



Warning: Do not lengthen the rod to the extent that it is in danger of becoming detached from the master cylinder piston.

30 Pushrod freeplay is preset on these models.

1985 and later FLST/C/F/N and FXDWG Dyna

Note: The rear brake pedal position is non-adjustable. On models through early 1987, adjust the stop bolt until there's 1/16-inch of freeplay between the stop bolt and brake pedal. On late 1987 and later models, DO NOT MAKE ANY ADJUSTMENTS! The freeplay is built into the master cylinder assembly.

17 Rear brake disc - removal and installation



- 1 Remove the rear wheel as described in Section 11.
- 2 The brake disc is attached to the rear hub with five bolts. Remove the bolts and detach the brake disc from the hub.
- 3 Before installing the disc, be sure the threads on the bolts and in the hub are clean and undamaged. Use thread locking compound on the bolts and tighten them in small increments, in a criss-cross pattern, until the specified torque is reached.

18 Tubeless tires - general information

- 1 Tubeless tires are generally safer than tube-type tires but if problems do occur they require special repair techniques.
- 2 The force required to break the seal between the rim and the bead of the tire is substantial, and is usually beyond the capabilities of an individual working with normal tire irons.
- 3 Also, repair of the punctured tire and replacement on the wheel rim requires special tools, skills and experience that the average do-it-yourselfer lacks.
- 4 For these reasons, if a puncture or flat occurs with a tubeless tire, the wheel should be removed from the motorcycle and taken to a dealer service department or a motorcycle repair shop for repair or replacement of the tire.

19 Tube tires - removal and installation



- 1 To properly remove and install tires, you will need at least two motorcycle tire irons, some water and a tire pressure gauge.
- 2 Begin by removing the wheel from the

motorcycle. If the tire is going to be re-used, mark it next to the valve stem, wheel balance weight or rim lock.

3 Deflate the tire by removing the valve stem core. When it is fully deflated, push the bead of the tire away from the rim on both sides. In some extreme cases, this can only be accomplished with a bead breaking tool, but most often it can be carried out with tire irons. Riding on a deflated tire to break the bead is not recommended, as damage to the rim and tire will occur.

4 Dismounting a tire is easier when the tire is warm, so an indoor tire change is recommended in cold climates. The rubber gets very stiff and is difficult to manipulate when cold.

5 Place the wheel on a thick pad or old blanket. This will help keep the wheel and tire from slipping around.

6 Once the bead is completely free of the rim, lubricate the inside edge of the rim and the tire bead with soap and water or rubber lubricant (do not use any type of petroleum-based lubricant, as it will cause the tire to deteriorate). Remove the locknut and push the tire valve through the rim.

7 Insert one of the tire irons under the bead of the tire at the valve stem and lift the bead up over the rim. This should be fairly easy. Take care not to pinch the tube as this is done. If it is difficult to pry the bead up, make sure that the rest of the bead opposite the valve stem is in the dropped center section of the rim.

8 Hold the tire iron down with the bead over the rim, then move about 1 or 2 inches to either side and insert the second tire iron. Be careful not to cut or slice the bead or the tire may split when inflated. Also, take care not to catch or pinch the inner tube as the second tire iron is levered over. For this reason, tire irons are recommended over screwdrivers or other implements.

9 With a small section of the bead up over the rim, one of the levers can be removed and reinserted 1 or 2 inches farther around the rim until about 1/4 of the tire bead is above the rim edge. Make sure that the rest of the bead is in the dropped center of the rim. At this point, the bead can usually be pulled up over the rim by hand.

10 Once all of the first bead is over the rim, the inner tube can be withdrawn from the tire and rim. Push in on the valve stem, lift up on the tire next to the stem, reach inside the tire and carefully pull out the tube. It is usually not necessary to completely remove the tire from the rim to repair the inner tube. It is sometimes recommended though, because checking for foreign objects in the tire is difficult while it is still mounted on the rim.

11 To remove the tire completely, make sure the bead is broken all the way around on the remaining edge, then stand the tire and wheel up on the tread and grab the wheel with one hand. Push the tire down over the same edge of the rim while pulling the rim away from the tire. If the bead is cor-

rectly positioned in the dropped center of the rim, the tire should roll off and separate from the rim very easily. If tire irons are used to work this last bead over the rim, the outer edge of the rim may be marred. If a tire iron is necessary, be sure to pad the rim as described earlier.

12 Refer to Section 20 for inner tube repair procedures.

13 Mounting a tire is basically the reverse of removal. Some tires have a balance mark and/or directional arrows molded into the tire sidewall. Look for these marks so that the tire can be installed properly. The dot should be aligned with the valve stem.

