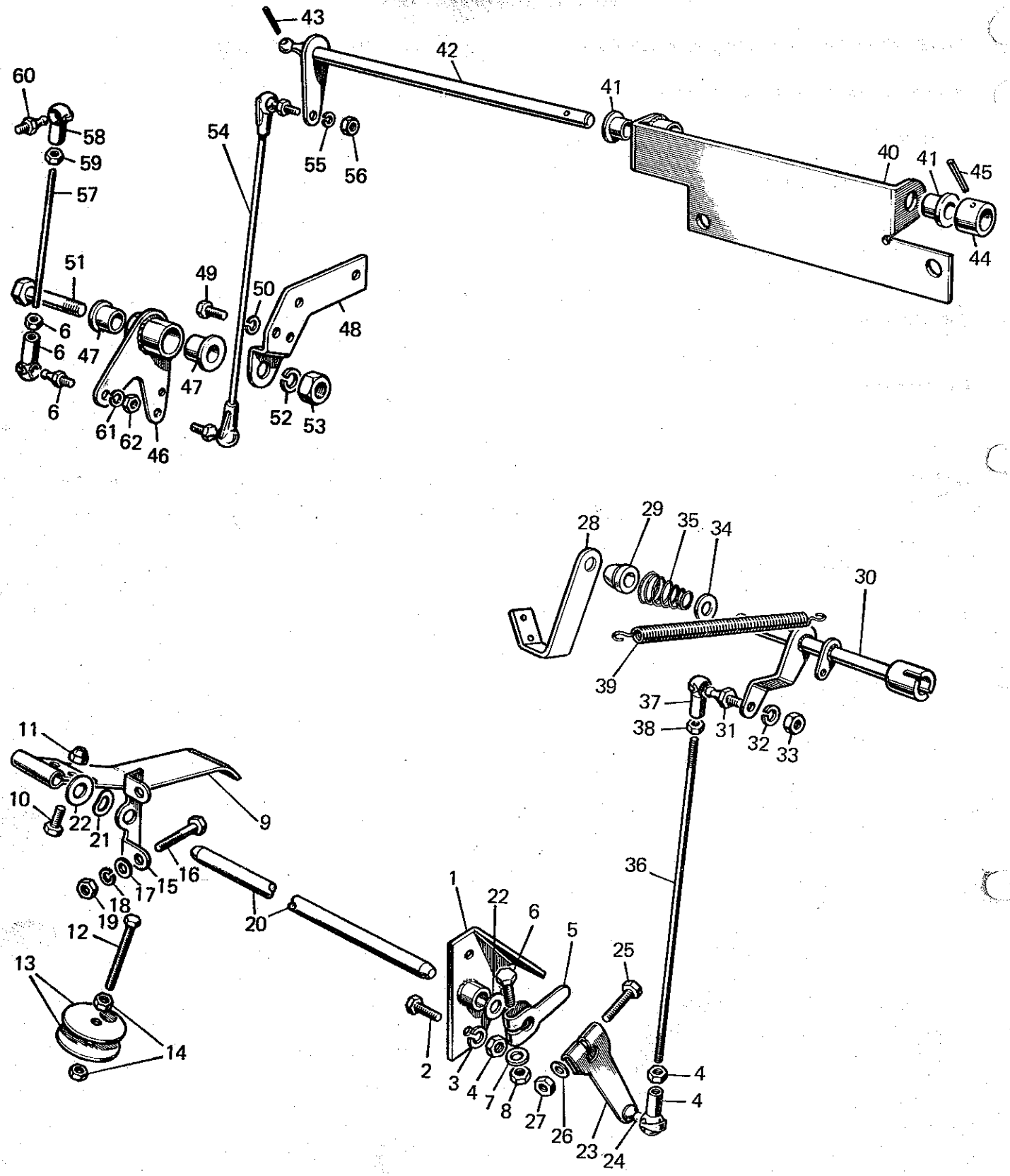
FUEL SYSTEM OPERATIONS

NOTE: Where fuel system equipment has emission control features, refer to Division 17 of this Manual.



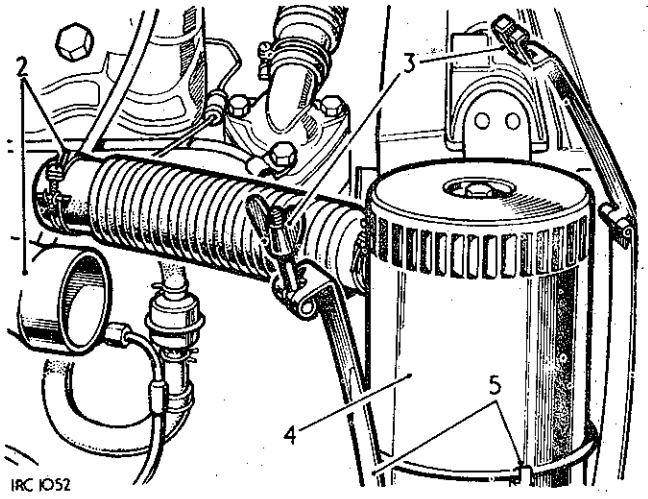
Accelerator levers and rods.

Key to illustration of accelerator levers and rods.

