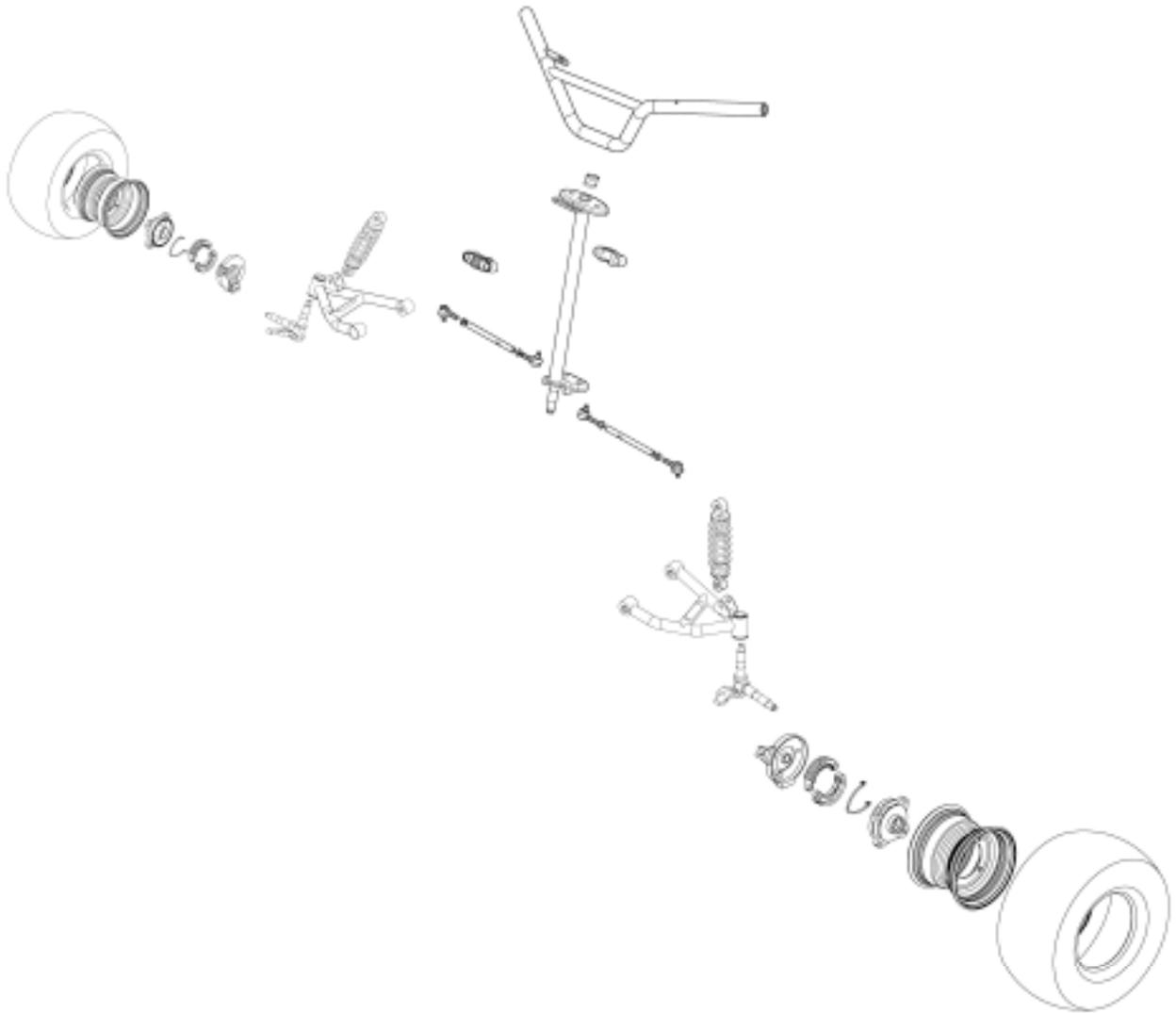

**FRONT WHEEL/FRONT BRAKE/
FRONT SUSPENSION\STEERING SYSTEM**

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12. FRONT WHEEL/Front BRAKE/Front SUSPENSION/STEERING SYSTEM  **KYMCO**
Mongoose/KXR 90/50



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM **KYMCO** Mongoose/KXR 90/50

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Remove the machine frame covers before removing the front wheel. Jack the machine front wheel off the ground and be careful to prevent the machine from falling down.
- During servicing, keep oil or grease off the brake drum and brake linings.
- Inspect the brake system before riding.

SPECIFICATIONS

Item		Standard (mm)	Service Limit (mm)
Front wheel rim run out	Radial	□	2.0
	Axial	□	2.0
Front brake drum I.D		85_ 85.5	84
Front brake lining thickness		4.0	2.0
Tie rod length		254.5_ 255.5	□
Rod-end (tie rod) angle		15°±3°	□

TORQUE VALUES

Steering stem nut	6.0_ 8.0kgf-m
Swing arm nut	4.0_ 5.0kgf-m
Front wheel nut	4.0_ 5.0kgf-m
Front wheel hub nut	5.5_ 6.5kgf-m
Front shock absorber upper mount bolt	3.5_ 4.5kgf-m
Front shock absorber lower mount bolt	3.5_ 4.5kgf-m

12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM



Mongoose/KXR 90/50

SPECIAL TOOLS

Oil seal and bearing install E014

TROUBLESHOOTING

Hard steering (heavy)

