

ASSEMBLY

STORMX650



Phil Little
Racing

MANUAL

YAMAHA X650 STORM ASSEMBLY MANUAL

Words by Phil Little

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Background

The 2012 Storm is the newest conversion kit in the world for the 650 Yamaha. The Storm is conceived as a quick makeover for 1977 to 1981 Specials and Standards from 1974 to 1979. The 1983 model should be avoided because too many parts are black unless you are doing a black themed bike...and that model has a zillion wheel spokes and is just too "out there." The conversion can be made in about 3 hours. The only hard part is whacking off junk on the rear seat loop. Please note, the loop stays put. You don't have to paint the body because it comes in orange. Black or white bodies are optional for a tiny up-charge. If you are going to paint your body, order it in white.

Building tips

Here are some things I did to my showcase bike that you may want to do too.

- Front brake caliper, remove black paint and polish the aluminum
- Get new spokes-they are cheap from 650 Central* (about 30 bucks per wheel).
- When your wheels are apart, paint the inside of the rims and hubs for an extra touch of color
- Front rotor, have Kevin Rickbeil* drill and swirl polish the rotor face
- Buy shocks with different colored bodies and springs, all chrome stock shocks are boring

* see suppliers list

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Part Suppliers

2 into 2 chrome upswept Ascot megaphone exhaust

Michael Morse
650 Central/Vintage Brake
15069 Lupine Lane
Sonora, CA 95370
209-533-4336
info@650central.com



Michael is a Mike's XS dealer and I prefer dealing with him because he will actually talk to you, they won't.

Swirl polished and loop drilled rotors (Also jeweled engines)

Kevin Rickbeil
43065 County Road One
Rice, MN 56367
320-393-3062
motorhead650@msn.com



Yamaha parts, old & new

Barney Heath
OffXS 650 Yamaha Parts
501 Milani Dr.
Ukiah, CA 95482
707-272-2151
offxs650@gmail.com

1. Frame preparation

You should be able to prep your frame in a single day. If you are lazy or do not have metal working skills or tools, hire a local fabricator.

Step one-Easy/fast conversion

Remove stock seat, sissy bar with taillight and rear fender. There are protrusions on the seat rails/rear loop that must be removed to permit the tail piece to fit. Those pieces are; front seat mount gate (on Specials), upper side cover mounts, flat cushion rests at the back of the rear loop and seat lock/helmet lock. Cut 'em off, grind them smooth and hit them with a can of black paint. Nobody will see the quality of your work.



Use a cut-off wheel and grind off the upright "gate" which was the mount for the front of the stock Special seat.



Cut off the upper side cover mounts on both sides.



Cut off seat supports seen ahead of fender mount.



Cut off seat supports on rear loop but save loop.



Get rid of the seat lock and helmet lock. All this would show below the X650 tail.

Step two on Specials

Upper shock mount stud on Specials. The threads on these studs are extra long to accommodate the sissy bar and shocks. Since the sissy bar is history, you have to shorten the stud. Get a 10mm x 1.25 thread die and cut new threads back to the unthreaded base. Cut off unneeded part of stud. Dab a little clear paint over end to retard rust

Step three (this is elective)

I'm going to assume you'll want to use the 650 Central Ascot exhaust system. Don't modify the right side pipe/passenger mount but remove the complete left side-you don't need this thing hanging unused out in space.



Step four (aesthetic change)

Remove the center stand and mounts from the frame

Step five (for the purist)

I went overboard in dealing with the fender/signal mount bracket on the sides of the rear loop. I felt this bracket showed too much metal beneath the rear tail. I minimized this piece with a grinder and much labor. I mounted aftermarket signals on a tab which mounted to upper shock stud.



You may not want to do all this work. Don't worry about it. Just leave the bracket untouched and use your stock signals.



