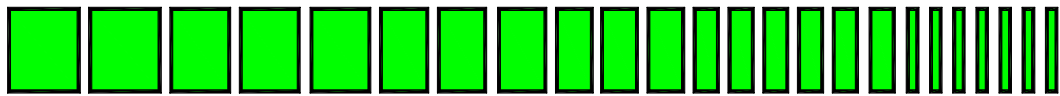


# BOWIE

## HYDRO-MULCHER



# Operators Manual

*Bowie Lancer 500/600*

Serial No.: \_\_\_\_\_



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Use this manual to familiarize yourself with the features of your new equipment.

## Forward

**Bowie Industries**, wishes to thank you for your purchase of the **Lancer 500/600 Bowie Hydro-Mulcher®**. It has been manufactured after many years of research and development. We are confident that your **Lancer 500/600 Bowie Hydro-Mulcher®** will give you unfaltering service for many years making you a proud satisfied owner. In order for this to happen we strongly recommend that you read this manual very thoroughly and see that your **Lancer 500/600 Bowie Hydro-Mulcher®** is used and maintained in a proper way. It has been manufactured using heavy duty materials throughout. It is designed for ease of use and trouble free operation.

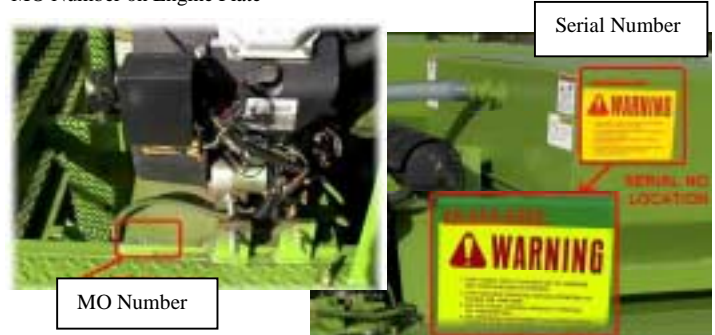
If you have any further questions regarding your **Lancer 500/600 Bowie Hydro-Mulcher®** contact your dealer. When contacting your dealer be sure to have the following information available:

- 1.) unit model number
- 2.) unit serial number
- 3.) engine serial number
- 4.) engine spec number

These numbers are located on your machine in the following places:

MO Number on Engine Plate

Serial Number upper right rear tank.



Our Company is the leader in the Erosion Control and Landscaping Industry. To serve your needs a score of national and international distributors are there to assist you in the sale and service of Bowie Erosion Control and Landscaping Equipment.

**Bowie Industries, Inc**  
[www.bowieindustries.com](http://www.bowieindustries.com)

Owen Meyer, President  
 Gary Meyer, VP/Engineer  
 Bob Jones, Sales Manager  
 Jimmy Terry, Parts Manager

Following the operating instructions and doing proper maintenance of your new **Bowie Hydro-Mulcher®** will give you years of reliable and dependable service. So be sure that you read and carefully follow the instructions given in this manual. This manual provides information for the **Bowie Hydro-Mulcher®**.

*Bowie Industries, Inc.* RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN AND SPECIFICATIONS WITHOUT NOTICE.

## READ CAREFULLY ALL THE INSTRUCTIONS

### Unpacking

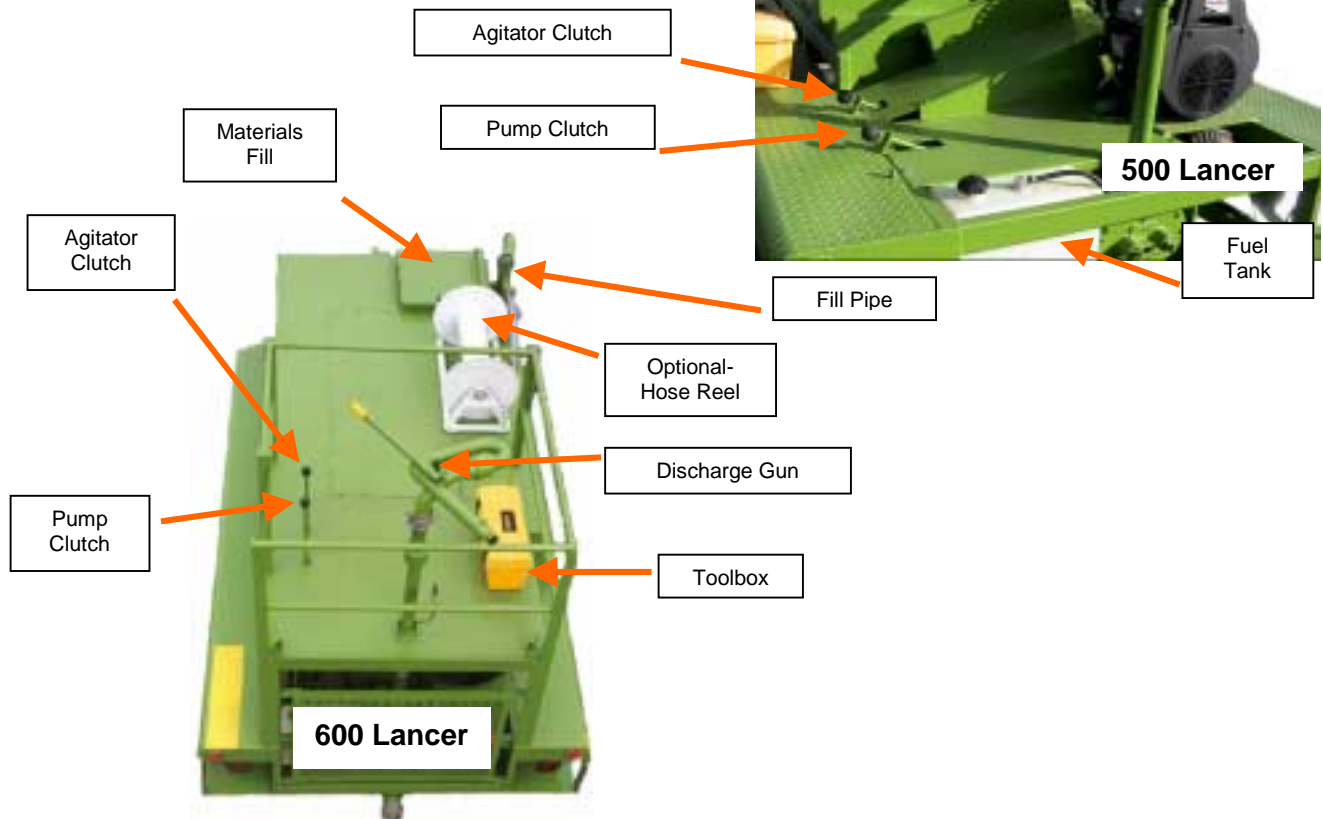
Your new **Bowie Hydro-Mulcher®** is shipped fully assembled, except that the battery will be disconnected. However make sure that prior to starting, that all packaging materials are removed from the tank and engine areas.

