



Owner & Operators Manual

GAS HYDRAULIC SPREADERS

ACE TORWEL INC.

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-Warnings-

Do Not attempt to operate this Spreader until you have read and understand all warnings and instructions in the Owner's Manual and on the Spreader Unit. Failure to read and follow all warnings and instructions may lead to serious injury or death.



MOVING PART HAZARD

- NEVER enter hopper box while conveyor chain is moving.
- DO NOT RIDE on any part of the spreader while vehicle is in motion.
- Disconnect & lock out power source before adjusting or servicing.



TO AVOID INJURY

- DO NOT operate or service spreader without reading & understanding owner's manual & all warnings.
- AVOID unsafe operation & maintenance.
- KEEP unauthorized people away from equipment & controls.
- KEEP hands, feet, hair and clothing away from any and all moving parts.
- NEVER attempt to un-jam conveyor chain while engine is running.
- NEVER attempt to adjust or service spreader while engine is running.
- DO NOT stand behind material chute while spreader is discharging.
- DO NOT refuel a hot engine. Allow time to cool before refueling.
- DUMP BODY - For Utility Vehicles applications (i.e. J.D. Gator, Kawasaki Mule, etc.) Dump Body Safety Chain must be attached to secure Dump Body & Prevent accidental release of Dump Body.
- For P/U Truck Applications must use P/N 1SM6 Optional P/U Truck Mount with Chute.

IMPORTANT

- DO NOT overfill spreader. (See decal on spreader for fill capacity.) If unit stalls, remove excess material above sidewalls, and / or check for obstructions on conveyor chain.
- Failure to keep conveyor chain links lubricated and free running can damage the conveyor chain, drive shafts and body structure.
- Failure to maintain conveyor chain or other components can void warranty.

Definitions of Hazard Levels

Identify hazard levels with the following symbols, signal words and definitions.



It Means: Immediate hazards which will result in severe personal bodily injury or death.



It Means: Hazards or unsafe practices which could result in severe personal injury or death.



It Means: BE ALERT! Your safety, or the safety of others, is involved.

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EGH17 / EGH25 Gas Hydraulic Drive Salt & Sand Spreader

Complete this checklist prior to initial start-up and operation

- Read and understand Torwel's Owner's & Operations Manual
- Read and understand Engine Manual
- Read and understand all Warning Decals
- Check Fuel Level
- Check Engine Oil Level
- Check Hydraulic Oil Level
- Verify that Ignition/Low-Oil Cutoff Switch is in "On/Run" Position
- Verify Hydraulic Shut-Off Valve is in "Open" position
- Grease all Lubrication Points
- Oil Conveyor Chain
- Wire In-Cab Control Panel
- Install Discharge Chute & Spinner Disc
- Secure Top Screen using provided Locking Tab
- Coat Harness Connector Ends with dielectric grease
- Check Battery Connections
- Verify Spreader is secure in vehicle using provided Ratchet Straps

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GENERAL MAINTENANCE REQUIREMENTS

- 1) Wash unit thoroughly after each use
- 2) Lubricate Bearings
- 3) Periodically lubricate conveyor chain with used engine oil
- 4) Disconnect battery when not in use for extended periods of time
- 5) Check engine & hydraulic oil every 5 hours or daily before use
- 6) Shut off fuel valve when not in use for extended periods of time
- 7) Change engine oil every 50 hours of operation or every season
- 8) Service engine air filter every 100 hours of operation or every season
- 9) Change hydraulic oil after 50 hours of operation or every season

See Page 7 in Owner's Manual for information regarding service and lubrication.

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INSTALLATION INSTRUCTIONS

a) GH17/GH25 Spreader Hopper Installation

The GH17/GH25 Spreader is designed for mounting in the bed of most pick-up trucks. Four hold down assemblies are provided for securing the spreader easily to the truck bed.

Reminder: Any reference to directions concerning GH17/GH25 Spreader parts or a whole, will be designated as viewing the equipment from the rear of the vehicle as it would normally travel.

| | | | |
|----------|-------|---|------------------|
| Example: | Left | = | Driver's Side |
| | Right | = | Passenger's Side |
| | Front | = | Front of Vehicle |
| | Rear | = | Rear of Vehicle |

Remove the tailgate completely from the vehicle. Center the spreader to the bed of the truck and move as far forward as possible. Be sure to leave enough clearance for the material chute installation. Using the four hold down assemblies, secure the spreader to the truck bed.

Reference Figure # 1 (Page 8)

b) Spinner Shaft, Material Chute & Spinner Disc Installation

Install (1) pillow block bearing onto the lower end of the spinner shaft. Slide spinner shaft through existing pillow block bearing. Install (1) 3/16" roll pin in key slot on spinner motor shaft and slide spinner shaft onto spinner motor shaft. Tighten (2) set screws on spinner shaft. Install (1)

5/16" x 1" bolt thru spinner shaft above the top pillow block bearing. Secure with (1) 5/16" nylon locknut. Mount the material chute to the corresponding holes in the left & right side plates. The material chute should be positioned so that the three adjustable deflectors are facing left, rear and right. Secure the material chute to the spreader using (4) 5/16"-18 x 1" hex head bolts with flat washers and nylon locknuts. Mount loose pillow block bearing to lower mount (in material chute) using (2) 3/8" bolts & nylon locknuts. Tighten all hardware including (2) set screws on each pillow block bearing. Mount the 14" spinner disc to the spinner shaft using (2) 3/4"-10 hex nuts & 1 lock washer.

