



## AIRTUG® Assembly & Operating Instructions MODELS: EL8-S & EL8-H

**Airtug, Inc. is not responsible for aircraft damage sustained when proper clearance is not maintained by the operator between the tug and the aircraft and the surroundings.**

**Tug Operation:** There is an On/Off switch at the top of the handle. Flip the switch to “On” when ready to use the tug. Leave the switch in the “Off” position between use. The thumb throttle operates the transaxle. The transaxle provides smooth, variable control of the tug speed. In tight quarters in and around the hangar, the tug can be operated very slowly offering greater safety when moving your aircraft. Always smooth out the transition and have a little momentum when approaching the hangar door seal or weather edge when returning the aircraft to the hangar. It is recommended to use a ramp or step for any lips greater than 1/4”. When tugging the aircraft an extended distance, it is easiest and safest to face forward with the tug and aircraft behind you. As a safety precaution, always return the toggle switch at the top of the handle to the “Off” position when leaving the tug momentarily or between each use to lock the transaxle.

**Caution:** Braking too abruptly from a higher speed can **seriously damage the differential ring gear**. This is considered abuse and will not be covered by the transaxle warranty.

**Aircraft Loading:** Position the Airtug up to the the aircraft nose wheel with the ramp centered on the wheel and stop. Place the strut strap or optional “J” hook (purchased separately) around the nose gear strut, connect to the winch hook and with the winch, pull/winch the aircraft onto the tug until the tire hits the backstop (or chock accessory for aircraft with a nose wheel fairing). Make sure the winch is in the locked position prior to moving the tug.

Note: EL8-H Models (hydraulic) - Using the lever on the jack, raise the Airtug platform up an inch or two prior to moving the aircraft. Close the valve (turn clockwise) and pump the jack handle for “up” operation and open (turn counter-clockwise) the valve to lower the platform.

**Aircraft Unloading:** Chock the aircraft first if necessary. Disconnect the strut strap or “J” hook from the aircraft and secure the winch strap to the tug. Gently pull the tug away from the aircraft.

Note: EL8-H Models (hydraulic) Open the jack valve to lower the tug platform **prior** to unloading the aircraft.

**SAVE THIS DOCUMENT AND ENSURE ALL OPERATORS READ IT PRIOR TO MOVING ANY AIRCRAFT**

## General Maintenance

**Tire Pressure:** The tire pressure can range from 40psi for lighter aircraft in the 3,000 lbs. range to 70psi for heavier aircraft up to 8,000 lbs.

**Batteries:** Keep the batteries fully charged. The battery performance will diminish measurably as the ambient air temperature drops. See additional information regarding battery maintenance at the end of this document. The battery charger is designed to be left plugged in when the tug is not in use.

**Electric Transaxle:** This is a sealed unit and does not require maintenance or fluid.

**Drive Wheel Bearings:** Permanently lubricated.

**Caster Zerk Fittings:** Needs to be lubed periodically to ensure ease of caster wheel steering.

**Drive Chains:** Apply chain lube periodically depending on use and environment.

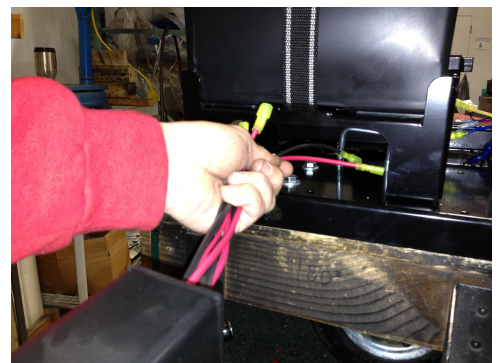
## Assembly Instructions

**Tools Needed For Assembly:** utility knife, 1/2" & 9/16" socket or wrench.

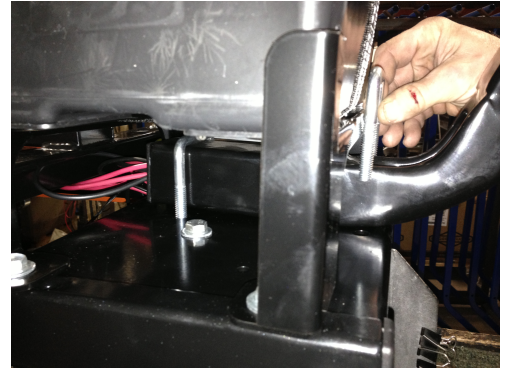
**Assembly Note:** All reference to "right" and "left" orientation is made while standing behind the tug and looking forward from the operator position.

**Note:** It is recommended to have two people available for installing the handle to the frame. Following that, it is easy for one person to complete the assembly in a short period of time.

**Step 1:** U-bolts are pre-installed on the rear of the tug frame. Leave the nuts loose for now to allow clearance for the handle to slide in. Install the tug handle by pushing it through the "U" bolts on the tug frame. Take care to make sure the wires at the end of the handle pass through the "U" bolt. The handle should pass the second U bolt approximately 1.5".

