



Frankenstein Trikes Old School 4 Speed kit Installation Manual



INCLUDED IN FRANKENSTEIN 4 SPEED KIT:

- 1) Rear axle assembly
- 1) Swing arm assembly
- 2) Fender Brackets
- 2) ½" – 20 x1 ¾" grade 8 hex bolts
- 2) ½" – 20 x2" grade 8 hex bolts
- 2) ½" – 20 x2 ½" grd 8 hex bolts (Low shock)
- 4) ½"-20 grade 8 lock nuts
- 2) ½" grade 8 lock washers
- 10) ½" grade 8 flat washers
- 10) M10x1.5x30mm lug bolts
- 10) ¼" - 20 x1 ½" allen bolts
- 1) Tube blue Loctite for ¼" allen bolts
- 1) Tube of grease
- 1) Pivot shaft lock washer 2) ¾" grade 8 flat washers
- 2) Upper shock mount studs
- 2) ½" – 20 Passenger peg clevis mounts.

Fenders, tires
and wheels
not included
with the
Frankenstein
Old School kit.



Always refer to your Harley Davidson owner's manual before performing any work on your bike.

Your current Exhaust system may not work with the new trike kit.

1. Secure front wheel so motor-cycle won't tip, set jack under the motorcycle and raise the jack to take the weight off the rear wheel.



2. Remove the exhaust, or muffler if needed.

3. Remove upper and lower belt guards.

4. Remove the banjo bolt that holds the rear brake line to the caliper, hang brake line out of the way. **Position brake line with banjo fitting up to keep fluid in the line and to minimize air in the brake system.**

5. Loosen axle adjusters on both sides.

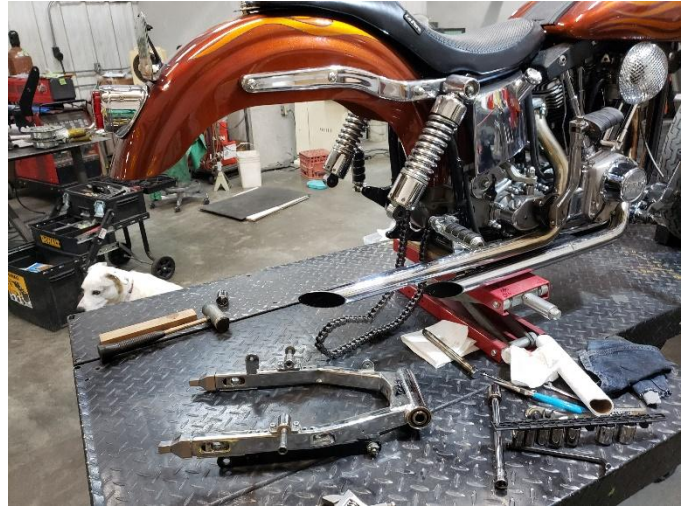
6. Remove axle nut.

7. Remove axle from wheel and swing arm.

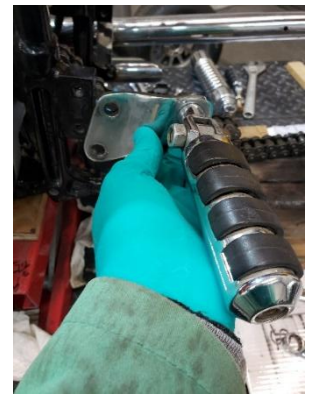
8. Slide the chain off of the sprocket and remove the rear wheel.



9. Remove shocks, swing arm pivot shaft, and swing arm from motorcycle.



Some 4 speed bikes have the passenger foot pegs mounted to the swing arm while others have them mounted to the frame. If, they are frame mounted they must be removed along with the mounting brackets.

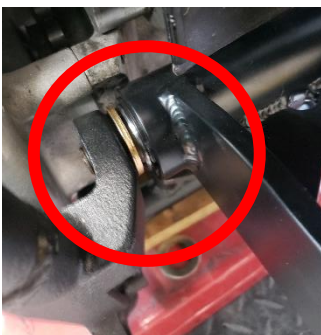


10. Install trike swing arm assembly using the provided pivot shaft lock washer and $\frac{3}{4}$ " flat washers along with the original pivot shaft and nut.

