Chapter 1
Routine maintenance and servicing

Contents

Degrees of difficulty

Easy, suitable for novice with little experience 

Fairly easy, suitable for beginner with some experience 

Fairly difficult, suitable for competent DIY mechanic 

Difficult, suitable for experienced DIY mechanic 

Very difficult, suitable for expert DIY or professional 

Tyre checks

The correct pressures:

- The tyres must be checked when **cold**, not immediately after riding. Note that low tyre pressures may cause the tyre to slip on the rim or come off. High tyre pressures will cause abnormal tread wear and unsafe handling.
- Use an accurate pressure gauge. Many garage forecourt gauges are wildly inaccurate. If you buy your own, spend as much as you can justify on a quality gauge.
- Correct air pressure will increase tyre life and provide maximum stability, handling capability and ride comfort.

Tyre care:

- Check the tyres carefully for cuts, tears, embedded nails or other sharp objects and excessive wear. Operation of the motorcycle with excessively worn tyres is extremely hazardous, as traction and handling are directly affected.
- Check the condition of the tyre valve and ensure the dust cap is in place.
- Pick out any stones or nails which may have become embedded in the tyre tread. If left, they will eventually penetrate through the casing and cause a puncture.
- If tyre damage is apparent, or unexplained loss of pressure is experienced, seek the advice of a tyre fitting specialist without delay.

Loading/speed	Front	Rear
Rider only	36 psi (2.50 Bar)	36 psi (2.50 Bar)
Rider only – high speed riding	36 psi (2.50 Bar)	42 psi (2.90 Bar)
Rider and passenger	36 psi (2.50 Bar)	42 psi (2.90 Bar)

Tyre tread depth:

- At the time of writing UK law requires that tread depth must be at least 1 mm over 3/4 of the tread breadth all the way around the tyre, with no bald patches. Many riders, however, consider 2 mm tread depth minimum to be a safer limit. Yamaha recommend a minimum of 1.6 mm.
- Many tyres now incorporate wear indicators in the tread. Identify the triangular pointer or TWI mark on the tyre sidewall to locate the indicator bar and renew the tyre if the tread has worn down to the bar.

1 Check the tyre pressures when the tyres are **cold** and keep them properly inflated.

2 Measure tread depth at the centre of the tyre using a tread depth gauge.

3 Tyre tread wear indicator bar and its location marking (usually either an arrow, a triangle or the letters TWI) on the sidewall.

Suspension, steering and final drive checks

Suspension and steering:

- Check that the front and rear suspension operates smoothly without binding (see Chapter 1).
- Check that the suspension is adjusted as required (see Chapter 5).
- Check that the steering moves smoothly from lock-to-lock.

Drive chain:

- Check that the chain isn't too loose or too tight, and adjust it if necessary (see Chapter 1).
- If the chain looks dry, lubricate it (see Chapter 1).

Legal and safety checks

Lighting and signalling:

- Take a minute to check that the sidelight, headlight, tail light, brake light, instrument lights and turn signals all work correctly.
- Check that the horn sounds when the switch is operated.
- A working speedometer graduated in mph is a statutory requirement in the UK.

Safety:

- Check that the throttle grip rotates smoothly and snaps shut when released, in all steering positions. Also check for the correct amount of freeplay (see Chapter 1).
- Check that the engine shuts off when the kill switch is operated.
- Check that sidestand and centrestand return springs hold the stands up securely when retracted.

Fuel:

- This may seem obvious, but check that you have enough fuel to complete your journey. If you notice signs of fuel leakage – rectify the cause immediately.
- Ensure you use the correct grade fuel – see Chapter 3 Specifications.

