,MODULE MOUNTING
7	42498	1.00	WIRING,CTR CONTROL PANEL,S/P (See Schem. at End)
8	42499	1.00	WIRING,SIDE CONTROL PANEL,S/P (See Schem. at End)
9	42501	1.00	WIRING,RELAY PANEL,S/P (See Schematic at End)
10	42502	1.00	HARNESS,JOYSTICK TO MOD,S/P (See Schem. at End)
11	42504	1.00	HARNESS,E-MODULE,S/P
12	42503	1.00	HARNESS,B-MODULE,S/P
13	42505	1.00	HARNESS,F-MODULE,S/P
14	42506	1.00	HARNESS,A-MODULE,S/P
15	42507	1.00	HARNESS,ENGINE MODULE,S/P
16	42508	1.00	HARNESS,CAN CONNECTIONS,S/P
17	42509	1.00	HARNESS,POWER,BATTERY,S/P
18	42510	1.00	HARNESS,INDIV GATES,
19	42512	1.00	HARNESS,SPREADROLL VALVES,S/P
20	42513	1.00	HARNESS,GATE ACTUATORS,S/P
21	42514	1.00	HARNESS,GUIDANCE LIGHTS,S/P
22	42515	1.00	HARNESS,BEACON &PARK BRAKE,S/P
23	42516	1.00	HARNESS,CTR TO SIDE PANEL,S/P
24	42517	1.00	HARNESS,FLOAT SW,LH
25	42518	1.00	HARNESS,FLOAT SW,RH
26	42528	.00	SCHEMATIC,SPREADPRO,HED (See Schematic at End)

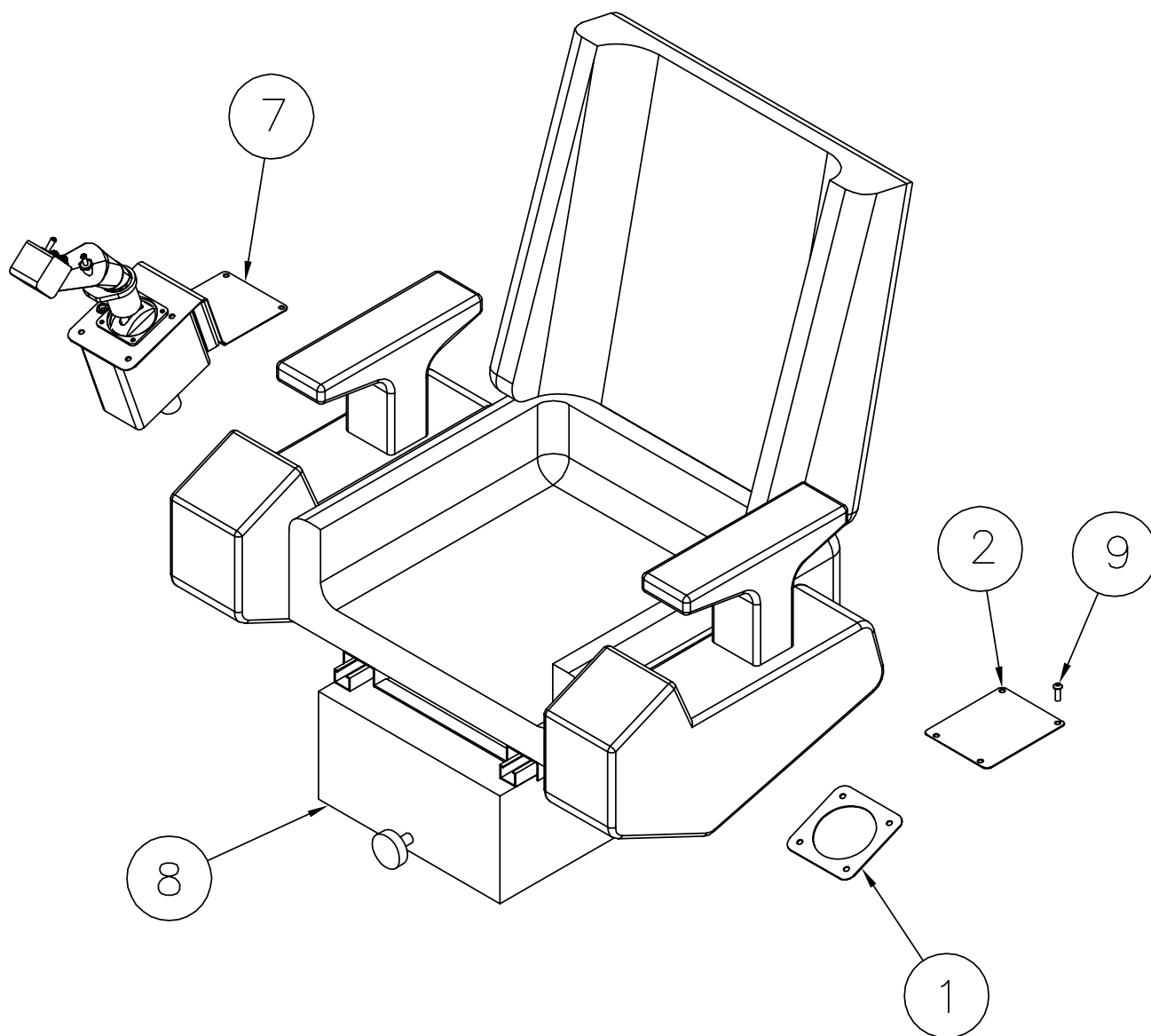
SEAT/CONTROL GROUP

SPREADPRO

REF: 41422

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
	41422		SEAT/CONTROL GROUP
1	41339	1.00	COVER,CONTROL CARRIER,LEFT,CUP
2	41484	1.00	COVER,CONTROL CARRIER,LEFT,LWR
7	73287	1.00	JOYSTICK,DUAL POT,FASSE GRIP (See Detail)
8	72862	1.00	SEAT,SUSPENSION,CTRL POD
9	81210	14.00	CSBHS,M6X1.0X18,SST



CONTROL PANEL DECALS

REV:

The diagram illustrates the 73291-01 control panel, which is a rectangular unit with a black border. It features a central display area with various controls and functions. The controls are arranged in a grid-like fashion, with labels and symbols indicating their functions. The panel is divided into several sections, each with a specific set of controls. The top section includes a 'MANUAL SPREADROLL SPEED' control with a '+' symbol. The middle section contains a 'MEMORY' display with five buttons labeled 'MEMORY 1' through 'MEMORY 5', a 'MEMORY SAVE' button, and a 'PSY CAL' button. The bottom section includes a 'THROTTLE' control with a '+' symbol, a 'HOPPER DUMP' control with a '+' symbol, and a 'BEACON' control with a '+' symbol. The right side of the panel features a 'GUIDANCE LIGHTS' control with a '+' symbol, a 'RELEASING' control with a '+' symbol, and a 'DOWN' control with a '+' symbol. The bottom right corner includes a 'SCREEN SELECT' control with a '+' symbol, a 'DATA UPDATE' control with a '+' symbol, and a 'PARK BRAKE' control with a '+' symbol. The bottom left corner includes a 'WARNING' control with a '+' symbol, an 'AIR SYSTEM' control with a '+' symbol, and a 'SPREADER WINGS ON' control with a '+' symbol. The bottom center includes a 'HOPPER DUMP' control with a '+' symbol, a 'BEACON' control with a '+' symbol, and a 'THROTTLE' control with a '+' symbol. The bottom right corner includes a 'SCREEN SELECT' control with a '+' symbol, a 'DATA UPDATE' control with a '+' symbol, and a 'PARK BRAKE' control with a '+' symbol. The bottom left corner includes a 'WARNING' control with a '+' symbol, an 'AIR SYSTEM' control with a '+' symbol, and a 'SPREADER WINGS ON' control with a '+' symbol. The bottom center includes a 'HOPPER DUMP' control with a '+' symbol, a 'BEACON' control with a '+' symbol, and a 'THROTTLE' control with a '+' symbol. The bottom right corner includes a 'SCREEN SELECT' control with a '+' symbol, a 'DATA UPDATE' control with a '+' symbol, and a 'PARK BRAKE' control with a '+' symbol.

MANUAL SPREADROLL SPEED
73291-03

GUIDANCE LIGHTS
+
UP
+
RELEASING
+
DOWN
73291-02

73291-01

MEMORY 1 **MEMORY 2** **MEMORY 3** **MEMORY 4** **MEMORY 5** **MEMORY SAVE** **PSY CAL** **DATA UPDATE** **SCREEN SELECT**

AIR SYSTEM **SPREADER WINGS ON**

WARNING **PARK BRAKE**

AUTO **TRAVEL** **ON** **OFF** **BEACON** **THROTTLE** **IGNITION** **START**

MANUAL OPERATION MODES **HOPPER DUMP** **SPREAD** **THROTTLE** **IGNITION** **START**

REF: See List

REV:

73292 DECAL, SIDE CONSOLE

RIGHT HOPPER  IN OUT LEFT HOPPER  OUT IN	MANUAL GATE SET UP DN EXT LH CTR LH CTR RH EXT RH
OPEN CENTER HOPPER GATE SELECT OFF 1234567891011	
HOPPER SELECT ON OFF LEFT CENTER RIGHT	4-WHEEL DRIVE ON OFF
RESTART AUTO START STRAIGHT MANUAL STAGGER	
CONVEYOR CONTROLS 2  4  0  6 LEFT 2  4  0  6 RIGHT AUTO OFF ON	
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42533 DECAL, FUSE PANEL

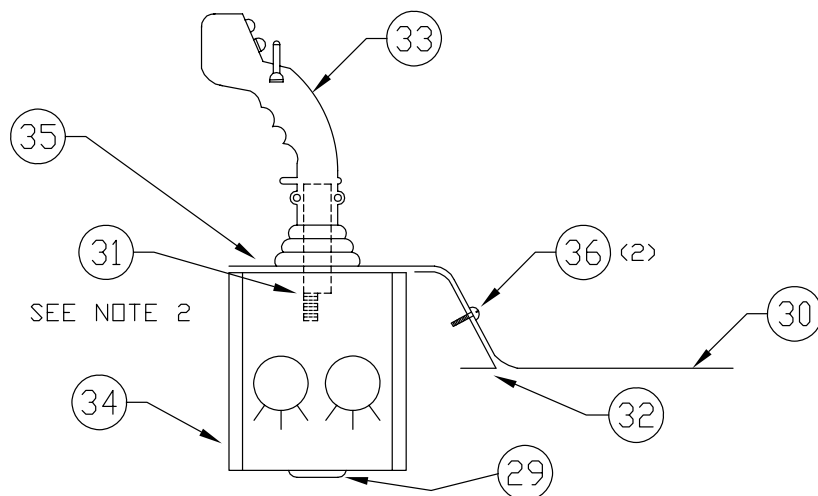
BATTERY	
8-1 5A GATE	8-5 30A LT EXT
8-2 20A BEACON	8-6 30A LT CTR
8-3 20A LIGHTS	9-7 30A RT CTR
8-4 20A A/C CAB	9-8 30A RT EXT
☐ 42533-01	

KEYSWITCH	
18-1 5A A MOD	18-10 20A SIDE PAN
18-2 20A E MOD	18-11 10A INV GATE
18-3 20A E MOD	18-12 10A MANUAL
18-4 20A F MOD	18-13 10A JOYSTK
18-5 20A F MOD	18-14 10A CTR PAN
18-6 10A A/D	18-15 5A SPARE
18-7 10A SPARE	18-16 10A SPARE
18-8 20A SPARE	18-17 20A SPARE
18-9 30A SPARE	18-18 30A SPARE
☐ 42533-02	

REF: 42502

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
42502			JOYSTICK HARNESS
1	33271-0	2.00	WIRE,16 GA,GRAY
2	33271-1	2.00	WIRE,16 GA,BLACK
3	33271-2	2.00	WIRE,16 GA,YELLOW
4	33271-3	4.00	WIRE,16 GA,BROWN
5	33271-4	2.50	WIRE,16 GA,GREEN
6	33271-5	3.50	WIRE,16 GA,WHITE
7	33271-6	2.00	WIRE,16 GA,ORANGE
8	33271-7	5.00	WIRE,16 GA,RED
9	33271-11	4.00	WIRE,16 GA,BLUE
10	33271-12	1.50	WIRE,16 GA,RED/BLACK STRIPE
11	33271-14	2.00	WIRE,16 GA,YELLOW/RED STRIPE
12	33271-16	4.50	WIRE,16 GA,PURPLE/WHITE STRIPE
13	33271-17	2.00	WIRE,16 GA,WHITE/BLACK STRIPE
14	33271-20	2.00	WIRE,16 GA,GRAY/BLACK STRIPE
15	33271-21	2.50	WIRE,16 GA,ORANGE/YEL STRIPE
16	34203	4.00	WIRE,14 GA,ORANGE
17	35139	1.00	CONNECTOR,SEALED,TOWER,2-PIN
18	36163	1.00	CONNECTOR,SEALED,TOWER,6-PIN
19	36165	12.00	TERM,SEALED CONN,16-14 GA,FEM
20	36166	11.00	SEAL,CABLE,18-16 GA
21	36349	2.00	TERM,PUSH-ON,.25,FEM,18-14,SLV
23	36623	1.00	SEAL,CABLE,14 GA
24	37229	1.00	CONN HOUSING,CAP,8 WIRE
25	37230	1.00	CONN HOUSING,PLUG,8 WIRE
26	37284	8.00	TERM PIN METRIC PACK 150 SERIE
27	37285	7.00	TERM,SOCKET,METRI PACK,150 S
28	37287	1.00	PLUG,CAVITY,METRI PACK,150 S
33	72813	1.00	CONTROL HANDLE,FOR EDC CONTROL
34	72816	1.00	HANDLE,EDC RATE CTRL,BASE ASSY
37	37286	15.00	SEAL,CABLE,METRI PACK,150 S
38	36162	1.00	CONNECTOR,SEALED,SHROUD,6-PIN
39	36164	6.00	TERM,SEALED CONN,16-14 GA,MALE
40	33271-9	2.00	WIRE,16 GA,PURPLE



NOTE: 1. Items in Control Handle and Rate Control that are shown as single lines come pre-wired.

NOTE: 2. Use Lock Tight on mount threads to prevent Control Handle from turning.

(See dwg #41704)

JOYSTICK ASSEMBLY

SPREADPRO

REF: 42502

REV: 0

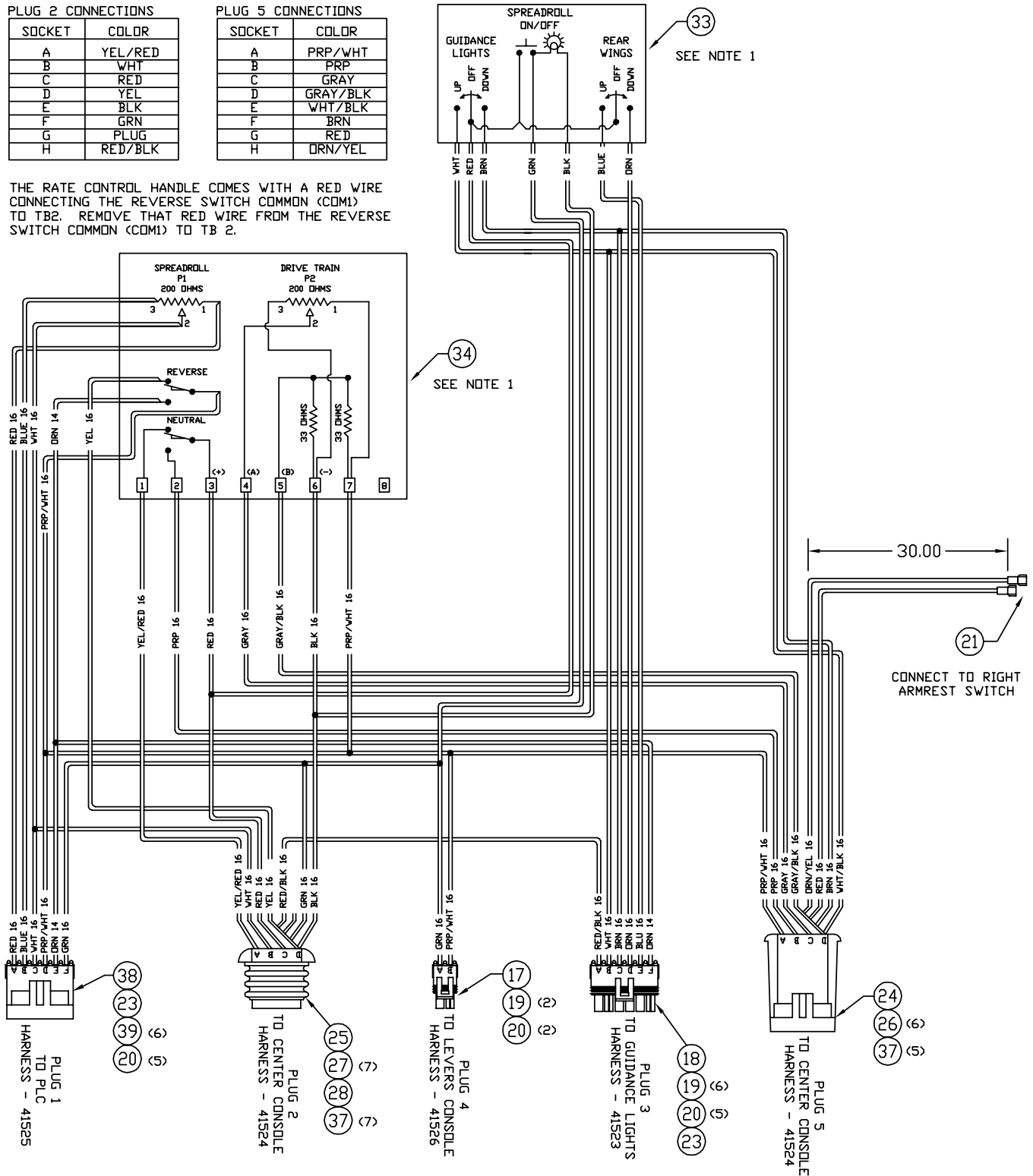
PLUG 2 CONNECTIONS

SOCKET	COLOR
A	YEL/RED
B	WHT
C	RED
D	YEL
E	BLK
F	GRN
G	PLUG
H	RED/BLK

PLUG 5 CONNECTIONS

SOCKET	COLOR
A	PRP/WHT
B	PRP
C	GRAY
D	GRAY/BLK
E	WHT/BLK
F	BRN
G	RED
H	DRN/YEL

THE RATE CONTROL HANDLE COMES WITH A RED WIRE CONNECTING THE REVERSE SWITCH COMMON (COM1) TO TB2. REMOVE THAT RED WIRE FROM THE REVERSE SWITCH COMMON (COM1) TO TB 2.



REF: 41418

REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
41418 LIGHTING GROUP (No Illustration)			
1	33271-2	6.00	WIRE,16 GA,YELLOW
2	33271-3	6.00	WIRE,16 GA,BROWN
3	33271-4	6.00	WIRE,16 GA,GREEN
4	33271-7	6.00	WIRE,16 GA,RED
5	33596	10.00	TIE WRAP,.188X7.5
6	38136	1.00	TURN SIGNAL W/HAZARD & HI/LOW
7	41540	1.00	HARNESS,CENTER CON TO LIGHTS
8	41632	1.00	MOUNT,LIGHTS,FRONT,LH
9	41633	1.00	MOUNT,LIGHTS,FRONT,RH
10	42524	1.00	HARNESS,LIGHTS TO CONSOLE (See Detail)
11	6161	4.00	LIGHT,TURN SIGNAL,AMBER
12	72143	16.00	TERM,RING,22-16 GA,#8 STUD
13	72318	2.00	LAMP,HALOGEN,FLOOD,80X30 DEG
14	80038	4.00	NUT,HEX,.375-16
15	80162	4.00	WASHER,SPLIT LOCK,.375
16	80221	4.00	CSHH,.375-16X1.00,GR5
17	80322	28.00	SCR,SLFTPG,HH,.250-20X.50
18	851342007	2.00	LIGHT,TURN/BRAKE,RED
19	871111605	28.00	CLAMP,LOOP,.50 OD PLSTC COVER
42524 REV. 0 LIGHTS TO CONSOLE			
1	33589	1.50	LOOM,SPLIT,CONVOLUTED,.500
2	33607	1.00	TERM,RING,16-14 GA,.250 STUD
3	33616	1.00	CONN,CLOSED END,16-14 GA
4	851091608	1.00	FLASHER,SIGNAL
5	36162	1.00	CONNECTOR,SEALED,SHROUD,6-PIN
6	36165	7.00	TERM,SEALED CONN,16-14 GA,FEM
7	36348	1.00	TERM,PUSH-ON,.25,M,18-14,SLV
8	36461	1.00	PLUG,CAVITY,SEALED CONN
9	36623	7.00	SEAL,CABLE,14 GA
10	38137	1.00	HARNESS,TURN SIGNAL
11	851201417	8.00	TIE WRAP,.094X4.00
12	33600	1.00	TERM,PUSH-ON,.25,FEM,16-14 GA
13	33599	1.00	TERM,PUSH-ON,.25,MALE,16-14GA

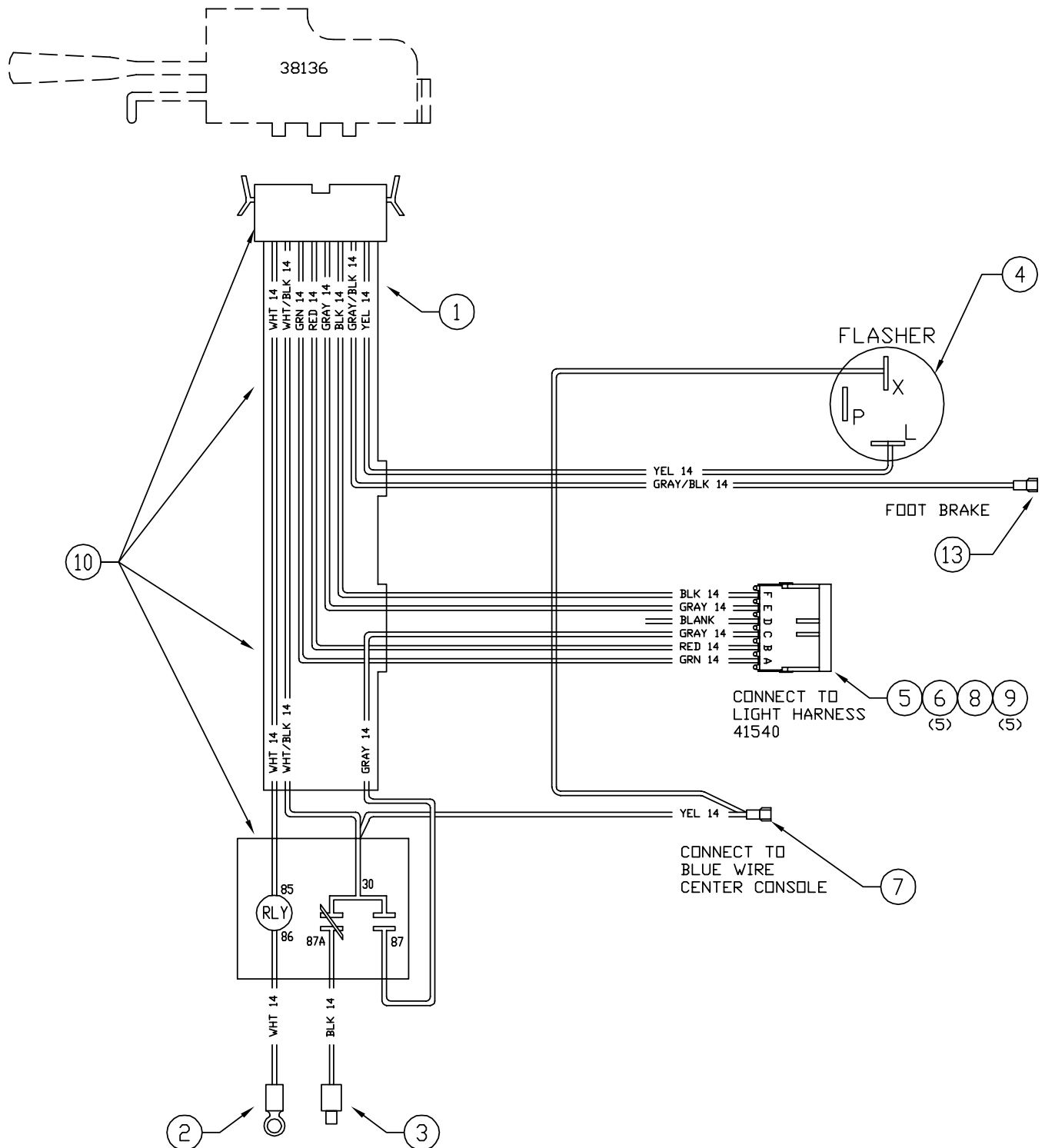
LIGHTS TO CONSOLE

SPREADPRO

REF: 42524

REV: 0

LIGHT SWITCH, 38136, IS ONLY SHOWN HERE FOR CLARITY. IT IS NOT ON THIS BOM.

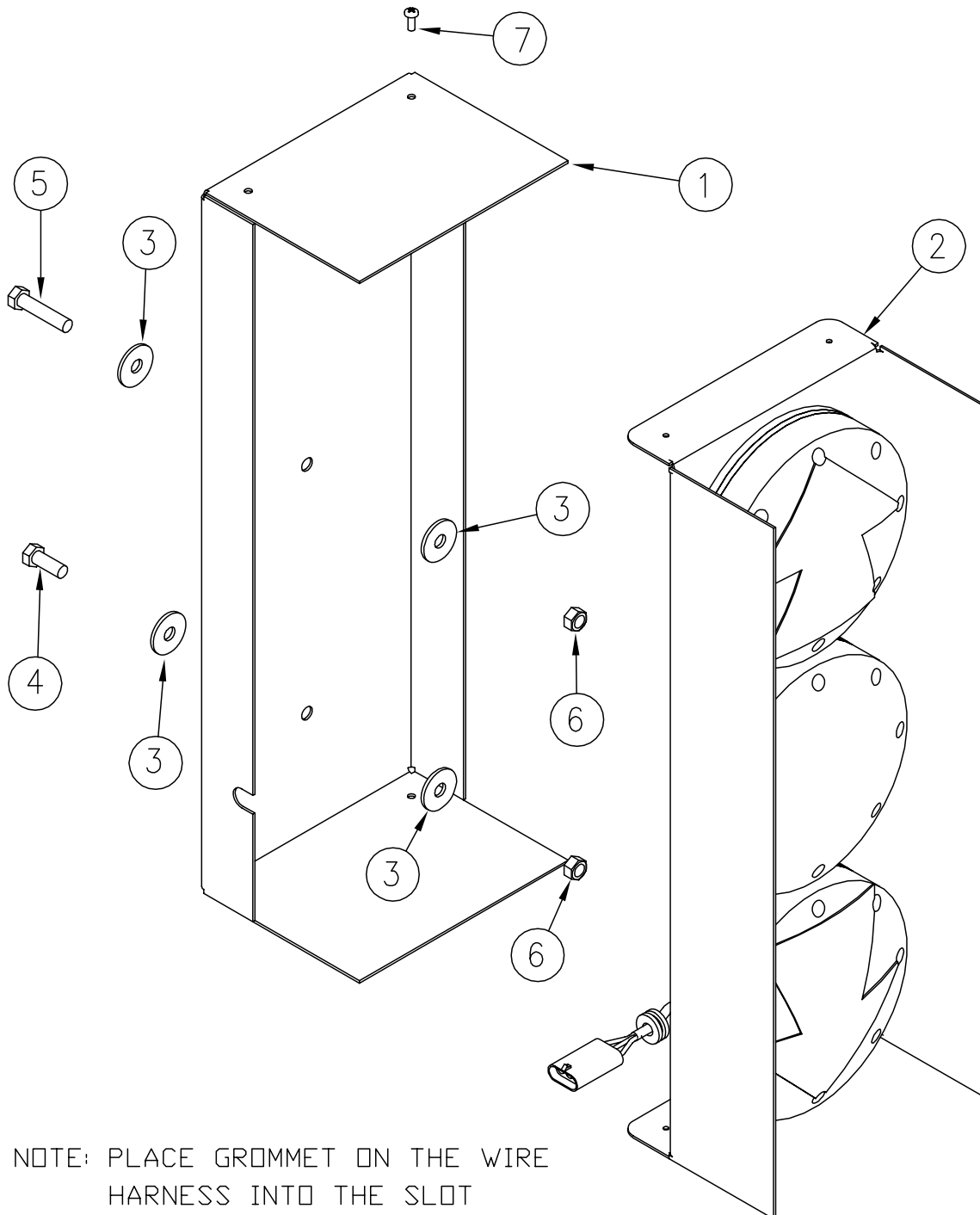


NOTES: 1. USE EXISTING WIRES. DO NOT NEED TO ADD ANY WIRES OR LENGTH. MAY CUT TO SUIT ASSEMBLY.

REF: 41419

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
	41419		DUMP LIGHT GROUP
1	41488	1.00	COVER,DUMP LIGHTS
2	41489	1.00	DUMP LIGHT ASSY
3	80142	4.00	WASHER,TYPE A PLAIN,.375
4	80221	1.00	CSHH,.375-16X1.00,GR5
5	80228	1.00	CSHH,.375-16X1.75,GR5
6	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
7	81150	4.00	SCR,SLFTPG,PH,#10X.500,AB



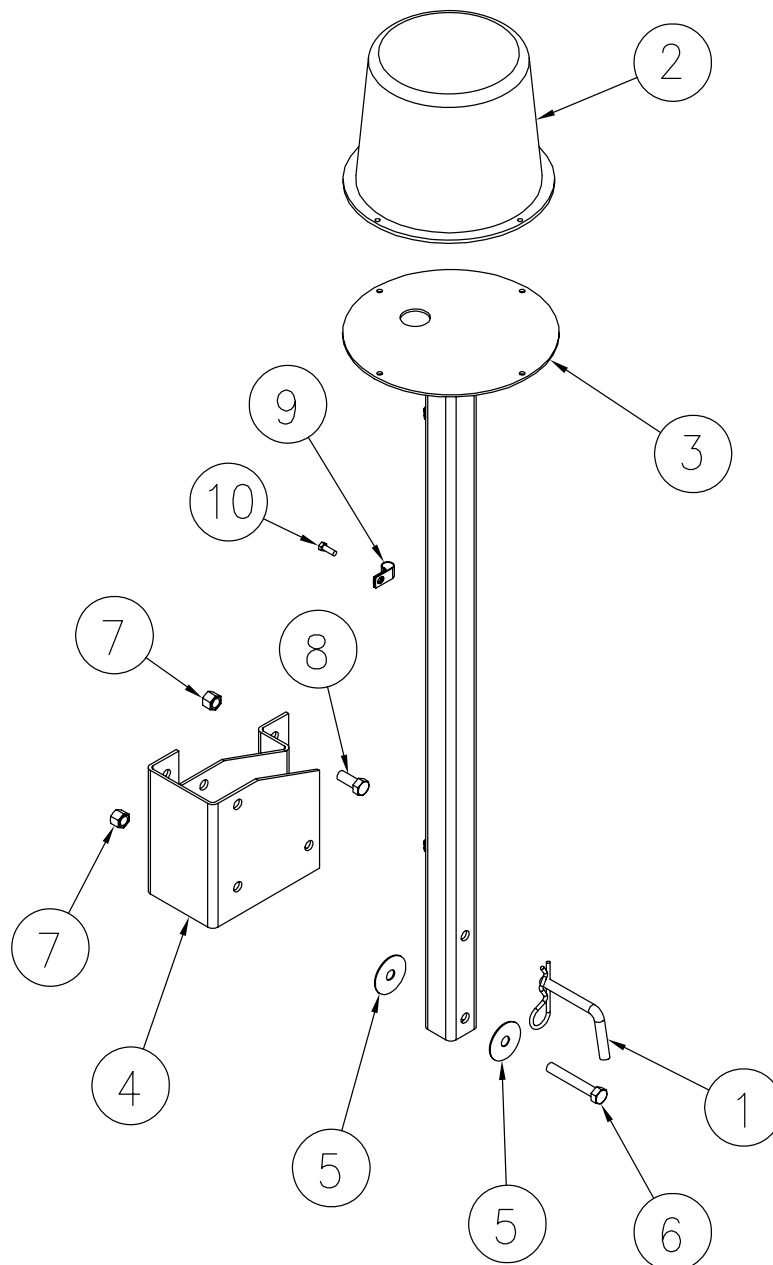
STROBE LIGHT GROUP

SPREADPRO

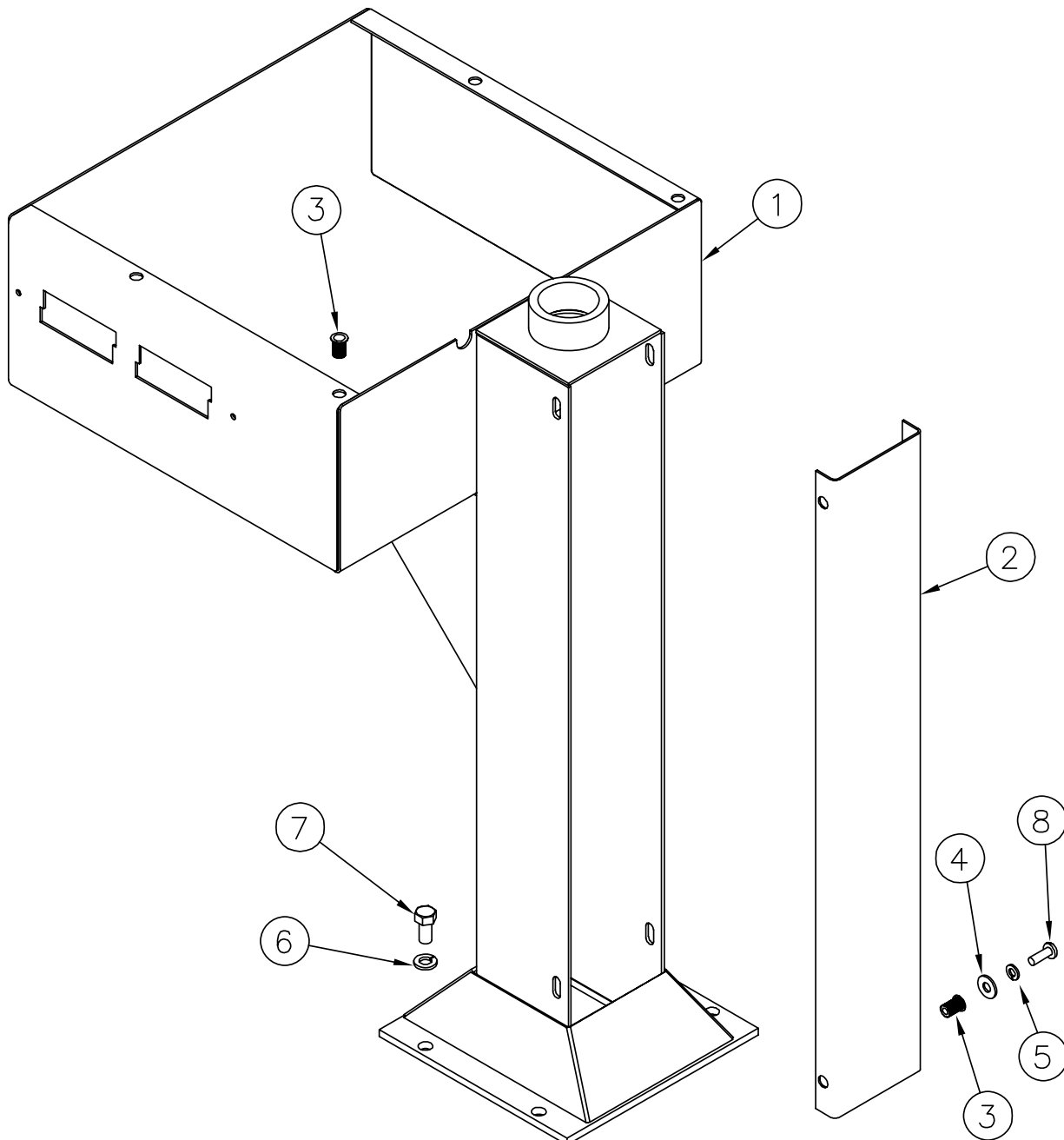
REF: 41404

REV: B

ITEM	PART NUMBER	QTY	DESCRIPTION
41404 STROBE LIGHT GROUP			
1	72836	1.00	PIN,.50X3.00,W/HAIRPIN COTTER
2	37682	1.00	LIGHT,STROBE,AMBER,16 JOULE
3	41453	1.00	W/M,TUBE AND LIGHT BASE
4	41455	1.00	W/M,STROBE MOUNT BASE
5	53175	2.00	WASHER,NYLON,2.125 OD
6	80778	1.00	CSHH,.500-13X3.25,GR5
7	80354	5.00	NUT,FLEXLOC,.500-13,FULL,LT
8	80250	4.00	CSHH,.500-13X1.25,GR5
9	871111605	8.00	CLAMP,LOOP,.50 OD PLSTC COVER
10	80324	8.00	SCR,SLFTPG,HH,.250-20X.75
11	42551	1.00	HARNESS,STROBE LIGHT



ITEM	PART NUMBER	QTY	DESCRIPTION
41602 STEERING COLUMN GROUP, NON-CAB			
1	41317	1.00	HOUSING, STEERING COLUMN
2	41324	1.00	COVER, WIRING, STEERING COLUMN
3	37986	8.00	NUT, INSERT, .250-20, .027-.165, S
4	80140	4.00	WASHER, TYPE A PLAIN, .250
5	80160	4.00	WASHER, SPLIT LOCK, .250
6	80162	4.00	WASHER, SPLIT LOCK, .375
7	80219	4.00	CSHH, .375-16X.75, GR5
8	81107	4.00	MACH SCR, PH, .250-20X.50



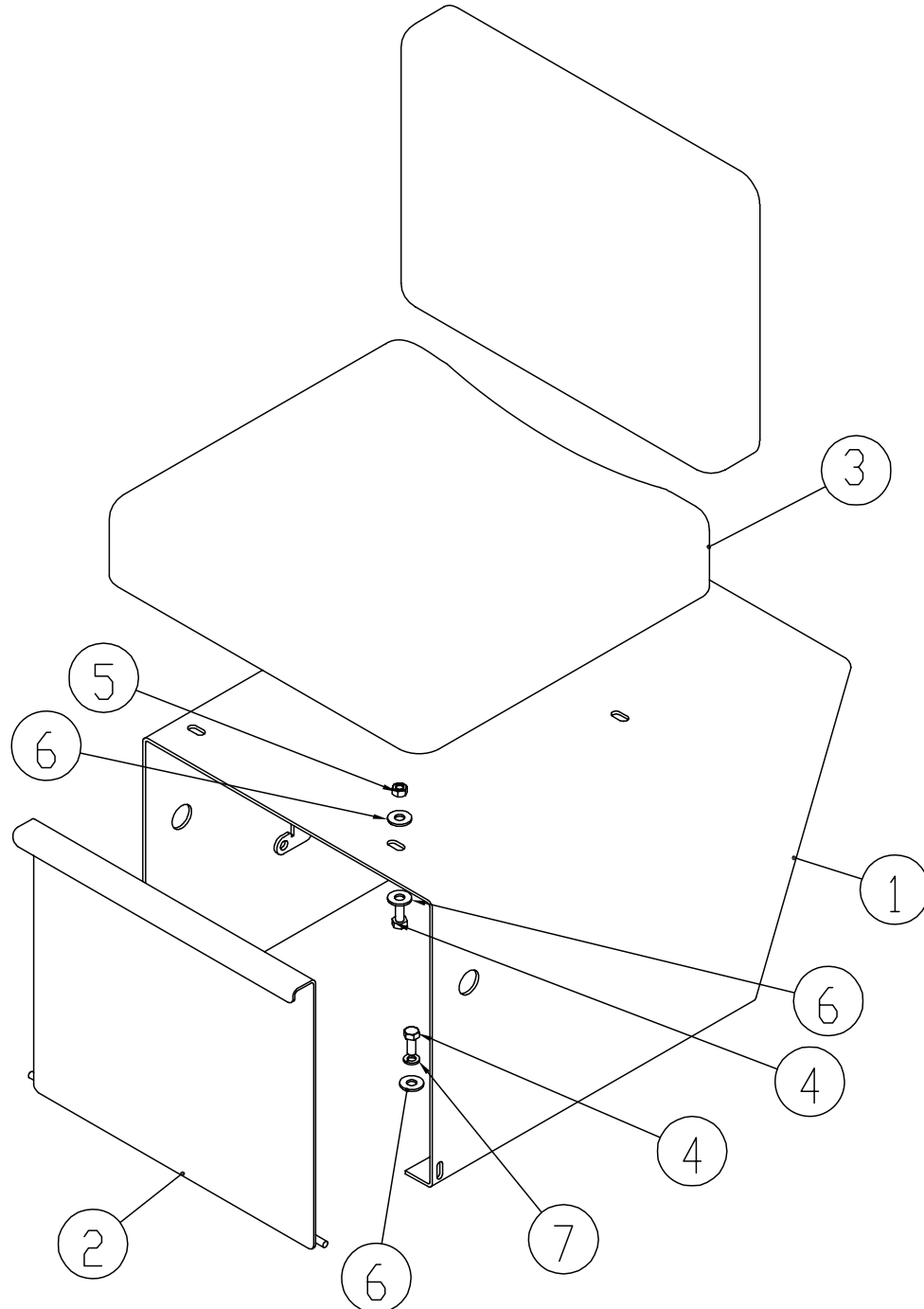
BUDDY SEAT GROUP

SPREADPRO

REF: 41950

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
41950			BUDDY SEAT GROUP,W/SLOPE
1	42547	1.00	W/M,SEAT BASE,SEATS
2	42546	1.00	W/M,DOOR,SEAT BASE
3	72885	1.00	SEAT,FOLD DOWN,BLACK
4	80141	8.00	WASHER,TYPE A PLAIN,.312
5	80161	4.00	WASHER,SPLIT LOCK,.312
6	80207	8.00	CSHH,.312-18X.75,GR5
7	80351	4.00	NUT,FLEXLOC,.312-18,FULL,LT



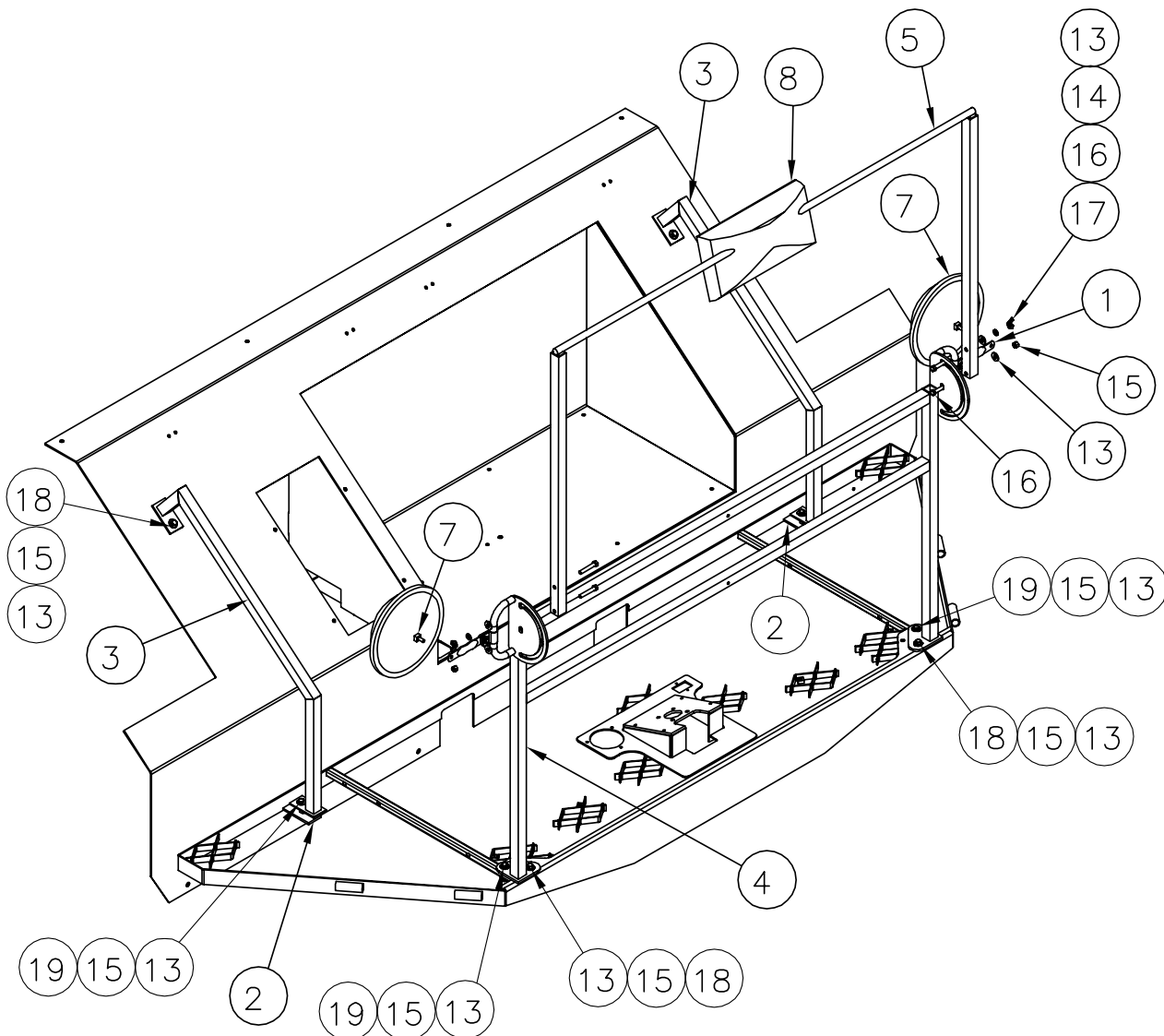
SPREADPRO

REF: 41611

REV: A

HANDRAIL GROUP, NON-CAB

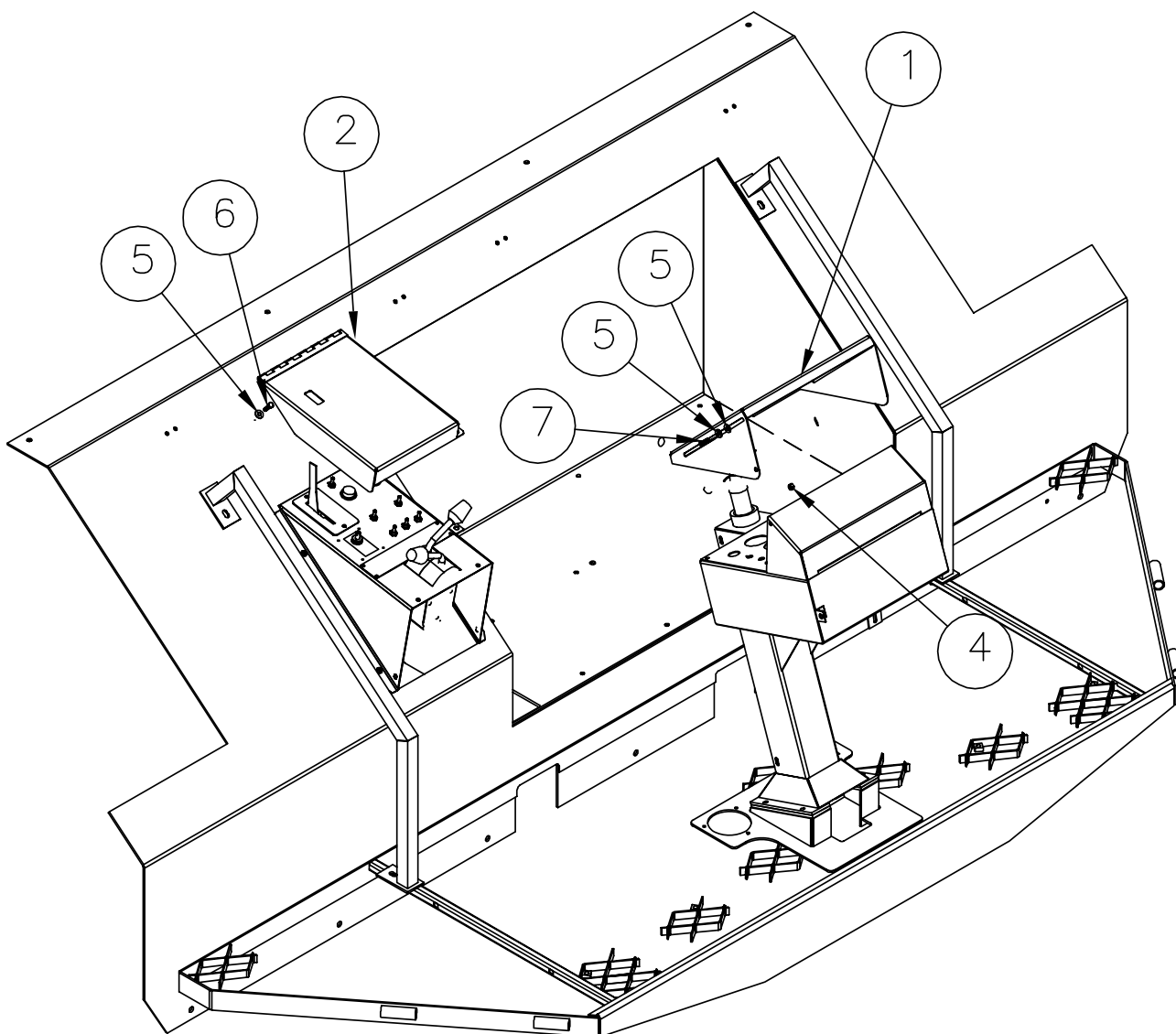
ITEM	PART NUMBER	QTY	DESCRIPTION
41611 HANDRAIL GROUP, NONCAB, SPRDPRO			
1	38072	2.00	MIRROR CLAMP KIT
2	41373	2.00	MOUNT PAD, REAR
3	41612	2.00	RAIL, SIDE, OPERATOR DECK
4	41617	1.00	RAIL, FRONT, OPERATOR DECK
5	41625	1.00	MOUNT, MIRROR
7	72941	2.00	MIRROR, CONVEX 10.00, BLACK
8	72967	1.00	MIRROR, 7.00X16.00
13	80142	4.00	WASHER, TYPE A PLAIN, .375
14	80162	2.00	WASHER, SPLIT LOCK, .375
15	80352	2.00	NUT, FLEXLOC, .375-16, FULL, LT
16	80406	4.00	CSHH, .375-16X2.25, GR5
17	31877	2.00	NUT, WING, .375-16
18	80224	4.00	CSHH, .375-16X1.25, GR5
19	80230	4.00	CSHH, .375-16X2.00, GR5



REF: 41645

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
	41645		VANDAL COVERS,SPRDPRO,CONTROLS
1	41646	1.00	COVER,GAUGE CONSOLE
2	42526	1.00	W/M,COVER,SIDE CONSOLE
4	80036	2.00	NUT,HEX, .250-20
5	80140	7.00	WASHER,TYPE A PLAIN, .250
6	80909	3.00	SCR,SLFDRL,HH, .250-14X1.00
7	81252	2.00	CSTBH, .250-20X.88,BLACK FINISH
8	33265	1.00	SAFETY HASP W/SWIVEL STAPLE



SPREADPRO

HYDRAULIC GROUP, 2 WD, 16 FT HOPPER

REF: 42375

REV: A

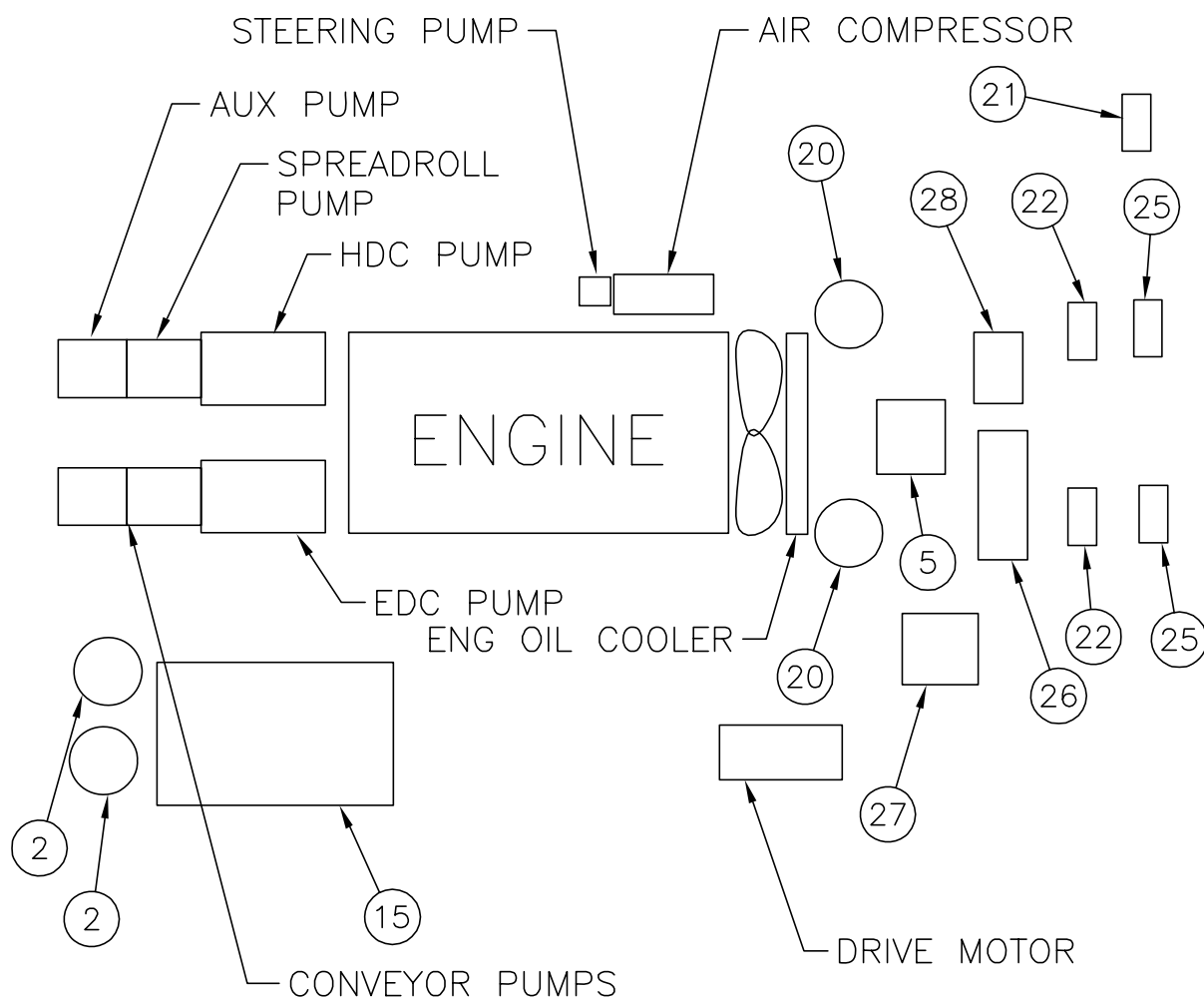
ITEM	PART NUMBER	QTY	DESCRIPTION
	42375		GRP,HYD,2WD,16 FT HOPPER
0	41261-01	1.00	GASKET,HYD RESERVOIR
0	RES1001	0.00	HYDRAULIC SPECIFICATIONS
1	33148	2.00	STRAINER,SUCT,2NPT,25GPM,100ME
2	34463	2.00	FILTER,RETURN,HP,-12SAE PORTS
3	99537	2.00	PIPE,PLUG,08MP,SQ HD,MI
4	35368	1.00	SENDER,TEMP GAUGE,04 MP
5	35735	1.00	COOLER,OIL,HYDRAULIC,19X20
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
7	35371	1.00	SWITCH,TEMP,205 DEG,06MP
9	34861	7.00	COVER PLATE,HOSE CLAMP
10	500070	1.00	GAUGE,HYD OIL LEVEL/TEMP
11	37680	1.00	FILLER,HYD FLUID,10 PSI
12	37903	2.00	FITT,TEST 08FJ-02PD
13	38013	1.00	VLV,CHECK,25PSI,.75NPT
14	41261	1.00	COVER,HYD TANK CLEANOUT
15	41363	1.00	W/M,HYD TANK,50 GALLON W/CLEAN
16	41384	1.00	SUPPORT,OIL COOLER,RH
17	41385	1.00	SUPPORT,OIL COOLER,LH
19	72370	6.00	FITT,TEST 04MB-02PD
20	72543	2.00	FILTER,RETURN 20 ORB,W/GAUGE
21	72773	1.00	MOTOR,HYD,9.82/3.54CIR,W/PICK
22	72780	2.00	MOTOR,HYD GEROTOR,24CIR
23	72781	1.00	ORBITROL,STEERING,11.3CIR
24	72782	1.00	COLUMN,STEERING,30.00,W/1 WIRE
25	72783	2.00	MOTOR,HYD GEROTOR,18.7CIR
26	73251	1.00	VLV,HYD,4-SEC,DO3,W/HITCH LOCK
27	73001	1.00	VLV,MANIFOLD,PROP CONTROL (See Detail)
28	41797	1.00	VLV,HYD,MANIFOLD,FEEDROLL,MOD (See Detail)
29	72796	2.00	CYL,HYD,FOLDING SIDES
	72796-01	1.00	KIT,SEAL,HYD CYL,FOLDING SIDES
30	73127	1.00	CYL,HYD,TOW HOOK,W/CLEVIS
	72797-01	1.00	KIT,SEAL,HYD CYL,TOW HOOK
31	72798	2.00	CYL,HYD,2.00X39.38,EXT RAM
	72798-01	1.00	KIT,SEAL,HYD CYL,EXTENSION
32	72858	2.00	VLV,HYD,MANUAL,ON/OFF
33	72925	1.00	MOTOR,HYD,14.9 CIR,W/PICK-UP
34	72926	2.00	MOTOR,HYD,14.9 CIR
35	72959	1.00	KIT,HOSE/FITTING,DRIVE SYSTEM (See Detail)
36	72960	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail)
37	72961	1.00	KIT,HOSE/FITTING,CONV/STEERING (See Detail)
38	80162	11.00	WASHER,SPLIT LOCK,.375
39	80192	16.00	CSHH,.250-20X.75,GR5
40	80250	4.00	CSHH,.500-13X1.25,GR5
41	80354	4.00	NUT,FLEXLOC,.500-13,FULL,LT
42	80357	4.00	NUT,FLEXLOC,.750-10,FULL,LT
43	80695	8.00	WASHER,SAE PLAIN,.500
44	80869	4.00	CSHH,.750-10X2.75,GR5

• • • • •
• See end of •
• section for •
• additional •
• schematics. •
• • • • •

REF: 42375

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
45	80985	7.00	CSHH,.375-16X.50,GR5
46	81154	8.00	WASHER,SAE,HARDENED,.750
47	81161	16.00	WASHER,WEATHER SEAL,#10
48	81218	8.00	CSSH,.312-18X3.50
50	72993	1.00	VLV,CHECK,10MJ-10MJ
51	73005	1.00	SEAL,O-RING -10 BOSS
53	72372	10.00	FITT,PLUG 02PD,DUST
54	34860	12.00	CLAMP,HALF,HOSE,.750
55	34860-01	20.00	CLAMP,HALF,HOSE,1.00
56	80468	8.00	CSHH,.312-18X3.25,GR5
57	41796	1.00	BAR,SPACER,CONVEYOR MANIFOLD
58	72689	4.00	FITT,TEST 06MB-02PD
59	72685	1.00	CONN,METRIC 4-PIN
60	41945	1.00	MOUNT,STEERING ORBITROL
61	80221	4.00	CSHH,.375-16X1.00,GR5
63	37002	25.00	SLEEVE,ABRASION,NYLON,3.20ID
64	90803	16.00	SLEEVE,ABRASION,NYLON,1.75ID



