



Easy Fork & Front Wheel Upgrade for the Early Year FJs ('84 - '87)

Parts & Tools

Required Parts

- '88 ('89 in the US) or newer FJ fork sliders (lower tubes)
 - '88 or newer damper rods and tapered spindles (or drill our your old rods)
 - '88 or newer axle and spacer
 - '88 or newer 17" front wheel with rotors
 - '88 or newer front brake calipers
 - '88 or newer banjo bolts for the front brake calipers
- Note that new banjo bolts are not necessarily required. The single banjos from the anti-dive units can be used in place of the double banjos on the calipers.

Optional Parts

- Complete set of fork bushings and seals (Recommended!)
- '98 – '04 R1, R6, or YZF600 monoblock front brake calipers (check eBay)
- '98 – '04 R1, R6, or YZF600 front brake master cylinder (again, eBay)
- Jon Cain's front brake master cylinder reservoir mount
- YZF600 front wheel conversion
- Steering head bearings

Special Tools (see instructions below)

David Raforth's *Fork Cap Removal Tool*_{TM}
David Raforth's *Inexpensive Fork Seal Driver*_{TM}

Instructions

Disassembly

You don't have to remove the fairing. If you plan on changing steering head bearings, you'll probably want it removed for better access to the lower bearing race.

As usual, it's good to have the Yamaha Factory Service Manual and/or the Clymers or Haynes manual as a backup. You can get the complete parts diagrams from the Yamaha web-site as well. Fork diagrams are provided below.

You'll need to block the frame to keep the front wheel off the ground. Jack stands or a bike lift will work.

Remove the front fender. Disconnect the Anti-Dive lines from the fork legs and the brake lines from the calipers. Remove the calipers from the forks. Loosen the pinch bolts at the bottom of the fork sliders. Remove the axle nut and remove the axle.

Pull out the front wheel and discard along with the calipers. (Sell them on eBay)

Remove the handlebars.

Note the height of the top of the fork tubes above the triple clamps.

With the fork tubes still mounted in the triple clamps, use David Raforth's *Fork Cap Removal Tool_{TM}* to loosen both fork caps. Do not remove the caps at this point.

For each fork, loosen the upper and lower sets of pinch bolts on the triple clamp and slide the fork out through the bottom of the triple clamp.

With the fork on your workbench, remove "damper rod locating screw" (small Phillips head screw) on the trailing side of the fork leg. This screw must be removed prior to the next step. Otherwise if the damper rod spins, it can damage this screw. Loosen the 'hexagon socket head' bolt (allen cap screw) inside the bottom of the fork slider for each fork. It may be difficult to loosen this bolt. An air impact wrench usually will work if it's fighting you.

For each fork, remove the fork cap with adjusting rod and washers, pull out the fork spring and drain the oil. Remove the 'hexagon socket head' bolt on the bottom of the fork. Make sure the copper washer is with the bolt.

Pull out the damper rod. Make sure the small spring on the damper rod comes out with it. The tapered spindle may come out with the rod. There are also two spring washers and one standard washer between the spindle and the rod.

Separate the upper and lower fork tubes. This may take some force.

Inspect the upper and lower fork bushings and seals. It's usually a good idea to replace all the bushings and seals while the forks are apart. Get these parts from a dealer prior to beginning the project.

Assembly

Make sure the insides of the 'new' fork sliders are clean. Check to see that the small drain screws and damper rod locator screws are in place and tight. Make sure your stock upper fork tubes are clean and straight.

Install the '88 tapered spindles in the '88 fork sliders. Carefully slide in the upper fork tube (with new bushings already installed). Insert the '88 damper rod (make sure the

small spring is on the rod). The three washers between the spindles and rods are not used. You'll need to line up the slot in the bottom of the rod with the damper rod locator screw on the slider.

Note: If you use the original stock '87 or older damper rod, you'll have to drill 4 holes to compensate for the elimination of the anti-dive fluid circuit. Drill the first two holes just above the "step" in the damper rod. These holes should be approximately 5/16 inch diameter and drilled 180 degrees apart. Measure up the damper rod about 10mm and drill a second set of holes 90 degrees to the first set. Debur the holes on the inside of the damper rod before reassembling.

Install the hexagon socket head bolt. Don't forget the copper washer. If the copper washer looks ragged, smooth/polish it out with some sandpaper before reinstalling it.