Engine

Spark plugs	
Type	NGK DPR8EA-9 or Nippondenso X24EPR-U9
Electrode gap	0.8 to 0.9 mm
Engine idle speed	
1995 to 2001 models	1000 to 1100 rpm
2002 models	950 to 1150 rpm
Cylinder identification	numbered 1 to 4 from left to right
Carburettor synchronisation – intake vacuum at idle	
1995 to 2003 models	235 mmHg
2004-on models	230 mmHg
Carburettor synchronisation – max. difference between carburettors	10 mmHg
Valve clearances (COLD engine)	
Intake valves	0.11 to 0.15 mm
Exhaust valves	0.16 to 0.20 mm
Cylinder compression @ 400 rpm	
Standard	152 psi (10.5 Bar)
Maximum	174 psi (12.0 Bar)
Minimum	130 psi (9.0 Bar)
Max. difference between cylinders	14.5 psi (1.0 Bar)
Engine oil pressure	11.5 psi (0.8 Bar) @ 1000 rpm, oil at 70 to 80°C

Cycle parts

Drive chain slack (freeplay)	20 to 30 mm
Chain stretch limit (see text)	
XJR1200	154 mm
XJR1300	150 mm
Rear brake pedal height (see text)	45 mm
Throttle cable freeplay (see text)	3 to 5 mm
Tyre pressures (cold)	see *Daily (pre-ride) checks*

Recommended lubricants and fluids

Engine/transmission oil type	see *Daily (pre-ride) checks*
Engine/transmission oil capacity	
Oil change	3.0 litres
Oil and filter change	3.35 litres
Following engine overhaul – dry engine, new filter	4.2 litres
Brake/clutch fluid	DOT 4
Drive chain	Chain lubricant suitable for O-ring chains
Steering head bearings	Lithium-based multi-purpose grease
Swingarm pivot components and bearings	Molybdenum disulphide grease
Wheel bearing seal lips	Lithium-based multi-purpose grease
Gearchange lever/clutch lever/front brake lever/ rear brake pedal/sidestand pivots	Lithium-based multi-purpose grease
Cables	10W40 motor oil or cable lubricant
Throttle grip	Lithium-based multi-purpose grease or dry film lubricant

Torque wrench settings

Brake torque arm nut	23 Nm
Fork clamp bolts (top yoke)	30 Nm
Oil drain plug	43 Nm
Oil filter bolt	15 Nm
Oil gallery plug	12 Nm
Rear axle nut	150 Nm
Spark plugs	18 Nm
Steering head bearing adjuster nut	
Initial setting	52 Nm
Final setting	18 Nm
Steering stem nut	110 Nm
Timing rotor/pick-up coil cover screws	7 Nm

Note: *The daily (pre-ride) checks outlined in the owner's manual covers those items which should be inspected on a daily basis. Always perform the pre-ride inspection at every maintenance interval (in addition to the procedures listed). The intervals listed below are the intervals recommended by the manufacturer for each particular operation during the model years covered in this manual. Your owner's manual may have different intervals for your model.*

Daily (pre-ride)

- ☐ See *Daily (pre-ride) checks* at the beginning of this manual.

After the initial 600 miles (1000 km)

Note: *This first service is performed by a Yamaha dealer after 600 miles (1000 km) from new. Thereafter, maintenance is carried out according to the following intervals of the schedule. If your motorcycle is still within its warranty period, check the warranty conditions before performing your own service work as you could invalidate it.*

Every 300 miles (500 km)

- ☐ Check, adjust, clean and lubricate the drive chain (Section 1)

Every 4000 miles (6000 km) or 6 months (whichever comes sooner)

- ☐ Check the spark plug gaps (Section 2)
- ☐ Check and adjust the idle speed (Section 3)
- ☐ Check/adjust the carburettor synchronisation (Section 4)
- ☐ Clean and check the air filter element (Section 5)
- ☐ Check the fuel system (Section 6)
- ☐ Renew the engine/transmission oil (Section 7)
- ☐ Check the brake pads (Section 8)
- ☐ Check the brake system and brake light switch operation (Section 9)
- ☐ Check the clutch (Section 10)
- ☐ Check the battery (Section 11)
- ☐ Check the condition of the wheels and tyres (Section 12)
- ☐ Check the wheel bearings (Section 13)
- ☐ Check the sidestand and centrestand (Section 14)
- ☐ Check the tightness of all nuts, bolts and fasteners (Section 15)
- ☐ Check throttle and choke action and adjust cable(s) (Section 16)
- ☐ Lubricate the clutch/gearchange/brake lever/brake pedal/stand pivots and the throttle/choke cables (Section 17)
- ☐ Check the suspension (Section 18)