Reference Figure # 2 (Page 8)

c) Cab Side Wiring Harness Installation

Important: The engine side harness for the spreader is already connected. Use care when connecting all wires and cables. A short in the wiring system may cause damage to the engine or the spreader electrical system.

Route the engine side wiring harness to the rear of the vehicle's cab. If a permanent location for the harness cable is preferred, find an unobstructed area behind the cab of the vehicle and drill a 1 7/8" diameter hole in the cab wall. A silicone based sealant may be used around the mounting surface for a watertight seal.

Installation Note: A horizontal connection between harness ends is recommended, as a vertical connection will allow water and moisture to enter the plug ends. If drilling is not desired, feed the cab side harness through the rear sliding window (if equipped), under the seat and to the dash. Leave enough cable at the plug end to allow an easy connection between spreader harness ends.



d) In-Cab Control Panel Installation

Connect the exposed wire terminal end of the harness cable to the control panel. When connecting wires, be sure that the ignition switch is in the "OFF" position. Mount the control panel to the underside of the dash board, making sure the control panel is grounded to the vehicle.

Installation Notice: When choosing a location for the control panel, do not position the panel in line with the driver's or passenger's seat so there is no possibility of hitting it in case of an accident.

OPERATING INSTRUCTIONS**a) Cab Controls**

- 1) Verify that the ON/OFF switch is in the ON/RUN position.
- 2) Push in the ignition key (this will activate the electric choke) and turn to the "START" position. Once engine has started, release key to the "ON/RUN" position.
- 3) Flip the conveyor switch to the "ON" position (the indicator light will come on) to engage the conveyor chain and spinner disc.

b) Gate Height Adjustment

- 1) Loosen (2) gate screws
- 2) Adjust gate to the desired height
- 3) Tighten gate screws

Reference Figure # 4 (Page 10)

c) Material Chute Deflectors

Adjust the material deflectors to fine tune the spread pattern. Keep all material deflectors at the same angle.

For a large spread pattern: Raise Deflectors
 For a small spread pattern: Lower Deflectors

Important: Never attempt to adjust material deflectors while the spreader is operating.

Reference Figure # 2 (Page 8)

d) Conveyor Chain Adjustment

Tighten both take-up bolts equally until slack is gone and the conveyor chain does not ride on the base support channels.

Adjustment Note: After adjusting the conveyor chain, verify that the take-up shaft is not cocked at an angle.

Important: Never attempt to adjust conveyor chain while spreader engine is running.

Reference Figure # 5 (Page 10)



GENERAL INFORMATION

a) Safety Precautions

- 1) DO NOT operate the spreader without first reading and understanding the Operator's Manual and All Warning Decals.
- 2) DO NOT lubricate or repair any moving parts while the spreader is running.
- 3) DO NOT go into the hopper body while the spreader is running.
- 4) DO NOT refuel a hot engine or while the engine is running.
- 5) DO NOT stand directly behind material chute while the spreader is discharging.
- 6) If conveyor chain becomes clogged, DO NOT attempt to loosen chain while the spreader is operating.
- 7) Keep hands, feet and loose clothing away from any moving parts.

b) Storage

- 1) Wash unit thoroughly
- 2) Oil conveyor chain
- 3) Lubricate all bearings
- 4) Disconnect battery

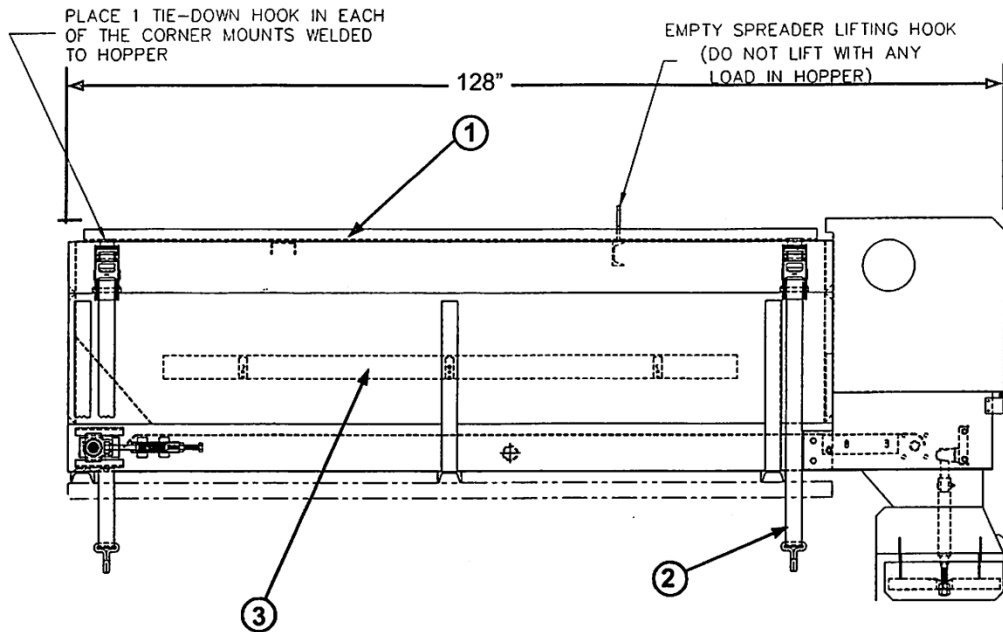
c) Lubrication

| <u>Location</u> | <u>Lube Type</u> |
|------------------------|------------------|
| Engine Oil | SAE 30 |
| Hydraulic Oil | ISO Grade 32 |
| Take-Up Bearings | Bearing Grease |
| 4 Bolt Flange Bearings | Bearing Grease |
| Spinner Bearings | Bearing Grease |
| Conveyor Chain | Use Engine Oil |

