

0.8 Safety first!

Professional mechanics are trained in safe working procedures. However enthusiastic you may be about getting on with the job at hand, take the time to ensure that your safety is not put at risk. A moment's lack of attention can result in an accident, as can failure to observe simple precautions.

There will always be new ways of having accidents, and the following is not a comprehensive list of all dangers; it is intended rather to make you aware of the risks and to encourage a safe approach to all work you carry out on your bike.

Asbestos

- Certain friction, insulating, sealing and other products - such as brake pads, clutch linings, gaskets, etc. - contain asbestos. Extreme care must be taken to avoid inhalation of dust from such products since it is hazardous to health. If in doubt, assume that they do contain asbestos.

Fire

- Remember at all times that petrol is highly flammable. Never smoke or have any kind of naked flame around, when working on the vehicle. But the risk does not end there - a spark caused by an electrical short-circuit, by two metal surfaces contacting each other, by careless use of tools, or even by static electricity built up in your body under certain conditions, can ignite petrol vapour, which in a confined space is highly explosive. Never use petrol as a cleaning solvent. Use an approved safety solvent.

- Always disconnect the battery earth terminal before working on any part of the fuel or electrical system, and never risk spilling fuel on to a hot engine or exhaust.

- It is recommended that a fire extinguisher of a type suitable for fuel and electrical fires is kept handy in the garage or workplace at all times. Never try to extinguish a fuel or electrical fire with water.

Fumes

- Certain fumes are highly toxic and can quickly cause unconsciousness and even death if inhaled to any extent. Petrol vapour comes into this category, as do the vapours from certain solvents such as trichloroethylene. Any draining or pouring of such volatile fluids should be done in a well ventilated area.

- When using cleaning fluids and solvents, read the instructions carefully. Never use materials from unmarked containers - they may give off poisonous vapours.

- Never run the engine of a motor vehicle in an enclosed space such as a garage. Exhaust fumes contain carbon monoxide which is extremely poisonous; if you need to run the engine, always do so in the open air or at least have the rear of the vehicle outside the workplace.

The battery

- Never cause a spark, or allow a naked light near the vehicle's battery. It will normally be giving off a certain amount of hydrogen gas, which is highly explosive.

- Always disconnect the battery ground (earth) terminal before working on the fuel or electrical systems (except where noted).

- If possible, loosen the filler plugs or cover when charging the battery from an external source. Do not charge at an excessive rate or the battery may burst.

- Take care when topping up, cleaning or carrying the battery. The acid electrolyte, even when diluted, is very corrosive and should not be allowed to contact the eyes or skin. Always wear rubber gloves and goggles or a face shield. If you ever need to prepare electrolyte yourself, always add the acid slowly to the water; never add the water to the acid.

Electricity

- When using an electric power tool, inspection light etc., always ensure that the appliance is correctly connected to its plug and that, where necessary, it is properly grounded (earthed). Do not use such appliances in damp conditions and, again, beware of creating a spark or applying excessive heat in the vicinity of fuel or fuel vapour. Also ensure that the appliances meet national safety standards.

- A severe electric shock can result from touching certain parts of the electrical system, such as the spark plug wires (HT leads), when the engine is running or being cranked, particularly if components are damp or the insulation is defective. Where an electronic ignition system is used, the secondary (HT) voltage is much higher and could prove fatal.

Remember...

- ✗ **Don't** start the engine without first ascertaining that the transmission is in neutral.

- ✗ **Don't** suddenly remove the pressure cap from a hot cooling system - cover it with a cloth and release the pressure gradually first, or you may get scalded by escaping coolant.
- ✗ **Don't** attempt to drain oil until you are sure it has cooled sufficiently to avoid scalding you.

- ✗ **Don't** grasp any part of the engine or exhaust system without first ascertaining that it is cool enough not to burn you.

- ✗ **Don't** allow brake fluid or antifreeze to contact the machine's paintwork or plastic components.

- ✗ **Don't** siphon toxic liquids such as fuel, hydraulic fluid or antifreeze by mouth, or allow them to remain on your skin.

- ✗ **Don't** inhale dust - it may be injurious to health (see Asbestos heading).

- ✗ **Don't** allow any spilled oil or grease to remain on the floor - wipe it up right away, before someone slips on it.

- ✗ **Don't** use ill-fitting spanners or other tools which may slip and cause injury.

- ✗ **Don't** lift a heavy component which may be beyond your capability - get assistance.

- ✗ **Don't** rush to finish a job or take unverified short cuts.

- ✗ **Don't** allow children or animals in or around an unattended vehicle.

- ✗ **Don't** inflate a tyre above the recommended pressure. Apart from overstressing the carcass, in extreme cases the tyre may blow off forcibly.

- ✓ **Do** ensure that the machine is supported securely at all times. This is especially important when the machine is blocked up to aid wheel or fork removal.

- ✓ **Do** take care when attempting to loosen a stubborn nut or bolt. It is generally better to pull on a spanner, rather than push, so that if you slip, you fall away from the machine rather than onto it.

- ✓ **Do** wear eye protection when using power tools such as drill, sander, bench grinder etc.

- ✓ **Do** use a barrier cream on your hands prior to undertaking dirty jobs - it will protect your skin from infection as well as making the dirt easier to remove afterwards; but make sure your hands aren't left slippery. Note that long-term contact with used engine oil can be a health hazard.

- ✓ **Do** keep loose clothing (cuffs, ties etc. and long hair) well out of the way of moving mechanical parts.

- ✓ **Do** remove rings, wristwatch etc., before working on the vehicle - especially the electrical system.

- ✓ **Do** keep your work area tidy - it is only too easy to fall over articles left lying around.

- ✓ **Do** exercise caution when compressing springs for removal or installation. Ensure that the tension is applied and released in a controlled manner, using suitable tools which preclude the possibility of the spring escaping violently.

- ✓ **Do** ensure that any lifting tackle used has a safe working load rating adequate for the job.

- ✓ **Do** get someone to check periodically that all is well, when working alone on the vehicle.

- ✓ **Do** carry out work in a logical sequence and check that everything is correctly assembled and tightened afterwards.

- ✓ **Do** remember that your vehicle's safety affects that of yourself and others. If in doubt on any point, get professional advice.

- If in spite of following these precautions, you are unfortunate enough to injure yourself, seek medical attention as soon as possible.

Frame and engine numbers

The frame serial number is stamped into the right side of the steering head. The engine number is stamped into the top of the crankcase on the right-hand side of the engine. Both of these numbers should be recorded and kept in a safe place so they can be furnished to law enforcement officials in the event of a theft. There is also a carburettor identification number on the intake side of each carburettor body, and a colour code label on the top of the rear fender under the passenger seat. The colour code label may also contain the bike's production year and model code.

The frame serial number, engine serial number, carburettor identification number and colour code should also be kept in a handy place (such as with your driver's licence) so they are always available when purchasing or ordering parts for your machine.

The procedures in this manual identify the bikes by model type (eg TDM) and if necessary by production year. Note that the production year does not necessarily correspond with the year of sale or registration.

The model code number is very useful when ordering parts for your bike and is linked to the production year as shown in the accompanying table. There should be a sticker on the bike's rear frame section (usually visible once the seat is lifted) which gives the model code number (eg 4TX4, meaning a 1999 TDM), the Yamaha production code number, and a letter indicating the colour code. The frame and engine numbers can also be used to establish the production year and model code, although these are not available for post-1995 models. The accompanying table gives model identification data for models available in the UK market.

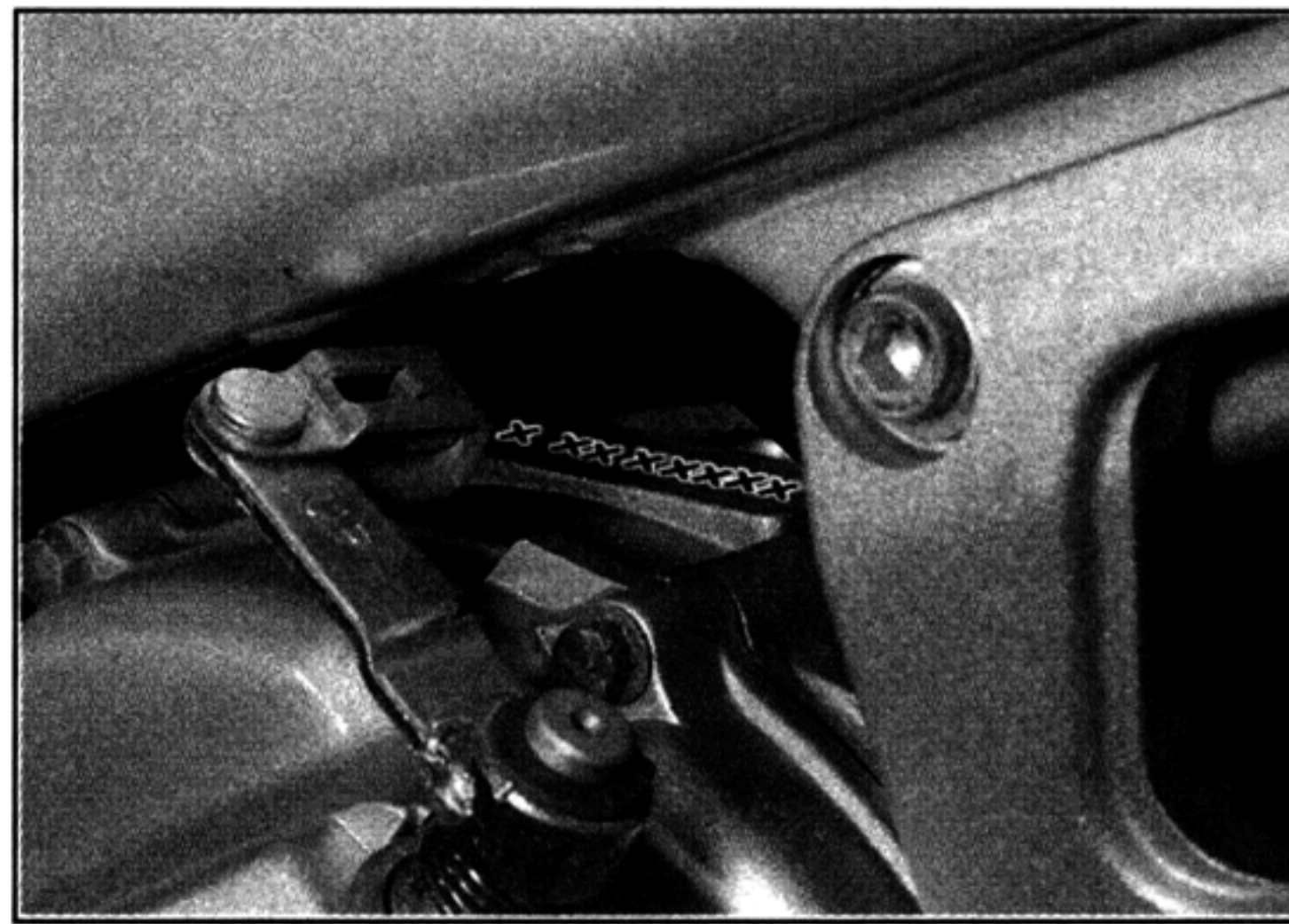
Buying spare parts

Once you have found all the identification numbers, record them for reference when buying parts. Since the manufacturers change specifications, parts and vendors (companies that manufacture various components on the machine), providing the ID numbers is the only way to be reasonably sure that you are buying the correct parts.

Whenever possible, take the worn part to the dealer so direct comparison with the new component can be made. Along the trail from the manufacturer to the parts shelf, there are numerous places that the part can end up with the wrong number or be listed incorrectly.

