

INSTALLATION and OPERATING INSTRUCTION MANUAL

V-BOX MATERIAL SPREADERS POLYHAWK™ PV SERIES



INDEX

SAFETY ALERT _____	2
INSTALLATION & ASSEMBLY INSTRUCTIONS _____	3-5
ELECTRIC THROTTLE CONTROLS (GAS ENGINE) _____	6
CENTER HIGH MOUNT STOP LAMP _____	7
CLUTCH BURNISHING _____	8
SPREADER LOADING _____	9
SPREADER OPERATION _____	10-13
SPREADER MAINTENANCE _____	14
SPREADER PARTS VIEWS & LISTS _____	15-43
HOPPER _____	15-21
REAR ENGINE MODULES (GAS ENGINE) _____	22-36
SPINNER _____	38-43
INSTALLATION & ASSEMBLY INSTRUCTIONS (ELECTRIC DRIVE) _____	44-45
SPREADER PARTS VIEWS & LISTS (ELECTRIC DRIVE) _____	46-48
WIRELESS CONTROLLER INSTRUCTIONS _____	49-51
INTENTIONALLY BLANK PAGES _____	52-53
NAME PLATE INFORMATION _____	54
WARRANTY INFORMATION _____	55

MAGNUM™
SPREADERS

THE BEST SAFETY DEVICE IS A CAREFUL OPERATOR!

SAFETY ALERT SYMBOL



THIS SYMBOL MEANS **ATTENTION!**
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

PLEASE READ AND UNDERSTAND COMPLETELY BEFORE DOING!

SAFE EQUIPMENT INSTALLERS and OPERATORS:



TURN OFF ALL POWER BEFORE PERFORMING ANY SERVICE OPERATIONS


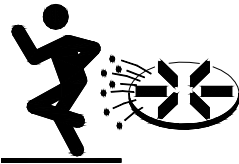
- FOLLOW RECOMMENDED OPERATING PROCEDURES.
- KEEP EQUIPMENT IN SAFE OPERATING CONDITION AT ALL TIMES.
- RECOGNIZE AND AVOID HAZARDS WHILE OPERATING, SERVICING AND MAINTAINING EQUIPMENT.



CAUTION

1. KEEP ALL SHIELDS IN PLACE.
2. MAKE CERTAIN EVERYONE IS CLEAR BEFORE STARTING MACHINE OR MOVING VEHICLE.
3. KEEP HANDS, FEET, AND CLOTHING AWAY FROM ALL POWER DRIVEN PARTS.
4. DISENGAGE PTO, SHUT OFF HYDRAULIC VALVE, AND SET PARKING BRAKE BEFORE LEAVING OPERATORS POSITION. MAKE SURE ALL MOVEMENT HAS STOPPED BEFORE SERVICING, UNCLOGGING, OR CLEANING MACHINE.
5. USE FLASHING LIGHTS WHEN OPERATING MACHINE.
6. MAKE SURE MACHINE IS SOLIDLY SUPPORTED WHEN IT IS BEING MOUNTED, DISMOUNTED, OR STORED.



IF DEFACED - ORDER PART NO. 04049 045 00



DANGER

Stay clear while
spinner is turning

IF DEFACED - ORDER PART NO. 04049 044 00



DANGER

Turn power off before
servicing or cleaning

IF DEFACED - ORDER PART NO. 04049 182 00

NOTICE: INSTRUCTIONAL MATERIAL AND PARTS LISTS INCLUDED IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE.

INSTALLATION AND ASSEMBLY INSTRUCTIONS



CAUTION!

READ ALL OF THE INSTALLATION INSTRUCTIONS BEFORE STARTING.



CAUTION!

INSURE THAT THE SPREADER CANNOT TIP WHEN THE SPINNER ASSEMBLY IS ATTACHED.

INSTALLATION INSTRUCTIONS:

The Magnum PolyHawk™ Spreader can be mounted and stored as a single unit. The Magnum PolyHawk™ Spreader will mount on most medium, heavy-duty pickup trucks as well as 1 ton trucks (with optional extended spinner).

3. Position the spreader in the truck bed, just short of making contact with the rearmost part of the truck bed, bumper, pintle hook etc. Bolt the unit to the truck using a minimum of four (4) 1/2" Grade 5 bolts and corresponding washers and locknuts.



WARNING!

THE SPREADER UNIT MUST BE SECURELY FASTENED TO THE VEHICLE. FAILURE TO PROPERLY RESTRAIN THE UNIT COULD PERMIT THE UNIT TO BREAK FREE FROM THE TRUCK AND CREATE A POTENTIAL FOR A LIFE THREATENING ACCIDENT.

The spreader is designed to sit flat on the bed of the truck, supported by the longitudinals/sides. **DO NOT SUPPORT THE SPREADER BY THE BODY JACKS ALONE!** UNIT IS **NOT** DESIGNED FOR CHASSIS MOUNT APPLICATIONS!



CAUTION!

DO NOT LEAVE UNUSED MATERIAL IN HOPPER.

DO NOT OVERLOAD THE VEHICLE

It is quite possible to overload the vehicle by improperly mounting or overloading the spreader. This could result in dangerous stability and braking problems. Always consult and follow the truck manufacturer's instructions.

4. Material could freeze causing the unit to not function correctly. Hopper should be emptied and cleaned after each use.



WARNING!

BEFORE BEGINNING ANY INSTALLATION ON THIS UNIT, DISCONNECT THE SPREADER BATTERY NEGATIVE CABLE IF ALREADY INSTALLED.



CAUTION!

BEFORE STARTING, VERIFY THAT THIS MOUNTING METHOD IS ACCEPTABLE TO THE VEHICLE MANUFACTURER.

1. Place the spreader in the rear of the truck with the engine/motor to the rear of the truck. Center the spreader (side to side) in the truck.

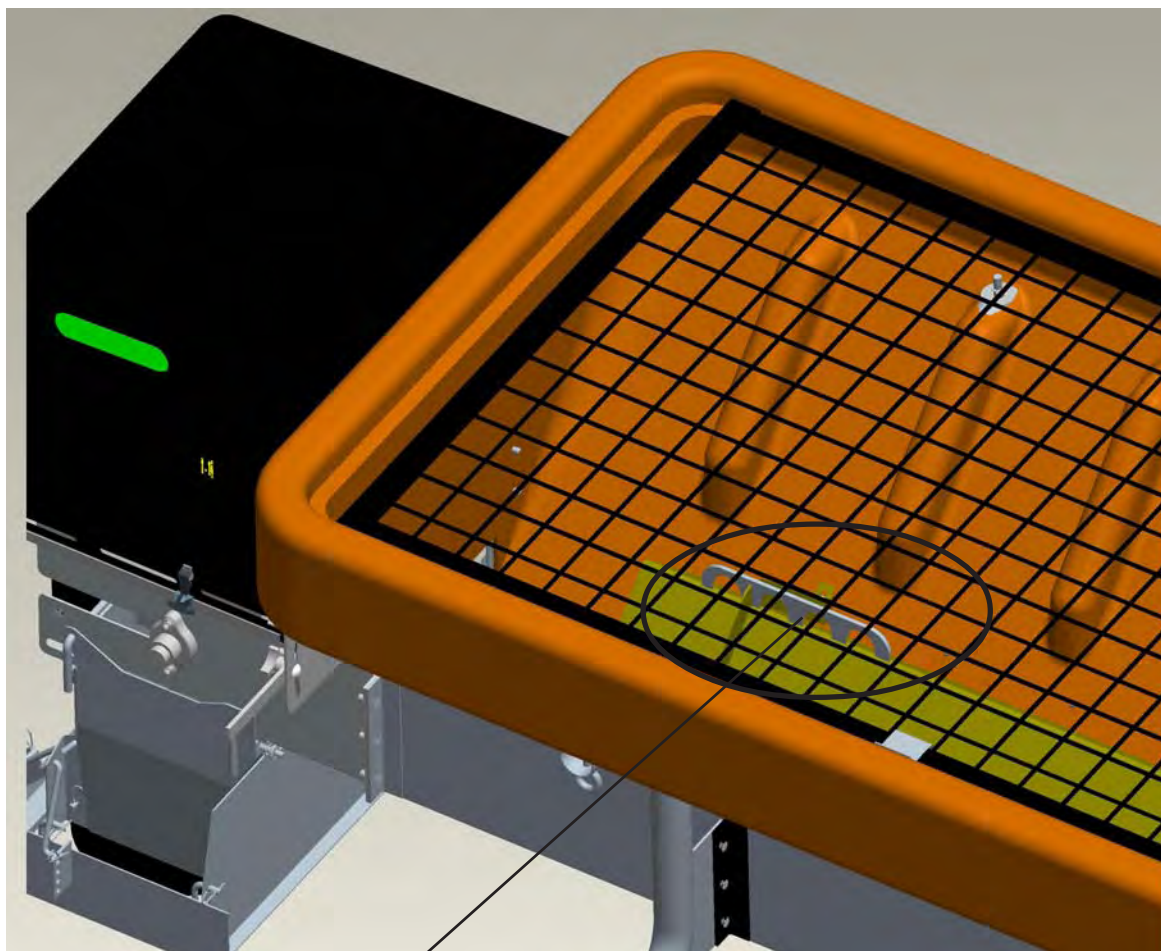
5. Attach the hold down at each corner of the hopper as shown on page 5. Locate and drill four .531 (17/32") diameter holes for eyebolts in the truck bed. Straps must be positioned at opposing angles so that the spreader cannot slide forward or rearward. Assemble ratchet/strap to eye bolts. Tighten hold downs evenly. Do not overtighten, damage will result to the spreader or the truck.

2. Attach or lower spinner assembly.

Note: If truck is equipped with sufficient tie downs, they may be used in place of eyebolt.

INSTALLATION AND ASSEMBLY INSTRUCTIONS

CENTER LIFT



Place lift hook in any of these 4 slots depending on configuration.

1. Center lift hook should be used for lifting spreader to install or remove from truck.
2. There are 4 lifting locations so that the spreader may always be lifted level depending on configuration and spinner position.



WARNING!

DO NOT ATTEMPT TO LIFT SPREADER BY THE CENTER LIFT OR CORNER LIFT HOOKS WITH MATERIAL IN THE SPREADER.



WARNING!

ALWAYS USE SUFFICIENTLY RATED CHAIN WITH SAFETY HOOKS WHEN LIFTING SPREADER.

INSTALLATION AND ASSEMBLY INSTRUCTIONS

OPTIONAL HOLD DOWN KIT

62562



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	62602	4	Ratchet/Strap
N/S	62807	4	Bolt, 1/2" Eye
N/S	20307	4	Locknut, 1/2-13 Nylon Insert ZP
N/S	62604	4	Nut, 12-13 Hex ZP
N/S	62605	8	Flatwasher, 3/4" U.S.S. ZP

N/S = NOT SHOWN

NOTE: If truck is equipped with sufficient tie downs, they may be used in place of eyebolt.

INSTALLATION INSTRUCTIONS ELECTRIC THROTTLE CONTROLS

(FACTORY INSTALLED ACTUATORS - OPTIONAL)



WARNING!

BEFORE BEGINNING ANY INSTALLATION ON THIS UNIT, DISCONNECT THE PV SPREADER BATTERY NEGATIVE CABLE IF ALREADY INSTALLED.

1. Spreaders with factory installed throttle controls do not require installer hookup to the engine. The actuator has been installed and tested at the factory.
2. Remove the engine shroud and securely place it on the ground.
3. The throttle actuator cable plugs into the in-cab control panel after being routed from the cab of the vehicle to the rear of the mounted spreader.
4. Select a suitable location in the cab of the vehicle to mount the spreader control box. **(Do not mount at this time.)**



WARNING!

CONSULT VEHICLE MANUFACTURER FOR ACCEPTABLE MOUNTING. THE CONTROL BOX COULD INTERFERE WITH THE AIR BAG(S) AND THE OTHER FUNCTIONS OF THE OCCUPANT PROTECTIVE SYSTEMS, SUCH AS KNEE BOLSTERS!

5. After the location of the control panel is determined, the cable must be routed to the front of the spreader, securing as needed. Allow enough cable for the control panel to be mounted in the cab.
6. The routed cable must be clear of all moving or hot parts on the spreader or the vehicle. Secure the cable with the ties provided. Excess cable must be coiled up and secured. Apply dielectric grease to all connections for protection from the salt spreading environment.
7. Mount the control panel (with the screws supplied).
8. For a permanent cable mount, a mounting bracket is supplied.

9. It is recommended that a 12 volt battery with 40 ampere hour rating be installed for winter use. The battery hold downs furnished will accept any 2SM series battery.
10. Attach the positive battery cable (each end should have a red rubber boot) to the positive terminal on the solenoid and to the terminal of the battery. Make sure these protective boots are covering the positive terminal post on the battery and on the solenoid.



WARNING!

USE SAFETY GLASSES OR OTHER FACE PROTECTION AGAINST POSSIBLE BATTERY EXPLOSION. DO NOT SMOKE AND AVOID OTHER SOURCES OF IGNITION.

11. Connect the negative battery terminal to the engine mounting bolt for proper grounding. When finished, make sure all wires are away from hot or moving parts and replace engine shroud.
12. Plug cable from spreader into socket mounted on truck.



WARNING!

NEVER OPERATE MACHINE WITH ENGINE SHROUD REMOVED. NEVER CLIMB INTO THE HOPPER WHILE THE ENGINE IS OPERATING OR CAPABLE OF BEING OPERATED. SERIOUS INJURY OR DEATH MIGHT OCCUR.

NOTE: Read and fully understand the owners manual supplied by the engine manufacturer before operating this equipment. Not doing so, endangers your safety and the warranty of the engine.

INSTALLATION INSTRUCTIONS

CENTER HIGH MOUNT STOP LAMP (CHMSL)



WARNING!

FEDERAL MOTOR VEHICLE SAFETY STANDARDS REQUIRE ALL TRUCKS, BUSES AND MULTIPURPOSE PASSENGER VEHICLES MANUFACTURED ON OR AFTER 5/1/1993, WITH A GROSS VEHICLE WEIGHT RATING (GVWR) OF 10,000 LBS. OR LESS AND OVERALL WIDTH LESS THAN 80" BE EQUIPPED WITH A CENTER HIGH MOUNT STOP LAMP.

NOTE: If the original equipment CHMSL is obscured, an auxiliary CHMSL must be installed to bring the vehicle back into compliance with Federal Regulations.

ELECTRICAL CONNECTIONS FOR AUXILIARY CHMSL:

1. Use high quality butt connectors and shrink wrap on all electrical splice connections. Wire should be routed and secured to protect against abrasion, sharp edges, and excessive movement. It is highly recommended that wiring be placed in convoluted tubing and secured with tie wraps.

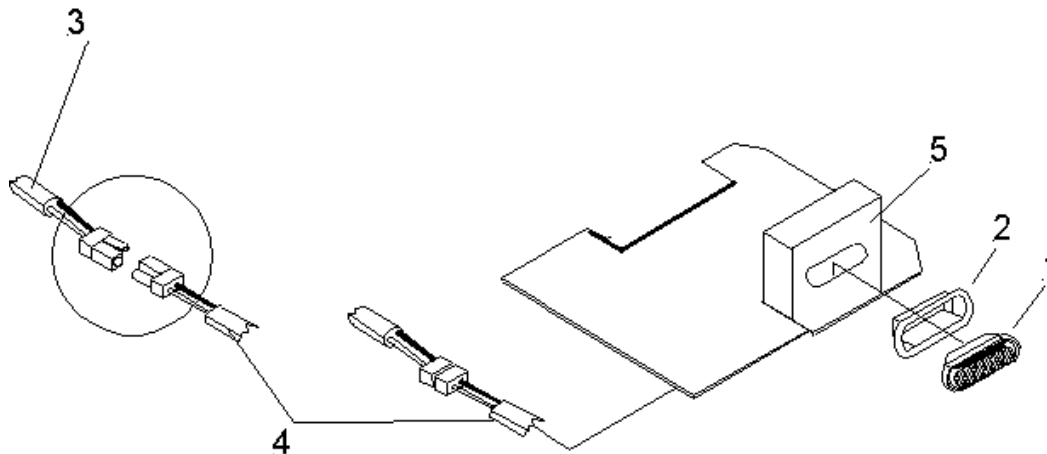
2. When drilling holes, any bare metal should be coated with a rust preventative; use appropriate size grommets and seal hole with appropriate sealant.
3. Allow for normal movement/twisting between cab and chassis/pickup box when routing wires.
4. When spreader is removed from the truck, the OEM CHMSL must be reconnected.



WARNING!

CONSULT THE TRUCK MANUFACTURER FOR AN APPROVED METHOD OF CONNECTING AN AUXILIARY CHMSL TO A PARTICULAR TRUCK WHICH IS TO CARRY THE SPREADER. METHODS VARY WITH TRUCK MODELS, OPTIONAL EQUIPMENT AND YEARS OF MANUFACTURER.

IMPROPER CONNECTIONS COULD RESULT IN A VARIETY OF PROBLEMS AFFECTING CRITICAL SYSTEMS SUCH AS BRAKING, ELECTRICAL AND EMISSION! DON'T GUESS!



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	62714	1	Lamp, Stop
2	62715	1	Grommet, Mounting
3	62364	1	Cable, Light Power (Hopper)
4	62738	1	Cable, Stop Lamp Power (Truck)
5	63155	1	Forming, Rear Stop Light Bracket

INSTALLATION INSTRUCTIONS

BURNISHING CLUTCH

Clutch pre-run setup

Clutches must be burnished before operation. We recommend the clutches to be engaged / disengaged a few time to break them in before being placed under load.

1. Rotate the clutch and check for rubbing or interference.
2. Reinstall the belt/chain, do not over tighten.
3. Run the engine at 50% throttle.
4. Engage and disengage the clutch 25 times, 10 seconds "ON" and 10 seconds "OFF".
5. Run the engine at 75% throttle.
6. Engage and disengage the clutch 25 times, 10 seconds "ON" and 10 seconds "OFF".

Magnum recommends 15-20 ft-lbs of torque on pulley assembly screws (5/16-18UNC) and 20-30 ft-lbs of torque on shaft fixing screw.



WARNING!

NEVER PERFORM THE BURNISHING PROCEDURE WHILE DRIVE IS LOADED.



WARNING!

BURNISHING PROCEDURE MUST BE DONE BEFORE INSTALLATION, WHEN FULL TORQUE IS IMMEDIATELY REQUIRED FROM THE CLUTCH!



WARNING!

DURING SPREADER OPERATION, IF CONVEYOR FREEZES UP - THE CLUTCH SHOULD IMMEDIATELY BE DISENGAGED.



WARNING!

NEVER USE THE CLUTCH TO "FREE UP" THE CONVEYOR.

SPEADER OPERATION - LOADING

This manual covers vehicles which have been recommended for carrying the hopper spreader. Please see your local dealer for proper vehicle applications.

WARNING!

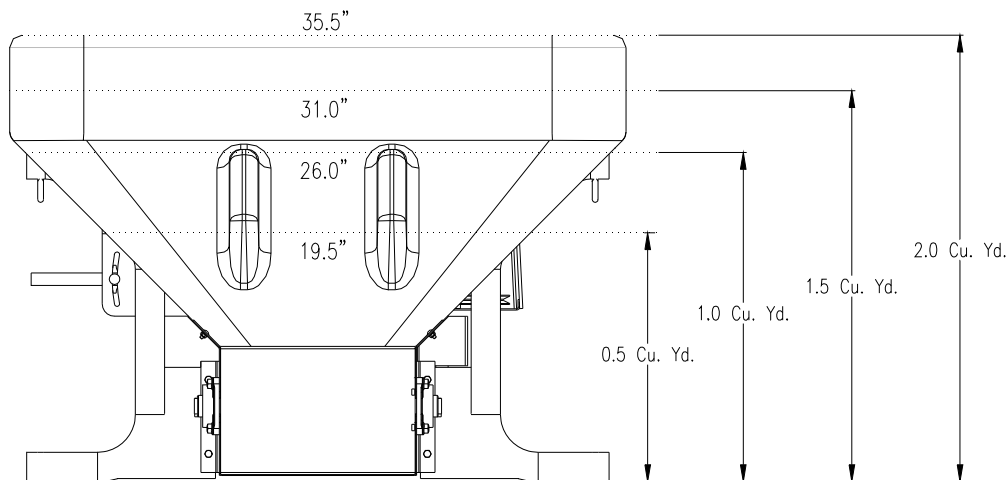
OVERLOADING COULD RESULT IN AN ACCIDENT OR DAMAGE. DO NOT EXCEED GVWR OR GAWR AS FOUND ON THE DRIVER-SIDE CORNERPOST OF VEHICLE.

CAUTION!

READ AND ADHERE TO MANUFACTURER'S ICE CONTROL PACKAGE LABELING INCLUDING MATERIAL SAFETY DATA SHEET REQUIREMENTS.

DETERMINING VEHICLE PAYLOAD

1. Install spreader and optional equipment according to the instructions.
2. Install or attach any other equipment that will be on the vehicle while the spreader will be in use (step bumper, trailer hitch, snowplows, etc.). Fill gas tanks.
3. Obtain the Gross Vehicle Weight Rating (GVWR), Front Gross Axle Weight Rating (FGAWR), and Rear Gross Axle Weight Rating (RGAWR) from the certification label located inside the driver-side door jam.
4. With the occupants in the truck for normal spreader operation, weigh the vehicle to obtain gross vehicle weight (GVW).
5. Subtract the GVW from the GVWR to determine the available material payload.
6. Obtain the weight per cubic yard (lb./cu. yd.) of the desired material. Divide the weight into the payload to determine the maximum volume of material that can be carried.
7. Compare the maximum volume to determine the maximum height of the material in the hopper spreader.
8. Fill hopper with the material to the calculated height. Reweigh vehicle with occupants and verify the GVW, Front Gross Axle Weight, and Rear Gross Axle Weight are less than the vehicle's ratings.
9. Repeat steps 7 and 8 for each type of material.