- Insufficient tire pressure
- Bent spoke plate

Steers to one side or does not track straight

- Uneven front shock absorbers
- Bent front arm
- Bent steering knuckle

Poor brake performance

- Incorrectly adjusted brake
- Worn brake linings
- Contaminated brake lining surface
- Worn brake shoes at cam contacting area
- Worn brake drum
- Poorly connected brake arm

Front wheel wobbling

- Bent rim
- Excessive wheel bearing play

- Faulty tire
- Improperly tightened axle nut

Soft front shock absorber

- Weak shock springs
- Insufficient damper oil

Front shock absorber noise

- Slider bending
- Loose arm fasteners
- Lack of lubrication

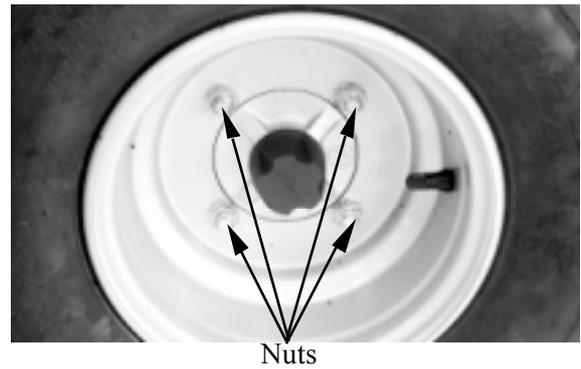
12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

FRONT WHEEL

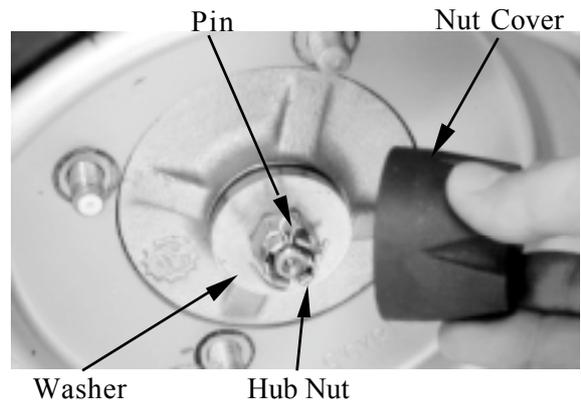
REMOVAL

Place the machine on a level place.
Remove four nuts attaching the wheel panel and front wheel.
Elevate the front wheels by placing a suitable stand under the frame.

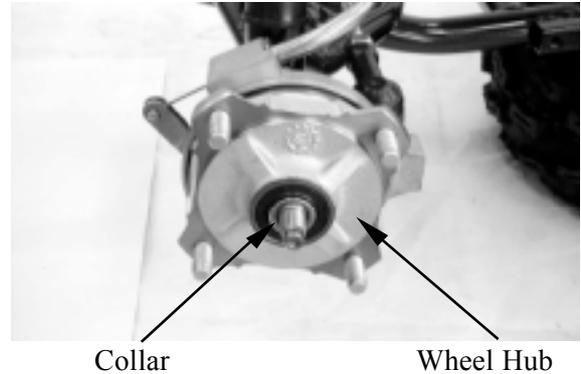
⚠ Support the machine securely so there is no danger of it falling over.



Remove the nut cover.
Remove the cotter pin.
Remove nut attaching the wheel hub and washer.



Remove the collar and wheel hub.



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM



Mongoose/KXR 90/50

INSPECTION

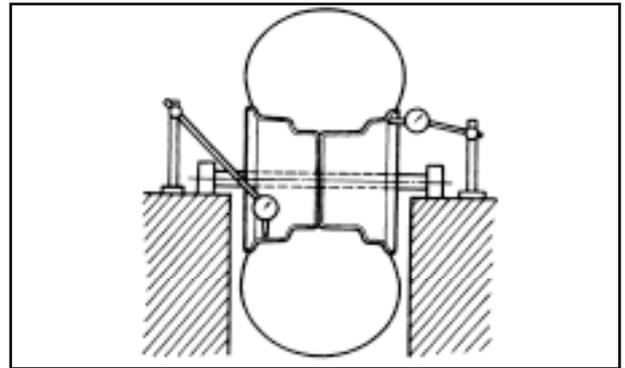
Measure the wheel run out.

Replace wheel or check bearing play if out of specification

Rim run out limits:

Vertical: 2.0mm

Lateral: 2.0mm



Inspect the front wheel hub.

Replace it if cracks or damage.

Inspect the front brake drum.

Measure the front brake drum I.D.

Service limits: 84mm



Keep oil or grease off the brake drum.

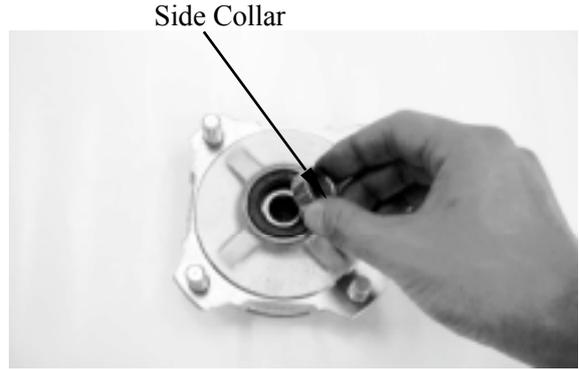


Turn the inner race of each bearing with your finger to see if they turn smoothly and quietly. Also check if the outer race fits tightly in the hub.