The two places to purchase new parts for your motorcycle - the accessory store and the franchised dealer - differ in the type of parts they carry. While dealers can obtain virtually every part for your motorcycle, the accessory dealer is usually limited to normal high wear items such as shock absorbers, tune-up parts, various engine gaskets, cables, chains,

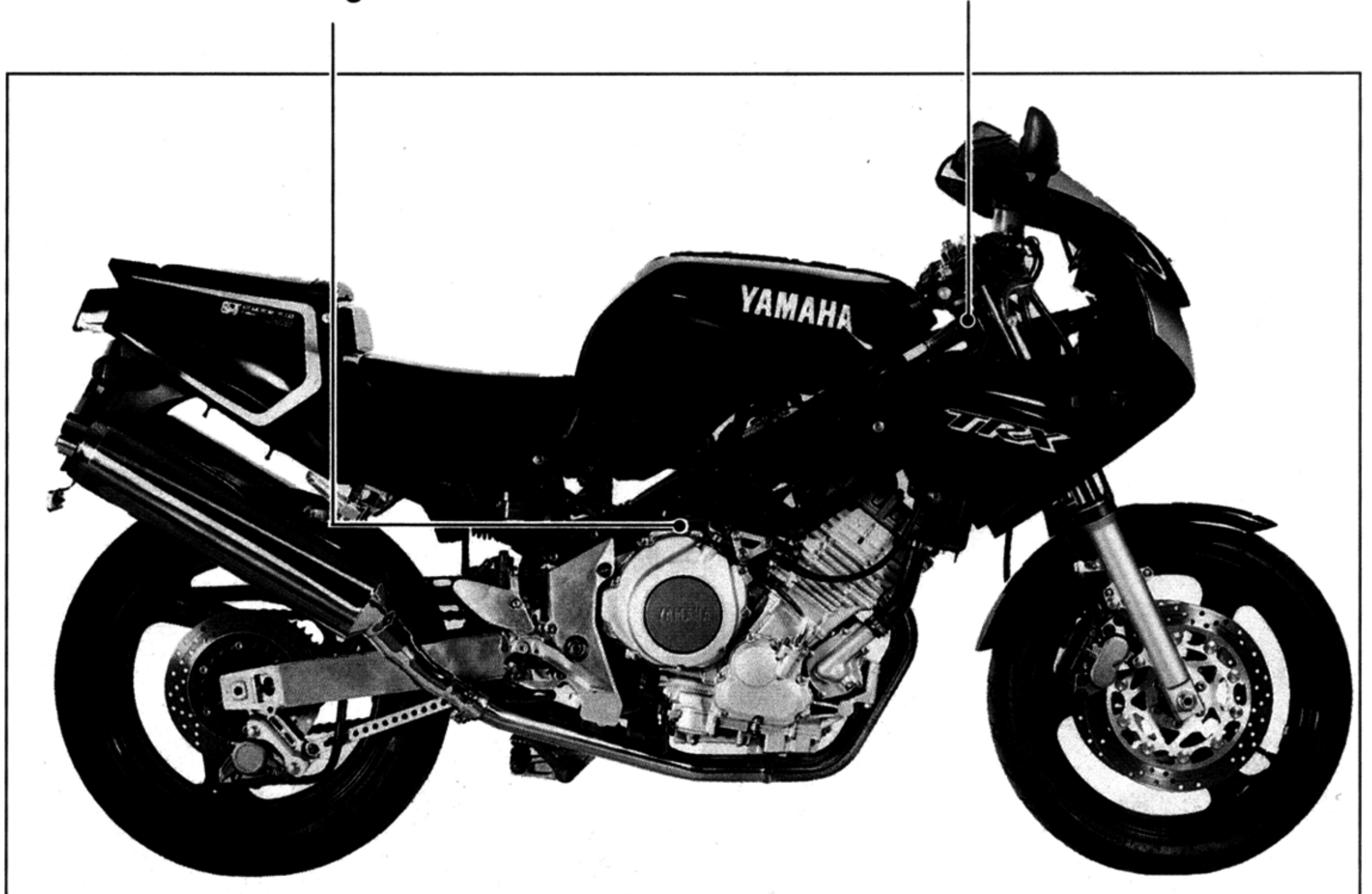
Model type	Prod Yr	Model code	Frame No.	Engine No.
TDM850	1991	3VD1	000101 on	000101 on
	1992	3VD4	022101 on	022101 on
	1993	3VD5	040101 on	040101 on
	1994	3VD7	060101 on	060101 on
	1995	3VD9	079101 on	079101 on
	1996	4TX1	not available	
	1997	4TX2	not available	
	1998	4TX3	not available	
	1999	4TX4	not available	
TRX850	1996	4UN1	000101 on	000101 on
	1997	4UN3	not available	
	1998/9	4UN4	not available	
XTZ750	1989	3LD1	000101 on	000101 on
	1990	3LD3	032101 on	032101 on
	1991	3LD4	048101 on	048101 on
	1992	3LD5	063101 on	063101 on
	1993	3LD6	079101 on	079101 on
	1994	3LD7	092101 on	092101 on
	1995	3LD8	100101 on	100101 on



The engine number is stamped into the top of the crankcase on the right-hand side of the engine.



The frame number is stamped on the right-hand side of the steering head



brake parts, etc. Rarely will an accessory outlet have major suspension components, cylinders, transmission gears, or cases.

Used parts can be obtained for roughly half the price of new ones, but you can't always be sure of what you're getting. Once again, take

your worn part to the breaker's yard for direct comparison.

Whether buying new, used or rebuilt parts, the best course is to deal directly with someone who specialises in parts for your particular make.

0•10 Daily (pre-ride) checks

Note: The daily (pre-ride) checks outlined in the owner's manual covers those items which should be inspected on a daily basis.

1 Engine/transmission oil level check

Level check procedure

- ✓ Position the bike upright (not on its sidestand) on a level surface.
 - ✓ On 1991 to 1995 TDM models, remove the seat (see Chapter 8). On XTZ models, remove the right-hand side cover (see Chapter 8).
 - ✓ Check the oil level as shown in the appropriate photo sequence and top up if necessary.
 - ✓ Now start the engine and warm it up to normal operating temperature.
- Caution:** Do not run the engine in an enclosed space such as a garage or workshop.
- ✓ With the bike still in an upright position, let it idle for a further 10 seconds then stop the engine.
 - ✓ Taking care to avoid scalding your hands, recheck the oil level and top up if necessary.

The correct oil

- Modern, high-revving engines place great demands on their oil. It is very important that the correct oil for your bike is used.
- Always top up with a good quality oil of the specified type and viscosity and do not overfill the oil tank.

Caution: Yamaha advise against using chemical oil additives, or oils with a grade of SH/CD or higher, or oils labelled ENERGY CONSERVING II. Such additives or oils could cause clutch slip.

Oil type	API grade SE, SF or SG
Oil viscosity	SAE 10W30 or 10W40

Bike care:

- If you have to add oil frequently, you should check whether you have any oil leaks. If there is no sign of oil leakage from the joints and gaskets the engine could be burning oil (see *Fault Finding*).

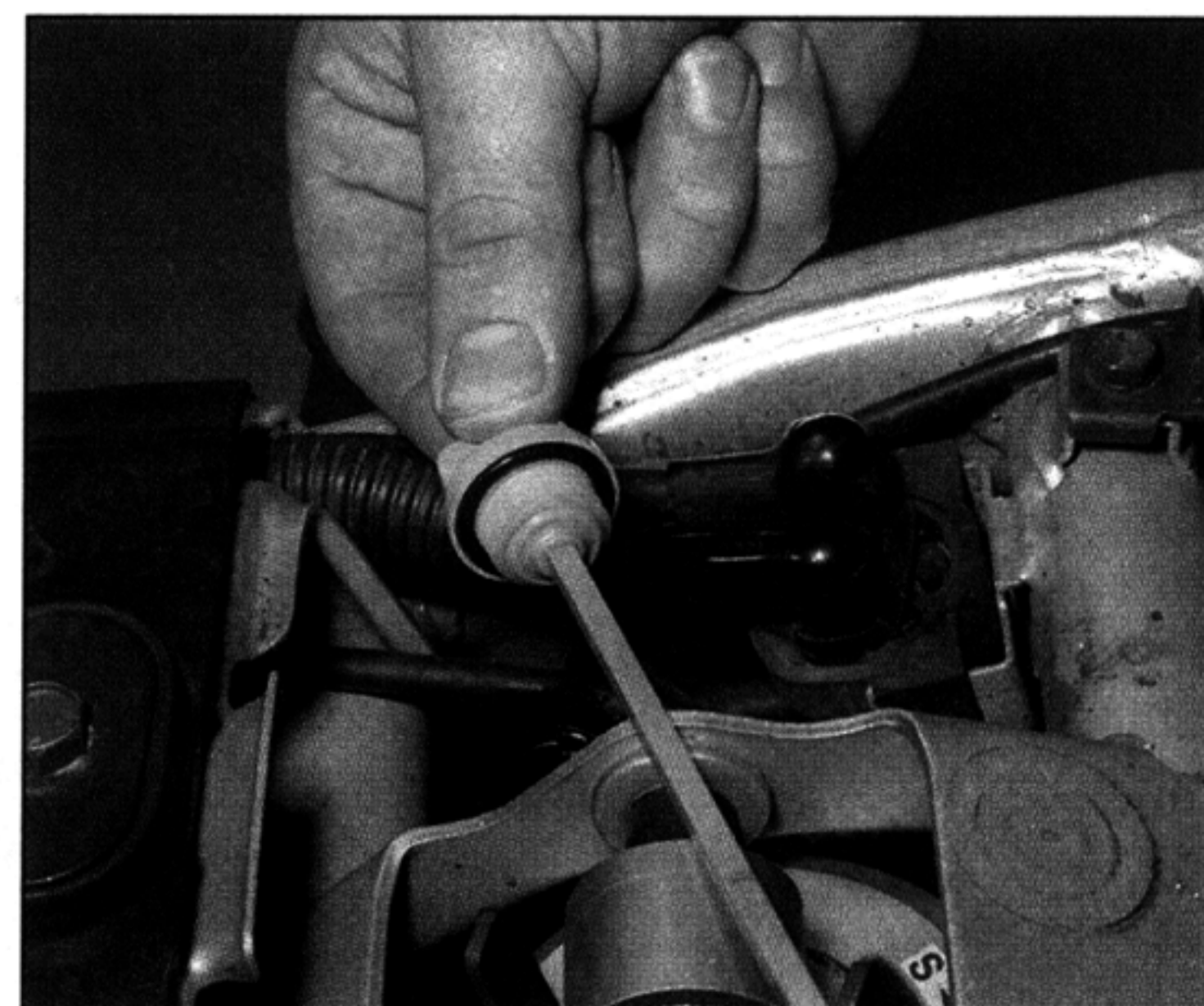
TDM850 (1991 to 1995) and XTZ750 models



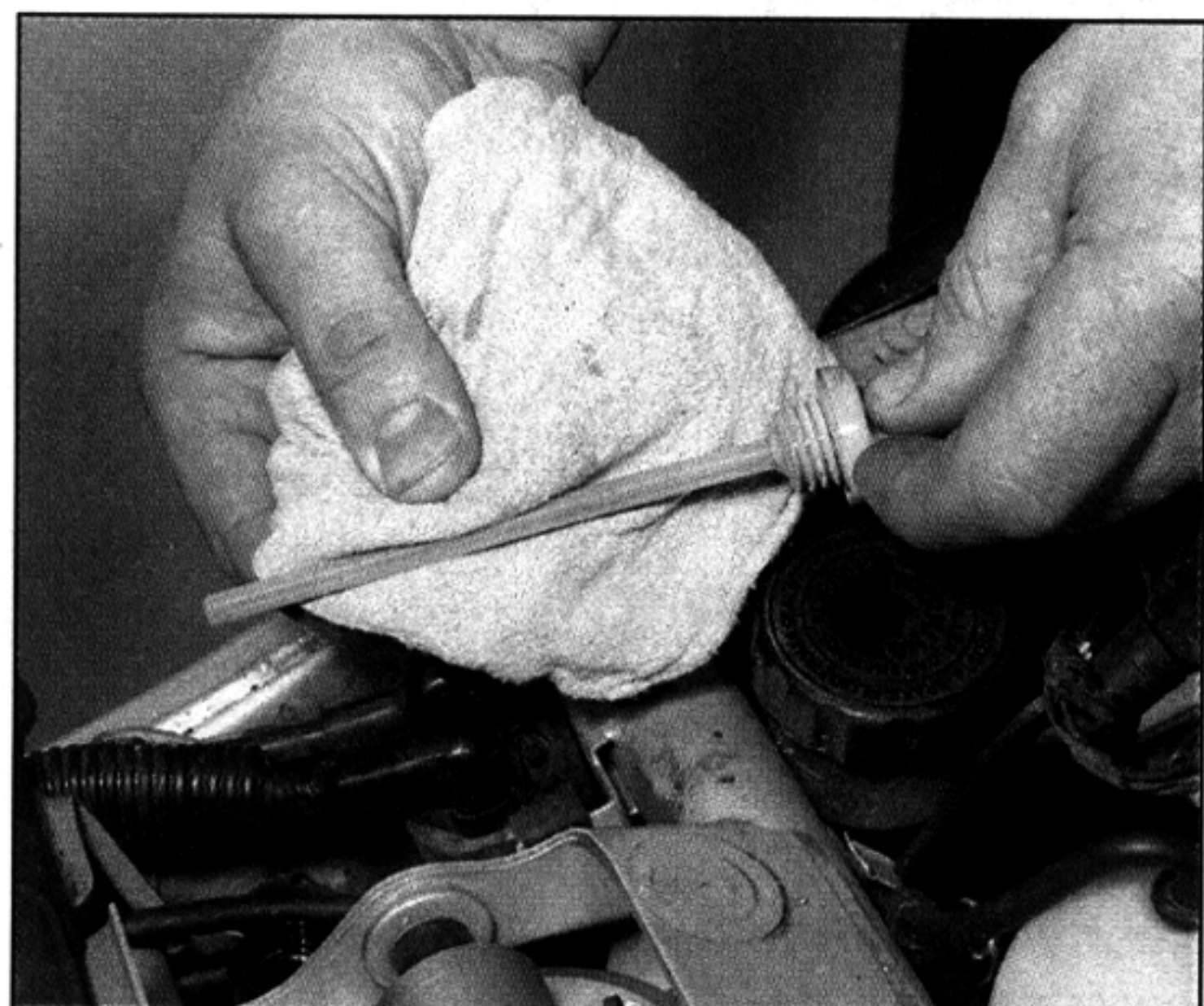
- 1** On TDM models, remove the seat (see Chapter 8) to access the oil filler cap (arrowed).