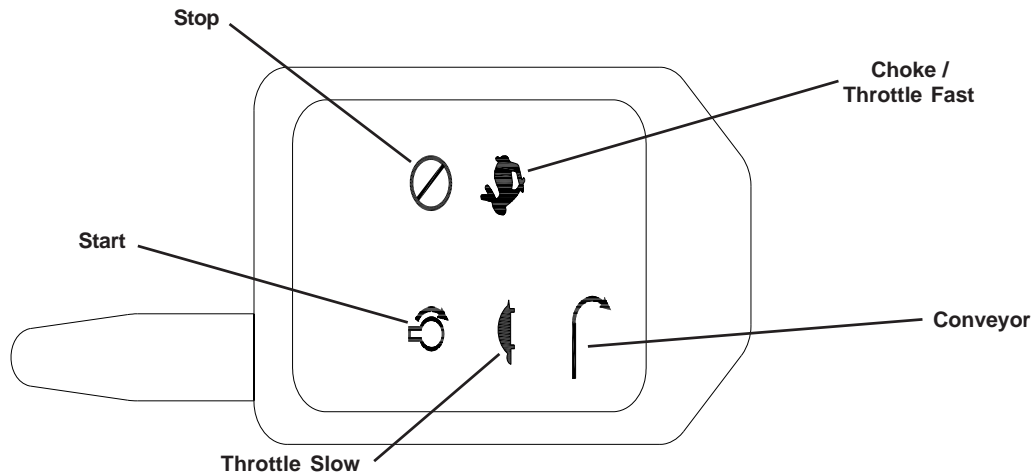


Material Weights (Reference Only)

Material	Density (lb. per cubic yd.)
Salt (78lbs cu.ft.) - Dry	2,106
Coarse Sand - Dry	2,700
Coarse Sand - Wet	3,375

SPREADER OPERATION

Wireless Throttle Control Button Functions (Sequence of Operations)



A. ON/Off System power activated (ready to start). Spreader engine not running. Spreader conveyor is not engaged.

B. START (Engine Only)

1. Open fuel shut off valve on engine. CHOKE (Cold engine.) Hold down for 5 seconds to move the throttle actuator to the choke position.

NOTE: Choking a warm engine may not be necessary.

4. **START** Hold down button until engine starts.
5. **TURTLE** Decreases throttle speed - adjust as engine warms up. Will stop the choke function.

RABBIT Increases throttle speed.

C. TO ENGAGE SPREADER CONVEYOR

1. **CONVEYOR** Push CONVEYOR switch only after you are sure no one is in the hopper or near the spinner!

D. TO CONTROL CONVEYOR SPEED

1. **RABBIT** Hold RABBIT to increase speed. Note DO NOT hold switch in **H** position after the desired RPM is achieved or you will choke and/or stall the engine.
2. **TURTLE** Hold TURTLE to decrease speed.

E. TO DISENGAGE SPREADER CONVEYOR

1. **CONVEYOR** Push conveyor button.

F. TO TURN ENGINE OFF (With or without conveyor running).

1. **TURTLE** Push throttle slow button to reduce setting to idle (this prevents engine flooding and hard starting).
2. **STOP** Push STOP button and hold 5 seconds.

NOTE: OFF can be pushed at anytime during spreader operation to cut power to the unit; however, you should normally use steps under F above.

G Do not attempt to start the engine with the conveyor engaged.

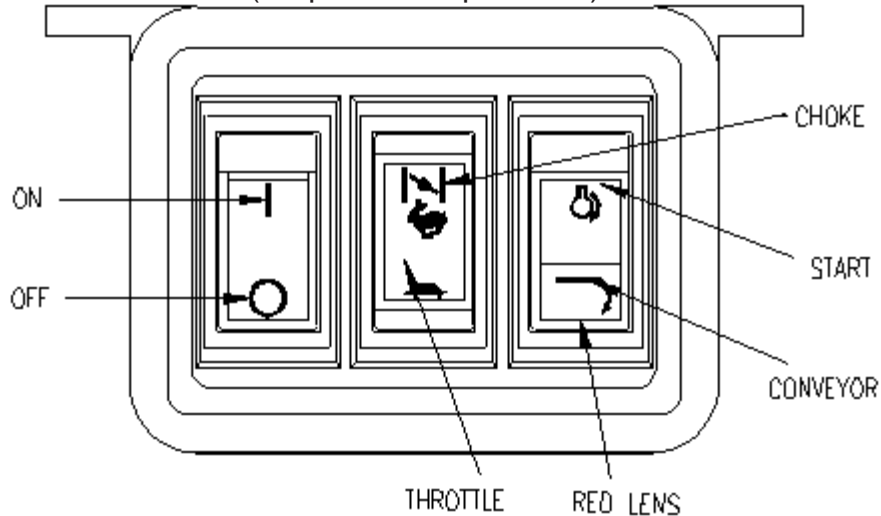
H. Close fuel shut off valve on engine if unit is to be transported while not running.

! WARNING!

1. As with all power equipment, safety is the number one concern.
2. Do not operate this equipment until you fully understand how it functions.
3. Before starting engine, be sure that no one is near the rear of the unit and that no one is inside the unit!
4. Do not start the engine or engage the conveyor (which is interconnected to the spinner) until everyone is clear from moving parts and flying material from the spinner.

SPREADER OPERATION

Electric Throttle Control Panel Switch Functions (Optional) (Sequence of Operations)



A. ON/Off System power activated (ready to start). Spreader engine not running. Spreader conveyor is not engaged.

B. START (Engine Only)

1. Open fuel shut off valve on engine.
2. ON On Switch depressed.
3. CHOKE (Cold engine.) Hold down for 5 seconds to move the throttle actuator to the choke position.

NOTE: Choking a warm engine may not be necessary.

4. START Hold down until engine starts.
5. TURTLE Decreases throttle speed - adjust as engine warms up. Will stop the choke function.

RABBIT Increases throttle speed.

C. TO ENGAGE SPREADER CONVEYOR

1. CONVEYOR Push CONVEYOR switch only after you are sure no one is in the hopper or near the spinner! This lights up the red indicator light, if light does not light, take care to verify that the light is not malfunctioning.

D. TO CONTROL CONVEYOR SPEED

1. RABBIT Hold RABBIT to increase speed. Note DO NOT hold switch in HI position after the desired RPM is achieved or you will choke and/or stall the engine.
2. TURTLE Hold TURTLE to decrease speed.

E. TO DISENGAGE SPREADER CONVEYOR

1. START Tap START switch momentarily so that red indicator light goes out. DO NOT fully depress the START switch, only half way is needed. Only the conveyor stops, the engine continues to run.

F. TO TURN ENGINE OFF (With or without conveyor running).

1. TURTLE Depress LO on throttle control to reduce setting to idle (this prevents engine flooding and hard starting).
2. ON/OFF Push OFF position on the ON/Off switch.

NOTE: OFF can be pushed at anytime during spreader operation to cut power to the unit; however, you should normally use steps under F above.

G Do not attempt to start the engine with the conveyor engaged. (Conveyor switch light will be lit to indicate it is on.

H Close fuel shut off valve on engine if unit is to be transported while not running.



WARNING!

1. As with all power equipment, safety is the number one concern.
2. Do not operate this equipment until you fully understand how it functions.
3. Before starting engine, be sure that no one is near the rear of the unit and that no one is inside the unit!
4. Do not start the engine or engage the conveyor (which is interconnected to the spinner) until everyone is clear from moving parts and flying material from the spinner.

SPREADER OPERATION - SPREAD PATTERN

GAS ENGINE DRIVE

- A. Start engine and allow engine to warm-up to operating temperature and engage the clutch. The amount of material spread, depends on engine speed and gate opening. Decreasing RPM and/or gate height will decrease amount spread. The inverse also holds true. Notice that the electric clutch can be engaged or disengaged at any time and at any engine RPM. However, since engagement time and torque is almost instantaneous, to prevent premature spinner chain failure and chain tension loss, it is recommended that the electric clutch be engaged at the lowest possible RPM without stalling the engine.

NOTE: If the truck is to be driven for an extended period of time while the spreader is not operating, it is RECOMMENDED the gas be turned off at the fuel tank shut-off valve to prevent the carburetor from over filling with fuel.

ELECTRIC DRIVE

- B. Start the trucks engine and engage the electric motor. The amount of material spread will depend on feedgate opening. Increasing feedgate height will increase amount of material being spread. Decreasing feedgate height will decrease amount of material being spread.



WARNING!

ALWAYS STAND AT A SAFE DISTANCE AWAY FROM THE SPINNER WHILE OPERATING. ALWAYS WEAR EYE PROTECTION WHEN OUTSIDE OF THE TRUCK CAB WHILE SPREADER IS RUNNING.

- C. Spread pattern / width depends on baffle settings (Gas Engine / Hydraulic Drive 4ft-30ft.) (Electric Drive 4ft-20ft)
1. Internal baffle adjustments will move the spread pattern to the right or left.
 2. External baffle adjustments will block spreading to the rear, right or left side.



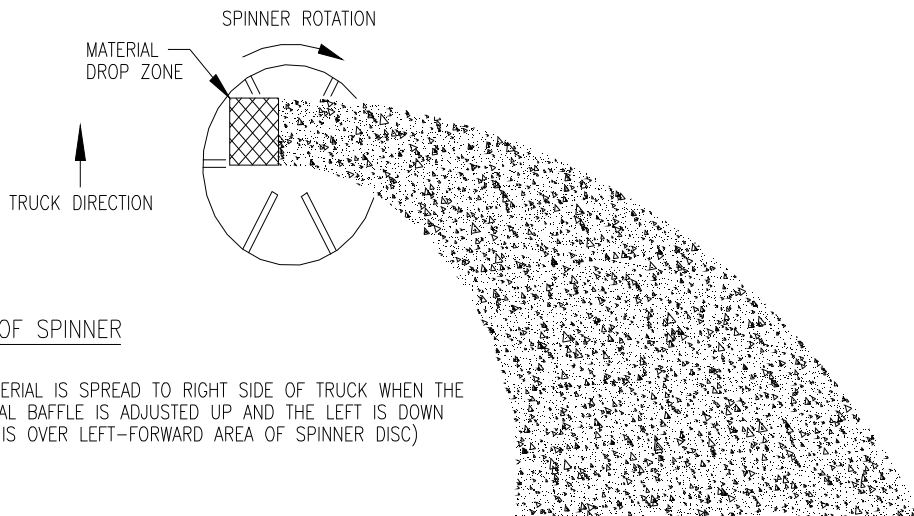
CAUTION!

DO NOT LEAVE UNUSED MATERIAL IN HOPPER.

- D. Material could freeze causing the unit to not function correctly. Hopper should be emptied and cleaned after each use.

CALIBRATION (Dry Salt - 78Lbs Cu.Ft.)

<u>Gate height</u>	<u>Gearbox</u>		
	<u>Avg Lbs/Rev</u>	<u>Avg Lbs/Minute</u>	<u>Avg Runtime/Full Load</u>
1.5"	7.8	128	32 Minutes
2.5"	11.9	196	21 Minutes
3.5"	14.2	234	18 Minutes

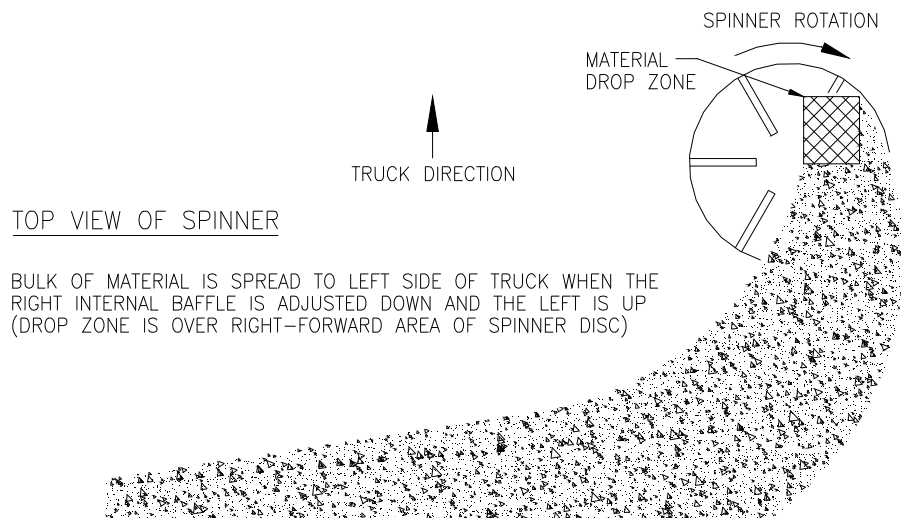
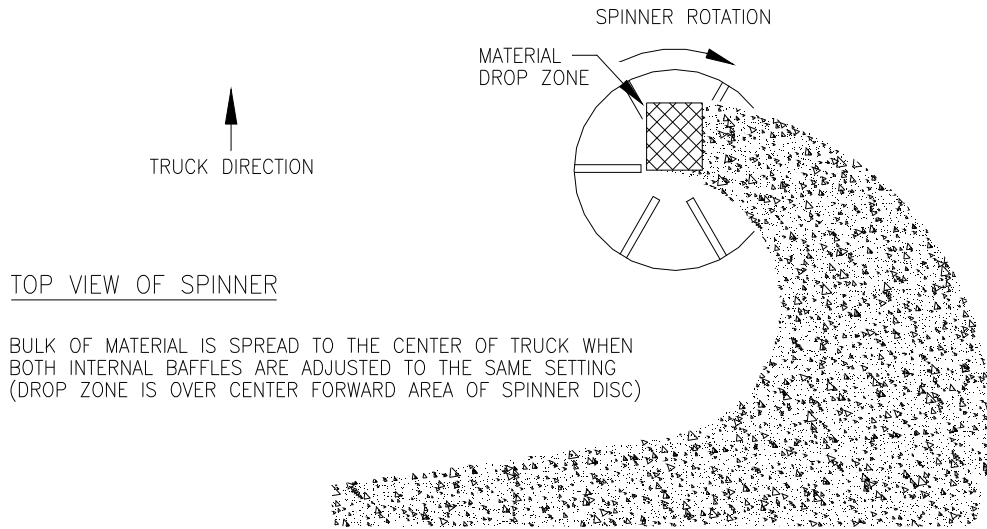


TOP VIEW OF SPINNER

BULK OF MATERIAL IS SPREAD TO RIGHT SIDE OF TRUCK WHEN THE RIGHT INTERNAL BAFFLE IS ADJUSTED UP AND THE LEFT IS DOWN (DROP ZONE IS OVER LEFT-FORWARD AREA OF SPINNER DISC)

SPREADER OPERATION - SPREAD PATTERN

(Continued)



SPREADER OPERATON - MAINTENANCE



WARNING!

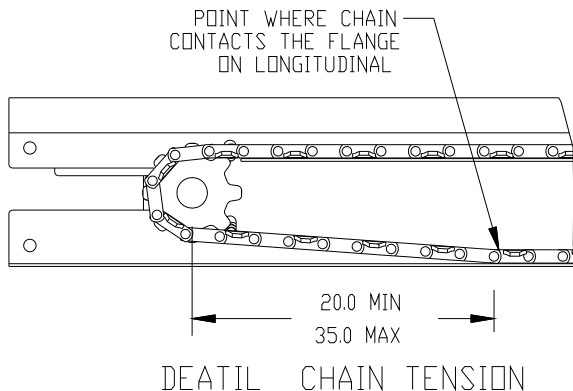
DO NOT ATTEMPT TO LIFT SPREADER BY THE CENTER LIFT OR CORNER LIFT HOOKS WITH MATERIAL IN THE SPREADER.



WARNING!

BEFORE BEGINNING ANY MAINTENANCE ON SPREADER, DISCONNECT SPREADER BATTERY LEADS.

1. Grease idler bearings on idler shaft take-up assembly, outboard bearing on gearbox output shaft, and spinner bearings every ten hours of operation.
2. Grease input shaft bearing on gearbox every fifty hours of operation. **CAUTION!** Over greasing may cause seal damage. The gearbox must be filled to oil level plug with SAE 90 gear type lubricant. Keep breather plug clean.
3. Drag chain slack on V-boxes should be checked periodically and taken up if distance between center line of front sprocket and point where chain contacts lower flange on longitudinal is less than twenty (20) inches. **CAUTION!** Over tightening conveyor chain can cause serious drive train problems. Above distance must not exceed thirty-five (35) inches.



4. If the spreader is equipped with a gasoline engine, it should be maintained per engine manufacturer's instruction. (Instructions and parts book is enclosed.
5. V-belt/Chain tension must be maintained. The V-belt/Chain can be adjusted by loosening motor hold-down bolts and sliding motor as required.

To adjust chain tension on spinner shaft, loosen the 8 bearing bolts on the rear vertical plates and slide spinner shafts as required. Make sure the spinner shaft is straight up and down before re tightening.

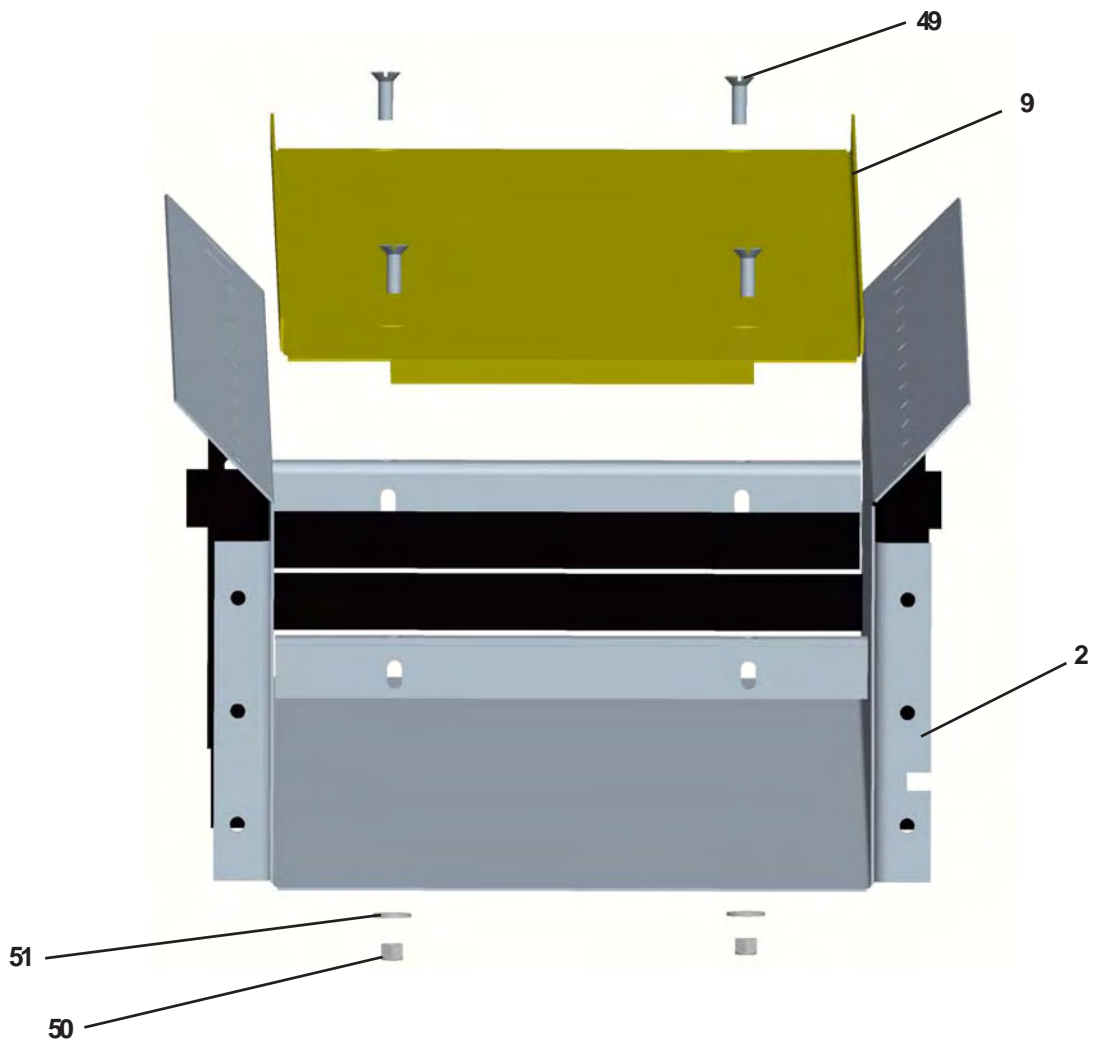
CAUTION! Overtightening may damage gearbox.

6. Oil drive chains before each use.
7. Spreader should be emptied and cleaned after each use. Material could freeze causing the unit to not function correctly.
8. If chain becomes stuck or "frozen" to the floor to the point where the drive system cannot pull the load, never attempt to free chain using a pipe wrench or any other tool on the output shaft. The gearbox is designed to accept torque from input shaft only. Trying to turn output shaft will strip the gears, thus voiding the warranty.
9. To minimize problems and extend the life of the drive system, the following is highly recommended.
 - a. Before loading spreader, make sure the drag chain is free (not stuck or "frozen" to the floor). If the drag chain is stuck, this can cause the drive system to burn up.

OFF-SEASON STORAGE:

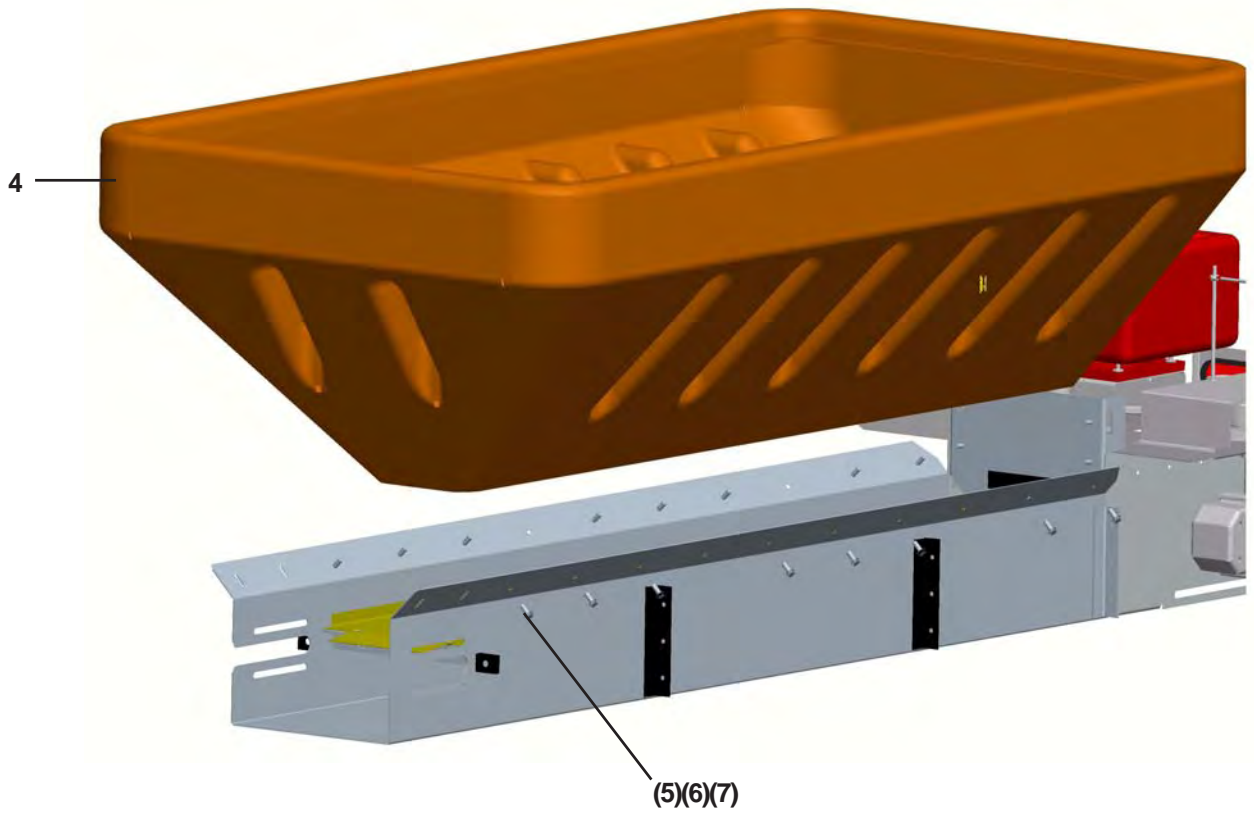
1. Grease all bearings, oil drag chain and roller chains.
2. Raise spinner and remove spreader from truck.

