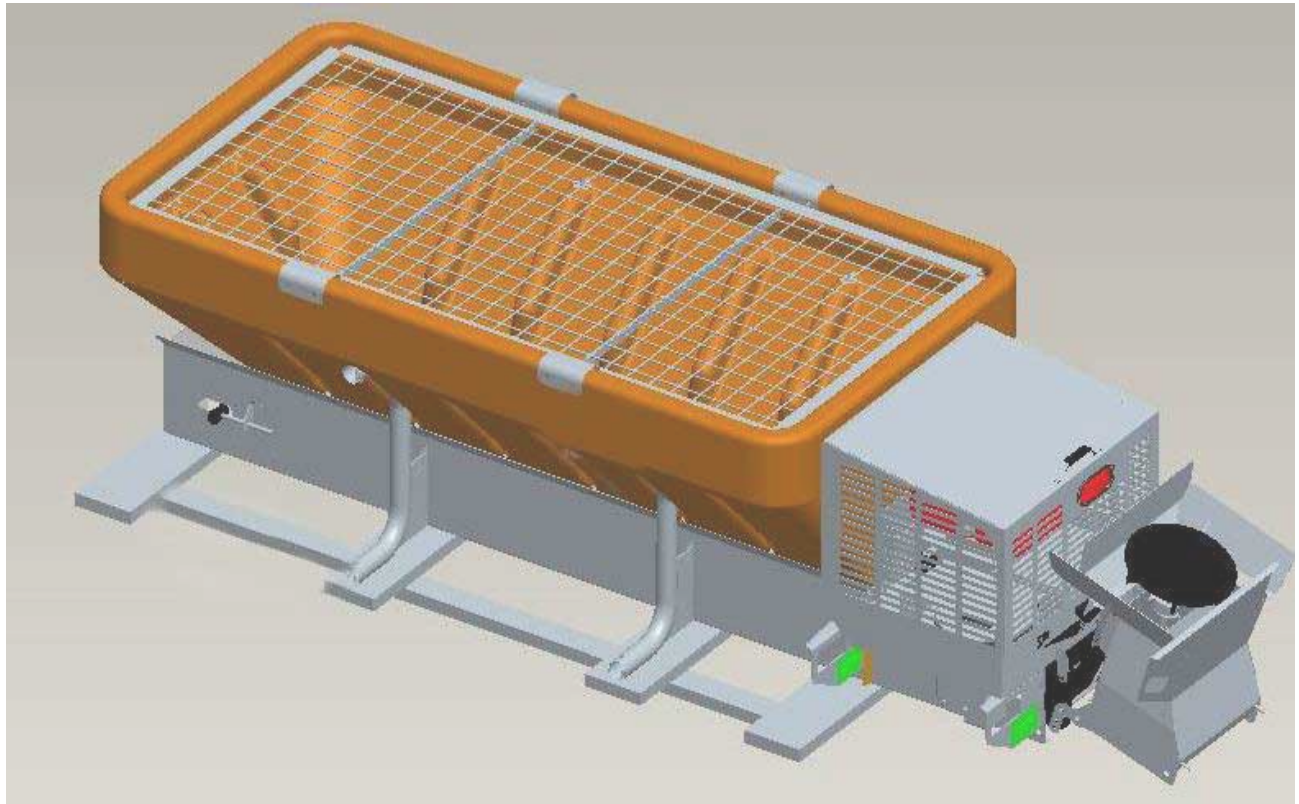


INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES



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INSTALLATION, OPERATING INSTRUCTION AND PARTS MANUAL

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**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.



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

INSTALLATION, OPERATION AND PARTS MANUAL

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



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.

NOTE: TRANSPORTATION OF SPREADER MUST BE DONE WITH SPINNER IN THE DOWN POSITION. DAMAGE MAY OCCUR IF TRANSPORTED IN RAISED POSITION.

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.



WARNING!

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

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.

2. Attach or lower spinner assembly.

3. Position the spreader in the truck bed, just short of making

contact with the rear most 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. The spreader is designed to sit flat on the bed of the truck, supported by the longitudinal/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.

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



CAUTION!

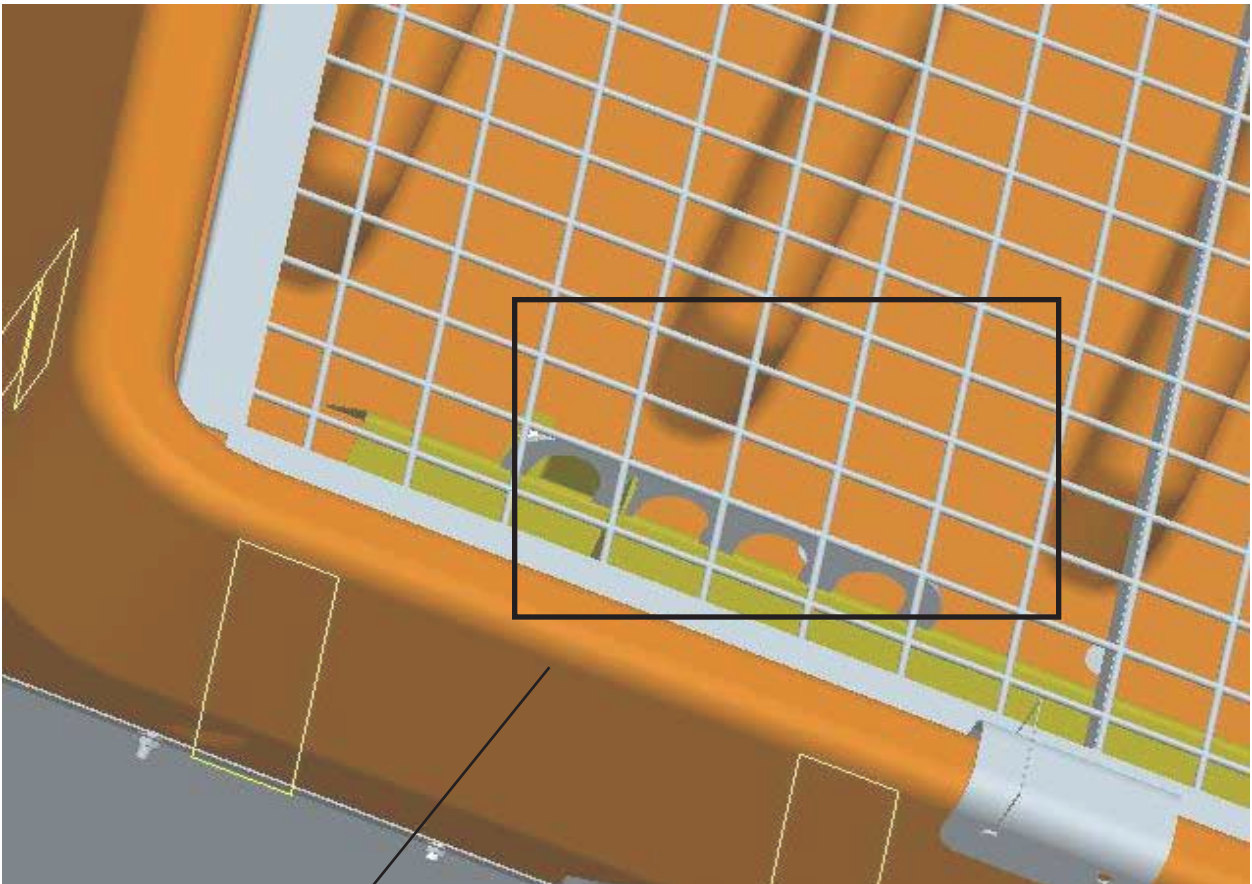
BEFORE STARTING, VERIFY THAT THIS MOUNTING METHOD IS ACCEPTABLE TO THE VEHICLE MANUFACTURER.

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.

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

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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, OPERATION AND PARTS MANUAL

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INSTALLATION AND ASSEMBLY INSTRUCTIONS

OPTIONAL HOLD DOWN KIT

00002-306-00



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	04068-038-00	4	Ratchet/Strap
N/S	04048-504-02	4	Bolt, 1/2" Eye
N/S	04003-804-06	4	Locknut, 1/2-13 Nylon Insert ZP
N/S	04003-801-11	4	Nut, 12-13 Hex ZP
N/S	04004-002-16	8	Flat washer, 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, OPERATION AND PARTS MANUAL

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INSTALLATION INSTRUCTIONS ELECTRIC THROTTLE CONTROLS (FACTORY INSTALLED ACTUATORS)



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. 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.
4. 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.

5. 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.

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.



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.



WARNING!

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

INSTALLATION, OPERATION AND PARTS MANUAL

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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.

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



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.



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	04605-153-00	1	Lamp, Stop
2	04605-154-00	1	Grommet, Mounting
3	04605-155-00	1	Cable, Light Power (Hopper)
4	04616-075-00	1	Cable, Stop Lamp Power (Truck)
5	00119-878-00	1	Forming, Rear Stop Light Bracket

INSTALLATION AND INSTRUCTIONAL MANUAL

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SPREADER OPERATION

Standard 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.

2. START Hold down button until engine starts.
 3. 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 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. 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.

INSTALLATION AND INSTRUCTIONAL MANUAL

Polyhawk™ PV SERIES

Swenson Spreader Standard Wireless Controller

For use with Gas Engine packages

The wireless controller is a compact unit with two parts. One part is the **Base Unit (Receiver)** and the other part is the **Transmitter (Hand Held Controller)**. The Transmitter is used to send a corresponding signal to the Base Unit to act as a remote switching device.

Set-up and Operation

The Swenson Wireless Controller comes factory programmed. That means matching the Base Unit to the Transmitter has been done by Swenson Spreader. This gives a matched (1 of 16 million combinations @ 418MHz) interface between the Transmitter and Base Unit. See Figures 1 & 2 for Transmitter button assignments. On the 8 button Swenson Spreader Transmitter, all (8) buttons are used when programming. When programming is completed, only (5) buttons are functional (Buttons #1, #3, #4, #5, & #6) (see Fig. 1).

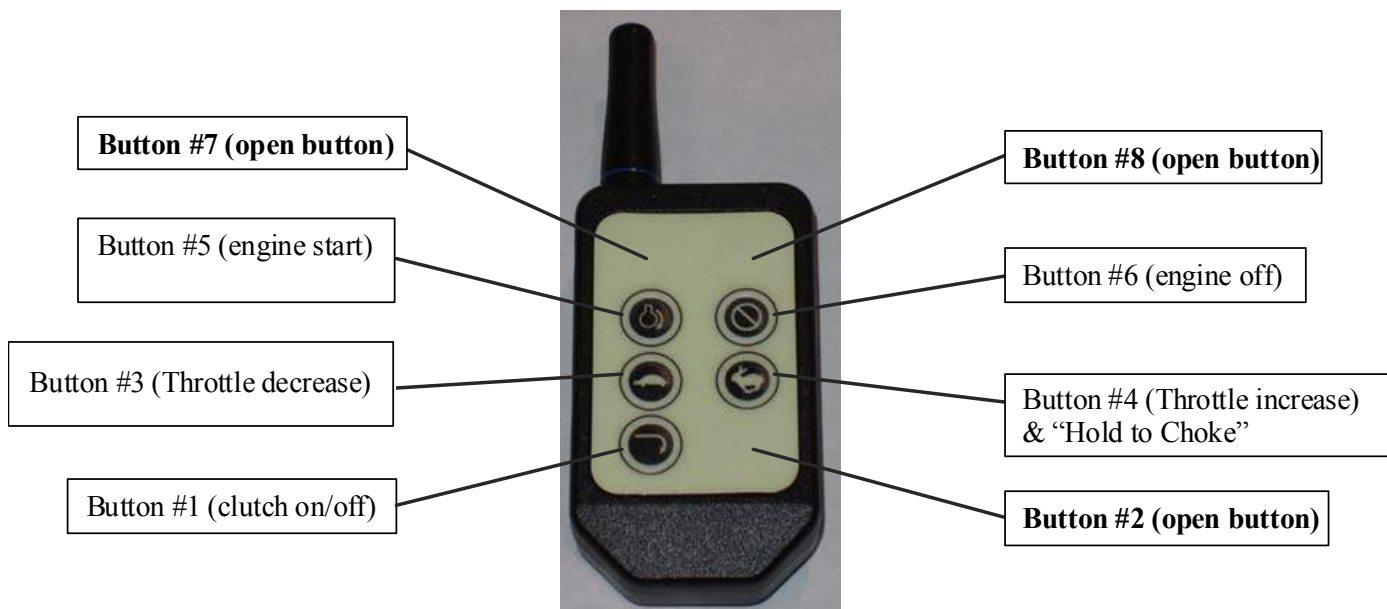


Fig. 1: Transmitter Front Button Assignments



Fig. 2: Transmitter Back Button Assignments

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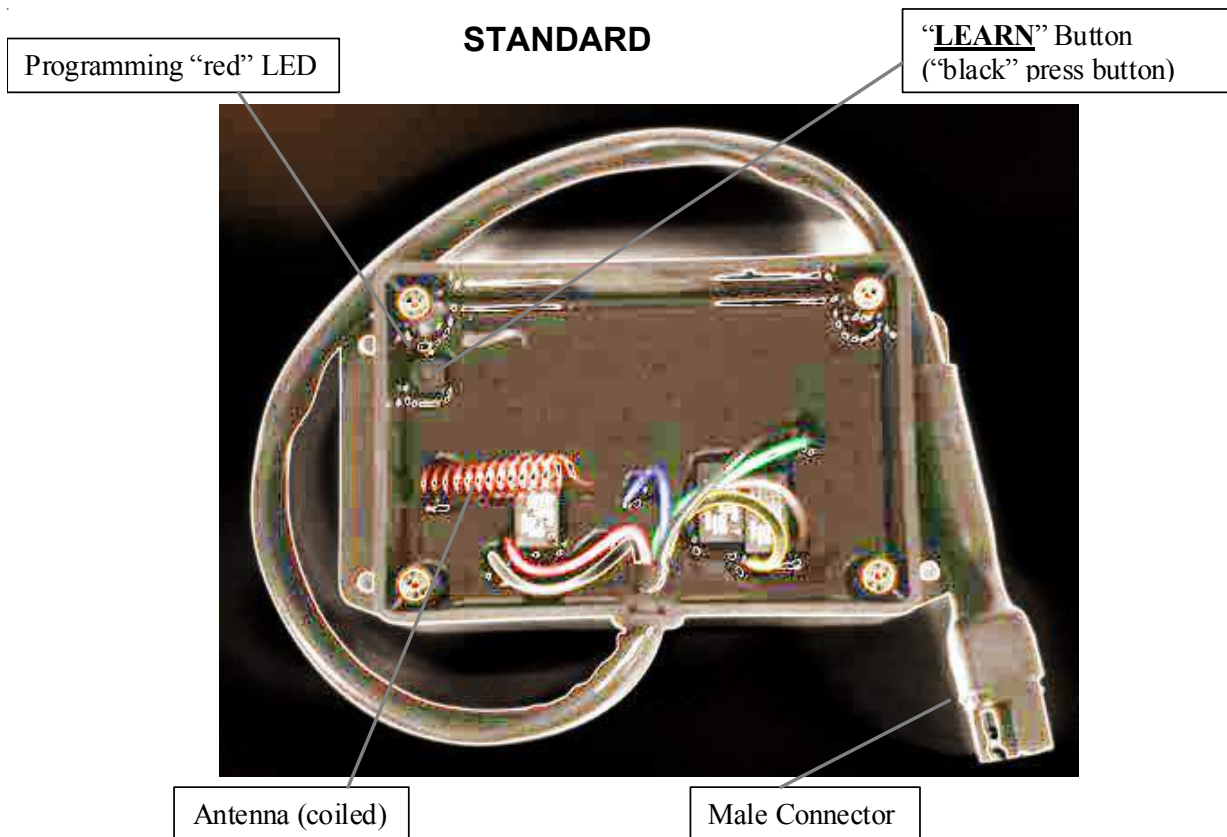


Fig. 3: Base Unit layout (Figure shown without Base Unit Cover)

Programming/Reprogramming the Transmitter and the Base Unit:

Tools needed: A small "phillips" screwdriver and a small diameter pin (paper clip).

Instructions to program Transmitter and Base Unit:

1. Remove (4) screws and cover on Base Unit.
2. Power-up the Base Unit. Connect a 12V power source to the spreader 12V battery terminals and plug the engine wire harness to the Base Unit wire harness (see Male Connector in Fig. 3). **DO NOT DISCONNECT THE BATTERY TERMINALS** from the 12V source when engine is running.
3. On the backside of the Transmitter depress the "**ADD**" button (see Fig. 2) using a small pin or paper clip – You will see a "blue" LED start to blink (for approximately 15-17 seconds).
4. On the front side of the Transmitter press all (8) buttons (see Fig. 1). There is no certain order to press the buttons. Firmly press each button, separately. Perform this step before the 15-17 seconds are up (before "blue" LED stops blinking). The Transmitter is now programmed and has created its own 1 in 16 million address. Once the "blue" LED stops blinking, this step is completed.
5. On the Base Unit (see Fig. 3) press the black "**LEARN**" button. The "red" LED will start to blink (for approximately 15-17 seconds).
6. On the front side of the Transmitter you only need to press Button #1 (clutch on/off), once. Perform this step before the 15-17 seconds are up (before "red" LED stops blinking). The base unit has now recognized the Transmitters unique 1 in 16 million address. Once the "red" LED stops blinking, this step is completed.
7. Verify the (5) functional buttons (Buttons #1, #3, #4, #5, & #6) on the Transmitter are working with the Spreader Unit by pressing each button, individually (the Base Unit "red" LED will flash when a Transmitter button is pressed). If Transmitter buttons are not working, repeat steps 3 – 8 or see the Trouble shooting directions.
8. When Transmitter buttons are functioning properly, re-assemble the Cover on the Base Unit with the (4) screws. Your Swenson Wireless Controller is now ready to use!

Swenson Spreader Variable Speed Wireless Controller For use with Electric Packages

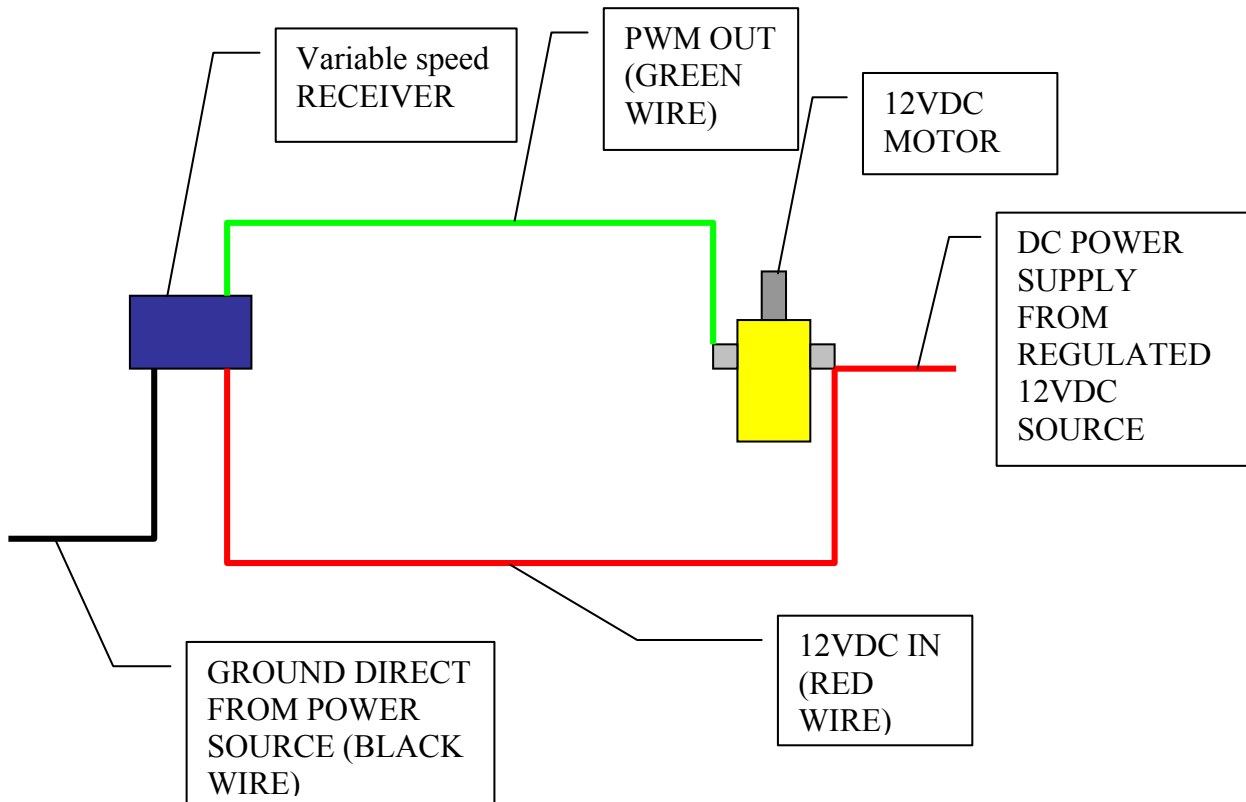
How it Works:

The Variable speed Wireless DC Motor Controller provides RPM control for a single, 2 pole DC motor that can output 180 amps for up to 5 seconds and a continuous amperage of up to 80 amps. The speed or RPM control is done by providing the user 5 outputs, approximately 1/5 of the maximum motor RPM. The also incorporates a full RPM feature the runs the motor full speed for 6 seconds and then automatically shuts off and an E-Stop.