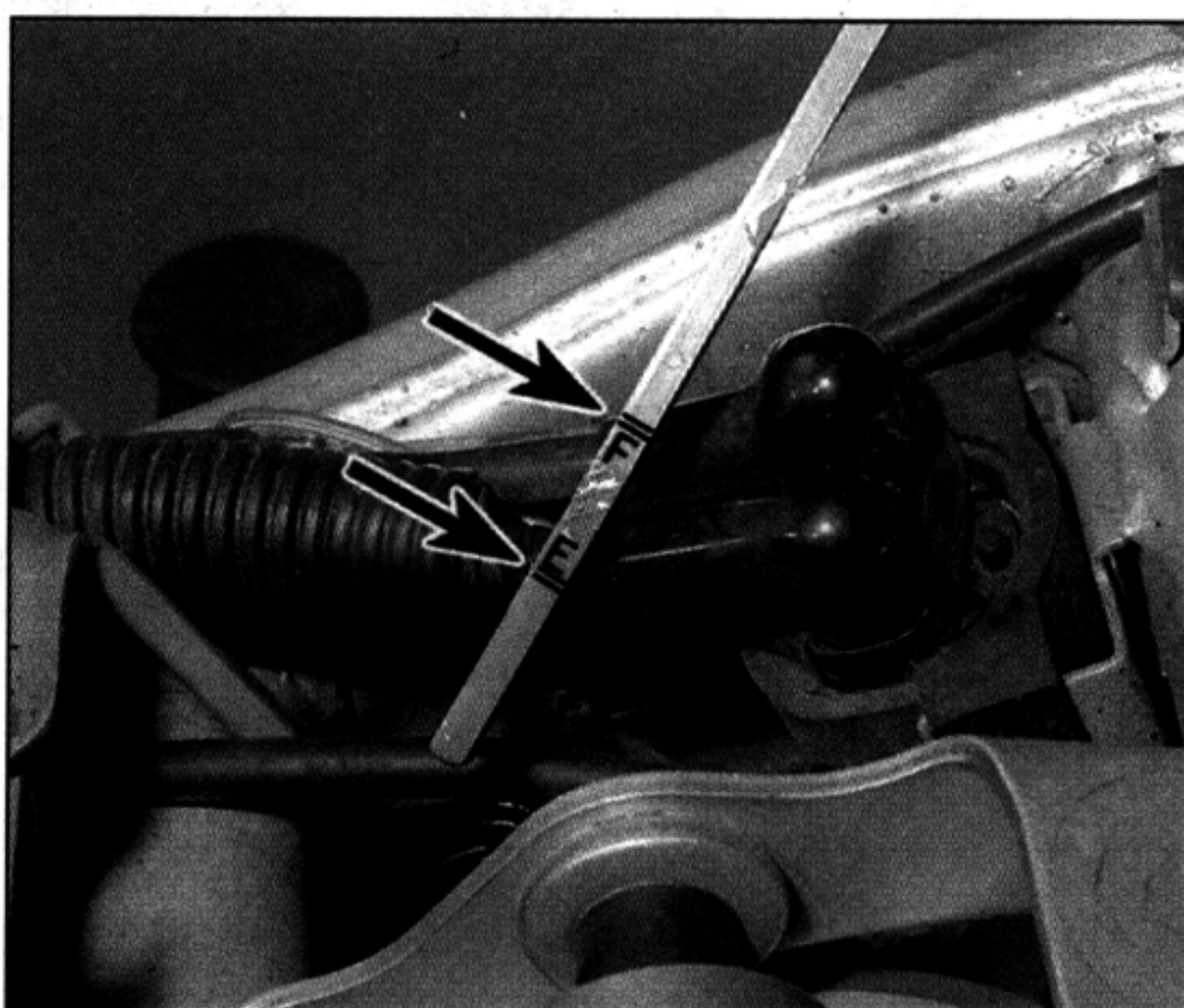
- 2** On XTZ models, remove the right-hand side cover (see Chapter 8) to access the oil filler cap (arrowed).



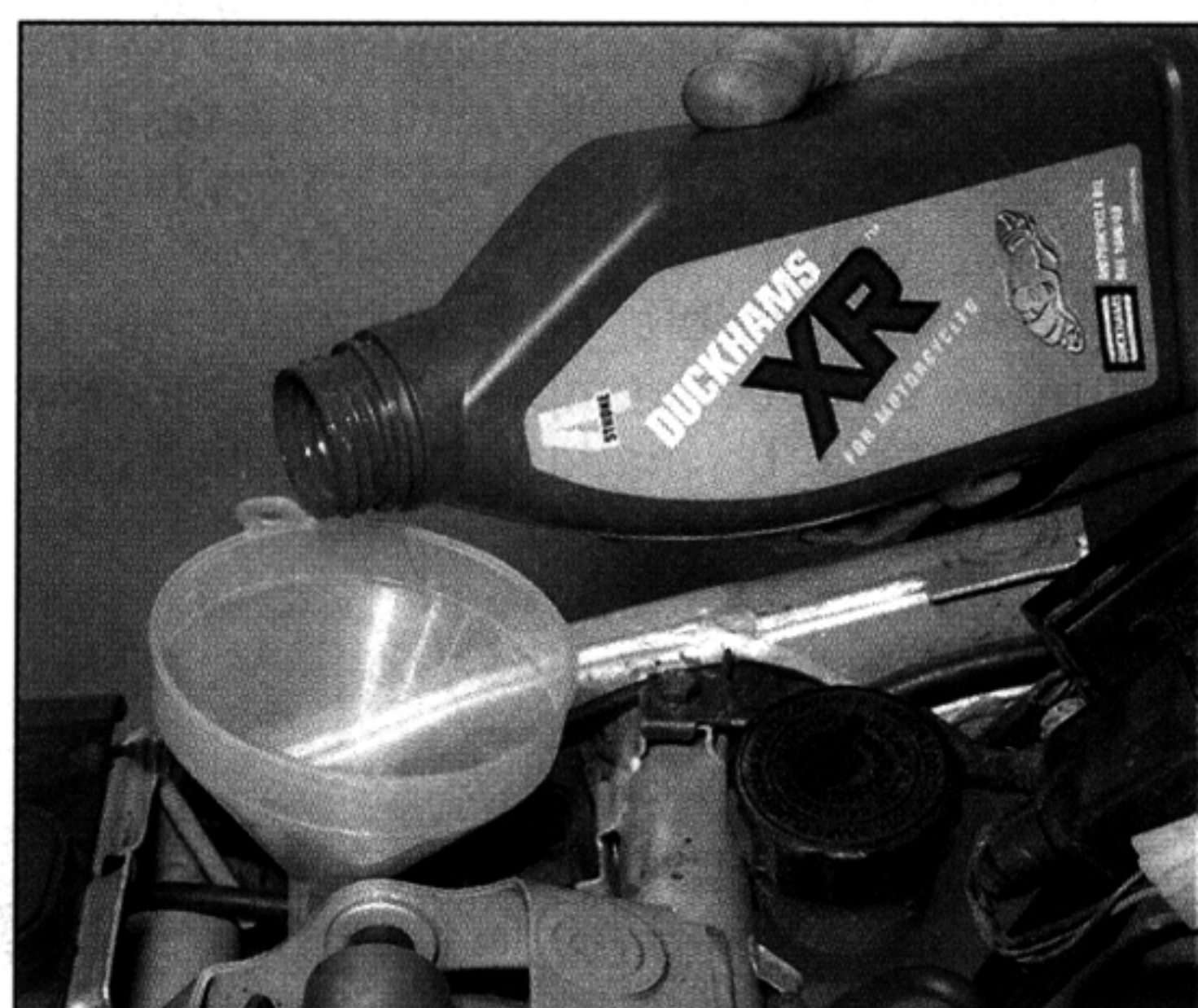
- 3** Unscrew the oil filler cap from the oil tank. The dipstick is integral with the oil filler cap, and is used to check the engine oil level. Check the condition of the cap O-ring and renew it if damaged or deteriorated.



- 4** Using a clean rag or paper towel, wipe all oil from the dipstick. Insert the clean dipstick back into the tank, but do not screw it in.

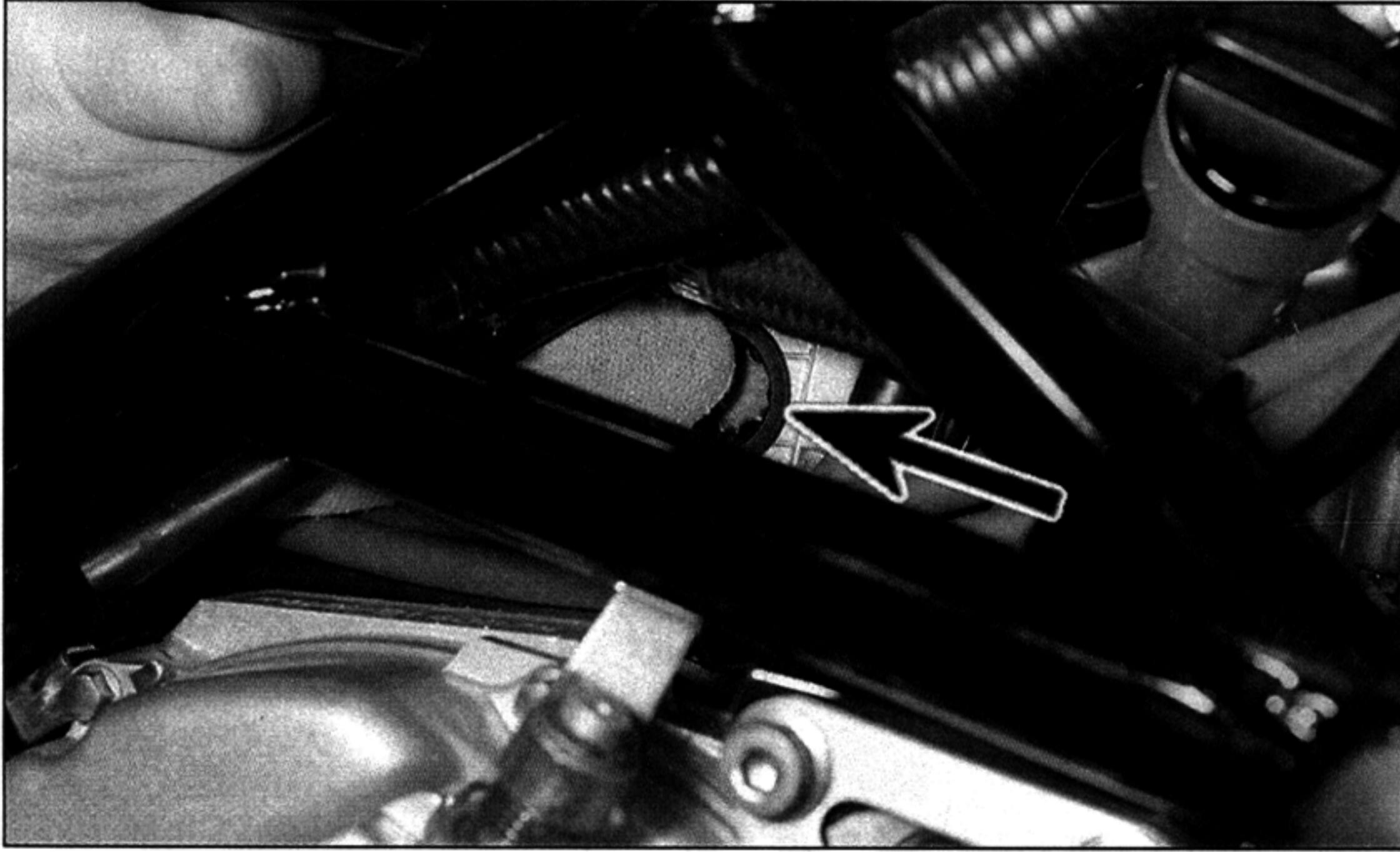


- 5** Remove the dipstick and observe the level of the oil, which should be somewhere in between the F (full) and E (empty) level lines (arrowed).

