



Bulletin #: IMCTB-011

Author: Richard Waters

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Affected Models: Chief 2002/03

Technical Bulletin

Front End Noise

Important

Read this service bulletin carefully and thoroughly before commencing work. If you do not understand the instructions or have questions, see your supervisor immediately. If you are unsure of any of the procedures, please contact your Indian Field Service Manager (FSM).

Diagnosis

"Front end knock" or "clunk" occurs during sharp acceleration and braking. The cause can be due to excessive clearance between the stem adjuster nut and the upper fork bracket; due either to a loose adjuster nut which must be tightened, or a worn adjuster nut which must be replaced. It is important to establish the origin of the noise prior to diagnosing "front end knock".

"Front end knock" should not be confused with the "click" associated with the front brake pads rocking back and forth within the brake caliper.

Brake Click Test

A test for brake "click" is to apply the front brake and rock the bike back and forth. Listen for a "click" at the front caliper. A "click" occurs when the brake pads shift within the caliper; this clicking is normal. If a "knock" or "clunk" occurs, proceed to the next test.

Fall Away Test

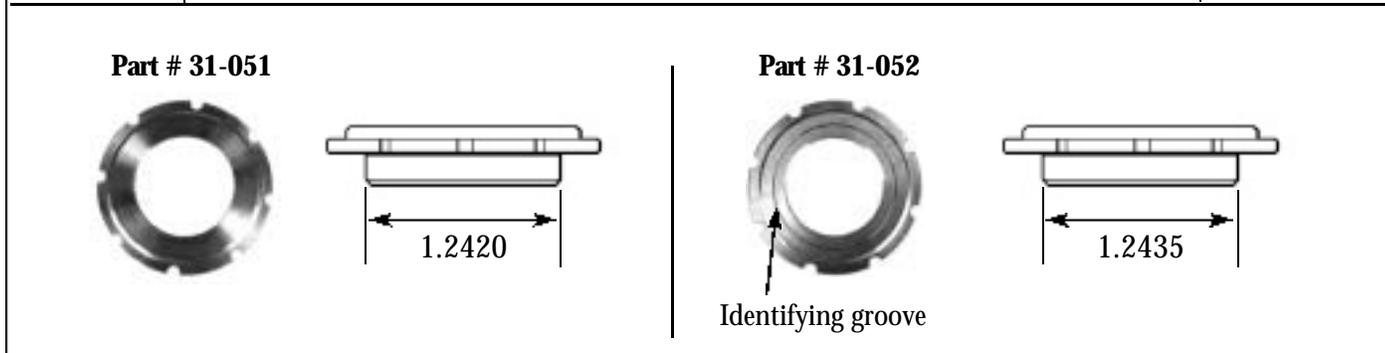
To discover if the "knock/clunk" is a loose stem adjuster nut. Carry out a steering fall away test. Follow instructions 1-13 to make the adjustment. If tightening the stem adjuster nut fails to resolve the "knock/clunk", proceed to the 3rd test.

Adjuster Nut Test

With the front wheel raised off the ground, stand in front of the motorcycle and grasp the front forks at the axle. Push and pull the forks back and forth. Any looseness may indicate improper fitment between the adjuster nut and the upper fork bracket. Fitment of a new adjuster nut with a larger shoulder will reduce or eliminate the "knock/clunk". Follow instructions 14-56 to replace the stem adjuster nut.

Service Kit

Part #	Part Description	Qty
31-051	Adjuster Nut (1.242" diameter)	1
31-052	Adjuster Nut (1.243" diameter)	1
33-191	Tab Washer	1



Tools Required

Phillips Screwdriver	5/8" Wrench	Torque Wrench
5/32" Allen Wrench	1-3/8" Wrench	Side Cutters
3/16" Allen Wrench	1-1/2" Wrench	Ratchet Drive
9/64" Allen Wrench	10mm Wrench	
5/16" Allen Wrench	5/16" Socket	
Stem Adjuster Nut Wrench part No 98-550		