Install the bottom washer and then the fork seal over the upper tube. Use David Raforth's *Inexpensive Fork Seal Driver_{TM}* to set the fork seal in place. You will not need the top washer from your original fork, only the washer under the fork seal was used in the later models. Install the clip and dust seal.

With the forks vertical and compressed, fill with fork oil of your choice to a level 140 to 130mm from the top of the tube.

Install fork spring. Note: If using later model or aftermarket fork springs, you may need a spacer installed between the spring and the cap. Size will depend on the spring and your weight to set the correct static sag. A good starting length is to cut a spacer that preloads the spring about 15 to 20mm. Measure/cut the spacer with the preload adjuster set on the second preload position. That way you can add or subtract some of the preload without cutting another spacer. There needs to be flat washers on each side of the spacer. Install spring, washer, spacer, washer, then the top cap assembly.

Install the fork cap/rod assembly.

Note: You may want to check torque, re-pack, or replace your steering head bearings at this point. The lower bearing outer race can be a real bear to remove and is a topic of a whole other discussion.

Install the fork tubes in the triple clamp and tighten pinch bolts. A good way of lining the fork legs back up is to install one leg in the triple clamps to the measurement you made before removal. Snug the clamps down so this leg doesn't move. Slide the second into position and lightly snug one of the clamp bolts so it doesn't fall out. Insert the axle and adjust the height of the second leg until the axle is centered in both legs. Tighten all the triple clamp bolts to spec.

Install the 17" front wheel with rotors using the '88 axle and spacer. Also install the speedo drive. Note that the '88 and newer sliders have one fork slider threaded to accept

the axle eliminating the need for a nut on the axle. Use some thread lock on the axle and pinch bolts.

Bolt on the front brake calipers. Now is a good time to upgrade to the Yamaha monoblock units and 14mm master cylinder. The monoblock calipers bolt right on. Ensure you use the FJ or R1/R6/YZF factory caliper mounting bolts. You'll have to use the banjo bolts from the '88 or the monoblock calipers, or re-use the banjo bolts from the anti-dive units. Use new copper washers everywhere.

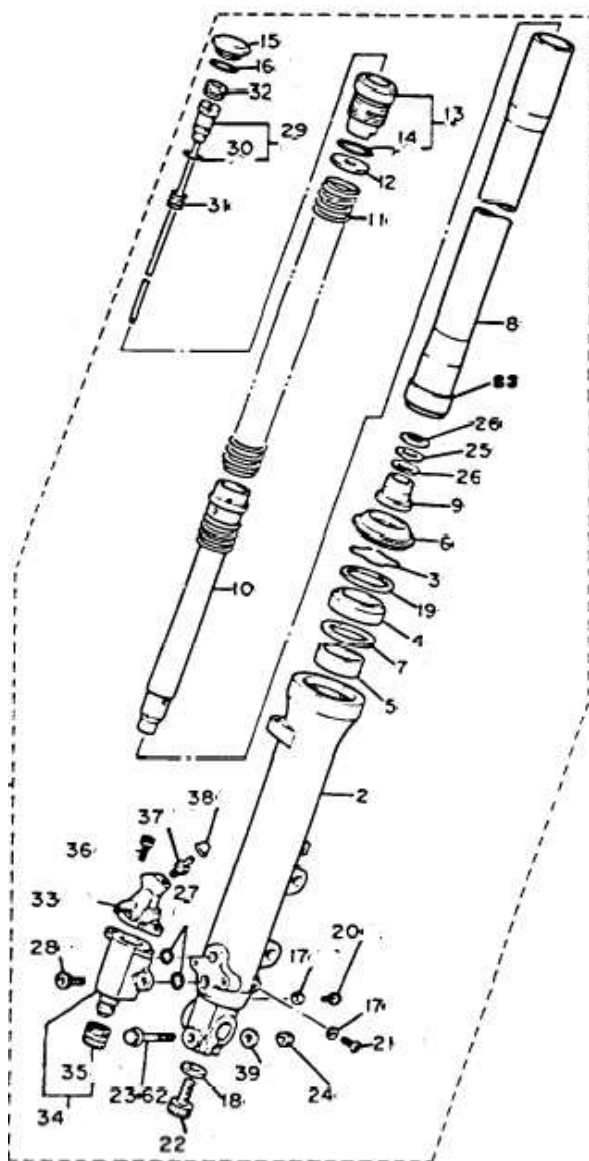
Bleed the brakes.

