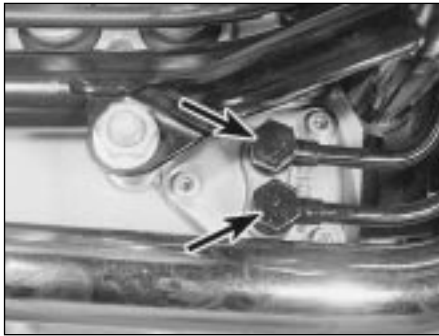


1•12 Minor service



1.20a Disconnect oil cooler pipes at banjo union bolts (arrowed) before removing adapter

and allow the oil to drain into a suitable container.

20 While the oil is draining, unscrew the two banjo union bolts securing the oil cooler pipes to the adapter, secure the pipes out of the way and unscrew the three bolts securing the adapter over the filter chamber (see illustration). As the adapter is withdrawn, note carefully the number and location of the seals. Hook out the old filter element, wipe out the chamber and fit a new element, metal end facing outwards (see illustration).

21 Whilst the adapter is detached, check the diameter of the small relief bore drilling directly opposite the main oil passage (see illustration 1.22). A modification was made in April 1990 which involved increasing the hole diameter to 4 mm to alleviate excessive pressure in the oil cooler when the engine was cold. Models produced prior to this date will have a 2 mm diameter hole which should be enlarged by an authorised BMW dealer to prevent pressure build-up problems occurring; a paint dot on the casting may be used to indicate that the modification has been carried out.

22 New sealing O-rings will usually be provided with a genuine BMW oil filter; use grease to stick these in place on the adapter and refit it to the crankcase (see illustration). Tighten the adapter mounting bolts securely, then refit the oil cooler pipes. Fit new sealing washers if necessary and tighten the banjo bolts to the specified torque setting, ensuring that the pipes are positioned well clear of the exhaust system. Refit the engine oil drain plug, having renewed its sealing washer if necessary, and tighten to the specified torque setting.

23 Refill the crankcase with the specified amount of oil, then start the engine and allow it to idle for a few minutes until the fresh oil is fully distributed around the engine. Switch off the engine, allow one or two minutes for the oil level to settle, then check it as described in *Daily (pre-ride) checks*.

All models

24 On all models, the oil pump pick-up filter gauze in the sump will have been cleaned at the first 600 mile (1000 km) service and does not require regular cleaning (as a part of routine maintenance) after this. It should be



1.20b Fit a new element with its metal end facing outwards

cleaned, however, and the sump thoroughly washed whenever the sump is removed. Refer to Chapter 5.



Check the old oil carefully - if it is very metallic coloured, then the engine is experiencing wear from break-in (new engine) or from insufficient lubrication. If there are flakes or chips of metal in the oil, then something is drastically wrong internally and the engine will have to be disassembled for inspection and repair.



Note: It is antisocial and illegal to dump oil down the drain. To find the location of your local oil recycling bank, call this number free.

In the USA, note that any oil supplier must accept used oil for recycling

2 Engine - clean the cylinder fins and sump cooling fins

1 In addition to the normal cleaning, check carefully that the cooling fins of the cylinder heads and barrels and of the sump are clean. Remove the fairing lower sections (machines with RS or RT fairings) or the sump bashplate (R80G/S) to ensure that all dirt and oil are removed which might reduce the fins cooling ability.

2 On machines with an oil cooler, check that the matrix is clean and unblocked; use a garden hose to flush the matrix through from behind to remove any dirt or debris.

3 Referring to Chapter 5, Section 14, dismantle the exhaust pipe joint at each cylinder head, and clean the nut and head stub threads of all corrosion. Apply Copaslip to the threads on reassembly.



1.22 Ensure seals are correctly installed before refitting adapter

3 Controls and stand pivots - lubrication



Levers and controls

1 To grease the handlebar lever pivots, the control cables must be slackened and the pivot pins removed. Unhook the clutch cable from the actuating arm underneath the gearbox. Slacken the front brake cable (where fitted) at the drum or the master cylinder.

2 Remove the locknut on the lever pivot and unscrew the pin (see illustration). Note the spring shim washer between the lever and the pivot housing (see illustration). Disconnect the cables by pushing the inner cable into the



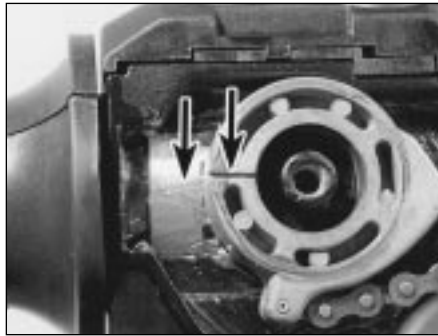
3.2a Remove handlebar lever pivot screw . . .



