



Model EZ-70 Stow-n-Go

**Tru Mark Athletic Field Marker
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I. PRECAUTIONS

- USE ONLY WATER BASED LATEX FIELD MARKING PAINTS. DO NOT USE FLAMMABLE LIQUIDS, OIL BASED, OR RUBBER BASED PAINTS.

- FOLLOW MANUFACTURER'S RECOMMENDATIONS WHEN HANDLING YOUR TWELVE VOLT SEALED BATTERY.

- FOLLOW MANUFACTURER'S RECOMMENDATIONS WHEN CHARGING YOUR SYSTEM WITH THE 1.5 AMP BATTERY CHARGER.
(See Section III for use of battery charger.)

- RINSE THE SYSTEM THOROUGHLY WITH CLEAN WATER AFTER EACH USE TO ENSURE THAT THERE IS NO PAINT RESIDUE REMAINING IN THE TANK, THE PUMP, OR THE LINES.
(See Section IV for proper maintenance.)

- MIX PAINT THOROUGHLY TO AVOID POTENTIAL OF CLOGGING AT INLET SCREEN.

- SEE ASSEMBLY INSTRUCTIONS AFTER REMOVING THE TRU MARK FIELD MARKER FROM THE SHIPPING BOX.

- PRIOR TO DISCONNECTING THE SPRAY WAND ACCESSORY HOSE FROM THE QUICK DISCONNECT, TURN OFF THE PUMP AND DEPRESS THE SPRAY WAND HANDLE TO RELEASE PRESSURE.

II. ASSEMBLY

BEFORE REMOVING the EZ-70 sprayer from the shipping box, please inspect the contents for any damage. Refer to the instructions below for assembling the EZ-70 athletic field marker:

Your Tru Mark EZ-70 Stow-n-Go Field Marker is shipped with the following:

- 1 – Tool Kit in Cloth Bag
- 1 – 1.5 Amp Battery Charger
- 1 – Owner’s Manual
- 1 – Unmounted Front and Rear Axles and Wheels (3) and parts
- 1 – Unmounted Paint Shoe Assembly with Nozzle Bracket
- 1 – Unmounted Handlebar Assembly
- 1 – Battery and Tank Box (steel chassis) with lower Handlebar Assembly

Required customer tools:

- 1 – 5/16” hex head wrench or adjustable wrench
- 2 – 1/2” hex head wrench or adjustable wrench
- 1 – hammer
- ruler or tape measure

The EZ-70 Stow-n-Go Field Marker requires some assembly by the customer. Depending on the shipping container the EZ-70 will come in different stages of assembly. Use the following assembly instructions to complete the process.

For shipping purposes the front and rear axles and wheels have been removed from the unit. Each axle has an existing locking collar and plastic cover installed. The Paint Shoe Assembly and Nozzle Bracket Assembly have been removed from the right side of the chassis. The top of Handlebar Assembly has been removed (bolts and nuts attached). The lower section of the Handlebar Assembly has the lower set of bolts and nuts (2, 1/4” hex head x 2” bolt and nylock nut) . The upper set of bolts and nuts (2) have been loosened to allow the lower Handlebar Assembly to rotate.

Remove all equipment items from the shipping container. The Battery and Tank Box steel chassis has the 12 volt sealed battery and 5-gallon tank installed.

EZ-70 Stow-n-Go Assembly procedures:

1. Remove 5-gallon tank from the Battery and Tank Box. Be careful when removing the intake line assembly from the tank so the copper tubing is not bent or crushed.
2. Remove the two (2) wing nuts on the Battery Hold Down Mount and remove the 12 volt sealed battery. The two wire electrical quick disconnect should be disconnected during shipment.
3. Connect the 1.5 amp battery charger to the battery using either the 2-wire quick disconnect or the clamping handles. Select 12 volt system on the battery charger and plug the charger into a 110V wall outlet. The battery will take several hours of charging to be fully charged. The battery charger will indicate with charging is completed (from charging to charged).
4. Connect lower Handlebar Assembly bracket to Battery and Tank Box using two (2) ¼" x 2" hex head bolts and nylock nuts. Use a customer provided wrench and the Tru Mark Nozzle/Utility wrench. Do not completely tighten at this time.
5. Install rear axle by inserting a wheel unit to the end of axle without a locking collar and sliding to touch the 5/8" internal diameter (ID) locking collar. Using this same end, slide the axle through both holes at the bottom of the lower Handlebar Assembly. Add the second wheel assembly and then the second locking collar. Tighten the set screw on the locking collar using the Tru Mark provided 5/32" hex allen head wrench. Install the plastic cap over the second locking collar.
6. Install the front axle through the front axle mounts, 1" square tubing, and inserting the third wheel assembly between 1" square tubing. A hammer may be necessary to tap the axle forcing it through the steel square tubing holes. Ensure the axle and holes are aligned when tapping to avoid deforming the axle rod. Attached the 5/8" ID locking set collar to the opposite end and tighten with 5/32" hex allen head wrench. Add the plastic cap to set collar.
7. Attached the Paint Shoe Assembly using the 5/16" x 2" hex head bolts and nylock nuts. The bracket holding the 3/8" rod is mounted below the 1" square tubing on the right side behind the front wheel. The Paint Shoe Assembly is setup for a right side installation. Use customer supplied ½" hex or adjustable wrenches to tighten mounting bracket to the square tubing.

8. The paint shoes (2) are set for 4" width. Adjust the width by loosening the four set collars that are next to each of the paint shoes. The set screws holes in collar of the paint shoe are not functional. One set of collars are tighten with a Tru Mark supplied 3/16" hex head allen wrench and the other set with the extended bolt head are tightened with a Tru Mark supplied 5/32" hex head allen wrench. The extended bolt is used to limit the rotation of the paint shoe assembly with an installed roll pin. When the front wheel is lifted for relocation purposes the paint shoe stops rotating to avoid dragging.



Figure 1. Rear Axle Assembly



Figure 2. Front Axle Assembly



Figure 3. Paint Shoe Assembly

9. The Nozzle Bracket Assembly is adjusted using a Tru Mark supplied 1/4" hex head allen wrench. The Nozzle Bracket Clamping Block and the associated 3/8" rods (horizontal and 90 degree nozzle bracket) are adjusted to maintain the center line of the spray fan between the paint shoes and for spray tip height.
10. Remove the bolts and nuts from the lower Handlebar Assembly. Slide the 1" square tubing upper Handlebar Assembly into the two spaced vertical connecting bracket on the lower section of the Handlebar Assembly. Connect the upper section of the Handlebar Assembly using 1/4" x 2" hex head bolt through the lower hole (bolt and nut are temporarily connected to the lower Handlebar Assembly). Tighten lower bolt and nut, yet allow the upper Handlebar Assembly to rotate forward for stowing purposes. Secure the upper section of the Handlebar Assembly using 1/4" x 1 3/4" carriage bolt and 3-prong plastic locking nut (top hole, bolt and plastic nut shipped installed but loose). A washer is used next to the 3-prong plastic locking nut. Tighten the four (4) sets of bolts and nuts connecting the lower Handlebar Assembly to the Battery and Tank Box chassis using 5/16" hex head wrenches.
11. Insert 12 volt sealed battery into the Battery and Tank Box chassis with 2-wire connector toward the rear of the unit. Secure the battery by installing the Battery Hold Down Mount and attaching the two (2) wing nuts.
12. Reconnect the 2-wire connector to pump and toggle switch cable connectors. Verify pump operations using toggle switch on handle bar. Short term use of motor will not damage the pump. Add water to the 5-gallon tanks, insert tank into the Battery and Tank Box, and insert the pump intake line assembly into the tank and secure the cap. Test the pump and painting operations by turning on the pump from the handlebar toggle switch to confirm good flow rates and spray fan performance.
13. Unit is ready for painting operations. Remove water from the 5-gallon tank and replace with diluted field marking latex paint. (Recommend using a screened funnel when filling the 5-gallon tank.)
14. ALWAYS USE CAUTION when stowing or installing the upper Handlebar Assembly with the lower Handlebar Assembly to avoid damage to electrical wiring.