d) Service

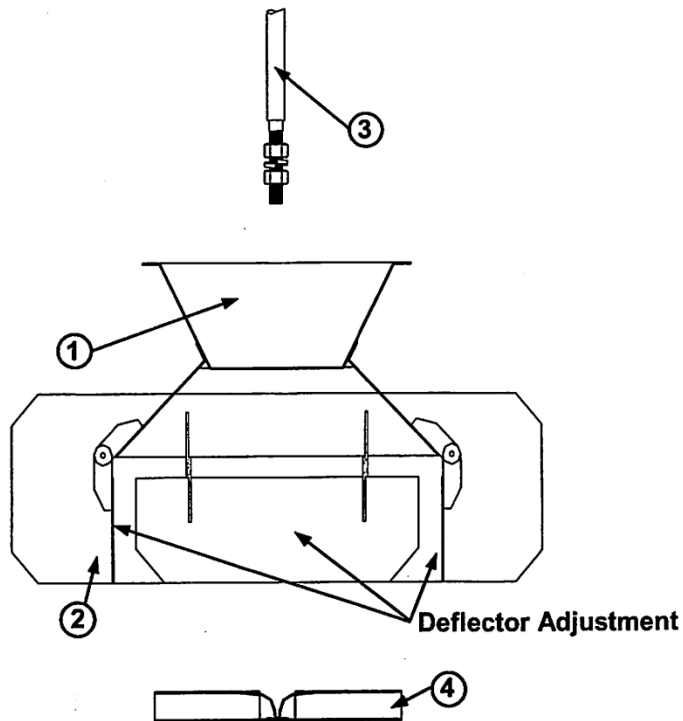
| <u>Location</u> | <u>Recommended</u> | <u>Interval</u> |
|--------------------|--------------------|-----------------------|
| Engine Oil | Check | Hours or Daily |
| Engine Oil | Change | 50 Hours or 1 Season |
| Engine Air Filter | Check or Change | 100 Hours or 1 Season |
| Spark Plugs | Check or Change | 100 Hours or 1 Season |
| Harness Connectors | Check Condition | 50 Hours or Monthly |
| All Bearings | Lubricate | 50 Hours or Monthly |
| Conveyor Chain | Lubricate | 100 Hours or 1 Season |





