

SUPERTOW I™

Brought to you by: **Powertow**™



Supertow I Pilot's Operating Handbook
Northwest Manufacturing, Inc.

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POWERTOW

MODEL: SUPERTOW I, II, III

Things to know:

Keep your crate in the event there is any shipping damage to your unit.

Read this instruction manual thoroughly before attempting to load and move your aircraft.

Your unit will need Oil & Gas - before test running the unit.

Tools handy for final assembly

½" End Wrench

Phillips Screwdriver

Wire Cutters

Thank you for choosing a Powertow, for your hangaring needs.

Customer Service is # 1 with our company. If you have any questions or comments on your unit, please call us at 800-635-5565

Supertow I Setup

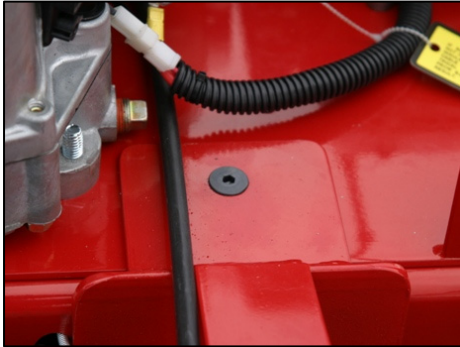
Handle and four cables to hook up, it's that simple. Have a friend help you with the handle.

Pre Set-Up ...Keep unit on pallet for ease of assembly.

Remove the three black bolts from frame. Located at back of frame top and bottom and set aside.

DO NOT REMOVE THE MASKING TAPE from any cables, until they have been attached.

The tape in all instances is to keep the proper pre-set adjustments in place until hook-up.



Step 1 –Handle - Before attaching the handle...

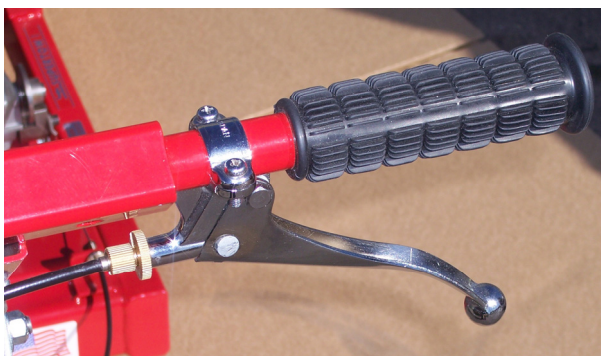
IMPORTANT – Feed the long black cable under the wire harness going to the engine. Let it continue under engine to front of machine and let hang loosely for now. You can then attach the main handle using the three black bolts. Start with the top bolt *loosely*: then the bottom bolts and tighten in the same order.

Wrench is supplied to tighten bolts into threaded frame

Step 2 - Shift Cable Attachment – Short Black Cable –Remove one nut & washer. Feed end of cable through the upright support and attach washer and nut tightly with a Crescent Wrench. Remove tape.

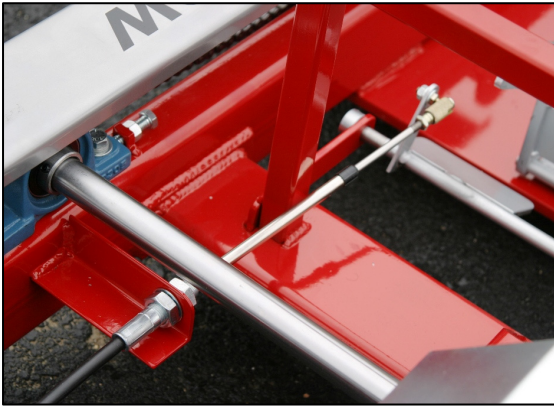


Attach end of shift cable by pulling back outer sleeve and slip on to the transmission shifter



Step 3 – Brake Cable Locate cable from brake and attach to handle as shown. Adjust gold barrel to take up slack and tighten jam nut to lock.