1. Bracket for accelerator pedal and stop
2. Bolt (¼in. UNF x ½in. long) } Fixing bracket and pedal stop to dash
3. Spring washer
4. Nut (¼in. UNF)
5. Pedal stop lever
6. Bolt (¼in. UNF x 1¼in. long) } Fixing lever to pedal shaft
7. Plain washer
8. Nut (¼in. UNF)
9. Accelerator pedal
10. Bolt (5/16 in. UNF x 3/8 in. long) } Fixing pedal to shaft
11. Nut (5/16 in. UNF)
12. Bolt (5/16 in. UNF x 1⅛ in. long) } Pedal stop in floor
13. Plain Washer
14. Nut (5/16 in. UNF)
15. Bracket for accelerator pedal shaft
16. Bolt (¼in. UNF x 5/8 in. long) } Fixing bracket to dash
17. Plain washer
18. Spring washer
19. Nut (¼in. UNF)
20. Shaft for accelerator pedal
21. Special washer } On accelerator shaft
22. Plain washer
23. Lever assembly for accelerator
24. Ball end for lever
25. Bolt (¼in. UNF x 1¼in. long) } Fixing lever to shaft
26. Plain washer
27. Nut (¼in. UNF)
28. Mounting bracket for extension shaft
29. Bearing in mounting bracket for shaft
30. Extension shaft and lever
31. Ball end for extension shaft lever
32. Spring washer } Fixing ball end to lever
33. Nut (2 BA)
34. Plain washer } For extension shaft
35. Conical spring for extension shaft
36. Control rod, pedal shaft to extension shaft
37. Ball joint socket for control rod
38. Locknut (2 BA) fixing socket to control rod
39. Return spring, bell crank to extension shaft
40. Bracket assembly for accelerator cross-shaft
41. Bearing for cross-shaft
42. Accelerator cross-shaft and lever
43. Spiral pin for cross-shaft
44. Boss for cross-shaft
45. Spring dowel fixing boss to shaft
46. Bell crank lever and bearings assembly
47. Bearing for bell crank
48. Support bracket for bell crank
49. Set bolt (¼in. UNC x 5/16 in. long) } Fixing support bracket to cylinder head
50. Spring washer
51. Centre pin } Fixing bell crank to support bracket
52. Spring washer
53. Nut (5/16 in. UNC)
54. Control rod, cross-shaft to bell crank
55. Spring washer } Fixing control rod to levers
56. Nut (10 UNF)
57. Control rod, bell crank to carburettor
58. Ball joint } For control rod
59. Locknut (2 BA)
60. Ball end } Fixing control rod to bell crank lever and carburettor
61. Spring washer
62. Nut (2 BA)

AIR CLEANER

–Remove and refit **19.10.04**



Removing

1. Lift and prop the bonnet.
2. Disconnect the air intake hose from the carburettor inlet.
3. Slacken the fixings and move aside the retaining strap.
4. Remove the air cleaner complete with hose.

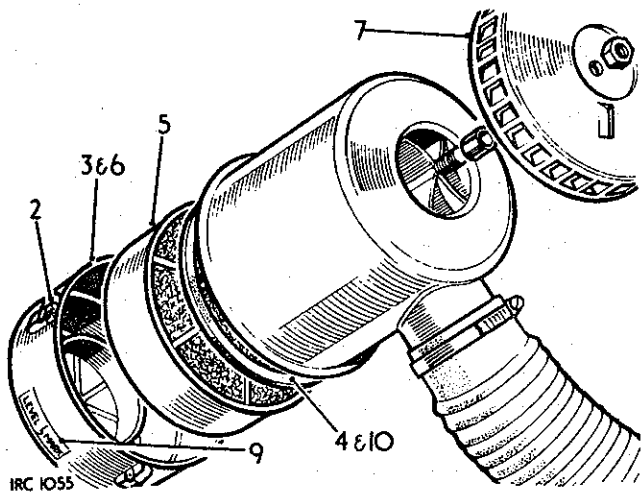
NOTE: Be sure to keep air cleaner level otherwise oil may spill.

Refitting

5. Reverse 1 to 4. Ensure that the oil container hinged clips are clear of the retaining strap supports when fitted.

AIR CLEANER

—Clean and refill 19.10.16



Dismantling

1. Remove the air cleaner. 19.10.04.
2. Release the hinged clips.
3. Withdraw the oil container.
4. Withdraw the sealing washer.
5. Lift out the wire mesh element.
6. Drain the oil container.
7. Remove the air intake cap.
8. Wash the metal parts in clean fuel.

Assembling

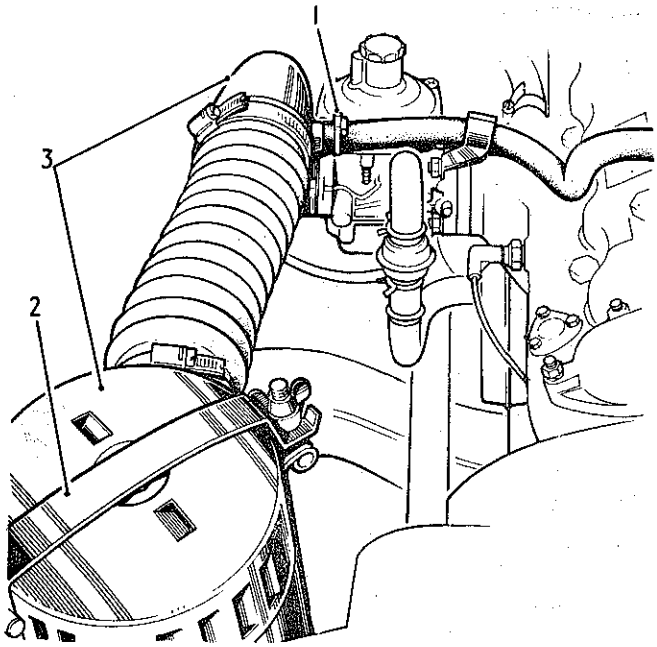
9. Add clean engine oil to the oil container (Division 09 refers), fill to the oil level mark.
10. Reverse 1 to 5 and 7, using a new sealing washer.