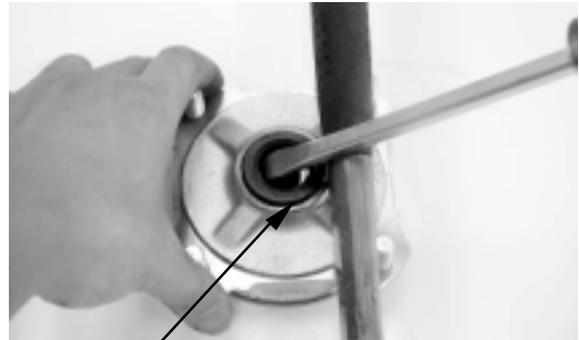
Replace the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.

12. FRONT WHEEL/Front BRAKE/Front SUSPENSION/STEERING SYSTEM

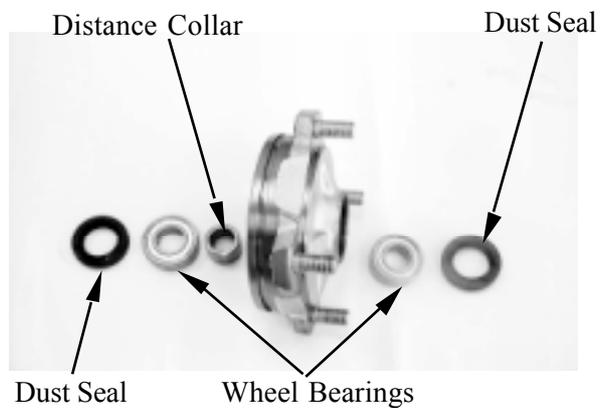
FRONT WHEEL HUB DISASSEMBLY
Remove the side collar.



Remove the dust seal of each side.



Remove the front wheel hub bearings and distance collar.



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

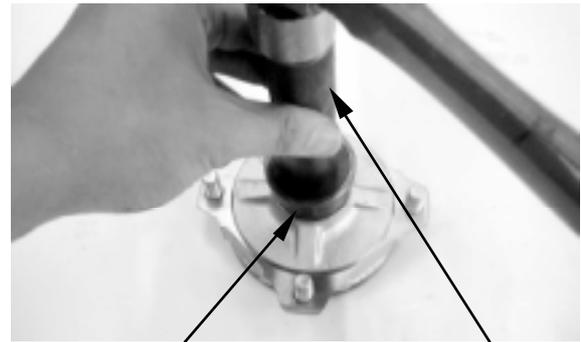


Mongoose/KXR 90/50

ASSEMBLY

Apply grease to a new dust seal lip and install the dust seal.

Pack all bearing cavities with grease.
 Drive in the left bearing.
 Install the distance collar.
 Drive in the right bearing.



Outer Driver Driver Handle

- Do not allow the bearings to tilt while driving them in.
- Drive in the bearing squarely with the sealed end facing out.

Special

Oil seal and bearing install E014

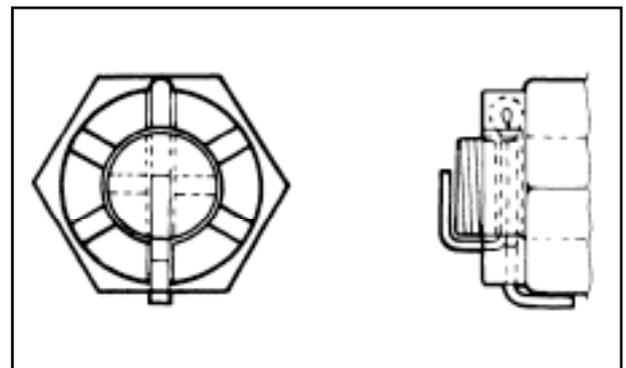
INSTALLATION

Reverse the “FRONT WHEEL REMOVAL” procedures.

Apply the grease onto the bearings and oil seal lips of the wheel hub.
 Install wheel hub, side collar, washer and tight the nut (wheel hub).

Torque: 5.5_ 6.5kgf-m

Install cotter pins and nut cover.



- Always use a new cotter pin.

- Do not loosen the axle nut after torque tightening. If the axle nut groove is not aligned with the cotter pin hole, align groove with the hole by tightening up on the axle nut.

Install the front wheel and tighten the nuts (wheel).

Torque: 4.0_ 5.0kgf-m



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

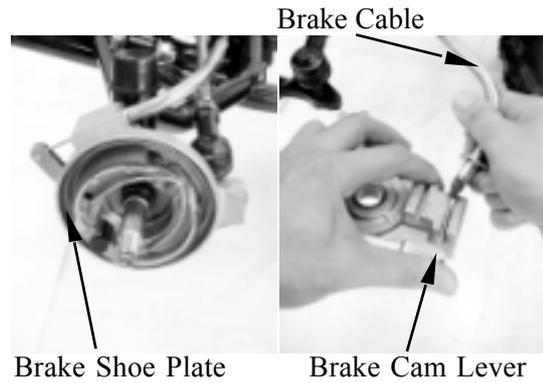
FRONT BRAKE

REMOVAL

Remove the wheel hub. (See page 12-4)

Pull brake shoe plate out from steering knuckle.