14 If the tire was not removed completely to repair or replace the inner tube, the tube should be inflated just enough to make it round. Sprinkle it with talcum powder, which acts as a dry lubricant, then carefully lift up the tire edge and install the tube with the valve stem next to the hole in the rim. Once the tube is in place, push the valve stem through the rim and start the locknut on the stem.

15 Lubricate the tire bead, then push it over the rim edge and into the dropped center section opposite the inner tube valve stem. Work around each side of the rim, carefully pushing the bead over the rim. The last section may have to be levered on with tire irons. If so, take care not to pinch the inner tube as this is done.

16 Once the bead is over the rim edge, check to see that the inner tube valve stem is pointing to the center of the hub. If it's angled slightly in either direction, rotate the tire on the rim to straighten it out. Run the locknut the rest of the way onto the stem but don't tighten it completely.

17 Inflate the tube to approximately 1-1/2 times the pressure listed in the Chapter 1 Specifications and check to make sure the guidelines on the tire sidewalls are the same distance from the rim around the circumference of the tire.



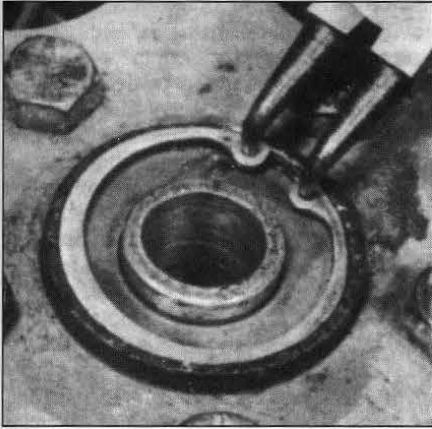
Warning: Do not over inflate the tube or the tire may burst, causing serious injury.

18 After the tire bead is correctly seated on the rim, allow the tire to deflate. Replace the valve core and inflate the tube to the recommended pressure, then tighten the valve stem locknut securely and tighten the cap.

20 Tubes - repair



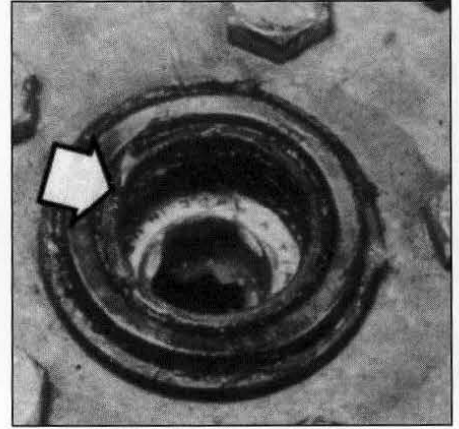
1 Tire tube repair requires a patching kit that's usually available from motorcycle dealers, accessory stores or auto parts stores. Be sure to follow the directions supplied with the kit to ensure a safe repair. Patching should be done only when a new tube is unavailable. Replace the tube as soon as possible. Sudden deflation can



21.22 Remove the snap-ring securing the bearing to the hub . . .



21.23 . . . then lift out the washer



21.24 The oil seal (arrow) can now be pried out of the hub

cause loss of control and an accident.

2 To repair a tube, remove it from the tire, inflate and immerse it in a sink or tub full of water to pinpoint the leak. Mark the position of the leak, then deflate the tube. Dry it off and thoroughly clean the area around the puncture.

3 Most tire patching kits have a buffer to rough up the area around the hole for proper adhesion of the patch. Roughen an area slightly larger than the patch, then apply a thin coat of the patching cement to the roughened area. Allow the cement to dry until tacky, then apply the patch.

4 It may be necessary to remove a protective covering from the top surface of the patch after it has been attached to the tube. Keep in mind that tubes made from synthetic rubber may require a special patch and adhesive if a satisfactory bond is to be achieved.

5 Before replacing the tube, check the inside of the tire to make sure the object that caused the puncture is not still inside. Also check the outside of the tire, particularly the tread area, to make sure nothing is projecting through the tire that may cause another puncture. Check the rim for sharp edges or damage. Make sure the rubber trim band is in good condition and properly installed before inserting the tube.

21 Wheel bearings - inspection and maintenance



Note: The following procedures are based on the assumption the wheel has been removed from the motorcycle. Because of detail changes made from model year-to-model year, the procedures and illustrations included here may not match the motorcycle you're working on exactly. To avoid possible problems, lay the parts out in the correct order and orientation as they're removed from the hub or make a simple sketch of the parts detailing how they fit in the hub.