CARBURETTER, Zenith type 175 CD2S

–Remove and refit **19.15.09**

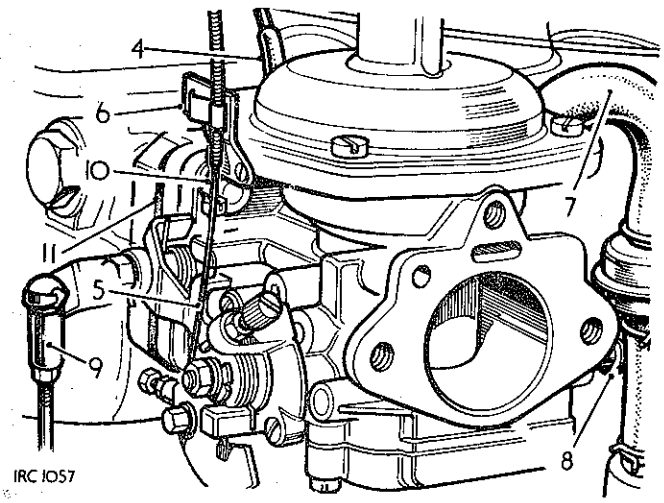
Removing

1. Disconnect the top cover breather hose at the carburettor elbow.
2. Release the air cleaner retainer strap.
3. Withdraw the air cleaner complete with hose, carburettor elbow and joint washer.
4. Disconnect the distributor vacuum pipe.
5. Release the cold start control inner cable.
6. Withdraw the cold start outer cable from the spring clip.
7. Disconnect the crankcase breather hose.
8. Disconnect the fuel inlet pipe.
9. Disconnect the accelerator linkage.
10. Remove the fixings and withdraw the carburettor.
11. Withdraw the carburettor adaptor and joint washer.



Refitting

12. Reverse 1 to 10. When the cold start cable is connected, ensure that full travel on the carburettor linkage is obtainable in both directions.



IRC 1057

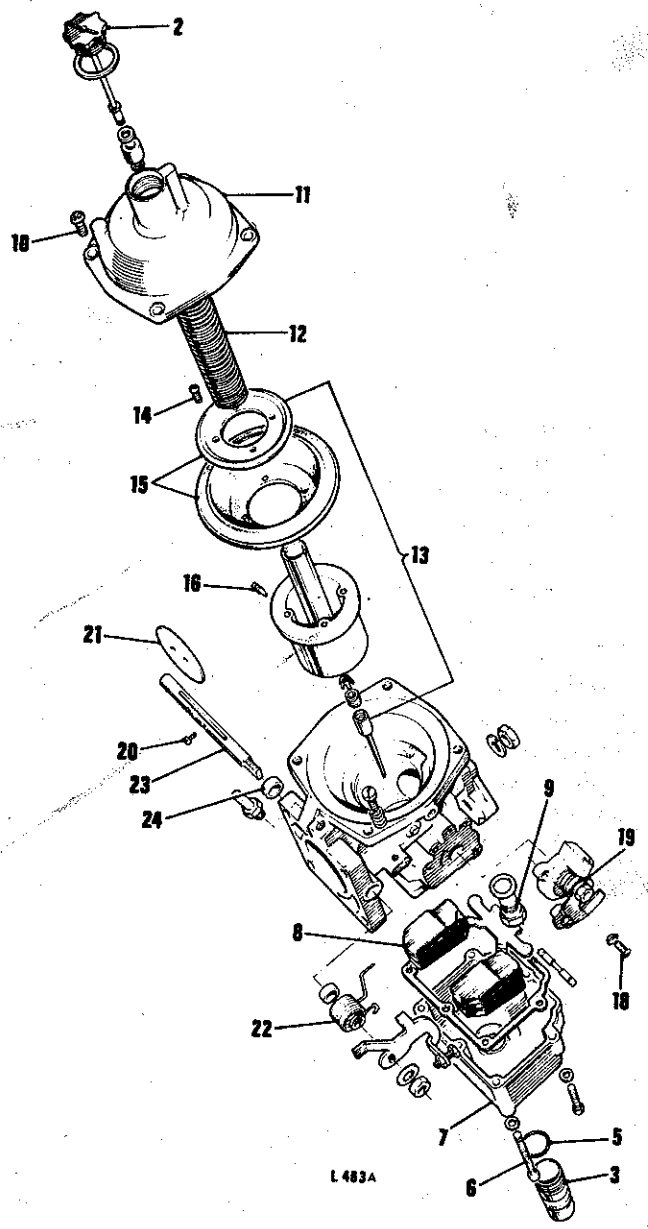
CARBURETTOR, Zenith type 175CD 2S

—Overhaul and adjust **19.15.17**

Service tool: S353

Dismantling

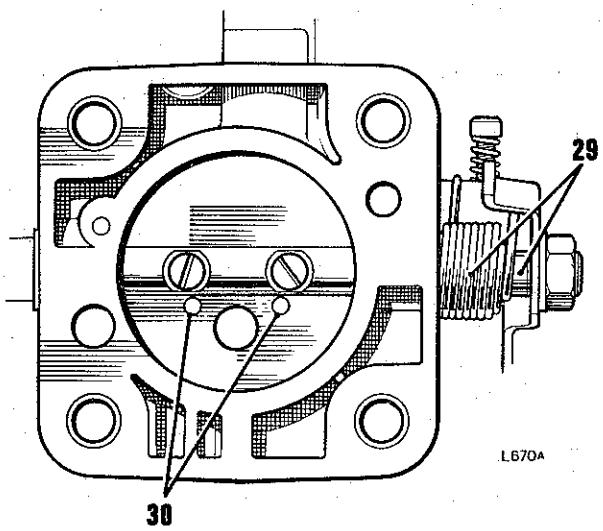
1. Remove carburettor. 19.15.09.
2. Remove damper.
3. Remove bottom plug.
4. Drain carburettor of oil and fuel.
5. Remove 'O' ring from plug.
6. Remove six screws securing float-chamber to body.
7. Remove float-chamber.
8. Remove float assembly by gently prising spindle from clip each end.
9. Remove needle valve.
10. Remove four screws securing top cover to body.
11. Remove top cover.
12. Remove spring.
13. Remove air valve assembly.
14. Remove four screws securing diaphragm and retaining ring to air valve assembly.
15. Remove diaphragm and retaining ring.
16. Slacken grubscrew in side of air valve.
17. Insert tool S353 in stem of air valve, turn anti-clockwise approximately two turns, withdraw needle and housing by pulling firmly and straight with the fingers.
18. Remove two screws securing starter box to body.
19. Remove starter box.
20. Remove two screws securing butterfly to spindle.
21. Turn spindle, remove butterfly.
22. Release spindle return spring.
23. Withdraw spindle and spring.
24. Remove spindle seals from body by hooking out with small screwdriver.
25. Wash all components in clean fuel, allow to drain dry or use clean compressed air. Place all components on a clean surface. Discard all seals and gaskets.
26. Examine the condition of all components for wear, paying special attention to needle and seat, air valve and diaphragm which should be renewed unless in exceptionally good condition.
27. Use clean compressed air to blow through all ports, needle valve and starter box.



