YAMAHA

XJ900N '84-'86
XJ900

SERVICE INFORMATION

GENERAL INFORMATION

EXTERNAL VIEW

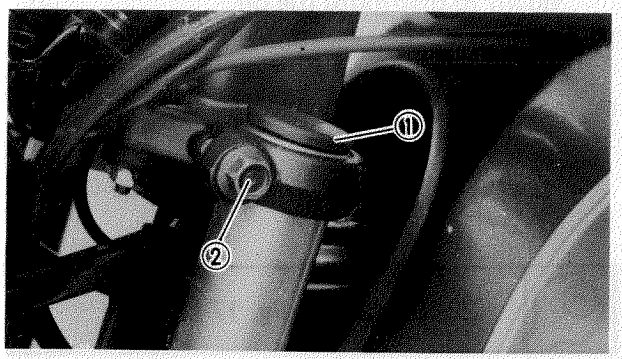
PERIODIC INSPECTION AND ADJUSTMENT

FRONT FORK OIL CHANGE

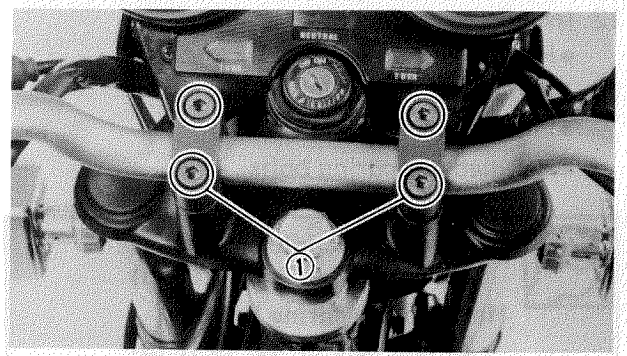
WARNING:

- **Fork oil leakage can cause loss of stability and safe handling. Have any problem corrected before operating the motorcycle.**
- **Securely support the motorcycle so there is no danger of it falling over.**

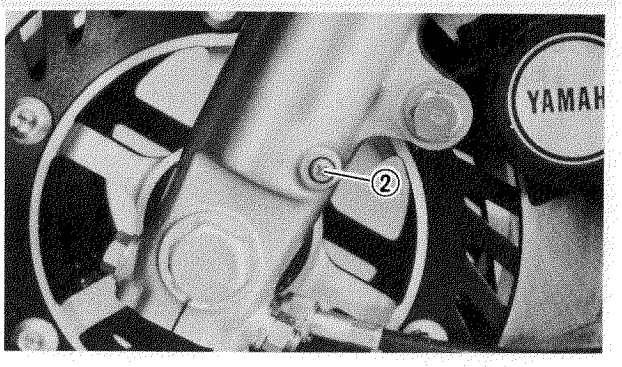
1. Place the motorcycle on the centerstand.
2. Place a suitable stand under the engine to raise the front wheel off the ground.



3. Remove:
   - Fork caps ①
4. Loosen:
   - Pinch bolts (Handle crown) ②



5. Remove:
   - Handlebar holders ①
   - Cap bolt
     Use the Cap Bolt Wrench (90890-01104
6. Remove:
   - Drain screws ②
     Drain the fork oil



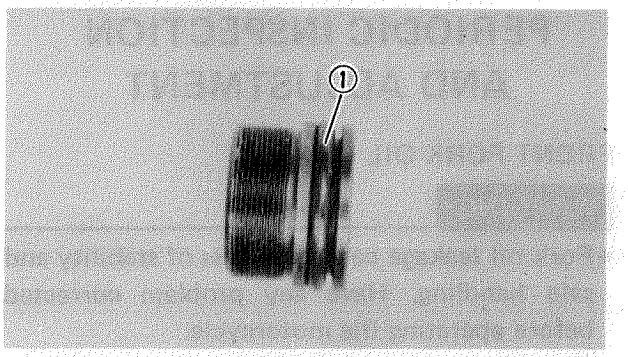
NOTE:

Place an open container under the each drain hole.

WARNING:

Do not allow any oil to contact the disc brake components. If oil is discovered, be sure to remove it, otherwise diminished braking capacity and damage to the rubber components of the brake assembly will occur.

FRONT FORK OIL CHANGE



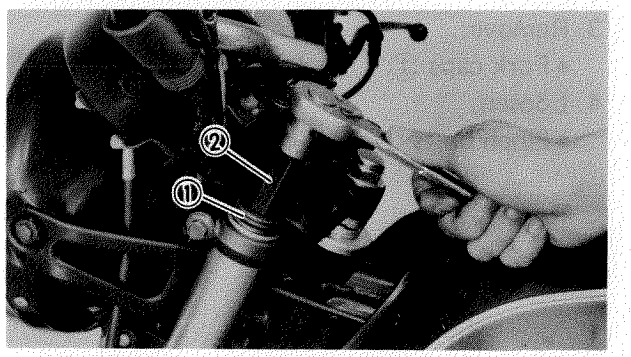
7. Inspect:
   - O-ring ① (Cap bolt)
   - Gasket (Drain screw)

   Wear/Damage → Replace.

8. Install:
   - Drain screws
9. Fill:
   - Front forks

Each Fork:
276 cm³ (9.7 Imp oz, 9.3 US oz)
Fork oil 5WT or equivalent

After filling pump the forks slowly up and down to distribute the oil.



10. Install:
    - Cap bolt
11. Tighten:
    - Cap bolt ①

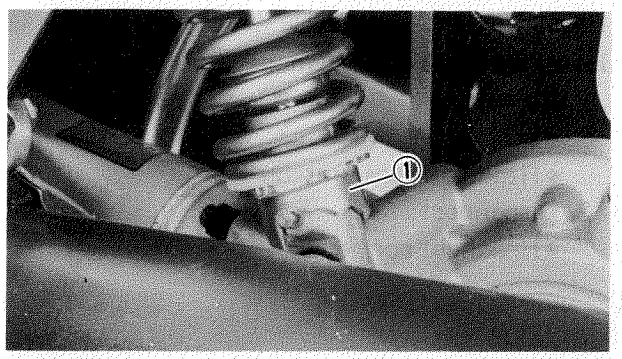
    Use the Cap Bolt Wrench (90890-01104) ② .

23 Nm (2.3 m·kg, 17 ft·lb)

12. Install:
    - Handlebar
13. Tighten:
    - Pinch bolts (Handle Crown)
    - Handlebar securing bolts

Pinch Bolt (Handle crown)
23 Nm (2.3 m·kg, 17 ft·lb)
Handlebar securing bolt:
20 Nm (2.0 m·kg, 14 ft·lb)

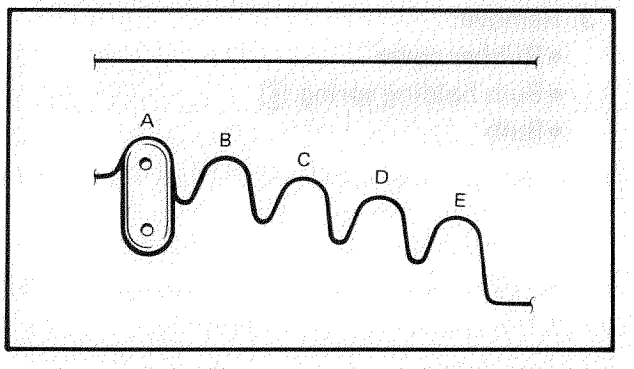
14. Install:
    - Fork caps



REAR SHOCK ABSORBER ADJUSTMENT

1. Adjust
   - Spring preload ①

   If the spring seat is raised, the spring becomes stiffer and if lowered, it becomes softer.



Standard position; A
A Position — Softest
E Position — Stiffest

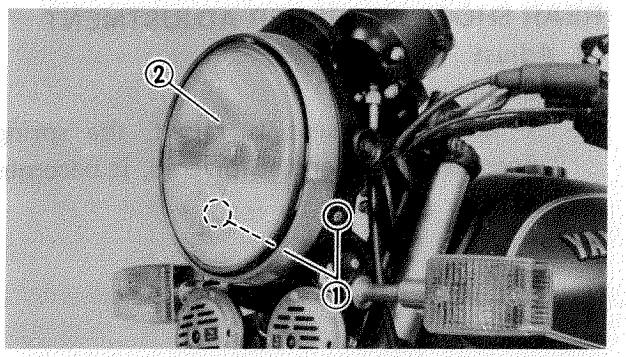
WARNING:

Always adjust each shock absorber on to the same position. Uneven adjustment can cause poor handling and loss of stability.

Recommended the rear shock absorber setting:

Use this table as a guide for specific riding and motorcycle load conditions.

