BRITISH LEYLAND MOTORS INC.

SERVICE DIVISION

DEALER TRAINING

AID # SST 3

SUBJECT: 1970 EMISSION DATA

MODEL: TRIUMPH SPITFIRE MK III, GT 6+ AND TR 6

AUSTIN JAGUAR MG ROVER LAND ROVER TRIUMPH

TRIUMPH 1970 EMISSION CONTROL SYSTEMS

SPITFIRE MK III GT 6+ TR 6

Data

	Spitfire MK III	GT 6+	TR 6
Idle Speed r.p.m.	800 - 850	800 - 850	800 - 850
Ignition - Static (Approx.)	6°A.T.D.C.	6°B.T.D.C.	10°B.T.D.C.
Ignition - Idle	2°A.T.D.C.	4°A.T.D.C.	4°A.T.D.C.
C.O. Level - Engine Warm at Idle	1% - 3.5%	.5% - 2.5%	.5% - 2.5%
Equivalent Air/ Fuel Ratio	14.2:1 - 13.2:1	14.4:1 - 13.6:1	14.4:1 - 13.6:1
Spark Plugs	Champion UN-12Y	Champion UN-12Y	Champion UN-12Y
Carburetor	Single Stromberg 150 CDSE	Twin Stromberg 150 CDSE	Twin Stromberg 175 CDSE

The Federal regulations governing the emission of hydrocarbons and carbon monoxide from the exhaust system and crankcase of 1970 model year vehicles is as follows:-

2.2 grams per mile hydrocarbons

23 grams per mile carbon monoxide

EVAPORATION CONTROL SYSTEM

Description

The evaporation control systems for the GT 6+, TR 6 and Spitfire MK III share the same design features differing only to accommodate the variations in vehicle layout.

The main principles and features of the system are as follows:-

(a) The system is sealed except at one point where a canister of activated carbon is interposed between the system and atmosphere. When, in hot conditions, the fuel tank breathes out vapor the fuel content is retained in the activated carbon. When the engine is running, a pipe, from the canister to the constant depression area of the carburetor(s) is used to purge the activated carbon.

(b) An overflow tank, in the luggage compartment, allows for the expansion of fuel from a full main tank in hot conditions. The overflow pipe from the main tank is led from the topmost point of the fuel filler tube to the bottom of the overflow tank. The system venting also uses this circuit so that, before replacing used fuel with air, the contents of the overflow tank must first be drawn back into the main tank.

(c) The circuit used to replace used fuel with air in the main tank is via the connection-filler neck to bottom of overflow tank, top of overflow tank via piping to the activated carbon canister. Thus filtered air is drawn into the main fuel tank. (See Fig. 1)

(d) The piping from the overflow tank to the activated carbon canister is routed round the luggage compartment. This ensures that, at any vehicle angle, i.e., subsequent to accident, etc., part of the piping circuit will be above the fuel tank thus minimizing the risk of fuel leaks to the canister. (See Fig.'s 2, 3 & 4)

(e) The top of the fuel filler tube is sealed by a specially designed, impact resistant, filler cap which ensures that the fuel system remains sealed in all conditions.

(f) The activated carbon canister incorporates a replaceable gauze filter which protects the carbon from possible breakdown due to the ingress of dirt and other road abrasives.

Servicing

Minimal servicing is required on the evaporation control system apart from changing the filter gauze in the carbon canister every 12,000

miles and replacing the canister every 50,000 miles. Details of these procedures are:-

Every 12,000 miles:

1. Replace the filter in the carbon canister as follows:
2. Remove the inlet and purge pipes from the canister.
3. Slacken the clip securing the canister to its mounting bracket.
4. Unscrew the base cover and remove the filter gauze.
5. Clean the base cover, fit a new gauze, replace cover and refit the canister ensuring that the restrictor is in position in the outlet nozzle. (Except Spitfire MK III).
6. Ensure that all piping is not chaffing and is free from kinks.