Continued

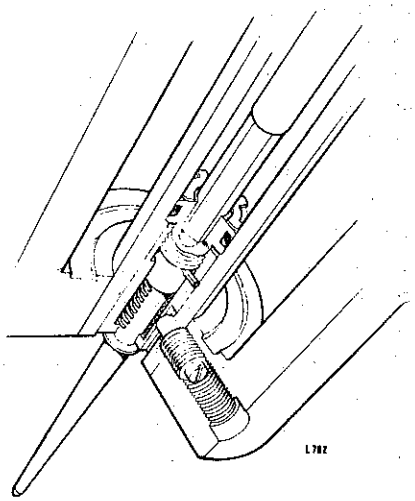
Reassembling

28. Fit spindle seals to body, tapping gently into position, with metal casing of seals flush with body of carburettor.
29. Insert spindle, loading and locating spindle return spring whilst so doing.
30. Insert butterfly with two protruding spots, outboard and below spindle, tighten screws.

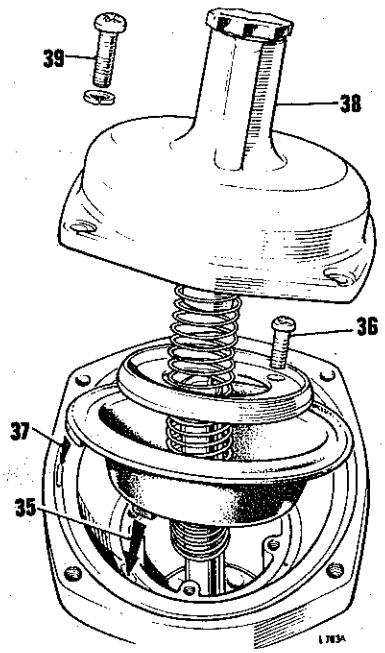


31. Fit starter box, tighten screws.
32. Insert needle housing assembly into the bottom of the air valve.
33. Fit tool S353, turning clockwise to engage threads of needle valve assembly with adjusting screw; continue turning until slot in needle housing is aligned with grub screw.
34. Tighten grub screw.

NOTE: The grub screw does not tighten on the needle housing but locates into the slot. This ensures that, during adjustment, the needle will remain in its operating position, i.e. biased, by a spring in the needle housing, towards the air cleaner side of the carburettor.



35. Fit diaphragm, locating inner tag into recess in air valve.
36. Fit diaphragm retaining ring; secure with four screws.
37. Fit air valve assembly, locating outer tag and rim of diaphragm in complementary recesses in carburettor body.
38. Fit carburettor top cover with bulge on housing neck towards air intake.
39. Fit and evenly tighten top cover screws.

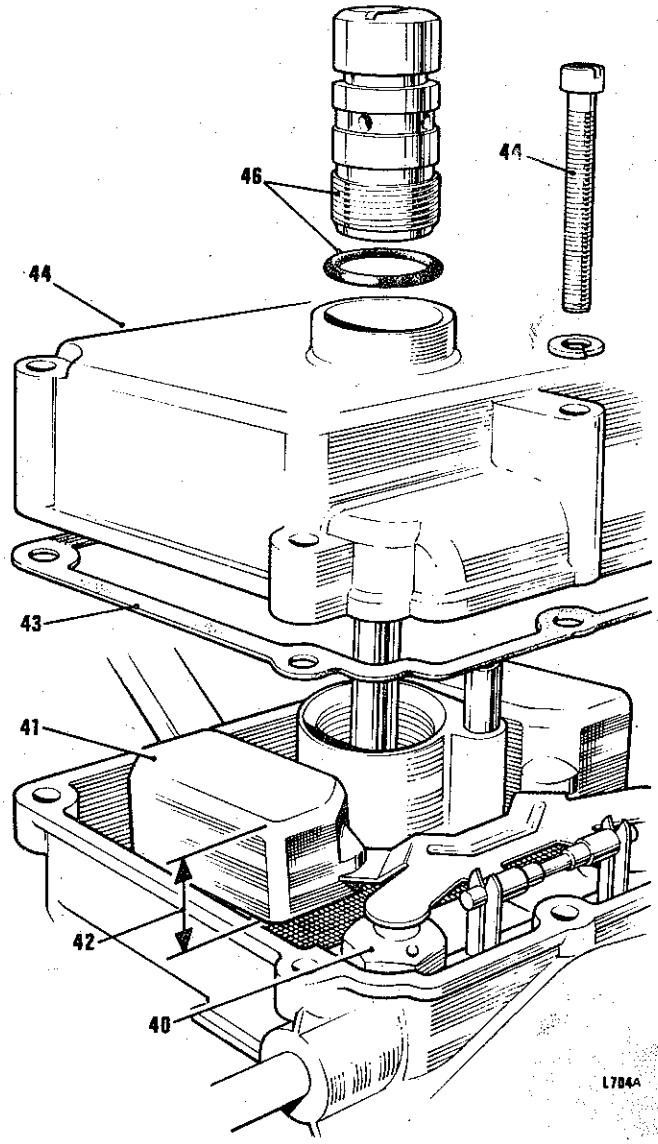


Continued

40. Fit needle valve and sealing washers; tighten.
41. Fit float assembly by levering pivot pin gently into position.
42. Check float height by measuring the distance between the carburettor gasket face and the highest point of the floats.

