

SERVICE BULLETIN



M-973

Safety Recall Code 064

November 22, 1988

Five-Speed 1340cc Model Transmission

General

Harley-Davidson has become aware of some transmission related problems occurring on certain 1340cc model motorcycles. Analysis of the components associated with these transmissions indicates that the structural integrity of the shifter fork(s) used in these transmissions may have been compromised during the vendor's manufacturing process.

Theoretically, the possibility exists that these shifter fork(s) might fracture causing the transmission to malfunction, and possibly cause the rear wheel to lock up under certain circumstances. This potential problem, however, requires an unlikely chain of events.

Harley-Davidson, Inc. has decided to declare this potential problem a "defect related to motor vehicle

CODE 064 MOTORCYCLES 1340cc MODEL MOTORCYCLES

MODEL YEAR		
1986	1987	1988
Vehicles assembled/shipped from 4/1/86 thru end of 1986 production	All vehicles assembled/shipped during 1987 production year	Vehicles assembled/shipped from start of 1988 production thru 10/31/87

safety" to allow us to formally recall late production 1986, 1987 and early production 1988 1340cc model motorcycles produced and shipped from our York Assembly Plant from April 1, 1986 through October 31, 1987.

A list is enclosed of those vehicles, registered and unregistered, shipped to your dealership. If a reconsigned vehicle was shipped to you and does not appear on the list, or a touring rider inquires about his/her vehicle, it is your responsibility to perform the required service on all potentially affected vehicles including those which may not show up on your list.

If you are not sure that a particular vehicle is involved in the 064 recall campaign or that the recall has been completed on a motorcycle, contact the H-D-I Service Department for a check of our recall records.

An initial shipment of 10% of your requirements, part number 93605, will begin on December 19, 1988. All code 064 kits will be shipped no charge, transportation paid.

Qty	Part	Description
1	34191-79C	Shifter Fork 1st/2nd
1	34193-79C	Shifter Fork 3rd/5th
1	34195-79C	Shifter Fork 4th
1	34904-86	Transmission Cover gasket
1	36801-87	Transmission side cover gasket

ROUTING:	SERVICE MANAGER	SALES MANAGER	PARTS MANAGER	LEAD TECHNICIAN	TECHNICIAN NO. 1	TECHNICIAN NO. 2	TECHNICIAN NO. 3	TECHNICIAN NO. 4	RETURN THIS TO:
INITIAL HERE									

A second shipment of 10% will be sent to you beginning on January 16, 1988. Should a crucial situation develop and additional kits are required, you may use one of the special order forms attached. We ask that you use this special order process only if absolutely necessary to allow for a fair and balanced distribution of crucial kits that may be needed throughout the entire dealer network.

A third shipment towards your total requirements will begin on approximately February 6, 1989. Once the 3rd shipment is complete, use the second special order form (attached) to order the remainder of your total 064 requirements. All kits ordered on this form will also be sent no charge, transportation paid.

Disassembly FLT Family Vehicles

1. Remove right saddlebag
2. Disconnect negative cable from battery terminal.
3. Loosen right rear and bottom exhaust shields.
4. On 1987-1988 vehicles remove transmission drain plug. Drain lubricant into clean container for later reuse.
5. Remove the two bolts attaching solenoid to primary housing. Remove crossover pipe bracket bolted to pipe.
6. Pull vent hose free of fitting at top of transmission cover.
7. Pull cap connector free of neutral switch at transmission top cover.
8. Remove the front bolt at starter reduction gear housing
9. Pull solenoid to far right behind exhaust pipe as far as wires permit.
10. On 1986 models remove bolts attaching clutch cable guide bracket to top of transmission cover. Disengage cable end from release arm..

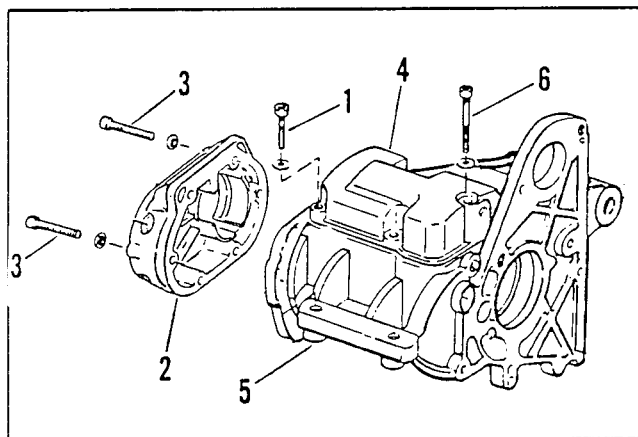


Figure 1. Transmission Assembly

11. See Figure 1. Remove bolts (1) and (6) from top cover. Move top cover clear of vehicle to the right between cylinder and exhaust pipe.

Caution

Lift pawl only enough to remove cam assembly to prevent damaging pawl spring.

12. Remove shifter cam mounting bolts and carefully remove shifter cam.
13. 1986 (all models) Remove clutch release lever by first removing nut at end of clutch release stud. Remove shifter shaft plug at side of transmission.

1987-1988 (all models) See Figure 1. Remove bolts (3) from side cover (2). Bottom two bolts will have to be removed with side cover to clear muffler. Remove side cover (2).

14. Slide shifter fork shaft out right side. Lift shifter forks up out of transmission case top opening. Inspect old shifter forks to ensure they are intact by comparing them with the new forks. If a section of the old fork(s) is missing and cannot be retrieved from the gear compartment by using a flexible four jaw pick up tool, or magnet, complete transmission disassembly will be necessary. If transmission disassembly is necessary, a properly completed warranty claim, using the appropriate job code from the Job Time /Code Manual and listing any additional parts used must be submitted along with the Dealer Service Card as outlined in the Credit procedure portion of this bulletin.

