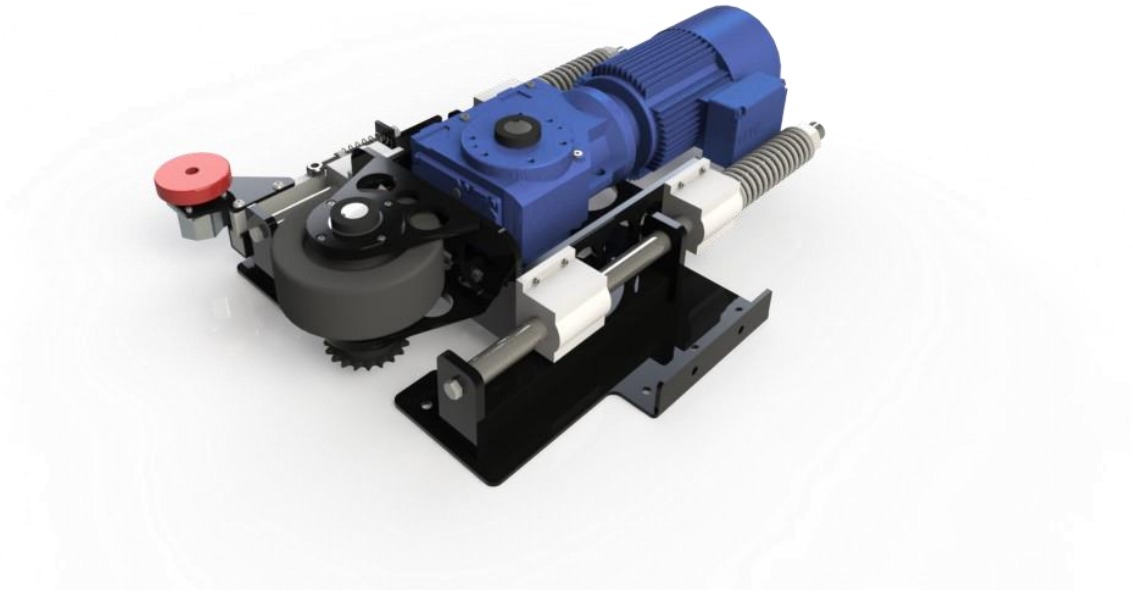
creative conners, inc.

Revolver Reference Manual

Version 1.1 (November 2012)



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1 Getting Started

Congratulations on your purchase of the Revolver turntable machine from Creative Conners, Inc. Revolver was designed to drive turntables of any style or size. It is a machine built to meet the demands of scenic automation.

This manual will guide you through:

- Unpacking
- Installation and testing
- Operating procedures

If you need help along the way contact us either on our website (www.creativeconners.com/phpBB3), via email (support@creativeconners.com), or by phone (401-862-2980).

1.1 A word about safety

The Revolver turntable machine is a fantastic solution for rotating scenery. With great ease, it will spin large, heavy sets around the stage. Such power deserves a great degree of respect, as it can also represent a serious hazard if misused. Proper safety precautions should always be observed when installing and operating a Revolver.

Turntables present unique safety hazards compared to other stage equipment. Since turntables are often installed flush to the show floor, stepping on or off a moving turntable can be dangerous and a common source of falls. The safest way to avoid falls is to step on or off the turntable only when it is stopped. Stepping on or off a turntable while it is moving is very risky and represents a serious potential for injury.

If your set has elements that are affixed to the turntable, and elements that are affixed to the stationary portion of the stage, there is a risk of crushing people or scenery between the moving elements and the stationary elements. Make certain that performers and crew are aware of the danger and trained to avoid all pinch points.