PARTS LIST FOR CONVEYOR FLOOR



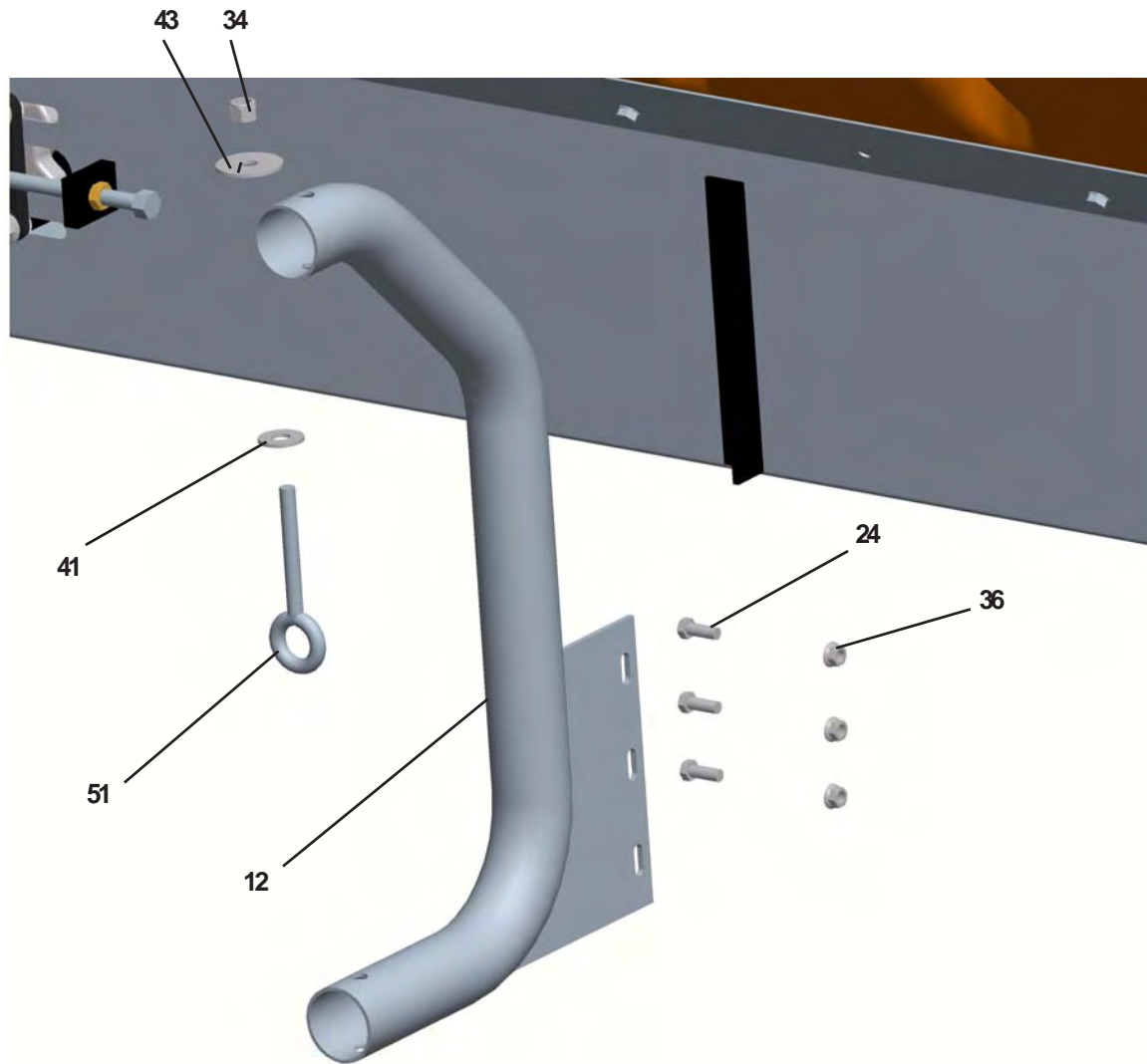
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
2	63160	1	Weld, Hopper Mounting Trough
9	63161	1	Forming, Conveyor Floor
49	62771	4	Screw, 3/8-16 X 1 1/4" Slotted, Flat, SS
50	62638	4	Locknut, 3/8-16 Nylon Insert, SS
51	22230	4	Flatwasher, 3/8" U.S.S., SS

PARTS LIST FOR HOPPER



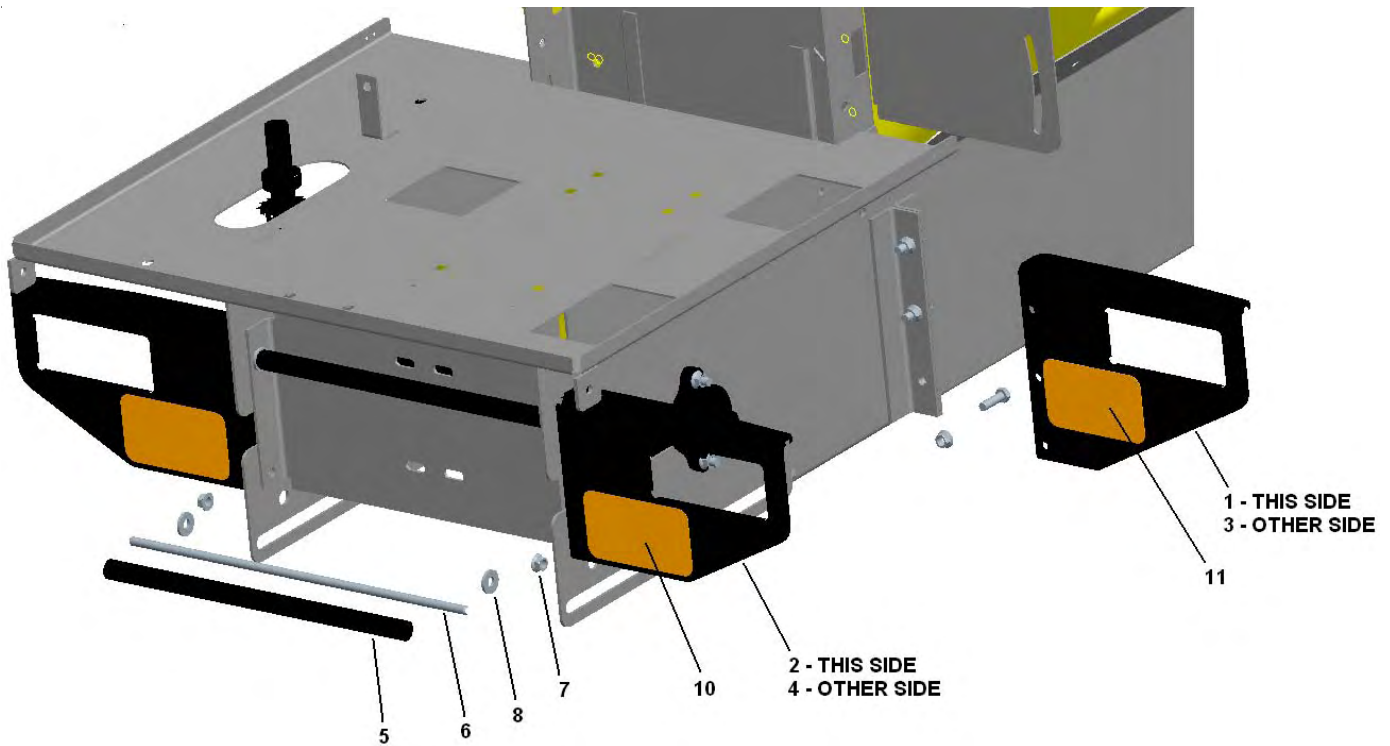
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
4	63885	1	Hopper, 8 Ft. Poly, Magnum Yellow
5	62695	20	Bolt, 3/8-16 x 1-1/4" HH SS
6	63409	20	Flatwasher, 3/8" SS
7	62743	20	Nut, 3/8-16 Ser Flange SS

PARTS LIST FOR BODY JACKS



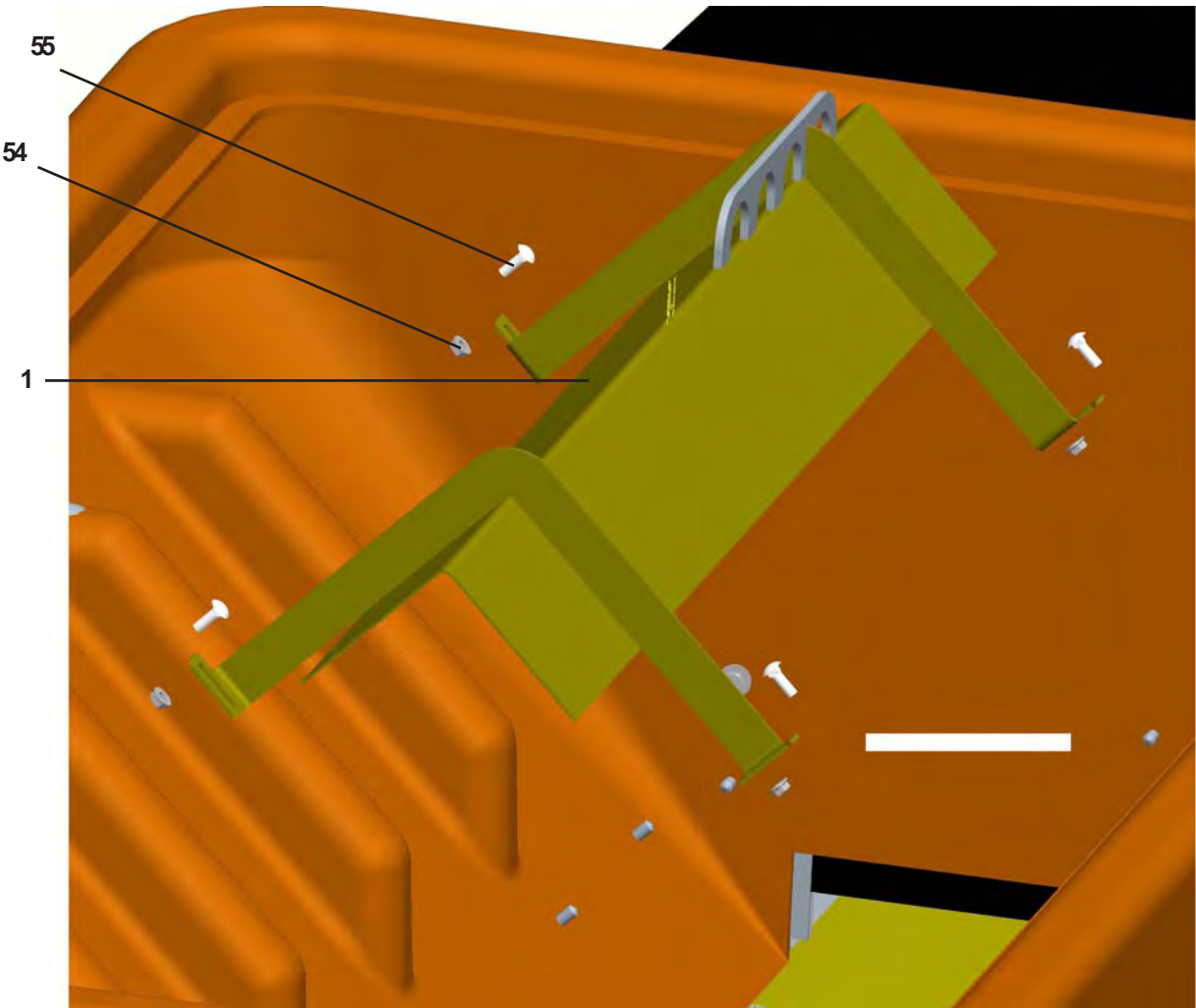
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
12	63182	4	Weld, Body Jack
24	62697	12	Bolt, 3/8-16 x 1" HH, SS
36	62743	12	Nut, 3/8-16 Serrated Flange, SS
51	62807	4	Bolt, 1/2" Eye
41	20355	4	Flatwasher, 1/2" U.S.A., ZP
43	63183	4	Washer, 1/2" 17/32" ID, 2" OD, ZP
34	20307	4	Locknut, 1/2-13 Nylon Insert, ZP

PARTS LIST FOR REAR FORKLIFT ASSEMBLY



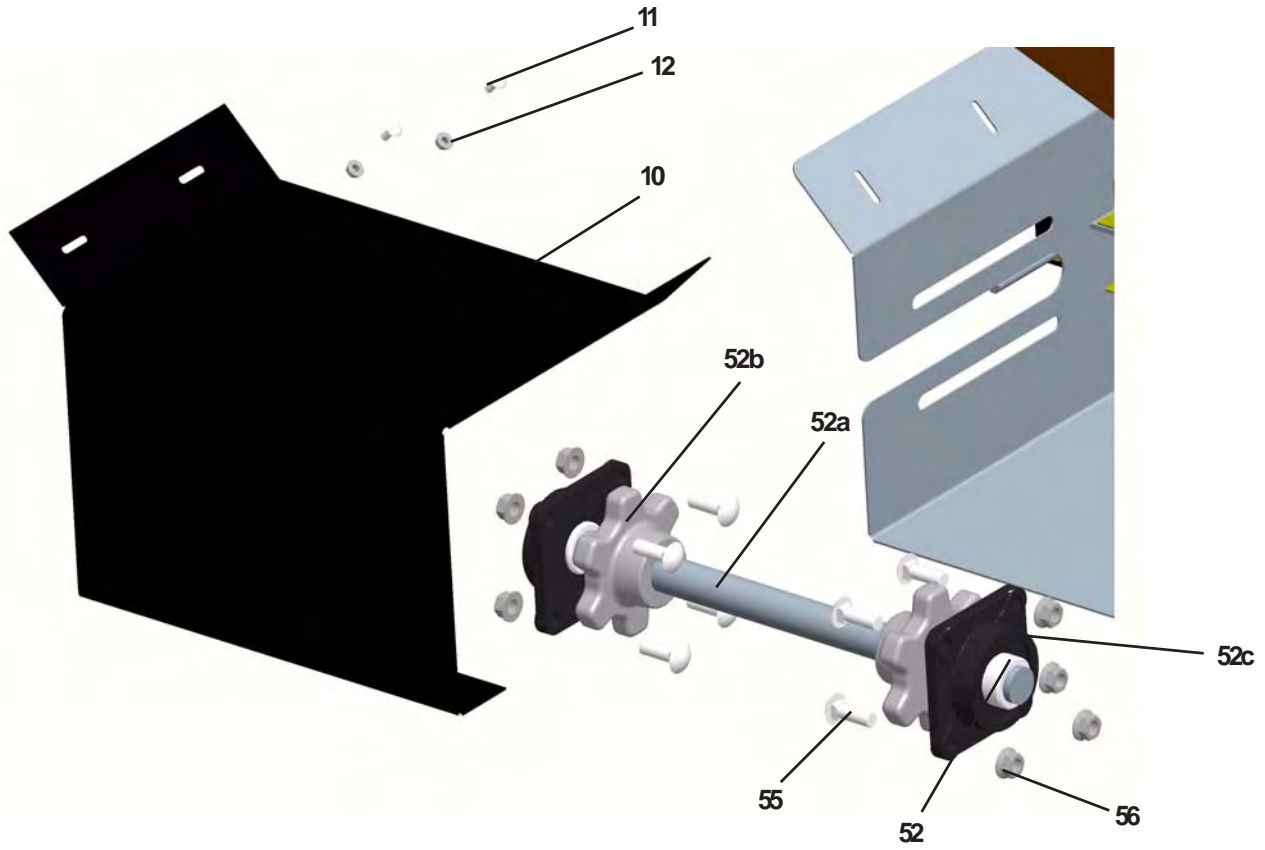
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63839	1	Bracket, fork LH, CS
2	63840	1	Plate, Bracket Forklift Rear LH, CS
3	63841	1	Bracket, fork RH, CS
4	63842	1	Plate, Bracket Forklift Rear RH, CS
5	63827	2	Pipe, 1/2" X 15.25 PE, CS
6	63821	2	Rod, Threaded 3/8 X 17.25, CS
7	62743	4	Nut, 3/8-16 Ser Flange, SS
8	20353	4	Flatwasher, 3/8" U.S.S. ZP
10	63847	2	Decal, Caution Unloaded
11	63848	2	Decal, Caution 4" Min

PARTS LIST FOR INVERTED VEE



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63184	1	Weld, Inverted Vee, SS
54	62641	4	Nut, 5/16-18 Serrated Flange, SS
55	63175	4	Bolts, 5/16-18 X 1" Carriage, SS

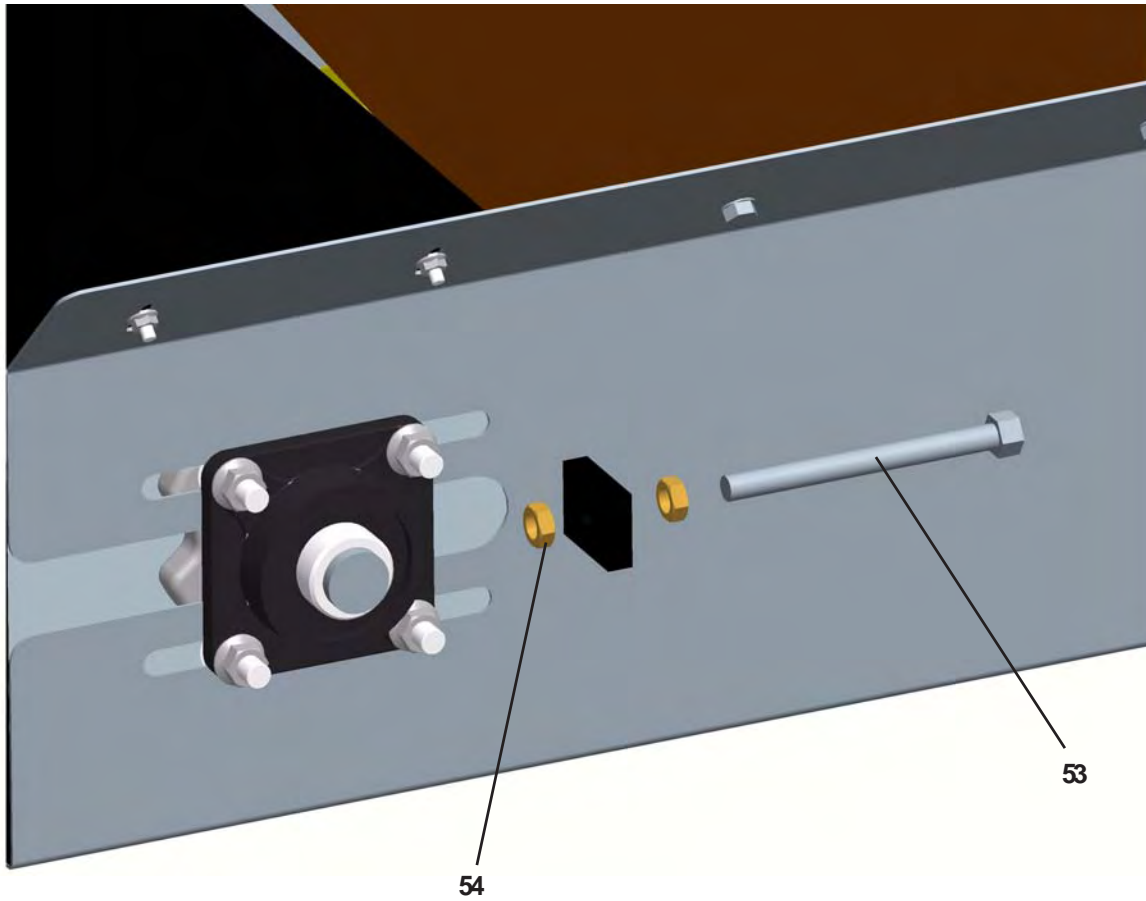
PARTS LIST FOR IDLER SHAFT



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
10	63178	1	Forming, Front Cover
11	62689	4	Bolt, 1/4-20 X 5/8" Carriage, SS
12	62690	4	Nut, 1/4-20 Serrated Flange, SS
52	63179	1	Assembly, Idler, 4-Bolt Bearing
52a	62370	1	Weld, Idler Shaft
52b	61171	1	Sprocket, Drag Chain
52c	62355	2	Bearing, 1 1/4"
55	63180	8	Bolt, 1/2-13 X 1 1/2" Carriage Short Neck
56	62754	8	Nut, 1/2-13 Serrated Flange, SS
N/S	63181	1	Weld, Drag Chain
N/S	61204	2	Pin, Master (Drag Chain)
N/S	62755	2	Pin, Cotter (Drag Chain)