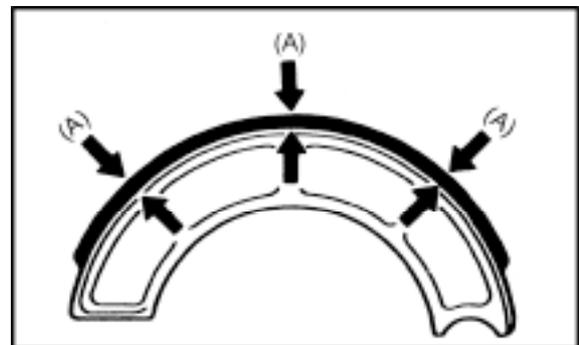
Disconnect the front brake cable from brake cam lever and remove the brake shoe plate.



INSPECTION

Measure the front brake lining thickness (A).

Service limit: 2.0mm replace it if below



DISASSEMBLY

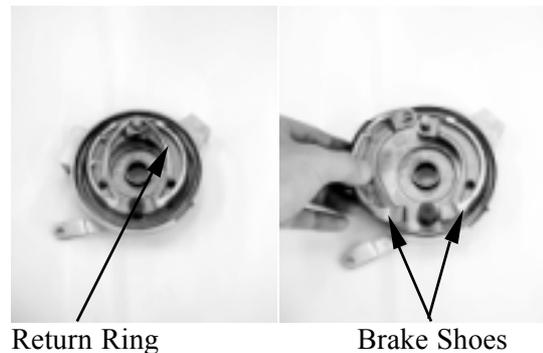
Remove return ring.

Remove the brake shoes.

ASSEMBLY

Reverse the “DISASSEMBLY” procedures.

⊙ Keep oil or grease off the brake linings.



12. FRONT WHEEL/Front BRAKE/Front SUSPENSION/STEERING SYSTEM



Mongoose/KXR 90/50

Install the brake shoe plate.

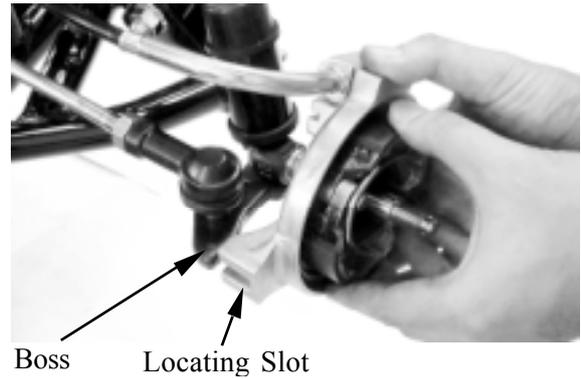


Make sure that the boss on the knuckle correctly engages with the locating slot on the brake shoe plate.

Install front wheel. (See page 12-7)

Adjust the front brake cable free play.
Refer to the “BRAKE LEVER FREE PLAY” section in the CHAPTER 3.

Brake cable free play: 10_ 20mm



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

FRONT SUSPENSION

REMOVAL

Elevate the front wheels by placing a suitable stand under the frame.

Support the machine securely so there is no danger of it falling over.

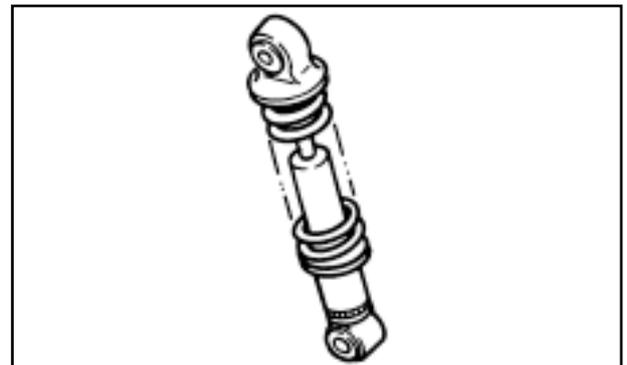
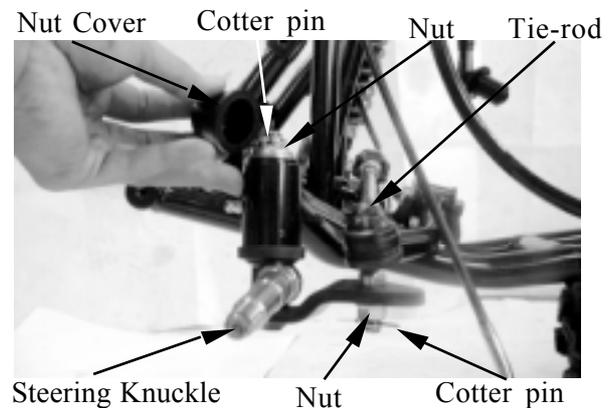
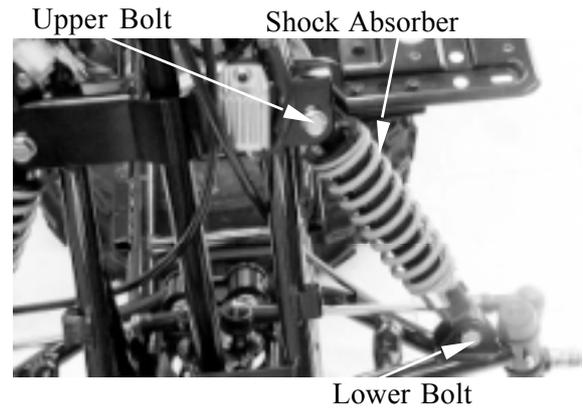
Remove the front wheel, wheel hub, brake shoe plate. (Refer to chapter 12)
Remove the upper and lower bolt, then remove the shock absorber.

