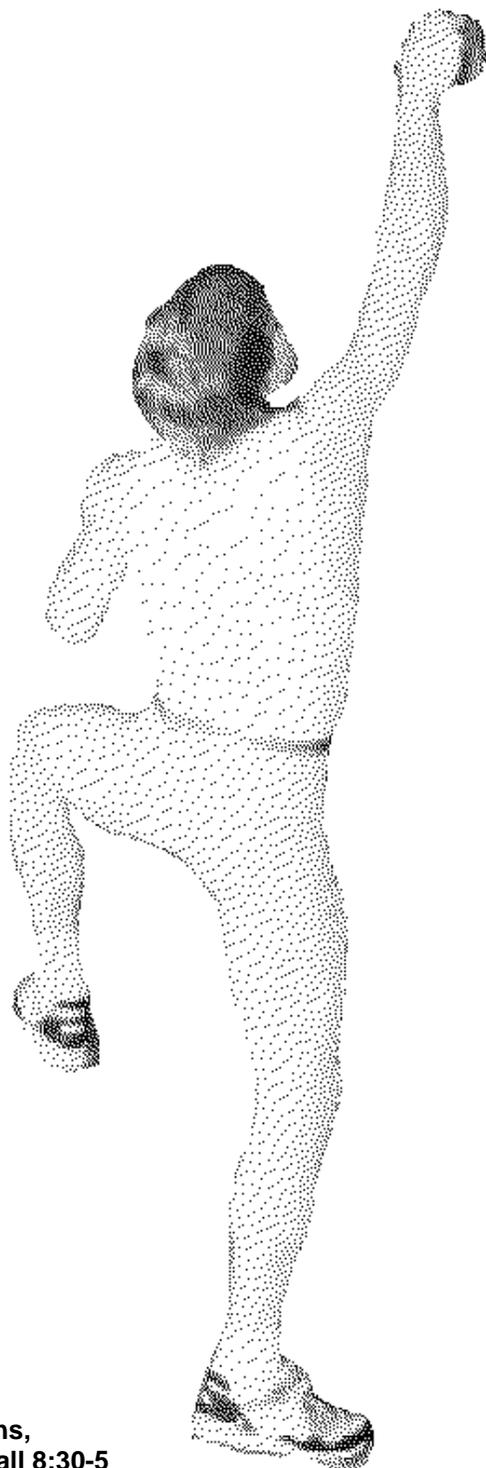


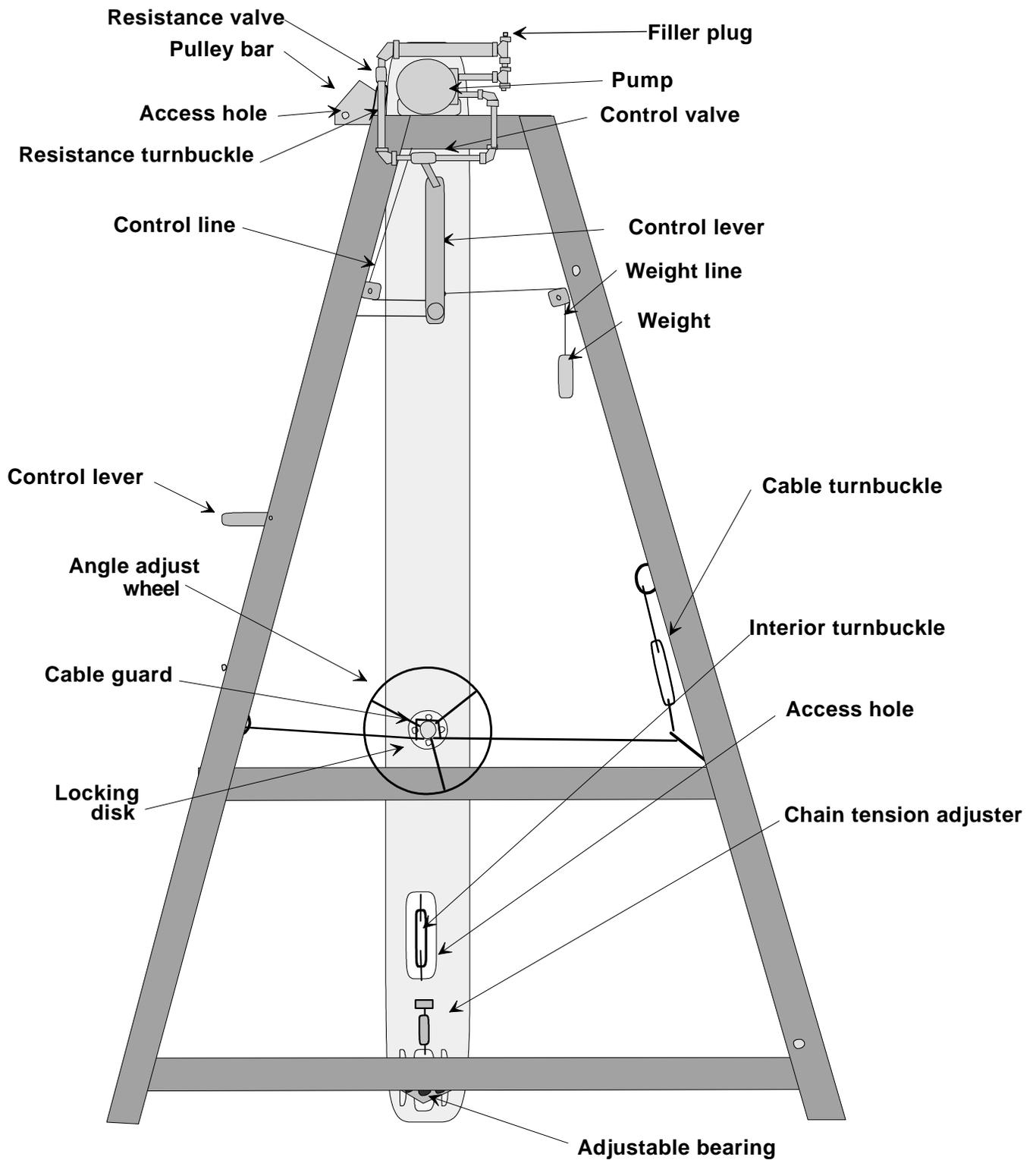
Service Manual ***Treadwalltm Model AM***



**If you have any questions,
please do not hesitate to call 8:30-5
E.S.T.
1-800-707-9616.**

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Machine Diagram



Treadwall model AM - side view

Maintenance and Service



Treadwall® maintenance is easy and requires only lubrication and attention to a number of adjustments relating to the alignment of the wall. The most important maintenance of the Treadwall occurs during the first month of operation when the chains and cables are stretching to their final length. *It is very important to keep the angle-adjuster cables tight during this break-in period so that the winds remain even and do not overlap. Also the drive chain and panel chains must be tightened after 2-3 weeks of use. Instructions for these adjustments are found inside of the control panel cover.*

TREADWALL® MAINTENANCE SCHEDULE				
Maintenance Item	First month	Two Months	Six Months	Yearly
**Drive chain	X		X	
**Adjuster Cables	X	X		
**Check Wall Alignment			X	
**Adjust Main Chain Tension	X		X	
Clean Holds		X		
**Check Harness cord for wear			X	
**Lubricate Chains				X
Grease Bearings				X
** MAINTENANCE PRIORITY ITEMS				

1. First month

A. Adjust the drive chain and main chains

- See the inside of the control panel door for easy instructions.

People required: 1

Time required: 10 min.

Tools required: Adjustable wrench

B. Re-tighten Adjuster Cables on each side **at least every week or when loose** for the first month. This is very important for the proper functioning of the angle adjustment as the cables tend to stretch during the break-in period.

- If they become loose, the cables can become tangled and break. They should be kept firm, with no slack.
- Use the turnbuckles at the back end; loosen their lock nuts, and tighten in a correct manner, then re-tighten lock nuts.
- A small screwdriver is useful for tightening the turnbuckles.
- Swing wall back and forth to check after tightening. Cable turns should stay together. Tapping cable helps to equalize both sides.

People required: 1
Time required: 10 minutes
Tools required: Small screwdriver, small adj. wrench

2. *Two Months.*

A. Check Chain tension after the second month of use. Although the chains used on the Treadwall are designed for much harder use than the Treadwall will give them, they will stretch slightly upon breaking in. This causes the wall to become stuck. Reversing the wall slightly frees it up, but it will soon stick again. This is caused by the panels jamming as they try to re-enter the channels near the bottom at the back. Consequently, we recommend taking the time after the second month to check the tension.

- See the Service Bulletin # 20.

People required: 1
Time required: 10 minutes
Tools required: 9/16" wrench

B. Cleaning the holds is usually scheduled every two months. However individual usage varies, and the amount of dirt build-up on holds has no long-term effect on the holds themselves.

- Use a dishwasher to clean the dirt from holds.
- If a dishwasher is not sufficient, use a scrub brush to loosen the dirt.

C. Examine the Harness Cord occasionally to check wear on the cord.

- Check area of cord under the cord locks attached to the harness. If the outer sheath is frayed, replace as soon as convenient.
- The Harness Cord runs from the Harness to the Upper Pulley bar; Replacement of the cord does not involve re-threading the cord inside the Upper Pulley Bar.
- See Service Bulletin # 7.

3. *Six Months.*

A. Check adjustment of Main Channels relative to the ends of the moving climbing panels.

- Look down watch the panel ends as they round the bottom: does either end touch the channel?
- By adjusting the relative tension on x-braces that run diagonally between the two channels inside the wall, you can shift the channels relative the moving wall.
- Access the turnbuckles through the excess holes on the lower part of each channel. The turnbuckles should be wired closed. Remove the wire, tighten turnbuckle on the opposite side of the rubbing panels, and recheck for clearance at the panel ends.
- Ideally both ends should pass with equal clearance. You may have to adjust both turnbuckles slightly to achieve this. Re-wire turnbuckles closed.