NOTE: The float heights must be equal and set to 16 to 17 mm (0·629 to 0·669 in). Adjust by bending tabs ensuring that tab sits on needle valve at right angles.

43. Fit float-chamber gasket.
44. Fit float-chamber, secure with six screws.
45. Fit 'O' ring to bottom plug.
46. Fit bottom plug.

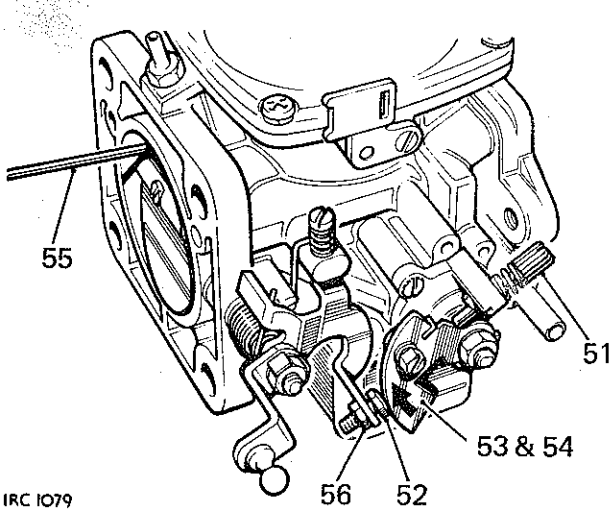


47. Fit carburettor. 19.15.09.
48. Fill carburettor damper dashpot with the correct grade of engine oil to within 6 mm (0.250 in) of the top of the air valve shaft.
49. Fit damper.
50. Tune carburettor.

Zenith type 175 CD 2S

Fast idle adjustment, carburettor removed

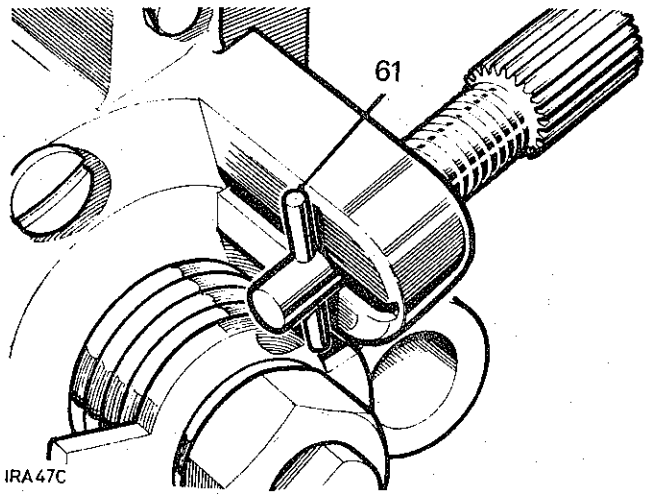
51. Set the cold start adjuster fully outward.
52. Slacken the fast idle adjusting screw.
53. Hold the cold start cam lever in the maximum position.
54. Adjust the fast idle adjusting screw against the cam lever to obtain a 1,0 to 1,1mm (0.039 to 0.043in) clearance between the top edge of the throttle butterfly and the carburettor barrel wall.
55. Measure the clearance using feeler gauges or a 1,1 mm (No. 57) diameter drill shank.
56. Secure the fast idle adjusting screw locknut without disturbing the adjustment.
57. Refit the carburettor 19.15.09.



IRC 1079

Fast-idle adjustment, carburettor fitted

58. Operate fully the cold start control
59. Adjust the fast-idle stop screw to obtain an engine speed of 1,000 to 1,200 rev./min.
60. Return the cold start control and ensure that the fast-idle stop screw is clear of the cam lever.