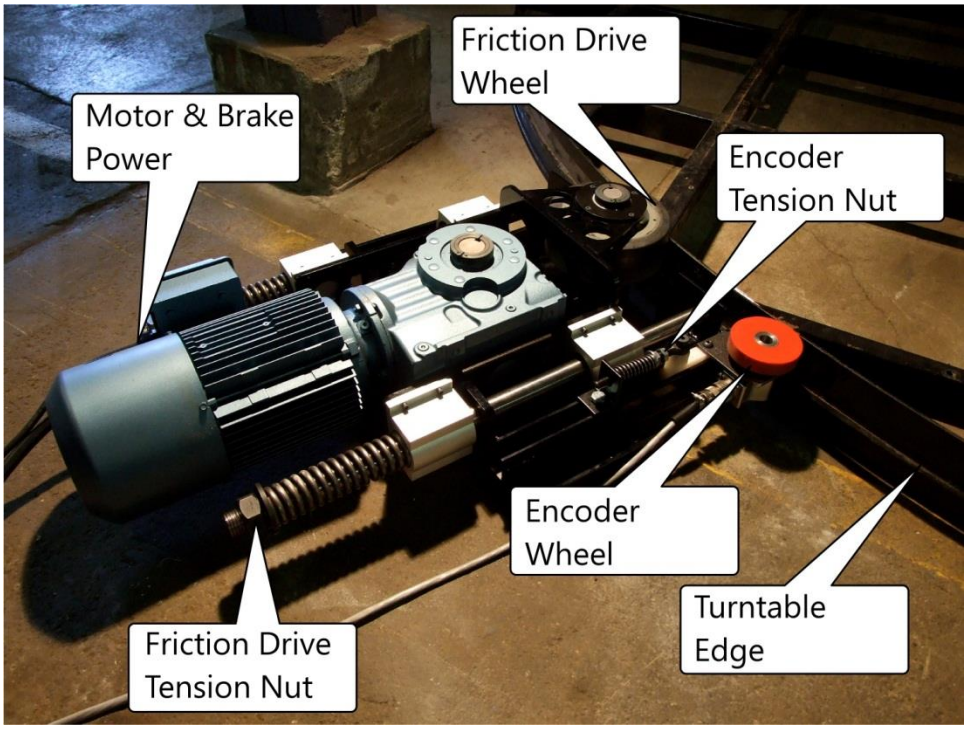
1.2 Revolver overview

The Revolver is built to be easy to use and tough enough to withstand the rigors of any show. It is an edge-drive friction-type machine. This means that it has a rubber wheel which presses into the outer edge of the turntable. When the motor spins the rubber wheel, the rubber wheel spins the turntable by gripping the edge of the turntable platform. The machine relies on the friction between the rubber wheel and turntable platform to operate. Since there is a potential for the rubber wheel to slip and lose traction, the machine has large tension springs that can be used to increase traction. This spring-loaded tension mechanism also keeps the friction wheel in contact with turntable edge even if the turntable is not perfectly round.

The Revolver uses a separate small measuring wheel, or Encoder Wheel, to sense the movement of the turntable independently of the motor friction wheel. Even if the motor's friction wheel slips, positioning

will maintain good accuracy because the machine is measuring the movement of the turntable, not the movement of the friction wheel.

The figure below shows the main components of the Revolver. Note that the Friction Drive and Encoder Wheel have independent tensioners. You can fine tune the tension of the machine by using the appropriate Tension Nut.



1.3 Installing Revolver

1.3.1 Unpacking

Revolver ships on wooden pallet weighing approximately 350lbs. The machine weight is roughly 250lbs. Use standard material handling equipment like a pallet jack or fork lift to get the machine close to your turntable. Once you are reasonably close to the installation location, four people can lift and carry the Revolver into position. Be aware that the motor and Friction Drive Wheel slide on the two large round rails. Before moving the machine, tighten the Friction Drive Tension Nuts all the way to limit the motion of the machine while carrying.

Once the Revolver is safely on the floor, take a minute to check for parts that might have shaken loose during shipping.

- The Friction Drive Wheel is secured to its vertical drive shaft with set screws and a shaft collar. Make sure that the wheel cannot slip up or down on the drive shaft.
- The motor drive shaft is held in place with a shaft collar on top of the gear box. Make sure that the collar is tight.

- The Encoder Wheel secures to the encoder with a keyless bushing. Give an upward tug on the red Encoder Wheel to confirm that it is still mounted securely to the encoder. If it moves up or down, use a pair of wrenches to tighten the bushing beneath the wheel

1.3.2 Securing Revolver to the stage

The fundamental principle to observe when installing Revolver is that the scenery should move and the machine should not. To uphold this maxim, secure the Revolver to your stage well. There are 6 mounting holes in the base plate for fastening to the floor. You can lag or bolt the base of the Revolver to the floor with 3/8" hardware (not included). Alternatively, there are 4 holes in the vertical flanges of the Revolver base that can be used to attach the machine to surrounding framing. The holes also accommodate 3/8" hardware.

1.3.3 Connecting Revolver to Stagehand

Before engaging the Revolver to your turntable, you should confirm that it is operating properly without any load attached. Loosen the Friction Drive Tension Nuts fully and slide the motor away from the turntable until there is at least ½" of space between the Friction Drive Wheel and the turntable edge.

