

Ultra Force User Manual

By: Wehrs Machine and Racing Products



(For Model #'s WM430UFM and WM430UFM-U)

Safety

The Ultra Force Machine can produce a force over 4500 lbs. Extreme caution should be taken. Do not place fingers, hands, or other body parts within the machine's range of motion. Make sure to inspect the machine prior to each use, checking for signs of wear or loosening parts. This machine is adult use only. Safety glasses should be worn. Loose clothing should be kept clear of moving parts. Common sense should always dictate use of the machine. The Ultra Force Machine occupies enough force to disassemble a shock or buckle a radius rod, so do not push or pull an object to failure. Personal injury and/or damage to the machine can occur.

The machine uses 110 volt electricity. Do not attempt to take apart in any way while connected to power supply.

Please Note: If you are using any of the automated systems built within the machine, the machine should never be left unattended. Always be attentive to the machine and be able to turn off the primary power switch if needed. Should the machine malfunction, simply switch the power off. This will not damage the machine and works as the master disconnect to stop all operations.



Power Basics & Maintenance

The Ultra Force Machine is an all-electric spring and pull bar rater. The unit requires a reliable 110-volt power supply. We recommend a “clean power” certified generator, if not supplied from traditional grid systems.

These are not required but will help reduce the risk of damage to your machine from inconsistent power supply. There is a provided surge protector with the machine for trailer use on generator power. Inconsistent power supply can result in damage to the internal circuit of the machine. Care should be taken when powering through extension cords. Use only high quality industrial cords, if needed.

The machine requires little maintenance. We recommend keeping it dry and clean. Cover the machine when it is not in use.