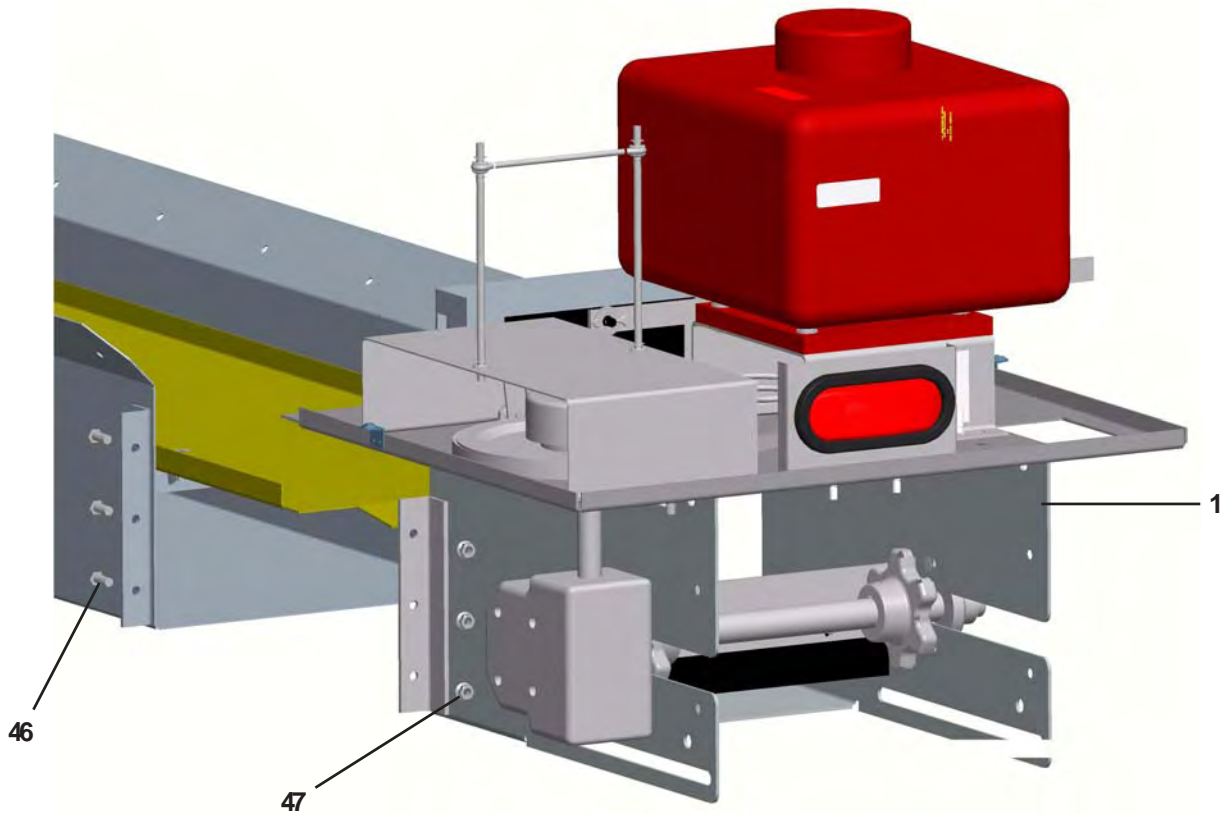
N/S = Not Shown

PARTS LIST TAKE-UP



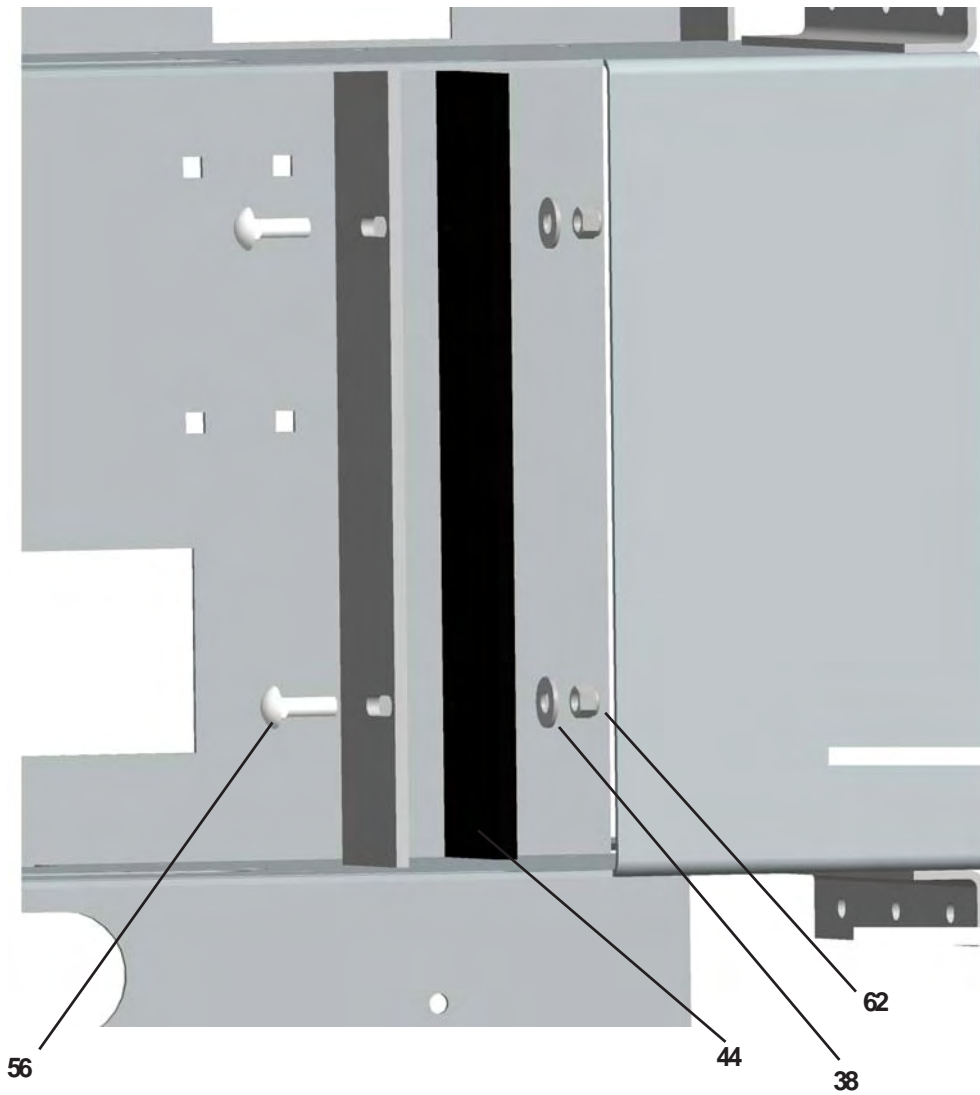
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
53	62326	2	Bolt, 1/2-13 X 6" Tap, SS
54	62336	4	Nut, 1/2-13 Hex Jam, SS

PARTS LIST FOR GAS ENGINE MODULES (COMPLETE)



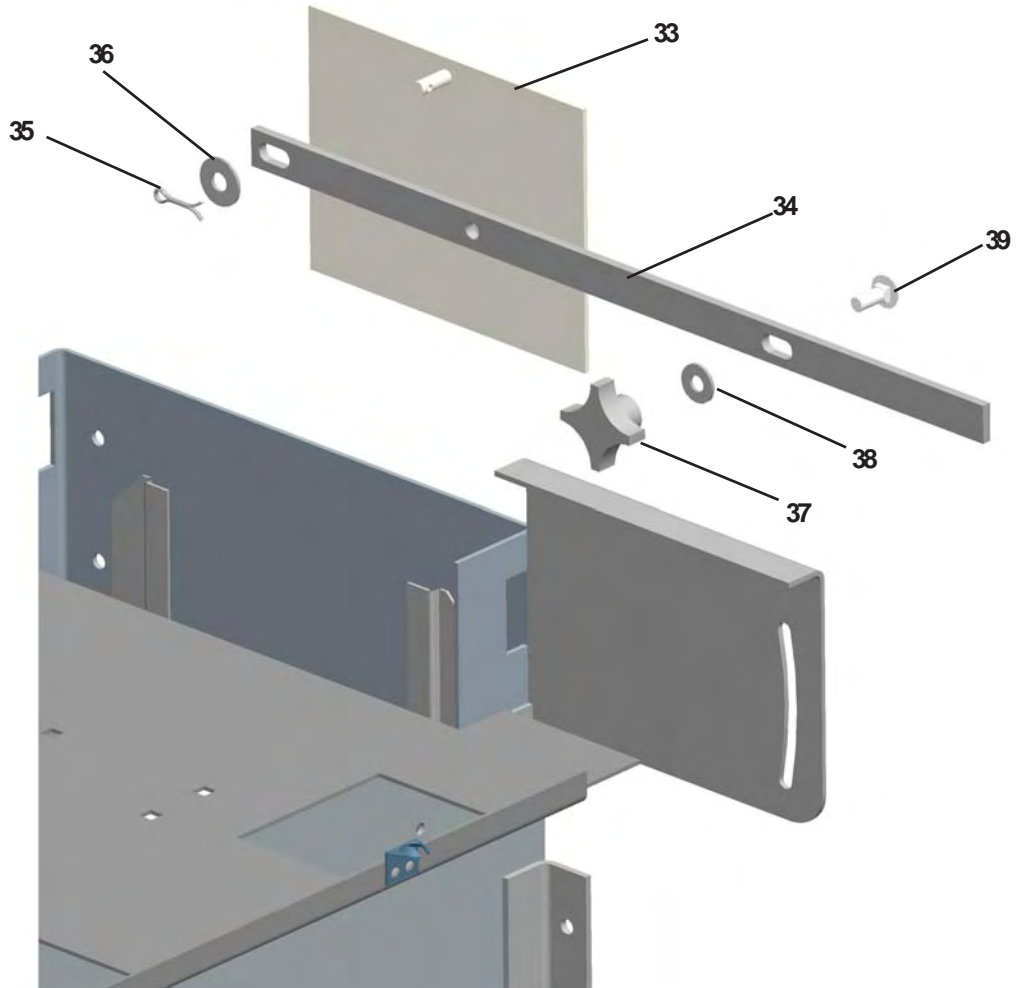
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63781	1	Assy, Briggs & Stratton Engine Module
46	62697	6	Bolt, 3/8-16 X 1" HH, SS
47	62743	6	Nut, 3/8-16 Serrated Flange, SS

PARTS LIST FOR WIPER



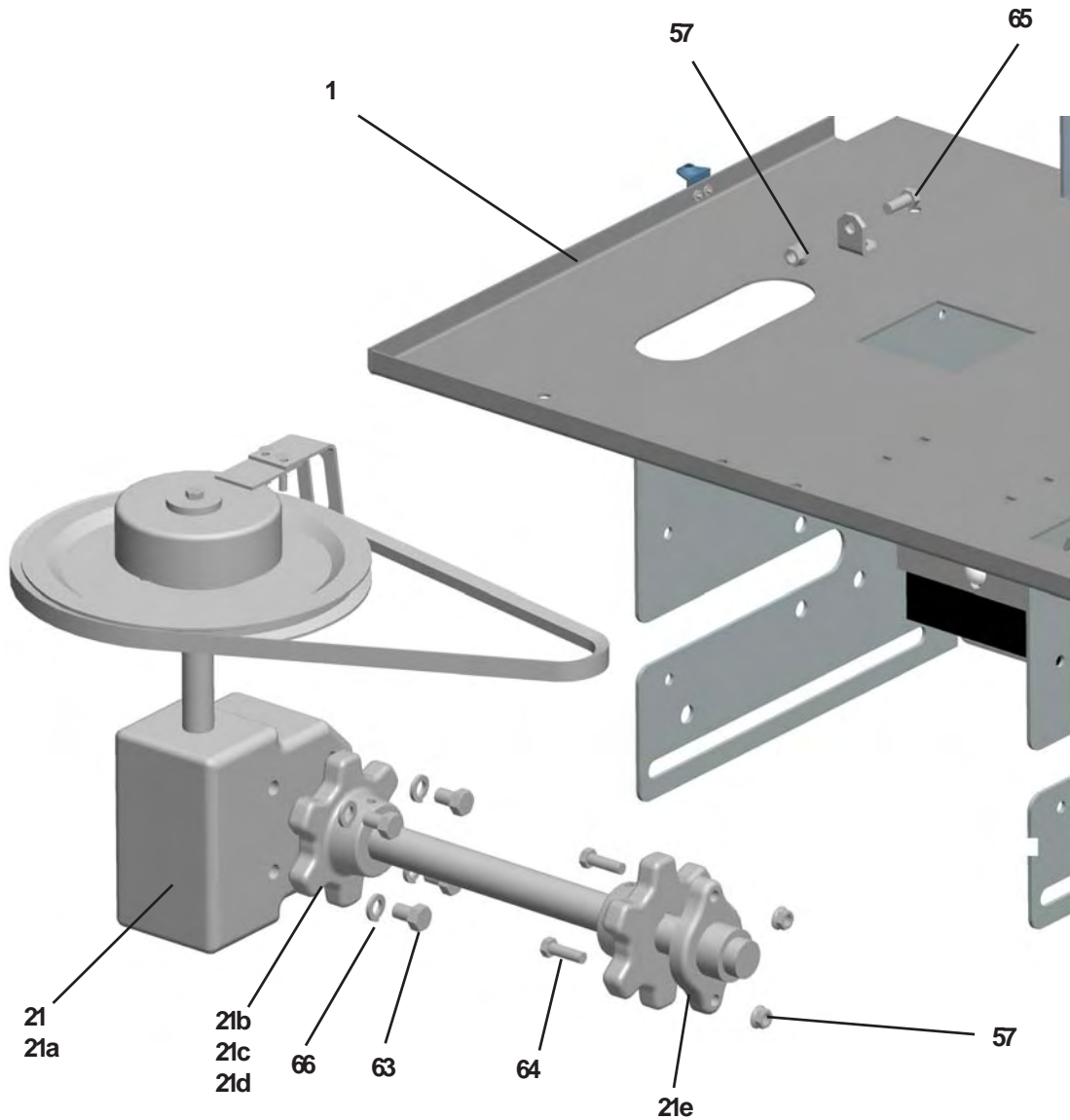
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
38	22230	2	Flatwasher, 3/8" U.S.S, SS
44	62354	1	Wiper, Chain
56	62813	2	Bolt, 3/8-16 X 1 1/4" Carriage, SS
62	62638	2	Nut, 3/8-16 Nylon Insert, SS

PARTS LIST FOR FEEDGATE



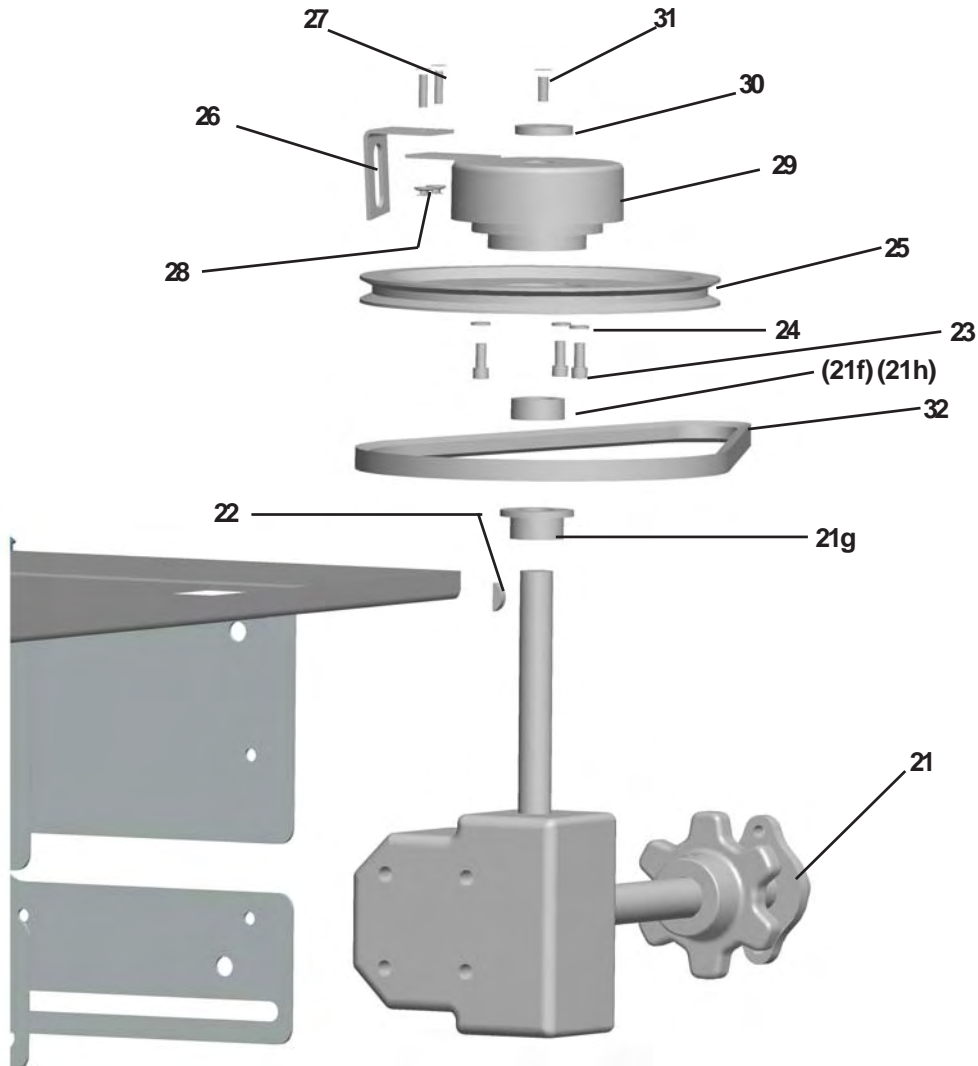
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
33	62282	1	Weld, Feedgate, SS
34	63185	1	Bar, Feedgate Handle, SS
35	62691	1	Pin, 1/8" x 1" Cotter, SS
36	62808	1	Flatwasher, 7/16", SS
37	61169	1	Hand Knob
38	22230	1	Flatwasher, 3/8" U.S.S.
39	62776	1	Bolt, 3/8-16 X 1" Carriage, SS

PARTS LIST FOR GEARBOX MOUNT



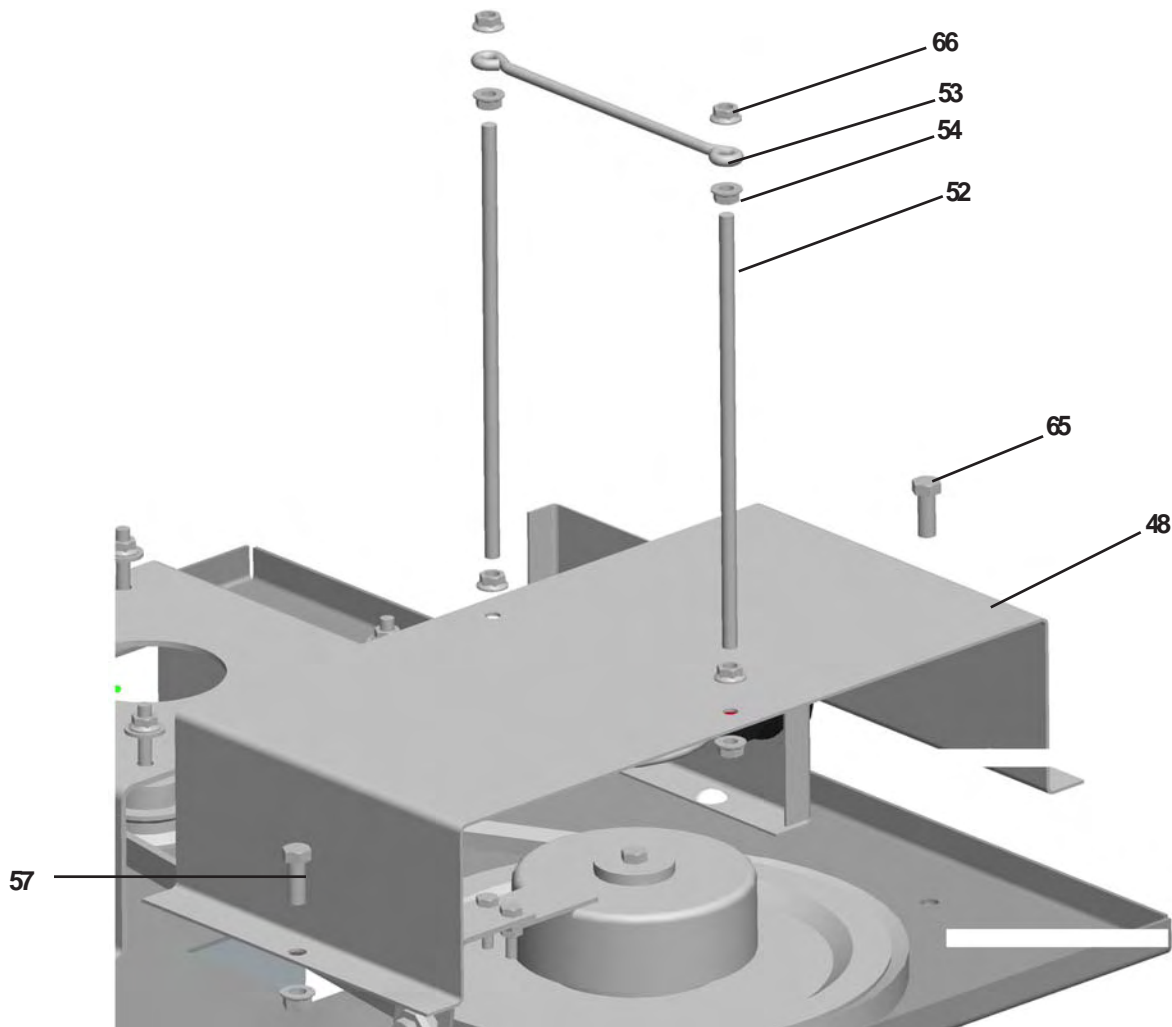
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63203	1	Weld, Rear Engine Module
21	63177	1	Sub-Assembly Gearbox (cont. next pg.)
21a	63419	1	Gearbox 20:1
21b	63411	2	Key, 1/4" sq x 1-1/2"
21c	63100	2	Sprocket, Machining
21d	63123	2	Setscrew, 3/8-16 x 3/8 Al Hd
21e	61163	1	Bearing, 1-1/4"
57	62743	3	Nut, 3/8-16 Serrated Flange, SS
63	62750	4	Bolt, 1/2-13 X 3/4" HH, SS
64	62695	2	Bolt, 3/8-16 X 1 1/4" HH, SS
65	62697	1	Bolt, 3/8-16 X 1" HH, SS
66	62770	4	Lockwasher, 1/2" Med. Split, SS