Assembly FLT Family Vehicles

1. See Figure 2. The forks differ from each other and are shown here.

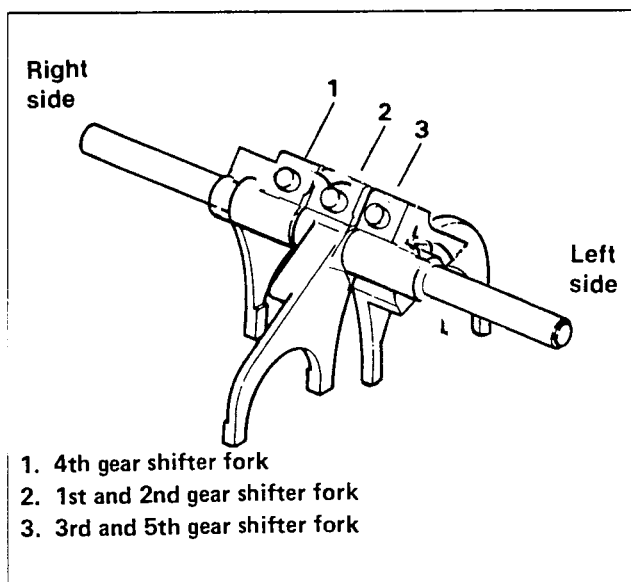


Figure 2. Shifter Fork Identification

2. See Figure 3. Insert shifter fork (1) into the slot of the mainshaft 1st gear. Insert shifter fork (2) into the slot of the countershaft 3rd gear and insert shifter fork (3) into the slot of the mainshaft 2nd gear.
3. Slide fork shaft through the transmission case hole, through the forks and into the hole in the opposite side of the case.
4. Check the sliding movement of forks and gears. All parts should move freely.

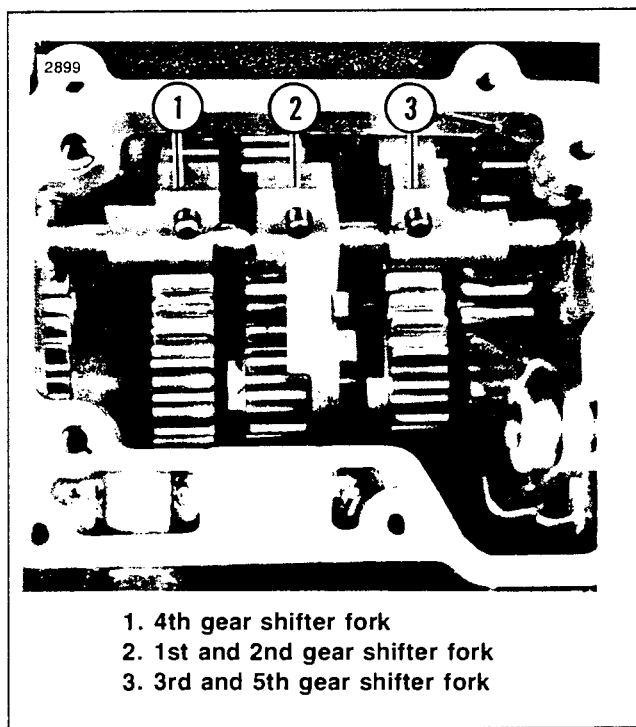


Figure 3. Transmission Forks Position

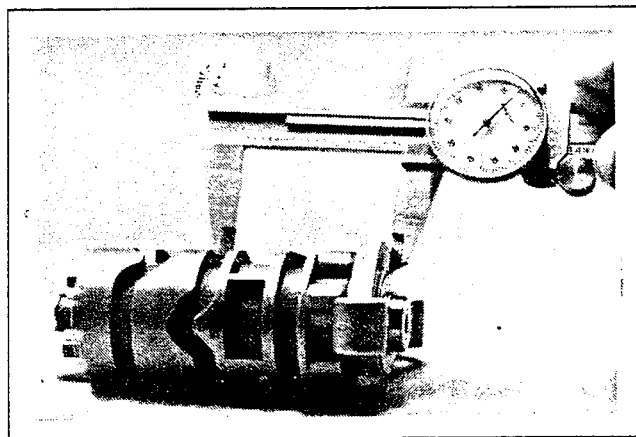


Figure 4. Measuring Shift Drum Position

NOTE

See Figure 1. On 1987-1988 models, lower mounting bolts (3) must be in place in cover before installation, to clear muffler.

5. See Figure 1. Place two lower screws (3) into mounting holes in cover (2). Place cover (2) in position against transmission case. Install and tighten all mounting bolts (3).
5. 1986 (all models) Install shifter shaft plug at side of transmission side cover. Install clutch release lever.
6. On 1987-1988 models install transmission lubricant drain plug.
7. See Figure 4. Rotate the drum to its neutral position. With the drum snug against the thrust washer of right support block measure from the outside machined surface of the exposed shoulder at the outer perimeter of the thrust washer to the nearest edge of the center groove. This measurement should be 1.992-2.002 in. Cam end play (Figure 5) should not exceed 0.009 in. If measurements are not as specified in this bulletin, consult your service manual.

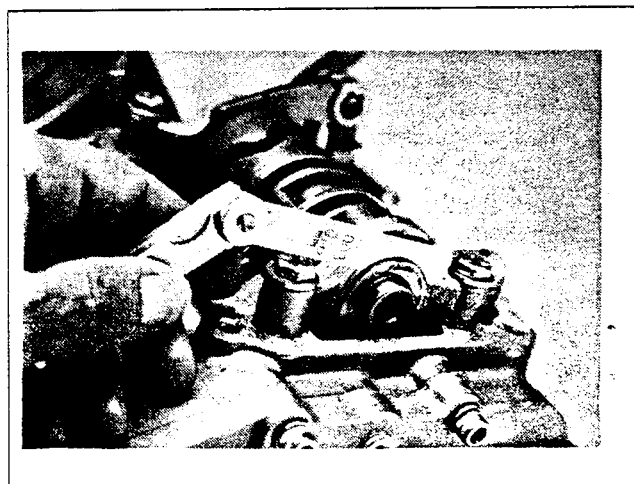


Figure 5. Checking End Play

8. Slip left support block on small end of shifter cam.

NOTE

The numbers on the left support block should face downward when shifter cam is installed on the transmission.