Every 8000 miles (12,000 km) or 12 months (whichever comes sooner)

Carry out all the items under the 4000 mile (6000 km) check, plus the following

- ☐ Renew the spark plugs (Section 2)
- ☐ Check and adjust the steering head bearings (Section 19)
- ☐ Renew the engine/transmission oil and filter (Section 20)

Every 16,000 miles (24,000 km) or two years (whichever comes sooner)

Carry out all the items under the 8000 mile (12,000 km) check, plus the following

- ☐ Re-grease the swingarm bearings (Section 21)
- ☐ Re-grease the steering head bearings (Section 22)
- ☐ Check and adjust the valve clearances (Section 23)

Every 62,000 miles (100,000 km) or two years (whichever comes sooner)

- ☐ Renew the alternator brushes (Section 24)

Every two years

- ☐ Renew the brake and clutch master cylinder and caliper/release cylinder seals (Section 25)
- ☐ Renew the brake and clutch fluid (Section 26)

Every four years

- ☐ Renew the brake and clutch hoses (Section 27)

Non-scheduled maintenance

- ☐ Check and adjust the headlight aim (Section 28)
- ☐ Check the cylinder compression (Section 29)
- ☐ Check the engine oil pressure (Section 30)
- ☐ Renew the fuel hoses (Section 31)
- ☐ Renew the front fork oil (Section 32)

Maintenance schedule - 2000-on models

Note: *The daily (pre-ride) checks outlined in the owner's manual covers those items which should be inspected on a daily basis. Always perform the pre-ride inspection at every maintenance interval (in addition to the procedures listed). The intervals listed below are the intervals recommended by the manufacturer for each particular operation during the model years covered in this manual. Your owner's manual may have different intervals for your model.*

Daily (pre-ride)

- ☐ See *Daily (pre-ride) checks* at the beginning of this manual.

After the initial 600 miles (1000 km)

Note: *This first service is performed by a Yamaha dealer after 600 miles (1000 km) from new. Thereafter, maintenance is carried out according to the following intervals of the schedule. If your motorcycle is still within its warranty period, check the warranty conditions before performing your own service work as you could invalidate it.*

Every 600 miles (1000 km)

- ☐ Check, adjust, clean and lubricate the drive chain (Section 1)

Every 6000 miles (10,000 km) or 6 months (whichever comes sooner)

- ☐ Check the spark plug gaps (Section 2)
- ☐ Check and adjust the idle speed (Section 3)
- ☐ Check/adjust the carburettor synchronisation (Section 4)
- ☐ Clean and check the air filter element (Section 5)
- ☐ Check the fuel system (Section 6)
- ☐ Renew the engine/transmission oil (Section 7)
- ☐ Check the brake pads (Section 8)
- ☐ Check the brake system and brake light switch operation (Section 9)
- ☐ Check the clutch (Section 10)
- ☐ Check the battery (Section 11)
- ☐ Check the condition of the wheels and tyres (Section 12)
- ☐ Check the wheel bearings (Section 13)
- ☐ Check the sidestand and centrestand (Section 14)
- ☐ Check the tightness of all nuts, bolts and fasteners (Section 15)
- ☐ Check throttle and choke action and adjust cable(s) (Section 16)
- ☐ Lubricate the clutch/gearchange/brake lever/brake pedal/stand pivots and the throttle/choke cables (Section 17)
- ☐ Check the suspension (Section 18)

Every 12,000 miles (20,000 km) or 12 months (whichever comes sooner)

Carry out all the items under the 6000 mile (10,000 km) check, plus the following

- ☐ Renew the spark plugs (Section 2)
- ☐ Renew the air filter element (Section 5)
- ☐ Check and adjust the steering head bearings (Section 19)
- ☐ Renew the engine/transmission oil and filter (Section 20)
- ☐ Re-grease the steering head bearings (Section 22)
- ☐ Check and adjust the valve clearances (Section 23)

Every 30,000 miles (50,000 km) or two years (whichever comes sooner)

Carry out all the items under the 6000 mile (10,000 km) check, plus the following

- ☐ Re-grease the swingarm bearings (Section 21)

Every 62,000 miles (100,000 km) or two years (whichever comes sooner)

