

BID # 20-021

MARK 3 AERATORS
LAMAR, MISSOURI

JULY 2020

INFORMATION FOR BIDDERS

Bids will be received by the City of Lamar, Missouri (herein called the "Owner"), at City Hall, 1104 Broadway, on JULY 22, 2020, at 10:00 a.m. and then at said office publicly opened and read aloud. Any bid received after the time and date specified shall not be considered

Each bid must be submitted in a sealed envelope, addressed to City of Lamar, Att: City Clerk, 1104 Broadway, Lamar MO. 64759. Each sealed envelope containing a Bid must be plainly marked on the outside as BID # 20-021 – AERATOR. The envelope should bear on the outside the name of the Bidder and his/her address. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Owner.

There is eight (8) of the Mark 3 Aerators. The bid should be for one Aerator. The highest bidder will get choice of aerator and the quantity they would like to buy.

Any and all bids may be rejected.

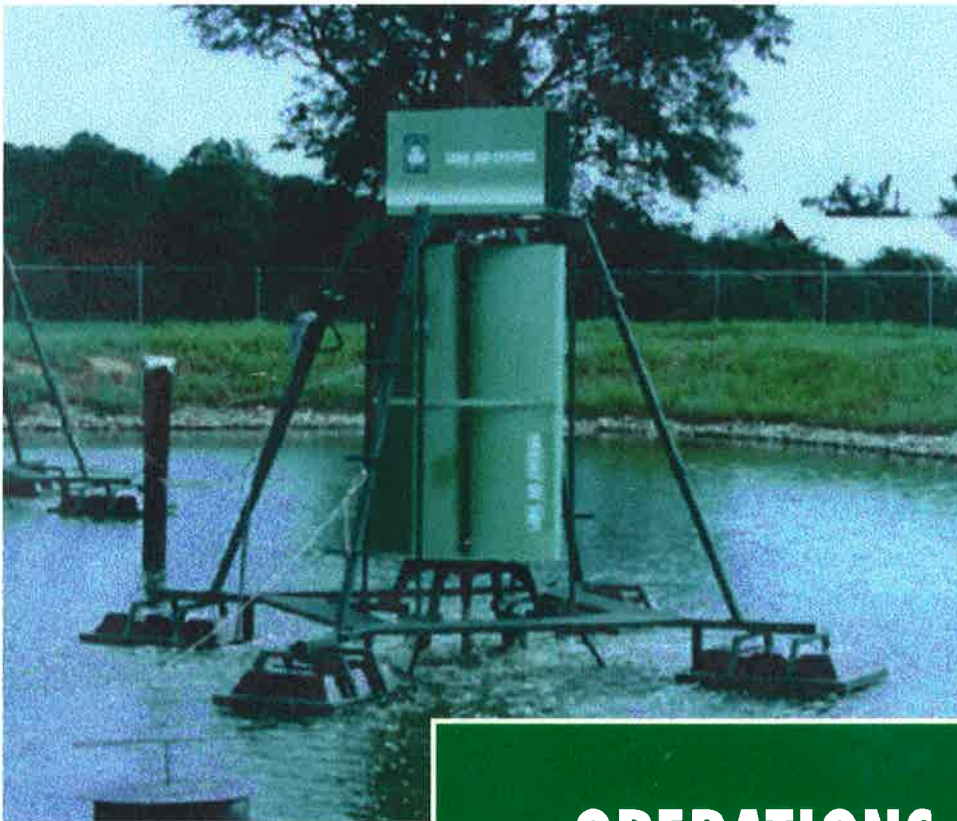
LAS International

Wastewater/Freshwater Treatment

Zero-to-Low Energy Systems & Equipment™

MARK 3

For serial #s MK3-601-002 and above



OPERATIONS and MAINTENANCE MANUAL

For use in...



Form Mk 4 O&M* Revised 9/96.