To protect the motor and electronics, the variable speed has built-in safety circuits. These include:

- Automatic shut down if motor is locked up. How this is done is if the receiver senses a current draw of more than 180 amps for more than 10mS the unit will shut down from 1 to 30 seconds.
- Automatic shut off if the current draw does not drop below 80 amps after 5 seconds. Once again, the receiver will shut down for 1 to 30 seconds.

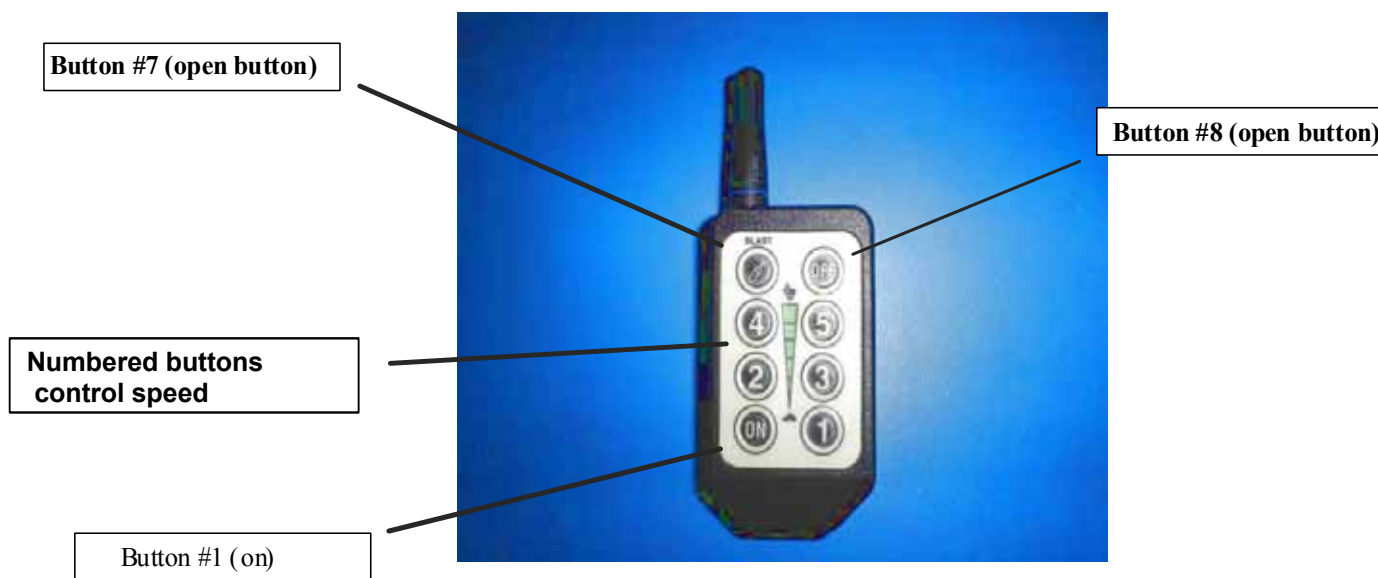
Typical Wiring Connection Diagram



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OPERATION:



VARIABLE SPEED TRANSMITTER

Shown above is a typical transmitter for wireless operation of a 12VDC motor. The button functions are as follows:

1. **ON/** This button turns on the receiver unit and will allow the receiver to function. It also will stop the unit, but does not shut down the receiver.
2. **#1/** Slow speed setting of approximately 1/5th of full motor speed.
3. **#2/** Speed setting or approximately 2/5th of full motor speed.
4. **#3/** Speed setting or approximately 3/5th of full motor speed.
5. **#4/** Speed setting or approximately 4/5th of full motor speed.
6. **#5/** Full Speed.
7. **Blast/** A timed 6 to 8 second full speed with auto shut down.
8. **OFF/** Shuts down the receiver unit. Must be turned on using Button #1

Programming Transmitter to Receiver:

The following are the step by step procedures for setting the unique address between the transmitter and receiver or adding extra transmitters to the receiver (up to 40 transmitters).

1. Disconnect green PWM wire from motor.
2. On the backside of the Transmitter, use a paperclip and insert it in the hole next to the clear blue window. Once the programming button is depressed, a blue LED will begin to blink for 15 seconds. Flip the Transmitter over and firmly depress all 8 buttons starting with the ON button within 15 seconds. Now the Transmitter has acquired a 1 in 16 million address.
3. Next step is to remove the receiver box cover noting the drain hole positions in the cover. Hook up the Power (red wire) and Ground (black wire) to a 12VDC power source. Inside the box next to the red LED depress the black programming

INSTALLATION, OPERATION AND PARTS MANUAL

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button. The red LED will begin to flash for 15 seconds. Take the Transmitter while the red LED is flashing and firmly depress the ON button within the 15 seconds. Now the unique address of the Transmitter will only be recognized by that matched receiver. The red LED will automatically shut off after 15 seconds. To make sure the programming procedure was successful, depress any of the Transmitter buttons and the red LED in the receiver should light. Re-install the cover noting drain hole position and re-connect the PWM (green wire) to the motor. The Variable speed controller is now ready to operate the DC motor.

Specifications:

- Up to 180 amp output for up to 5 seconds.
- Continuous output of up to 80 amps.
- 5 motor speed outputs of approximately 1/5, 2/5, 3/5, 4/5 and 5/5ths of motor current draw.
- Built in E-Stop using OFF button.
- Built-in over current safety protection. If a lock-up condition occurs at the motor causing the motor to draw more than 200 amps the unit will automatically shut down and must be turned back on using the ON button after the circuit temperature drops to an acceptable range taking 1 to 30 seconds. **Warning:** If this situation continues to re-occur the operator needs to check for reasons why the motors will not turn.

VARIABLE SPEED

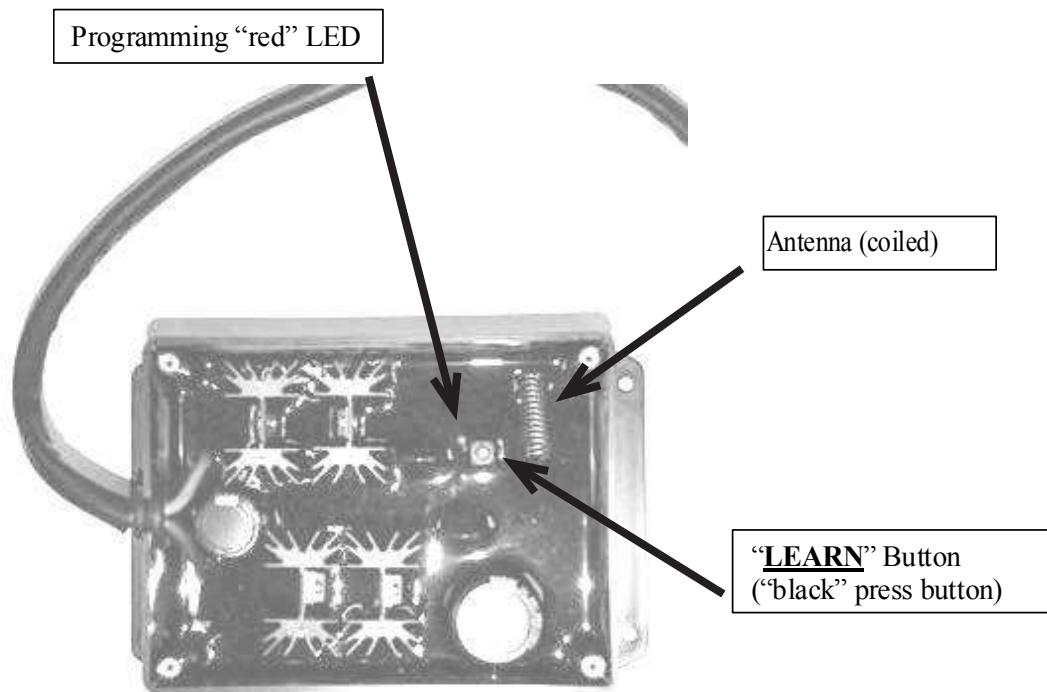


Fig. 3: Base Unit layout (Figure shown without Base Unit Cover)

Programming/Reprogramming the Transmitter and the Base Unit:

Tools needed: A small "phillips" screwdriver and a small diameter pin (paper clip).

Instructions to program Transmitter and Base Unit:

1. Remove (4) screws and cover on Base Unit.
2. Power-up the Base Unit. Connect a 12V power source to the spreader 12V battery terminals and plug the engine wire harness to the Base Unit wire harness (see Male Connector in Fig. 3). **DO NOT DISCONNECT THE BATTERY TERMINALS** from the 12V source when engine is running.
3. On the backside of the Transmitter depress the "**ADD**" button (see Fig. 2) using a small pin or paper clip – You will see a "blue" LED start to blink (for approximately 15-17 seconds).
4. On the front side of the Transmitter press all (8) buttons (see Fig. 1). There is no certain order to press the buttons. Firmly press each button, separately. Perform this step before the 15-17 seconds are up (before "blue" LED stops blinking). The Transmitter is now programmed and has created its own 1 in 16 million address. Once the "blue" LED stops blinking, this step is completed.
5. On the Base Unit (see Fig. 3) press the black "**LEARN**" button. The "red" LED will start to blink (for approximately 15-17 seconds).
6. On the front side of the Transmitter you only need to press Button #1 (clutch on/off), once. Perform this step before the 15-17 seconds are up (before "red" LED stops blinking). The base unit has now recognized the Transmitters unique 1 in 16 million address. Once the "red" LED stops blinking, this step is completed.
7. Verify the (5) functional buttons (Buttons #1, #3, #4, #5, & #6) on the Transmitter are working with the Spreader Unit by pressing each button, individually (the Base Unit "red" LED will flash when a Transmitter button is pressed). If Transmitter buttons are not working, repeat steps 3 – 8 or see the Trouble shooting directions.
8. When Transmitter buttons are functioning properly, re-assemble the Cover on the Base Unit with the (4) screws. Your Swenson Wireless Controller is now ready to use!

Transmitter Battery Replacement

The Transmitter uses a standard CR2032 lithium button cell battery. In normal use it will provide 1 to 2 years of operation. To replace the Transmitter battery, gently press and slide the battery cover off. Remove the battery by sliding (NOT lifting) it out from underneath the retainer (see Fig. 4). Observe the battery polarity when replacing (“+” showing face up).

Notes:

1. If the battery loses power or is removed the Transmitter and Base Unit may need to be reprogrammed (see reprogramming Transmitter and Base Unit instructions). Check Transmitter functional buttons to verify if reprogramming is necessary.
2. When removing lithium battery, please use caution to slide not lift the battery from the controller! If excess force is used to remove the battery (example: lifting the battery with a small screw driver) – the solder connections from the battery clip to the circuit board could be pried loose. This action is not covered under warranty.

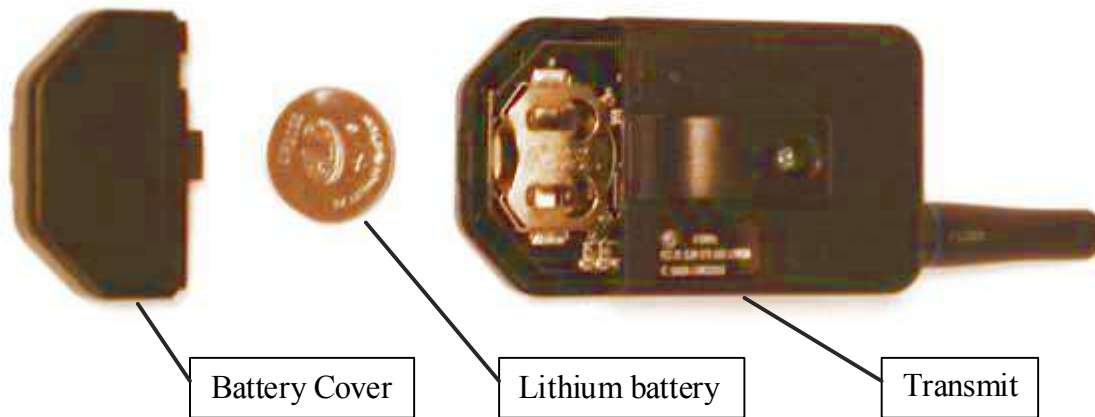


Fig. 4: Back of Transmitter with back cover and battery removed

Other Considerations

1. **Powering off the engine will not automatically power off the Clutch** (engagement of conveyor/spinner). If clutch remains engaged, after engine is turned off, it could lead to a slow electrical drain on the 12V battery. (Gas engine models only)
2. **If an unregulated voltage** (example: sparking the battery cable terminal to the 12V battery post.) **is sent to the Base Unit it could erase the Base Unit programming.** The remote may show signs of no longer working with the Base Unit. Reprogramming will be required. When 14Amps are supplied the Base Unit circuit board is designed to shut off. See additional trouble shooting comments.
3. **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.
4. **Multiple Transmitters** can be programmed to (1) Base Unit.
5. To verify the Base Unit is receiving a signal from the Transmitter. Press a button on the Transmitter - “red” LED on the Base Unit will light-up.
6. 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

1. **To verify the Transmitter and Base Unit are working together:** Once the base unit has power the “red” LED will come on when the Transmitter buttons are depressed (Cover of Base Unit will need to be removed to see “red” LED). If the “red” LED does not come on, the Base Unit is NOT getting a signal from the Transmitter.

Possible Solutions:

- A. Reprogramming the Transmitter and Base Unit might be required.
- B. Base Unit might not be functioning properly (see Base Unit trouble shooting below).
- C. Transmitter might not be functioning properly. (see Transmitter trouble shooting below).

2. **Base Unit Programming Lose:** If an unregulated voltage (spark) is sent to the Base Unit from a power source the Base Unit could lose its programming. The voltage spike will not damage the Base Unit or Transmitter. Unregulated voltage could generate from the following:
 - Connecting battery cables to a 12V battery source.
 - Jump starting the 12V battery.(Gas engine models only)
 - Charging the 12V battery.
 - Pull-starting the engine.(Gas engine models only)

Possible Solutions:

- A. Reprogramming the Transmitter and Base Unit may be required.
- B. Base Unit might be damaged, a new Base Unit & Transmitter will need to be ordered.

3. **Base Unit does not function properly:** (example: “red” LED will not light up when “**LEARN**” button is depressed on Base Unit).

Possible Solutions:

- A. Check/verify voltage of 12V is being supplied by the 12V battery. Lower voltages than 12V will not allow the Base Unit to function properly.
- B. Confirm all wires on engine wire harness are secure and properly connected.
- C. Base Unit could be damaged, a new Base Unit & Transmitter will need to be ordered.

4. **Transmitter does not have power:** (example: “blue” LED will not light up when “**ADD**” button is depressed on Transmitter).

Possible Solutions:

- A. Verify tool diameter (example: paperclip) to depress Transmitter “**ADD**” button is small enough to enter the “**ADD**” button hole.
- B. Verify the lithium button cell battery polarity is correct (“+” will be facing up).
- C. If the Transmitter is 1-2 years old, check the lithium battery voltage with a meter or replace the battery as needed (CR2032 lithium button cell battery).
- D. Transmitter could be damaged, a new Transmitter will need to be ordered.

5. **General troubleshooting:**

- A. Try to Program/reprogram the Transmitter and Base Unit.
- B. Verify the Ground wires (all wires) are secure.
- C. Check connections to the components that the unit is trying to operate using a voltmeter.

WARNING

1. **Disconnecting 12V Battery Cables/Terminals:**
 - A. DO NOT DISCONNECT THE BATTERY (CABLES/TERMINALS) WHEN THE ENGINE IS RUNNING. This could disable or permanently damage the Base Unit.

For further technical assistance please contact Swenson Spreader, LLC at (888) 825-7323 or visit us at www.swensonspreader.com to download updated Wireless Controller Instructions.

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

SPREADER 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).

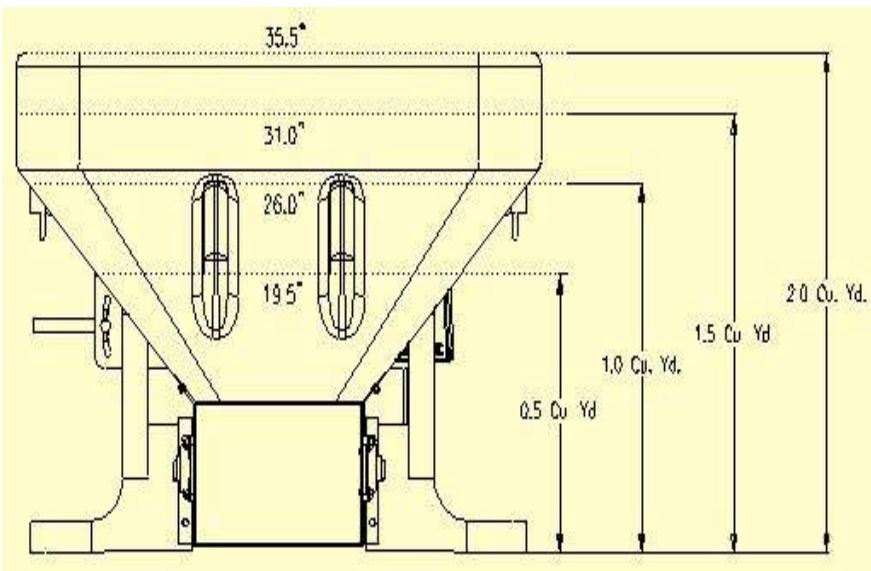
5. Subtract the GVW from the GVWR to determine the available material payload.

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

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

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 feed gate opening. Increasing feed gate height will increase amount of material being spread. Decreasing feed gate 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.



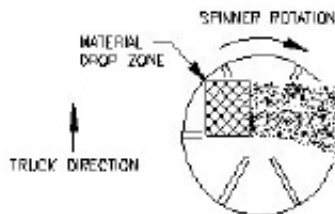
CAUTION!

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.

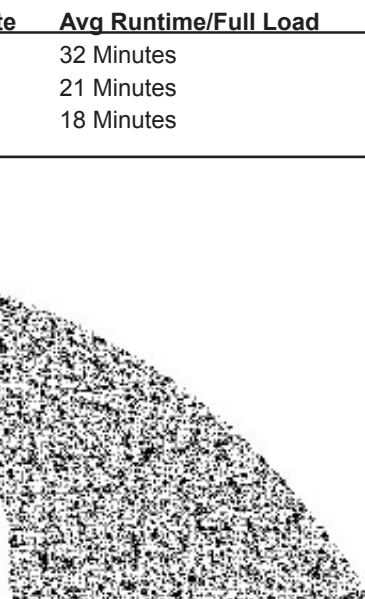
CALIBRATION (Dry Salt - 78Lbs Cu.Ft.)

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

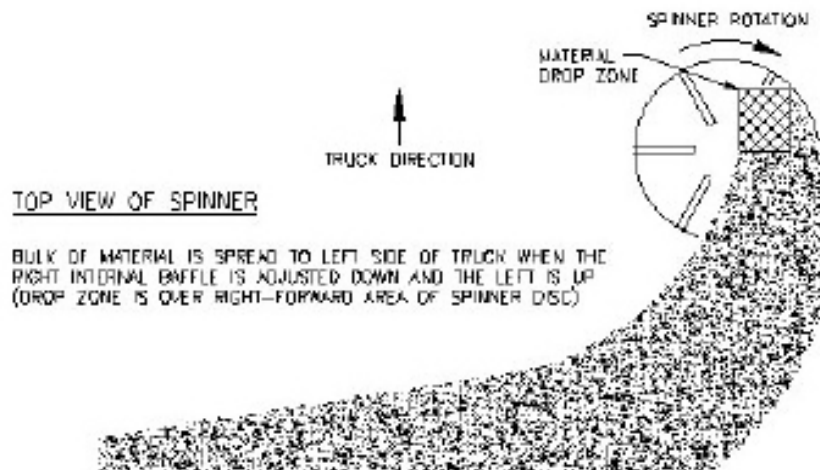
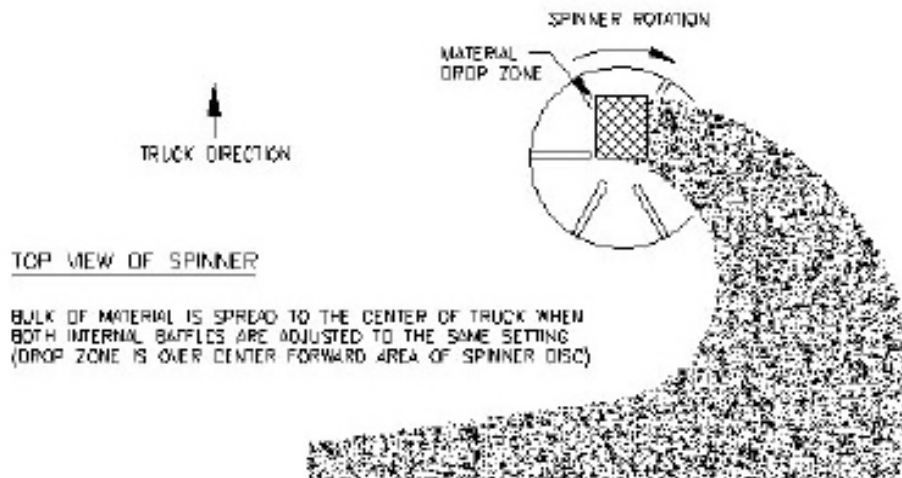


TOP VIEW OF SPINNER

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)



INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
SPREADER OPERATION - SPREAD PATTERN
(Continued)



INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

SPREADER OPERATOR - 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 bearings 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 eight (8) inches. **CAUTION!** Over tightening conveyor chain can cause serious drive train problems. Above distance must not exceed twenty (20) 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 retightening.