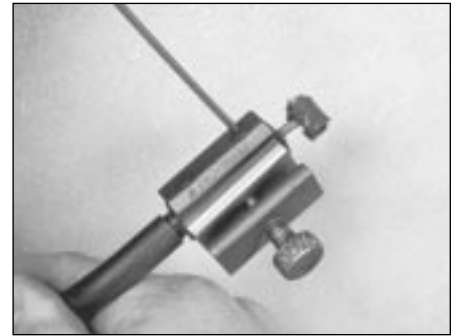
3.2b . . . and withdraw lever, noting shim (where fitted)



3.2c Disengage cable inner from slotted trunnion



3.4 Align twistgrip gear marks when refitting throttle cables



3.6 Hydraulic cable oiler in use

lever until the slotted trunnion can be pulled out of the lever (see illustration).

3 The straight-pull twistgrip should be dismantled for greasing or replacing cables. Push back the cable rubber cover. Unscrew the slotted screw in the twistgrip gear cover and remove the cover. Pull the twistgrip drum from the handlebar and unhook the cables from the block.

4 Grease the handlebar end, twistgrip drum gear, pinion shaft and chain. Replace the lower cable nipple in the block. With the slot in the twistgrip drum aligned with the slot in the housing, the marks on the drum gear and the pinion must be in line (see illustration). This ensures that there will be full throttle movement. Replace the upper cable nipple, pull back the outer cables and replace the gear cover.

Control cables

5 Control cables on early models will require regular oiling, which is best achieved by disconnecting them and removing them from the machine. Check the outer cables for signs of damage, then examine the exposed portions of the inner cables. Any signs of kinking or fraying will indicate that renewal is required. To obtain maximum life and reliability from the cables they should be thoroughly lubricated using light machine oil.

6 To do the job properly and quickly use one of the hydraulic cable oilers available from most motorcycle shops. Assemble the cable oiler as described by the manufacturer's instructions. Operate the oiler until oil emerges from the lower end, indicating that the cable is lubricated throughout its length (see illustration). This process will expel any dirt or moisture and will prevent its subsequent ingress.

7 If a cable oiler is not available hang the cable upright and make up a small funnel arrangement using Plasticine or by taping a plastic bag around the upper end (see illustration) Fill the funnel with oil and leave it overnight to drain through.

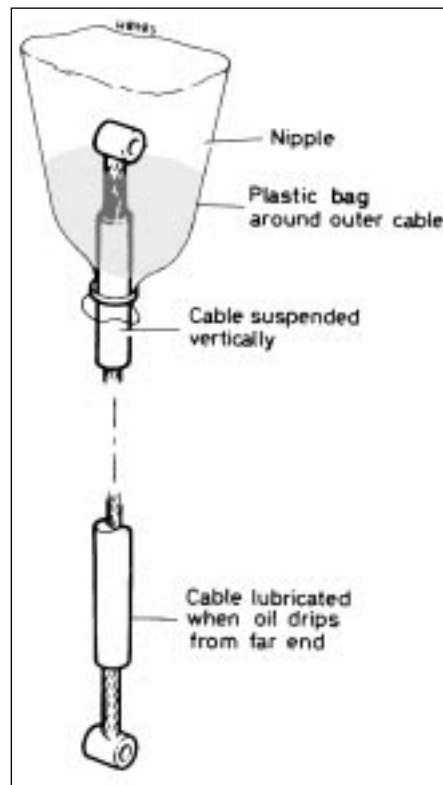
8 Note that the control cables on later models (approximately from 1978 on) are lined with

nylon or a similar material which **must not** be lubricated. If the cables become stiff through old age, wear, or damage, they must be renewed, although in some cases the application of one of the modern dry lubricants may help.

9 Finish off control lubrication by applying a few drops of engine oil or light machine oil to all nipples and control pivots, and all adjuster threads.

Locks and electrics

10 Using a water dispersant lubricant such as WD40 or CRC5-56, spray a small amount of lubricant into all locks and electrical components.



3.7 Oiling a control cable using a funnel arrangement

Instrument drive cables

11 The instrument drive cable inner wire cannot be removed from the outer casing so lubrication is not possible; the cables should be renewed if damaged, sticking or worn. To cure a squeaking cable, however, engine oil could be poured through it using the funnel arrangement described above (see illustration). Ensure that all surplus oil has drained off before refitting the cable or it may work up into the instrument as the cable rotates and ruin it.

Stands

12 The side stand pivot is usually fitted with a grease nipple and should be lubricated with a grease gun until fresh grease can be seen. The centre stand (and side stands with no grease nipple) should be removed so that the pivots can be cleaned and greased.

13 Check the stand return springs are in good condition and that their anchorages are secure.

14 Grease all pivot components on reassembly and tighten all fasteners securely (to the specified torque settings, where given). If excessive wear is noted between the side stand and its bracket, note that a modification is available for 1981 to 1984 models which involves inserting headed bushes in the pivot.

15 On certain models, note that the side stand is mounted on the crashbars; check



3.11 Instrument drive cables are retained by knurled rings at their upper ends