Remove the cotter pin and nut attaching the tie-rod and steering knuckle.
Remove nut cover at the front arm.
Remove the cotter pin and nut attaching the front arm and steering knuckle.
Remove steering knuckle.

INSPECTION

Inspect the shock absorber rod.
Replace the shock absorber assembly if bends or damage.
Inspect the shock absorber.
Replace the shock absorber assembly if oil leaks.
Inspect the spring of the shock absorber by move the spring up and down.
Replace the shock absorber assembly if fatigue.

Inspect the steering knuckle.
Replace if cracks, pitting or damage.



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM



Mongoose/KXR 90/50

Check the front arm brackets of the frame.

If bent, cracked or damaged, repair or replace the frame.

Check the tightening torque of the front arms securing nuts.

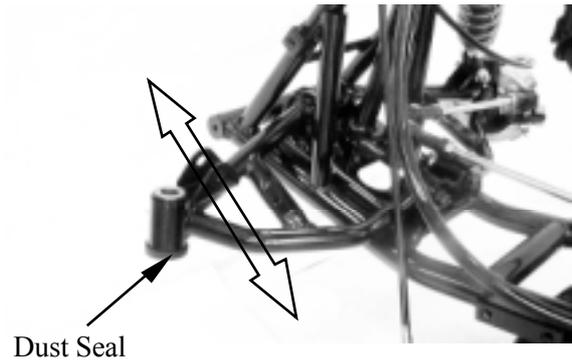
Torque: 4.0_ 5.0kgf-m

Check the dust seal.

If wear or damage, replace the dust seal.

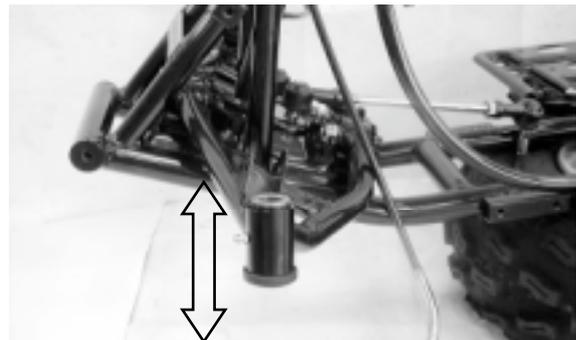
Check the front arm side play by moving it from side to side.

If side play noticeable, replace the bushings.



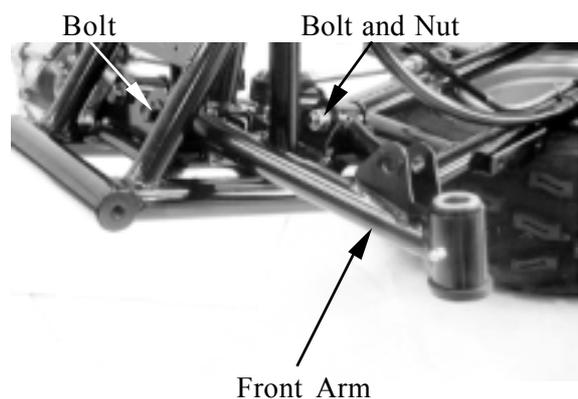
Check the front arm vertical movement by moving it up and down.

If vertical movement is tight, binding or rough, then replace the bushings.



Remove the two bolts and nut attaching the front arm.

Remove the front arm.



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

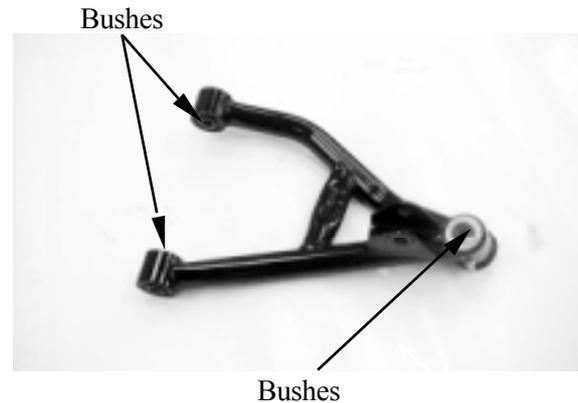
Inspect the front arm.

Replace if cracks, bends or damage.

-  Do not attempt to straighten a bent arm, this may dangerously weaken the arm.

Inspect bushes.

Replace if wear or damage.



INSTALLATION

Reverse the “REMOVAL” procedures.

-  Apply the grease onto the bushes.

Install the front arm onto the frame and tighten the bolts and nut.

Torque: 4.0_ 5.0kgf-m

-  Apply the grease onto the bushes.

Install the steering knuckle into the front arm and tighten the bolt and nut.

Torque: 4.0_ 5.0kgf-m

Install the cotter pin and band ends of cotter pin.

-  Always use a new cotter pin.

Install the tie-rod into the steering knuckle and tighten the nut.

Torque: 2.0_ 3.0kgf-m

Install the cotter pin and band ends of cotter pin.

-  Always use a new cotter pin.