9. See Figure 6. Place shifter cam assembly on transmission case with shifter forks positioned in the slots. The transmission case has dowel pins which fit into the mounting holes of the right support block. Align the cam assembly by securing the right support block and tighten all bolts to 7-9 ft-lbs torque. Check the left support block to see that it is not cocked and does not bind on its bearing.

CAUTION

Do not exceed the 7-9 ft-lbs torque specification. Over torquing will distort detent plunger bore in support block and shifting difficulty will result.

NOTE

Check the gear engagement and clearance in every gear to make sure assembly and alignment is correct.

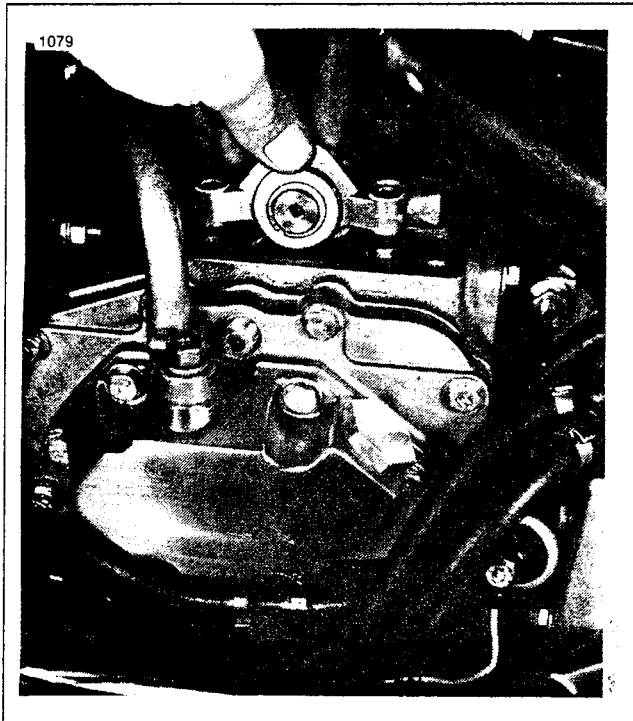


Figure 6. Shifter Cam Locating Dowel Pin

10. On 1987-1988 models fill transmission case with the previously drained lubricant through top opening in transmission case. Add any additional lubricant as necessary to bring to recommended level.
11. See Figure 2. Place top cover (4) on transmission and install mounting bolts (1).
12. Install the front bolt at starter reduction gear housing.
13. Install vent hose on fitting at transmission top cover.
14. Connect neutral wire to neutral switch at top of transmission top cover.
15. Lubricate inside lip of solenoid plunger boot. Move exhaust bracket and solenoid with spring into position and attach with mounting bolts.
16. On 1986 (all models) engage cable end with clutch release lever and install clutch cable guide bracket to transmission top cover.
17. Position and tighten exhaust shields.
18. Connect battery negative cable.
19. Install right saddlebag
20. Inspect for proper transmission and clutch function as follows: With the clutch engaged, engine off, move the vehicle forward and rearward with light foot pressure on the shift lever. Engage all five gears and neutral. The vehicle should push freely in neutral. With the transmission in any gear disengage the clutch and attempt pushing the vehicle. The vehicle should push freely indicating proper clutch disengagement.

Disassembly FXR Family Vehicles

1. Disconnect negative battery terminal.
2. 1987-1988 (all models)
Remove transmission drain plug. Drain lubricant into clean container for later reuse.

1987-1988.FXRP 1986 FXRD (Dresser Style Exhaust)

Loosen right rear and lower exhaust shield clamps.

1986 (all models)

Remove bolts attaching clutch cable guide bracket to top of transmission cover and disengage cable end from release arm.

3. Remove the two bolts attaching solenoid to inner primary housing. On models with "dresser style" exhaust remove exhaust bracket with solenoid.
4. At neutral switch, on top of transmission cover, pull cap connector, at end of neutral switch wire, free of neutral switch.
5. Pull vent hose free of fitting at top of transmission cover.
6. Remove the front bolt at starter reduction gear housing.
7. Pull solenoid to far right, behind exhaust pipe, as far as wires permit.
8. See Figure 1. Remove bolts (1) and (6) from top cover. On "dresser style" exhaust move top cover clear of vehicle to the right between cylinder and exhaust pipe. Vehicles with staggered duals remove cover from left side of vehicle

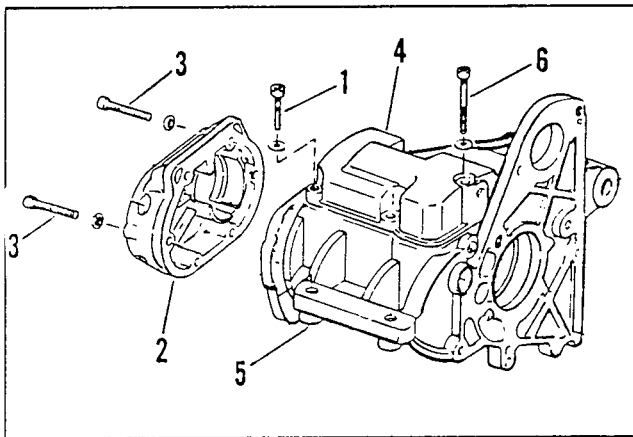


Figure 1. Transmission Assembly

CAUTION

Lift pawl carefully to remove cam so not to damage pawl spring.

9. Remove shifter cam mounting bolts and carefully remove shifter cam.

10. 1986 (all models) Remove clutch release lever by first removing nut at end of clutch release stud. Remove shifter shaft plug at side of transmission.