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Contents

Operating Guidelines	2
General operational considerations	2
Maintenance	4
Quarterly Maintenance	4
Semi-Annual Maintenance	4
Annual Maintenance	5



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Canada: J. Stewart Murray Agency, 639 Borebank Street, Winnipeg, Manitoba R3N
1G1, 204/488-3885 • FAX 204/489-0129

Operating Guidelines

The operation of LAS' equipment is relatively easy and straightforward. Following these few guidelines will help ensure maximum operating efficiency of the Mark 3. In addition, you may call the factory at any time for further suggestions and hints derived from users like yourself, as well as ongoing factory testing.

While each application (wastewater, fresh water, aquaculture, etc.) has slightly different considerations, most operational guidelines apply to all situations. Read the guidelines and use those that are applicable to your particular needs.

General operational considerations

1. **For maximum gallons per minute flow and circulation, the adjustable impeller housing sleeve must be approximately 4" below the water's surface.** To effect maximum surface dispersion for breakup of excessive ice (sacrificing gpm slightly), move the adjustable sleeve up to a maximum of 1" below the surface. This reduces gallons per minute, but creates more surface movement.
2. The Mark 3 should preferably be anchored securely on all four sides. If the unit moves or drifts in the wind, loss of mixing power will result. For bottom anchoring, we recommend marine "Danforth", "CQR", "Bruce" or plow-style anchors (based on bottom material). These anchors are available in any marine store or catalog. A small size anchor will be sufficient in most all cases. These anchors all come with charts to guide in selection of the appropriate size.

In a small lagoon, it works well to attach cable to two sides of the unit, then attach securely to opposite shores. LAS offers a Winch Kits for this purpose. This allows operators to move the unit across the lagoon. (*See Illustration 1.*)

In a large lake or reservoir, we recommend additional anchoring with concrete slabs. For special applications, contact the factory for additional assistance and ideas.



Illustration 1: LAS Winch Kit

3. To circulate oxygen-rich water to the lowest levels of the impoundment (for fresh water), position the Mark 3 over the deepest area of the pond or lake. The LAS Winch Kit does, however, allow you to move the Mark 3 easily should you want to concentrate aeration and mix on different areas. The Mark 3 has a large area of influence, so movement of the units in small ponds may not be necessary.
4. When moving the Mark 3, be careful not to catch the bottom guard on anything. Tying a line to the bottom cage during installation and then tying that line off on one of the floats will assist in retrieval of the bottom cage for servicing or movement of the unit. Be careful that the line does not get drawn into the impeller assembly area.
5. SECURE FAN before servicing the Mark 3. Tie the fan off while working near the unit. Do not put hands in impeller area while unit is turning.
6. If using the Mark 3 on public access lakes or ponds in the winter, post warnings both on shore and near the machine, as ice will be thinner near the Mark 3. During the summer, place optional "Keep Clear" warning signs on all sides of unit. Use reflective tape and/or marker buoys to warn boaters.
7. Before the ice melt begins in the spring, loosen the cables onshore 20 to 25 feet to allow the unit to float with the ice mass. Add 10 to 15 feet additional cable to the unit anchor points so that there is sufficient slack to prevent the movement of the ice from pulling the units downward. Once the ice has completely melted, tighten cables again.

Maintenance

One of the advantages of LAS' equipment is that it generally requires minimal (but necessary) maintenance in order to provide years of use. Following these few guidelines will help ensure maximum operating efficiency of the Mark 3.

Quarterly Maintenance

1. The u-joint shaft coupling should be greased (**one pump only**) every 3 months. (See *Illustration 2*.) Use Dow Corning BR2 Plus EP grease or an equivalent. (Note: If the unit is removed from water, grease ice protection cylinder. Use only a **small amount** of grease. Do **NOT** overgrease!)

IMPORTANT: INSPECT ALL SEALS FOR ANY SIGN OF DAMAGE OR LEAKAGE.