12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM



Mongoose/KXR 90/50

STEERING SYSTEM

HANDLEBAR REMOVAL

Remove the following parts:

Handlebar and Front fender.

Refer to the “FRAME COVER” section in the CHAPTER 2

INSPECTION

Inspect the handlebar.

Replace if cracks, bends or damage.

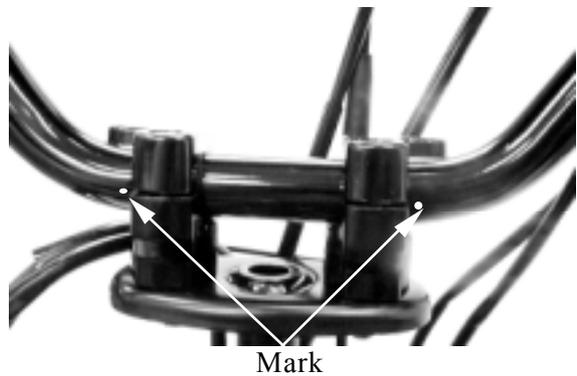


INSTALLATION

Install handlebar and handlebar holder, then tighten the four bolts.

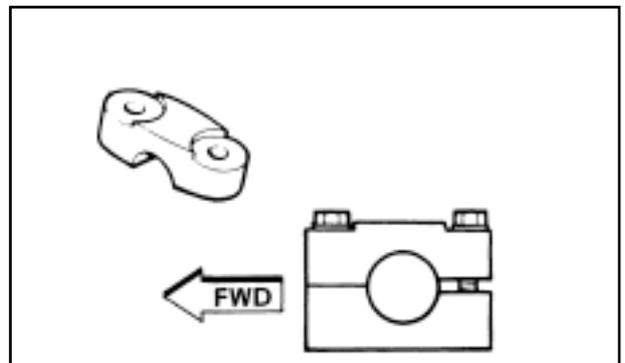
Torque: 1.8_ 2.5kgf-m

- Align the mark on the handlebar with the lower handlebar holder surface.
- Be sure the upper handlebar holder mark face to front.
- First tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.



Refer to the “BRAKE FREE PLAY” section in the CHAPTER 3 to adjust front brake.

Brake cable free play: 10_ 20mm



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM



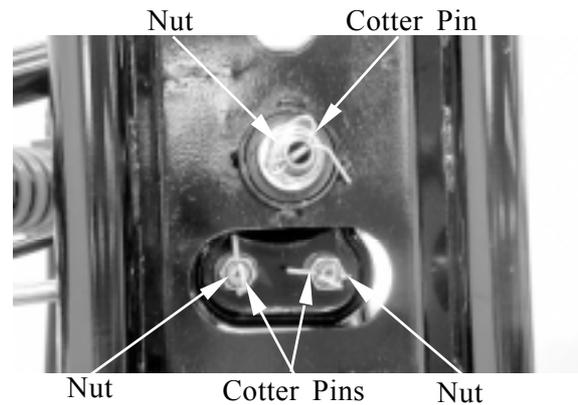
Mongoose/KXR 90/50

STEERING COLUMN REMOVAL

Remove handlebar. (Refer to “FRAME COVER” section in chapter 2)

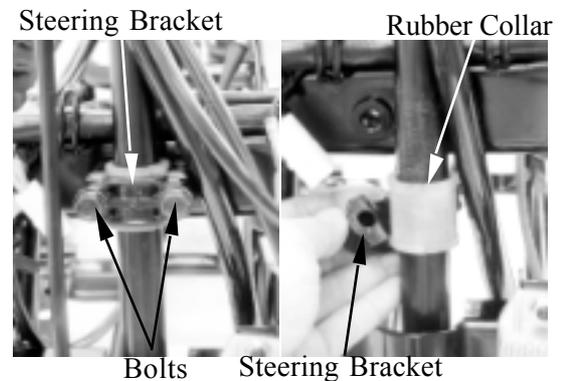
Remove the cotter pins and nuts attaching the tie-rods, then remove tie-rods.

Remove the cotter pin and nut attaching the steering column, then remove steering column and collar.



Remove the two bolts to remove the steering bracket and rubber collar.

Remove steering column and collar.



INSPECTION

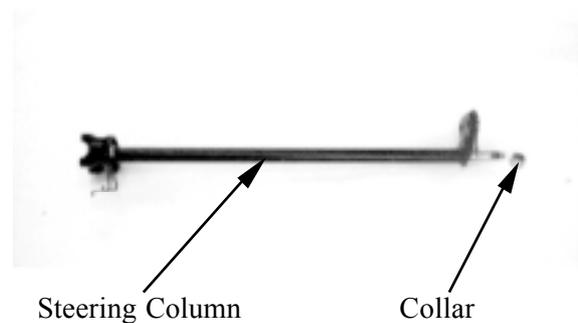
Inspect the steering column.

Replace it if bends or damage.

⚠ Do not attempt to straighten a bent shaft, this may dangerously weaken the shaft.

Inspect the collar.

Replace it if wear or damage.



Inspect the duty seals, snap ring and bearing.

Replace them if wear or damage.