TOP VIEW MAJOR COMPONENTS

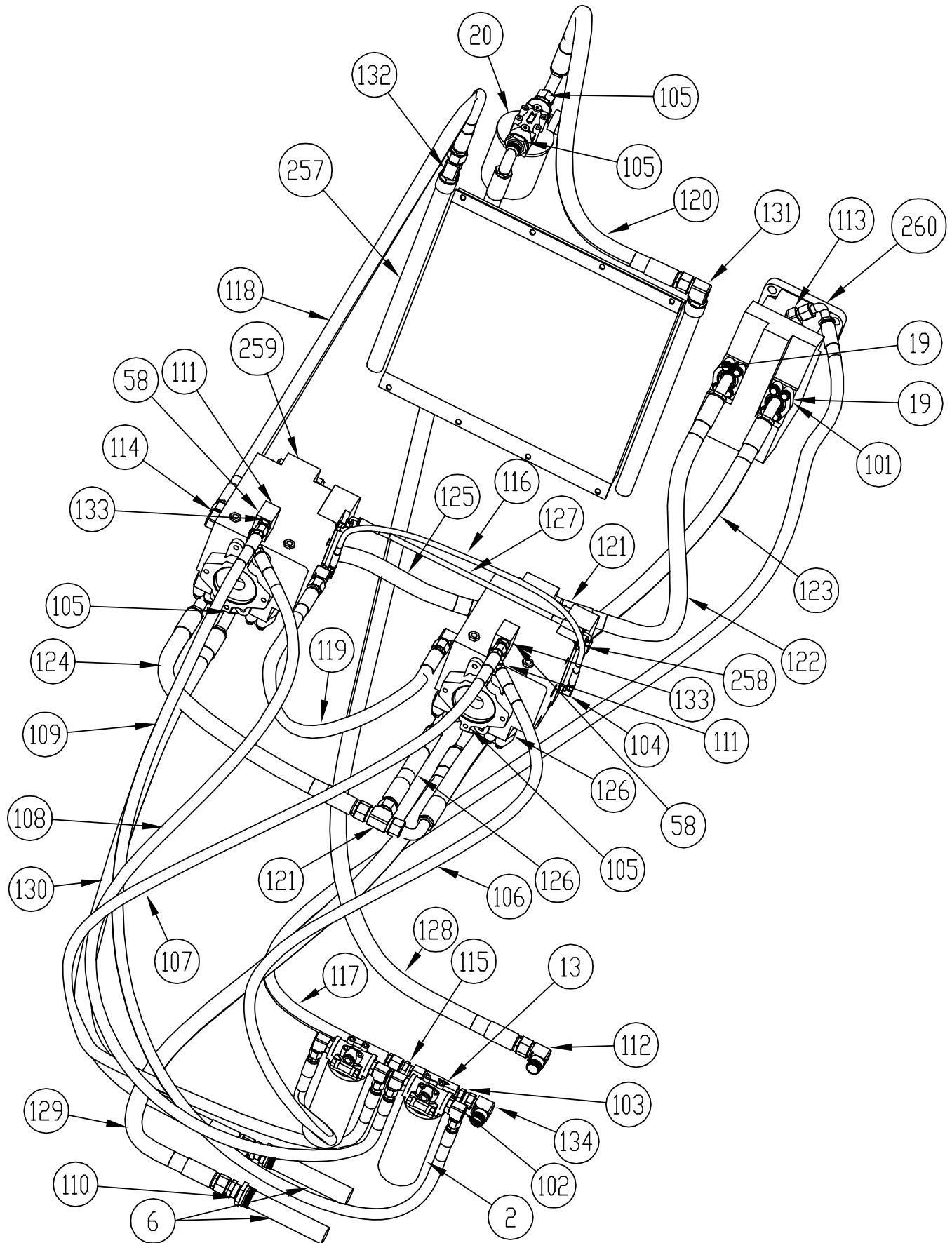
SPREADPRO

DRIVE SYSTEM, HOSE FITTING

REF: 72959

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
	42375		GRP,HYD,2WD,16 FT HOPPER
2	34463	2.00	FILTER,RETURN,HP,-12SAE PORTS
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
13	38013	1.00	VLV,CHECK,25PSI,.75NPT
19	72370	6.00	FITT,TEST 04MB-02PD
20	72543	2.00	FILTER,RETURN 20 ORB,W/GAUGE
35	72959	1.00	KIT,HOSE/FITTING,DRIVE SYSTEM (See Detail Below)
58	72689	2.00	FITT,TEST 06MB-02PD
	72959		KIT,HOSE FITTING,DRIVE SYSTEM
101	33104	6.00	FITT,KIT 16FL,CODE 62
102	33307	4.00	FITT,90 10MJ-12MB
103	35540	1.00	FITT,STR 12MP-12FJX
104	35562	4.00	FITT,90 04MJ-06MB
105	36180	4.00	FITT,STR 16MJ-20MB
106	37530-027	1.00	HOSE,10 10FJX-10FJX,3000
107	37530-032	1.00	HOSE,10 10FJX-10FJX,3000
108	37530-048	1.00	HOSE,10 10FJX-10FJX,3000
109	37530-052	1.00	HOSE,10 10FJX-10FJX,3000
110	6345	2.00	FITT,STR 16MJ-16MP
111	6353	2.00	FITT,45 10MJ-10MB
112	6466	1.00	FITT,90 16MJ-16MP
113	38203	1.00	FITT,45 12MJ-16MB
114	71775	3.00	FITT,90 12MJ-12MB
115	72178	1.00	FITT,STR 12MJ-12MP
116	72416-023	1.00	HOSE,04 04FJX-04FJX,3000
117	72558-066	1.00	HOSE,12,12FJX-12RJ90,1250
118	72559-096	1.00	HOSE,12,12FJX-16FJX,1250
119	72560-027	1.00	HOSE,12 12FJX-12FJX,1250
120	72569-054	1.00	HOSE,16 16FJX-16RJ90,250
121	72942	2.00	FITT,TEE 16MRS-16MRS-16MRS
122	72946-064	1.00	HOSE,16 16FH4B-16OF9,6000,OS
123	72946-097	1.00	HOSE,16 16FH4B-16OF9,6000,OS
124	72947-027	1.00	HOSE,16 16OFS-16FH9B,6000
125	72948-027	1.00	HOSE,16 16OFS-16FH9B,6000,OS
126	72949-015.5	2.00	HOSE,16 16OFS-16FH9B,6000
127	72951-015	1.00	HOSE,04 04FJX90-04FJX90,3000
128	72954-086	1.00	HOSE,16 16FJX-16FJX90,1000
129	72955-024	1.00	HOSE,16 16FJX-16FJ90,250,OS
130	72955-039	1.00	HOSE,16 16FJX-16FJX90,250,OS
131	X319	1.00	FITT,90 16MJ-16MB
132	X329	1.00	FITT,TEE 16MJ-16MB-16MJ
133	X392	2.00	FITT,STR 10MJ-10MB
134	853180544	2.00	FITT,90 12MJ-16MP
257	72722	1.00	COOLER,OIL 30GPM 23.13X23.5
258	36692-01	1.00	PUMP,HYD,4.57 CIR,EDC,B-PAD
259	36692-02	1.00	PUMP,HYD,4.57 CIR,HDC,B-PAD
260	72773	1.00	MOTOR,HYD,9.82/3.50 CIR,W/PICK



SPREADPRO

DRIVE SYSTEM, HOSE FITTING

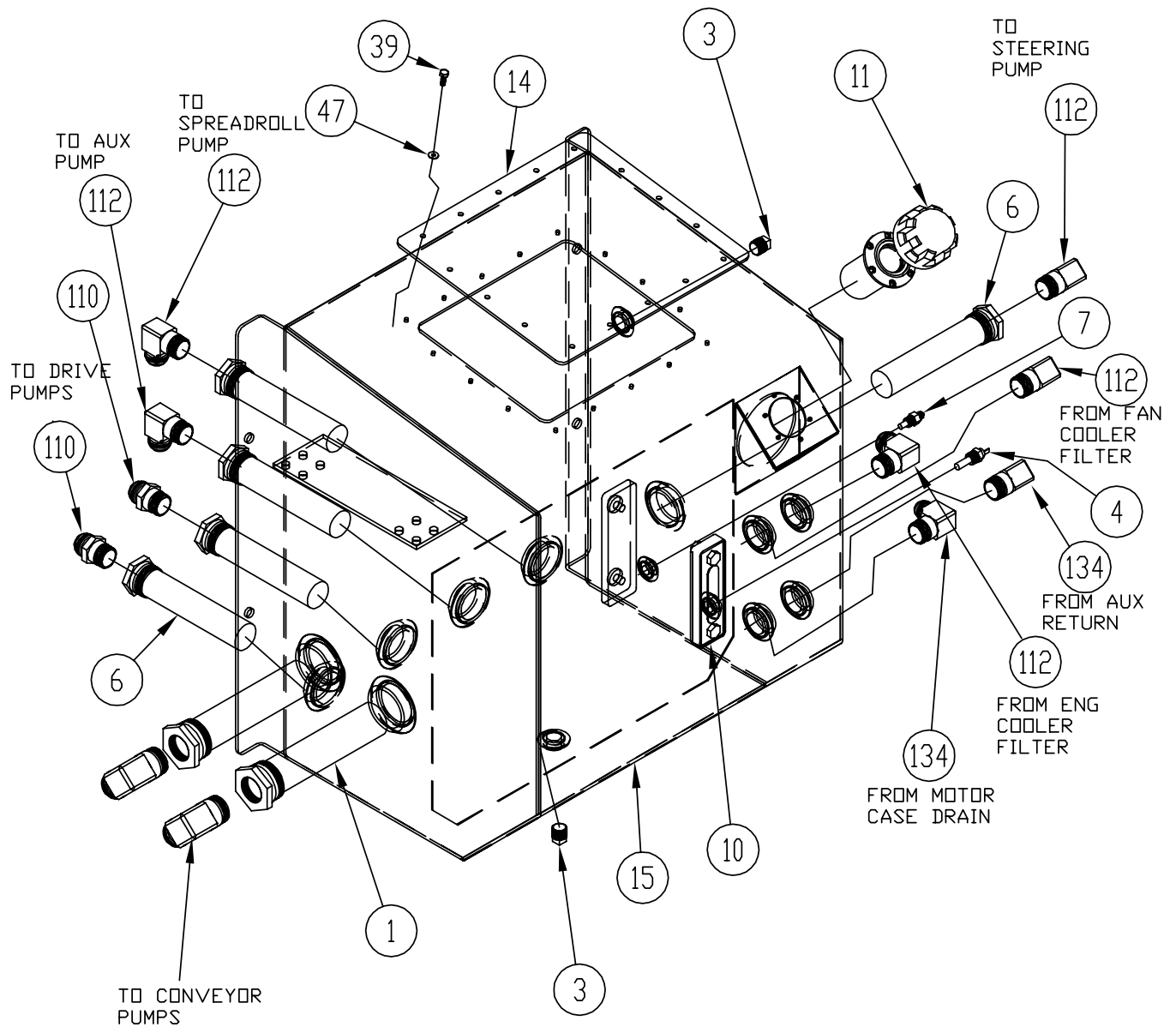
REF: 72959

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
42375			GRP,HYD,2WD,16 FT HOPPER
1	33148	2.00	STRAINER,SUCT,2 NPT,100 MESH
3	99537	2.00	PIPE,PLUG,08MP,SQ HD,MI
4	35368	1.00	SENDER,TEMP GAUGE,04 MP
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
7	35371	1.00	SWITCH,TEMP,205 DEG,06MP
10	37137	1.00	GAUGE,SIGHT LEVEL/TEMP, 5.00
11	37680	1.00	FILLER,HYD FLUID,10 PSI
14	41261	1.00	COVER,HYD TANK CLEANOUT
15	41363	1.00	W/M,HYD TANK,50 GALLON W/CLEAN
35	72959	1.00	KIT,HOSE/FITTING,DRIVE SYSTEM (See Detail Below)
39	80192	16.00	CSHH,.250-20X.75,GR5
47	81161	16.00	WASHER,WEATHER SEAL,#10
NS	80250	4.00	CSHH,.500-13X1.25,GR5
NS	80354	4.00	NUT,FLEXLOC,.500-13,FULL,LT
NS	80357	4.00	NUT,FLEXLOC,.750-10,FULL,LT
NS	80695	8.00	WASHER,SAE PLAIN,.500
NS	80869	4.00	CSHH,.750-10X2.75,GR5
NS	80985	7.00	CSHH,.375-16X.50,GR5
NS	81154	8.00	WASHER,SAE,HARDENED,.750
NS	34860	16.00	CLAMP,HALF,HOSE,.750
NS	34860-01	16.00	CLAMP,HALF,HOSE,1.00
NS	80468	8.00	CSHH,.312-18X3.25,GR5
72959			KIT,HOSE FITTING,DRIVE SYSTEM
110	6345	2.00	FITT,STR 16MJ-16MP
112	6466	1.00	FITT,90 16MJ-16MP
134	853180544	1.00	FITT,90 12MJ-16MP

REF: 72959

REV: E



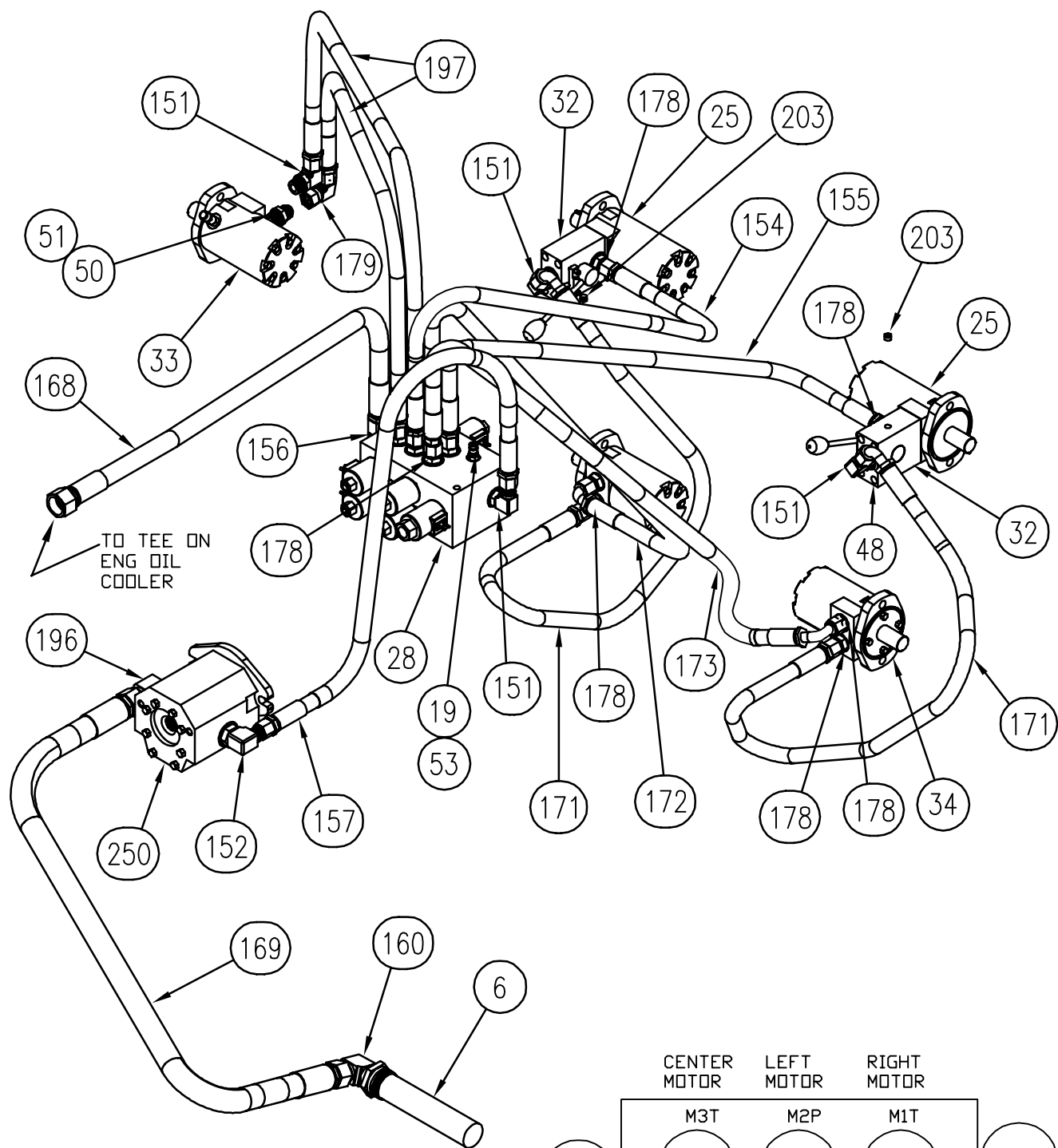
SPREADPRO

FEEDROLL & CONVEYOR, HOSE FITTING

REF: 72960

REV: J

ITEM	PART NUMBER	QTY	DESCRIPTION
42375 GRP,HYD,2WD,16 FT HOPPER			
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
19	72370	6.00	FITT,TEST 04MB-02PD
25	72783	2.00	MOTOR,HYD GEROTOR,18.7CIR
28	41797	1.00	VLV,HYD,MANIFOLD,FEEDROLL,MOD (See Detail)
32	72858	2.00	VLV,HYD,MANUAL,ON/OFF
33	72925	1.00	MOTOR,HYD,14.9 CIR,W/PICK-UP
34	72926	2.00	MOTOR,HYD,14.9 CIR
36	72960	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail)
48	81218	8.00	CSSH,.312-18X3.50
50	72993	1.00	VLV,CHECK,10MJ-10MJ
51	73005	1.00	SEAL,O-RING -10 BOSS
53	72372	10.00	FITT,PLUG 02PD,DUST
72960 KIT,HOSE FITTING,FEEDROLL/CONV			
151	31045	5.00	FITT,90 10MJ-10MB
152	33307	9.00	FITT,90 10MJ-12MB
154	37530-090	1.00	HOSE,10,10FJX-10FJX,3000
155	37530-094	1.00	HOSE,10,10FJX-10FJX,3000
156	34083	2.00	FITT,90 12MJ-10MB
157	37530-187	1.00	HOSE,10,10FJX-10FJX,3000
160	6466	2.00	FITT,90 16MJ-16MP
168	72559-063	1.00	HOSE,12,12FJX-16FJX,1250
169	72570-076	1.00	HOSE,16,16FJX-16FJX,250
171	72956-014	2.00	HOSE,10,10FJX-10FJX90,3000
172	73206-089	1.00	HOSE,10,10FJX-10FJX45,3000,OS
173	73206-093	1.00	HOSE,10,10FJX-10FJX45,3000,OS
178	X392	6.00	FITT,STR 10MJ-10MB
179	X401	1.00	FITT,90 10MJ-10FJX
196	X319	1.00	FITT,90 16MJ-16MB
197	37530-177	2.00	HOSE,10,10FJX-10FJX,3000
203	39072	2.00	PIPE PLUG, 1/4" HEX HEAD
250	72774		PUMP,GEAR (See Engine Group)



	CENTER MOTOR	LEFT MOTOR	RIGHT MOTOR	
	M3T	M2P	M1T	
168	197	172	155	P 157
	197	154	173	
	M3P	M2T	M1P	

TOP VIEW VALVE #28
NUMBERS IN CIRCLE
REPRESENT HOSE NUMBERS

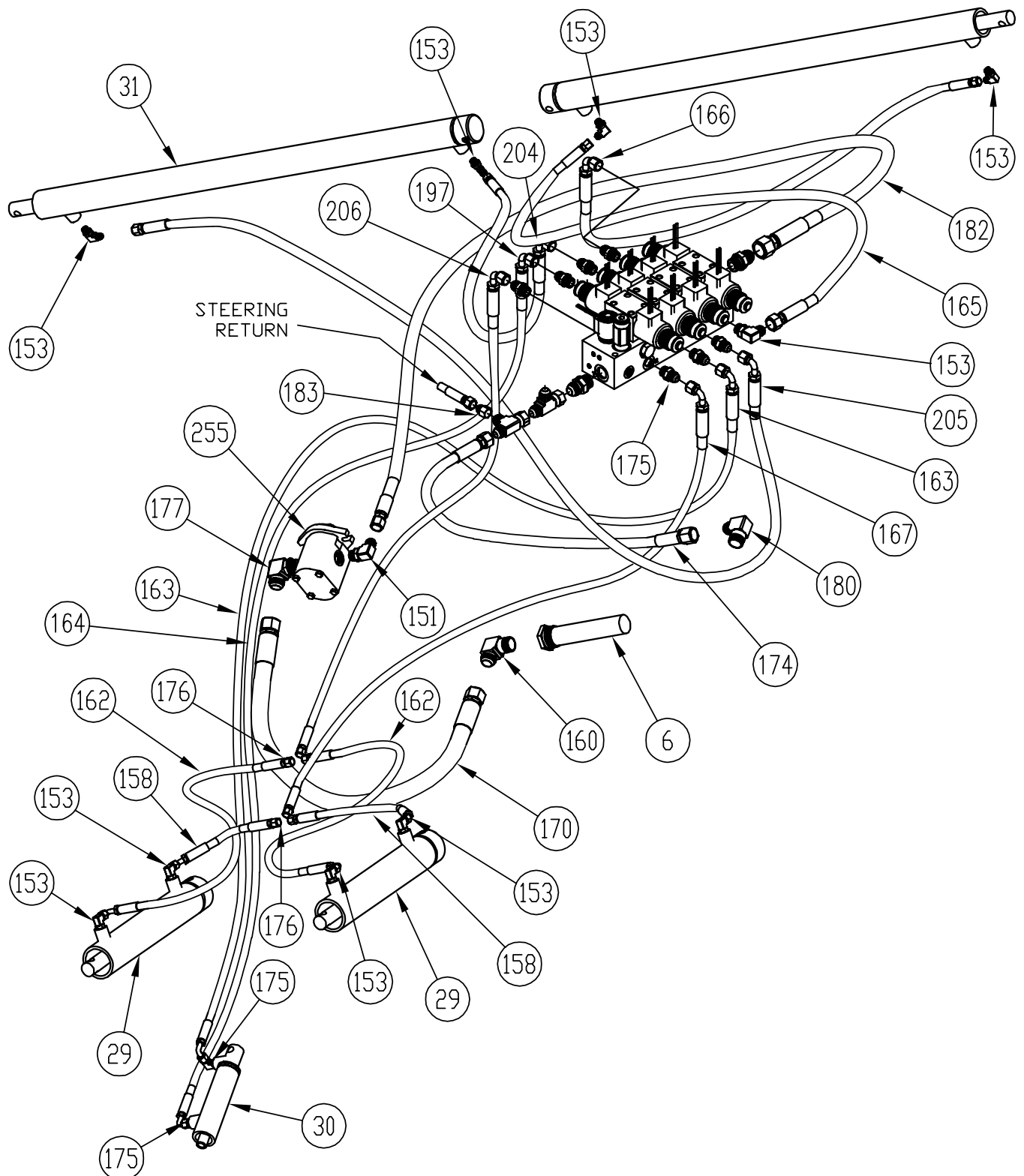
SPREADPRO

FEEDROLL & CONVEYOR, HOSE FITTING

REF: 72960

REV: J

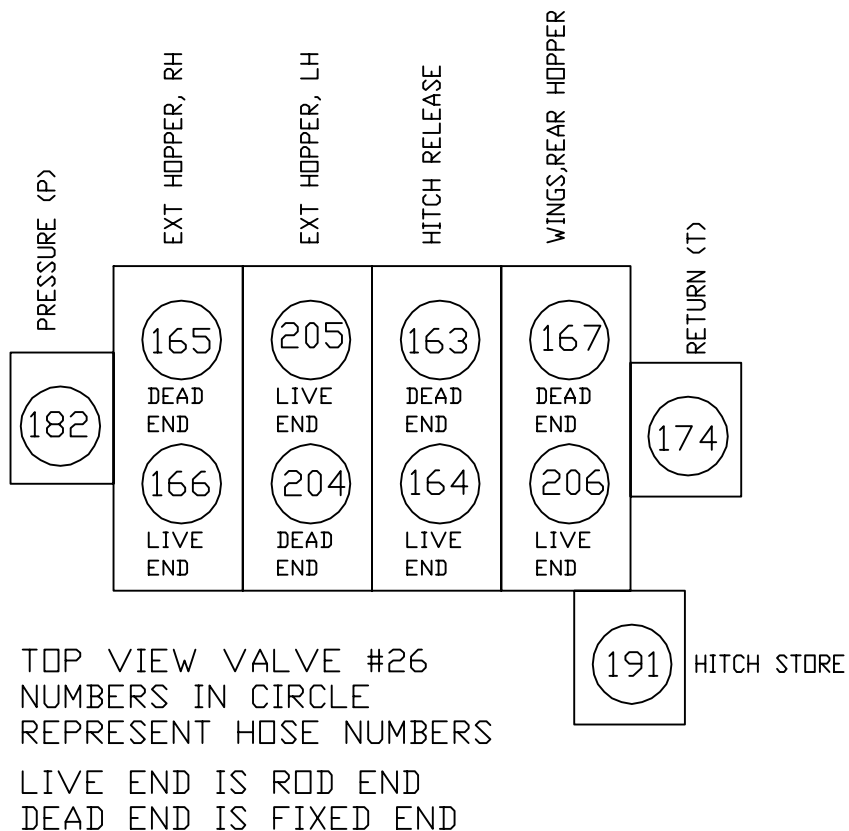
ITEM	PART NUMBER	QTY	DESCRIPTION
42375 GRP,HYD,2WD,16 FT HOPPER			
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
29	72796	2.00	CYL,HYD,FOLDING SIDES
	72796-01	1.00	KIT,SEAL,HYD CYL,FOLDING SIDES
30	73127	1.00	CYL,HYD,TOW HOOK,W/CLEVIS
	72797-01	1.00	KIT,SEAL,HYD CYL,TOW HOOK
31	72798	2.00	CYL,HYD,2.00X39.38,EXT RAM
	72798-01	1.00	KIT,SEAL,HYD CYL,EXTENSION
36	72960	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail)
72960 KIT,HOSE FITTING,FEEDROLL/CONV			
153	33892	9.00	FITT,90 06MJ-06MB
158	37634-082	2.00	HOSE,06,06FJX-06FJX45,3000
160	6466	2.00	FITT,90 16MJ-16MP
162	72549-094	2.00	HOSE,06,06FJX-06RJ90,3000
163	72549-265	1.00	HOSE,06,06FJX-06RJ90,3000
164	72549-284	1.00	HOSE,06,06FJX-06RJ90,3000
165	72550-049	1.00	HOSE,06,06FJX-06FJX,3000
166	72549-076	1.00	HOSE,06,06FJX-06RJ90,3000
167	72549-191	1.00	HOSE,06,06FJX-06RJ90,3000
170	72570-089	1.00	HOSE,16,16FJX-16FJX,250
174	72962-086	1.00	HOSE,10,08FJX-12FJX,3000
175	X217	9.00	FITT,STR 06MJ-06MB
176	X275	2.00	FITT,TEE 06MJ-06MJ-06MJ
177	6250	1.00	FITT,90 16MJ-12MB
180	853180544	1.00	FITT,90 12MJ-16MP
182	72966-200	1.00	HOSE,10,10FJX-08FJX,3000
191	72416-260	1.00	HOSE,04,04FJ-04FJ,2500
197	37530-177	2.00	HOSE,10,10FJX-10FJX,3000
204	72549-043	1.00	HOSE,06,06FJX-06RJ90,3000
205	72549-078	1.00	HOSE,06,06FJX-06RJ90,3000
206	72549-167	1.00	HOSE,06,06FJX-06RJ90,3000
255	985666		PUMP,GEAR (See Engine Group)

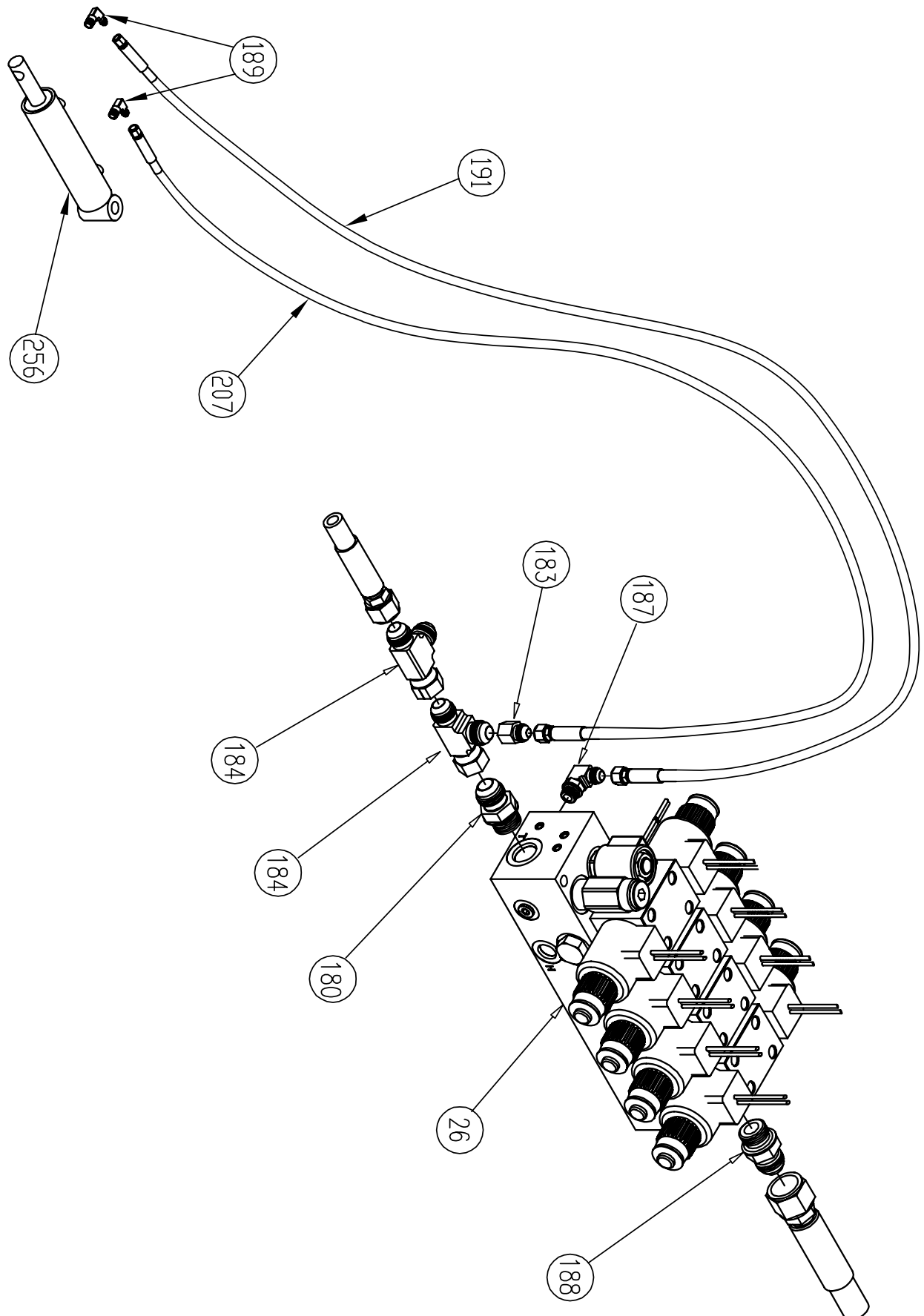


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REV: J

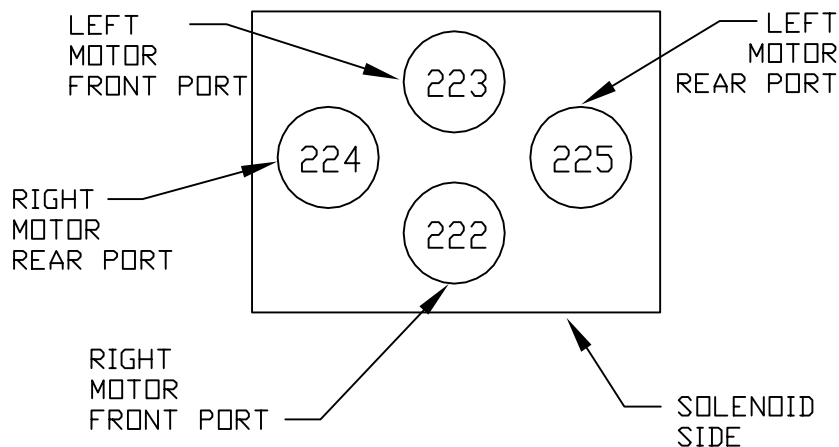
ITEM	PART NUMBER	QTY	DESCRIPTION
	42375		GRP,HYD,2WD,16 FT HOPPER
26	73251	1.00	VLV,HYD,4-SEC,DO3,W/HITCH LOCK
36	72960	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail)
	72960		KIT,HOSE FITTING,FEEDROLL/CONV
180	853180544	1.00	FITT,90 12MJ-16MP
183	33901	1.00	FITT,STR 04MJ-08FJ
184	33898	2.00	FITT,TEE 08MJ-08FJX-08MJ
187	35562	1.00	FITT,90 04MJ-06MB
188	70062	2.00	FITT,STR 08MJ-08MB
189	71822	2.00	FITT,90 04MJ-04MP
191	72416-260	1.00	HOSE,04,04FJ-04FJ,2500
207	72416-257	1.00	HOSE,04,04FJ-04FJ,2500
256	73170		CYL,HYD,1.50 B X4.00 S X1.00 R



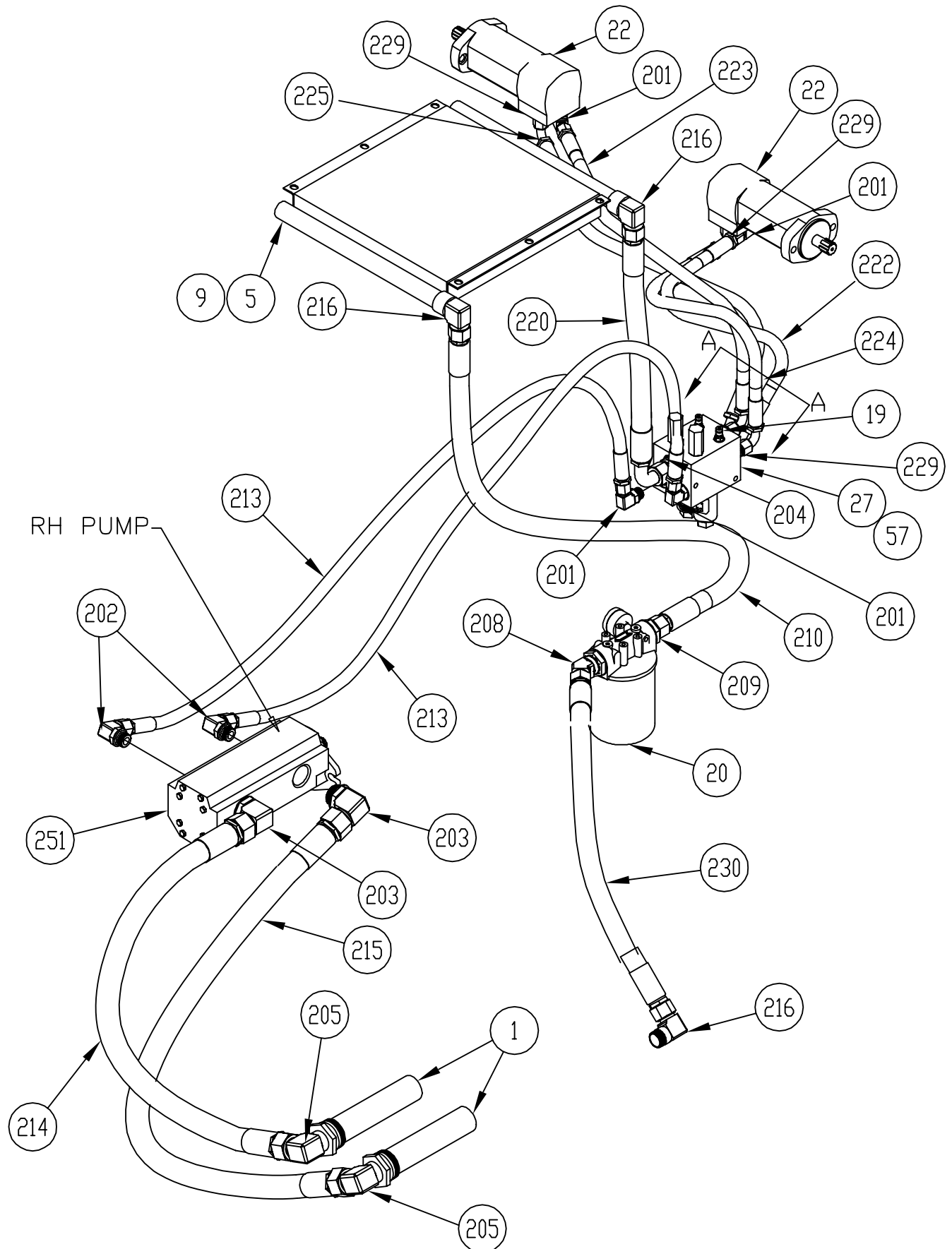


ITEM	PART NUMBER	QTY	DESCRIPTION
42375			GRP,HYD,2WD,16 FT HOPPER
1	33148	2.00	STRAINER,SUCT,2 NPT,100 MESH
5	35735	1.00	COOLER,OIL,HYDRAULIC,19X20
9	36997	1.00	FAN,ELEC,12VDC,1940 CFM
NS	41384	1.00	SUPPORT,OIL COOLER,RH
NS	41385	1.00	SUPPORT,OIL COOLER,LH
19	72370	6.00	FITT,TEST 04MB-02PD
20	72543	2.00	FILTER,RETURN 20 ORB,W/GAUGE
22	72780	2.00	MOTOR,HYD GEROTOR,24CIR
NS	72782	1.00	COLUMN,STEERING,30.00,W/1 WIRE
27	73001	1.00	VLV,MANIFOLD,PROP CONTROL (See Detail Next Page)
37	72961	1.00	KIT,HOSE/FITTING,CONV/STEERING (See Detail Below)

72961			KIT,HOSE FITTING,CONV/STEERING
201	31045	4.00	FITT,90 10MJ-10MB
202	33307	2.00	FITT,90 10MJ-12MB
203	33493	2.00	FITT,90 20MJ-20MB
204	33887	2.00	FITT,STR 16MJ-16MB
205	33890	2.00	FITT,90 20MJ-20MP
208	35014	1.00	FITT,45 16MJ-16FJ
209	36180	2.00	FITT,STR 16MJ-20MB
210	37043-061	1.00	HOSE,16 16FJX-16FJX,1000
213	37539-153	2.00	HOSE,10 10FJX-12FJX,3000
214	37807-028	1.00	HOSE,20 20FJX-20FJX,200
215	37807-031	1.00	HOSE,20 20FJX-20FJX,200
216	6466	3.00	FITT,90 16MJ-16MP
220	72952-048	1.00	HOSE,16 16FJX-16FJX90,1000,OS
222	72957-045	1.00	HOSE,10 10FJX-10FJX45,3000,OS
223	72957-047	1.00	HOSE,10 10FJX-10FJX45,3000,OS
224	72958-043	1.00	HOSE,10 10FJX90-10FJX90,3000
225	72958-044	1.00	HOSE,10 10FJX90-10FJX90,3000
229	X392	6.00	FITT,STR 10MJ-10MB
230	37043-074	1.00	HOSE,16,16FJX-16FJX,1000
251	72775	1.00	PUMP,HYD GEAR,DUAL,2.3/2.3 CIR

**VIEW A - A**

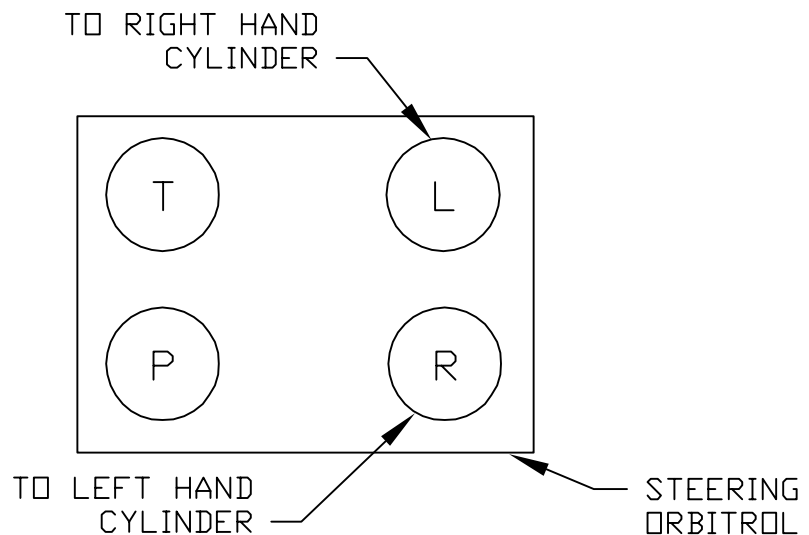
NUMBERS IN CIRCLES REPRESENT HOSE PART NUMBERS.



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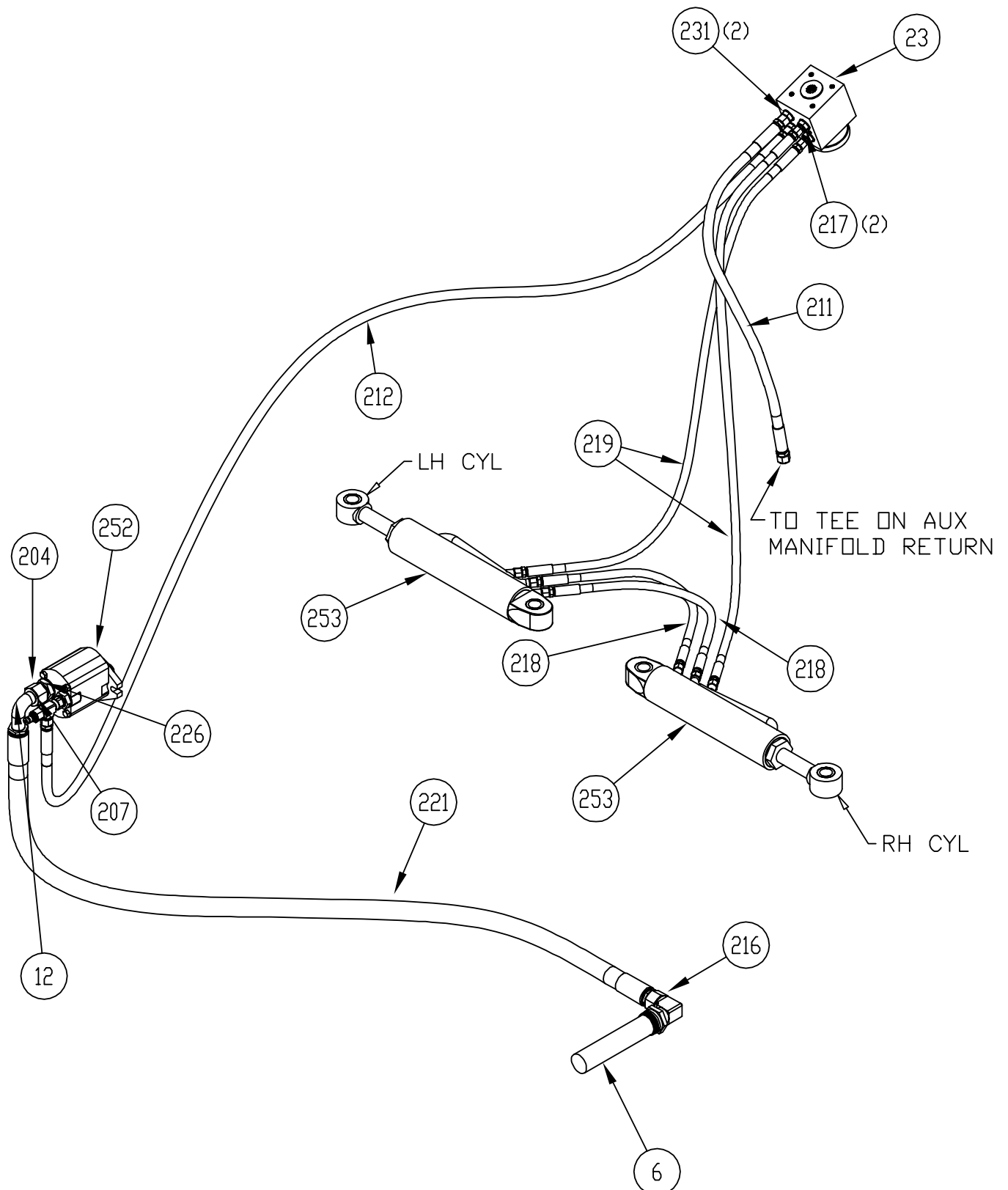
REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
42375 GRP, HYD, 2WD, 16 FT HOPPER			
6	36123	5.00	STRAINER, SUCTION 15GPM 100MESH
12	37903	2.00	FITT, TEST 08FJ-02PD
23	72781	1.00	ORBITROL, STEERING, 11.3CIR
37	72961	1.00	KIT, HOSE/FITTING, CONV/STEERING (See Detail Below)
NS	80250	4.00	CSHH, .500-13X1.25, GR5
NS	80354	4.00	NUT, FLEXLOC, .500-13, FULL, LT
NS	80357	4.00	NUT, FLEXLOC, .750-10, FULL, LT
NS	80695	8.00	WASHER, SAE PLAIN, .500
NS	80869	4.00	CSHH, .750-10X2.75, GR5
NS	80985	7.00	CSHH, .375-16X.50, GR5
NS	81154	8.00	WASHER, SAE, HARDENED, .750
NS	34860	16.00	CLAMP, HALF, HOSE, .750
NS	34860-01	16.00	CLAMP, HALF, HOSE, 1.00
NS	80468	8.00	CSHH, .312-18X3.25, GR5
72961 KIT, HOSE FITTING, CONV/STEERING			
204	33887	2.00	FITT, STR 16MJ-16MB
207	33898	1.00	FITT, TEE 08MJ-08FJX-08MJ
211	37532-109	1.00	HOSE, 08 08FJX-08FJX, 3000
212	37532-182	1.00	HOSE, 08 08FJX-08FJX, 3000
216	6466	3.00	FITT, 90 16MJ-16MP
217	72324	2.00	FITT, STR 06MJ-08MB
218	72950-032	2.00	HOSE, 06 06FJX-06FBSP, 3000
219	72950-148	2.00	HOSE, 06 06FJX-06FBSP, 3000
221	72955-044	1.00	HOSE, 16 16FJX-16FJX90, 250, OS
226	X170	1.00	FITT, STR 08MJ-12MB
231	70062	2.00	FITT, STR 08MJ-08MB
252	72777	1.00	PUMP, HYD, GEAR, .967 CIR
253	72785-01	2.00	PUMP, HYD, 2.36BOREX1.18ROD, METRI



REF: 72961

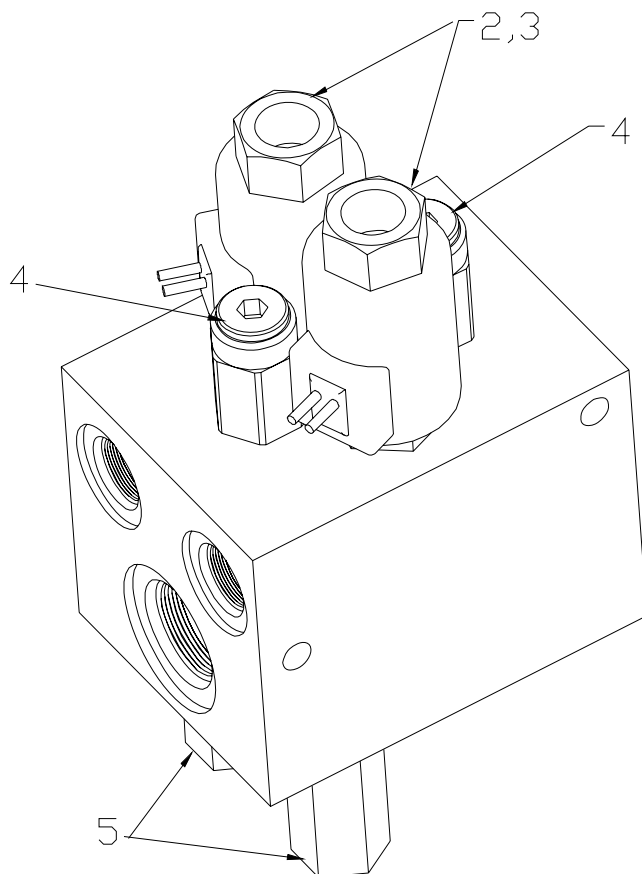
REV: E



REF: 73001

REV: 0

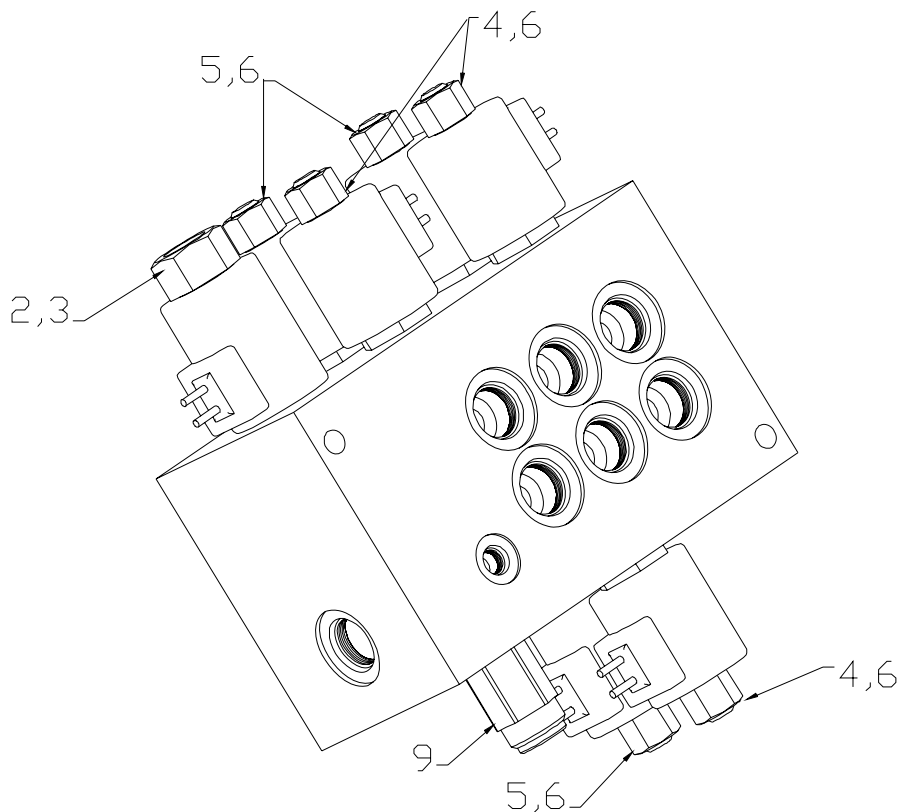
ITEM	PART NUMBER	QTY	DESCRIPTION
	73001		VLV,MANIFOLD,PROP CONTROL
2	73001-01	2.00	VLV,PROPORTIONAL
.....	72790-04	1.00	KIT,SEAL,PROP VLV
3	72790-02	2.00	COIL,DUAL LEAD
4	37624-01	2.00	CARTRIDGE,RELIEF,2500 PSI
.....	37352-02	1.00	KIT,SEAL
5	73001-02	2.00	ELEMENT,LOGIC
.....	73001-03	1.00	KIT,SEAL,LOGIC ELEMENT



REF: 72790

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	41797		VLV, HYD, MANIFOLD, FEEDROLL, MOD
.....	33271-0	1.00	WIRE, 16 GA, GRAY
.....	33271-1	2.75	WIRE, 16 GA, BLACK
.....	33271-10	1.00	WIRE, 16 GA, GREEN/WHITE STRIPE
.....	33271-14	.75	WIRE, 16 GA, YELLOW/RED STRIPE
.....	35138	1.00	CONNECTOR, SEALED, SHROUD, 2-PIN
.....	35139	2.00	CONNECTOR, SEALED, TOWER, 2-PIN
.....	36164	4.00	TERM, SEALED CONN, 16-14 GA, MALE
.....	36165	2.00	TERM, SEALED CONN, 16-14 GA, FEM
.....	36166	6.00	SEAL, CABLE, 18-16 GA
.....	71060	2.75	LOOM, SPLIT, CONVOLUTED, .250
.....	72790	1.00	VLV, HYD, MANIFOLD, FEEDROLL (See Detail Below)
.....	851201417	6.00	TIE WRAP, .094X4.00
	72790		VLV, HYD, MANIFOLD, FEEDROLL
2	72790-03	1.00	VLV, PROPORTIONAL
.....	72790-04	1.00	KIT, SEAL, PROP VLV
3	72790-02	1.00	COIL, DUAL LEAD
4	72790-01	3.00	VLV, SOLENOID, NC
5	37113-02	3.00	CARTRIDGE, 2-WAY, NO, 30GPM
6	37624-04	6.00	COIL, SOLENOID, 12VDC, SV16
9	37624-01	1.00	CARTRIDGE, RELIEF, 2500 PSI
.....	37352-02	1.00	KIT, SEAL (This Kit is used for items 4, 5, and 9)



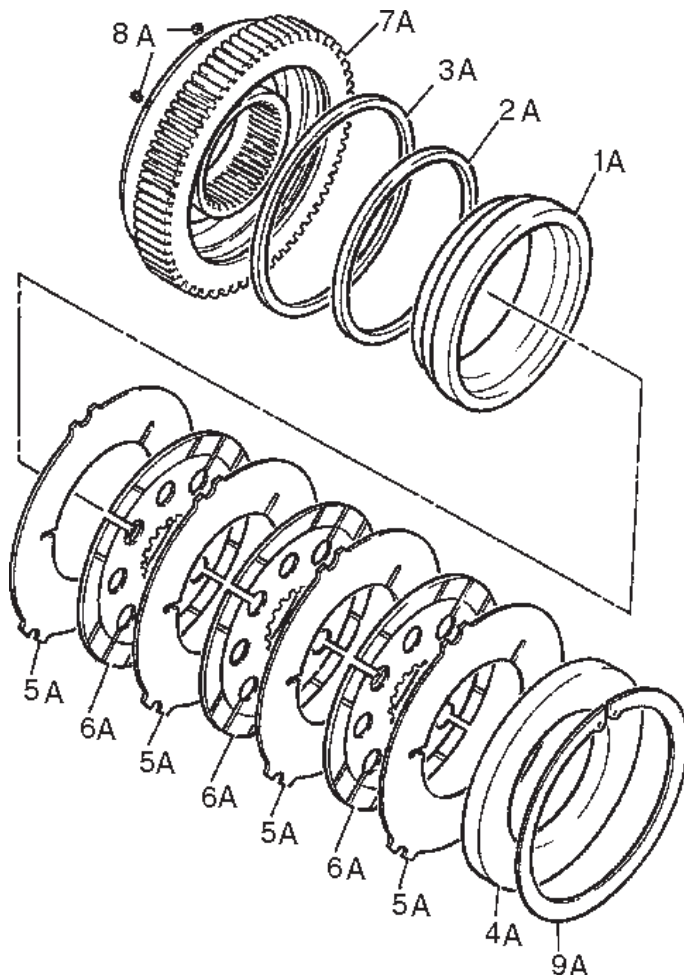
SPREADPRO

FRONT AXLE GROUP

REF: 41394

REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
41394			GRP,FRONT AXLE,SPREADPRO
1	38180	2.00	WASHER,THRUST 2.00IDX.03THICK
2	38180-01	2.00	WASHER,THRUST 2.00IDX.06THICK
3	38180-02	4.00	WASHER,THRUST 2.00IDX.13THICK
4	38182-01	5.00	OIL,HYD,MOBIL 424
5	41396	1.00	SHAFT,PIVOT,FRONT AXLE
6	72785	1.00	AXLE,DRIVE/STEER,77.50 TRACK
1A	72933	1.00	PISTON,BRAKE
2A	72785-07	1.00	SEAL
3A	72785-08	1.00	SEAL
4A	72785-10	1.00	PLATE,PRESSURE
5A	72785-04	4.00	PLATE,COUNTER
6A	72785-05	3.00	PLATE,BRAKE FRICTION
7A	72932	1.00	CARRIER,ANNULUS
	72785-03	1.00	O-RING,ANNULUS CARRIER
8A	72785-11	2.00	SCREW,GRUB.NYLON COATED
9A	72785-12	1.00	CIRCLIP
7	72808	1.00	DRIVE SHAFT,1480,8.00 LG
8	80357	1.00	NUT,FLEXLOC,.750-10,FULL,LT
9	80838	1.00	CSHH,.750-10X4.50,GR5



FILL WITH MOBIL OIL 424, ITEM 4,
HOUSING & HUBS. CAP 4.68 GAL
HOUSING; .44 GAL EACH HUB.

NOTE: DO NOT USE MOBIL
424 IN BRAKE RESERVOIR.
USE ONLY MOBIL DTE 11M.
DO NOT USE ORDINARY
BRAKE FLUID (J 1703).