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.

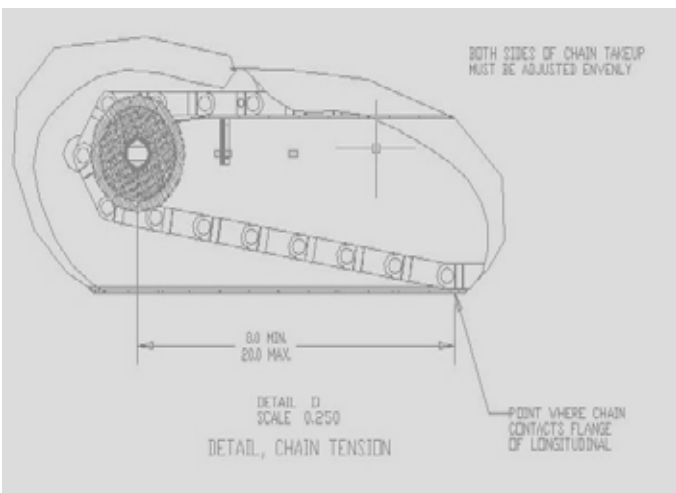
8. If chain becomes stuck or "frozen" to the floor to the point where the drive system cannot pull the load, never attempt to free chain using a pipe wrench or any other tool on the output shaft. The gearbox is designed to accept torque from input shaft only. Trying to turn output shaft will strip the 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.

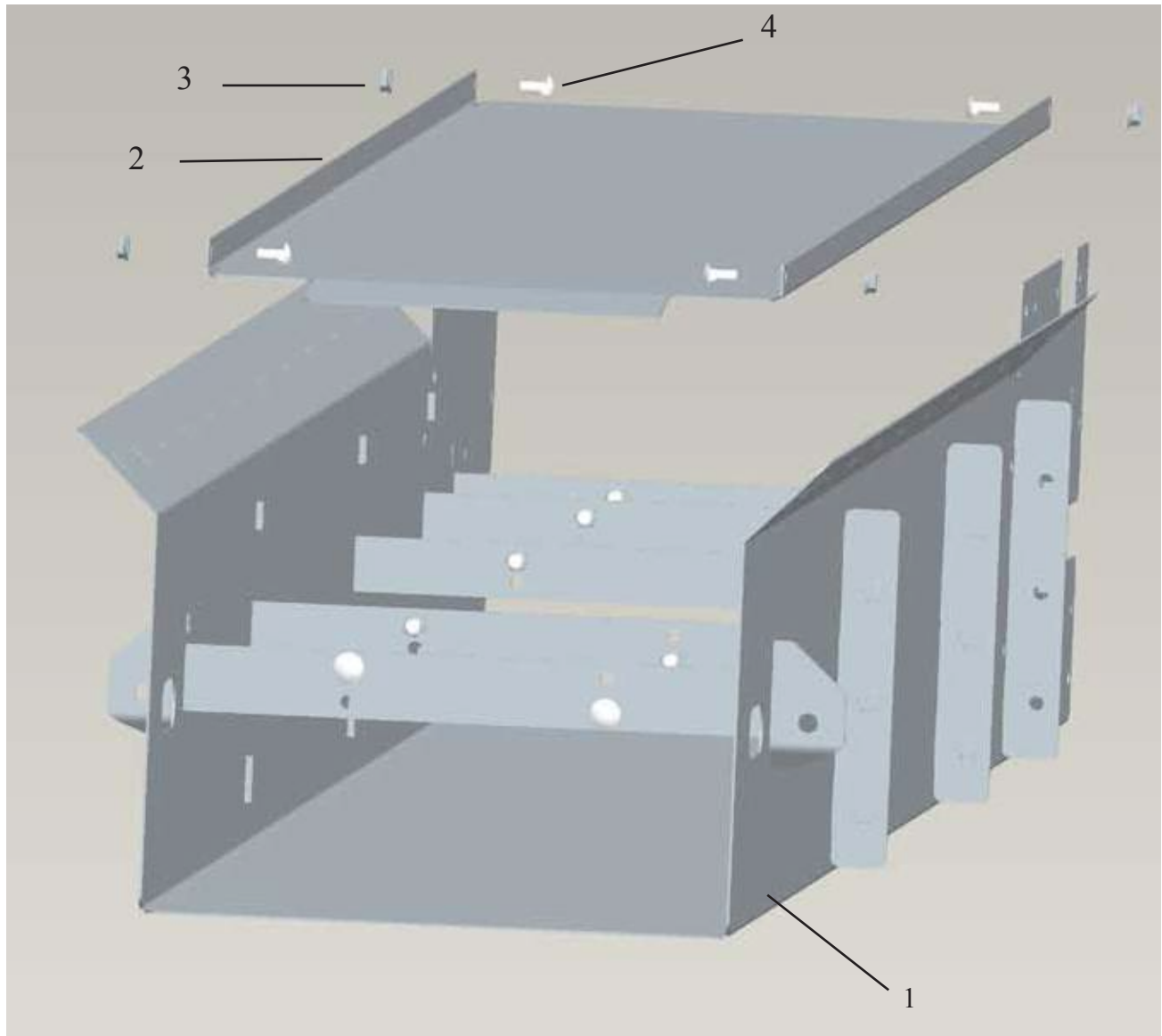
OFF-SEASON STORAGE:

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



PARTS LISTINGS

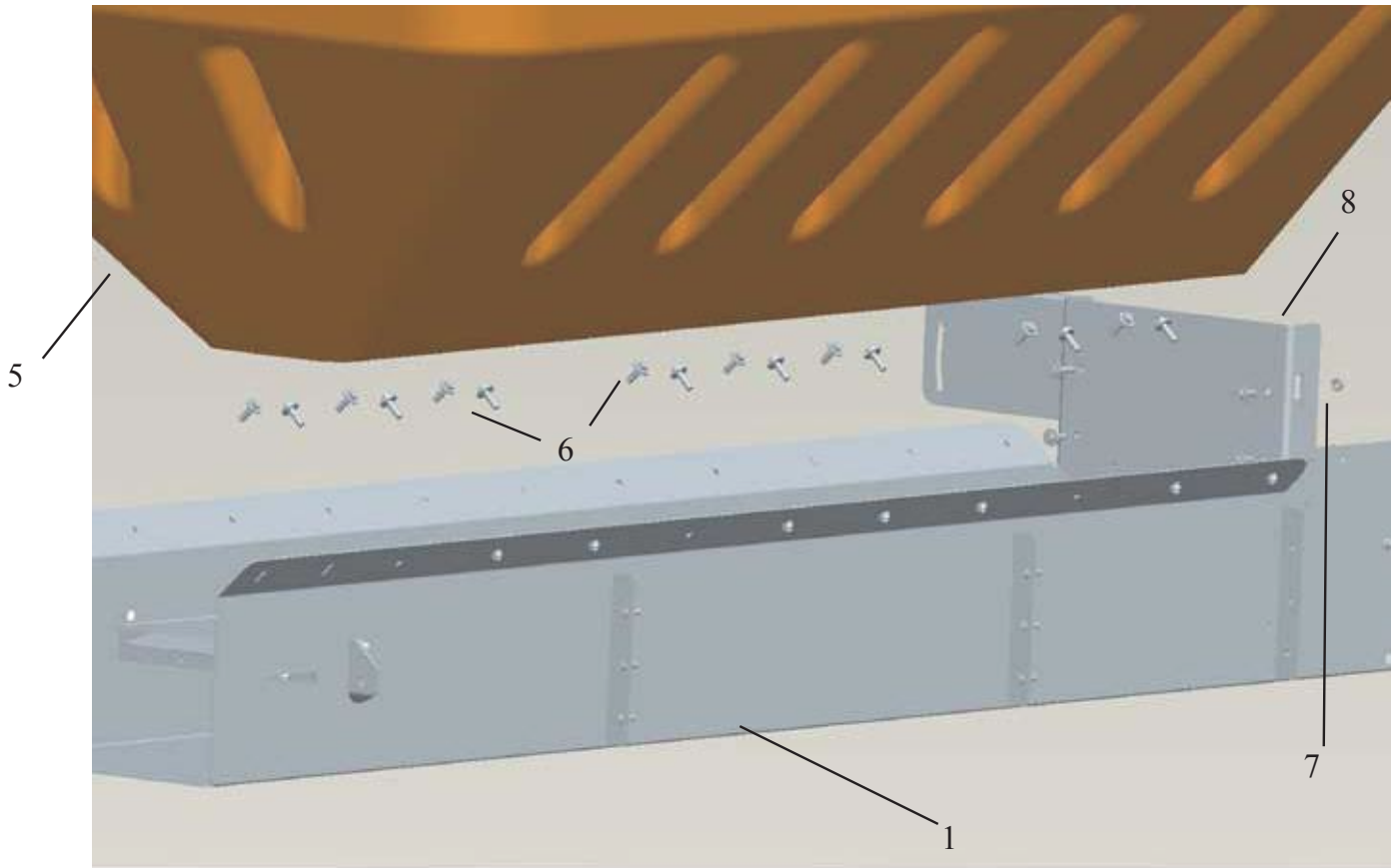
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR CONVEYOR FLOOR



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00122-499-03	1	Weld, Hopper Mounting Trough
2	00122-371-03	1	Forming, Conveyor Floor
3	04003-806-13	4	5/16" Flange nut SS
4	04003-032-06	4	5/16 - 16 x 3/4" CA Bolt, SS

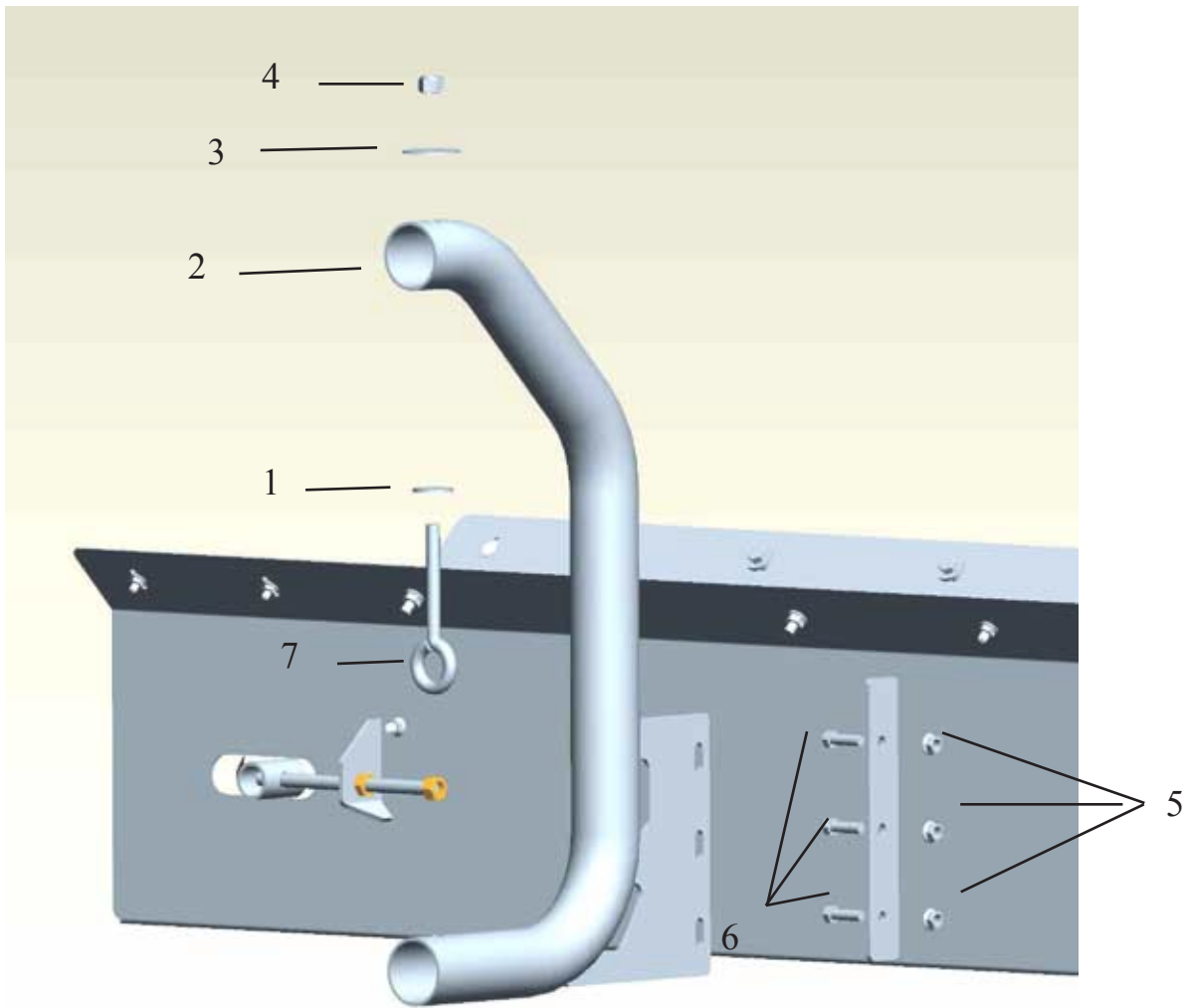
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

PARTS LIST FOR HOPPER



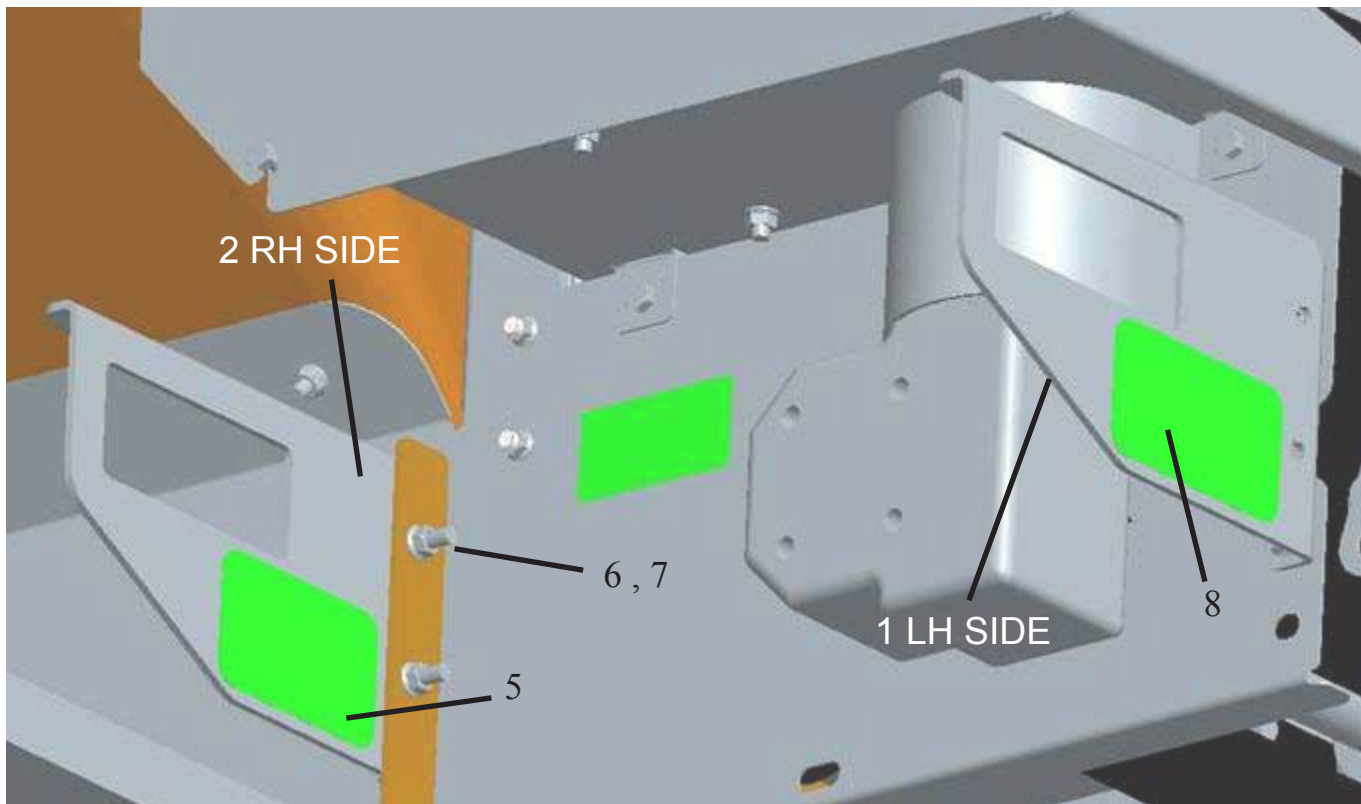
Item	Part Number	Qty.	Description
5	04622-062-01	1	Hopper, 8 Ft. Poly, Orange
6	04002-064-01	20	Bolt, 3/8-16 x 1-1/4" HH SS
7	04003-806-13	20	Nut, 3/8-16 Ser Flange SS
8	00122-362-03	1	Assm., Feedgate, SS
NS	04004-002-20	20	Flatwasher, 3/8" SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR BODY JACKS



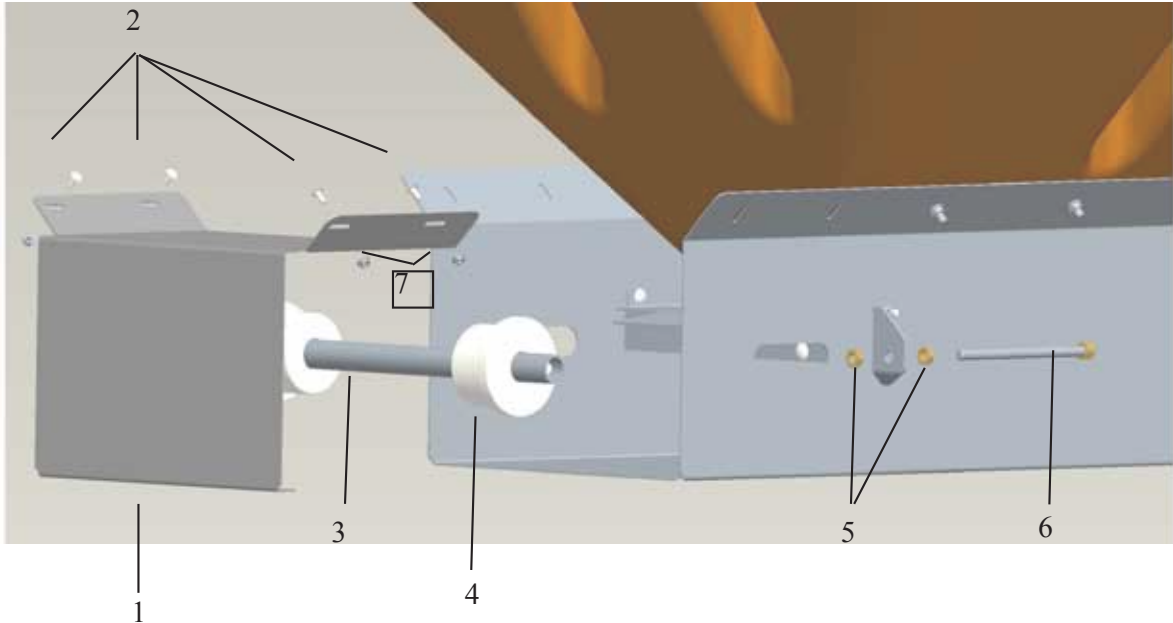
Item	Part Number	Qty.	Description
1	04004-002-10	4	Flatwasher, 1/2" U.S.A., ZP
2	00119-877-00	4	Weld, Body Jack
3	04002-002-60	4	Washer, 1/2" 17/32" ID, 2" OD, ZP
4	04003-804-06	4	Locknut, 1/2-13 Nylon Insert, ZP
5	04003-806-12	12	Nut, 3/8-16 Serrated Flange, SS
6	04003-003-26	12	Bolt, 3/8-16 x 1" HH, SS
7	04048-504-02	4	Bolt, 1/2" Eye

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR REAR FORKLIFT ASSEMBLY



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00122-177-01	1	Plate, Bracket Forklift Rear LH, CS
2	00122-180-01	1	Plate, Bracket Forklift Rear RH, CS
3	04049-409-00	2	Decal, Caution 4" Min
4	04003-003-26	8	Bolt, 3/8-16 x 1" HH, SS
5	04003-806-12	8	Nut, 3/8-16 Ser Flange, SS
6	04049-408-00	2	Decal, Caution Unloaded