Pre-1973 models (16-inch wheel)

1 Pre-1973 front and rear wheels are equipped with permanently sealed and lubricated bearings. The bearings on these models don't require attention at any set intervals.

2 To remove the bearings, the brake drum or brake disc flange must first be removed from the wheel hub.

3 Slide the bearing spacer out of the hub.

4 Using a piece of pipe as a drift, press the bearing components out of the brake drum from the hub side.

5 Remove the bearing locknut retainer from the hub on late 1970 through 1972 models.

6 Unscrew the ball bearing locknut from the hub. The locknut has a slotted head and should be removed with a special tool. It also has left-hand threads, requiring the nut to be turned *clockwise* to loosen it.

7 Carefully pry the seal out of the hub with screwdrivers and lift out the spacer.

8 The remaining bearing can now be pressed out of the drum side of the hub.

9 Inspect the bearings for wear and damage. Turn each bearing by hand to see if there's any roughness or excessive looseness between the inner and outer races. Check the lip of the seal for wear and damage.

10 Replace any defective parts with new ones.

11 Assemble the bearings and related components in the hub in the reverse order of disassembly. Fill the space on both sides of the bearing on the wheel side and the inside of the bearing on the drum side with multi-purpose grease.

12 Tighten the bearing locknut securely by striking the handle of the special tool with a hammer. When the nut is tight, stake the threads with a center punch to prevent it from loosening. On later models with a locknut retainer, simply drive the retainer into the slotted head with a chisel to hold the locknut in position.

Pre-1973 models (19-inch wheel)

13 Carefully pry the seal out of the hub with a screwdriver.

14 Remove the snap-ring from the other side of the hub using snap-ring pliers.

15 Tap the ball bearing, on the grease seal side of the hub, in until it's against the seat in the hub. This will cause the bearing on the other side of the hub to be driven out enough so the spacer between the two bearings can be moved away from the bearing on the snap-ring side.

16 Insert a drift punch through the hub from the grease seal side and drive out the bearing on the snap-ring side of the hub.

17 Remove the spacer from the center of the hub and drive the remaining bearing out of the hub.

18 Clean the bearings and related components and inspect them for wear and damage. If any of the bearings are pitted, chipped or scored, they should be replaced with new ones. Pack the bearings with fresh multi-purpose grease.

19 Position the bearing on the snap-ring side in the hub with the shielded side facing out. Press the bearing in until it's against the shoulder in the hub.

20 Secure the bearing with the snap-ring. Be sure the flat side of the snap-ring is facing the bearing.

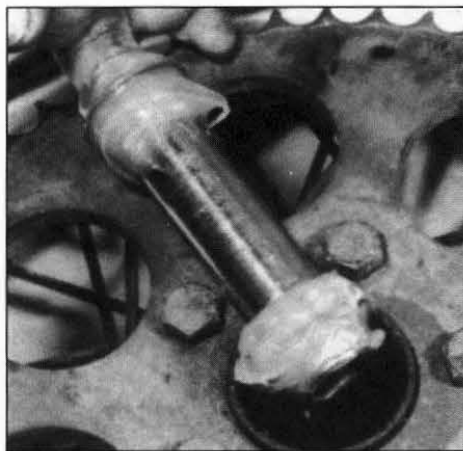
21 Insert the spacer into the center of the hub and press the other bearing into the hub. When the bearing is seated against the shoulder of the hub, tap a new grease seal into position. The lip of the seal should be lubricated with grease or oil before installation.

1973 through 1978 models (16 inch wheel)

22 Remove the snap-rings from both sides of the hub with snap-ring pliers (**see illustration**).

23 Lift the washers out of the hub (**see illustration**).

24 Using a screwdriver, carefully pry the seals out of the hub (**see illustration**).



21.30 Coat the ends of the center bearing spacer with grease before installing it in the hub



21.31 Pack the bearings with grease before placing them in the hub

25 Remove the spacers - note how they're installed in the hub. This will help during reassembly.

26 Remove the bearings and clean all of the components. Don't mix the parts up. Bearings and spacers must be reinstalled in the same location they're removed from.

27 The bearing outer races (bearing cups) in the hub don't have to be removed unless the bearings must be replaced with new ones. A standard bearing puller must be used to remove the races. If this tool isn't available, most motorcycle repair shops can remove the races and install the new ones. It's also possible to drive the races out of the hub with a drift punch and hammer. Working from the back side of the race, carefully tap it out of position. Be sure to move the punch around the race to drive it out straight.