When stowing the spray wand assembly accessory and 12' coiled hose use the L-shaped carrier on the side of the upper Handlebar Assembly.

III. OPERATION

BATTERY CHARGING

CAUTION - Before you use your battery charger, read all instructions and cautions printed on the battery charger, the battery, and follow the procedures printed in this manual.

The 12 volt sealed battery provided as part of your EZ-70 TRU MARK Field Marker will require charging before use. BEFORE CHARGING, connect the 2-wire connectors or terminal clamps to the battery posts ensuring you matched terminal ends to the battery by matching the wiring designation.

 **WARNING !** The terminal ends must be matched by the red positive tag to the positive battery post and the white/black negative tag to the negative battery post. Failure to properly match the polarity tags to the battery posts will result in permanent damage to the battery charger, the electrical system, and possibly personal injury.

Confirm the 2-wire connector or the battery clamps are tightly secured to the battery posts. The battery with the 2-wire connector should be aligned to the rear of the Battery and Tank Box. The 2-wire plug may be inserted to the mating plug on the battery charger. Set the switch on the charger panel to the 12 volt position, then plug the charger into any 110V outlet to begin the charging process. The battery has reached and will maintain a full charge when the indicator light has been displayed indicating “charged”. Unplug the charger from 110V source, and then disconnect the 2-wire connector plug or terminal clamps.

CAUTION - Operating the Field Marker for a prolonged period with the battery at low charge will diminish the life of the battery. Recharge battery before each use to insure maximum efficiency.

PREPARING TO PAINT

The Field Marker is now ready to be filled with paint. Most field paints are concentrated and require thinning at a one to one or higher water to paint ratio.

Mixing can be achieved by filling a 2.5 gallon wide mouth mixing jug with concentrate to the one and one half gallon mark, and filling to the two and one half gallon mark with water. Close the lid tightly, shake vigorously, and pour into the poly tank. Fill the mixing jug again with only water to the two gallon mark and pour into the poly tank. This procedure provides four and one half gallons of field paint with a two to one mixture. Additional agitation provides better dilution of the mixture. Failure to follow this procedure results in plugging of the inlet screen on the intake line assembly.

Many field marking paint manufacturers recommend a mixture of one gallon of paint to one gallon of water. Please follow the paint manufacturer's recommended dilution ratio. Using a cordless drill with a paint paddle and an empty 5-gallon pail is a very effective means to prepare the paint mixture before filling the 5- gallon tank using a screened funnel. Add approximately 2.5 gallons of water to an empty 5 gallon pail and then add 2.5 gallons of field paint to the same pail for a 1 to 1 ratio.

The On/Off toggle switch on the handlebar may be turned to the ON position for pump priming, to allow air to escape from the system and to begin paint spraying.

SPRAY HEAD ADJUSTMENT

Make a sample stripe to check line width and spray pattern. The spray head and shoes are preset at the factory for a three (3) inch line width. Adjusting line width is accomplished by loosening four (4) set screws on the four (4) 3/8" set collars using the L shaped hex Allen wrench and setting at the desired width. The closer the shoes are set together, the lower the spray head should be set. The spray pattern should not contact more than one inch of the bottom of the spray shoe for best paint usage. Refer to the Assembly instruction number 8 above for further details.

Your TRU MARK Field Marker is now field ready.

SPRAY SHOE LIFT

The spray shoe lift control is provided by tipping the front wheels off the ground during transport or field relocation. The roll pin in conjunction with the extended bolt head on the set collars prevents the paint shoe from over rotating and dragging.

FLOW CONTROL

The flow control can be changed by replacing the existing spray tip with a different spray tip configuration. The unit is equipped with a TeeJet 8004 tip which indicates a 80 degree spray fan and an output of .4 gallons per minute. With taller grass we have had success using a TeeJet 11004 tip to maintain excellent 4” coverage. Also changes in dilution of the paint will affect the flow performance. We do offer an optional change to the pump head for a paint agitation return line with a restriction plug. Contact us for purchasing this upgrade to your EZ-70 Field Marker. (This is a similar pump configuration to the Model E-100.)