Dress all your removal sites with a fine grit disc and repaint the frame black. Aerosol black paint will work fine-no one will see these alteration sites

2. Body installation

Mounting the tank

- Slip your stock cushions over the rubber studs I mounted under your tank
- Connect fuel lines and in-line filters
- Slide the tank on as you would the stock tank. Rear tank hole fits on frame stud
- Connect line to carbs
- Tank is installs before the tail

Mounting the tail

- Install tail piece and guide on the 1/2" hole (rear tank mount post). Trial fit tail. If binding with tank occurs simply grind away a bit of hole, probably on the leading edge of the hole. Shim to get a flush fit between tank and tail
- *This is tricky – follow closely*
 - A. With tank and tail on the bike, center the tail. You'll notice a small drill point about 1/2 way back on top of the tail. Lift the tail off to see where you are going to drill your mounting hole.
 - B. Reinstall tail. Now drill a 1/16" hole through the drill point and into frame.
 - C. Pop off the tail and look at your drill mark. Is there enough frame material around the drill mark for a 25/64" hole? If not make a new hole with the 1/16" drill.
 - D. Pop off the tail again. Ultimately you will need 25/64" hole. Don't start drilling with this big drill. Start the hole with ever increasing drill sizes up to 25/64."
 - E. **Warning**

Just below the surface you are drilling through is another frame piece BUT this piece is at an angle. If you are not careful, your drill is going to be deflected. You want a straight hole for the threaded insert I have provided you.
 - F. You now have a 25/64" hole in your frame and the tail is on the bench over there.

- Threaded insert. Find the nifty little assembly which is a thread-zert with a 5/16" nut and 1/4-20 bolt holding it all together. Shove the thread-zert into the frame hole and make sure its flush on the frame. Hold the 5/16" nut with 1/2" wrench. Start tightening the 1/4-20 bolt with a 7/16" wrench. What you are doing is squeezing the thread-zert so it fills the hole and swells out underneath. This will lock the threads into the frame. Tighten until the resistance increases. Overtighten beyond this point and you'll distort the threads and you'll have to chase them with a 1/4-20 bit. This your anchor the rear of the tail. Save my little tool pieces if the zert loosens up-you can just crank on it again.

Warning

I suspect the two tail mounting places may not be strong enough to carry a passenger—so don't unless you mount the tail more solidly.

- When you mount the tail to the frame use red Loctite on front and rear bolts. Use Loctite on the 6mm bolt which holds the rear of the tank and front of the tail in place. Make sure you secure the two body parts with a washer wider that the hole. I wouldn't over tighten either of these two bolts or you may crack the fiberglass.
- These two mounts will hold your tail in place. The fender is shaped to sit on the frame for weight support.
- The seat cushion mounts with Velcro (supplied)

3. Vinyl graphic installation

You have only two approaches for applying graphics. They are very difficult to apply. The problem is lining up long skinny graphics over tank and tail. Do not try it yourself-it's just extremely difficult to do it without misaligning one of the four parts. If you get 3 of the 4 right-what do you do? You'd have to call for another of the botched vinyl parts. **Option one**-pay me to do it. **Option two**-pay your sign company to do it. You can bitch at me/them if they screw up.

4. Accessories

Taillight

I was extremely lucky to find these brake/taillight fixtures. They are minimal, good looking and cheap...and naturally illegal as heck. No one else offers them. Just position my nifty taillight over the holes in the stock fender, drill holes and bolt the light in place. This light is wired for light and brake light.

WARNING

This light could contribute to your untimely death or permanent injury. It does not have the DOT or SAE requirement for square inches of illumination for adequate motorist communication. Don't buy it if you are concerned or rig up additional lighting like converting the turn signals into additional brake/light/signals

Tarozzi fork brace (ter-oz-ee)

These Italian braces are top quality pieces. They are designed for strength and ease of installation. The black color is what happens when aluminum is heat treated for toughness. I recommend you paint it silver to make it less dominant when surrounded by the chrome fender and shiny forks. Heck you can leave yours black or paint it orange or whatever color. It fits; SR500 1980-1995, XS650 1977-81, XS650SE 1980-1981 all with 35mm tubes x 55mm sliders

- Slide your black rubber dust caps up the fork tubes
- Install right and left tube clamps. Don't tighten cap screws, just use light finger pressure
- Install cross plate but don't tighten
- Now tighten screws on tube clamps. LocTite is a good idea on the threads
- Lastly tighten the four screws (with LocTite) in the cross plate but do so in an X pattern-le: screw 1, 3, 2 and 4 and repeat 1, 3, 2 and 4 until tight
- Slide dust caps down on to brace collars [yer done Dude]