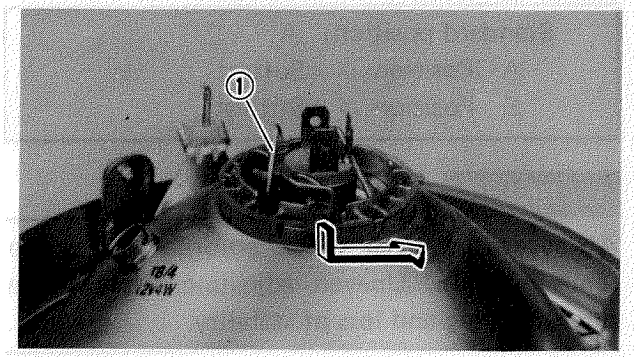
Spring preload adjuster	Load condition			
	Solo rider	With passenger	With passenger and equipment	With accessories, equipment and passenger
A ~ C	○			
A ~ C		○		
C ~ E			○	
E				○



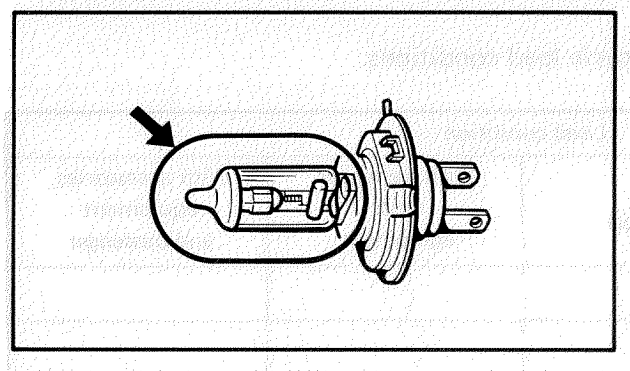
HEADLIGHT

Headlight Bulb Replacement

1. Remove:
   - Screws ①
   - Headlight lens unit ②
2. Disconnect:
   - Headlight connector



3. Remove:
   - Rubber cover
   - Bulb holding spring ①
   - Bulb



WARNING:

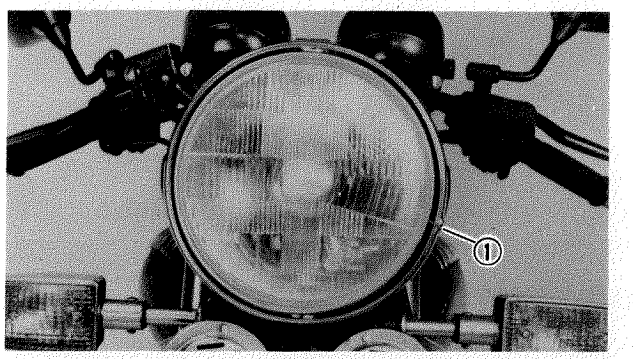
Do not touch headlight bulb when it is on as the bulb generates enormous heat; keep flammable objects away.

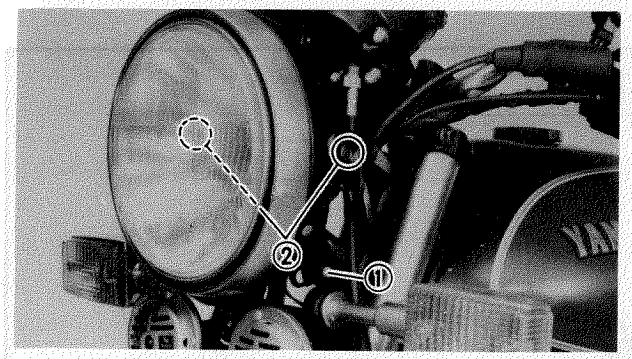
4. Install:
   - Bulb (New)
   - Bulb holding spring

CAUTION:

Avoid touching glass part of bulb. Also keep it free from oil otherwise, transparency of glass, bulb life and illuminous flux will be adversely affected. If oil gets on bulb, clean it with a cloth moistened thoroughly with alcohol or lacquer thinner.

5. Install:
   - Rubber cover
6. Connect:
   - Headlight connector
7. Install:
   - Headlight lens unit
8. Adjust:
   - Headlight





Headlight Adjustment

1. Adjust:
   - Headlight
     (Horizontally)

Horizontal Adjustment	
Right	Turn adjusting screw ① clockwise
Left	Turn adjusting screw ① counterclockwise

2. Adjust:
   - Headlight
     (Vertically)

Vertical adjustment step:

1. Loosen the screw ① .
2. Loosen the headlight body securing bolts ②.
3. Adjust the beam vertically be moving the headlight body up or down.
4. Tighten the screw ① .
5. Tighten the headlight body securing bolts ② .

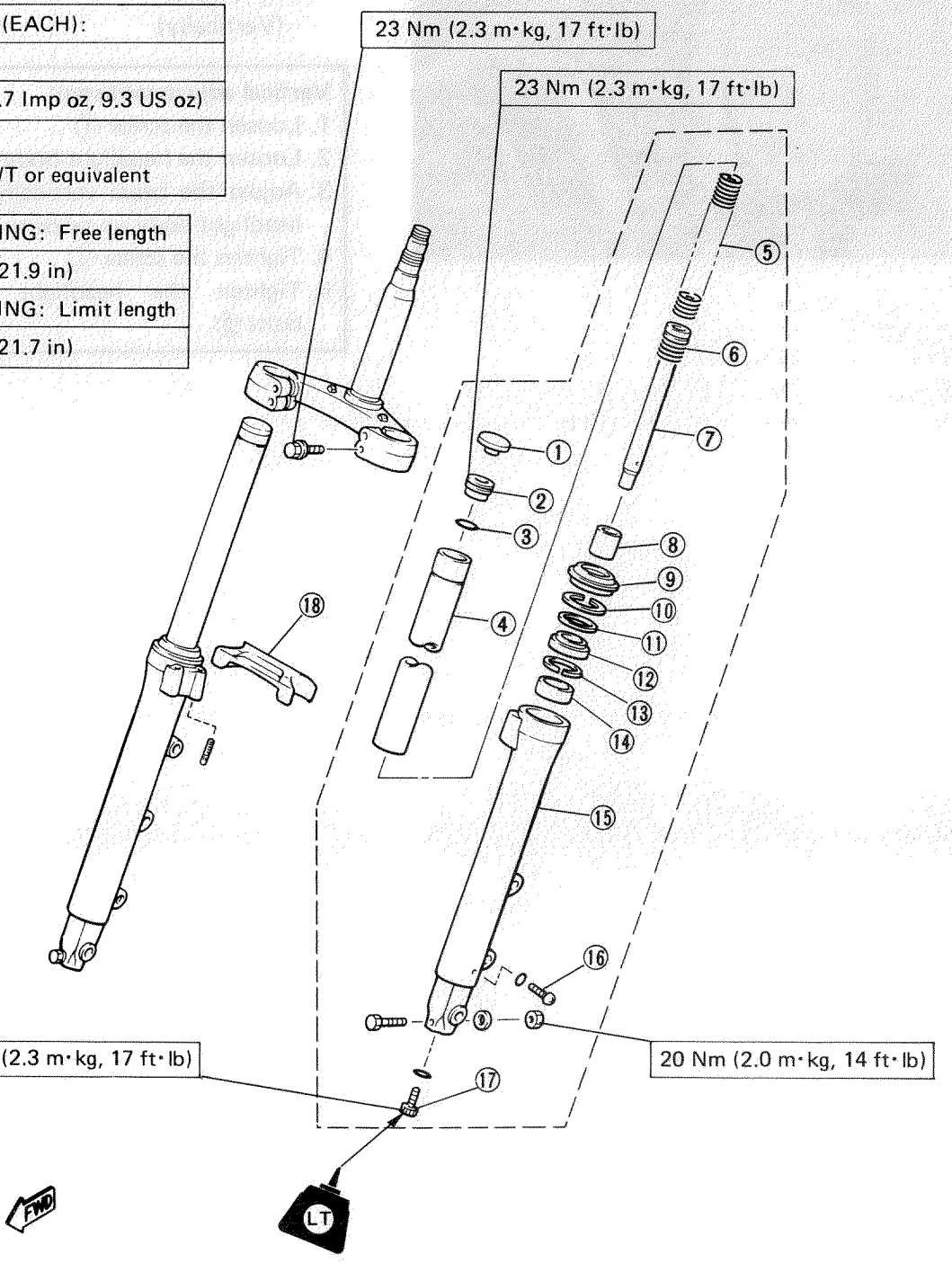
CHASSIS

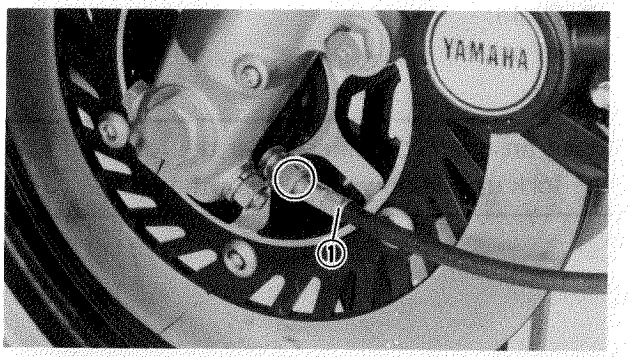
FRONT FORK

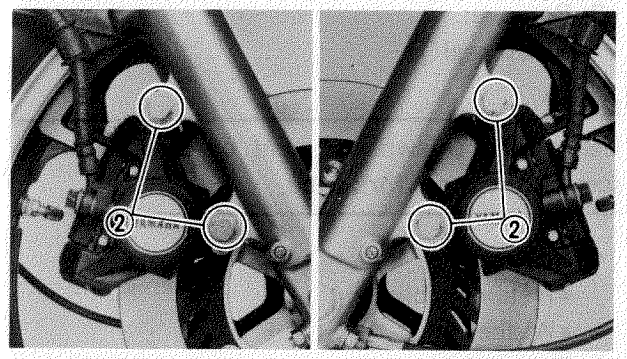
① Fork cap
② Cap bolt
③ O-ring
④ Inner fork tube
⑤ Fork spring
⑥ Rebound spring
⑦ Damper rod
⑧ Taper spindle
⑨ Dust cover
⑩ Retaining clip
⑪ Washer
⑫ Oil seal
⑬ Seal spacer
⑭ Guide bush
⑮ Outer fork tube
⑯ Drain bolt
⑰ Damper rod securing bolt
⑱ Front fork brace

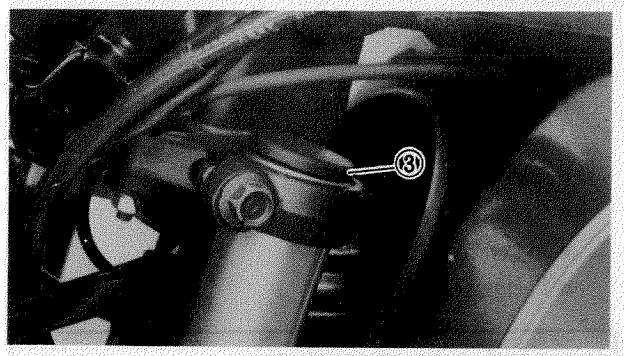
A	FORK OIL (EACH):
B	Capacity:
	276 cm^3 (9.7 Imp oz, 9.3 US oz)
C	Grade:
	Fork oil 5WT or equivalent