Every 48,000 miles:

Replace the canister adopting the method described above.

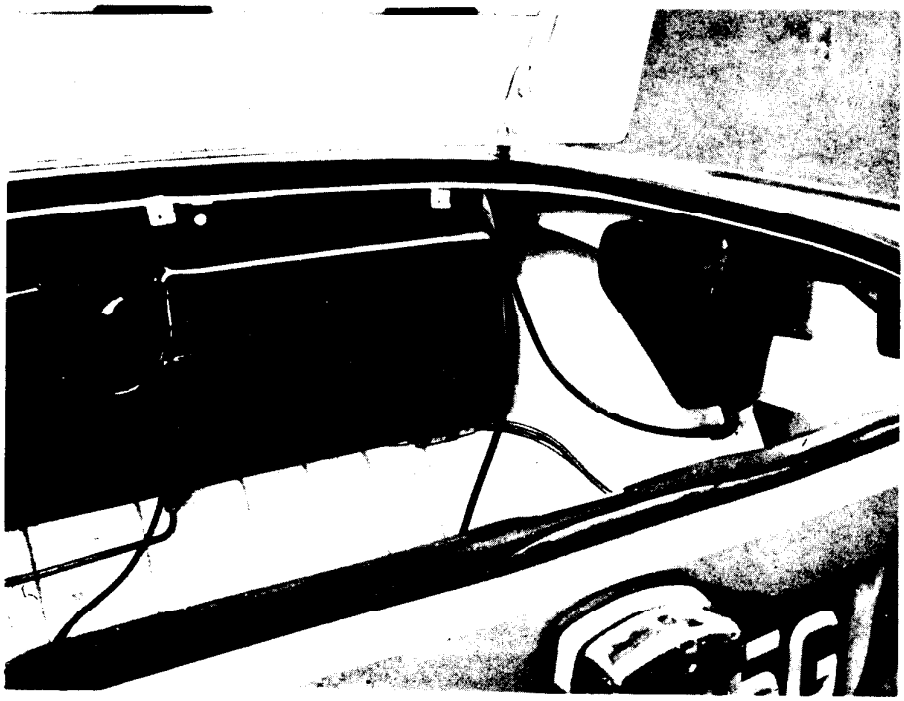
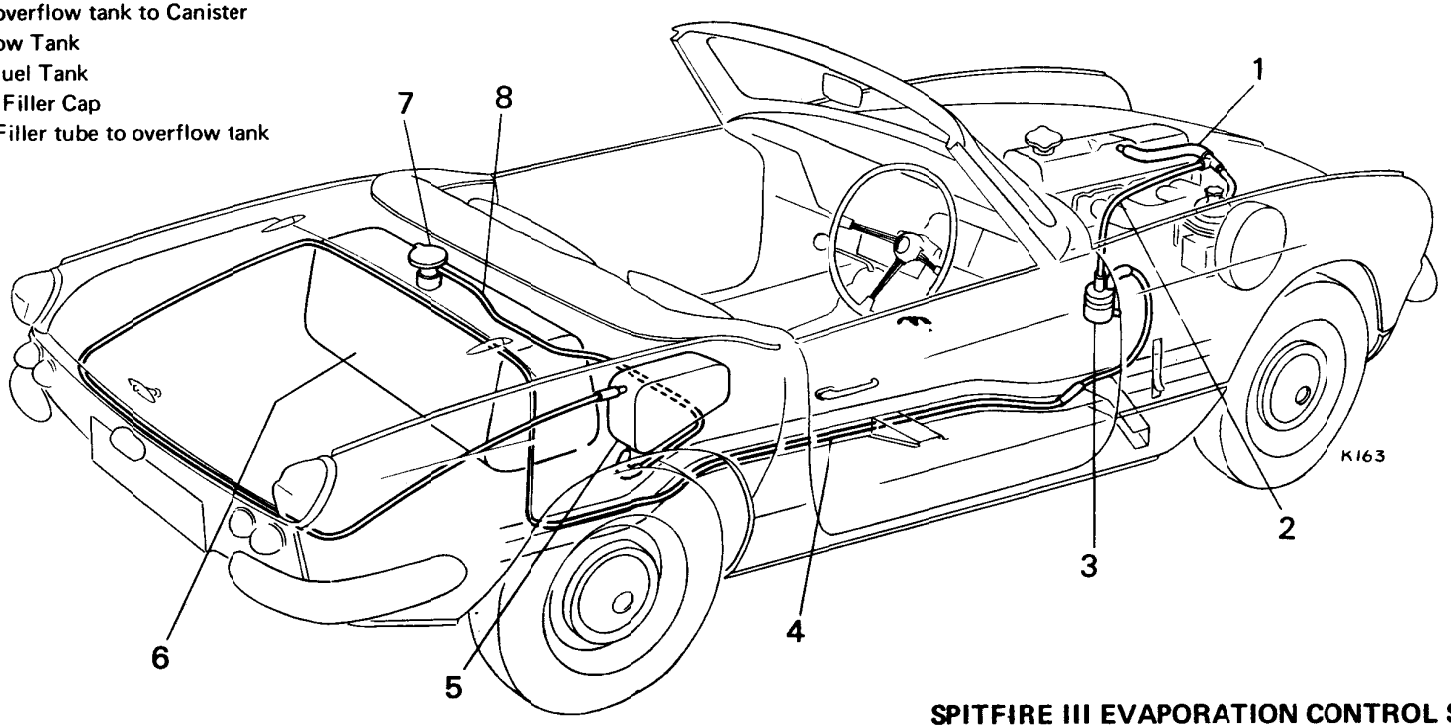