To test Revolver, you will need a Stagehand AC motor controller (refer to your Stagehand manual for installation instructions). With the Stagehand installed, make the following connections between Revolver and Stagehand:

- Connect the encoder to the encoder socket.
- Connect the brake to the brake socket
- Connect the motor to the motor socket
- Insert limit jumpers in the FWD and REV limit sockets (unless you are need limit switches on your turntable, which is rare)
- Connect the Stagehand to a computer either directly with a Cat-5 crossover cable, or through an Ethernet Hub or Ethernet Switch.
- Connect the Stagehand's E-Stop inlet to a Showstopper using a Showstopper cable (5-pin XLR).

1.3.4 Testing Revolver

To confirm that your motor is properly connected to the Stagehand, test the following:

- E-Stop: Release the E-Stop button on the Showstopper. You should here a "click" from inside the Stagehand, this is the E-Stop contactor closing and allowing power to energize the Stagehand Motor Drive. The LCD display on the Stagehand should show that the E-Stop is released by switching the status of display from "E-Stop!" to "Not Connected". ("Not Connected" refers to the network connection to the SpikeMark software, not the electrical connection to the Revolver motor).
- Motor Motion: Press the fwd jog button and slowly turn the knob clockwise. The motor should begin moving. Slowly turn the knob counter-clockwise until the motor stops, then release the fwd jog button. Repeat with the rev jog button.