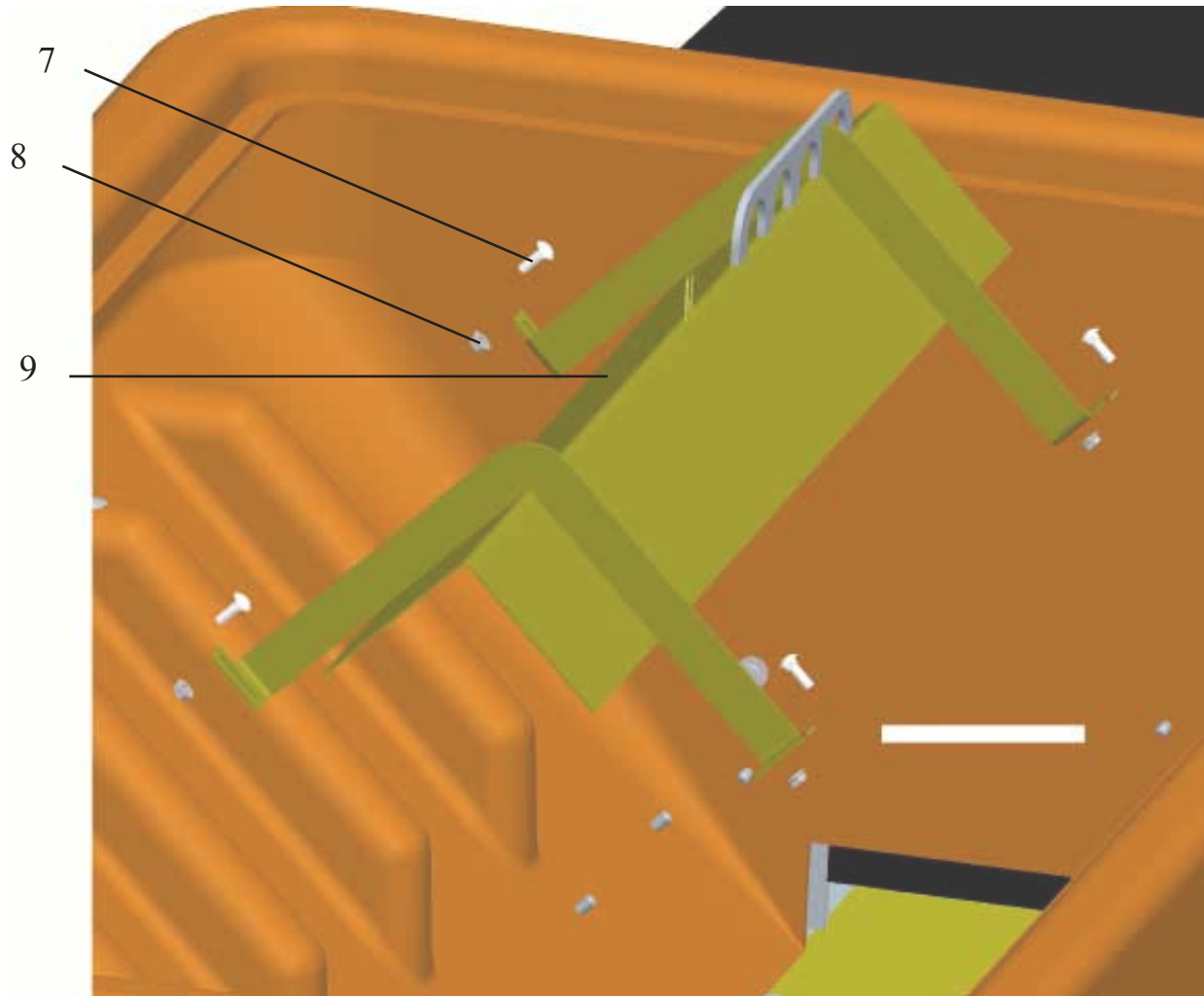
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR IDLER SHAFT



Item	Part Number	Qty.	Description
1	00122-370-00	1	Forming, Front Cover
2	04003-031-07	4	Bolt, 1/4-20 X 5/8" Carriage, SS
3	00122-366-00	1	Shaft, Idler
4	00122-369-00	2	Roller, Poly
5	04003-802-09	4	Nut, 1/2-13 Hex Jam, SS
6	00115-124-00	2	Weld, Take-up Bolt, 1/2-13 X 6" Tap, SS
7	04003-806-15	4	Nut, 1/4-20 Serrated Flange, SS
N/S	04043-071-00	1	Weld, Drag Chain
N/S	04045-021-00	2	Pin, Master (Drag Chain)
N/S	04045-025-00	2	Pin, Cotter (Drag Chain)
N/S	04111-053-00	2	Cover, Idler

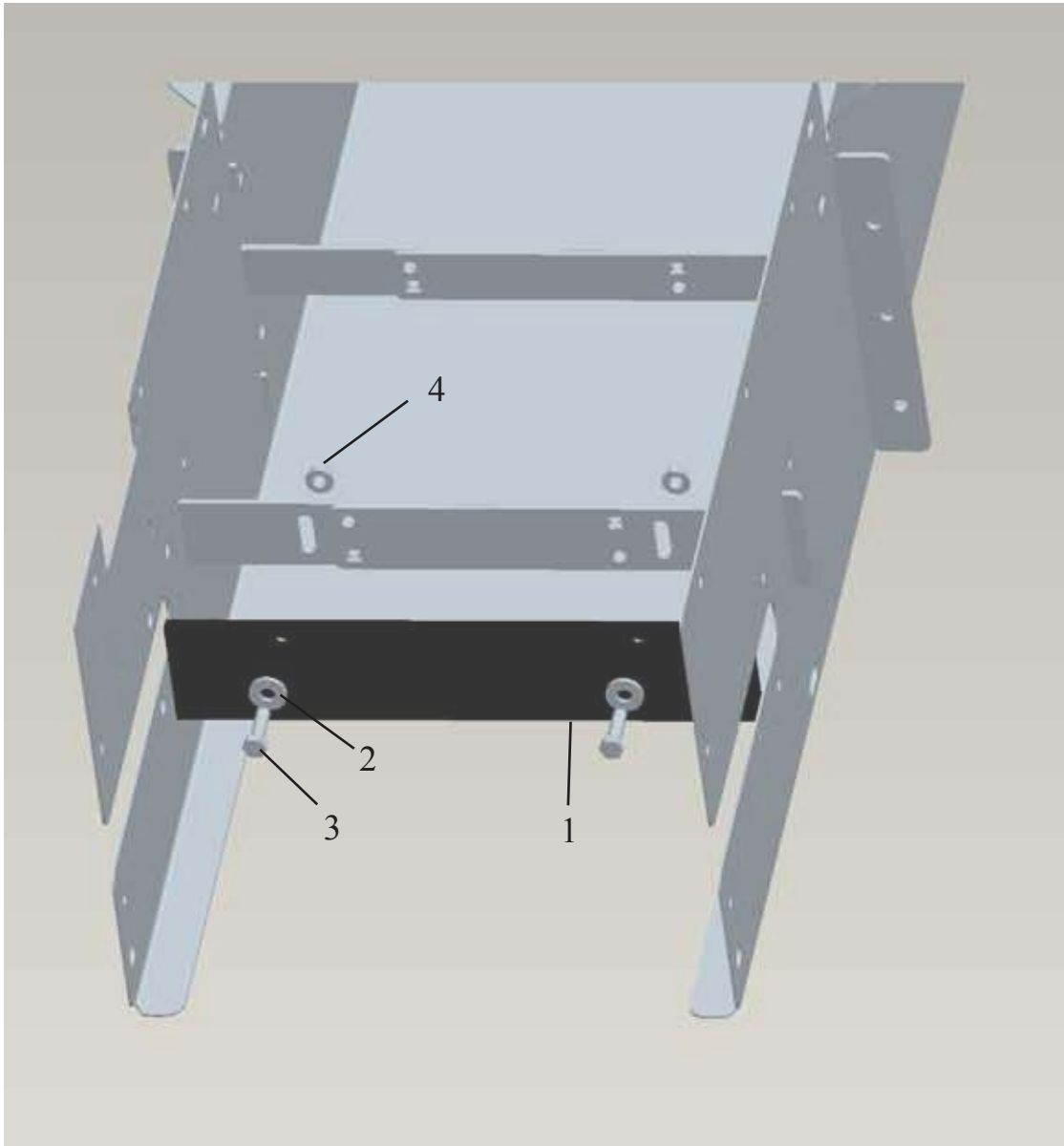
N/S = Not Shown

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR INVERTED VEE



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
7	04003-032-04	4	Bolts, 5/16-18 X 1" Carriage, SS
8	04003-806-13	4	Nut, 5/16-18 Serrated Flange, SS
9	00119-891-00	1	Weld, Inverted Vee, SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR WIPER

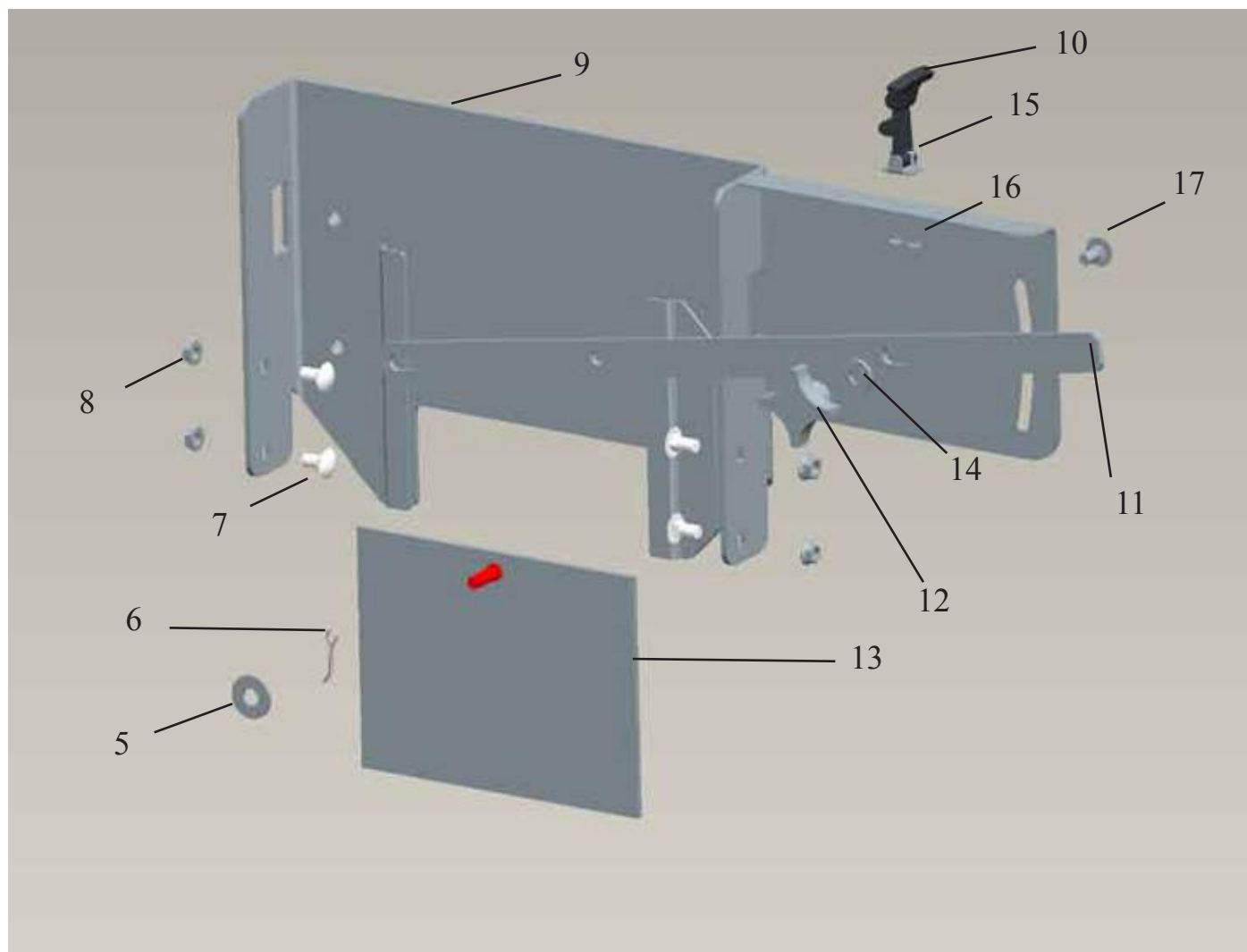


<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	04076-100-00	1	Wiper, Chain
2	04004-002-20	2	Flat washer, 3/8" U.S.S, SS
3	04003-003-26	2	Bolt, 3/8-16 X 1 1/4" Carriage, SS
4	04003-804-08	2	Nut, 3/8-16 Nylon Insert, SS

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

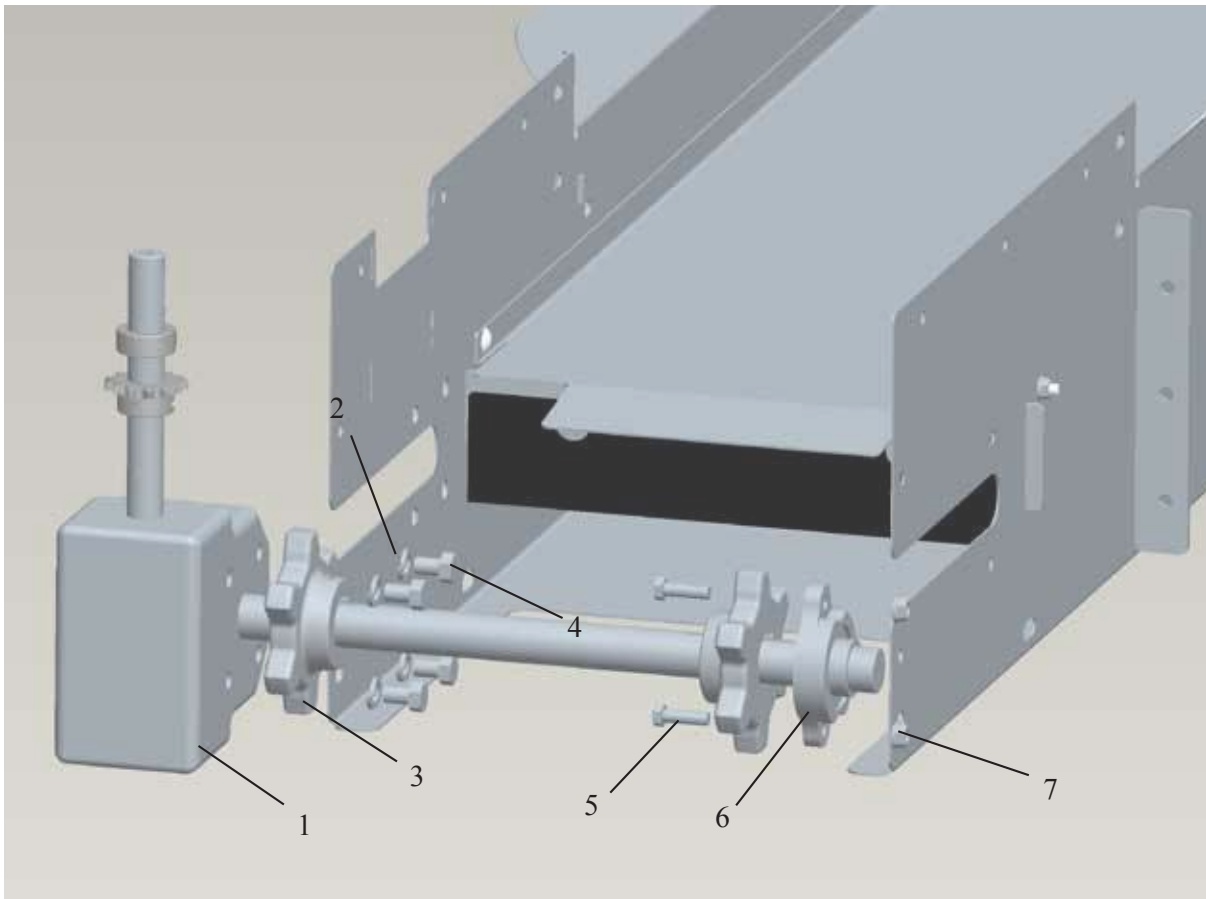
PARTS LIST FOR FEEDGATE



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
5	04004-002-32	1	Flat washer, 7/16", SS
6	04010-016-01	1	Pin, 1/8" x 1" Cotter, SS
7	04003-033-12	1	Bolt, 3/8-16 X 3/4" Carriage, SS
8	04003-806-12	4	Nut, 3/8" - 16, Serrated Flange, SS
9	00122-362-00	1	Weldment, Feed gate
10	04019-020-01	1	Handle, Rubber "T"
11	00119-879-00	1	Bar, Feed gate Handle, SS
12	04624-001-01	1	Hand Knob
13	00110-819-02	1	Weld, Feed gate, SS
14	04002-002-20	1	Flat washer, 3/8" U.S.S.
15	04002-031-00	2	Rivets
16	04004-002-02	2	Flat washers
17	04003-033-13	1	Bolt, 3/8-16 x 3/4" CA SS SHT NK

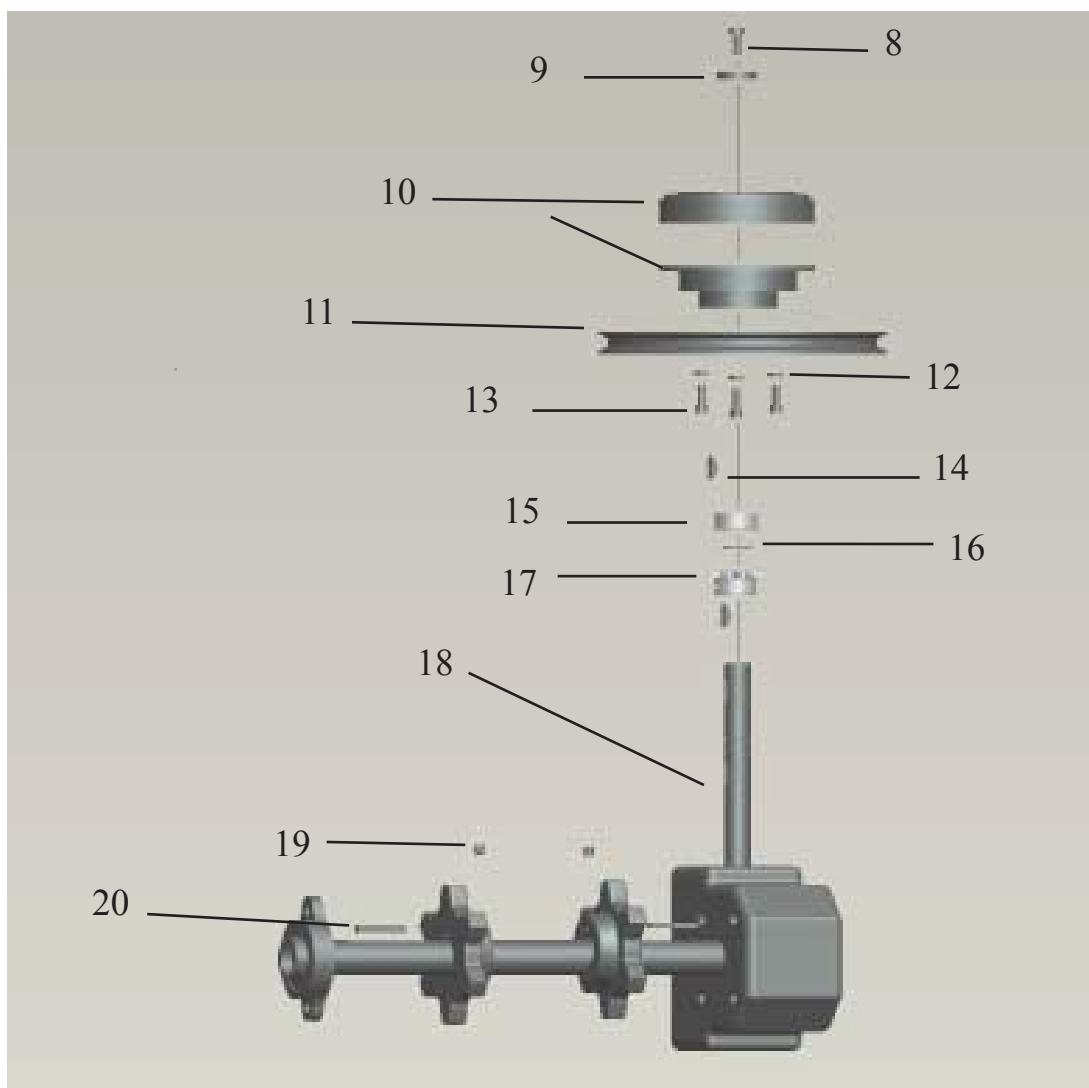
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

PARTS LIST FOR GEARBOX MOUNT



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00118-337-01	1	Assembly Gearbox 20:1
2	04004-001-16	4	Lockwasher, 1/2" Med. Split, SS
3	00102-348-00	2	Sprocket, Machining
4	04005-005-56	4	Bolt, 1/2-13 X 3/4" HH, SS
5	04003-003-26	2	Bolt, 3/8-16 X 1 1/4" HH, SS
6	04080-005-00	1	Bearing, 1-1/4"
7	04003-806-12	2	Nut, 3/8-16 Serrated Flange, SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR CLUTCH