Fig. 1

Luggage Compartment Layout - SPITFIRE III

1 Pipe - Rocker cover to carburettor
2 Pipe - Canister purge
3 Activated Carbon Canister
4 Pipe - overflow tank to Canister
5 Overflow Tank
6 Main Fuel Tank
7 Sealed Filler Cap
8 Pipe - Filler tube to overflow tank



SPITFIRE III EVAPORATION CONTROL SYSTEM

Fig. 2

1 Emission Control Valve
2 Pipe - Rocker cover to Canister
3 Activated Carbon Canister
4 Pipe - Overflow tank to Canister
5 Main Fuel Tank
6 Sealed Filler Cap
7 Pipe - Filler tube to overflow tank
8 Overflow Tank

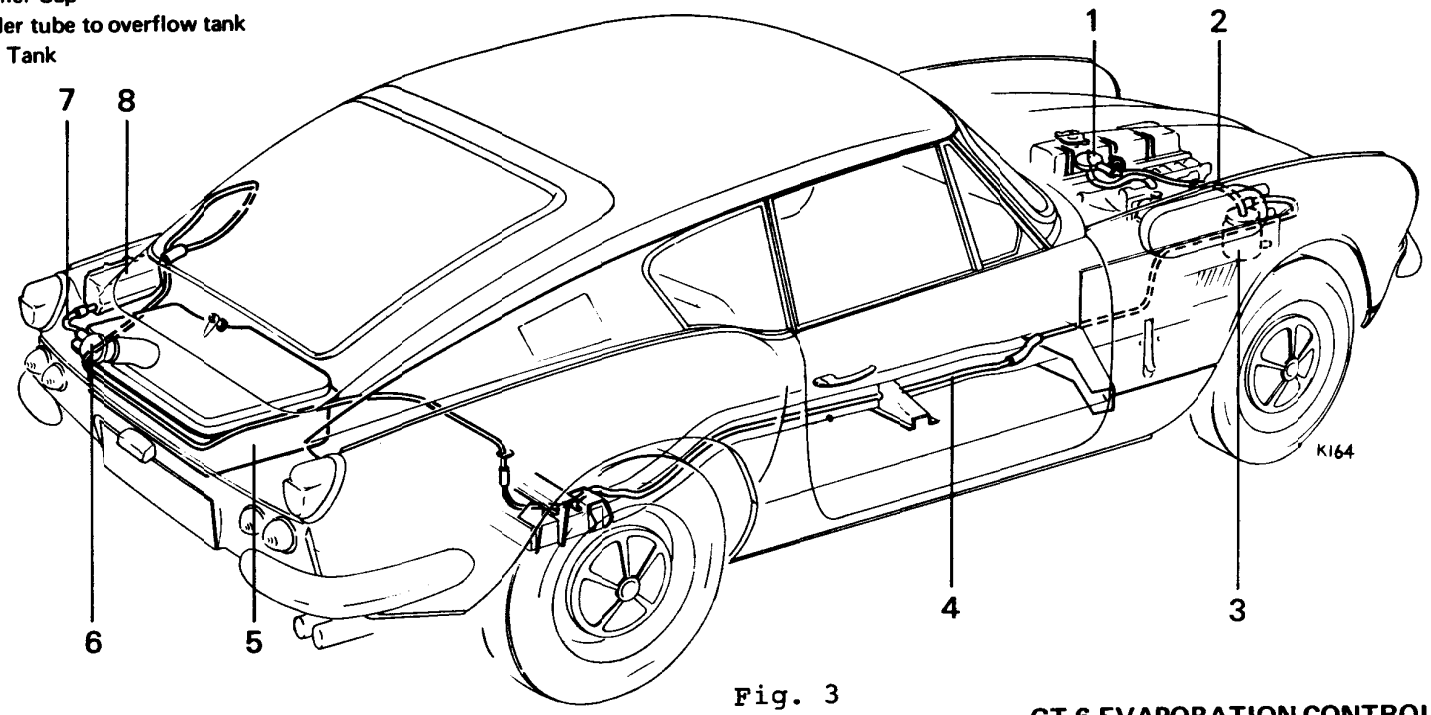


Fig. 3

GT.6 EVAPORATION CONTROL SYSTEM

1 Flame trap Filter
2 Pipe - Canister purge
3 Activated Carbon Canister
4 Pipe - overflow tank to Canister
5 Overflow Tank
6 Main Fuel Tank
7 Sealed Filler Cap