LEFT SIDE

Reference Figure #1



Reference Figure #2

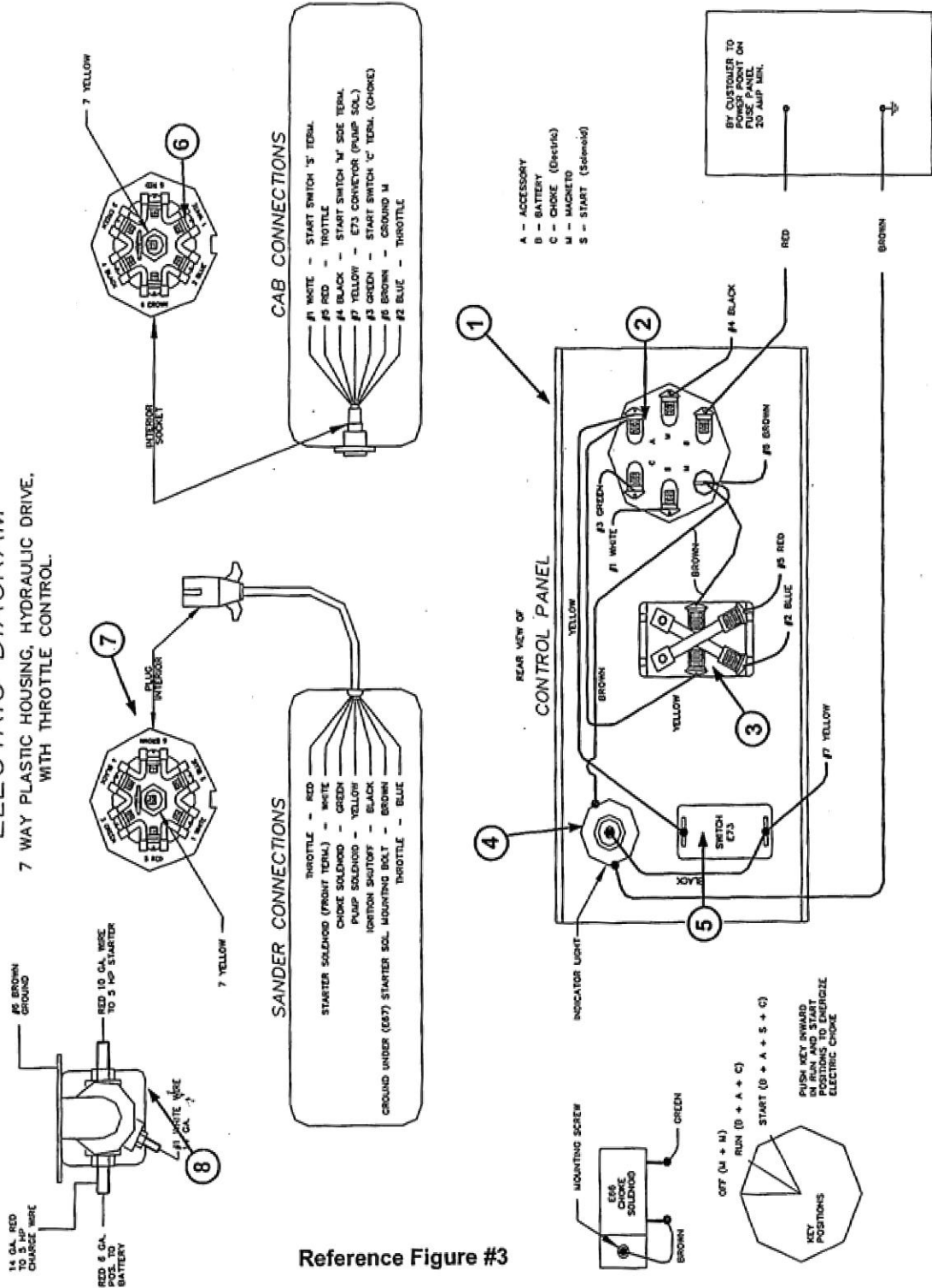


| Item No. | Part Number | Part Description | No. Incl. |
|--|-------------|--|-----------|
| Spreader Accessories - Figure # 1 | | | |
| 1 | EGH-ESC-8 | Top Screen - 8 ft. | 1 |
| N/S | EGH-E134 | Locking Clip for Top Screen | 1 |
| 2 | EGH-EHD | Heavy Duty Strap Assembly-All Inclusive (1 Only) | 4 |
| 3 | EGH-EINV | Inverted Vee Conveyor Bridge | 1 |
| N/S | E7-1 | Chute Extention | Optional |
| Discharge Assembly - Figure # 2 | | | |
| 1 | EGH-C7 | Material Chute | 1 |
| 2 | EGH-E6 | Material Deflector | 3 |
| 3 | EGH-C17A | Standard Spinner Shaft (21 1/4") | 1 |
| 4 | EGH-E18 | 14" Spinner Disc | 1 |
| N/S | EGH-EX19L | Pillow Block Mount (lower) | 1 |
| N/S | EGH-E8C | Material Gate | 1 |



ELECTRIC DIAGRAM

7 WAY PLASTIC HOUSING, HYDRAULIC DRIVE, WITH THROTTLE CONTROL.

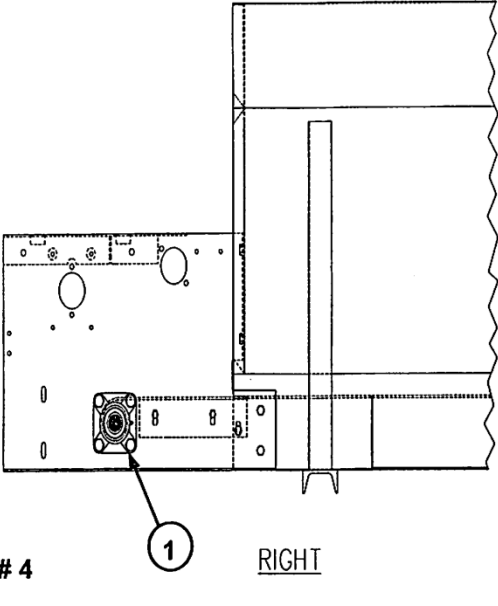
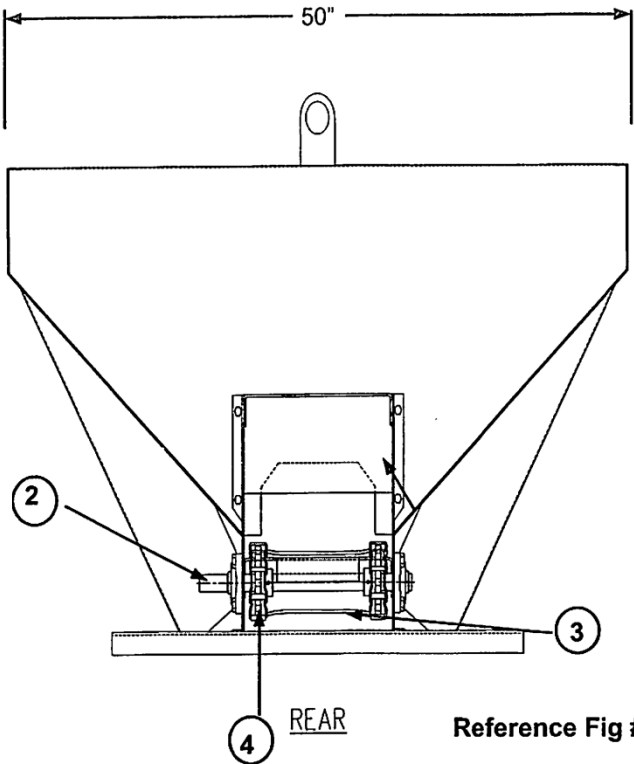