People required: 1
Time required: 15 minutes
Tools required: Small screwdriver, small open end wrench, pliers

B. The Main Chain and Drive Chain should be lubricated every six months.

- Access chains through the access holes on the lower part of Main Channels and the hole above the control panel.
- With an assistant moving the wall slowly, direct nozzle of a spray lubricant towards chain, and lightly coat the chain. Do both sides.
- Preferably, do at the end of the day and let sit overnight with old newspapers below to catch any drips.
- We recommend a lubricant such as "Triflow" which is easily obtained at a bike shop and does not have an adverse odor or appearance.

People required: 2 people

Time required: 20 minutes

Tools required: "Triflow" or equivalent spray lube with small tube to direct flow.

4. Yearly Maintenance.

A. The bearings at the top and bottom shafts should be greased every year. The bearing come pre-greased, and depending on the level of usage, a small amount of grease should be applied to the four bearing yearly.

- Do NOT over-grease: only a small amount will be necessary.

People required: 1 person

Time required: 15 minutes

Tools required: Grease gun with bearing grease.

For service questions, please call Brewer's Ledge Inc. in Boston, Mass.

800-707-9616

Troubleshooting Guide



TROUBLESHOOTING GUIDE -- TREADWALL® FITNESS CLIMBER

Problem	Cause	Solution
Wall is sluggish: lighter weights will not pull wall down.	Channels misaligned. Chains too tight. Internal x-bracing too tight. Broken angle adjuster cable. Valve arm misadjusted Resistance valve misadjusted	See Service Bulletin #20. See Service Bulletin #20. See Service Bulletin #20. See Service Bulletin #4. See Service Bulletin # 13 See Service Bulletin # 22
Wall sticks occasionally. (Backing-up momentarily frees wall).	Chains too loose	See Service Bulletin #20.
Wall is frozen up - will not move in either direction	Panels have become soaked with water and have swelled up. One of the hydraulic valves is not opening properly. Pump unit is frozen up. (very unlikely)	Replace swollen panels Check linkages and control lines. See Service Bulletins # 13, 22 To check: first make sure valves are opening properly. Inspect panels to make sure none are swollen or jammed. Remove small double chain from pump coupling to see if wall will run free. If pump is frozen up, replace hydraulic unit.
Motor makes excessive noise	Low hydraulic oil.	Add oil to Pump Assembly. Open panel, remove pipe cap, and inspect: oil should be within 3/4" of top. Use 30 wt. non-detergent oil. Rotate motor as filled to remove air pockets. Cover fill opening with rag as rotating to prevent spills. Total capacity of system: 1 pint.
Wall makes excessive noise	Chain too loose. Panel end screw backed out.	See Service Bulletin #20. Locate side that is rubbing (noisy) by means of sound and scraped paint on inside of channels (usually at the top). With assistant turning wall, observe ends of panels at top: look for screw that has backed out. Re-tighten. If stripped, remove and replace using glue on threads.
Hydraulic unit makes excessive noise	Low hydraulic oil	Add oil to pump assembly. Remove cover, remove pipe cap, and inspect: Oil should be within 1" of top. Use 30 wt. non-detergent oil. Rotate wall as filled to remove air pockets. Cover fill opening with rag while rotating to prevent spills. Leave about 1/2" air pocket.

Adjuster cables are breaking or fraying.	Cables windings too loose.	See Service Bulletin #4.
Wall keeps rolling "under" the climber's foot.	Harness line adjusted improperly	Make sure harness line is pulled tight through the line-locks before climbing.
Wall sways side-to-side.	Internal x-bracing too loose.	Tighten Internal x-bracing. Do not over-tighten. Tighten until just firm and adjust for panel end clearance (See Service Bulletin # 22).
Hold rotates.	Hold bolts not sufficiently tightened.	Re-check hold bolts; re-tighten if necessary.
Wall too far to one side (not centered in frames).	Main (external) X-bracing needs re-adjustment.	See Service Bulletin # 2.
Hydraulic Assembly leaks oil.	Valve gland-nut loose.	See Service Bulletin # 6.
Cord has too much friction. Cord is frayed or broken inside top pulley bar.	Cord is off pulley	See Service Bulletin # 8
Counter will not count	Battery in counter needs replacement (no display) Microswitch needs adjustment or is broken	Replace 9 volt battery - cover unscrews on back See Service Bulletins #3 and 1.

The following Service Bulletins are included in this manual:

Service Bulletins # 1, 2, 3, 4, 6, 7, 8, 10, 13, 18,19, 20, 22, 23, 26, 27, 28, 30

These Bulletins are those that pertain to standard service issues. As needed, we develop further Service Bulletins for specific tasks.

May, 1996

TREADWALL® Model AM

Accessories/Parts Price List

Models 4 x 10, 4 x 11, 6 x 10, 6 x 11

Belt/Cords:

Belt	\$ 55.00
Harness Cord: Sec. w/ ring	\$ 9.00
Top Pulley Bar Cord	\$ 9.00

Mats:

Floor Mat - 4 foot wide	\$ 335.00
Floor Mat - 6 foot wide	\$ 350.00
Post Pads - each	\$ 45.00

Replacement Panels:

4 foot	\$ 35.00
6 foot	\$ 45.00

Adjuster Cables:

Cable alone, <u>without</u> shackles	\$ 25.00
Cable alone, with shackles	\$ 35.00
Cable Guards, one pair	\$ 30.00

Side Covers:

Top- 10 foot models, each	\$ 40.00
Top - 11 foot models, each	\$ 40.00
Bottom, 10 or 11 foot model, each	\$ 40.00
Set of Elastics to secure side covers	\$ 10.00
Backcovers, all sizes	\$ 180.00

Stickers/Labels:

Resistance Lever Label	\$ 8.00
Treadwall Logo	\$ 20.00
Safety Sticker "Hands Out!"	\$ N/C

Manuals and information:

Installation Kit	\$ 45.00
Starter Kit (not incl. install kit)	\$ 35.00
Owner's manual (all models)	\$ 9.95
"Climbing Tips" manual	\$ 9.95
Instructional Panel	\$ 45.00

Casters

Universal casters w/ extra post pads	\$ 345.00
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Distance Counters - Parts:

Microswitch	\$ 12.00
Batteries, Standard Counter	\$ 1.25
Batteries, Electronic Counter	\$ 6.00
Electronic Counter	\$ 390.00
Standard Counter	\$ 45.00

Hydraulic unit:

Complete lhydraulic unit \$ 450.00

Casters:

Universal Set w/ extra post pad \$ 345.00

Manuals/Video:

"Climbing Tips" manual \$ 9.95

Programming video \$ 9.50

Paint Supplies:

Panel paint - one gallon \$ 26.00

Panel paint - touch-up can w/ brush \$ 13.50

Climbing Holds:

6' Set complete \$ 475.00

4' set complete \$ 347.50

Granite or Sandstone, each \$ 7.90

Large Artificial holds, each \$ 13.00

(See "*Holds Ordering Sheet*" for more information. All holds come with bolts.)

All non-government orders shipped COD unless prepaid.

All Prices subject to change without notice.

Prices do not include the cost of shipping. Please specify your preferred method of shipping.

Brewer's Ledge Inc.

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Jamaica Plain, MA 02130 USA

1-(800)-707-9616

(617)-983-5244

(617)-983-5261 Fax

8/5/97

INDEX OF SERVICE BULLETINS

Treadwall™ Climbing Simulator -- Model AM

Number	
1	Panel Removal
2	Frame Adj. w/ X-brace
3	Adjustment of the internal Microswitch
4	Replacement of Cables - Angle Adjuster
6	Gland Nut Adjustment - Hydraulic Valves
7	Harness Cord Upgrade and Adjustment
8	Replacement of Brake Control line - Upper Pulley Bar
10	Adjustment of Chain Tension
13	Valve Arm Adjustment
18	Hold placement
19	Pump alignment and pump shaft fit
20	Adjustments for a stiff Treadwall - AM
22	Resistance rod adjustment
23	Replacement of tee nut on Treadwall panels
26	Replacing pump Woodruff key
27	Securing internal x-bracing
28	Moving the Treadwall
30	Attaching split ring to weight line to prevent fraying

Treadwall® Service Bulletin #1: Panel removal

The Treadwall wall panels are bolted to a set of chains. These two chains form a continuous loop around the top and bottom axles. Each panel is attached by two bolts at the ends to flanges mounted on the chains.

Tools needed: 1/8" Allen wrench, 3/8" box end or open end wrench, needle nosed pliers.

Panel hardware: 10-32 x 1 1/2" socket-head, flat-head bolts. 10-32 nylon locknuts.

Removing a panel is simple and requires about 15 minutes effort. Depending on the type of side channels your unit has, there are two methods for removing a panel. **NOTE:** Before choosing a panel to remove, examine the bolts - during installation the holes for the Allen keys may have become slightly distorted. Choose a panel with non-distorted holes (i.e.. the Allen wrench slips in the 4 bolts easily...).

Method # 1 (side channels with a 2" round access hole)

Rotate wall so desired panel is at the bottom. This will give access the locknuts inside the panels. You may wish to lie on your side to reach the locknuts.

With the Allen wrench and open end wrench, remove the four bolts and their locknuts. The panel will drop down. Rotate the wall to give the desired height, and perform what ever service is necessary.

Removal of more than one panel may be accomplished at standing position by reaching in through the first open panel and accessing the locknuts of the panel below.

