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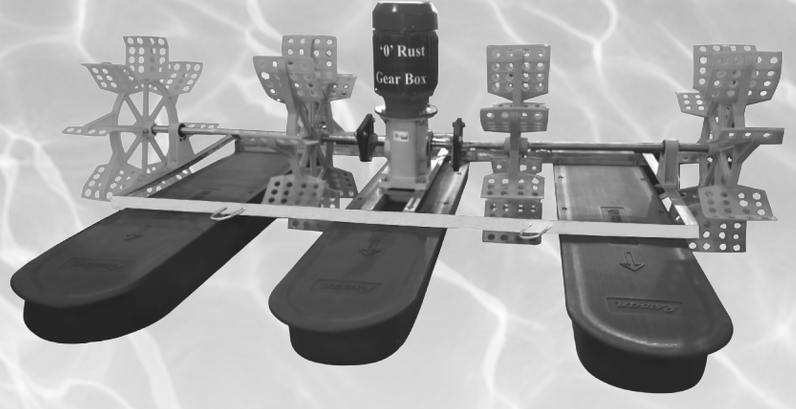
JK Fenner

2 HP 4-Paddle Wheel Aerator
Installation and Maintenance Manual



Eswan
AERATOR

First in Aquaculture Industry with "0" Rust Gear Box

TROUBLE SHOOTING FOR AERATOR

TROUBLE	SOLUTION
Motor not rotating	Check the Over load relay trip status
	Check power supply cable connection
	check the 3 Phase voltage
	Check the motor terminal connection
	Check the motor winding resistance
	Check the cable connection between starter to motor
	Check any foreign matter on impeller
Fans is not rotating	Check the fan fixing on SS shaft
	Check gear box output glands fixing
	Check input & output gear box shaft rotation
Vibrating Run	Check alignment between motor & gearbox
	Check alignment between gearbox & SS shaft
	Check float condition
	Check oil level in the gearbox
Over current	Check any foreign matter on impeller
	Check the alignment and fans rotation
	Check the 3 Phase voltage
Oil Leakage of Gear Box	Check the oil seal condition
	Check the gearbox output shaft condition

1. General:

Table of Contents

Safety Messages

Safety is important to us. We have included safety messages throughout this manual and for your protection. Please read and follow all directions.
A safety message has a safety alert symbol followed by an explanation of what the hazard is, what can happen and what you should do to avoid injury. This is the safety alert symbol:

The safety alert symbol and "WARNING" or "CAUTION" will precede all safety messages:

WARNING
You will be killed or seriously injured if you don't follow instructions.

CAUTION
You can be killed or seriously injured if you don't follow instructions.

Damage Prevention Messages

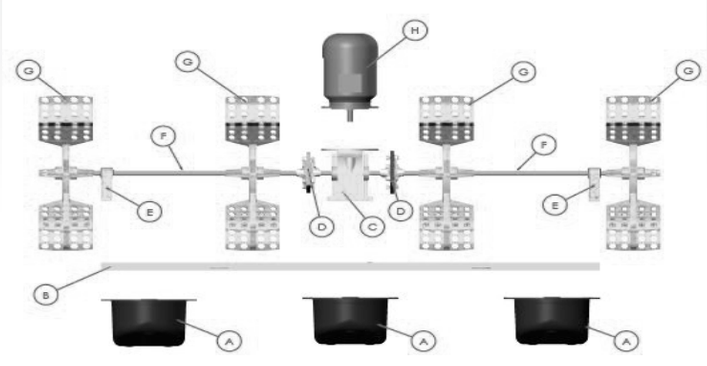
A damage prevention message has "ATTENTION" with an explanation of what the equipment hazard is and what you should do to avoid damaging your aerator:

ATTENTION
Your equipment may be damaged if you don't follow instructions

ELECTRICAL SHOCK HAZARD

This product must be properly grounded. A qualified electrician should check the condition of the power supply wiring before operating this aerator. Do not permanently connect this product to wiring that is not in good condition or is inadequate for the requirements of this product. Failure to follow these instructions can result in death, fire or electrical shock.