TRAFFIC LINE MARKING

To use zone marking paint or acrylic latex paint used for parking lot marking, the paint should be diluted 32-64 ounces of water, or 16-32 ounces of latex paint conditioner and 16-32 ounces of water, for every gallon of paint used. Adjust the spray head to achieve your desired line stripe width. Pigmented paint will not perform as well as white in the 12 volt diaphragm pumps. Since there may be slight paint dribble when switching to the off position on the toggle switch, it is recommended to reverse your direction for 6 to 12 inches so excess paint is applied to already painted section.

IV. MAINTENANCE & TROUBLE SHOOTING

MAINTENANCE

CLEANING

Proper maintenance of this equipment will maintain its efficient performance and prolong the life of all elements of operation. The single most important item to emphasize in maintaining this Field Marker is the cleaning of the unit after each use. Pour unused field paint into a separate container from the poly tank on the sprayer and rinse the poly tank thoroughly with water. Fill the poly tank with clean water (or use a separate clean container), 1 to 2 gallons, and flush the system (including the spray wand when used) until the discharged water runs clear. Remove the spray nozzles and check valve screens, rinse with water and scrub any dried paint with brush in tool kit. When replacing nozzles, adjust direction with wrench in tool kit and tighten securely. We recommend using a product called “pump protector” that keeps any remaining paint in suspension until the next use. One to two ounces of this product is added to one gallon of clean water as part of the final rinse solution. This cleaning solution can be left in the tank, hoses, and pump until the next use.

BATTERY MAINTENANCE

Refer to the Battery Owner's Instructions for inspection and maintenance. The charging of the battery was described in Section III. Refer to that section to keep the battery at peak performance.

LUBRICATION

The only points of lubrication are the paint shoe hinge pivots and the shoe lift rod bushings. These may be sprayed with WD-40 or a similar product several times during a season to insure smooth operation.

TROUBLE SHOOTING

SYMPTOM - Low Pressure at Spray Head

- CAUSE
- A- Low voltage
 - B- Plugged Inlet Screen on Pickup Tube
 - C- Plugged Nozzle Tips or Screens
 - D- Paint not fully diluted
 - E- Paint build-up on Pump Valve Kit
 - F- Worn Pump Diaphragm
 - G- Faulty Pump Motor

- CURE
- A- Recharge Battery
 - B- Unscrew tank lid and wipe any solids from the inlet screen (Mix paint well to avoid this)
 - C- Remove nozzle tips and check valve screens, brush and rinse any residue and replace
 - D- Add additional water to increase the dilution ratio
 - E- Replace/clean Pump Valve Kit (with new Shurflo Pump Valve Kit)
 - F- Replace Diaphragm with new Pump Diaphragm Kit
 - G- Call factory for instructions (1-800-553-6275)

SYMPTOM - Hot Pump Motor/ Paint Leaking from Pump Head

- CAUSE
- A- Plugged Line

- CURE
- A- Remove spray tip and check valve and run pump to clear lines using warm water

SYMPTOM - Pump Will Not Operate

- CAUSE
- A- Low Voltage
 - B- Blown Fuse
 - C- Pump is plugged with dried paint

- CURE
- A- Recharge Battery
 - B- Check panel fuse and replace if necessary
 - C- Replace Pump Valve Kit or Remove and return to factory for repair or replacement

V. PARTS LIST

(Prices on request)