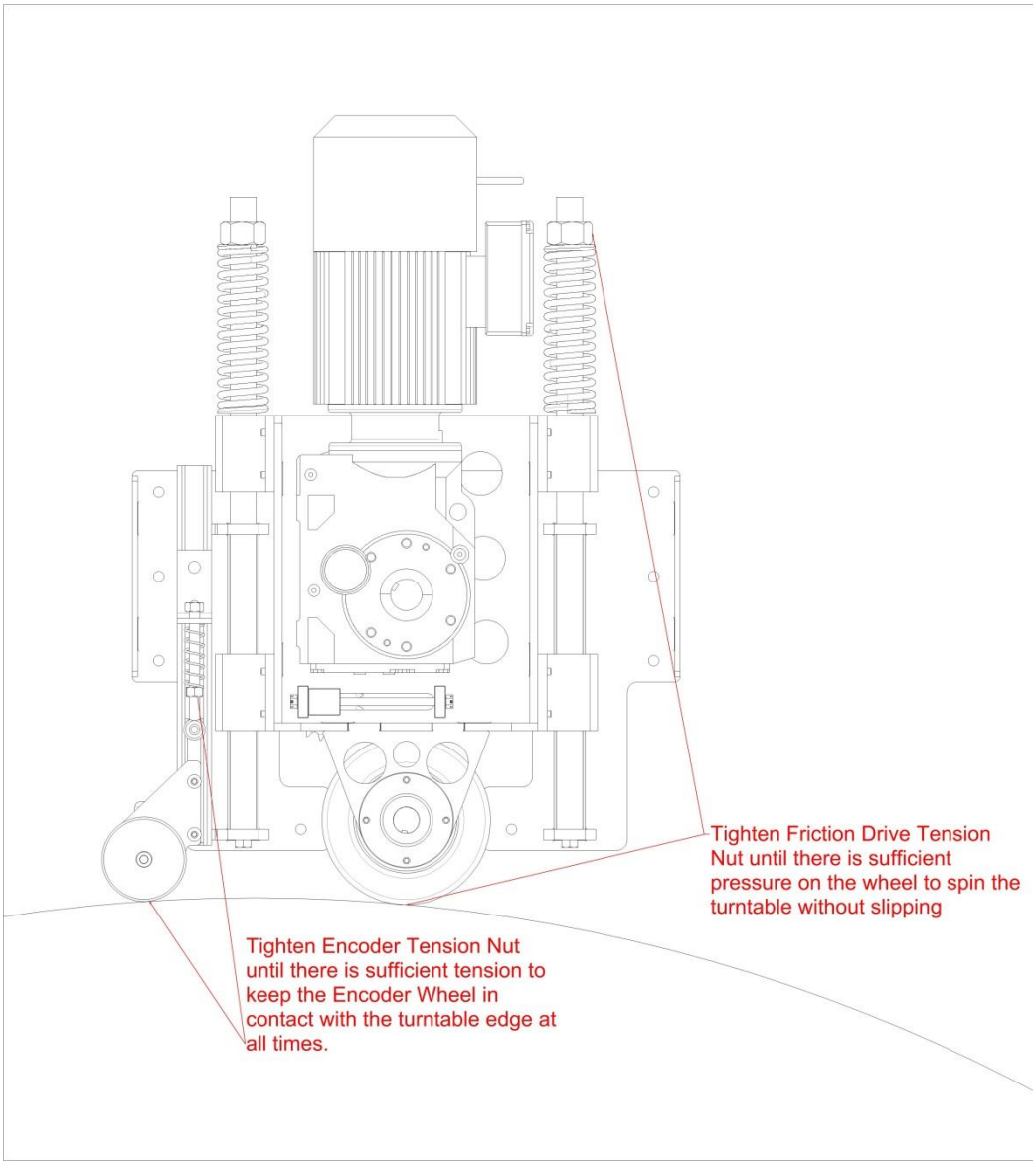
2 Driving your turntable with Revolver

Once you have confirmed that the motor is operating, you can start moving your turntable with Revolver. Push the motor toward the turntable edge until it makes contact. Now tighten up the Friction Drive Tension Nuts to apply some spring force to keep the Friction Drive Wheel pressed into the turntable.

Grab another person to help you adjust spring tension. Have your helper run the motor using the Stagehand. Watch the Revolver spin and look for any slippage between the rubber wheel and the turntable edge. If you see or hear some slipping, tighten the big tension springs a little and try again. You do not need a wrench. You should be able to build plenty of tension in the system by hand-tightening the Friction Drive Tension Nuts. Keep repeating this process until you can spin a complete revolution of the turntable without noticing any slipping.

Once you have properly tensioned the Friction Drive Wheel, you can move the Encoder Wheel towards the turntable until it touches. Tighten the Encoder Tension Nut until you can spin a full revolution without the Encoder Wheel slipping. Please note that the Encoder Wheel is merely following the turntable, not driving it, so it requires much less tension than the Friction Drive Wheel.

See the drawing on the next page for a typical installation and location of the tensioning nuts.



With the Friction Drive Wheel and Encoder Wheel fully tensioned, the Revolver is ready to move some scenery! If everything is working well when manually jogging the motor with the Stagehand, then refer to our SpikeMark manual for instructions on writing cues. If you are having some trouble, read the following Troubleshooting section.

3 Troubleshooting

Though the combination of Revolver, Spikemark, Stagehand, and Showstopper strives to make automation easy, there are certainly times when things don't work. This part of the guide will give you some advice about what culprits to look for when motors refuse to move.

3.1 Motor is jerky

Check the tension of the Friction Drive Wheel. This is often a sign that the motor is losing contact with the edge of the turntable somewhere in the rotation. A turntable that is out of round will require more spring tension to keep the motion smooth.

3.2 Cue position accuracy is poor

Check the tension of the Encoder Wheel. This is often a sign that the encoder is losing contact with the edge of the turntable somewhere in the rotation.

Check that the Encoder Wheel is securely fastened to the encoder shaft. Pull gently up on the red wheel to see if it slides on the shaft. If so, using two wrenches tighten the keyless bushing beneath the read wheel.

Check that the machine is installed parallel with the turntable deck. The Encoder Wheel needs to run parallel with the turntable deck to achieve high accuracy. If needed, shim one edge of the machine to achieve better alignment.

3.3 There is an awful grinding noise

Check to see if the main drive chain connecting the motor and Friction Wheel is well tensioned. There is a chain tensioner rod located between the motor and friction wheel. You can tighten that jack shaft to tighten a loose chain.

Check to see if the main drive chain connection the motor and Friction Wheel has slipped off or out of alignment. If so, give us a call to get some help!

4 Technical Support

Though we try our best to produce reliable products and clear instructions, there may come a time when you need personal support.

4.1 Phone Support

You can call our technical support at 401-862-2980 Monday – Friday from 8am – 5pm EST. Phone support is free for 90 days, after that a rate of $60/hr may apply to support calls at our discretion.