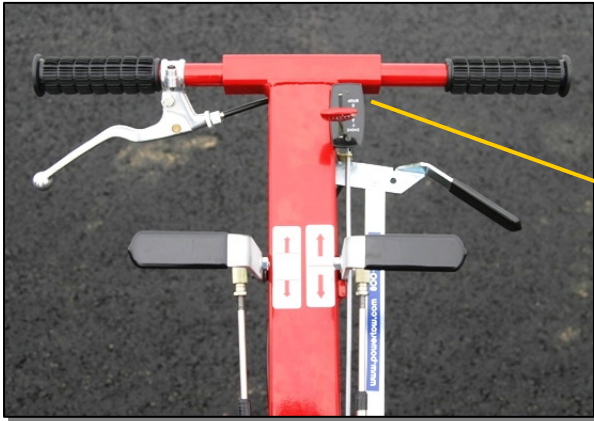
Supertow I Setup



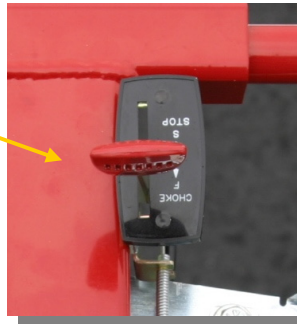
Step 4

“Lazy Susan” Cradle

The long black cable hooks up to the load and release plate for the Lazy Susan Cradle at the front end of unit. Follow same attachment procedures as shift cable hook-ups.

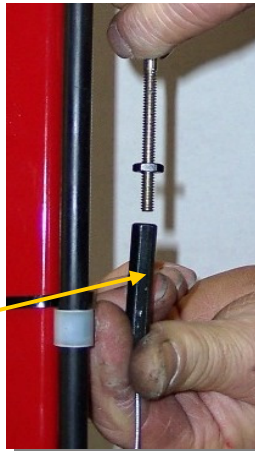
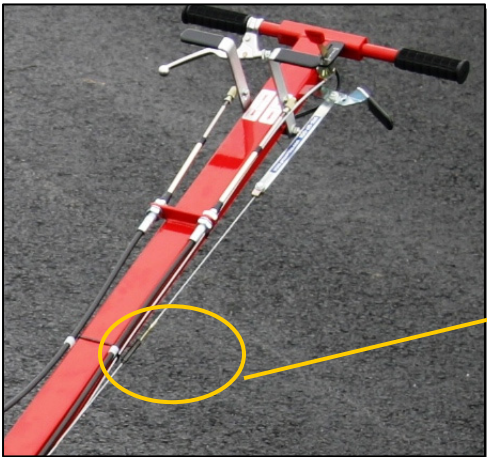


Step 5 –Throttle Cable



Locate the throttle control attached to the engine and bring it up to top of handle. Remove the two Phillips Screws on side of handle and install throttle control.

The cable will be secured down the left side with Nylon Ties in final step.



Step 6 -Clutch Cable

Locate Clutch Cable Attached on bottom of frame, hanging loose with black barrel.

Connect this end of Clutch Cable up to the top half of cable with threaded end.

Run threaded end into barrel snug against nut. This will leave most of the screw portion showing. Remove tape.

This barrel twist chamber adjusts the tension of the clutch.

It's important for the clutch to fully disengage when released. If you have this adjustment too tight, the machine will continue to travel even when the handle is released.

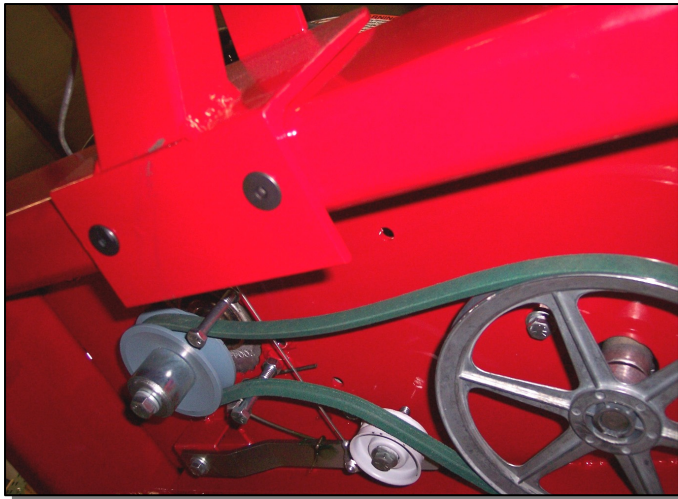
Supertow I Setup



Secure Clutch Cable to Handle.