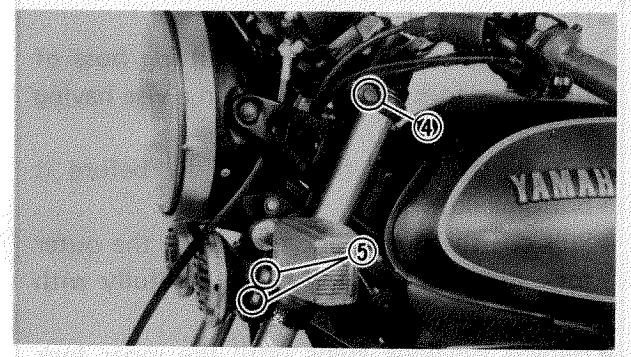
D	FORK SPRING: Free length
	557.5 mm (21.9 in)
E	FORK SPRING: Limit length
	552.0 mm (21.7 in)

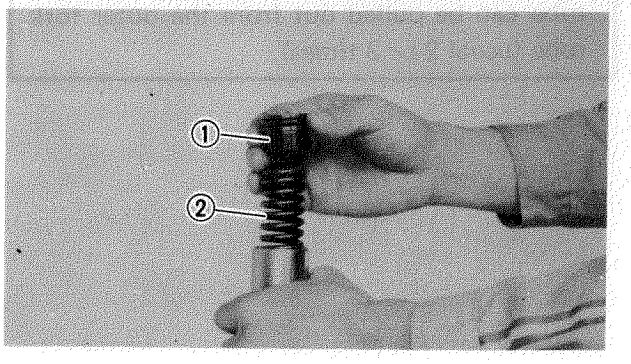












REMOVAL

1. Place the motorcycle on the centerstand.
2. Remove:
   - Front fender
   - Speedometer cable ①
   - Caliper securing bolts ②
   - Fork brace
   - Fork caps ③

NOTE:

Do not depress the brake lever when the wheel is off the motorcycle as the brake pads will be forced shut.

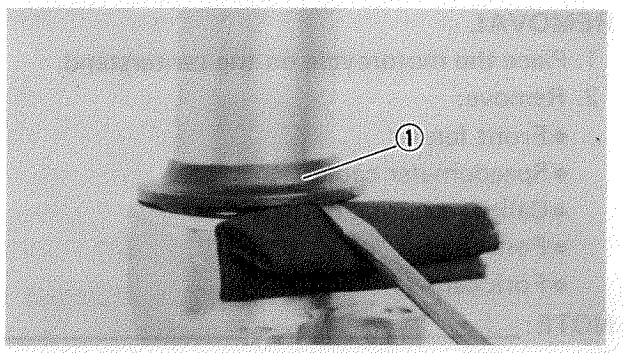
WARNING:

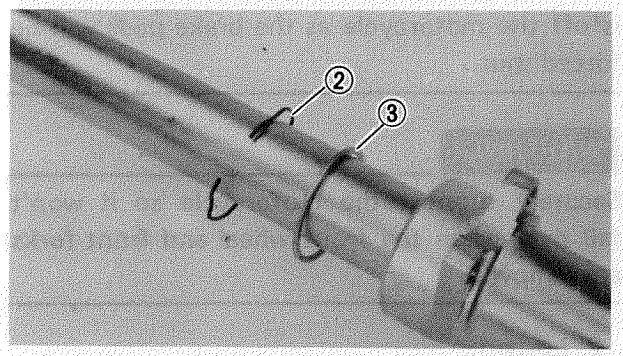
Securely support the motorcycle so it won't fall over when the front wheel and front forks are removed.

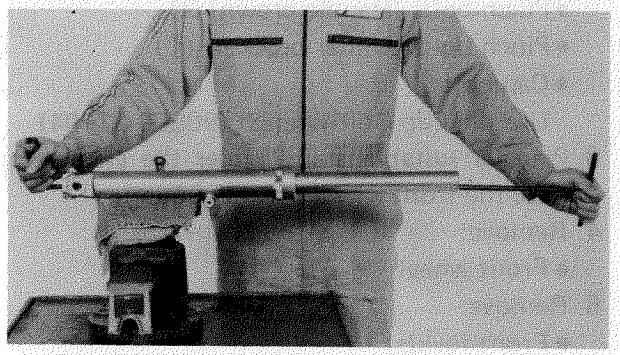
2. Loosen:
   - Pinch bolts (Handle crown) ④
   - Pinch bolts (Under bracket) ⑤
   - Cap bolt
     Use the Cap Bolt Wrench (90890-01104)
3. Place a suitable stand under the engine to raise the front wheel off the ground.
4. Remove:
   - Front wheel
5. Remove:
   - Front fork(s)

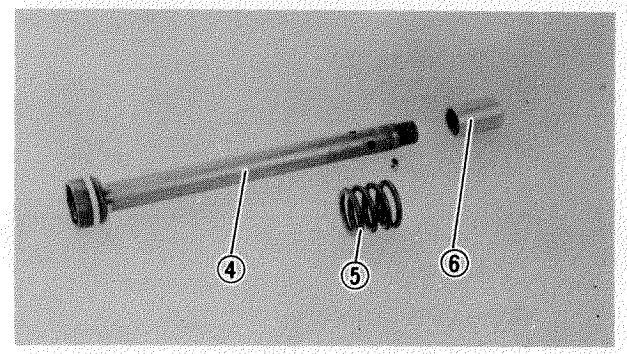
DISASSEMBLY

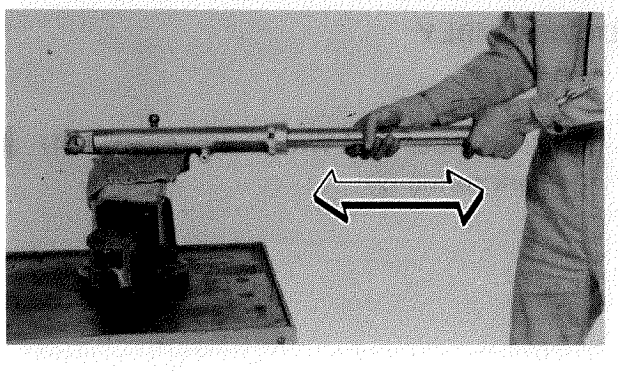
1. Remove:
   - Cap bolt ①
     Use the Cap Bolt Wrench (90890-01104)
   - Fork spring ②











2. Drain:
   - Fork oil

NOTE:
Place an open container under the fork and turn the fork upside down and drain the oil.

3. Remove:
   - Dust seal ①.

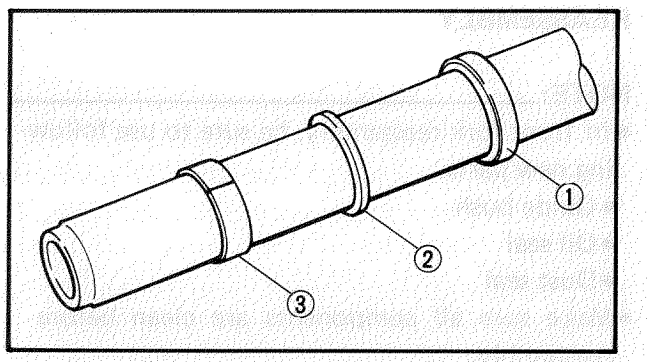
NOTE:
Use a thin screwdriver, and be careful not to scratch the inner fork tube.

4. Remove:
   - Retaining clip ②
   - Washer ③
5. Remove:
   - Cylinder securing bolt
     Use the Damper Rod Holder (90890-01365) and T-Handle (90890-01326) to the lock the damper rod.
   - Damper rod ④
   - Rebound spring ⑤
   - Inner fork tube
   - Taper spindle ⑥

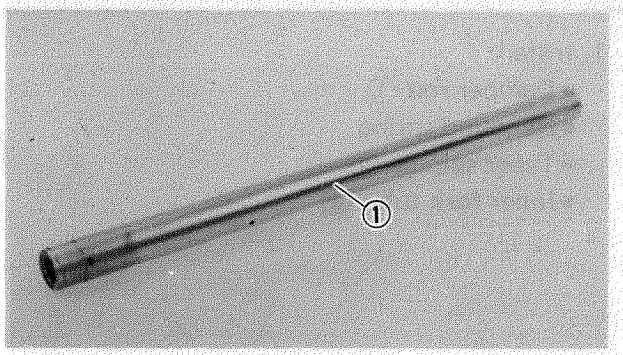
Inner fork tube removal steps:
- Hold the fork leg horizontally.
- Clamp the brake caliper mounting boss of the outer fork tube securely in a vise having soft jaws.
- Put in the inner fork tube just before it bottoms out.
- Pull out the inner fork tube from the outer fork tube by forcefully, but carefully with drawing the inner fork tube.
- Repeat previous steps until the inner fork tube can be pulled out from the outer fork tube (usual 2 or 3 times).

CAUTION:

Don't bottom out the inner fork tube in the above step the taper spindle will be damaged.



