

Yet another way to add a LCD TV to a 24RB BornFree



Here is how I installed a **Sony Bravia** 19" LCD TV as a replacement for our existing 20" Toshiba CRT TV. I was inspired by Bill Hemmes article "So you want to install a LCD TV in your BornFree". We also did not want to heat the storage space behind the TV as we are sometimes in cold climates and it takes longer to heat up the living area in the mornings if we had to heat that big storage space too, so I decided to build a box around the TV. I used solid red oak boards 8"x 1" (7 1/2" x 3/4" actual), this made the door heavier but much stronger as it is glued and screwed. I removed the original oak frame and discarded it, then built a new door and recessed a section for the TV. The recess is 6 3/4 inches because we needed room to tilt the top of the TV about 12 degrees forward for better viewing and I wanted the top of the TV to be slightly below flush. The speakers are on the bottom on this set and I left room on top for the controls when not using the remote. I installed the TV on a Peerless mounting bracket. This is a Sony Model Number: KDL-19M4000
19" BRAVIA® M-Series LCD Flat Panel HDTV – Black Weight: 15.2 Lbs.
Dimensions: **19 1/8"W x 15 7/8"H x 3 3/8"D**

I added a 24" long brass continuous (piano) hinge at the top of the door to gain access to the larger space behind it. The door and the TV weighs about 40 Lbs. so I used a single gas spring rated at 74 Lbs to lift the door; it opens to a horizontal position with ease. The hardest part was figuring out what gas spring to order and where to place the mounting brackets. An engineer friend in Seattle spent about two weeks working the problem so I was able to get the placement correct the first time. Later I added a top 1" vent using a shorter continuous hinge and holding it closed with 4 round magnets recessed flush. The upper gas spring mounting plate was thru bolted with countersunk 10-32 x 1" screws with 3 nylock nuts. The lower bracket had a tendency to twist under the load of 74 Lbs. so I fabricated a 2" x 3" plate 3/32" thick and bolted the bracket to that then used (5) #12 1" stainless panhead screws; screwed to the 1" plywood below. I also had to cut out 5/8" on the left side for the gas spring, actually lined up with the existing cutouts from the factory. Gas springs must have the shaft facing down to keep the shaft seals properly lubricated and extends their life (5-7 years). I have a removable panel on the back for access to cabling and jacks on the TV.

I E-Mailed Kim Olson and he sent me (2) ball latches and the door handle to match the other doors.

I decided to leave space on top for my Sony DVD player and will mount that next year as we are getting ready to leave on vacation to warmer climates.

I replaced the original Xantrex 400W modified Sine Wave inverter that was located under the sink and next to the water tank with a Xantrex XS400 watt True Sine Wave inverter for the new TV and other electronics we have. The new inverter was NOT a drop in but it did fit in the space we have.

Here are some pics before and after.

This is the original Toshiba CRT TV mounted in the entertainment center.



Photo 1

This is the same TV with the Oak Trim removed; it sits on a raised platform with a 1" nylon strap to hold it down and is tilted forward.



Photo 2

This is the finished product; the following photos will detail how I got here.



Photo 3

View of new cabinet door open to full extension.



Photo 4

Front face frame completed.



Photo 5

Recessed box that will attach to face frame.



Photo 6

Face frame and box glued and screwed together.