### Getting Started

Perform the following operations:

- 1.) Read Operation Manual
- 2.) Check engine oil level
- 3.) Fill fuel tank
- 4.) Install and connect battery

Trailer Models tighten wheel lug nuts



## ⇒ Quick Step

Getting Started you should see these instructions on the side of the tank..

Pull out ignition switch, set choke and throttle then press the starter switch.  
After starting adjust the throttle and choke settings.

**— ATTENTION —**

**FOR SAFE-EFFICIENT OPERATION OF THIS MACHINE  
USE THE FOLLOWING LOADING PROCEDURE AS A GUIDE**

- (1) MAKE SURE TANK IS CLEAN
- (2) CHECK GATE VALVE AND CLUTCH CONTROLS
  - (A) GATE VALVE CONTROL IN CLOSED POSITION
  - (B) ENGINE AND PUMP CLUTCH CONTROLS IN NEUTRAL POSITION
- (3) START ENGINE
- (4) ENGAGE ENGINE CLUTCH CONTROL TO START AGITATION
- (5) BEGIN FILLING TANK WITH WATER
- (6) LOAD SEED
- (7) LOAD FERTILIZER
- (8) MAKE SURE WATER LEVEL COVERS BOTTOM HALF OF LOWER AGITATOR BEFORE LOADING WOOD FIBER MULCH
- (9) LOAD WOOD FIBER MULCH
  - (A) LOAD THROUGH SHREDDER BAR OPENING
  - (B) INCREASE THROTTLE POWER AS REQUIRED TO HANDLE MATERIAL
  - (C) MULCH PACKAGED IN 50 LB. BAGS IS MOST DESIREABLE
  - (D) DO NOT FORCE MATERIAL THROUGH SHREDDER BAR OPENING
  - (E) KEEP HANDS, FEET, AND BODY CLEAR OF TANK OPENING
  - (F) IF MATERIAL BECOMES CLOGGED IN MACHINE, DISENGAGE CLUTCH, STOP ENGINE, BEFORE ATTEMPTING TO UNCLOG.
  - (G) KEEP ALL GUARDS AND GRATES IN POSITION
- (10) ALL MATERIAL SHOULD BE IN SLURRY BEFORE WATER LEVEL REACHES 3/4 FULL IN TANK
- (11) AFTER ALL MATERIALS ARE LOADED CONTINUE WATER FLOW UNTIL MACHINE IS FULL
- (12) INCREASE ENGINE SPEED TO FULL THROTTLE TO AGITATE FIBER MULCH INTO EVEN SLURRY

**WARNING- Danger!** keep hands, feet, and limbs - free and clear of agitators and inside of tank



## Seeding-Sprigging-Mulching Tips

### ⇒ Seeding-Sprigging

When seeding it is very important that you start with a clean tank, thus preventing contamination of the type and quality of seeds being used. Load materials through the shredder access lid, being careful that no paper, plastic packaging materials or other foreign matter enters the tank. These foreign materials can cause pump and spraying blockage or other application problems. THEY MUST BE REMOVED BEFORE THE PUMP CAN BE OPERATED. Load with the materials to the ratios specified. If the slurry is to be transported, the engine may either be at an idle or shut off, providing the tank gate valve is in the 'closed' position. Not all seed is alike. Erosion control applications often call for exotic mixes and temperamental varieties

### ⇒ Mulch

Mulch is an important element in the germination of seeds and erosion control. Mulch controls the loss of soil moisture and provides an insulation. At the same time mulch prevents the soil and seeds from being washed or blown away. This property can be enhanced with the use of a tackifier, which is basically an organic glue.