6. Remove:
   - Oil seal ①.
   - Seal spacer ②
   - Guide bush ③

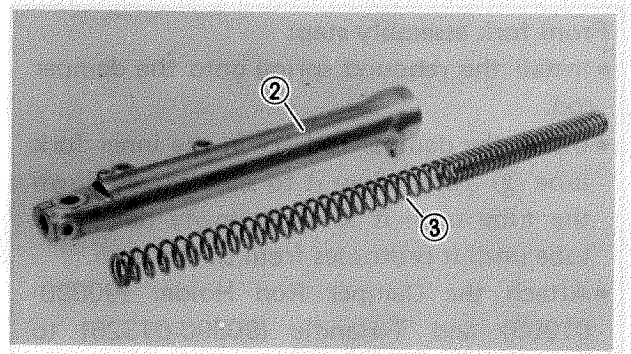


INSPECTION

1. Inspect:
   - Inner fork tube ①
     Scratches/Bends → Replace.

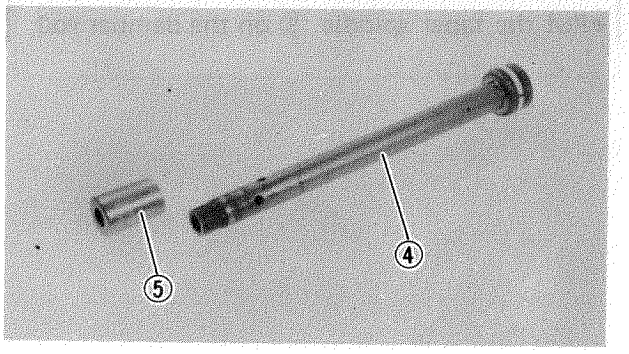
WARNING:

Do not attempt to straighten a bend inner fork tube as this may dangerously weaken the tube.



2. Inspect:
   - Outer fork tube ②
     Scratches/Bends/Damages → Replace.
   - Fork spring ③
     Out of specification → Replace.

Fork Spring Free Length:
557.5 mm (21.9 in)
Minimum Free Length:
552.0 mm (21.7 in)

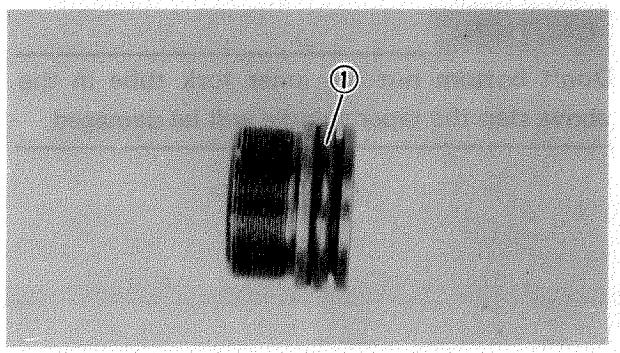


3. Inspect:
   - Damper rod ④
     Wear/Damage → Replace.

NOTE:

Blow out all oil passages with compressed air.

4. Inspect:
   - Taper spindle ⑤
     Damage → Replace.

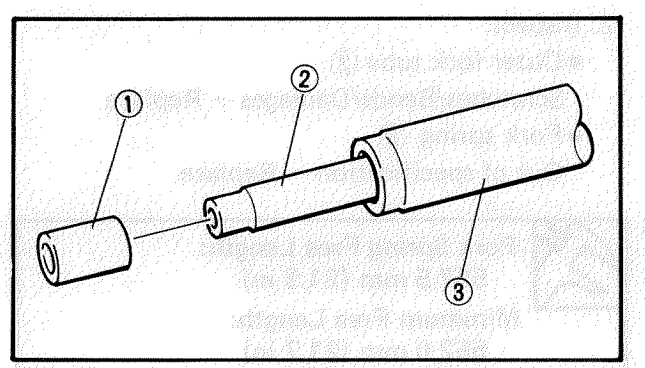


5. Inspect:
   - O-ring ① (Cap bolt)
     Wear/Cracks/Damage → Replace.

REASSEMBLY

NOTE:
- In front fork reassembly, be sure to use following new parts.
  - Guide bush
  - Oil seal
  - Dust seal
- Make sure all components are clean before reassembly.

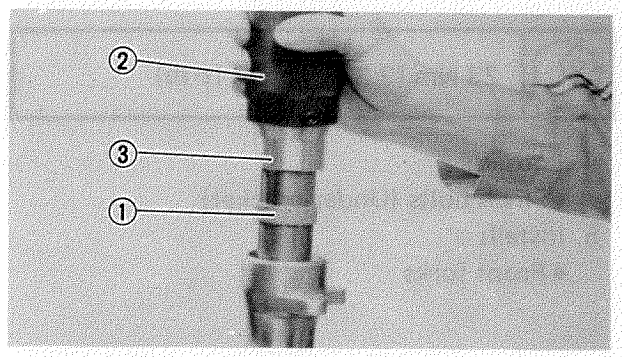
1. Install:
   - Damper rod ①
   - Rebound spring
   - Taper spindle ②
   - Inner fork tube ③



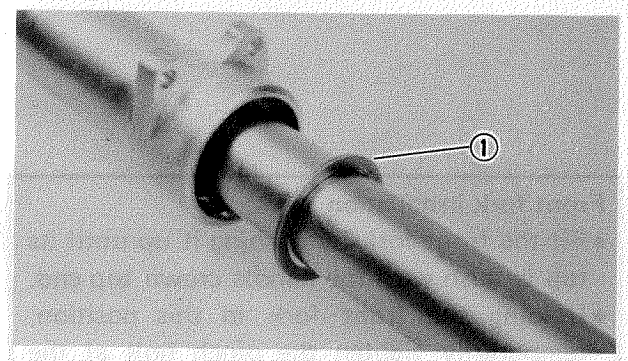
Front fork assembly step:
- Install the rebound spring onto the damper rod.
- Install the damper rod ① in the inner fork tube ② , and allow it to slide slowly down the tube until it to slide slowly down the tube until it protrudes from the bottom.
- Attach the Damper Rod Holder (90890-01365) and T-Handle (90890-01326) to lock the damper rod.
- Put the taper spindle ③ on the damper rod.

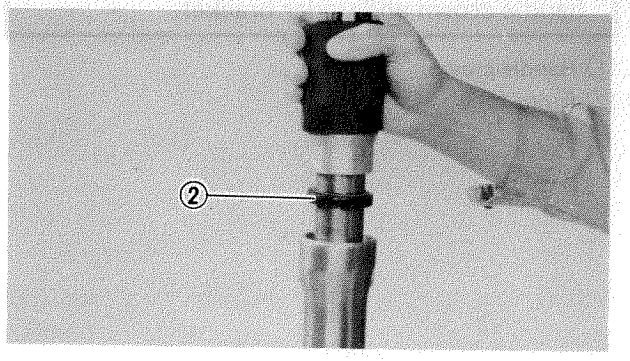
- Hold one hand over the top of the inner fork tube, and carefully install the outer fork tube over the taper spindle.
- Apply LOCTITE® to the damper rod securing bolt and tighten the bolt to the specification: Use the Damper Rod Holder (90890-01365) and T-Handle (90890-01326).

23 Nm (2.3 m·kg, 17 ft·lb)
LOCTITE®



2. Install:
   - Guide bush ①
     Use the Fork Seal Driver Weight (90890-01367) ② and Adapter (90890-01371) ③.





3. Install:
   - Seal spacer ①
   - Oil seal ②
     Use the Fork Seal Driver Weight (90890-01367) and Adapter (90890-01371).
   - Washer
   - Retaining clip
   - Dust cover
4. Fill:
   - Front fork

Each fork:
276 cm³ (9.7 Imp oz, 9.3 US oz)
Fork oil 5WT or equivalent

After filling, slowly pump the fork up and down to distribute oil.

5. Install:
   - Fork spring

6. Install:
   - Cap bolt (With new O-ring) Temporarily tighten the cap bolt.

INSTALLATION

1. Install:
   - Front fork(s)
2. Tighten:
   - Pinch bolts (Under bracket)

23 Nm (2.3 m·kg, 17 ft·lb)

NOTE:

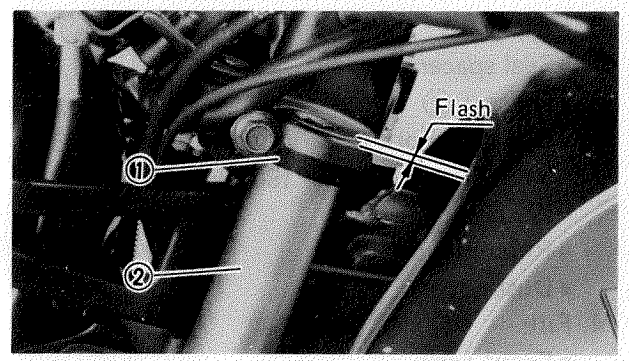
Do not tighten the pinch bolts at the handle crown.

3. Tighten:
   - Cap bolt

   Use the Cap Bolt Wrench (90890-01104)

23 Nm (2.3 m·kg, 17 ft·lb)

4. Loosen:
   - Pinch bolts (Under bracket)
5. Install:
   - Front forks



Front fork installation steps:

- Fit the front fork by pushing it up until its top is flush with the handle crown top end.
- Holding the front fork in this position, temporarily tighten the pinch bolt at the handle crown and under bracket.