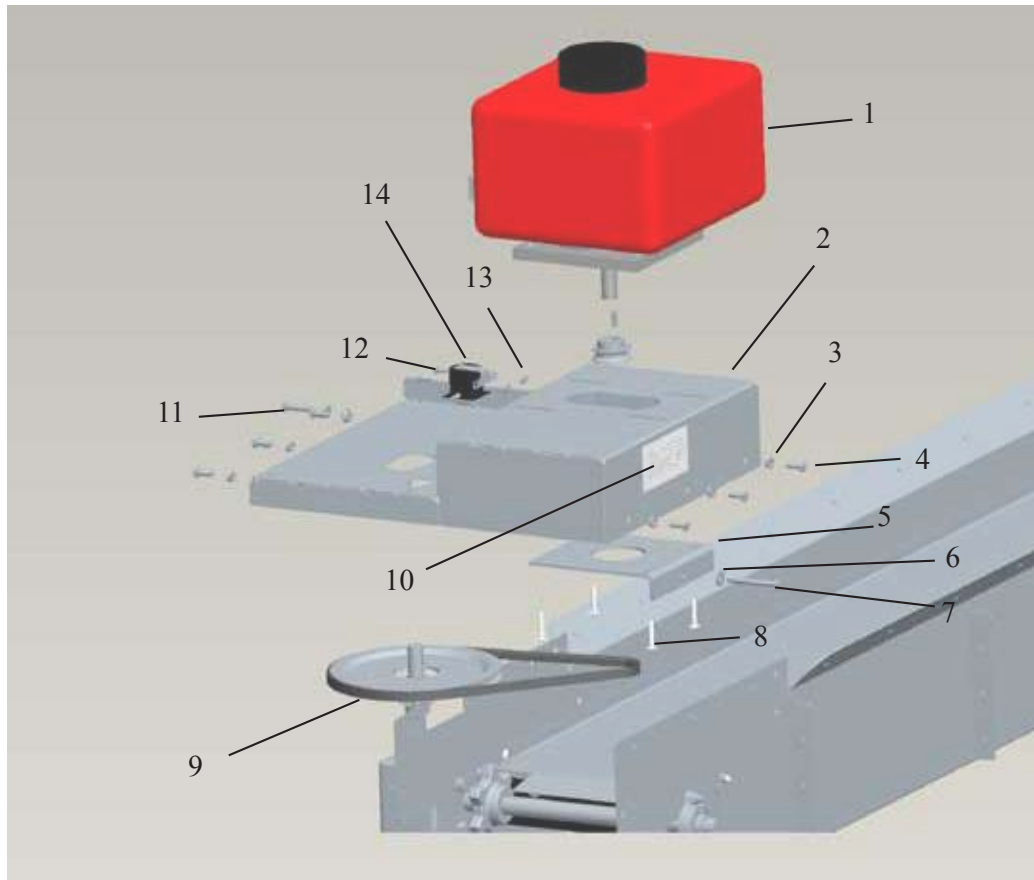


Item	Part Number	Qty.	Description
8	04003-002-23	1	Bolt, 5/16-18 X 3/4" HH, G5 ZP
9	00108-771-00	1	Washer, Flat, Clutch Retainer
10	04138-021-00	1	Clutch, Electric
11	04070-020-00	1	Pulley, Driven
12	04004-001-06	3	Lockwasher, 5/16 Medium Split, ZP
13	04003--081-04	3	Screw, 5/16-18 X 5/8" Socket Cap
14	04009-001-01	2	Key, 1/4" x 7/8" Woodruff
15	04001-001-00	1	Collar, Set 1"
16	04058-011-00	1	Snap Ring, External
17	04041-122-00	1	Sprocket, 40B13-1" Bore
18	00118-337-01	1	sub assembly Gearbox 20:1
19	04007-009-03	2	Setscrew, 3/8-16 x 3/8 Al Hd
20	04031-010-00	2	Key, 1/4" sq x 1-1/2"
NS	00104-822--00	1	Retainer, Clutch
NS	04003-001-16	2	Bolt, 1/4-20 X 1" HH, SS
NS	04003-806-15	2	Nut, 1/4-20 Serrated Flange, SS

INSTALLATION, OPERATION AND PARTS MANUAL

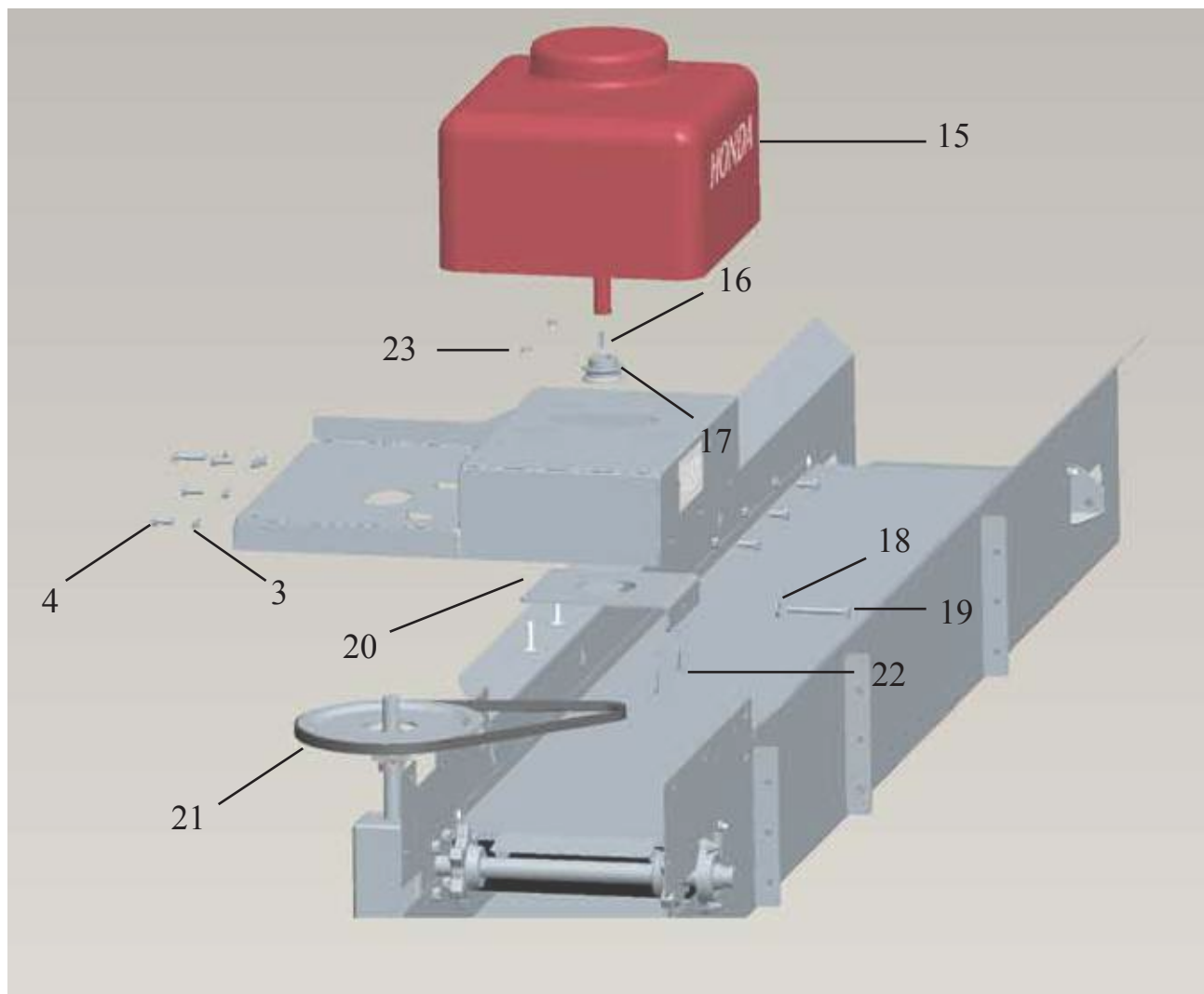
POLYHAWK™ PV SERIES

PARTS LIST FOR GAS ENGINE MODULES



Item	Part Number	Qty.	Description
1	04145-075-00	1	Assy, 10.5 Hp, Briggs&Stratton Engine Module
2	00122-361-03	1	weld, Engine Plate, EST, SS
3	04003-806-12	7	Nut, 3/8-16 Serrated Flange, SS
4	04003-003-20	6	Bolt, 3/8-16 X 1" HH, SS
5	00122-360-03	1	Weld, Adapter, S2
6	04004-002-20	1	flatwasher
7	04003-003-63	1	Bolt, 3/8 - 16 x 3 1/2" HH SS
8	04003-032-11	2	Bolt, 5/16" - 18 x 1 3/4" HH SS
9	04071-020-00	1	V-Belt, BX-46 Briggs and Stratton
10	04049-357-00	1	Decal, Engine warranty
11	04003-003-57	1	Bolt, 3/8 - 16 x 1 3/4" HH SS
12	04003-001-11	1	Bolt, 1/4 - 20 X1" HH SS
13	04003-806-15	2	Nut, 1/4" - 20 X Serrated Flange, SS
14	04146-005-00	1	Solenoid, Grounded
NS	00122-359-03	1	Plate, Battery

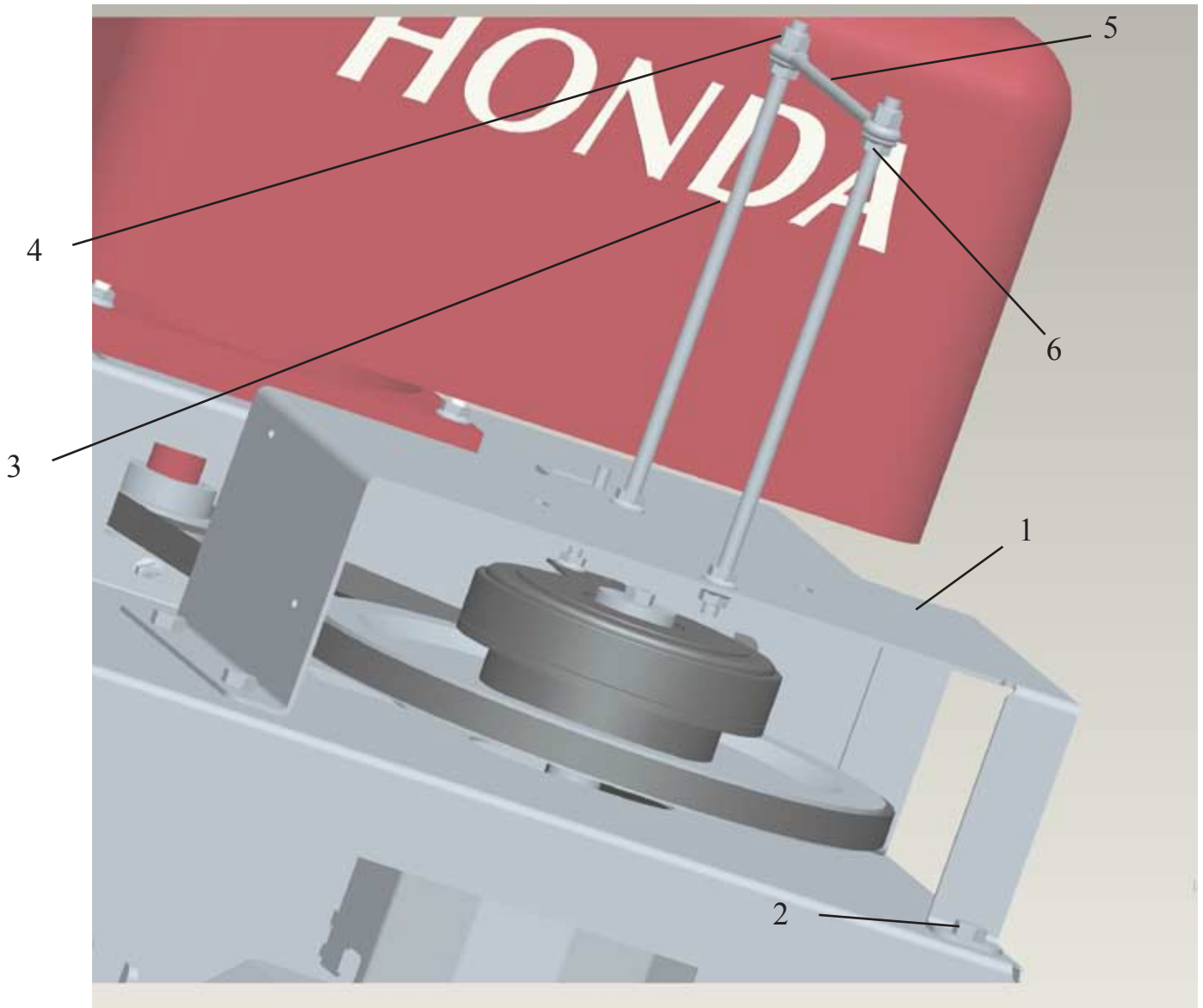
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR ENGINE MODULES (CONT'D)



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
15	00115-778-00	1	Engine, Honda w/Decals
16	04031-007-00	1	Key, 1/4" Sq. X 1"
17	04070-021-00	1	Pulley Driver
18	04004-002-20	1	Flatwasher, 3/8" U.S.S. SS
19	04003-003-63	1	Bolt, 3/8 - 16 x 3 1/2 HH SS
20	00122-360-03	1	weld, Engine Adapter S2
21	04071-016-00	1	B-Belt, Bx-48 Honda
22	04003-002-46	2	Bolt, 5/16 - 24 x 1" HH SS
23	04004-002-25	4	Nut, 5/16" - 18 X Serrated Flange, SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

PARTS LIST FOR BATTERY PLATE

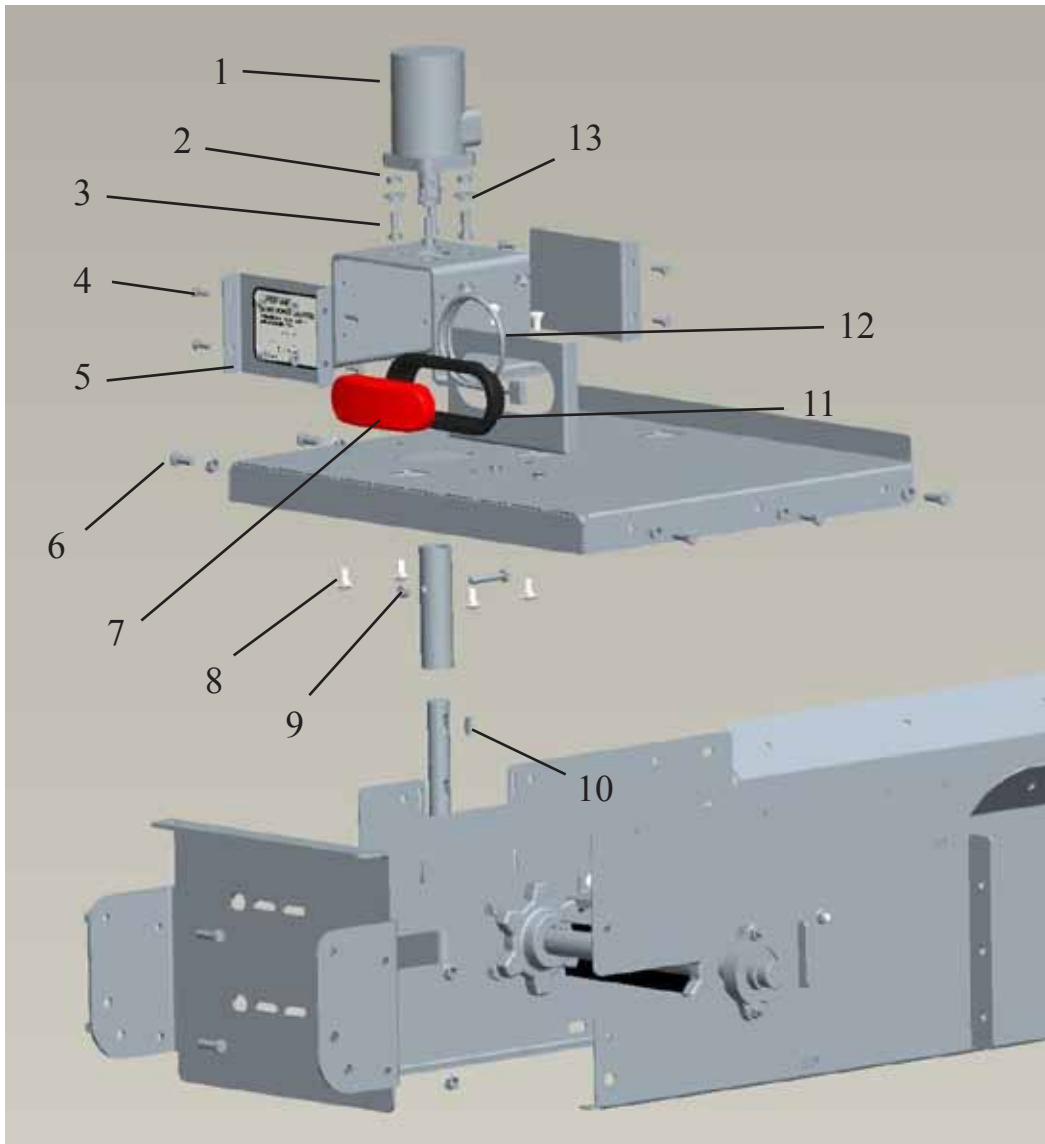


Item	Part Number	Qty.	Description
1	00122-359-03	1	Forming, Battery Plate
2	04003-003-24	4	Bolt, 3/8-16 X 3/4" HH, SS
3	00104-802-00	2	Rod, Battery
4	04003-804-29	2	LOCKNUT, 5/16-18 NYLON INSERT, SS
5	04604-017-00	1	Holddown
6	04003-806-13	4	Nut, 3/8-16 Serrated Flange, SS
N/S	04003-806-12	6	Nut, 5/16-18 Serrated Flange, SS

INSTALLATION, OPERATION AND PARTS MANUAL

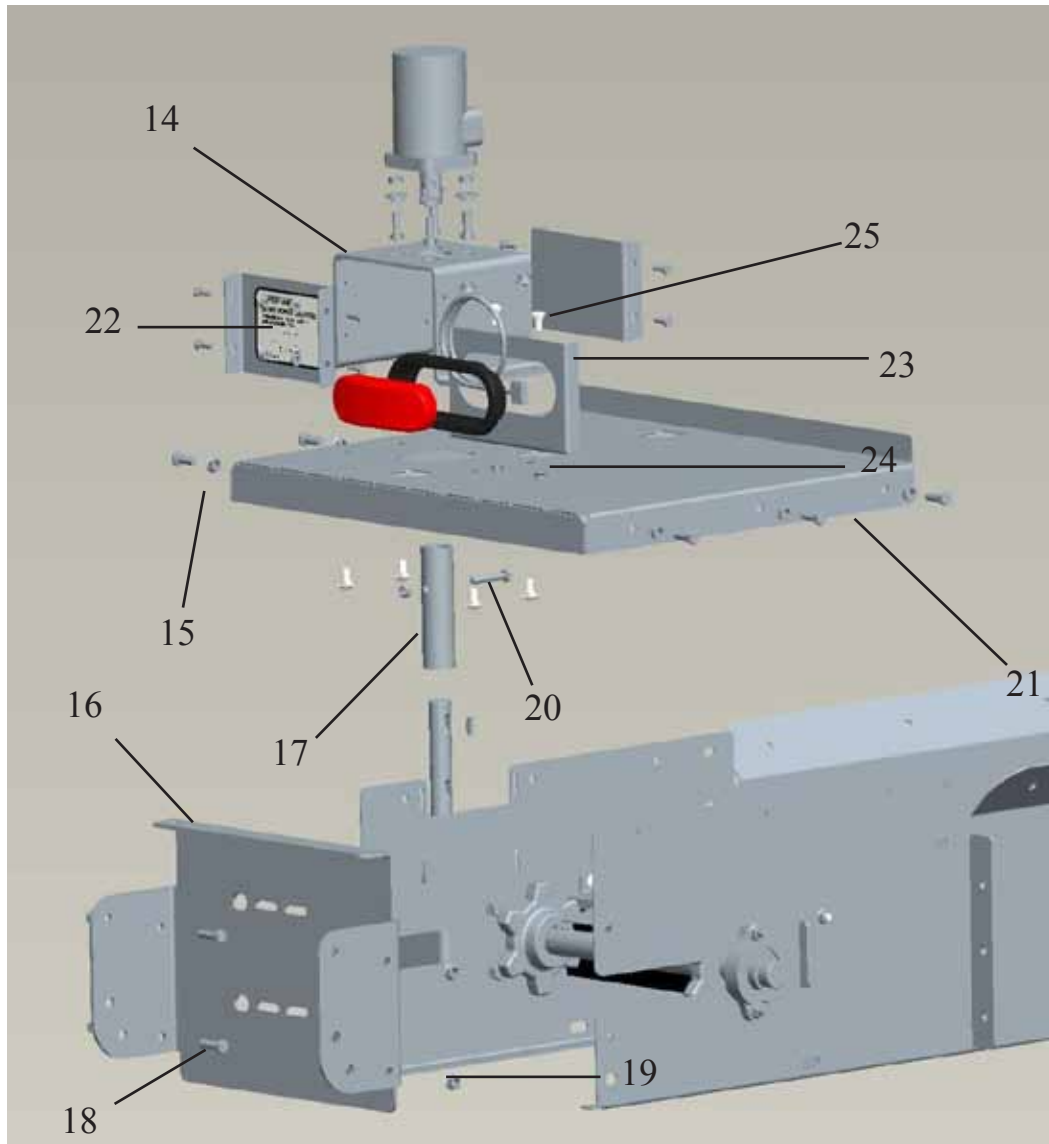
POLYHAWK™ PV SERIES

PARTS LIST FOR HYDRAULIC DRIVE



Item	Part Number	Qty.	Description
1	04101-035-00	1	Motor, Hydraulic, (3 CID)
2	04008-007-00	4	Bushing, Spacer, SS
3	04003-003-20	4	Bolt, 3/8 - 16 X 1" HH SS
4	04003-001-11	8	Bolt, 1/4 - 20 X 3/4" HH SS
5	00122-447-03	2	Forming, Shaft Guard, S2
6	04003-003-20	6	Bolt, 3/8 - 16 X 1" HH SS
7	04605-153-00	1	Lamp, Stop
8	04003-033-12	4	Bolt, 3/8" - 16 X 3/4" CA SS
9	04003-804-29	1	Locknut, 5/16" - 18 NL SS
10	04009-001-01	1	Key, 1/4" X 7/8" Woodruff
11	04605-154-00	1	Grommet, Mounting
12	04605-155-00	1	Cable, Light Power
13	04004-002-20	2	Flatwasher, 3/8" U.S.S. SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR HYDRAULIC DRIVE (CONT'D)