PARTS LIST FOR CLUTCH



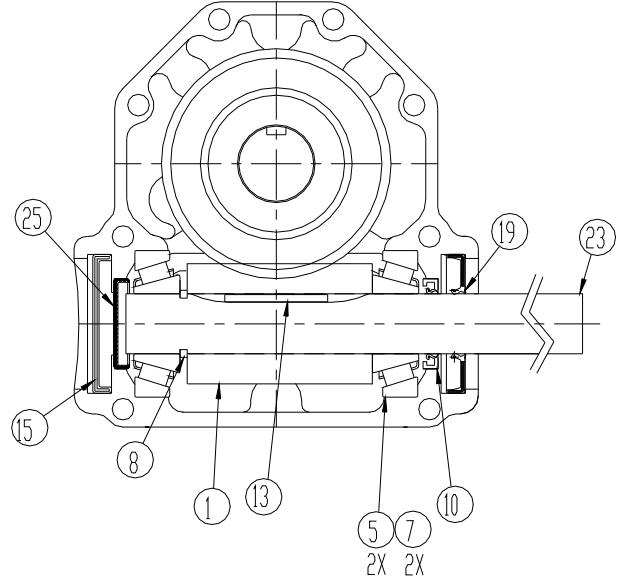
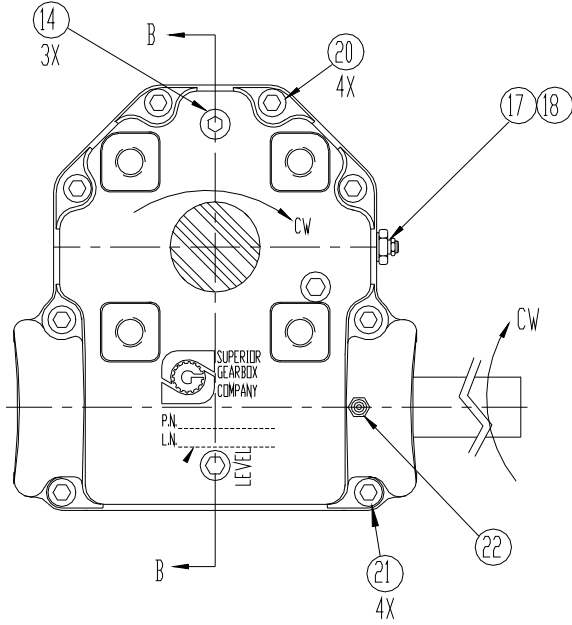
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
21	63177	1	Sub-Assembly, Gearbox (cont.)
21f	62769	1	Collar, Set 1"
21g	63685	1	Sprocket, 40B13-1" Bore
21h	61202	1	Snap Ring, External
22	61201	1	Key, 1/4" x 7/8" Woodruff
23	62634	3	Screw, 5/16-18 X 5/8" Socket Cap
24	20326	3	Lockwasher, 5/16 Medium Split, ZP
25	61161	1	Pulley, Driven
26	61176	1	Retainer, Clutch
27	62772	2	Bolt, 1/4-20 X 1" HH, SS
28	62690	2	Nut, 1/4-20 Serrated Flange, SS
29	61167	1	Clutch, Ogura
30	63103	1	Washer, Flat, Clutch Retainer
31	62752	1	Bolt, 5/16-18 X 3/4" HH, SS
32	61162	1	V-Belt, BX-48 - Honda
	62940	1	V-Belt, BX-46 - Tecumseh

PARTS LIST FOR BATTERY PLATE

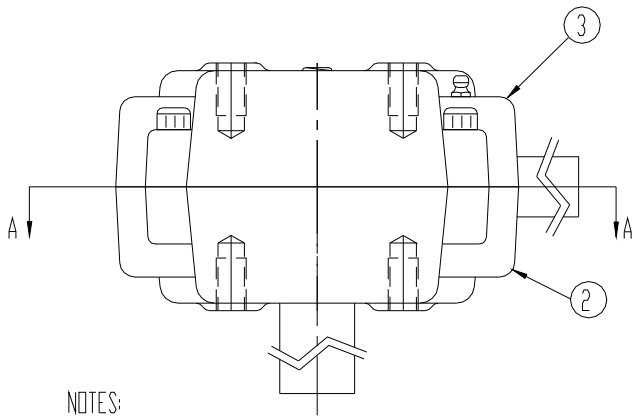


<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
48	63176	1	Forming, Battery Plate
52	61206	2	Rod, Battery
53	62767	1	Holddown
54	62641	6	Nut, 5/16-18 Serrated Flange, SS
57	62743	2	Nut, 3/8-16 Serrated Flange, SS
65	62697	2	Bolt, 3/8-16 X 1" HH, SS
66	63301	2	Locknut, 5/16-18 Nylon Insert SS

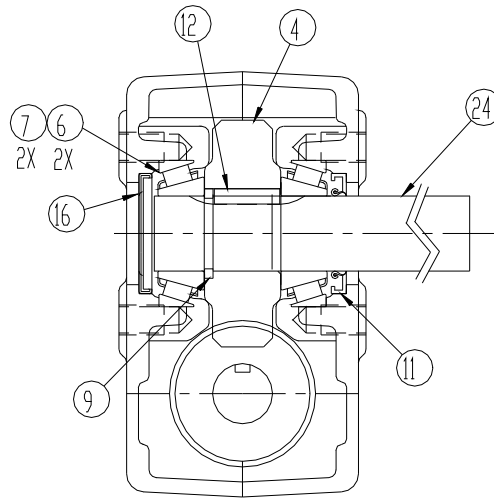
SUPERIOR GEARBOX ASSEMBLY



SECTION A-A



NOTES:
1. GEAR RATIO IS: 20:1



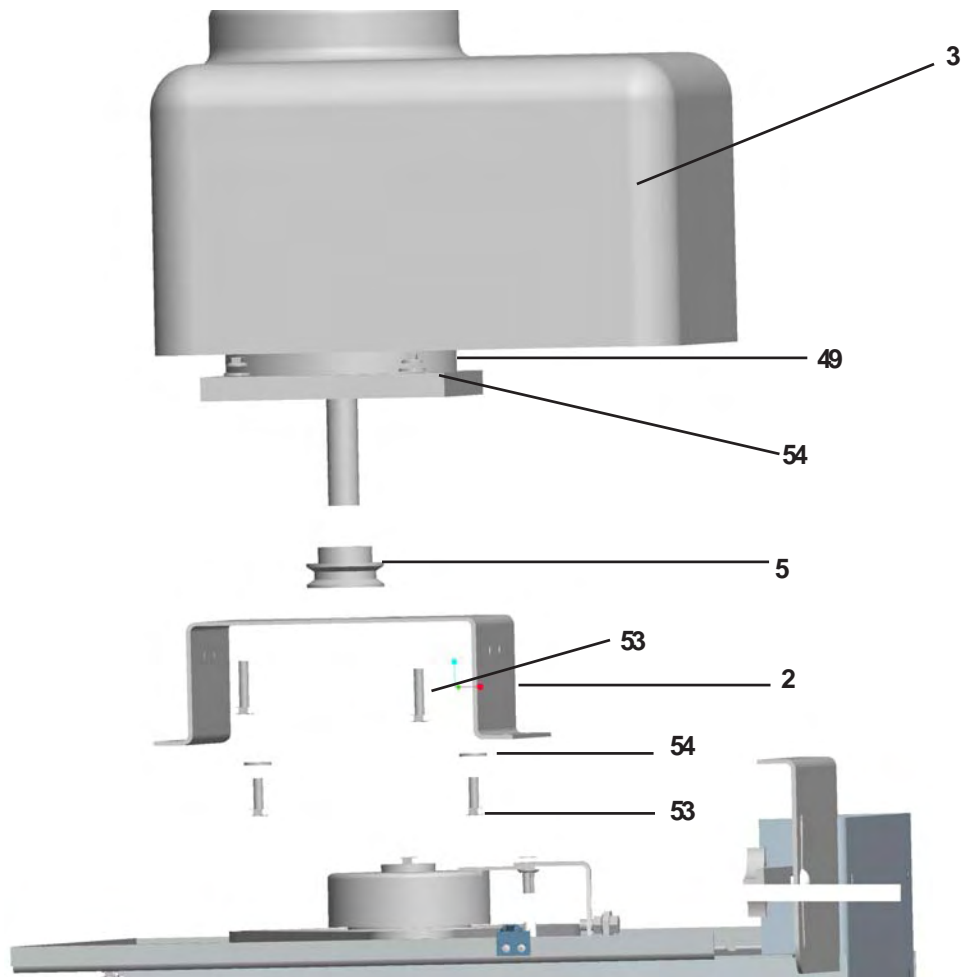
SECTION B-B

PARTS LIST FOR SUPERIOR GEARBOX ASSEMBLY

(62902)

<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	62903	1	Gear, Worm, LH 20:1
2	62904	1	Casting, Machined
3	62905	1	Casting, Machined Thru
4	62906	1	Gear, Worm 20:1 LH 1/4 Keyway
5	62907	2	Bearing, Cone TMKN # 15101
6	62908	2	Bearing, Cone TMKN # 15126
7	62909	4	Bearing, Cup TMKN # 15245
8	62910	1	Retaining Ring, Ext. 1.000 Shaft
9	62911	1	Retaining Ring, Ext 1.250 Shaft
10	62912	1	Seal, 1.000
11	62913	1	Seal, 1.250
12	62914	1	Key, 1/4 x 1/4, 1.080
13	62915	1	Key, 1/4 x 1/4, 1.580
14	62916	4	Plug, 1/4-18 NPT SCHD W/3M
15	62917	1	End Cap, CP-2.312
16	62918	1	End Cap, CP-2.000
17	62919	1	Bushing, 1/4 NPT x 1/8 NPT
18	62920	1	Plug, Vent 5 PSI
19	62921	1	Seal, 1.000
20	62922	4	Socket Head Cap Screw, 5/16"-18 x 1.50
21	62923	4	Socket Head Cap Screw, 5/16"-18 x 1.75
22	62924	1	Zerk, Grease
23	63134	1	Shaft, Input
24	63135	1	Shaft, Output
25	62927	1	End Cap, CP-1.500
N/S	62928	20	Lube / EP 85W140

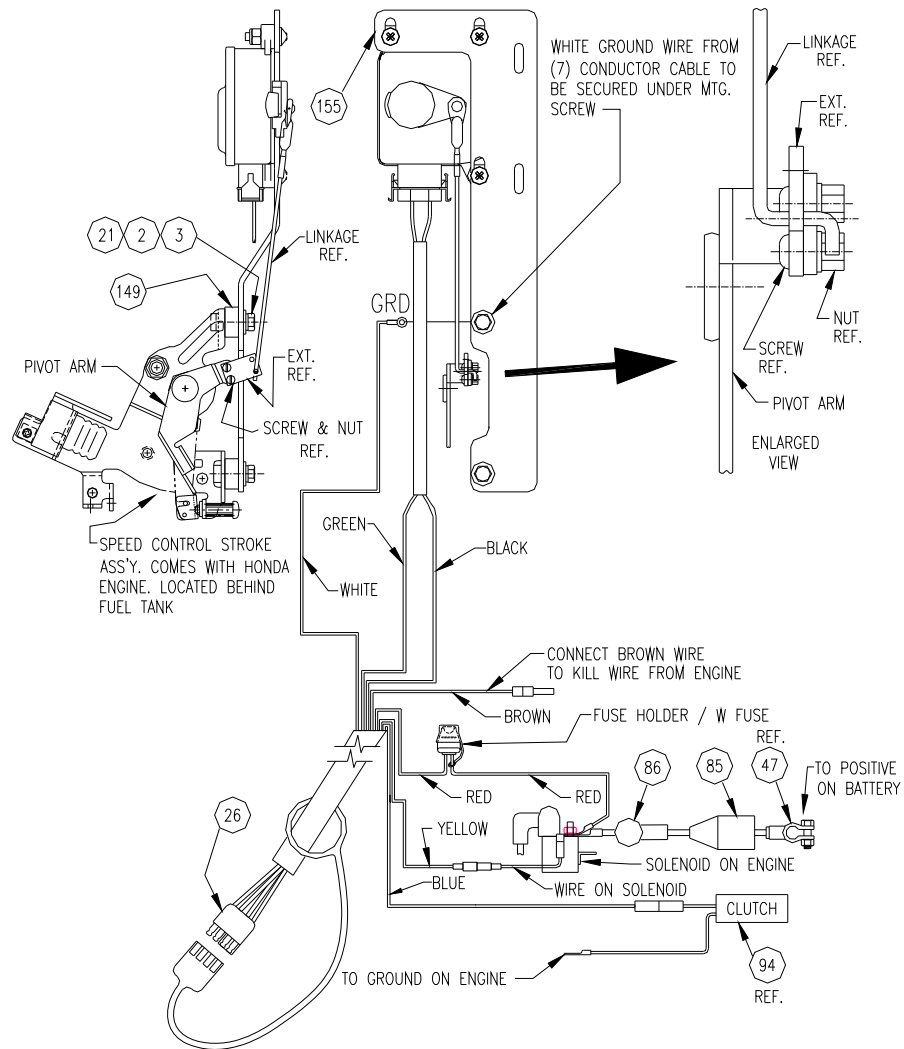
PARTS LIST FOR ENGINE - HONDA



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
2	63169	1	Forming, Engine Adapter
3	63171	1	Engine, Honda w/Decals
5	61177	1	Pulley, Driver
49	62641	2	Nut, 5/16-18 Serrated Flange, SS
53	63174	4	Bolt, 5/16-24 X 1" HH, SS
54	63173	4	Flatwasher, 5/16" U.S.S., SS

ELECTRIC CONTROLS PARTS & SCHEMATIC

HONDA ACTUATOR

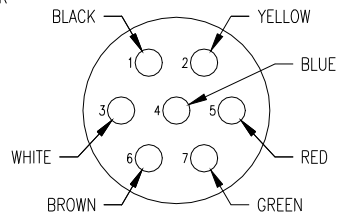
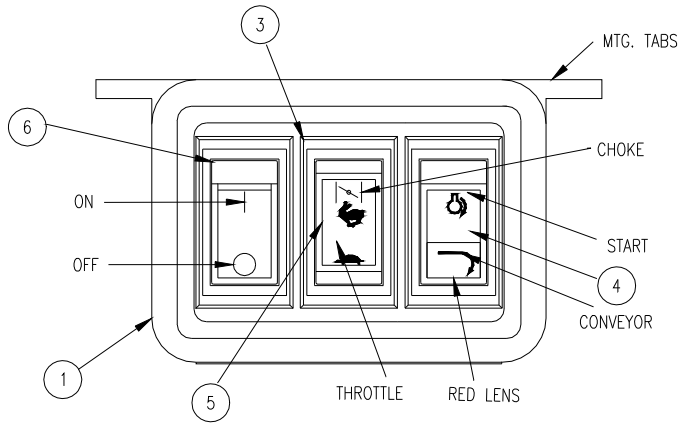


WIRING DIAGRAM

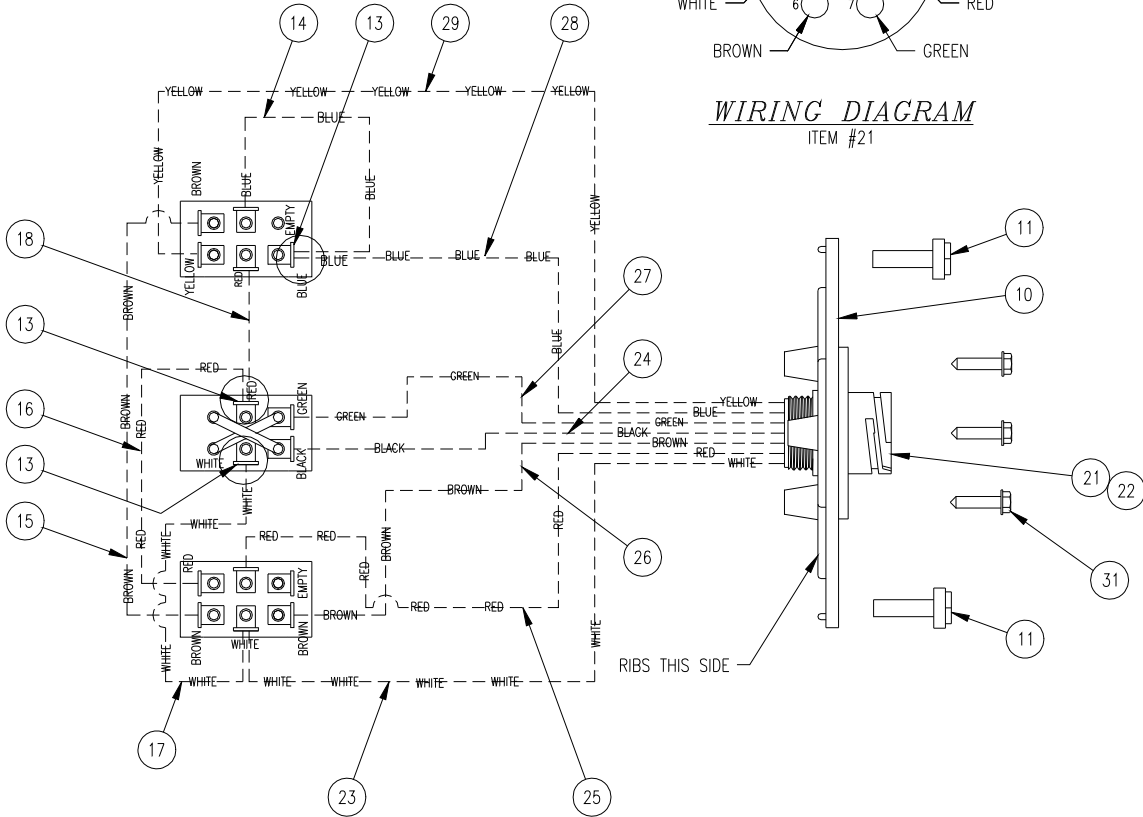
S:\00118\00115-752-01

<u>ITEM</u>	<u>PART NUMBER</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
	63165	1	Actuator
2	62801	2	Flatwasher, #10 SS
3	62800	2	Lockwasher, #10, SS
21	62799	2	Bolt, M5 X 25 HH, SS
26	63166	1	Cable, Control - Spreader
N/S	63167	1	Cable, Control - Truck
47	62040	1	Cable, Battery - Black
	63130	1	Cable, Battery - Red
85	63125	1	Boot, Battery Cable Straight
86	62106	1	Boot, Alternator Cable
94	63168	1	Clutch, Electric, Inertia Dynamic
149	62339	2	Bushing, Spacer, SS
155	62703	1	Assembly, Actuator Honda Mounting

CONTROL BOX (OPTIONAL)



WIRING DIAGRAM
ITEM #21

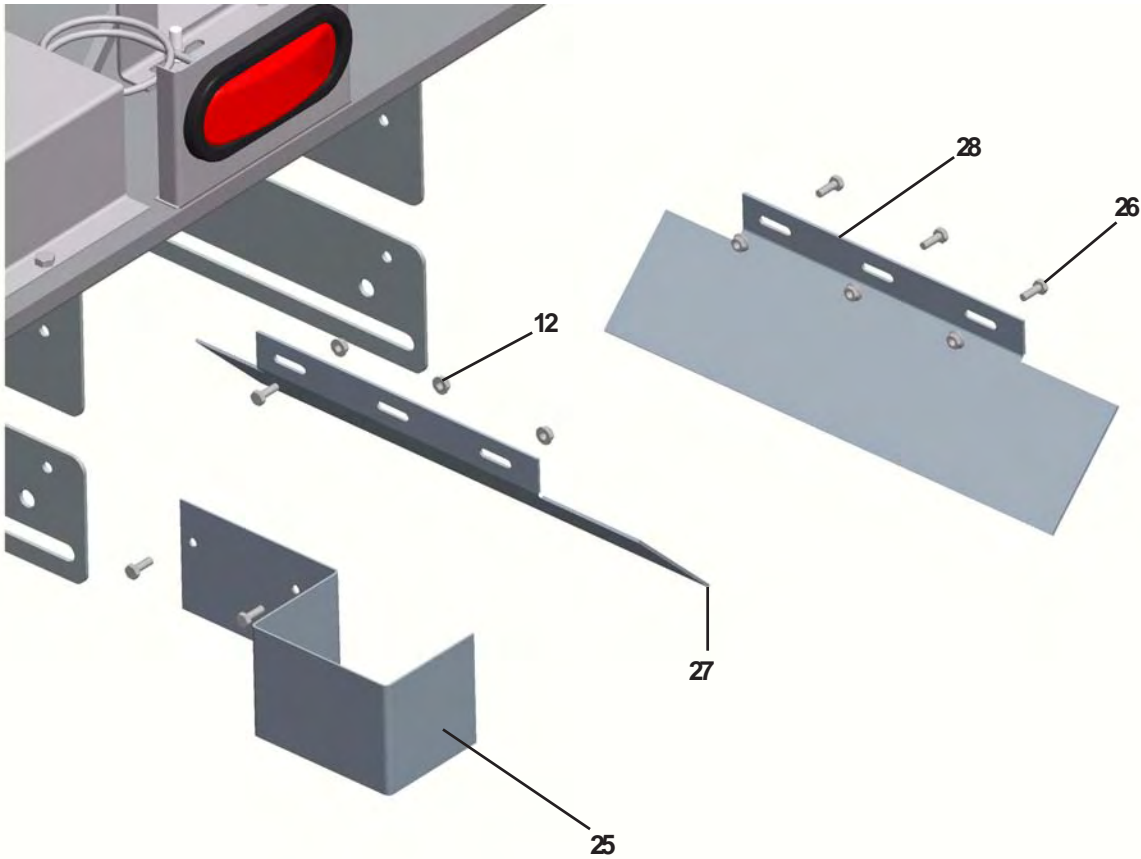


PARTS LIST FOR CONTROL PANEL ASSEMBLY (OPTIONAL)

(62334)

