

INSTRUCTIONS FOR USE OF THE AIRCRAFT CADDY

Rev. 3/16/2011

First, the obligatory disclaimer:

THE POWER TUG IS MADE AVAILABLE FOR YOUR CONVENIENCE. USE OF THE TUG IS ENTIRELY AT YOUR OWN RISK, AND THE CRAWFORD COUNTY AIRPORT BOARD WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO YOUR AIRPLANE OR ANY OTHER AIRPLANE, NOR ANY INJURY, INCURRED DURING USE OF THE TUG, EVEN IF CAUSED BY TUG MALFUNCTION. YOU ASSUME ALL RESPONSIBILITY FOR ANY DAMAGE, WHETHER TO YOURSELF, YOUR AIRPLANE, ANOTHER AIRCRAFT, ANY FACILITIES, OR THE TUG ITSELF.

Our tug is simple and relatively obvious to use. Your first time, please carefully follow these instructions and exercise ample caution. *Please read these instructions all the way through before starting.*

Before we get started with using the tug, we need to cover two configuration options. Don't worry, they are simple. First, the tug has a turntable, or "lazy susan", arrangement where the aircraft nosewheel goes. This allows great maneuverability when moving the airplane, as the tug can be turned through a wide range of angles without turning the aircraft nosewheel. However, this doesn't work so well if the nosewheel has fairings (wheel pants), as there can be interference between the fairings and the tug structure. So the turntable can be locked in the centered position for use with fairings, or unlocked to rotate freely if there are no fairings. Looking at the front part of the tug, on the turntable, you will notice a hollow bolt with a right-angle pin sticking out. This is the anti-rotation locking pin. To unlock, pull it up and rotate to the side so it stays up. To lock the turntable, rotate it until it is centered with the open end toward the front, then drop the locking pin. Verify that the turntable is actually locked and won't rotate. Don't confuse the locking pin bolt with the chock hold-down bolt which is on the other side and has a T-handle.

Now see the structure on the turntable that looks like a square "U". This is the wheel chock. There are two chocks, a high chock and a low chock. The low chock is only three inches high to allow clearance below some wheel fairings. For wheels with no fairings or high-clearance fairings, there is a five-inch chock. The higher chock provides greater security of the nosewheel on the tug and should be used when fairings permit. The chocks are easily interchangeable, as described below.

Now we get to the actual usage:

- Install the chock having the proper height: low chock for use with wheel pants, high chock otherwise. *NOTE: Verify that the low chock provides sufficient clearance underneath your fairing.*

- ◆ Unscrew the chock hold-down bolt using the T-handle. This is on the opposite side from the locking pin bolt.
 - ◆ Slide the chock from underneath the locking pin bolt.
 - ◆ Reverse the procedure to install the other chock. Don't screw the hold-down bolt in so far that it touches the fixed plate of the turntable.
- Unplug the power cord and wrap it around the brackets provided at the rear of the base, or just wrap it around the handle.
 - Turn on the battery power using the Power Switch at the left rear of the tug. The key has a yellow hang tag. You will hear the battery relay click. The voltmeter should show a full charge.

NOTE: When power is turned on, the tug's motor controller performs some internal diagnostics to ensure proper operation and thus safety. Please allow at least five seconds for completion of these diagnostics, during which the tug will be unresponsive to commands from the handlebars. Also, as a safety feature, if the handlebars are rotated out of the neutral position when power is applied or during the diagnostic period, the controller will not respond until the handlebars are returned to their neutral position. This is to prevent a surge of motion if the machine is turned on with a high-speed command present from the handlebars.
 - Grasp the handlebars and pull the rear of the tug sideways away from the wall, then rotate the handlebars to the rear. Be careful, you want to slowly start the tug moving.

NOTE: If at any time you are uncomfortable with how the tug is moving, just let go of the handlebars. It will come to a quick but smooth stop and will remain in place. It has an electric brake that operates in a smooth and controlled manner when the handlebars return to their neutral position.
 - Back the tug out of the storage hangar and maneuver it to your airplane. If this is your first time to use it, practice maneuvering it around on the ramp, both forward and backward, at various speeds, stopping and starting, and turning both ways, before connecting it to your airplane.

NOTE: Never allow anyone to ride on the tug.
 - Maneuver the tug to a position directly in front of and pointed at the airplane's nose wheel (for tailwheel airplanes, you are going to have to figure all this out for yourself.) Stop with the front of the tug a foot or so from the wheel, or even with the spring ramp touching the nose tire if you have enough working room. Lock the turntable in place. Make sure the propeller is positioned to provide good working clearance for the tug.

