General Safety Information

WARNING
"Maintenance interval depends on the usage and riding circumstance. Clean regularly the chain with an appropriate chaincleaner. Never shall based oil or leaded such as rust cleaners. If those solvent be used chain might break and cause serious injury."

1. Check that the wheels are fixed securely before riding the bicycle. If the wheel has been loosened in any way, they may come off.
2. Use the reinforced connecting pin only for connecting the same type of chain.
3. There are different types of reinforced connecting pins available. Be sure to check the table below before selecting which pin to use.
4. If connecting pins other than reinforced connecting pins are used, it may cause damage to the connecting pin or the chain itself. Furthermore, the use of non-reinforced pins may not provide the sufficient contact force, which could cause the chain break or fall off.
5. If it is necessary to adjust the length of the chain due to changes in the number of speeded teeth, make the cut off at a place where the chain will get damaged if it is cut off at a place where it has been fitted with a reinforced connecting pin or a chain pin.
6. Check that the tension of the chain is correct and that the chain is not damaged. If the tension is too weak or the chain is damaged, the chain will be replaced. If the chain is not damaged, the chain may cause serious injury.
7. Use a front chainwheel which is compatible with 8-speed chains in conjunction with Shimano CN-HG73 and CN-HG93 chains. If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
8. Obtain and read the service instructions carefully prior to installing the parts. If adjustments are not carried out correctly, the chain may come off and may cause you to feel the bicycle which could result in serious injury.

Note
1. If gear shifting operations do not feel smooth, adjust the derailleur and lubricate all moving parts.
2. If the amount of looseness in the links is so great that adjustment is not possible, you should replace the derailleur.
3. You should periodically check the derailleur and lubricate all moving parts (mechanism and pulley)
4. If gear shifting adjustment cannot be carried out, check the degree of parallellism at the end of the bicycle. Also check if the cable is lubricated and if the outer casing is too long or too short.
5. If you hear abnormal noise as a result of looseness in a pulley, you should replace the pulley.
6. If the wheels become off and difficult to turn, you should lubricate it with grease.
7. You should periodically check the derailleur and lubricate all moving parts (mechanism and pulley)
8. Always be sure to use the special set up gear marking system. Never use in combination with a different marking equipment.
9. Use an outer casing which still has some length to open even when the hublows are turned all the way down. Furthermore, check that the shifting lever does not touch the frame. Use a frame which the hublows are turned all the way down.
10. Check that the linear travel of the ends of the outer casing before use to ensure that they slide perfectly and smoothly.
11. Operation of the levels related to gear shifting should be made only when the front (frong) or (back) is turned. If so, disassemble the indicator and shifting lever as, otherwise it may damage the screw thread.
12. Parts are not guaranteed against natural wear or deterioration resulting from normal use.
13. For any questions regarding methods of installation, adjustment, maintenance or operation, please contact a professional technician.

Technical Service Information

Gear shifting operation

A rider's bicycle is equipped with a 2-way release mechanism which allows release operations to be carried out by either pushing or pulling the lever.

To shift from a small sprocket to a larger sprocket (Lever A)
To shift from a large sprocket to a smaller sprocket (Lever B)

When installing, be careful not to let the B-tension adjustment screw contact with an appropriate chaincleaner. Never use alkali based or acid based solvents such as rust cleaners.

General Safety Information

Cassette sprocket tooth combination

<table>
<thead>
<tr>
<th>Model number</th>
<th>Gear number</th>
<th>Chain length</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN-HG50 / CN-HG53 / CN-HG50-9</td>
<td>9</td>
<td>11 - 32T, 11 - 34T, 11 - 28T</td>
</tr>
<tr>
<td>CS-HG50 / CS-HG50-9</td>
<td>9</td>
<td>11, 13, 15, 17, 20, 23, 26, 30, 34T</td>
</tr>
<tr>
<td>CS-HG11</td>
<td>11</td>
<td>9, 11, 12, 13, 14, 16, 18, 21, 24, 28T</td>
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Assembly

1. Install the shift lever in a position where it will not obstruct brake operation and gear shifting operation.
2. Use the special tool (TL-HD2) to remove the lock ring.
3. Install the shift lever in a position where it will not obstruct brake operation and gear shifting operation.
4. After checking that the indicator needle is at the left edge, install the indicator from directly above.
5. Check the operation of the indicator. If it does not operate correctly, disassemble the indicator while taking particular care of steps 3 to 4.

Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.

Replacement of the freewheel body

1. Remove the two indicator set screws which are securing the indicator.
2. Remove the indicator unit as shown in the illustration.
3. Operate lever (B) at least eight times to make sure the indicator is in a ruin state.
4. Attach the same sprocket end cap to the outer casing.
5. Connect the cable to the rear derailleur and the freewheel body fixing bolt, and the inner sprocket in the cable, as shown in the illustration.

Casing length

- 9T: 7.5 mm (0.3 in) (TL-WR21)
- 10T: 8 mm (0.3 in) (TL-WR21)
- 11T: 10.5 mm (0.4 in) (TL-WR21)

Tightening torque

- Large part: 3 - 5 N·m (261 - 434 in. lbs.) (TL-WR52)
- Wide part: 5 - 7 N·m (434 - 635 in. lbs.) (TL-WR52)

Replacement of the indicator

1. Operate the indicator sever times to move the chain to the 2nd sprocket, then, while pressing the lever just enough to take up the play, move the chain arm and the sprocket.
2. Tighten the sprocket adjustment bolt until the chain touches the 3rd sprocket and make sure there is no noise (counter clockwise)
3. Loosen the sprocket adjustment bolt until the chain touches the 2nd sprocket and make sure the noise (counter clockwise)

Replacement of the freewheel body

1. Operate the indicator sever times to move the chain to the 2nd sprocket, then, while pressing the lever just enough to take up the play, move the chain arm and the sprocket.
2. Tighten the sprocket adjustment bolt until the chain touches the 3rd sprocket and make sure there is no noise (counter clockwise)
3. Loosen the sprocket adjustment bolt until the chain touches the 2nd sprocket and make sure the noise (counter clockwise)

Diagnostics

To shift from a small sprocket to a larger sprocket, the guide pulley is in line with the indicator from directly above in order to maintain chain operating efficiency.

Cutting the outer casing

When shifting the outer casing, cut the opposite end to the end with the mark on it. If it is not cut, you may hear noise and the chain will not run smoothly.

Remove the two indicator set screws which are securing the indicator.

Replace the sprocket

Add 2 links (with the chain on the smallest sprocket) to the chain such as

Tooth combination

<table>
<thead>
<tr>
<th>Group marks</th>
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<tbody>
<tr>
<td>3rd</td>
<td>14T</td>
</tr>
<tr>
<td>3rd</td>
<td>13T</td>
</tr>
<tr>
<td>3rd</td>
<td>12T</td>
</tr>
<tr>
<td>3rd</td>
<td>11T</td>
</tr>
<tr>
<td>3rd</td>
<td>10T</td>
</tr>
<tr>
<td>3rd</td>
<td>9T</td>
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Dropout tab

2-way release

Adjustment screw

Lock ring

Assembly

1. Install the shift lever in a position where it will not obstruct brake operation and gear shifting operation.
2. Use the special tool (TL-HD2) to remove the lock ring.
3. Install the shift lever in a position where it will not obstruct brake operation and gear shifting operation.
4. After checking that the indicator needle is at the left edge, install the indicator from directly above.
5. Check the operation of the indicator. If it does not operate correctly, disassemble the indicator while taking particular care of steps 3 to 4.

Do not disassemble the indicator and shifting lever unit, as this may damage them or cause mis-operation.

Rolling resistance

- For CS-HG50-9: 0,6N (13.9 lbs) (TL-HD2)
- For CS-HG50-9 / CS-HG30-9 (au): 0.6N (13.9 lbs) (TL-HD2)

Tightening torque

- Freewheel body: 4 - 6 N·m (36 - 54 in. lbs.) (TL-HD2)
- Freewheel body fixing bolt: 4 - 6 N·m (36 - 54 in. lbs.) (TL-HD2)

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- For CS-HG50-9: 0,6N (13.9 lbs) (TL-HD2)
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