Photo 7

View of front showing dimensions

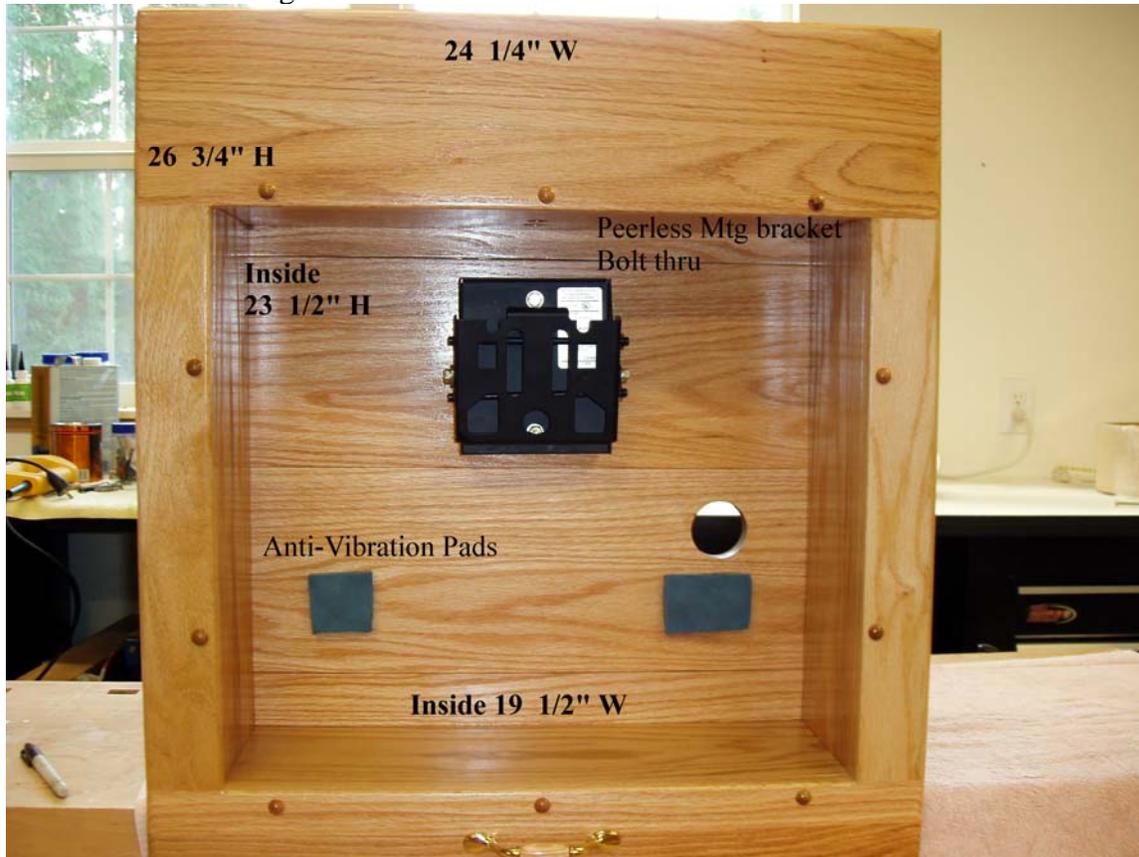


Photo 8

View of back showing upper vent with recessed magnets and piano hinge, top holes are access to screw holding the TV mounting plate to remove TV for service. The hinged door has a short projection on the left side (facing) to facilitate opening the door. The panel with the 2" hole for wiring is also removable with 4 screws and is the only one not glued.



Photo 9

Checking the fit.



Photo 10

Checking fit clearances of the box.



Photo 11

Checking the fit with TV before applying 3 coats of Semi-Satin Polyurethane.



Photo 12

View showing the fabricated mounting plate for gas spring bracket.



Photo 13

View showing upper mounting bracket; note the shaft is always down to keep the seals lubricated when closed. The gas spring extends 26 inches and is 16 ½ inches compressed. Upper brass piano hinge located 2 ¼" above cutout and 1" below ceiling.