Pivot shaft torque specs: 80 - 90 ft lbs.



Make sure the $\frac{3}{4}$ " washer on the threaded end of the pivot shaft is around the shaft and not caught on the shoulder and around the threads.

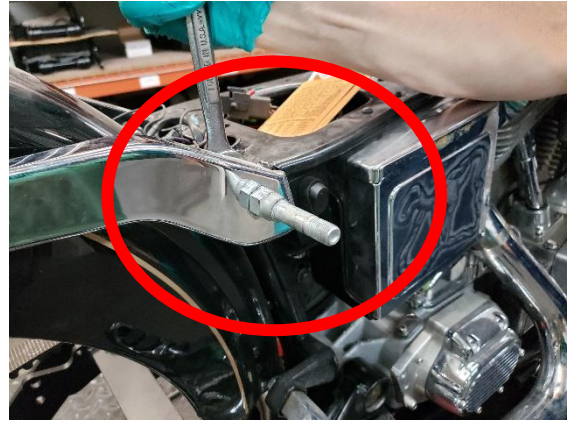


Correct



Incorrect

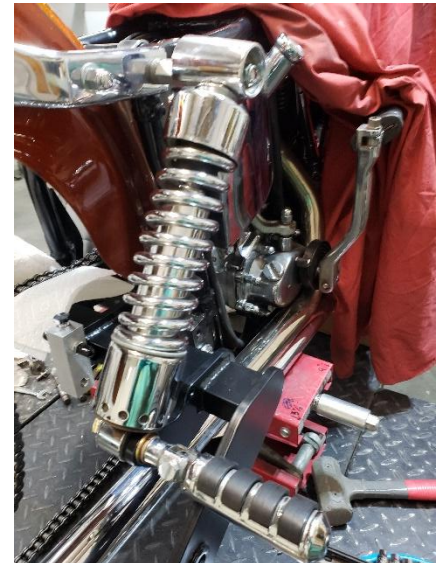
11. Replace the original upper shock mount stud with the extended upper shock mount stud provided. **Reuse the original shock stud mounting nut and washer.** Use **blue Loctite**.



12. Remove the passenger pegs from the swing arm or mounting brackets if they were frame mounted.



13. Install the shocks using the provided mounting hardware and **blue Loctite** while relocating the passenger pegs to the outside of the lower shock mount.



Shock torque specs

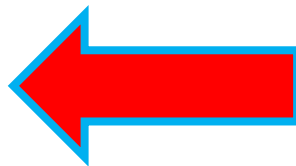
Upper = 25 – 40 ft. lbs.

Lower = 55 ft. lbs.

14. Stand axle halves on end with brake rotor up. Place wheel and tire and hand tighten the lug bolts.



Easy method to roll axle halves into place!



This is the most convenient time to grease the axle bearings!!

15. Remove the differential from the shipping bag, remove the tape and cardboard.





Be sure to
remove
the foam
plugs from the axle
drive splines!!!



16. Position the axle halves like the picture and set the differential into either one first.

The long axle half has a smaller axle bearing than the short half, make sure the proper bearing is down.



In short half

In long half



17. Have a friend hold the differential in place while steadying the axle.

18. Use a grease gun and the provided grease tube to pack (fill) the axle bearings through the grease fitting on the axle tube.



Repeat the process for the second bearing.

The smaller axle bearing (long half) usually needs 25 to 30 firm pumps.