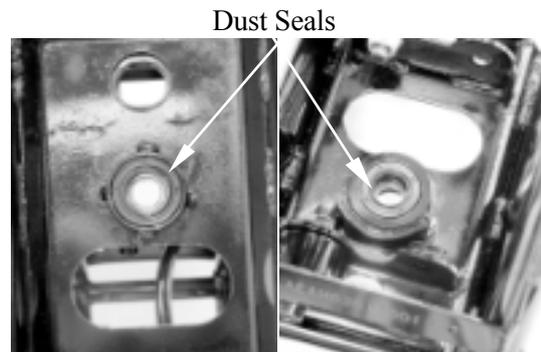


12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

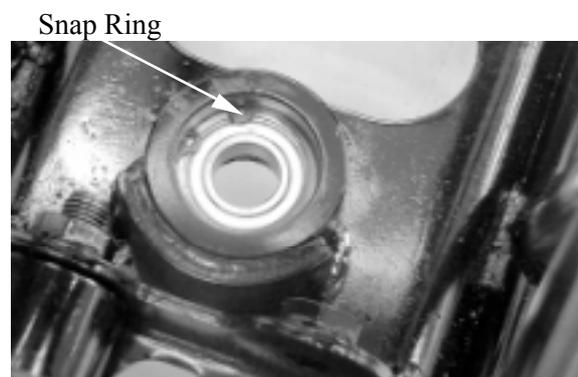


Mongoose/KXR 90/50

Remove the dust seal of each frame side.



Remove the snap ring.
Remove the bearing.



INSTALLATION

Apply grease to a new dust seal lip and install the dust seal (under frame).

Pack bearing cavities with grease.

Drive in the bearing and install snap ring.

Apply grease to a new dust seal lip and install the dust seal.

- Do not allow the bearings to tilt while driving them in.
- Drive in the bearing squarely with the sealed end facing out.

Special

Oil seal and bearing install E014

Apply the grease onto the bearings and oil seal lips of the frame.

Install steering column and collar, then tighten the nut.

Torque: 6.0_ 8.0kgf-m

Install cotter pins and band ends of cotter pin.

- Always use a new cotter pin.



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM



Mongoose/KXR 90/50

Apply the grease onto the rubber collar and then install the rubber collar.

Install the steering bracket and tighten the two bolts.

Torque: 1.8_ 2.5kgf-m



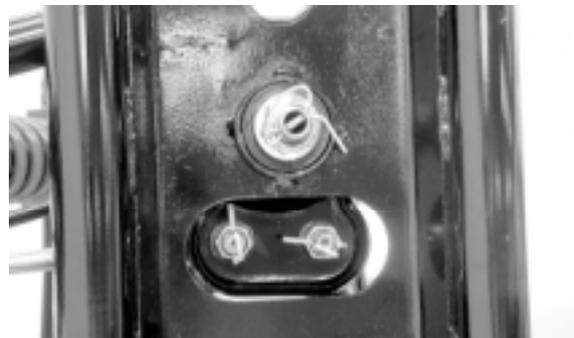
Install the tie rods and tighten the nuts.

Torque: 2.0_ 3.0kgf-m

Install the cotter pin and band ends of cotter pin.



Always use a new cotter pin.

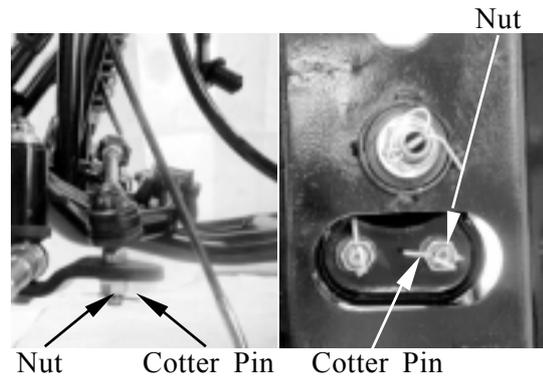


Apply the grease onto the end of the throttle cable and end of the brake cable.

12. FRONT WHEEL/Front BRAKE/Front SUSPENSION/STEERING SYSTEM **KYMCO** Mongoose/KXR 90/50

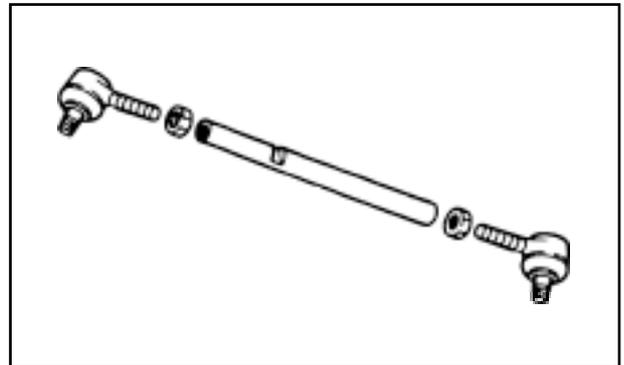
TIE-ROD REMOVAL

Remove the cotter pin and nut at the steering knuckle.
Remove the cotter pin and nut at the steering column.
Remove the tie-rod.