Locate keeper on lower left side of handle. Remove the 10-24 Screw and attach Clutch Cable using the tab on cable housing.

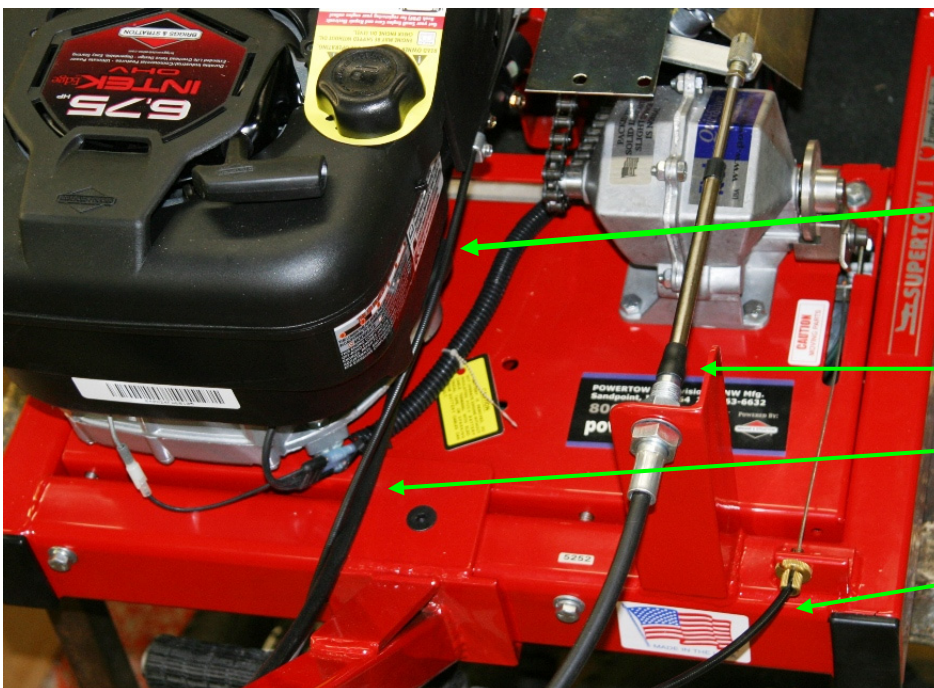
Be sure Clutch Cable is on the outside of Throttle and Brake Cables, then secure all cables (Except Clutch) to handle with nylon ties provided with Throttle Cable down left side and Brake Cable under handle.



Bottom View for Reference

The two bolts next to the engine pulley are belt guides, that create a loop around the pulley keeping the drive belt from engaging while the engine is running and clutch is disengaged.

There are three pulleys on the bottom of the unit: The engine drive pulley, the large transmission and the small clutch pulley on the clutch arm. **These pulleys need to be line with each other.** The bolt on the left side of Clutch Arm will need to be adjusted after the first couple hours of use. If the Clutch Arm drops down out of alignment, it will run on the rim of the idler pulley and spin the drive belt off the unit.



Throttle Control

Shift Cable

Lazy Susan
Release Cable

Brake Cable

SUPERTOW™ part of the **POWERTOW™** line by **NW MFG**

SHORT & SWEET PLEASE READ

Congratulations on your purchase of the **Supertow**.
As you already know, it's a unique machine.
So let's familiarize you with your new toy!

What's where...?

Let's start by standing at the rear of your tow.

On the handle, above the throttle are two lever handles.