500 Gallon or 600 Gallon Lancer	Load Rate lbs	1500 lbs/acre	1800 lbs/acre	2000 lbs/acre
Wood Fiber Mulch	175	5124	4229	3821
Paper Fiber Mulch	200	5808	4840	4356

When using extension hoses with pressure control remote valves. A lubricant or slickifier, should be added to the slurry to aid in the flow of materials. In addition for every 50 feet of hose these loading rates should be reduced by 5% because of hose friction.

The rate of application varies according to the soil conditions, job specifications, and the type of delivery (i.e. deck or hose application, surface or sub-surface application).

As a rule of thumb seeding can be simultaneously mulched with wood fiber at the rate of 1,000# per acre. Grass seeding results are not directly proportional to amounts of wood fiber used in rates greater than 2,000# per acre, except for Hydro-Sprigging. Upon the emptying of the tank disengage clutches, idle engine, then cut off power.

### ⇒ FINISHING UP AT THE END OF DAY OR JOB

To insure long life of the equipment and costly down time always clean your equipment inside and out. Flush the tank, pump, hose and nozzles with water. Remember that fertilizers are corrosive. If you have the Flush Tank Option this option provides clean water to the pump and discharge hose bypassing the tank slurry.

The flush tank provides a convenient means of cleaning the pump and hoses without completely flushing the main storage tank. The clean water supply and controls are shown in [Flush Tank Option Plumbing](#)

**Note:**

Both Levers pulled toward back of machine to operate flush system.

To close system for normal operation push both levers forward toward tank



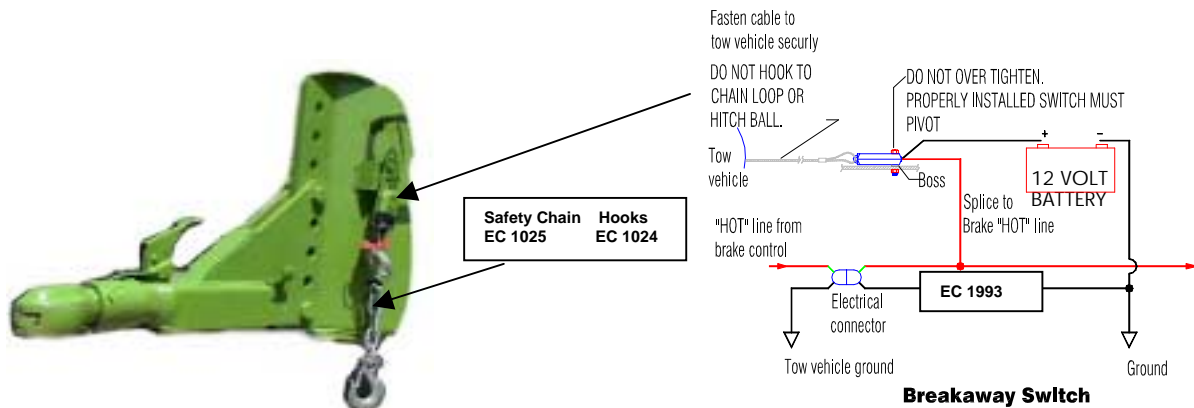
600 Victor (shown)



## Make your Jobs Safe and Profitable

Avoid down and lost time by working safely. Be sure to follow safety tips and warning labels that are included with your Hydro-Mulcher®.

1. Wear safety glasses.
2. Remove or secure all objects on top of tank before starting engine.
3. Remove any foreign objects from tank prior to starting engine or pump.
4. Do not remove or operate without safety guards in place.
5. Prior to servicing tank, agitator(s), lubrication, or making equipment adjustments-Turn the Engine Off and Disconnect Battery.
6. Operator should be the only one on the tank floor during operations.
7. When Hydro-Mulcher® is moving avoid sudden starts and stops.
8. Avoid obstacles while there are persons on the Hydro-Mulcher®
9. Never direct discharge at people, buildings, power lines or equipment.
10. Trailer Models always check tires and wheel lug nuts.
11. When Trailer Towing read *Trailer and Towing Guide*, part number 025800.
12. Always secure close coupler on ball.
13. Always connect safety chain to towing vehicle.
14. Always secure hitch pin and retainer.
15. Always properly secure trailer breakaway switch
16. Always make sure that safety lights are in proper working order.
17. Maximum speed when empty is 55 mph. Reduce speed when loaded
17. Each *Bulldog Coupler*™ comes with a "hb" ball and should be used only with that ball. Use only "hb" ball with the *Bulldog Coupler*™. *HammerBlow*™ Ball Sizes: 1B: 1-7/8" 2C: 2" 4B: 2-5/16" #5: 2-1/4" #6: 3"



Typical of Warning, Danger and Caution Labels found on Hydro-Mulcher®

Specifications subject to change without notice

- Flush Tank Option Shown



### Lancer 500 Specifications

Lancer 500	Skid	Trailer
<b>Length</b>	113 ½" [288cm]	160" [406cm]
<b>Width</b>	52 ½" [133cm]	76" [193cm]
<b>Height</b>	52 ½" [133cm]	65" [165cm]
<b>Empty Weight</b>	2130 lbs [980kgs]	2510 lbs [1136kgs]
<b>Approx. Loaded Weight</b>	6480 lbs [2939kgs]	6830 lbs [3098kgs]
<b>Engine Type</b>	25 hp Robin, Air Cooled, Complete with Starter	
<b>Tank</b>	500 gallon [1890 l] Catalyzed Resin Coated Inside Tank	
<b>Pump</b>	2300 STD/F Bowie Pump, Clutch Operated	
<b>Agitation</b>	Heavy Duty Eight Blade Agitator, Catalyzed Resin Coated	
<b>Standard Attachments</b>	Four Versatile Spraying Nozzles, 50' of 1 ½"-200psi Goodyear Spiralflex Hose, Grease and Grease Gun, Spanner Wrench, Toolbox, Manuals	
<b>Optional Equipment</b>	Flush Tank, Manual Storage Hose Reel	