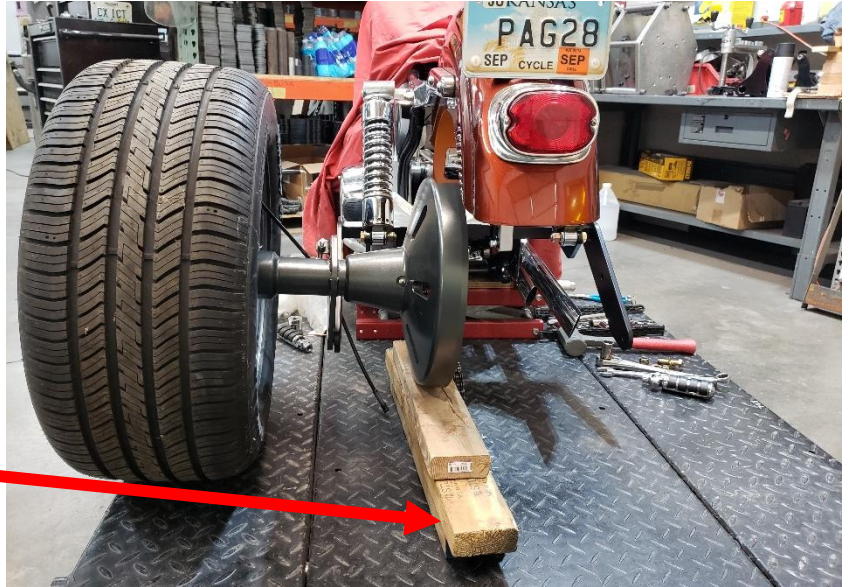
The larger axle bearing (short half) usually needs 45 to 50 firm pumps.



Inspect the bearings, making sure they are thoroughly greased!!



19. Roll the short half from the rear of the bike until the mounting bracket holes line up with the swing arm holes. Wood blocks help to support dif. Housing.



The bracket on the axle housing belongs on the outside of the swing arm.

The mounting bolts insert from the swing arm side (INSIDE) and the lock nuts are on the axle bracket (OUTSIDE).

Axle Bracket (outside)

Swing Arm (inside)



Do not tighten hardware at this point.



Loosen the axle adjusters and rotate the axle forward in the belt adjustment slots. Differential is easier to install.

20. Loop the chain around the differential sprocket and slide on to the short half axle like picture.



21. Line up the axle of the long half with the differential and push the two halves together.

Loosely install the ½" swing arm bolts, washers and nuts.

The tire / axle may have to be turned so the drive splines align between the two parts.

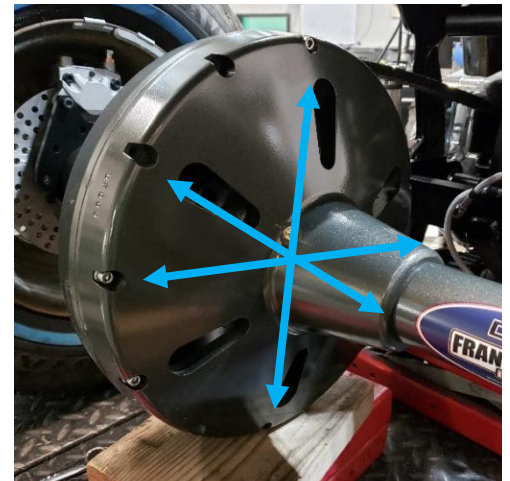


22. Apply the provided **blue Loctite** to the ten differential bolts ($1/4'' - 20 \times 1 \frac{1}{2}''$ allen bolts) and thread the bolts into the ten holes on differential in a criss cross pattern (front to back, top to bottom, etc.).



Have ALL 10 bolts threaded in their holes before tightening!!

Tighten the bolts to **180 inch pounds (15 foot pounds)** in the criss cross pattern using a torque wrench with $3/16''$ allen socket.