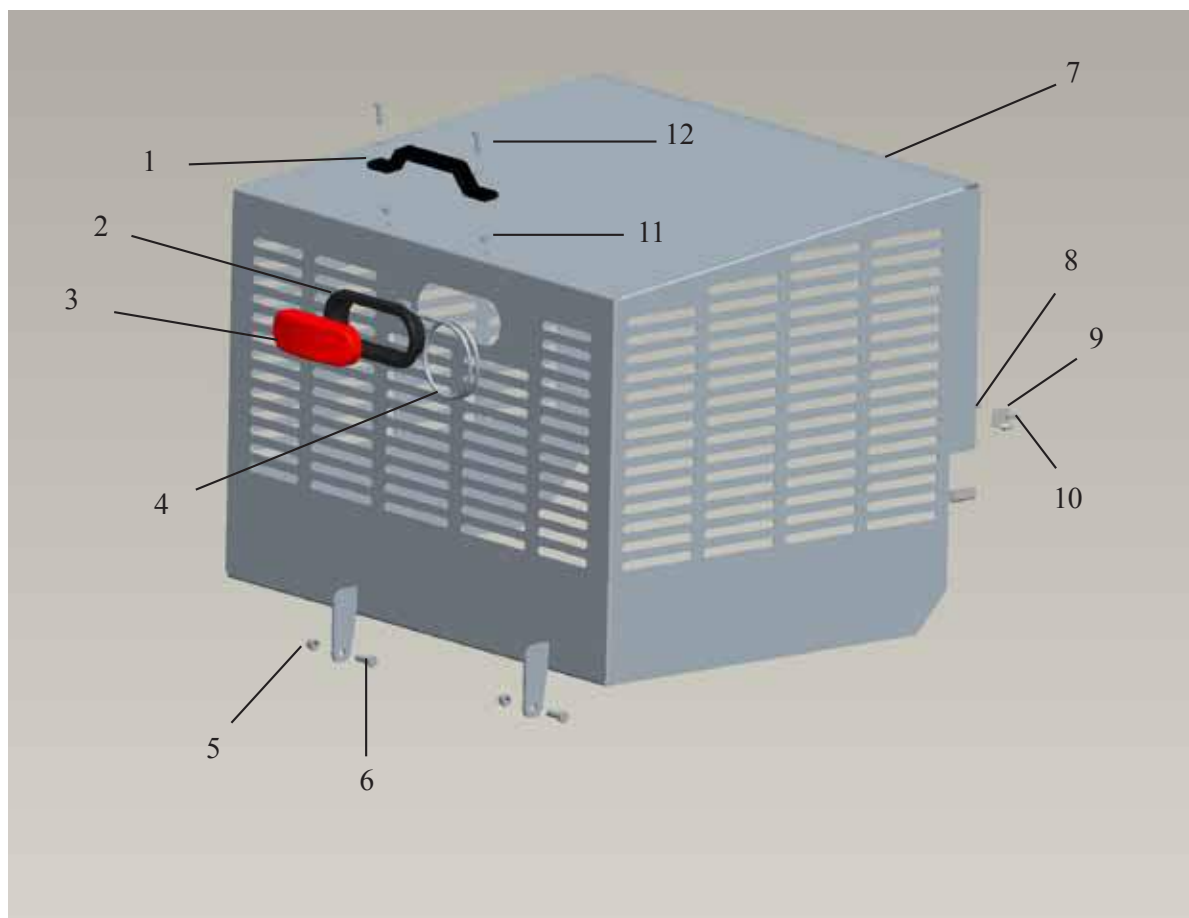


Item	Part Number	Qty.	Description
14	00122-446-03	1	Forming, Motor Mating Bracket, S2
15	04003-806-15	4	Nut 1/4" - 20 Serrated Flange SS
16	00122-364-03	1	Forming, Rear Plate, S2
17	00105-302-00	1	Coupling, Shaft
18	04003-003-26	4	Bolt, 3/8" - 16 X 1 1/4" HH SS
19	04003-806-12	4	Nut, 3/8" - 16 Serrated Flange, SS
20	04003-002-09	1	Bolt, 5/16" - 18 X 2" HH G5 ZP
21	00122-444-03	1	Forming, Motor Plate, S2
22	04049-195-00	1	Decal, Motor
23	00119-878-01	1	Bracket, rear stop light
24	04003-806-13	2	Nut, 5/16 - 18", serrated flange
25	04003-032-06	2	Bolt, 5/16 - 18 x 3/4" CA SS

INSTALLATION, OPERATION AND PARTS MANUAL

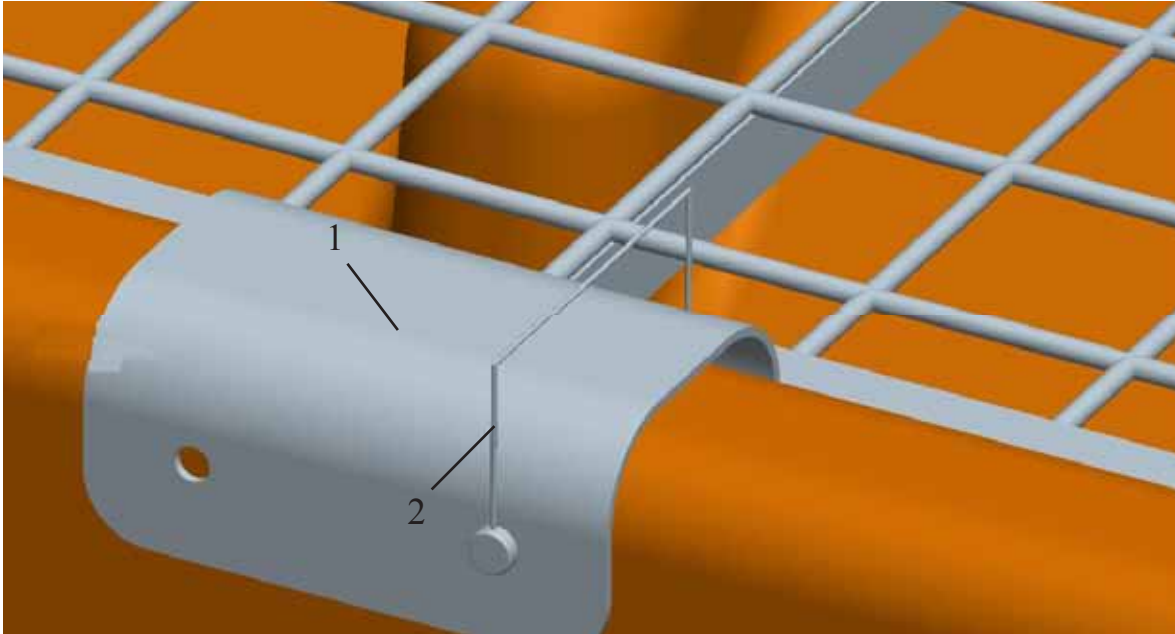
POLYHAWK™ PV SERIES

PARTS LIST FOR GAS ENGINE SHROUD



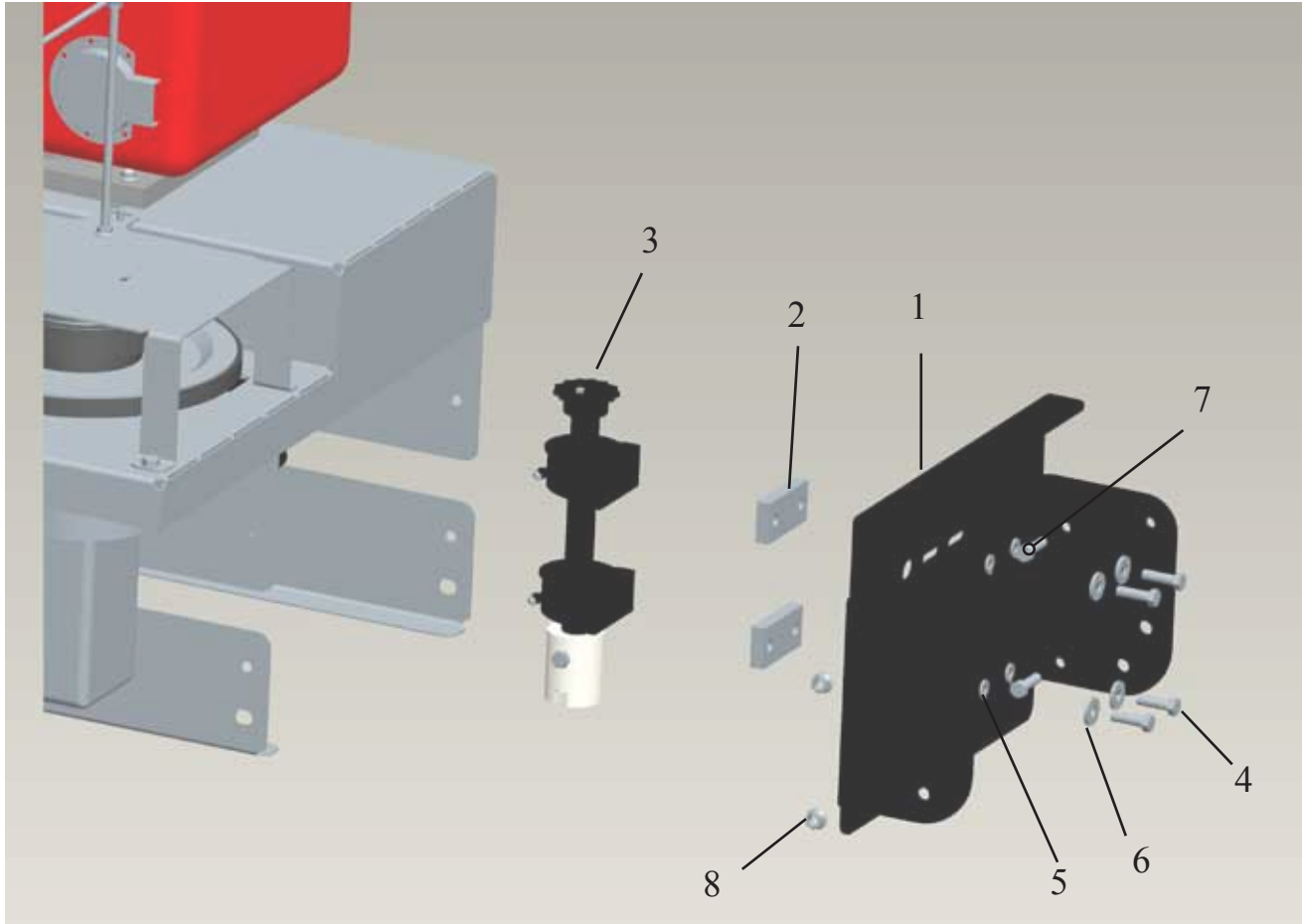
Item	Part Number	Qty.	Description
1	00122-374-00	1	Handle
2	04605-154-00	1	Grommet, Mounting
3	04605-153-00	1	Light
4	04605-155-00	1	Cable, Light Power
5	04003-804-18	2	LOCKNUT, 3/8-16 NYL INS SS,SPL
6	04003-003-20	2	Bolt, 3/8-16 x 1 Hh Ss
7	00122-363-00	1	Weld, Shroud - Briggs & Stratton Engine
8	04093-021-00	1ft	Trim, Vinyl
9	04019-020-00	2	HANDLE, RUBBER "T" W/KEEPER
10	04002-031-00	2	Rivet
11	04003-804-21	2	Locknut, 1/4 - 20 NL SS SP
12	04003-001-16	1	Bolt, 1/4 - 20 x 1" HH SS
NS	04049-358-00	1	Decal, No Step
NS	00122-439-03	1	Weld, Shroud - Honda Engine

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR SCREEN



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00122-774-08	1	Weld, Screen, 8 ft.
2	04014-214-00	4	Pin, Safety clevis

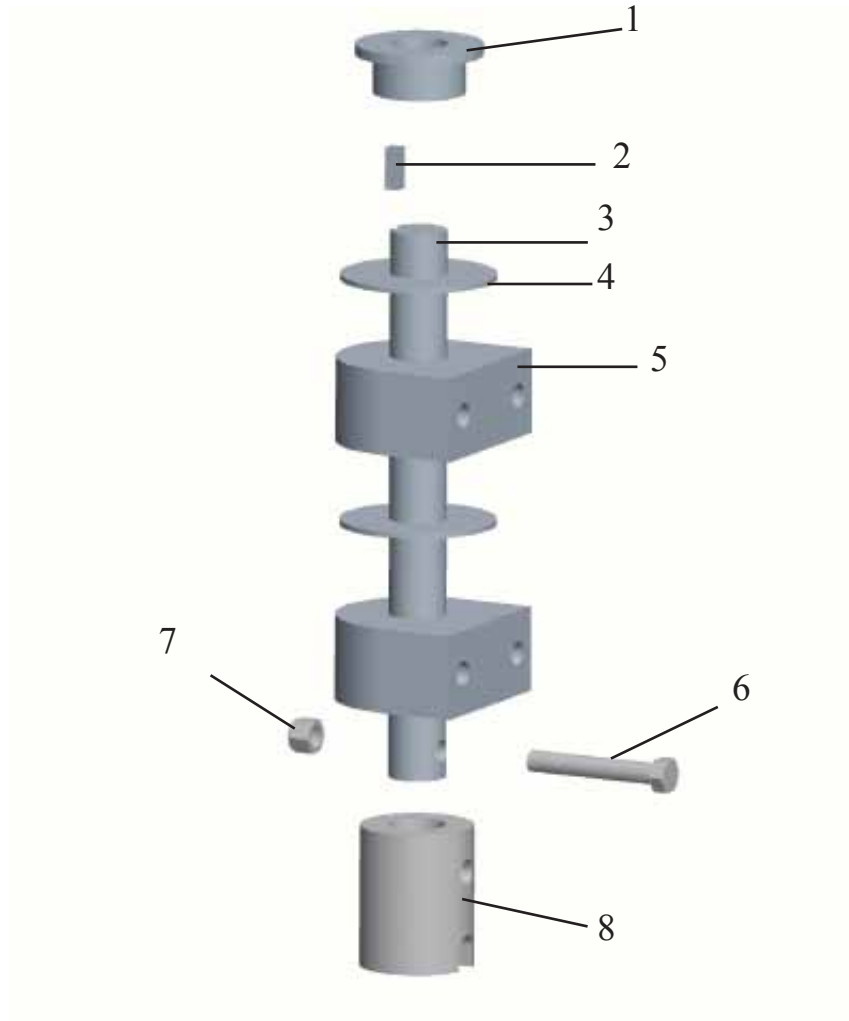
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR REAR COVER



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00122-364-03	1	Forming, Rear Cover
2	00117-314-03	2	Block, Spacer, Bearing
3	00122-365-00	1	Sub, Assembly, Spinner Drive Shaft
4	04003-003-26	4	Bolt, 3/8-16 X 1 1/4" HH, SS
5	04004-001-14	4	Lockwasher, 3/8" split)
6	04004-002-20	4	Flatwasher, 3/8" U.S.S., SS
7	04003-003-20	4	Bolt, 3/8-16 X 1" HH, SS
8	04003-806-12	5	Nut, 3/8-16 Serrated Flange, SS
NS	04003-003-24	1	Bolt, 3/8-16 x 3/4" HH SS
NS	04046-020-01	1	Chain, Roller #40-55 Pitches

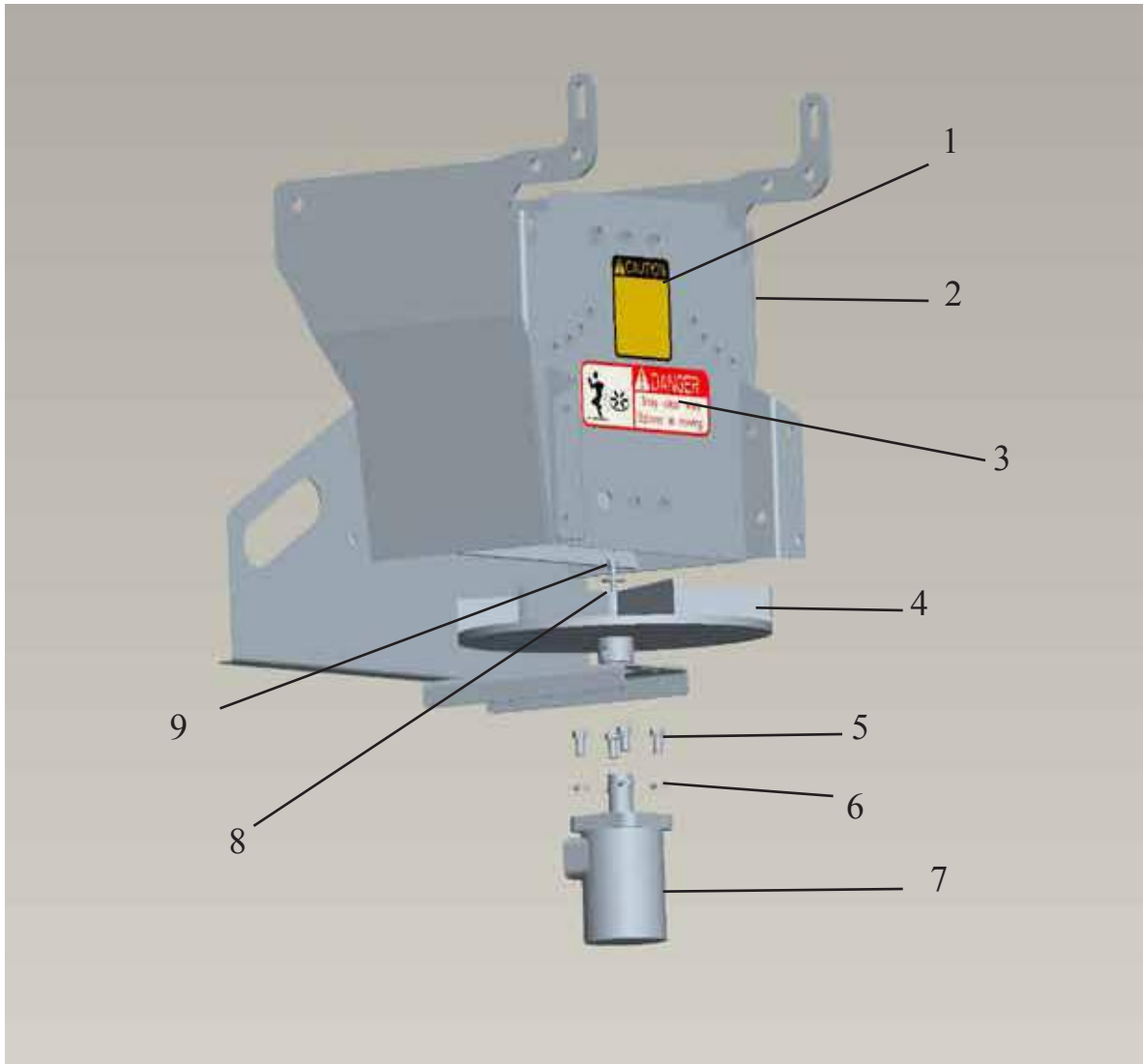
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

PARTS LIST FOR STUB SHAFT



Item	Part Number	Qty.	Description
1	04041-122-00	1	Sprocket, 40B13-1" Bore
2	04031-007-00	1	Key, 1/4" Sq. X 3/4"
3	00119-887-00	1	Shaft, Spinner Drive Shaft
4	04004-008-01	2	Washer, Flat, Rubber
5	04080-079-00	2	Bearing, 1" Tapped Base
6	04003-003-08	1	Bolt, 3/8-16 X 2 1/2", HH Gr 5, ZP
7	04003-804-18	1	Locknut, 3/8-16 Nylon Insert, SS
8	04622-063-00	1	Shaft, Coupling, Poly