### Lancer 600 Specifications

Lancer 600	Skid	Trailer
<b>Length</b>	125" [317 ½cm]	183" [465cm]
<b>Width</b>	60" [152cm]	78" [198cm]
<b>Height</b>	77 ½" [197cm]	88" [224cm]
<b>Empty Weight</b>	2270 lbs [1030kg]	2620 lbs [1188kg]
<b>Approx. Loaded Weight</b>	7500 lbs [3402kg]	8100 lbs [3674kg]
<b>Engine Type</b>	25 hp Robin, Air Cooled, Complete with Starter	
<b>Tank</b>	600 gallon [2271 l] Catalyzed Resin Coated Inside Tank	
<b>Pump</b>	2300 STD/F Bowie Pump, Clutch Operated	
<b>Agitation</b>	Heavy Duty Eight Blade Agitator, Catalyzed Resin Coated	
<b>Standard Attachments</b>	Working Platform, 2" Platform Discharge Gun, Four Versatile Spraying Nozzles, 50' of 1 ½"-200psi Goodyear Spiralflex Hose, Grease and Grease Gun, Spanner Wrench, Tongue Toolbox, Manuals	
<b>Optional Equipment</b>	Flush Tank, Storage Hose Reel	

## Taking Care of Your Investment in the Bowie Hydro-Mulcher®

Your Hydro-Mulcher is the best on the market. Now it's your turn to keep it that way by giving it the proper care and maintenance.

We have included in this manual this maintenance schedule to assist you

Maintenance/Inspection Schedule		Daily	Monthly	Semi-Annual
Air Filter/Cleaner	Check	<input checked="" type="checkbox"/>		
	Change Oil Bath		<input checked="" type="checkbox"/>	
Battery and Connections	(inspect)		<input checked="" type="checkbox"/>	
Safety Chains	(inspect)	<input checked="" type="checkbox"/>		
Breakaway, Trailer	(inspect)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Chassis	(inspect)			<input checked="" type="checkbox"/>
Engine	(as specified in engine mfg. manual *)			
Engine Oil	Check	<input checked="" type="checkbox"/>		
	Change		<input checked="" type="checkbox"/>	
Fuel Check		<input checked="" type="checkbox"/>		
Fuel Filter	Drain Water	<input checked="" type="checkbox"/>		
	Change		<input checked="" type="checkbox"/>	
Grease All Fittings		<input checked="" type="checkbox"/>		
Hitch, Trailer	(inspect)	<input checked="" type="checkbox"/>		
Lights, Trailer	(inspect)	<input checked="" type="checkbox"/>		
Tires	Inflation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Damage	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Wheel Bearings	Repack			<input checked="" type="checkbox"/>
Wheel Lugs Torque	(inspect)	<input checked="" type="checkbox"/>		

\* The manufacturer provides these manuals. The specifications and instructions in these manuals are to be followed for the specific parts. A failure to do so could result in voiding the manufacturers warranty

### Other Items to Watch Closely:

- **Cleaning-** It is very important to keep the unit clean inside and out. Flushing the pump, hoses, and nozzles with clean water. Remember fertilizers are corrosive. Frequently clean air cleaner and change engine oil.
- **Lubrication-** The grease fittings are easily found and should be greased with an all-purpose waterproof grease on a daily basis. If unit has been idle for a period of time be sure to grease prior to use.
- **Tires & Wheels-** It is extremely important to apply and maintain proper wheel mounting torque on your trailer axle. Torque is a measure of the amount of tightening applied to a nut or bolt and is expressed as length times force. A force of 90 pounds applied at the end of a wrench one foot long will yield 90 lb.-ft of torque. Torque wrenches are the best method to assure that the proper amount of torque is being applied to the fastener.

**Note: wheel nuts or bolts must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.**

Be sure to use only the fasteners matched to the cone angle of your wheel (usually

60° or 90°). The *proper procedure* for attaching your wheels is as follows:

Start all bolts or nuts by hand to prevent cross threading.

Tighten bolts or nuts in the sequence illustrated (Fig. 5.3).

Tightening the fasteners should be done in stages. Follow the recommended sequence:

- 1) Tighten all fasteners to 20-25 lb.-ft
- 2) Then to 50-60 lb.-ft, finally to 85-95 lb.-ft

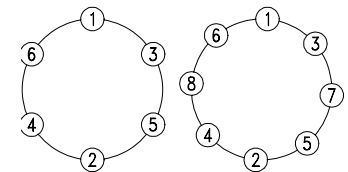


Fig 5.3

Wheel nut/bolts should be torqued before first on road use and after each wheel removal. Check and re-torque after the first 25 miles and again at 75 miles. Check periodically thereafter.



## Tires

Before mounting tires onto wheels make certain that the rim size and contour is approved for the tire as shown in the *Tire and Rim Association Yearbook* or the tire manufactures catalog. Also make sure that the tire will carry the rate load.