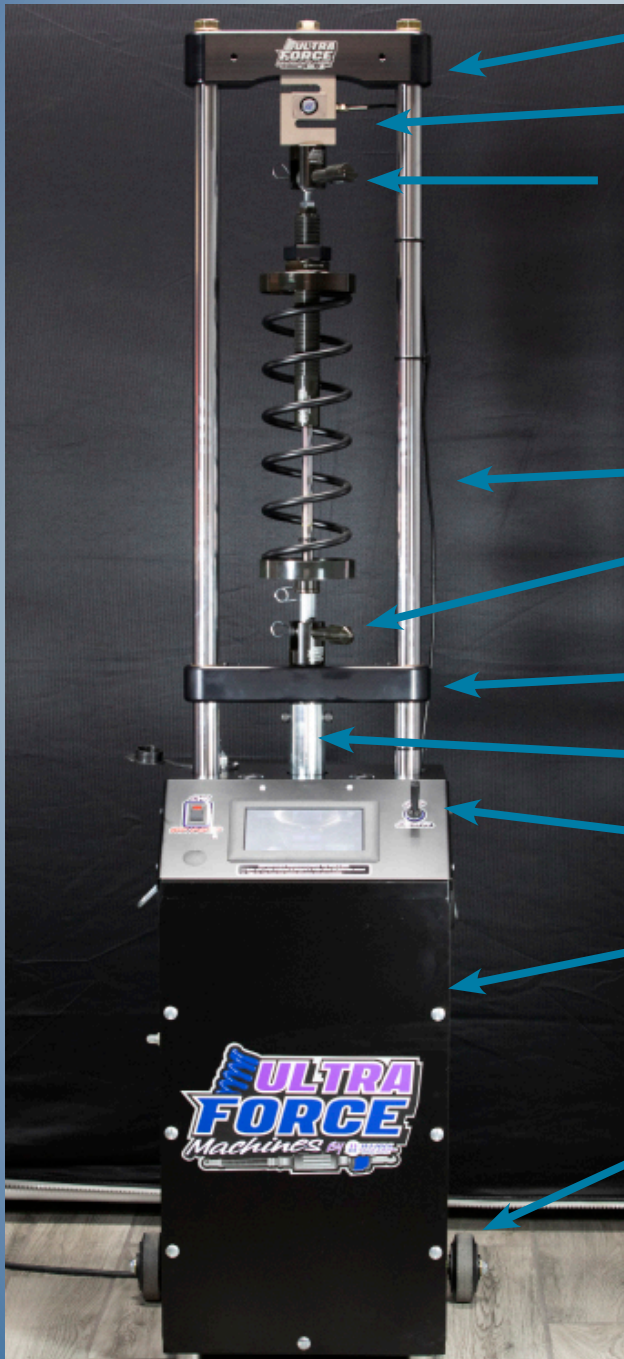
Standard Cover
Part #WM430COVER



Cover with Side Unloader
Part #WM430COVER-U



Parts List



Top Bar

Load Cell

Clevis and Upper Pin

Chrome Shafts

Clevis and Lower Pin

Slider Bar

Electric Actuator

Switches

Base Cabinet

Wheels

green light indicates compression (push)

"pull" or "smash" safety mode toggle

green light indicates tension

overall load

Load change from zero point

Unload (machine moves to zero load)

zero incremental load

overall center to center distance

Travel from zero point

Center to center point - push to set (will take you to another menu)

zero incremental travel

move to the start point you input



The left side of the home screen is the “travel” side.

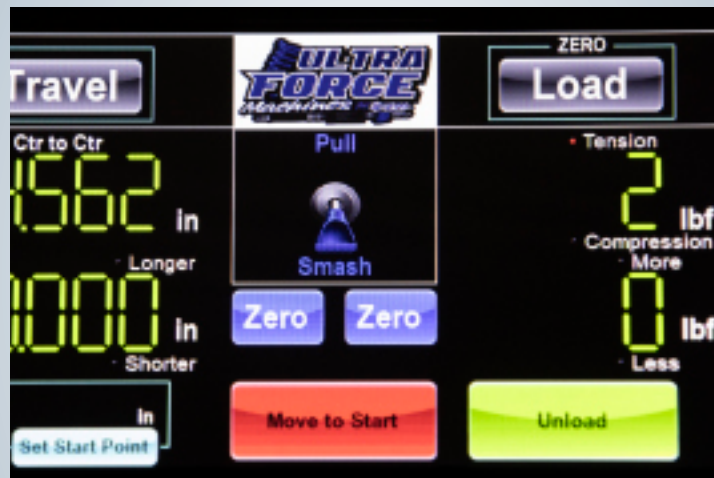
- The top number is the overall center to center of the machine. This is set by the factory and should not change.
- The middle number is the “travel” number. Once you have your machine at your start point, push the “Zero” button, this will reset the “travel” to 0.000 in. Now as you move the machine you will now know how far you are from your start location. This number can be rezeroed at any time by pressing the zero button to the left. (below the push/pull toggle)



- In the lower left corner, you will see the “start” location distance with the option to do so. This number allows you to use the semi-automation built into the machine. Pushing the set start point button will take you to a menu for setting the distance. Once this distance is set, it will show on the home screen in the left corner. Now, if you press the move to start button, the machine will automatically move to the start point.



- The middle of the home screen contains the very important push or pull toggle, the zero boxes for travel and load, and finally the move-to-start button. The toggle is simply a switch that allows you to tell the machine that you are actively using the machine for smashing or pulling. The machine can produce over 4500 lbs of force but has built-in safety measures that will not allow it to go to full power in the incorrect direction. This is helpful when unloading a spring, so you do not pull a shock apart, for example.



- The zero buttons simply zero the load or travel of the machine for that point in time, allowing you to see any load or travel changes.

- Near the bottom of the home screen is the move to start button. As previously covered, once the “set start point” in the lower left corner has a value, if you push the move to start button the machine will not automatically move to that location.



The right side of the machine is dedicated to “Load”.