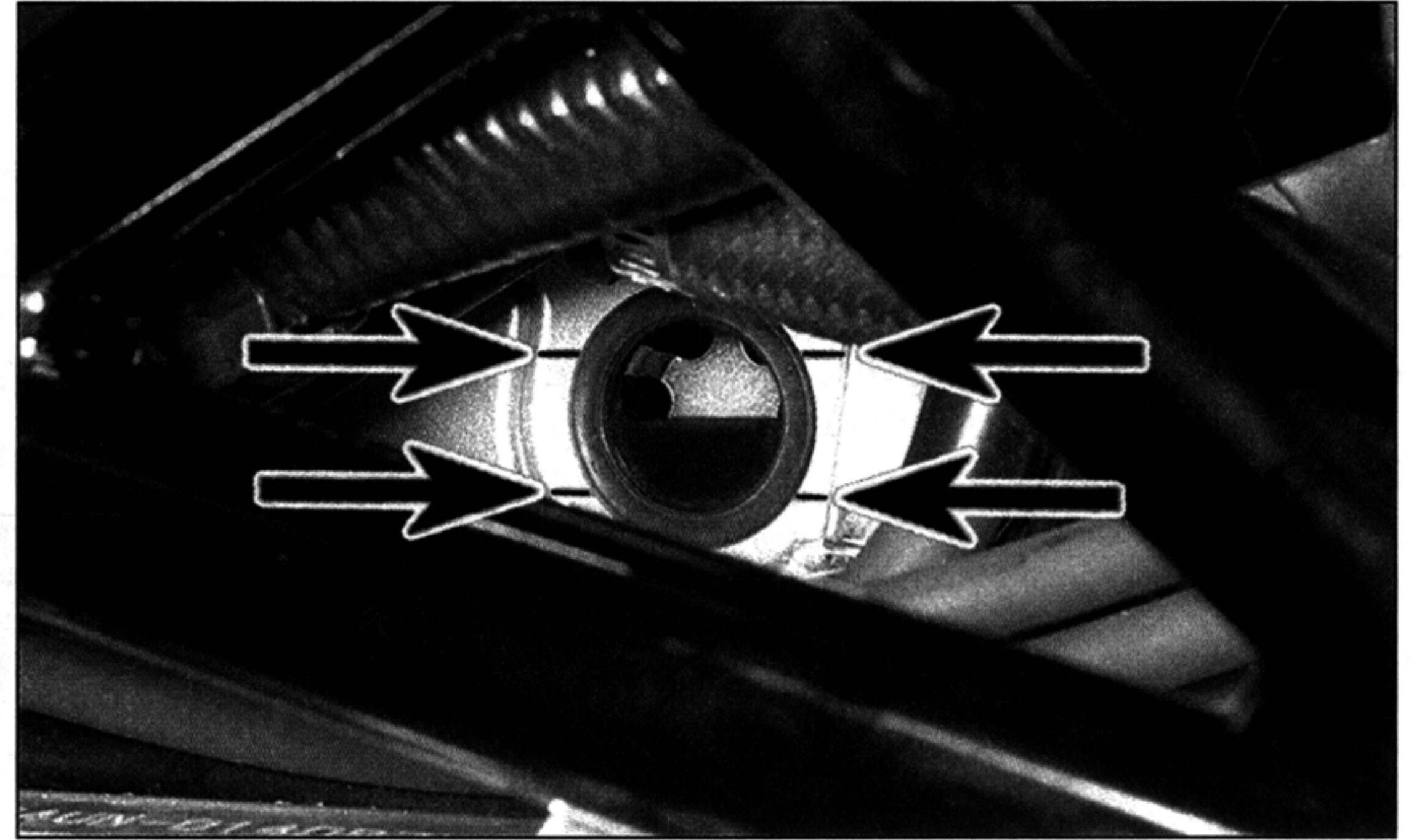


- 6** If the level is below the E line, top the oil tank up with the recommended grade and type of oil, to bring the level up to the F line on the dipstick. Do not overfill.

TDM850 (1996-on) and TRX models



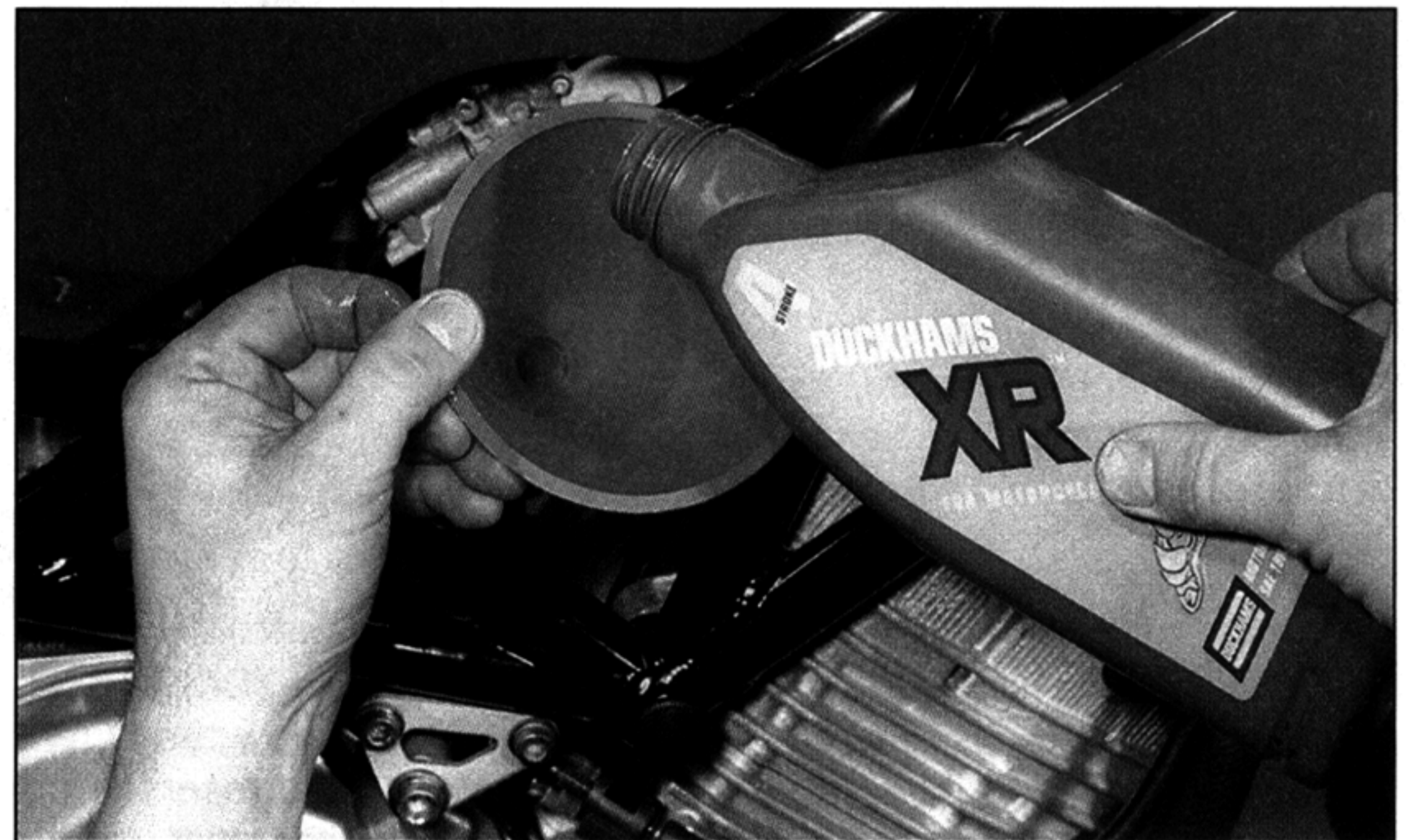
7 Wipe the oil level window (arrowed) in the oil tank so that it is clean.



8 With the motorcycle held vertical, the oil level should lie between the upper and lower level lines marked on the oil tank (arrowed).



9 If the level is below the lower line, remove the filler cap (arrowed) from the top of the oil tank.



10 Top the tank up with the recommended grade and type of oil, to bring the level up to the upper line on the window.

2 Brake fluid level checks



Warning: Brake hydraulic fluid can harm your eyes and damage painted surfaces, so use extreme caution when handling and pouring it and cover surrounding surfaces with rag. Do not use fluid that has been standing open for some time, as it absorbs moisture from the air which can cause a dangerous loss of braking effectiveness.

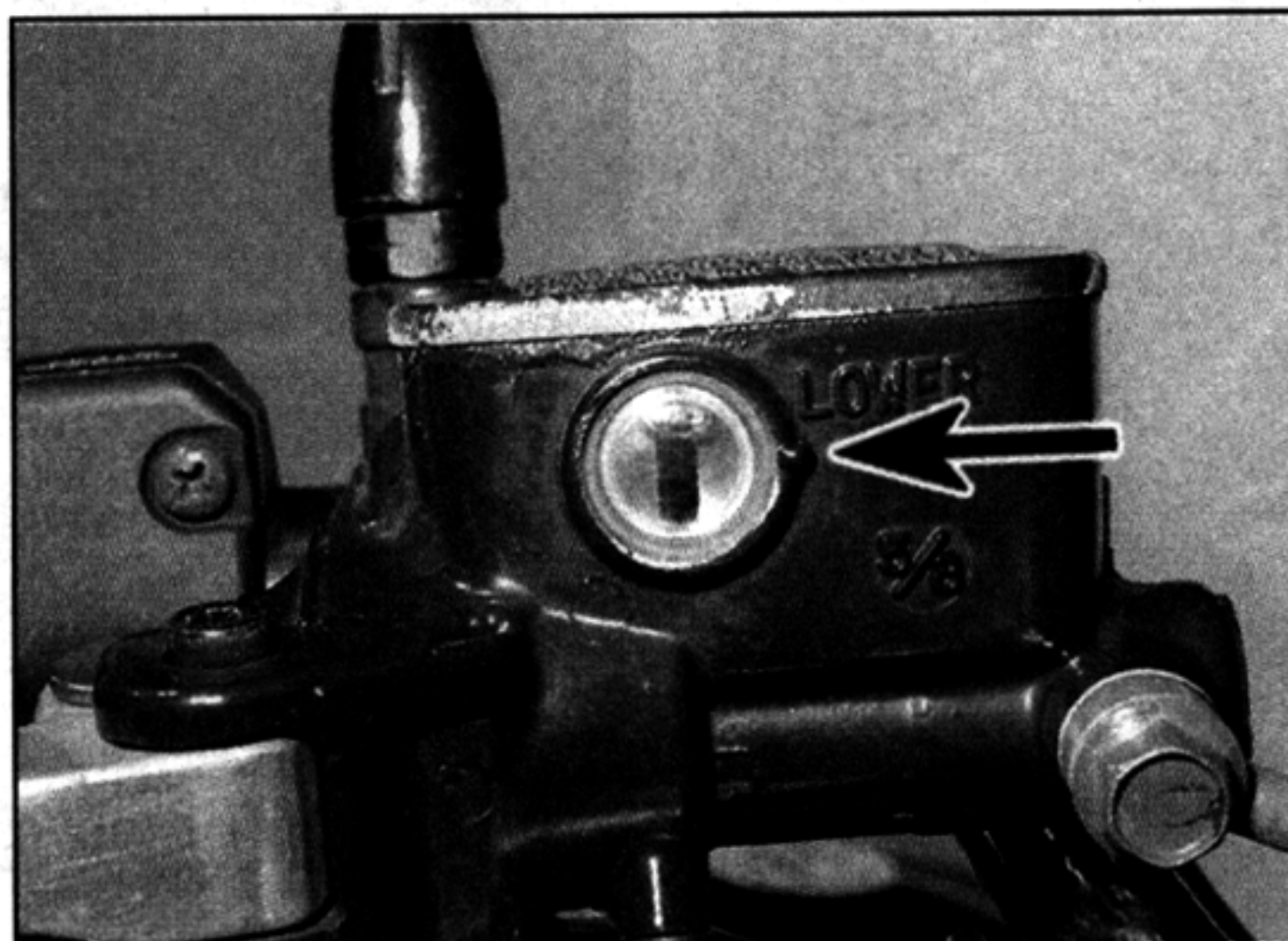
Before you start:

- ✓ Support the motorcycle in an upright position, using an auxiliary stand if required.
- ✓ When checking the front brake fluid level turn the handlebars until the top of the master cylinder is as level as possible.
- ✓ On XTZ models remove the right-hand side cover to view the rear brake fluid level (see Chapter 8).
- ✓ Make sure you have the correct hydraulic fluid. DOT 4 is recommended.
- ✓ Wrap a rag around the reservoir being worked on to ensure that any spillage does not come into contact with painted surfaces.

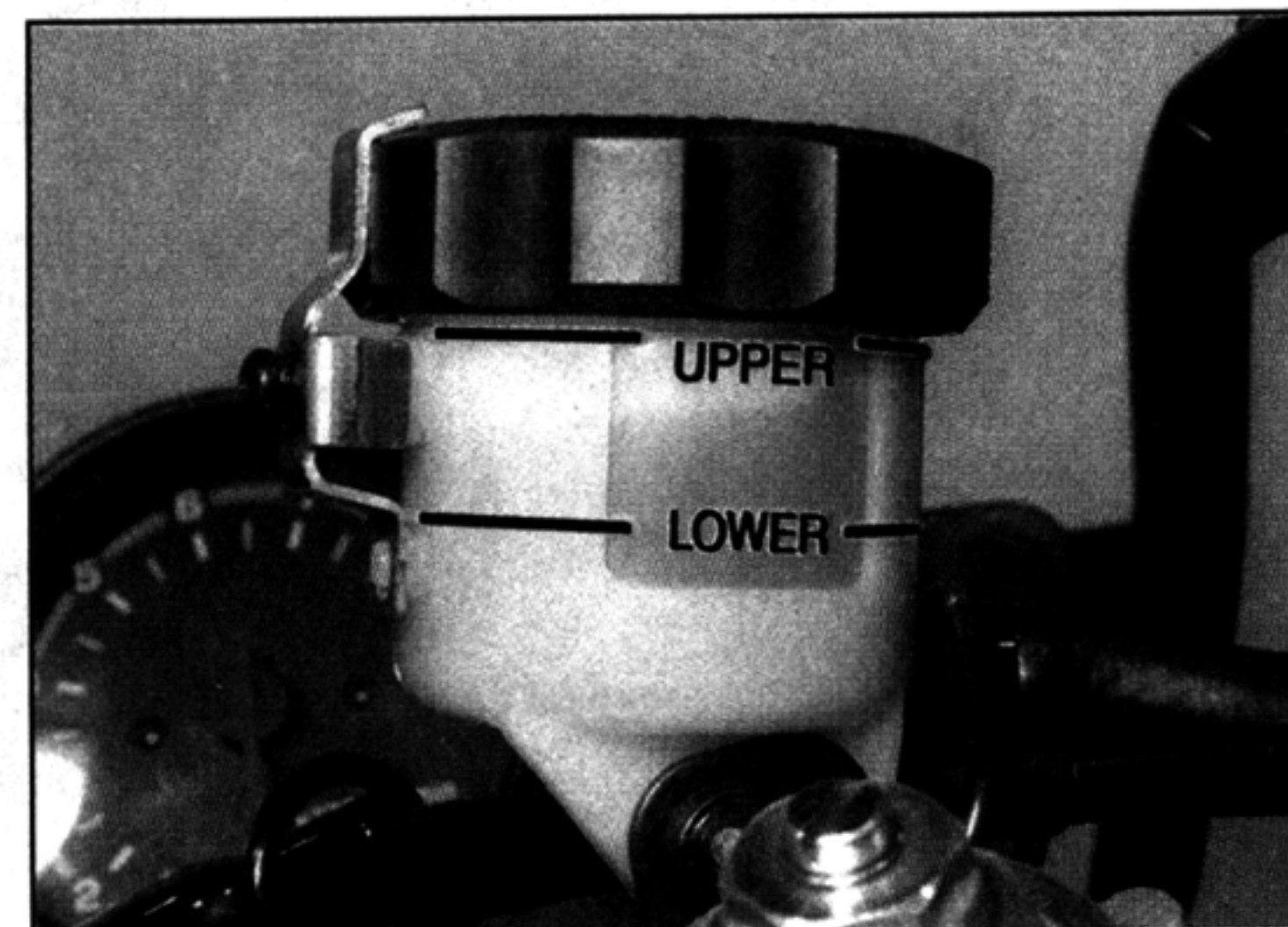
Front brake fluid level

Bike care:

- The fluid in the front and rear brake master cylinder reservoirs will drop slightly as the brake pads wear down.
- If any fluid reservoir requires repeated topping-up this is an indication of an hydraulic leak somewhere in the system, which should be investigated immediately.
- Check for signs of fluid leakage from the hydraulic hoses and components - if found, rectify immediately.
- Check the operation of both brakes before taking the machine on the road; if there is evidence of air in the system (spongy feel to lever or pedal), it must be bled as described in Chapter 7.



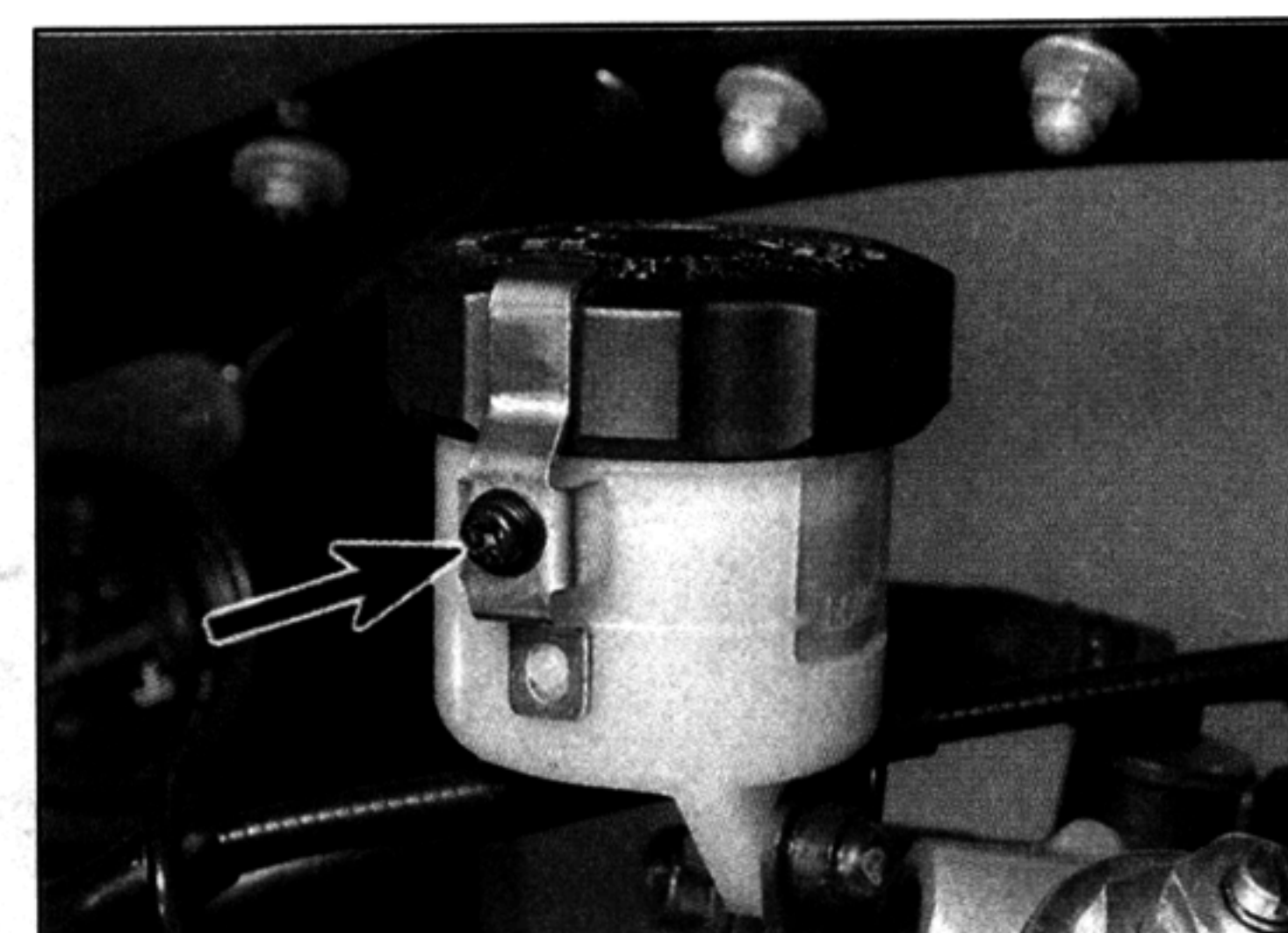
- 1** On TDM and XTZ models, the front brake fluid level is visible through the window in the reservoir body - it must be above the LOWER level line (arrowed).



- 2** On TRX models, the front brake fluid level is visible through the reservoir body - it must be between the UPPER and LOWER level lines (arrowed).



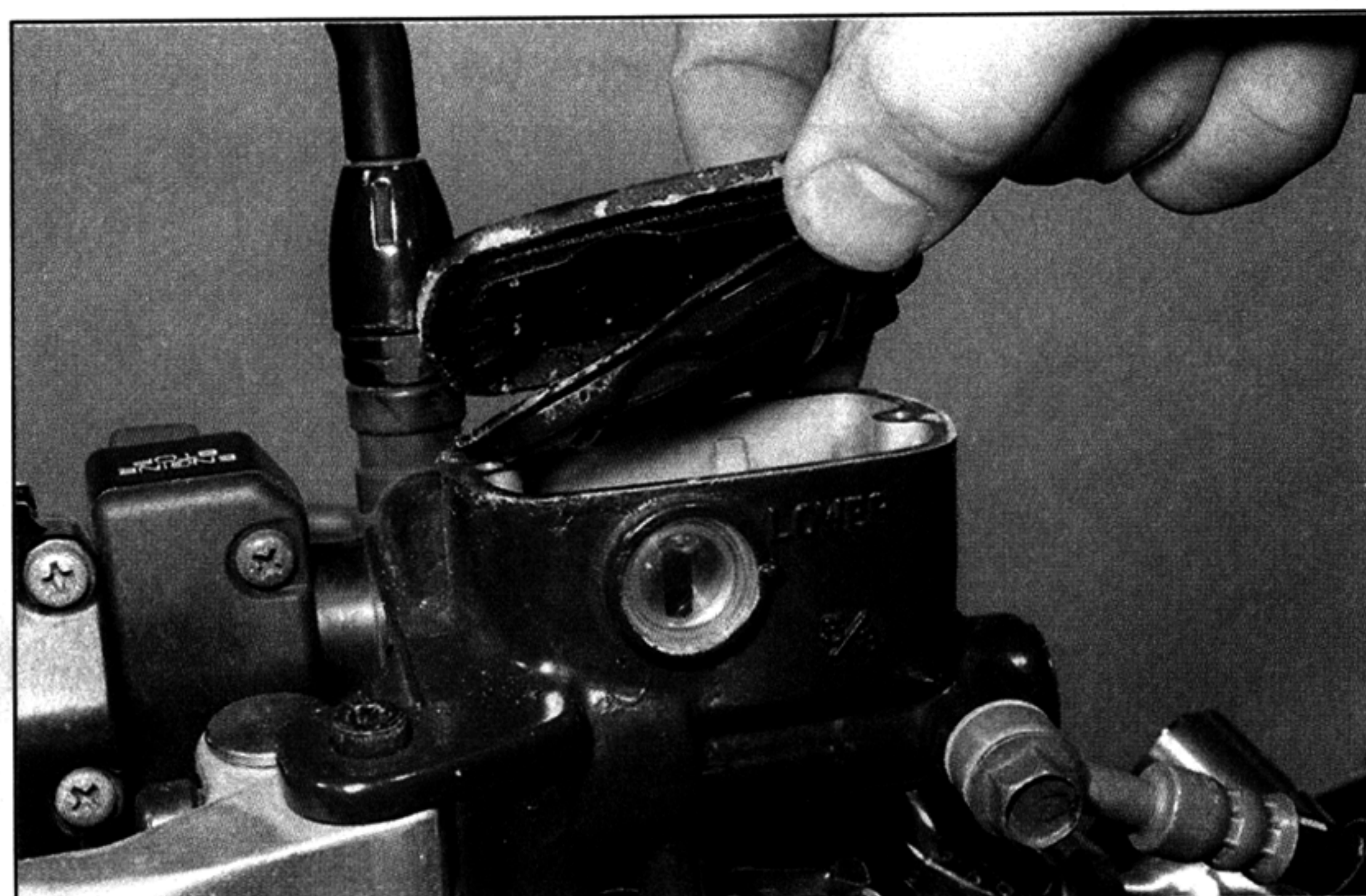
- 3** On TDM and XTZ models, if the level is below the LOWER level line, remove the two reservoir cover screws and remove the cover and the diaphragm.



- 4** On TRX models, if the level is below the LOWER level line, remove the reservoir cap clamp screw (arrowed), then unscrew the cap and remove the diaphragm plate and the diaphragm.

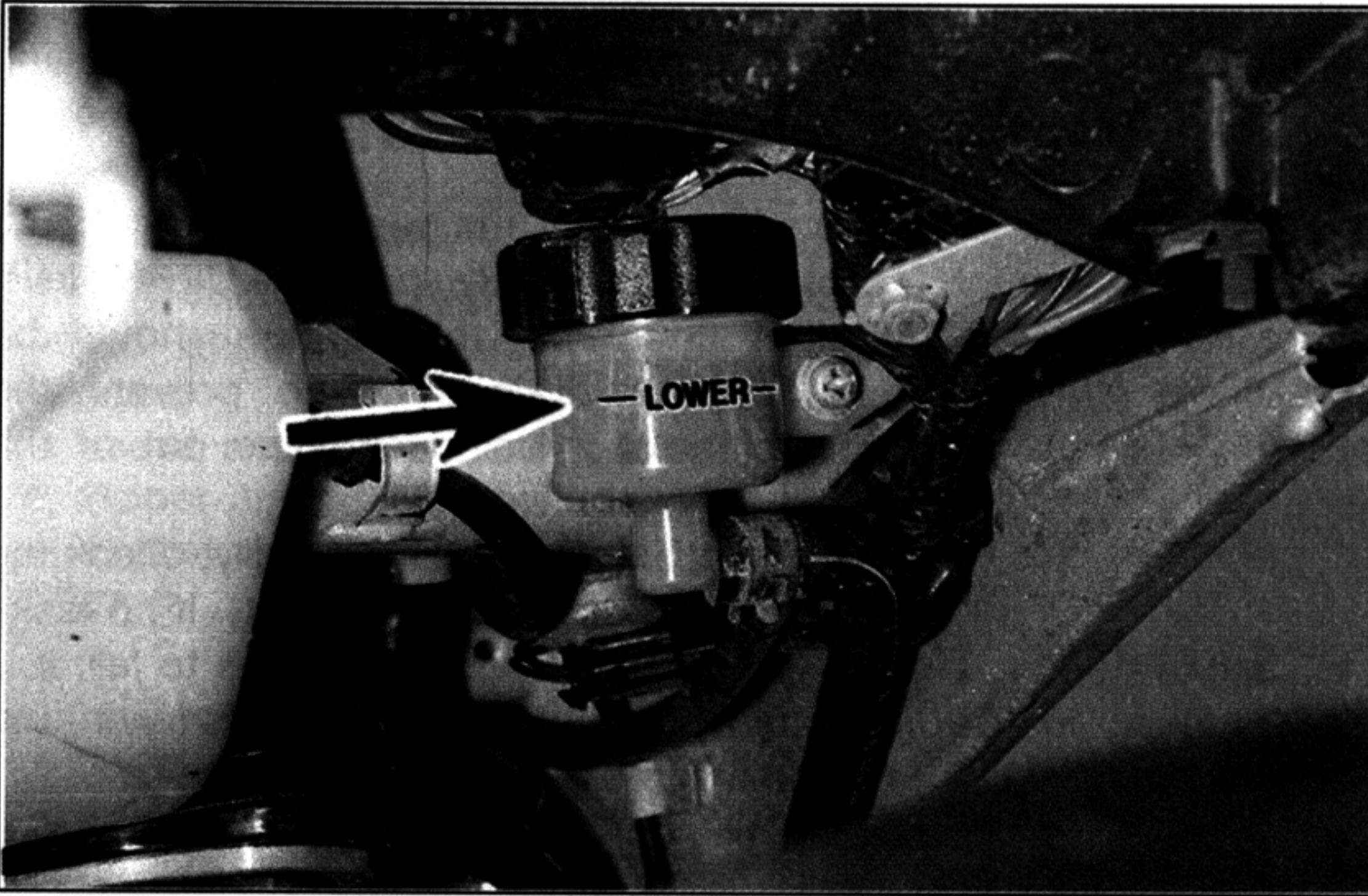


- 5** Top up with new clean hydraulic fluid of the recommended type, until the level is above the LOWER level line. Take care to avoid spills (see **Warning** above).