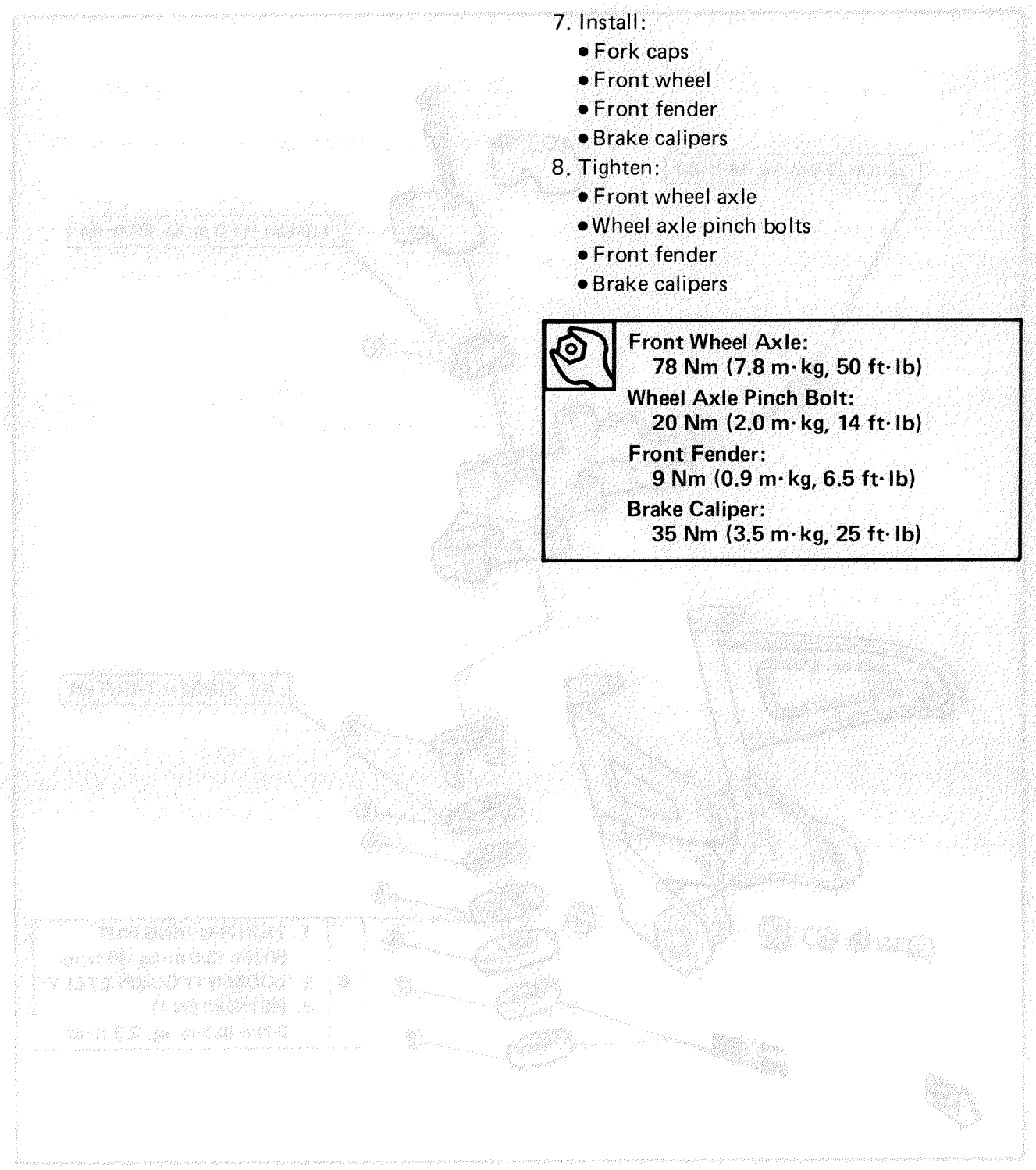
① Handle crown
② Front fork

6. Tighten:
   - Pinch bolts (Handle crown)
   - Pinch bolts (Under brocket)

Pinch Bolt (Handle crown):
20 Nm (2.0 m·kg, 14 ft·lb)
Pinch Bolt (Under bracket)
23 Nm (2.3 m·kg, 17 ft·lb)

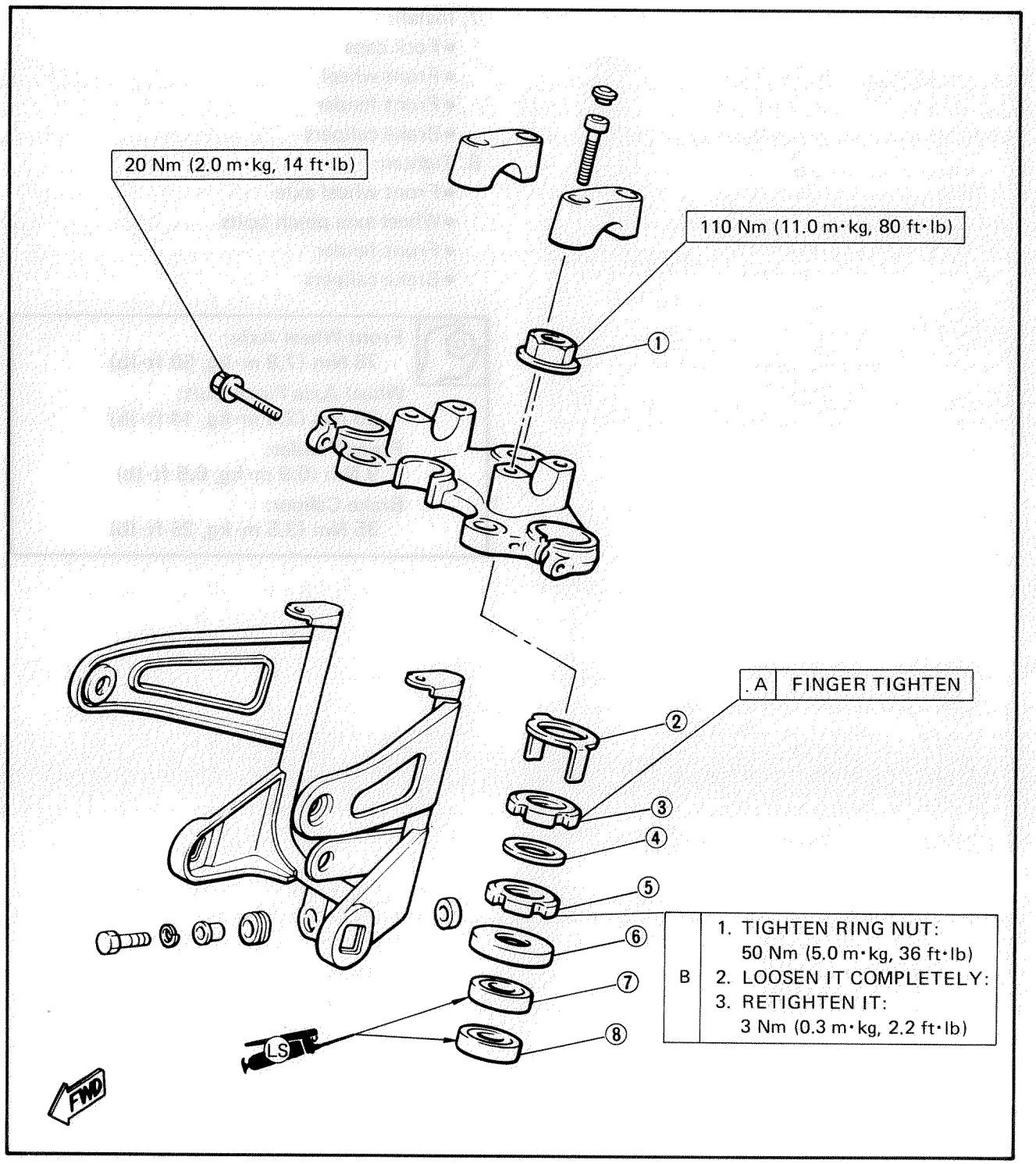
7. Install:
   - Fork caps
   - Front wheel
   - Front fender
   - Brake calipers
8. Tighten:
   - Front wheel axle
   - Wheel axle pinch bolts
   - Front fender
   - Brake calipers

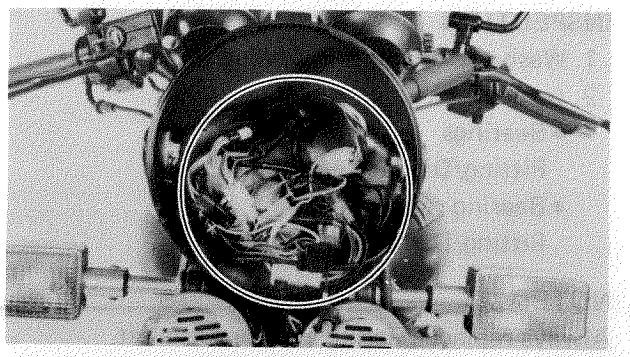
Front Wheel Axle:
78 Nm (7.8 m·kg, 50 ft·lb)
Wheel Axle Pinch Bolt:
20 Nm (2.0 m·kg, 14 ft·lb)
Front Fender:
9 Nm (0.9 m·kg, 6.5 ft·lb)
Brake Caliper:
35 Nm (3.5 m·kg, 25 ft·lb)

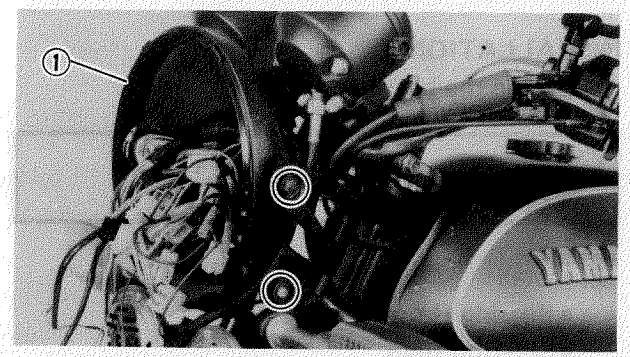


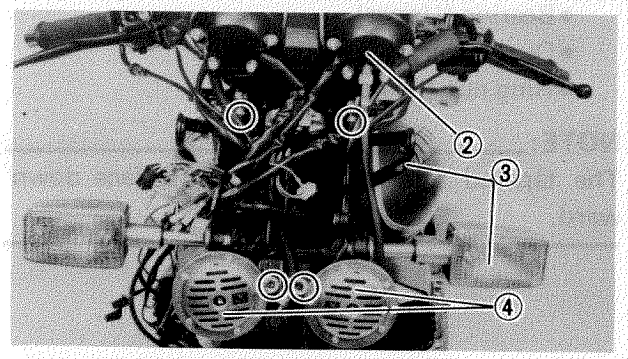
STEERING HEAD

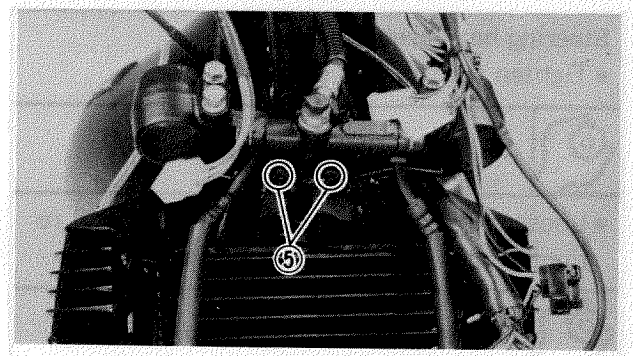
① Steering stem nut
② Lock washer
③ Ring nut (Upper)
④ Washer (Rubber damper)
⑤ Ring nut (Lower)
⑥ Dust cover
⑦ Bearing (Upper)
⑧ Bearing (Lower)