Transmission handle

The lever on the right side is the transmission shift handle. Rocking your tow gently, Position lever in the center neutral position. *A lot of force will not be required.* The transmission has forward, neutral and reverse, neutral allows unit to freewheel, when not running. Move the shift lever in the direction; you want the tug to move.

Loading Gate handle

The lever on the left side releases the loading gate, of the "Lazy Susan Cradle" from its locked position, when pushed forward. After releasing gate, return handle back to its original position towards you. This simple move applies to loading and unloading. Move handle forward and then back to its stop.

Fingertip position - **Brake** handle on right side and **Clutch & Go** handle at left.

Ready to roll...!

Time to take the Supertow out for a solo, without your aircraft! It's very important to make sure the controls are all working correctly before you hook your beautiful bird up to it ... Yes a few touch and go's...

Engine – Don't forget the oil for the engine, it will take approximately $\frac{3}{4}$ of quart. A splash of 100LL, no more throwing the test gas on the tarmac and we're ready to start up the unit. Place the throttle control in the choke or start position, push primer 3 to 4 times (if supplied), and start the engine. Move control to run position at about medium speed. After some use you'll know how much power is required for your particular job. Greatest torque is developed at two-thirds throttle setting.

Out in the open, run the unit checking out all the handle controls. **The clutch operation is very important.** When you release the clutch handle, the drive belt should disengage completely, and there should be no creeping of machine. (If there

is, refer back to set-up instructions). This acts as a safety. This unit also has a brake. However, if you continue to squeeze the clutch while trying to stop, it will weaken the brake action. Operate the Lazy Susan load features. Running the unit for a few minutes will break-in the engine, cables, belt and of course the operator.

Load & Go Instructions – OK...with transmission in neutral, the engine is running; we're ready to load your, "Winged Pride and Joy". **First time outside of hangar please.** Chock the back of the main gears. Easing the shift lever towards you will put your tow in the forward gear. With the Lazy Susan Cradle in the unlocked down position, line up the roller bar, to the front of your nosewheel. Firmly squeeze the clutch lever for power, while pushing down on the handle to move under the nosewheel and load. When the wheel rolls onto the cradle, it will hit the roller at the back of the cradle, easing the front up into the locked position. **Release clutch, as soon as it loads!!**

SHOWING OFF TO YOUR FRIENDS...NOT QUITE YET!

You are now ready to move your plane. Don't be too over zealous at trying out the turn radius. The Lazy Susan will turn under your nosewheel. Making a 90° turn or more will result in quite a bit of pressure at the handle. The wingspan alone is a great deal of torque at your hands. You will have fun watching your nose gear stay straight while making a turn.

It's best to practice out in open first, to get the feel of the machine at different speeds. Higher speeds, bigger turns – you have more torque for you to handle.

When you are ready to unload your plane, be sure cradle is inline with machine. (It's the only position for unloading). Reverse your transmission and ease the loading gate handle forward, allowing you to back out from under the nose gear. Then, pull handle back to original position. (This will allow the cradle to "lock" for the next time you are ready to load.)

Now here's a good tip. Get up kind of early on Saturday morning, and get out to the airport before the rest of the hangar bums get there. Pull your plane out of the hangar by hand for the last time, and get it out on the apron well away from all hard objects. Go through the above procedures until you really have it down. By the time those guys show up, you will have become super proficient and will be able to put on one helluva show. Should they ask, our phone number is on the decal. Ready for another tip? Always have chock blocks of some kind anchored at the rear of your main wheel position in the hangar to prevent inadvertent travel through the rear of your hangar.

Last tip: If you really want to get smart, re-read this stuff after you have actually used the machine a few times – it will be more meaningful.

Door Tracks -To get a heavy plane over door rails or ledges, a moderate amount of speed is necessary so that the momentum of aircraft mass will help carry it over, but smoothly. Do not jump the unit over door tracks, which result in the nose gear turning within the Lazy Susan Cradle. This applies also to any means of shifting the nose gear sideways in the Lazy Susan Cradle. The nose gear should remain straight in the cradle for correct operation.

If door tracks are a problem, your shipping crate lid can be cut to fill spaces in door tracks. There is enough wood to make additional spacers for the main gear also.