1987-1988 (all models) See Figure 1. Remove bolts (3) from side cover (2). Place paper or cloth around muffler to protect surface against scratches. Bottom two bolts will have to be removed with side cover to clear muffler. Remove side cover (2).

11. Slide shifter fork shaft out right side. Lift shifter forks up out of transmission case top opening. Inspect old shifter forks to ensure they are intact by comparing them with the new forks. If a section of the old fork(s) is missing and cannot be retrieved from the gear compartment by using a flexible four jaw pick up tool, or magnet, complete transmission disassembly will be necessary. If transmission disassembly is necessary, a properly completed warranty claim, using the appropriate job code from the Job Time /Code Manual and listing any additional parts used must be submitted along with the Dealer Service Card as outlined in the Credit procedure portion of this bulletin.

Assembly FXR Vehicles

1. See Figure 2. The forks differ from each other and are shown here.
2. See Figure 3. Insert shifter fork (1) into the slot of the mainshaft 1st gear. Insert shifter fork (2) into the slot of the countershaft 3rd gear and insert shifter fork (3) into the slot of the mainshaft 2nd gear.
3. Slide fork shaft through the transmission case hole, through the forks and into the hole in the opposite side of the case.
4. Check the sliding movement of forks and gears. All parts should move freely.

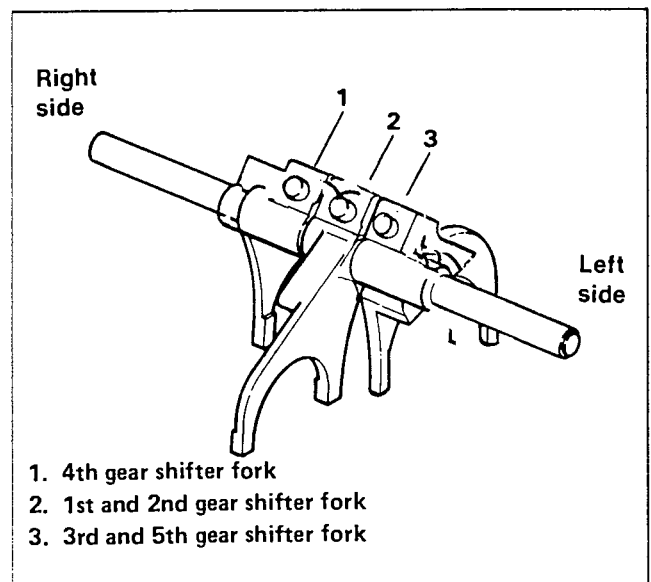


Figure 2. Shifter Fork Identification

NOTE

See Figure 1. On 1987-1988 vehicles lower mounting bolts (3) must be in place in cover before installation, to clear muffler.

5. See Figure 1. Place two lower screws (3) into mounting holes in cover (2). Place cover (2) in position against transmission case. Install and tighten all mounting bolts (3).

1986 (all models) Install shifter shaft plug at side of transmission side cover. Install clutch release lever.

6. On 1987-1988 vehicles install transmission lubricant drain plug..

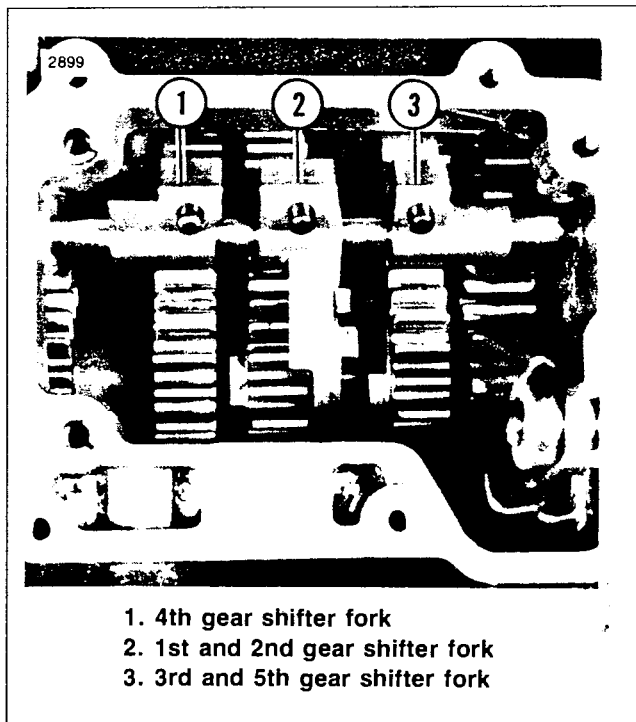


Figure 3. Transmission Forks Position

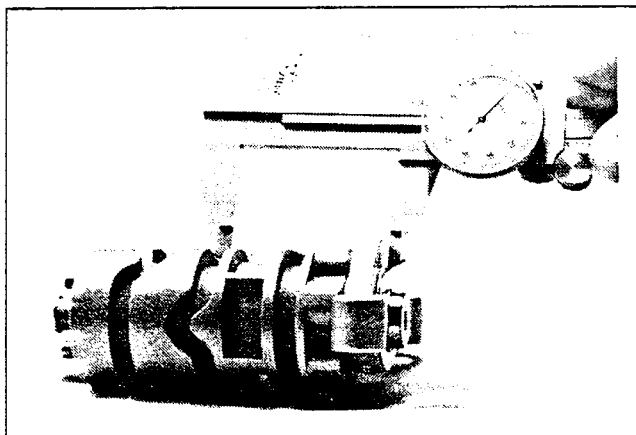


Figure 4. Measuring Shift Drum Position

7. See Figure 4. Rotate the drum to its neutral position. With the drum snug against the thrust washer of right support block measure from the outside machined surface of the exposed shoulder at the outer perimeter of the thrust washer to the nearest edge of the center groove. This measurement should be 1.992-2.002 in. Cam end play Figure 5 should not exceed 0.009 in. If measurements are not as specified in this bulletin, consult your service manual.