- ☐ Renew the alternator brushes (Section 24)

Every two years

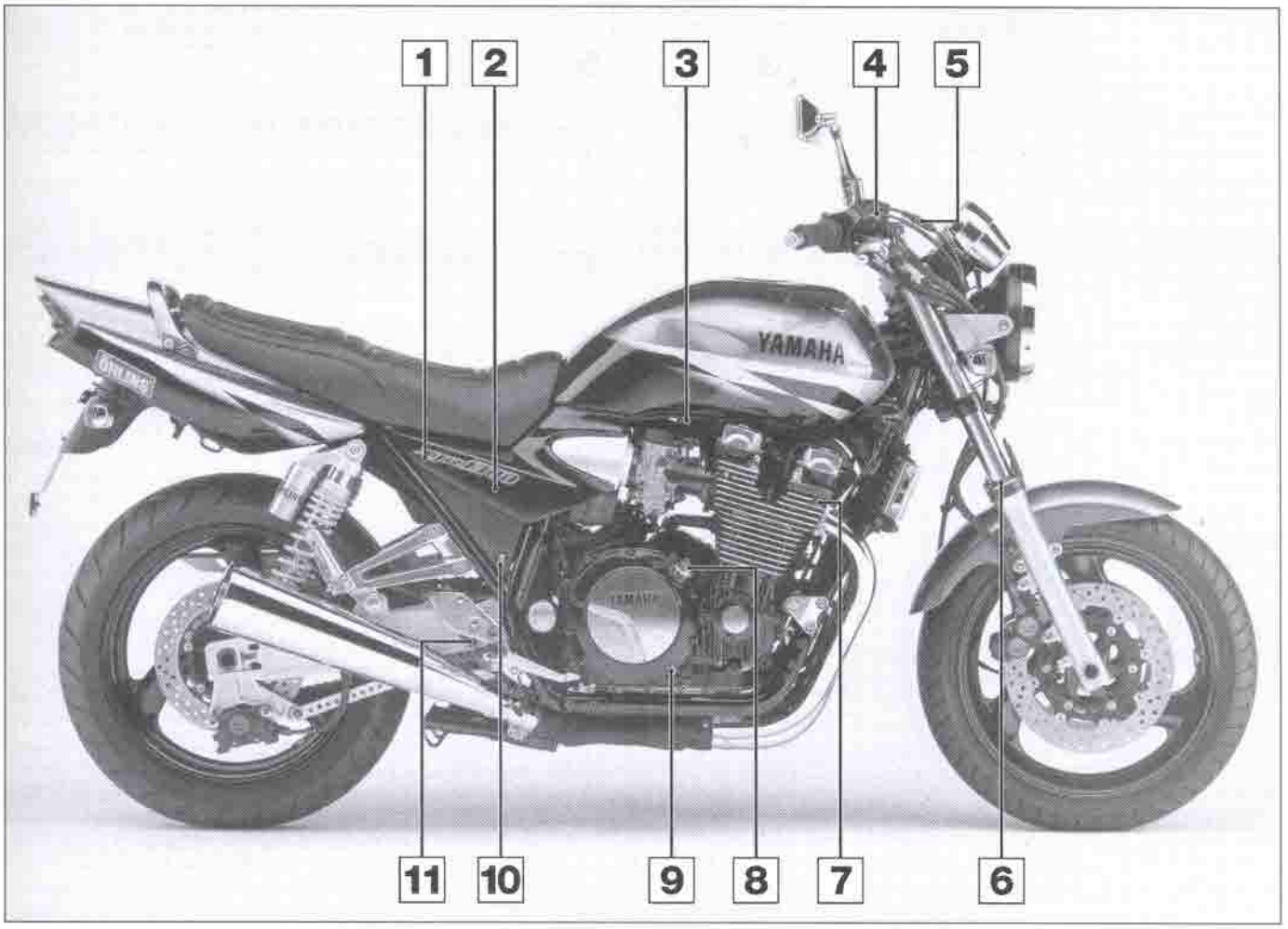
- ☐ Renew the brake and clutch master cylinder and caliper/release cylinder seals (Section 25)
- ☐ Renew the brake and clutch fluid (Section 26)

