14. STEERING HANDLEBAR/FRONT WHEEL/FRONT SHOCK ABSORBER

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SCHEMATIC DRAWING
SERVICE INFORMATION

GENERAL INSTRUCTIONS

• A contaminated brake disc or pad reduces stopping power. Discard contaminated parts and clean a contaminated disc with a high quality brake degreasing agent.
• This section covers the front wheel, fork, handlebar, and steering.
• A jack or other support is required to support the vehicle.
• Do not twist or bend the brake hose and pipe when servicing.
• Use genuine KYMCO replacement bolts and nuts for all suspension pivots and mounting points
• Refer to section 16 for brake system information.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STANDARD</th>
<th>SERVICE LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum tire tread depth</td>
<td></td>
<td>1.6 (0.06)</td>
</tr>
<tr>
<td>Cold tire pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driver only</td>
<td>200 kPa (2.00 kgf/cm², 29 psi)</td>
<td>—</td>
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<tr>
<td>Driver and passenger</td>
<td>225 kPa (2.25kgf/cm², 32 psi)</td>
<td>—</td>
</tr>
<tr>
<td>Axle runout</td>
<td></td>
<td>0.2 (0.008)</td>
</tr>
<tr>
<td>Wheel rim runout</td>
<td>Radial</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Axial</td>
<td>2.0 (0.08)</td>
</tr>
</tbody>
</table>

TORQUE VALUES

Handlebar bolt 23 N•m (2.3 kgf•m, 17 lbf•ft)
Steering stem nut 62 N•m (6.2 kgf•m, 45 lbf•ft)
Steering stem lock nut 45 N•m (4.5 kgf•m, 32 lbf•ft)
Steering top thread 17 N•m (1.7 kgf•m, 12 lbf•ft)
Steering stem pinch bolt 23 N•m (2.3 kgf•m, 17 lbf•ft)
Front axle bolt 20 N•m (2 kgf•m, 15 lbf•ft)
Front brake disc bolt 42 N•m (4.3 kgf•m, 31 lbf•ft)
                        Lock bolt: replace with a new one.
Front fork bolt 23 N•m (2.3 kgf•m, 17 lbf•ft)

SPECIAL TOOLS

Long socket wrench E015
Bearing remover E037
Oil seal & bearing install driver E014
TROUBLESHOOTING

Hard steering
- Steering stem top thread too tight
- Worn or damaged steering bearings
- Worn or damaged steering bearing races
- Bent steering stem
- Insufficient tire pressure
- Faulty front tire

Wheel turns hard
- Faulty front wheel bearings
- Bent front axle
- Brake drug

Soft suspension
- Weak fork spring
- Insufficient fluid in fork
- Deteriorated fork fluid
- Incorrect fork fluid weight
- Low tire pressure

Hard suspension
- Bent fork tube
- Too much fluid in fork
- Incorrect fork fluid weight
- Clogged fork fluid passage
- High tire pressure

Steers to one side or does not track straight
- Damaged or loose steering bearings
- Bent fork
- Bent front axle: wheel installed incorrectly
- Bent frame
- Faulty front tire
- Worn or damaged front wheel bearings
- Worn or damaged engine mounting bushings

Front wheel wobbling
- Bent rim
- Worn or damaged front wheel bearings
- Faulty front tire
- Loose front axle fasteners

Front suspension noise
- Worn slider or fork tube bushing
- Insufficient fluid in fork
- Loose fork fastener
FRONT WHEEL
REMOVAL
Loosen the front axle holder bolt.

Loosen the front axle bolt.
Support the scooter securely using a hoist or equivalent and raise the front wheel off the ground.

Remove the right and left mount bolts and front brake calipers.
Pull off the front axle out and remove the front wheel.

NOTE:
Do not operate the front and rear brake lever after removing the front wheel.
Remove the right and left side collar from the wheel hub.

INSTECTION

Axle
Place the axle in V-blocks and measure the runout.
Actual runout is 1/2 the total indicator reading.

Service limit: 0.20 mm (0.008 in)

Wheel
Check the rim runout by placing the wheel in a truing stand.
Spin the wheel slowly and read the runout using a dial indicator.
Actual runout is 1/2 the total indicator reading.