8. Slip left support block on small end of shifter cam.

NOTE

The numbers on the left support block should face downward when shifter cam is installed on the transmission.

9. See Figure 6. Place shifter cam assembly on transmission case with shifter forks positioned in the slots. The transmission case has dowel pins which fit into the mounting holes of the right support block. Align the cam assembly by securing the right support block and tighten all bolts to 7-9 ft-lbs torque. Check the left support block to see that it is not cocked and does not bind on its bearing.

CAUTION

Do not exceed the 7-9 ft-lbs torque specification. Over torquing will distort detent plunger bore in support block and shifting difficulty will result.

NOTE

Check the gear engagement and clearance in every gear to make sure assembly and alignment is correct.

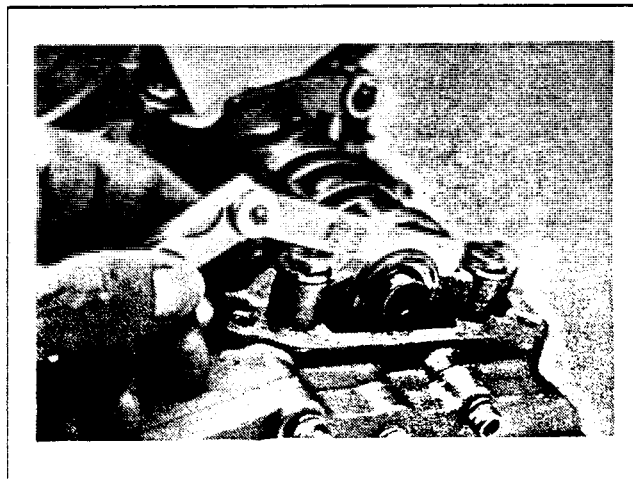


Figure 5. Checking End Play

10. On 1987-1988 models fill transmission case with the previously drained lubricant through top opening in transmission case. Add any additional lubricant as necessary to bring to recommended level.

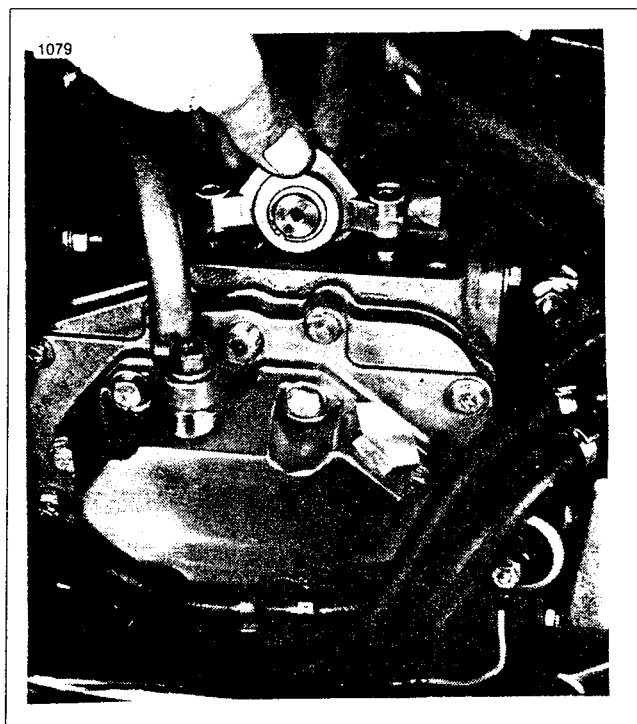


Figure 6. Shifter Cam Locating Dowel Pin

11. See Figure 2. Place top cover (4) on transmission and install mounting bolts.
12. Install the front bolt at starter reduction gear housing.
13. Lubricate inside lip of solenoid plunger boot. Move solenoid with spring into position and attach with two mounting bolts. On models with dresser style exhaust install exhaust bracket with solenoid
14. On 1986 models slide cable end into slot in release lever and attach clutch cable guide bracket to transmission top cover.
15. Connect battery negative cable.
16. Inspect for proper transmission and clutch function as follows: With the clutch engaged, engine off, move the vehicle forward and rearward with light foot pressure on the shift lever. Engage all five gears and neutral. The vehicle should push freely in neutral. With the transmission in any gear, disengage the clutch and attempt pushing the vehicle. The vehicle should push freely indicating proper clutch disengagement.

Disassembly FX Family Vehicles

1. Remove vehicle seat
2. Disconnect battery terminals, unhook rubber hold down strap and remove battery.
3. On 1987-1988 models drain transmission oil and save.
4. Disconnect solenoid cable at starter motor terminal.
5. See Figure 1. Remove cross over pipe shield (1).
6. Loosen crossover pipe clamp bolt (2).
7. Remove muffler support bolts (3), two bolts at front muffler and two bolts at rear muffler.
8. Loosen front exhaust pipe clamp stud nuts (4) at cylinder head.
9. Remove rear exhaust pipe clamp stud nuts at cylinder head. Remove rear exhaust pipe (5) as an assembly.
10. See Figure 2. At transmission top cover remove two right side and center front mounting screws (1).
11. Remove the front bolt at starter reduction gear housing.