IRA 47C

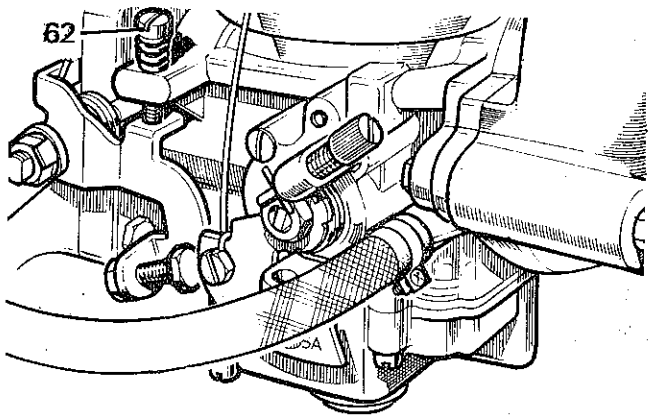
Low temperature starting

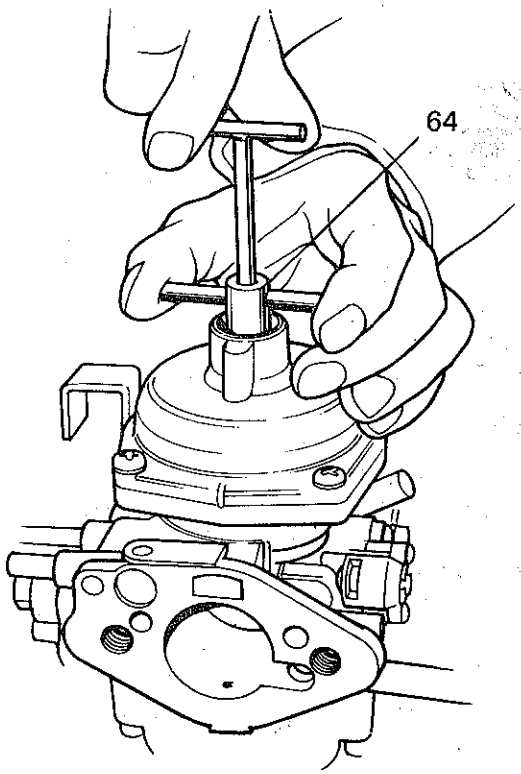
61. For starting at temperatures down to -18°C (0°F) push and turn the spring-loaded choke adjustment screw so that the peg is at right-angles to the slot as illustrated. Leave in this position.
When starting at temperatures below -18°C (0°F) turn the screw until peg is recessed in slot.

Zenith type 175 CD 2S

Mixture check and adjust

62. Run the engine until normal operating temperature is obtained. If necessary adjust slow-run screw to give the correct idling speed.
63. Lift the carburettor piston approximately 0.8 mm (0.031 in) and note the engine response as follows:
    NOTE: Remove air cleaner inlet elbow from carburettor to gain access to piston.
    (a) Engine speed increases immediately ..... Rich mixture
    (b) Engine speed decreases or stalls Weak mixture
    (c) Engine speed increases slighly then returns to normal ..... Correct mixture
64. Should the mixture require adjustment, remove carburettor damper and carefully insert special tool S353 into the hollow piston guide rod so that the inner part of the tool engages in a female hexagon in the needle adjusting screw.
    Hold the outer part of the tool firmly and turn the inner tool clockwise to enrich or anti-clockwise to weaken mixture.
65. Check mixture as instruction 63.
66. Adjust if necessary.
67. Top up damper dashpot and replace damper.
68. Finally reconnect air cleaner and adjust the slow-run screw to obtain a smooth idling speed of approximately 650 rev./min.
69. The fast idle screw should not require adjustment.





DATA	
Float height	16 to 17 mm (0.629 to 0.669in)
Fast-idle setting, carburettor removed	1,0 to 1,1mm (0.039 to 0.043in) clearance between throttle butterfly top edge and carburettor barrel.
Fast-idle setting, carburettor fitted	1000 to 1,200 rev./min.
Idling speed	650 rev./min.

FLOAT-CHAMBER NEEDLE VALVE

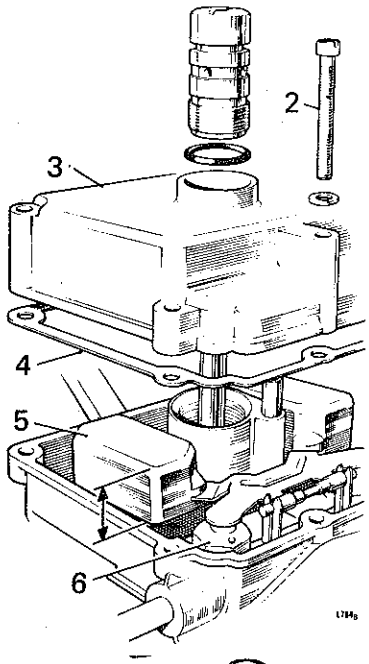
—Remove and refit **19.15.24**

Removing

1. Remove carburettor. 19.15.09.
2. Remove six screws securing float-chamber to body.
3. Remove float-chamber.
4. Remove gasket.
5. Remove float assembly by gently prising spindle from clip each end.
6. Remove needle valve.

Refitting

1. Reverse 1 to 6—renew gasket.



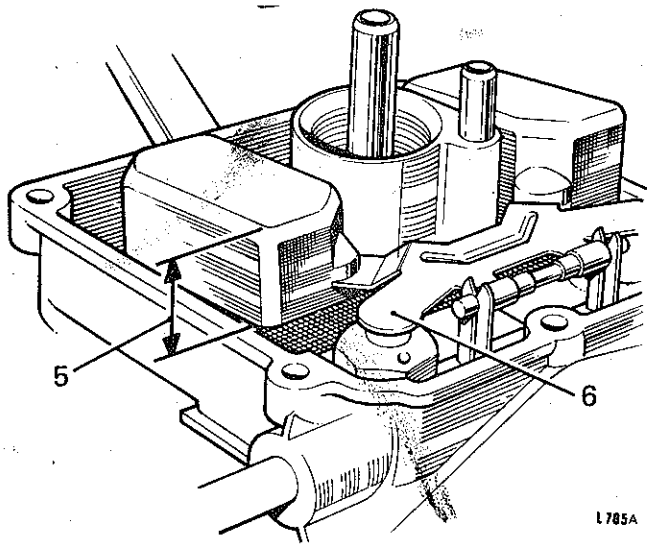
FLOAT-CHAMBER LEVEL

—Check and adjust **19.15.32**

1. Remove carburettor. 19.15.09.
2. Remove six screws securing float-chamber to body.
3. Remove float-chamber.
4. Remove gasket.
5. Check distance between gasket face on carburettor body to highest point of each float.
   NOTE: The height of each float must be equal and correct to datum setting which is 16 to 17 mm (0·629 to 0·669 in).

To adjust

6. Bend tab over to obtain correct setting ensuring that the tab sits on needle valve at right angles.
7. Fit new gasket, reverse 1 to 3.