NOTE: I found the Tarozzi brace I installed on my bike didn't seat flush with top of sliders. The beveled surface of brace contacted fender and didn't allow it to seat. If you

discover the same-you will have to grind on the beveled brace surface. I wish I knew why this was the case with a product that has been around for more than 20 years. It may be just a sometimes thing. We'll see. I just started selling these things

Frame beauty plates

The frame section of a Yamaha 650 frame where the foot pegs and axle are located is an eye-sore on all 650 models. These frame plates are shaped to hug the frame then they flair out to meet the bottom edge of the



Storm tail piece and to clear the bolt heads which hold the rear brake reservoir to the frame. Notice how I had them start at that two holed bracket that's on all frames, then gracefully taper up to the bottom of the side panel. Drove my fabricator nuts trying to craft the shapes and bends but it worked. Sorry these aren't cheap but that's the price of laser cutting.

These plates are 1/8" aluminum. You could give them a brushed finish or polish them if you want them to stand out. I didn't so I got a can of dark pebble tone and sprayed them. The color and texture doesn't match the frame so in a subtle way they are noticeable. You may find a slight variance between the top of the beauty plates and the bottom edge of the tail side panels. Before you paint or polish the plates, you may want to use a big Crescent wrench to tweak the plates into alignment. Use a section of rubber inner tube as a cushion between wrench and plate

There is a locking plate underneath the axle nut. With it in place there is a clearance problem with my plates. So I am (gasp) going to suggest you remove it. If you decide to do this, clean the axle threads with lacquer thinner and **secure the nut with LocTite high strength thread locker-the red stuff, not blue.** If you don't like this idea, drill a

hole in the axle and nut and run a cotter key through both. Or carve clearance in the plate.

WARNING What I suggest is potentially dangerous and could kill you in an agonizing death as great big trucks run over you.

Believe it or not, there were variances in Yamaha's production line. The foot peg studs and other holes in my plates may not line up properly. I had the plates made on one frame and they didn't fit my other frame. Go figger. Just take a rat tail file and make the necessary adjustments.

Chrome signals

I don't like the legal stock signals-just too big and noticeable. You can order these signal 'markers' and use them instead. Of course not legal (read dangerous)

Left side license plate holder

A license plate assembly on the rear fender creates visual junk. So I offer a left side holder which mounts the plate vertically on the upper left shock stud. Again illegal!

Handle bars

I was able to find these bars at a very reasonable price. I call them 'low western' bars. Brit bikes of the 70s came here with nicely bent bars but they had too great a rise. They were called Western Bars, Mine are lower and a tad more comfortable

Storm exhaust

Get the Ascot System like on my bike from 650 Central.

5. That small 16" rear wheel issue with Specials

I designed the Storm for all those Specials still out there. Sure Storm fits the Standards too. A 16" rear wheel won't be the best look for the Storm but if you are on a budget-don't worry, just build. An 18" or 19" would be more preferable. If you are starting with a Standard you have no rear wheel problems. Here are your options to get a taller rear wheel on a Special.

The Specials came with three types of 16" rear wheels.

- 1978-1980 cast with disc
- 1980-1981 36 spoke wheel with drum
- 1982-1983 48 spoke wheel with drum

1978-1980 cast with disc

I think with this wheel configuration your only have two choices are; 1) stay with 16" or 2) buy Robert Ward's 19" rear wheel conversion kit-OmarsDTR.com. This kit will allow you to bolt-on a 19" cast front wheel and use the same rear brake system.

1980-1981 wire wheel 16" with drum-36 spokes

This configuration gives you a fightin' chance. Get an 18" rim and lace it to your hub.

1982-1983 48 spoke wheel with drum

Don't know about you but I was never crazy about these too-fancy more-than-normal spoked wheels. I think Yamaha caught the chopper craze late in the game and produced lousy looking wheels. Try and avoid these Specials if you can. If you bought one these cheap enough you could do a total Standard wheel swap out and be fine

6. Warranty

As with all other products I make-they do not have warranties. When I screw up-I make the customer whole. Period!

7. Contact me

Phil Little

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