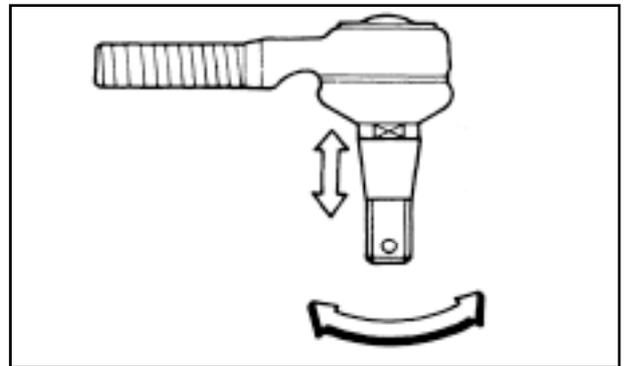


INSPECTION

Inspect the tie-rod.
Replace if bend or damage.

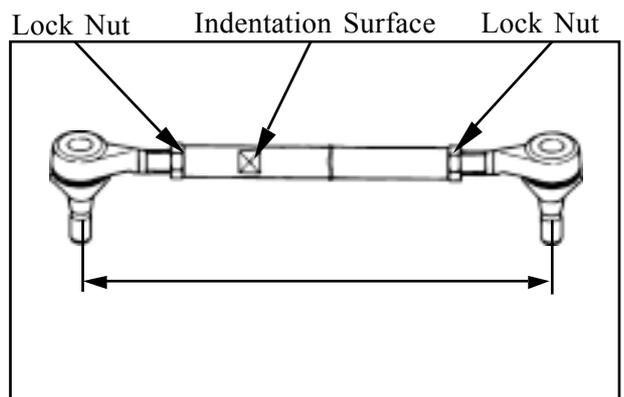


Check the tie-rod end movement.
Replace it if the tie-rod end exists free play or turns roughly.
Check the tapered surface of the tie-rod end.
Replace it if pitting, wear or damage.



Adjust the tie-rod length.
Adjustment steps:
(The following procedures are done on both tie-rods, right and left.)
Loosen the lock nuts.
Adjust the tie-rod length by tuning both tie-rod ends.

Tie rod length: 254.5_ 255.5mm



12. FRONT WHEEL/FRONT BRAKE/FRONT SUSPENSION/STEERING SYSTEM

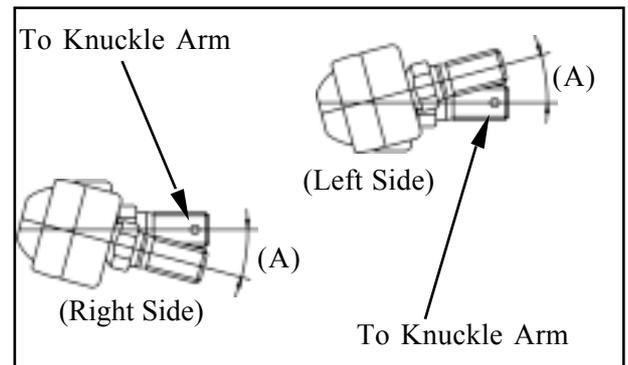
Set the rod-end (steering column side) in an angle where the indentation surface of the tie-rod is parallel to the rod-end shaft, and then tighten the lock nut.

Torque: 2.0_ 3.0kgf-m

Set the other rod-end (knuckle arm side) in an angle as shown (right-hand tie-rod and left-hand tie-rod), and then tighten the lock nut.

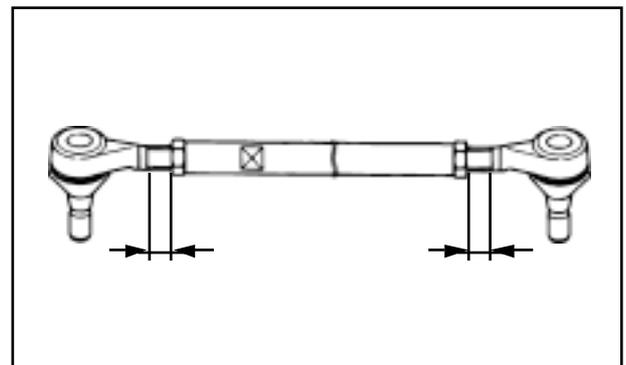
Rod-end (tie rod) angle (A): $15^{\circ} \pm 3^{\circ}$

Torque: 2.0_ 3.0kgf-m



After making adjustment on both tie rods be sure to mark them R and L for identification.

The threads on both rod-end must be of the same length.



INSTALLATION

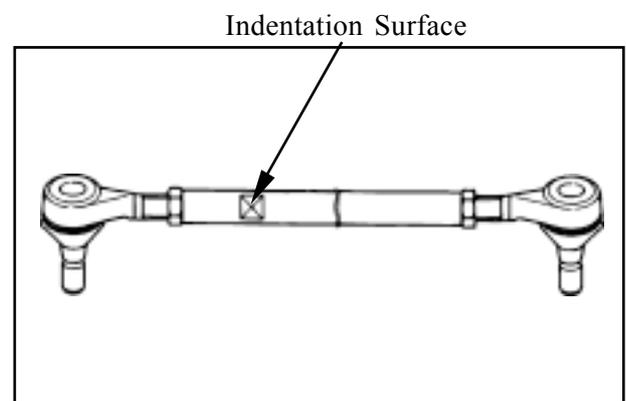
Install the tie-rod and tighten the nuts.

Torque: 2.5_ 3.5kgf-m

Be sure that the rod-end on the indentation surface side is connected to the steering knuckle.

Install the cotter pins and band ends of cotter pin.

Always use a new cotter pin.



Refer to the "TOE-IN ADJUSTMENT" section in the CHAPTER 3 to adjust toe-in.