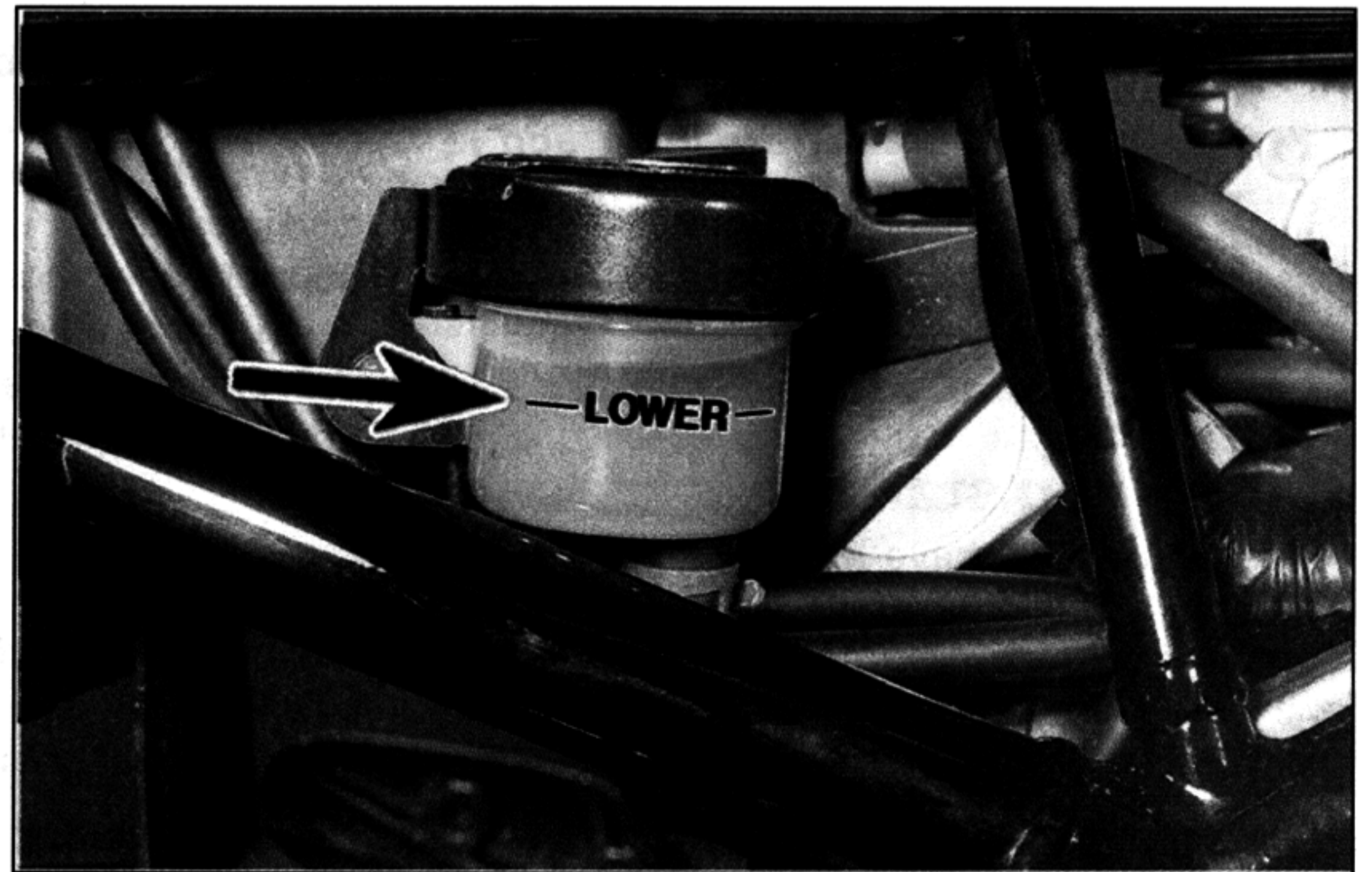


- 6** Ensure that the diaphragm is correctly seated before installing the plate (TRX models) and cover or cap.

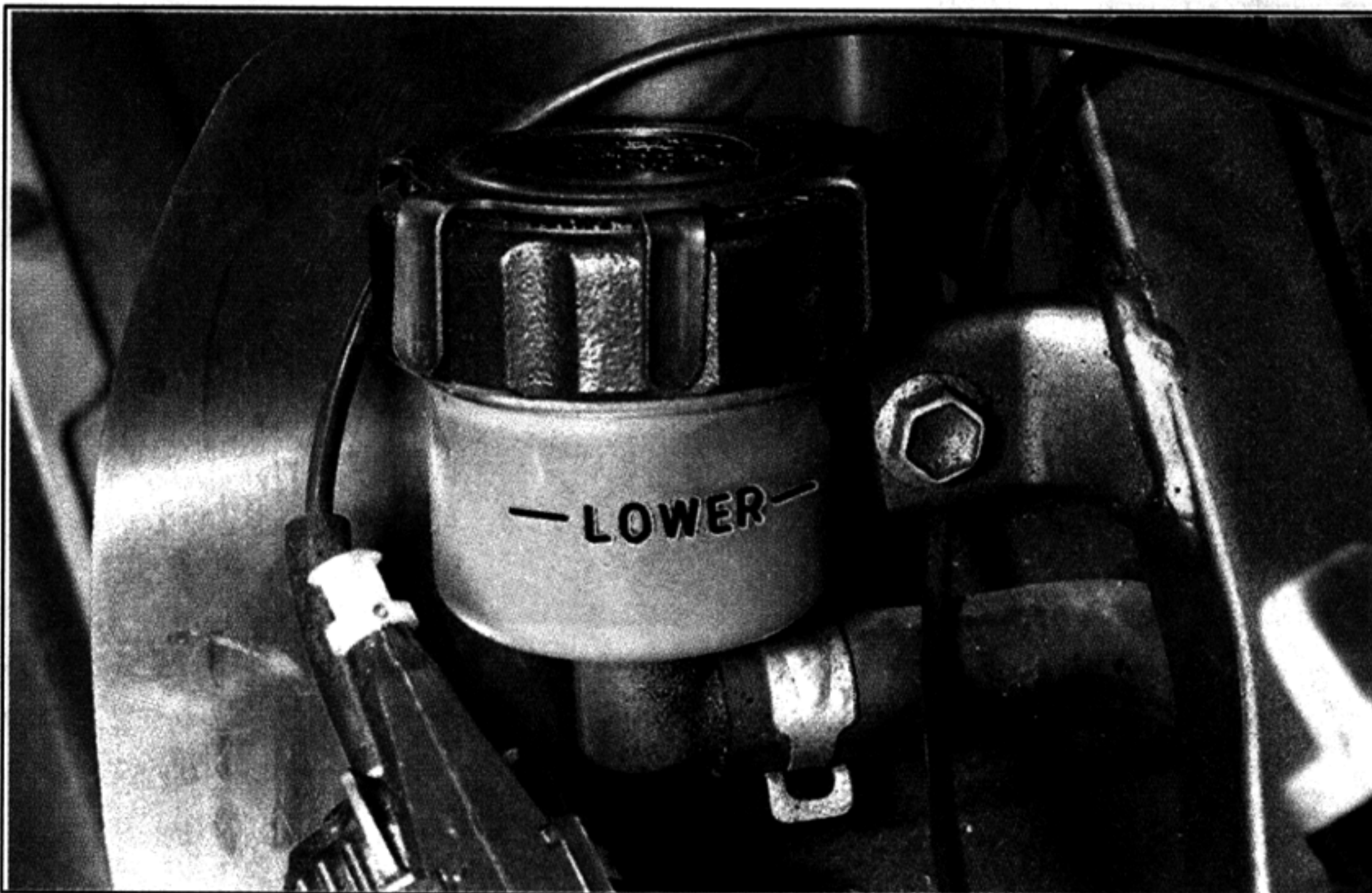
Rear brake fluid level



7 On TDM models, the rear brake fluid level is visible by looking up under the seat from the left-hand side of the rear wheel - it must be above LOWER level line (arrowed).



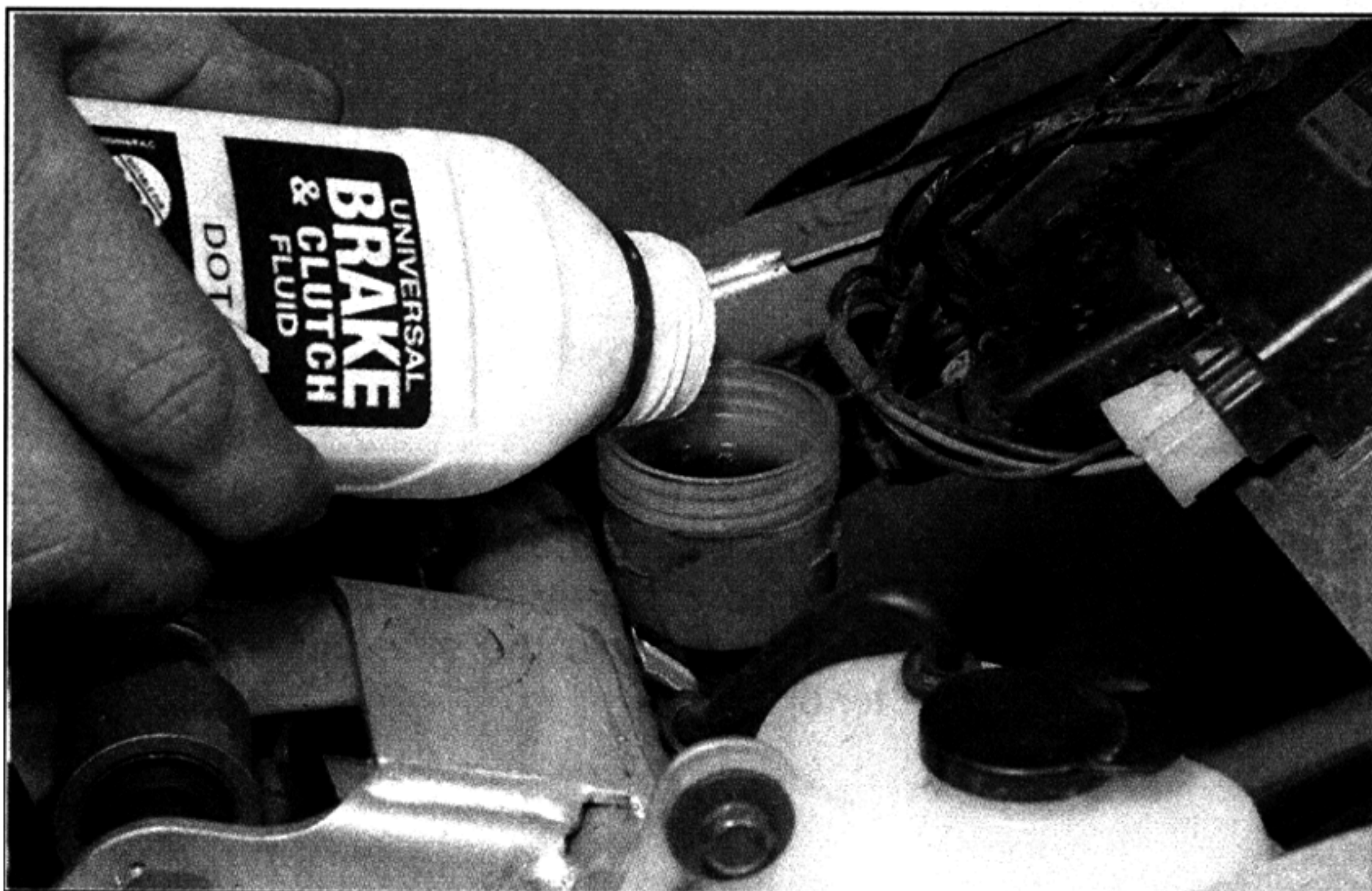
8 On TRX models, the rear brake fluid level is visible through the reservoir body - it must be above LOWER level line (arrowed).



9 On XTZ models, remove the right-hand side cover (see Chapter 8) - the rear brake fluid level is visible through the reservoir body - it must be above LOWER level line (arrowed).