Reference Figure #3

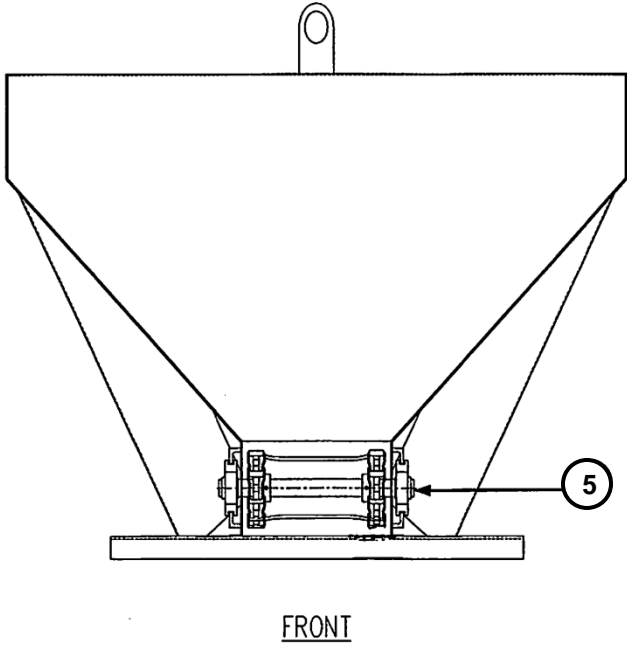
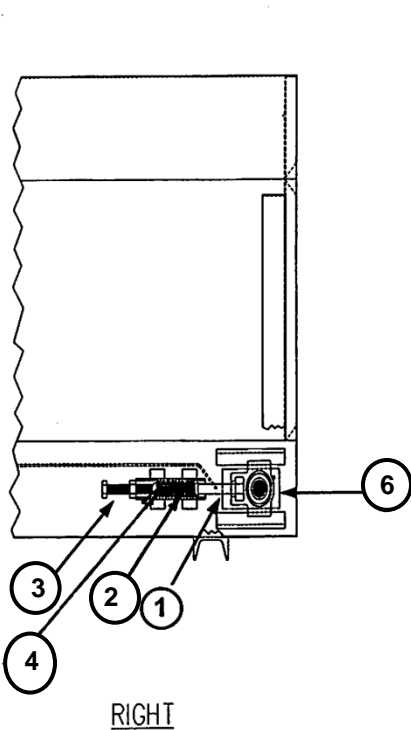


| Item No. | Part Number | Part Description | No. Incl. |
|--|-------------|--|-----------|
| Control Detail - Reference Figure # 3 | | | |
| 1 | EGH-C70 | Control Panel | 1 |
| 2 | EGH-C70B | Keyed Ignition Switch | 1 |
| 3 | EGH-C70C | Electric Throttle Switch | 1 |
| 4 | EGH-C70D | Pilot Light | 1 |
| 5 | E73 | Toggle Switch | 1 |
| N/S | EGH-C44 | Cab-Side Wiring Harness | 1 |
| 6 | EGH-C44A | 7-Way Cab-Side Wiring Harness Plug End | 1 |
| N/S | EGH-C43 | Spreader Side Wiring Harness | 1 |
| 7 | EGH-C43A | 7-Way Spreader Side Harness Plug End | 1 |
| N/S | EGH-C42 | Battery | 1 |
| N/S | EGH-C42A | Battery Box | 1 |
| N/S | EGH-C42B | Battery Hold Donw | 1 |
| N/S | EGH-C32N | Negative Battery Cable | 1 |
| N/S | EGH-C36P | Positive Battery Cable | 1 |
| 8 | E67 | Starter Solenoid | 1 |