For you readers only:

How does the Lazy Susan really work?

In the correct position for loading, there are two latches, one on each side located at the back of the Lazy Susan, as the unit drives under the nose gear; the roller assists in moving the wheel up and onto the turn plate. The nose gear then trips up the back plate locking it into place. You can turn the plane without turning the yoke. The Lazy Susan turns separately from the Supertow on ball bearings, allowing rotation.

To unload from the Susan, you simply push the handle forward. It is attached to a rod and then to the two latches, tripping them open. You can put the unit in reverse to back it off.

If the loading gate handle is not returned to the up position, the turn table will not go turn more than a couple inches, nor will it release the latches to unload. This insures the plane will unload centered each time. You will not be able to unload the plane, except in the same position as loaded. The loading gate handle is a mechanical release; no springs to jump open accidentally.

TIP: Chock Blocks are used on mains to load. When releasing your plane in hangar, back your plane up to the chocks leaving a space of several inches for the plane to roll out from under the cradle and back to the chocks. After a few times of loading and unloading your plane, you will find it to be the smoothest operation going.

THE LOCALIZER APPROACH TO HANGARING

This approach was designed specifically for the hanging of aircraft by one person where there is little space between wingtips and hangar door opening. The minimums for this approach are down to 12" clearance at each wingtip. Place the aircraft partially into the hangar, equal distance for each wingtip from hangar door. Facing the aircraft in the same direction as it will be hangared, mark the hangar floor indicating the exact centerline of the right main gear tire only.

Pull the aircraft out and paint a single stripe on the centerline of the right main only, starting approximately 10' out from hangar door and back as far as main wheel would normally go. Only this single point of alignment needs to be checked progressively when hangaring the aircraft to ensure clearance.

Rear main wheel chock blocks should always be anchored in position on hangar floor to prevent inadvertent travel through rear of hangar.

MAINTENANCE RECORDS & NOTES

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SUPERTOW™ TROUBLESHOOTING

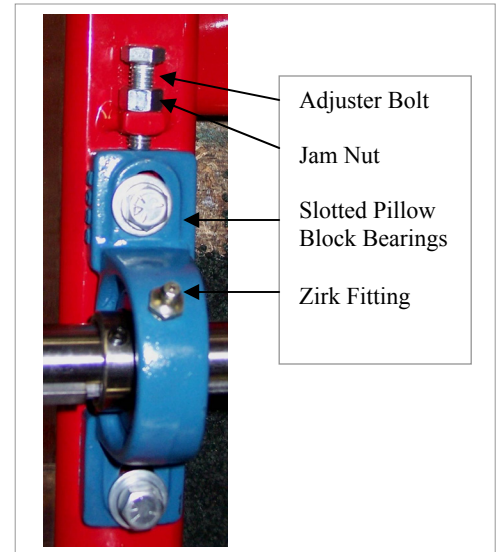
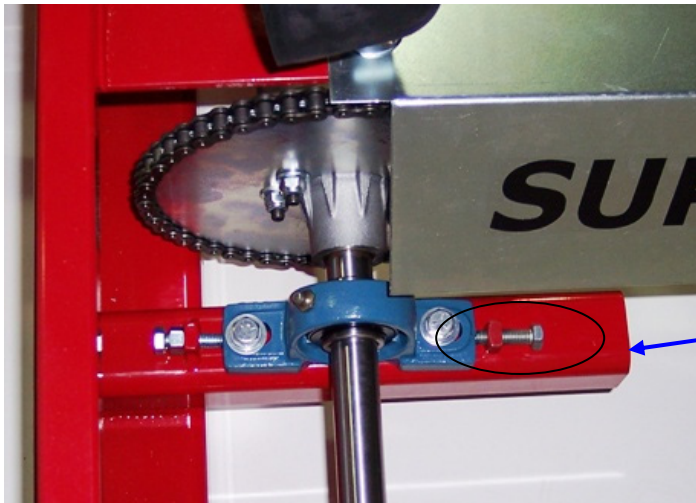
CHAIN IS TOO LOOSE.....	Pillow blocks are slotted for take-up.
CHAIN BREAKS.....	Chain is too loose. Check sprocket alignment.
BELT SLIPPAGE WHEN CLUTCH IS FULLY ENGAGED.....	Shorten clutch cable by turning turnbuckle at handle. Adjust cable so clutch is fully engaged with approximately 1”of space remaining between clutch handle and machine handle grip. Need new belt.
DRIVES WHEN NOT SQUEEZED.....	Lay a straight edge over the 8” pulley and engine pulley and make sure they are in the exact same plane (level). Check to make sure belt guides are in place. Check Clutch arm and make sure it is adjusted up and not Hanging down against the belt.
BELT SLIPS OFF PULLEY.....	Tighten turnbuckle – check to make sure motor and transmission pulleys are in line.
CLUTCH DOES NOT RELEASE.....	Lengthen cable at turnbuckle. Check belt guides. See clutch cable this page. Check Clutch Arm adjustment Make sure the arm is adjusted up not contacting the belt.
GAS UNIT: ENGINE SURGES.....	See engine manual.
ENGINE DIES UNDER LOAD.....	Check high-speed mixture adjustment. See engine page.
EXCESSIVE NOISE UNDERNEATH UNIT...	Check belt guides, “ <i>use no belt dressing</i> ”.