Service limit: Radial: 0.20 mm (0.008 in)
Axial: 0.20 mm (0.008 in)
Wheel Bearing
Turn the inner race of each bearing with your finger.
The bearings should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the hub.

DIASSEMBLY

Remove the right and left disc bolts and brake discs.

Remove the bolts and speed sensor guide.
Remove the dust seals

Install the bearing remover into the bearing. Drive the bearing out of the wheel hub. Remove the distance collar and drive out the other bearing.

**Special tool:** Bearing remover  E037

**NOTE:**
Replace the wheel bearings in pairs. Do not reuse old bearings.

**ASSEMBLY**

Pack a new bearing cavities with grease. Drive the new left bearing squarely with the sealed side facing up until it is fully seated.

**Special tool:**
Oil seal & bearing install driver  E014
Install the distance collar.

Pack a new bearing cavities with grease. Drive the new right bearing squarely with the sealed side facing up until it is fully seated.

**Special tool:**
**Oil seal & bearing install driver**   E014

Apply grease to the new dust seal lips. Install the dust seals into the wheel hub until there are flush with the wheel hubs.
Install the speed sensor guide. Install the plate blots and tighten them to the specified torque.

Torque: 10 N•m (1.0 kgf•m, 7 lbf•ft)

Install the brake discs into wheel hub. Install new disc bolts and tighten them to the specified torque.

Torque: 42 N•m (4.3 kgf•m, 31 lbf•ft)

**INSTALLATION**

Install the side collars into the wheel hub.
Install the front wheel between the fork leg. Install the front axle front left side. Tighten the axle bolt to the specified torque.

**Torque: 20 N•m (2 kgf•m, 15 lbf•ft)**

Tighten the front axle holder bolt to the specified torque.

**Torque: 23 N•m (2.3 kgf•m, 17 lbf•ft)**

Install the right and left front calipers onto the fork leg. Install and tighten the new front caliper mount bolts to the specified torque.

**Torque: 32 N•m (3.2 kgf•m, 23 lbf•ft)**
With the front brake applied, pump the fork up and down several times to seat the axle and check brake operation.

Check the brake operation by applying the brake lever.

Measure the speed sensor to speed sensor guide clearance.

**Standard (A): 0.3 – 1.2 mm (0.0012 – 0.048 in)**

Adjust it if necessary (page 20-5).
FORK

REMOVAL

Remove the front wheel (page 14-4).
Remove the front fender (page 2-4).

Remove the bolt and hose clamp.
Remove the bolt and speed sensor (only right fork).
Remove the upper fork pinch bolt.
Remove the lower fork pinch bolts.
Remove the fork from the handlebar post and steering stem.

INSTALLATION

Install the fork tube into steering stem and handlebar post and align the mark on the fork tube with the handlebar post surface as shown.

Install and tighten the upper pinch bolt to the specified.

Torque: 23 N•m (2.3 kgf•m, 17 lbf•ft)
Tighten the lower pinch bolts to specified torque.

**Torque: 23 N•m (2.3 kgf•m, 17 lbf•ft)**

Install the brake caliper onto the fork leg with new mount bolts.

**Torque: 32 N•m (3.2 kgf•m, 23 lbf•ft)**

Install the brake hose clamp onto the fork leg with the bolt.
Install the speed sensor onto the right fork leg and tighten the bolt.
Install the front fender.
Install the front wheel.
STEERING HANDLEBAR

REMOVAL

Remove the front cover (page 2-11).
Remove the upper handlebar cover (page 2-5).

Remove the band bolt and disconnect the left handlebar switch connector.

Remove the two screws and lower handlebar cover.

Remove the bolts, master cylinder holders and rear master cylinders.
Disconnect the left brake light switch connectors.

NOTE:
Keep the master cylinder upright to prevent air from entering the hydraulic system.
Remove the bolts, master cylinder holders and front master cylinders.

**NOTE:**
Keep the master cylinder upright to prevent air from entering the hydraulic system.

Remove the screws and right handlebar switch housing.

Remove the bolt/right handlebar weight.
14. STEERING HANDLEBAR/FRONT WHEEL/FRONT SHOCK ABSORBER

Remove the bolts and upper holders.

Remove the handlebar from the handlebar post and right handlebar switch housing.