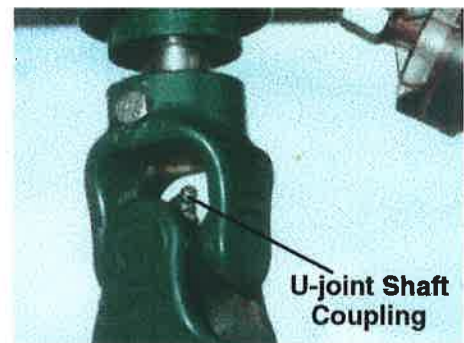


Illustration 2

Semi-Annual Maintenance

1. Inspect all nuts and bolts. Tighten any loose nuts and bolts. Replace any rusted nuts and bolts.
2. Inspect unit for any rust spots or areas where paint may have worn away. Sand and repaint these areas.
3. Check impeller housing and impeller area for any obstructions or foreign materials. Check impeller blades for any breakage, excessive bending or other wear.
4. Check shaft U-joint fasteners to be sure they are secure.
5. The u-joint shaft coupling should be greased (**one pump only**) every 3 months. Use Dow Corning BR2 Plus EP grease or an equivalent. (Note: If the unit is removed from water, grease ice protection cylinder. Use only a **small amount** of grease. Do **NOT** overgrease!)

IMPORTANT: INSPECT ALL SEALS FOR ANY SIGN OF DAMAGE OR LEAKAGE.

Annual Maintenance

1. The lubrication unit holds two ounces (2 oz.) of grease, and will last from 9 months to 1 year. The grease level of the unit should be visually checked through the clear case on a regular basis. If the lubrication unit is one-half to one-quarter full, refill the unit using the factory approved grease (which was included with the original unit). **DO NOT ALLOW THE UNIT'S GREASE LEVEL TO BECOME LESS THAN 1/4 FULL!** Replacement grease may be purchased from LAS.

The lubrication unit is refilled using a grease gun with the special grease, and may be refilled while mounted on the Mark 3 or 4 series.

Attach the grease gun to the grease fitting located towards the discharge end and fill until the seal ring rises to the bottom of the "Caution" label. **DO NOT OVERFILL!!**

The grease fitting should be wiped clean after filling and the protective cap replaced.

The LAS lubrication units require minimum care to provide long, trouble-free service under normal conditions. The transparent case should be kept free of exterior dirt so the interior grease level can always be seen.

After approximately 9 months to 1 year, the lubrication unit will need refilling. Refill grease may be ordered from LAS International. Please contact LAS at least 2-3 weeks in advance of grease depleting. Allow for 1-2 weeks delivery time.

2. Check downhose for holes or tears. (Any such holes will reduce the ability of the unit to deep circulate.)
3. If unit is being used in salt water, rinse unit and bottom annually to remove buildup of salt and other debris (barnacles, weeds, etc.).

WARNING!

Do NOT mix a different grease with the approved grease, as it may be incompatible and cause damage to the bearing.



Reorder Parts

Total Unit: Automatic Lubrication Kit

Part No.: RAW2040

Refill Lube: Grease

Part No.: RAW2035

4. The u-joint shaft coupling should be greased (**one pump only**) every 3 months. Use Dow Corning BR2 Plus EP grease or an equivalent. (Note: If the unit is removed from water, grease ice protection cylinder. Use only a **small amount** of grease. Do **NOT** overgrease!)

IMPORTANT: INSPECT ALL SEALS FOR ANY SIGN OF DAMAGE OR LEAKAGE.

5. Inspect all nuts and bolts. Tighten any loose nuts and bolts. Replace any rusted nuts and bolts.
6. Inspect unit for any rust spots or areas where paint may have worn away. Sand and repaint these areas.
7. Check impeller housing and impeller area for any obstructions or foreign materials. Check impeller blades for any breakage, excessive bending or other wear.
8. Check shaft U-joint fasteners to be sure they are secure.
9. Inspect the Nylon Bushing/Bearing located at the bottom of the impeller housing to see if it is worn out. If it is, you will need to purchase a new one from LAS International.