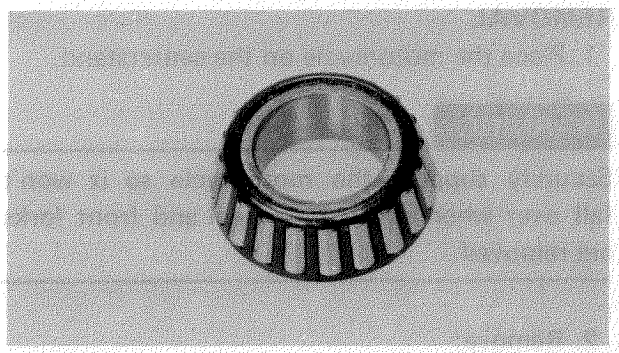
REMOVAL

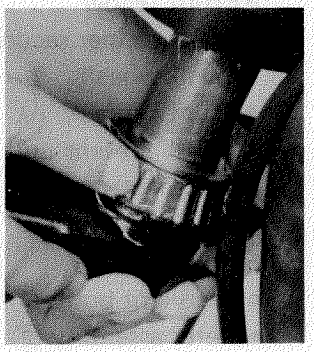
1. Place the motorcycle on the centerstand.

WARNING:

Securely support the motorcycle so it won't fall over when the front wheel and front forks are removed.

2. Remove:
   - Front fender
   - Brake caliper securing bolt
   - Front wheel
   - Front forks
   - Headlight lens unit
3. Disconnect:
   - All couplers
4. Remove:
   - Headlight body ①
   - Meter assembly ②
   - Headlight stay ③
     (with front flasher lights)
   - Horns ④
     (with horn stay)
   - Brake hose joint securing bolts ⑤
   - Front brake unit
5. Remove:
   - Handlebar
6. Remove:
   - Steering stem nut
   - Handle crown
   - Lock washer
   - Ring nut (Upper)
   - Washer (Rubber damper)
   - Ring nut (Lower)
   - Dust cover
   - Bearing (Upper)
   - Bearing (Lower)
   - Steering stem





INSPECTION

1. Wash the bearings in a solvent.
2. Inspect:
   - Bearings
     Pitting/Damage → Replace.
   - Bearing race
     Pitting/Damage → Replace.

NOTE:
Always replace bearing and race as a set.

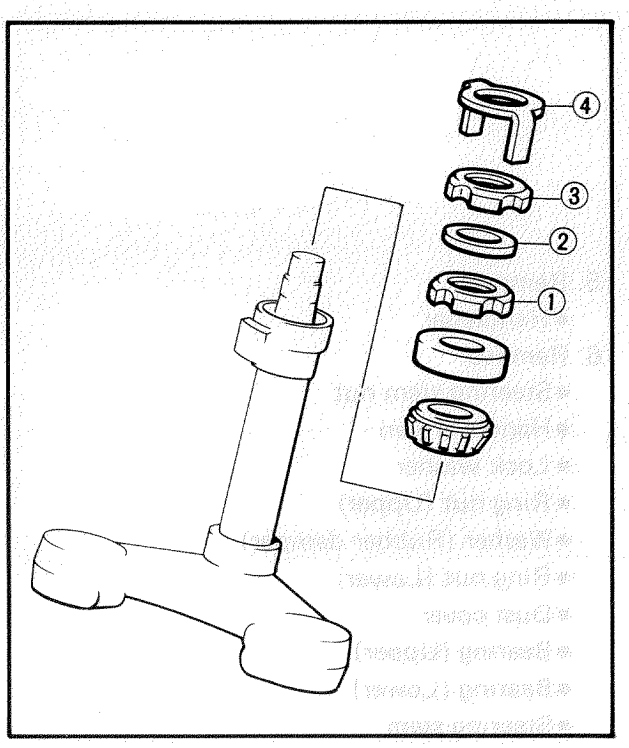
INSTALLATION

1. Grease the bearings and race.

Wheel Bearing Grease

2. Install:
   - Bearing (Lower)
   - Steering stem
   - Bearing (Upper)
   - Dust cover
   - Ring nut (Lower)

NOTE:
The tapered side of ring nut must face down ward.



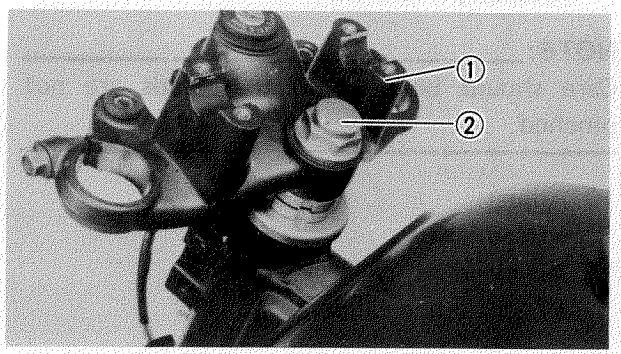
Steering head assembly steps:
- Tighten the ring nut (Lower) ①

50 Nm (5.0 m·kg, 36 ft·lb)

- Loosen the ring nut ① completely and re-tighten the ring nut to specification.

3 Nm (0.3 m·kg, 2.2 ft·lb)

WARNING:
Do not over tighten.



- Install the washer (Rubber damper) ②
- Install the ring nut (Upper) ③ and tighten it by hand and align slots of both ring nuts.
  If not aligned, hold the ring nut ① and tighten the ring nut ② until they are aligned.
- Install the lock washer ④ .

NOTE:
Make sure the lock washer tab is placed in the slots.

3. Install:
   - Handle crown ①
   - Steering stem nut ②
   - Front forks
4. Tighten:
   - Steering stem nut

110 Nm (11.0 m·kg, 80 ft·lb)

5. Install:
   - Meter assembly
   - Horns (With horn stay)
   - Headlight stay
   - Front brake unit
   - Front forks
   - Front wheel
   - Handlebar
6. Tighten:
   - All bolts and nuts

Brake Hose Joint Securing Bolt:
9 Nm (0.9 m·kg, 6.5 ft·lb)
Pinch Bolt (Handle crown):
20 Nm (2.0 m·kg, 14 ft·lb)
Pinch Bolt (Under bracket):
23 Nm (2.3 m·kg, 17 ft·lb)
Front Wheel Axle:
78 Nm (7.8 m·kg, 50 ft·lb)
Brake Caliper Securing Bolt:
35 Nm (3.5 m·kg, 25 ft·lb)
Handlebar Securing Bolt:
20 Nm (2.0 m·kg, 14 ft·lb)

7. Install:
   - Headlight body
8. Connect:
   - All cauplers and leads

NOTE:
The leads of identical colors should be connected.

9. Install:
   - Headlight lens unit

NOTE:
Care should be used so that leads are not pinched.

10. Adjust:
    - Headlight
11. Air bleeding:
    - Front brake calipers

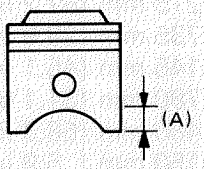
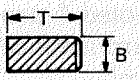
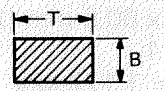
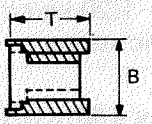
SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	XJ900N
Model Code Number:	1FX
Frame Starting Number:	1FX-000101
Engine Starting Number:	1FX-000101
Dimensions:	
Overall Length	2,215 mm (87.2 in)
Overall Width	735 mm (28.9 in)
Overall Height	1,145 mm (45.1 in)
Seat Height	790 mm (31.1 in)
Wheelbase	1,480 mm (58.3 in)
Minimum Ground Clearance	150 mm (5.9 in)
Weight:	
With Oil and Full Fuel Tank	240 kg (529 lb)
Minimum Turning Radius:	2,900 mm (114.2 in)
Engine:	
Engine Type	Air cooled 4-stroke, DOCH
Cylinder Arrangement	Forward inclined parallel 4-cylinder
Displacement	891 cm^3
Bore x Stroke	68.5 x 60.5 mm (2.70 x 2.38 in)
Compression Ratio	9.6 : 1
Compression Pressure	785 ~ 1,177 kPa (8.0 ~ 1.20 kg/cm^2, 114 ~ 171 psi)
Starting System	Electric starter
Carburetor:	
Type/Manufacturer	BS36 x 4/MIKUNI
Shock Absorber:	
Front Shock Absorber	Coil spring/Oil damper
Rear Shock Absorber	Coil spring/Oil damper
Wheel Travel:	
Front Wheel Travel	140 mm (5.5 in)
Rear Wheel Travel	100 mm (3.9 in)
Bulb Wattage x Quantity:	
Headlight	12V, 60W/55W x 1
Turn Light	12V, 27W x 4
Tail/Brake Light	12V, 8W/27W x 2
Meter Light	12V, 3.4W x 5
Auxiliary Light	12V, 3.4W x 1