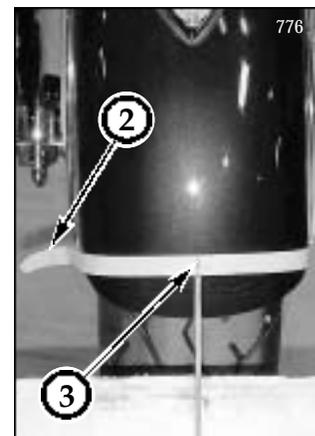
Materials Required

Masking Tape
Cloth
Ruler
Masking tape
Pencil
Silicone sealant
Cleaning alcohol

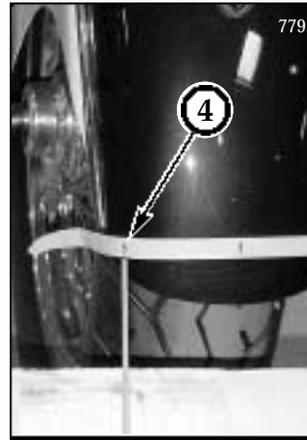
Adjustment - Steering Fall Away Test

Raise the front of the motorcycle so that the front wheel is off the ground. Using the handle bars, move the wheel left and right and feel for tightness, rough or flat spots. A flat spot on a bearing race may occur from a heavy blow to the front wheel, typically from wheelies, frontal collisions, or the motorcycle being dropped from a truck etc. Replace the races and bearings if flat spots are found.

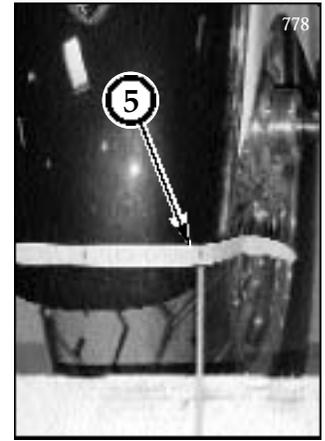
- 1 Point the front wheel straight ahead.
- 2 Stick a piece of masking tape across the front edge of the fender.
- 3 Mark the center of the fender on the tape with a pencil and align a pointer tip to the mark.



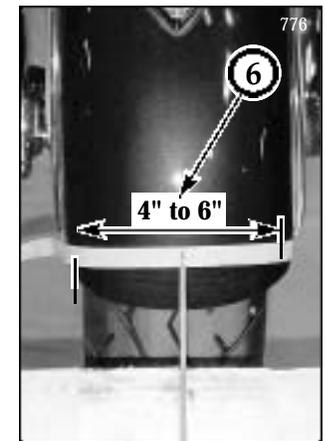
4 Gently tap the wheel to the right so that it moves in approximately 1/4" increments. Mark the tape at the point where the wheel starts to fall away by its self.



5 Return the wheel back to center and perform the same test on the left side. The fall away to the left will occur sooner because of the weight of the brake caliper.



6 Measure the distance between the two marks on the tape. The distance (fall away) should be between 4" to 6". If the "fall away" distance is outside the 4" to 6" limit, the stem bearing pre-load will need adjusting.



7 Using a 5/8" wrench, loosen both fork tube pinch bolts on the lower fork bracket.

8 Using a 3/16" allen wrench, remove the two allen head bolts and the riser cover.

9 Insert the adjusting wrench below the upper fork bracket and engage the adjusting nut.

10 If the "fall away" measurement is greater than 4" to 6", tighten the adjusting nut. If the measurement is less than 4" to 6", loosen the adjusting nut. Carry out further "fall away" tests until the measurement is within the 4" to 6" limit.



11 Tighten the stem crown nut to 40-45 foot-pounds and bend the tab washer against the face of the nut.

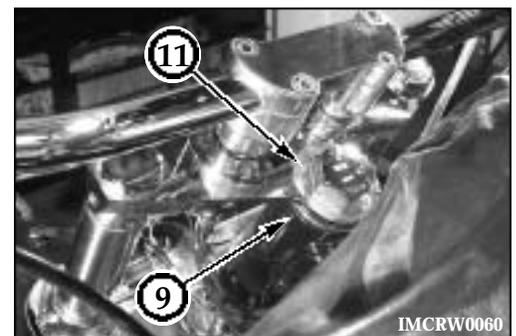
12 Tighten both fork tube pinch bolts to 42 foot-pounds.