INSTALLATION
Pass the handlebar through the right handlebar switch housing.
Align the holes on the handlebar with the pins on the handle post.

Install the handlebar to the handle post.

Install the upper holders with its punch marks facing toward.
Install the upper holder bolts.
Tighten the front bolts first, then tighten the rear bolts.

**Torque: 23 N•m (2.3 kgf•m, 17 lbf•ft)**

Install the throttle grip and bolt/right handlebar weight and tighten the bolt.
Align the pin on the right handlebar switch housing with the hole on the steering handle.

Install the screws and tighten the forward screw first, then tighten the rear screw.

Align the pin on the rear master cylinder holder with the hole on the handlebar.

Install the front master cylinders and holder with the “UP” mark facing up.
Install the bolts and tighten the upper bolt first then tighten the lower bolt to the specified torque.

**Torque: 12 N•m (1.2 kgf•m, 9 lbf•ft)**
Align the pin on the rear master cylinder holder with the hole on the handlebar.

Install the rear master cylinders and holder with the “UP” mark facing up. Install the bolts and tighten the upper bolt first then tighten the lower bolt to the specified torque.

**Torque: 12 N•m (1.2 kgf•m, 9 lbf•ft)**

Connect the brake light switch connectors.

Connect the left handlebar switch connector and tighten the band bolt.
STEERING STEM

REMOVAL

Remove the front fork (page 14-12).
Remove the steering handle (page 14-14).

Remove the bolts and brake hoses clamp.

Remove the nut, washer and handle post.

**Special tool: Long socket wrench  **  **E015**

Remove the brake hoses from the clamps on the steering stem.
Remove the steering stem lock nut.

**Special tool: Long socket wrench F007**

Remove the lock washer.

Loosen the steering top thread.
Hold the steering stem and remove the steering stem top thread.
14. STEERING HANDLEBAR/FRONT WHEEL/FRONT SHOCK ABSORBER

Remove the steering stem and lower bearing.

Remove the dust seal, upper inner race and upper bearing.

BEARING REPLACEMENT

Remove the upper bearing outer race.

NOTE:
Always replace the bearings and races as a set.
Remove the lower bearing outer race.

Drive a new upper bearing race into the steering head pipe.

Drive a new lower bearing race into the steering head pipe.
Install the steering stem lock nut onto the steering to prevent the threads from being damaged when removing the lower bearing inner race from the steering stem.

Remove the lower bearing inner race with a chisel or equivalent tool, being careful not to damage the steering stem.

Remove the dust seal.

Install the dust seal.
Apply grease to a new lower bearing inner race using a hydraulic press.

**INSTALLATION**

Apply grease to each new bearings and inner races.
Install the upper bearing, upper inner race and dust seal.
Install the lower bearing onto the stem.
Insert the steering stem into the steering head pipe.

Install the steering top thread.

**Steering top thread tightening step:**

- Tighten the steering top thread to specified torque.

**Torque: 52 N•m (5.2 kgf•m, 37 lbf•ft)**

- Temporarily loosen the steering stem top thread, then retighten it to specified torque.

**Torque: 20 N•m (2 kgf•m, 15 lbf•ft)**

- Turn the steering stem lock-to-lock several times to seat the bearings.

Temporarily loosen the steering stem top thread.

Install the fork (page 14-12).
Install the front wheel (page 14-9).
Install the steering top thread to the specified torque with the front wheel is grounded.

**Torque: 20 N•m (2 kgf•m, 15 lbf•ft)**
Install the lock washer aligning its tab into the groove on the steering stem.

Install the steering stem lock nut. Hold the steering stem top thread and tighten the steering stem lock nut to the specified torque.

**Special tool: Long socket wrench  F007**

**Torque: 55 N•m (5.5 kgf•m, 40 lbf•ft)**

Make sure that the steering stem moves smoothly without play or binding.

Install the handle post to the steering stem and front forks. Install the washer and nut. Tighten the handle post nut to the specified torque.

**Special tool: Long socket wrench  E015**

**Torque: 62 N•m (6.2 kgf•m, 45 lbf•ft)**

Install the brake hose clamp and tighten the bolts securely.

Route the brake hoses and wires properly (page 1-15).