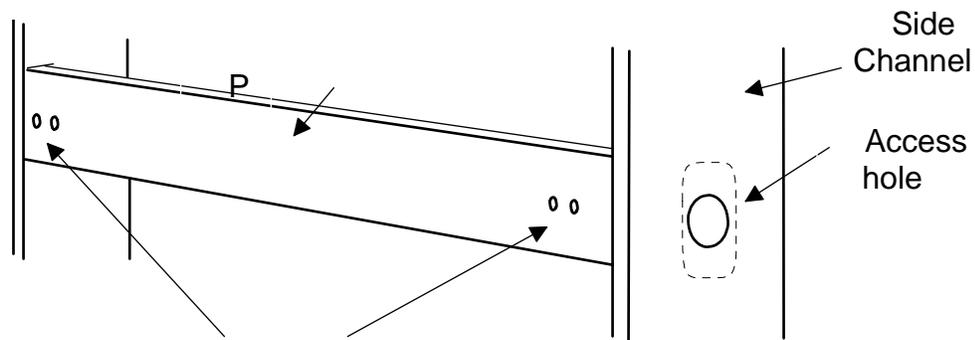
Replacement of the panel must also be done at the bottom. Use the needle nosed pliers to hold the locknuts in position. Note that if you have removed more than one panel, these may be replaced by slipping them in at the bottom, rotating the wall upwards, and re-inserting the bolts in standing position.

MAKE SURE TO ORIENT PANELS SO THAT PANEL BARS AND HOLD-MOUNTING HOLES ALTERNATE!!

Method #2 (channels with a 2" x 5" rectangular hole)

Rotate wall so that desired panel is in front of the rectangular opening. Remove four panel bolts and their locknuts by using the opening to access the back. Rotate the wall downward and allow the panel to drop out at bottom. Multiple panels can be removed in a similar manner. Rotate the wall to give the desired height, and perform what ever service is necessary. Replace panels by inserting panel at bottom and rotating upward until it is in front of rectangular opening. Replace all four bolts.

MAKE SURE TO ORIENT PANELS SO THAT PANEL BARS AND HOLD-MOUNTING HOLES ALTERNATE!!



Panel bolts: four total

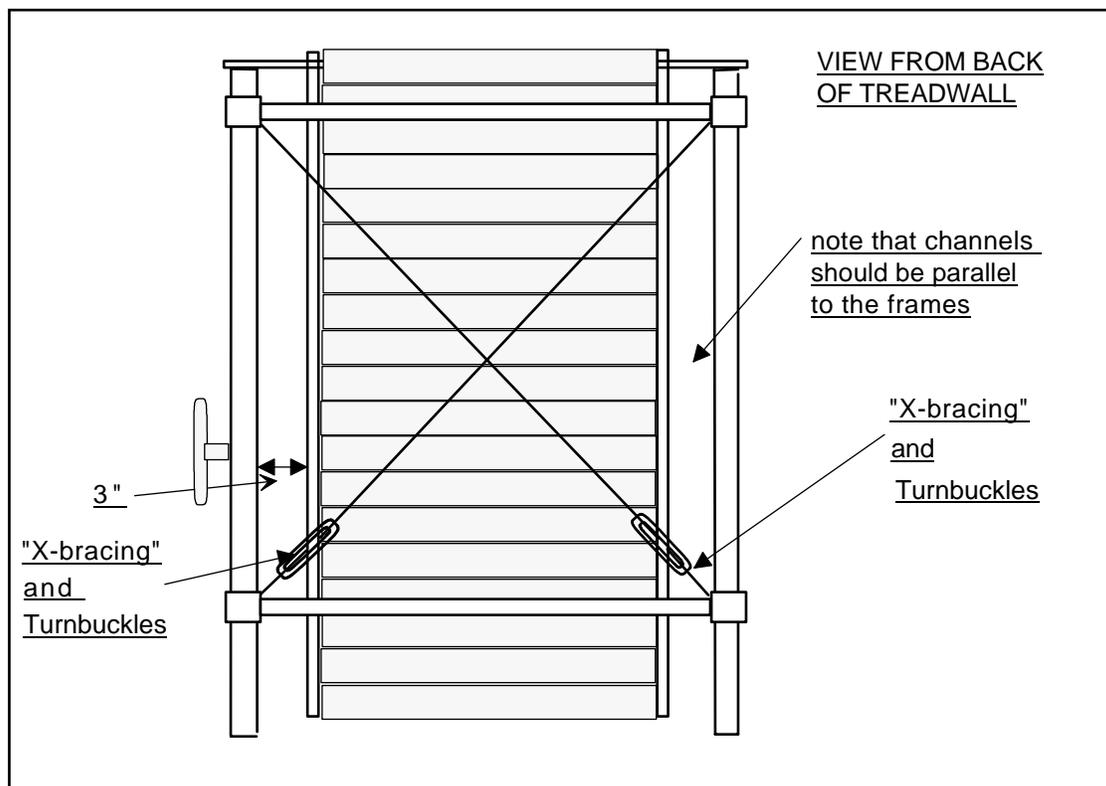
Treadwall® Service Bulletin #2: FRAME ADJUSTMENT WITH "X-BRACING"

Adjustment of the Treadwall frame by means of the "X-Bracing" in the back allows the wall to be centered between the main side frames. It is important both for angle adjustment as well as the wall's performance that the wall be centered.

With the wall at vertical, note the gaps between the side channels and the two main side frames. When the wall is centered, the gap on the right side (just below the angle-adjuster wheel) should be 3"

If the wall needs adjustment, loosen both turnbuckles at the bottom of the "X-Braces" in the back; re-tighten on the side to which you wish swing the wall. For example, if the wall is too close to the right side, you will need to tighten the right "X-bracing" to bring the wall closer to the right side.

You may find as you tighten one side, you will have to continue to loosen the opposite turnbuckle to give yourself enough slack.



Treadwall® Service Bulletin #3: Adjustment of microswitch

The Treadwall counter is activated by a simple microswitch which counts every other 6" panel, each click/count indicating 1' of distance. The microswitch is mounted inside the panels with its arm passing over every other panel stiffener bar. This arm movement (clicking sound) breaks a tiny electrical current from the counter which causes a "count".

Access to the microswitch is by removal of a panel. The wall is then rotated to expose the microswitch. See Service Bulletin No. 1 "Removal of a Panel".

If a counter is not working, check the following items:

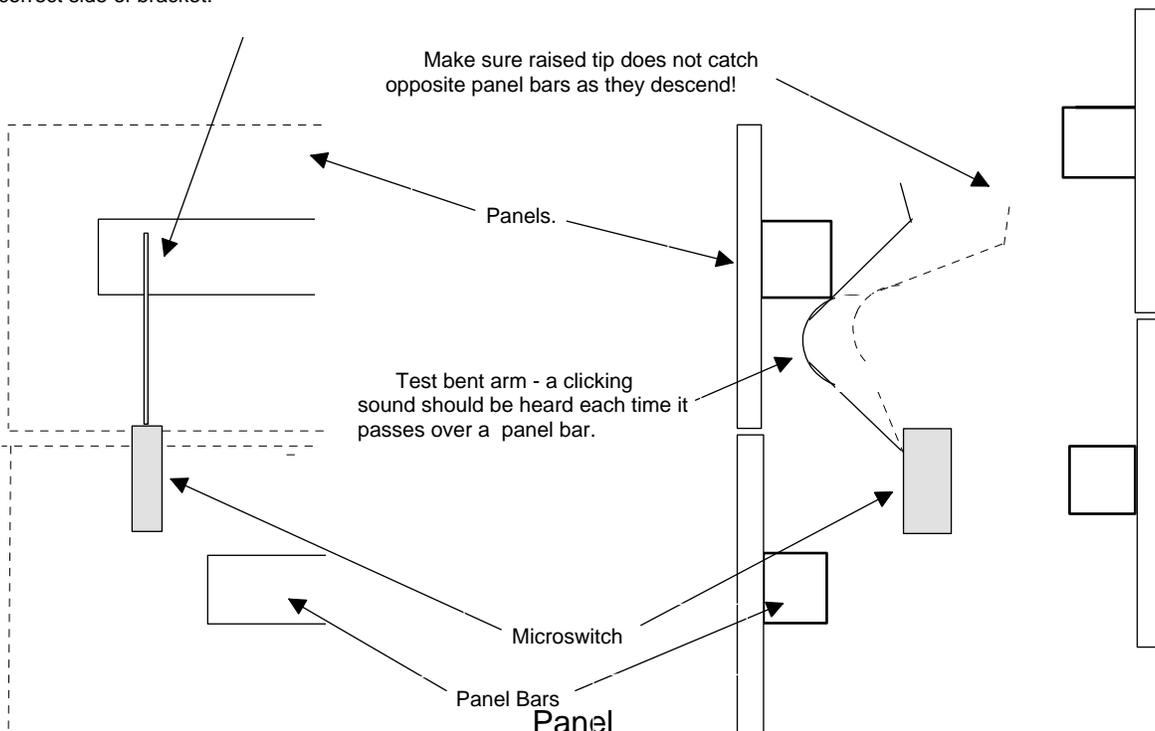
- Examine the microswitch; is the arm bent and aligned correctly? See diagram below.
- Is the counter itself working properly? This can be checked by removing one wire from the microswitch and touching it to the other wire - the counter should register each touch.
- If the microswitch was just installed, check to ensure you have attached one wire to the terminal marked "common", with the other to either remaining terminal.

If you are installing a new microswitch, be sure to mount the switch on the correct side of the bracket so that the arm clicks over every other panel bar. Depending on the bracket supplied with your machine, the microswitch will have to be mounted on the inner or outer side of the bracket. It may only go in one position to catch every other panel.