Supertow I Setup

CHAIN ADJUSTMENTS

After some use your chain may loosen up. Your machine may jump, experience chain noise or grinding. You can tighten the chain in this manner. This is a unique chain tightening system. Follow this procedure closely. Questions call 800-635-5565.

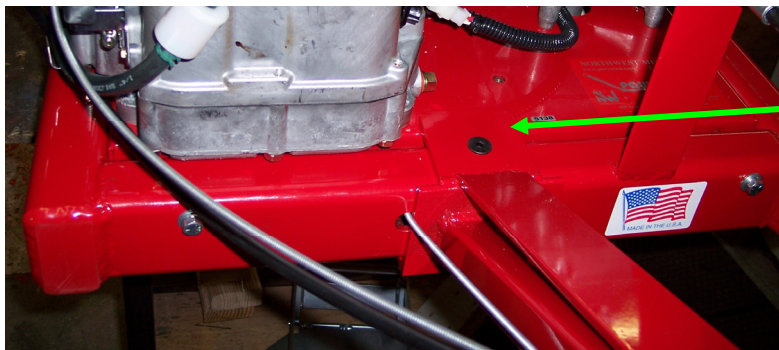
You have 3 drive chains on the “Supertow *I*”
Two drive chains to the tires and one from transmission to the differential.
Start with the 2 forward drive chains. Loosen the 3 Jam Nuts from the front of pillow blocks do not back out the bolts, just loosen the nuts.



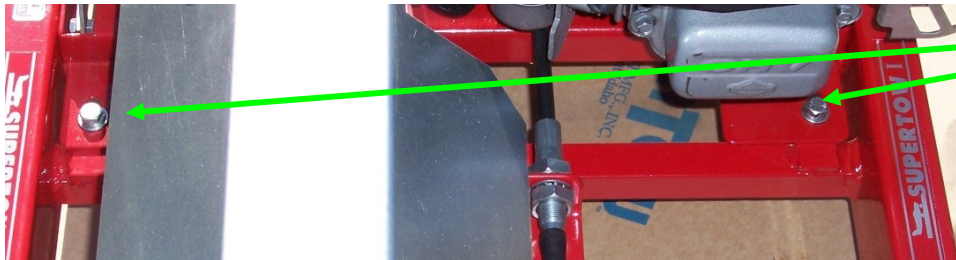
Loosen jam nut and back out back bolt part way.

Loosen all the bolts holding down the pillow block bearings
Tighten the Adjusters bolts evenly against all three pillow blocks; until chain is comfortably tight (Do not over tighten) Tighten jam nuts or your bolts will back out over time. Securely tighten the bolts holding pillow block bearings. The pillow blocks are slotted also.
Last...Retighten the back bolt against pillow block and tighten jam nut.