Install the front fender.

With the 17" front wheel, you have a better selection of radial tires. Go for the radials. You'll never go back to bias ply.

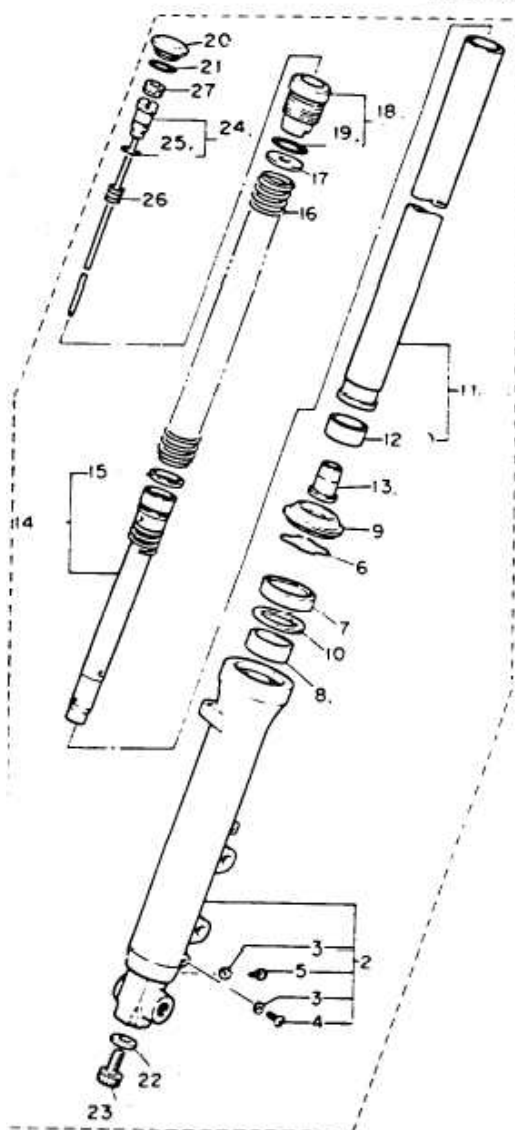
Some have installed YZF front wheels, which provide a wider rim which works better with the radial tires. Check other sources for this mod.

'87 or Older FJ Fork Assembly



Ref. No.	Part Number	Description	T	TC
1	36Y-23102-11-00	FRONT FORK ASS'Y (LH)(36Y-23102-10)	1	1
2	36Y-23126-00-00	TUBE, outer 1	1	1
3	26H-23156-00-00	CLIP, oil seal	1	1
4	36Y-23145-00-00	OIL SEAL	1	1
5	36Y-23125-10-00	METAL, slide 1 . . .	1	1
6	36Y-23144-00-00	SEAL, dust	1	1
7	36Y-23146-10-00	WASHER, oil seal . .	1	1
8	36Y-23110-00-00	INNER TUBE COMP. 1	1	1
9	36Y-23173-00-00	SPINDLE, taper . . .	1	1
10	36Y-23170-00-00	CYLINDER COMP., front fork	1	1
11	36Y-23141-10-00	SPRING, front fork . .	1	1
12	36Y-23149-00-00	WASHER, spring upper	1	1
13	36Y-2319U-00-00	CAP	1	1
14	36Y-23147-00-00	O-RING	1	1
15	36Y-2319W-00-00	CAP	1	1
16	36Y-23114-00-00	GASKET	1	1
17	122-23129-00-00	GASKET, drain plug . .	2	2
18	4V4-23158-L0-00	GASKET	1	1
19	36Y-23137-00-00	GASKET, upper cover 1	1	1
20	1TX-23181-00-00	BOLT, hexagon socket head (36Y-23181-00) . .	1	1
21	4H7-23119-00-00	PLUG, drain (122-23119-01) . . .	1	1
22	4V4-23181-L0-00	BOLT, hexagon socket head	1	1
23	36Y-23128-00-00	BOLT, axle holder	1	1
24	95601-08100-00	NUT, u	1	1
25	36Y-2319L-00-00	WASHER	1	1
26	36Y-2319M-00-00	SPRING, valve	2	2
27	22N-23147-00-00	O-RING	2	2
28	22N-23346-00-00	BOLT 1	2	2
29	36Y-2330G-00-00	ROD COMP	1	1
30	36Y-23147-10-00	O-RING	1	1
31	36Y-23152-00-00	SPRING, sub	1	1
32	36Y-23357-00-00	NUT	1	1
33	36Y-2319F-00-00	BRAKE PLUNGER ASS'Y 1	1	1
34	36Y-2319E-00-00	DAMPER PISTON ASS'Y	1	1
35	36Y-23184-00-00	CAP, air valve	1	1
36	22N-23356-00-00	BOLT 2	2	2