- **Winterization-** Clean entire machine before storage. Clean inside of tank and drain.

Centrifugal Pumps: remove drain plug in bottom of pump

Bowie Gear Pumps: grease each fitting with 15 pumps of grease. Turn pump slowly a few revolutions

All ball and gate valves open halfway.

Add *Sta-Bil* fuel stabilizer to fuel tank (prevents fuel deterioration, makes starting easier).

Run engine for 15 minutes.

Water cooled engines be sure radiator has proper anti-freeze.

Remove and store battery indoors.

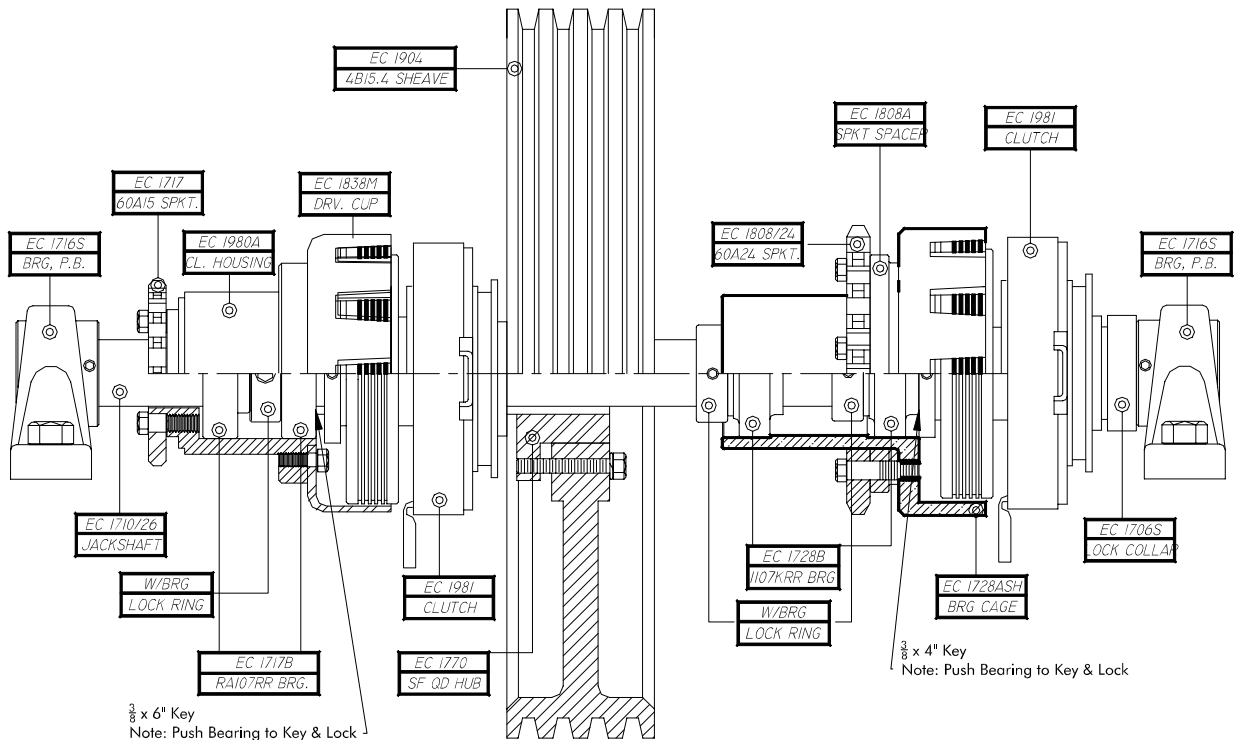
Spray WD-40 on *Formsprag* Clutches. Grease all fittings, spray *Chemsearch Lubrease* of equivalent (which penetrates and protects from corrosion) on all roller

## Drive Assemblies-Belts and Chains

### Jackshaft Assembly

It is necessary for each pillow block bearing properly lubricated. However occasionally they need to be replaced (Part # EC1716S) therefore we recommend that a spare be on hand.

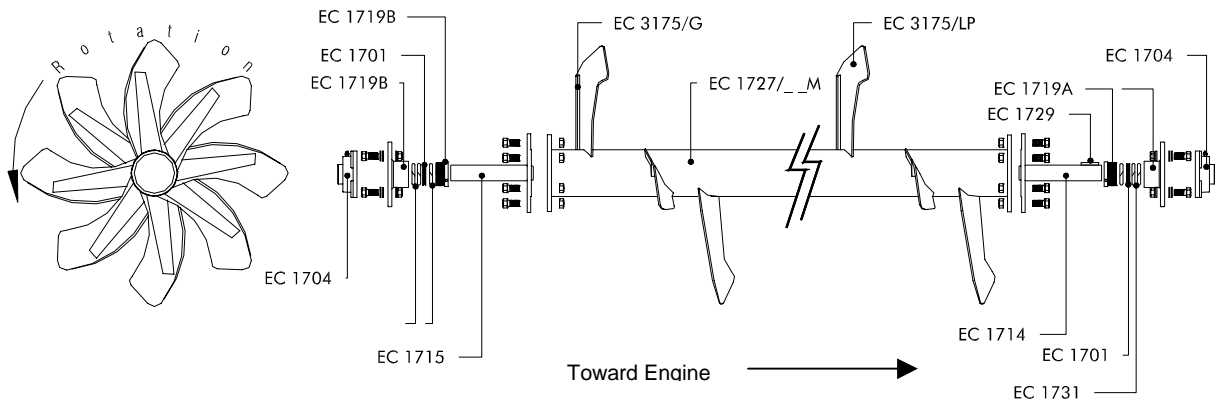
Should the sheave become loose on the shaft replace the hub and key set with genuine Bowie parts. Note: key to fit snugly in the sheave.