Parts and Materials



	Item Description	Qty.
A.	Floats	3
C.	Gear Box	1
E.	Tripod	2
G.	Paddles	4

	Item Description	Qty.
B.	Frame	1
D.	Coupling Set	2
F.	Axle	2
H.	Motor	1

Nuts, Bolts and Washers

S.no	Bolt Location	Piece Size	Qty	Required Wrench
1.	Float - Frame	Bolt 3/8" x 1"	12	5/16 - (15 mm)
2.	Frame - tripod	Bolt 3/8" x 1 1/2"	4	5/16 - (15 mm)
3.	Gear box– frame	Bolt 3/8" x 1	3	5/16 - (15 mm)
4.	Gear box - motor	Bolt 3/8" x 1 1/4" - 4	4	5/16 - (15 mm)
5.	Flange - Rubber pad	Bolt 3/8" x 1 1/2"	8	5/16 - (15 mm)
6.	Gland – SS rod	Bolt 3/8" x 1"	4	5/16 - (15 mm)
7.	Fan – SS rod	Bolt 3/8" x 1 "	8	5/16 - (15 mm)
8.	Nuts	Nuts 3/8" x 0.8d	44	5/16 - (15 mm)
9.	Flat washers	Flat washers 3/8"	88	

Motor Specifications

4-paddle aerator

Power	: 2 HP	RPM	: 1440
Phase	: 3	Poles	: 4
Voltage	: 410 V	Frequency	: 50Hz
Currrent	: 3.4 A	Frame Size	: 90L
Insulation	: 'H' Class	Protection	: IP65
		Mounting	: B5

Safety provision : TOP Sensor (Refer wiring Diagram for Connection)

Assembly

Direction of Water Flow

Step One

On a flat, stable surface, lay the three floats side by side. The direction of water flow is indicated on the end of each float. Be sure to place them all in the same direction.

Before going on to the next step, note that there are several sets of holes on each float but not all the holes will be used. One set, second row of holes which are high-lighted in yellow at the end with the water direction indicated. All other holes are blind.

CAUTION

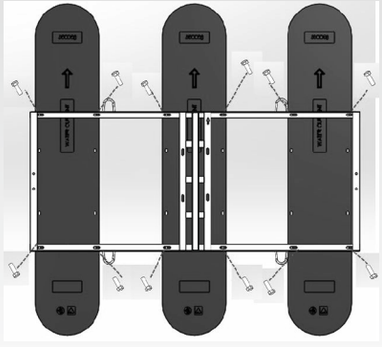
Frame has unfinished edges. To avoid injury, handle with care.

Step Two

On each long side of the frame, measure from the outer edge of the frame to the first hole encountered on the center crossbars. On one side the hole will be approximately 20.5" from the edge, and on the other side the hole will be approximately 16" from the edge. The short side (20.5") should be on the same end as the water flow as indicated by the floats.

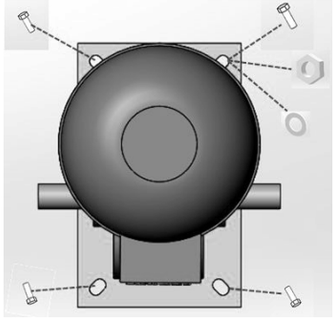
Lay the frame on the floats as shown. The frame will have six holes on each long side (twelve total) for attaching the frame to the floats. Align the holes on the 20.5" side of the frame with the holes on the floats and attach with six 3/8 " x 1" bolts, six 3/8 " nuts and twelve washers.

The holes on the frame should now be lined up with the corresponding slotted holes on the floats. Complete the frame mount using six 3/8" x 1 " bolts, 3/8 " nuts and twelve washers



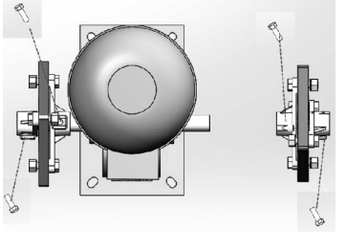
Step Three

Mount the gear box to the frame with four 3/8" x 1" bolts, four 3/8" nuts and eight washers. Make sure to mount the gear box so that the oil cap is facing the opposite direction from the water flow as indicated by the floats.