DESCRIPTION	PART NO.	QTY. REQ'D.
<u>Spray Head Assembly</u>		
Nozzle Body with ¼ Barb Fitting	90099-100-094	2
Nozzle Cap, Brass*	90099-159-006	2
Spray Tip*	100-159-007	2
Check Valve*	100-159-008	2
Spray Shoe	070-100-010	2
Rod Clamp Block	070-100-012	1
<u>Tank Components</u>		
Poly Tank	100-159-013	1
"O" Ring	100-159-024	1
Return Line Cap	100-910-010	1
<u>System Components</u>		
Intake Screen Assembly*	100-151-008	1
Pump 1.46 GPM (internal by-pass)	070-100-016	1
Pump Valve Kit 1.46 GPM*	100-159-014	1
Pump Diaphragm Kit 1.46 GPM	100-159-033	1
EZ-70 Tool Kit	070-921-001	1
12 Volt Sealed Battery	070-100-007	1
Centipede Wheel, 5/8" Axle	070-100-006	3
Front Axle Assembly	070-100-014	1
Rear Axle Assembly	070-100-015	1
Battery Hold Down Mount	070-100-002	1
Spray Wand Assembly Accessory Kit	070-100-016	1
Spray Wand Assembly	100-159-012	1
Return Line Restriction Plug with Setscrew**	100-910-009	1
External By-pass Pump Head for 1.46 GPM with 3/16" Barbed Fitting**	070-100-017	1
* EZ-70 Field Kit Items	90010-121-0021	1
** EZ-70 Return Line Upgrade Kit	90010-121-0022	1

WARRANTY

TRU MARK EZ-70 Stow-n-Go

eSelling4u.com, Inc., the manufacturer of your TRU MARK Athletic Field Marker, warrants this product for 2 years from the date of shipment for any defects in material or workmanship. Shurflo 12 volt diaphragm pump is warranted for 90 days under normal operating use.

Registration of your unit is not necessary since records of purchase dates and owners are maintained at the factory.

Should you have a warranty claim, call 1-800-553-6275 for instructions on return of goods for repair or replacement. Please have your unit's serial number from the front page of the owner's manual ready when calling. The serial number is also located on the rear of the EZ-70 Battery and Tank Box.

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Sealed Lead-Acid Batteries

SLA1116

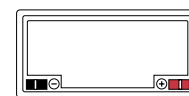
Capacity Specifications

Cut-off Voltage	20 Hr Rate (0.90 A)	18.0 Ah
1.75 v/c @ 25°C	10 Hr Rate (1.60 A)	16.0 Ah
1.70 v/c	5 Hr Rate (2.9 A)	14.5 Ah
1.55 v/c	1 Hr Rate (9.8 A)	9.8 Ah
	Bloc	Per Cell
Charge Voltage (constant)	Float	13.5~13.8
	Cycle	14.4~14.7
Discharge Current Amps (5 seconds maximum)	250	
	80	
Discharge Current Amps (maximum continuous)	5.1 A	
	0.03 (30 mA)	
Approx Final Charge Current (2.25 v/c Float)	0.15 (150 mA)	
Approx Final Charge Current (2.45 v/c Cycle)	Type C / (E optional)	
	9 months @ 21°C	
Terminal Type	9 months @ 21°C	
Self Discharge	ABS – Gray* or Black	
Case Material		

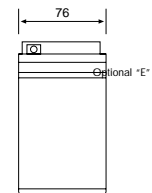
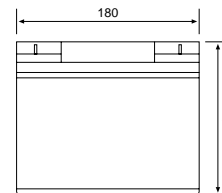
Due to changes in the manufacturing processes, specifications may change without notice.
*Gray option is Flame Retardant ABS.

Technical Specifications

Nominal Voltage	12V
Nominal Capacity	18.0 Ah (20 Hr Rate)
Dimensions	Length: 180 mm
	Width: 76 mm
	Height: 167 mm
Total Height/Terminal:	167 mm
Weight	Approx 6.2 Kg



Unit: mm (±0.50)



Optional E

Actual Wattage / Ampere Capacity at Various Discharge Times (Volt per Cell @ 25°C)

Cut Off Voltage	Time	5 Min.	10 min.	15 min.	30 min.	45 min.	60 min.
		1.75 v/c	W	107.4	72.33	55.6	33.79
25°C	A	61.37	41.33	31.77	19.31	14.1	11.3
1.67 v/c	W	104.79	72.16	55.31	33.48	25.05	20.04
25°C	A	62.75	43.21	33.12	20.05	15.0	12.0
1.60 v/c	W	116.8	73.76	54.72	32.19	24.37	19.33
25°C	A	73.0	46.1	34.2	20.12	15.23	12.08