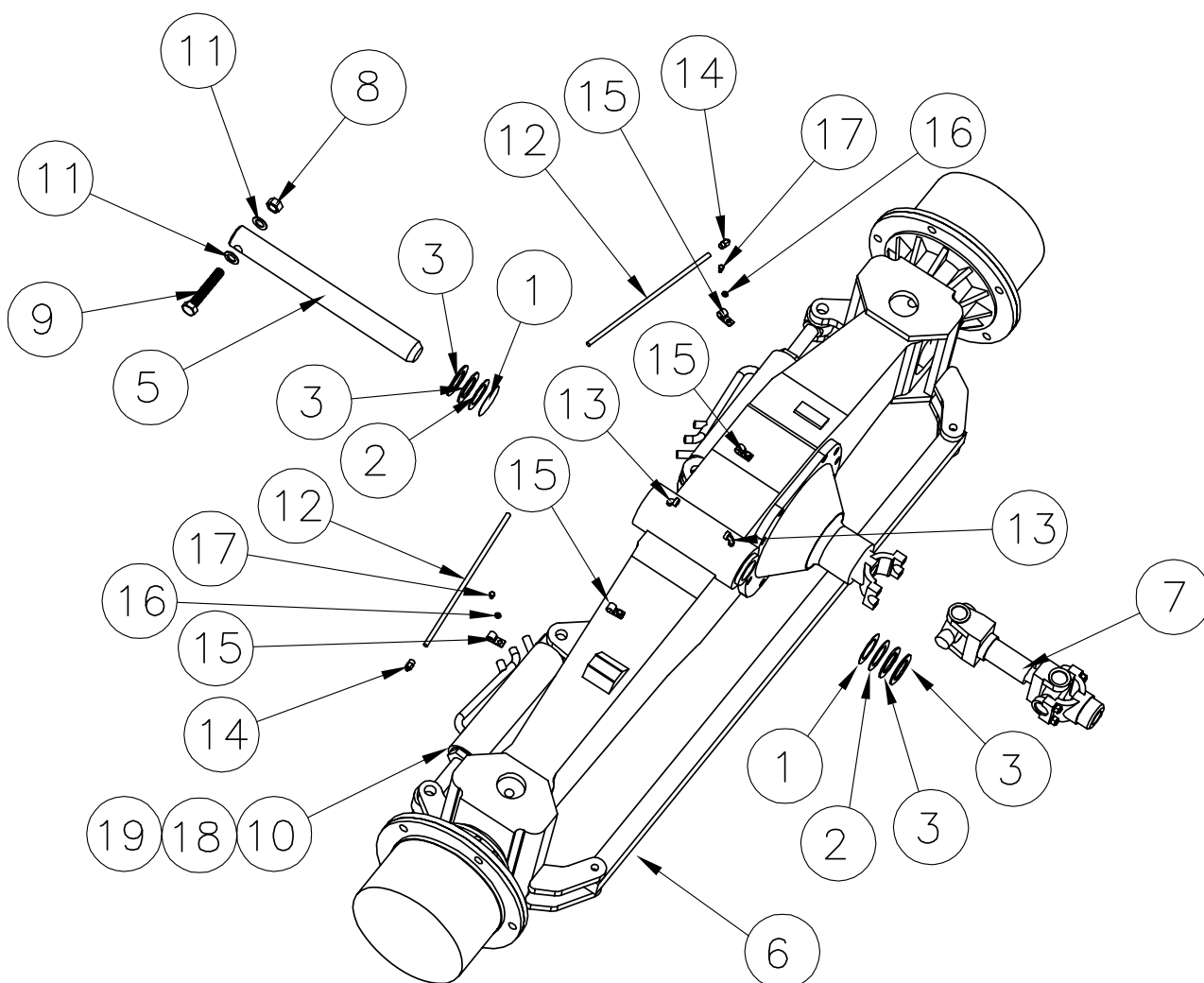
FRONT AXLE GROUP

SPREADPRO

REF: 41394

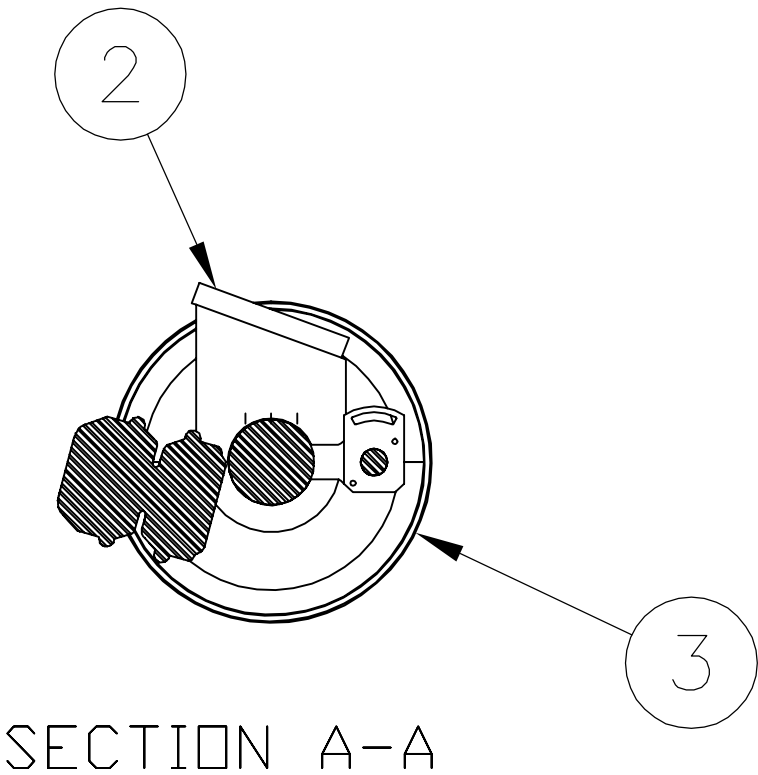
REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
10	72785-01	2.00	CYL,HYD,2.36BOREX1.18ROD,METRIC
	72785-02	1.00	KIT,SEAL,HYD CYL,METRIC
11	81154	2.00	WASHER,SAE,HARDENED,.750
12	71952	2.00	HOSE ASSY 3000 PSI,-03 X 22
13	99523	2.00	PIPE,90,02MP-02FP,MI
14	72660	2.00	FITT,LUBE,STR,02FP
15	871111605	4.00	CLAMP,LOOP,.50 OD PLSTC COVER
16	80476	4.00	WASHER,SPLIT LOCK,M6
17	80465	4.00	CSHH,M6X1.0X12,CL8.8
18	80478	4.00	WASHER,SPLIT LOCK,M10
19	80515	4.00	CSHH,M10X1.5X25,CL8.8
NS	72785-06	1.00	O-RING,CARRIER
NS	72785-09	1.00	KIT,BRAKE REPAIR
NS	72963	6.00	SPRING
NS	72934	8.00	BOLT,M12
NS	72937	6.00	HEADPIN



REF: 41395
REV: B

ITEM	PART NUMBER	QTY	DESCRIPTION
	41395		GRP,REAR AXLE,2-WHEEL DRIVE
1	33462	10.00	NUT,LUG,.750-16,LH
2	41308	2.00	PAD,REAR AXLE MOUNT
3	72769	1.00	AXLE,TRAILER,96",22,500#
4	80357	8.00	NUT,FLEXLOC,.750-10,FULL,LT
5	81114	8.00	CSHH,.750-10X2.50,GR8
6	81154	8.00	WASHER,SAE,HARDENED,.750
7	846171807	10.00	NUT,LUG,.750-16

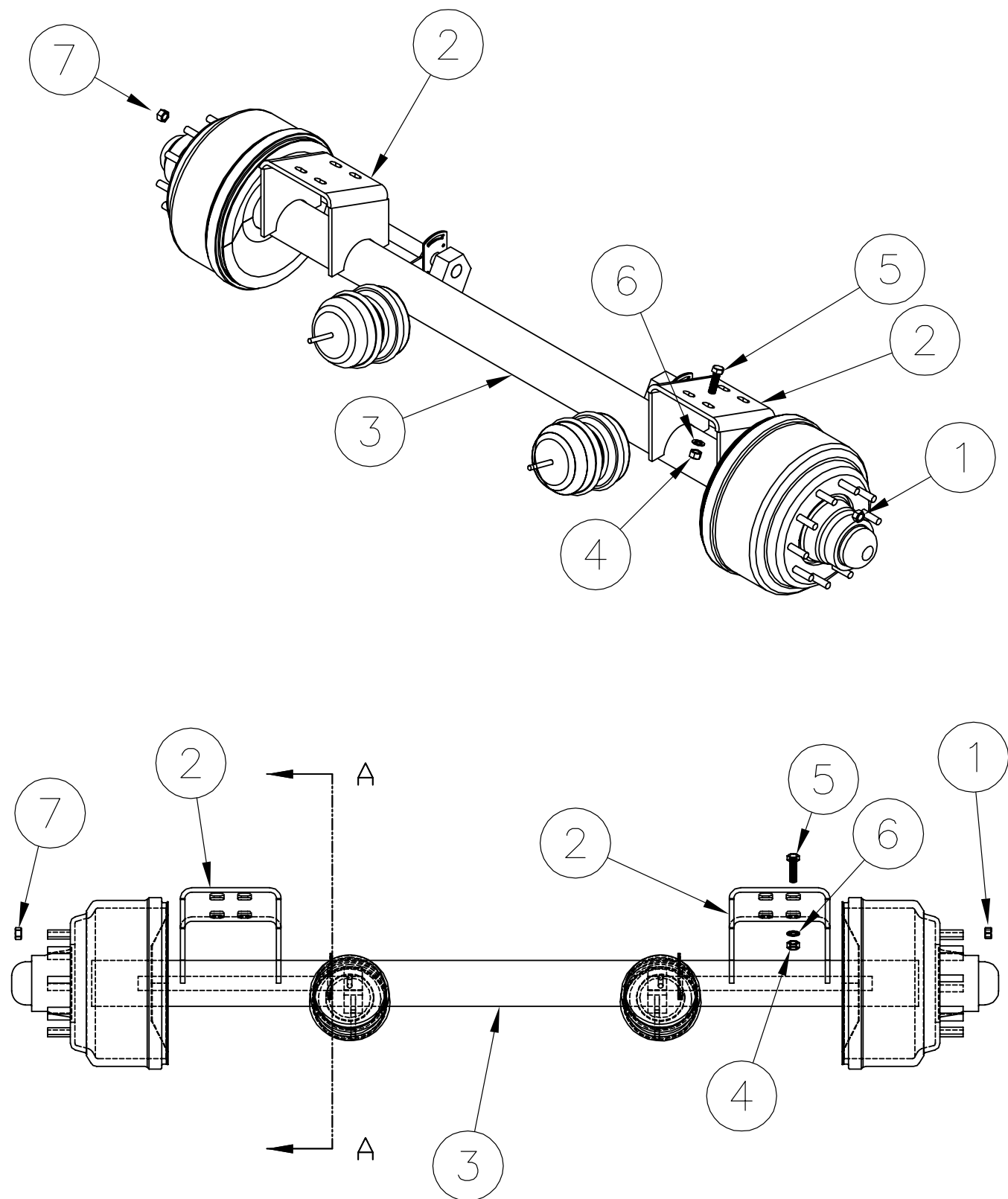


REAR AXLE GROUP

SPREADPRO

REF: 41395

REV: B



REF: 42442

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
	42442		GRP,AIR BRAKE,SPREADPRO
1	72817	1.00	ACTUATOR,AIR/HYDRAULIC BRAKES
2	72818	1.00	RESERVOIR,AIR/HYDRAULIC BRAKES
3	72819	1.00	DRYER,AIR BRAKES
4	72820	1.00	VLV,AIR,EXH OUT,EMERGY RELEASE
5	72821	1.00	VLV,AIR,BRAKE,W/ TREDDLE ASSY
6	42441	1.00	BRKT,AIR TANK OUTSIDE,2-TANK
7	38808	1.00	VLV,AIR,SOL,4-WAY,12VDC,DIODE
10	72828	2.00	AIR RSVR,9.50X22.50,1488 CU IN
11	72886	1.00	SWITCH,STOP LIGHT,AIR BRAKES
12	36496	1.00	FITT,STR 08MJ-12MP
13	33900	1.00	FITT,90 08MJ-08FJX
14	38039-072	1.00	HOSE,08 08FJX-08FJX,TEFLON
15	X161	1.00	FITT,90 08MJ-08MP
16	72939	1.00	FITT,90 04MP-04NT,AB,BRASS
17	72909	3.00	FITT,90 02MP-04NT,AB,BRASS
18	72916	46.00	TUBING,AIR BRAKE,BLK,04
19	99448	1.00	PIPE,BUSH,06MP-04FP,STL
20	99980	1.00	PIPE,BUSH,08MP-04FP,STL
21	36028	1.00	PIPE,45,04MP-04FP,STL
22	33750	1.00	VLV,AIR,SAFETY,125PSI,04 NPT
23	99591	2.00	PIPE,NIPPLE,04XCLOSE(7/8)
24	72910	3.00	FITT,90 08MP-10NT,AB,BRASS
25	37818	9.00	TUBING,AIR BRAKE,BLK,10
26	99985	1.00	PIPE,BUSH,12MP-08FP,STL
27	99600	1.00	PIPE,NIPPLE,12XCLOSE
28	72911	8.00	FITT,90 06MP-06NT,AB,BRASS
29	37820	60.00	TUBING,AIR BRAKE,BLK,06
30	72913	10.00	FITT,STR 06MP-06NT,AB,BRASS
31	72912	1.00	FITT,90 06MP-04NT,AB,BRASS
32	99497	1.00	PIPE,CROSS,06FP,MI
33	99450	1.00	PIPE,BUSH,08MP-06FP,MI
34	99638	1.00	PIPE,NIPPLE,06XCLOSE
35	36466	1.00	VENT,BREATHER,02 NPT
36	80161	3.00	WASHER,SPLIT LOCK,.312
37	99567	1.00	PIPE,TEE,04FP,MI
38	80208	3.00	CSHH,.312-18X1.00,GR5
39	41501	1.00	SPACER,BRAKE ACTUATOR
40	99541	1.00	PIPE,PLUG,02MP,HEXCTSK HD,MI
41	99543	7.00	PIPE,PLUG,06MP,HEX SKT HD,MI
42	80224	12.00	CSHH,.375-16X1.25,GR5
43	80162	4.00	WASHER,SPLIT LOCK,.375
44	80142	20.00	WASHER,TYPE A PLAIN,.375
45	80352	8.00	NUT,FLEXLOC,.375-16,FULL,LT
46	72920	2.00	VLV,DRAIN COCK,04MP,7"PULLCABL
47	38182	1.00	OIL,HYD,MOBIL DTE 11M
48	72994	1.00	FITT,TEE 04MJ-04MP-04MJ
49	72983-065	1.00	HOSE,04 04FJX-04MJ,3000
50	72984-010	2.00	HOSE,03 04FJX-M12X1,3000
51	42440	1.00	BRKT,AIR TANK INSIDE,2-TANK
52	72995	1.00	FITT,TEE 04MJ-04FJX-04MJ

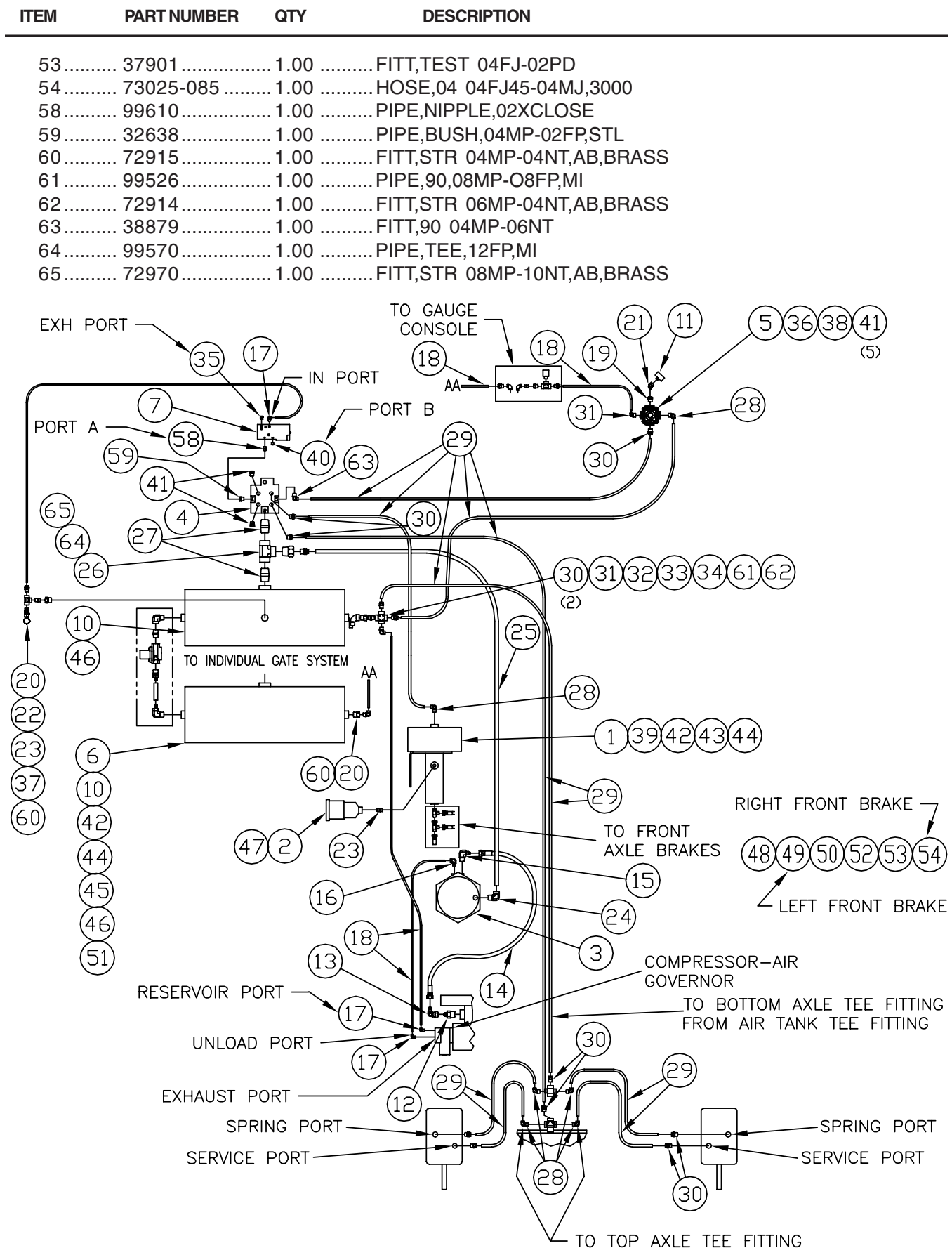
• • • • •
 • See end of section for •
 • additional schematic. •
 • • • • •

AIR BRAKE GROUP

SPREADPRO

REF: 42442

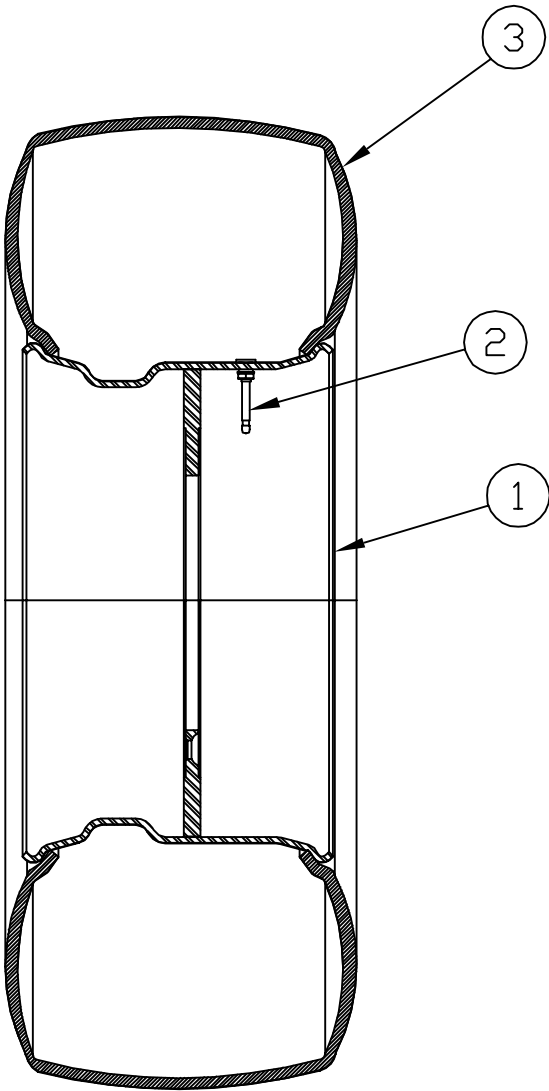
REV: A



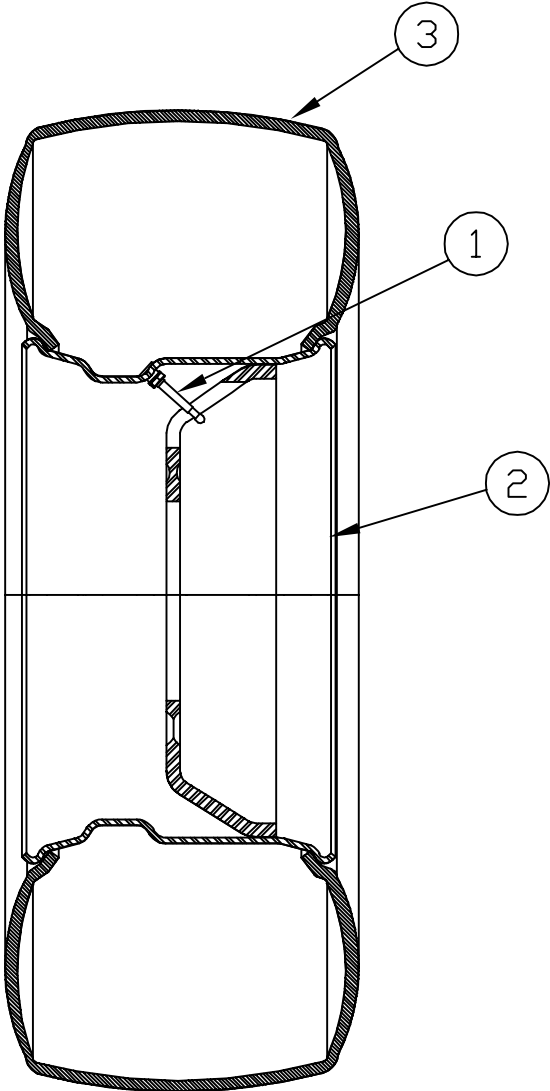
REF: 41743
REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
41743 FRONT TIRE GROUP			
1	41307	1.00	W/M,RIM,22.5X12.25,10 BOLT
2	72760	1.00	TIRE VALVE,TUBELESS,3.13 LG
3	73017	1.00	TIRE,RADIAL 425/65R22.5
41744 REAR TIRE GROUP			
1	72760	1.00	TIRE VALVE,TUBELESS,3.13 LG
2	72809	1.00	RIM,22.5X12.25,DUPLEX,.63 OS
3	73017	1.00	TIRE,RADIAL 425/65R22.5

41743
FRONT TIRE



41744
REAR TIRE



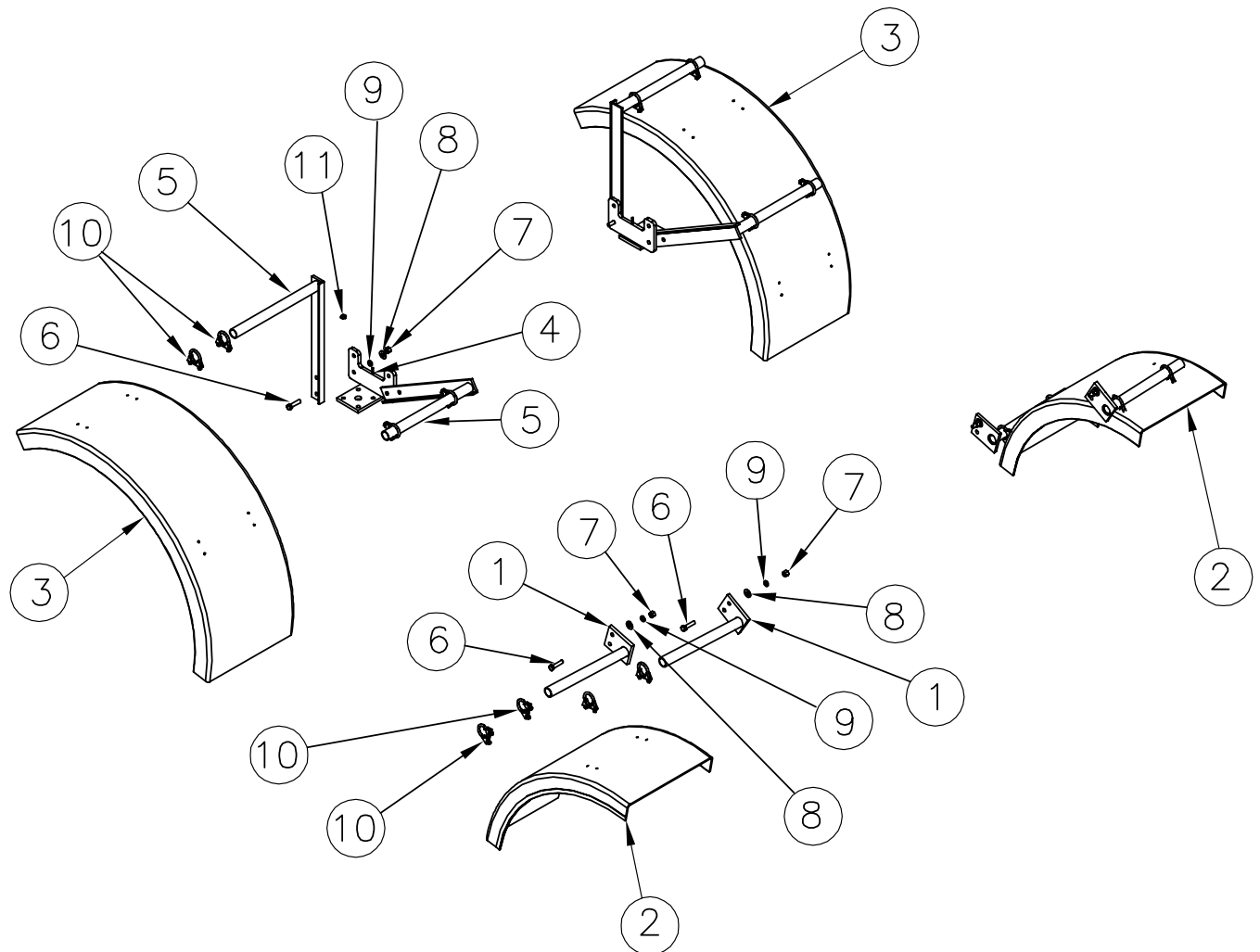
FENDER ASSEMBLY

SPREADPRO

REF: 26046

REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
	26046		FENDER ASSEMBLY
1	26025	4.00	BRACKET,REAR FENDER W/M
2	26026	2.00	FENDER,REAR
3	26027	2.00	FENDER,FRONT
4	26030	2.00	MOUNTING PLATE,W/M
5	26037	4.00	BRACKET,FRONT FENDER,W/M
6	80255	14.00	CSHH,.500-13X2.00,GR5
7	80040	14.00	NUT,HEX,.500-13
8	80144	14.00	WASHER,TYPE A PLAIN,.500
9	80164	14.00	WASHER,SPLIT LOCK,.500
10	33306	16.00	CLAMP,MUFFLER,1.5
11	81212	8.00	NUT,HEX,M12X1.75



REF: 42369

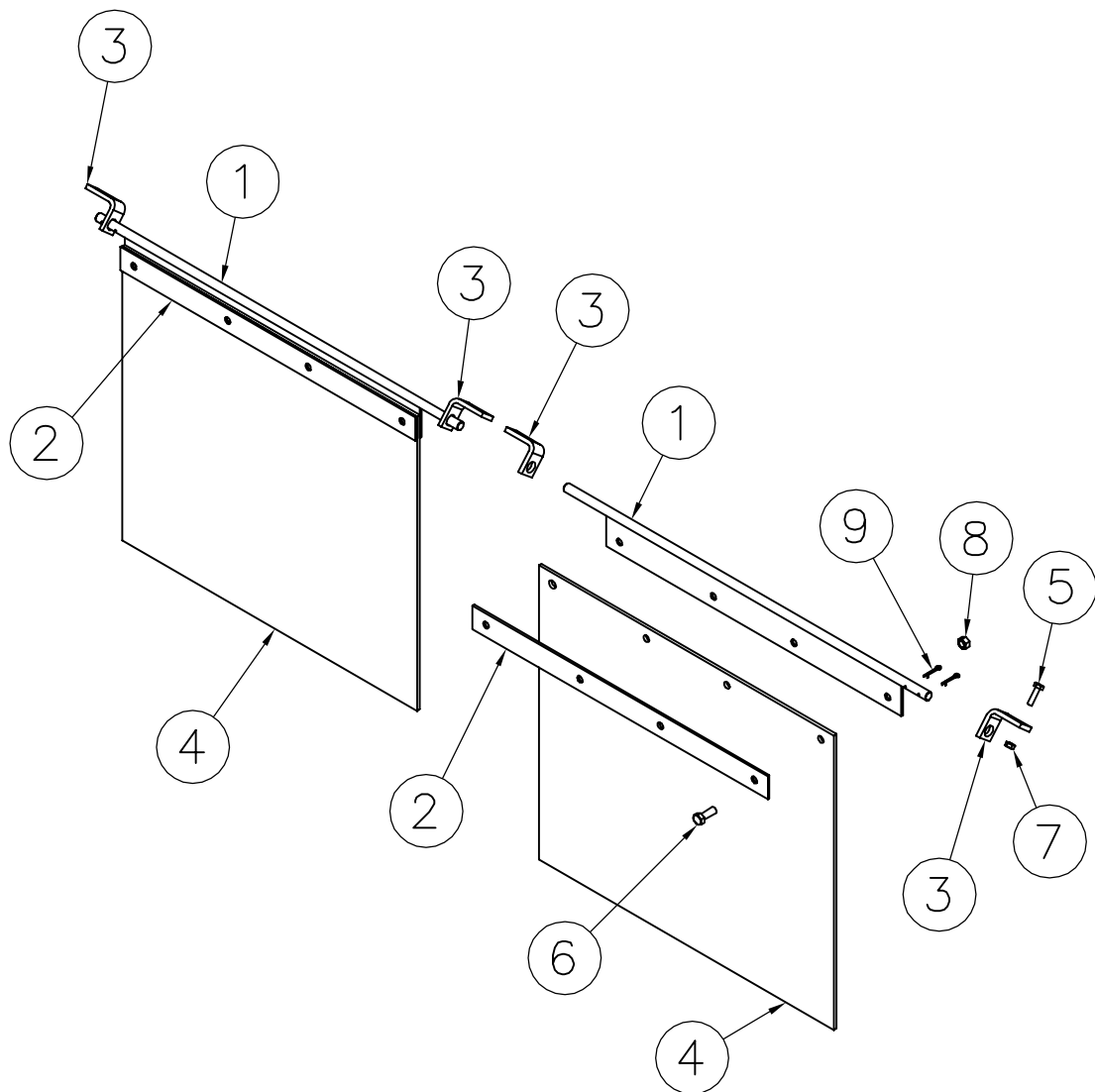
REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42369		GRP,FRONT HOPPERS,16 FT,ELEC (Non-Illustrated)
1	41586	1.00	GROUP,CAB SHIELD (See Detail)
2	41698	2.00	ASSY,LEVEL SWITCH,AGGREGATE (See Detail)
3	41726	1.00	GRP,HOSE HANGER,EXT HOPPERS (See Detail)
4	41799	1.00	ASSY,BRUSH GUARDS,ROTARY GATES (See Detail)
5	41800	2.00	GUIDE,FRONT,EXTENTION HOPPER
6	41902	1.00	THD'D ROD,.750-10 UNC X 9.50
7	41907	1.00	GROUP,SCATTER PLATES (See Detail)
8	42317	1.00	ASSY,CENTER HOPPER,16 FT (See Detail)
9	42336	1.00	GRP,EXT HOP,RH,ELEC,16FT (See Detail)
10	42337	1.00	GRP,EXT HOP,LH,ELEC,16FT (See Detail)
11	42467	1.00	GRP,INDIV 9-GATES,16 FT HOP (See Detail)
12	511219	4.00	W/M,GRILL,REAR
13	511222	2.00	W/M,GRILL,FRONT
14	511500	6.00	WEAR PLATE,EXT FRT RAIL SUPPRT
15	512002	1.00	ASSY,CENTER HOPPER,ROTARY GATE (See Detail)
16	514001	1.00	ASSY,RAIL,EXT/HOPPER (See Detail)
17	80142	16.00	WASHER,TYPE A PLAIN,.375
18	80147	20.00	WASHER,TYPE A PLAIN,.750
19	80162	16.00	WASHER,SPLIT LOCK,.375
20	80186	12.00	CSHH,.500-13X1.75,GR5
21	80219	16.00	CSHH,.375-16X.75,GR5
22	80354	12.00	NUT,FLEXLOC,.500-13,FULL,LT
23	80357	16.00	NUT,FLEXLOC,.750-10,FULL,LT
24	81021	16.00	CSFHS,.375-16X1.50
25	81114	14.00	CSHH,.750-10X2.50,GR8
26	81141	24.00	WASHER,SAE,HARDENED,.500
27	81154	28.00	WASHER,SAE,HARDENED,.750
28	81242	8.00	CSFHS,.375-16X1.00,GR5
29	33630-4	6.00	STRIPPING,EDGE,.188

REF: 41586

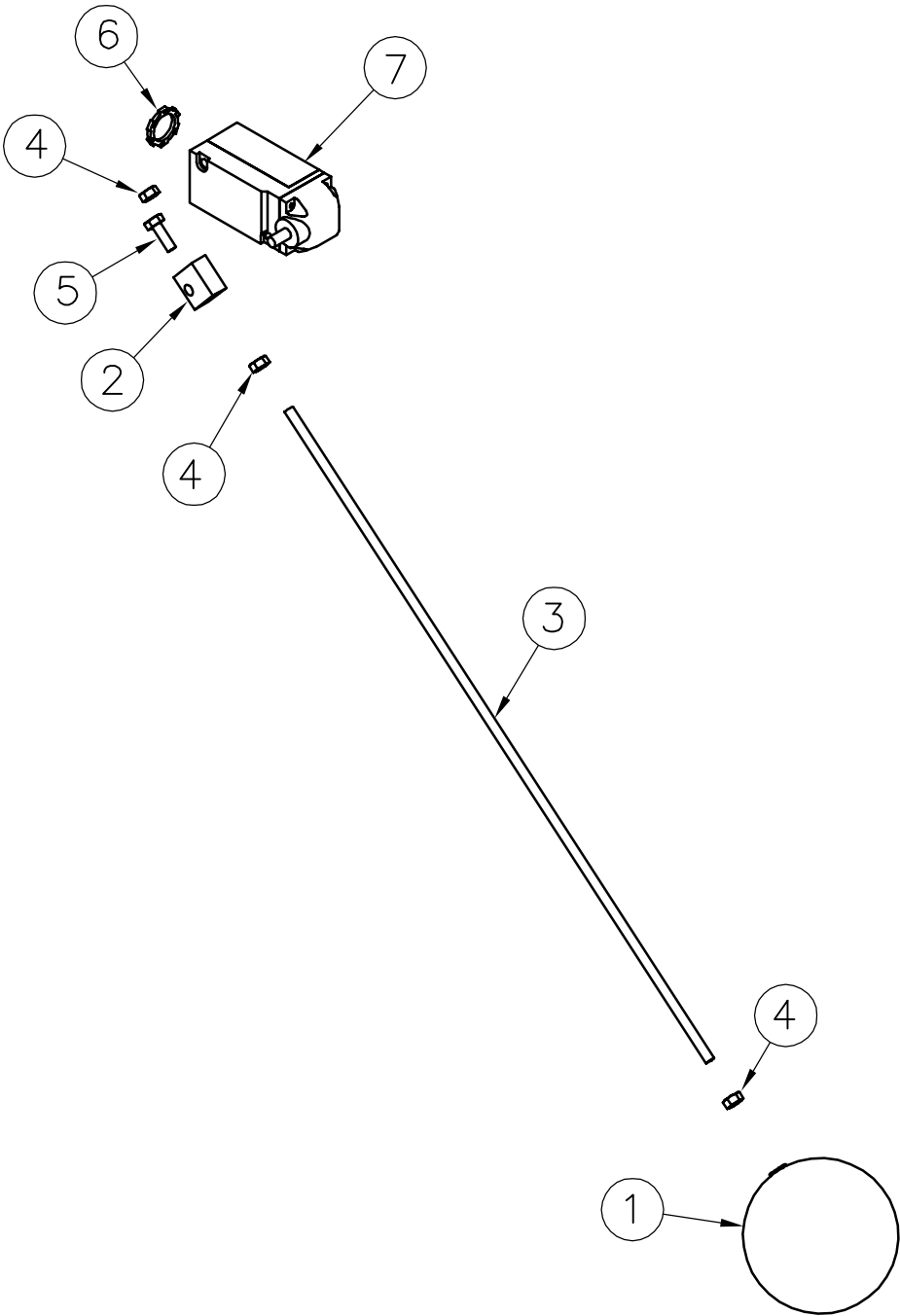
REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
41586 GROUP,CAB SHIELD			
1	41604	2.00	W/M,CAB SHIELD HOLDER
2	41605	2.00	STRIP,RUBBER HOLDER,CAB SHIELD
3	41606	4.00	HOLDER,CAB SHIELD
4	72964	2.00	RUBBER,CAB SHIELD
5	80185	8.00	CSHH,,250-20X1.00,GR5
6	80221	8.00	CSHH,,375-16X1.00,GR5
7	80350	8.00	NUT,FLEXLOC,,250-20,FULL,LT
8	80352	8.00	NUT,FLEXLOC,,375-16,FULL,LT
9	80389	4.00	COTTER PIN,,125X1.00



REF: 41698
REV: A

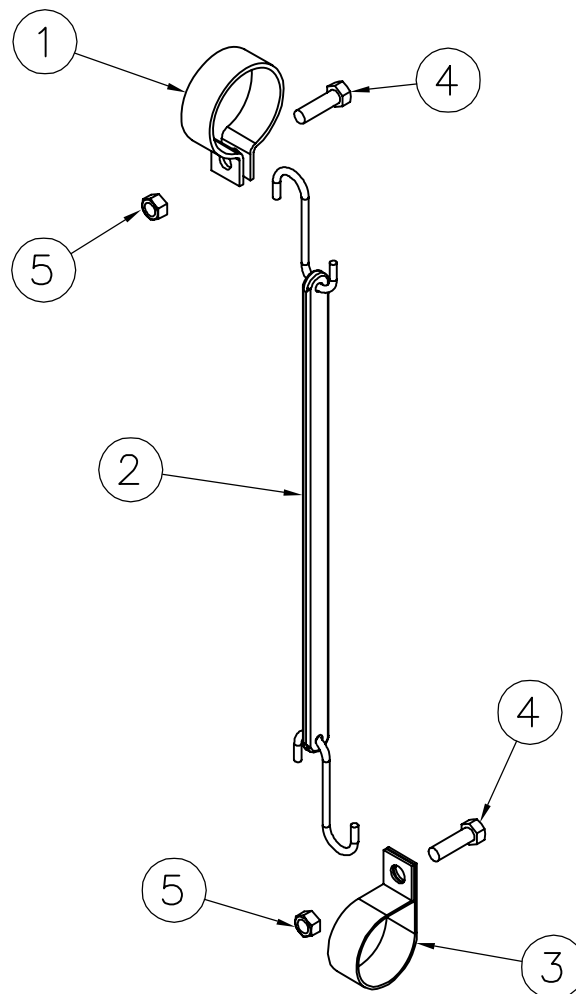
ITEM	PART NUMBER	QTY	DESCRIPTION
	41698		ASSY,LEVEL SWITCH,AGGREGATE
1	35845	1.00	FLOAT,4.00 SPHERICAL SS304
2	41420	1.00	HOLDER,LIMIT SWITCH ACTUATOR
3	41485	1.00	ROD,AGGRIGATE FLOAT
4	80036	3.00	NUT,HEX,.250-20
5	80192	1.00	CSHH,.250-20X.75,GR5
6	33765	1.00	NUT,LK,ELEC CND,.500-14 NPT
7	900135	1.00	MICRO SWITCH,AUTO,AUGERS



REF: 41726

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
41726			EXTENSION HOPPER, HOSE HANGER GROUP
1	17951	2.00	CLAMP,HOSE,2.375 ID
2	36542	2.00	TIE DOWN,RUBBER,15,W/HOOKS
3	34799	2.00	CLAMP,INSULATED BAND,1 5/8"
4	80224	4.00	CSHH,.375-16X1.25,GR5
5	80352	4.00	NUT,FLEXLOC,.375-16,FULL,LT

**NOTES:**

- ONE SIDE SHOWN. BOTH SIDES ARE THE SAME.
- CLOSE ENDS ON HOOK SIDE THAT BOLT GOES THROUGH.

SPREADPRO**ASSY, CENTER GATE, ROTARY HOPPER**

REF: 512002

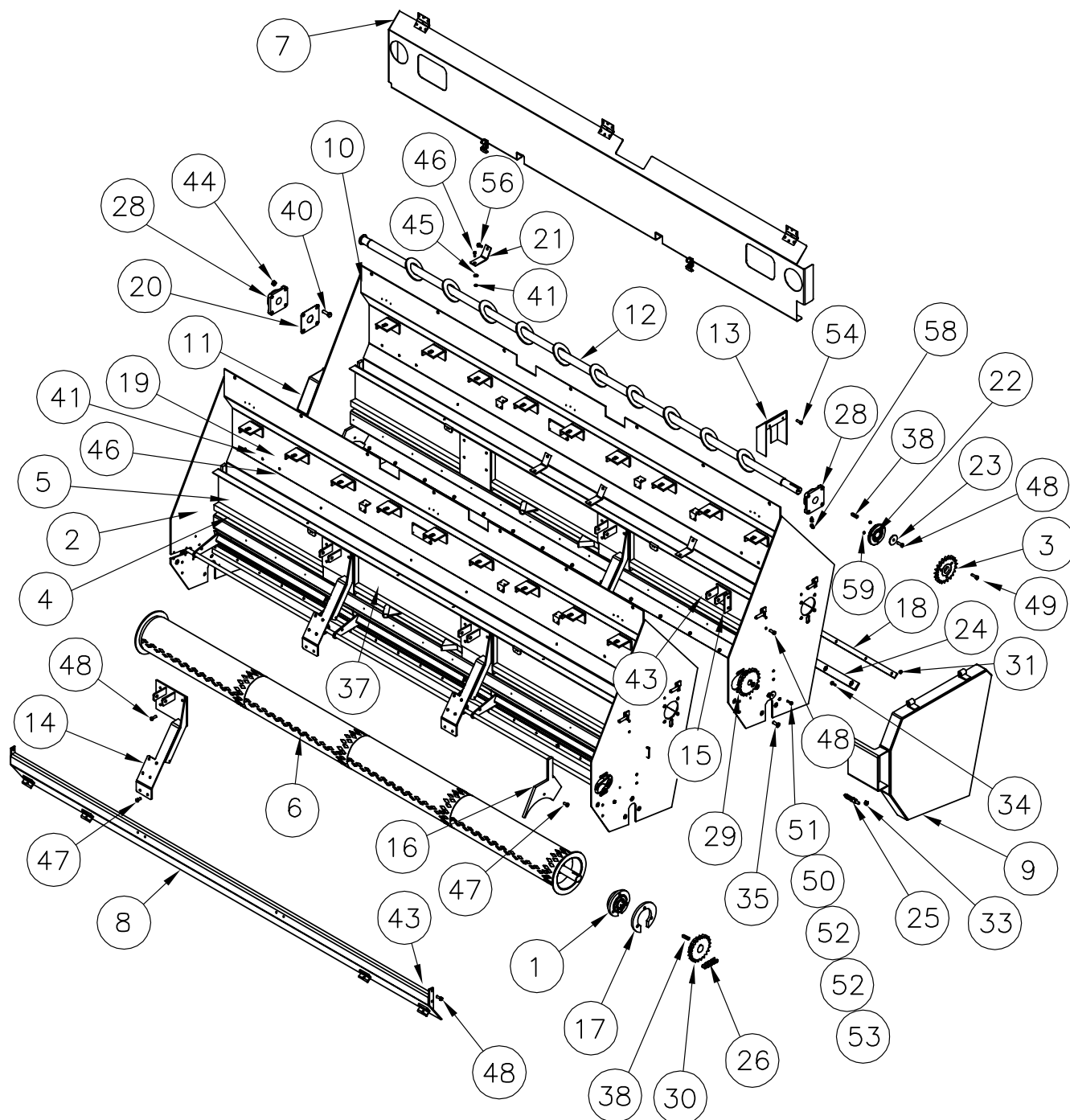
REV: G

ITEM	PART NUMBER	QTY	DESCRIPTION
512002		CENTER GATE, ROTARY HOPPER	
0	80302	2.00	SET S,HSKT,KCUP,.312-16X.25
1	208712192	2.00	BEARING ASSY,1.50 BORE,STEP
2	41736	1.00	GRP,ROTARY GATE,CENTER
3	41737	1.00	ASSY,BEARING AND SPROCKET
4	41738	1.00	BRUSH,CENTER HOPPER,NYLON
5	41739	1.00	HOLDER,CENTER HOPPER,ALUM,EXT
6	41892	1.00	W/M,FEEDROLL TUBE,CENTER
7	512014	1.00	ASSY,SLIDE GATE COVER
8	512016	1.00	W/M,SCATTER PLATE,CENTER
9	512019	1.00	W/M,CHAIN GUARD,LH
10	512020	1.00	W/M,CENTER HOPPER,SPREADPRO
11	512021	1.00	W/M,BEARING COVER,RH
12	512026	1.00	W/M,AGITATOR SHAFT,CENTER
13	512029	1.00	W/M,BRG GUARD,AGITATOR SHAFT
14	512040	2.00	W/M,ROTARY GATE BEARING SUPP
15	512041	1.00	W/M,ROTARY GATE CYL MOUNT,LH
16	512105	2.00	SEAL,END PLATE,FEEDROLLER
17	512110	2.00	PLATE,BEARING OFFSET
18	512118	1.00	BAR,SCRAPER RETAINING
19	512127	1.00	COVER,END PLATE SLOT
20	512136	1.00	PLATE,AGITATOR BEARING COVER
21	41891	4.00	BRACKET,SLIDE GATE GUIDE
22	512150	1.00	RND,SPROCKET MOUNT,AGITATOR
23	512156	2.00	WASHER,.406X2.00X.1793THICK
24	512517	2.00	SCRAPER,REAR,CENTER HOPPER,16'
25	512522	2.00	FASTENER,ANTILUCE
26	6368	1.00	CHAIN,ROLLER,60X97 PITCH
28	72830	2.00	BEARING,FLANGE,1.375,4 BOLT
29	72831	1.00	SPROCKET,60B21,1 BORE,.25 KWY
30	72832	1.00	SPROCKET,60B21,1.5 BORE,.38KWY
31	80351	15.00	NUT,FLEXLOC,.312-18,FULL,LT
33	81212	2.00	NUT,HEX,M12X1.75
34	81213	15.00	CSFHS,.312-18X1.25,GR5
35	871032322	6.00	CSFHS,.500-13X1.25
37	871080436	15.00	RIVET,BLIND,AL,.125,.188-.250
38	871083509	2.00	KEY,SQ,.375X1.50
40	71627	8.00	CSHH,.500-13X1.50,GR5
41	80036	8.00	NUT,HEX,.250-20
43	80038	6.00	NUT,HEX,.375-16
44	80040	8.00	NUT,HEX,.500-13
45	80140	4.00	WASHER,FLAT,USS,.250
46	80192	8.00	CSHH,.250-20X.75,GR5
47	80219	8.00	CSHH,.375-16X.75,GR5
48	80221	16.00	CSHH,.375-16X1.00,GR5
49	80224	3.00	CSHH,.375-16X1.25,GR5
50	41811	1.00	WASHER,.281X1.50X.1345THICK

REF: 512002

REV: G

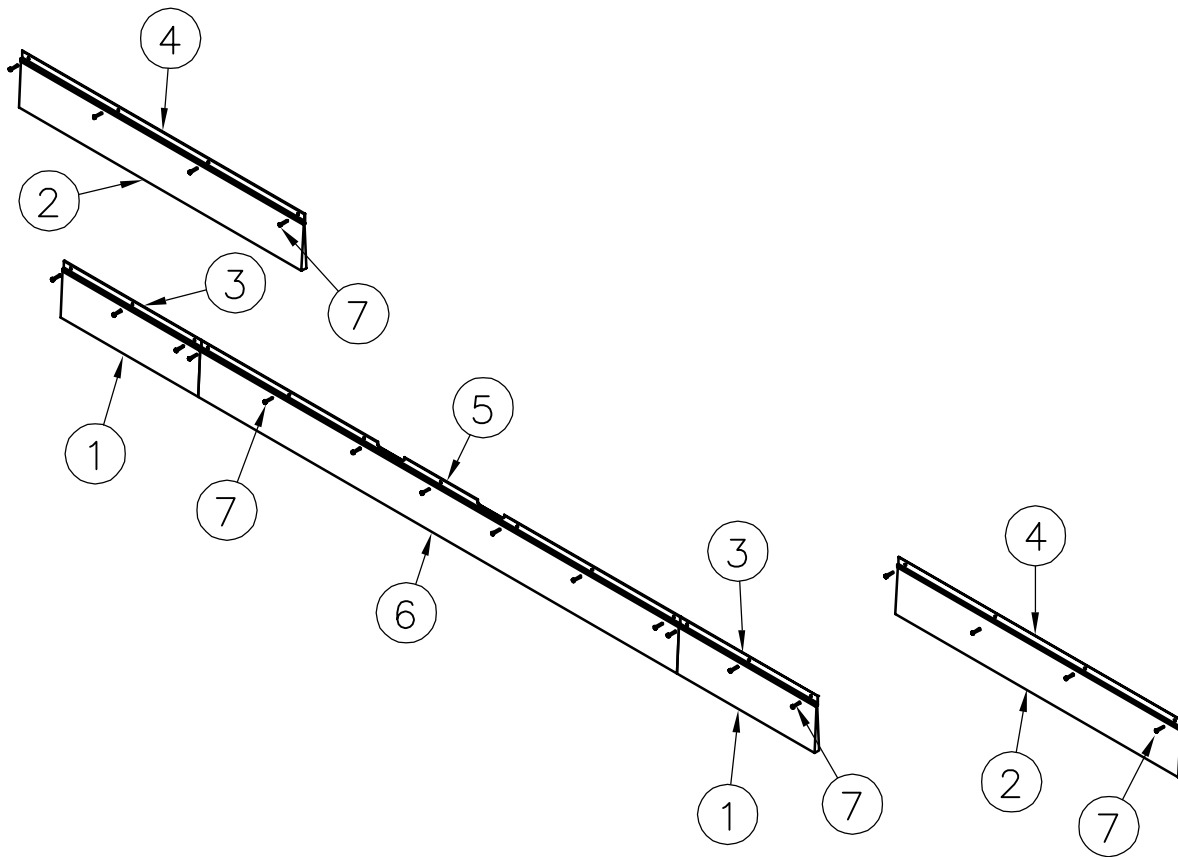
ITEM	PART NUMBER	QTY	DESCRIPTION
51	80185	1.00	CSHH,.250-20X1.00,GR5
52	80141	2.00	WASHER,FLAT,USS,.313
53	80160	1.00	WASHER,LOCK,.250
54	80208	2.00	CSHH,.312-18X1.00,GR5
56	80326	4.00	SCR,SLFTPG,HH,.312-18X1.00
57	73149	1.00	FITT,STR 02FP-.250-28 SAE-LT
58	5039	1.00	FITT,LUBE,90,02MP



REF: 41799

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
41799			ASSY,BRUSH GUARDS,ROTARY GATES
1	41802	2.00	BRUSH,.188X6.00X20.63
2	41803	2.00	BRUSH,.188X6.00X42.50
3	41804	2.00	HOLDER,BRUSH,.188X20.63
4	41805	2.00	HOLDER,BRUSH,.188X42.50
5	41806	1.00	HOLDER,BRUSH,.188X72.00,CUTOUT
6	73079	1.00	BRUSH,.188X6.00X72.00
7	81160	21.00	SCR,SLFDRL,HH,#10X1.00,#3PT



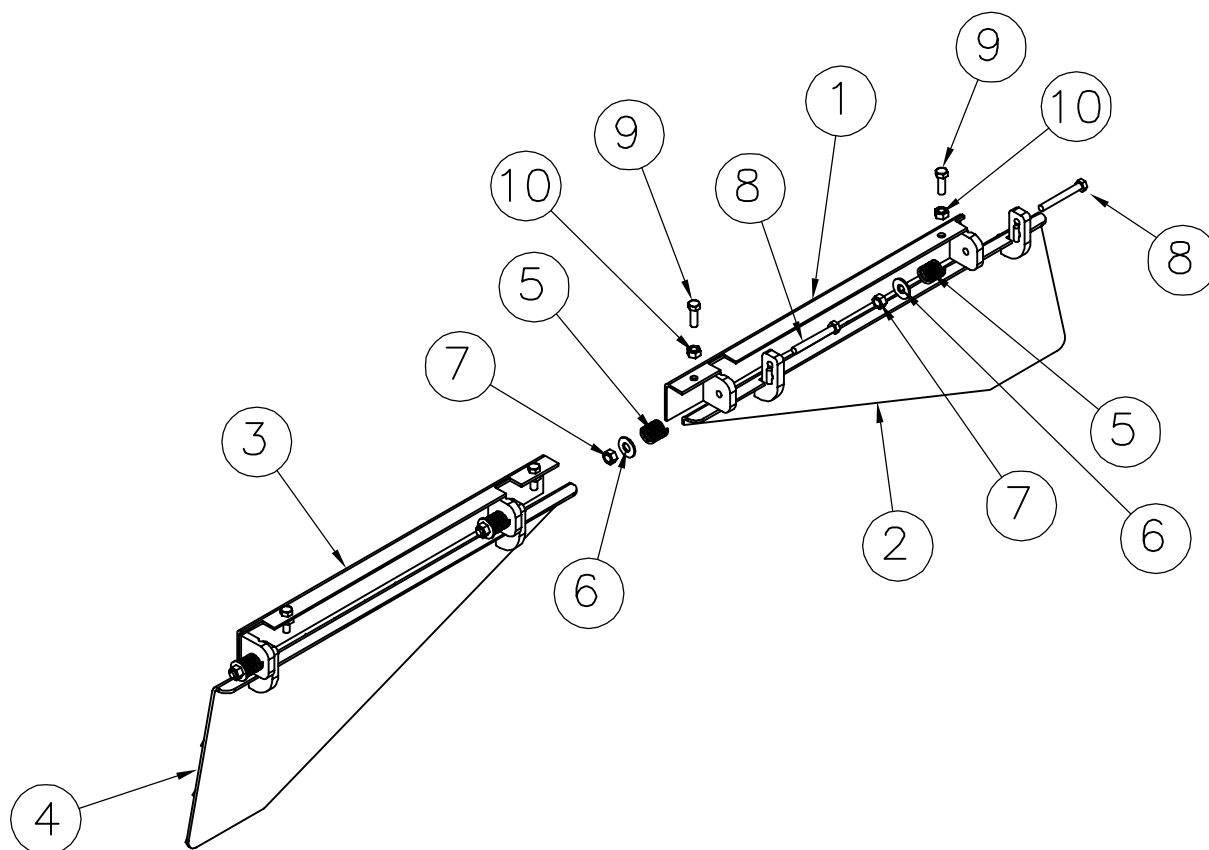
SCATTER PLATES

SPREADPRO

REF: 41907

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
41907 GRP,SCATTER PLATE			
1	41910	1.00	W/M,LH SCATTER PLATE MOUNT
2	41913	1.00	W/M,LH SCATTER PLATE
3	41916	1.00	W/M,RH SCATTER PLATE MOUNT
4	41918	1.00	W/M,RH SCATTER PLATE
5	36881	4.00	SPRING,.845ODX.100WIREX1.00MW
6	80141	4.00	WASHER,FLAT,USS,.313
7	80352	4.00	NUT,FLEXLOC,.375-16,FULL,LT
8	80215	4.00	CSHH,.312-18X2.50,GR5
9	80208	4.00	CSHH,.312-18X1.00,GR5
10	80351	8.00	NUT,FLEXLOC,.312-18,FULL,LT



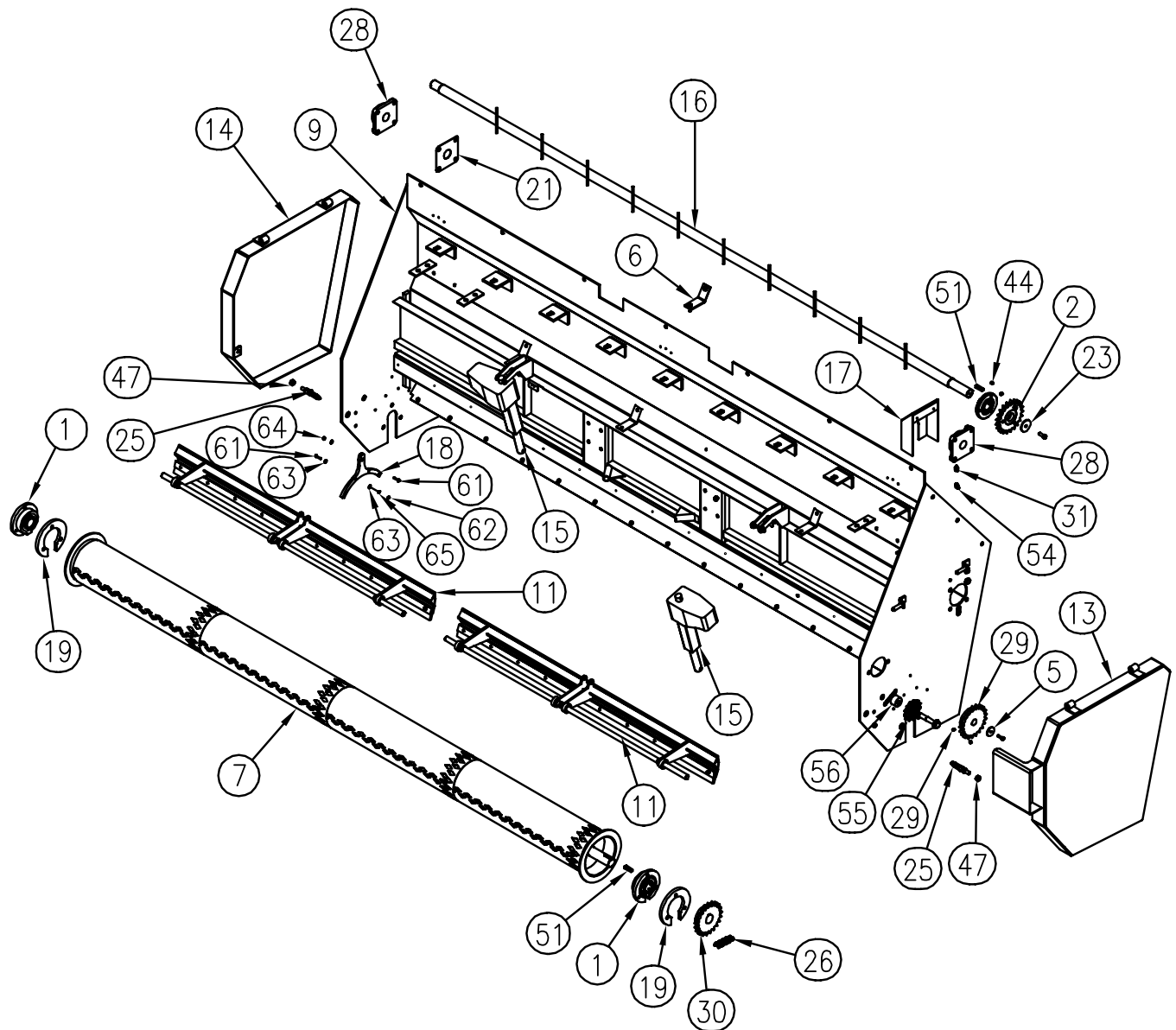
REF: 42317

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42317		ASSY,CENTER HOPPER,16 FT
1	208712192	2.00	BEARING ASSY,1.50 BORE,STEP
2	41737	1.00	ASSY,BEARING AND SPROCKET
5	41811	1.00	WASHER,FLAT,1.50X.281X.1345THK
6	41891	4.00	BRACKET,SLIDE GATE GUIDE
7	41892	1.00	W/M,FEEDROLL TUBE,CENTER
9	42318	1.00	W/M,CTR HOPE,ELEC GATES,16FT
10	42319	1.00	W/M,SCATTER PLATE,CENTER,16FT
11	42331	2.00	GRP,CTR ROTARY GATE,ELEC,16FT (See Detail)
12	42344	1.00	GRP,COVER,SLIDE GATE,ELEC,16FT (See Detail)
13	42355	1.00	W/M,CHAIN GUARD,LH,20 FT
14	42358	1.00	W/M,BEARING COVER,RH,20 FT
15	73212	2.00	ACTUATOR,LINEAR,450LBS,4"S
16	512026	1.00	W/M,AGITATOR SHAFT,CENTER
17	512029	1.00	W/M,BEARING GUARD,AGITATOR SHAFT
18	42157	2.00	SEAL,SPREADROLL END,SPREADPRO
19	512110	2.00	PLATE,BEARING OFFSET
21	512136	1.00	PLATE,AGITATOR BEARING COVER
22	512150	1.00	RND,SPROCKET MOUNT,AGITATOR
23	512156	1.00	WASHER,2.0ODX.406IDX.1793THK
25	512522	2.00	FASTENER,ANTILUCE
26	6368	1.00	CHAIN,ROLLER,60X97 PITCH
27	71627	8.00	CSHH,.500-13X1.50,GR5
28	72830	2.00	BEARING,FLANGE,1.375,4 BOLT
29	72831	1.00	SPROCKET,60B21,1 BORE,.25 KWY
30	72832	1.00	SPROCKET,60B21,1.5 BORE,.38KWY
31	73149	1.00	FITT,STR 02FP-.250-28 SAE-LT
44	80302	2.00	SET S,HSKT,KCUP,.312-16X.25
45	80326	4.00	SCR,SLFTPG,HH,.312-18X1.00
46	80351	15.00	NUT,FLEXLOC,.312-18,FULL,LT
47	81212	2.00	NUT,HEX,M12X1.75
48	81213	15.00	CSFHS,.312-18X1.25,GR5
49	871032322	6.00	CSFHS,.500-13X1.25
50	871080436	15.00	RIVET,BLIND,AL,.125,.188-.250
51	871083509	2.00	KEY,SQ,.375X1.50
52	80232	2.00	CSHH,.375-16X2.50,GR5
53	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
54	5039	1.00	FITT,LUBE,90,02MP
55	73245	1.00	SPKT,IDLER,60H,13TOOTH
56	42343	1.00	SPACER,IDLER SPROCKET
57	80289	1.00	CSHH,.625-11X3.50,GR 5
58	80697	5.00	WASHER,SAE PLAIN,.625
59	80356	1.00	NUT,FLEXLOC,.625-11,FULL,LT
61	80798	10.00	MACH SCR,PH,#10-24X1.00
62	80824	8.00	NUT,HEX,#10-24
63	80995	18.00	WASHER,TYPE A PLAIN,#10
64	81005	2.00	QNUT,FLEXLOC,#10-24,FULL,LT
65	871071601	8.00	WASHER,SPLIT LOCK,#10

REF: 42317

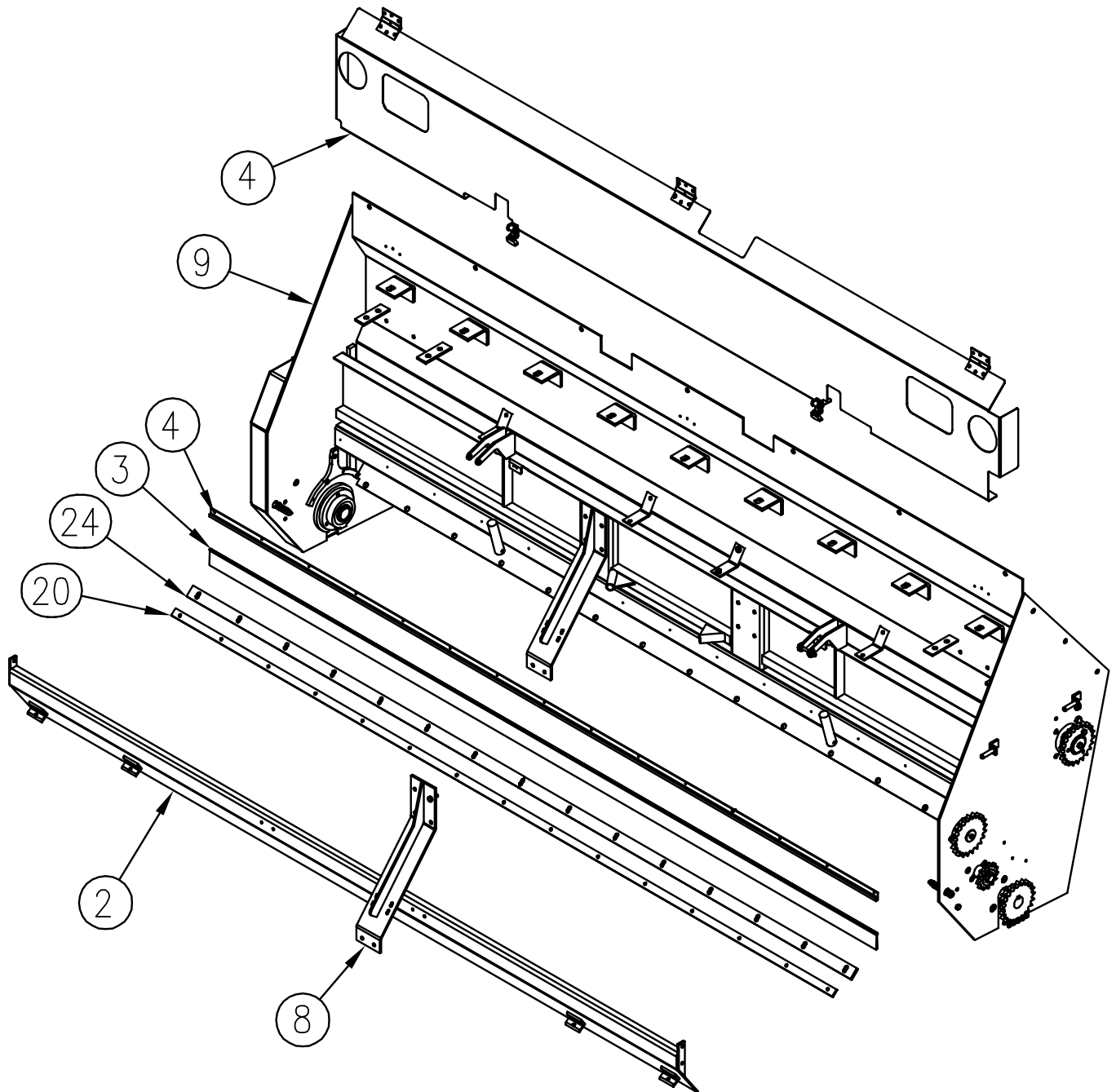
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REF: 42317

REV: 0

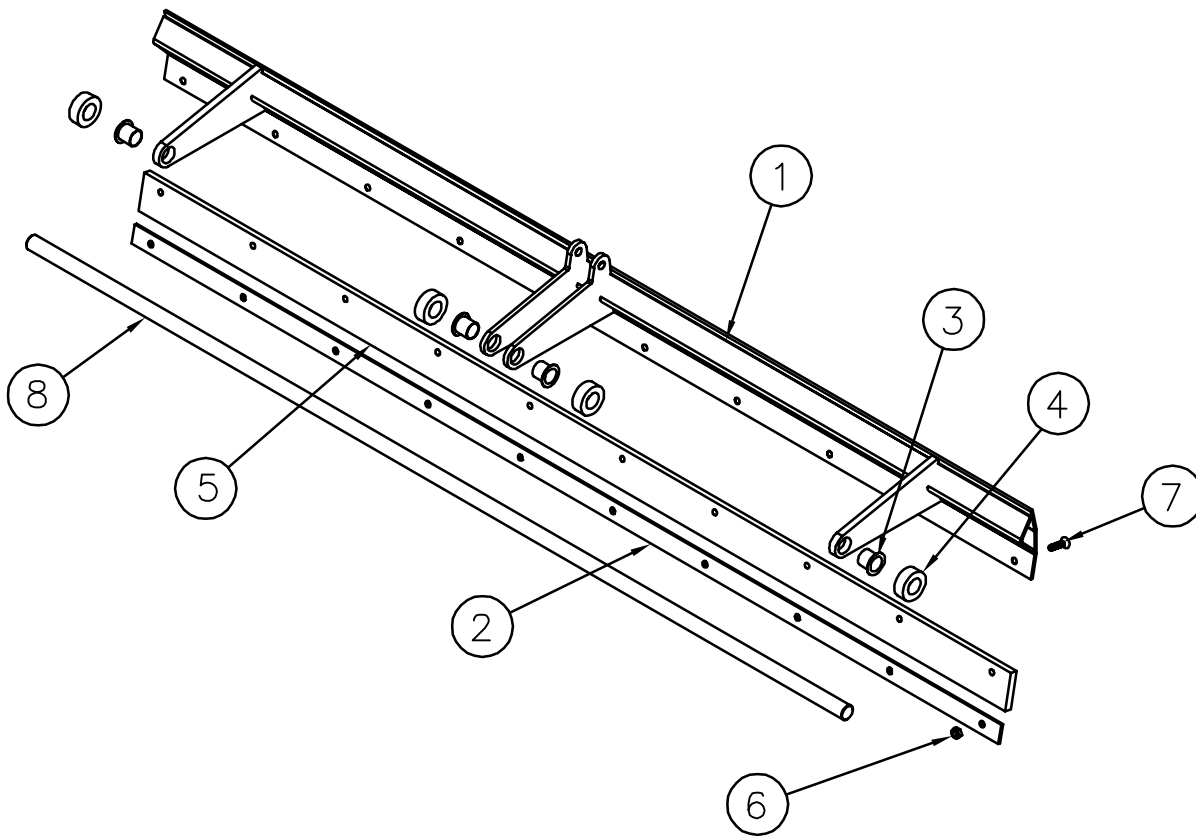
ITEM	PART NUMBER	QTY	DESCRIPTION
42317		ASSY,CENTER HOPPER,16 FT	
2	41737	1.00	ASSY,BEARING AND SPROCKET
3	41738	1.00	BRUSH,CENTER HOPPER,NYLON
4	41739	1.00	HOLDER,CENTER HOPPER,ALUM,EXT
8	42161	2.00	W/M,SCATTER PL SUPPORT
9	42318	1.00	W/M,CTR HOPE,ELEC GATES,16FT
20	512118	1.00	BAR,SCRAPER RETAINING
24	512517	2.00	SCRAPER,REAR,CENTER HOPPER,16'
32	80036	8.00	NUT,HEX,.250-20
33	80038	6.00	NUT,HEX,.375-16
34	80040	8.00	NUT,HEX,.500-13
35	80140	4.00	WASHER,TYPE A PLAIN,.250
36	80141	2.00	WASHER,TYPE A PLAIN,.312
37	80160	1.00	WASHER,SPLIT LOCK,.250
38	80185	1.00	CSHH,.250-20X1.00,GR5
39	80192	8.00	CSHH,.250-20X.75,GR5
40	80208	2.00	CSHH,.312-18X1.00,GR5
41	80219	8.00	CSHH,.375-16X.75,GR5
42	80221	16.00	CSHH,.375-16X1.00,GR5
43	80224	3.00	CSHH,.375-16X1.25,GR5