DIAPHRAGM

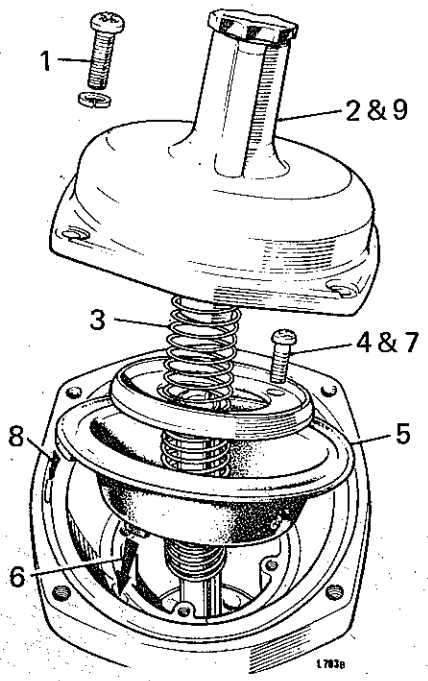
—Remove and refit **19.15.35**

Removing

1. Remove four screws securing top cover to carburettor body.
2. Lift off top cover.
3. Remove spring.
4. Remove diaphragm retaining plate (four screws).
5. Remove diaphragm.

Refitting

6. Fit diaphragm, locating inner tag in air valve recess.
7. Fit retaining plate, ensure correct diaphragm seating, tighten screws.
8. Locate diaphragm outer tag in recess in carburettor body, and rim bead in annular groove.
9. Fit top cover, evenly tighten securing screws.



THROTTLE LINKAGE

—Remove and refit 19.20.07

General

The following instructions are generally applicable but reference should be made to the exploded views and descriptions of accelerator controls for detail variations, refer to 19.00.00.

NOTE: Access to the throttle linkage at the rear of the engine is best obtained by removing the gearbox tunnel cover. 76.25.07.

Removing

1. Disconnect the linkage return springs.
2. Disconnect the linkage adjacent to the pedal box.
3. Disconnect the linkage at the carburettor or fuel distributor pump.
4. Remove the RH retaining bracket from the engine compartment dash.
5. Withdraw the throttle linkage complete.

Refitting

6. Reverse 1 to 6 leaving the pinch bolts loose at this stage.
7. Depress the throttle pedal onto the stop on the toe box floor.
8. Hold the throttle linkage in the fully open position.
9. Tighten the linkage pinch bolts and release the pedal and linkage.
10. If necessary adjust the throttle pedal stop on the toe box floor and the return stop at the toe box to permit full and unrestricted throttle opening.

COLD START CONTROL CABLE

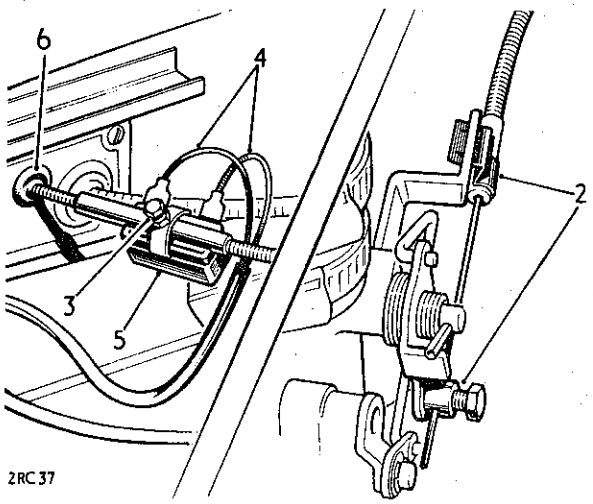
–Remove and refit **19.20.26**

Removing

1. Disconnect the battery earth lead.
2. Disconnect the inner and outer control cables at the carburettor.
3. Slacken the locknut and release the retainer screw fixing the switch unit to the control cable.
4. Disconnect the white/blue lead from the front connector blade and the black lead from the rear blade.
5. Withdraw the switch unit.
6. Withdraw the cable grommet at the engine compartment dash.
7. Remove the fixings and withdraw the steering column switch shrouds to gain access to the control cable.
8. Remove the locknut and shakeproof washer fixing the outer cable to the mounting bracket.
9. Push the control forward to clear the hole in the mounting bracket.
10. Lift the control and pass the inner cable through the slot provided in the bracket.
11. Withdraw the control cable assembly complete.

Refitting

12. Reverse 1 to 11; ensure that the control knob is fully forward and the choke mechanism is fully open before clamping the inner cable at the carburettor.



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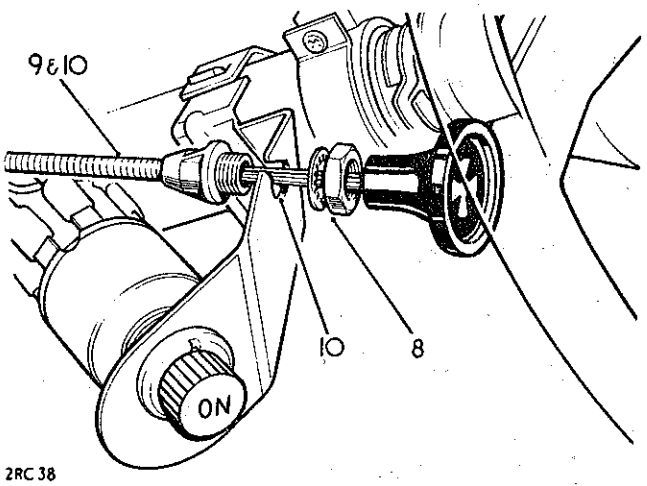