Reference Fig # 4



Reference Fig # 5

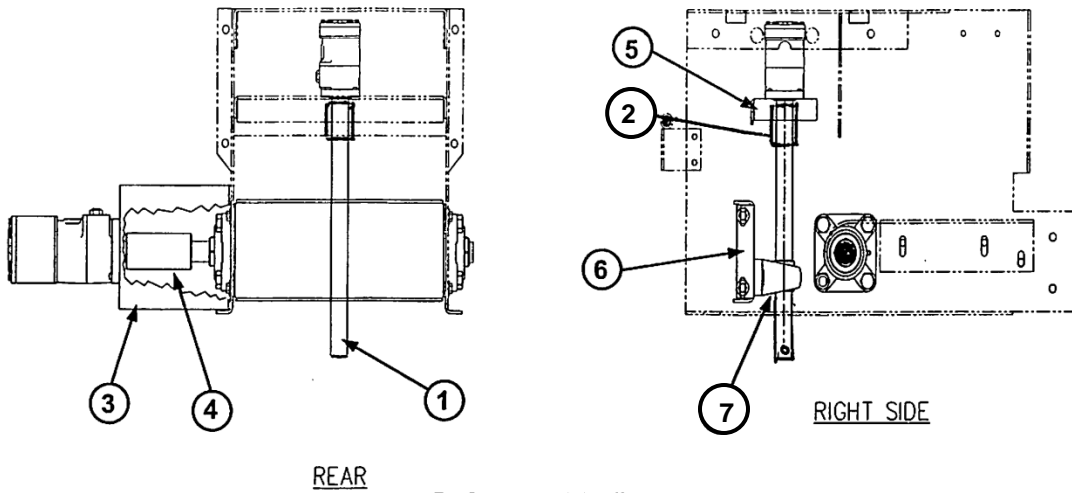
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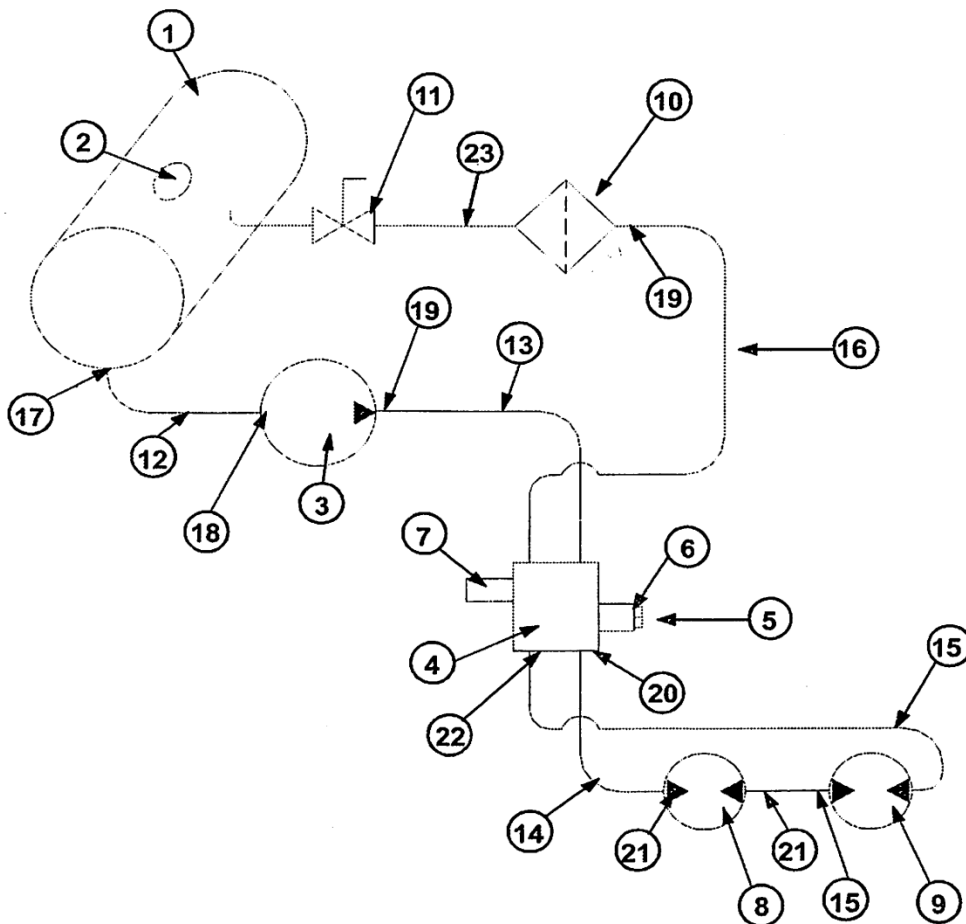
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| Item No. | Part Number | Part Description | No. Incl. |
|---|-------------|----------------------------|-----------|
| Conveyor Assembly - Reference Figure # 4 | | | |
| 1 | EGH-E13 | 4 Bolt Bearing | 2 |
| 2 | EGH-E14 | Conveyor Drive Shaft | 1 |
| 3 | EGH-E15 | Conveyor Chain | 1 |
| 4 | EGH-E11 | 8 Tooth Sprocket | 4 |
| Take - Up Assembly - Figure # 5 | | | |
| 1 | EGH-E101 | BH Rivet - 5/8" x 4" | 2 |
| N/S | EGH-E103 | Takeup Spring - 5" | 2 |
| 2 | EGH-E104 | Takeup Bolt - 5/8"-11 x 4" | 2 |
| N/S | EGH-E106 | BH Rivet - 1/2" x 1 1/4" | 2 |
| 3 | EGH-E11 | 8 Tooth Sprocket | 4 |
| 4 | EGH-E12 | Takeup Shaft | 1 |
| 5 | EGH-E10 | Takeup Bearing | 2 |