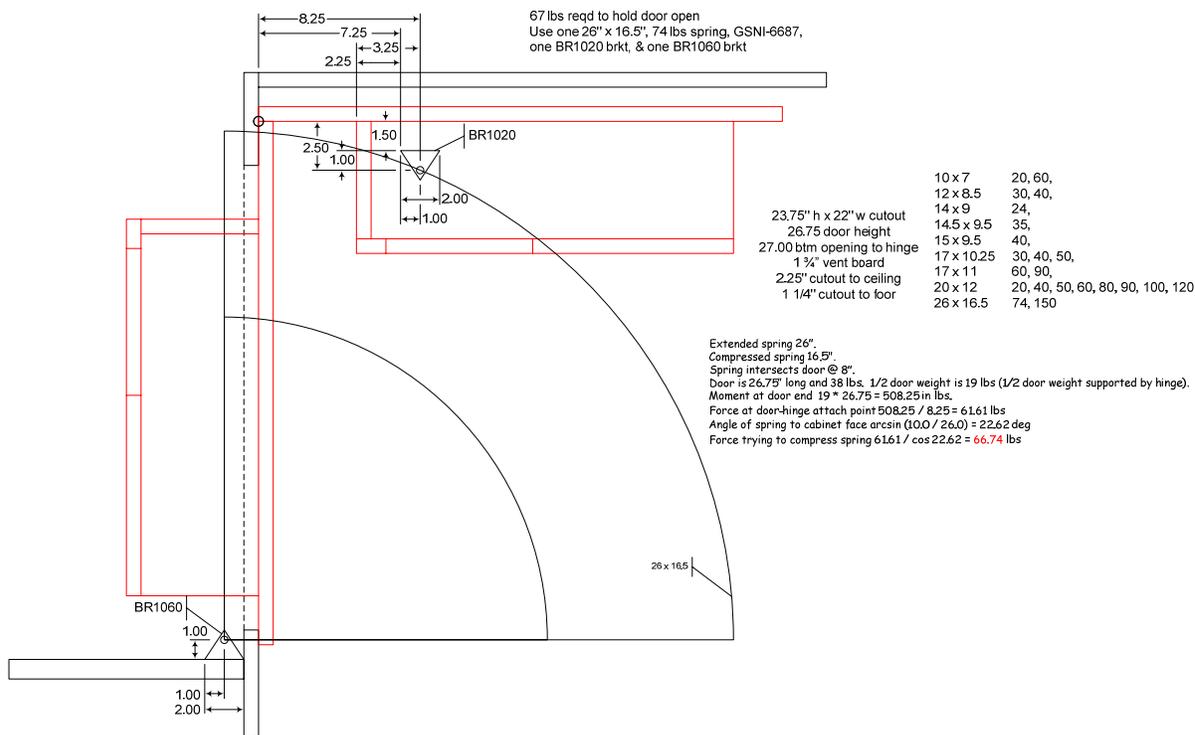
Photo 14

View of the electrical wiring; power cable, RG6 antenna cable and DVD HDMI cable.
The lower loop allows the vent door to open.



Photo 15

This is the drawing my engineer friend did for me for proper placement of the gas spring.

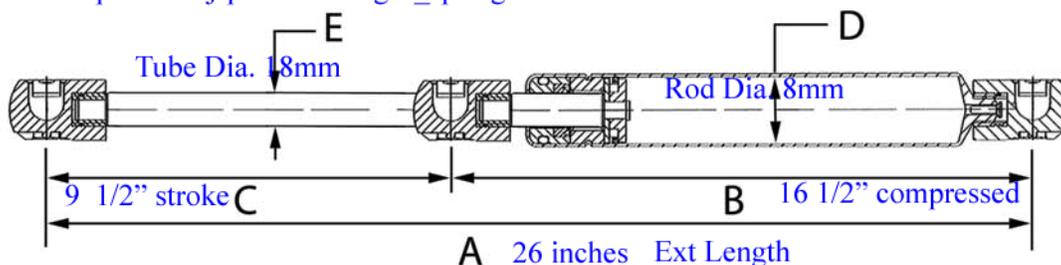


Drawing 1

This from my friend Bob F; I would recommend that you install the lower bracket in the cabinet first, attach the spring to both brackets, and then mark the location on the door with the door held in the open position. This also allows you to verify that the spring will support the door in the open position. If not the bottom bracket can be raised some and the door bracket moved toward bottom of door. Just be careful that the adjustments do not cause the spring to bottom out.

I actually had to move the upper bracket up 3/4 inch on the same plane and it worked correctly the first time.

from http://www.jrprvinc.com/gas_springs.htm



74 Lbs force required to actuate Model GSNI-6687

LIST OF MAJOR COMPONENTS AND PARTS REQUIRED

QTY	DESCRIPTION	COST
1	Sony Bravia Model Number: KDL-19M4000	\$499.00
1	Sony DVD player Model: DVPNS700HB	\$79.95
1	Sony 2 meter HDMI cable black	\$59.95
1	GSNI 6687 gas spring 74 Lb lift 800-269-7622	\$16.29
1	Pkg (2) BR-1020 - Flat Mounting Bracket	\$3.09
1	Pkg (2) BR-12552 - Angled Mounting Bracket http://www.jrprvinc.com/gas_springs.htm	\$3.09
1	1.50"W X 24"L SB(Solid Brass) Piano Hinge #142-841 http://woodworker.com/cgi-bin/home.exe	\$32.59
1	Brass plated continuous hinge 48" from Home Depot Cut to length.	\$19.00
2	Ball Latches and one door handle from Born Free	\$15.00
1	Universal Flat Wall Mount Model ST630 Black http://www.peerlessmounts.com/	\$49.95
3	Red Oak Boards 72"x8"x1" (about \$20.00 ea)	\$60.00
	Miscellaneous Hardware: screws, nuts, bolts, clamps, etc.	\$20.00

		\$857.91

Completed by:
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 November 17, 2008
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