REF: 42331

REV: 0

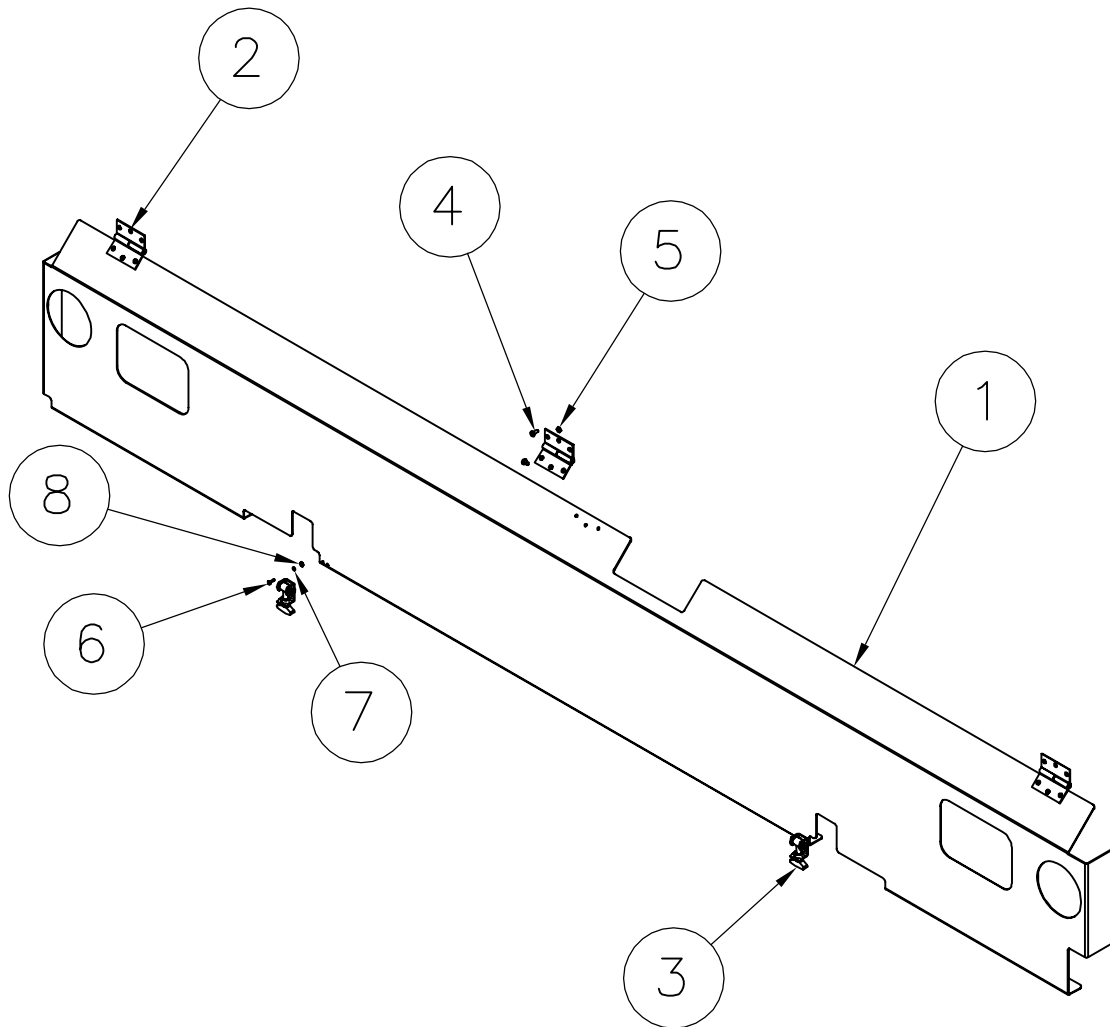
ITEM	PART NUMBER	QTY	DESCRIPTION
	42331		GRP,CTR ROTARY GATE,ELEC,16FT
1	42332	1.00	W/M,CTR ROT GATE,ELEC,16FT
2	42335	1.00	BAR,SCRAPER RET,GATE,16 FT
3	73208	4.00	BRNG,NYLON,FLG,.75 ID
4	73209	4.00	COLLAR,SET,.81 ID
5	73244	1.00	RUBBER,ROTARY GATE,CTR HOP,16'
6	80350	10.00	NUT,FLEXLOC,.250-20,FULL,LT
7	81238	10.00	CSFHS,.250-20X1.00
8	99140-04	1.00	RND,.750 X 53.00,CRS



REF: 42344

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42344		GRP,COVER,SLIDE GATE,ELEC,16FT
1	42345	1.00	PL,SLIDE GATE COVER,ELEC,16FT
2	512540	3.00	HINGE,3.00,LOOSE JOINT
3	512542	2.00	RUBBER HOOD FASTENER,MINI
4	871052400	18.00	MACH SCR,RH,#10-24X.50
5	80924	18.00	NUT,FLEXLOC,#10-24,FULL,LT
6	80795	8.00	MACH SCR,PH,#6-32X.50
7	80797	8.00	WASHER,SPLIT LOCK,#6
8	80493	8.00	NUT,HEX,#6-32



SPREADPRO

EXTENSION HOPPER,RH,ELEC,16 FT

REF: 42336

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42336		GRP,EXT HOP,RH,ELEC,16FT
1	208712192	1.00	BEARING ASSY,1.50 BORE,STEP
2	41823	1.00	RUBBER,.175T,1-PLY,11.00X12.50
3	41824	1.00	BAR,.188X1.00X12.50,W/HOLES
4	41889	1.00	BRUSH,EXT HOPPER,NYLON STRIP
5	41890	1.00	HOLDER,EXT HOPPER,ALUM EXTRUD
6	41899	1.00	W/M,FEEDROLL TUBE,EXTENSION
7	42157	2.00	SEAL,SPREADROLL END,SPREADPRO
8	42338	1.00	W/M,EXT HOP,RH,ELEC,16FT
9	42458	1.00	W/M,GRILL,EXT HOP,16 FT,BENT
10	42460	1.00	GRP,ROTARY GATE,EXT HOP,16 FT (See Detail)
11	42462	1.00	SHIELD,ROCK,EXT HOP,16 FT
12	512029	1.00	W/M,BEARING GUARD,AGITATOR SHAFT
13	512110	1.00	PLATE,BEARING OFFSET
14	513021	1.00	W/M,CUT-OFF DOOR,RH
15	514021	1.00	GUIDE,WING EXTENTION
16	514509	2.00	WEAR PAD,INNER,NYLON
17	519019	1.00	W/M,SCATTER PLATE,RH
18	519030	1.00	W/M,AGITATOR,EXTENTION HOPPER
19	519128	1.00	RETAINER,REAR SCRAPPER
20	519137	1.00	MOUNT,MOTOR,EXTENTION HOPPER
21	519190	1.00	RETAINER,RUBBER,LONG,EXT HOPPER
22	519512	1.00	SCRAPER,REAR,EXT HOPPER,16FT
23	519530	1.00	SEAL,FRONT,TOPEXT HOP,16 FT
24	71836	1.00	FITT,LUBE,90,.250-28
25	73018	1.00	BEARING,FLANGE,1.50,2-BOLT,TRL
26	42527	1.00	WIRING,ELEC ACTUATOR,DEUTSCH
27	73270	1.00	KEY,HI-PRO 808
28	80036	1.00	NUT,HEX,.250-20
29	80140	3.00	WASHER,TYPE A PLAIN,.250
30	80141	19.00	WASHER,TYPE A PLAIN,.312
31	80142	4.00	WASHER,TYPE A PLAIN,.375
32	80146	1.00	WASHER,TYPE A PLAIN,.625
33	80160	2.00	WASHER,SPLIT LOCK,.250
34	80185	4.00	CSHH,.250-20X1.00,GR5
35	80206	8.00	CSHH,.312-18X1.25,GR5
36	80207	11.00	CSHH,.312-18X.75,GR5
37	80208	6.00	CSHH,.312-18X1.00,GR5
38	80224	4.00	CSHH,.375-16X1.25,GR5
39	80232	2.00	CSHH,.375-16X2.50,GR5
40	80255	2.00	CSHH,.500-13X2.00,GR5
41	80350	2.00	NUT,FLEXLOC,.250-20,FULL,LT
42	80351	14.00	NUT,FLEXLOC,.312-18,FULL,LT
43	80352	6.00	NUT,FLEXLOC,.375-16,FULL,LT
44	80354	9.00	NUT,FLEXLOC,.500-13,FULL,LT
45	80356	1.00	NUT,FLEXLOC,.625-11,FULL,LT
46	80490	1.00	CSHH,.625-11X1.75,GR5
47	80695	9.00	WASHER,SAE PLAIN,.500

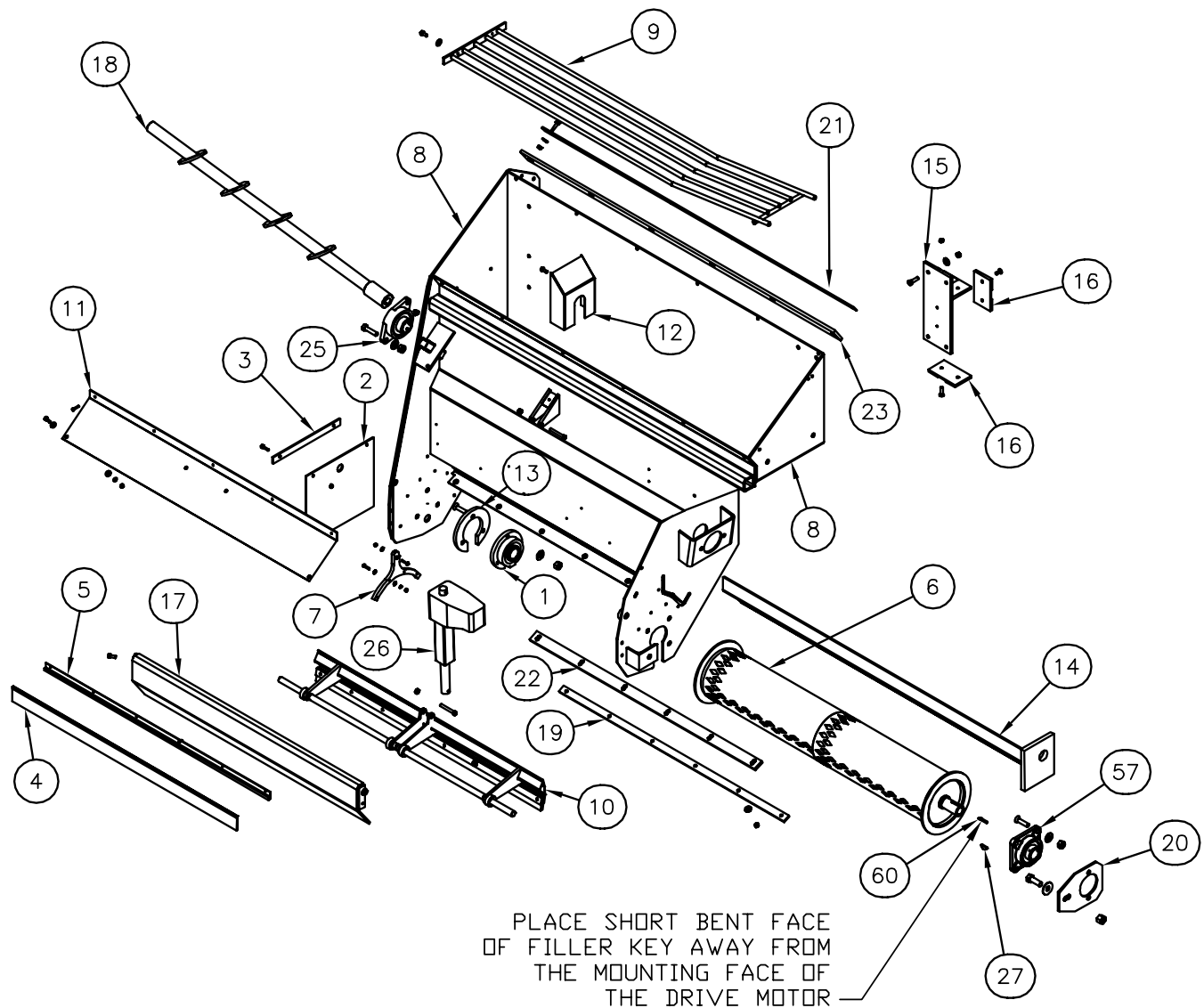
EXTENSION HOPPER,RH,ELEC,16 FT

SPREADPRO

REF: 42336

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
48	80798	10.00	MACH SCR,PH,#10-24X1.00
49	80824	8.00	NUT,HEX,#10-24
50	80991	7.00	CSFHS,.500-13X2.00
51	80995	18.00	WASHER,TYPE A PLAIN,#10
52	81005	2.00	NUT,FLEXLOC,#10-24,FULL,LT
53	81160	5.00	SCR,SLFDRL,HH,#10X1.00,#3PT
54	81213	2.00	CSFHS,.312-18X1.25,GR5
55	81240	6.00	CSFHS,.312-18X1.50,GR5
56	81241	2.00	CSFHS,.312-18X.75,GR5
57	845311009	1.00	BEARING,FLANGE,1.50,4 BOLT
58	871071601	8.00	WASHER,SPLIT LOCK,#10
59	871080436	6.00	RIVET,BLIND,AL,.125,.188-.250
60	91533-01	1.00	KEYSTOCK,.12X.25,BENT



SPREADPRO

EXTENSION HOPPER,LH,ELEC,16 FT

REF: 42337

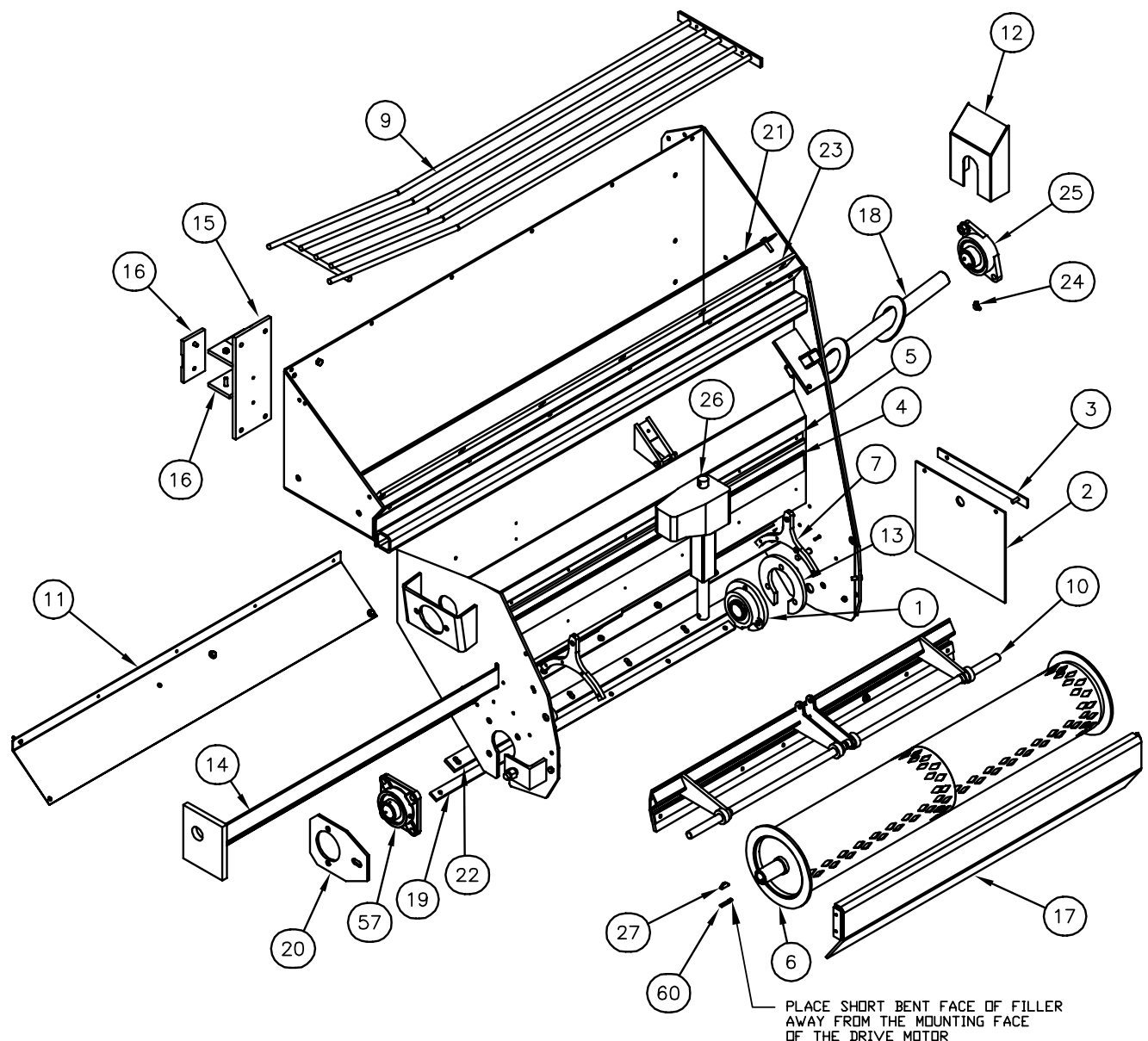
REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42337		GRP,EXT HOP,LH,ELEC,16FT
1	208712192	8.00	BEARING ASSY,1.50 BORE,STEP
2	41823	1.00	RUBBER,.175T,1-PLY,11.00X12.50
3	41824	1.00	BAR,.188X1.00X12.50,W/HOLES
4	41889	1.00	BRUSH,EXT HOPPER,NYLON STRIP
5	41890	1.00	HOLDER,EXT HOPPER,ALUM EXTRUD
6	41899	1.00	W/M,FEEDROLL TUBE,EXTENSION
7	42157	2.00	SEAL,SPREADROLL END,SPREADPRO
8	42339	1.00	W/M,EXT HOP,LH,ELEC,16FT
9	42458	1.00	W/M,GRILL,EXT HOP,16 FT,BENT
10	42460	1.00	GRP,ROTARY GATE,EXT HOP,16 FT (See Detail)
11	42462	1.00	SHIELD,ROCK,EXT HOP,16 FT
12	512029	1.00	W/M,BEARING GUARD,AGITATOR SHAFT
13	512110	1.00	PLATE,BEARING OFFSET
14	513020	1.00	W/M,CUT-OFF DOOR,LH
15	514021	1.00	GUIDE,WING EXTENTION
16	514509	2.00	WEAR PAD,INNER,NYLON
17	519018	1.00	W/M,SCATTER PLATE,LH
18	519030	1.00	W/M,AGITATOR,EXTENTION HOPPER
19	519128	1.00	RETAINER,REAR SCRAPPER
20	519137	1.00	MOUNT,MOTOR,EXTENTION HOPPER
21	519190	1.00	RETAINER,RUBBER,LONG,EXT HOPPER
22	519512	1.00	SCRAPER,REAR,EXT HOPPER,16FT
23	519530	1.00	SEAL,FRONT,TOPE,EXT HOP,16 FT
24	71836	1.00	FITT,LUBE,90,.250-28
25	73018	1.00	BEARING,FLANGE,1.50,2-BOLT,TRL
26	42527	1.00	WIRING,ELEC ACTUATOR,DEUTSCH
27	73270	1.00	KEY,HI-PRO 808
28	80036	1.00	NUT,HEX,.250-20
29	80140	3.00	WASHER,TYPE A PLAIN,.250
30	80141	19.00	WASHER,TYPE A PLAIN,.312
31	80142	4.00	WASHER,TYPE A PLAIN,.375
32	80146	1.00	WASHER,TYPE A PLAIN,.625
33	80160	2.00	WASHER,SPLIT LOCK,.250
34	80185	2.00	CSHH,.250-20X1.00,GR5
35	80206	8.00	CSHH,.312-18X1.25,GR5
36	80207	11.00	CSHH,.312-18X.75,GR5
37	80208	6.00	CSHH,.312-18X1.00,GR5
38	80224	4.00	CSHH,.375-16X1.25,GR5
39	80232	2.00	CSHH,.375-16X2.50,GR5
40	80255	2.00	CSHH,.500-13X2.00,GR5
41	80350	1.00	NUT,FLEXLOC,.250-20,FULL,LT
42	80351	14.00	NUT,FLEXLOC,.312-18,FULL,LT
43	80352	6.00	NUT,FLEXLOC,.375-16,FULL,LT
44	80354	9.00	NUT,FLEXLOC,.500-13,FULL,LT
45	80356	1.00	NUT,FLEXLOC,.625-11,FULL,LT
46	80490	1.00	CSHH,.625-11X1.75,GR5
47	80695	9.00	WASHER,SAE PLAIN,.500

REF: 42337

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
48	80798	10.00	MACH SCR,PH,#10-24X1.00
49	80824	8.00	NUT,HEX,#10-24
50	80991	7.00	CSFHS,.500-13X2.00
51	80995	18.00	WASHER,TYPE A PLAIN,#10
52	81005	2.00	NUT,FLEXLOC,#10-24,FULL,LT
53	81160	5.00	SCR,SLFDRL,HH,#10X1.00,#3PT
54	81213	2.00	CSFHS,.312-18X1.25,GR5
55	81240	6.00	CSFHS,.312-18X1.50,GR5
56	81241	2.00	CSFHS,.312-18X.75,GR5
57	845311009	1.00	BEARING,FLANGE,1.50,4 BOLT
58	871071601	8.00	WASHER,SPLIT LOCK,#10
59	871080436	6.00	RIVET,BLIND,AL,.125,.188-.250
60	91533-01	1.00	KEYSTOCK,.12X.25,BENT



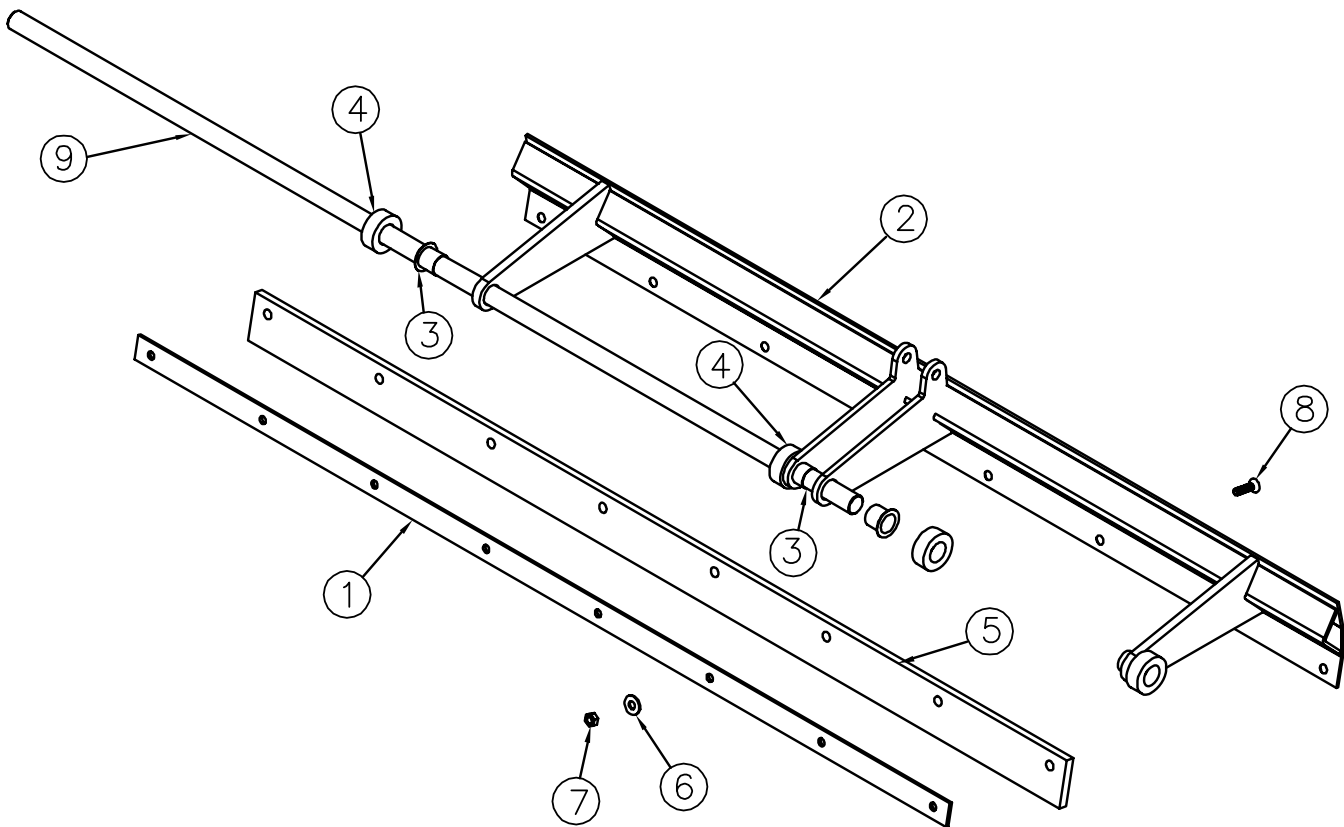
SPREADPRO

ROTARY GATE, EXTENSION HOPPER, 16 FT

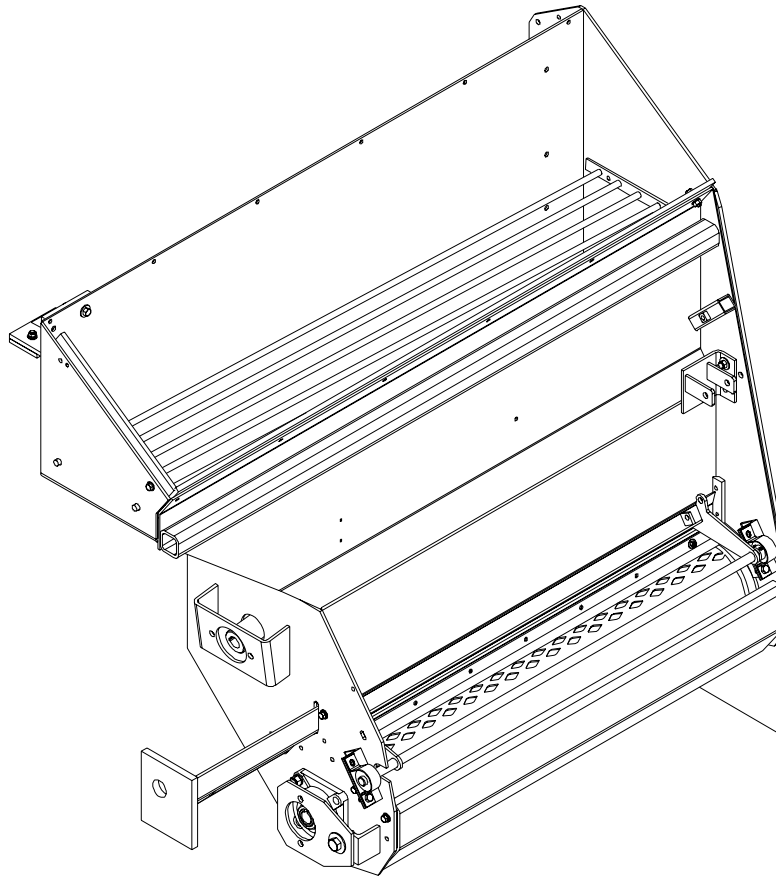
REF: 42460

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42460		GRP,ROTARY GATE,EXT HOP,16 FT
1	42327	1.00	RETAINER,RUBBER,ROTARY GATE
2	42340	1.00	W/M,EXT ROTARY GATE,ELEC,16FT
3	73208	4.00	BRNG,NYLON,FLG,.75 ID
4	73209	4.00	COLLAR,SET,.81 ID
5	73248	1.00	RUBBER,.38X2.00X41.83,RTRYGATE
6	80140	8.00	WASHER,TYPE A PLAIN,.250
7	80350	8.00	NUT,FLEXLOC,.250-20,FULL,LT
8	81238	8.00	CSFHS,.250-20X1.00
9	99140-03.....	1.00	RND,.750 X 42.375,CRS



The instructions are for both left and right extension hoppers. Be sure to follow these instructions when replacing feedroller components.



FEEDROLLER INSTALLATION & END SEALS

The outer bearing is internal so it needs to be positioned on the shaft with bearing offset plate 1/8" out past the end disk of the feedroller. Tighten the setscrews, then mount the feedroller into the hopper. This should give a 1/8" clearance on each end of the feedroller.

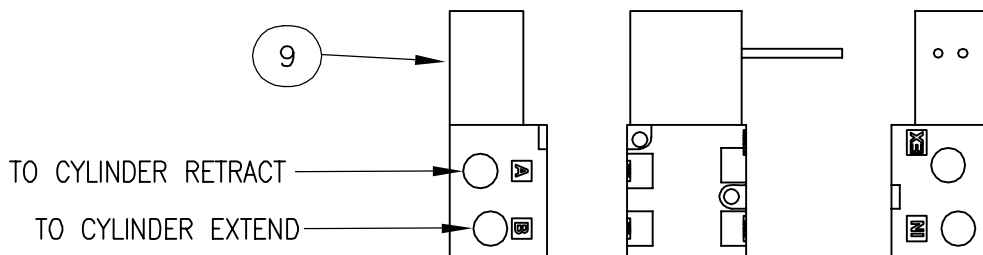
Fit the end seal plates so that the minimum possible gap is left with the end disc, and there is an even gap to feedroller end disc. Also ensure the rear of the seal plate closes any gap at the back of the hopper where the feedroller comes through the hopper back plate.

The feedroller rear seal rubber is fitted with a gap of 1/32" to mesh surface. **Do not** allow rubber to touch mesh, or vibration can occur in back plate of hopper.

REF: 42467

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
	42467		GRP,INDIV 9-GATES,16 FT HOP
1	32873	1.00	FITT,STR 04MP-08HB,CRIMPED
2	32874	1.00	VLV,BALL,08 BRASS
3	33082	2.00	FITT,90 08MP-08HB
4	33163	4.00	CLAMP,HOSE,.50-.91,WORM,#08
5	35592	1.00	FITT,STR 08FP-08HB,CRIMPED
6	36402	9.00	MUFFLER,PNEUMATIC EXH,.12 NPT
7	37049	1.00	VLV,PRESS PROTECTION,102-88
8	37311	2.00	FITT,90 02MP-02FP,BRASS
9	38808	9.00	VLV,AIR,SOL,4-WAY,12VDC,DIODE
13	512013	9.00	W/M,SLIDE GATE
14	6352	13.00	HOSE,08,PUSH-ON,250
15	72806	9.00	CYL,1.50X8.0,250PSI,12.38
16	72893	2.00	FITT,STR 02MP-04PC
17	72894	18.00	FITT,90 02MP-04PC
18	72895	7.00	FITT,TEE 02MP-04PC-04PC,RUN
19	72896	1.00	FITT,Y 02MP-04PC
20	72909	1.00	FITT,90 02MP-04NT,AB,BRASS
21	72916	28.00	TUBING,AIR BRAKE,BLK,04
22	72920	1.00	VLV,DRAIN COCK,04MP,7"PULLCABL
23	72940	9.00	VLV,AIR,QUICK EXHST,02MP-02FP
24	73116	9.00	PIN,LINCH,.375,WITH FLAT SIDE
25	80092	22.00	NUT,HEX,JAM,.438-20
26	80142	8.00	WASHER,TYPE A PLAIN,.375
27	80224	4.00	CSHH,.375-16X1.25,GR5
28	80352	4.00	NUT,FLEXLOC,.375-16,FULL,LT
30	99526	1.00	PIPE,90,08MP-08FP,MI
31	99569	1.00	PIPE,TEE,08FP,MI
32	99596	2.00	PIPE,NIPPLE,08XCLOSE
33	99611	9.00	PIPE,NIPPLE,02X1.50
34	99621	1.00	PIPE,NIPPLE,04X2.00
35	99979	2.00	PIPE,BUSH,08MP-02FP,STL
36	99980	1.00	PIPE,BUSH,08MP-04FP,STL
37	99985	1.00	PIPE,BUSH,12MP-08FP,STL



SECTION A-A
SCALE 1/2

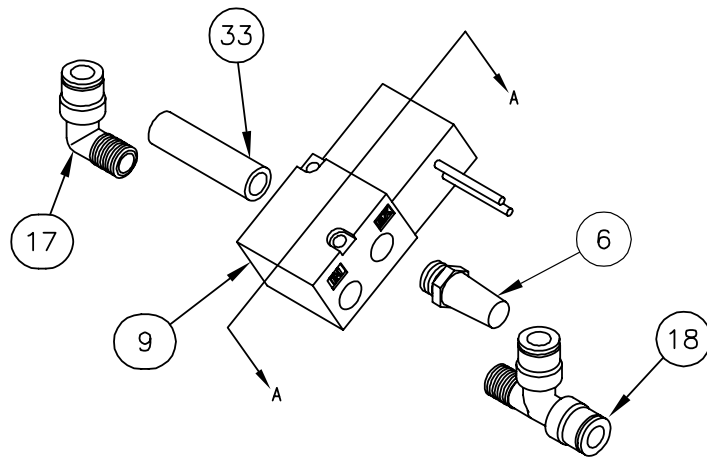
See end of section for
additional schematic.

INDIVIDUAL 9-GATE ASSEMBLY

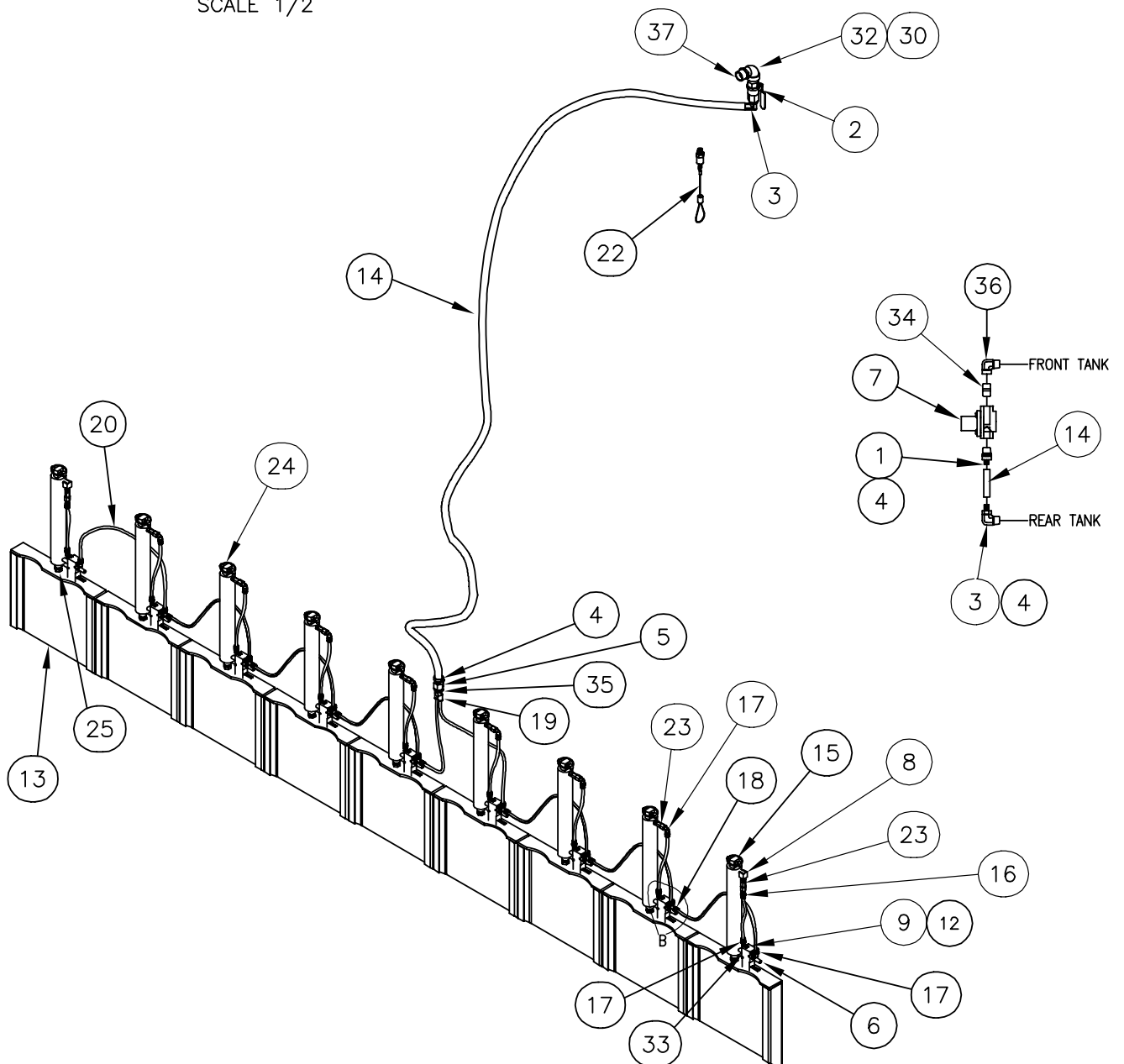
SPREADPRO

REF: 42467

REV: A



DETAIL B
SCALE 1/2

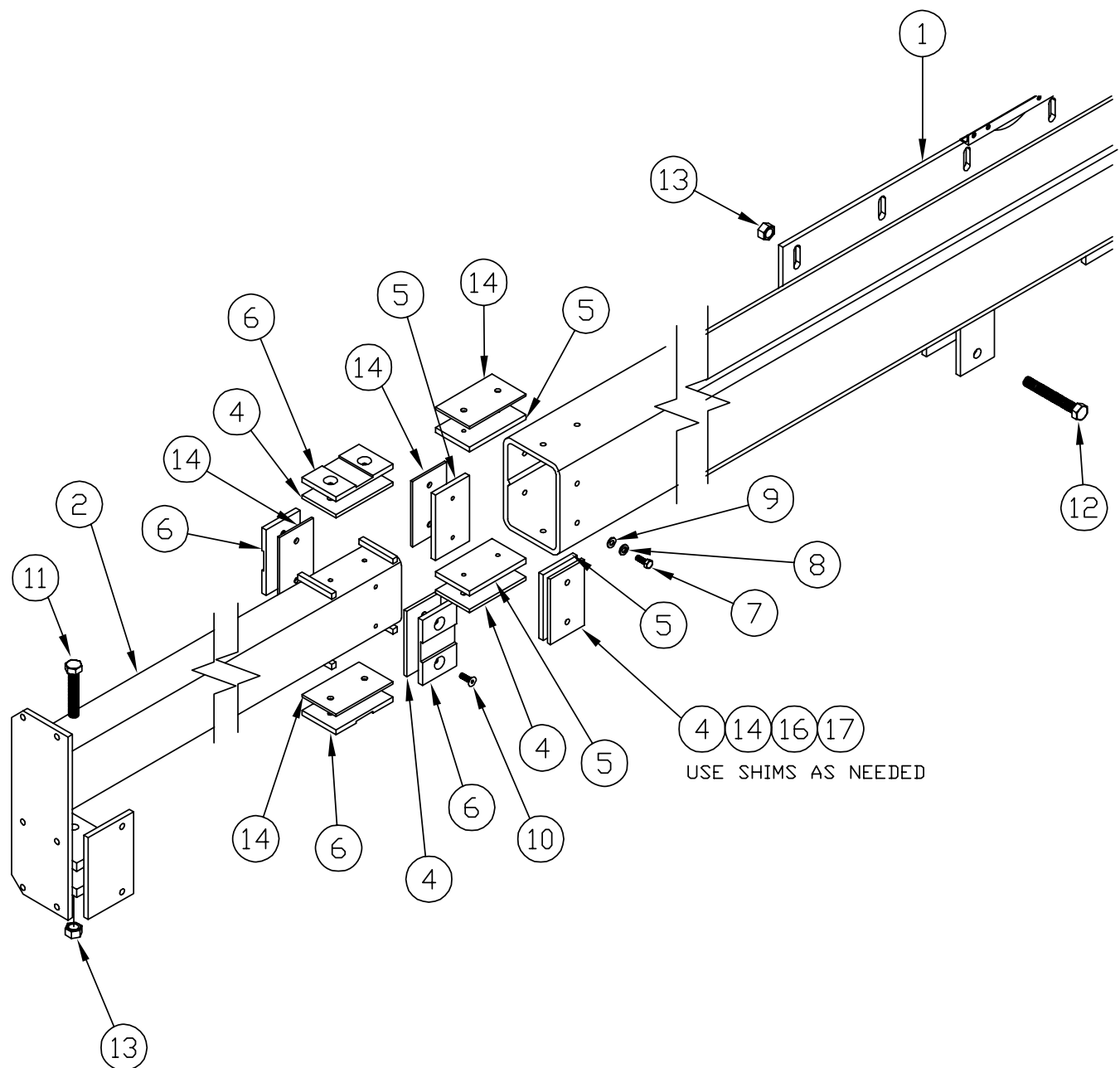


SPREADPRO**RAIL ASSEMBLY, EXTENSION HOPPER**

REF: 514001

REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
514001		EXTENSION HOPPER, RAIL ASSEMBLY	
0	42268	8.00	SHIM,WEAR PAD,14 GA(.0747)
0	42269	8.00	SHIM,WEAR PAD,18 GA(.0478)
0	73223	8.00	PAD,WEAR,NYLON,.313 NUT INSERT
1	514010	1.00	W/M,CENTER RAIL
2	514012	1.00	W/M,EXT RAIL,RH
3	514013	1.00	W/M,EXT RAIL,LH
4	514110	8.00	SHIM,WEAR PAD .250 THICK
5	514508	8.00	WEAR PAD,OUTER,NYLON
6	514509	8.00	WEAR PAD,INNER,NYLON
7	80208	16.00	CSHH,.312-18X1.00,GR5
8	80161	16.00	WASHER,SPLIT LOCK,.312
9	80963	12.00	WASHER,SAE PLAIN,.312
10	81181	16.00	CSFHS,.312-18X1.00,GR5
11	80289	2.00	CSHH,.625-11X3.50,GR 5
12	71682	2.00	CSHH,.625-11X4.50,GR5
13	80356	4.00	NUT,FLEXLOC,.625-11,FULL,LT
14	514115	8.00	SHIM,WEAR PAD,7GA(.1793)
16	42036	16.00	SHIM,WEAR PAD,12 GA(.1046)
17	42038	16.00	SHIM,WEAR PAD,16 GA(.0598)



Grease inside each end of the center rail past the position of where the wear pads are mounted. Mount the wear pads to the extension rail. Install the shims so tight that there is no rotation or movement between extension rail and center rail. The outer shims should be installed so that it requires 100 lbs. to push the extension rail in.

SPREADPRO

REAR RECEIVING HOPPER GROUP

REF: 502002

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
502002		GRP,REAR RECEIVING HOPPER	
1	106005801	4.00	SCREW,ADJ .750-10X18.00
2	502010	1.00	W/M,CENTER HOPPER,REAR
3	502032	1.00	W/M,FOLDING WING,LH
4	502033	1.00	W/M,FOLDING WING,RH
5	502014	1.00	FLAPPER W/M,RH
6	502015	1.00	FLAPPER W/M,LH
8	502123	1.00	RETAINER,REAR RUBBER
9	502125	2.00	RETAINER,REAR FOLDING HOPPER
10	502129	2.00	RETAINER,CONVEYOR WIPER
11	502130	2.00	RUBBER RETAINING PLATE,WING
12	502131	2.00	RUBBER RETAINING PLATE,HOPPER
13	502132	2.00	RETAINER,SIDE FOLDING HOPPER
14	502133	4.00	RETAINER,FOLDING HOPPER,REAR
15	502143	2.00	WIPER,OUTSIDE,WING HINGE
16	5928	2.00	HAIR PIN COTTER,#9,.148 DIA
17	502520	1.00	SKIRT,RUBBER,CENTER
18	502521	2.00	SKIRT,RUBBER,REAR WING
19	502522	2.00	LAGGING SKIRT,TAIL PULLEY
20	502523	2.00	HINGE,RUBBER
21	54647	4.00	BAR,CHAIN REST
22	72800	2.00	PULLEY,TAIL,24.00 BELT
23	72801	6.00	IDLER,TROUGHING,24.00 BELT
24	72802	4.00	IDLER,RETURN,3.25 OD X 24 BELT
25	72810	2.00	SPRING,EXT,1.00 ODX.135X6.00
26	80079	32.00	NUT,HEX,JAM,.750-10
27	80228	24.00	CSHH,.375-16X1.75,GR5
28	80224	56.00	CSHH,.375-16X1.25,GR5
29	80255	25.00	CSHH,.500-13X2.00,GR5
30	80037	48.00	NUT,HEX,.312-18
31	80352	24.00	NUT,FLEXLOC,.375-16,FULL,LT
32	80040	43.00	NUT,HEX,.500-13
33	80356	16.00	NUT,FLEXLOC,.625-11,FULL,LT
34	80357	14.00	NUT,FLEXLOC,.750-10,FULL,LT
35	80038	56.00	NUT,HEX,.375-16
36	71627	12.00	CSHH,.500-13X1.50,GR5
37	80504	10.00	CSHH,.750-10X2.00,GR5
38	80695	12.00	WASHER,SAE PLAIN,.500
39	80185	16.00	CSHH,.250-20X1.00,GR5
41	80991	20.00	CSFHS,.500-13X2.00
42	80996	72.00	WASHER,SAE PLAIN,.375
43	845282005	4.00	BEARING,TAKE UP,1.4375
44	80295	2.00	CSHH,.750-10X5.50,GR5
45	73118	4.00	LAGGING,LOWER,CONVEYOR
47	501122	4.00	HOLDDOWN,BOTTOM LAGGING
48	80164	43.00	WASHER,SPLIT LOCK,.500
49	33630-3	4.25	STRIPPING,.375
50	71777	10.50	CHAIN,.375,PROOF COIL

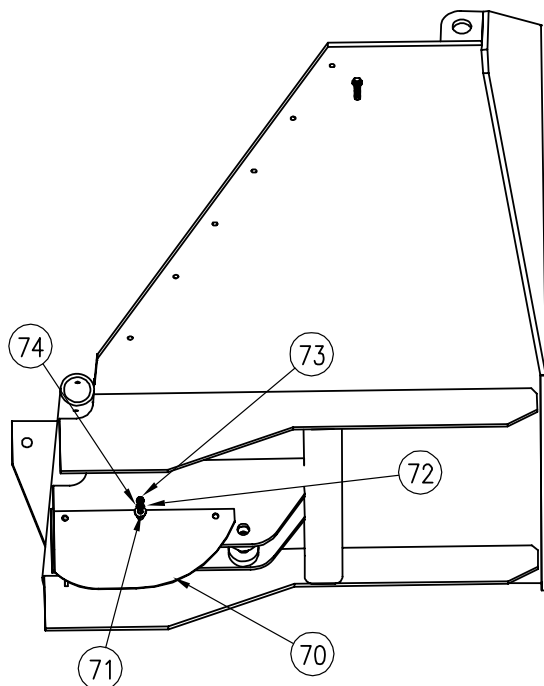
REAR RECEIVING HOPPER GROUP

SPREADPRO

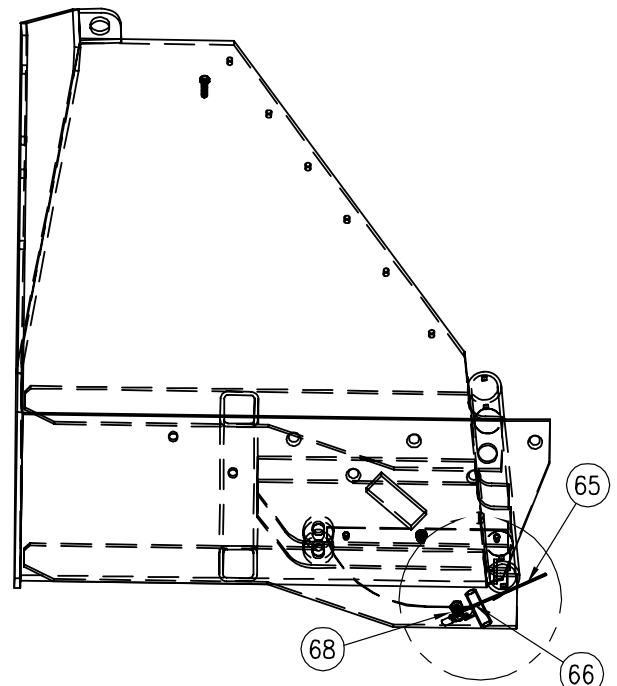
REF: 502002

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
51	72998	3.00	SHACKEL,,375 CHAIN,SCREW PIN
52	30081	4.00	CHAIN,,187(5.5MM),PROOF COIL
53	37200	4.00	LINK,QUICK,,188 CHAIN
54	80837	2.00	CSHH,,750-10X6.50,GR5
55	41458	1.00	REAR CONVEYOR GRILL ASSY
56	81236	2.00	CSFHS,,312-18 X 1.75
57	80211	22.00	CSHH,,312-18X1.75,GR5
59	80161	24.00	WASHER,SPLIT LOCK,,312
60	81154	10.00	WASHER,SAE,HARDENED,,750
61	80036	16.00	NUT,HEX,,250-20
62	80160	16.00	WASHER,SPLIT LOCK,,250
63	81201	24.00	WASHER,SAE,HARDENED,,625
64	80283	12.00	CSHH,,625-11X2,GR5
65	6080	2.00	SWITCH,MERCURY
66	9963	2.00	BRACKET,MERCURY SWITCH
67	73000	2.00	SWITCH,WATERPROOF,SPST,NO
68	80308	2.00	SET S,SQ,,250-20X.75
69	80496	4.00	MACH SCR,PH,#10-32X.25,PHIL
70	73085	2.00	FLAP,CYLINDER GUARD
71	80187	6.00	CSHH,,250-20X1.25,GR5
72	80140	6.00	WASHER,TYPE A PLAIN,,250
73	80036	6.00	NUT,HEX,,250-20
74	80160	6.00	WASHER,SPLIT LOCK,,250



FRONT VIEW LEFT WING



REAR VIEW LEFT WING

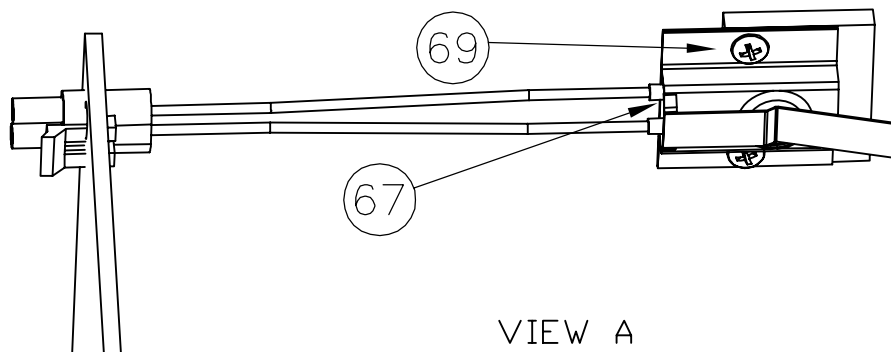
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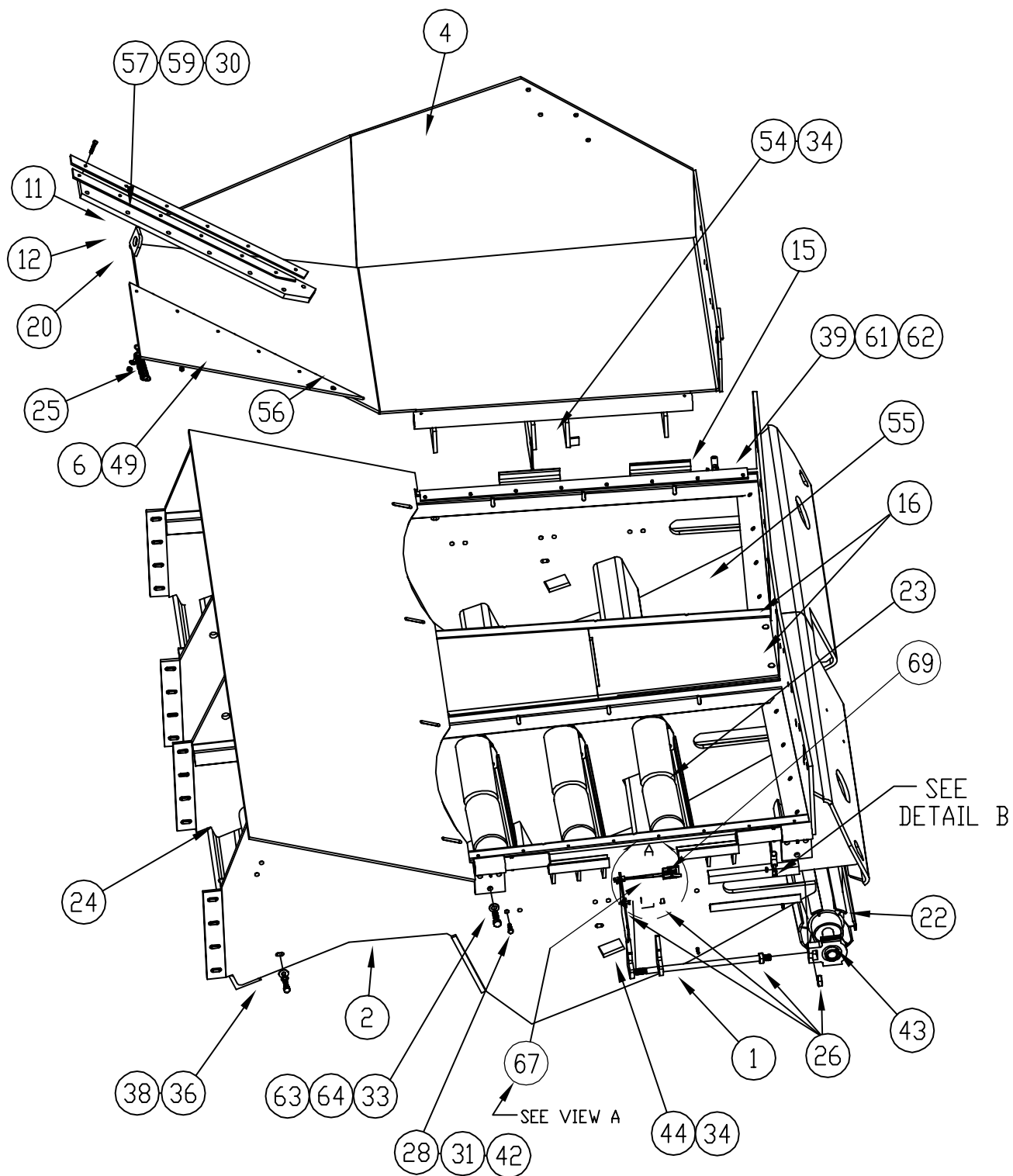
REAR RECEIVING HOPPER GROUP

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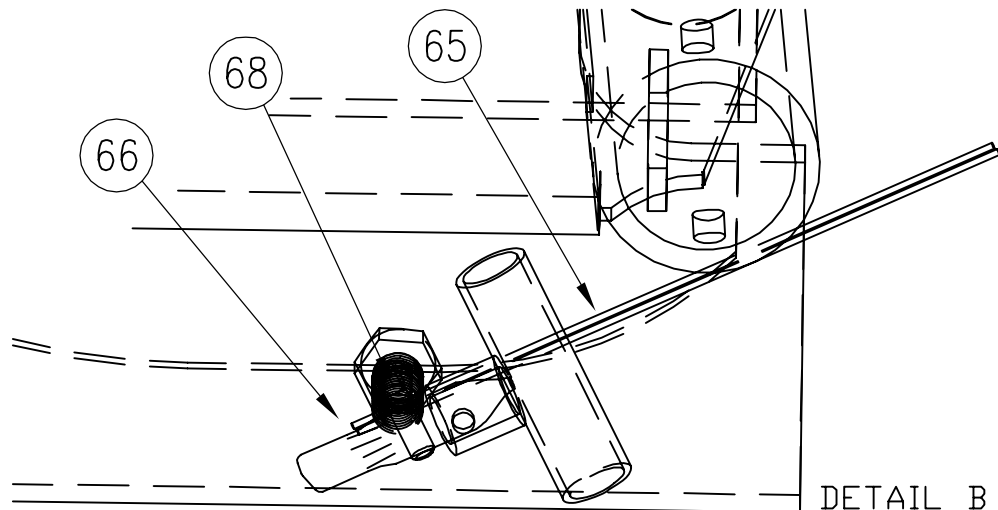
REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
502002			GRP,REAR RECEIVING HOPPER
1	106005801	4.00	SCREW,ADJ .750-10X18.00
2	502010	1.00	W/M,CENTER HOPPER,REAR
4	502033	1.00	W/M,FOLDING WING,RH
6	502015	1.00	FLAPPER W/M,RH
11	502130	2.00	RUBBER RETAINING PLATE,WING
12	502131	2.00	RUBBER RETAINING PLATE,HOPPER
15	502143	2.00	WIPER,OUTSIDE,WING HINGE
16	5928	2.00	HAIR PIN COTTER,#9,.148 DIA
20	502523	2.00	HINGE,RUBBER
22	72800	2.00	PULLEY,TAIL,24.00 BELT
23	72801	6.00	IDLER,TROUGHING,24.00 BELT
24	72802	4.00	IDLER,RETURN,3.25 OD X 24 BELT
25	72810	2.00	SPRING,EXT,1.00 ODX.135X6.00
26	80079	32.00	NUT,HEX,JAM,.750-10
NS	80228	24.00	CSHH,.375-16X1.75,GR5
28	80224	56.00	CSHH,.375-16X1.25,GR5
30	80037	48.00	NUT,HEX,.312-18
31	80352	24.00	NUT,FLEXLOC,.375-16,FULL,LT
33	80356	16.00	NUT,FLEXLOC,.625-11,FULL,LT
34	80357	14.00	NUT,FLEXLOC,.750-10,FULL,LT
NS	80038	56.00	NUT,HEX,.375-16
36	71627	12.00	CSHH,.500-13X1.50,GR5
38	80695	12.00	WASHER,SAE PLAIN,.500
39	80185	16.00	CSHH,.250-20X1.00,GR5
42	80996	72.00	WASHER,SAE PLAIN,.375
43	845282005	4.00	BEARING,TAKE UP,1.4375
44	80295	2.00	CSHH,.750-10X5.50,GR5
49	33630-3	4.25	STRIPPING,.375
54	80837	2.00	CSHH,.750-10X6.50,GR5
55	41458	1.00	REAR CONVEYOR GRILL ASSY
56	81236	2.00	CSFHS,.312-18 X 1.75
57	80211	22.00	CSHH,.312-18X1.75,GR5
59	80161	24.00	WASHER,SPLIT LOCK,.312
61	80036	16.00	NUT,HEX,.250-20
62	80160	16.00	WASHER,SPLIT LOCK,.250
63	81201	24.00	WASHER,SAE,HARDENED,.625
64	80283	12.00	CSHH,.625-11X2,GR5
67	73000	2.00	SWITCH,WATERPROOF,SPST,NO
69	80496	4.00	MACH SCR,PH,#10-32X.25,PHIL



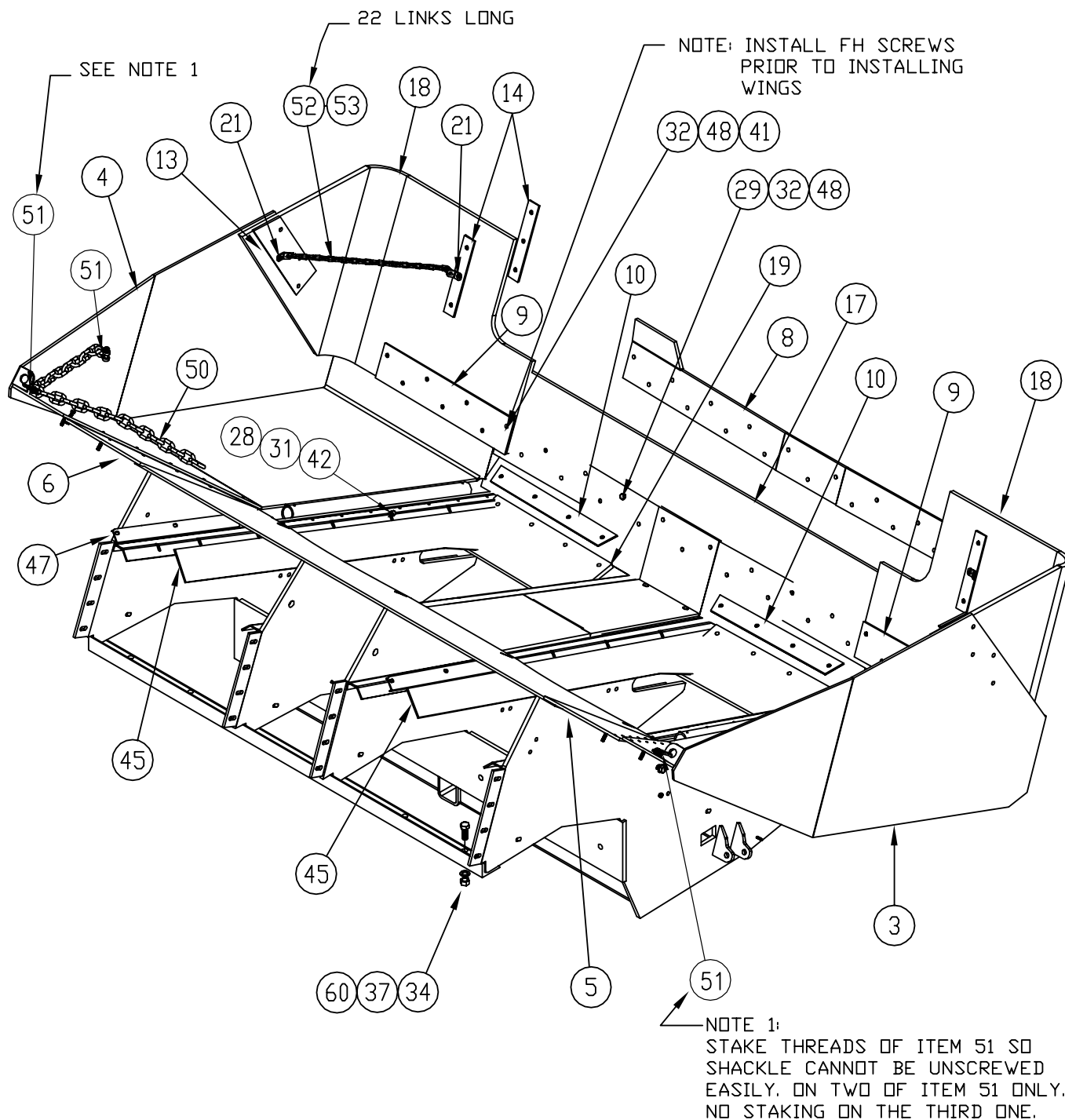


ITEM	PART NUMBER	QTY	DESCRIPTION
502002			GRP,REAR RECEIVING HOPPER
4	502033	1.00	W/M,FOLDING WING,RH
5	502014	1.00	FLAPPER W/M,LH
6	502015	1.00	FLAPPER W/M,RH
8	502123	1.00	RETAINER,REAR RUBBER
9	502125	2.00	RETAINER,REAR FOLDING HOPPER
10	502129	2.00	RETAINER,CONVEYOR WIPER
13	502132	2.00	RETAINER,SIDE FOLDING HOPPER
14	502133	4.00	RETAINER,FOLDING HOPPER,REAR
17	502520	1.00	SKIRT,RUBBER,CENTER
18	502521	2.00	SKIRT,RUBBER,END
19	502522	2.00	LAGGING SKIRT,TAIL PULLEY
21	54647	4.00	BAR,CHAIN REST
NS	80228	24.00	CSHH,.375-16X1.75,GR5
28	80224	56.00	CSHH,.375-16X1.25,GR5
29	80255	25.00	CSHH,.500-13X2.00,GR5
31	80352	24.00	NUT,FLEXLOC,.375-16,FULL,LT
32	80040	43.00	NUT,HEX,.500-13
34	80357	14.00	NUT,FLEXLOC,.750-10,FULL,LT
NS	80038	56.00	NUT,HEX,.375-16
37	80504	10.00	CSHH,.750-10X2.00,GR5
41	80991	18.00	CSFHS,.500-13X2.00
42	80996	72.00	WASHER,SAE PLAIN,.375
45	73118	4.00	LAGGING,LOWER,CONVEYOR
47	501123	4.00	HOLDDOWN,LOWER LAGGING,TOP
48	80164	43.00	WASHER,SPLIT LOCK,.500
50	71777	10.50	CHAIN,.375,PROOF COIL
51	72998	3.00	SHACKEL,.375 CHAIN,SCREW PIN
52	30081	4.00	CHAIN,.187(5.5MM),PROOF COIL
53	37200	4.00	LINK,QUICK,.188 CHAIN
60	81154	10.00	WASHER,SAE,HARDENED,.750
65	6080	2.00	SWITCH,MERCURY
66	9963	2.00	BRACKET,MERCURY SWITCH
68	80308	2.00	SET S,SQ,.250-20X.75



REF: 502002

REV: E



.....