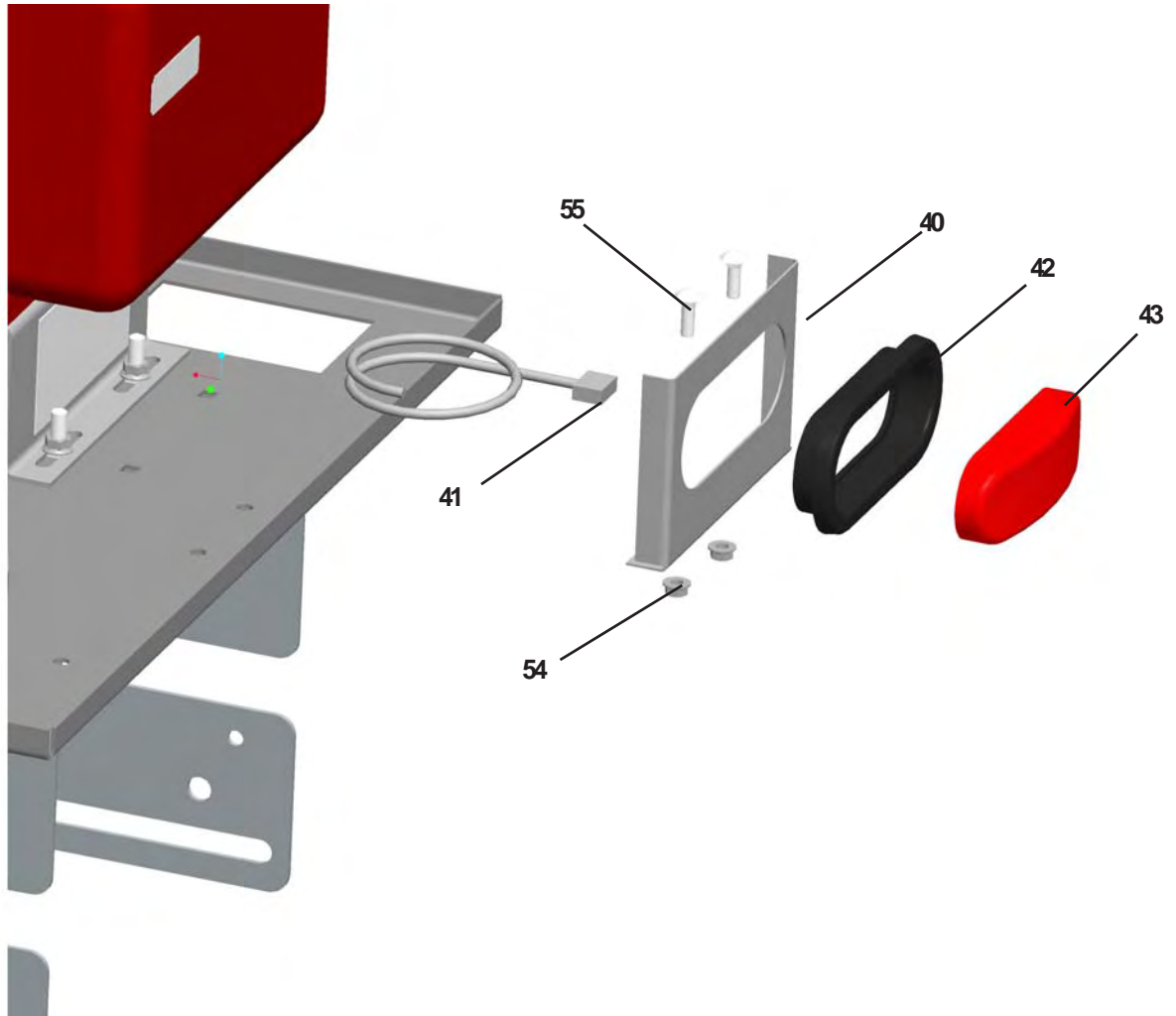
<u>ITEM</u>	<u>PART NUMBER</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
1	62150	1	Enclosure
3	62670	2	Panel
4	62153	1	Switch, START/CONV
5	62154	1	Switch, Choke HI/LO
6	62155	1	Switch, ON/OFF
10	62158	1	Enclosure, Back Panel
11	62159	4	Screw, #8 x 1/2 SM SLT HWH ZP
13	62156	3	Conn., double M/FM
14	62161	1	Jump Wire, 14 Ga., BLUE 3"
15	62162	1	Jump Wire, 14 Ga., BROWN 5.5"
16	62163	1	Jump Wire, 14 Ga., RED 4"
17	62164	1	Jump Wire, 14 GA., BROWN 3"
18	62165	1	Jump Wire, 14 Ga., RED 3"
21	62671	1	Receptical, Sq. Flange
22	62672	7	Connector, Socket, 14 Ga., Tin
23	62673	.333	Wire, 14 Ga., White Insulated
24	62674	.333	Wire, 14 Ga., Black Insulated
25	62675	.333	Wire, 14 Ga., Red Insulated
26	62676	.333	Wire, 14 Ga., Brown Insulated
27	62677	.333	Wire, 14 Ga., Green Insulated
28	62678	.333	Wire, 14 Ga., Blue Insulated
29	62679	.333	Wire, 14 Ga., Yellow Insulated
30	62680	7	Terminal Insulated Disc. Female
31	63120	4	Screw, #4 Self Tapping Slotted Hex Washer Head

PARTS LIST FOR CHAIN SHIELD



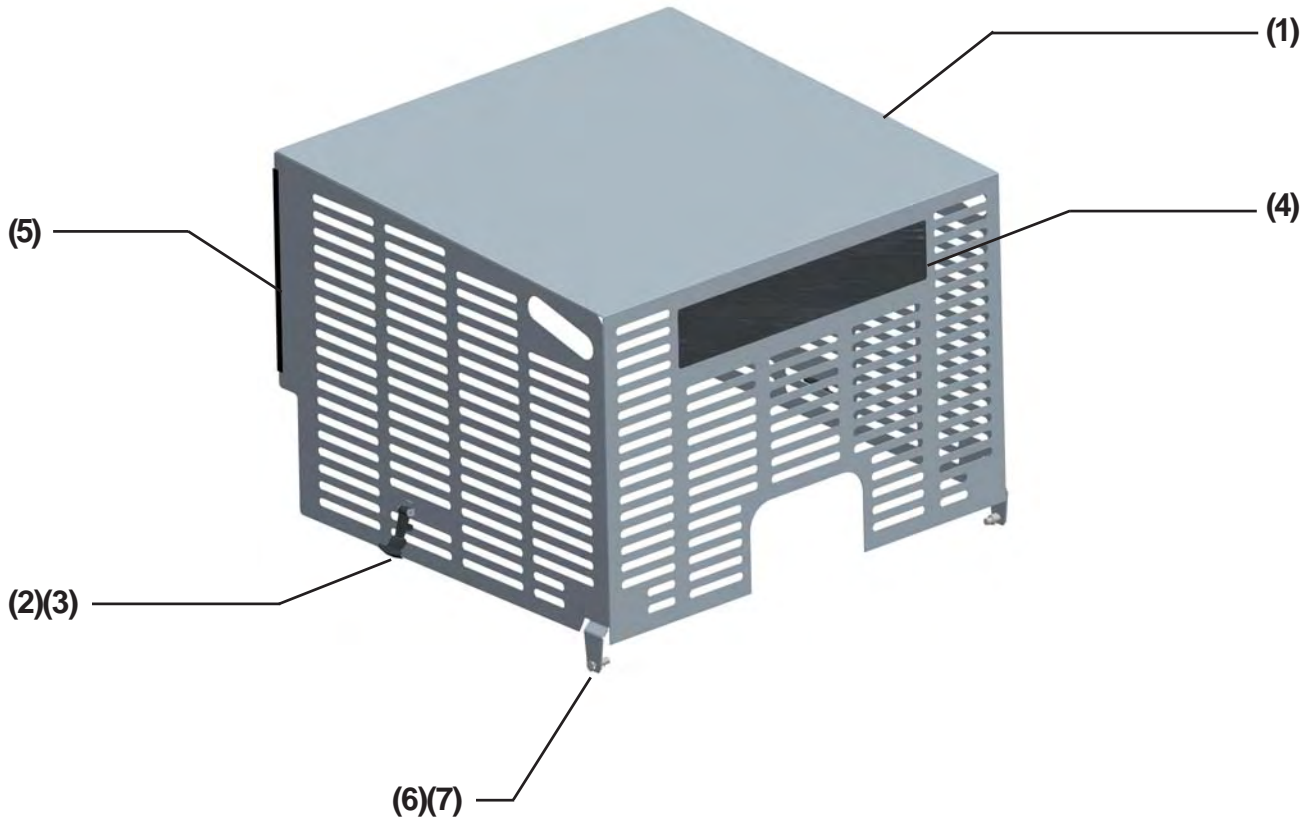
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
12	62690	6	Nut, 1/4-20 Serrated Flange, SS
25	63189	1	Weldment, Chain Guard
26	62189	6	Bolt, 1/4-20 X 3/4" HH, SS
27	63190	1	Forming, Sprocket Shield, L.H.
28	63191	1	Forming, Sprocket Shield, R.H.

PARTS LIST FOR STOPLIGHT



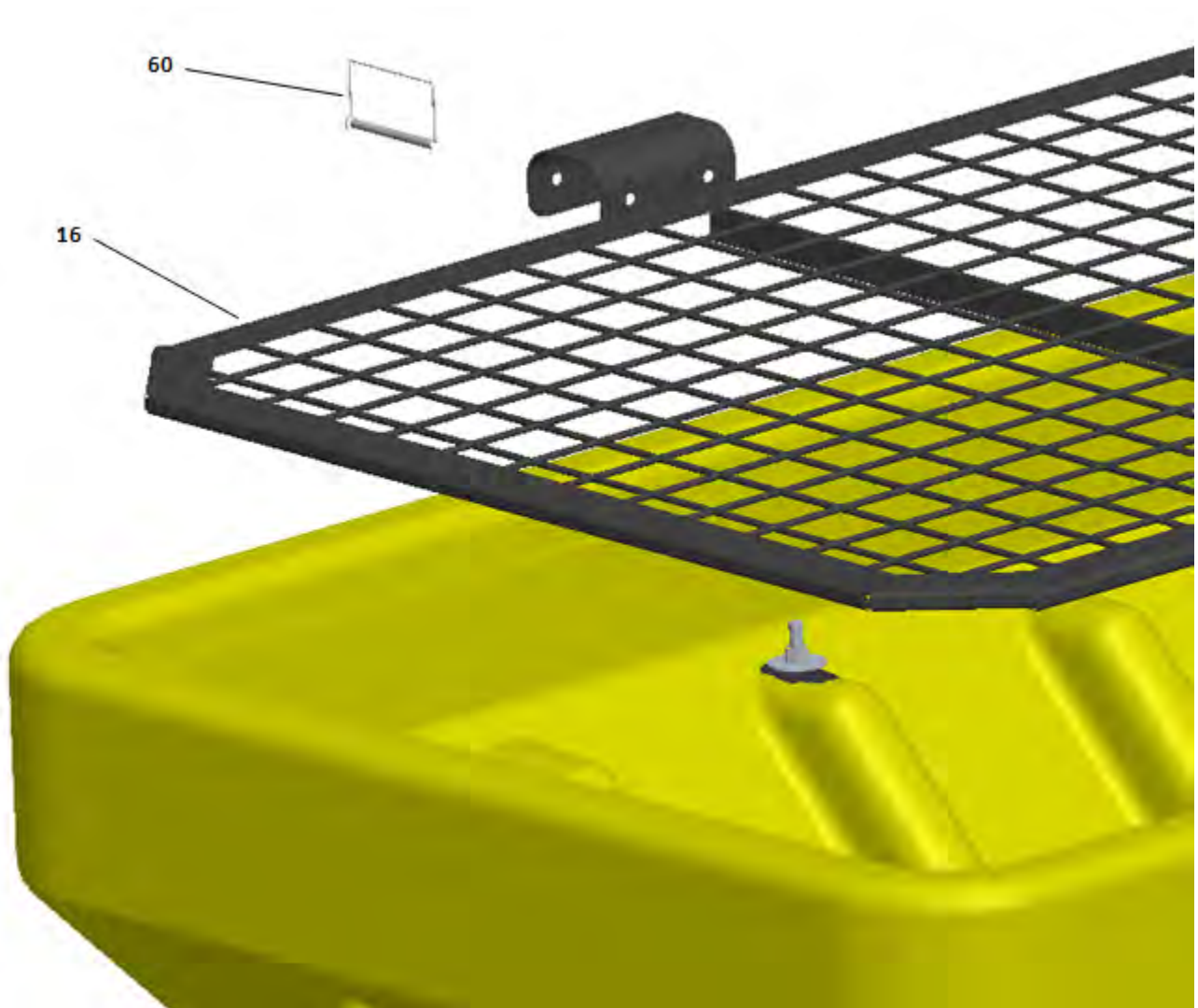
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
40	00119-878-00	1	Forming, Rear Stoplight Bracket
41	04605-155-00	1	Cable, Light Power
42	04605-154-00	1	Grommet, Mounting
43	04605-153-00	1	Lamp, Stop
54	04003-806-13	2	Nut, 5/16-18 Serrated Flange, SS
55	04003-032-04	2	Bolt, 5/16-18 X 1" Carriage, SS

PARTS LIST FOR GAS ENGINE SHROUD



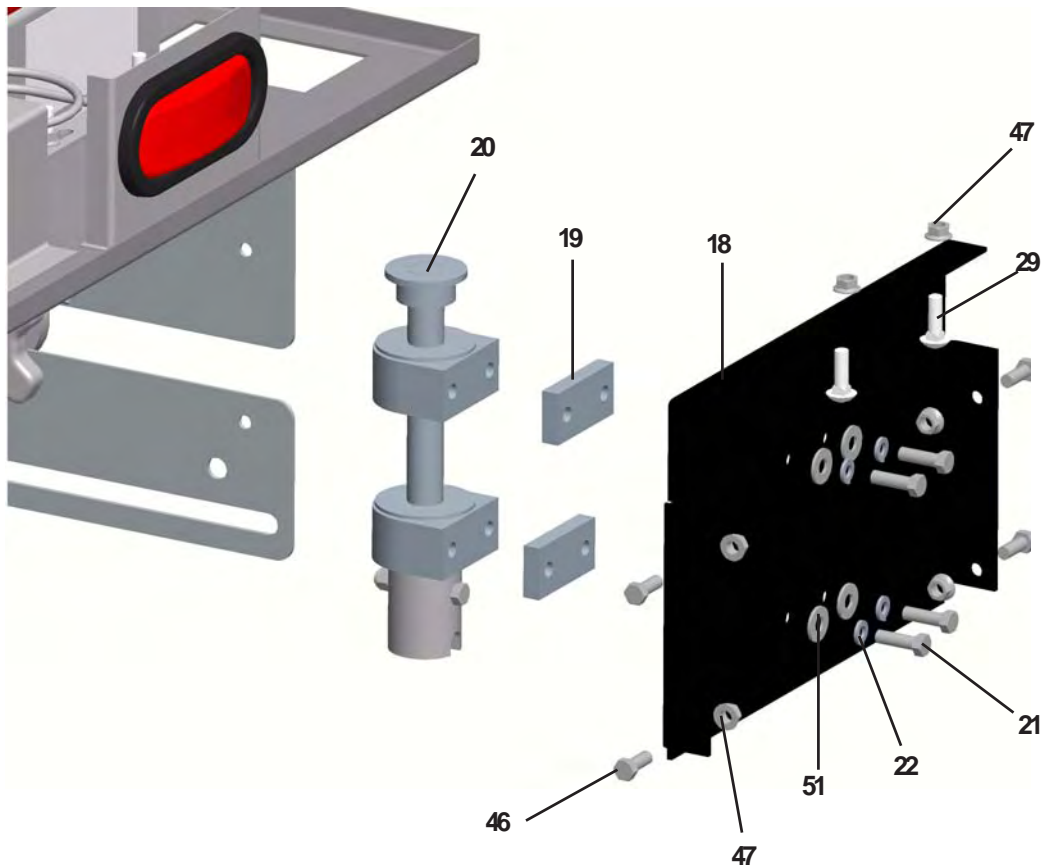
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63412	1	Weld, Shroud - Briggs & Stratton Engine
	63833	1	Weld, Shroud - Electric
2	63141	2	Handle, Rubber "T"
3	63157	4	Rivet, 1/8" X 3/8" Pop Round Head
4	63845	1	Decal, Magnum Logo
5	63128	2ft	Trim, Vinyl
6	62697	2	Bolt, 3/8-16 x 1 Hh Ss
7	62638	2	Locknut, 3/8-16 Nyl Ins Ss

PARTS LIST FOR SCREEN



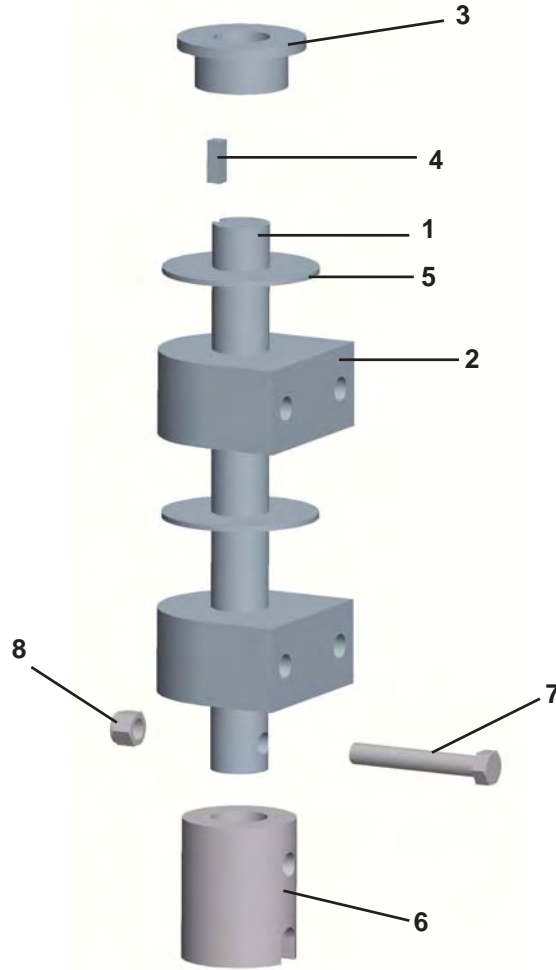
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
16	63603	1	Weld, Screen, 8 ft.
60	63679	4	Safety Clevis Pin

PARTS LIST FOR REAR COVER



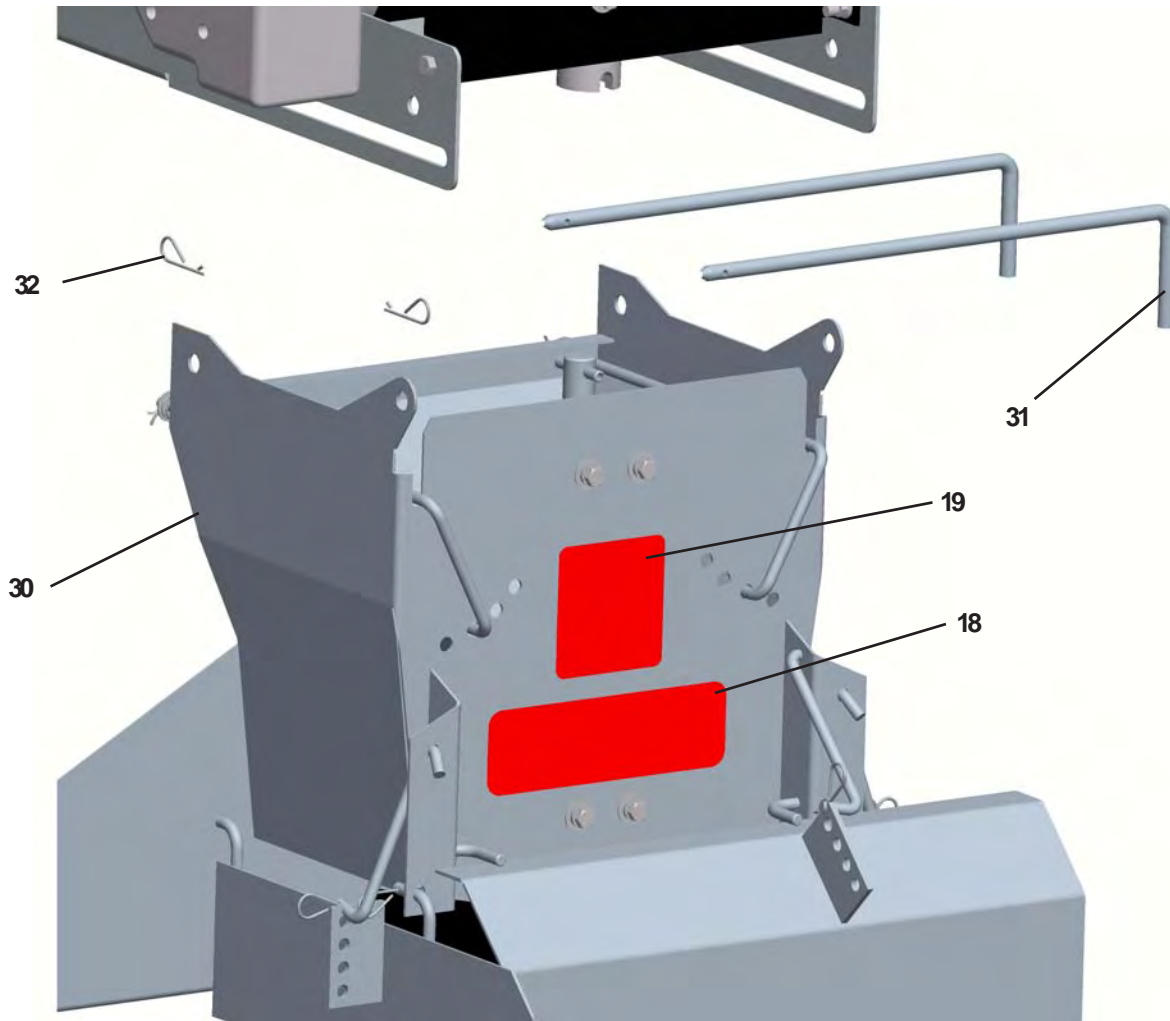
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
18	63186	1	Forming, Rear Cover
19	62684	2	Block, Spacer, Bearing
20	63187	1	Sub, Assembly, Spinner Drive Shaft
21	62695	4	Bolt, 3/8-16 X 1 1/4" HH, SS
22	62685	4	Lockwasher, 3/8" Int./Ext. TH., SS
29	62813	2	Bolt, 3/8-16 X 1 1/4" Carriage, SS
46	62697	4	Bolt, 3/8-16 X 1" HH, SS
47	62743	6	Nut, 3/8-16 Serrated Flange, SS
51	22230	4	Flatwasher, 3/8" U.S.S., SS
N/S	63188	1	Chain, Roller #40-55 Pitches