13 Refit the riser cover, apply Blue Loctite to the 2 allen head bolts and tighten each bolt to 96 inch-pounds.

NOTE:

If this adjustment fails to eliminate the "knock/clunk" proceed to the next section: Stem Adjuster Nut Replacement and carry out all the remaining sections of this service bulletin.

If the adjustment eliminates the "knock/clunk", the procedure was successful and you may disregard the remaining sections of this bulletin.



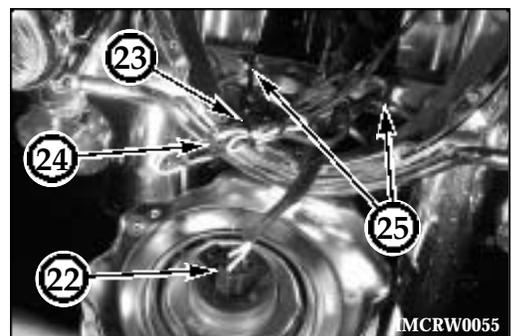
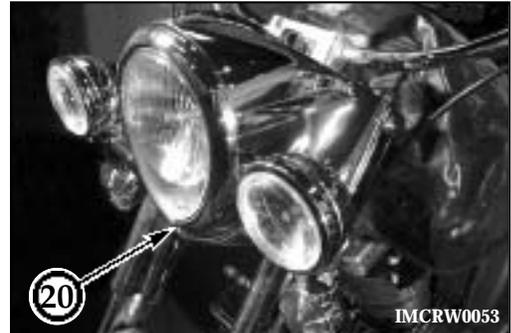
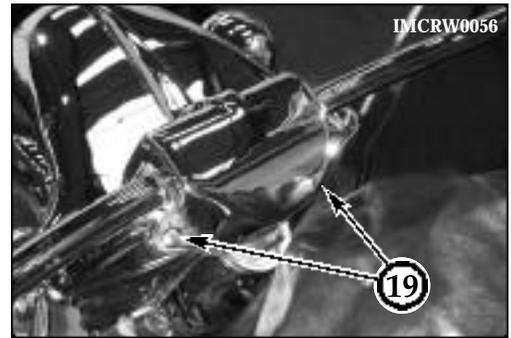
Stem Adjuster Nut Replacement

Replace the stem adjuster nut only after a fall away test has been carried out and if the adjustment fails to resolve the "knock/clunk."

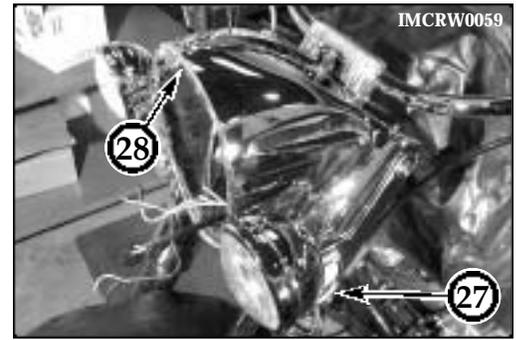
- 14 Fit protection covers to the front fender and fuel tank.
- 15 Using a 5/32" allen wrench remove the three allen head bolts securing the seat.
- 16 Remove the seat and using a 10mm wrench remove the negative cable from the battery.
- 17 Place a jack under the front frame and raise the motorcycle so that the front wheel is off the ground

Headlamp Disassembly

- 18 Remove the windshield if fitted.
- 19 Using a 3/16" allen wrench, remove two allen head bolts and the riser cover.
- 20 Using a Phillips screw driver remove the headlamp bezel.
- 21 Using a 9/64" allen wrench, remove the 10 bolts securing the headlamp assembly.
- 22 Disconnect the electrical socket and remove the headlamp assembly.
- 23 Using side cutters, remove the Zip ties securing the wiring harness.
- 24 Disconnect the three electrical connections. Mark each pair for later re-connection.
- 25 Using side cutters, remove the two Zip ties securing the wiring harness to the lower fork bracket.
- 26 Using a 5/16" allen wrench, remove the two upper headlamp housing bolts securing the spotlamp mounting bracket to each front fork.
Remove the washer from between the spotlamp bracket and the LH fork and cable clip from the RH side.
- 27 Loosen the two lower headlamp housing bolts and remove the spotlamp assembly complete.