Reorder Parts

Total Unit: Nylon Bushing/Bearing
Part No.: RAW2060

ITEM NUMBER	ITEM DESCRIPTION	ITEM NUMBER	ITEM DESCRIPTION
ACC1005	10" Plastic Couplings	SUB3130	Fan - Mk 3
ACC1010	10" Downhose	SUB3135	Fan Shaft Machined- Mk3
ACC1711	Downhose Kit:	SUB3149	18"x3/8" Thread Round Impeller
S-3550	Hose Clamp Kit		Housing
S-3401	Impeller Housing Bottom	SUB3150	Impeller Housing Assembly - Mk 3,4
ACC1415	Spreader Bar Launch Kit	SUB3155	Impeller Guide - Mk 3,4
ACC1500	Keep Away Sign Kit-Mk 3,4	SUB3200	Diagonal Strut w/o Ladder
RAW2005	1" Bearing - IceTube	SUB3210	Diagonal Strut w/Ladder
RAW2040	Lubesite	SUB3215	Tower Top w/Reinforcements - Mk3
RAW2045	PTO Bearing Cross	SUB3220	Tower Top w/o Reinforcements - Mk3
RAW2060	Bushing - Acetal 1.25 ODx1	SUB3235	5" Pipe Spacer - Mk3
ACC1200	Keyed Bushing 1-5 8x1x3Mk3	SUB3290	Leg-To-Lateral Strut Brace - Mk 3,4
RAW2065	Bronze Bushing - 5/8" ODx3/8"	SUB3300	Vertical Strut Brace - Mk3
RAW2070	Metric Oil Seal 25x52x7	SUB3320	Leg-To-Float Brace - Mk3,4
RAW2091	1/8" 45 Degree Street L	SUB3350	Vertical Stand Leg- MK 3,4
RAW2130	Rubber Stop Sleeve - Motor	SUB3401	Impeller Housing Bottom - US Double
RAW2501	Cap Plugs - Lateral Struts	SUB3403	Impeller Housing Bottom - Metric Double
RAW4071	Custom Spray Cans	SUB3440	Impeller Housing Support - Mk 3,4
RAW4072	Can Of Non-Seize	SUB3450	Impeller Assembly - Mk 3
SUB1001	10" Bottom Cage - All US Units	SUB3460	Impeller Weldment Mk 3,4
SUB1025	Top Bearing Cap in Parts Box	SUB3470	Impeller Housing - Mk 3,4
SUB1030	Top Bearing Cap	SUB3475	Impeller Mounting Clips - Mk 3,4
SUB1050	Ice Tube Machined	SUB3480	Impeller Support Bracket - Mk 3,4
SUB3001	9 7/8" Bottom Cage - Metric	SUB3490	Adj Impeller Sleeve - Mk 3,4
SUB3055	Lift Point Attach Bracket- Mk 3,4	SUB3500	U-Joint Assembly Pin Lock - Mk 3,4
SUB3105	Top Bearing Plate - Mk 3	SUB3560	Float Bracket Assembly - Mk 3,4
SUB3108	4 Bolt W64 Bearing - Painted	SUB3563	Float Assembly - Mk3,4
SUB3110	Top Bearing Plate Assembly - Mk 3	SUB3600	Catwalk Assembly - Mk 3,4
SUB3115	Bottom Bearing Plate - Mk3	SUB3605	Catwalk Adj Brace - Mk 3,4
SUB 3117	3 Bolt Bottom Bearing- Painted	SUB3612	Catwalk Adj Brace Bracket - Mk 3,4
SUB3120	Bottom Bearing Plate Assembly - Mk 3	SUB3617	ss Catwalk Adj. Brace End - Mk 3,4

Hold Harmless Agreement

To the fullest extent permitted by law, _____ agrees to indemnify, defend and hold harmless the CITY OF LAMAR, its officers, agents and employees from and against all suits, claims, damages, losses, and expenses, including but not limited to attorneys' fees, court costs, or alternative dispute resolution costs arising out of or related to any such suit, claim, damage, loss or expense involving an injury to a person or persons, whether bodily injury or other personal injury (including death), or involving an injury or damage to property (including loss of use or diminution in value), but only to the extent that such suits, claims, damages, losses or expenses were caused by the negligence or other wrongdoing of _____ directly or indirectly, regardless of whether caused in part by the negligence or wrongdoing of CITY OF LAMAR or any of its agents or employees.

Event name: _____ Event Date: _____

Dated: _____