• POSITION MERCURY
• SWITCH TO BE OPEN
• WHEN WING IS DOWN.
• FILL ENDS OF HOLDER
• #9963 WITH BUYTL TAPE
• TO SECURE SWITCH.
•

SPREADPRO

ELEVATOR TROUGHING & LAGGING

REF: See List

REV:

ITEM	PART NUMBER	QTY	DESCRIPTION
	501001	REV. F	ASSY,ELEVATOR,24.00 TROUGHING (No Illustration)
1	501010	1.00	ELEVATOR SUB-ASSY,LH (See Detail)
2	501012	1.00	ELEVATOR SUB-ASSY,RH (See Detail)
3	501109	1.00	DEFLECTOR PLATE,ELEV, TOP
4	501115	2.00	MOUNTING PLATE,ELEV,MOTOR
6	501519	2.00	SPACER,RUBBER,MOTOR MOUNT
7	71627	4.00	CSHH,.500-13X1.50,GR5
8	72812	2.00	BELT,CONVEYOR,24 WIDE,W/SPLICE
9	80221	8.00	CSHH,.375-16X1.00,GR5
10	80280	2.00	CSHH,.625-11X1.50,GR5
11	80352	16.00	NUT,FLEXLOC,.375-16,FULL,LT
12	80354	4.00	NUT,FLEXLOC,.500-13,FULL,LT
13	80356	2.00	NUT,FLEXLOC,.625-11,FULL,LT
14	80695	4.00	WASHER,SAE PLAIN,.500
15	80697	2.00	WASHER,SAE PLAIN,.625
16	80996	8.00	WASHER,SAE PLAIN,.375
17	41888	1.00	BEARING REMOTE LUBE GROUP (See Detail Opposite)
18	41981	4.00	W/M,ROLLER,CONVEYOR GUIDE
19	41983	1.00	GUARD,SPILLAGE
20	80226	8.00	CSHH,.375-16X1.50,GR5

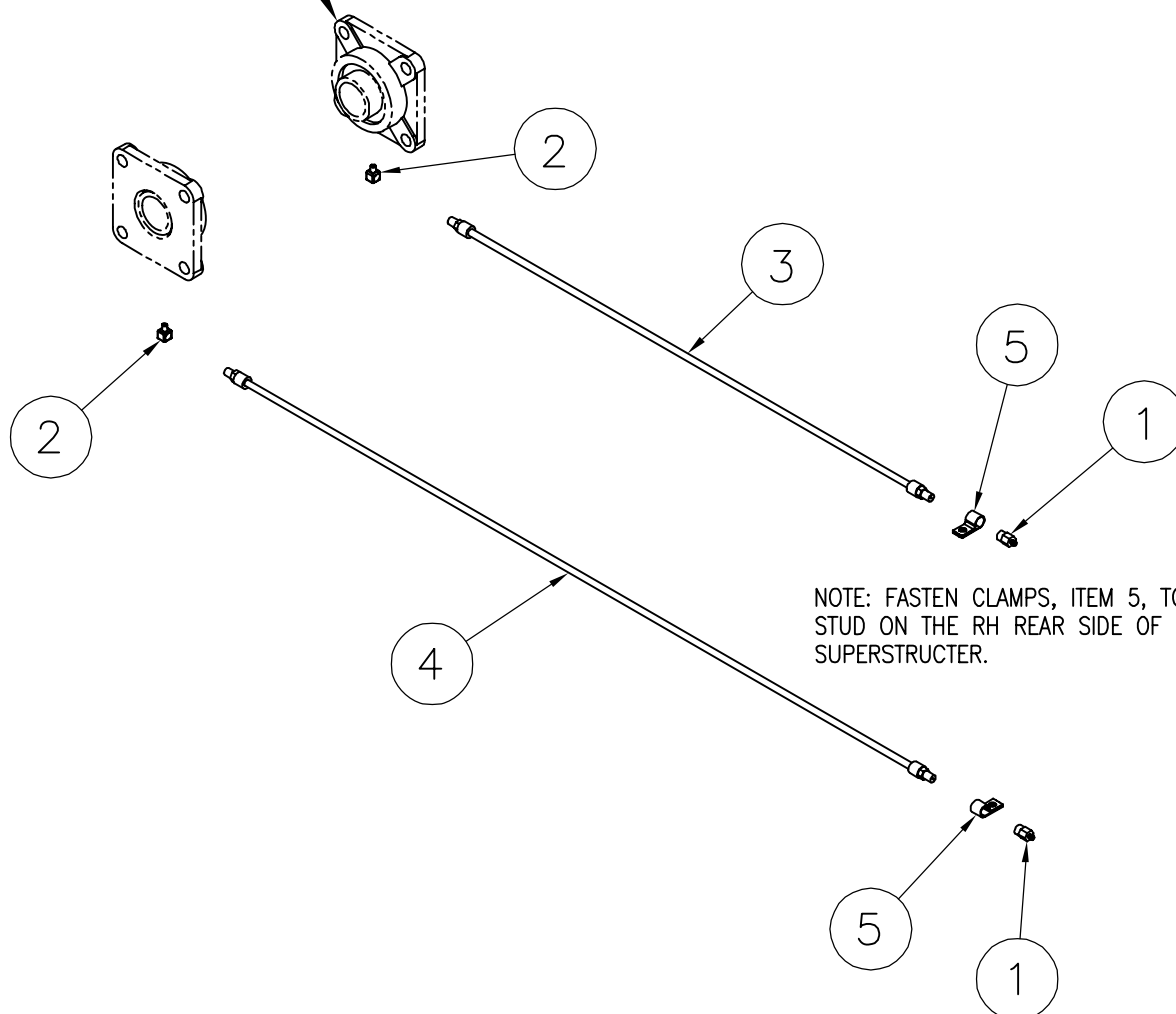
	42477	REV. 0	GRP,UPPER ELEVATOR LAGGING (No Illustration)
1	42476	4.00	HOLD DOWN, TOP LAGGING
3	73117	4.00	LAGGING,CONVEYOR,CENTER,5X121
4	501523	4.00	LAGGING,UPPER CONVEYOR
5	80829	52.00	CRG BOLT,.375-16X1.50,GR5
6	80142	104.00	WASHER,TYPE A PLAIN,.375
7	80162	52.00	WASHER,SPLIT LOCK,.375
8	80038	52.00	NUT,HEX,.375-16

REF: 41888

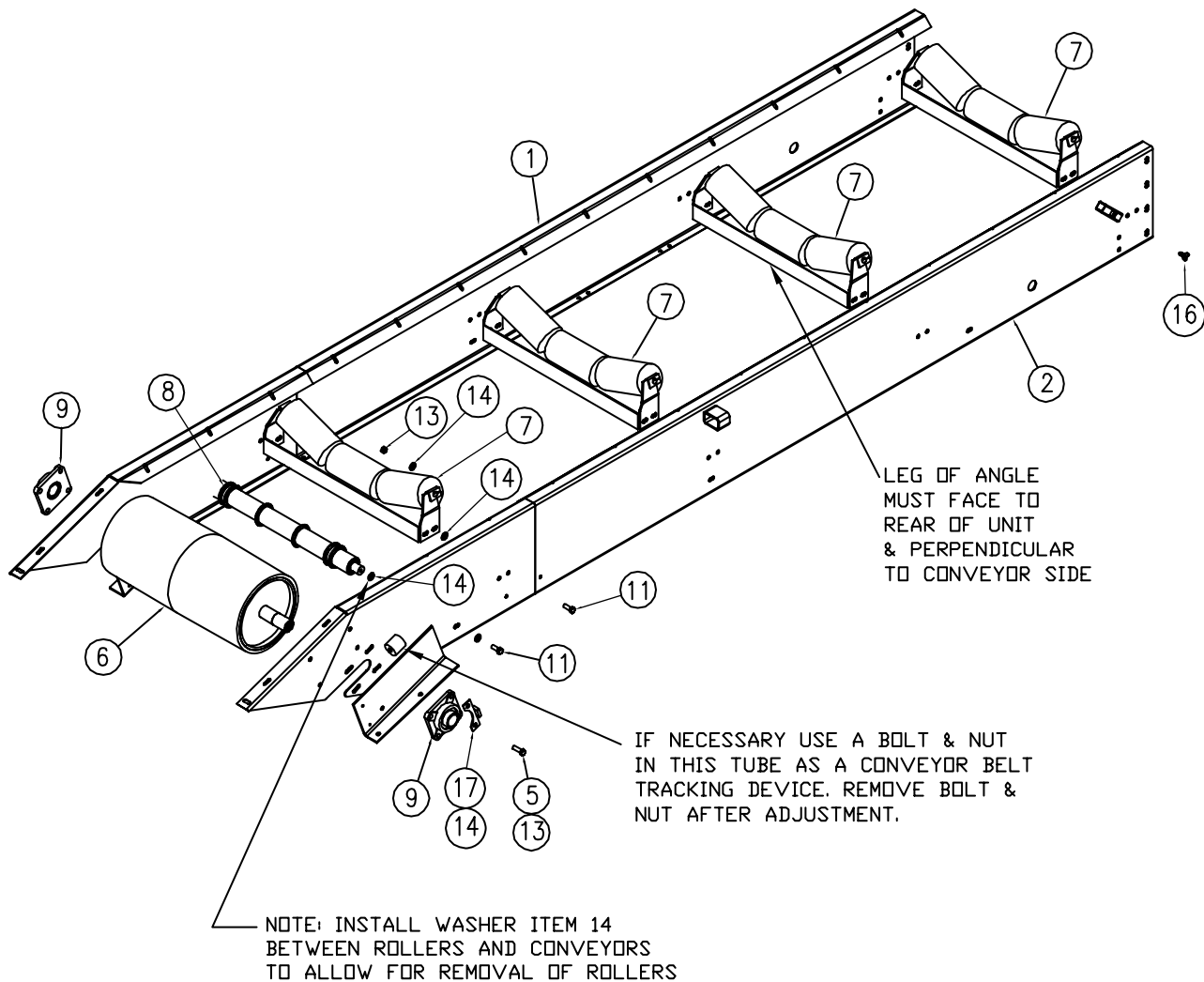
REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	41888		BEARING,REMOTE LUBE GRP
1	72660	2.00	FITT,LUBE,STR,02FP
2	73109	2.00	FITT,90 02FP-.250-28 MALE
3	73110	1.00	TUBE,LUBE,02MPX32.00
4	73111	1.00	TUBE,LUBE,02MPX47.00
5	871111605	2.00	CLAMP,LOOP,.50 OD PLSTC COVER

INNER BEARINGS FOR
HEAD PULLEYS



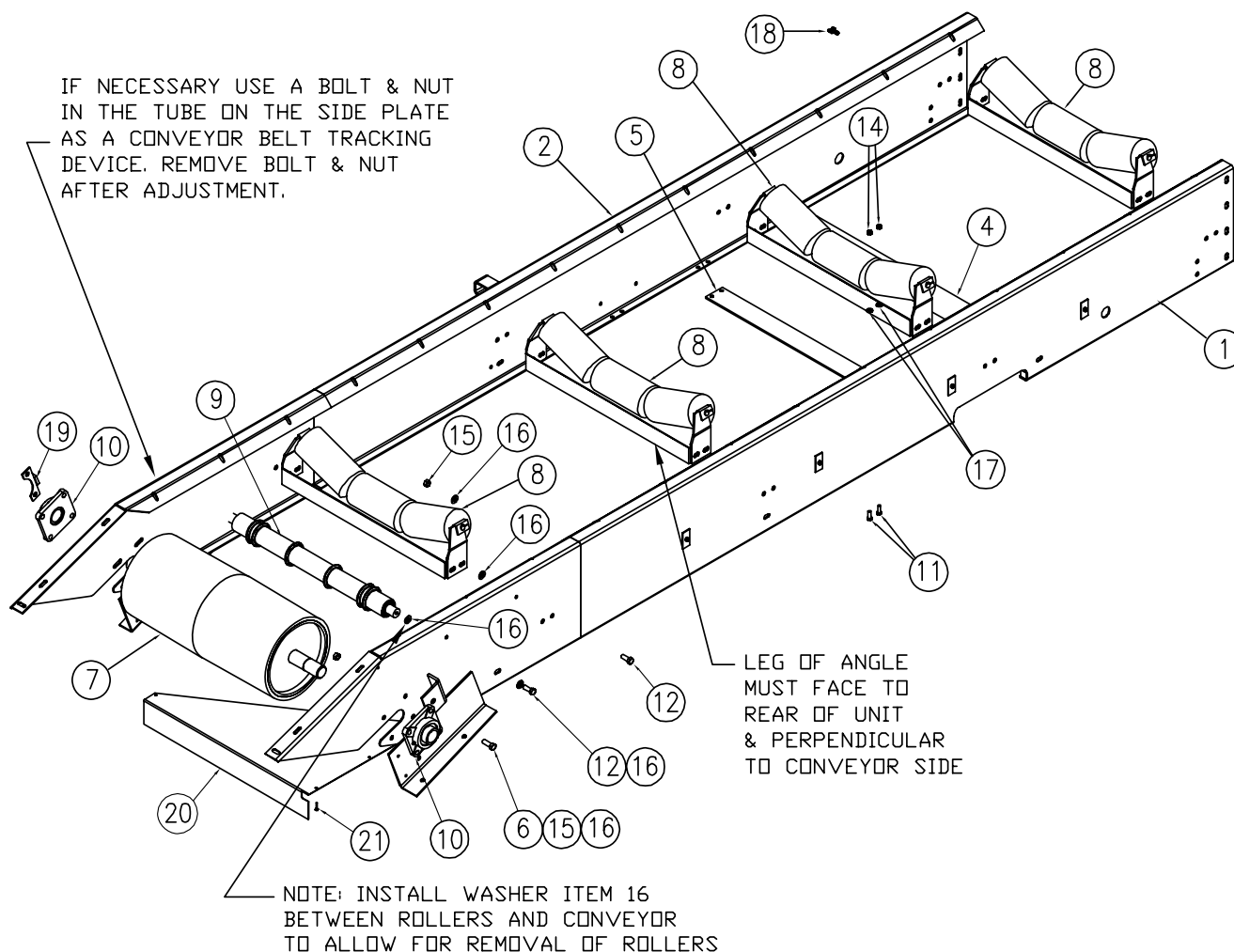
ITEM	PART NUMBER	QTY	DESCRIPTION
501010 ELEVATOR SUB-ASSY,LH			
1	501020	1.00	ELEV,LH INSIDE W/M
2	501022	1.00	ELEV,LH OUTSIDE W/M
5	80186	8.00	CSHH,.500-13X1.75,GR5
6	72799	1.00	PULLEY,HEAD,DRIVE,24.00 BELT
7	72801	4.00	IDLER,TROUGHING,24.00 BELT
8	73032	1.00	IDLER,RETURN,24.00,BANDED DRUM
9	72803	2.00	BEARING,FLANGE,1.75,4 BOLT
11	80250	22.00	CSHH,.500-13X1.25,GR5
13	80354	24.00	NUT,FLEXLOC,.500-13,FULL,LT
14	80695	48.00	WASHER,SAE PLAIN,.500
16	38046	1.00	SCREW,WING .375-16 X 1.00
17	41816	1.00	ADJUSTOR PAD W/M



REF: 501012

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
501012 ELEVATOR SUB-ASSY,RH			
1	501021	1.00	ELEV,RH INSIDE W/M
2	501023	1.00	ELEV,RH OUTSIDE W/M
4	72802	1.00	IDLER,RETURN,3.25 OD X 24 BELT
5	501151	1.00	STIFFNER,AIR FILTER
6	80186	8.00	CSHH,.500-13X1.75,GR5
7	72799	1.00	PULLEY,HEAD,DRIVE,24.00 BELT
8	72801	4.00	IDLER,TROUGHING,24.00 BELT
9	73032	1.00	IDLER,RETURN,24.00,BANDED DRUM
10	72803	2.00	BEARING,FLANGE,1.75,4 BOLT
11	80221	4.00	CSHH,.375-16X1.00,GR5
13	80250	22.00	CSHH,.500-13X1.25,GR5
14	80352	4.00	NUT,FLEXLOC,.375-16,FULL,LT
15	80354	24.00	NUT,FLEXLOC,.500-13,FULL,LT
16	80695	48.00	WASHER,SAE PLAIN,.500
17	80996	4.00	WASHER,SAE PLAIN,.375
18	38046	1.00	SCREW,WING .375-16 X 1.00
19	41816	1.00	ADJUSTOR PAD W/M
20	41742	1.00	COVER,OVERFLOW,RIGHT
21	81160	4.00	SCR,SLFDRL,HH,#10X1.00,#3PT



SPREADPRO

TOW BAR & MOUNTING BRACKET

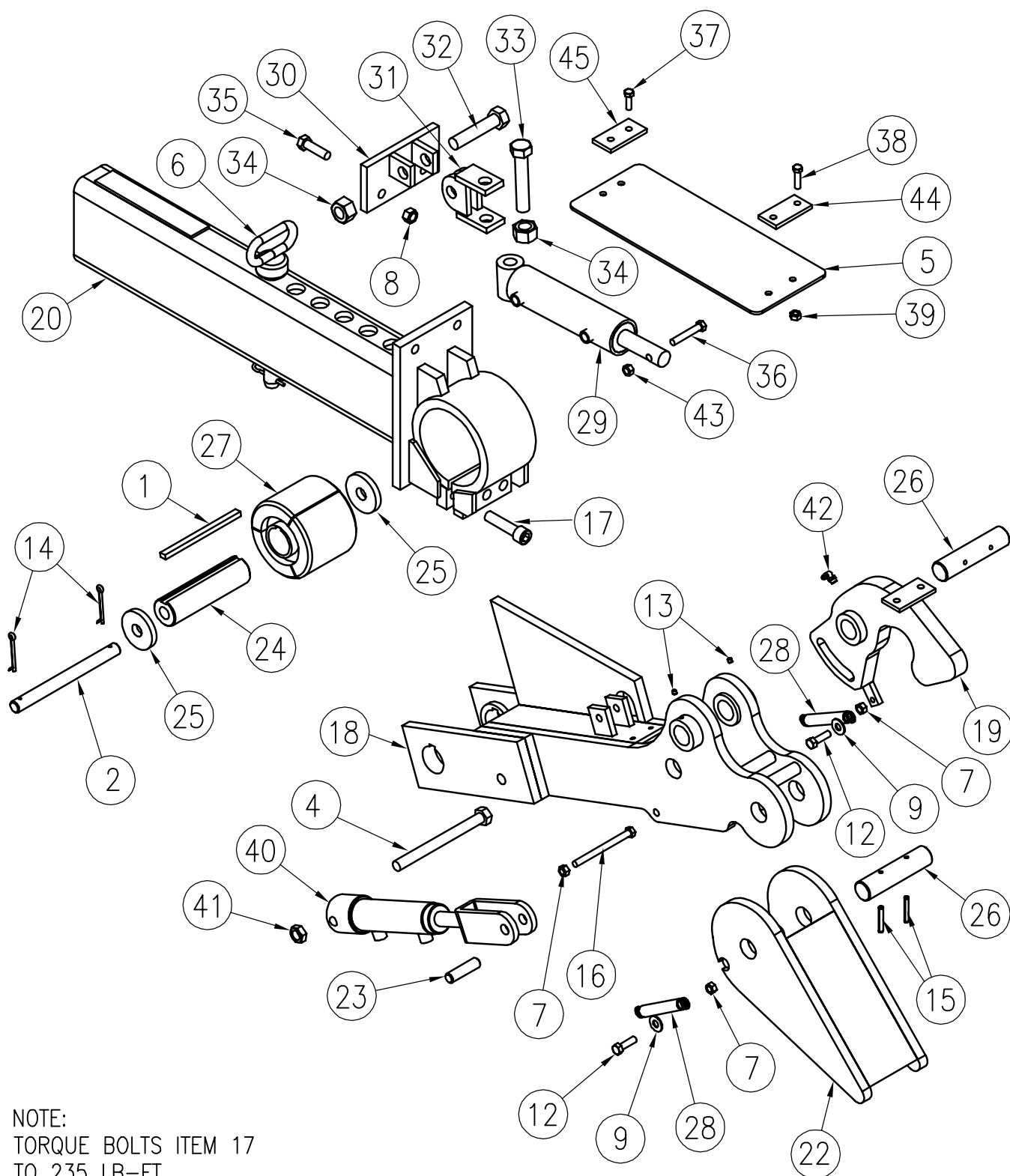
REF: 504001

REV: L

ITEM	PART NUMBER	QTY	DESCRIPTION
504001		ASSY,TOW BAR & MOUNTING BRACKET	
1	41727	1.00	KEY,.44X.31X6.25
2	41555	1.00	PIN,TOW HOOK MOUNT,.750 DIA
4	71684	1.00	CSHH,.625-11X7.00,GR5
5	72839	1.00	RUBBER,6X16X.188,HITCH COVER
6	72840	1.00	PIN,HITCH,.944 DIA,7.5,W/CLIP
7	80038	3.00	NUT,HEX,.375-16
8	80040	2.00	NUT,HEX,.500-13
9	80142	2.00	WASHER,TYPE A PLAIN,.375
12	80224	2.00	CSHH,.375-16X1.25,GR5
13	80300	2.00	SET S,HSKT,KCUP,.250-20X.25
14	80338	2.00	COTTER PIN,.188X2.00
15	80346	2.00	ROLL PIN,.250X1.75
16	81020	1.00	CSHH,.375-16X4.50,GR5
17	81264	3.00	CSSH,.625-11X2.50
18	41879	1.00	W/M,TOW HOOK BODY
19	41975	1.00	W/M,TRUCK HOOK,SPREADPRO
20	504012	1.00	W/M,MOUNT BUSH ASSY
22	504016	1.00	W/M,LEAD IN RAMP
23	504110	1.00	RND,.625X2.38,CRS
24	41729	1.00	PIN,TOW HOOK MOUNT,1.75 DIA
25	504155	2.00	WASHER,2.50ODX.781IDX.38
26	504166	2.00	RND,1.25X5.25,CRS
27	41728	1.00	BEARING,MODIF,SPHERIL,TOW HOOK
28	504501	2.00	SPRING,EXT,.68OD,4.75LG,11.9LB
29	73170	1.00	CYL,HYD,1.50 B X4.00 S X1.00 R
	72985-01	1.00	KIT,SEAL,HYD CYL
30	41631	1.00	W/M,SHOCK MOUNT
31	41683	1.00	W/M,U-JOINT,HITCH LIFT CYL
32	71645	1.00	CSHH,.750-10X3.50,GR5
33	80980	1.00	CSHH,.750-10X4.00,GR5
34	80357	2.00	NUT,FLEXLOC,.750-10,FULL,LT
35	80186	2.00	CSHH,.500-13X1.75,GR5
36	80406	1.00	CSHH,.375-16X2.25,GR5
37	80208	2.00	CSHH,.312-18X1.00,GR5
38	80206	2.00	CSHH,.312-18X1.25,GR5
39	80351	2.00	NUT,FLEXLOC,.312-18,FULL,LT
40	73127	.00	CYL,HYD,TOW HOOK,W/CLEVIS (See Hydraulics Section)
	72797-01	1.00	KIT,SEAL,HYD CYL,TOW HOOK
41	80042	1.00	NUT,HEX,.625-11
42	5039	1.00	FITT,LUBE,90,02MP
43	80352	1.00	NUT,FLEXLOC,.375-16,FULL,LT
44	41553	1.00	BAR,.250X1.50X3.00,HRS
45	41903	1.00	BAR,.250X1.50X3.00,HRS

REF: 504001

REV: L



NOTE:
TORQUE BOLTS ITEM 17
TO 235 LB-FT.

REF: 42445

REV: 0

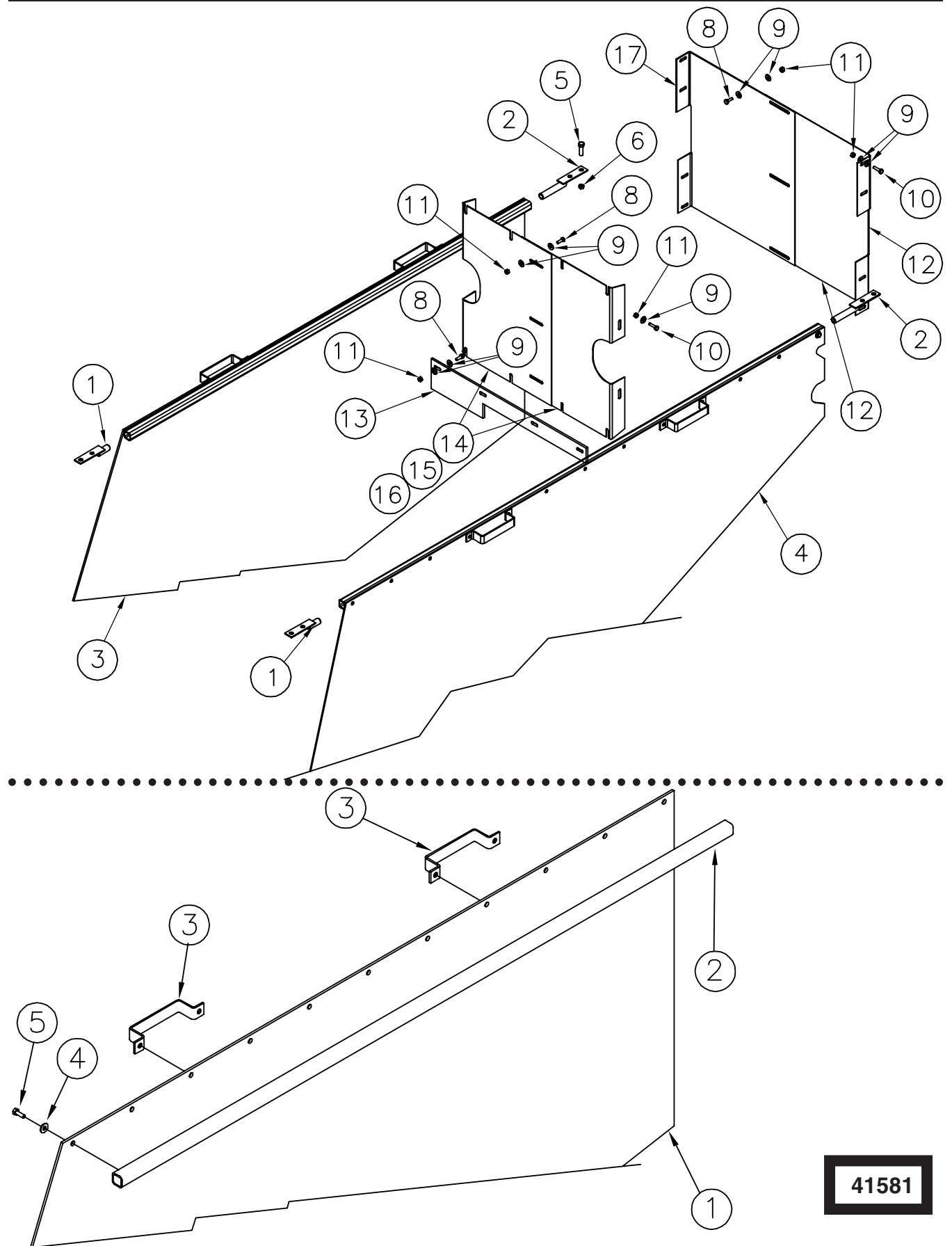
ITEM	PART NUMBER	QTY	DESCRIPTION
	42445		GRP,CURTAIN,QSB ENG (Illustration Opposite)
1	41515	2.00	MOUNT,CURTAIN,LOWER
2	41516	2.00	MOUNT,CURTAIN,UPPER
3	41581	1.00	CURTAIN ASSEMBLY,LEFT (See Detail Below)
4	41582	1.00	CURTAIN ASSEMBLY,RIGHT (See Detail Below)
5	80224	8.00	CSHH,.375-16X1.25,GR5
6	80352	8.00	NUT,FLEXLOC,.375-16,FULL,LT
7	41504	4.00	ANGLE,1.00X1.00X.125X1.00,HOLE
8	80192	6.00	CSHH,.250-20X.75,GR5
9	80140	40.00	WASHER,TYPE A PLAIN,.250
10	80185	16.00	CSHH,.250-20X1.00,GR5
11	80350	22.00	NUT,FLEXLOC,.250-20,FULL,LT
12	41906	1.00	GUARD,CENTER,OVERFLOW,RH
13	73274	1.00	RUBBER,AIR DAM SEAL
14	42443	2.00	DIVIDER,AIR DAM
15	33630-1	1.50	STRIPPING,EDGE,.125
16	38470	4.50	SEAL,TRIM,PUSH-ON,RUB,.125GRIP
17	42088	1.00	GUARD,CENTER,OVERFLOW,LH

CURTAIN ASSEMBLY,LEFT (Illustration Opposite)

1	41517	1.00	CURTAIN,LEFT
2	41518	1.00	CURTAIN ROD,LEFT
3	41519	2.00	HANDLE,6.00C-CX5.00GRIPX1.50DP
4	80140	11.00	WASHER,TYPE A PLAIN,.250
5	80324	11.00	SCR,SLFTPG,HH,.250-20X.75

41582**CURTAIN ASSEMBLY,RIGHT(No Illustration)**

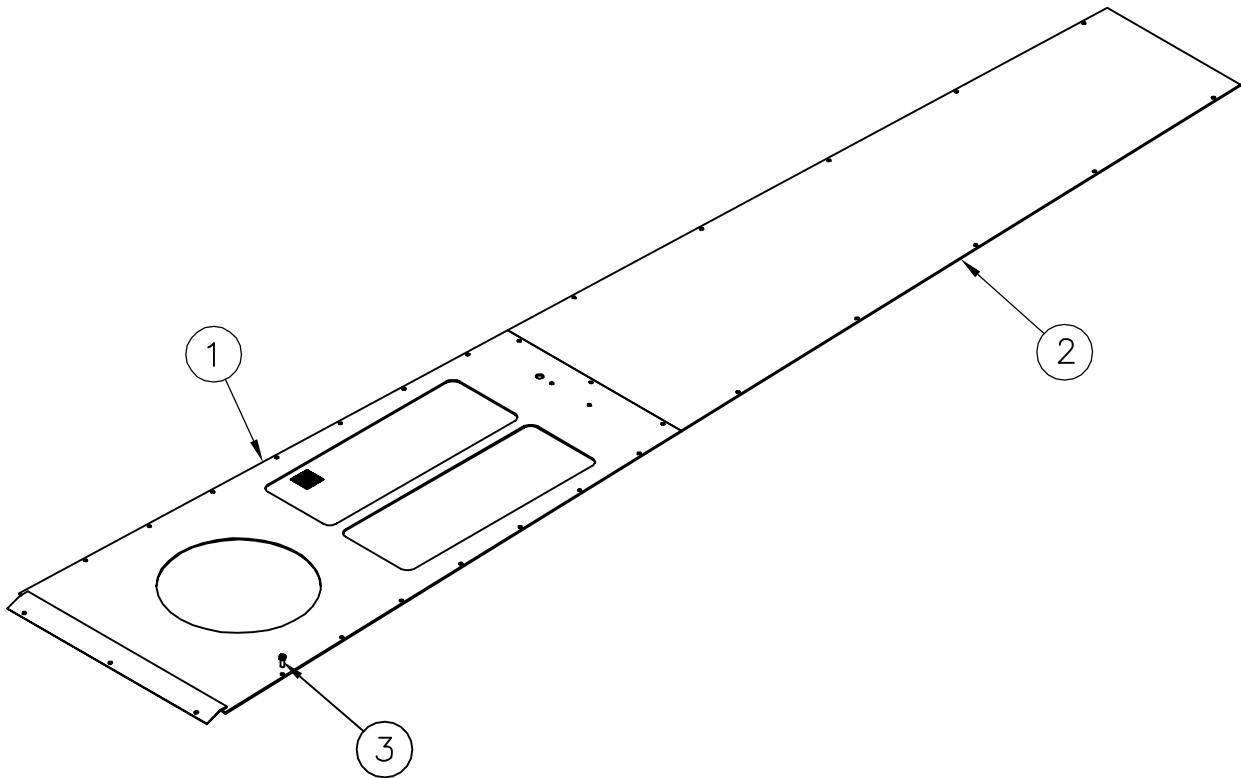
1	41583	1.00	CURTAIN,RIGHT
2	41584	1.00	CURTAIN ROD,RIGHT
3	41519	2.00	HANDLE,6.00C-CX5.00GRIPX1.50DP
4	80140	13.00	WASHER,TYPE A PLAIN,.250
5	80324	13.00	SCR,SLFTPG,HH,.250-20X.75



41581

REF: 41377
REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
	41377	REV. E	CENTER COVER PANEL
1	41929	1.00	TOP CENTER PLATE WELDMENT
2	41928	1.00	BOTTOM CENTER COVER W/M
3	80909	30.00	SCR,SLFDRL,HH,.250-14X1.00



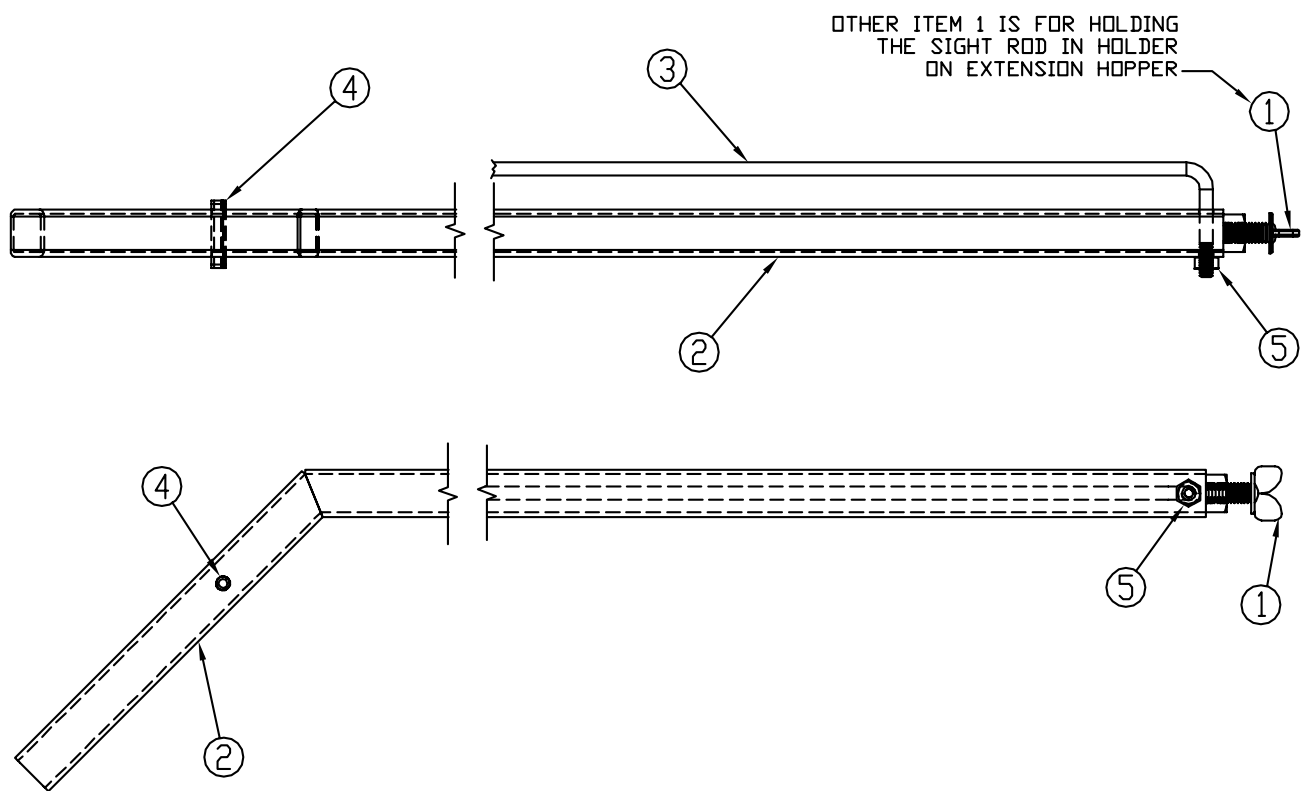
SIGHT RODS

SPREADPRO

REF: 513037

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	513037	REV. 0	SIGHT ROD,LH
	513038	REV. 0	SIGHT ROD,RH (Components are the same for both)
1	38046	1.00	SCREW,WING .375-16X1.00
2	513039	1.00	W/M,SIGHT ROD
3	513165	1.00	ROD,SIGHT ROD
4	80344	1.00	ROLL PIN,.250X1.25
5	80350	1.00	NUT,FLEXLOC,.250-20,FULL,LT



SPREADPRO

DECAL GROUP

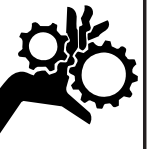
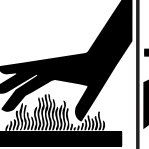
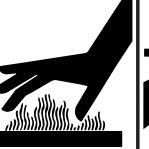
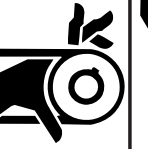
REF: 41388

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
	41388	REV. E	DECAL GRP,SPREADPRO
0	983511	1.00	KIT,DECAL,SPREADPRO
0	984930	1.00	KIT,DECAL,SPREADPRO,ADMARK
0	73154	1.00	DECAL,LUBE,FRONT AXLE,SPREADPRO
0	73155	1.00	DECAL,LUBE,MACHINE,SPREADPRO
0	73156	1.00	DECAL,LUBE,REAR AXLE,SPREADPRO
0	73157	1.00	DECAL,LUBE CHART,SPREADPRO
2	35355	1.00	PLATE,SERIAL NUMBER,ROSCO
5	35952	1.00	DECAL,SMV SIGN COVER
12	34096	2.00	PIN
24	73115	4.00	RIVET,BLIND,AL,.125,.376-.500
28	33630	7.00	STRIPPING,.062
29	33630-2	1.00	STRIPPING,.250

See Safety, Section II of this manual for additional information, and Safety Decal locations.

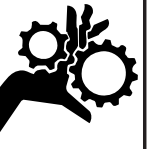
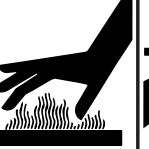
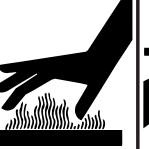
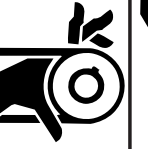


⚠ WARNING		⚠ ADVERTENCIA		⚠ AVERTISSEMENT	
	EXPLOSION HAZARD! Explosive battery gases. Keep sparks and flames away from battery. Refer to Operator's Manual for battery boosting and charging procedures. BURN HAZARD! Corrosive and poisonous battery acid. Acid can severely burn. Failure to comply could result in death or serious injury.	¡RIESGO DE EXPLOSION! La batería despidе gases explosivos. Mantener las chispas y llamas alejadas de la batería. Consultar el Manual del operador para los procedimientos de arranque con batería de refuerzo y de carga de la batería. ¡RIESGO DE QUEMADURAS! El ácido de la batería es corrosivo y venenoso. El ácido puede causar quemaduras graves. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.	RISQUE D'EXPLOSION ! Gaz de batterie explosifs. Ne pas approcher la batterie de sources d'étincelles ou de flamme. Voir le manuel d'opérations pour le renforcement de la charge et la recharge de la batterie. RISQUE DE BRÛLURES ! Acide de batterie corrosif et toxique. L'acide peut causer de graves brûlures. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.		
					
					

PATENT APPLIED FOR APPLICATION NO. 99287148

CAUTION
EQUIPMENT DAMAGE HAZARD!
Damage to underside of chip spreader may occur if improper ramp angle is used for loading and unloading.

CAUTION
EQUIPMENT DAMAGE HAZARD!
Damage to underside of chip spreader may occur if improper ramp angle is used for loading and unloading.

⚠ WARNING		⚠ ADVERTENCIA		⚠ AVERTISSEMENT	
					
					

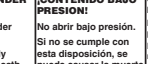
CAUTION
EQUIPMENT DAMAGE HAZARD!
Damage to underside of chip spreader may occur if improper ramp angle is used for loading and unloading.

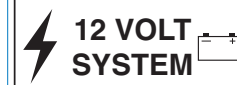
⚠ DANGER		⚠ PELIGRO		⚠ DANGER	
	FALL HAZARD! DO NOT stand in or ride on front hopper.	¡RIESGO DE CAIDAS! NO pararse sobre la tolva delantera ni viajar en ella.	RISQUE DE CHÛTE ! NE PAS monter dans la trémie avant, ni se tenir dessus.		PINCH HAZARD! Stay clear of area.
	ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.	¡RIESGO DE SER ESTRUJADO! Mantenerse alejado de esta zona.	DANGER DE PINCEMENT ! Ne pas s'approcher.		ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.
	ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.	¡RIESGO DE Quedar ATRAPADO! Mantener las manos alejadas. Mantener los protectores en su lugar. Sustituir los protectores o escudos faltantes. Si no se cumple con esta disposición, se causará la muerte o lesiones graves.	RISQUE D'ENCHEVÊTREMENT ! Ne pas approcher les mains. Maintenir les protections en place. Remplacer les carters et protections qui manquent. Le non-respect de cette règle entraînera des blessures graves, voire mortelles.		ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.

⚠ DANGER		⚠ PELIGRO		⚠ DANGER	
	FALL HAZARD! DO NOT stand in or ride on front hopper.	¡RIESGO DE CAIDAS! NO pararse sobre la tolva delantera ni viajar en ella.	RISQUE DE CHÛTE ! NE PAS monter dans la trémie avant, ni se tenir dessus.		PINCH HAZARD! Stay clear of area.
	ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.	¡RIESGO DE SER ESTRUJADO! Mantenerse alejado de esta zona.	DANGER DE PINCEMENT ! Ne pas s'approcher.		ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.
	ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.	¡RIESGO DE Quedar ATRAPADO! Mantener las manos alejadas. Mantener los protectores en su lugar. Sustituir los protectores o escudos faltantes. Si no se cumple con esta disposición, se causará la muerte o lesiones graves.	RISQUE D'ENCHEVÊTREMENT ! Ne pas approcher les mains. Maintenir les protections en place. Remplacer les carters et protections qui manquent. Le non-respect de cette règle entraînera des blessures graves, voire mortelles.		ENTANGLEMENT HAZARD! Keep hands clear. Keep guards in place. Replace missing guards or shields. Failure to comply will result in death or serious injury.

⚠ WARNING	
	ROTATING FAN BLADE! Keep hands and clothing away.
	BURN HAZARD! Do not open when hot. Allow system to cool. Pressurized cooling system. Remove cap slowly with gloves. Failure to comply could result in death or serious injury.
⚠ ADVERTENCIA	
	¡VENTILADOR EN MOVIMIENTO! Mantener las manos y la vestimenta alejadas.
	¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfrie. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
⚠ AVERTISSEMENT	
	PALE DE VENTILATEUR EN ROTATION ! Ne pas approcher les mains ni les vêtements.
	RISQUE DE BRÛLURES ! Ne pas ouvrir à chaud. Laisser le circuit refroidir. Circuit de refroidissement sous pression. Retirer le bouchon lentement, avec des gants. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.



⚠ WARNING		⚠ ADVERTENCIA		⚠ AVERTISSEMENT	
	CONTENTS UNDER PRESSURE! Do not open under pressure. Failure to comply could result in death or serious injury.	¡CONTENIDO BAJO PRESIÓN! No abrir bajo presión. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.	CONTENU SOUS PRESION ! Ne pas ouvrir sous pression. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.		CONTENTS UNDER PRESSURE! Do not open under pressure. Failure to comply could result in death or serious injury.



SPREADPRO**DECAL GROUP**

REF: 41388

REV: E

ITEM	PART NUMBER	QTY	DESCRIPTION
	41388	REV. E	DECAL GRP,SPREADPRO
0	983511	1.00	KIT,DECAL,SPREADPRO
0	984930	1.00	KIT,DECAL,SPREADPRO,ADMARK
0	73154	1.00	DECAL,LUBE,FRONT AXLE,SPREADPRO
0	73155	1.00	DECAL,LUBE,MACHINE,SPREADPRO
0	73156	1.00	DECAL,LUBE,REAR AXLE,SPREADPRO
0	73157	1.00	DECAL,LUBE CHART,SPREADPRO
2	35355	1.00	PLATE,SERIAL NUMBER,ROSCO
5	35952	1.00	DECAL,SMV SIGN COVER
12	34096	2.00	PIN
24	73115	4.00	RIVET,BLIND,AL,.125,.376-.500
28	33630	7.00	STRIPPING,.062
29	33630-2	1.00	STRIPPING,.250

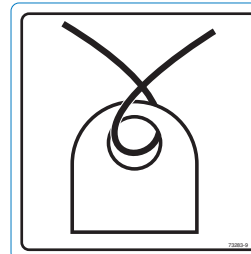
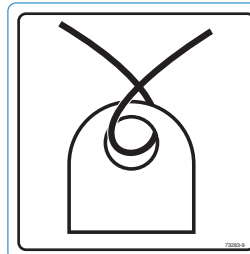
See Safety, Section II of this manual for additional information, and Safety Decal locations.

⚠ WARNING	
	ROTATING FAN BLADE! Keep hands and clothing away. BURN HAZARD! Do not open when hot. Allow system to cool. Pressurized cooling system. Remove cap slowly with gloves. Failure to comply could result in death or serious injury.
	¡VENTILADOR EN MOVIMIENTO! Mantener las manos y la vestimenta alejadas. ¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfríe. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
⚠ ADVERTENCIA	
	¡VENTILADOR EN MOVIMIENTO! Mantener las manos y la vestimenta alejadas. ¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfríe. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
	¡VENTILADOR EN MOVIMIENTO! Mantener las manos y la vestimenta alejadas. ¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfríe. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
⚠ AVERTISSEMENT	
	PALE DE VENTILATEUR EN ROTATION ! Ne pas approcher les mains ni les vêtements. RISQUE DE BRÛLURES ! Ne pas ouvrir à chaud. Laisser le circuit refroidir. Circuit de refroidissement sous pression. Retirer le bouchon lentement, avec des gants. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.
	PALE DE VENTILATEUR EN ROTATION ! Ne pas approcher les mains ni les vêtements. RISQUE DE BRÛLURES ! Ne pas ouvrir à chaud. Laisser le circuit refroidir. Circuit de refroidissement sous pression. Retirer le bouchon lentement, avec des gants. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.

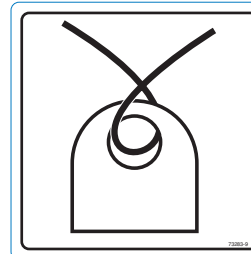
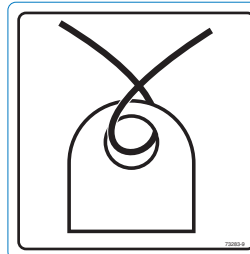
⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
	BURN HAZARD! Do not open when hot. Allow system to cool. Pressurized cooling system. Remove cap slowly with gloves. Failure to comply could result in death or serious injury.	¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfríe. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
	¡RIESGO DE QUEMADURAS! No abrir cuando está caliente. Permitir que el sistema se enfríe. Sistema de enfriamiento presurizado. Quitar la tapa lentamente con guantes. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.	RISQUE DE BRÛLURES ! Ne pas ouvrir à chaud. Laisser le circuit refroidir. Circuit de refroidissement sous pression. Retirer le bouchon lentement, avec des gants. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
	SLIP/FALL HAZARD! Keep steps and walking surfaces clean. Replace anti-slip material when worn or missing. Failure to comply could result in death or serious injury.	¡RIESGO DE RESBALONES/CAIDAS! Mantener limpios los peldaños y las superficies para caminar. Sustituir el material antideslizante cuando se haya desgastado o si hace falta. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
	¡RIESGO DE RESBALONES/CAIDAS! Mantener limpios los peldaños y las superficies para caminar. Sustituir el material antideslizante cuando se haya desgastado o si hace falta. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.	RISQUE DE DERAPAGE/CHUTE ! Maintenir la propreté des marches et surfaces de passage. Remplacer tout matériau antidérapant usé ou manquant. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
	SLIP/FALL HAZARD! Keep steps and walking surfaces clean. Replace anti-slip material when worn or missing. Failure to comply could result in death or serious injury.	¡RIESGO DE RESBALONES/CAIDAS! Mantener limpios los peldaños y las superficies para caminar. Sustituir el material antideslizante cuando se haya desgastado o si hace falta. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.
	¡RIESGO DE RESBALONES/CAIDAS! Mantener limpios los peldaños y las superficies para caminar. Sustituir el material antideslizante cuando se haya desgastado o si hace falta. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.	RISQUE DE DERAPAGE/CHUTE ! Maintenir la propreté des marches et surfaces de passage. Remplacer tout matériau antidérapant usé ou manquant. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.

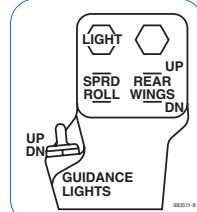


⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
	CALIFORNIA Proposition 65 Warning Some exhaust and some of its components are known to the State of California to cause cancer, birth defects, and other reproductive harm. Always use only the correct breathing equipment.	Advertencia Según Proposition 65 De La California El escape de escape del motor y algunos de sus componentes son conocidos por el Estado de California como causantes de cáncer, defectos congénitos y otros daños a la salud reproductiva.
	EQUIPMENT DAMAGE HAZARD Do NOT use with fuel tank open. Fuel tank must be closed and locked. Failure to comply may result in death or serious injury.	RISQUE DE DÉGÂTS MATERIELS NE PAS utiliser avec le réservoir ouvert. Le réservoir doit être fermé et verrouillé. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.



⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
	1. Read and understand operator's manual before using the machine. (Do not use the machine if you do not understand the manual.)	1. Lire et comprendre le manuel de l'opérateur avant d'utiliser la machine. (Ne pas utiliser la machine si vous ne comprenez pas le manuel.)
	2. DO NOT allow untrained personnel to operate machine.	2. Ne pas permettre à des personnes non formées d'utiliser la machine.
	3. Always wear seat belts when operating.	3. Porter toujours votre ceinture de sécurité.
	4. DO NOT operate machine if back-up alarm is not working.	4. Ne pas utiliser la machine si l'alarme arrière ne fonctionne pas.
	5. Keep all shields in place.	5. Garder tous les écrans en place.
	6. Stay clear of moving parts.	6. Rester à l'écart des pièces mobiles.
	7. Ensure all safety signs are installed and legible.	7. S'assurer que tous les signes de sécurité sont installés et lisibles.
	8. Ensure bystanders are clear of machine before starting and during operation.	8. S'assurer que les témoins sont à l'écart de la machine avant de commencer et pendant l'opération.
	9. Stop machine before shifting between ranges or gears.	9. Arrêter la machine avant de changer de gamme ou de vitesse.
	10. Always come to complete stop before changing direction.	10. Toujours arrêter la machine complètement avant de changer de direction.
	11. Stop engine before refueling.	11. Arrêter le moteur avant de ravitailler.
	12. Inspect hydraulic, steering and brake system daily for wear, leaks, loose bolts and foreign material around hoses and fittings.	12. Inspecter quotidiennement le système hydraulique, de direction et de freinage pour l'usure, les fuites, les boulons desserrés et la présence de débris autour des tuyaux et des raccords.
	13. Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.	13. Utiliser l'emblème de véhicule à mouvement lent et les feux de signalisation clignotants lors de l'opération sur les routes, sauf interdiction légale.
	14. Failure to comply to any of the above could result in death or serious injury.	14. Le non-respect de l'une des règles ci-dessus pourrait entraîner la mort ou des blessures graves.

CAUTION	PRECAUTION	ATTENTION
	HYDRAULIC FLUID Hydraulic oil to be visible in sight glass at all times.	FLUIDO HIDRÁULICO El aceite hidráulico deberá estar visible en la manija en todo momento.
	HYDRAULIC FLUID Hydraulic oil to be visible in sight glass at all times.	FLUIDO HIDRÁULICO El aceite hidráulico deberá estar visible en la manija en todo momento.
	HYDRAULIC FLUID Hydraulic oil to be visible in sight glass at all times.	FLUIDO HIDRÁULICO El aceite hidráulico deberá estar visible en la manija en todo momento.