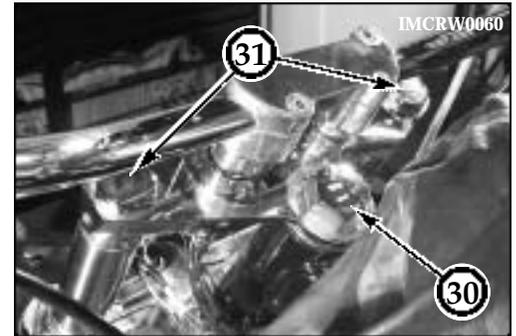


28 From inside the headlamp housing, use a 5/16" socket to remove the three nuts and washers securing the headlamp spear mounted on the top of the housing.



29 Remove the lower headlamp housing bolts and carefully remove the two halves of the headlamp housing.

30 Flatten the tab washer and using a 1-1/2" wrench, remove the stem crown nut. Remove the tab washer and discard.



31 Using a 1-3/8" wrench remove the two front fork caps.

CAUTION: Take care not to scratch the chrome surface of the upper fork bracket and fork cap.

32 Carefully remove the handle bar assembly and reposition over the front wheel against the front forks. Use a clean rag to protect the forks from scratching.

33 Using a steering adjuster wrench, remove the steering adjuster nut.



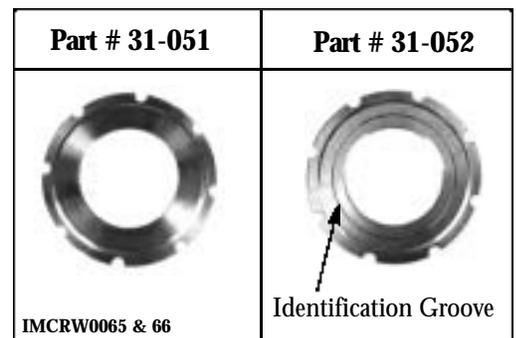
New Steering Adjuster Nut

Two sizes of adjuster nut are being used in manufacturing. Test fit the large shouldered adjuster nut first (p/n 31-052) to the upper fork bracket. If it does not fit, try the smaller shouldered nut (p/n 31-051).

34 Tighten the new adjuster nut until snug. Do not over tighten as adjustment is required.

35 Reposition the handle bar assembly and refit both front fork caps. Tighten until snug and then to 50 foot-pounds.

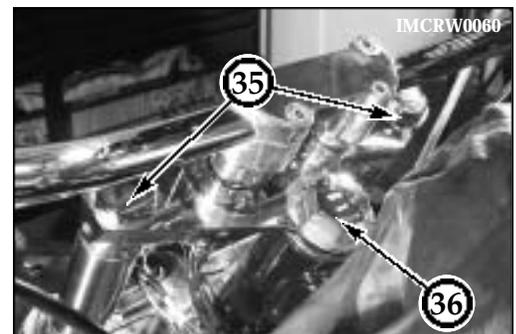
36 Refit the crown nut and new tab washer, and tighten until snug. Do not over tighten as adjustment is required.



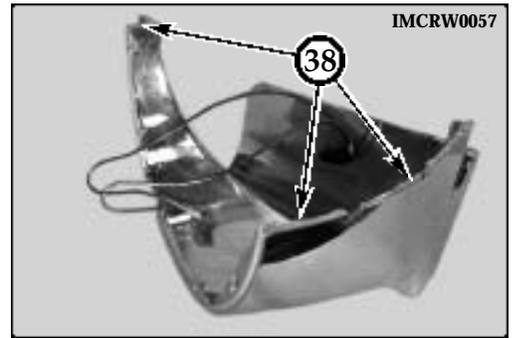
Headlamp Refit

Prior to refitting fixings, clean the threads and apply a small amount of Blue Loctite 242 to the first threads of each bolt/nut.