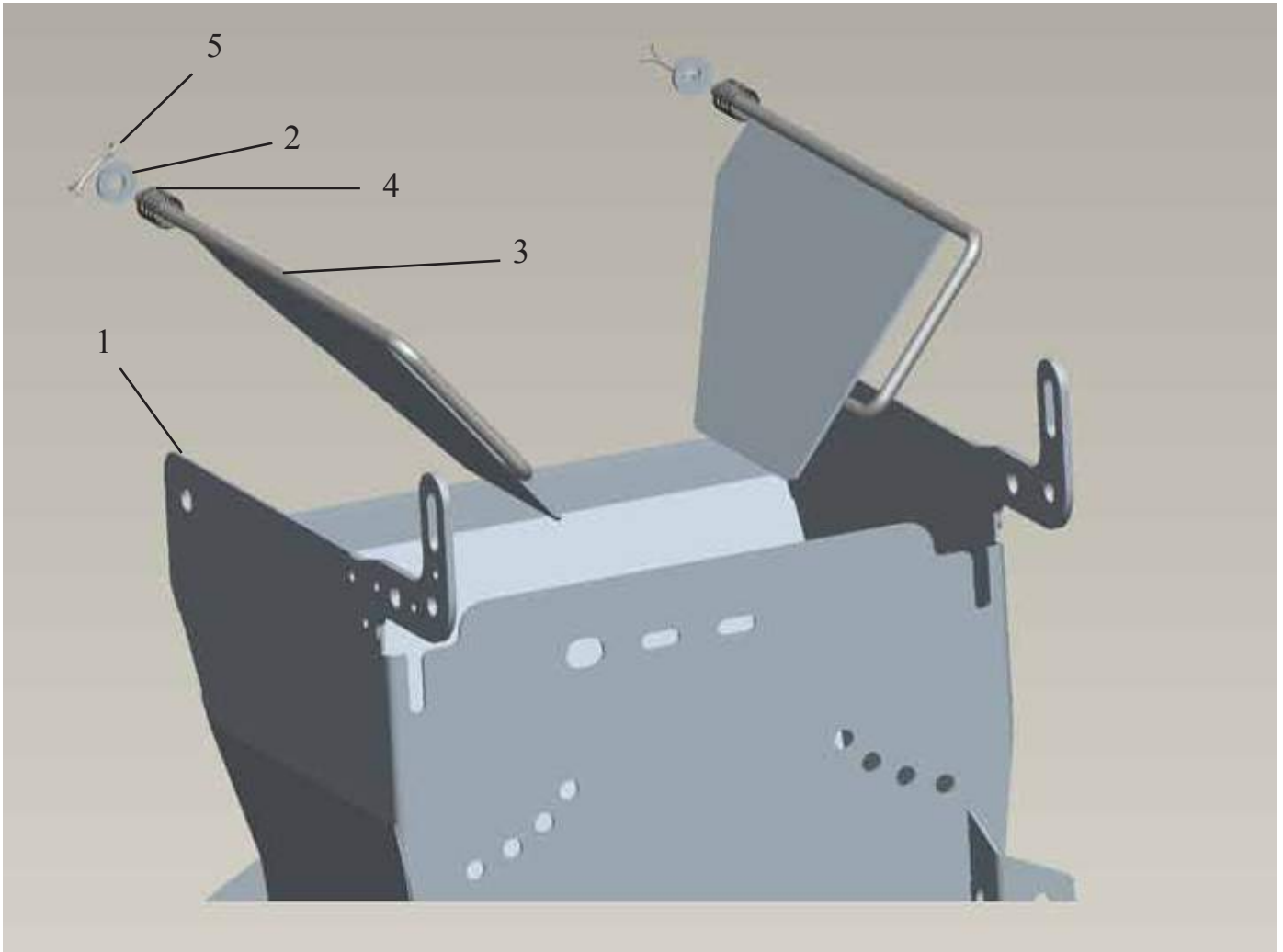
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR HYDRAULIC SPINNER



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	04049-045-00	1	Decal, Caution
2	00122-499-03	1	Weld, Spinner Chute
3	04049-044-00	1	Decal, Danger
4	04622-061-00	1	Spinner, Poly
5	04003-003-24	4	Bolt, 3/8-16 X 3/4" HH, SS
6	04004-001-14	4	Lockwasher, 3/8" MEDIUM SPLIT, SS
7	04101-035-00	1	Motor, Hydraulic
8	04004-002-39	1	Flatwasher 1/4" special, SS
9	04003-001-36	1	Bolt, 1/4 - 20 x 2 1/2" HH SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

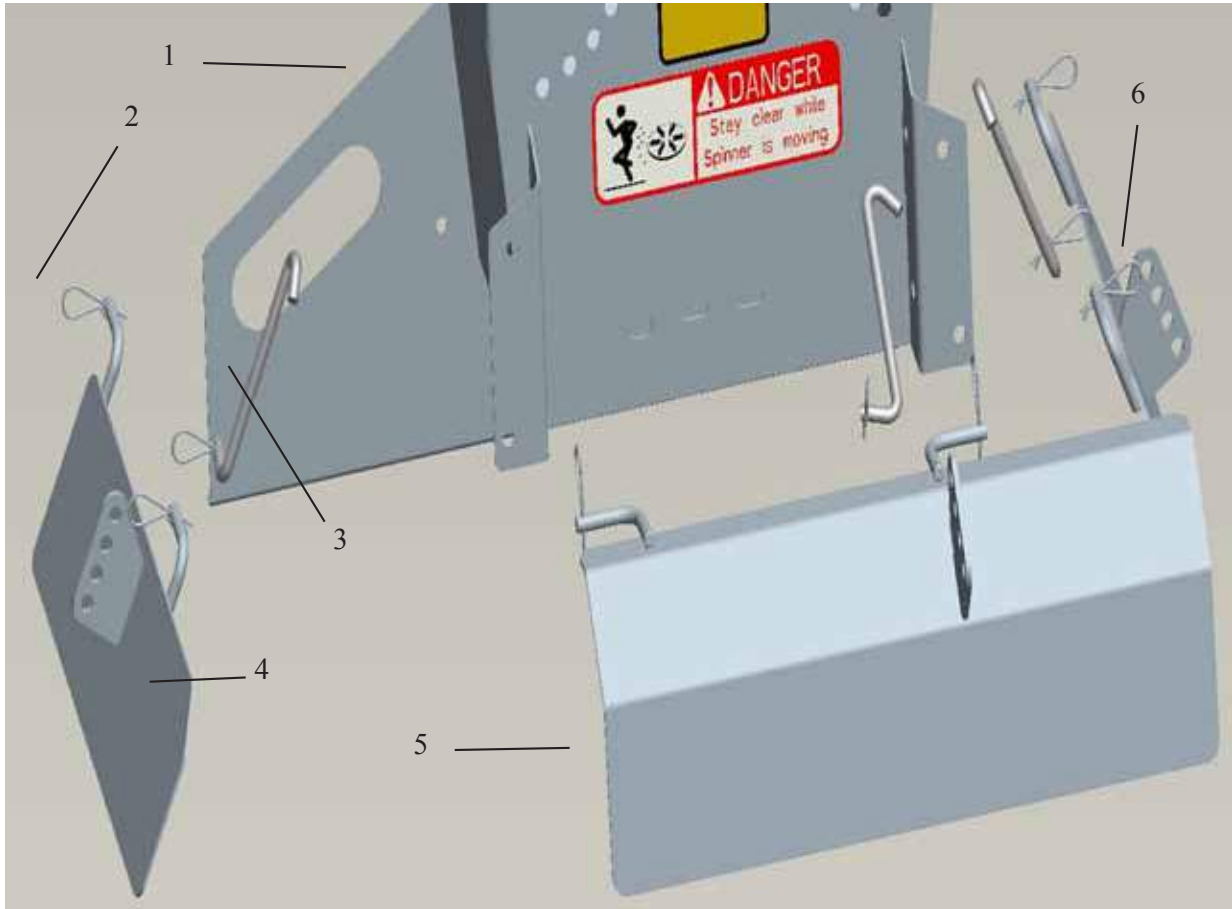
PARTS LIST FOR INTERNAL BAFFLES



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00122-355-03	1	Weld, Spinner Chute, engine drive
2	04004-002-20	2	Flatwasher, 3/8" U.S.S., SS
3	00119-323-06	2	Weld, Internal Baffle, SS
4	04091-028-00	2	Spring, Compression
5	04010-016-01	2	Pin, 1/8" X 1" Cotter, SS

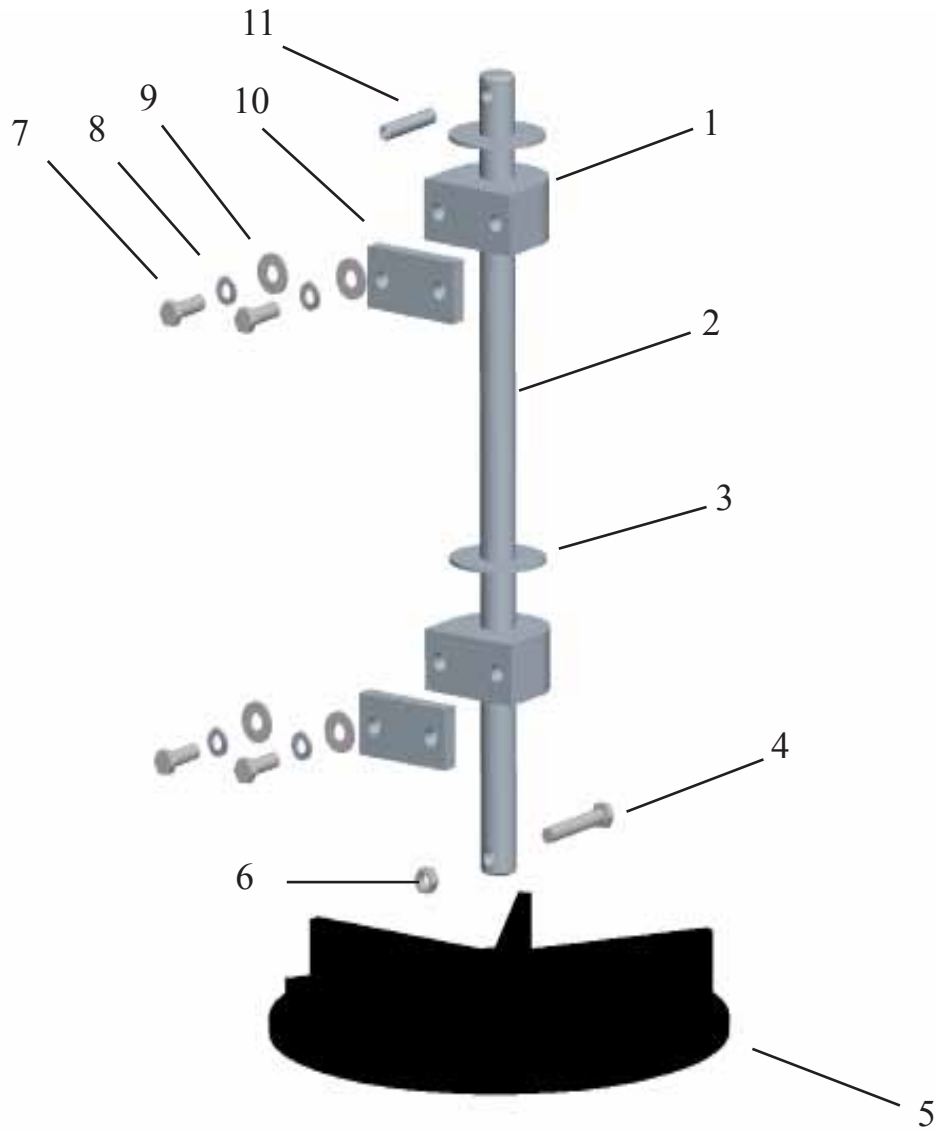
INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

PARTS LIST FOR EXTERNAL SPINNER BAFFLES



Item	Part Number	Qty.	Description
1	00122-355-03	1	Weld, Spinner Chute, engine drive
2	04011-001-01	9	Keeper, Hairpin, Small
3	00115-150-00	3	Bar, Link, SS
4	00119-337-06	1	Weld, Spinner Baffle, LH, SS
5	00119-341-06	1	Weld, Spinner Baffle, Rear, SS
6	00119-338-06	1	Weld, Spinner Baffle, RH, SS

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES
PARTS LIST FOR SPINNER SHAFT



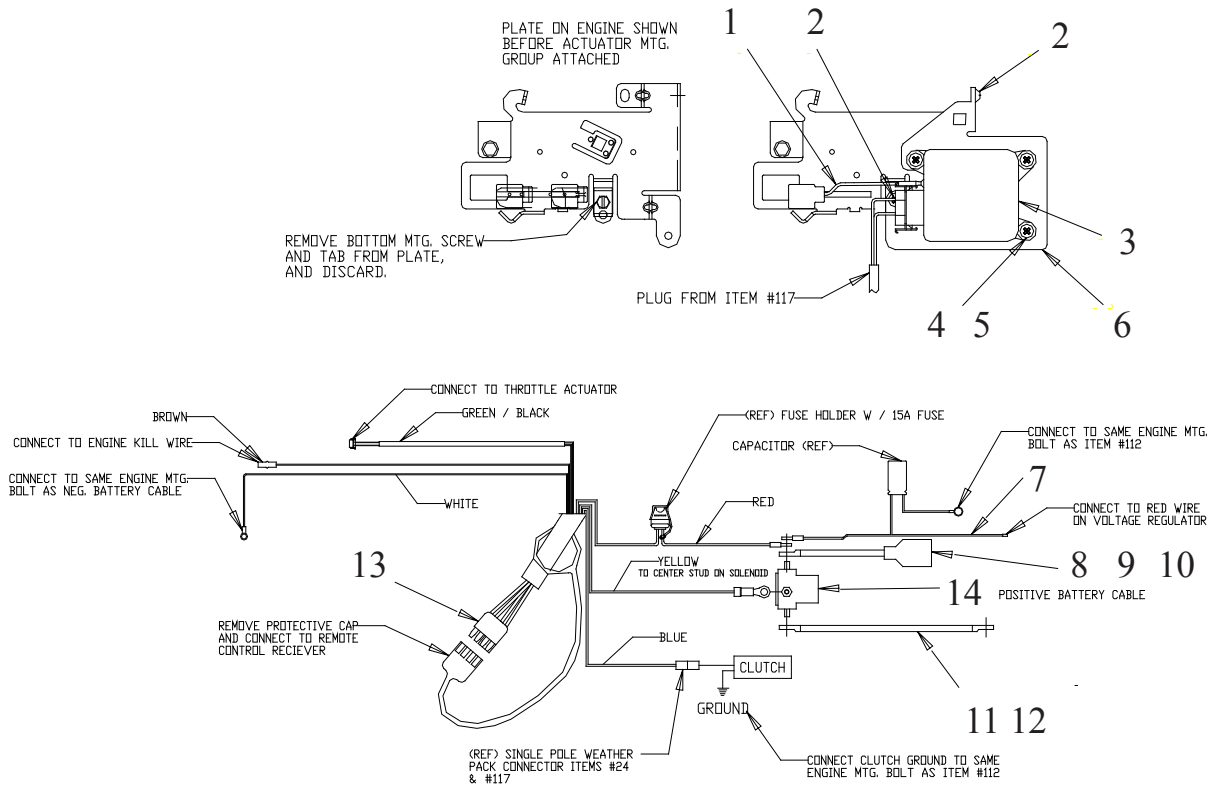
<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	04080-079-00	2	Bearing, 1" Tapped Base
2	00119-872-00	1	Shaft, Swing-Up Spinner
3	04004-008-01	2	Washer, Flat Rubber
4	04003-003-21	1	Bolt, 3/8-16 X 2 1/2", HH, SS
5	04622-033-00	1	Disc , Poly Spinner 13"
6	04003-807-18	1	Locknut, 3/8-16 Top Lock, SS
7	04003-003-26	4	Bolt, 3/8-16 X 1 1/4", HH, SS
8	04004-001-14	4	Lockwasher, 3/8" Med Split SS
9	04004-002-20	4	Flatwasher, 3/8", U.S.S., SS
10	00117-314-03	2	Block, Spacer, Bearing
11	04016-008-02	1	Pin, 3/8" X 2 1/4" Roll TH., SS

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

DETAIL, WIRING & THROTTLE ASSEMBLY

BRIGGS & STRATTON ACTUATOR



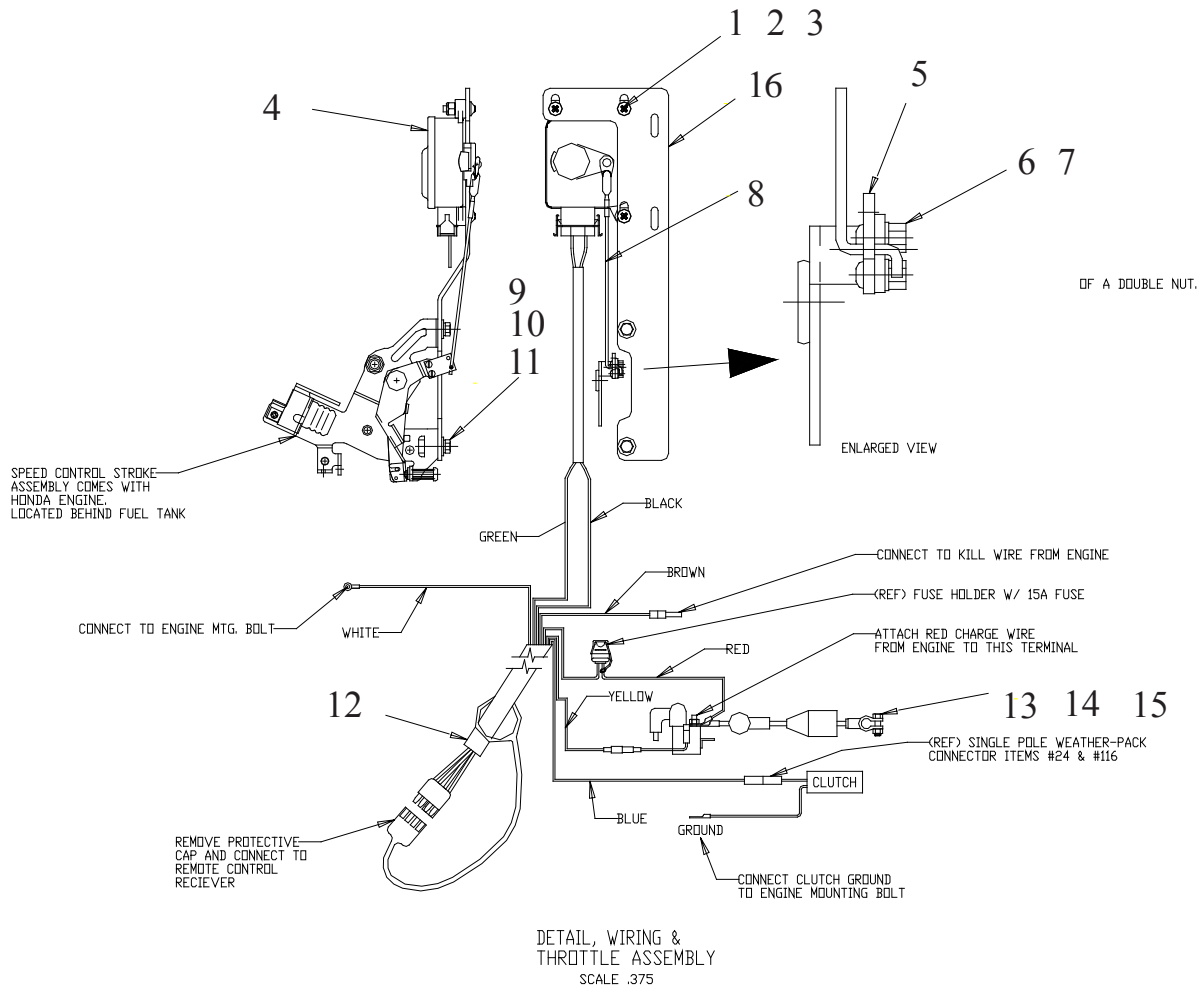
ITEM	PART NUMBER	QTY.	DESCRIPTION
1	00117-410-00	1	LINKAGE, THROTTLE
2	04003-127-01	2	SCREW, #10-32 x 5/16" PPH MACHINE
3	04150-044-01	1	ASSEMBLY, ACTUATOR
4	04003-069-01	3	SCREW, #8-32 X 3/4" PHIL RD SS
5	04003-804-28	3	LOCKNUT, #8-32 NYL INS SS
6	00117-411-00	1	BRACKET, ACTUATOR,
7	04616-119-00	1	HARNES, B&S W/CAPACITOR
8	04604-004-01	1	CABLE, BATTERY - RED
9	04067-032-00	1	BOOT, BATTERY CABLE STRAIGHT
10	04616-033-00	1	BOOT, ALT. CABLE
11	04067-067-06	1	CABLE, STARTER 14" 6 GA RED
12	04067-033-00	1	BOOT, ALT. CABLE
13	04616-120-00	1	CABLE, CONTROL SPREADER
14	04146-005-00	1	SOLENOID, GROUNDED

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

DETAIL, WIRING & THROTTLE ASSEMBLY

HONDA ACTUATOR



ITEM	PART NUMBER	QTY.	DESCRIPTION
1	04003-069-01	3	SCREW, #8-32 X 3/4" PHIL RD SS
2	04003-804-28	3	LOCKNUT, #8-32 NYL INS SS
3	04004-029-55	3	FLATWASHER,
4	04150-044-01	1	ASSEMBLY, ACTUATOR
5	00117-610-00	1	LEVER, EXTENSION
6	04003-816-01	1	LOCKNUT 2-56 NYLON SS
7	04003-128-01	1	SCREW, 2-56 X 3/8" SS
8	00117-410-00	1	LINKAGE, THROTTLE
9	04003-186-02	1	BOLT, M5-25 SS
10	04004-001-23	2	LOCKWASHER, #10 SS
11	04004-002-53	1	FLATWASHER, #10 SS
12	04616-120-00	1	CABLE, CONTROL SPREADER
13	04604-004-01	1	CABLE, BATTERY - RED
14	04067-032-00	1	BOOT, BATTERY CABLE STRAIGHT
15	04616-033-00	1	BOOT, ALT. CABLE
16	00117-411-00	1	BRACKET, ACTUATOR

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

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 grommeted 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!