Test microswitch at all angles; there is some variation in panel position depending on angle.

IMPORTANT: The most frequent cause of failure is misadjustment of the switch arm. Make sure it works properly with the wall moving both forward and backwards! at all angles.

Make sure switch counts every other bar...place switch on correct side of bracket.



Treadwall® Service Bulletin #4: REPLACING CABLES

1. Tools needed:

- Ball peen hammer
- A small box wrench with closed end. (Exact size not important.)

2. Procedure (Same on both sides):

Removing...

1. Lock wall in a position so hole in Adjuster Pipe faces up (Note how cable dips into hole near the center of the windings and is locked in place with a bolt inside pipe.)
2. Lift side cover.
3. Remove chrome Adjuster wheel (right side) or plastic cap (left side) from the end of Adjuster Pipe. The wheel simply unscrews from the pipe. To remove it, engage the locking disk to the channel and turn the wheel hard to the left. Remove the ball from the locking rod and slip the wheel off.
4. Loosen and disassemble turnbuckle. Slip the end of the cable through the guide loop.
5. Remove Cable Guard.
6. Using the closed end of a wrench, reach into Adjuster Pipe end and pull out bolt that holds cable to pipe.
7. Remove shackle from front loop, and cable will come free.

Installing...

1. New cable is pre-bent at a certain spot. Push this bend into Adjuster Pipe hole so that end with shackle leads to back of machine. (After winding, the cable will leave pipe at bottom as in fig. 1. and shackle will go towards front of machine)
2. Re-insert bolt to catch the loop of cable inside pipe.
3. Pull up on cable to take-up all cable slack around the bolt that is inside pipe.
4. Hammer down cable on both sides where it exits the hole. No need to pound cable excessively; this is just to put a bend in cable so it will exit hole and lay nicely around pipe.
5. Wrap the shackle end around pipe so as to follow a left hand thread as shown in fig. 1. **Important:** *On earlier Treadwalls, the cables were wound as a right hand thread. Even if only one cable is being replaced, both cables must be wound the same way. Check the other cable and rewind it if it is not like fig. 1. Also, both cable guards will have to be replaced in this case to accommodate the new winding.*

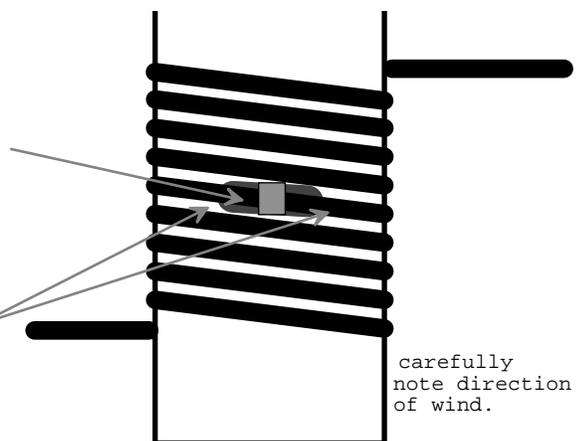


fig. 1

(Bulletin # 4 - page 2)

6. The number of wraps will be clear from the length of the cable: the shackle and turnbuckle will only reach when the correct number of turns is on the pipe.
7. Put on shackle.
8. Wrap turnbuckle end and lead up through corner loop at back of unit.
9. Hook turnbuckle and tighten. *Make sure wraps of cable on pipe are evenly wound and tight together as you tighten turnbuckle.*
10. Re-install chrome Adjuster wheel and by swinging wall front and back, *stretch* new cable. Re-tighten turnbuckle.
11. *Repeat* above step *at least a dozen times* to stretch cable, tightening turnbuckle to take up slack.
12. Keep turnbuckle tight - do not be afraid to tighten turnbuckle with new cable.
13. When cable is stretched, it is time to install the cable guard. Slip the cable guard over the windings so that one hook is engaged with the back end of the cable. Loosen the turnbuckle a few turns. Now hold the windings at the bottom of the pipe to keep them from loosening, and with your other hand remove the shackle from the front loop. Continue to hold the windings in place while you work the front end of the cable under the other hook. Re-attach the shackle and tighten the turnbuckle. This process is easier than it sounds as long as you don't let go of the windings. You might want to have someone help with the shackle.
14. *Make sure cable wrappings inside the guard are still tight together when you are finished* - this may involve using the hammer and wrench to tap the windings back together after you have begun to re-tighten turnbuckle.
15. Swing wall front and back to make sure all is working and look for windings that are spread apart.
16. Once more, tighten turnbuckles to remove any slack.
17. Tighten locking nut on turnbuckle.
18. ***Note: Cables can be sprayed with silicone spray to significantly increase their life expectancy***

***** PLEASE re-tighten cables **each** day for the first 4 days to ensure proper working.*****

Treadwall® Service Bulletin #6: Valve adjustment

The brake-control valve on the Treadwall sometimes needs adjustment after the initial break-in period. If there is any oil leakage from the stem of this valve, the gland nut must be tightened.

1. Remove the top right fabric side cover.
2. Remove cover from hydraulic unit at top right of machine. The cover slips off to the right. It is held in place by two lugs at the top of the frame.
3. With a 9/16" wrench, remove the long lever from the control valve. Note the orientation of the lever before removing.
4. Refer to fig. 2 and locate the small setscrew and gland nut on the control valve. The small setscrew (1/16" Allen wrench) keeps the gland nut from loosening during operation of the Treadwall.
5. Loosen the small setscrew approximately 1 turn.
6. Tighten the gland nut with a 9/16" combination wrench or socket. It will only need to be tightened a fraction of a turn. Tighten firmly but do not over-tighten.
7. Re-tighten the small setscrew. Do not over-tighten.
8. Replace the control lever arm onto the valve. Be extremely careful when replacing the valve-stem nut - it is very easy to cross-thread. Tighten this nut firmly
9. Run the machine and check for leaks.
10. If the pump makes unusual noises and operates erratically, you may need to add oil. Remove the filler plug at the top of the pump unit and check the level. The oil should come to about 1/2" from the top. If the level is low, add 30 weight non-detergent motor oil (available at auto-parts store - used in small four-cycle lawnmowers etc.) While adding oil, run the machine around a bit to get out any air bubbles. You will probably end up with oil right to the top. Make a little air-pocket for the filler plug by sticking your finger into the opening (have a rag on hand!!) and replace the plug. Wipe off any excess oil..
11. When the machine is operating smoothly, close the control panel and replace the side-cover.

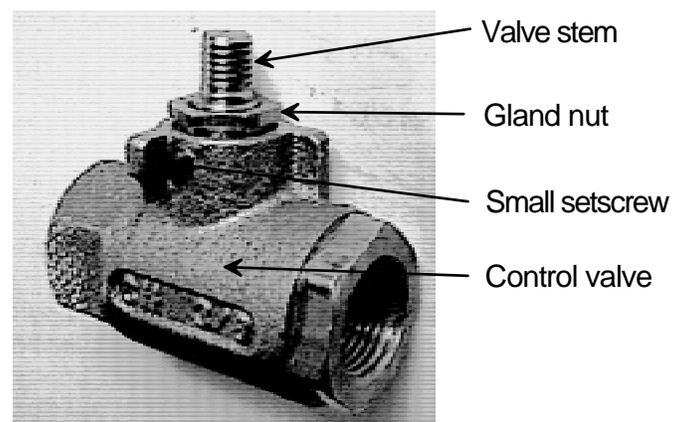


Fig. 2 Valve (detail)

Treadwall® Service Bulletin # 7: HARNESS CORD UPGRADE AND/or REPLACEMENT

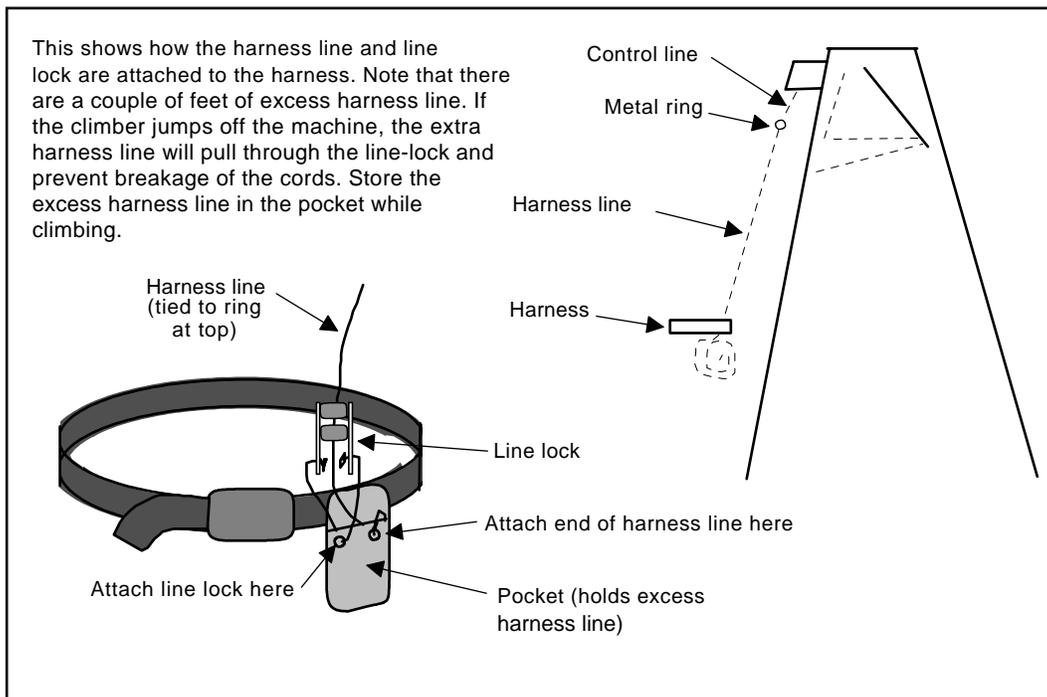
Enclosed is the replacement harness for the Treadwall™ Climbing Simulator. While you're at it, you can upgrade the machine to the latest configuration:

If your Treadwall does not have a metal ring tied to the control line where it comes out of the machine at the top, you will have to shorten the current control line on your machine. First tie a loop in the control line like the loop in the harness line we have sent. The control line loop should be about 1 or 2 inches below the top of the machine where it exits the "TREADWALL" bar. Pull on the line a few times to make sure this loop come back up to the right point.