Every four years

- ☐ Renew the brake and clutch hoses (Section 27)

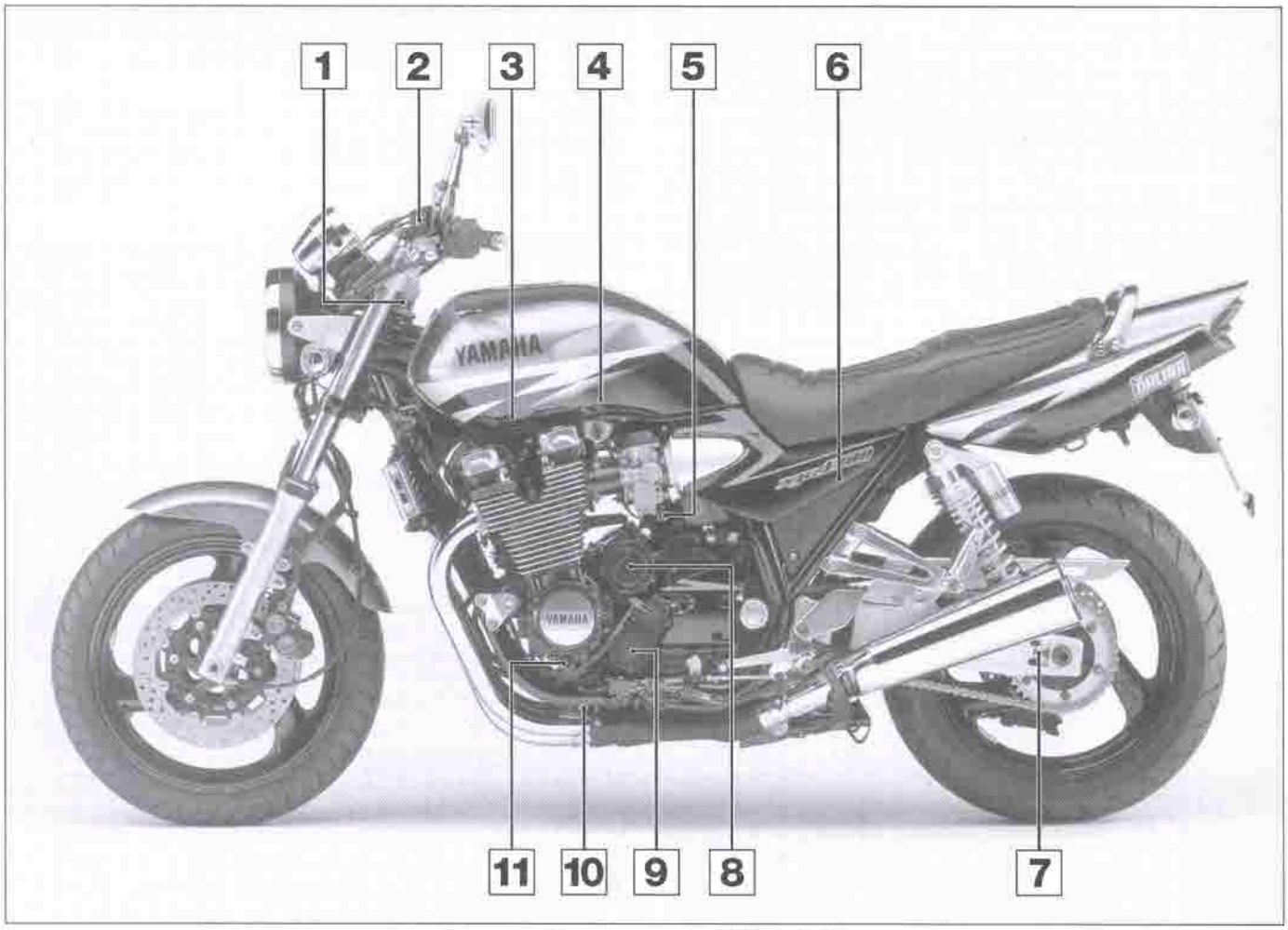
Non-scheduled maintenance

- ☐ Check and adjust the headlight aim (Section 28)
- ☐ Check the cylinder compression (Section 29)
- ☐ Check the engine oil pressure (Section 30)
- ☐ Renew the fuel hoses (Section 31)
- ☐ Renew the front fork oil (Section 32)