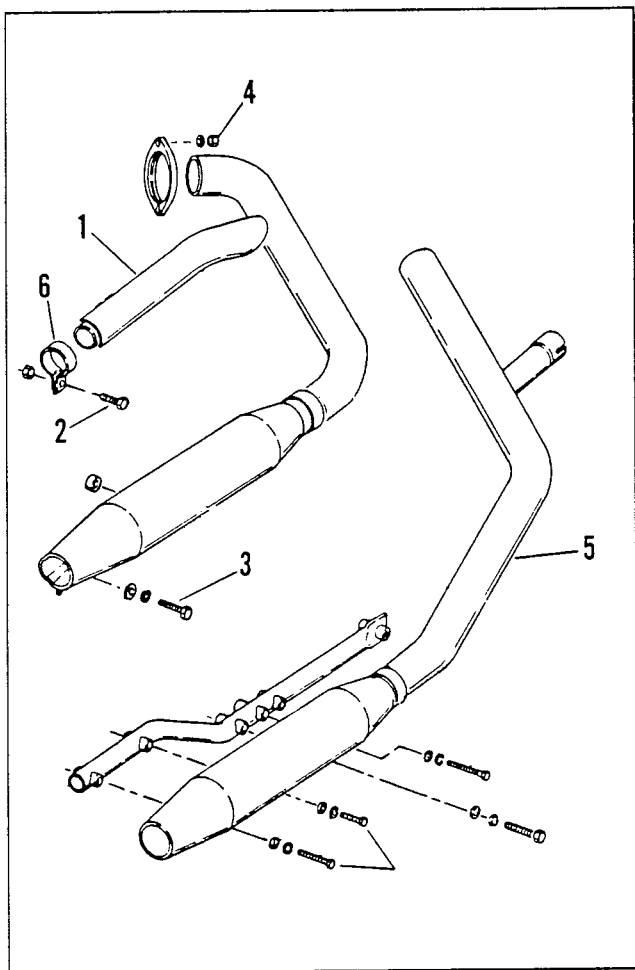


Figure 1. Exhaust System Assembly

12. Pinch oil tank drain hose and disconnect from post at frame. Plug oil tank drain hose using 1/2 in. bolt. Do not drain engine oil.
13. See Figure 3. Remove two bolts (1) attaching oil tank rear mounting bracket (5) to frame.

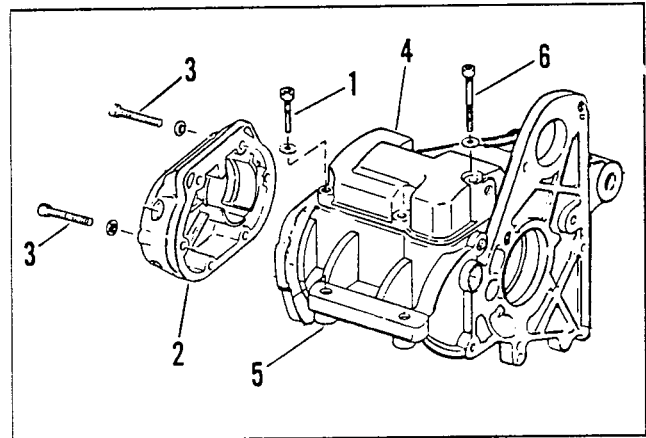


Figure 2. Transmission Assembly

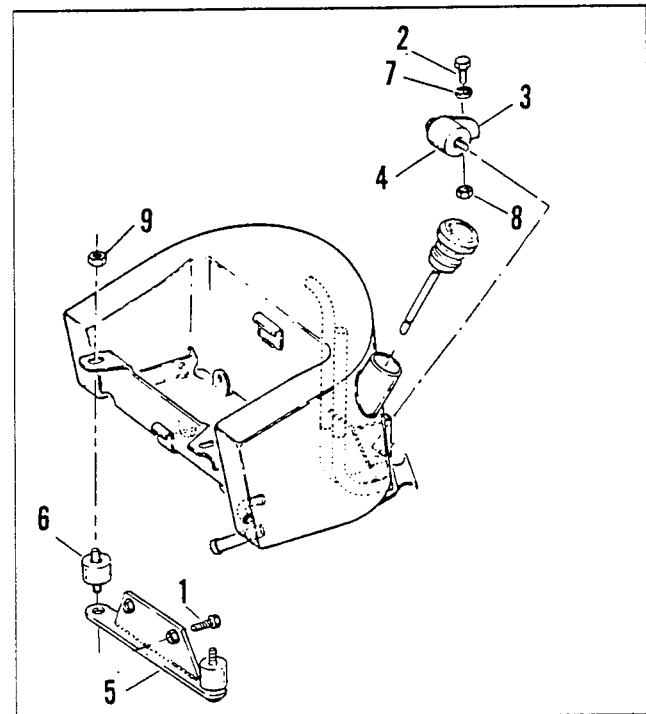


Figure 3. Oil Tank Assembly

14. Remove left front oil tank mounting nut.
15. Remove right front oil tank mounting bracket bolt (2), mounting bracket (3), and rubber mount (4) as an assembly.
16. Lower tank as far as space permits. Remove oil tank rear mounting bracket (5) with rubber mounts (6) by removing nuts (9).
17. Remove chrome starter end cover to prevent scratching surface.

18. At ignition coil disconnect (module wires) female spade connector at top terminal and ring connector at bottom terminal.
19. At starter solenoid disconnect battery and circuit breaker cables at top (large diameter copper) terminal and starter relay cable at small diameter terminal.
20. On 1987-1988 models remove cable straps securing wires to top left frame tube.
21. See Figure 2. on 1987-1988 models remove right side transmission cover bolts (3) and cover (2). Leave clutch cable attached and lay on muffler protected by cloth or cardboard. On 1986 models remove clutch release lever and shifter shaft plug.
22. Slide oil tank to right side as far as hoses and wires permit. At transmission top cover, remove remaining mounting screws and top cover.

CAUTION

Lift pawl only enough to allow removal without stretching spring.