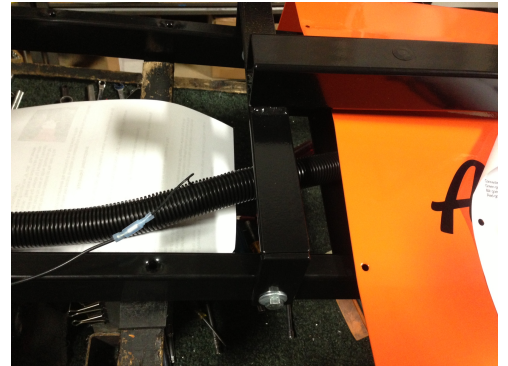


**Step 2:** Tighten the four (4) “U” bolt nuts securely under the tug frame (using 9/16” socket).



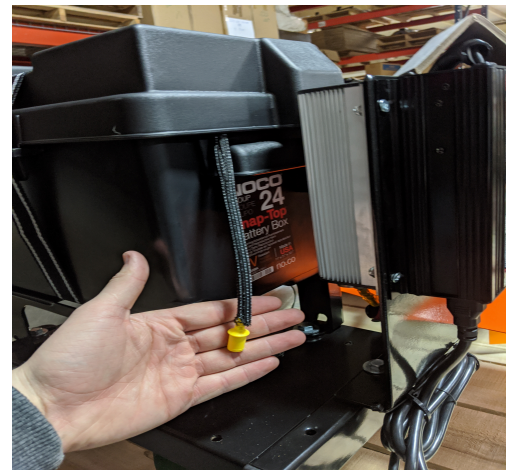
**Step 3:** Connect the wires that come out of the handle as follows:

a. Connect the male “bullet” terminal to its mate (Female) inside plastic loom (orange tag). It goes to the brake on the transaxle. Put the wire back into the loom under the cowling and use zip ties to hold against frame.



b. Connect the yellow fuse to its mate outside the battery box. Ensure the 2 Amp fuse is in place before connecting.

c. the plug on the white cable goes to the grey controller - J2 Slot on the bottom of the controller (closest to handle). There is a bolt intentionally blocking the J1 slot to prevent using the incorrect slot on the speed controller.



d. zip tie and place all wires in loom

**Step 4:** Prior to the first use, plug the charger cable into a 110V outlet or extension cord and charge the batteries fully as indicated by the green light at the top of the charger. The orange light indicates batteries are charging. Keep the battery charger plugged in between use. See the battery charger manual for more information.



## Winch Operation:

1. Ensure the strap is always over the top of the winch wheel. If you notice it on the bottom - pull the strap all the way out and wind it back in so the strap is positioned over the top of the winch wheel.
2. When loading an aircraft, press the lock lever towards the handle and frame to the down position and pull the strap out towards the front of the tug. You should hear the winch clicking throughout this action.
3. Bring the winch lever to the neutral position which will leave the strap loose or otherwise unlocked.
4. Connect the strut strap around the nose gear or the “J” hook (if purchased as an option) - connect to the hook at the end of the strap. Position the winch lever to the straight up position (locked) and load the aircraft onto the tug by cranking the winch handle clockwise. You are now ready to move the aircraft.

## Battery Maintenance:

1. New batteries (wet or gel cell) require a full charge before use and need to be cycled several times before reaching full capacity.
2. Battery connections should be kept tight at all times. Periodic inspection is recommended.
3. Vent caps should remain in place and tight at all times during operation and charging of wet batteries.
4. Keep batteries clean from all dirt and corrosion.
5. For wet batteries, a maintenance routine should be set up to check the battery fluid level every two (2) weeks initially until an adequate routine is established for the particular operating environment. The acid level should be 1/4” above the battery cell plates. The acid level should never touch the fill well. Distilled or treated water should be used to replenish the batteries. Care should be taken to avoid metallic contamination (iron).
6. Batteries should not be discharged to the point of no longer being able to power the tug. Keeping the batteries fully charged will greatly reduce the risk of a dead battery when you need it most.
7. Batteries should be brought up to a full charge at the earliest opportunity using the built in 24V battery charger with reverse polarity protection and float mode. The battery charger should be left on when the tug is parked to maintain proper charging and maintenance of batteries at all times. Keeping the batteries fully charged will reduce the risk of freezing in cold temperatures.
8. Avoid charging the batteries when the ambient temperature exceeds 120°F.
9. As batteries age, the maintenance requirements increase. Maintain the water level on wet batteries. Older batteries will take longer to fully charge.
10. Periodic battery testing is an important preventative maintenance procedure. Hydrometer readings of each cell while fully charged gives an indication of balance and the true charge level. Imbalance could mean the need for equalizing, and is also a sign of potentially improper charging or a bad cell. Voltage tests (open circuit, charged or discharged) can identify a bad or weak battery. Load testing will identify a bad battery when other methods fail. A weak battery will cause premature failure of a companion battery.
11. Extreme temperatures can substantially affect battery performance and charging. Cold temperatures reduce battery capacity and retard charging. Heat increases water usage resulting in overcharging.