PARTS LIST FOR STUB SHAFT



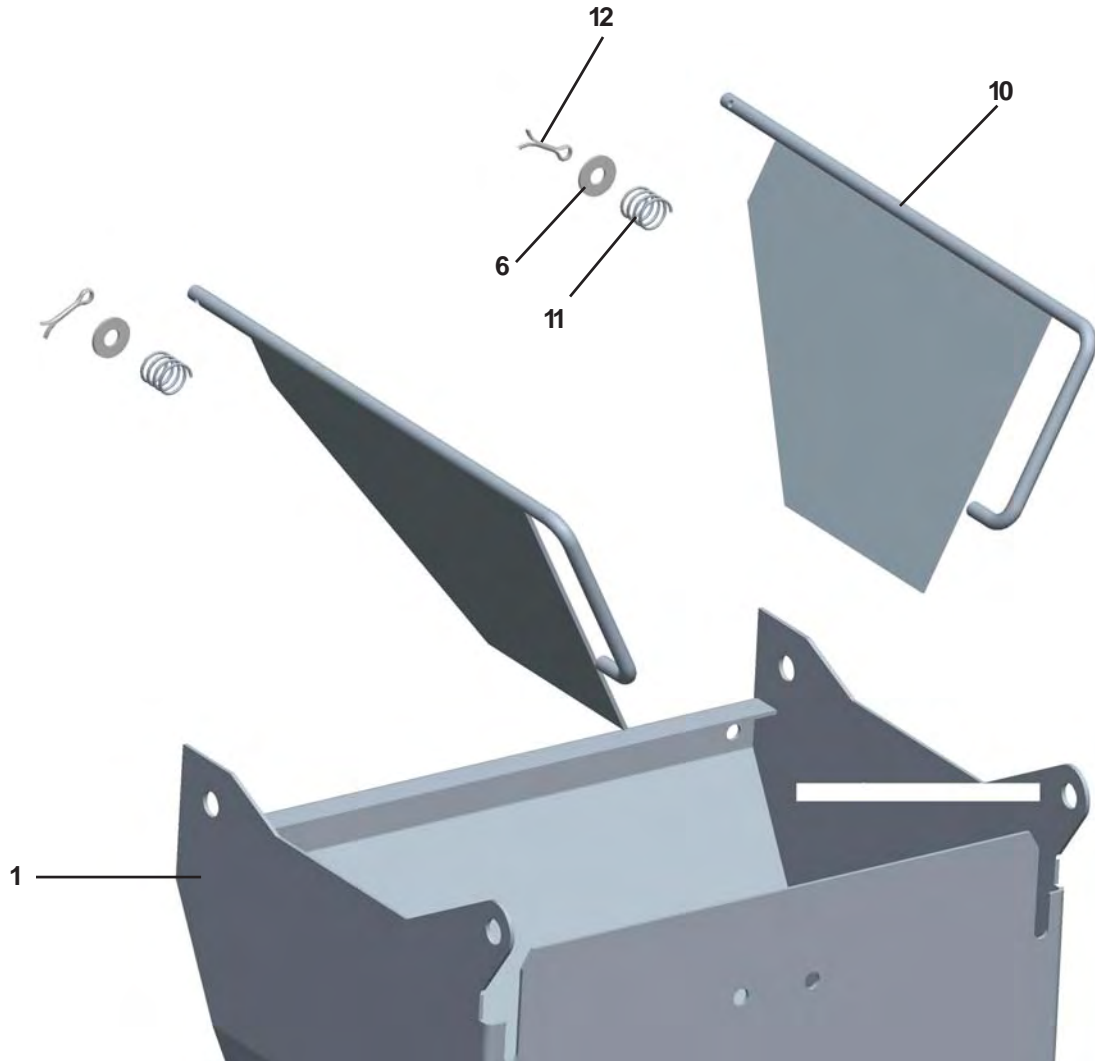
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63144	1	Shaft, Spinner Drive Shaft
2	62356	2	Bearing, 1" Tapped Base
3	63685	1	Sprocket, 40B13-1" Bore
4	63090	1	Key, 1/4" Sq. X 3/4"
5	63143	2	Washer, Flat, Rubber
6	63142	1	Shaft, Coupling, Poly
7	20068	1	Bolt, 3/8-16 X 2 1/2", HH Gr 5, ZP
8	62696	1	Locknut, 3/8-16 Nylon Insert, SS

PARTS LIST FOR SPINNER



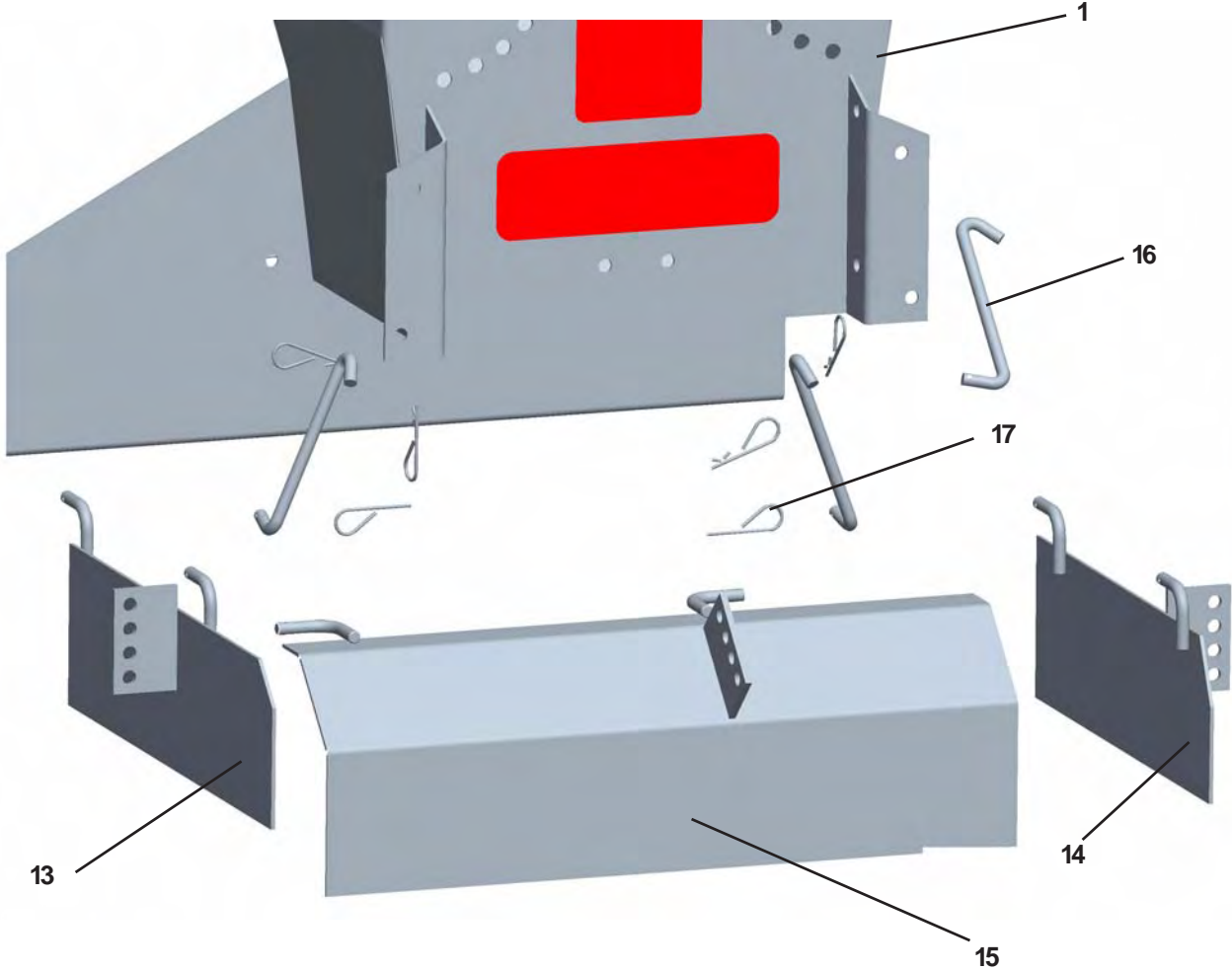
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
18	62006	1	Decal, Danger Spinner
19	62007	1	Decal, Caution
30	63192	1	Assembly, Spinner
31	63145	2	Rod, Spinner Mount, SS
32	63193	2	Keeper, Hairpin, Large, SS

PARTS LIST FOR INTERNAL BAFFLES



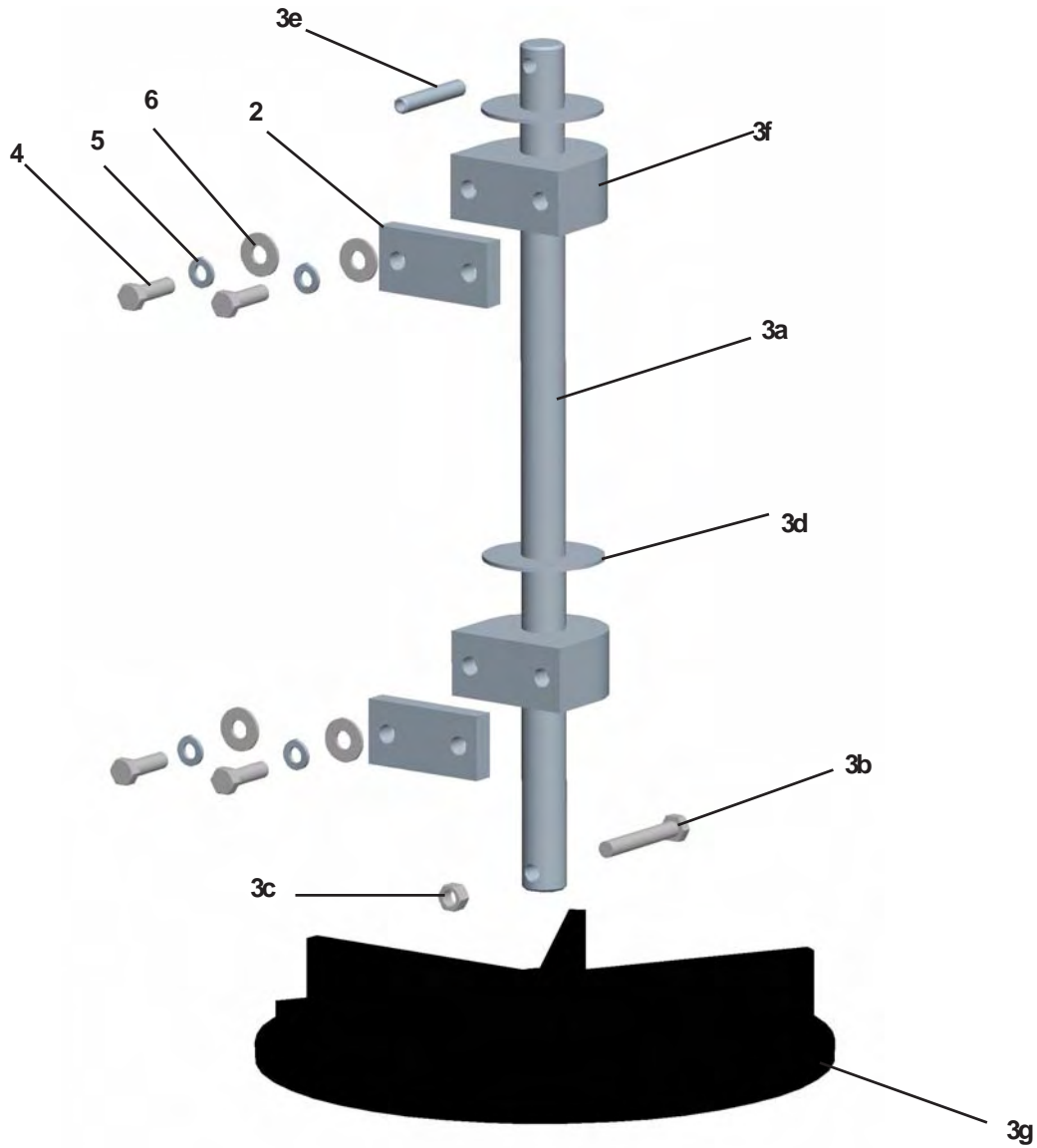
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63147	1	Weld, Spinner Chute
6	22230	2	Flatwasher, 3/8" U.S.S., SS
10	63148	2	Weld, Internal Baffle, SS
11	62358	2	Spring, Compression
12	62691	2	Pin, 1/8" X 1" Cotter, SS

PARTS LIST FOR EXTERNAL SPINNER BAFFLES



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63147	1	Weld, Spinner Chute
13	63194	1	Weld, Spinner Baffle, LH, SS
14	63195	1	Weld, Spinner Baffle, RH, SS
15	63196	1	Weld, Spinner Baffle, Rear, SS
16	62313	3	Bar, Link, SS
17	61232	9	Keeper, Hairpin, Small

PARTS LIST FOR SPINNER



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
2	62684	2	Block, Spacer, Bearing
3	63197	1	Sub-Assembly, Swing-Up Shaft
3a	63150	1	Shaft, Swing-Up Spinner
3b	63198	1	Bolt, 3/8-16 X 2 1/2", HH, SS
3c	63199	1	Locknut, 3/8-16 Top Lock, SS
3d	63143	2	Washer, Flat Rubber
3e	63200	1	Pin, 3/8" X 2 1/4" Roll
3f	62356	2	Bearing, 1" Tapped Base
3g	62146	1	Disc , Poly Spinner 13"
4	62695	4	Bolt, 3/8-16 X 1 1/4", HH, SS
5	62685	4	Lockwsher, 3/8" Int./Ext., TH., SS
6	22230	4	Flatwasher, 3/8" , U.S.S., SS

INSTALLATION INSTRUCTIONS

WIRING ELECTRIC DRIVE SPREADERS



WARNING!

USE SAFETY GLASSES OR OTHER FACE PROTECTION AGAINST POSSIBLE BATTERY EXPLOSION. DO NOT SMOKE AND AVOID OTHER SOURCES OF IGNITION.



WARNING!

BEFORE BEGINNING ANY INSTALLATION ON THIS UNIT, DISCONNECT THE VEHICLE'S NEGATIVE BATTERY CABLE(S).

POWER REQUIREMENTS:

MINIMUM:

Trucks Mfg's Snow Plow Package With Hi-Amp (135 amp) Alternator

RECOMMENDED:

Dual Batteries or Dual Alternators.

NOTE:

Use dielectric grease on all electrical connections.

Keep all wires away from sharp, hot or moving parts.

SPREADER WIRING MOUNTING:

1. In engine compartment of truck, find a suitable mounting location for the circuit breaker/relay panel (area should be dry and protected from road splash) within 14" of the main battery. Mount panel with self-tapping screws supplied.
2. Attach the 18" long battery cable to the circuit breaker terminal marked BAT. **(DO NOT ATTACH TO BATTERY AT THIS TIME)**
3. At rear of truck, locate the 22ft long truck side wiring harness from rear bumper (plug side to rear) and along the truck frame to the circuit breaker/relay panel in the engine compartment. (Harness is long enough for most compact thru regular full size standard cab/8ft long bed pick-up trucks. For extended and crew cab the optional 5ft extension wiring harness is required.)
4. Attach Black (shorter) cable of the truck side wiring harness to a clean location on the truck's frame. Connect Red (longer) cable to the circuit breaker/relay panel. Secure all wiring with wire ties provided. Excess cable must be coiled up and secured.

5. Connect spreader side wiring cable to electric motor. The electric motor is a one directional design, energizing either terminal, motor will turn CW when viewed from the top.

SPREADER CONTROL MOUNTING:



WARNING!

CONSULT VEHICLE MANUFACTURER FOR ACCEPTABLE MOUNTING LOCATIONS.

THE CONTROL SWITCH COULD INTERFERE WITH THE AIR BAG(S) AND THE OTHER FUNCTIONS OF THE OCCUPANT PROTECTIVE SYSTEMS, SUCH AS KNEE BOLSTERS!

6. Select a suitable location in the cab of the truck to mount the spreader control switch. Drill 1/2" diameter mounting hole for switch. **(DO NOT MOUNT SWITCH AT THIS TIME)**
7. Route 14ga black wire from switch location thru grommets wire exit in cab's firewall to the circuit breaker/relay panel. Cut wire to size and attach terminals. Connect to switch and relay.
8. Using 14ga white wire, cut (2) ground wires to size and attach terminals, (1st) from switch location to ground, (2nd) from relay to ground. Connect wires.
9. Using remaining 14ga black wire, cut power wire to size and attach terminals from switch location to truck's fuse panel. Assemble switch and switch guard in mounting hole. Connect wires to switch and a **KEY OPERATED** circuit on fuse panel. **(DO NOT USE A CIRCUIT THAT IS USED FOR AN OCCUPANT SAFETY SYSTEM)**
10. With all switches in **OFF** position, connect the negative battery cable(s) to battery. Plug cable from spreader into socket mounted on truck.
11. Close shroud, spreader is now ready for test run.

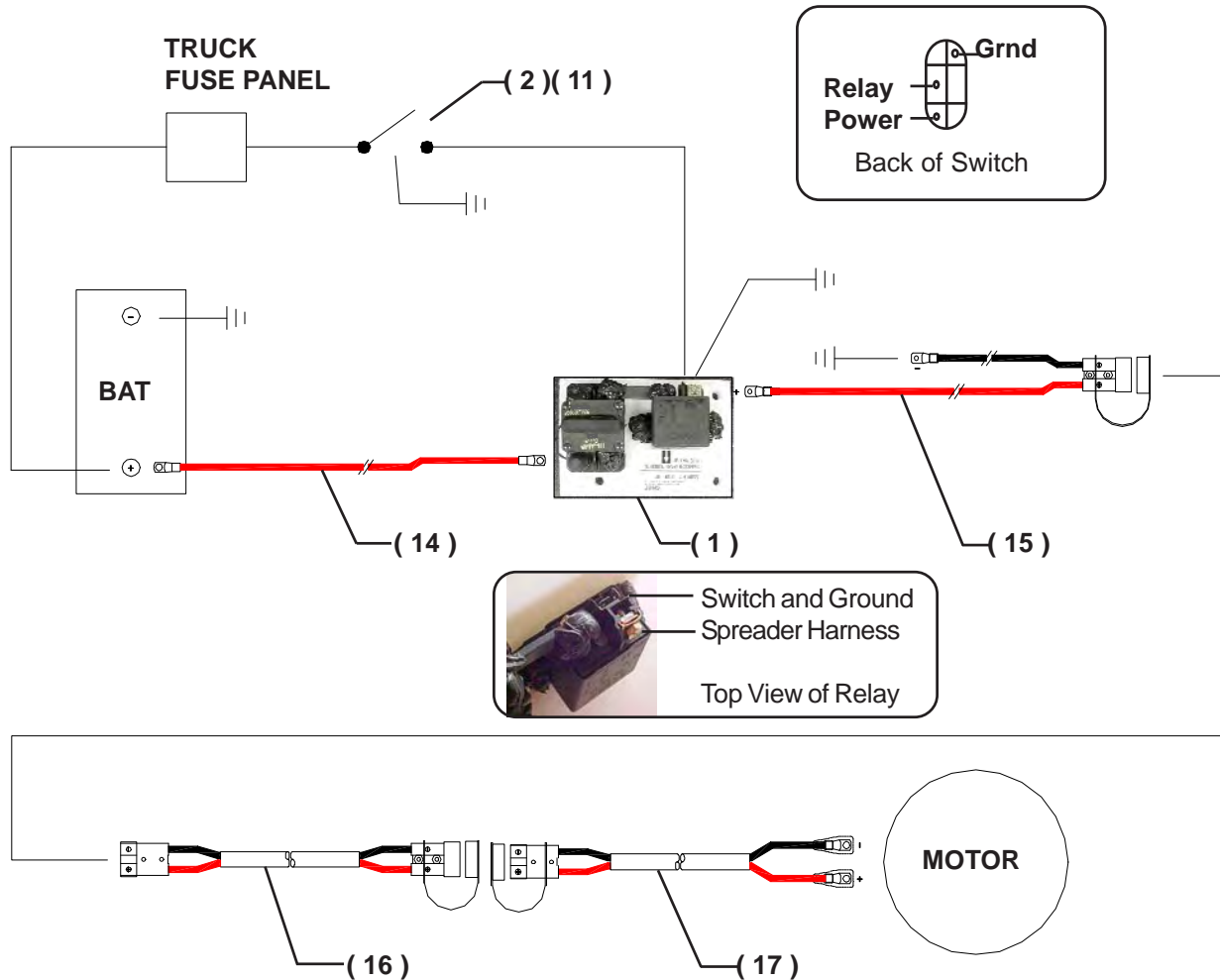
NOTE: SUPPLIED TERMINALS ARE HEAT SEALABLE



WARNING!

NEVER OPERATE MACHINE WITH ENGINE SHROUD REMOVED. NEVER CLIMB INTO THE HOPPER WHILE IT IS OPERATING OR CAPABLE OF BEING OPERATED. SERIOUS INJURY OR DEATH MIGHT OCCUR.