Step Four

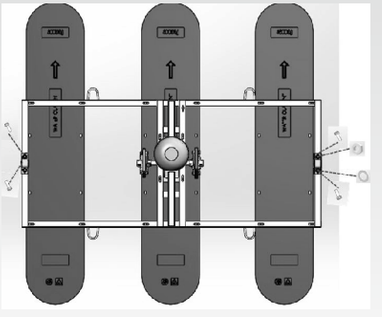
Place the couplings on the shafts. Make sure the holes on the couplings and the flat spots on the shafts are aligned properly. The bolts required for securing couplings to shafts are already attached to the couplings. Tighten securely using a 9/16" wrench.



Step Five

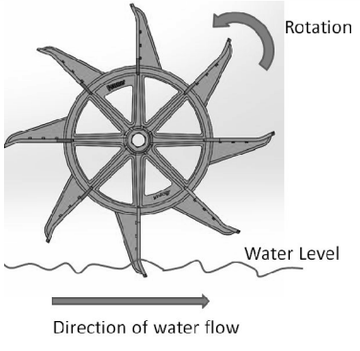
Attach one tripod to one side of the frame as indicated below using two 3/8" x 1 1/2" bolts, two 3/8" nuts and four washers. Repeat this step to attach the other tripod.

Before moving on to the next step, examine the paddle wheel axles. Several notches are taken out of the axle for securing the paddles to the axle and connecting the axle to the couplers. The notches are not numbered on the axle itself, but for illustration they are numbered as shown below. The notches are numbered from the inside of the paddle wheel out



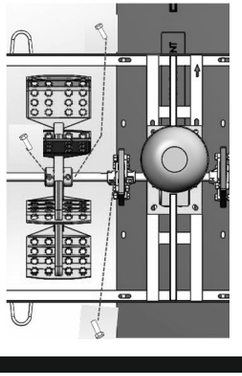
Step Six

Insert one axle through the tripod and through one paddle. Make sure the paddle is facing the correct direction as indicated by the water flow on the floats and the axle rotation as indicated on the gear box. With correct placement, the paddles should “scoop" into the water when operational.



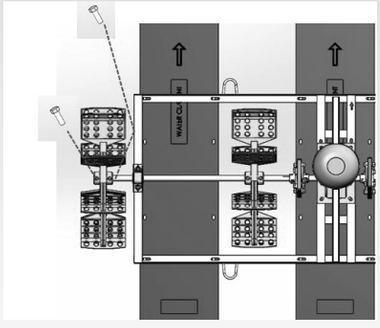
Step Seven

Slide the axle into the coupling. Line up notch number 1 on the axle with the bolt supplied with the coupling and tighten the coupling bolt to attach the axle. Line up notches 2 on the axle with the holes on the paddle. Use two 3/8" x 1" bolts and two 3/8" nuts to secure the paddle to the axle. And tightened the bolt. Repeat this step for the other axle.



Step Eight

Place an outside paddle on the axle and line up the holes on the paddle with notches 3. Remember to position them as outlined in step seven. Using two 3/8" x 1" bolts and two 3/8" nuts attach outside paddle to one axle. Tighten the bolt securely and repeat step for the other outside paddle

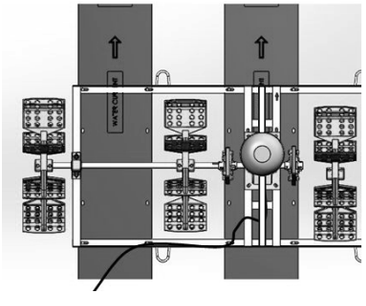


CAUTION

We highly recommend that a qualified electrician install the power cord (sold separately) in accordance with all federal, state and local guidelines. Failure to do so could result in electrocution.