Component locations on the right-hand side

1 Rear brake fluid reservoir
2 Air filter
3 In-line fuel filter (XJR1300 only)
4 Front brake fluid reservoir
5 Throttle cable upper adjuster
6 Fork seals
7 Oil delivery check bolt
8 Oil filler cap
9 Oil level inspection window
10 Rear brake light switch
11 Rear brake pedal height adjuster



Component locations on the left-hand side

1 Steering head bearing adjuster
2 Clutch fluid reservoir
3 Air induction system valve
4 Fuel tap strainer
5 Idle speed adjuster
6 Battery
7 Drive chain adjusters
8 Alternator brushes
9 Oil filter
10 Oil drain plug
11 Main oil gallery plug

1 This Chapter is designed to help the home mechanic maintain his/her motorcycle for safety, economy, long life and peak performance.
2 Deciding where to start or plug into the routine maintenance schedule depends on several factors. If your motorcycle has been maintained according to the warranty standards and has just come out of warranty, start routine maintenance as it coincides with the next mileage or calendar interval. If you have owned the machine for some time but have never performed any maintenance on it, start at the nearest interval and include some additional procedures to ensure that nothing important is overlooked. If you have just had a major engine overhaul, then start the maintenance routine from the beginning. If you have a used machine and have no knowledge of its history or maintenance record, combine all the checks into one large service initially and then settle into the specified maintenance schedule.
3 Before beginning any maintenance or repair, the machine should be cleaned thoroughly, especially around the oil filter, spark plugs, valve covers, body panels, carburettors, etc. Cleaning will help ensure that dirt does not contaminate the engine and will allow you to detect wear and damage that could otherwise easily go unnoticed.
4 Certain maintenance information is sometimes printed on labels attached to the motorcycle. If the information on the labels differs from that included here, use the information on the label.

Maintenance procedures

1 Drive chain and sprockets – check, adjustment and lubrication

Every 300 miles (500 km) – 1995 to 1999 models

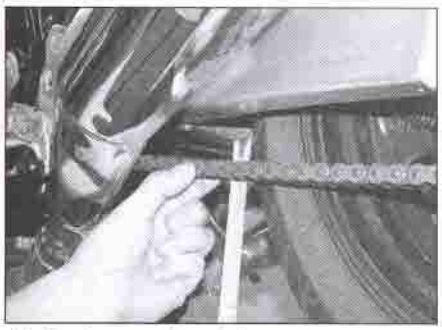
Every 600 miles (1000 km) – 2000-on models