## Pump

**Bowie** rotary gear using hycar rubber gears. This is a positive displacement pump and **should not be operated dry**. Engage pump only when slurry or flush water is being pumped. Agitating the slurry into a homogeneous mixture to insure against fertilizer settling in bottom of the tank prior to pump use. Large amounts of fertilizer passing through the pump at one time can cause extreme wear on the pump parts, as fertilizer is very abrasive. The **Bowie** pump has the ability to pump grass sprigs as well as seeds.

## Agitator



## Discharge

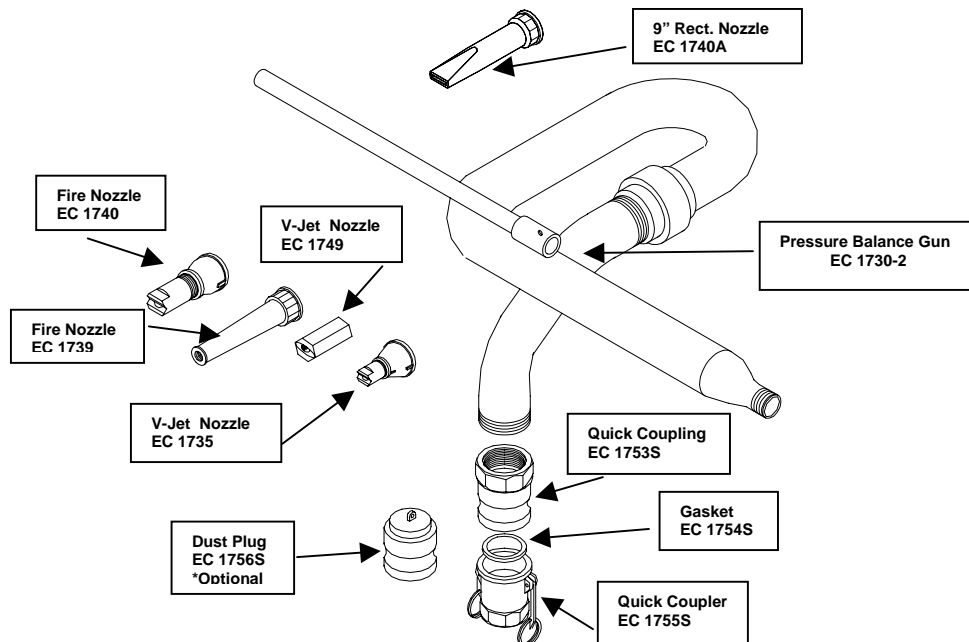
A variety of spray applications is accomplished using the furnished versatile spraying nozzles.

1-long distance spraying nozzle

3-different fan spray patterns

The discharge gun is 2" mounted with a quick coupling to facilitate removal.

Nozzles available are: sprigging nozzle, two different fire nozzles, two different V-jet nozzles and a fan nozzle



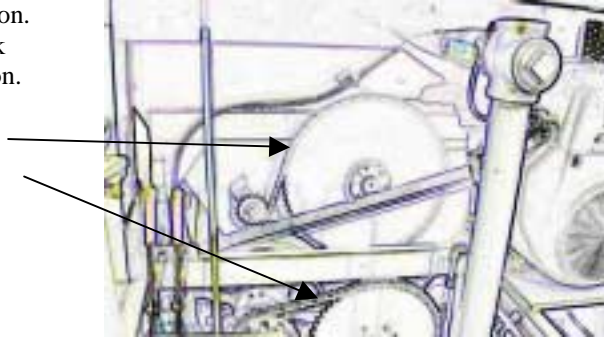
The swivel assembly is located on the discharge pipe. Occasionally it is necessary to replace the o'ring seals and balls.

A repair kit is available containing needed parts (Part # EC1806).

We recommend that at least one such kit be readily available.