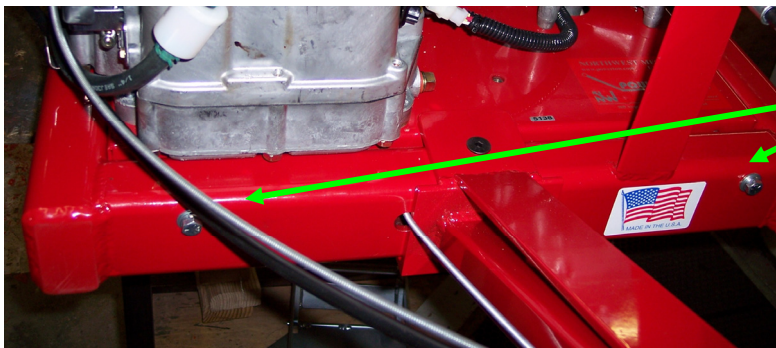
This has tightened the drive chains. Now you will need to slide the engine plate back towards the handle to remove the chain slack from the transmission to differential. You will need to tighten this chain also.



1. After adjusting drive chains, adjust chain between the transmission and differential.
Loosen black handle bolt



Loosen the two forward bolts, located on the front of the frame plate



Turn adjusting bolts the same amount on each side until chain is taunt between differential and transmission Tighten the forward bolts and the black handle bolt last.



Maintenance Notes:
Zirk fittings on pillow blocks need grease once a year.
Change and check oil per engine manual
Transmission is sealed...no lubricating required
Feel free to 100 LL in your engine.

USE EXTREME CAUTION WHEN OPERATING ANY POWER EQUIPMENT!

1. Do not operate this machine until you have read and understand all instructions for proper use.
2. Do not operate unit when not running smoothly.
3. Keep hands and feet out from under towing equipment.
4. Operate in well ventilated area.
5. Do not leave a running machine unattended.
6. Do not operate electric unit in wet conditions or if cords are frayed.
7. Do not start engine when unit is in gear.
8. Hangar storage area should include anchored chocks to control inadvertent movement of planes into hangar walls.
9. Do not change gearing to increase speed.
10. Do not move planes up any inclines...flat surface only.
11. Do not attach any device to activate throttle when both hands - are not on throttle control.
12. Do not run engine without checking oil level.
13. Do not spill gasoline on hot engine.
14. Do not smoke when filling tank with gasoline.
15. Use caution when operating machine on icy / slippery surfaces.
16. Do not move planes in excess of speed that cannot be easily stopped... there is no braking device on the unit.
17. Do routine maintenance to insure proper operation of unit.
18. Do not use unit if the Powertow engine is not running smoothly.

We hope you enjoy this Northwest Manufacturing product.
It was designed and built to give many years of reliable
service with proper use and routine maintenance.



GENERAL WARRANTY AND CONDITIONS

All equipment manufactured by **NORTHWEST MFG., INC.** is sold on a satisfaction guaranteed basis. If at any time, within **30 days** of sale, you are not satisfied you can return the unit. The Powertow must be in original shape and in the original packaging only. Ship freight prepaid only and upon receipt of the unit we will immediately issue a refund in the amount of the full purchase price, excluding freight, providing the unit is received in new original condition. Call for authorization number for return.

Gasoline engines are warranted only by the engine manufacturer. Engine warranty included with unit. Engine parts must be obtained from engine dealers. Refer to "Small Engine Services" in your local yellow page directory.

All other parts are warranted by **NORTHWEST MFG., INC.**, on a **PARTS ONLY** basis for a period of 90 days from date of purchase.

NOTE: Adding any unauthorized third party attachments or accessories to any Powertow, voids all warranty and claims of responsibility by Powertow, or Northwest Mfg., its parent company. Any damage to tow or aircraft is the responsibility of the aircraft owner and accessory manufacturer.

Thank you for buying **POWERTOW**



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