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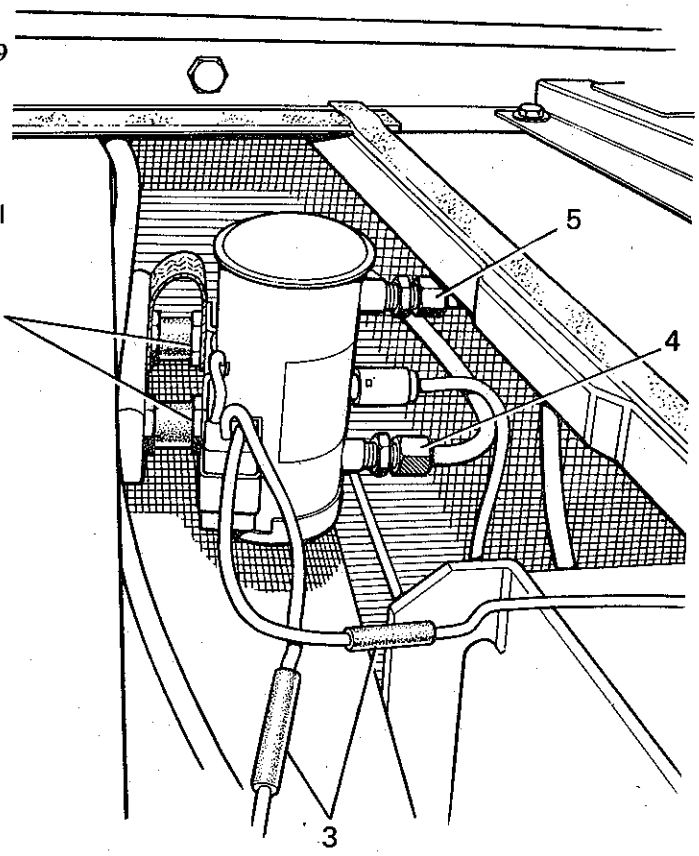
FUEL LIFT PUMP

–Remove and refit 19.45.09



Removing

1. Disconnect the battery leads.
2. Lift the seat (RH side) and remove the seat box panel to expose the fuel pump.
3. Disconnect the wiring at the 'Lucar' connectors.
4. Disconnect the fuel outlet pipe.
5. Disconnect the fuel inlet pipe.
6. Remove the clamp fixings.
7. Withdraw the pump and mounting rubbers.

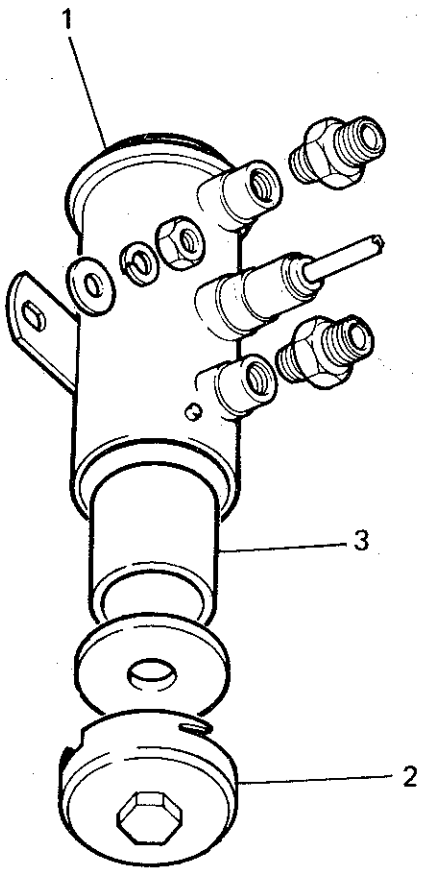
Refitting

8. Reverse 1 to 7.

FUEL LIFT PUMP

Overhaul 19.45.16

The fuel pump is not repairable or serviceable, repair is by replacement. The only servicing required is to replace the fuel filter element every 20.000 km (12,000 miles) or 12 months.



Proceed as follows:

1. Remove pump 19.45.09
2. Remove base from fuel pump.
3. Remove and discard filter element.
4. Reassemble pump with new element.
5. Refit pump and reconnect.

FUEL TANK, side mounted

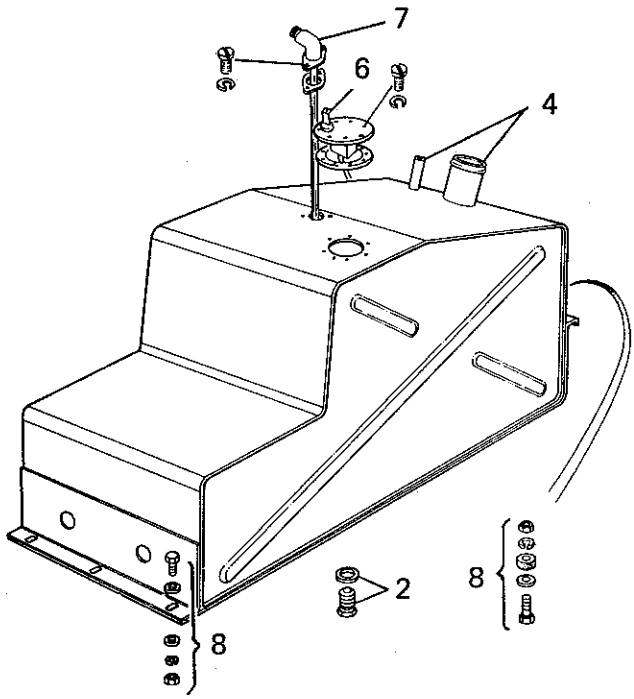
—Remove and refit **19.55.01**

Removing

1. Disconnect the battery earth lead.
2. Drain fuel into a clean container.
3. Remove RH seat cushion and fold seat squab forward.
4. Disconnect hoses, tank to filler tube and breather hose.
5. Remove cover panel for fuel tank.
6. Disconnect wires at gauge unit.
7. Disconnect fuel supply pipe.
8. Support tank and remove tank securing bolts.
9. Lower tank and remove from under the vehicle.

Refitting

10. Reverse 1 to 9.



FUEL EXPANSION TANK

—Remove and refit

Removing

1. Expansion tank located LH rear wheel arch, forward section.
2. Disconnect fuel lines.
3. Remove tank securing bolts.
4. Remove tank.

Refitting

5. Reverse 2 to 4.