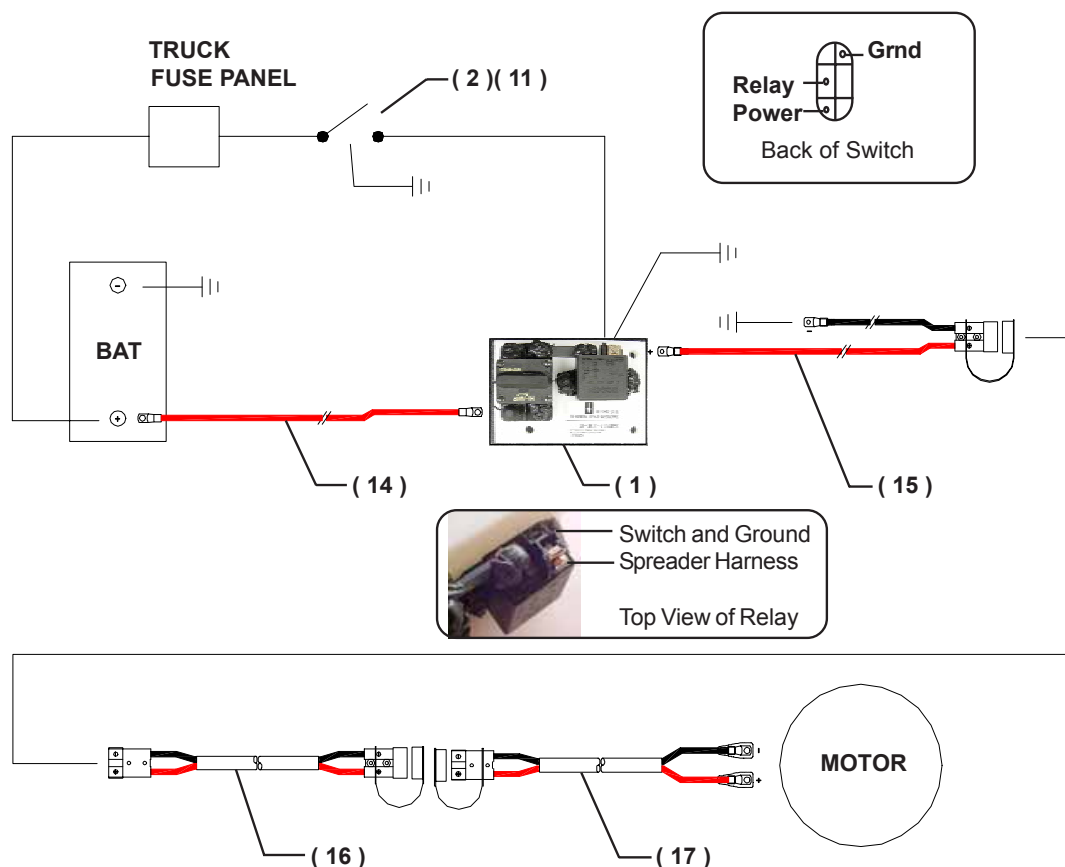
NEVER OPERATE MACHINE WITH ENGINE SHROUD REMOVED. NEVER CLIMB INTO THE HOPPER WHILE IT IS OPERATING OR CAPABLE OF BEING OPERATED. SERIOUS INJURY OR DEATH MIGHT OCCUR.

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

INSTALLATION INSTRUCTIONS

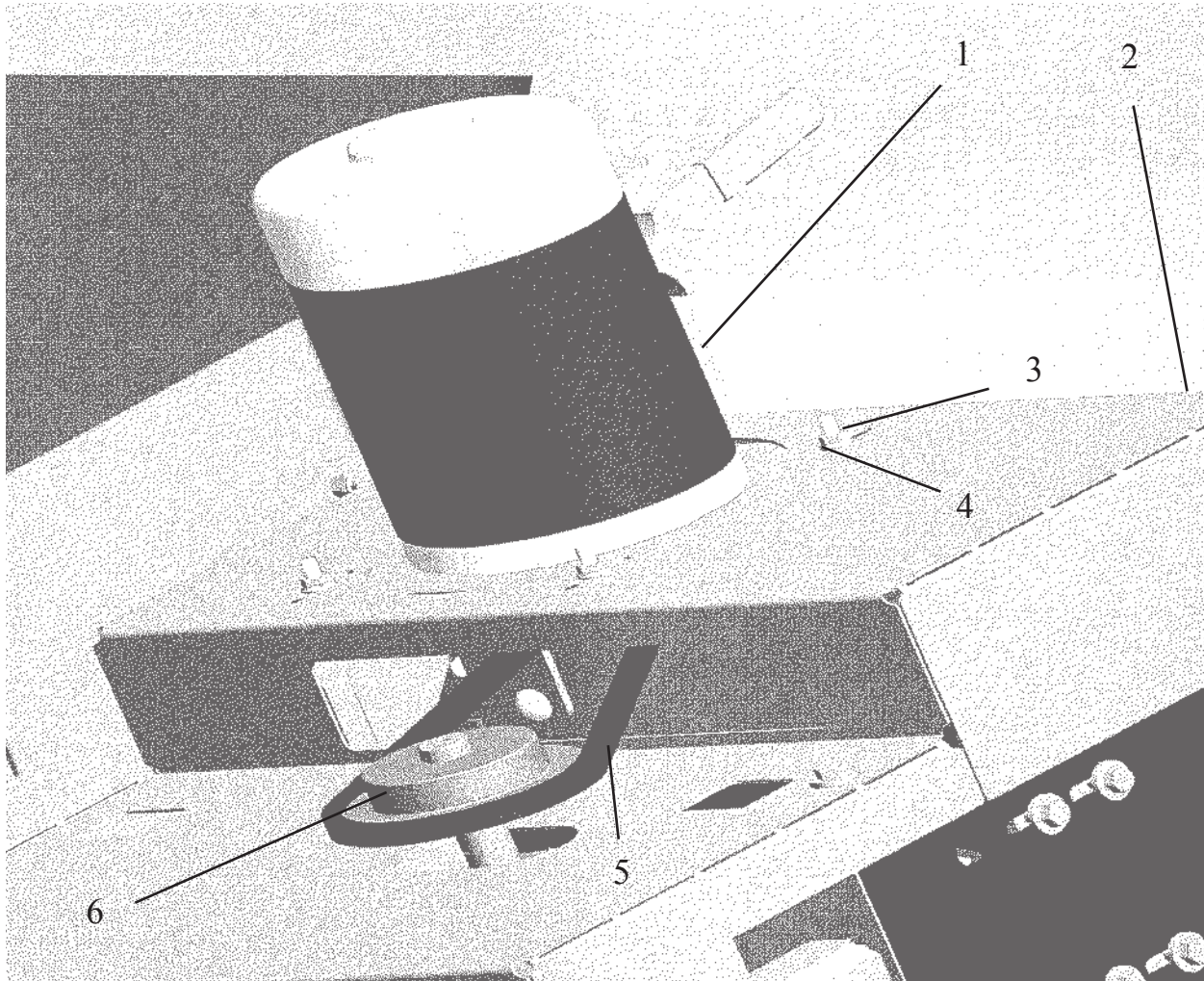
WIRING ELECTRIC DRIVE SPREADERS



<u>Item</u>	<u>Part Number</u>	<u>Qty</u>	<u>Description</u>
1	04640-045-00	1	Assy, Relay/Circuit Breaker
1A	04609-012-00	1	Breaker, Circuit
1B	04640-044-00	1	Relay, 12Vdc, 75Amp
2	04640-043-00	1	Switch, On/Off Toggle Lum
N/S	04638-112-02	2	Heat Sealed Terminal - Ring
N/S	04638-114-01	2	Heat Shrink Terminal - Male Push-on
N/S	04638-115-02	6	Heat Shrink Term.- Female Push-on
N/S	04002-066-04	3	Screw, 1/4-14 x 1 hwh Teks/3
N/S	04004-002-05	3	Flatwasher, 1/4" S.A.E. Zp
N/S	04004-001-05	3	Lockwasher, 1/4" Med Split, Zp.
N/S	04607-013-00	8	Tie, Nylon 5 1/2" Std.
N/S	04540-013-03	1	Grease, Dielectric, 4 Gram Tube
11	04640-046-00	1	Guard, Switch
N/S	04616-037-00	15ft	Wire, 14 Ga. Black Insulated
N/S	04616-016-00	6ft	Wire, 14 Ga. White Insulated
14	04616-107-00	1	Cable, Battery
15	04616-109-00	1	Assy, Wiring Harness - Truck Side
16	04616-110-00	1	Assy, Wiring Harness - 5ft Extension
17	04616-111-00	1	Assy, Wiring Harness - Spreader Side

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

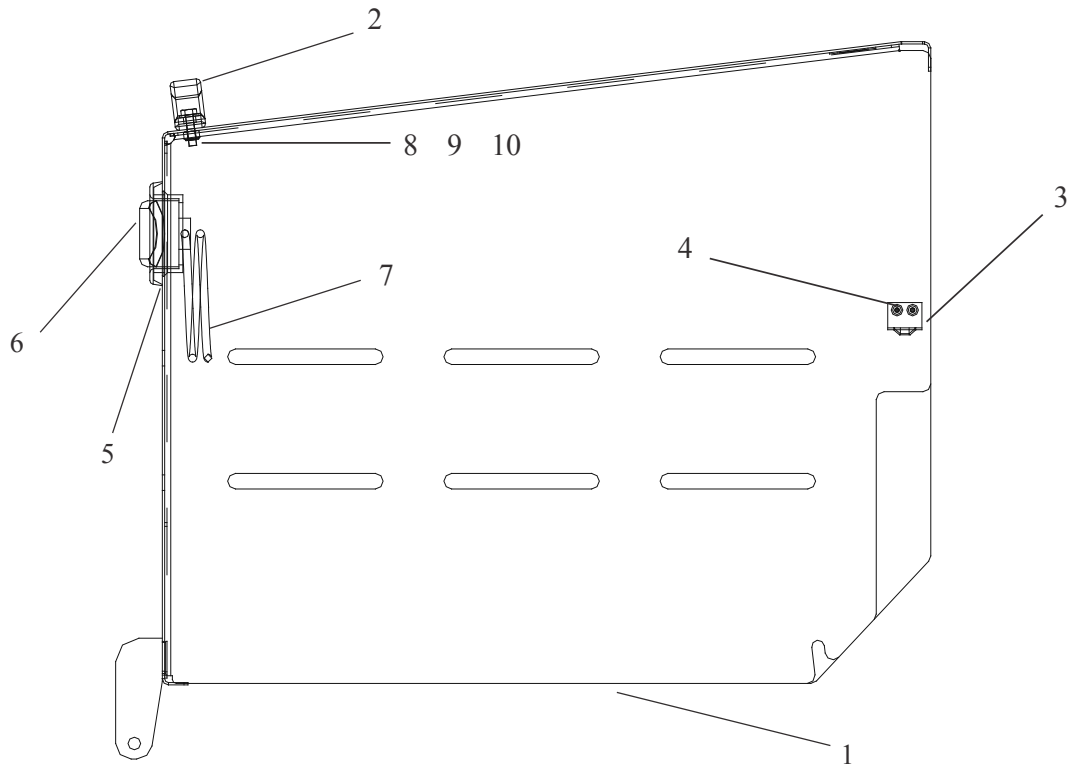
PARTS LIST FOR ELECTRIC DRIVE



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	04150-047-00	1	Motor, Electric 12 vdc
2	00122-360-03	1	weld, adapter
3	04003-032-04	4	Bolt, 5/16-18 x 1" CA SS
4	04003-806-13	4	Nut, 5/16-18 Serrated Flange, SS
5	04046-020-06	1	chain, roller, #49-73 pitch
6	04041-123-06	1	sprocket, 40BS30H , heat treated

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES

PARTS LIST FOR ELECTRIC DRIVE SHROUD

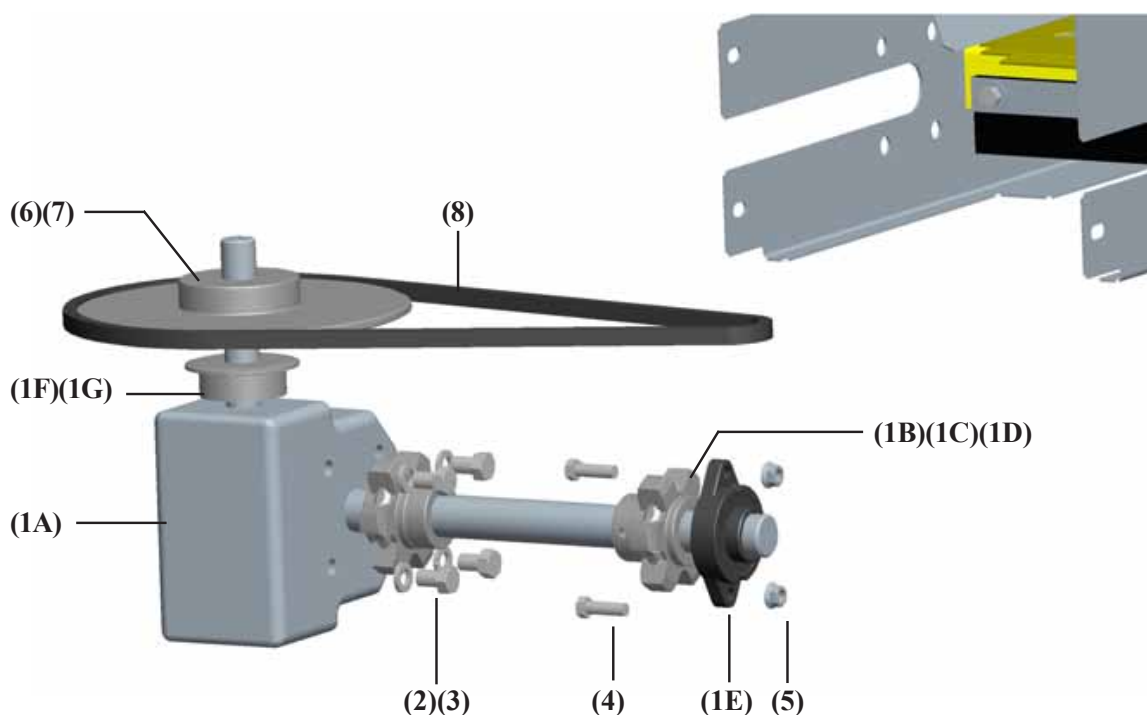


Item	Part Number	Qty.	Description
1	00122-438-03	1	Weldment Shroud
2	00122-374-00	1	Handle, plastic
3	04019-020-02	2	Keeper, Rubber "T" handle
4	04019-031-00	8	Rivet, 1/8" X 3/8" Pop Round Head
4	04004-002-02	4	Flat washer, #6, ZP
5	04605-154-00	1	Grommet, Mounting
6	04605-153-00	1	Light
7	04605-155-00	1	Cable, Light Power
8	04003-804-21	2	Locknut, 1/4-20
9	04003-001-16	2	Bolt, 1/4-20 1" SS
10	04004-002-24	2	flat washer, 1/4"
NS	04049-002-00	1	Decal, Swenson Logo
NS	04049-358-00	1	Decal, No Step

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

PARTS LIST FOR ELECTRIC DRIVE GEARBOX



<u>Item</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	00119-919-00	1	Assy, Gearbox (W/Sprockets & Bearing)
1A	00118-337-01	1	*Gearbox, 20:1 Assy
1B	00102-348-00	2	*Sprocket, 6T, Keyed
1C	04031-002-00	2	*Key, 1/4" Sq x 1-1/2"
1D	04007-009-03	4	*Setscrew, 3/8-16 x 3/8" Al Hd
1E	04080-005-00	1	*Bearing, 1-1/4
1F	04041-125-00	1	*Sprocket, 40B19
1G	04009-001-01	1	*Key, 1/4" x 7/8" Woodruff
2	04003-005-56	4	Bolt, 1/2-13 x 3/4 HH, SS
3	04004-001-16	4	Lockwasher, 1/2 Med Split, SS
4	04003-003-26	2	Bolt, 3/8-16 x 1-1/4 HH SS
5	04003-806-12	2	Nut, 3/8-16 Ser Flange, SS
6	04041-121-00	1	Sprocket, 40B60
7	04031-008-00	1	Key, 1/4" Sq x 1-1/4"
8	04046-020-02	1	Chain, Roller #40-92 W/Connector Link
NS	04120-003-01	1	Sprocket, 40B11, 3/4" Bore

INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES



Distributors have the responsibility of calling to the attention of their customers the following warranty prior to acceptance of an order from that customer for any SWENSON® PolyHawk™.

POLYHAWK WARRANTY

what THIS WARRANTY COVERS

Swenson Spreader LLC (hereinafter "Swenson") is committed to assuring Customer satisfaction with the Spreader (hereinafter "PolyHawk"). Swenson warrants to the original owner (hereinafter "Purchaser") of the PolyHawk to be free from defects in material and workmanship for the following term: Swenson warrants the Hopper to be free from defects in material and workmanship for 10 years from time of purchase. Swenson warrants ALL OTHER PARTS AND ASSEMBLIES to be free from defects in material and workmanship for a period of one year from the date of purchase. If this PolyHawk is utilized outside North America, then this warranty shall expire one year from the date of purchase. Installation of the PolyHawk must be in accordance with Swenson's instructions. This warranty extends to the Purchaser and may not be assigned without the prior written approval of Swenson; except a distributor may assign this warranty to the first titled owner of the PolyHawk.

If a PolyHawk has a defect in material or workmanship covered by the warranty, Swenson will (at our option) either replace or repair said part in North America only. Swenson's has sole discretion as to repair of defects covered by this warranty, or replacement of the PolyHawk. Swenson's responsibilities as described herein shall not exceed the amount of the purchase of the PolyHawk.

what this warranty does not cover

Swenson's warranty does not extend to PolyHawk which have been misused, abused, improperly installed, repaired with non-genuine Swenson parts, improperly cared for, if materials such as lava rock or cinders are used, or for which payment has not been made. The warranty is void if repairs or alterations to the PolyHawk are made by unauthorized persons, or the PolyHawk serial numbers have been altered or defaced.

All gasoline engines and hydraulic pumps are warranted by their manufacturer and not by Swenson Spreader LLC. Electrical or hydraulic components are not to be disassembled without the express written permission of Swenson Spreader LLC.

the hopper is not warranted against impact damage, including but not limited to, abrasive damage.

there are no warranties, express or implied, which extend beyond the description on the face hereof. there is no implied warranty of merchantability or fitness for a particular purpose. swenson's maximum obligation and liability under this warranty shall be limited to an amount equal to the present purchase price for the swenson polyhawk. swenson shall not be liable for any loss or damage, whether direct or indirect, incidental, consequential or otherwise arising out of breach of this written warranty or any implied warranty. Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages.

Defective parts returned to Swenson Spreader LLC must be accompanied by the following information:

Spreader Model	_____
Serial Number	_____
Date Installed	_____
Where Purchased	_____

Purchaser accepts these terms and warranty limitations unless PolyHawk is returned within fifteen days for full refund of purchase price.

Effective 4/15/05

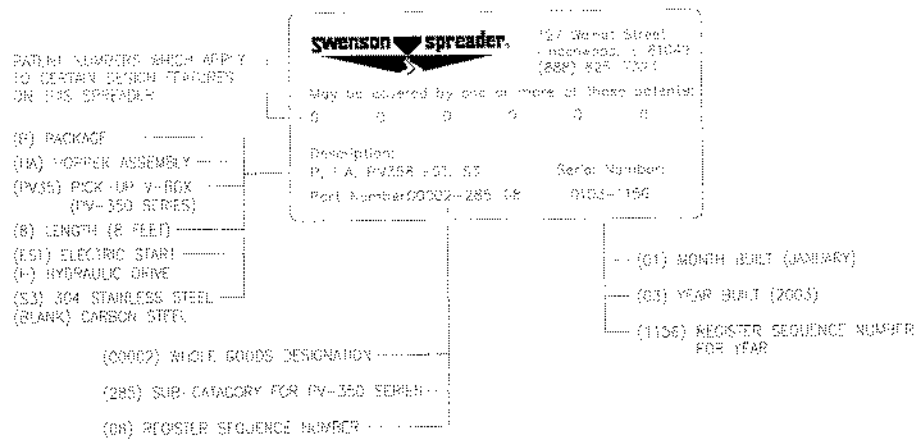
INSTALLATION, OPERATION AND PARTS MANUAL

POLYHAWK™ PV SERIES

NAME PLATE INFORMATION

NAME PLATE INFORMATION

EXPLANATION OF SERIAL NUMBER DECAL



Z:\00111\00111-289-0001.P01

CALL YOUR AUTHORIZED SWENSON SPREADER DEALER FOR PARTS AND SERVICE
SWENSON SPREADER (815) 393-4455
TOLL FREE (888) 825-7323
FAX (866) 310-0300
email: swensonsales@swensonspreader.com

In order to validate this warranty, please complete this card and mail it.

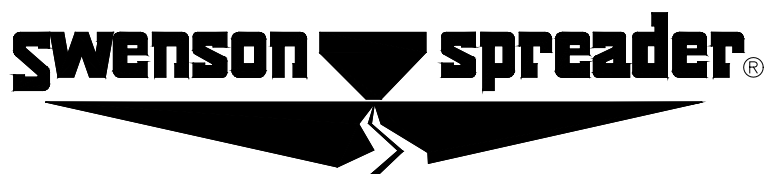
Name: _____

Address: _____

Spreader Model: _____ Serial No.: _____

Installation Date: _____ Purchased From: _____

INSTALLATION, OPERATION AND PARTS MANUAL
POLYHAWK™ PV SERIES



SWENSON SPREADER LLC
P.O. BOX 127
LINDENWOOD, ILLINOIS 61049-0127

PHONE: (815)393-4455
TOLL FREE: (888)825-7323
SALES & SERVICE FAX: (866)310-0300

email: swensonsales@swensonspreader.com
website: www.swensonspreader.com

**IMPORTANT
INFORMATION
ENCLOSED**