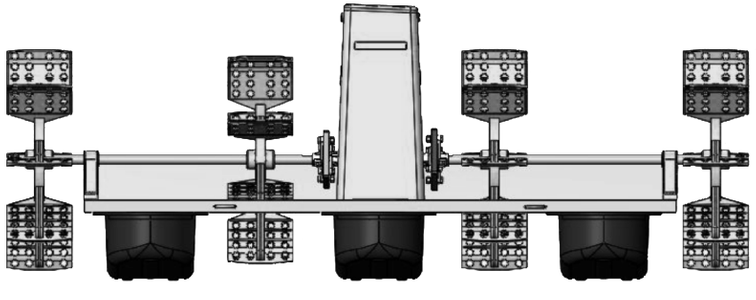
Step Nine

After having a qualified electrician install the power cord, attach the cord to the frame to eliminate the possibility of the cord getting caught in the paddles during operation. Attaching the cord tightly will also help reduce the possibility of the cord being pulled out of the motor in the event that the paddle wheel is pulled out of position. We suggest black plastic ties or strong waterproof tape



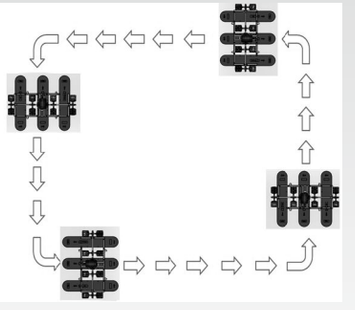
Step Ten

Place motor cover over motor. Assembly is now complete.

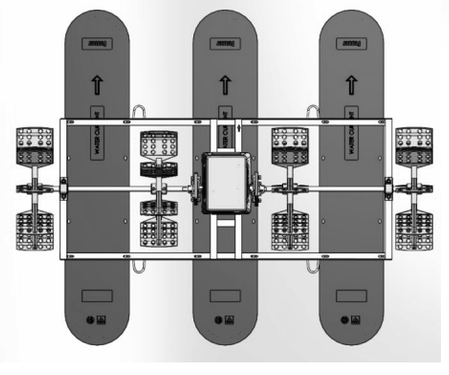


Placement

Flow patterns created by paddle wheels are used most efficiently by placing the paddle wheel on the long axis of a rectangular pond with the flow directed out perpendicularly from the pond bank



Be aware of the currents being generated by your paddle wheel. In some installations, particularly in shallow water, it is possible for the paddle wheel to cause bank erosion with prolonged use. Redeployment of the unit may be necessary if erosion is noted. Under normal operation the paddle wheel exerts such a force back toward the shoreline it is necessary to tie or stake it down in place. They should be placed through the metal loops on the water outflow side of the frame.



Stakes should be placed as straight up and down as possible so the paddle wheel is able to rise and fall with changing water levels. If extra staking is needed, do not use stakes with a rough surface that could catch the metal loops of the frame and prevent the water level adjustment

CAUTION

To avoid injury, do not attempt to move the paddle wheel without disconnecting it from its power source.

Maintenance of Aerator

The gear box must be filled with 1.0 litres of Fenner gear oil before running (gear oil is supplied with unit at delivery). First time oil should be changed after 500 hrs. Subsequently, oil should be changed every 5 months or 2500hrs, whichever is earlier

PRODUCT INSTRUCTION MANUAL
Anti Rust Gear Box

I. INSTALLATION

1. The Anti Rust Gear Box is not compatible with the motor with an eight-screw-hole flange. There is a high risk of infiltration when the screw holes are fastened. As the picture shown below, please remind the customer to fill the holes with silicone to avoid water seepage if the motor with 8-screw-hole flange is in use.

2. Install on a stable base with good air ventilation. The accessibility of oil filling / draining should be considered.
3. No-load running test should be performed and abnormality should be corrected before regular operation.
4. Remove the red pin from breather before operation.