MAINTENANCE SPECIFICATIONS

Engine

Model		XJ900N
Cylinder:		
Material		Aluminum alloy with cast iron sleeve
Bore Size		68.5 mm (2.70 in)
Taper Limit		0.05 mm (0.0020 in)
Out of Round Limit		0.01 mm (0.0004 in)
Piston:		
Piston Size		68.5 mm (2.70 in)
Measuring Point (A)		7.8 mm (0.307 in) (From bottom line of piston skirt)
Piston Clearance		0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)
< Limit >		< 0.1 mm (0.004 in) >
Oversize	2nd	69 mm (2.72 in)
Piston Pin Off Set		0.5 mm (0.02 in) intake side
Piston Ring:		
Selectional Sketch		
Top Ring		B = 1.2 mm (0.047 in) T = 2.5 mm (0.098 in)
2nd Ring		B = 1.2 mm (0.047 in) T = 2.7 mm (0.106 in)
Oil Ring		B = 2.5 mm (0.098 in) T = 2.8 mm (0.110 in)
End Gap (Installed):		
Top Ring		0.15 ~ 0.35 mm (0.0059 ~ 0.0138 in)
< Limit >		< 1.0 mm (0.039 in) >
2nd Ring		0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)
< Limit >		< 1.0 mm (0.039 in) >
Oil Ring		0.3 ~ 0.9 mm (0.012 ~ 0.035 in)
< Limit >		< 1.5 mm (0.059 in) >
Side Clearance:		
Top Ring		0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
< Limit >		< 0.15 mm (0.0059 in) >
2nd Ring		0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)
< Limit >		< 0.15 mm (0.0059 in) >
Plating or Coating:		
Top Ring		Chrome plated, Ferox coating
2nd Ring		Parkerrizing
Oil Ring		Chrome plated, Ferox coating

Model		XJ900N
Clutch:		
Friction Plate Thickness/Quantity		3.0 ± 0.1 mm (0.12 ± 0.004 in)/8
< Wear Limit >		< 2.8 mm (0.11 in) >
Clutch Plate Thickness/Quantity		2.0 ± 0.1 mm (0.080 ± 0.004 in)/7
< Warp Limit >		< 0.05 mm (0.002 in) >
Clutch Spring Free Length/Quantity		51.8 mm (2.04 in)/6
Minimum Length		50.0 mm (1.97 in)
Primary Reduction Gear Backlash Tolerance		116
Primary Drive Gear Backlash Number		87 ~ 93
Primary Driven Gear Backlash Number		25 ~ 31
Clutch Release Method		Pock & Pinion pull, Outer pull
Carburetor:		
Type/Manufacturer/Quantity		BS36/MIKUNI/4
I.D. Mark		58L00
Fuel Level		2 ~ 4 mm (0.08 ~ 0.16 in)
Float Height		21.7 ~ 22.8 mm (0.85 ~ 0.90 in)
Main Jet	(M.J.)	#107.5
Main Air Jet	(M.A.J.)	#45
Jet Needle	(J.N.)	5FZ62-3
Needle Jet	(N.J.)	Y-0 (#318)
Pilot Air Jet	(P.A.J.)	#160
Pilot Outlet	(P.O.)	ϕ0.85
Pilot Jet	(P.J.)	#40
Pilot Screw (Turns out)		2
Valve Seat Size		ϕ2.3
Starter Jet	(G.S.)	#35
Throttle Valve Size		130
Engine Idling Speed		1,100 ± 50 r/min
Vacuum Pressure at Idling Speed		215 ~ 225 mm Hg (8.46 ~ 8.85 in Hg)

Chassis

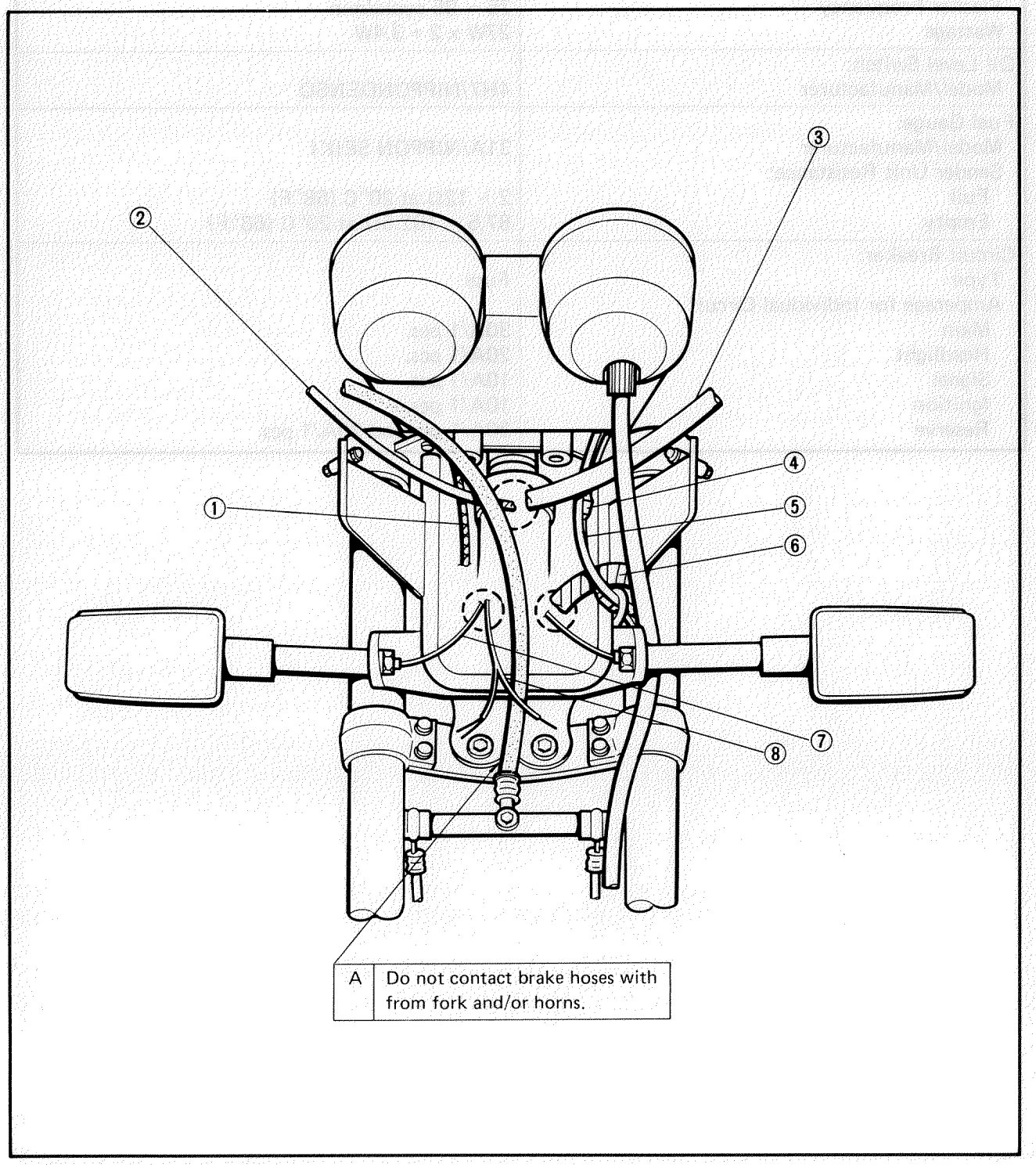
Model	XJ900N
Steering System:	
Steering Bearing Type	Taper Roller Bearing
Lock-to-Lock Angle	70°
Front Suspension:	
Front Fork Travel	140 mm (5.51 in)
Fork Spring Free Length	557.5 mm (21.95 in)
Spring Rate	
K1	8.3 N/mm (0.83 kg/mm, 46.5 lb/in)
K2	16.3 N/mm (1.63 kg/mm, 91.3 lb/in)
Spring Stroke	
K1	0.0 ~ 100 mm (0.0 ~ 3.94 in)
K2	100 ~ 140 mm (3.94 ~ 5.51 in)
Optional Spring	No
Oil Capacity	276 cm^3 (9.71 Imp oz, 9.33 US oz)
Oil Level	384 mm (15.12 in) From top of inner tube fully compressed without spring.
Oil Grade	Fork oil 5WT or equivalent
Rear Suspension:	
Shock Absorber Travel	75 mm (2.95 in)
Spring Free Length	237 mm (9.33 in)
Spring Rate	
K1	21.5 N/mm (2.15 kg/mm, 120.4 lb/in)
K2	30.0 N/mm (3.0 kg/mm, 168.0 lb/in)
Spring Stroke	
K1	0.0 ~ 36 mm (0.0 ~ 1.42 in)
K2	36 ~ 75 mm (1.42 ~ 2.95 in)
Optional Spring	No.
Wheel:	
Front Wheel Type	Cast wheel
Rear Wheel Type	Cast wheel
Front Rim Size/Material	MT2.15 x 18/Aluminum
Rear Rim Size/Material	MT2.75 x 18/Aluminum
Rim Runout Limit	
Vertical	1.0 mm (0.04 in)
Lateral	0.5 mm (0.02 in)

Electrical

Model	XJ900N
T.C.I.:	
Pick up Coil Resistance (Color)	120Ω ± 10% at 20°C (68°F) (Orange — Black, Gray — Black)
T.C.I. Unit-Model/Manufacturer	TID14-19/HITACHI
Flasher Relay:	
Type	Condenser type
Model/Manufacturer	FU257CD/NIPPONDENSO
Self Cancelling Device	Yes.
Flasher Frequency	75 ~ 95 cycle/min
Wattage	27W x 2 + 3.4W
Oil Level Switch:	
Model/Manufacturer	4H7/NIPPONDENSO
Fuel Gauge:	
Model/Manufacturer	31A/NIPPON SEIKI
Sender Unit Resistance:	
Full	2 ~ 12Ω at 20°C (68°F)
Empty	87.5 ~ 102.5Ω at 20°C (68°F)
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit	
Main	30A/1 pcs.
Headlight	20A/1 pcs.
Signal	10A/1 pcs.
Ignition	10A/1 pcs.
Reserve	30A/1 pcs and 20A/1 pcs