10 If topping up is required, on TDM models remove the seat and on TRX models remove the side covers (see Chapter 8). On TRX and XTZ models, remove the cap clamp, then on TRX models support the reservoir or refit the screw. Unscrew the reservoir cap (arrowed) and remove the plate and diaphragm.



11 Top up with new clean hydraulic fluid of the recommended type, until the level is above the lower mark. Take care to avoid spills (see **Warning** above).



12 Ensure that the diaphragm is correctly seated before installing the plate and cap. Tighten the cap securely. On TRX and XTZ models, fit the cap clamp.

3 Coolant level check



Warning: DO NOT remove the radiator pressure cap to add coolant. Topping up is done via the coolant reservoir tank filler. DO NOT leave open containers of coolant about, as it is poisonous.

Before you start:

✓ Make sure you have a supply of coolant available - a mixture of 50% distilled water and 50% corrosion inhibited ethylene glycol anti-freeze is needed. **Note:** Yamaha specify that soft tap water can be used, but NOT hard

water. If in doubt, boil the water first or use only distilled water.

✓ Always check the coolant level when the engine is cold.

✓ Support the motorcycle in an upright position, using an auxiliary stand if required, whilst checking the level. Make sure the motorcycle is on level ground.

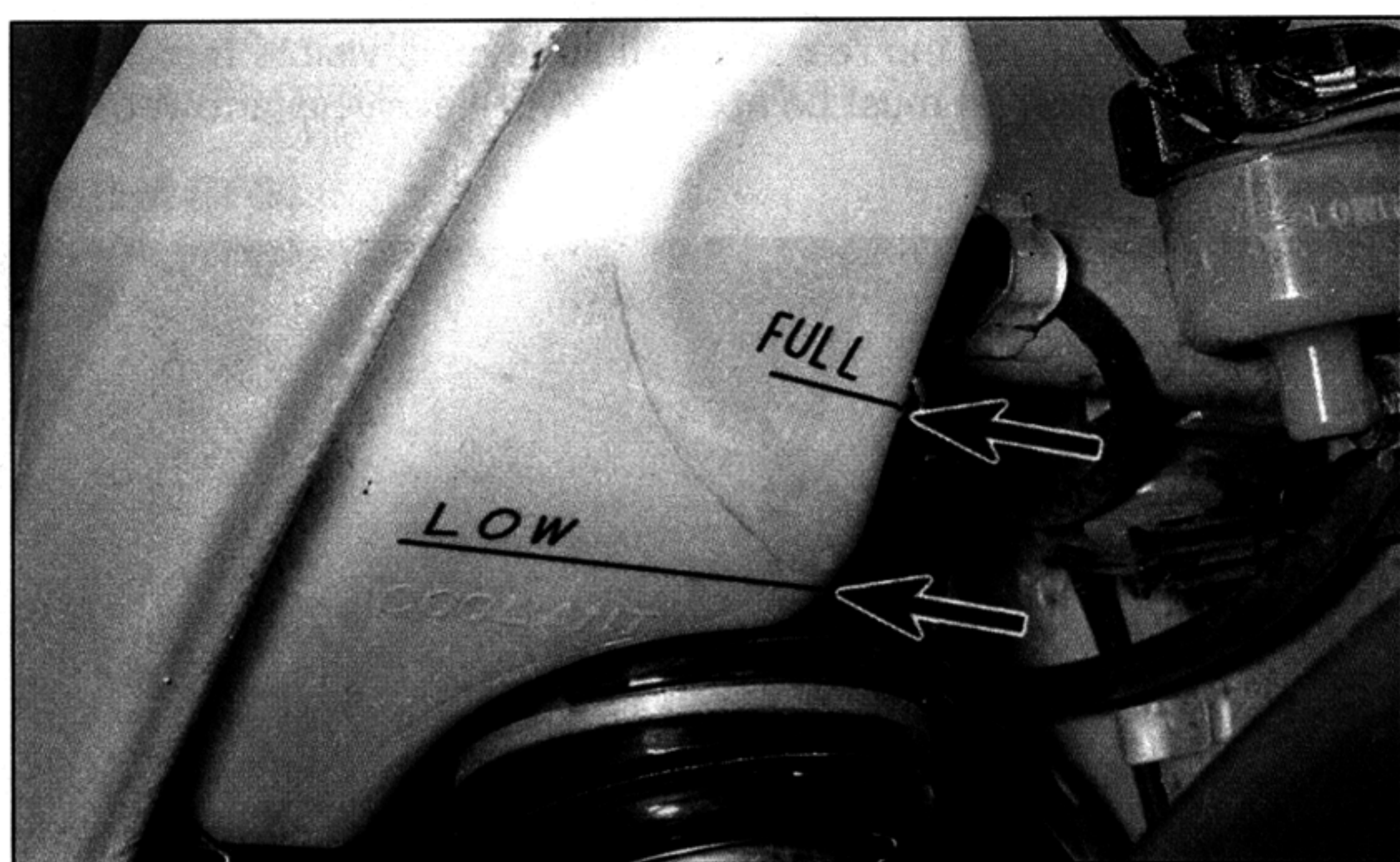
Bike care:

● Use only the specified coolant mixture. It is important that anti-freeze is used in the system all year round, and not just in the

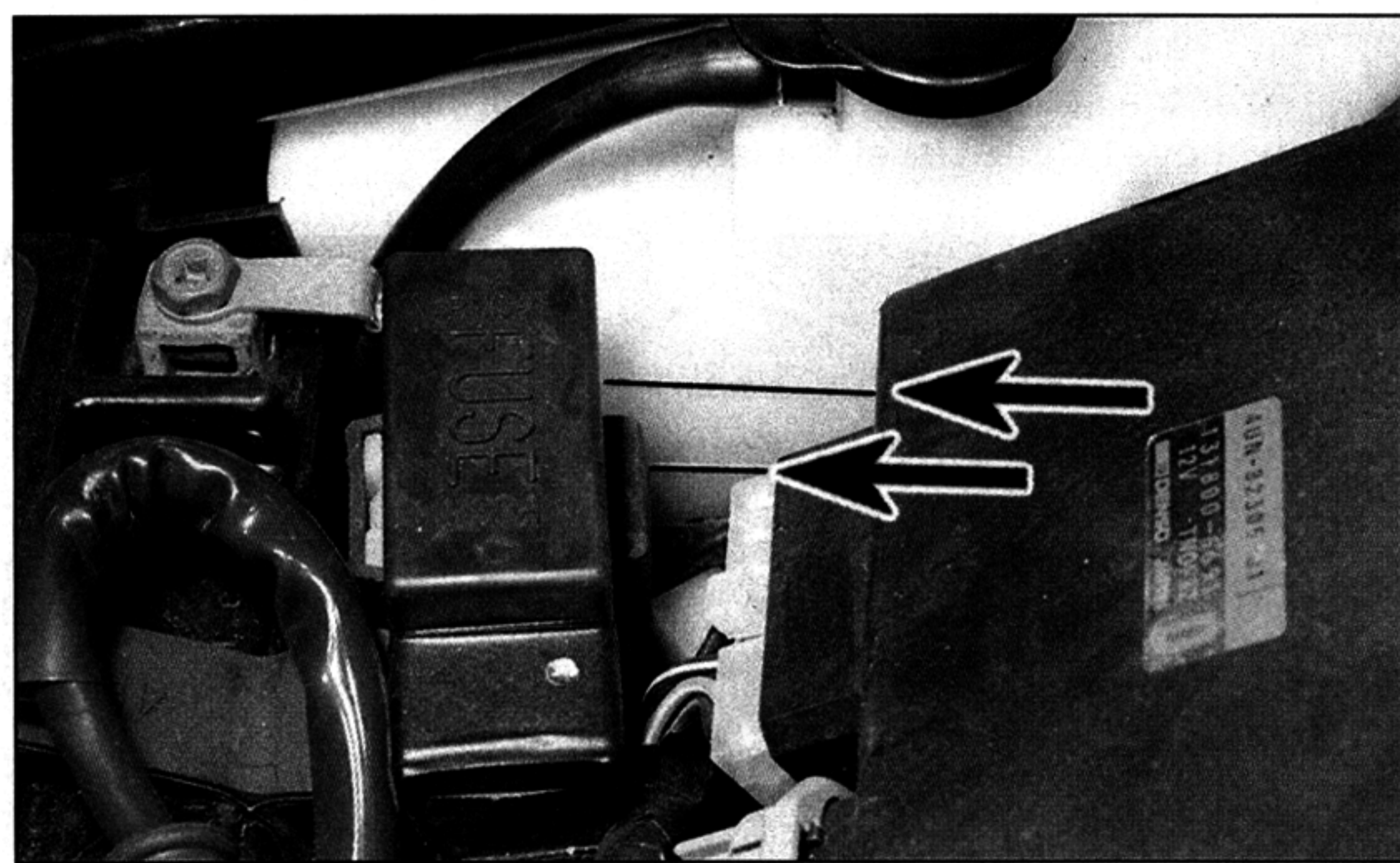
winter. Do not top the system up using only water, as the system will become too diluted.

● Do not overfill the reservoir tank. If the coolant is significantly above the UPPER level line at any time, the surplus should be siphoned or drained off to prevent the possibility of it being expelled out of the breather hose.

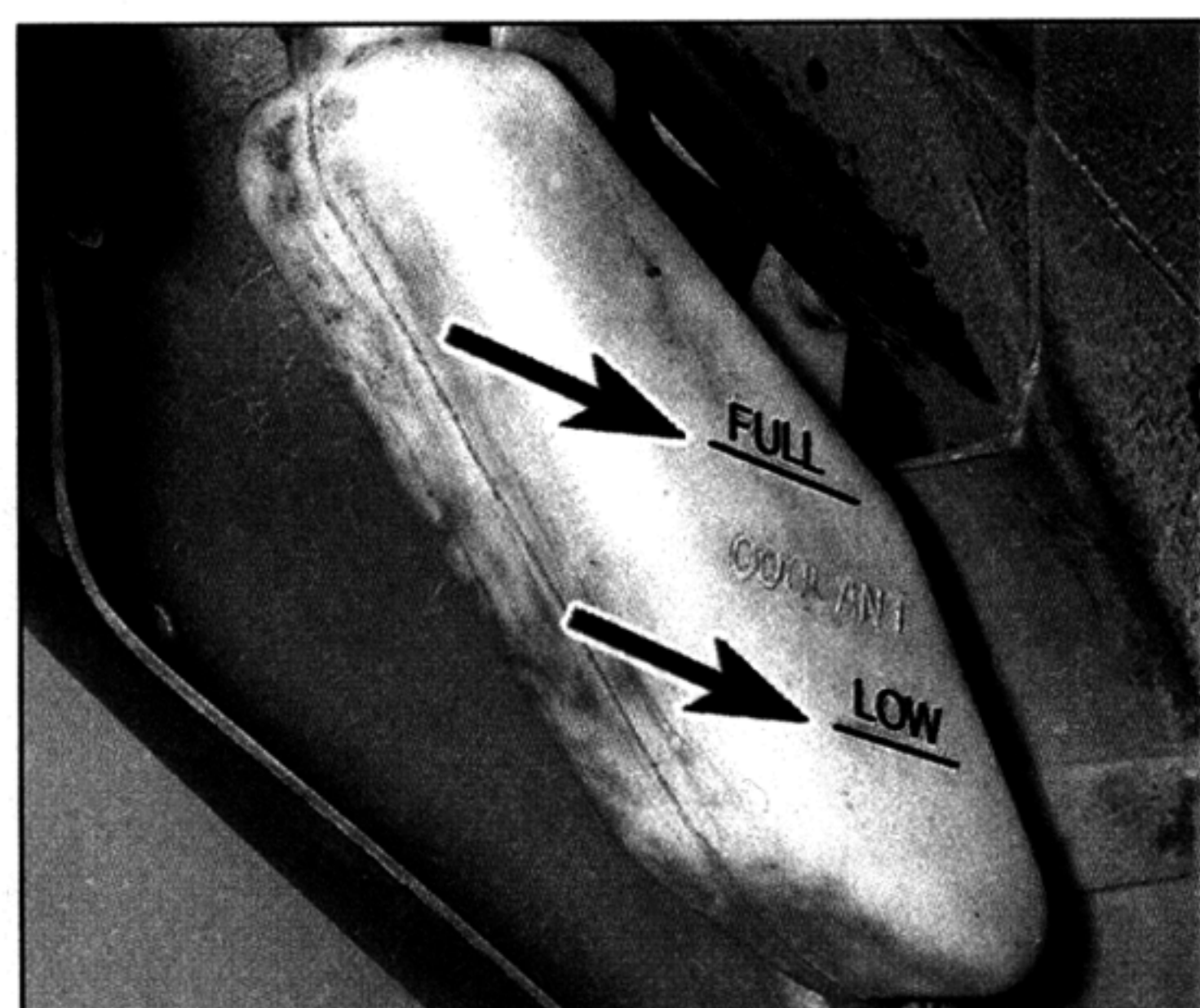
● If the coolant level falls steadily, check the system for leaks (see Chapter 1). If no leaks are found and the level continues to fall, it is recommended that the machine is taken to a Yamaha dealer for a pressure test.



1 On TDM models, the coolant reservoir FULL and LOW level lines are visible by looking up under the seat from the left-hand side of the rear wheel. The coolant level lines (arrowed) are marked on the reservoir.