- The first button in the upper right corner is the zero-load button. When you first start the machine, prior to putting anything else in the clevis with the pin installed, you should press the zero-load button to ensure the load cell is fully zeroed prior to use.
- The top row of numbers to the right indicates the overall load of the system at any given point. Please note the words “Tension” and “Compression”. A small indicator light will come on for whichever direction the load is sensed.

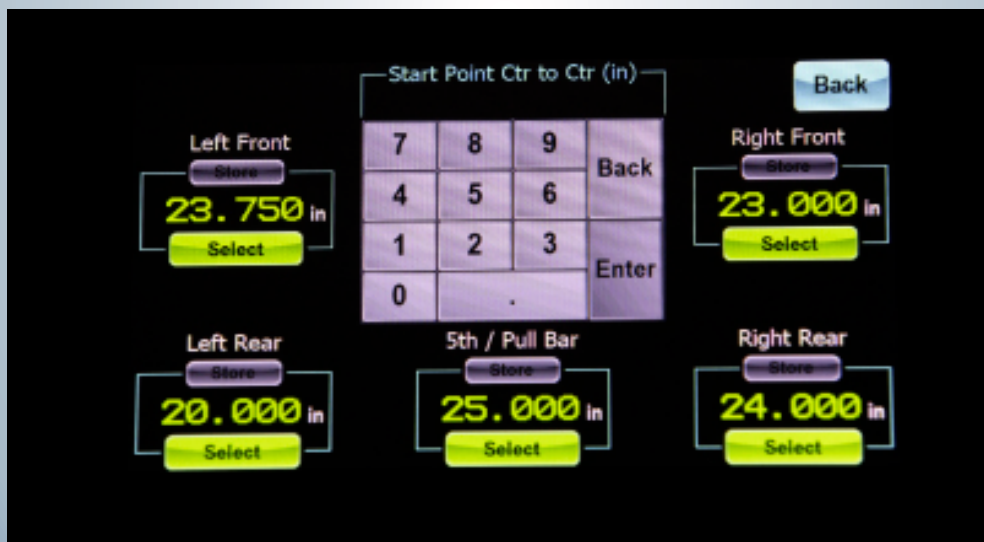


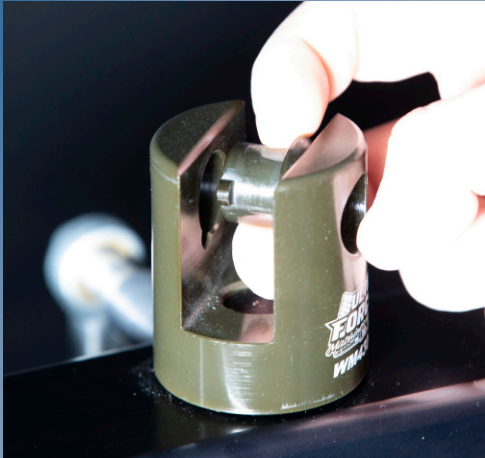
- The lower row of numbers displays the load since the zero button directly to the left has been pushed. Pressing the zero buttons will zero the load at any point. Any load shown on this line is that change in load from the origin.
- In the lower right corner, you will find the unload button, which tells the machine to unload the assembly. When you push the button, the semi-automated function built in the machine will start to move the machine to a zero-load point. Once it reaches that location, it will stop and allow you to unload the assembly.



Pictured Below: Set Start Menu

- The set start menu allows you to input a starting center to center distance to then select for the move to start option on the home screen. The base model machine allows you to save 1 preset starting point for each corner of the car and the 5th/Pull bar. To set, input value and press the “store” button to save distance for that location. Once your start point is listed on the corner you wish to test, you can press “select” to input this value into the home screen start location in the lower left corner. In the example shown below, pressing “select” on the right rear would then input 24.000 into the home screen start location. Now you can press “move to start” and the machine will automatically move to 24.000.