'88 or Newer FJ Fork Assembly



Ref. No.	Part Number	Description	W	WC	Remarks
* 1	3CV-23102-00-00	FRONT FORK ASSY (L.H)	1	1	
* 2	3CV-23126-00-00	TUBE, OUTER 1	1	1	
3	122-23129-00-00	GASKET, DRAIN PLUG	2	2	
4	4H7-23119-00-00	PLUG, DRAIN	1	1	
5	1TX-23181-00-00	BOLT, HEXAGON SOCKET HEAD	1	1	
6	26H-23156-00-00	CLIP, OIL SEAL	1	1	
7	36Y-23145-00-00	OIL SEAL	1	1	
8	36Y-23125-10-00	METAL, SLIDE 1	1	1	
9	36Y-23144-00-00	SEAL, DUST	1	1	
10	36Y-23146-10-00	WASHER, OIL SEAL	1	1	
* 11	3CV-23110-00-00	INNER TUBE COMP.1	1	1	
12	36Y-23171-00-00	PISTON, FRONT FORK	1	1	
13	36Y-23173-00-00	SPINDLE, TAPER	1	1	
* 14	3CV-23170-00-00	CYLINDER COMP. FRONT FORK...	1	1	
15	36Y-23157-00-00	RING, PISTON	1	1	
16	36Y-23141-10-00	SPRING, FRT FORK	1	1	
17	36Y-23149-00-00	WASHER, SPRING UPPER	1	1	
* 18	36Y-2319U-01-00	CAP	1	1	
19	36Y-23147-00-00	O-RING	1	1	
20	36Y-2319W-00-00	CAP	1	1	
21	36Y-23114-00-00	GASKET	1	1	
22	4V4-23158-L0-00	GASKET	1	1	
23	4V4-23181-L0-00	BOLT, HEXAGON SOCKET HEAD	1	1	
* 24	36Y-2330G-01-00	ROD COMP	1	1	
25	36Y-23147-10-00	O-RING	1	1	
26	36Y-23152-00-00	SPRING, SUB	1	1	
27	36Y-23357-00-00	NUT	1	1	

*INDICATES NEW PART NUMBERS ACTIVATED FROM 11/01/88.

David Raforth's Inexpensive FJ Fork Seal Driver_{TM}

Materials

- 1 ¼ inch PVC Coupler (Note: NOT PIPE! This is what is used to join two pieces of 1 ¼ inch PVC pipe)
- 2x4 approx. 4 inches long
- 2 inch Schedule 40 PVC Pipe approx. 2 feet long
- 2 inch PVC End Cap

Instructions

- There is a lip on the inside of the PVC coupler, grind this lip flush with the inside diameter. This ID slides perfectly over the OD of the fork tube and fits nicely on the fork seal.
- Bore a 41mm hole in the center of the 2x4. (Drill it first with a 1.5 inch hole saw, then use a drum sander to enlarge the hole until it just fits over the fork tube).
- To drive the fork seal in, slide the bushing, washer and seal onto the fork tube (which is already installed in the fork slider). Apply some oil to the outside surface of the fork seal so it will install easier. Be careful sliding the fork seal over the end of the fork tube so you don't cut the seal during installation. Next slide the PVC coupler on the fork tube, then the 2x4, then the 2 inch pipe with end cap. Take a hammer and beat on the end cap until the bushing and seal are seated.

Special Bonus – David Raforth's Fork Cap Removal Tool_{TM}

Another special tool can be made for removing the early model fork caps. You need an 18mm (thread size) bolt about 3 inches long. (This may be hard to find at your average hardware store, and may need to be special ordered. You could grind down an SAE bolt head.). Next get a deep well, 5/8 inch, 12-point socket. Take a hammer and beat the socket onto the threaded end on of the bolt. Now you have a fork cap remover that you can use with your ratchet. With an extension, this tool also fits the top of the damper rod down in the fork tube.