Next, attach the ring on the new harness to the loop you have just tied. This will make it so that you can easily replace the harness cord without disturbing the control line in the machine.

Finally, cut off the excess control line near the knot and heat seal the end by melting it with a lighter.

If you want to take off the harness for any reason, leave the metal ring on the machine so that there is no possibility of the control line being pulled into the machine and losing the end.



Treadwall® Service Bulletin #8: Replacing the Treadwall control line.

Fig. 1 shows the upper pulley bar from the front. Above the middle pulley there is an access hole that can be reached from the top of the machine, behind the pulley bar shroud as shown. Another access hole is on the right side of the pulley bar and its location is shown in both pictures.

If the old line is still in place, tie the new line to it and pull it through.

If the old line has been removed, you will have to make a special tool from a wire coathanger. Straighten the coathanger and make a small hook in one end.

Take the new line and pass it up through the pulley bar at point (a) and straight up through the access hole. Tie a small knot in this end of the line. Now take your coathanger tool and push it into the side access hole and over the center pulley until you can hook the control line and pull it over to the right and out of the hole. It is then an easy job to work the line back over the other pulley and into the frame pulley as shown in **Fig. 2**

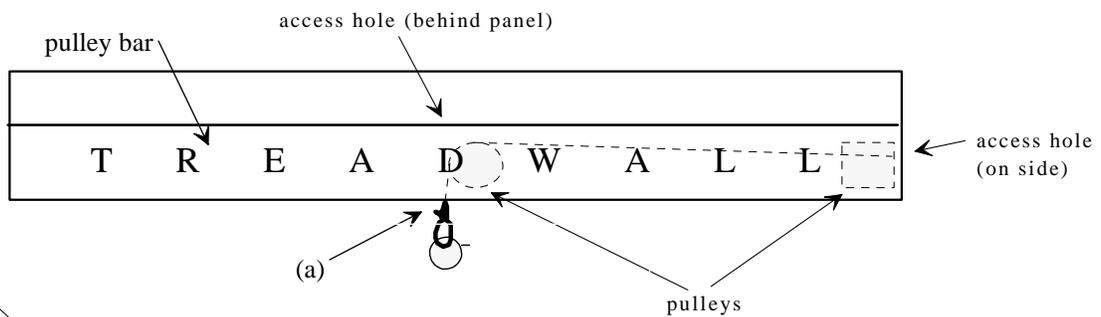


Fig. 1

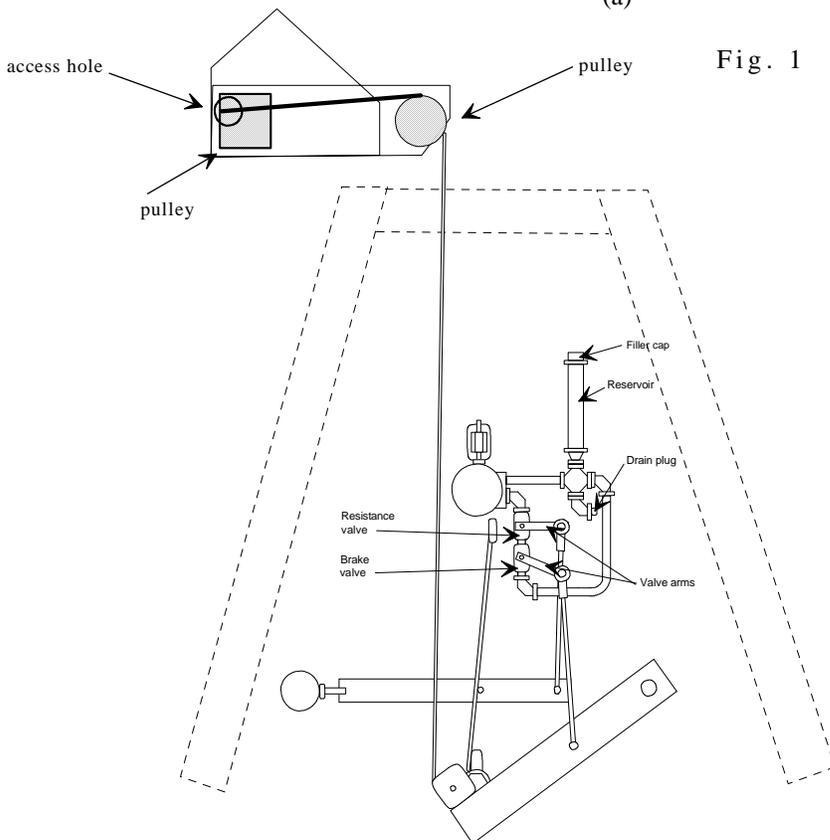


Fig. 2

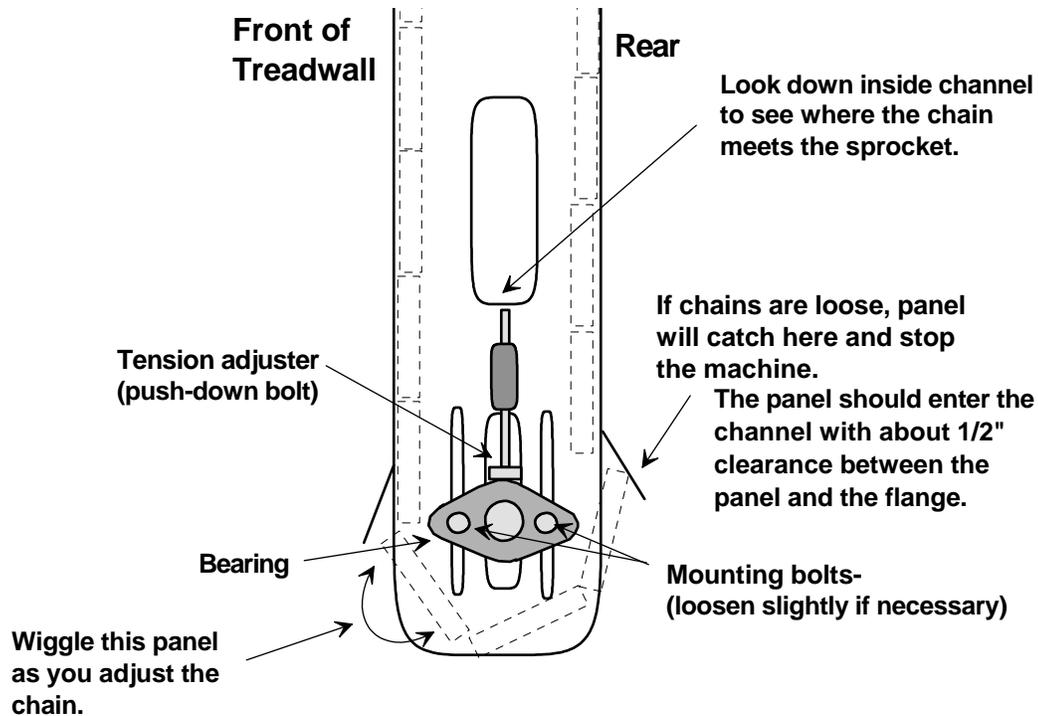
Run the line as shown in Fig. 2 and tie off at the welded loop. When the brake lever is at its resting position, the ring on the control line should be just an inch or two under the pulley bar as shown in Fig. 1.

Treadwall® Service Bulletin #10

Adjustment of chain tension

The main chains that suspend the panels on the Treadwall may stretch in the course of the first few months of use. If this happens, the panels will be loose as they move around the bottom and up the back, and they will jam as they attempt to enter the channel in the back (see diagram). Symptom: Machine jams up and will not go forward. Reversing the wall slightly frees it but it jams up again.

The chain tension is adjusted by moving down the bearing on the bottom of each channel.



Bottom of right channel (take off lower sidecovers)

There is a push-down bolt above each bearing that will move it down (see diagram). It is usually not necessary to loosen the mounting bolts on the bearings to use the tension adjuster, but if they are excessively tight, loosen them slightly.

Turn the push-down bolt with a wrench to push the bearing down. *Do not overtighten the chains.* You just want to take out the excessive slack.