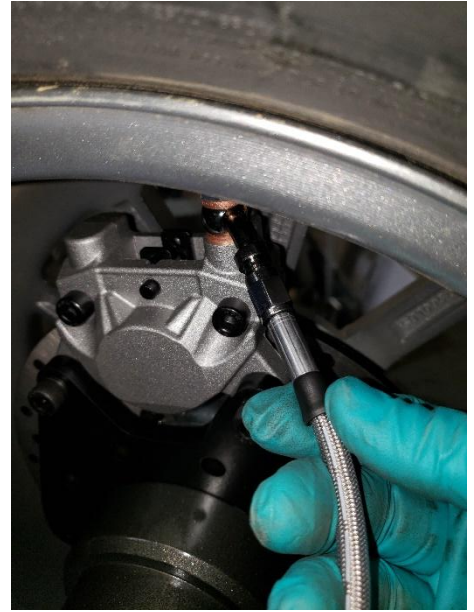


Criss cross pattern

23. Attach your bikes rear brake hose to the aluminum brake "T" block using the supplied banjo bolt and crush washers.



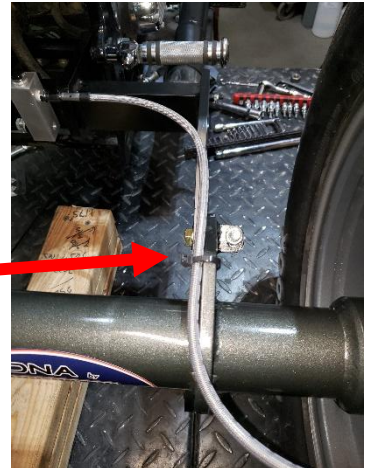
24. Route the new brake hoses from the brake “T” block to the calipers and tighten the hoses to the caliper fittings using a 7/16” wrench.



Left side

Right side

Zip ties



25. Using the appropriate brake fluid for your bike, bleed the rear brake system.

Bleeding the brakes is easiest with the wheels and tires removed.
Protect painted surfaces from brake fluid.

26. Reinstall wheels and tires if they were removed for brake bleeding, lower the rear tires to the ground, remove jack from under bike. Adjust the drive chain tension properly. After adjusted tighten both adjuster nuts against the adjuster tab.



27. Tighten the rear axle mounting brackets to the swing arm. Use blue Loctite.

Torque the four ½" mounting bolts to 80 foot pounds.



Double check the chain tension after tightening the axle to the swing arm!! Re-adjust if needed.



28. After chain is properly adjusted torque the wheel lug bolts to **80-foot pounds**.

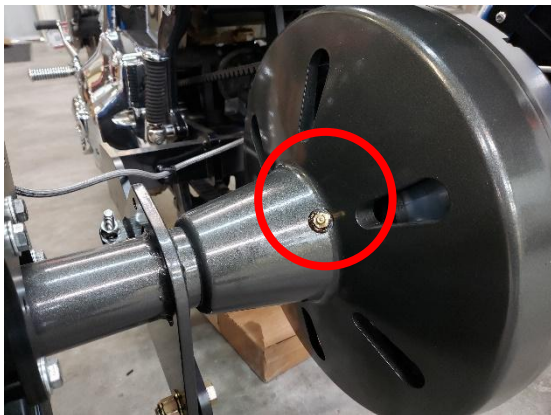


SKIP STEP 29 IF YOU GREASED THE AXLE BEARINGS BEFORE FINAL ASSEMBLY!!

29. If you didn't grease the axle bearings before final assembly, use a grease gun and the provided tube of wheel bearing grease to grease the axle bearings before riding. The left-side axle bearing is larger diameter than the right-side axle bearing.

Right side axle bearing grease fitting.

Approx. 25 to 30 firm pumps



Left side axle bearing grease fitting.

Approx. 45 to 50 firm pumps



After initial test ride (5 miles or less; trip around the block etc...) Top off the differential with grease. Refer to step #30 differential greasing procedure.

For future maintenance periodically top off the grease in the differential and both axle bearings.

30. The picture on the right is a close up of the right-side axle bearing grease fitting and the differential grease fitting. Slowly roll the trike, with engine turned off and in neutral, until the grease fitting becomes visible through the tear drop shaped opening. This will allow you to access the fitting with the grease gun.



31. Reinstall your exhaust if needed. Test ride your Trike!



Be sure to break in the brake pads and rotor. Break in is needed before maximum braking can be achieved. Please use caution. Many good resources online if tutorial is needed.

Call or email if you have any questions or concerns.

913-352-6788

info@frankensteintrikes.com

Quick Reference

40 $\frac{3}{4}$ " wheel mounting surface to wheel mounting surface

Lug bolt = M12 x 1.5 pitch; torque = 80 ft lbs.

Lug bolt patterns

5x4 $\frac{1}{2}$ ", 5x114.3mm, 5x4 $\frac{3}{4}$ ", 5x5"

Rear axle to swing arm $\frac{1}{2}$ "-20 bolts torque spec = 80 ft lbs.

Differential $\frac{1}{4}$ "-20 x 1 $\frac{1}{2}$ " bolt torque spec = 180 inch lbs. (15 ft lbs.)