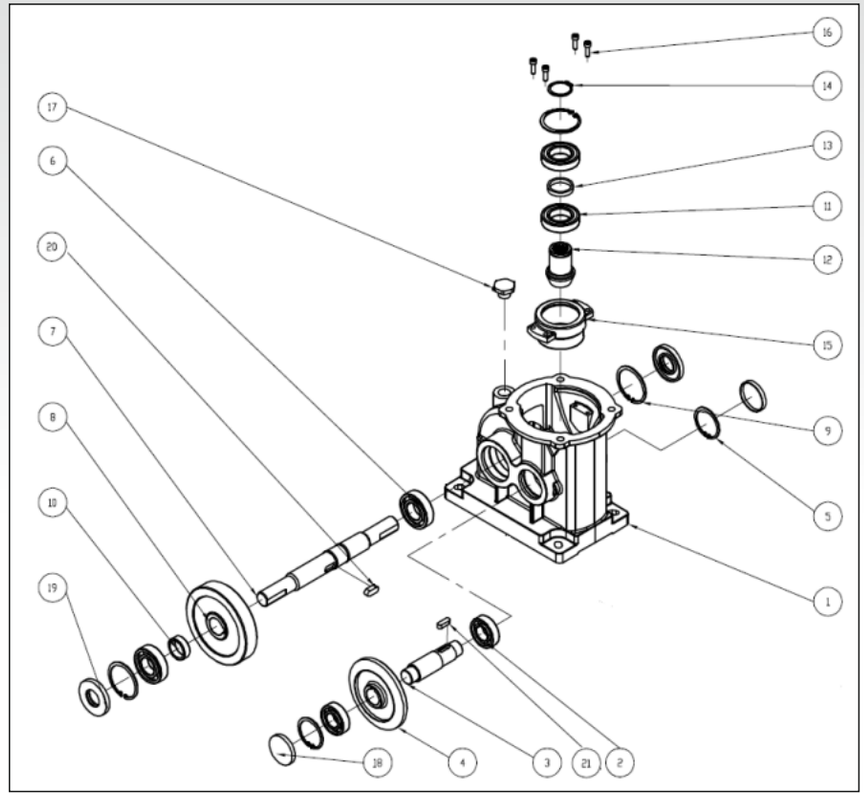
II. LUBRICATION

1. Add 1 liter new oil into the new reducer before operation. The first oil change should be performed after 500 hours of operation while subsequent oil change is needed every 2500 hours of operation. A regular check of oil level and condition is recommended and an oil change action is required if any deterioration is inspected.
2. The application of the same brand reducer is recommend. Fill only with compatible specification of oil and do not mix oil of different specifications in a single unit.
3. The interior of the reducer should be flushed and drained before filling with the new oil.
4. Stop the running and determine the root cause when a high oil temperature, above 850 C, or abnormal noise is inspected during operation. Restart the running after the problem is solved or the new oil is refilled.
5. Recommend lubricant: Amocam - 680

III. MAINTENANCE

1. The reducer should be inspected regularly; a corrective action should be taken when an abnormal condition or a significant damage is inspected. The material and precision of the spare parts for replacement should be corresponded to the standard. After changing the spare parts, a no-load running should be performed before regular operation.
2. The user establish a reasonable maintenance system. The reducer operation condition and the problem inspected during maintenance process should be recorded in detail.

IV. EXPLODED DIAGRAM



#	PART	QUANTITY/ EACH UNIT
1.	HOUSING	1
2.	BEARING	2
3.	PINION	1
4.	GEAR	1
5.	C-RING	2
6.	BEARING	2
7.	OUTPUT SHAFT	1
8.	GEAR	1
9.	C-RING	3
10.	SPACER	1
11.	BEARING	2

#	PART	QUANTITY/ EACH UNIT
12.	INPUT SHAFT	1
13.	SPACER	1
14	C-RING	1
15	BEARING SEAT	1
16.	SCREW	4
17.	BREATHER PLUG	1
18.	OIL SEAL	2
19.	OIL SEAL	2
20.	KEY	1
21.	KEY	1

SAFETY CONSIDERATIONS

The motor is intended for installation and use by qualified personnel, familiar with national legislation & necessary health and safety requirements.