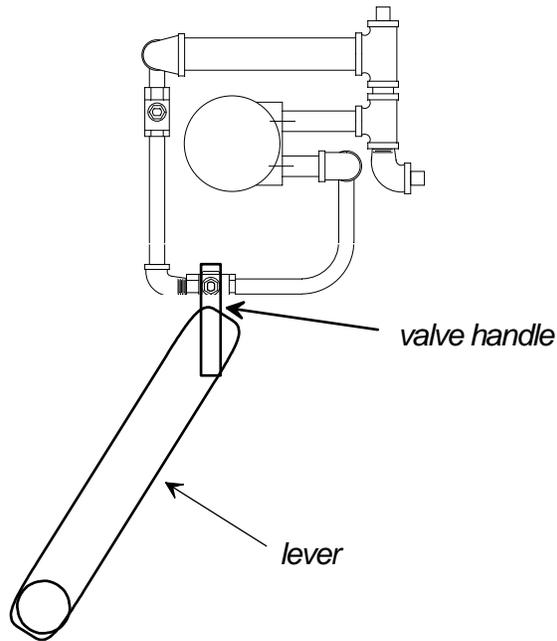
As you tighten the bearing, wiggle the lower panel as shown in the diagram. Look down in the rectangular hole to see where the chain meets the toothed sprocket. When the bearing is adjusted properly, the chain will still pull away from the sprocket slightly as you wiggle the panel. If you adjust the chains too tightly there will be excessive friction and the machine will operate sluggishly.

Usually a turn or two of the push-down bolt is plenty. Adjust both sides.

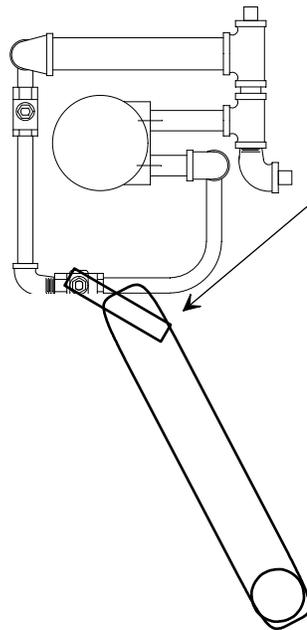
TREADWALL SERVICE BULLETIN #13:

VALVE ARM ADJUSTMENT

Two views of the Valve Arm.



Valve lever in closed position. Note short valve handle is close to vertical.



Valve in open position. Note that the short valve handle is close to horizontal -almost parallel to valve axis.

This angle (between the valve handle and the lever) determines how high you are on the wall when the brakes release. To raise the brake-point, straighten the angle slightly. To lower the brake-point, angle it more. The angle shown in the diagram is a good starting point

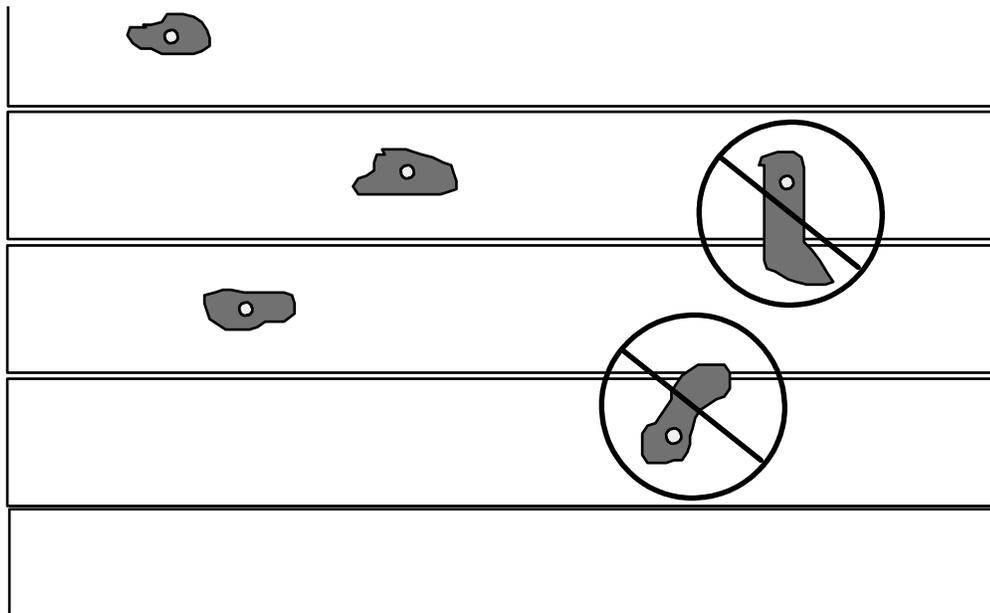
To adjust angle:

- 1) Loosen top bolt that holds valve handle to lever (the one with a large washer)
- 2) Adjust angle between lever

Treadwall® Service Bulletin #18

Hold placement

It is very important when placing holds on the Treadwall that the *holds do not overlap the space between two panels*. A hold that overlaps two panels will restrict the machine from rotating as the panel moves around the bottom or top of the Treadwall. In an extreme case, the force can cause a hold or panel to break.



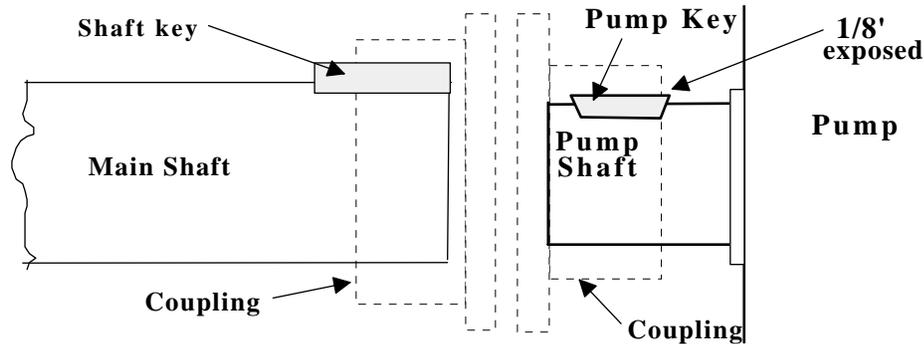
If the Treadwall suddenly locks up and will not rotate, check the bottom and top of the wall, front and back, to make sure that a hold has not rotated and overlapped two panels.

Lockup can also be caused by loose chains. See bulletin #10.

Treadwall® Service Bulletin #19

This is information for pump alignment and checking the correct fit of the pump shaft into the coupling on the Treadwall.

There should be a maximum of 1/8" (3mm.) of shaft key exposed as shown below.



If the measurements indicate that the pump shaft is not far enough into the coupling, either the pump and its bracket should be pushed in, or the coupling should be slid outwards to better cover the pump shaft key (giving up some coverage of the heavier main axle key...). Please note that the bracket is secured under the main bearing and has slots (under the bearing) to allow for the alignment of the pump/bracket to the shaft and coupling during set-up.

Set resistance to light, and secure harness in "up" position. This allows you to turn the wall by hand when you are up adjusting the pump unit.

Check to see if the pump is properly aligned. The coupling chain between the pump and the main shaft should have a slight amount of play all the way around when you wiggle it with your fingers. If there is no looseness, follow all the steps. If there is any play, skip to step 10.

There are two 1/2" bolts (3/4" wrench) that secure the main bearing to the frame. Loosen these on the pump side. Also slightly loosen the four pump-mounting bolts (9/16" wrench).

Spray a small amount of WD-40 or similar lubricant on shaft to ease sliding motion.

Loosen set screw in coupling that locks the *shaft* key in place.

With a hammer, firmly tap the pump bracket (not the pump itself) towards the main shaft to make sure the pump bracket is all the way in.

When the bracket is fully in, tap it from side to side to align the pump horizontally until the coupling chain feels loose all the way around.

Re-tighten the big bearing bolts (3/4" wrench).

Tighten the pump-mounting bolts (9/16" wrench), going around tightening each a bit at a time while checking to make sure the coupling chain remains slightly loose.

When all the bolts are tight, loosen the pump-coupling setscrews and slide the coupling to give the proper clearances, as shown above. It may be necessary to pry the coupling with a large wrench or screwdriver if the fit on the pump shaft is tight. Retighten the setscrews.

Treadwall® Service Bulletin #20 - Correction of stiff operation

In a properly working Treadwall, a body weight of approximately 60-70 lb.. will operate the wall consistently. If the operation is stiff or sluggish and will not operate at the minimum weight, there are several areas that may be responsible.

The two basic reasons for sluggish operation are friction of the panels in the channels and friction caused somewhere in the hydraulic control mechanism which is located on the upper right side of the machine. To remove the pump housing, slide it to the right, out from under two lugs welded to the top of the right frame. It may be necessary to tap it with a hammer, as the lugs are a tight fit.