4.2 Email

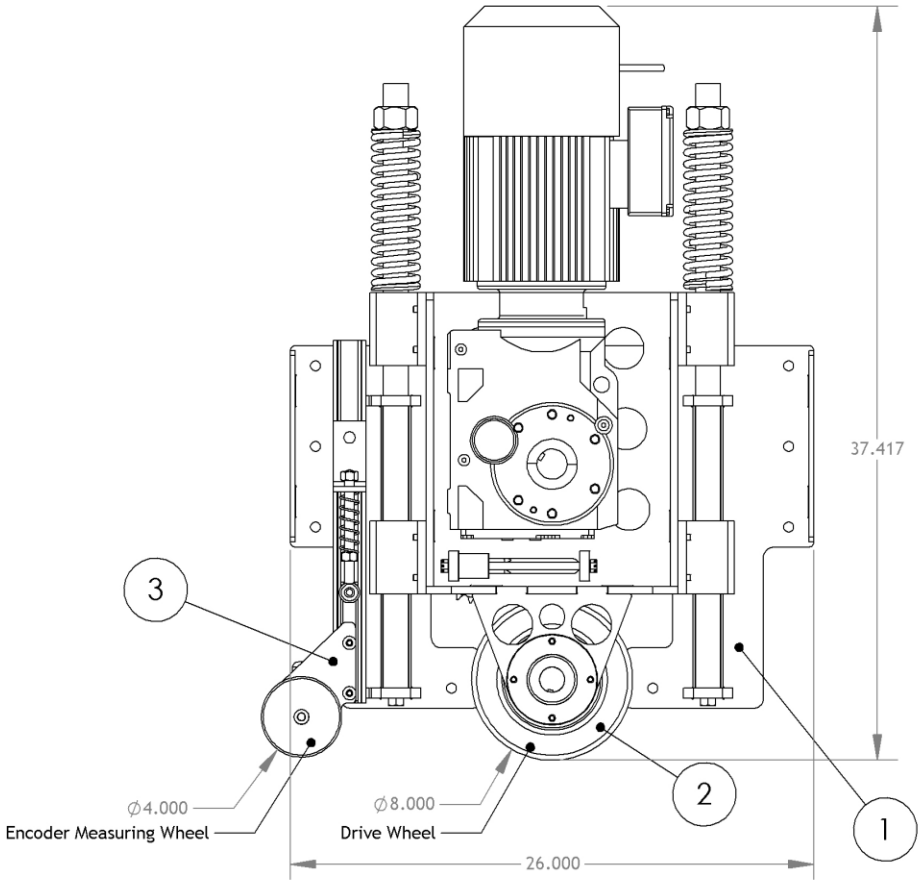
If you have a technical question you can email technical support at support@creativeconners.com. We typically respond within 4 hours from 8am – 11pm EST 7 days a week.

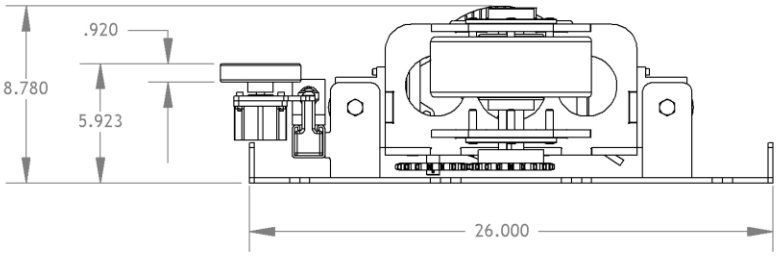
4.3 Web Support

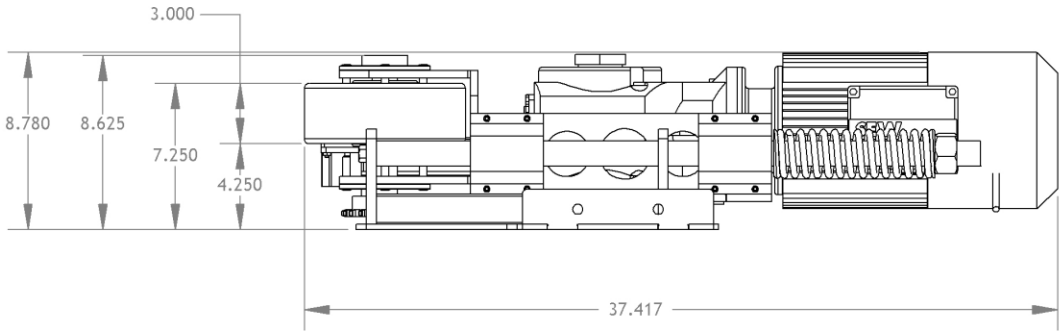
There is an active user support forum on our website: www.creativeconners.com/phpBB3

5 Specifications

5.1 Physical Specifications







5.2 Electro-Mechanical Specifications

Characteristic	Value
Horsepower	5HP
Motor voltage	230VAC 60Hz 3-phase
Motor current	13.6amps
Brake voltage	230VAC 60Hz 1-phase
Max linear thrust	1200lbs
Base Speed | Max Overspeed	36”/sec | 72”/sec
Encoder supply voltage	5-28VDC
Encoder signal	Quadrature, differential line driver