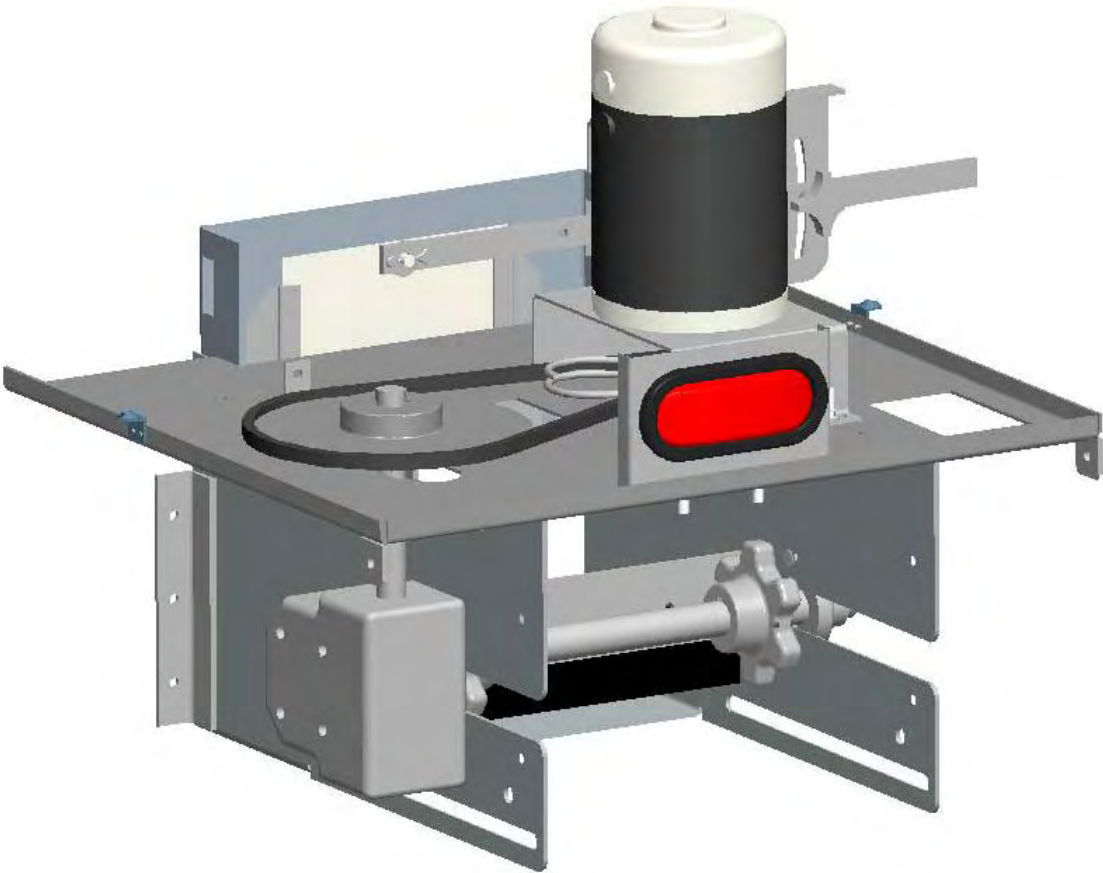
INSTALLATION INSTRUCTIONS WIRING ELECTRIC DRIVE SPREADERS



<u>Item</u>	<u>Part Number</u>	<u>Qty</u>	<u>Description</u>
1	63351	1	Assy, Relay/Circuit Breaker
1A	63352	1	Breaker, Circuit
1B	63353	1	Relay, 12Vdc, 75Amp
2	63354	1	Switch, On/Off Toggle Lum
N/S	63355	2	Heat Sealed Terminal - Ring
N/S	63356	2	Heat Shrink Terminal - Male Push-on
N/S	63357	6	Heat Shrink Term.- Female Push-on
N/S	63313	3	Screw, 1/4-14 x 1 hwh Teks/3
N/S	21253	3	Flatwasher, 1/4" S.A.E. Zp
N/S	20325	3	Lockwasher, 1/4" Med Split, Zp.
N/S	62183	8	Tie, Nylon 5 1/2" Std.
N/S	63414	1	Grease, Dielectric, 4 Gram Tube
11	63359	1	Guard, Switch
N/S	62674	15ft	Wire, 14 Ga. Black Insulated
N/S	62673	6ft	Wire, 14 Ga. White Insulated
14	63360	1	Cable, Battery
15	63361	1	Assy, Wiring Harness - Truck Side
16	63362	1	Assy, Wiring Harness - 5ft Extension
17	63363	1	Assy, Wiring Harness - Spreader Side

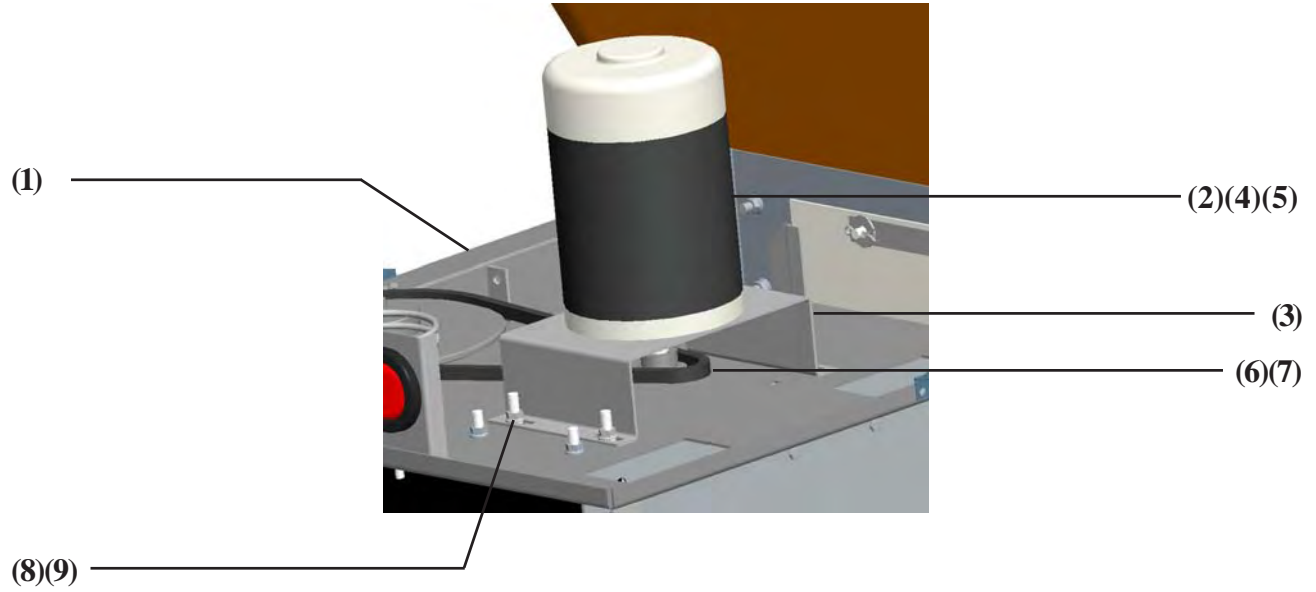
N/S = Not Shown

PARTS LIST FOR ELECTRIC DRIVE MODULE



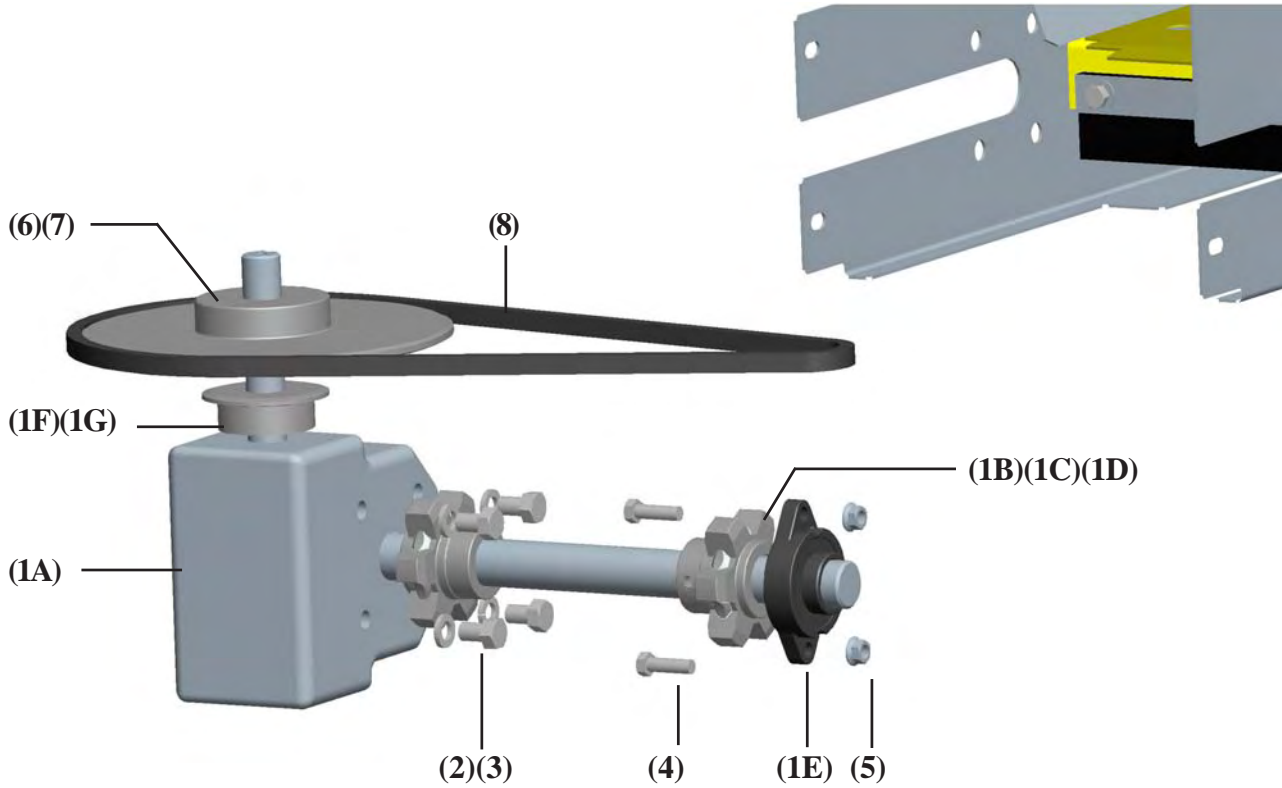
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63415	1	Assembly, Electric Drive Module
N/S	62697	6	Bolt, 3/8-16 X 1" HH, SS (Module Mounting)
N/S	62743	6	Nut, 3/8-16 Serrated Flange, SS (Module Mounting)

PARTS LIST FOR ELECTRIC DRIVE



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63831	1	Weld, Rear Engine Module
2	63338	1	Motor, Electric 12 vdc
3	63832	1	Forming, Motor Adapter Plate
4	63267	4	Bolt, 3/8-16 X 3/4" HH, zp
5	20327	4	Lockwasher, 3/8" Med Split, zp
6	22438	1	Key, 3/16" Sq x 1
7	63339	1	Sprocket, 40B11
8	63417	4	Bolt, 3/8-16 x 3/4" Car SS Sht Nk
9	62743	6	Nut, 3/8-16 Serrated Flange, SS

PARTS LIST FOR ELECTRIC DRIVE GEARBOX



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	63418	1	Assy, Gearbox (W/Sprockets & Bearing)
1A	63419	1	*Gearbox, 20:1
1B	63100	2	*Sprocket, 6T, Keyed
1C	62000	2	*Key, 1/4" Sq x 2"
1D	63123	4	*Setscrew, 3/8-16 x 3/8" Al Hd
1E	61163	1	*Bearing, 1-1/4
1F	61157	1	*Sprocket, 41B19
1G	61201	1	*Key, 1/4" x 7/8" Woodruff
2	62750	4	Bolt, 1/2-13 x 3/4 HH, SS
3	62770	4	Lockwasher, 1/2 Med Split, SS
4	62695	2	Bolt, 3/8-16 x 1-1/4 HH SS
5	62743	2	Nut, 3/8-16 Ser Flange, SS
6	63333	1	Sprocket, 40B60
7	60421	1	Key, 1/4" Sq x 1-1/4"
8	63420	1	Chain, Roller #40-92 W/Connector Link

Wireless Controller

The wireless controller is a compact unit with two parts. One part is the base unit (receiver) and the other piece is the keyfob actuator (transmitter). The keyfob is used to send a corresponding signal to the base unit to act as a remote switching device.

See wiring instructions to connect the base unit to the desired function using the color-coded wires.

Set-up and Operation

All wireless controllers come factory programmed. That means matching the base unit to the keyfob is done by Swenson Spreader. This gives a matched (1 of 16 million combinations @ 418MHz) interface between the keyfob and base unit. See Figure 1 for keyfob button assignments. (8 buttons transmitter are numbered)

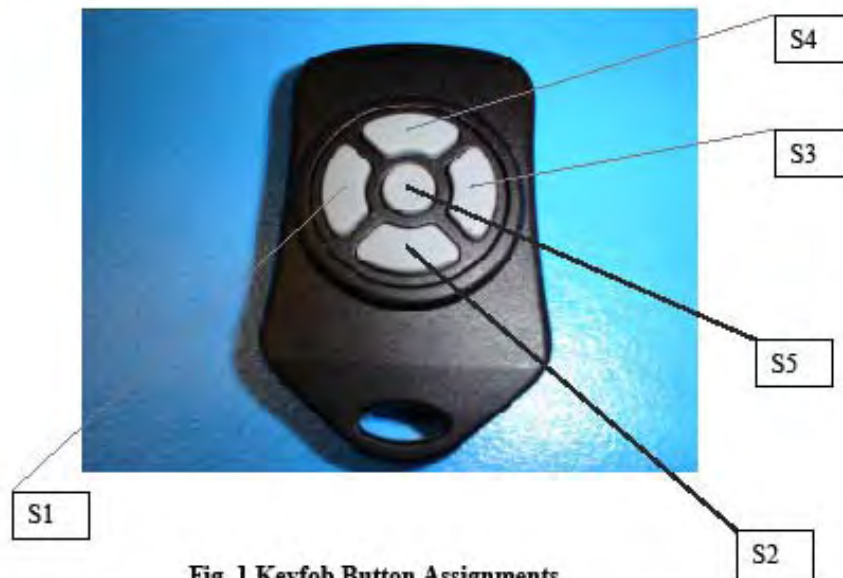


Fig. 1 Keyfob Button Assignments

The keyfob comes in different configurations. Shown above is the 5 output example. This is the maximum controlled output using a keyfob. As the number of available outputs decrease, so will the amount of buttons on the keyfob. The button # assignments are always in the same place. They decrease in this order:

- 4 Button keyfob will be minus S5 button
- 3 Button keyfob will be minus S1 and S3
- 2 Button keyfob will be minus S1, S3 and S5
- 1 Button keyfob will be minus S1, S2, S3 and S4

The following picture (Fig. 2) shows the terminal designations and other functions.

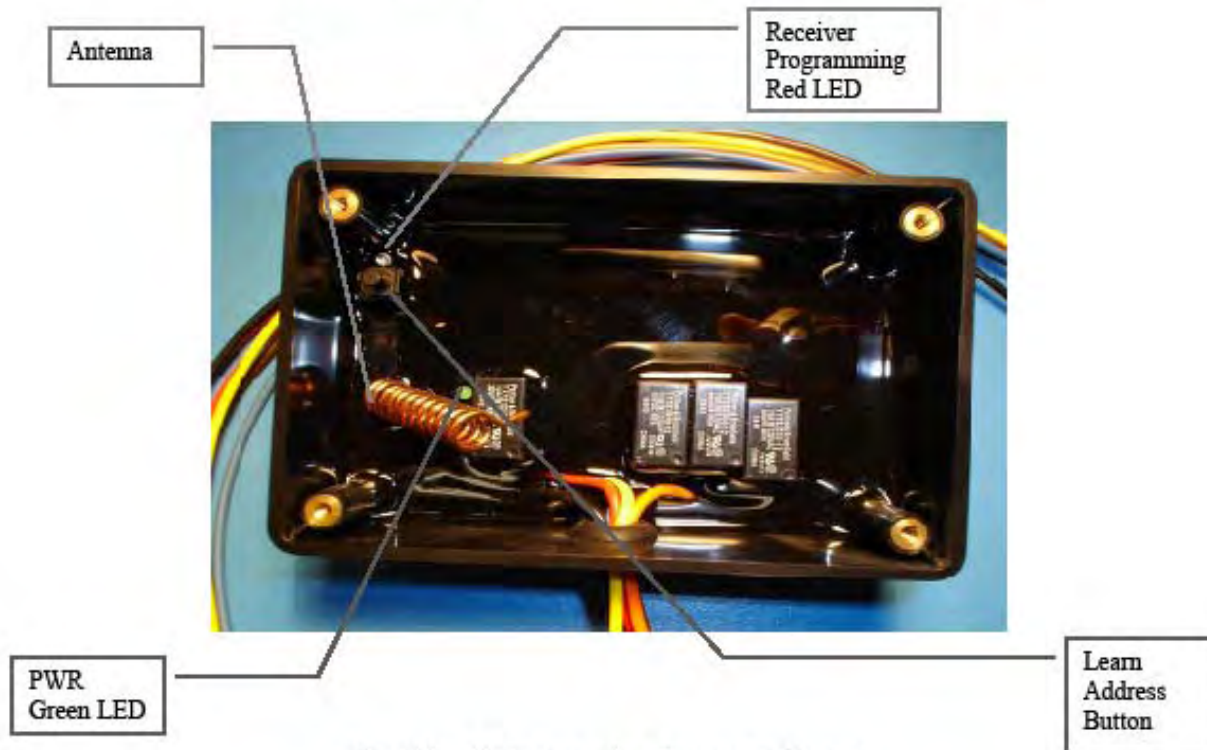


Fig. 2 Base Unit connection diagram and layout

Set-up of Keyfob to Base Unit Address

The next step to the wireless controller installation is to create a 1 in 16 million address between the keyfob and the base unit.

Please follow these steps:

- Power-up the base unit. (Green LED on)
- On the backside of the keyfob depress the "ADD" button using a paperclip (if working properly a blue light in the window will blink).
- Flip keyfob over and push each button individually to send address to the receiver. The blue light will automatically turn off after 18 seconds from the time you first push the buttons. Now the keyfob has acquired its unique address.
- Go to the receiver box and push the black (learn) button. The red LED will begin to flash.
- Again, push button #1 on the keyfob to save that unique address to the receiver. Push the black button once again on the receiver box and the address programming is complete.

Your wireless controller is now ready to use.

Battery Replacement

The keyfob uses a standard CR2032 lithium button cell battery. In normal use it will provide 1 to 2 years of operation. To replace the keyfob battery, gently pry apart the 2 halves. Remove the battery by sliding it out from underneath the retainer. Observe the battery polarity when replacing.

Other Considerations

Only one transmitter at a time can be activated within a reception area. Only one carrier of a particular frequency may occupy the same airspace at a given time. This means that if two transmitters are activated in the same area at the same time the signals will interfere and the decoder on the receiver will not see a valid transmission and the wireless controller will not function. If the range of the transmitter needs to be increased, contact your supplier and ask about antenna options of up to 1000ft.

Also Swenson Spreader, LLC has no control over the intended usage of this product. Because of that Swenson Spreader, LLC offers no written or expressed liability as to how this product is used. Swenson Spreader, LLC recommends that these units are intended for **OFF ROAD USE ONLY!**

TROUBLE SHOOTING

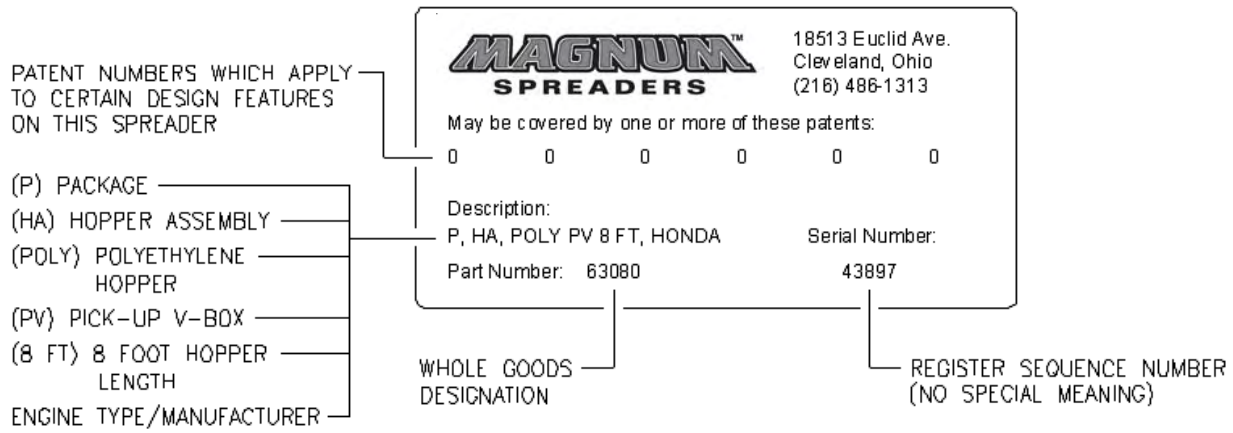
Follow these steps:

- Make sure the green LED is lit when the receiver power is turns on. If the LED is not on, check your power supply to the receiver.
- With the receiver powered up, make sure the red LED comes on when the buttons are depressed on the keyfob. If the red LED does not come on the receiver is not getting a signal from the transmitter. If the battery in the transmitter is more than 2 years old check battery voltage with a meter or replace battery.
- After completing the above steps and the unit still will not function, follow the procedure, **Set-up of Keyfob to Base Unit Address**.
- If the unit still will not operate. Check connections to the component that the unit is trying to accurate using a voltmeter.

For further technical assistance please contact Swenson Spreader, LLC.

NAME PLATE INFORMATION

EXPLANATION OF SERIAL NUMBER DECAL



THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

TWO YEAR WARRANTY

TWO YEAR WARRANTY

Magnum Spreader promises to the consumer to repair, or at our option to replace any part of this Magnum Spreader, accessory (other than noted below) except expendable parts such as pins, Spreader fins, and other normal wear items, which proves to be defective in workmanship or material under normal use for a period of two year's from the date of delivery to the original purchaser. During the two year's, Magnum Spreader will provide, through its Distributor / Sub-Distributor network, all labor or parts necessary to correct such defects free of charge. Faulty parts will be repaired or replaced by the Distributor / Sub-Distributor where that particular piece of equipment was purchased. Any cost incurred in returning the product to the Distributor / Sub-Distributor is the responsibility of the consumer.

EXCLUSIONS

IN NO EVENT SHALL MAGNUM SPREADER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR DAMAGES RESULTING FROM LACK OF NECESSARY MAINTENANCE, FROM MISUSE, ABUSE, ACTS OF GOD, ALTERATION OF ANY PRODUCT, OR FROM USE OF PARTS NOT SUPPLIED BY MAGNUM SPREADER. USE OF THE MAGNUM SPREADER FOR ANY PURPOSE OTHER THAN SPREADING MATERIALS AS INTENDED BY MAGNUM SPREADER, IS ONE EXAMPLE OF AN ABUSE AND MISUSE OF THE PRODUCT.

WARRANTY SERVICE

In order to obtain service under this warranty, the consumer must return this product to the Distributor / Sub-Distributor from whom the product was purchased or to any authorized Magnum Spreader Distributor / Sub-Distributor, transportation and freight charges prepaid. Only Magnum Spreader Distributors / Sub-Distributors are authorized to perform the obligations under these warranties. For the address and telephone number of the Distributor / Sub-Distributor nearest you, check the telephone directory or you may write to the warrantor at the address below.

GENERAL

It is the responsibility of the consumer to establish the warranty period by verifying the original delivery date. A bill of sale, canceled check or some other appropriate payment record may be kept for that purpose. For this warranty to be effective, the consumer must Register the product on-line at www.magnumspreaders.com. No person is authorized to change this warranty or to create any warranty other than that set forth herein. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

In order to validate this warranty, please go to our web site www.magnumspreaders.com to register your new Magnum Spreader.

Magnum Spreader reserves the right, under its continuing product improvement program, to change construction or design details, specifications and prices without notice or without incurring any obligation.

Magnum Spreader
18513 Euclid Ave. • Cleveland, Ohio 44112-1084
Phone 486-1313 (Area Code 216)
www.magnumspreaders.com

© 2007 Printed in the U.S.A.

MAGNUMTM

SPREADERS

MAGNUM SPREADER
18513 EUCLID AVE.
CLEVELAND, OHIO 44112-1084

PHONE: (216)486-1313

website: www.magnumspreaders.com

**IMPORTANT
INFORMATION
ENCLOSED**