SPREADPRO

NON-ILLUSTRATED GROUPS

REF: See List

REV:

ITEM	PART NUMBER	QTY	DESCRIPTION
	41389	REV. B	FINAL GROUP
1	34735	5.00	TRIM,STEEL CORE
2	36130	1.00	KIT,HORN,STEERING WHEEL CENTER
3	36898	1.00	SEAT BELT,3.00 W/HARDWARE
4	37290	1.00	GROMMET,.50IDX.81HOLE
5	33963	1.00	ALARM,BACKUP
6	41846	2.00	SCRAPER,CONVEYOR HEADROLL
7	6436	1.00	STEERING WHEEL
8	72125	1.00	GRIP,HANDLE,.125X2.75,FLAT
9	72869	1.00	CUP HOLDER,BLACK 3" ID
10	80037	4.00	NUT,HEX,.312-18
11	80141	4.00	WASHER,TYPE A PLAIN,.312
12	80161	4.00	WASHER,SPLIT LOCK,.312
13	80224	6.00	CSHH,.375-16X1.25,GR5
14	80352	13.00	NUT,FLEXLOC,.375-16,FULL,LT
15	80996	20.00	WASHER,SAE PLAIN,.375
16	81089	1.00	WASHER,SAE PLAIN,1.500
17	853521158	1.00	INDICATOR,AIR CLEANER
18	P70036	1.00	SIGN,SLOW MOVING VEHICLE
	41468	REV. B	LADDER,RIGHT
	41469	REV. B	LADDER,LEFT

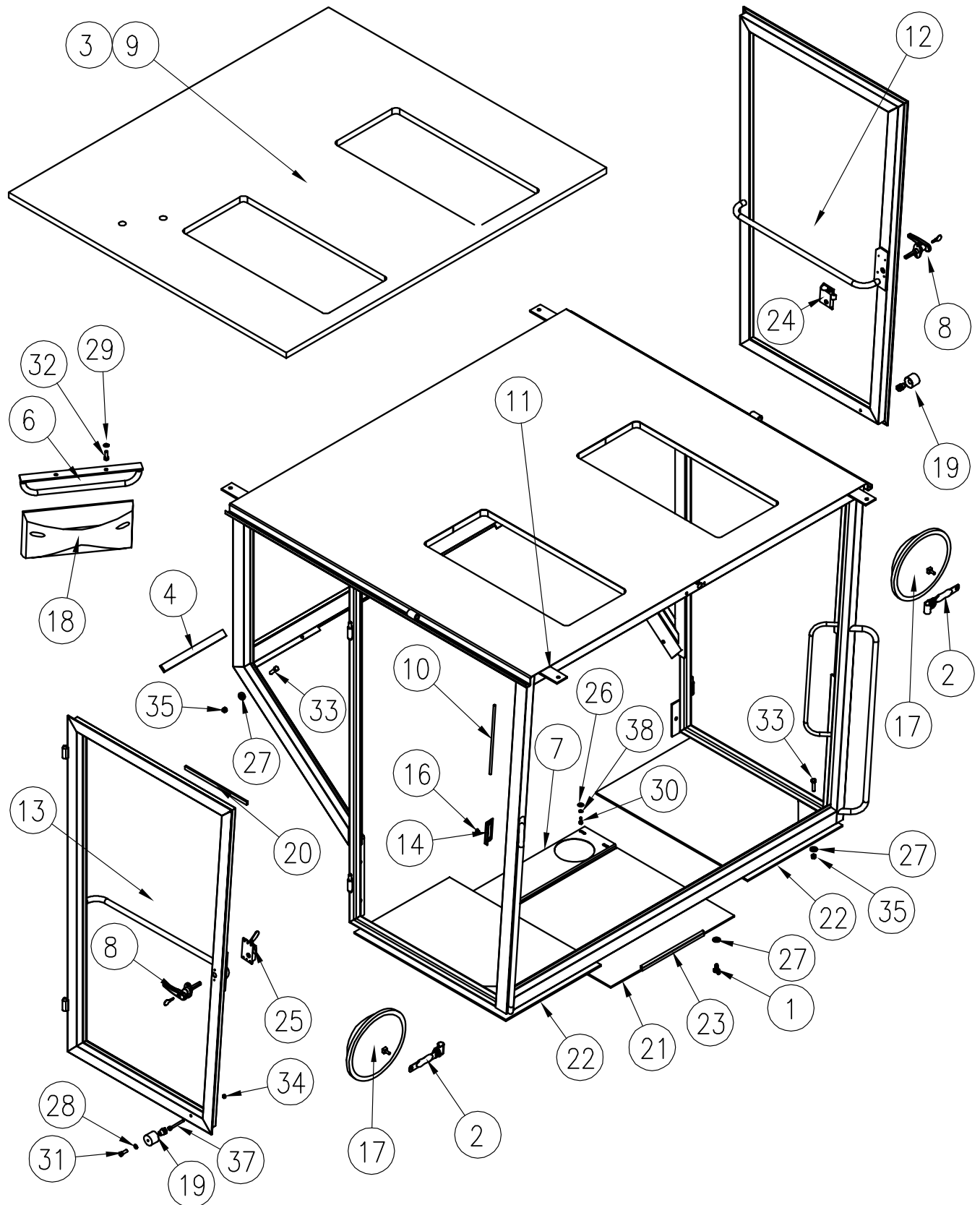
SPREADPRO

CAB OPTION - CAB ASSEMBLY

REF: 552001

REV: D

ITEM	PART NUMBER	QTY	DESCRIPTION
552001		CAB ASSEMBLY	
1	38046	6.00	SCREW,WING .375-16X1.00
2	38072	2.00	MIRROR CLAMP KIT
3	38462	1.00	ADHESIVE,AEROSOL SPRAY, CAN
4	38489	25.00	FOAM,WEATHERSTRIP,.38X1.00X25'
6	41641	1.00	MOUNT,MIRROR,CENTER
7	511215	1.00	FILL PLATE
8	41821	2.00	HANDLE,LOCKING DOOR,CUT 2.25
9	41822	1.00	HEADLINER,SPREADPRO
10	41905	1.00	HARNESS,CAB POWER,SPREADPRO
11	552010	1.00	CAB,SPREADPRO,WELDMENT
12	552011	1.00	DOOR,LEFT
13	552012	1.00	DOOR,RIGHT
14	552107	2.00	CATCH,DOOR,ADJUSTABLE
15	552521	1.00	WINDOW INSTALLATION GROUP (See Detail Below)
16	81107	4.00	MACH SCR,PH,.250-20X.50
17	72941	2.00	MIRROR,CONVEX 10.00,BLACK
18	72967	1.00	MIRROR,7.00X16.00
19	73022	2.00	HOLDER,DOOR,1.56DIAX1.03LONG
20	73064	29.00	RUBBER STRIP,SPONGE,.250X.50
21	73147	1.00	SH,POLY,.25X22.75X24.00
22	73148	2.00	SH,POLY,.25X18.50X29.50
23	73082	24.00	SEAL,TRIM,PUSH-ON,RUB,.25GRIP
24	73087	1.00	LATCH,SLAM,INSIDE HANDLE,LH
25	73088	1.00	LATCH,SLAM,INSIDE HANDLE,RH
26	80140	4.00	WASHER,TYPE A PLAIN,.250
27	80142	18.00	WASHER,TYPE A PLAIN,.375
28	80161	2.00	WASHER,SPLIT LOCK,.312
29	80162	2.00	WASHER,SPLIT LOCK,.375
30	80192	4.00	CSHH,.250-20X.75,GR5
31	80208	2.00	CSHH,.312-18X1.00,GR5
32	80221	2.00	CSHH,.375-16X1.00,GR5
33	80226	12.00	CSHH,.375-16X1.50,GR5
34	80350	2.00	NUT,FLEXLOC,.250-20,FULL,LT
35	80352	12.00	NUT,FLEXLOC,.375-16,FULL,LT
36	37830	4.00	NUT,INSERT,.375-16,.027-.150,S
37	80787	2.00	CSHH,.250-20X2.50,GR5
38	80160	4.00	WASHER,SPLIT LOCK,.250
552521		WINDOW INSTALLATION GROUP (No Illustration)	
1	552522	1.00	GLASS,SPREADPRO,FRONT
2	552523	1.00	GLASS,SPREADPRO,REAR
3	552524	2.00	GLASS,SPREADPRO,SIDE
4	552525	2.00	GLASS,SPREADPRO,DOOR
5	552556	2.00	GLASS,SPREADPRO,SUNROOF



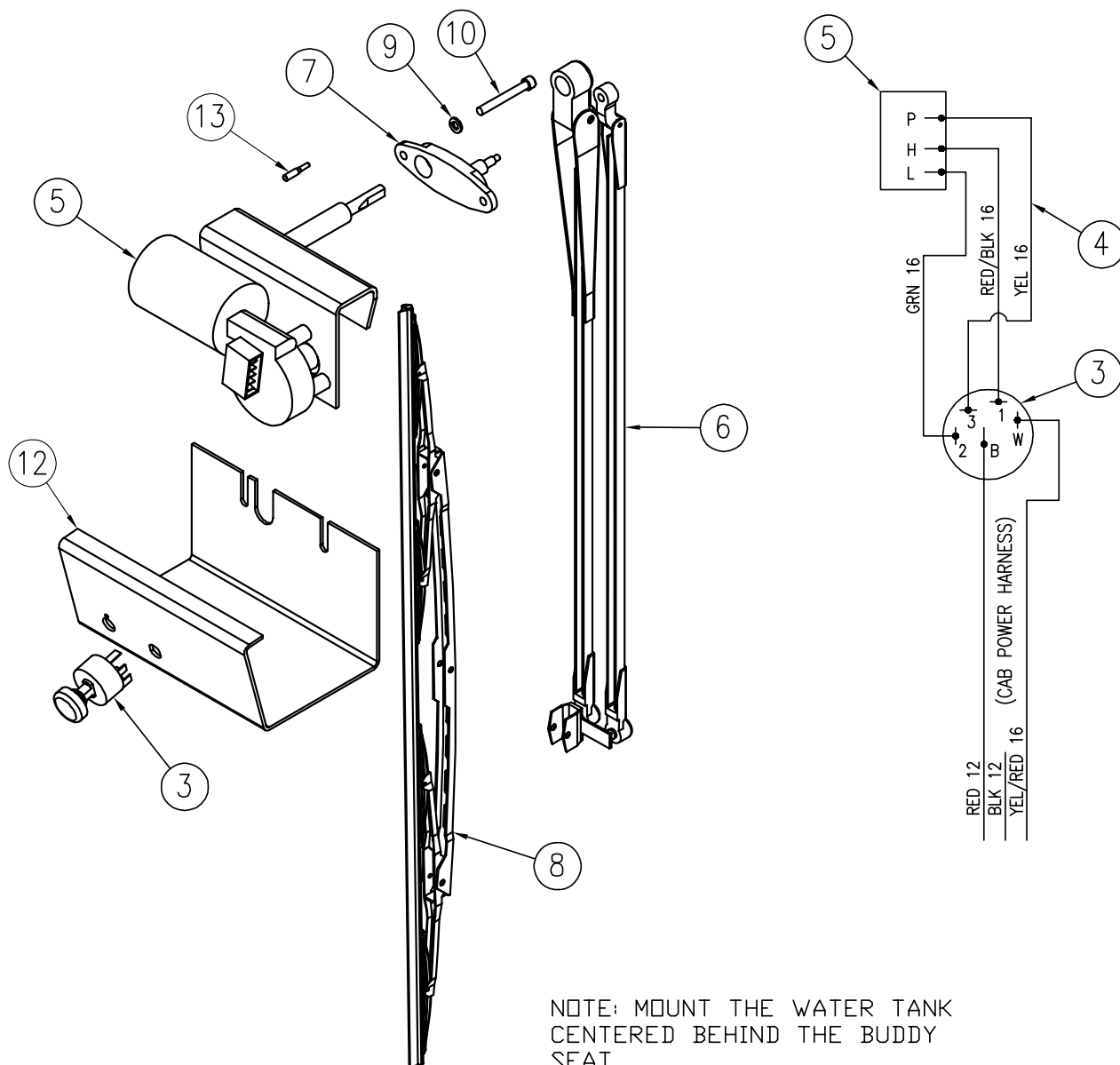
SPREADPRO

CAB OPTION - WIPER GROUP

REF: 41785

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
41785 GRP,WIPER,SPREADPRO			
1	33745-1	1.00	WASHER,TANK AND PUMP
2	35550	25.00	HOSE,WINDSHIELD WASHER .188ID
3	36742	1.00	SWITCH,WIPER/WASHER
4	41867	1.00	HARNESS,WIPER SWITCH TO MOTOR
5	73009	1.00	WIPER MOTOR,12 V,LHP,PANTO
6	73010	1.00	WIPER ARM,PANTO,24.00
7	73011	1.00	WIPER ARM,PANTO KIT
8	73012	1.00	WIPER BLADE,28.00,FLEX
9	80160	2.00	WASHER,SPLIT LOCK,.250
10	81235	2.00	CSSH,.250-28X2.00
11	80909	2.00	SCR,SLFDRL,HH,.250-14X1.00
12	41864	1.00	COVER,WIPER MOTOR
13	73152	1.00	FITT,STR 02HB-03HB,PLASTIC



REF: 42418

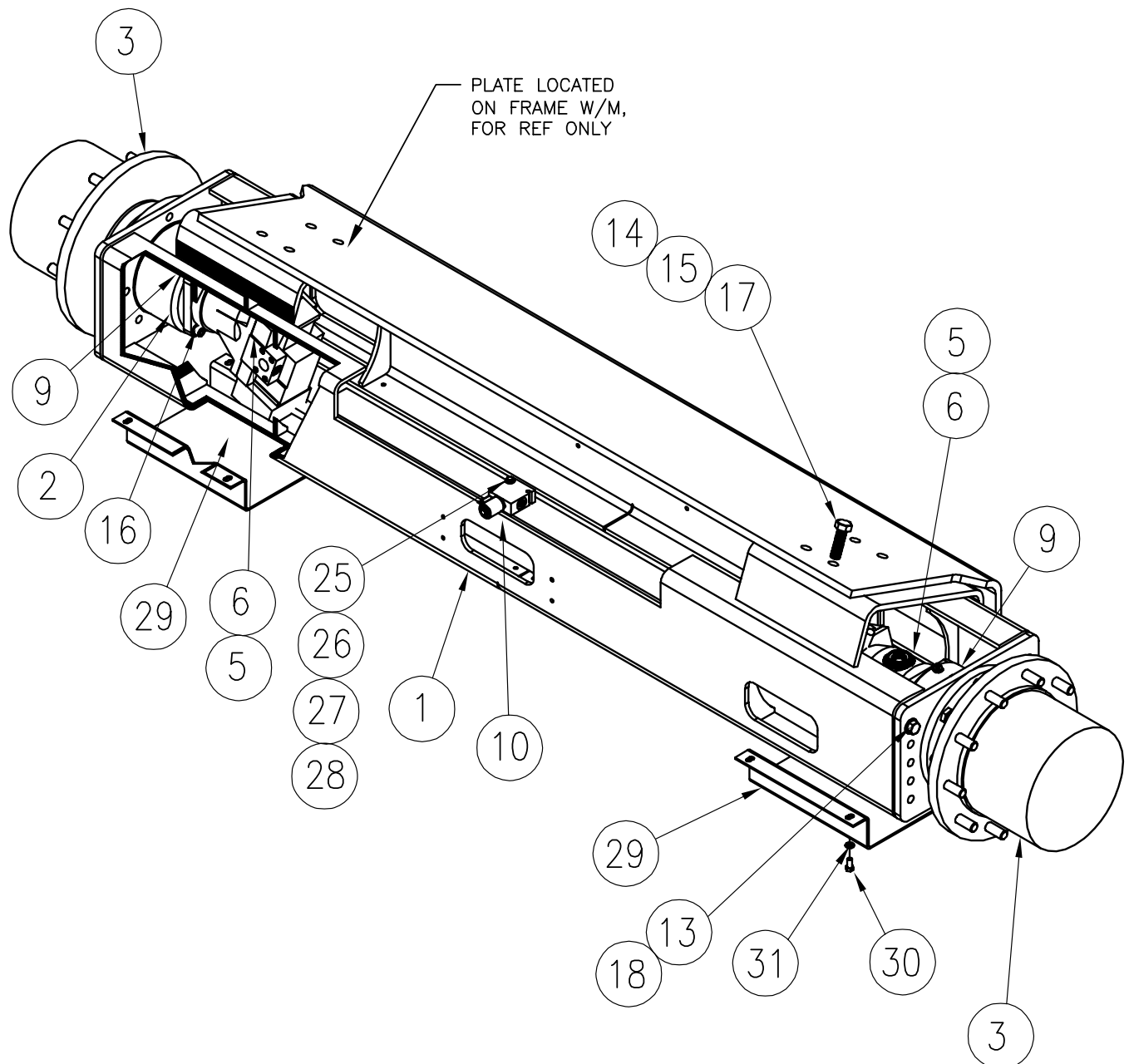
REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
42418			GRP,AIR CONDITION,SPRDPRO,QSB (No Illustration)
0	42417	1.00	W/M,CONDENSER MNT,LH,QSB
0	42419	1.00	CONDENSER MNT,RH,QSB
1	21448	2.00	BRACKET,PIVOT,COMPRESSOR
2	38670	1.00	V BELT,L4 44.000X.50
6	81015	2.00	CSHH,.438-14X5.00,GR5
7	73070	1.00	AIR CONDITIONER,STEER COLUMN
.....	73070-01	1.00	COIL ASSEMBLY
.....	73070-02	1.00	BLOWER ASSEMBLY,RIGHT
.....	73070-03	1.00	BLOWER ASSEMBLY,LEFT
.....	73070-04	2.00	LOUVERS
.....	73070-05	6.00	LOUVERS
.....	73070-06	1.00	DECAL
.....	36745-18	1.00	FAN SWITCH
.....	36745-19	1.00	COLD CONTROL
.....	36745-21	2.00	KNOB
8	80038	4.00	NUT,HEX,.375-16
9	80142	4.00	WASHER,TYPE A PLAIN,.375
10	80162	8.00	WASHER,SPLIT LOCK,.375
11	80219	4.00	CSHH,.375-16X.75,GR5
12	80478	3.00	WASHER,SPLIT LOCK,M10
13	80516	3.00	CSHH,M10X1.5X30,CL8.8
14	80506	2.00	CSHH,.375-16X5.50,GR5
15	71716	4.00	MACH SCR,PH,#10-24X.75
16	80160	2.00	WASHER,SPLIT LOCK,.250
17	80192	2.00	CSHH,.250-20X.75,GR5
18	80924	4.00	NUT,FLEXLOC,#10-24,FULL,LT

REF: 41765

REV: J

ITEM	PART NUMBER	QTY	DESCRIPTION
41765 GRP,OPTIONAL,4-WHEEL DRIVE			
0	42532	1.00	HARNESS,4WD OPTION,S/P
1	41828	1.00	W/M,REAR AXLE,4-WHEEL DRIVE
2	73067	8.00	CSSH,.500-13X6.00,GR8
3	73215	2.00	HUB,TORQUE,23.50:1 RATIO
5	72685	3.00	CONN,METRIC 4-PIN
6	73033	2.00	MOTOR,HYD,3.66/.73CIR
8	73035	1.00	MOTOR,HYD,MOD,8.3/3.5CIR (See Front Axle for Detail)
9	73040	2.00	BRAKE,HYD,WET,5400 LB
10	73041	1.00	VLV,HYD,SOL,3-WAY,NO,-06
11	73043	1.00	VLV,HYD,CHECK,300#,-08
12	99543	2.00	PIPE,PLUG,06MP,HEX SKT HD,MI
13	80280	36.00	CSHH,.625-11X1.50,GR5
14	80357	8.00	NUT,FLEXLOC,.750-10,FULL,LT
15	81114	8.00	CSHH,.750-10X2.50,GR8
16	81141	8.00	WASHER,SAE,HARDENED,.500
17	81154	8.00	WASHER,SAE,HARDENED,.750
18	81201	36.00	WASHER,SAE,HARDENED,.625
19	846171807	20.00	NUT,LUG,.750-16
20	99534	2.00	PIPE,PLUG,02MP,SQ HD,MI
21	73042	1.00	KIT,HOSE/FITT,4-WHEEL DRIVE (See Detail Following)
23	73084	2.00	FITT,RELIEF,02MP,5 PSI
24	33695	4.00	U-BOLT,.250-20,1.75IW,3.19IL
25	80195	2.00	CSHH,.250-20X1.75,GR5
26	80140	2.00	WASHER,TYPE A PLAIN,.250
27	80160	2.00	WASHER,SPLIT LOCK,.250
28	80036	2.00	NUT,HEX,.250-20
29	42040	2.00	GUARD,HYD MOTOR,4WD
30	80219	8.00	CSHH,.375-16X.75,GR5
31	80162	8.00	WASHER,SPLIT LOCK,.375
41868 4WD SWITCH,HARNESS GRP			
.....	41858	1.00	SWITCH ASSY,4WD ACTIVATION
.....	41863	1.00	HARNESS,4 WD MOTORS
.....	41865	1.00	PLATE,SWITCH BLANK



REF: 41765

REV: J

ITEM	PART NUMBER	QTY	DESCRIPTION
41765 GRP,OPTIONAL,4-WHEEL DRIVE			
0	42532	1.00	HARNESS,4WD OPTION,S/P
1	41828	1.00	W/M,REAR AXLE,4-WHEEL DRIVE
2	73067	8.00	CSSH,.500-13X6.00,GR8
3	73215	2.00	HUB,TORQUE,23.50:1 RATIO
5	72685	3.00	CONN,METRIC 4-PIN
6	73033	2.00	MOTOR,HYD,3.66/.73CIR
21	73042	1.00	KIT,HOSE/FITT,4-WHEEL DRIVE (See Detail Below)
73042 HOSE & FITTING KIT,4-WHEEL DRIVE			
100	33969	1.00	FITT,45 12MJ-12MP
101	33936	1.00	FITT,STR 08MB-08FJX
102	34562	1.00	FITT,TEE 06MJ-06MJ-06MB
103	35194	1.00	FITT,STR 08MJ-06MB
104	33898	1.00	FITT,TEE 08MJ-08FJX-08MJ
105	73048-079	1.00	HOSE,12,12FJX-12RJ90,1250,270
106	71775	2.00	FITT,90 12MJ-12MB
107	72415-042	2.00	HOSE,04,04FJX-06FJX,3000
108	6410	1.00	FITT,90 08MJ-08MB
109	72551-078	1.00	HOSE,06,08FJX-06RJ90,3000
110	72555-090	1.00	HOSE,08,08FJX-08RJ90,3000
111	72558-123	1.00	HOSE,12,12FJX-12RJ90,1250
112	853180160	1.00	FITT,STR 12MJ-12MB
113	73101-031	2.00	HOSE,12,16OFS-12H9B,6000
114	73036	2.00	FITT,CROSS 16MRS
117	33160	1.00	FITT,TEE 12MJ-12FJX-12MJ
118	X217	1.00	FITT,STR 06MJ-06MB
119	X360	2.00	FITT,90 04MJ-04MB
120	73044	1.00	FITT,STR 16MRS-16MRS
121	73045	2.00	FITT,STR 16FRS-16FRS
122	73047-065	1.00	HOSE,16,16OFS-16OF9,6000
123	33103	4.00	FITT,KIT 12FL,CODE 62
124	X161	1.00	FITT,90 08MJ-08MP
125	72942	.00	FITT,TEE 16MRS-16MRS-16MRS
126	X365	1.00	FITT,90 12MJ-12FJX
127	73101-026	1.00	HOSE,12,16OFS-12FH9B,6000
128	73101-032	1.00	HOSE,12,16OFS-12FH9B,6000

SPREADPRO

REV: J



1. ITEM #125 IS IN
STANDARD HOSE KIT.

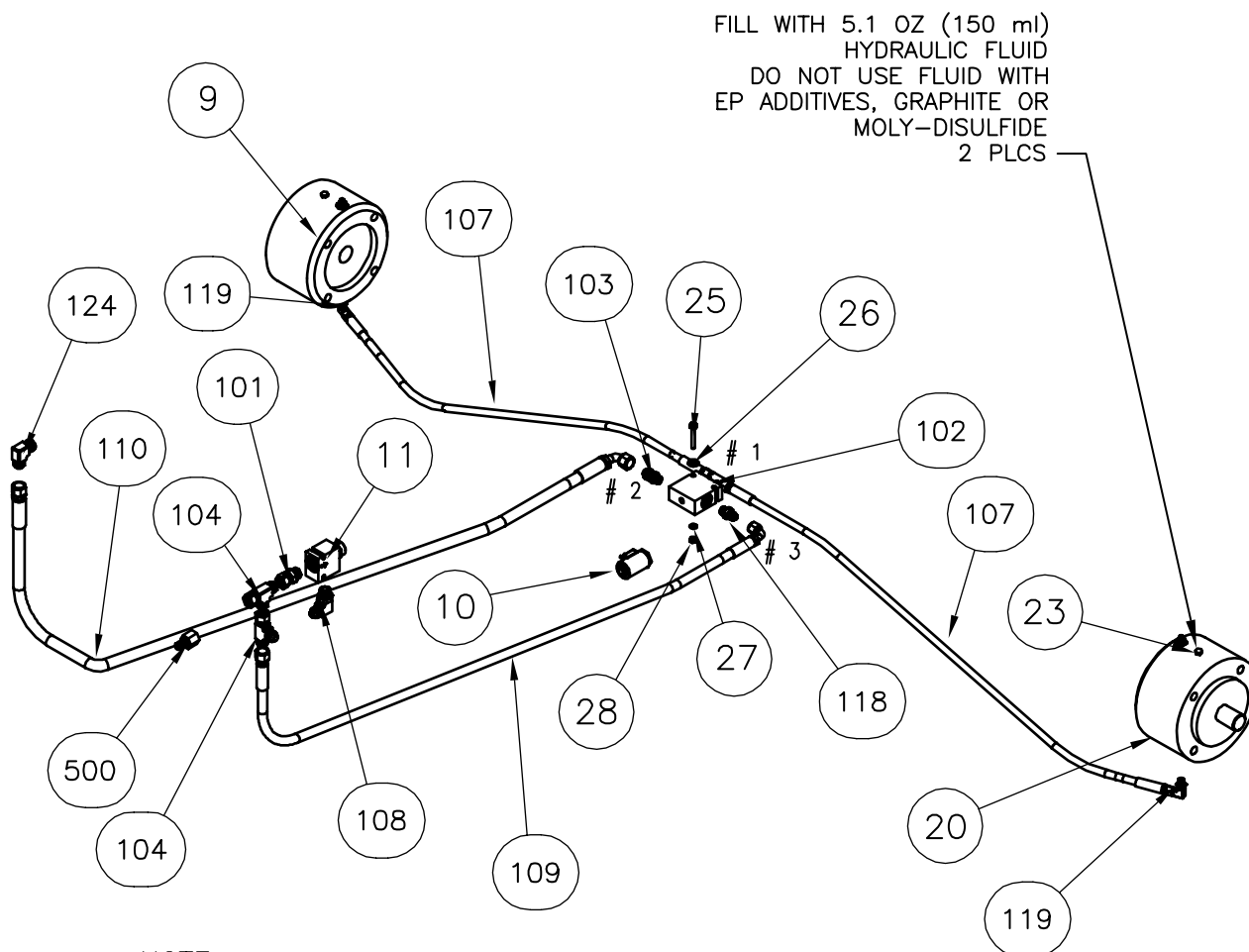
SPREADPRO

4-WHEEL DRIVE OPTION

REF: 41765

REV: J

ITEM	PART NUMBER	QTY	DESCRIPTION
41765 GRP,OPTIONAL,4-WHEEL DRIVE			
9	73040	2.00	BRAKE,HYD,WET,5400 LB
10	73041	1.00	VLV,HYD,SOL,3-WAY,NO,-06
11	73043	1.00	VLV,HYD,CHECK,300#,-08
20	99534	2.00	PIPE,PLUG,02MP,SQ HD,MI
21	73042	1.00	KIT,HOSE/FITT,4-WHEEL DRIVE (See Detail)
23	73084	2.00	FITT,RELIEF,02MP,5 PSI
24	33695	4.00	U-BOLT,.250-20,1.75IW,3.19IL
25	80195	2.00	CSHH,.250-20X1.75,GR5
26	80140	2.00	WASHER,TYPE A PLAIN,.250
27	80160	2.00	WASHER,SPLIT LOCK,.250
28	80036	2.00	NUT,HEX,.250-20
29	42040	2.00	GUARD,HYD MOTOR,4WD
30	80219	8.00	CSHH,.375-16X.75,GR5
31	80162	8.00	WASHER,SPLIT LOCK,.375
32	41868	1.00	4WD SWITCH,HARNESS GRP
73042 HOSE & FITTING KIT,4-WHEEL DRIVE			
100	33969	1.00	FITT,45 12MJ-12MP
101	33936	1.00	FITT,STR 08MB-08FJX
102	34562	1.00	FITT,TEE 06MJ-06MJ-06MB
103	35194	1.00	FITT,STR 08MJ-06MB
104	33898	1.00	FITT,TEE 08MJ-08FJX-08MJ
105	73048-079	1.00	HOSE,12,12FJX-12RJ90,1250,270
106	71775	2.00	FITT,90 12MJ-12MB
107	72415-042	2.00	HOSE,04,04FJX-06FJX,3000
108	6410	1.00	FITT,90 08MJ-08MB
109	72551-078	1.00	HOSE,06,08FJX-06RJ90,3000
110	72555-090	1.00	HOSE,08,08FJX-08RJ90,3000
111	72558-123	1.00	HOSE,12,12FJX-12RJ90,1250
112	853180160	1.00	FITT,STR 12MJ-12MB
113	73101-031	2.00	HOSE,12,16OFS-12H9B,6000
114	73036	2.00	FITT,CROSS 16MRS
117	33160	1.00	FITT,TEE 12MJ-12FJX-12MJ
118	X217	1.00	FITT,STR 06MJ-06MB
119	X360	2.00	FITT,90 04MJ-04MB
120	73044	1.00	FITT,STR 16MRS-16MRS
121	73045	2.00	FITT,STR 16FRS-16FRS
122	73047-065	1.00	HOSE,16,16OFS-16OF9,6000
123	33103	4.00	FITT,KIT 12FL,CODE 62
124	X161	1.00	FITT,90 08MJ-08MP
125	72942	.00	FITT,TEE 16MRS-16MRS-16MRS
126	X365	1.00	FITT,90 12MJ-12FJX
127	73101-026	1.00	HOSE,12,16OFS-12FH9B,6000
128	73101-032	1.00	HOSE,12,16OFS-12FH9B,6000



NOTE:

1. ITEM #104 ONE IS SUPPLIED WITH STD. KIT
2. ITEM #500 IS SUPPLIED WITH STD. KIT.
3. ITEM #124 IS LOCATED ON FRONT TOP SIDE OF HYDRAULIC RESERVOIR.

SPREADPRO

20 FT HOPPER OPTION - HYDRAULICS GROUP, 2-WD

REF: 42267

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42267		GRP,HYD,2-WD,20 FT HOPPER (No Illustration)
0	41261-01	1.00	GASKET,HYD RESERVOIR
0	RES1001	.00	HYDRAULIC SPECIFICATIONS
1	33148	2.00	STRAINER,SUCT,2NPT,25GPM,100ME
2	34463	2.00	FILTER,RETURN,HP,-12SAE PORTS
3	99537	2.00	PIPE,PLUG,08MP,SQ HD,MI
4	35368	1.00	SENDER,TEMP GAUGE,04 MP
5	35735	1.00	COOLER,OIL,HYDRAULIC,19X20
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
7	35371	1.00	SWITCH,TEMP,205 DEG,06MP
9	34861	7.00	COVER PLATE,HOSE CLAMP
10	500070	1.00	GAUGE,HYD OIL LEVEL/TEMP
11	37680	1.00	FILLER,HYD FLUID,10 PSI
12	37903	2.00	FITT,TEST 08FJ-02PD
13	38013	1.00	VLV,CHECK,25PSI,.75NPT
14	41261	1.00	COVER,HYD TANK CLEANOUT
15	41363	1.00	W/M,HYD TANK,50 GALLON W/CLEAN
16	41384	1.00	SUPPORT,OIL COOLER,RH
17	41385	1.00	SUPPORT,OIL COOLER,LH
19	72370	6.00	FITT,TEST 04MB-02PD
20	72543	2.00	FILTER,RETURN 20 ORB,W/GAUGE
21	72773	1.00	MOTOR,HYD,9.82/5.85CIR,W/PICK
22	72780	2.00	MOTOR,HYD GEROTOR,24CIR
23	72781	1.00	ORBITROL,STEERING,11.3CIR
24	72782	1.00	COLUMN,STEERING,30.00,W/1 WIRE
25	72783	2.00	MOTOR,HYD GEROTOR,18.7CIR
26	73251	.00	VLV,HYD,4-SEC,DO3,W/HITCH LOCK
27	73001	1.00	VLV,MANIFOLD,PROP CONTROL (See Standard Parts)
28	41797	1.00	VLV,HYD,MANIFOLD,FEEDROLL,MOD (See St'd Parts)
29	72796	2.00	CYL,HYD,FOLDING SIDES
	72796-01	1.00	KIT,SEAL,HYD CYL
30	73127	1.00	CYL,HYD,TOW HOOK,W/CLEVIS
	72797-01	1.00	KIT,SEAL,HYD CYL
31	73211	2.00	CYL,HYD,EXT HOP RAM,20 FT
	73211-01		KIT,SEAL, FOR CYL 73211
32	72858	2.00	VLV,HYD,MANUAL,ON/OFF
33	72925	1.00	MOTOR,HYD,14.9 CIR,W/PICK-UP
34	72926	2.00	MOTOR,HYD,14.9 CIR
35	72959	1.00	KIT,HOSE/FITTING,DRIVE SYSTEM (See Standard Parts)
36	73247	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (Detail Next Page)
37	72961	1.00	KIT,HOSE/FITTING,CONV/STEERING (See St'd Parts)
38	80162	11.00	WASHER,SPLIT LOCK,.375
39	80192	16.00	CSHH,.250-20X.75,GR5
40	80250	4.00	CSHH,.500-13X1.25,GR5
41	80354	4.00	NUT,FLEXLOC,.500-13,FULL,LT
42	80357	4.00	NUT,FLEXLOC,.750-10,FULL,LT
43	80695	8.00	WASHER,SAE PLAIN,.500
44	80869	4.00	CSHH,.750-10X2.75,GR5

REF: 42267

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
45	80985	7.00	CSHH,.375-16X.50,GR5
46	81154	8.00	WASHER,SAE,HARDENED,.750
47	81161	16.00	WASHER,WEATHER SEAL,#10
48	81218	8.00	CSSH,.312-18X3.50
49	72689	2.00	FITT,TEST 06MB-02PD
50	72993	1.00	VLV,CHECK,10MJ-10MJ
51	73005	1.00	SEAL,O-RING -10 BOSS
53	72372	10.00	FITT,PLUG 02PD,DUST
54	34860	12.00	CLAMP,HALF,HOSE,.750
55	34860-01	20.00	CLAMP,HALF,HOSE,1.00
56	80468	8.00	CSHH,.312-18X3.25,GR5
57	41796	1.00	BAR,SPACER,CONVEYOR MANIFOLD
59	72685	1.00	CONN,METRIC 4-PIN
60	41945	1.00	MOUNT,STEERING ORBITROL
61	80221	4.00	CSHH,.375-16X1.00,GR5
63	37002	25.00	SLEEVE,ABRASION,NYLON,3.20ID
64	90803	16.00	SLEEVE,ABRASION,NYLON,1.75ID

NOTE: ALL COMPONENTS ARE THE SAME AS IN THE 16 FT HOPPER, EXCEPT ITEMS #31 & #36.

SEE HYDRAULICS GROUP IN STANDARD PARTS SECTION FOR DETAIL ON ITEMS #27, #28, #35 & #37.

SPREADPRO

20 FT HOPPER OPTION - FEEDROLL & CONVEYOR, HOSE FITTINGS

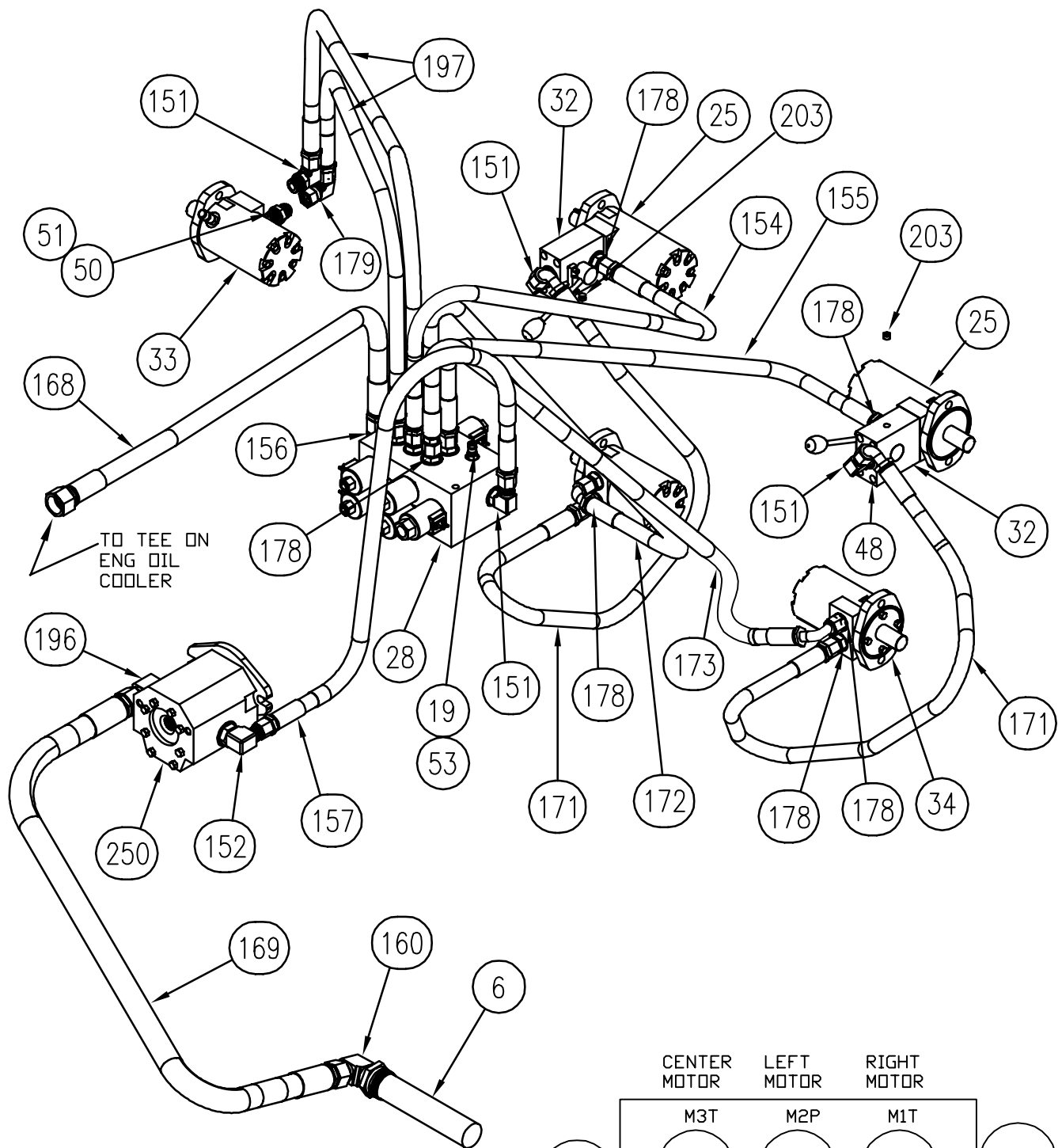
REF: 73247

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
42267 GRP,HYD,2WD,20 FT HOPPER			
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
19	72370	6.00	FITT,TEST 04MB-02PD
25	72783	2.00	MOTOR,HYD GEROTOR,18.7CIR
28	41797	1.00	VLV,HYD,MANIFOLD,FEEDROLL,MOD (See St'd Parts)
32	72858	2.00	VLV,HYD,MANUAL,ON/OFF
33	72925	1.00	MOTOR,HYD,14.9 CIR,W/PICK-UP
34	72926	2.00	MOTOR,HYD,14.9 CIR
36	73247	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail Below)
48	81218	8.00	CSSH,,312-18X3.50
50	72993	1.00	VLV,CHECK,10MJ-10MJ
51	73005	1.00	SEAL,O-RING -10 BOSS
53	72372	10.00	FITT,PLUG 02PD,DUST
73247 KIT,HOSE FITTING,FEEDROLL/CONV			
151	31045	5.00	FITT,90 10MJ-10MB
152	33307	9.00	FITT,90 10MJ-12MB
154	37530-090	1.00	HOSE,10,10FJX-10FJX,3000
155	37530-094	1.00	HOSE,10,10FJX-10FJX,3000
156	34083	2.00	FITT,90 12MJ-10MB
157	37530-187	1.00	HOSE,10,10FJX-10FJX,3000
160	6466	2.00	FITT,90 16MJ-16MP
168	72559-063	1.00	HOSE,12,12FJX-16FJX,1250
169	72570-076	1.00	HOSE,16,16FJX-16FJX,250
171	72956-014	2.00	HOSE,10,10FJX-10FJX90,3000
172	73206-089	1.00	HOSE,10,10FJX-10FJX45,3000,OS
173	73206-093	1.00	HOSE,10,10FJX-10FJX45,3000,OS
178	X392	6.00	FITT,STR 10MJ-10MB
179	X401	1.00	FITT,90 10MJ-10FJX
196	X319	1.00	FITT,90 16MJ-16MB
197	37530-177	2.00	HOSE,10,10FJX-10FJX,3000
203	39072	2.00	PIPE PLUG, 1/4" HEX HEAD
250	72774		PUMP,GEAR (See Engine Group)

REF: 73247

REV: 0



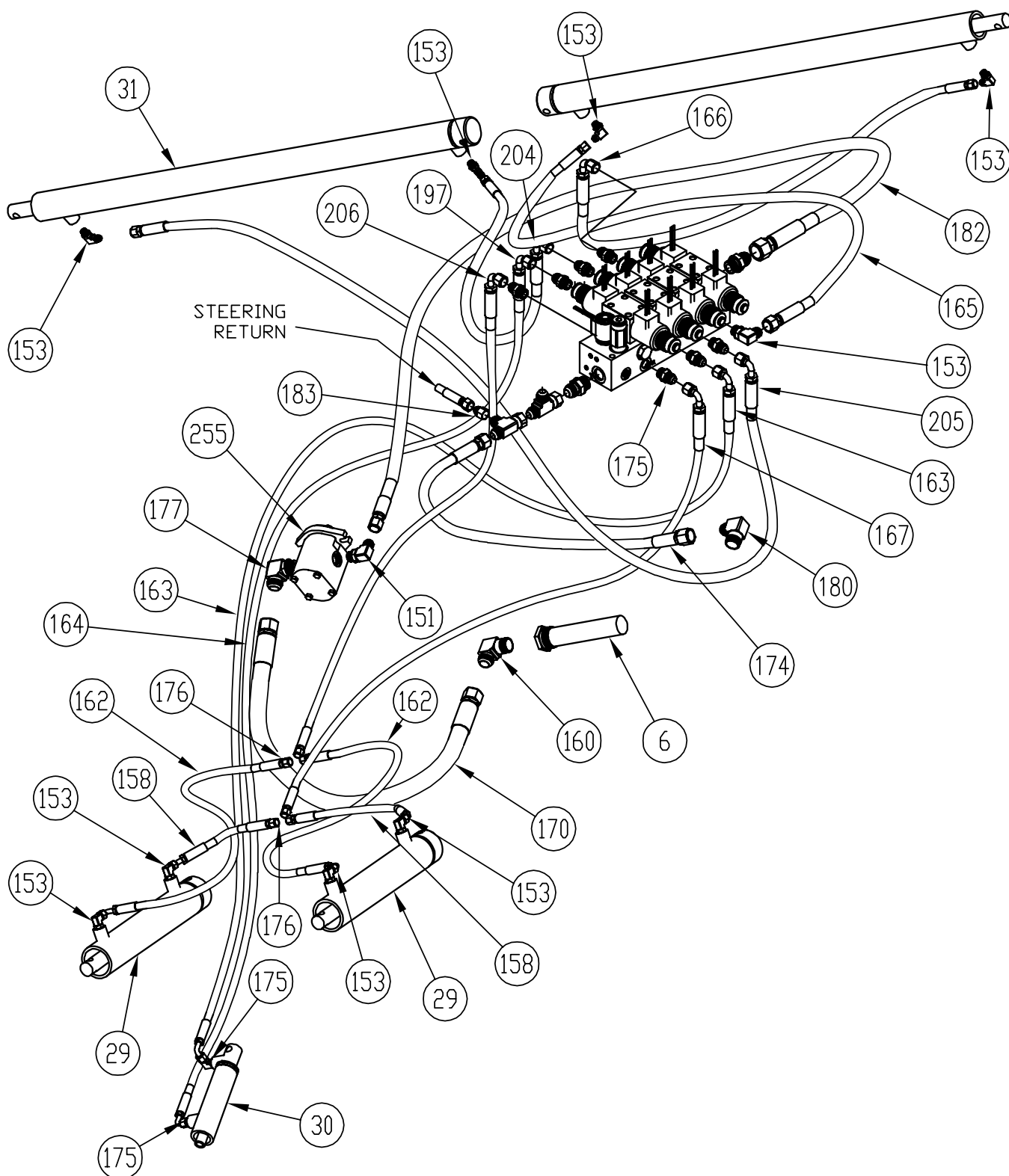
TOP VIEW VALVE #28
NUMBERS IN CIRCLE
REPRESENT HOSE NUMBERS

SPREADPRO**20 FT HOPPER OPTION - FEEDROLL & CONVEYOR, HOSE FITTINGS**

REF: 73247

REV: 0

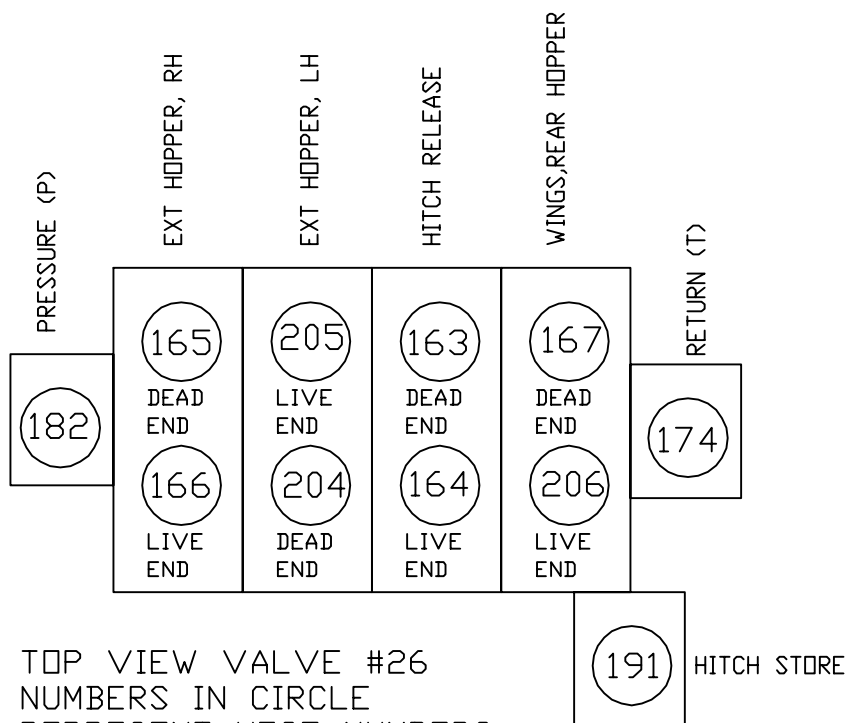
ITEM	PART NUMBER	QTY	DESCRIPTION
42267 GRP,HYD,2WD,20 FT HOPPER			
6	36123	5.00	STRAINER,SUCTION 15GPM 100MESH
29	72796	2.00	CYL,HYD,FOLDING SIDES
	72796-01	1.00	KIT,SEAL,HYD CYL,FOLDING SIDES
30	73127	1.00	CYL,HYD,TOW HOOK,W/CLEVIS
	72797-01	1.00	KIT,SEAL,HYD CYL,TOW HOOK
31	73211	2.00	CYL,HYD,2.50X51.38,EXT HOP 20'
	73211-01	1.00	KIT,SEAL,HYD CYL
36	73247	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail Below)
73247 KIT,HOSE FITTING,FEEDROLL/CONV			
153	33892	9.00	FITT,90 06MJ-06MB
158	37634-082	2.00	HOSE,06,06FJX-06FJX45,3000
160	6466	2.00	FITT,90 16MJ-16MP
162	72549-094	2.00	HOSE,06,06FJX-06RJ90,3000
163	72549-265	1.00	HOSE,06,06FJX-06RJ90,3000
164	72549-284	1.00	HOSE,06,06FJX-06RJ90,3000
165	72550-049	1.00	HOSE,06,06FJX-06FJX,3000
166	72549-100	1.00	HOSE,06,06FJX-06RJ90,3000
167	72549-191	1.00	HOSE,06,06FJX-06RJ90,3000
170	72570-089	1.00	HOSE,16,16FJX-16FJX,250
174	72962-086	1.00	HOSE,10,08FJX-12FJX,3000
175	X217	9.00	FITT,STR 06MJ-06MB
176	X275	2.00	FITT,TEE 06MJ-06MJ-06MJ
177	6250	1.00	FITT,90 16MJ-12MB
180	853180544	1.00	FITT,90 12MJ-16MP
182	72966-200	1.00	HOSE,10,10FJX-08FJX,3000
191	72416-260	1.00	HOSE,04,04FJ-04FJ,2500
197	37530-177	2.00	HOSE,10,10FJX-10FJX,3000
204	72549-043	1.00	HOSE,06,06FJX-06RJ90,3000
205	72549-102	1.00	HOSE,06,06FJX-06RJ90,3000
206	72549-167	1.00	HOSE,06,06FJX-06RJ90,3000
255	985666		PUMP,GEAR (See Engine Group)



REF: 73247

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42267		GRP,HYD,2WD,20 FT HOPPER
26	73251	1.00	VLV,HYD,4-SEC,DO3,W/HITCH LOCK
36	73247	1.00	KIT,HOSE/FITTING,FEEDROLL/CONV (See Detail Below)
	73247		KIT,HOSE FITTING,FEEDROLL/CONV
180	853180544	1.00	FITT,90 12MJ-16MP
183	33901	1.00	FITT,STR 04MJ-08FJ
184	33898	2.00	FITT,TEE 08MJ-08FJX-08MJ
187	35562	1.00	FITT,90 04MJ-06MB
188	70062	2.00	FITT,STR 08MJ-08MB
189	71822	2.00	FITT,90 04MJ-04MP
191	72416-260	1.00	HOSE,04,04FJ-04FJ,2500
207	72416-257	1.00	HOSE,04,04FJ-04FJ,2500
256	73170		CYL,HYD,1.50 B X4.00 S X1.00 R

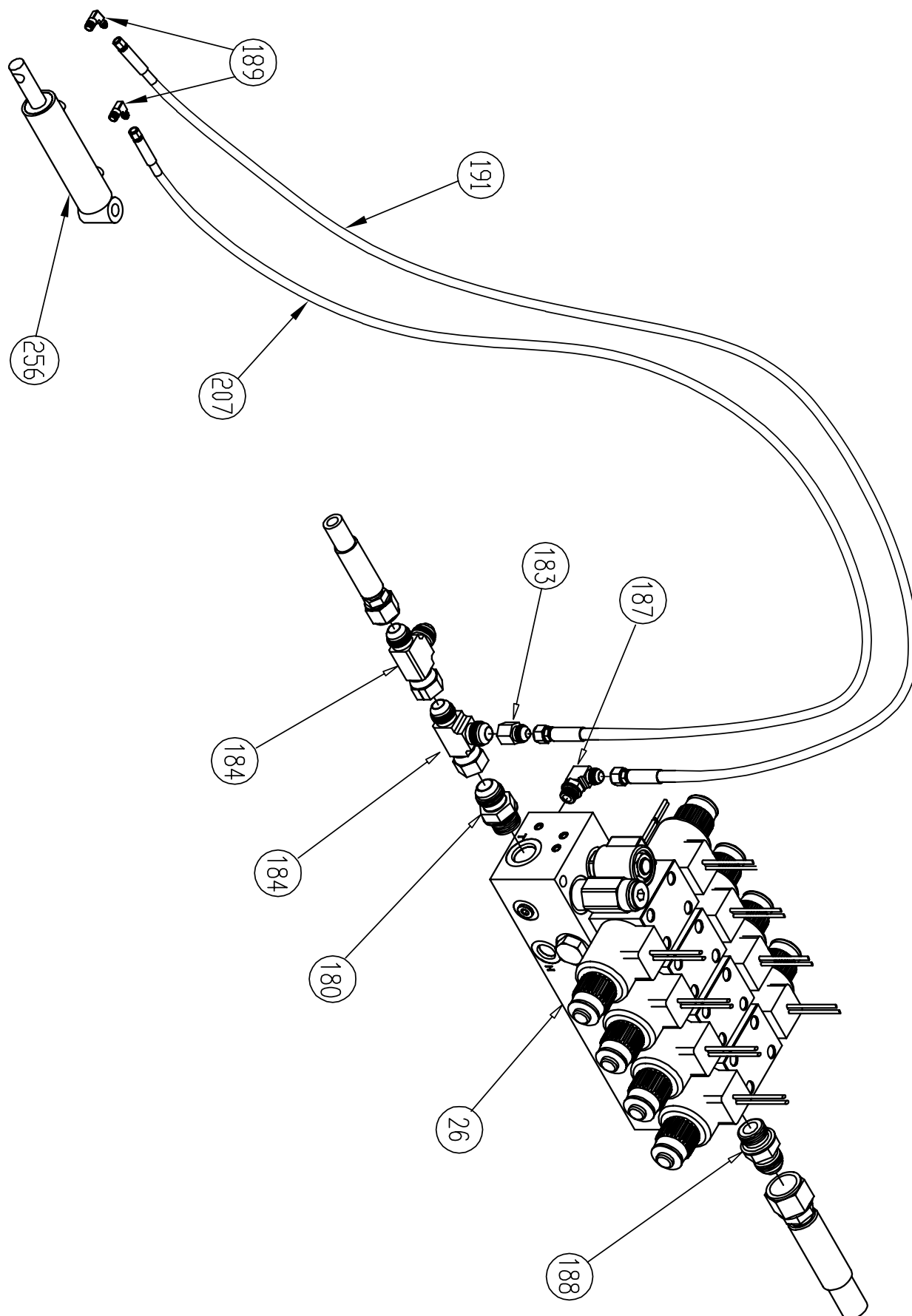


TOP VIEW VALVE #26
NUMBERS IN CIRCLE
REPRESENT HOSE NUMBERS

LIVE END IS ROD END
DEAD END IS FIXED END

REF: 73247

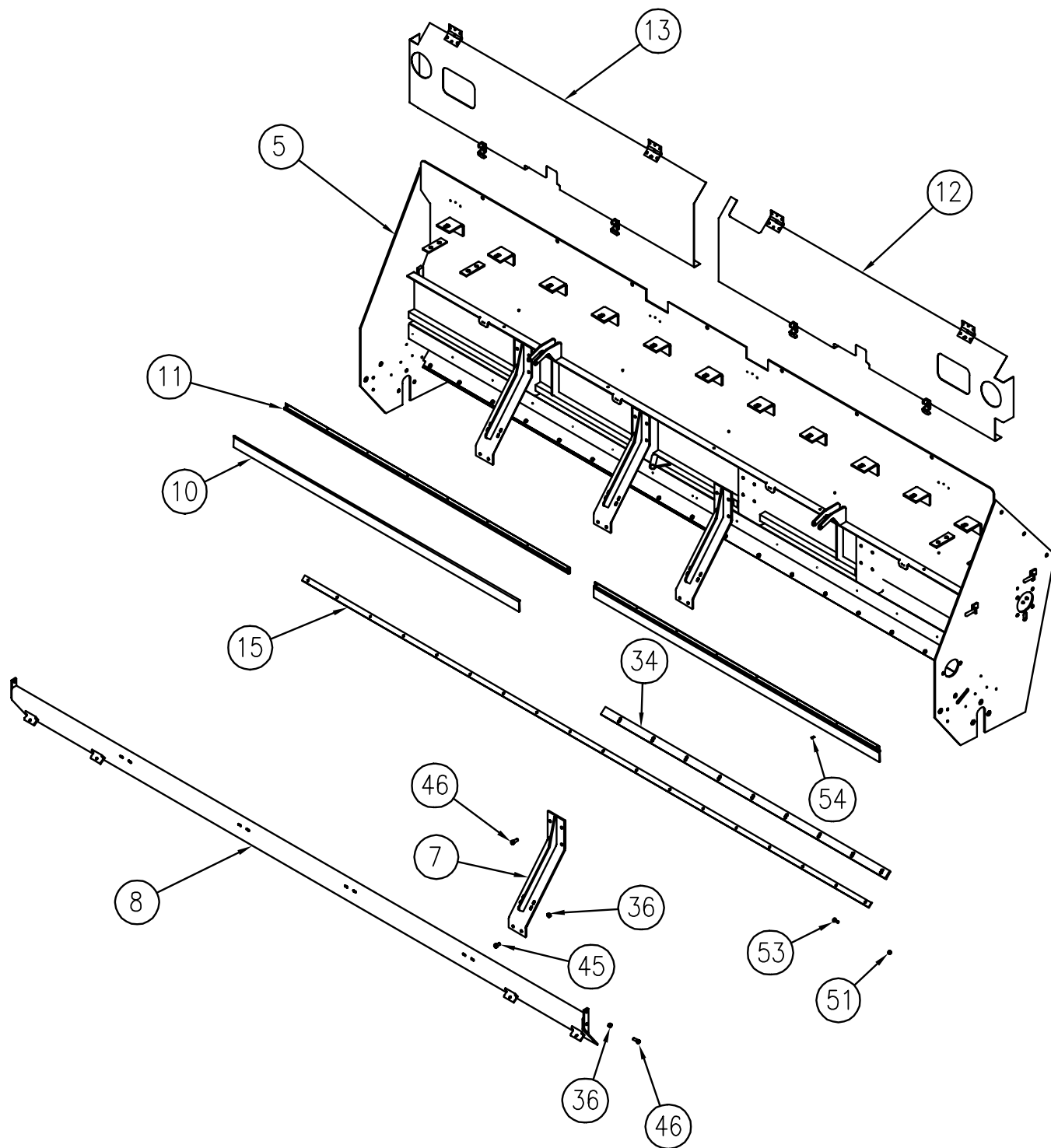
REV: 0



REF: 42145

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42145		GRP,FRONT HOPPERS,20 FT,ELEC (No Illustration)
0	33630-4	6.00	STRIPPING,EDGE,.188
0	41586	1.00	GROUP,CAB SHIELD (See Standard Parts Section)
0	41698	2.00	ASSY,LEVEL SWITCH,AGGREGATE (See Standard Parts)
0	41726	1.00	GRP,HOSE HANGER,EXT HOPPERS (See St'd Parts)
0	41800	2.00	GUIDE,FRONT,EXTENTION HOPPER
0	41902	1.00	THD'D ROD,.750-10 UNC X 9.50
0	41907	1.00	GROUP,SCATTER PLATES (See Standard Parts Section)
0	42146	1.00	ASSY,CENTER HOPPER,20 FT (See Detail Following)
0	42195	1.00	GRP,EXT HOP,LH,ELEC,20 FT (See Detail Following)
0	42197	1.00	GRP,EXT HOP,RH,ELEC,20 FT (See Detail Following)
0	42212	1.00	GRP,HOP MNT/SLIDE,EXT HOP,20' (See Detail Following)
0	42228	1.00	GRP,INDIV 11-GATES,20 FT HOP (See Detail Following)
0	42229	1.00	GRP,GUARD,BRUSH,20 FT HOPPER (See Detail Following)
0	511219	4.00	W/M,GRILL,REAR
0	511222	2.00	W/M,GRILL,FRONT
0	511500	6.00	WEAR PLATE,EXT FRT RAIL SUPPRT
0	512002	1.00	ASSY,CENTER HOPPER,ROTARY GATE (See St'd Parts)
0	80142	16.00	WASHER,TYPE A PLAIN,.375
0	80147	20.00	WASHER,TYPE A PLAIN,.750
0	80162	16.00	WASHER,SPLIT LOCK,.375
0	80186	12.00	CSHH,.500-13X1.75,GR5
0	80219	16.00	CSHH,.375-16X.75,GR5
0	80354	12.00	NUT,FLEXLOC,.500-13,FULL,LT
0	80357	16.00	NUT,FLEXLOC,.750-10,FULL,LT
0	81021	16.00	CSFHS,.375-16X1.50
0	81114	14.00	CSHH,.750-10X2.50,GR8
0	81141	24.00	WASHER,SAE,HARDENED,.500
0	81154	28.00	WASHER,SAE,HARDENED,.750
0	81242	8.00	CSFHS,.375-16X1.00,GR5
	42146	REV. A	ASSY,CENTER HOPPER,20 FT
5	42147	1.00	W/M,CENTER HOPPER,20 FT
7	42161	4.00	W/M,SCATTER PL SUPPORT
8	42167	1.00	W/M,SCATTER PL,CENTER,20 FT
10	42173	2.00	BRUSH,CENTER HOPPER,20 FT
11	42174	2.00	HOLDER,BUSH,CTR HOP,20 FT
12	42175	1.00	ASSY,FRONT COVER,LH,20 FT
13	42177	1.00	ASSY,FRONT COVER,RH,20 FT
15	42222	1.00	BAR,RET,SCRAPER,CTR HOP,20 FT
34	73213	2.00	SCRAPER,REAR,CENTER HOPPER,20'
36	80038	6.00	NUT,HEX,.375-16
45	80219	12.00	CSHH,.375-16X.75,GR5
46	80221	16.00	CSHH,.375-16X1.00,GR5
51	80351	18.00	NUT,FLEXLOC,.312-18,FULL,LT
53	81213	18.00	CSFHS,.312-18X1.25,GR5
54	871080436	15.00	RIVET,BLIND,AL,.125,.188-.250



SPREADPRO

20 FT HOPPER OPTION - CENTER HOPPER

REF: 42146

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
	42146		ASSY,CENTER HOPPER,20 FT
1	208712192	2.00	BEARING ASSY,1.50 BORE,STEP
2	41737	1.00	ASSY,BEARING AND SPROCKET
3	41811	1.00	WASHER,FLAT,1.50X.281X.1345THK
4	41891	5.00	BRACKET,SLIDE GATE GUIDE
5	42147	1.00	W/M,CENTER HOPPER,20 FT
6	42149	2.00	GRP,ROTARY GATE,CENTER,20 FT (Detail Following Pages)
7	42161	4.00	W/M,SCATTER PL SUPPORT
8	42167	1.00	W/M,SCATTER PL,CENTER,20 FT
9	42170	1.00	W/M,SPREADROLL,CENTER,20 FT (Detail Following Pages)
10	42173	2.00	BRUSH,CENTER HOPPER,20 FT
11	42174	2.00	HOLDER,BUSH,CTR HOP,20 FT
12	42175	1.00	ASSY,FRONT COVER,LH,20 FT (See Detail Following Pages)
13	42177	1.00	ASSY,FRONT COVER,RH,20 FT (See Detail Following Pages)
14	42180	1.00	GRP,CTR AUGER,20 FT (See Detail Following Pages)
15	42222	1.00	BAR,RET,SCRAPER,CTR HOP,20 FT
16	5039	1.00	FITT,LUBE,90,02MP
17	42355	1.00	W/M,CHAIN GUARD,LH,20 FT
18	42358	1.00	W/M,BEARING COVER,RH,20 FT
19	512029	1.00	W/M,BEARING GUARD,AGITATOR SHAFT
20	42157	2.00	SEAL,SPREADROLL END,SPREADPRO
21	512110	2.00	PLATE,BEARING OFFSET
22	512136	1.00	PLATE,AGITATOR BEARING COVER
23	512150	1.00	SPROCKET MOUNT,AGITATOR,RND
24	512156	1.00	WASHER,2.00DX.406IDX.1793THK
25	512522	2.00	FASTENER,ANTILUCE
26	73266	1.00	CHAIN,ROLLER,#60X95 PITCH
27	71627	8.00	CSHH,.500-13X1.50,GR5
28	72830	2.00	BEARING,FLANGE,1.375,4 BOLT
29	72831	1.00	SPROCKET,60B21,1 BORE,.25 KWY
30	72832	1.00	SPROCKET,60B21,1.5 BORE,.38KWY
31	73149	1.00	FITT,STR 02FP-.250-28 SAE-LT
32	73210	4.00	U-BOLT,.75 ID,.25 RND
33	42527	2.00	WIRING,ELEC ACTUATOR,DEUTSCH
34	73213	2.00	SCRAPER,REAR,CENTER HOPPER,20'
35	80036	8.00	NUT,HEX,.250-20
36	80038	6.00	NUT,HEX,.375-16
37	80040	8.00	NUT,HEX,.500-13
38	80140	4.00	WASHER,TYPE A PLAIN,.250
39	80141	2.00	WASHER,TYPE A PLAIN,.312
40	80142	4.00	WASHER,TYPE A PLAIN,.375
41	80160	1.00	WASHER,SPLIT LOCK,.250
42	80185	1.00	CSHH,.250-20X1.00,GR5
43	80192	8.00	CSHH,.250-20X.75,GR5
44	80208	2.00	CSHH,.312-18X1.00,GR5
45	80219	12.00	CSHH,.375-16X.75,GR5
46	80221	16.00	CSHH,.375-16X1.00,GR5
47	80224	3.00	CSHH,.375-16X1.25,GR5
48	80232	2.00	CSHH,.375-16X2.50,GR5
49	80302	2.00	SET S,HSKT,KCUP,.312-16X.25
50	80326	4.00	SCR,SLFTPG,HH,.312-18X1.00

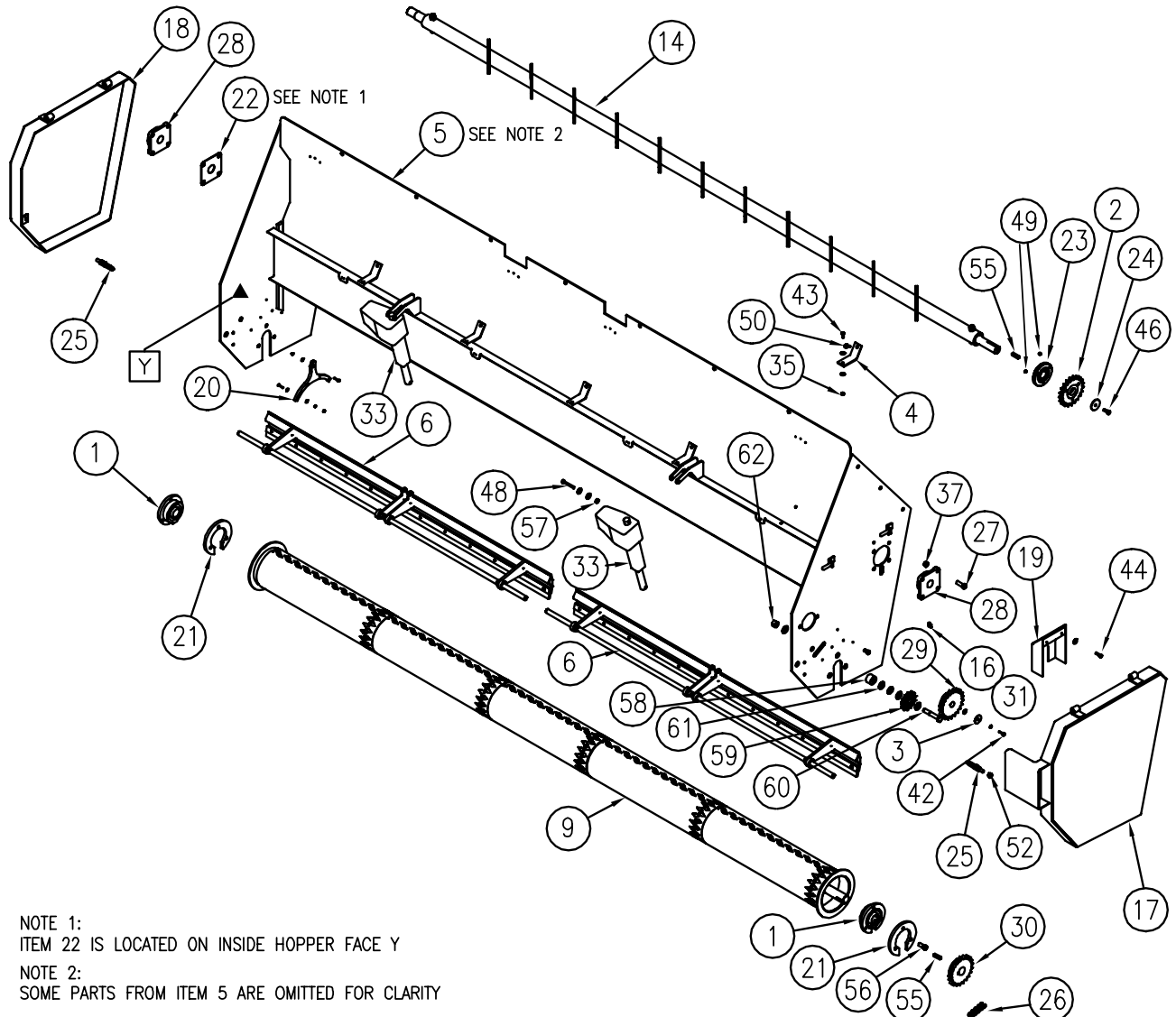
20 FT HOPPER OPTION - CENTER HOPPER

SPREADPRO

REF: 42146

REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
51	80351	18.00	NUT,FLEXLOC,.312-18,FULL,LT
52	81212	2.00	NUT,HEX,M12X1.75
53	81213	18.00	CSFHS,.312-18X1.25,GR5
54	871080436	15.00	RIVET,BLIND,AL,.125,.188-.250
55	871083509	2.00	KEY,SQ,.375X1.50
56	80250	6.00	CSHH,.500-13X1.25,GR5
57	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
58	42343	1.00	SPACER,IDLER SPROCKET
59	73245	1.00	SPKT,IDLER,60H,13TOOTH
60	80289	1.00	CSHH,.625-11X3.50,GR 5
61	80697	5.00	WASHER,SAE PLAIN,.625
62	80356	1.00	NUT,FLEXLOC,.625-11,FULL,LT
63	80798	10.00	MACH SCR,PH,#10-24X1.00
64	80824	8.00	NUT,HEX,#10-24
65	80995	18.00	WASHER,TYPE A PLAIN,#10
66	81005	2.00	NUT,FLEXLOC,#10-24,FULL,LT
67	871071601	8.00	WASHER,SPLIT LOCK,#10