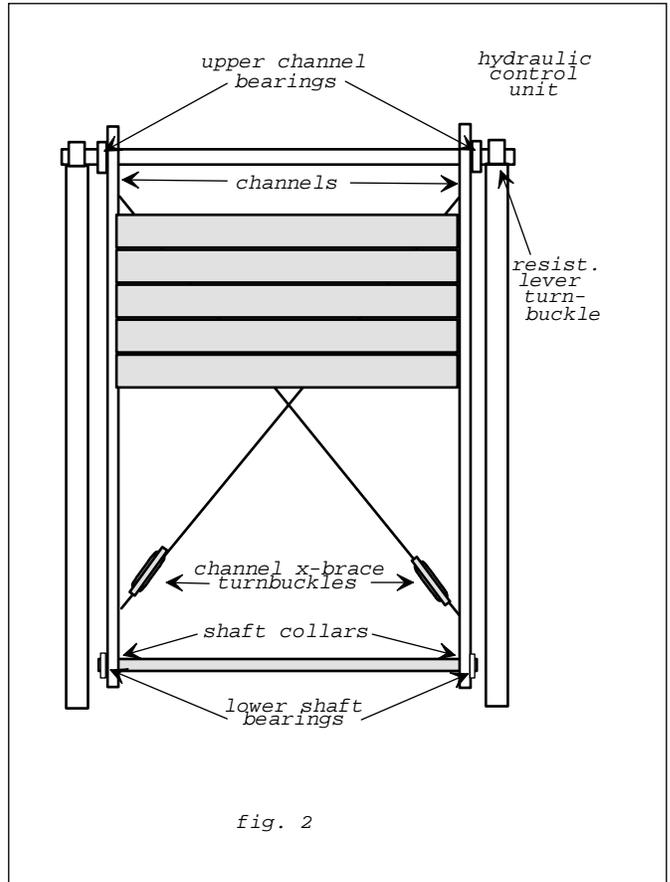
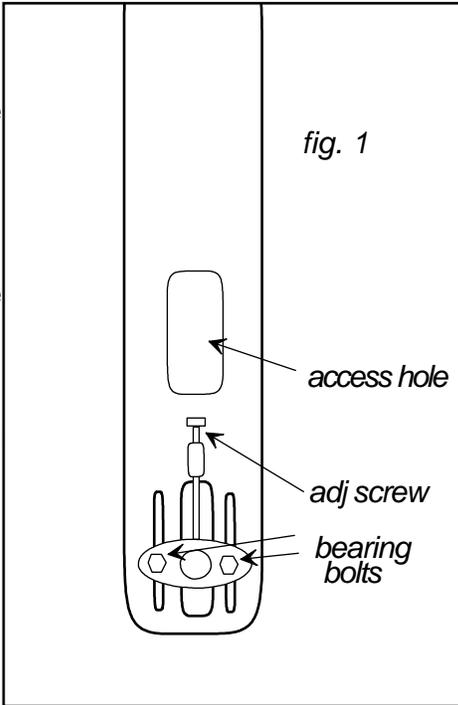
Symptom	Cause	Fix
Wall jams tight and won't move but it will back up and sometimes move forward before jamming again.	The panels are catching on the back of the channels as they try to enter the back channel slot at the bottom - caused by chains that are too loose.	The chains that suspend the panels are tightened at the bottom of the two channels. Loosen the bearing bolts and use the long bolt to take out the slack. Do not overtighten! If the chains are too tight, it will cause excessive resistance. Just take out the slack. (fig. 1)
Wall shows resistance intermittently at the same place during each rotation of the panels.	One or more panels are binding in the channels. Examine to see if all the channels are loose and free to move. The ends of the panels shouldn't contact the outside of the channel grooves, especially at the top	Center the panels between the channels: Loosen the setscrews on both the upper channel bearings and slide the channels (lever or hammer and wood block) back and forth to center them. (see fig. 2). Re-tighten.
	Check the ends of the panels for damage.	Replace any damaged panel ends.
	Check the ends of the panels for a screw backing out.	Remove panel and reset screw.
Wall shows constant resistance throughout rotation cycle.	Bottom of panels too close together.	Loosen lower bearing setscrews and turnbuckles and spread channels. Reset shaft collars on shaft inside channels so that they are against the inside of the bearings. (see fig. 2)
	X-bracing inside channels too tight. X-braces should just take up slack and not be tight.	Loosen turnbuckles through access holes. Check spacing of bottoms of channels , When all adjustments are correct, <u>re-tighten the turnbuckle locknuts firmly.</u> (see fig. 2)
	Hydraulic assembly is not properly aligned	Align hydraulics (see bulletin #19),
	Resistance in channels (even though the ends of the panels are not rubbing)	Lubricate the channel rubbing surfaces with white lithium spray grease. Use the little red straw to squirt it in and get all surfaces, front and back (remove one panel so that you can get to the inner channel surfaces.)
	Chains are too tight. If you suspect this, loosen them up completely and re-adjust.	Loosen the chains. The climbing panels should re-enter the channels at the bottom rear with about 1/2" clearance between the panel and the flange. (see bulletin #10)

TreadWall® Service Bulletin #22 - Adjustment of resistance lever.

When the resistance lever is in the middle of its range, the wall should drop at about one panel per second with a 160 lb. climber. The diagram shows the approximate positions of the valve lever and the resistance lever for the maximum resistance setting. At this setting the wall will be locked up and not move. When the machine is first set up, use the turnbuckle to adjust the levers to look like the diagram, then fine tune to give the proper speed of descent at the middle position.

When servicing the turnbuckle, be very careful not to drop anything down the front leg of the frame. After adjustment, be sure to lock the turnbuckle with the locknut. This locknut is a left-hand thread.

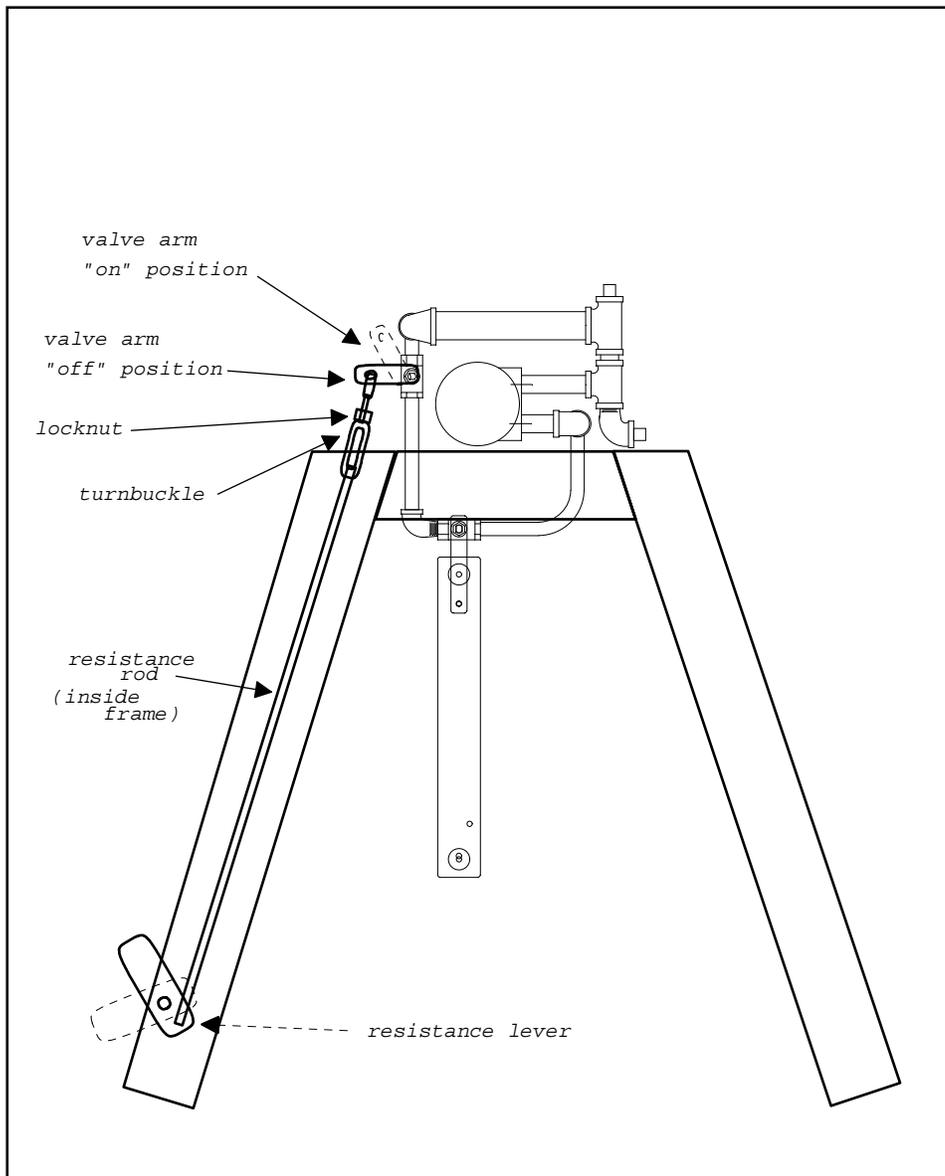
not to drop anything down the front leg of the frame. After adjustment, be sure to lock the turnbuckle with the locknut. This locknut is a left-hand



Treadwall® Service Bulletin #23: Replacement of Damaged Tee-nuts

Each Treadwall panel is drilled with 5 holes for the placement of climbing holds. Behind each hole there is a 3/8" x 16 Tee-nut press-fitted into position. On occasion a Tee-nut may back out and spin loose or become thread damaged. This will require replacement of the Tee-nut in order for a hold to be used in this position.

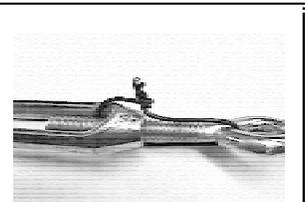
Tools needed: Pair of vice-grip pliers, a long (2+") 3/8" hold bolt, Allen wrench for hold bolt, extra hold, small hammer.



Note - To remove pump housing:

The box that surrounds the hydraulic unit is held on by two lugs welded onto the top of the frame. To remove the housing, slide it outward, towards the right of the Treadwall. It is usually a tight fit, and a few taps with a mallet or hammer are often necessary to get it loose.

When replacing, make sure the box fits under the two lugs and slide it back on.



After adjustment, wire the turnbuckle like this to prevent loosening.

If you have any questions,
please do not hesitate to call 8:30-5
E.S.T.
1-800-707-9616.



Removing and replacing a Tee-nut is simple and requires about 10 minutes effort. Rotate the wall until the panel is at the bottom. This will give access the Tee-nuts on the back of the panel.

Removing old Tee-nut:

If the damaged Tee-nut is still imbedded in the panel, thread a 3/8" hold bolt into the Tee-nut and tap the Tee-nut directly out of the back of the panel with a hammer.

If the Tee-nut is spinning loose so that you cannot thread into it, simply drive it out with the bolt.

Placing New Tee-nut:

Notice that the Tee-nuts have three prongs which insert into the back of the panels. When replacing the damaged Tee-nut, rotate the prongs to enter the panel in a different orientation than the old Tee-nut. This will ensure that the prongs of the new Tee-nut enter new and fresh panel wood and lock itself into the panel.