Check

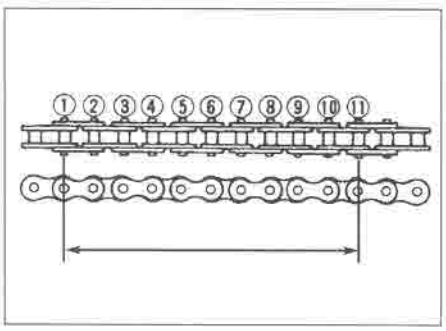
1 The chain stretches with wear, so periodic adjustment is necessary to maintain the correct tension. A neglected drive chain won't last long and can quickly damage the sprockets. Routine chain adjustment and lubrication isn't difficult and will ensure maximum chain and sprocket life.
2 To check the chain, support the bike on the centrestand, and shift the transmission into neutral.
3 Push up on the bottom run of the chain and measure the slack (freeplay) midway between the two sprockets **(see illustration)**. Compare your measurement to that listed in this Chapter's Specifications. Since the chain will rarely wear evenly, resulting in a tight spot, turn the rear wheel so that another section of chain can be checked; do this several times to check the entire length of chain. Any adjustment should be based upon the measurement taken at the tightest point. Adjust the chain if required as described below.
4 Every so often, and especially as the chain gets older, measure the amount of chain stretch as follows and compare the result to the stretch limit specified at the beginning of the Chapter. Following the procedure in Steps 10 to 12 below, turn the adjuster bolts out evenly until the slack is removed but not so much that the chain is taut. Measure along the bottom run the length of 11 pins (from the centre of the 1st pin to the centre of the 11th pin) and compare the result with the service limit specified at the beginning of the Chapter **(see illustration)**. Rotate the rear wheel so that several sections of the chain are measured, then calculate the average. If the chain stretch measurement exceeds the service limit it must be renewed (see Chapter 5). **Note:** *Never install a new chain on old sprockets, and never use the old chain if you install new sprockets – renew the chain and sprockets as a set.* If the chain is good, reset the adjusters so that there is the correct amount of freeplay, then tighten the axle nut and the brake torque arm nut to the specified torque settings. On XJR1200 models fit a new split pin into the torque arm bolt and bend its ends securely.
5 In some cases where lubrication has been neglected, corrosion and galling may cause the links to bind and kink, which effectively shortens the chain's length. Any such links should be thoroughly cleaned and worked free. If the chain is tight between the sprockets, rusty or kinked, it's time to renew it. If you find a tight area, mark it with felt pen or paint, and repeat the measurement after the bike has been ridden. If the chain is still tight in the same area, it may be damaged or worn. Because a tight or kinked chain can damage the transmission output shaft bearings, it's a good idea to renew it (see Chapter 5).
6 Check the entire length of the chain for damaged rollers, loose links and pins, and missing O-rings and renew it if damage is found.
7 Remove the front sprocket cover (see Chapter 5, Section 16). Check the teeth on the engine sprocket and the rear wheel sprocket for wear **(see illustration)**.
8 Inspect the drive chain slider on the swingarm for excessive wear and renew it if worn (see Chapter 5).
Note: *You should never install a new chain on old sprockets, and never use the old chain if you install new sprockets – renew the chain and sprockets as a set.*

Adjustment

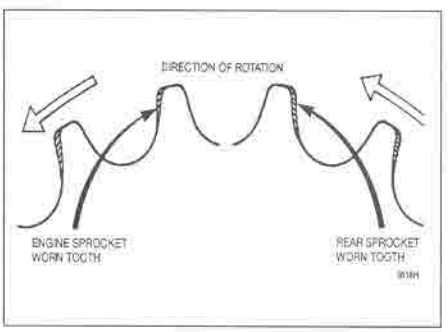
9 Support the bike on its centrestand. Rotate the rear wheel until the chain is positioned with the tightest point at the centre of its bottom run.
10 Slacken the nut on the bolt securing the brake torque arm to the rear brake caliper, on



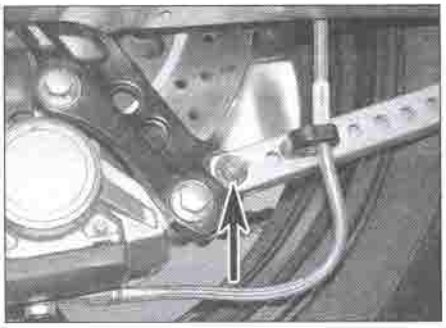
1.3 Push up on the chain and measure the slack



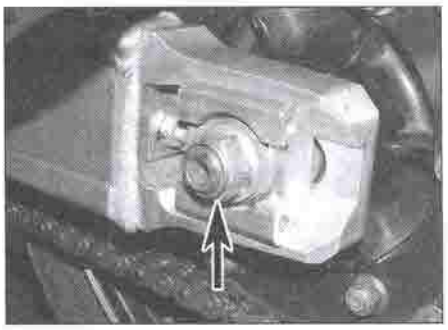
1.4 Check the amount of stretch with the chain taut by measuring as shown



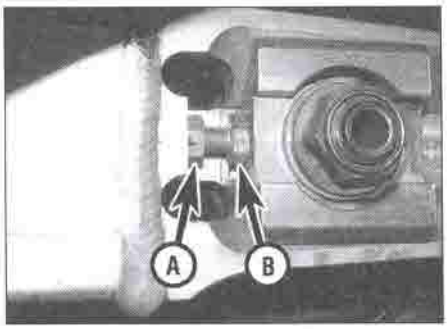
1.7 Check the sprockets in the areas indicated to see if they are worn excessively