23. Remove shifter cam mounting bolts and carefully remove shifter cam.
24. Slide shifter fork shaft out opening at right side. Lift shifter forks up out of transmission case top opening. Inspect old shifter forks to ensure they are intact by comparing them with the new forks. If a section of the old fork(s) is missing and cannot be retrieved from the gear compartment by using a flexible four jaw pick up tool, or magnet, complete transmission disassembly will be necessary. If transmission disassembly is necessary, a properly completed warranty claim, using the appropriate job

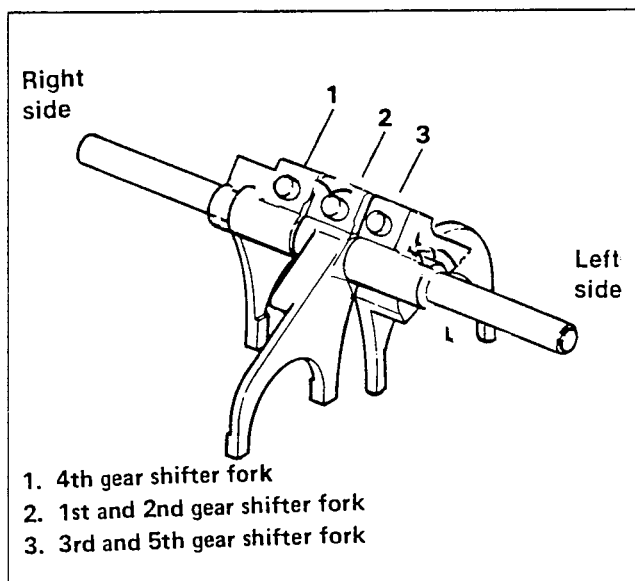


Figure 4. Shifter Fork Identification

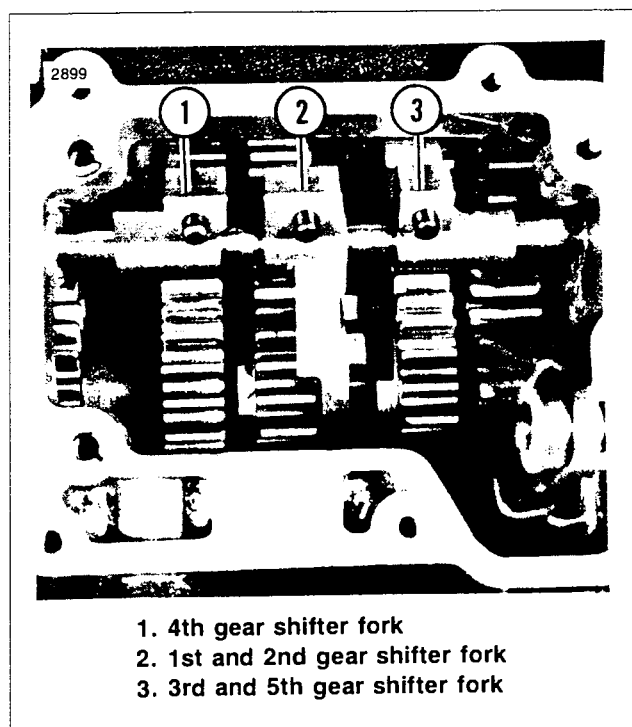


Figure 5. Transmission Forks Position

code from the Job Time /Code Manual and listing any additional parts used must be submitted along with the Dealer Service Card as outlined in the Credit procedure portion of this bulletin.

Assembly FX Family Vehicles

1. See Figure 4. The forks differ from each other and are shown here.
2. See Figure 5. Insert shifter fork (1) into the slot of the mainshaft 1st gear Insert shifter fork (2) into the slot of the countershaft 3rd gear and insert shifter fork (3) into the slot of the mainshaft 2nd gear.
3. Slide fork shaft through the transmission case hole, through the forks and into the hole in the opposite side of the case.
4. Check the sliding movement of forks and gears. All parts should move freely.

NOTE

See Figure 2. On 1987-1988 models lower mounting bolts (3) must be in place in cover before installation, to clear muffler.

5. See Figure 2. On 1987-1988 models place two lower screws (3) into mounting holes in cover (2). Place cover (2) in position against transmission case. Install and tighten all mounting bolts (3).
6. On 1987-1988 models install transmission lubricant drain plug.

7. See Figure 6. Rotate the drum to its neutral position. With the drum snug against the thrust washer of right support block measure from the outside machined surface of the exposed shoulder at the outer perimeter of the thrust washer to the nearest edge of the center groove. This measurement should be 1.992-2.002 in. Cam end play Figure 7, should not exceed 0.009 in. If measurements are not as specified in this bulletin consult your service manual.
8. Slip left support block on small end of shifter cam.

NOTE

The numbers on the left support blocks should face downward when shifter cam is installed on the transmission.

9. See Figure 8. Place shifter cam assembly on transmission case with shifter forks positioned in the slots. The transmission case has dowel pins which fit into the mounting holes of the right support block. Align the cam assembly by securing the right support block and tighten all bolts to 7-9 ft-lbs torque. Check the left support block to see that it is not cocked and does not bind on its bearing.

CAUTION

Do not exceed the 7-9 ft-lbs torque specification. Over torquing will distort detent plunger bore in support block and shifting difficulty will result.

NOTE

Check the gear engagement and clearance in every gear to make sure assembly and alignment is correct.

10. On 1987-1988 models fill transmission case, with the previously drained lubricant, through top opening in transmission case. Add any additional lubricant as necessary to bring to recommended level.
11. See Figure 2. Place top cover (4) on transmission and loosely install mounting bolts (1). Position oil tank to far right and tighten two left bolts (1) in top cover to 7-9 ft-lbs torque.

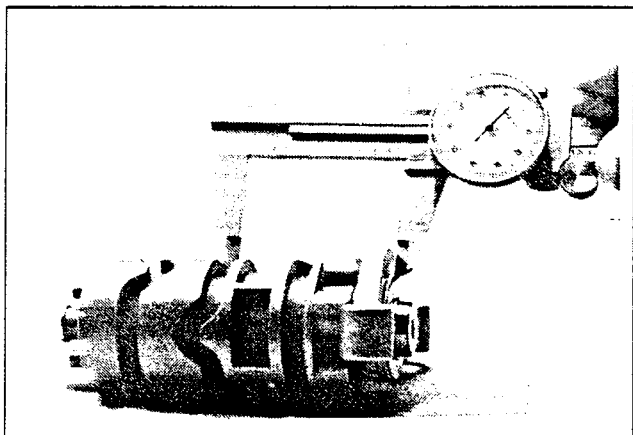


Figure 6. Measuring Shift Drum Position

12. Install the front bolt at starter reduction gear housing.
13. Move oil tank with wiring harnesses into mounting position.
14. See figure 3. Install oil tank rear mounting bracket (5) with rubber mounts (6).
15. Install left front oil tank mounting nut.
16. See Figure 3. Install right front oil tank bracket (3) and rubber mount (4) with threaded end through oil tank mounting bracket. Install bolt (2), washer (7), Nut (8) and nut (9).