Reference Fig # 6



Reference Fig # 7

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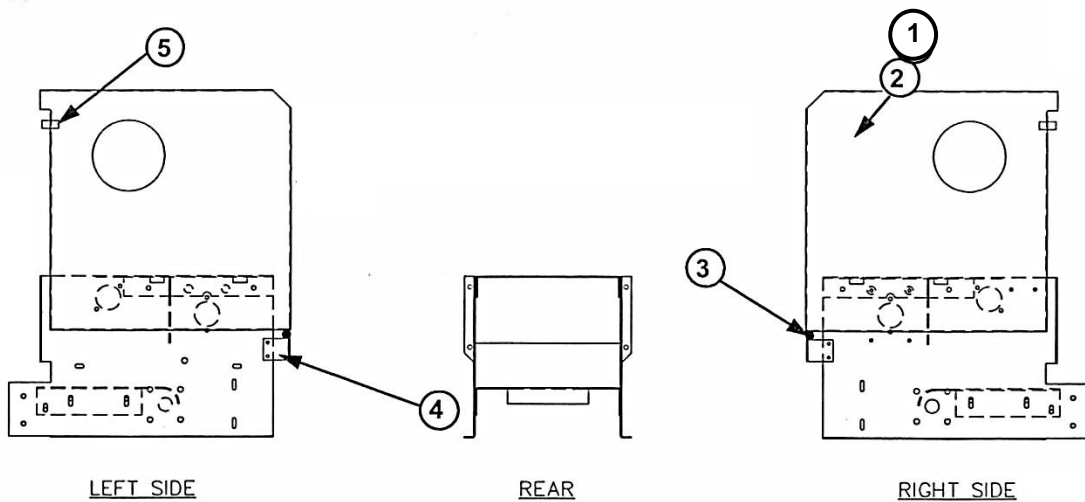
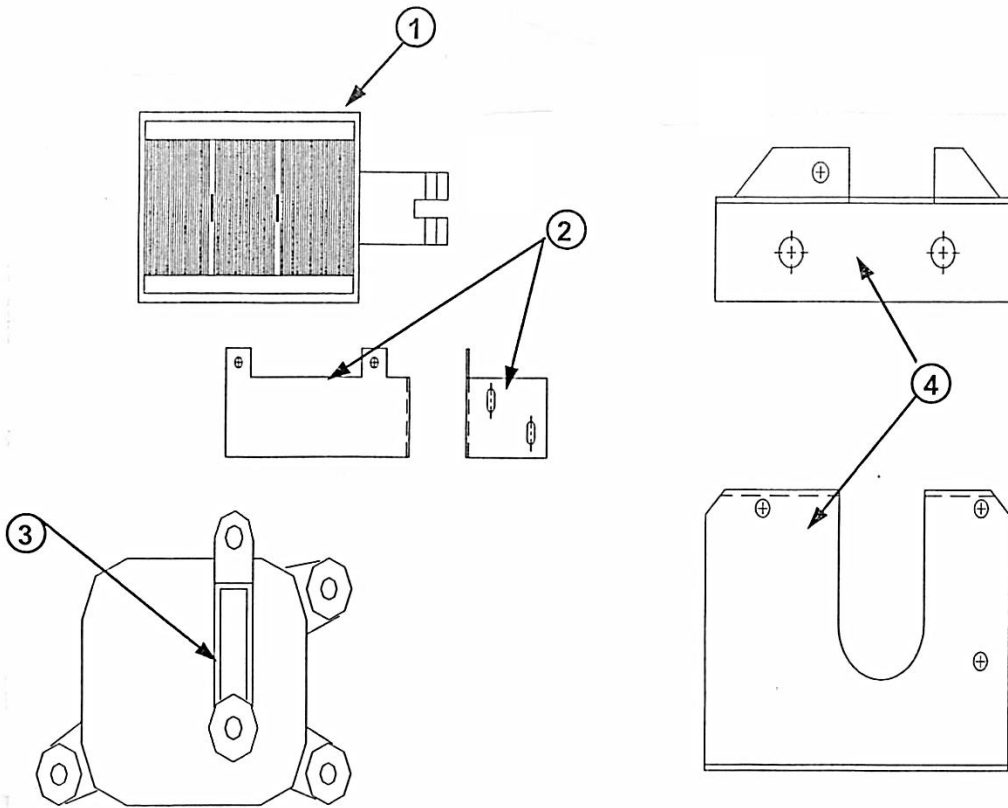
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| Item No. | Part Number | Part Description | No. Incl. |
|--|-------------|--------------------------------------|-----------|
| Hydraulic Drive Assembly - Figure # 6 | | | |
| 1 | EGH-C17 | Spinner Coupler Shaft - 1" x 8 1/2" | 1 |
| 2 | EGH-C17-1 | Flex Coupler Spinner Motor | 1 |
| 3 | EGH-EH200 | Conveyor Motor Bracket | 1 |
| 4 | T220208 | Conveyor Motor Coupling (4") | 1 |
| 5 | EGH-C19M | Spinner Motor Mount Bracket | 1 |
| 6 | EGH-C19MS | SS Spinner Motor Mount Bracket | 1 |
| 7 | EX19 | Pillow Block Mounting Bracket | 1 |
| 8 | EX36P | Pillow Block Bearing | 1 |
| 9 | EGH-C25-1 | Pump Mounting Bracket | 1 |
| 10 | EGH-C25-C4 | Pump Coupling | 1 |
| 11 | EGH-C25-C4A | 3/4" Bore Coupling Half | 1 |
| 12 | EGH-C25-C4B | 7/16" Coupling Half | 1 |
| 13 | EGH-C25-C4C | Coupling Insert (Nitrile - Love Joy) | 1 |
| Hydraulic Plumbing - Figure # 7 | | | |
| 1 | EGH-C81 | Hydraulic Reservoir | 1 |
| 2 | EGH-C81-4 | Filter Breather Assembly with Screen | 1 |
| 3 | EGH-C4 | Hydraulic Pump | 1 |
| 4 | EGH-C83 | Relief Block Complete | 1 |
| 5 | EGH-C83-2 | Solenoid Valve | 1 |
| 6 | EGH-C83-3 | 12VDC Solenoid Coil | 1 |
| 7 | EGH-C83-4 | Relief Valve | 1 |
| 8 | EGH-CCM-1 | Conveyor Motor | 1 |
| 9 | EGH-CSM-1 | Spinner Motor | 1 |



| Item No. | Part Number | Part Description | No. In Cr. |
|----------|-------------|---|------------|
| N/S | EGH-C84-1 | Filter Element | 1 |
| 10 | EGH-C84-2 | Filter Head Only | 1 |
| 11 | EGH-C85 | Shut-Off Valve | 1 |
| 12 | EGH-CH96 | Suction Hose (Reservoir to Pump) | 1 |
| 13 | EGH-CH97 | 15" Hose Assembly (Pump to Relief Block) | 1 |
| 14 | EGH-CH99 | 14" Hose Assembly (Relief Block to Conveyor Motor) | 1 |
| 15 | EGH-CH94 | 18 1/2" Hose Assembly (Conveyor To Spin/Spin to Relief Block) | 2 |
| 16 | EGH-CH98 | 13" Hose Assembly (Relief Block to Filter Head) | 1 |
| 17 | EGH-C86 | Elbow - 90 ° Male NPT x JIC -8-8 (Reservoir Suction) | 1 |
| 18 | EGH-CH96A | Hose Coupling Male Barb x Male NPT -8-6 (Pump Inlet) | 1 |
| 19 | EGH-C92 | Elbow - 90 ° Male NPT x JIC -6-6 (Pump Outlet/Filter In) | 2 |
| 20 | EGH-C93 | Elbow - 90 ° Male NWO x JIC -6-6 (Relief Block to Conveyor) | 1 |
| 21 | EGH-C89A | Elbow - 90 ° Male NWO x JIC -6-8 (Conveyor Motor) | 2 |
| 22 | EGH-C88 | Adapter - Male O-Ring x JIC -6-6 (Relief Block to Spin) | 1 |
| 23 | EGH-C91 | Adapter - Male NPT x Male NPT -6-6 (Filter Head to Shut-Off) | 1 |