CABLE ROUTING (1)

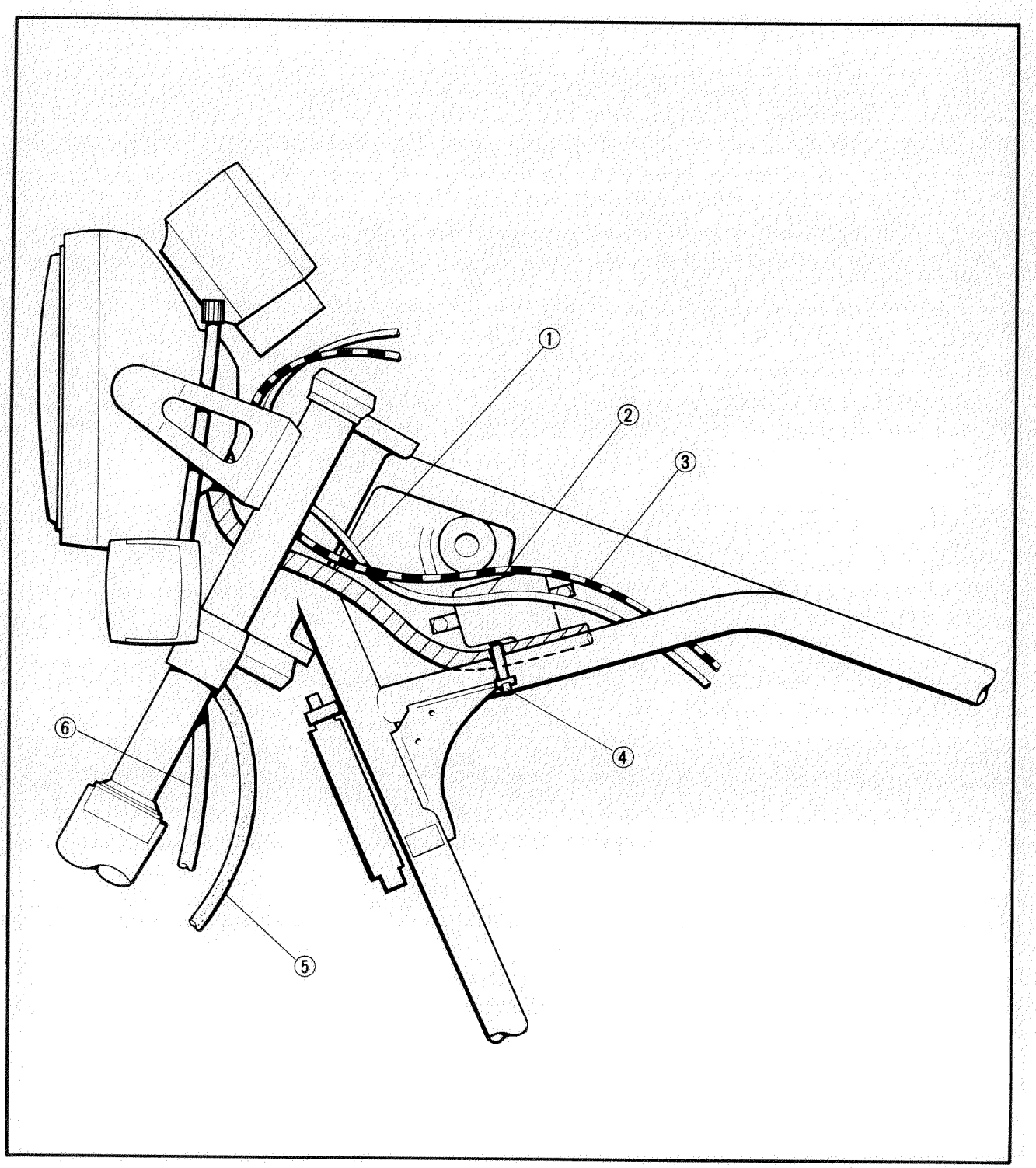
① Throttle cable
② Handlebar switch lead (Right)
③ Handlebar switch lead (Left)
④ Clutch cable
⑤ Starter cable
⑥ Wire harness
⑦ Front flasher lead
⑧ Horn lead

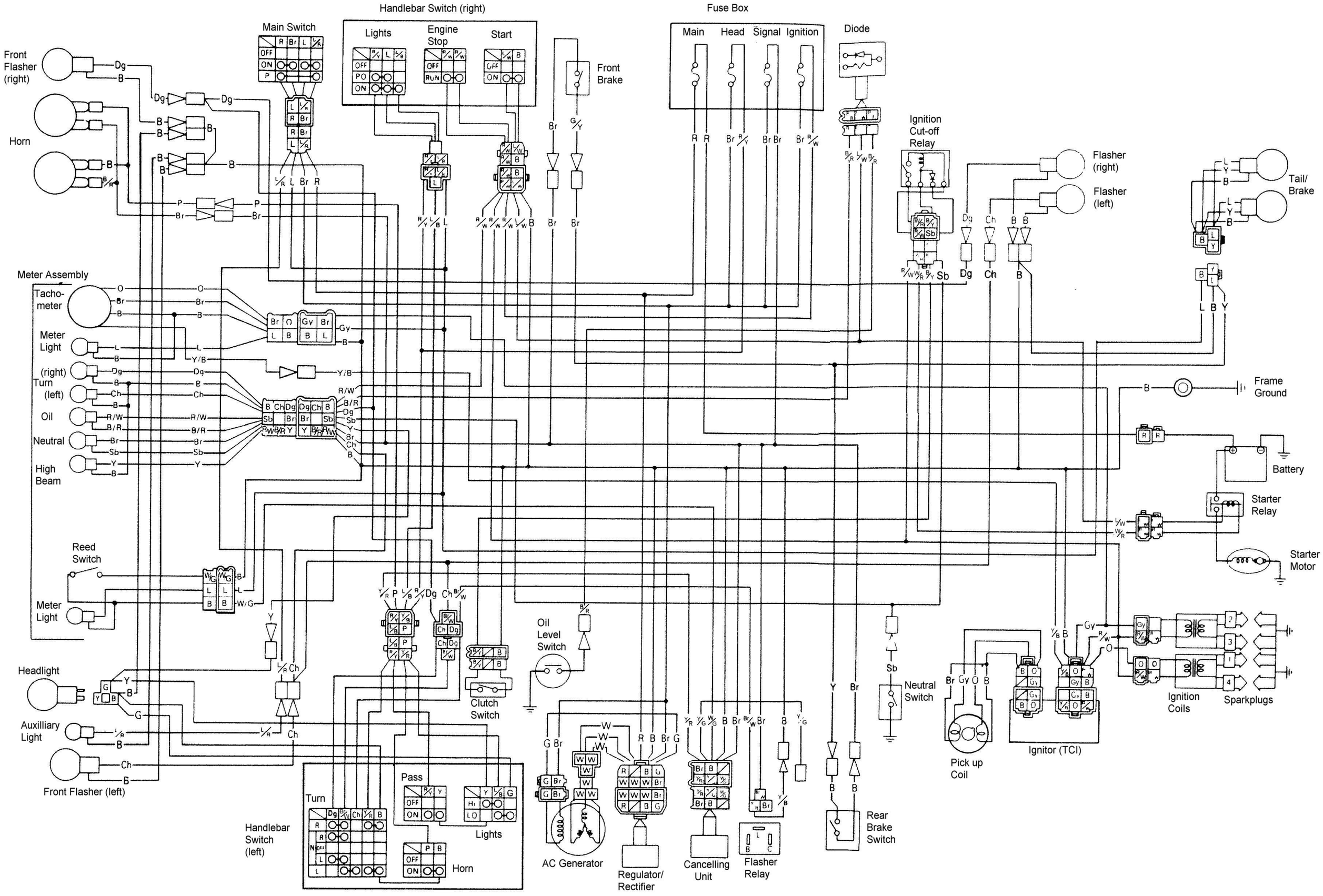


A	Do not contact brake hoses with from fork and/or horns.

CABLE ROUTING (2)

① Wire harness
② Starter cable
③ Clutch cable
④ Band
⑤ Brake hose
⑥ Speedometer cable




Handlebar Switch (right)
Fuse Box
Main Switch
Lights
Engine Stop
Start
Main
Head
Signal
Ignition
Diode
Front Flasher (right)
Horn
Front Brake
Ignition Cut-off Relay
Flasher (right)
Flasher (left)
Tail/ Brake
Meter Assembly
Tacho-meter
Meter Light
(right) Turn (left)
Oil
Neutral
High Beam
Frame Ground
Battery
Starter Relay
Starter Motor
Reed Switch
Meter Light
Headlight
Auxilliary Light
Front Flasher (left)
Oil Level Switch
Clutch Switch
Neutral Switch
Pick up Coil
Ignitor (TCI)
Ignition Coils
Sparkplugs
Handlebar Switch (left)
Turn
Pass
Lights
Horn
AC Generator
Regulator/ Rectifier
Cancelling Unit
Flasher Relay
Rear Brake Switch

COLOR CODE

Br	Brown	Y	Yellow	L	Blue	R/W	Red/White	Y/B	Yellow/Black	Y/R	Yellow/Red	E	Ground
R	Red	Dg	Dark Green	P	Pink	L/W	Blue/White	Br/W	Brown/White	R/W	Red/White	B/R	Black/Red
W	White	Ch	Chocolate	O	Orange	L/B	Blue/Red	Y/G	Yellow/Green	L/R	Blue/Red	Gy	Gray
B	Black	Sb	Sky Blue	G	Green	R/Y	Red/Yellow	W/G	White/Green	G/Y	Green/Yellow	B/Y	Black/Yellow