37 Clean both mating surfaces of the headlamp housing with alcohol and a clean cloth.



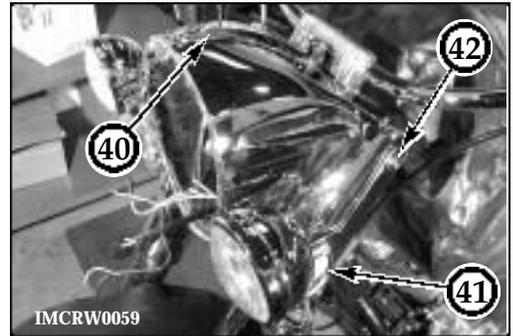
38 Place one half of the housing on a protective surface and apply an even bead of silicon to the mating edges of the housing.



39 Carefully refit both halves of the housing taking care not to smear the silicon.

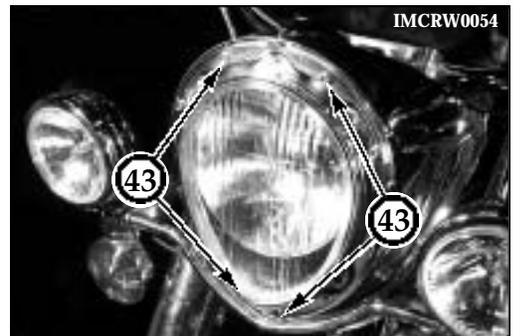
40 Apply Blue Loctite to the threads on the headlamp spear, position over the top seam and refit the three nuts and washers, tighten until snug.

41 Apply Blue Loctite and loosely fit the lower headlamp housing bolts to the front forks.



42 Position the spotlamp assembly over the lower headlamp housing bolts. Apply Blue Loctite to the top headlamp housing bolts, refit and tighten until snug. Ensure the washer is fitted between the bracket and LH fork and the cable clip between the bracket and RH fork.

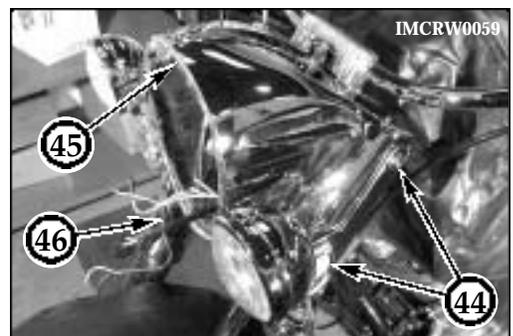
43 Reconnect the electrical socket and temporarily refit the headlamp. Secure with four bolts.



44 With the housing now assembled, tighten the upper and lower headlamp housing bolts to 10-12 foot-pounds.

45 Remove the headlamp once again and tighten the nuts securing the headlamp spear to 20 inch-pounds.

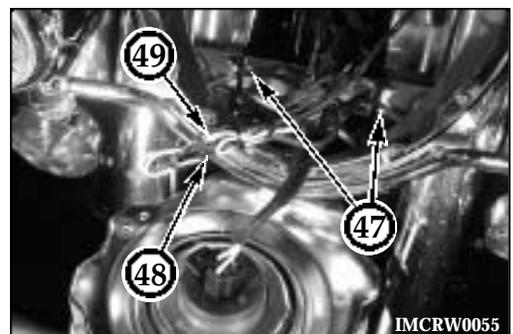
46 Route the spotlamp wiring harnesses between the forks, backwards and up into the headlamp housing.



47 Using two Zip ties, secure the harness through the two holes on the lower fork bracket.

48 Reconnect the three electrical connections. Temporarily reconnect the battery and check the spotlamps and turn signals operate correctly.

49 Gather the loose wires together and secure with a Zip tie.



50 Refit the headlamp. Apply Blue loctite to the 10 bolts and tighten until snug. Tighten the bolts in sequence to 22 inch-pounds.

51 Carefully apply a silicon bead to the ridge surrounding the headlamp. A constant 1/4" diameter bead must be applied all the way around the housing.

CAUTION: For the silicon sealant to bond correctly, fit the bezel within 10 minutes

52 Carefully refit the headlamp bezel and secure with the Phillips screw. Wipe off any excess silicon with alcohol and a clean cloth.

53 Refit the riser cover and secure with 2 allen head bolts. Tighten each bolt to 96 inch-pounds.

54 Refit the windshield if fitted.

55 Reconnect the battery and refit the seat.

56 Thoroughly road test the motorcycle.