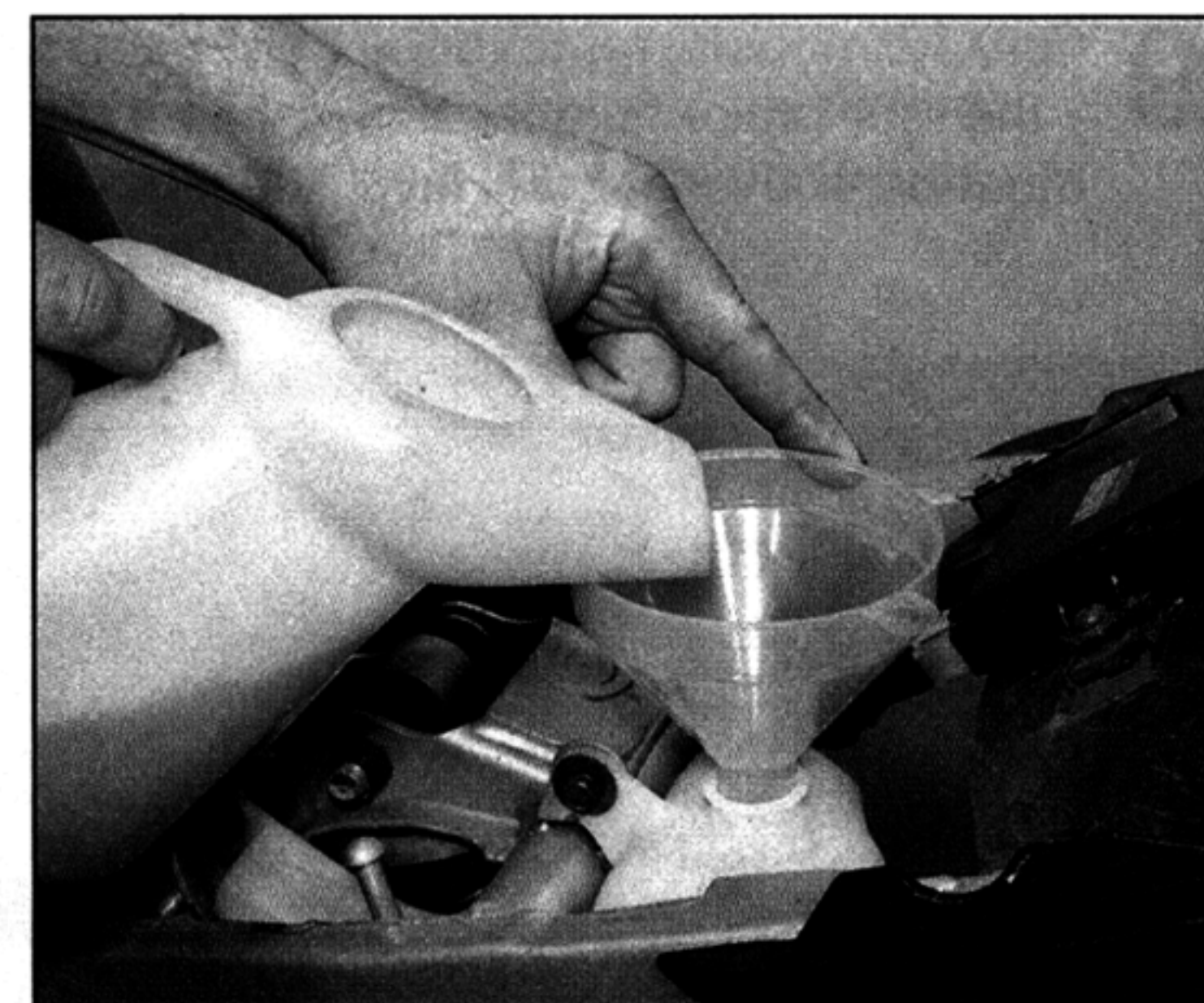
2 On TRX models, remove the seat (see Chapter 8). The coolant FULL and LOW level lines (arrowed) are marked on the inside of the reservoir.



3 On XTZ models, the coolant reservoir FULL and LOW level lines are visible by looking up under the mudguard from the right-hand side of the rear wheel. The coolant level lines (arrowed) are marked on the reservoir.



4 If the coolant level is not between the UPPER and LOWER markings, on TDM models remove the seat and on XTZ models the left-hand side cover (see Chapter 8). Remove the reservoir filler cap.



5 Top the coolant level up with the recommended coolant mixture. Fit the cap securely, then install the seat, and on XTZ models the side cover (see Chapter 8).

4 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.

● Proper air pressure will increase tyre life and provide maximum stability 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.

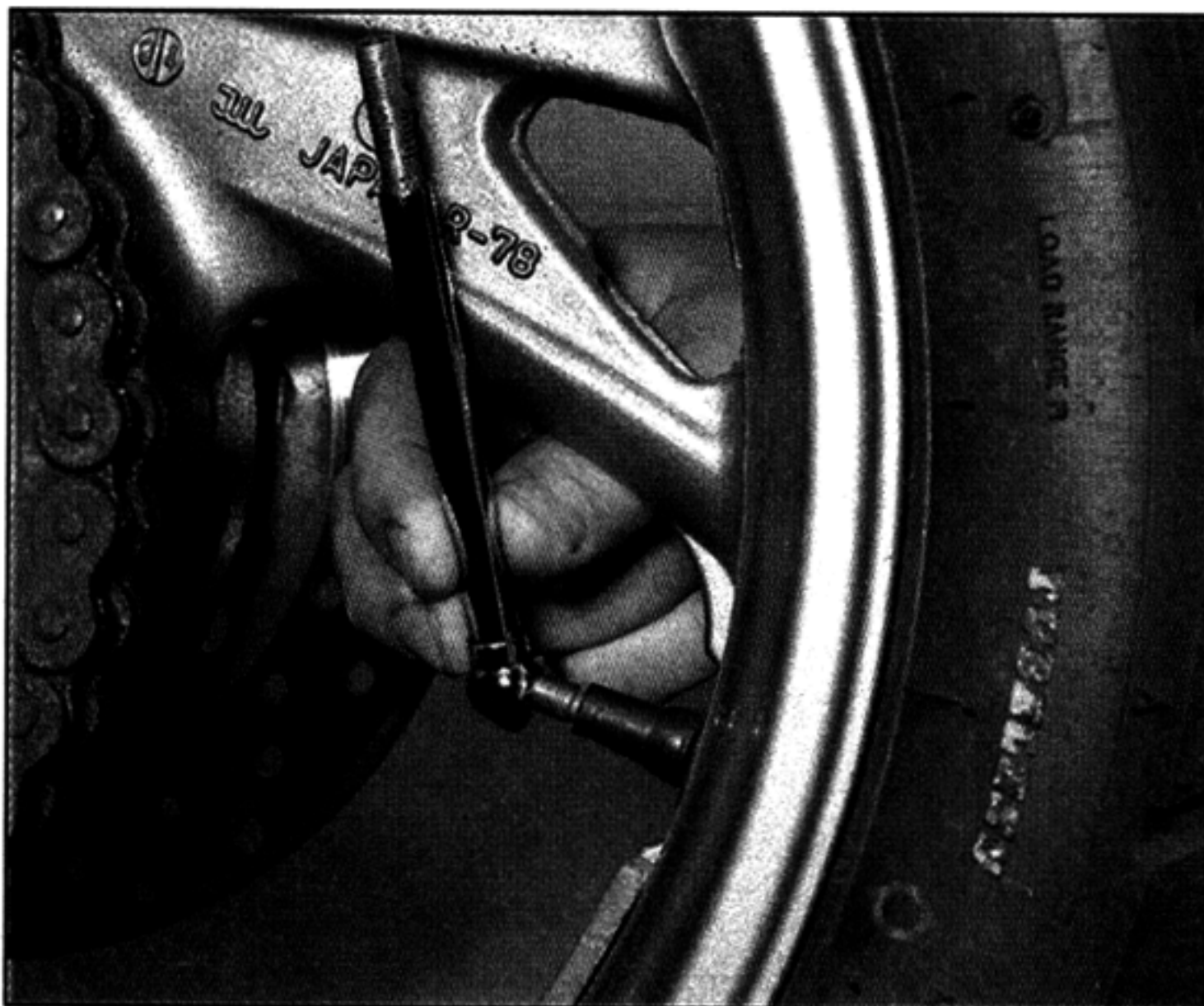
● If tyre damage is apparent, or unexplained loss of pressure is experienced, seek the advice of a tyre fitting specialist without delay.

Loading/speed	Front	Rear
1991 to 1995 TDM models		
Rider only	28 psi (2.0 Bar)	33 psi (2.25 Bar)
Rider and passenger, or high speed	28 psi (2.0 Bar)	36 psi (2.50 Bar)
1996-on TDM models		
All loads/speeds	33 psi (2.25 Bar)	40 psi (2.75 Bar)
TRX models		
Rider only	33 psi (2.25 Bar)	36 psi (2.50 Bar)
Rider and passenger, or high speed	36 psi (2.50 Bar)	41 psi (2.80 Bar)
XTZ models		
Rider only	33 psi (2.25 Bar)	33 psi (2.25 Bar)
Rider and passenger, or high speed	33 psi (2.25 Bar)	36 psi (2.50 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 a minimum of 2 mm tread depth to be a safer limit. Yamaha recommend a minimum of 1.5 mm on the front and 2 mm on the rear.

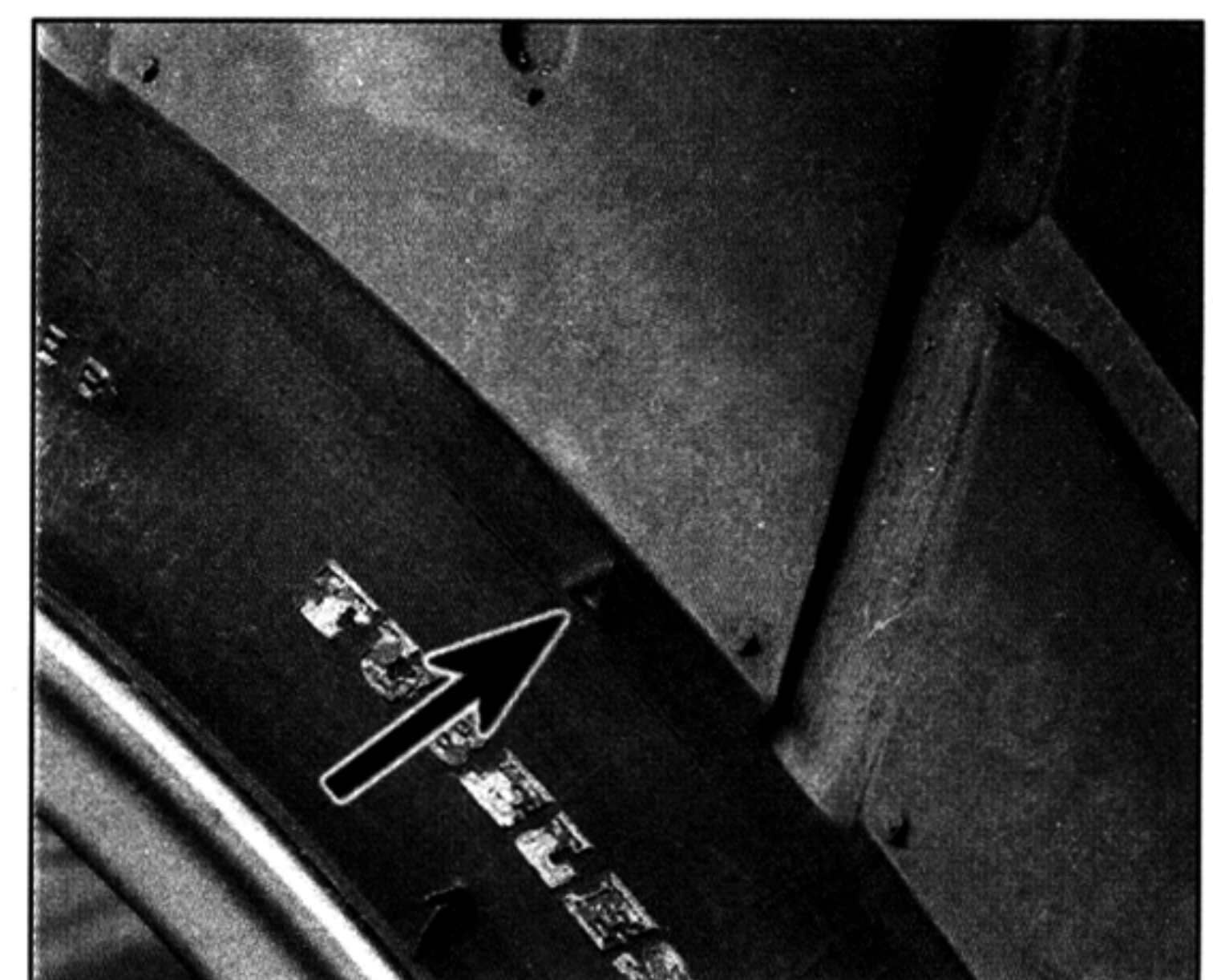
● Many tyres now incorporate wear indicators in the tread. Identify the triangular pointer on the tyre sidewall to locate the indicator bar and replace the tyre if the tread has worn down to the bar.



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 location marking (usually either an arrow, a triangle or the letters TWI) on the sidewall (arrowed).