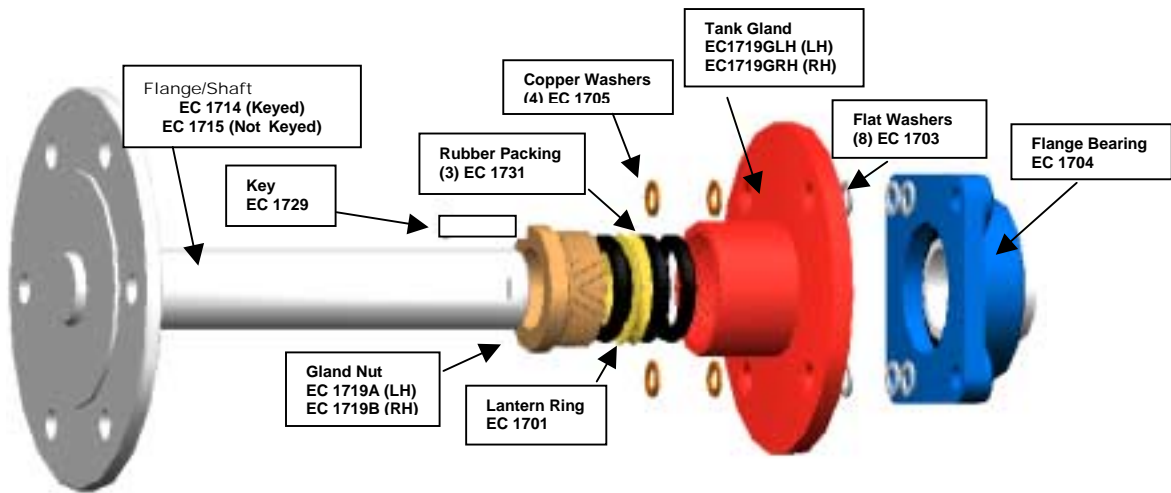
**Chain Drives**

Chain drives should be kept to the proper tension.  
 If chain becomes loose then remove a half link  
 or full link as needed to keep the proper tension.



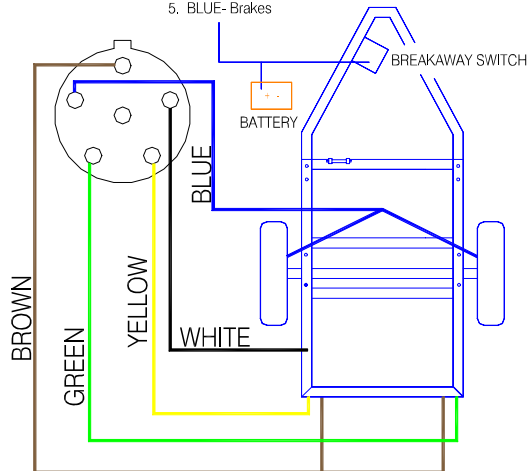
**Packing Gland Assembly:**

Packing glands should be tightened only when outside leaking persists after greasing packing with water pump grease at the provided lubrication fittings. This may be accomplished when the tank is empty.  
 Use the provided spanner wrench to make needed adjustments