Reference Fig # 9

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| Item No. | Part Number | Part Description | No. Incl. |
|---|-------------|-----------------------------------|-----------|
| Engine Electrical Figure # 8 | | | |
| 1 | EGH-E66 | Choke Solenoid | 1 |
| N/S | EGH-E66-1 | Choke Return Spring | 1 |
| 2 | EGH-C69-TC | Tecumseh Choke Bracket | 1 |
| 3 | EGH-E77C | Throttle Actuator | 1 |
| 4 | EGH-C69BT | Tecumseh Throttle Bracket | 1 |
| N/S | EGH-C75-5TT | Throttle Motor Push-Rod | 1 |
| N/S | EGH-C25-T | 5HP Tecumseh Engine | 1 |
| Engine Housing Figure # 9 | | | |
| 1 | EGH-C02-K | Rear Mount Assembly | 1 |
| 2 | EGH-C3 | Engine Cover (hood) | 1 |
| 3 | EGH-E3-10D | Hinge Rod | 1 |
| 4 | EGH-E3-10 | Hood Hinge | 2 |
| 5 | E3-9 | Hood Latch | 2 |
| Miscellaneous Stainless Steel Spreader Parts | | | |
| (3)Fig#1 | EGH-EINV | Inverted Vee Conveyor Bridge | 1 |
| (5)Fig#6 | EGH-C19M | Sppinner Motor Mount Bracket | 1 |
| (2)Fig#9 | EGH-C3 | Engine Cover (Hood) | 1 |
| (1)Fig#2 | EGH-C7 | Material Chute | 1 |
| (2)Fig#2 | EGH-E6 | Material Deflector | 3 |
| N/S | E7-1S | Chute Extension - Stainless Steel | Optional |
| (1)Fig#9 | EGH-C02-K | Rear Mount Assembly | 1 |
| (6)Fig#6 | EGH-EX19 | Pillow Block Mout (Upper) | 1 |
| N/S | EGH-EX19L | Pillow Block Mount (Lower) | 1 |
| N/S | EGH-E8C | Material Gate | 1 |
| N/S | EGH-C42A | Battery Box | 1 |
| N/S | EGH-C42B | Battery Hold Down | 1 |



Troubleshooting

| Engine/Electrical | | |
|---------------------------------------|--|---|
| Symptom | Possible Problem | Solution |
| Engine Will Not Start | On/Off Switch on Engine in OFF Position | Put On/Off Switch in ON Position |
| | Fuel Tank Empty | Add Fuel |
| | Water in Fuel | Drain Fuel Tank, Add Fresh Fuel |
| | Loose Wiring Connection | Visually inspect Harness Connections |
| Engine Will Not Turn Over | Weak Battery | Check Condition of Battery & Connections |
| Engine Will Not Shut Off | Bad or Missing Ground at Control Panel | Ground Control Panel to Vehicle |
| Engine Smokes While Running | Clogged Air Filter | Clean or Replace Air Filter |
| | Overfilled Oil Level in Engine | Check Engine Oil Level |
| Battery Will Not Charge | Bad or Missing Ground At Control Panel | Ground Control Panel to Vehicle |
| | Bad or Missing Ground at Battery Ground Lead | Clean Battery Ground Lead Connection to Spreader Body |
| Engine Will Not Choke | Misaligned or Corroded Choke Solenoid Plunger | Verify Choke Solenoid Plunger is Operating Straight. Clean Corrosion from Plunger |
| | Choke Plunger Doesn't Move | Lubricate Plunger with WD40 |
| General Engine Questions | | Refer to Engine "Owner" Manual" |
| Conveyor | | |
| Symptom | Possible Problem | Solution |
| Not Enough Material Being Spread | Gate Not Adjusted Properly | Open Gate for Desired Amount of Material |
| Too Much Material Being Spread | Gate Not Adjusted Properly | Close Gate for Desired Amount of Material |
| Conveyor Chain Has Too Much Slack | Take-Up Bearings Out Of Adjustment | Adjust Take-Up Bolts at Front of Spreader. Tighten Bolts to reduce Slack. |
| Take-Up Bolts Have no Adjustment Left | Conveyor Chain has Stretched | Loosen Take-Up Bolts Completely. Remove Links from Conveyor Chain. Re Adjust Take-Up Bolts. |
| Conveyor Chain Does Not Move | Debris or Frozen Material Stuck in Conveyor Chain. | Dislodge Material From Conveyor Chain. |
| | No Power to Conveyor Solenoid | Verify Conveyor Switch is Getting Power. |
| | | Check & Inspect Harness Connections. Verify Connection at Conveyor Solenoid. |
| Spinner | | |
| Symptom | Possible Problem | Solution |
| Spread Pattern Too Narrow | Engine Speed Too Slow | Increase Throttle to Engine |
| Spread Pattern Too Wide | Engine Speed Too Fast | Reduce Throttle to Engine |
| Spinner Disc Does Not Turn | Loose Connection Between Shaft & Disc | Tighten Mounting Nuts on Shaft |
| Spinner Disc Vanes Wear Early | Suspect Material | Check Material Being Spread for Rocks |