The new Tee-nut is inserted as shown in the diagram. Put the bolt through the hold and panel, and thread on the new Tee-nut. Use the Vice-grips to hold the Tee-nut and orient it so that the prongs enter new wood. Tighten the bolt with the Allen wrench until the Tee-nut is drawn fully into the panel and flush with the surface.

Treadwall® Service Bulletin # 26 Replacing Pump Woodruff Key

The Treadwall is controlled by a hydraulic braking mechanism that is located on the upper right side of the machine.

To remove the sheet metal cover, slide off to the right. The cover fits under lugs welded to the top of the frame, and the fit might be quite tight. Use a mallet or block of wood and hammer to get it started if necessary.

Examine the hydraulic mechanism. From the top, looking down, you can see the chain-type coupling that connects the pump to the large main shaft. If the Woodruff key is broken, the Treadwall runs free without resistance. The coupling will turn, but the shaft of the pump will not be turning when the wall is in motion. To replace the key it is necessary to remove the pump unit.

There are two valves in the hydraulic assembly. Remove the arms from these two valves by taking off the 3/8" nuts on the valve shafts and pulling the arms off. Be very careful not to drop the nut from the front valve down the front leg of the frame. The large arm on the rear valve can just be left hanging from its cords.

Loosen all the setscrews on the coupling (four in all) and with a 9-16" open end wrench, remove the four bolts that mount the pump onto its angle-bracket. The lower rear bolt is the hardest one to get out, but with an open end wrench it is not too bad.

Take off the pump unit and the chain-coupling.

Remove the remnants of the old Woodruff key from the pump shaft. Woodruff keys are semi-circular. It may take a bit of effort to get the old key out - use a small screwdriver and hammer if necessary.

When installing the new key, make sure that it is seated fully down into the slot in the shaft. Use a soft mallet or a block of wood and hammer, but do not strike it directly with a hammer. Slide the coupling back onto the pump shaft. If the key is not seated straight, the coupling may be a very tight fit. Use your mallet to drive it on and alternately hit the side of the coupling right over the keyway to straighten out the key. If it is too tight, it is ok to file a little off the top of the key (not the sides) to make a better fit. If you must pry the coupling off the pump shaft, use two large screwdrivers or wrenches on either side at once.

The coupling must be far enough onto the pump shaft so that only 1/8" of the Woodruff key is showing outside of the coupling. If it is not put on this far, the new key may break again.

Once the coupling is on the pump, put it back on the machine. Line up the key on the large shaft and slide on the coupling. Bolt on the pump, tightening the mounting bolts alternately so that it will be in alignment. When the pump is properly aligned, the chain on the coupling will be slightly loose all around. Re-align if necessary.

When replacing the valve levers, be very careful not to cross-thread the nuts onto the valve shafts. The shafts have flat sides, and it takes a little patience to get the nuts on straight.

When the machine is operating properly, replace the pump cover, making sure it slides under the mounting lugs.

Treadwall® Service Bulletin #27 Securing internal x-bracing.

It has come to our attention that the inside turnbuckles on the Treadwall sometimes loosen up, even when the locknuts are tightened down securely. These are the turnbuckles which can be seen through the access holes at the bottom of the side channels, not the larger turnbuckles on the frame at the back of the machine.

If these internal turnbuckles become loose, the climbing surface will sway slightly from side to side while the machine is being used, which is somewhat unpleasant but not a serious problem. If one loosens completely and comes apart, however, the x-bracing rod will drop down and become caught between two panels. This will cause damage - the rod will be bent and panel damage may occur.

To prevent these problems, please check your Treadwall to make sure these turnbuckles have not loosened. If they are loose, tighten them firmly by hand (do not over-tighten - it can cause friction in the wall) and tighten down the locknuts. The turnbuckles should need no further adjustment, and they should be secured to prevent them from loosening again. If the turnbuckles are of the closed type use a few layers of duct-tape on each end to prevent turning as shown. If they are open-body turnbuckles either use duct-tape or a locking wire

Treadwall® Service Bulletin #28

MOVING THE TREADWALL

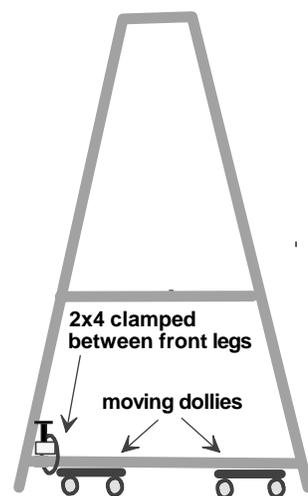
The following methods are used in re-locating the Treadwall.

MOVING WITHIN A ROOM WITHOUT OVERHEAD OBSTRUCTIONS.

Casters: Brewer's Ledge provides both light duty (for occasional moving) and heavy duty (for frequent moving) casters. These casters are bolted onto the lower cross-member of the side frames and may be left in place during normal operation. If you need to move the Treadwall on a regular basis, we recommend these casters. Call for details.

Moving dollies: 4 wheel moving dollies can be rented from moving or truck rental companies, and are a convenient way to move the Treadwall if you have a relatively level, smooth floor. You will also need an 8 ft. 2x4 and a couple of large c-clamps. Use the 2x4 to pry up each side of the Treadwall and slip 2 moving dollies under each bottom frame member (4 total). Then *clamp the 2x4 across the bottom front of the Treadwall to prevent the front legs from spreading apart while moving it.*

Lift and carry: The Treadwall weighs about 1300 lb.. Theoretically 10 people can lift and carry it (especially if they are accustomed to lifting weights) and it has been done - but not without difficulty. It is not recommended for any distance more than a couple of feet. *If you go this route, it is absolutely necessary to clamp a 2x4 across the front of the machine as in the diagram to prevent misaligning the machine.*



MOVING IN A ROOM WITH OVERHEAD OBSTRUCTIONS.

If pipes, ducts, beams or suspended ceilings prevent moving the Treadwall across the room, removal of the panels is required. This is a tedious but not difficult job. You will need a socket wrench with a 3/8" socket, a 1/8" Allen wrench and a bit of patience. Remove the first 3 panels at the bottom of the machine by reaching into the gap where the panels go under with the socket wrench and unscrewing the bolts that hold the panels onto the chains with the Allen wrench. The rest of the panels can be removed at waist height by moving the wall around and locking it into place with the resistance control.

With the panels off, the machine is much lighter and can be tilted forward by 6 strong people onto a pair of moving dollies. *Clamp a 2x4 between the front legs first.* At its new location, re-erect the Treadwall and put the panels back on.

Note that the metal reinforcing bars on the back of the panels are offset slightly to one side. As the panels go back on, they should alternate - on one panel the reinforcer is above the tee-nuts, on the next is below. If you don't do this, the counter will not work properly. You can use a cordless drill with a 1/8" Allen wrench bit to speed up the job, but don't make the screws too tight - just draw them up snug. You will probably need a few extra bolts and nuts, so call us first.

PARTIAL DISASSEMBLY

This option involves taking the panels off and disassembling the Treadwall down to the major components. The largest part is the channel assembly which consists of the two side channels (connected together as they are on the machine) along with the pulley bar and sprocket shaft at the top, the rear guard and sprocket shaft at the bottom, and the x-braces. This assembly is heavy and large, but it will fit diagonally through a normal door and can be transported with a pickup truck if the top part of the assembly is rested on the cab.

For equipment, a pair of moving dollies and several moving blankets are highly recommended. You will also need a good 8' stepladder.

Remove the panels as described above, and remove the control line, hanging weight, and control lever from the pump. Make sure you tie the control line ends together so that it cannot be pulled out of the pulley bar by mistake.

Remove the angle-adjuster cables and the adjuster pipe and wheel (see service bulletin #4).

Remove the hydraulic assembly. At the top right of the Treadwall, remove the box that hides the hydraulic assembly by sliding it out from under its mounting lugs (use a mallet if necessary). There is a coupling with a double chain that connects the hydraulic pump to the large main shaft. Loosen the two setscrews that connect the coupling to the large main shaft. Loosen but do not remove the large bearing bolts that hold the pillow-block bearing to the top of the frame. While one person lifts the right channel from below (use a length of 2x4 to pry it up), the pump assembly can be slipped off of the main shaft and out from under the bearing.

Remove the channel assembly. Take the nuts off the four bearing bolts that hold the pillow block bearings to the top of the frames (you have already loosened the right ones). Leave the bolts in place until the last minute for safety. The channel assembly is heavy, but four strong people can handle it easily. Place one person on either side of each channel. After the bolts are removed, lift the assembly slightly and walk it towards the front of the frame until it can be rested on the floor. Be careful! it is top-heavy. Lower it down, turn it on its side, place it on dollies and it is ready to transport.

Dissassemble the frame. Remove the x-bracing from the bottom horizontal (you can leave it connected to the top horizontal) and remove the horizontal bolts so that the frame will come apart.

Reassemble in the reverse order. When re-installing the pump assembly, take care that it is properly aligned to the main shaft (see service bulletin #19).

TOTAL DISASSEMBLY.

The Treadwall may be totally disassembled into parts that will fit through a normal doorway. If this is required, an installation kit is available from Brewer's Ledge that includes a comprehensive manual and video. Price - \$45. Call for details.

Treadwall® Service Bulletin #30

Split-ring for cord attachment to valve lever.

To prevent fraying of the weight-line a split-ring may be attached between the valve lever and the weight as shown in the diagram.

To install the split-ring, untie the weight from the valve lever and tie a loop in the end of the cord. Install the split ring onto the valve lever and attach the cord as shown