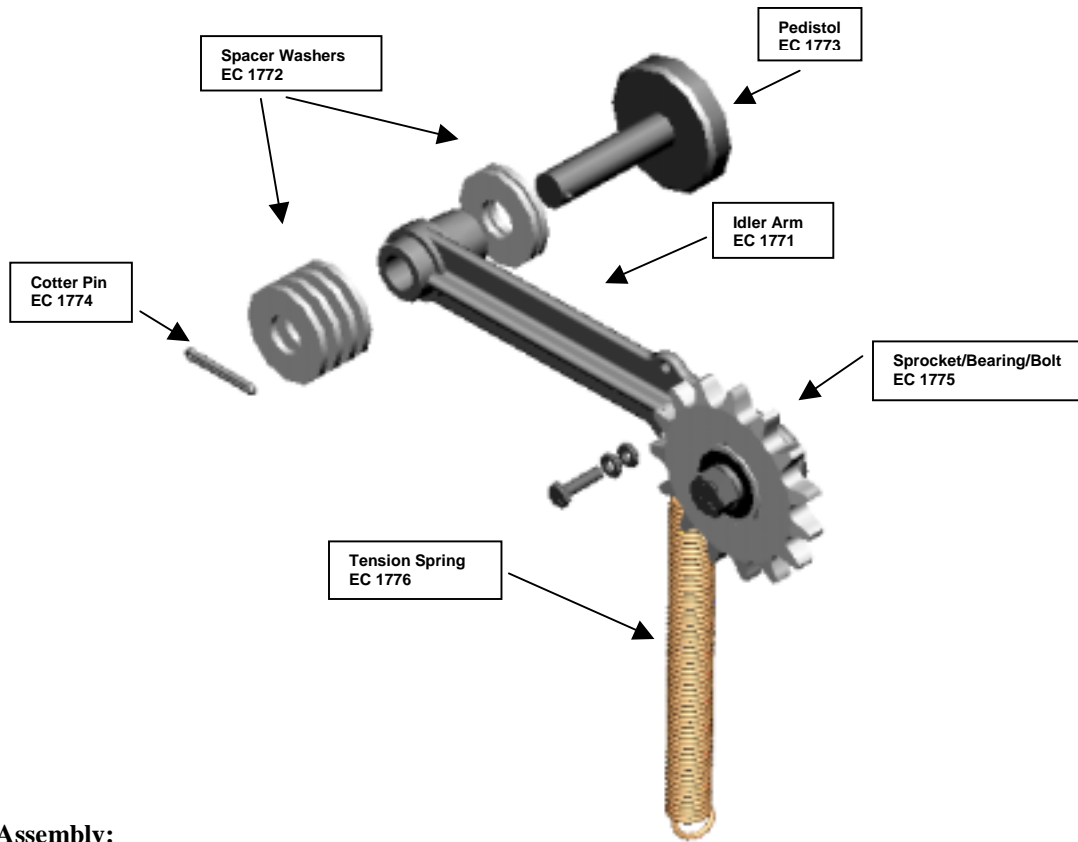
**Trailer Wiring:**

1. BROWN- Tail Lights
2. WHITE- Used as Ground
3. YELLOW- Left Turn Signal
4. GREEN- Right Turn Signal
5. BLUE- Brakes



Lights & Brakes-All Trailer Mounted Models

**Idler Arm Assembly:**



**Idler Arm Assembly:**

	<u>TROUBLE</u>	<u>PROBABLE CAUSE</u>	<u>PROCEDURE &amp; ACTION</u>
<b>ENGINE</b>	1. Engine will not crank	low battery faulty ignition switch faulty starter switch faulty starter solenoid faulty starter motor	check battery-charge or replace check and replace if needed check and replace if needed check and replace if needed check and replace if needed
	2. Engine Cranks but won't start	improper throttle or choke settings no fuel to engine no spark to engine	adjust settings per engine starting instructions check fuel supply-clogged fuel filter or line, flush or replace check for fouled spark plugs-clean, reset gap or replace check distributor wires to plugs-repair or replace faulty wires
	3. Engine runs rough or cuts out intermittently after warm up	fuel supply dirty or faulty carburetor dirty air cleaner faulty spark plug or plug wires intermittent short in ignition wiring faulty engine valve or cylinder ring	clogged filter or lines-replace or flush as needed clean and/or adjust or replace clean or replace element check plugs- clean, reset gap or replace; faulty wires replace perform continuity check of wiring-repair or replace defects see manufacturers engine manual
	4. Battery will not maintain a charge	dead cell or short across cells faulty alternator or voltage regulator	check and replace if needed check and replace if needed
<b>LOGGED OR BLOCKED LINES</b>	1. No material spraying	nozzle	remove and flush
		valving for slurry	remove debris and flush
		sump inside tank	remove debris and flush
		pump inlet	remove debris and flush

**Options**

These are standard options that are available [  ] .

Option	500 Model	600 Model
Skid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trailer pull	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hose Reel manual	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Flush System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

# Limited Warranty

Contact your **Bowie Hydro-Mulcher®** sales representative for more information. To effect warranty the warranty registration card must be filled out and returned **Bowie Industries, Inc.** within thirty days of purchase. No warranty is in effect without this card being returned to **Bowie Industries, Inc.**

New equipment warranty applies to original purchasers for a period of twelve months from date of purchase. Such equipment is warranted free from defects in materials and workmanship. Warranty does not extend to any equipment that had been damaged in accident or shipment, misuse, abuse, or modified by anyone other than **Bowie Industries, Inc.**

Your sole remedies under this warranty is limited to repairing or replacement of any part that is returned to **Bowie Industries, Inc.** or to a **Bowie Industries, Inc.** authorized dealer, freight prepaid. Returns for warranty needs to be accompanied with a return authorization number. Such repair or replacement to be made provided that defect is covered by warranty as determined by **Bowie Industries, Inc.**

**Warranty exclusions:** (1) normal maintenance and/or adjustments, (2) altered equipment, (3) engines, engine clutches, batteries, tires or other accessories that are subject to respective manufacturers warranties.

Except as expressly set forth above, no other warranties, either expressed or implied, are made with respect said equipment. **Bowie Industries, Inc.** expressly disclaims all warranties not stated herein. This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

**Bowie Industries, Inc.** reserves the right to make changes in design and specifications without notice.



General Location	Part Number	Qty	Description
Agitator	EC 1727/500	1	Agitator
	EC 1725	1	Sprocket, 60SF80
	EC 1721	1	Hub, SF 1 15/16
	EC 1708	1	#60 Roller Chain (76")
Belts		1	4B90
Clutch Shaft Assembly	EC 1717B	2	Bearing RA107RR
	EC 1728B	2	Bearing, 1107KRR
	EC 1716	2	Bearings, Pillow Block
	EC 1981	2	Clutch
	EC 1980	1	Clutch Bearing Housing
	EC 1728ASH	1	Drive Cup
	EC 1838M	1	Drive Cup
	EC	1	Belt 4B90
	Key	1	3/8"x3/8"x6"
	Key	1	3/8"x3/8"x4"
	EC 1710/26	1	Jackshaft
	EC 1706S	2	Lock Ring
	EC 1770	1	SF Hub
	EC 1904	1	Sheave, 4B15.4
	EC 1717	1	Sprocket, 60A15
	EC 1808/24	1	Sprocket, 60A24
Discharge	EC 1016	1	Nozzle Set (set of four)
	EC 1735	1	Nozzle, V-Jet
	EC 1739	1	Nozzle, Long
	EC 1740	1	Nozzle, Fire
	EC 1749	1	Nozzle V-Jet (hex)
Electrical	EC 1836	8	Reflector
	EC 1839	2	Light, Comb. Stop/Tail
	EC 1835	4	Light, Clearance
	EC 1993	1	Safety Breakaway Switch
	EC 1008	2	Battery Terminal End Copper
	EC 1007	2	Battery Terminal End
Flush Tank	EC 173-48	1	Flush Cable
Miscellaneous	EC 4007	1	Fuel Tank
	EC 1831	1	Swing Away Jack
	EC 1017	1	Spanner Wrench
	EC 1009	2	Battery Hold Down Bolt
	EC 1775	1	Sprocket, Chain Tension
Pump	EC	1	Sprocket
	EC 1708	1	#60 Roller Chain (55")
Packing Gland	EC 1701	2	Lantern Ring
	EC 1704	2	Bearing, Flange KF FY115
	EC 1705	8	Washer, Copper
	EC 1719A	1	Nut, Packing Gland LH
	EC 1719B	1	Nut, Packing Gland RH
	EC 1729	1	Key
Other	EC 1731	6	Packing, Rubber