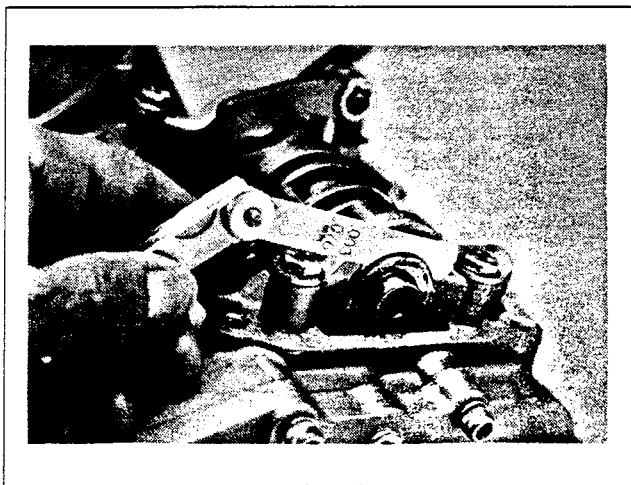


Figure 7. Checking End Play

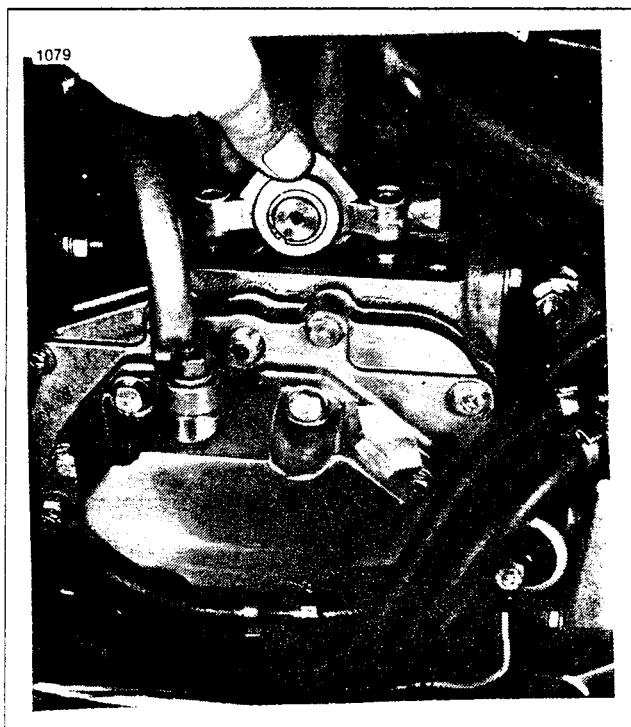


Figure 8. Shifter Cam Locating Dowel Pin

17. Secure rear oil tank bracket (5) to frame with bolts (1).
18. See Figure 2. Tighten remaining bolts (1) in transmission top cover (4).
19. On 1986 models install fork shifter shaft plug. Engage clutch cable end into clutch release lever and install lever.
20. Connect solenoid cable to starter motor terminal.
21. Remove 1/2 in. bolt from drain hose and push oil tank drain hose over post on frame. Slide hose clamp over end of hose on post.
22. See Figure (1). Position rear exhaust pipe (5) in place with clamp over studs in cylinder head and female end of cross over pipe joined to male end at front exhaust pipe. Install clamp stud nuts on cylinder studs and tighten to 5-6 ft-lbs torque. Install cross over clamp (6). Tighten rear muffler support bolts (3).
23. Tighten front exhaust pipe clamp stud nuts (4) at cylinder head to 5-6 ft-lbs torque. Tighten clamps at crossover shield (1). Tighten front muffler support bolts (3).
24. Install chrome starter cover.
25. At ignition coil connect (module wires) Female spade connector at top terminal and ring connector at bottom terminal.
26. At starter solenoid connect battery and circuit breaker cables to top (large diameter copper) terminal and starter relay cable at small diameter terminal.
27. Install battery.
28. Install seat
29. Inspect for proper transmission and clutch function as follows: With the clutch engaged, engine off, move the vehicle forward and rearward with light foot pressure on the shift lever. Engage all five gears and neutral. The vehicle should push freely in neutral. With the transmission in any gear disengage the clutch and attempt pushing the vehicle. The vehicle should push freely indicating proper clutch disengagement.

Credit Procedure

After servicing each motorcycle, be sure to completely fill out the Warranty Claim Form. For each vehicle serviced fill in your Dealer Account Number, the Service Code (064), the vehicle identification Number (VIN) and your dealership name and address with the owner information.

For vehicles equipped with a sidecar as original equipment submit an additional 0.4 hrs. to remove and replace the sidecar body.

Upon receipt of the Warranty Claim Form you will be credited for labor as indicated on the following model chart. These labor times include an additional 0.1hr. for dealer administrative time. Credit will not be issued for parts as they were shipped no charge, transportation paid. If duty has been paid on incoming shipment, submit custom invoice for the 064 parts only with warranty claim for credit.

The time allowed in this bulletin to replace shifter forks differs from the time allowed in the Job Time/Code Manual. It differs because this task is very specific and a step by step defined procedure is provided. This eliminates unnecessary disassembly of components and special measurements. Following the steps provided in this bulletin will allow repairs to be performed efficiently and in the time specified.

Model	Labor Hours
FXR	0.9
FXRP, FXRD	1.0
FLT	1.0
FLST/C, FXST/C	1.6