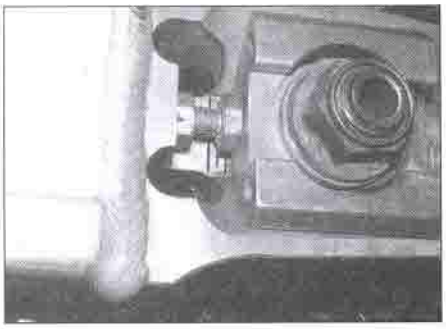
1.10 Remove the split pin where fitted, then slacken the nut (arrowed)



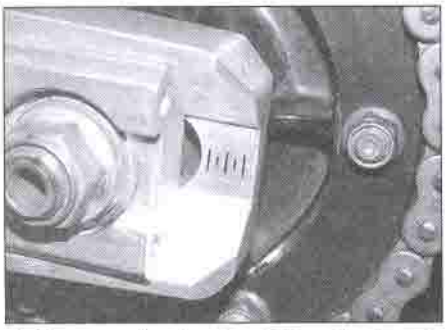
1.11 Slacken the rear axle nut (arrowed)



1.12a Slacken the locknut (A) and turn the adjuster (B) as required



1.12b Check the relative position of the front edge . . .



1.12c . . . or back edge of the adjustment marker with the marks on the swingarm. On this bike you would use the front edge as the rear edge has not yet reached the alignment marks

1.14 Tighten the axle nut to the specified torque

XJR1200 models having first removed the split pin **(see illustration)**.

11 Slacken the axle nut **(see illustration)**.

12 Slacken the adjuster locknut on each side of the swingarm, then turn the adjusters evenly until the amount of freeplay specified at the beginning of the Chapter is obtained at the centre of the bottom run of the chain **(see illustration)**. Following chain adjustment, check that either the front or back edge (according to the current amount of chain wear) of each chain adjustment marker is in the same position in relation to the marks on the swingarm **(see illustrations)**. It is important each adjuster aligns with the same mark; if not, the rear wheel will be out of alignment with the front. Also check that there is no clearance between the adjuster bolt and the front of the adjustment marker – push or kick the wheel forwards to eliminate any freeplay (but make sure you don't rock the bike off its stand!).

> **HAYNES HiNT** ***Refer to Chapter 6 for information on checking wheel alignment.***

13 If there is a discrepancy in the chain adjuster positions, adjust one of them so that its position is exactly the same as the other. Check the chain freeplay as described above and readjust if necessary.

1.16 Apply the lubricant to the overlap between the sideplates. Note the use of a piece of card to prevent lubricant contacting the tyre

14 Tighten the axle nut to the torque setting specified at the beginning of the Chapter, then tighten the adjuster locknuts securely **(see illustration and 1.12a)**. Recheck the chain adjustment. Tighten the brake torque arm nut to the specified torque, then on XJR1200 models fit a new split pin through the bolt and bend its ends securely **(see illustration 1.10)**.

Lubrication

15 If required, wash the chain in paraffin (kerosene) or a suitable non-flammable or high flash-point solvent that will not damage the O-rings, using a soft brush to work any dirt out if necessary. Wipe the cleaner off the chain and allow it to dry, using compressed air if available. If the chain is excessively dirty it should be removed from the machine and allowed to soak in the paraffin or solvent (see Chapter 5).

Caution: Don't use petrol (gasoline), solvent or other cleaning fluids which might damage the internal sealing properties of the chain. Don't use high-pressure water or steam cleaners. The entire process shouldn't take longer than ten minutes – if it does, the O-rings in the chain rollers could be damaged.

16 For routine lubrication, the best time to lubricate the chain is after the motorcycle has been ridden. When the chain is warm, the lubricant will penetrate the joints between the side plates better than when cold. **Note:** *Use a chain lube that is specifically for O-ring chains; do not use any other chain lubricants – the solvents could damage the chain's sealing rings.* Apply the lubricant to the area where the side plates overlap – not the middle of the rollers **(see illustration)**.

> **HAYNES HiNT** ***Apply the lubricant to the top of the lower chain run, so centrifugal force will work it into the chain when the bike is moving. After applying the lubricant, let it soak in a few minutes before wiping off any excess.***