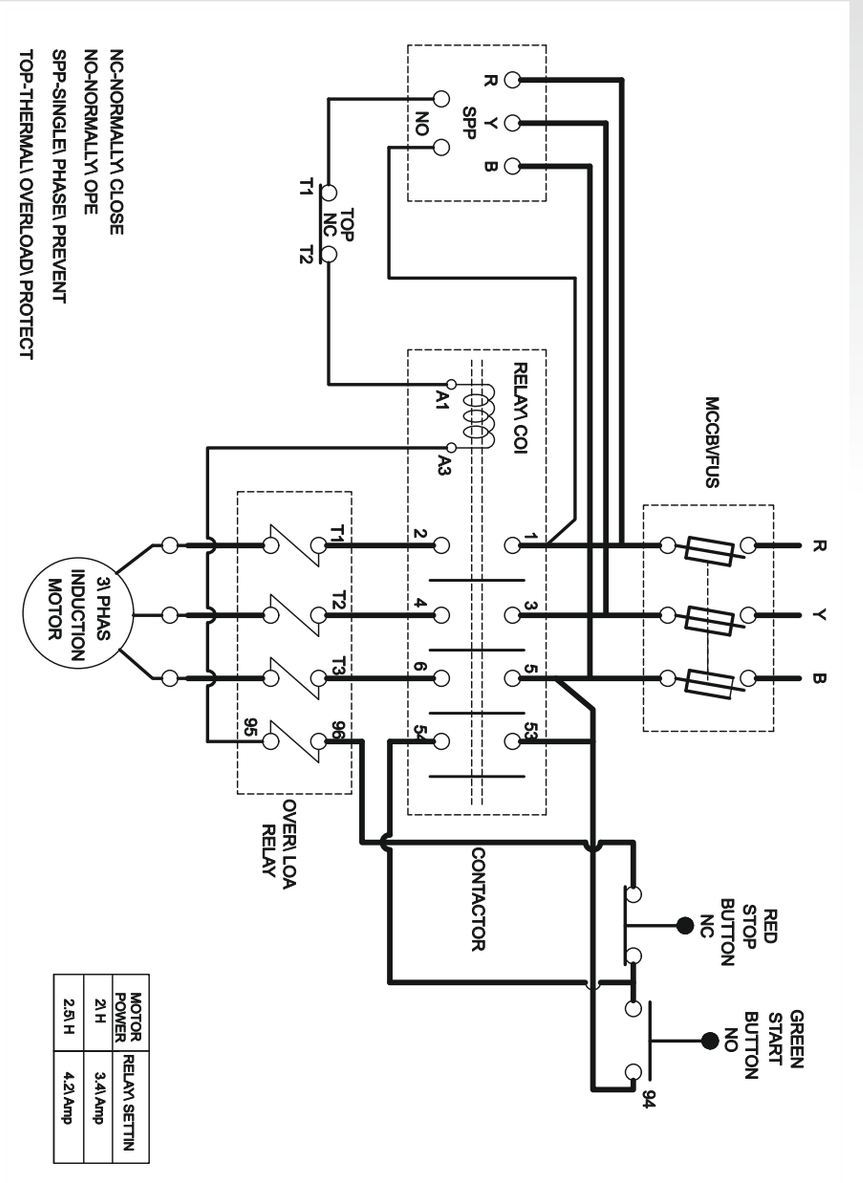
RECOMMENDATION FOR MOTOR CONNECTIONS:

1. Name plate voltage and frequency should agree with the power supply. Motors will operate satisfactorily on line voltage410V ±10% and frequency 50Hz±5%.
2. Provide seperate electrical connection with suitable MCB.
3. Provide individual 2HP DOL Starter for each Aerator.
4. Set load current at 3.4Amps.
5. Ensure proper selection of relay range for DOL starter
6. USE 3CX2.5Sq mm power cables for connecting Starter to motor.
7. Install required components to protect from Under voltage & single phasing relay as shown in the power & control diagram Table1.
8. Wiring of motor, control, overload protection and earthing should meet the National and Local codes.

GENERAL PROCEDURE

1. Check the wiring connections.
2. Meassure the Line/Incoming voltages.
3. Check the Overload/current trip setting.
4. Check the tightness of the power connections at motor terminals.
5. Check the rotating direction of motor as per Aerator aeration direction.
6. Install individual MCB for each starter.
7. Ensure the proper alignment between motor & gearbox and use right fastners for fixing.
8. If any abnormalities while in running connection, immediately switch off the motor.

POWER & CONTROL DIAGRAM



MOTOR POWER	RELAY SETTIN
2\ H	3.4\ Amp
2.5\ H	4.2\ Amp