28 Inspect the bearings for defects. Look for chips, pits and flat spots. Check the bearing races also. If any damage is visible, the bearing and race must be replaced as a matched set.

29 Pack the bearings with multi-purpose grease and coat the seal lips with oil or grease.

30 If new races are being installed, place them in position, then press them in until they're seated in the hub. A large socket of the correct size and a hammer can be used to drive the race into position. Apply grease to the bearing spacer and slide it into the hub (see illustration).

31 Insert the bearing, packed with grease, into the hub (see illustration).

32 Install the spacers in the hub (make sure they're facing the correct direction).

33 Press the seal into the hub until it's 1/4 to 3/16-inch below the outside edge of the hub. Set a washer in each side of the hub and secure them with the snap-rings.

1979 through 1983 models (19 inch wheel) except FLT, FXR and FXWG models

34 Carefully pry the seals out of the hub with a screwdriver.

35 Remove the spacer from the hub. Pay attention to the side of the hub the spacer is removed from and the direction it's facing when installed.

36 Lift the bearings out of the hub. Don't allow the bearings to get mixed up. They must be installed in the same location they were removed from. Remove the spacer from the center of the hub.

37 Refer to Steps 27 through 31 for bearing inspection and replacement procedures. Be sure to insert the spacer into the center of the hub.

38 Install the spacer in the hub, followed by the seals. Lubricate the seal lips before installation. The seals should be pressed flush with the outer surface of the hub.

1978 through 1983 models (21-inch wheel and all rear hubs) except FLT and FXR models

39 Remove the snap-rings from both sides of the hub with snap-ring pliers.

40 Lift out the washers and spacers. Note which way the spacers are installed in the hub.

41 Pry the seals out of the hub and lift out the bearings and the inner spacer.

42 Refer to Steps 27 through 31 for bearing inspection and replacement procedures. Be sure to install the spacer in the center of the hub.

43 Lubricate the lips of the seals and tap them into position, 3/64 to 7/32-inch below the edge of the hub.

44 Install the spacers and washers and secure them with the snap-rings.

1980 and 1981 FLT (front hub)

45 Remove the screws securing the discs to the front hub.

46 Detach the disc and bearing assembly from the right side of the hub, followed by the spacer from the center of the hub.

47 Pry the seal out of the left side of the hub, then slide the bearing inner race out of

the hub.

48 Special tool no. HD-95760-69 must be used to pull the bearing from the hub.

49 Clean the bearings and associated components and inspect them for wear and damage. If any component is defective, it must be replaced with a new one. If a new bearing must be pressed into the hub, be sure to press only on the side of the bearing the numbers or letters are stamped on. Special tool no. HD-94440-81 must be used to install both the bearing and the seal.

50 Insert the inner race and the center spacer. Use moderate pressure to install the spacer. This will drive the inner race slightly out of the hub and seal. Be sure to install the spacer with the flat edge against the inner bearing race.

51 Place the right side bearing assembly on the hub, aligning the bolt holes. Set the right disc on top of the bearing assembly and secure it to the hub with the longer set of mounting screws. Coat the threads of the mounting screws with thread locking compound before installation and tighten them to the specified torque (see Chapter 6).

1982 and later FLT (front hub)

52 On 1982 models, remove the snap-rings from both sides of the hub with snapping pliers, then lift the washers out of each side.

53 Pay attention to the order the following parts are installed in the hub while you remove them. Keep the components from the left side separate from the components from the right side of the hub.

54 Remove the spacers from both sides and pry the seals out of the hub. Lift the bearings out of position.

55 Remove the spacer washer and spacer from the left side of the hub and the large spacer and sleeve from the right side of the hub.

56 Refer to Steps 27 through 31 for bearing inspection and replacement procedures.

57 Install the large spacer, sleeve, spacer washer and small spacer in the center of the hub.

58 Insert the bearings into position and press a new seal into each side of the hub. The lip of each seal should be lubricated with grease or oil before installation. Press the seal in 13/64 to 7/32-inch below the edge of the hub.

59 Install the spacers in the hub.

60 On 1982 models, place a washer in position on each side of the hub and secure the assembly with the two snap-rings.

1980 and later FXR (front hub)

61 Pry the seals out of both sides of the hub and remove the spacer from the left side of the hub.

62 Lift the bearings out of the hub, then slide the center spacer out. On later models there will be a spacer washer and thin spacer behind the right side bearing (shoulder on spacer washer should face the bearing).