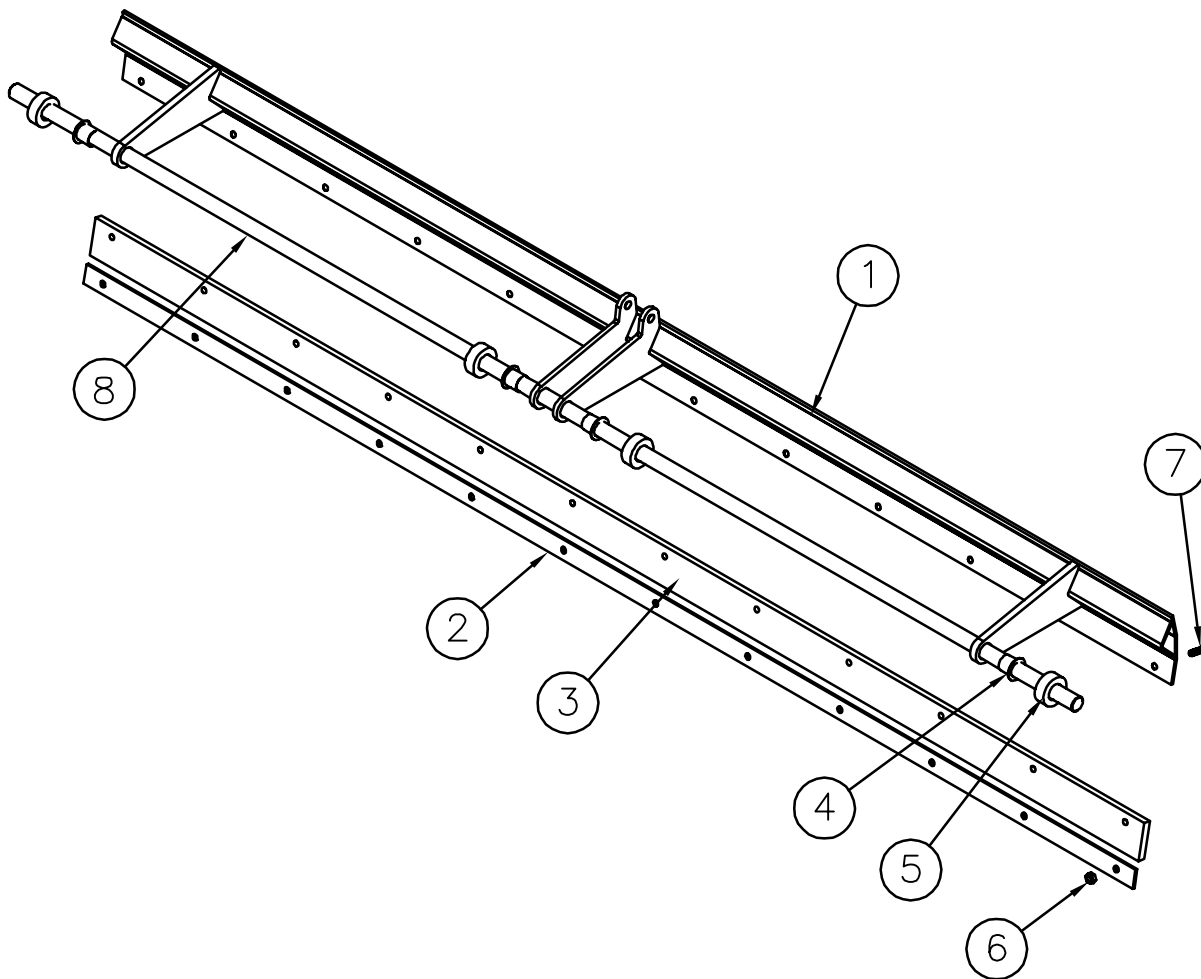
SPREADPRO

20 FT HOPPER OPTION - ROTARY GATE

REF: 42149

REV: 0

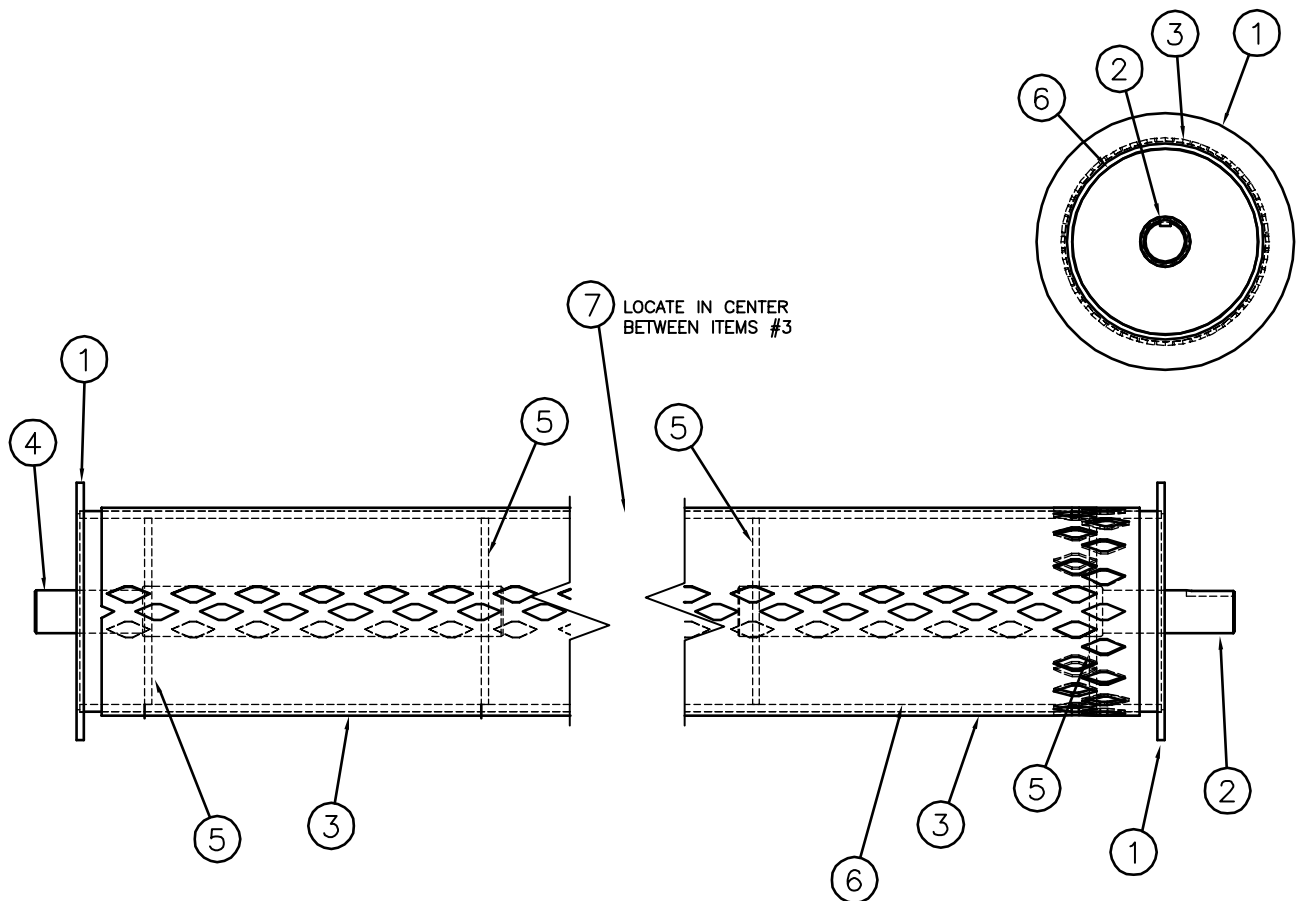
ITEM	PART NUMBER	QTY	DESCRIPTION
	42149		GRP,ROTARY GATE,CENTER,20 FT HOPPER
1	42150	1.00	W/M,ROTARY GATE,20 FT
2	42182	1.00	BAR,SCRAPER RET,GATE,20 FT
3	73207	1.00	BLADE,SCRAPER,CTR GATE,20 FT
4	73208	4.00	BRNG,NYLON,FLG,.75 ID
5	73209	4.00	COLLAR,SET,.81 ID
6	80350	12.00	NUT,FLEXLOC,.250-20,FULL,LT
7	81238	12.00	CSFHS,.250-20X1.00
8	99140-01	1.00	RND,.750 X 69.25,CRS



REF: 42170

REV: 0

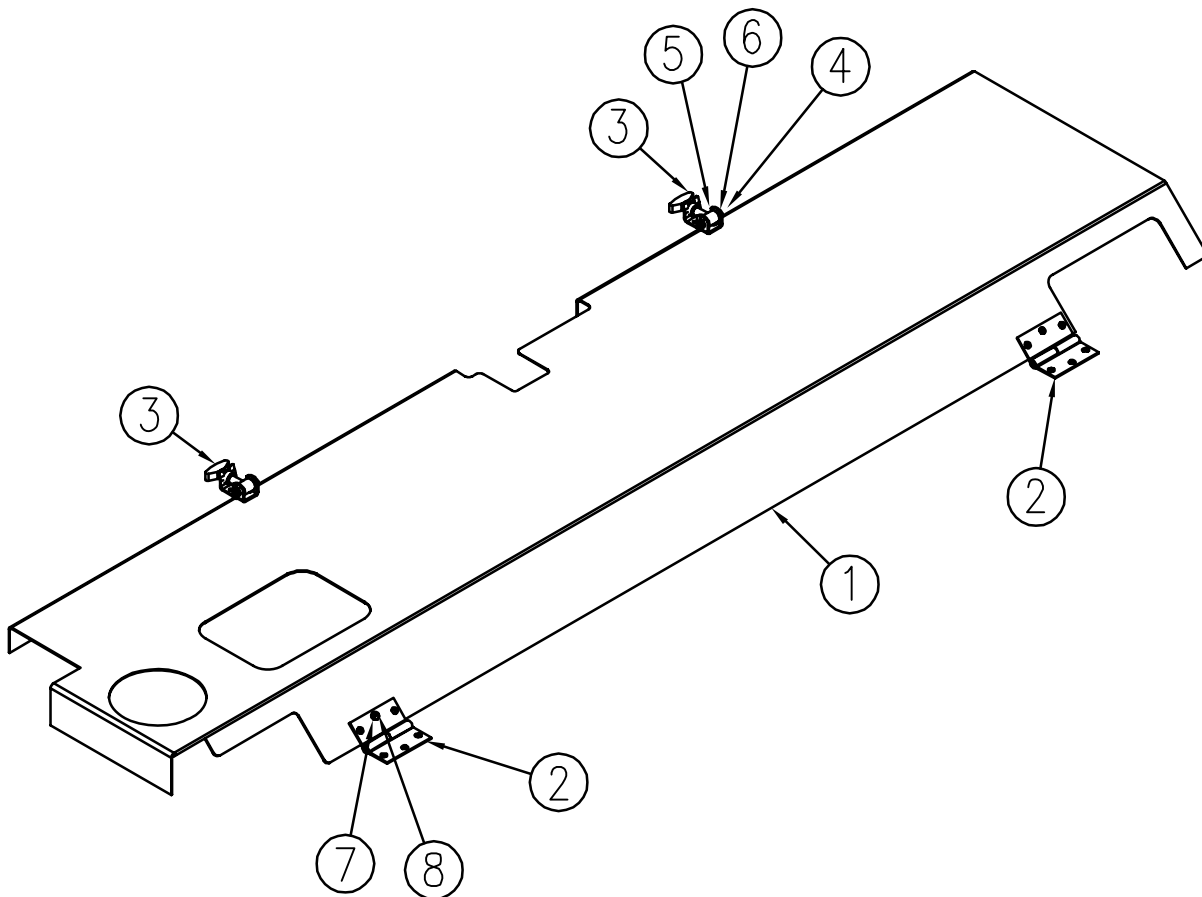
ITEM	PART NUMBER	QTY	DESCRIPTION
42170 SPREADROLL,CENTER,20 FT HOPPER			
1	41895	2.00	DISK,END,FEEDROLL
2	41897	4.00	DISK,SHAFT,FEEDROLL
3	41898	4.00	EXPMTL,27.94X22.50
4	41986	1.00	SHAFT,FEEDROLL,DRIVEN
5	41987	1.00	SHAFT,FEEDROLL,DRIVER
6	42171	1.00	TUBE,FEEDROLL,CENTER,20 FT
7	42172	1.00	EXPMTL,33.94X22.50



REF: 42175

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42175		ASSY,FRONT COVER,LH,20 FT HOPPER
1	42178	1.00	PL,FRONT COVER,LH,20 FT
2	512540	3.00	HINGE,3.00,LOOSE JOINT
3	512542	2.00	RUBBER HOOD FASTENER,MINI
4	80493	8.00	NUT,HEX,#6-32
5	80795	8.00	MACH SCR,PH,#6-32X.50
6	80797	8.00	WASHER,SPLIT LOCK,#6
7	80924	18.00	NUT,FLEXLOC,#10-24,FULL,LT
8	871052400	18.00	MACH SCR,RH,#10-24X.50



	42177		ASSY,FRONT COVER,RH,20 FT HOPPER (Not Shown)
1	42179	1.00	PL,FRONT COVER,RH,20 FT
2	512540	3.00	HINGE,3.00,LOOSE JOINT
3	512542	2.00	RUBBER HOOD FASTENER,MINI
4	80493	8.00	NUT,HEX,#6-32
5	80795	8.00	MACH SCR,PH,#6-32X.50
6	80797	8.00	WASHER,SPLIT LOCK,#6
7	80924	18.00	NUT,FLEXLOC,#10-24,FULL,LT
8	871052400	18.00	MACH SCR,RH,#10-24X.50

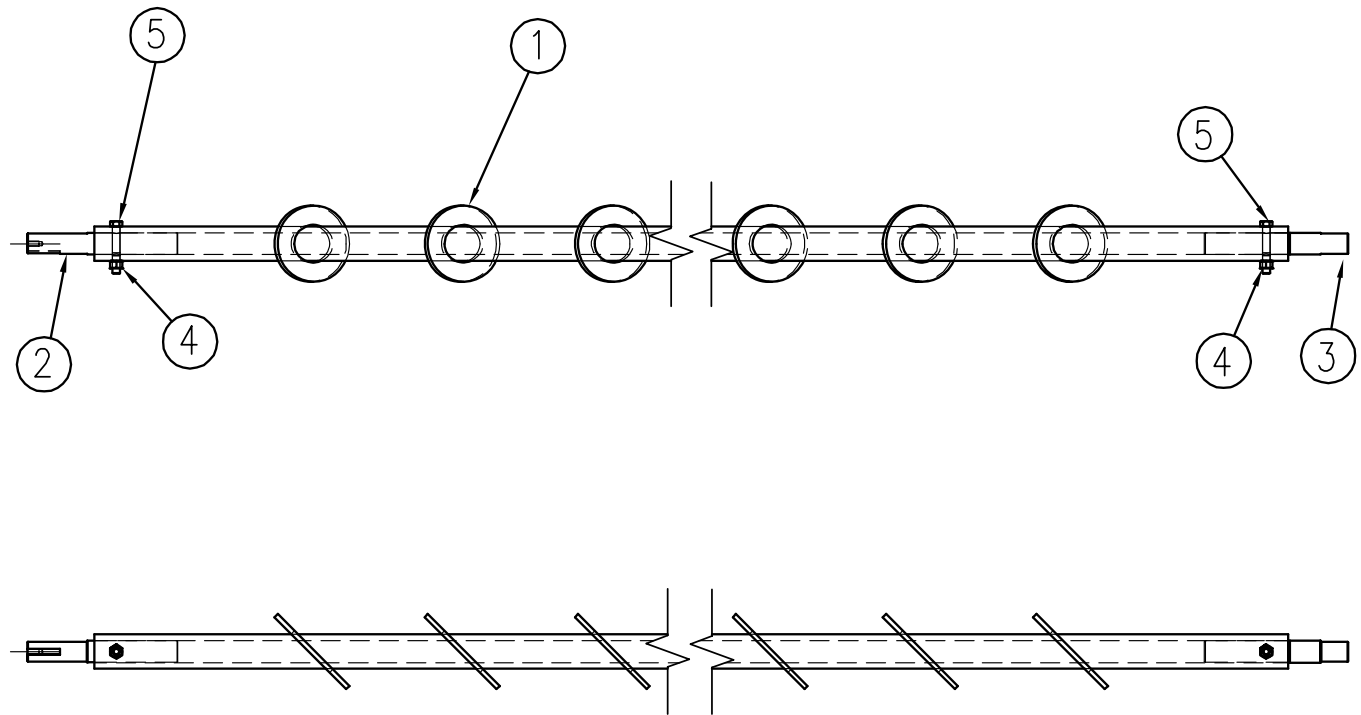
20 FT HOPPER OPTION - CENTER AUGER

SPREADPRO

REF: 42180

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42180		GRP,CENTER AUGER,20 FT
1	42181	1.00	W/M,AUGER SHAFT,CTR HOP,20 FT
2	42235	1.00	SHAFT,AUGER,DRIVE END
3	42236	1.00	SHAFT,AUGER,IDLE END
4	80354	2.00	NUT,FLEXLOC,.500-13,FULL,LT
5	80778	2.00	CSHH,.500-13X3.25,GR5



SPREADPRO

20 FT HOPPER OPTION - LEFT HAND EXTENSION

REF: 42195

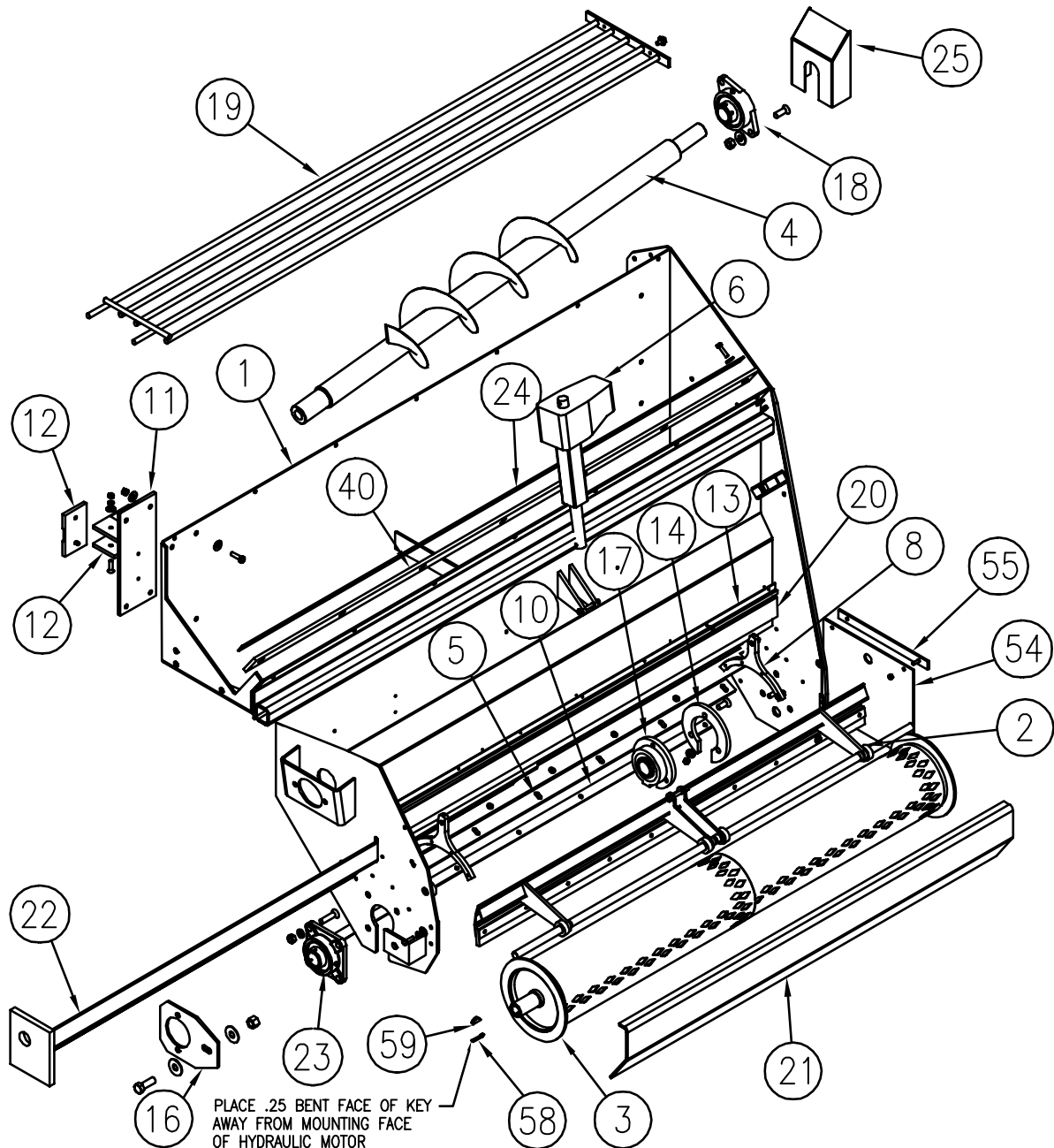
REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
	42195		GRP,EXT HOP,LH,ELEC,20 FT
0	985201	1.00	SHIELD,ROCK HOP,EXT,20 FT
0	42143	1.00	CHUTE,ROCK SLIDE,LH
1	42148	1.00	W/M,HOPPER,EXT,LH,20 FT
2	42227	1.00	ASSY,ROTARY GATE,EXT HOP,20 FT
3	42214	1.00	W/M,FEEDROLL TUBE,EXT HOP,20'
4	42243	1.00	W/M,AUGER/AGITATOR,EXT HOP,20'
5	42247	1.00	SCRAPER,REAR,EXT HOP,20 FT
6	42527	1.00	WIRING,ELEC ACTUATOR,DEUTSCH
8	42157	2.00	SEAL,SPREADROLL END,SPREADPRO
10	42246	1.00	RETAINER,REAR SCRAPER,20 FT
11	514021	1.00	GUIDE,WING EXTENTION
12	514509	2.00	WEAR PAD,INNER,NYLON
13	42250	1.00	HOLDER,BRUSH,EXT HOP,ALUM,20'
14	512110	1.00	PLATE,BEARING OFFSET
16	519137	1.00	MOUNT,MOTOR,EXTENTION HOPPER
17	208712192	1.00	BEARING ASSY,1.50 BORE,STEP
18	73018	1.00	BEARING,FLANGE,1.50,2-BOLT,TRL
19	42203	1.00	W/M,GRILL,EXT HOP,LH,20 FT HOP
20	42249	1.00	BRUSH,EXT HOP,NYLON STRIP,20'
21	42220	1.00	W/M,SCATTER PLT,LH EXT HOP,20'
22	42251	1.00	W/M,CUTOFF DOOR,LH EXT HOP,20'
23	845311009	1.00	BEARING,FLANGE,1.50,4 BOLT
24	42258	1.00	RETAINR,RUBBER,LNG,EXT HOP,20'
25	42484	1.00	W/M,BEARING GUARD,AGITATOR
26	80141	32.00	WASHER,TYPE A PLAIN,.312
27	80207	2.00	CSHH,.312-18X.75,GR5
28	80208	6.00	CSHH,.312-18X1.00,GR5
29	80351	16.00	NUT,FLEXLOC,.312-18,FULL,LT
30	81240	6.00	CSFHS,.312-18X1.50,GR5
31	81241	11.00	CSFHS,.312-18X.75,GR5
32	80224	4.00	CSHH,.375-16X1.25,GR5
33	80142	10.00	WASHER,TYPE A PLAIN,.375
34	80352	6.00	NUT,FLEXLOC,.375-16,FULL,LT
35	80037	2.00	NUT,HEX,.312-18
36	81213	2.00	CSFHS,.312-18X1.25,GR5
37	871032322	3.00	CSFHS,.500-13X1.25
38	80146	2.00	WASHER,TYPE A PLAIN,.625
39	80356	1.00	NUT,FLEXLOC,.625-11,FULL,LT
40	73222	1.00	SEAL,FRONT,TOPEXT HOP,20 FT
41	80490	1.00	CSHH,.625-11X1.75,GR5
42	80354	2.00	NUT,FLEXLOC,.500-13,FULL,LT
43	80144	2.00	WASHER,TYPE A PLAIN,.500
44	80420	2.00	CSFHS,.500-13X1.50
45	80206	8.00	CSHH,.312-18X1.25,GR5
46	80164	4.00	WASHER,SPLIT LOCK,.500
47	80040	4.00	NUT,HEX,.500-13
48	80991	4.00	CSFHS,.500-13X2.00
49	80161	13.00	WASHER,SPLIT LOCK,.312
50	80185	2.00	CSHH,.250-20X1.00,GR5
51	80350	2.00	NUT,FLEXLOC,.250-20,FULL,LT
52	871080436	6.00	RIVET,BLIND,AL,.125,.188-.250

REF: 42195

REV: C

ITEM	PART NUMBER	QTY	DESCRIPTION
53	71836	1.00	FITT,LUBE,90,.250-28
54	41823	1.00	RUBBER,.175T,1-PLY,11.00X12.50
55	41824	1.00	BAR,.188X1.00X12.50,W/HOLES
56	80215	1.00	CSHH,.312-18X2.50,GR5
57	80214	1.00	CSHH,.312-18X2.25,GR5
58	91533-01	1.00	KEYSTOCK,.12X.25,BENT
59	73270	1.00	KEY,HI-PRO 808
60	80798	10.00	MACH SCR,PH,#10-24X1.00
61	80824	8.00	NUT,HEX,#10-24
62	80995	18.00	WASHER,TYPE A PLAIN,#10
63	81005	2.00	NUT,FLEXLOC,#10-24,FULL,LT
64	871071601	8.00	WASHER,SPLIT LOCK,#10



SPREADPRO

20 FT HOPPER OPTION - RIGHT HAND EXTENSION

REF: 42197

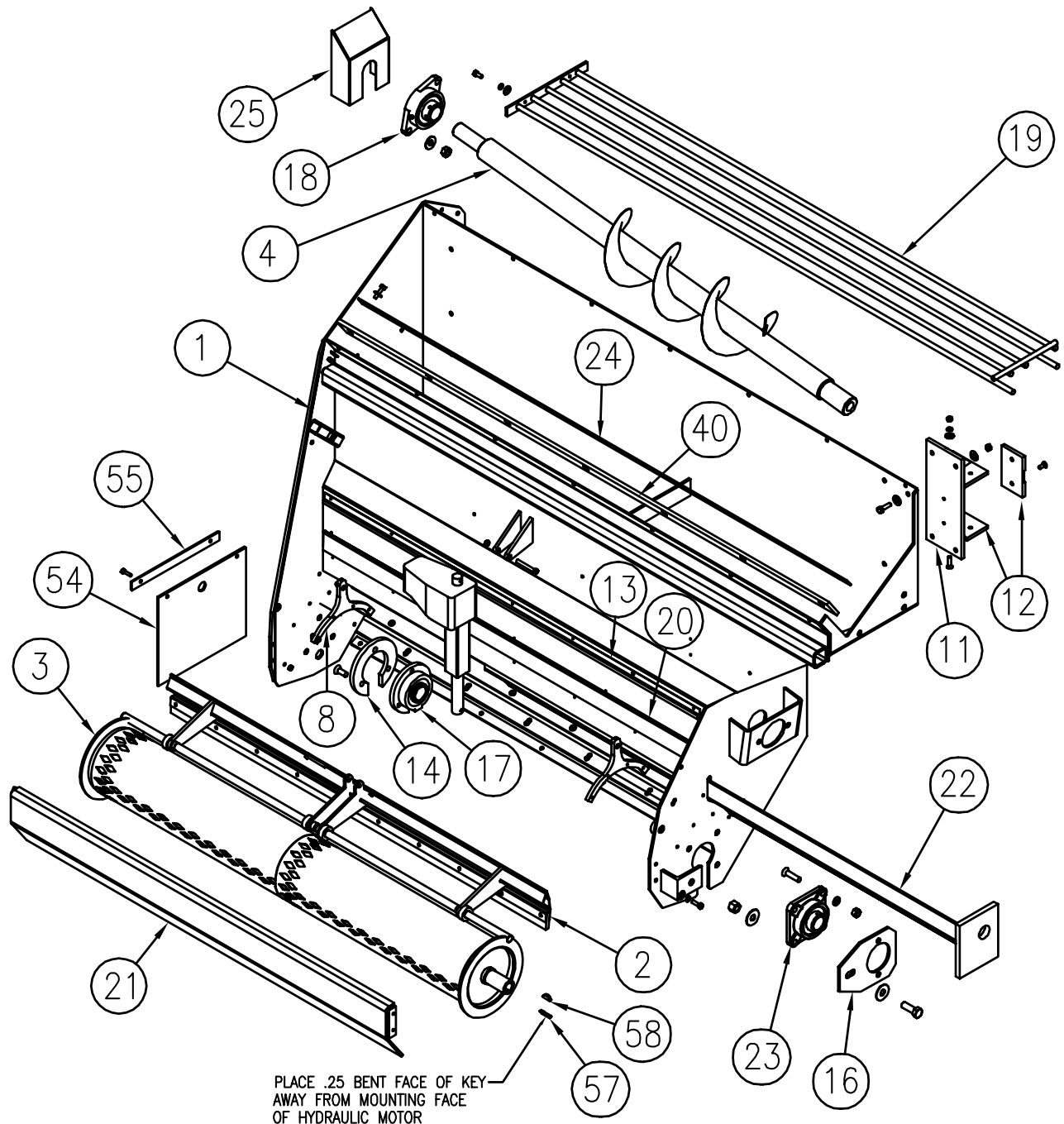
REV: B

ITEM	PART NUMBER	QTY	DESCRIPTION
	42197		GRP,EXT HOP,RH,ELEC,20 FT
0	985201	1.00	SHIELD,ROCK HOP,EXT,20 FT
0	42231	1.00	CHUTE,ROCK SLIDE,RH
1	42196	1.00	W/M,HOPPER,EXT,RH,20 FT
2	42247	1.00	SCRAPER,REAR,EXT HOP,20 FT
3	42214	1.00	W/M,FEEDROLL TUBE,EXT HOP,20'
4	42243	1.00	W/M,AUGER/AGITATOR,EXT HOP,20'
5	42227	1.00	ASSY,ROTARY GATE,EXT HOP,20 FT
6	42527	1.00	WIRING,ELEC ACTUATOR,DEUTSCH
8	42157	2.00	SEAL,SPREADROLL END,SPREADPRO
10	42246	1.00	RETAINER,REAR SCRAPER,20 FT
11	514021	1.00	GUIDE,WING EXTENTION
12	514509	2.00	WEAR PAD,INNER,NYLON
13	42250	1.00	HOLDER,BRUSH,EXT HOP,ALUM,20'
14	512110	1.00	PLATE,BEARING OFFSET
16	519137	1.00	MOUNT,MOTOR,EXTENTION HOPPER
17	208712192	1.00	BEARING ASSY,1.50 BORE,STEP
18	73018	1.00	BEARING,FLANGE,1.50,2-BOLT,TRL
19	42206	1.00	W/M,GRILL,EXT HOP,RH,20 FT HOP
20	42249	1.00	BRUSH,EXT HOP,NYLON STRIP,20'
21	42241	1.00	W/M,SCATTER PLT,RH EXT HOP,20'
22	42248	1.00	W/M,CUTOFF DOOR,RH EXT HOP,20'
23	845311009	1.00	BEARING,FLANGE,1.50,4 BOLT
24	42258	1.00	RETAINR,RUBBER,LNG,EXT HOP,20'
25	42484	1.00	W/M,BEARING GUARD,AGITATOR
26	80141	32.00	WASHER,TYPE A PLAIN,.312
27	80207	2.00	CSHH,.312-18X.75,GR5
28	80208	6.00	CSHH,.312-18X1.00,GR5
29	80351	14.00	NUT,FLEXLOC,.312-18,FULL,LT
30	81240	6.00	CSFHS,.312-18X1.50,GR5
31	81241	11.00	CSFHS,.312-18X.75,GR5
32	80224	4.00	CSHH,.375-16X1.25,GR5
33	80142	10.00	WASHER,TYPE A PLAIN,.375
34	80352	6.00	NUT,FLEXLOC,.375-16,FULL,LT
35	80037	2.00	NUT,HEX,.312-18
36	81213	2.00	CSFHS,.312-18X1.25,GR5
37	871032322	3.00	CSFHS,.500-13X1.25
38	80146	2.00	WASHER,TYPE A PLAIN,.625
39	80356	1.00	NUT,FLEXLOC,.625-11,FULL,LT
40	73222	1.00	SEAL,FRONT,TOPEXT HOP,20 FT
41	80490	1.00	CSHH,.625-11X1.75,GR5
42	80354	2.00	NUT,FLEXLOC,.500-13,FULL,LT
43	80144	2.00	WASHER,TYPE A PLAIN,.500
44	80420	2.00	CSFHS,.500-13X1.50
45	80206	8.00	CSHH,.312-18X1.25,GR5
46	80164	4.00	WASHER,SPLIT LOCK,.500
47	80040	4.00	NUT,HEX,.500-13
48	80991	4.00	CSFHS,.500-13X2.00
49	80161	13.00	WASHER,SPLIT LOCK,.312
50	80185	2.00	CSHH,.250-20X1.00,GR5
51	80350	2.00	NUT,FLEXLOC,.250-20,FULL,LT
52	871080436	6.00	RIVET,BLIND,AL,.125,.188-.250
53	71836	1.00	FITT,LUBE,90,.250-28

REF: 42197

REV: B

ITEM	PART NUMBER	QTY	DESCRIPTION
54	41823	1.00	RUBBER,.175T,1-PLY,11.00X12.50
55	41824	1.00	BAR,.188X1.00X12.50,W/HOLES
56	80215	1.00	CSHH,.312-18X2.50,GR5
57	91533-01	1.00	KEYSTOCK,.12X.25,BENT
58	73270	1.00	KEY,HI-PRO 808
59	80798	10.00	MACH SCR,PH,#10-24X1.00
60	80824	8.00	NUT,HEX,#10-24
61	80995	18.00	WASHER,TYPE A PLAIN,#10
62	81005	2.00	NUT,FLEXLOC,#10-24,FULL,LT
63	871071601	8.00	WASHER,SPLIT LOCK,#10



SPREADPRO**20 FT HOPPER OPTION - EXTENSION SLIDE**

REF: 42212

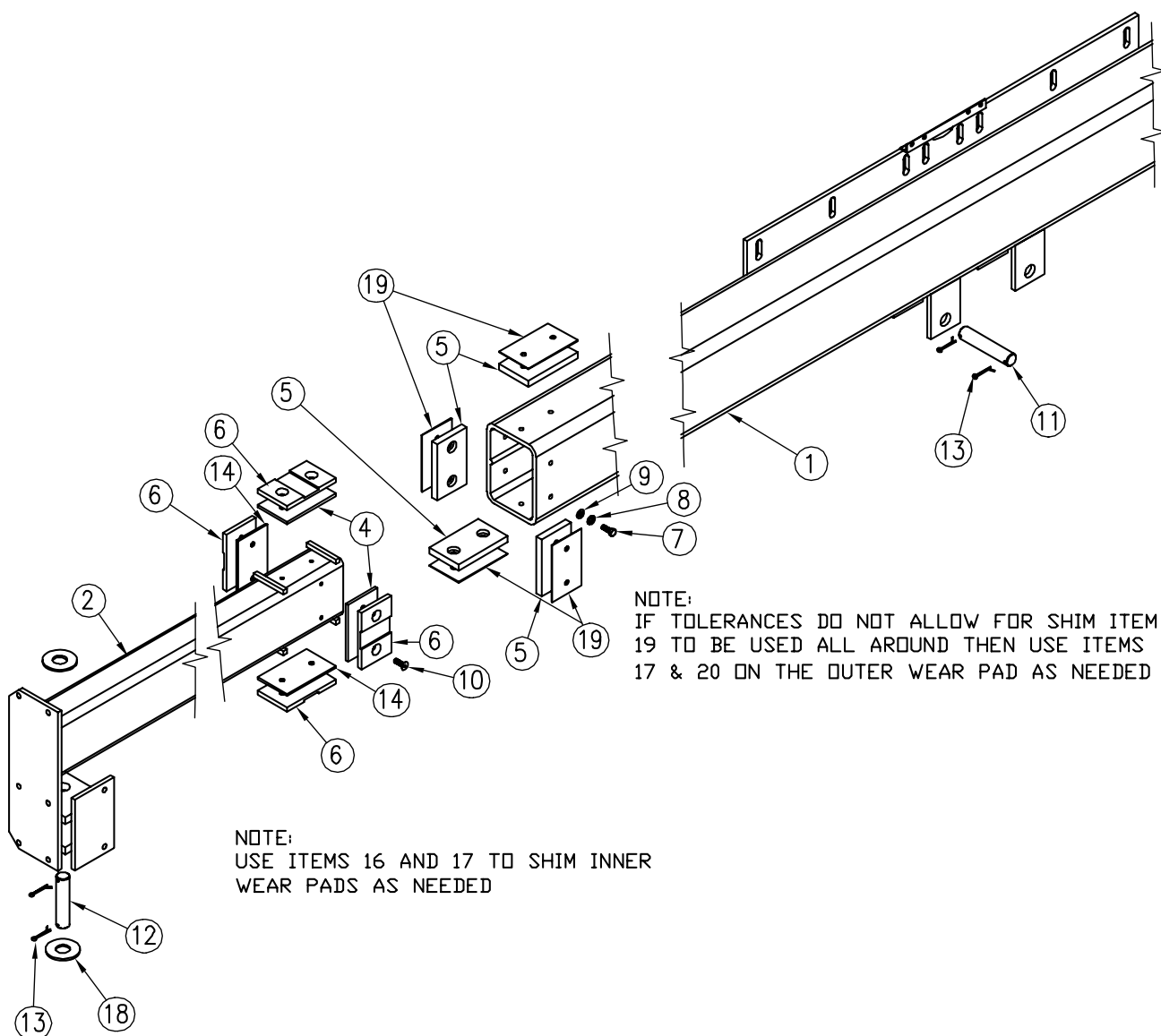
REV: A

ITEM	PART NUMBER	QTY	DESCRIPTION
	42212		GRP,HOP MNT/SLIDE,EXT HOP,20'
1	42208	1.00	W/M,CENTER RAIL,FRNT HOP,20 FT
2	42209	1.00	W/M,EXT RAIL,RH EXT HOP,20 FT
3	42211	1.00	W/M,EXT RAIL,LH EXT HOP,20 FT
4	514110	8.00	SHIM,WEAR PAD,.250 THICK
5	73223	8.00	PAD,WEAR,NYLON,.313 NUT INSERT
6	514509	8.00	WEAR PAD,INNER,NYLON
7	80208	16.00	CSHH,.312-18X1.00,GR5
8	80161	16.00	WASHER,SPLIT LOCK,.312
9	80963	16.00	WASHER,SAE PLAIN,.312
10	81181	16.00	CSFHS,.312-18X1.00,GR5
11	42260	2.00	PIN,HYD CYL BORE,EXT HOP,20 FT
12	42266	2.00	PIN,HYD CYL ROD,EXT HOP,20 FT
13	80335	8.00	COTTER PIN,.156X1.50
14	514115	8.00	SHIM,WEAR PAD,7GA(.1793)
16	42036	16.00	SHIM,WEAR PAD,12 GA(.1046)
17	42038	16.00	SHIM,WEAR PAD,16 GA(.0598)
18	80149	4.00	WASHER,TYPE A PLAIN,1.000
19	42268	8.00	SHIM,WEAR PAD,14 GA (.0747)
20	42269	8.00	SHIM,WEAR PAD,18 GA (.0478)

Grease inside each end of the center rail past the position of where the wear pads are mounted. Mount the wear pads to the extension rail. Install the shims so tight that there is no rotation or movement between extension rail and center rail. The outer shims should be installed so that it requires 100 lbs. to push the extension rail in.

REF: 42212

REV: A

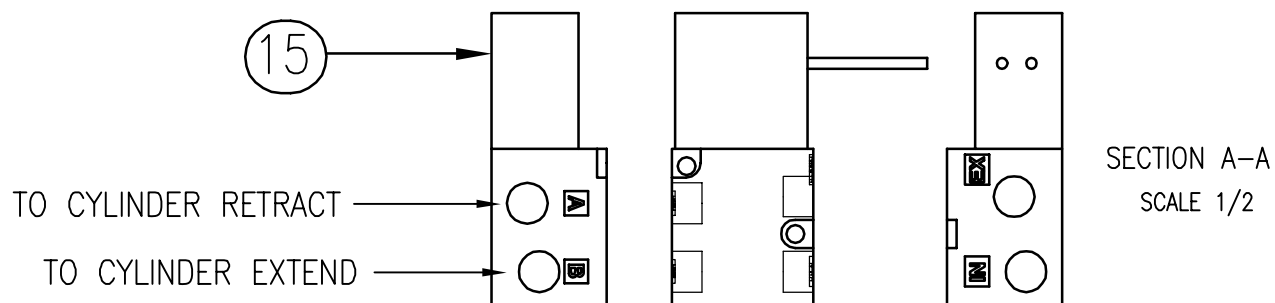


REF: 42228

REV: 0

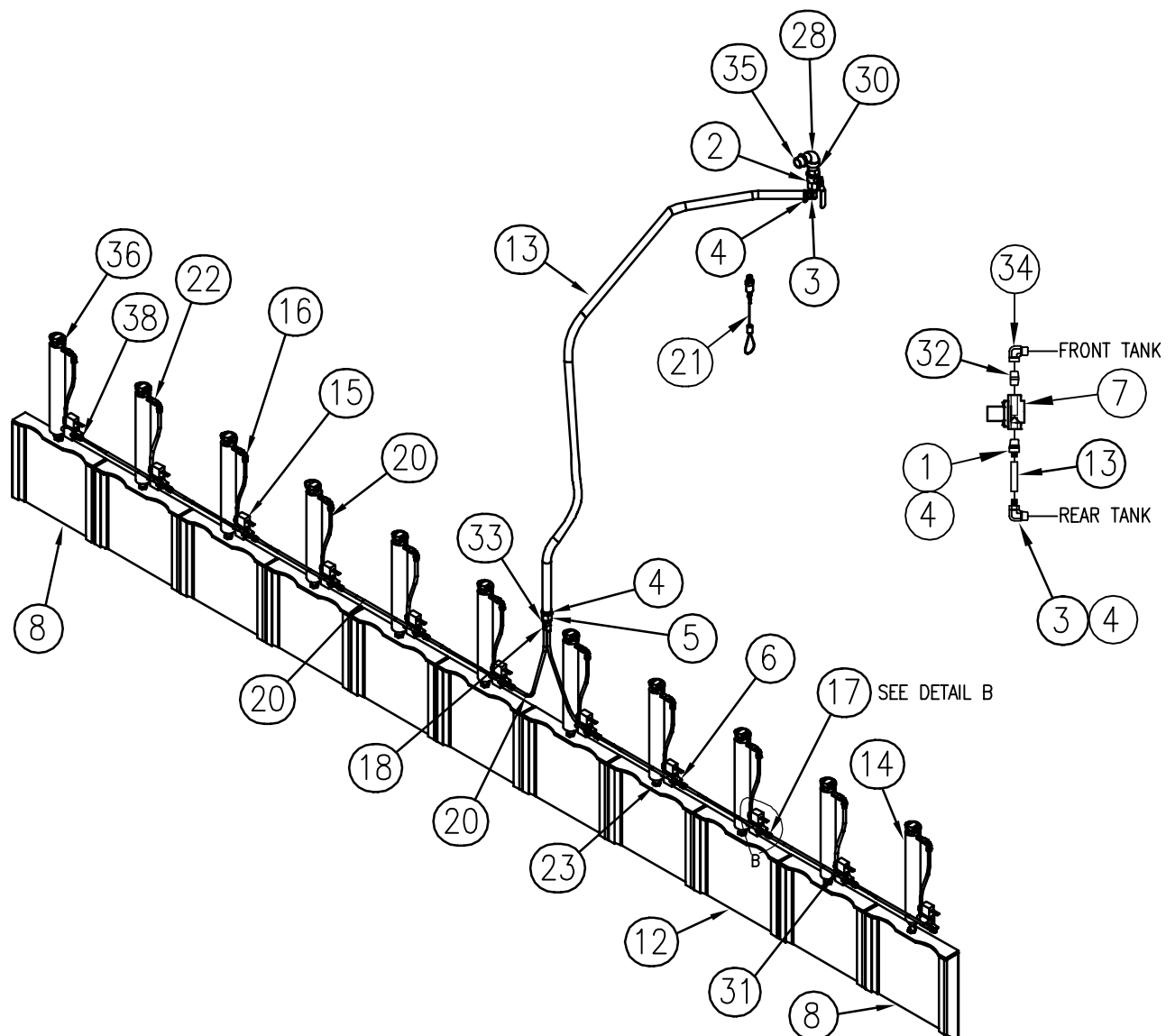
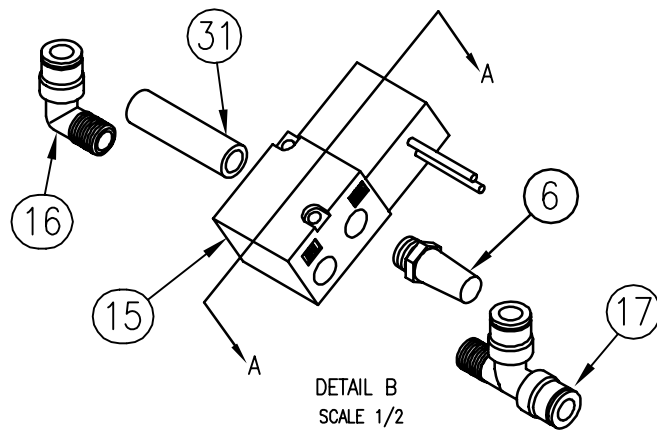
ITEM	PART NUMBER	QTY	DESCRIPTION
42228 GRP,INDIV 11-GATES,20 FT HOP			
1	32873	1.00	FITT,STR 04MP-08HB,CRIMPED
2	32874	1.00	VLV,BALL,08 BRASS
3	33082	2.00	FITT,90 08MP-08HB
4	33163	4.00	CLAMP,HOSE,.50-.91,WORM,#08
5	35592	1.00	FITT,STR 08FP-08HB,CRIMPED
6	36402	11.00	MUFFLER,PNEUMATIC EXH,.12 NPT
7	37049	1.00	VLV,PRESS PROTECTION,102-88
8	42262	2.00	W/M,SLIDE GATE,END,11-GATE
9	42158	1.00	WIRING,INDIV GATE PANEL,11-POS (See Detail Following)
10	42240	1.00	HARNESS,CONN,INDIV 11-GATES
11	42261	1.00	HARNESS,CTR HOP,INDIV 11-GATES
12	512013	9.00	W/M,SLIDE GATE
13	6352	13.00	HOSE,08,PUSH-ON,250
14	72806	11.00	CYL,1.50X8.0,250PSI,12.38
15	38808	11.00	VLV,AIR,SOL,4-WAY,12VDC,DIODE
16	72894	22.00	FITT,90 02MP-04PC
17	72895	7.00	FITT,TEE 02MP-04PC-04PC,RUN
18	72896	1.00	FITT,Y 02MP-04PC
19	72909	1.00	FITT,90 02MP-04NT,AB,BRASS
20	72916	36.00	TUBING,AIR BRAKE,BLK,04
21	72920	1.00	VLV,DRAIN COCK,04MP,7"PULLCABL
22	72940	11.00	VLV,AIR,QUICK EXHST,02MP-02FP
23	80092	22.00	NUT,HEX,JAM,.438-20
24	80142	8.00	WASHER,TYPE A PLAIN,.375
25	80224	4.00	CSHH,.375-16X1.25,GR5
26	80352	4.00	NUT,FLEXLOC,.375-16,FULL,LT
27	81150	4.00	SCR,SLFTPG,PH,#10X.500,AB
28	99526	1.00	PIPE,90,08MP-08FP,MI
29	99569	1.00	PIPE,TEE,08FP,MI
30	99596	2.00	PIPE,NIPPLE,08XCLOSE
31	99611	11.00	PIPE,NIPPLE,02X1.50
32	99621	1.00	PIPE,NIPPLE,04X2.00
33	99979	2.00	PIPE,BUSH,08MP-02FP,STL
34	99980	1.00	PIPE,BUSH,08MP-04FP,STL
35	99985	1.00	PIPE,BUSH,12MP-08FP,STL
36	73116	11.00	PIN,LINCH,.375,WITH FLAT SIDE
37	37311	2.00	FITT,90 02MP-02FP,BRASS
38	72893	2.00	FITT,STR 02MP-04PC

See end of
section for
additional
schematics.



REF: 42228

REV: 0



SPREADPRO**WIRING,INDIVIDUAL 11-GATE**

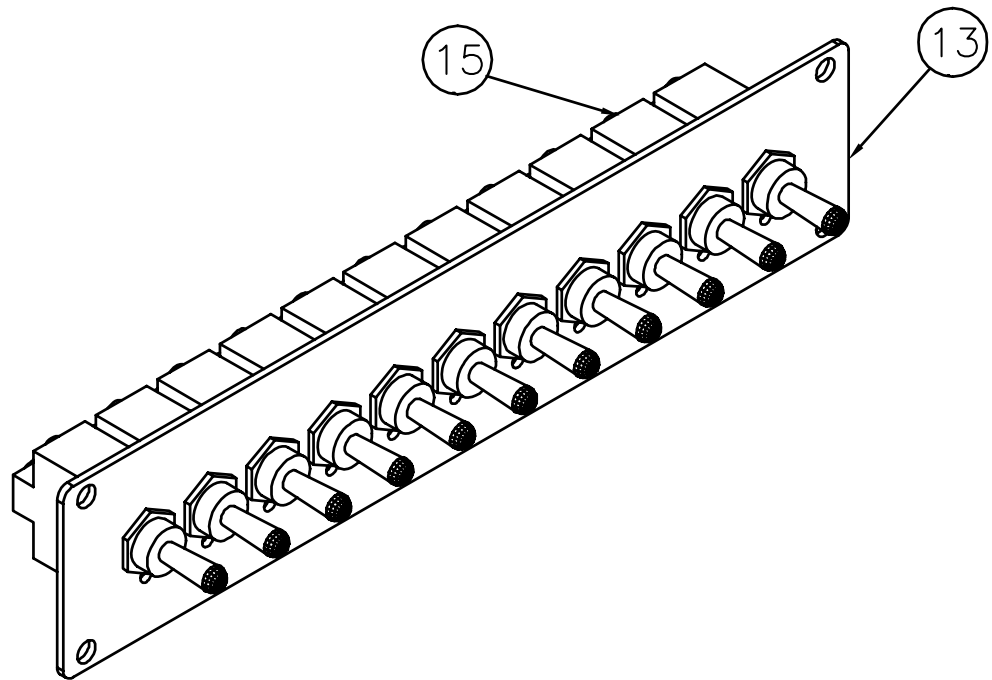
REF: 42158

REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
	42158		WIRING,INDIV GATE PANEL,11-POS
1	34468	1.00	CONN HOUSING,CAP,12 CIRCUIT
2	34471	12.00	CONTACT,SOCKET,20-14 GA
3	33271-0	.75	WIRE,16 GA,GRAY
4	33271-3	1.00	WIRE,16 GA,BROWN
5	33271-4	.75	WIRE,16 GA,GREEN
6	33271-5	.75	WIRE,16 GA,WHITE
7	33271-6	1.00	WIRE,16 GA,ORANGE
8	33271-8	1.25	WIRE,16 GA,PINK
9	33271-9	1.25	WIRE,16 GA,PURPLE
10	33271-11	.75	WIRE,16 GA,BLUE
11	33271-17	1.25	WIRE,16 GA,WHITE/BLACK STRIPE
12	33271-7	1.50	WIRE,16 GA,RED
13	42169	1.00	PL,SWITCH PANEL,11-GATES
14	73218	1.00	DECAL,11 GATE PANEL
15	851090624	11.00	SWITCH,TOGGLE,SPDT,2-POS
16	35123	22.00	TERM,RING,16-14 GA,#6 STUD
17	33271-2	.50	WIRE,16 GA,YELLOW
18	33271-15	.50	WIRE,16 GA,BROWN/YELLOW STRIPE

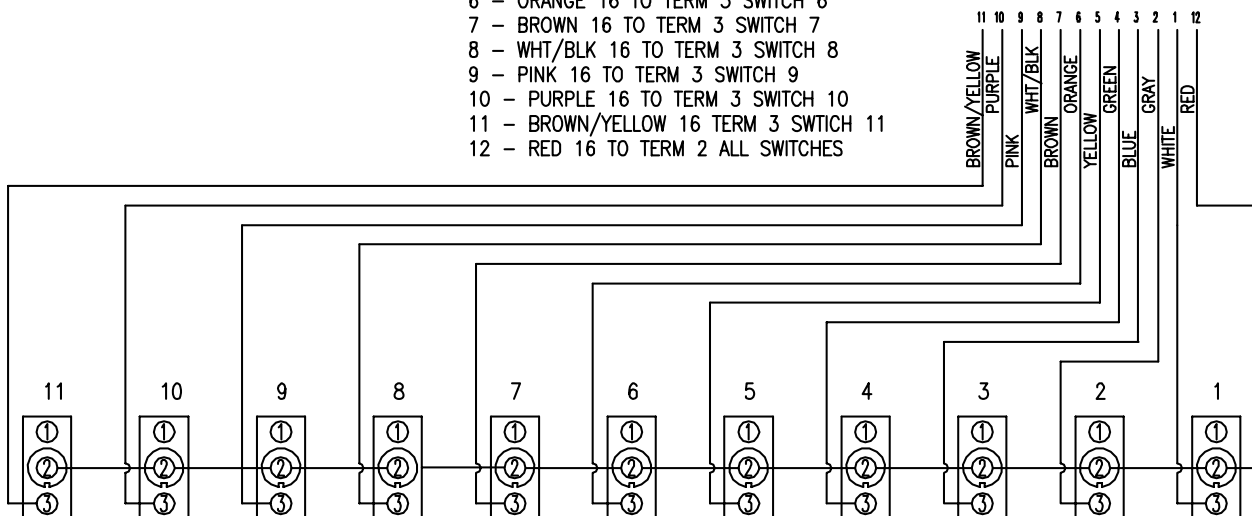
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REV: 0



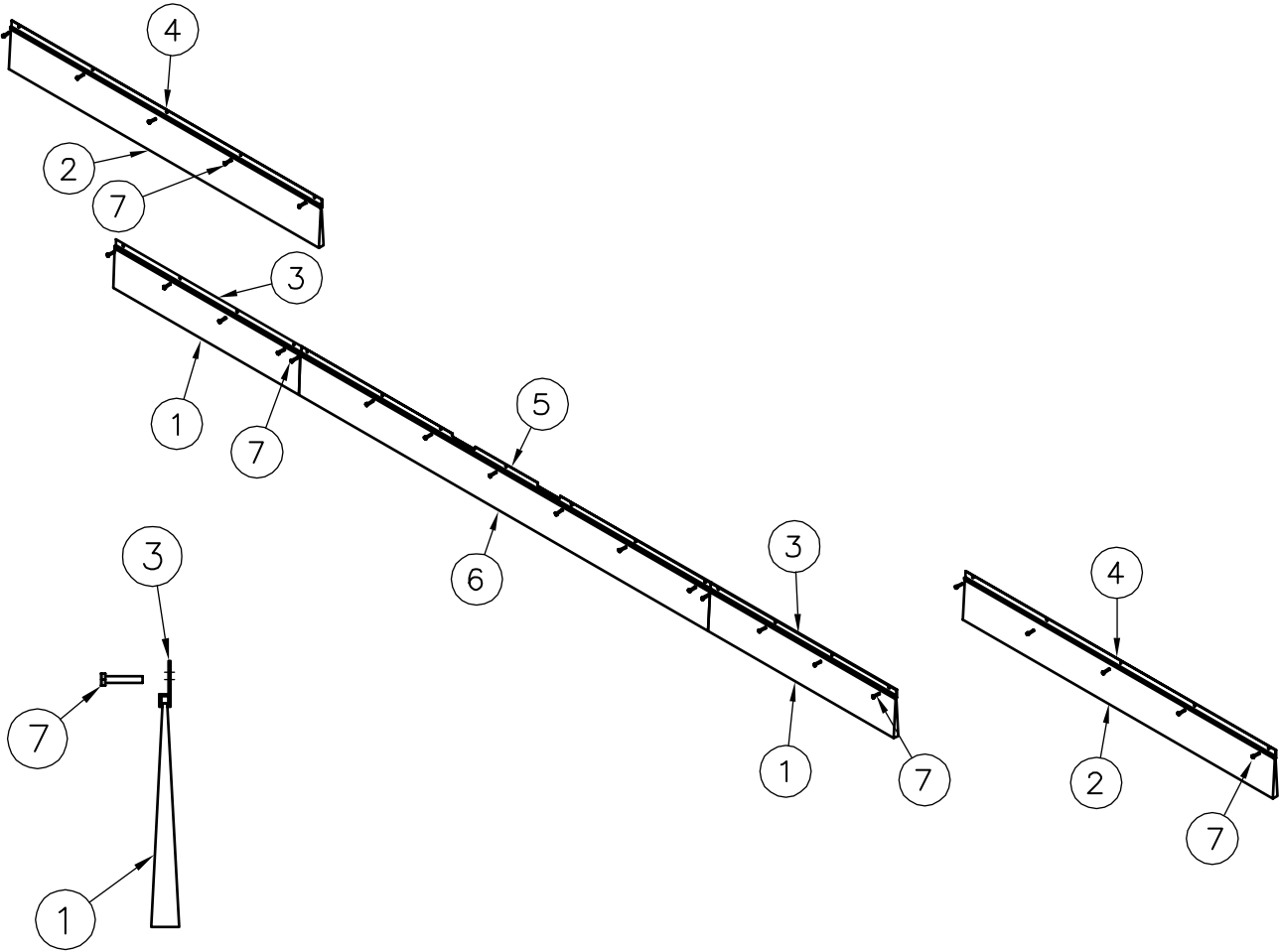
PLUG 12

- 1 - WHITE 16 TO TERM 3 SWITCH 1
- 2 - GRAY 16 TO TERM 3 SWITCH 2
- 3 - BLUE 16 TO TERM 3 SWITCH 3
- 4 - GREEN 16 TO TERM 3 SWITCH 4
- 5 - YELLOW 16 TO TERM 3 SWITCH 5
- 6 - ORANGE 16 TO TERM 3 SWITCH 6
- 7 - BROWN 16 TO TERM 3 SWITCH 7
- 8 - WHT/BLK 16 TO TERM 3 SWITCH 8
- 9 - PINK 16 TO TERM 3 SWITCH 9
- 10 - PURPLE 16 TO TERM 3 SWITCH 10
- 11 - BROWN/YELLOW 16 TERM 3 SWITCH 11
- 12 - RED 16 TO TERM 2 ALL SWITCHES



REF: 42229
REV: 0

ITEM	PART NUMBER	QTY	DESCRIPTION
42229			GRP,GUARD,BRUSH,20 FT HOPPER
1	42231	2.00	BRUSH,.188X6.00X32.63
2	42232	2.00	BRUSH,.188X6.00X54.50
3	42233	2.00	HOLDER,BRUSH,.188X32.63
4	42234	2.00	HOLDER,BRUSH,.188X54.50
5	41806	1.00	HOLDER,BRUSH,.188X72.00,CUTOUT
6	73079	1.00	BRUSH,.188X6.00X72.00
7	81160	21.00	SCR,SLFDRL,HH,#10X1.00,#3PT



REF:

REV:

ITEM	PART NUMBER	QTY	DESCRIPTION
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All components are the same as the 205 HP QSB Cummins engine. Refer to the Engine Group on page 2 (and following) of this Parts Book. Also refer to the engine manufacturer's manual supplied with this manual.