Clevis Use

Our unique design clevis uses a two-step quick pin for fast changes between shocks and pull bars. Simply insert the pin to the correct thickness. You can move between the 3/4" and 1/2" sizes. Please note that the lower quick pin has a flat machined at the center, whereas the upper quick pin has been machined to a point. This will allow you to quickly check the center-to-center distance of your machine.





Spring Change

Our quick adjust wrap-around spring removal arm (WM430-13) is a major innovation. By using our spring removal cups, you simply rest the assembly on the end of the spring. This allows quicker and easier spring changes than ever before. As always, use extreme caution with any spring changes.

As seen in the photos above, the spring removal arm can be moved to the center of the machine rather than using the side loader.

Pictured to the left is the side unload switch. This switch is located on the face of the base cabinet. (Bottom left)



Coil Over rating

The following are some best practices for coil over rating:

- Always “come up” onto the number you are checking. This means, when testing the RF for a 3” travel number, always smash to that number and stop. If you overshoot and go to 3.25”, reverse the machine to at least 2.75” travel, then smash towards 3” again.

- Assemblies can be checked for load loss, or hysteresis. This is simply checking the system in smashing and then on the return. Starting at 2” of travel, go to 3”, then back to 2”. The difference in the two 2” numbers is the amount of load that has been lost to heat or friction. This may be a good or bad thing depending on your goals and conditions.

- Always use the WM430-14-1 (thin) spring cups when working with any assembly that requires the spring unloader.

- Always use an OD spring cup when using thrust bearings, this will reduce the amount of dust and particles that can get into the bearing.

- Always be mindful of the shock canister, that it is not in a position to be damaged during machine operation.

- Testing is always about the “process”. It is vital to improve the chances of success that you follow the same process each time you run test. This is the same for any test on your race car.



Pull Bar Rating

The following are some best practices for pull bar rating:

- If you do not have an automated machine, then use a camera, such as your smart phone, to record the travel. The goal is one smooth motion from zero to fully loaded position. Starting and stopping with bushing style bars will cause erratic results.
- Pay attention to the load difference between pulling and releasing a pull bar. This is one of the common areas to see a difference in types, springs, small bushing vs. large etc...
- Pull bars require maintenance, just having the machine does not negate that fact. Always make sure it is clean, lubricated, and free from binds.

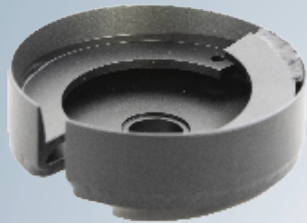
The following are some best practices for travel limiter testing:

- Do not exceed 1500 lbs of load. A travel limiter will not surpass this load in normal racing conditions. This may cause damage to the limiter components.
- Travel can be difficult to estimate on the chassis. Due to installation, 1/2" travel on the limiter is not exactly 1/2" travel at the wheel. Pay close attention to mounting and estimating the installation ratio.



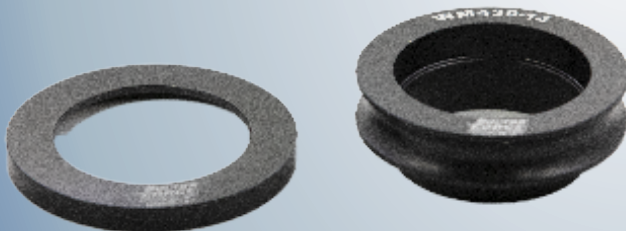
Additional Information

When testing open helix front springs, we recommend our spring helix in your Wehrs Machine & Racing Products slider. (WM251C) The helix helps the spring set square, and removes a bowing effect.



For 5" springs, use Part #WM430-15.

For 5.5" springs, use Part #WM430-15-5.5.



For quick spring changes, use our spring removal cups (WM430-14, WM430-14-1) on each of your coil assemblies.



Congratulations and THANK YOU for
purchasing an Ultra Force Machine by
Wehrs Machine and Racing Products!

Any Questions, Please Call 608-486-4343





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