Loading the airplane onto the tug.

- Now you need to load the airplane nosewheel onto the tug using the electric winch mounted to the tug handle. Note that the winch has a red handle on a knob on the left side. Turning this knob counterclockwise will release the spool and allow it to freespool, useful for pulling cable

out. Turning it clockwise will engage the gearing and allow the spool to be turned under power. Never turn the knob when the cable is under tension or when the spool is moving under power. A rocker switch having a center off position and two spring-return operating positions is mounted near the tug handlebars. Pressing the upper part of the switch will cause the winch to turn in the direction that pays out cable, and pushing the bottom part of the switch will cause the winch to take in cable. When taking in cable, use your hands to keep tension on the cable to avoid a cable snarl on the spool. *Be very careful of your hands and fingers around the winch!*

- If the nose strut is free of fairings, use the winch strap on the end of the winch cable. Then pay out some winch cable and connect the strap around the strut and to the winch cable hook. Turn the red handle on the winch clockwise, keep tension on the cable, take up the slack and winch the wheel up onto the cradle until the tire just contacts the stop (“chock”). *Do not winch it hard against the chock, stop when it just touches.* Be sure the airplane brakes are off and that there are no chocks in front of the main wheels. The winch is powerful, so exercise caution to make sure the airplane can move freely, to avoid damage to the strut.
- If the wheel and strut are covered by fairings, you will not be able to put the winch strap around the strut to pull it onboard without damaging the fairings. So, depending on your airplane, you may be able to use the U-bracket tool, the U-shaped or C-shaped device with a screw handle on one fork. If the tool will fit onto your nose wheel, then you can connect the winch hook onto the tool and winch the wheel onto the cradle up to the chock. It will fit Cirrus and others. *NOTE: The screw handle goes on the aircraft left side (right side facing aircraft nose from front).* If it won’t fit, then you are out of options and the tug just won’t work for your airplane. You might could somehow use the airplane’s manual towbar with the winch connected to it, but be very careful. You are entirely on your own there. But you are entirely on your own using this tug anyway.
- Once the nosewheel is on the cradle, you need to secure it there for transport. Airplane noses tend to bounce up and down some as you change towing speeds or hit small bumps, and the wheel could rise up and roll over the chock (damaging any wheel fairing) when the airplane main wheels encounter some obstacle such as a lip at the hangar entrance when you are pushing it back into the hangar. If this happens, you are in trouble, so take precautions against it. This is not likely to be a problem when using the high chock, but is of significance when using the low chock. There are two ways to deal with this. Choose the way that is most appropriate for your airplane.
 - A yellow cambuckle strap is provided to go over the nosewheel or nosewheel fairing, to hold the wheel down. The strap can be hooked into a hole on one side of the chock plate and a slot on the other side. Then just pull the strap snug through the cambuckle. Keep the winch connected with tension in the cable so that the nosewheel is against the chock.

- Use the U-bracket as previously described, engaging it into the duckbill bracket on the tug. The U-bracket and duckbill bracket are designed to keep the nosewheel from going forward over the chock if it bounces up.
- Unlock the turntable if there are no fairings to worry about, but keep the locking pin engaged if your airplane has wheel fairings.

Moving the airplane.

- Ensure that the airplane brakes are off and there are no chocks in front of the wheels. Maneuver the airplane to the desired location, starting and stopping slowly. Enlist the assistance of a ground guide if possible to watch wing and tail clearance. *Carefully monitor for any interference between the tug and any wheel fairings during turns.*

Unloading the airplane.

- Chock the airplane main wheels front and back. (The airplane may tend to roll backwards a little as it rolls down off the tug. Once you have some experience doing this, or are not near an obstacle that the wings or tail might hit, you may find that you can dispense with that.) Using the electric winch, let some slack out into the winch cable, pulling the slack off the reel with your hand. Disconnect the winch cable and the security strap. Remove the U-bracket tool if used. Turn on the power switch and wind up the winch cable, keeping some tension on the cable by hand so that it winds smoothly and does not snarl. Now slowly back the tug out from under the nosewheel, allowing it to roll down the spring ramp as you back away. When the airplane is down, back away enough to give yourself some working room.
- Stow the U-bracket tool and security strap, and return the tug to its storage location where you got it.
- Turn off the power switch. REPEAT: TURN OFF THE POWER SWITCH!
- Plug in the power cord. PLEASE!
- Turn off the light and roll down the door.

Please send any comments on use of the tug to info@crawcoair.com . We would be interested in any problems encountered when following these instructions, and what kind of airplane you have, whether it has strut and/or wheel fairings and how well the tug worked with that airplane.