ALPHABETICAL INDEX

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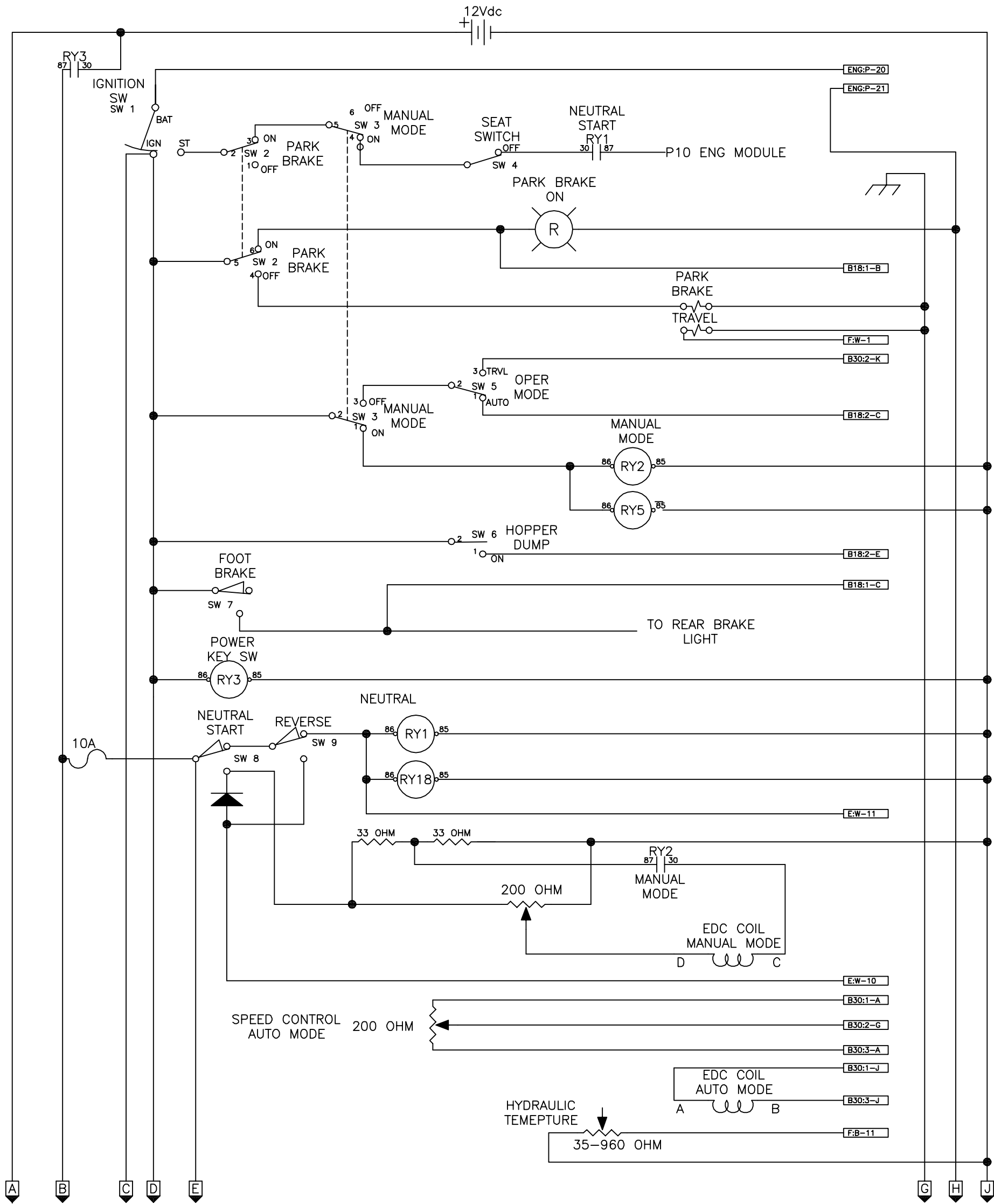
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Schematic:1

SCHEMATIC, WIRING,
SPREADPRO, HED
CONTROLS

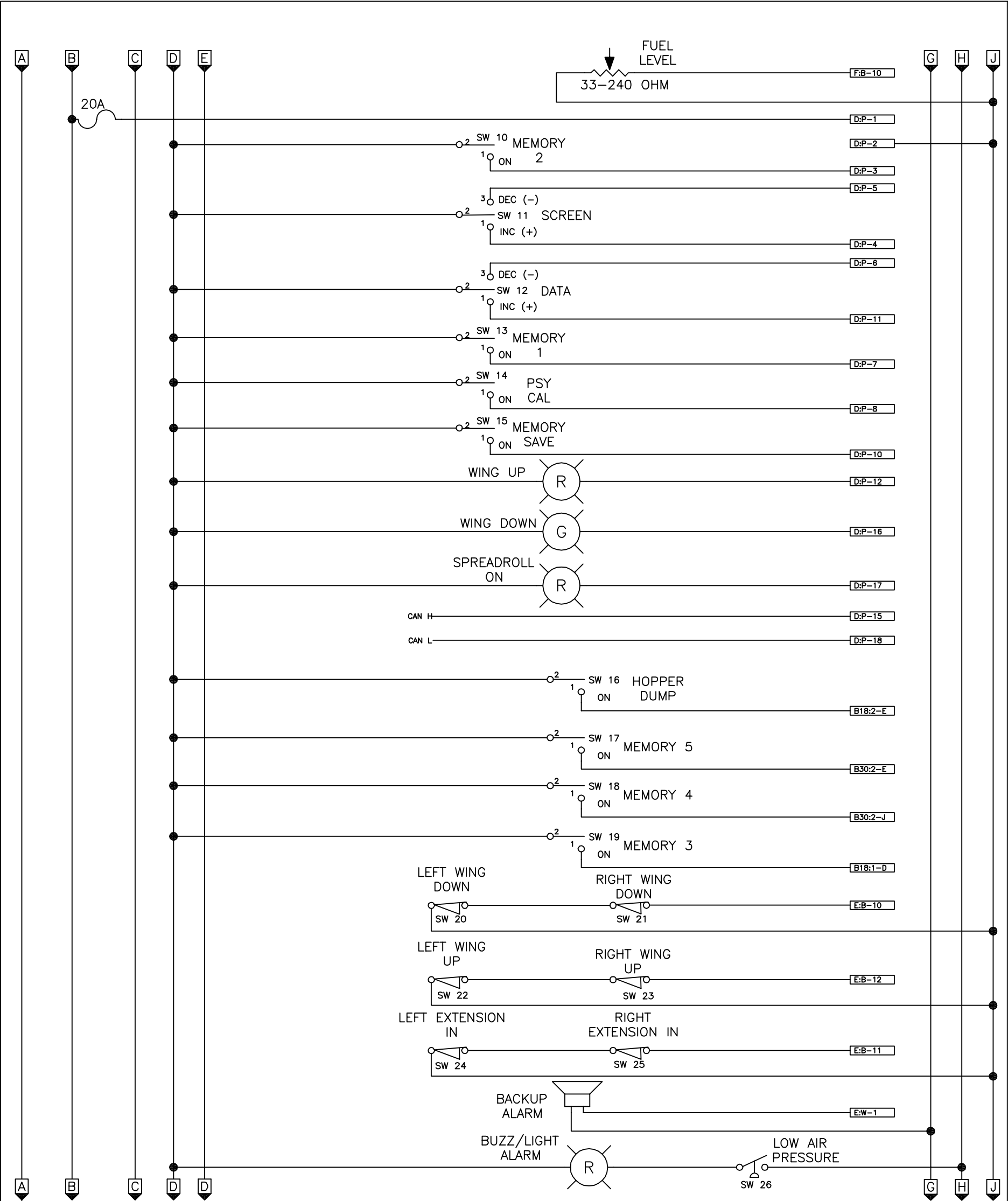
DRAWING NO.

42528

REV.

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SHEET 1 OF 6



SCHEMATIC, WIRING,
SPREADPRO, HED
CONTROLS

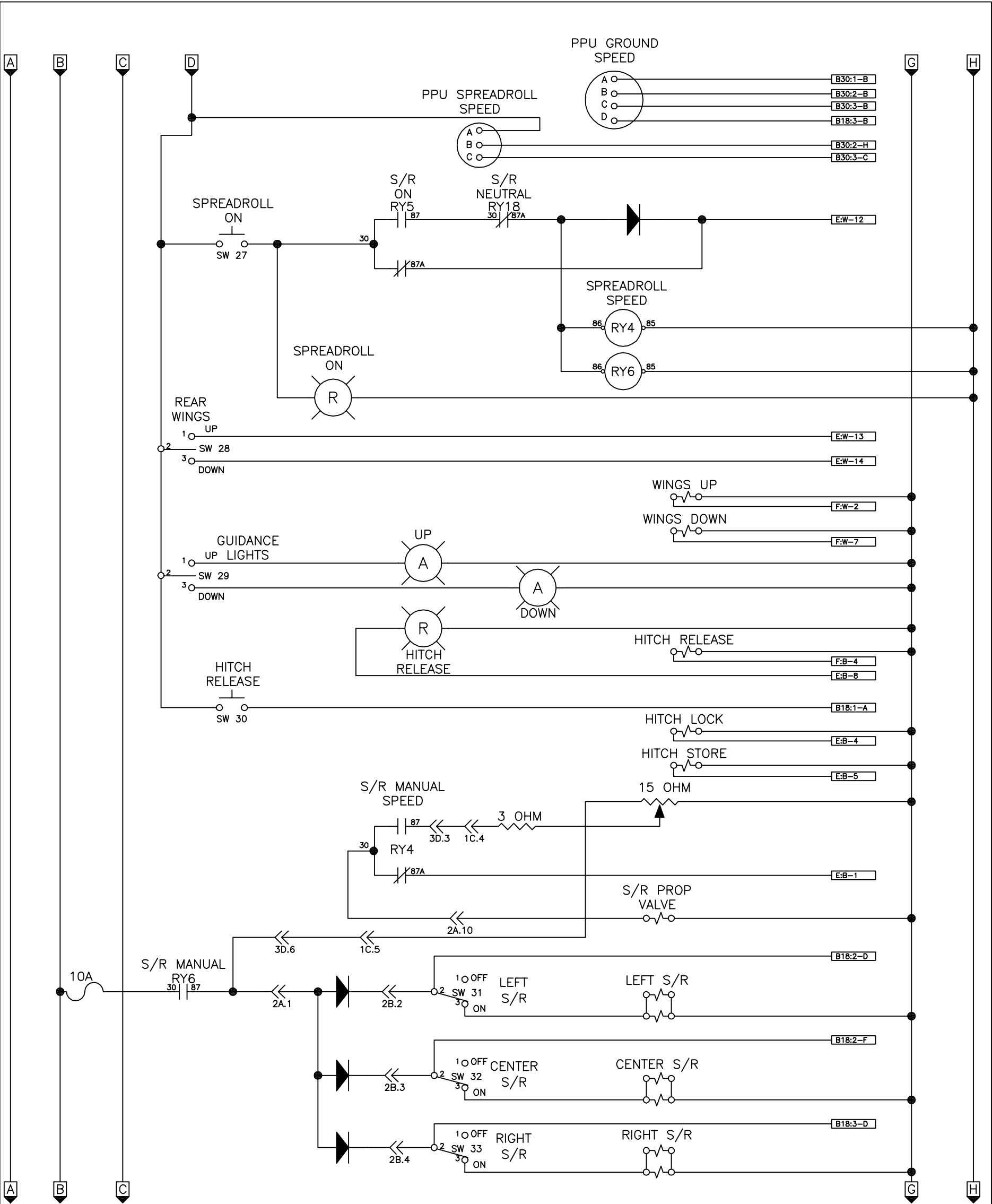
DRAWING NO.

42528

REV.

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SHEET 2 OF 6



SCHEMATIC, WIRING,
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CONTROLS

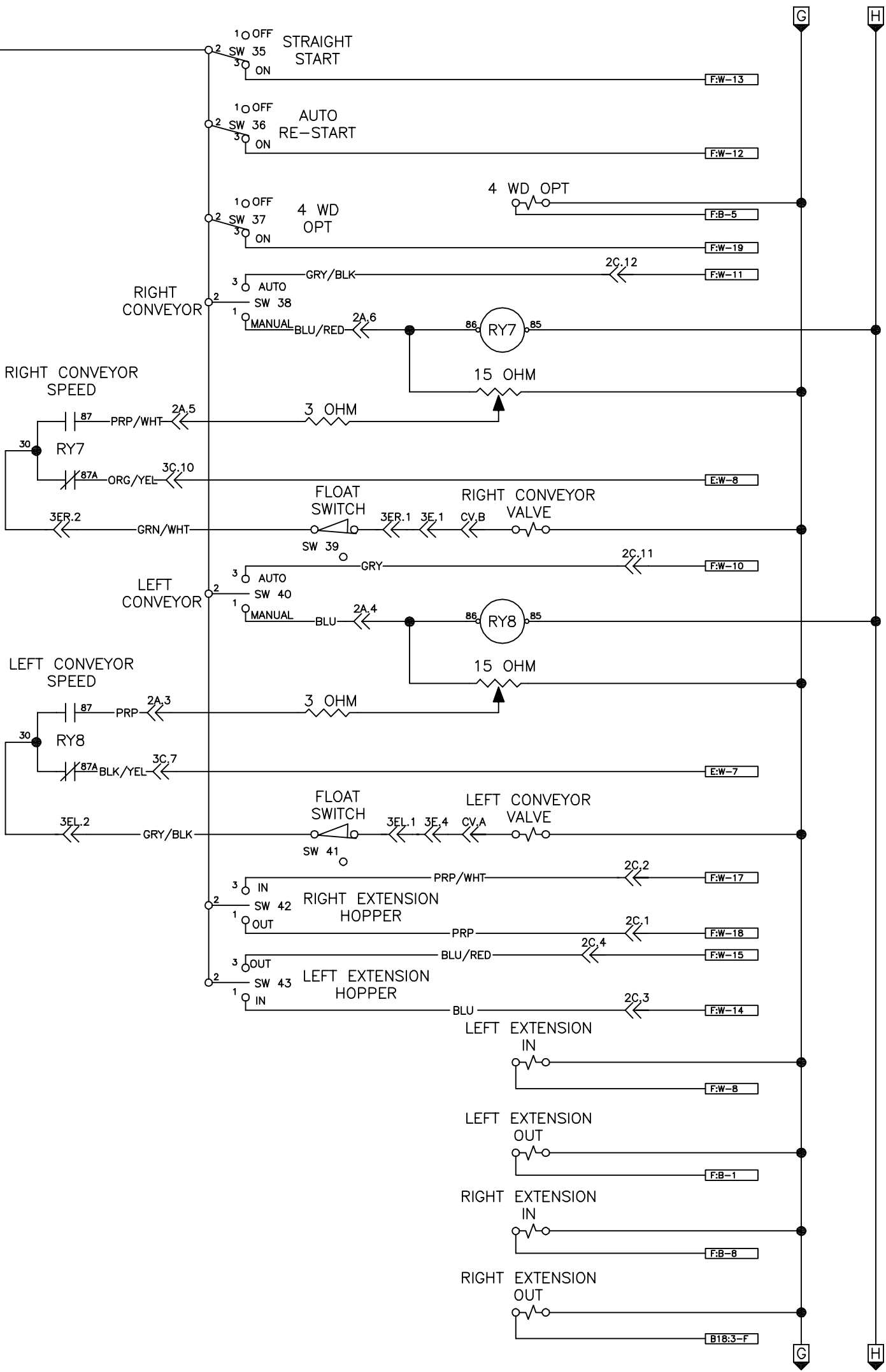
DRAWING NO.

42528

REV.

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SHEET 3 OF 6



Schematic.4

SCHEMATIC, WIRING,
SPREADPRO, HED
CONTROLS

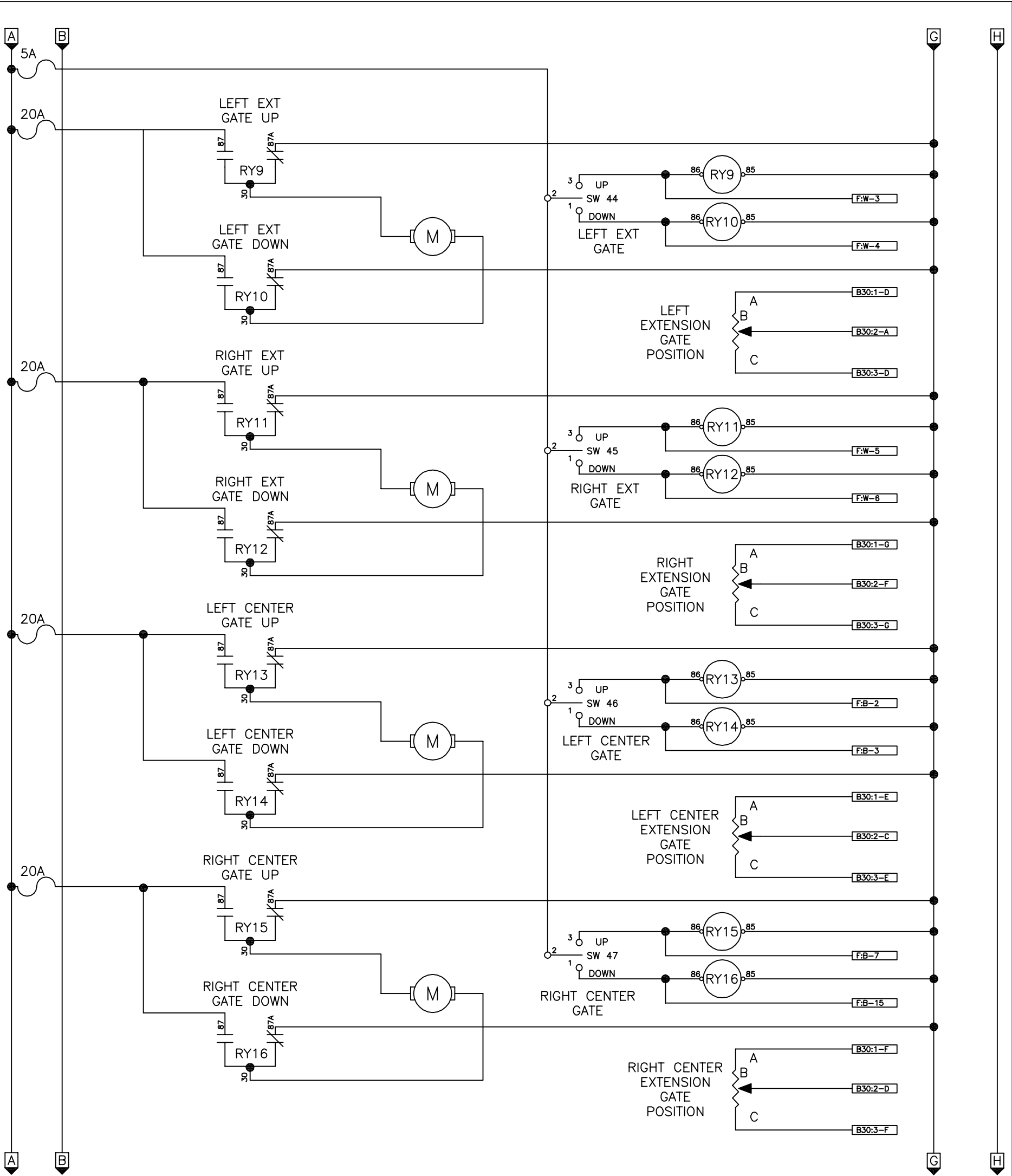
DRAWING NO.

REV.

42528

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SHEET 4 OF 6



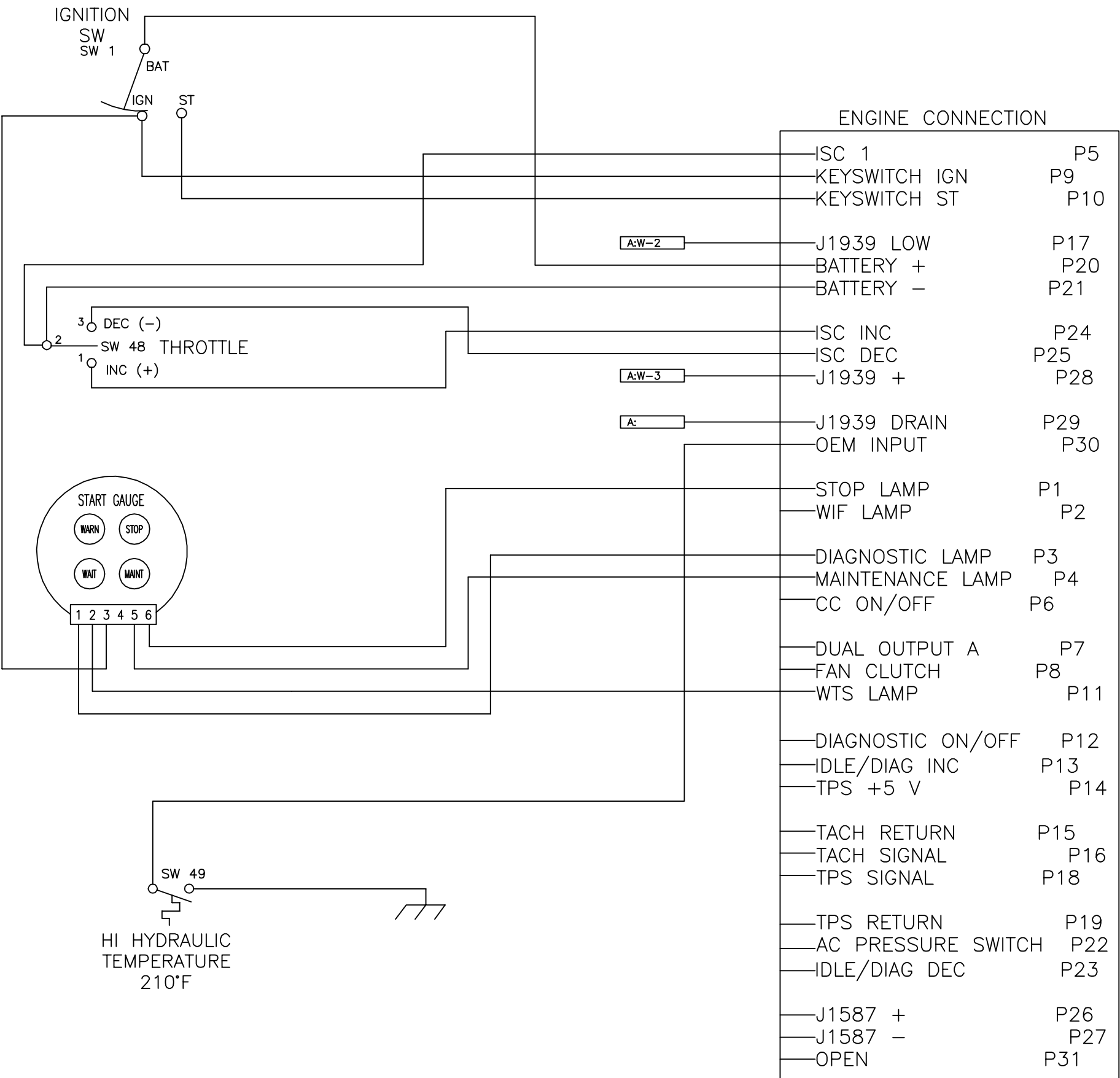
SCHEMATIC, WIRING,
SPREADPRO, HED
CONTROLS

DRAWING NO.

42528

REV.

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SCHEMATIC, WIRING,
SPREADPRO, HED
CONTROLS

DRAWING NO.

42528

REV.

Ø

SHEET 6 OF 6

CAN1 CONN
DT04-3P
TD 42508

1C CONN
DT04-12P
TD 42516

>1 - GRN - UP LIGHT
>2 - PNK - HITCH LIGHT
>3 - YEL - DOWN LIGHT
>4 - WHT - PIN 87,R/Y4
>5 - RED - 5A FUSE
>6 - GRY/BLK - PIN 86,R/Y3
>7 - WHT/BLK - PIN 86,R/Y3
>8 - YEL/BLK - BEACON
>9 - BRN - PARK BRAKE
>10 - GRN/WHT - NEUTRAL SW
>11 - BLU/RED - 10A FUSE
>12 - DRN - ACC

1B CONN
DT04-8P
TD 42503

>1 - PINK - B18,1D
>2 - GRY - B30,2J
>3 - BRN/YEL - B30,2E
>4 - PRP - B18,2C
>5 - PRP/WHT - B30,2K
>6 - YEL - B18,1B
>7 - DRN/YEL - B18,2E
>8 - OPEN

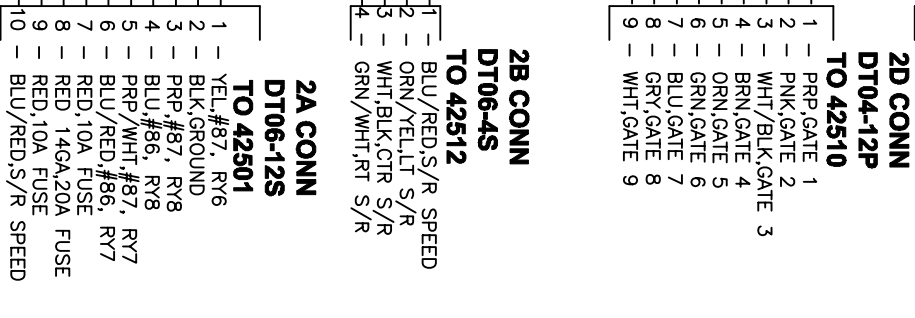
1D CONN
DT06-12S
TD 42507

<1 - DRN/YEL - P1,STOP LAMP
<2 - BRN/YEL - P4,MAINT LAMP
<3 - GRY - P11,WAIT LAMP
<4 - GRN/WHT - P3,DIAG LAMP
<5 - BLK - P21,BAT -
<6 - PINK - P9,IGN SW
<7 - PRP/WHT - P25,ISC DEC
<8 - BLU/RED - P5,ISC 1
<9 - PRP - P24,ISC INC
<10 - RED - P20,BAT +
<11 - OPEN
<12 - OPEN

WIRING,CENTER
CONTRL PANEL,

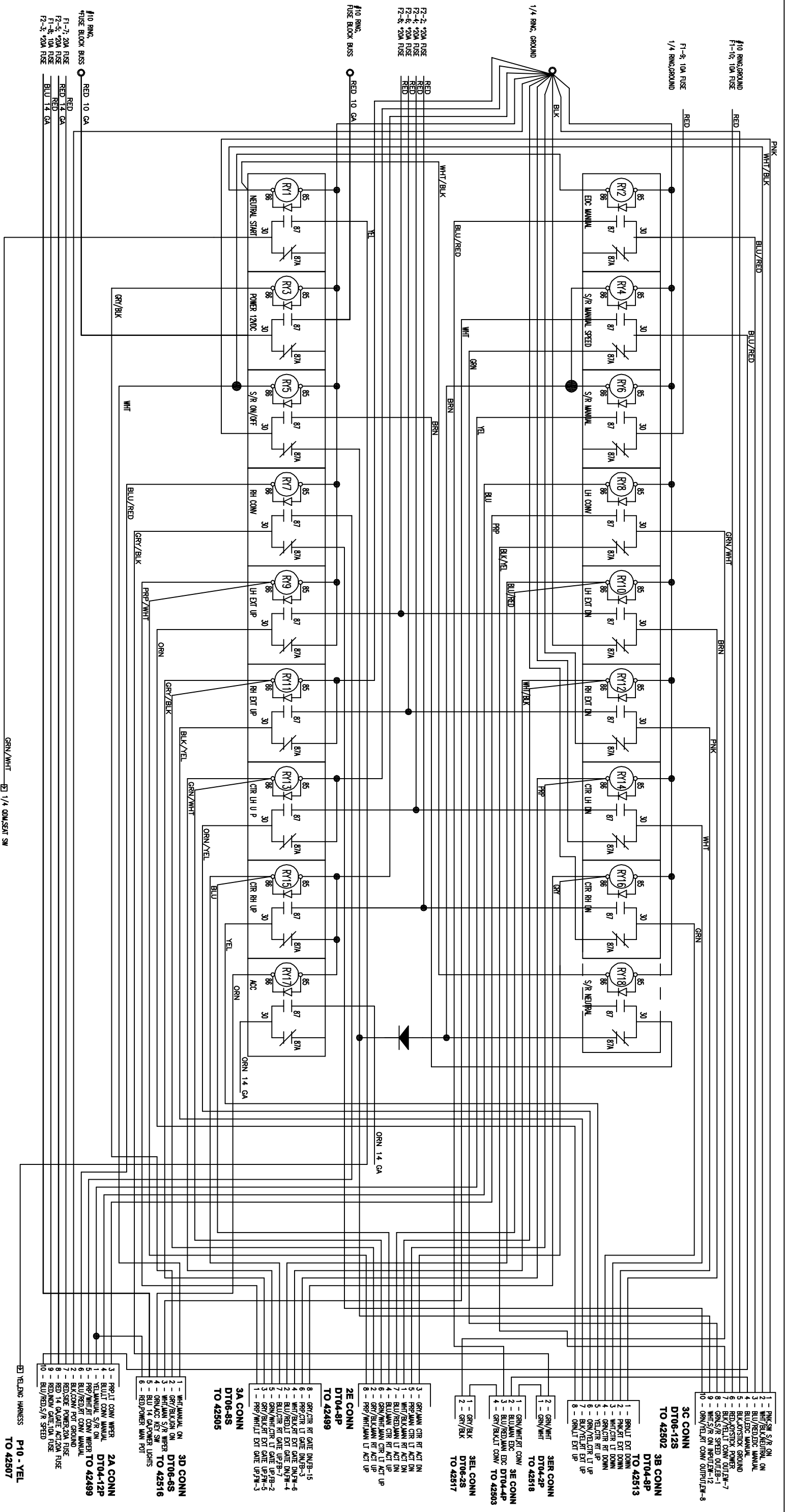
DRAWING NO. REV.
42498 A
SHEET 1 OF 1

Schematic:7



DRAWING NO. REV.

SHEET 1 OF 1

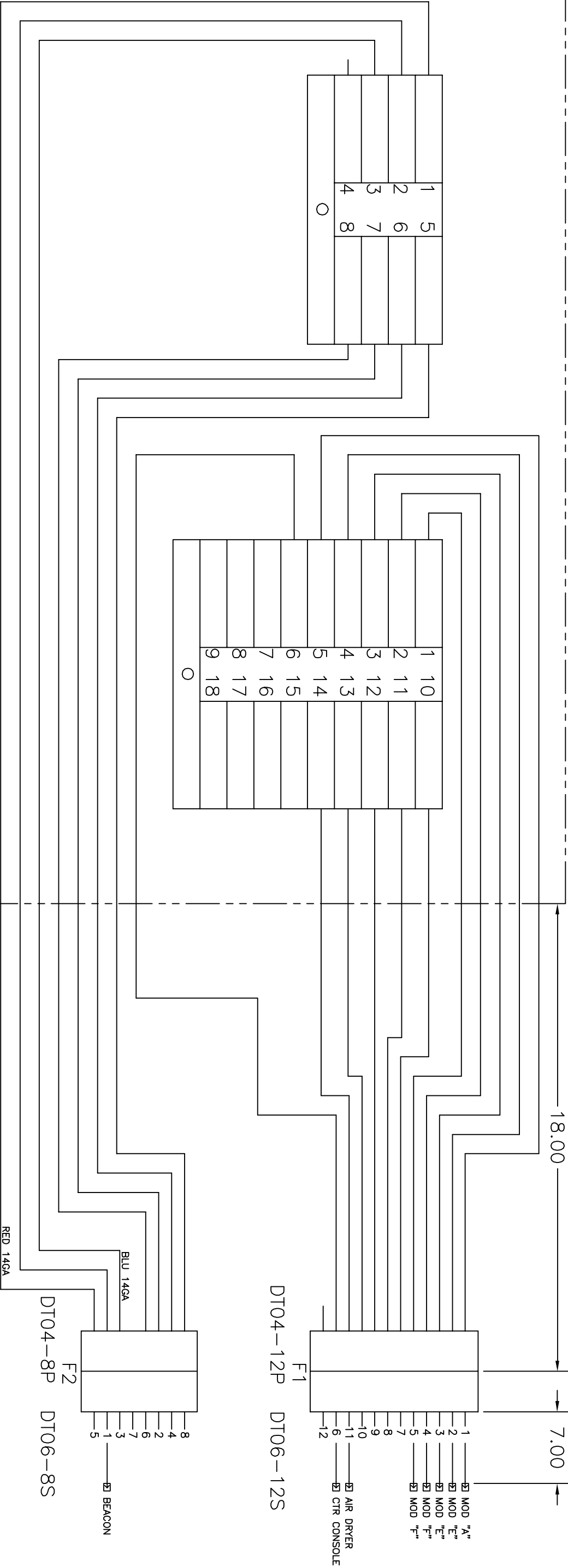


NOTE: 1. ALL WIRES 16GA, UNLESS NOTED
2. * DENOTES FUSED ON UNSWITCHED FUSE PANEL

WIRING, RELAY & FUSE PANEL

DRAWING NO. 42501 REV. D

SHEET 1 OF 2



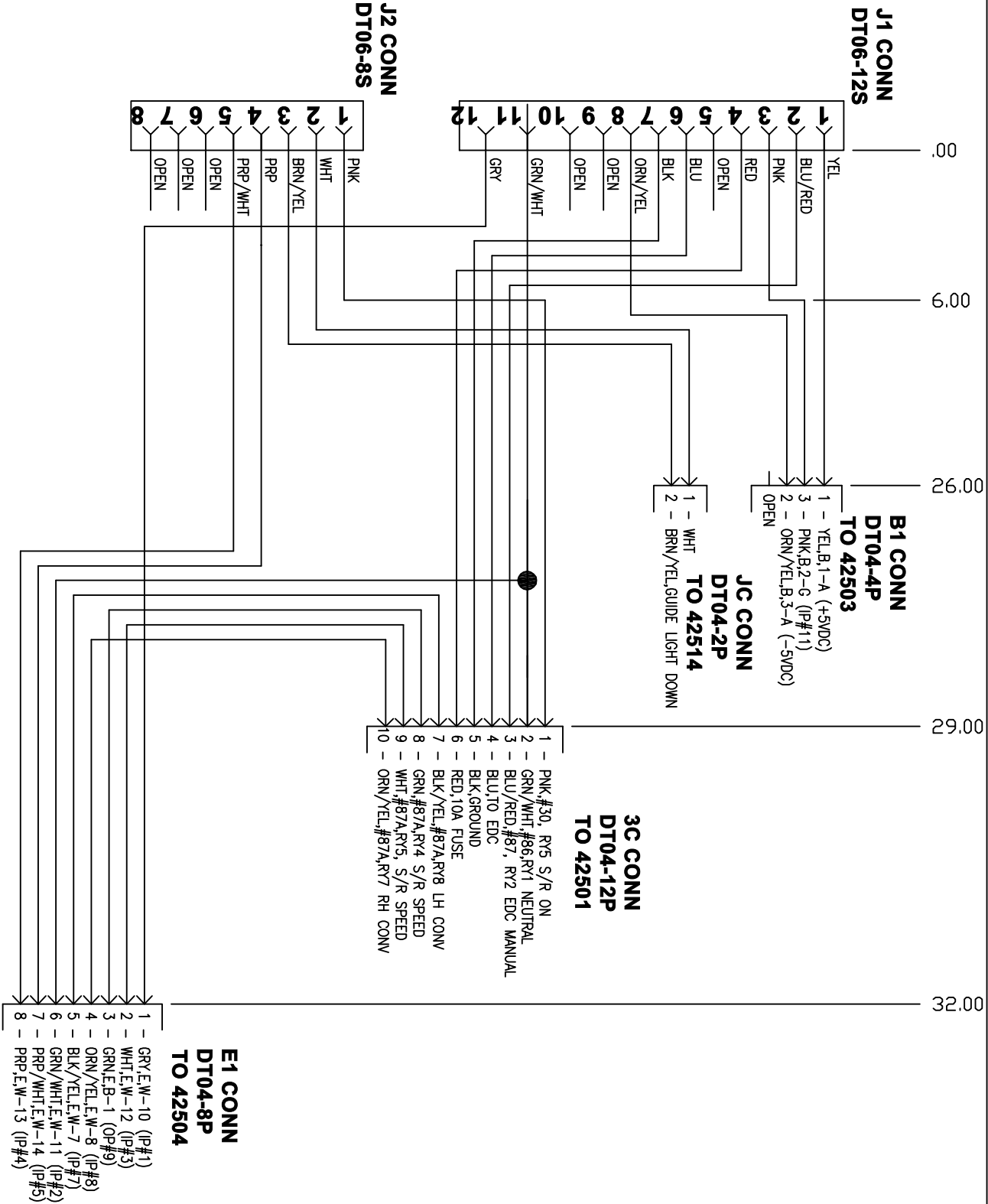
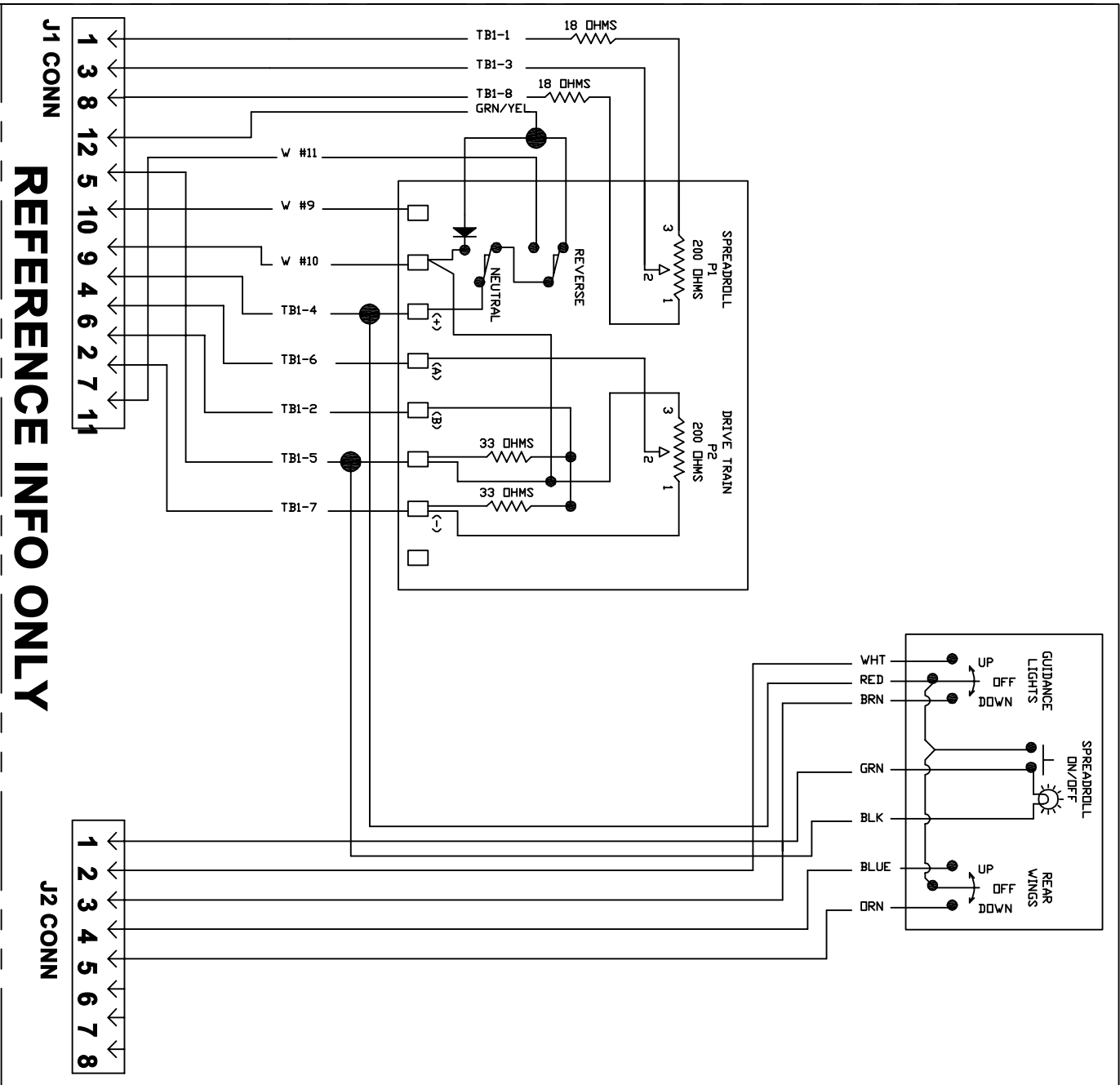
BATTERY			
8-1	5A	8-5	30A
GATE		LT EXT	
8-2	20A	8-6	30A
BEACON		LT CTR	
8-3	20A	8-7	30A
LIGHTS		RT CTR	
8-4	20A	8-8	30A
A/C CAB		RT EXT	
O 42533-01			

KEYSWITCH			
18-1	5A	18-10	20A
A MOD		SIDE PAN	
18-2	20A	18-11	10A
E MOD		INV GATE	
18-3	20A	18-12	10A
E MOD		MANUAL	
18-4	20A	18-13	10A
F MOD		JOYSTIK	
18-5	20A	18-14	10A
F MOD		CTR PAN	
18-6	10A	18-15	5A
A/D		SPARE	
18-7	10A	18-16	10A
SPARE		SPARE	
18-8	20A	18-17	20A
SPARE		SPARE	
18-9	30A	18-18	30A
SPARE		SPARE	
O 42533-02			

NOTE: 1. ALL WIRES 16GA, UNLESS NOTED
2. * DENOTES FUSED ON UNSWITCHED FUSE PANEL

WIRING, RELAY &
FUSE PANEL

DRAWING NO. 42501
REV. D
SHEET 2 OF 2



REFERENCE INFO ONLY

NOTES

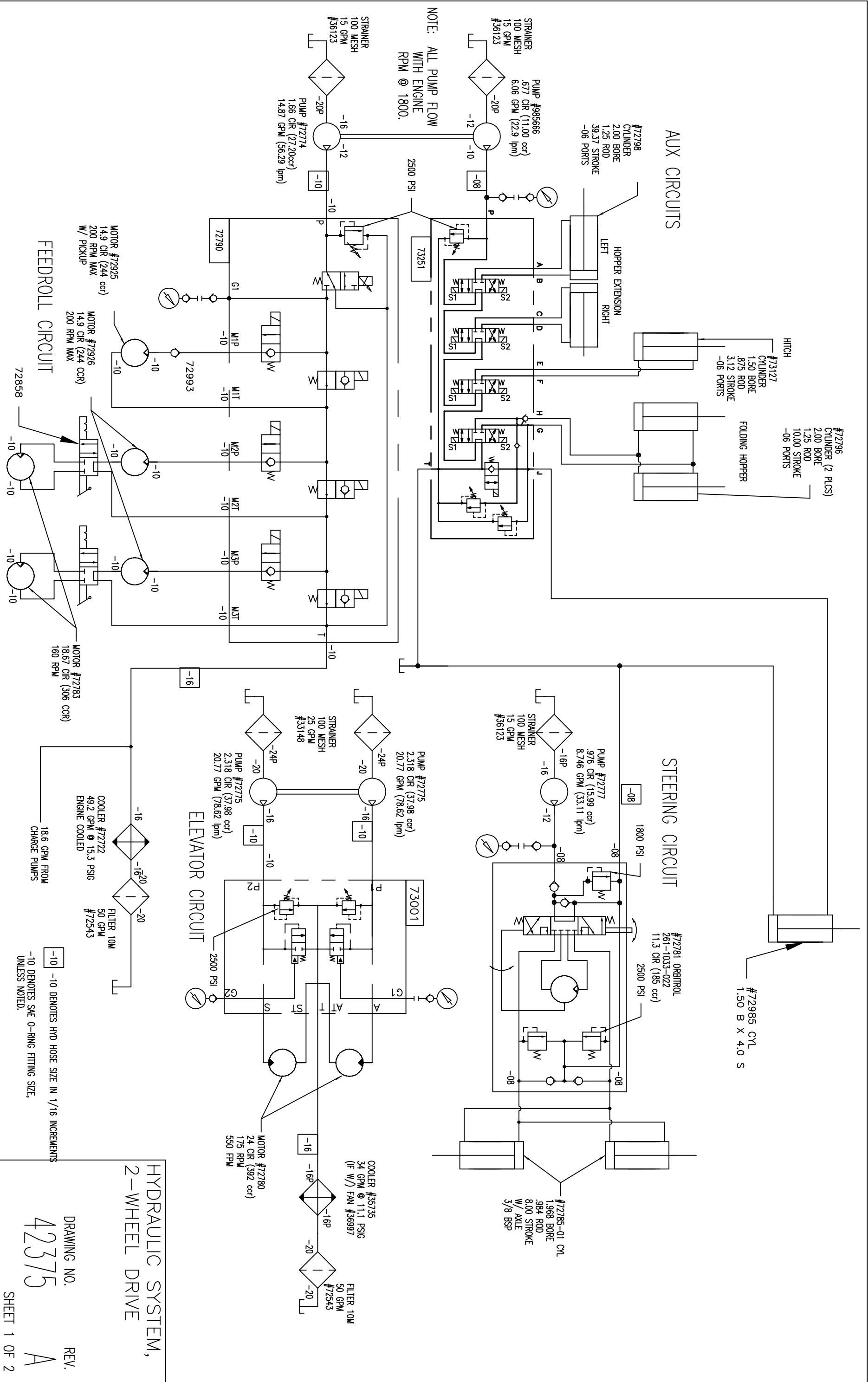
1. ALL WIRES 16 GA, UNLESS NOTED OTHERWISE.
2. ALL CONNECTORS DEUTSCH, UNLESS NOTED OTHERWISE.
3. LODM EACH SET OF CONNECTORS SEPERATELY, UNLESS NOTED OTHERWISE.
4. W/P IS 'WEATHER PACK' CONNECTORS.

HARNNESS,
JOYSTICK TO
SIDE

DRAWING NO. REV.

42502 A

SHEET 1 OF 1

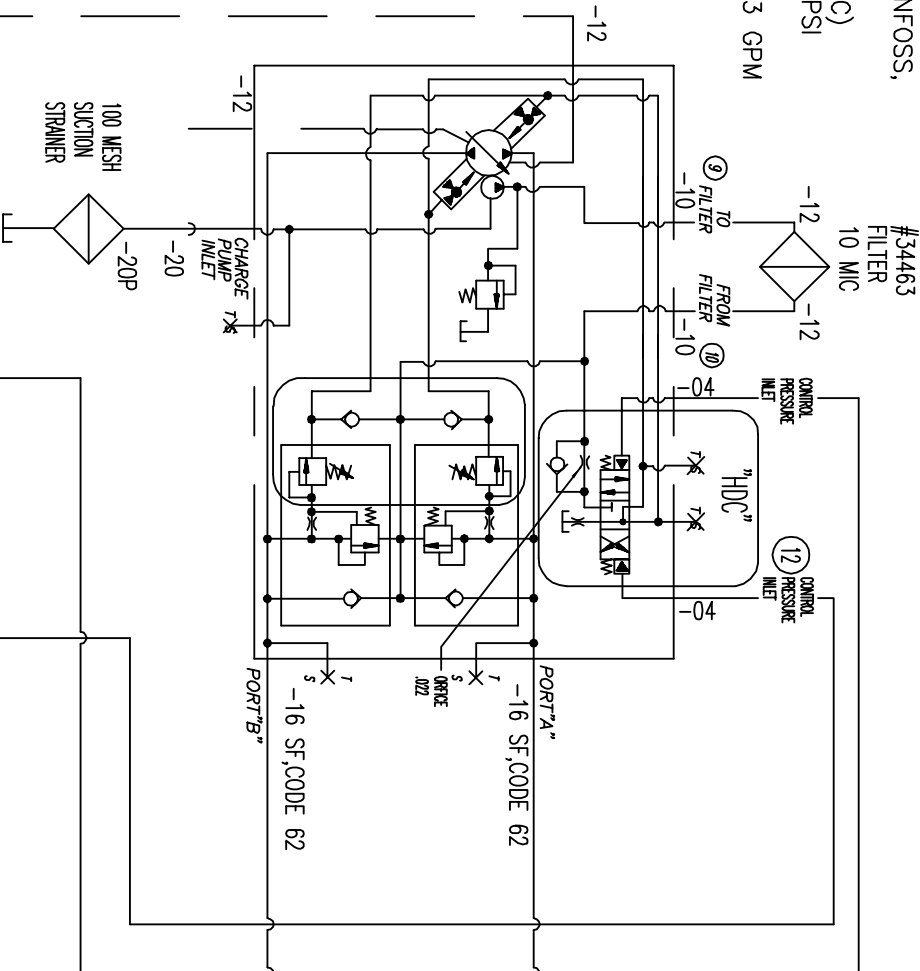


HYDRAULIC SYSTEM,
2-WHEEL DRIVE

DRAWING NO. 42375
REV. A

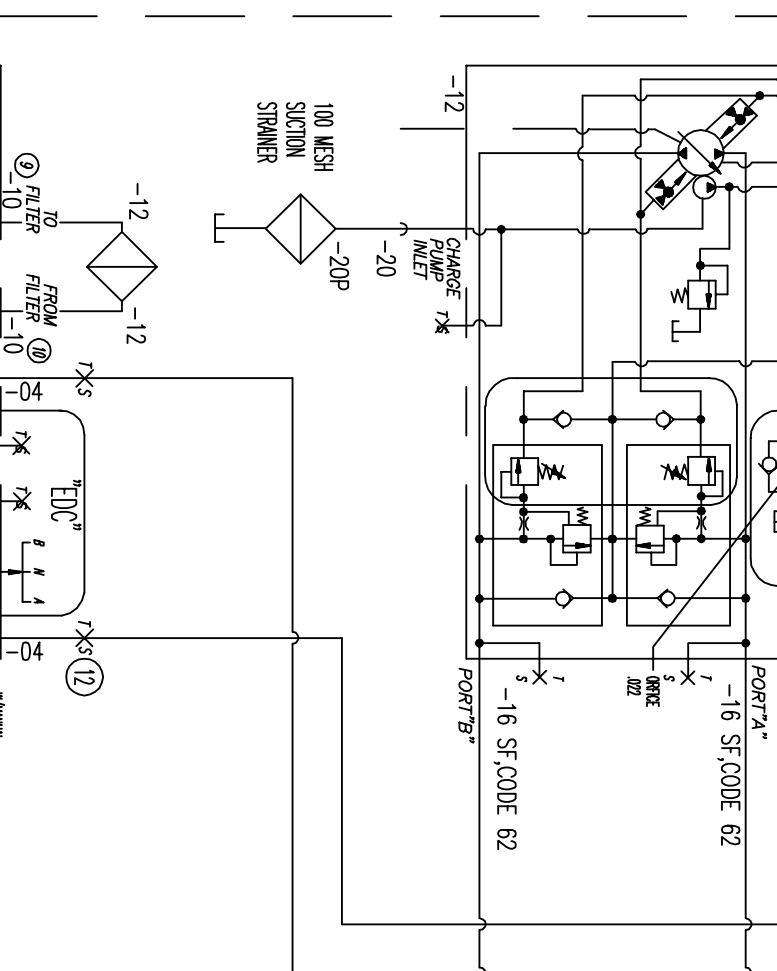
SHEET 1 OF 2

36692-02 SAUER-DANFOSS,
SERIES 90 PUMP
SIZE: 4.57 CIR (75 CC)
RELIEF PRESS: 6090 PSI
CHG RELIEF: 350 PSI
CHG PUMP FLOW: 9.23 GPM
CHG SIZE: 1.03 CIR
ORFICE: .018

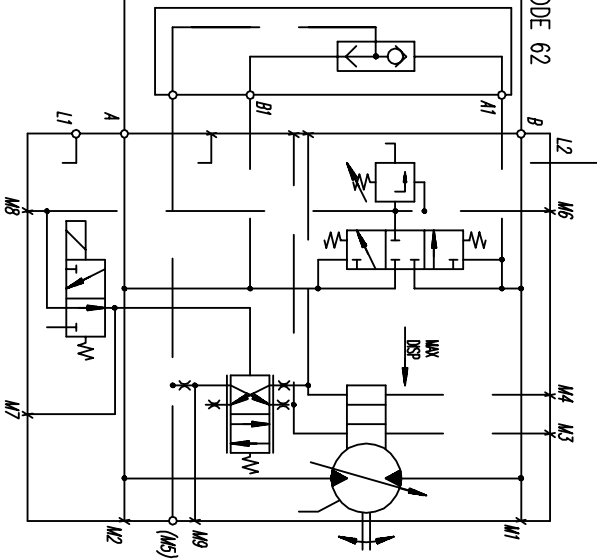


25 PSI
-12P -12P

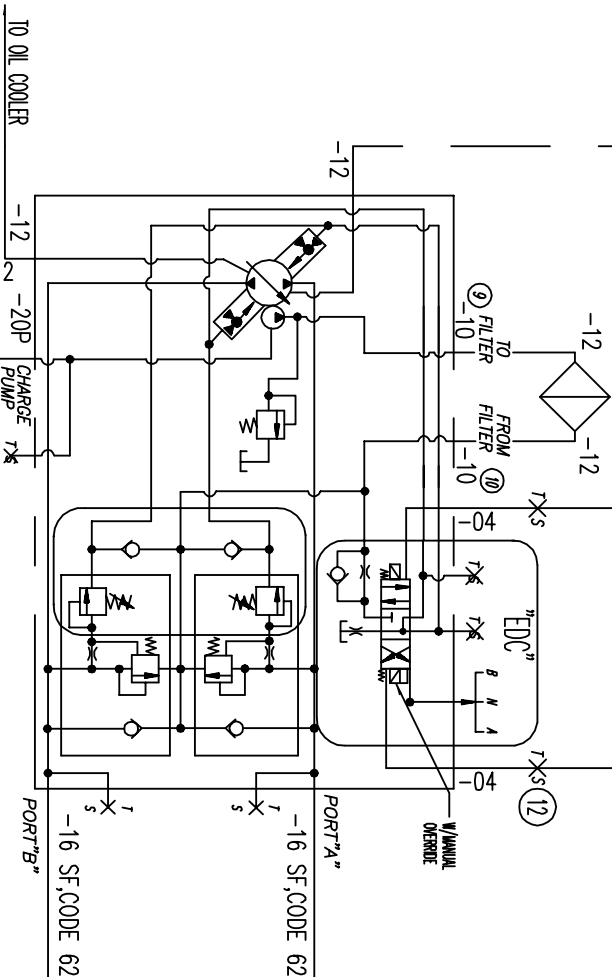
72773 SUNDSTRAND
51 SERIES MOTOR
SIZE: 9.82CIR (160 CC)
SPEED: 2,124 RPM
MIN DISP: 3.54 CIR (58 CC)
MAX SPEED: 4800RPM
CHG RELIEF: 350 PSI



-16 SF CODE 62



DRIVE/STEER AXLE
RATIO: 24.975 : 1



NOTE:

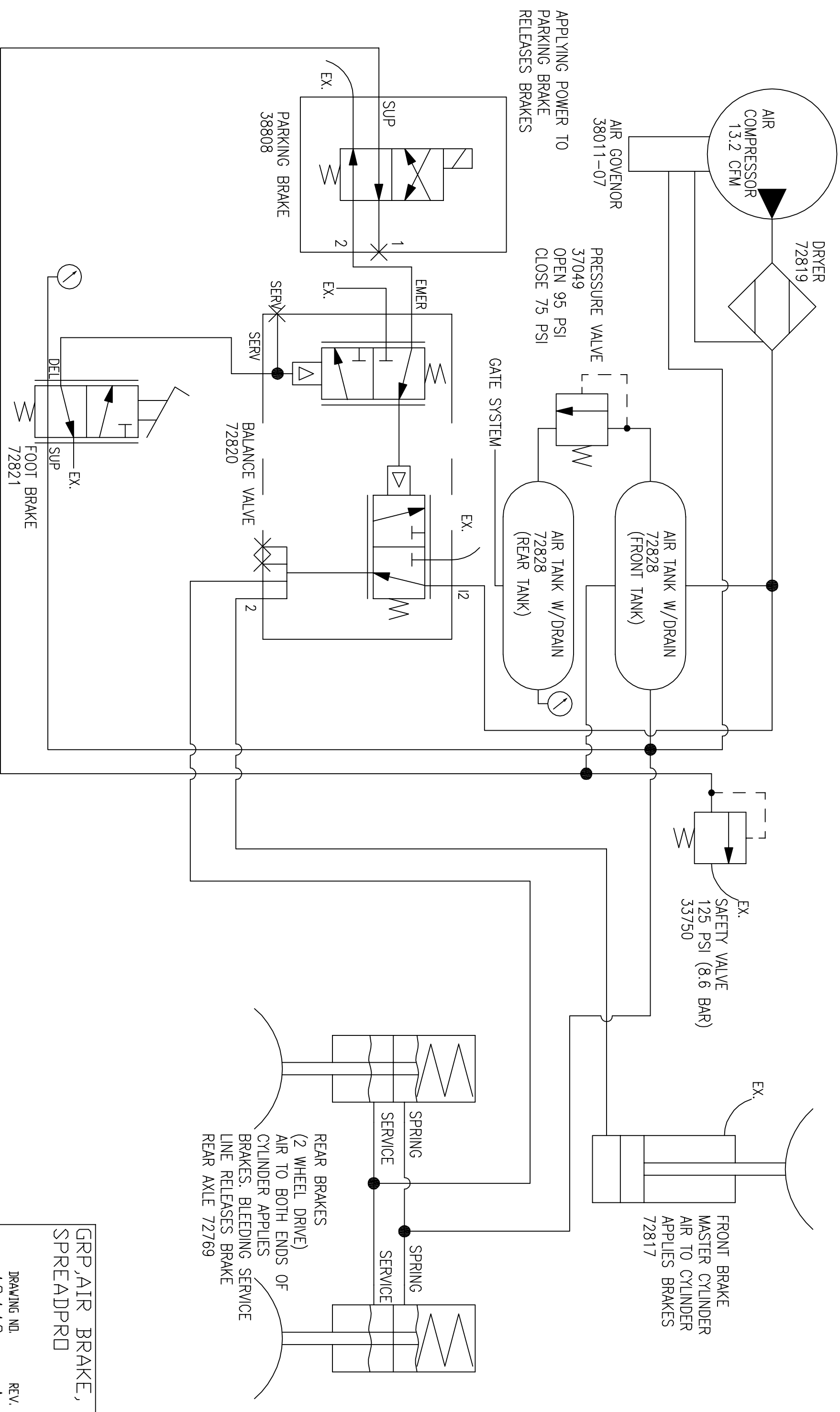
ALL PUMP FLOW WITH ENGINE
RPM @ 1800. THE PUMP DRIVE
HAS A 1.15:1 SPEED UP OF
PUMPS. MAXIMUM ENGINE RPM
2200.

HYDRAULIC SYSTEM,
2-WHEEL DRIVE

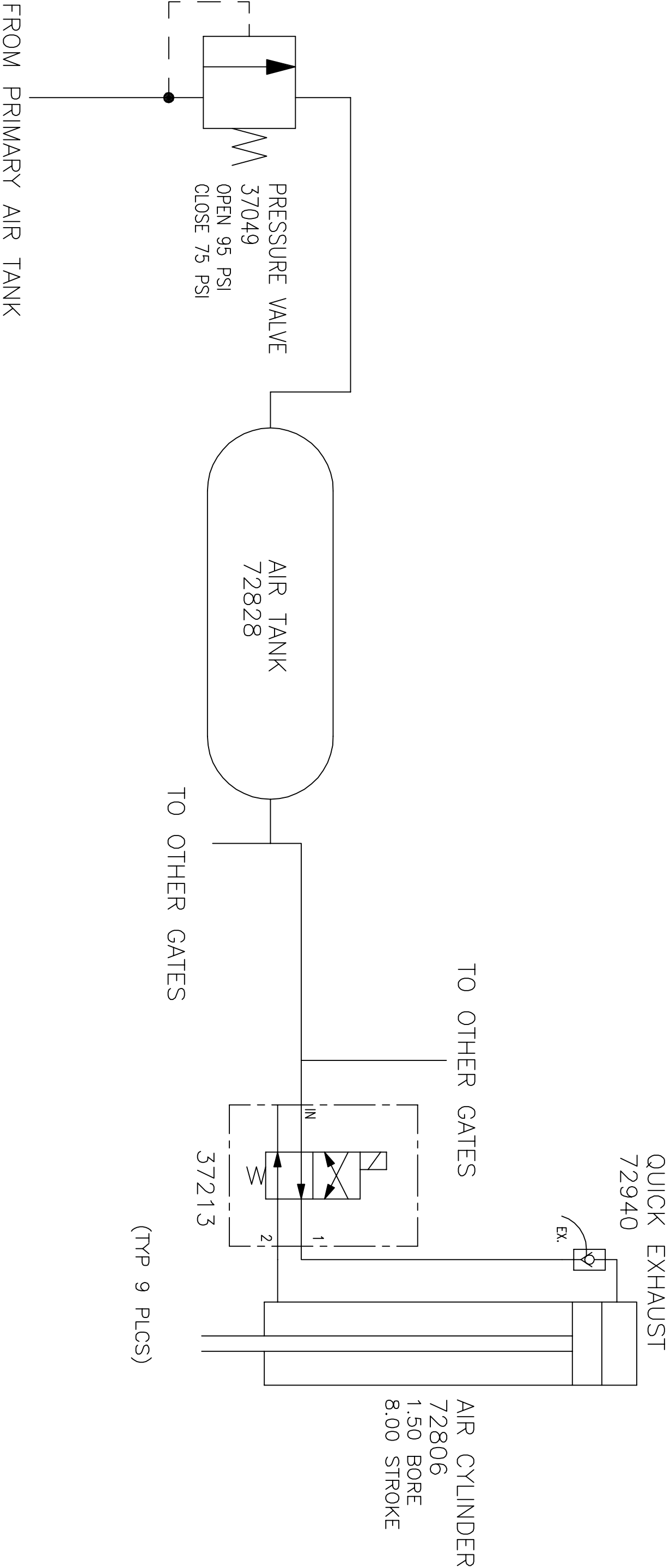
DRAWING NO. REV.

42375 A

36692-01 SAUER-DANFOSS,
SERIES 90 PUMP
SIZE: 4.57 CIR (75 CC)
RELIEF PRESS: 6090 PSI
CHG RELIEF: 350 PSI
CHG PUMP FLOW: 9.23 GPM
CHG SIZE: 1.03 CIR
ORFICE: .018

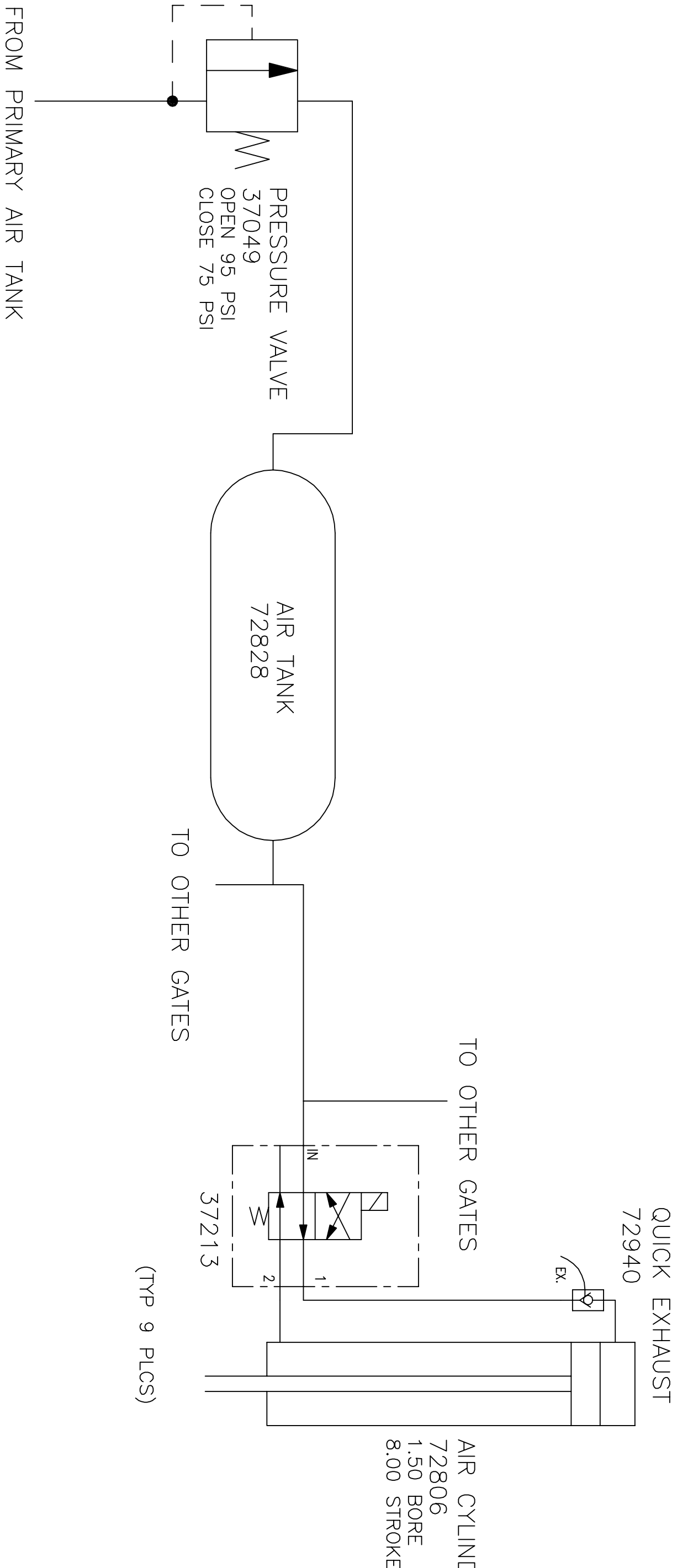


NOTE: SYSTEM SHOWN WITH BRAKES APPLIED



INDIVIDUAL CENTER
9 GATES ASSEMBLY

DRAWING NO. REV.
42467 A
SHEET 1 OF 1



GRP, INDIVIDUAL
GATES, 11 EACH
CENTER

DRAWING NO. REV.
42228 0
SHEET 1 OF 1