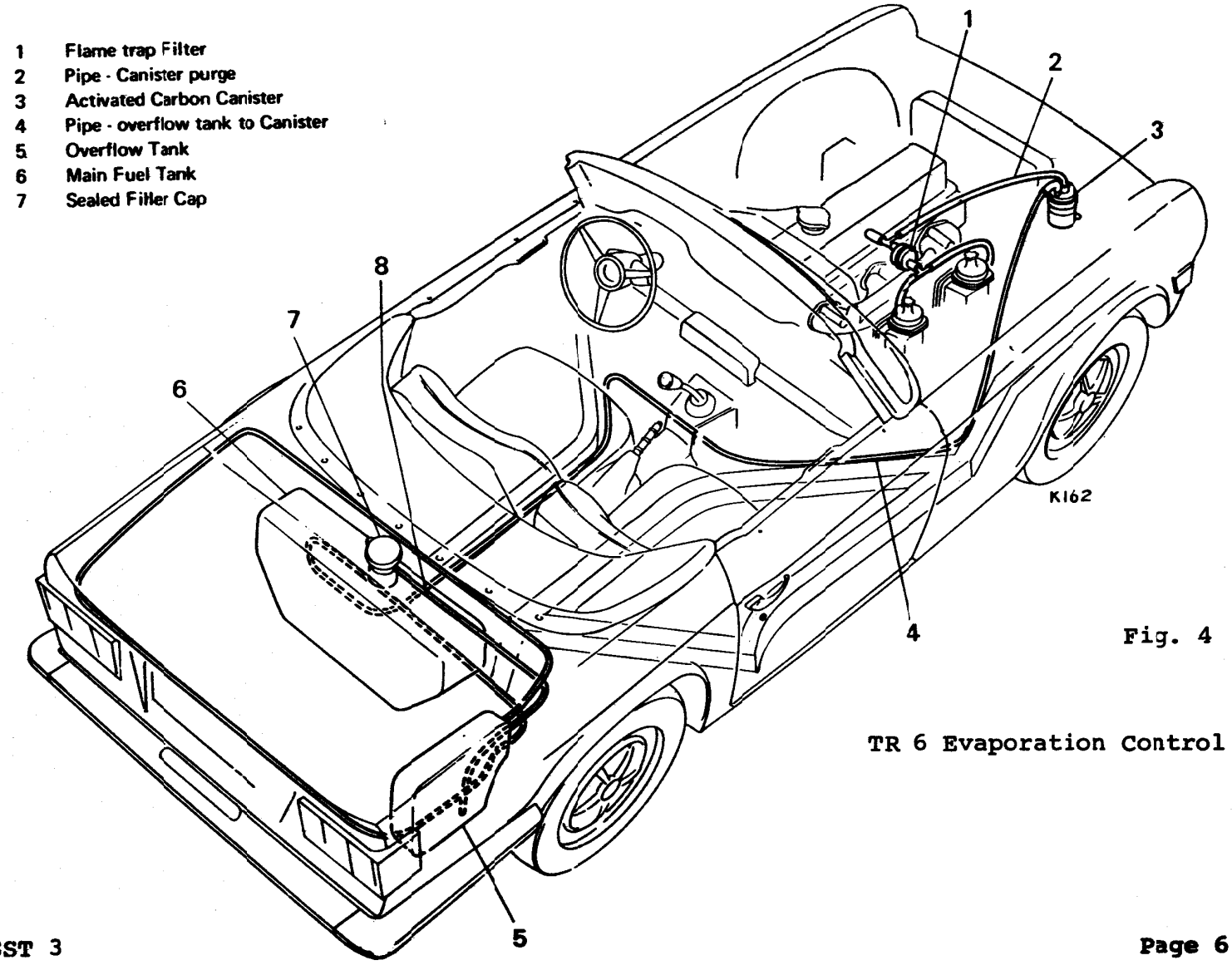


Fig. 4

TR 6 Evaporation Control System

EMISSION CONTROL SYSTEM - ENGINE MODIFICATIONS

To conform with the emission control standards, imposed by the Federal authorities, the following engine modifications are incorporated.

1. Exhaust Valves

Stellite faced exhaust valves are fitted to maintain effective valve seating between servicing intervals.

2. Ignition Distributor

The system includes a special distributor which in addition to the normal mechanical and vacuum advance characteristics has:

Spitfire MK III - an extended range to permit a retarded idle setting,
GT 6+ - a double acting capsule to permit a retard setting on deceleration,
TR 6 - separate advance and retard capsules.

The retard vacuum tube is taken from the high depression area on the manifold side of the throttle. (See Fig. 5)

3. Carburetor(s)

Carburetors used are Stromberg CDSE used in twin arrangements on the GT 6+ and TR 6 and single arrangement on the Spitfire MK III. The Stromberg CDSE operates on the principle of varying the effective choke and jet orifice areas in accordance with the degree of throttle opening, engine speed and load. The following emission control features are incorporated.

(a) Fixed non-adjustable jet assembly and biased needle to achieve consistent air to fuel ration. NOTE: THE NEEDLE IS NOW BIASED AWAY FROM THE THROTTLE TOWARDS THE AIR CLEANER AND NOT TOWARDS THE ENGINE AS ON 1969 CARS.

(b) Temperature compensator assembly, which progressively opens in line with the engine temperature, to correct the mixture and maintain even running.

(c) Throttle by-pass valve which is set to open at a pre-determined manifold depression to admit fuel/air mixture during deceleration.

(d) Wire locked and sealed cover to discourage unauthorized tampering.

(e) 'Free movement' into the accelerator linkage permits fast idling without disturbing the otherwise closed position of the linkage.

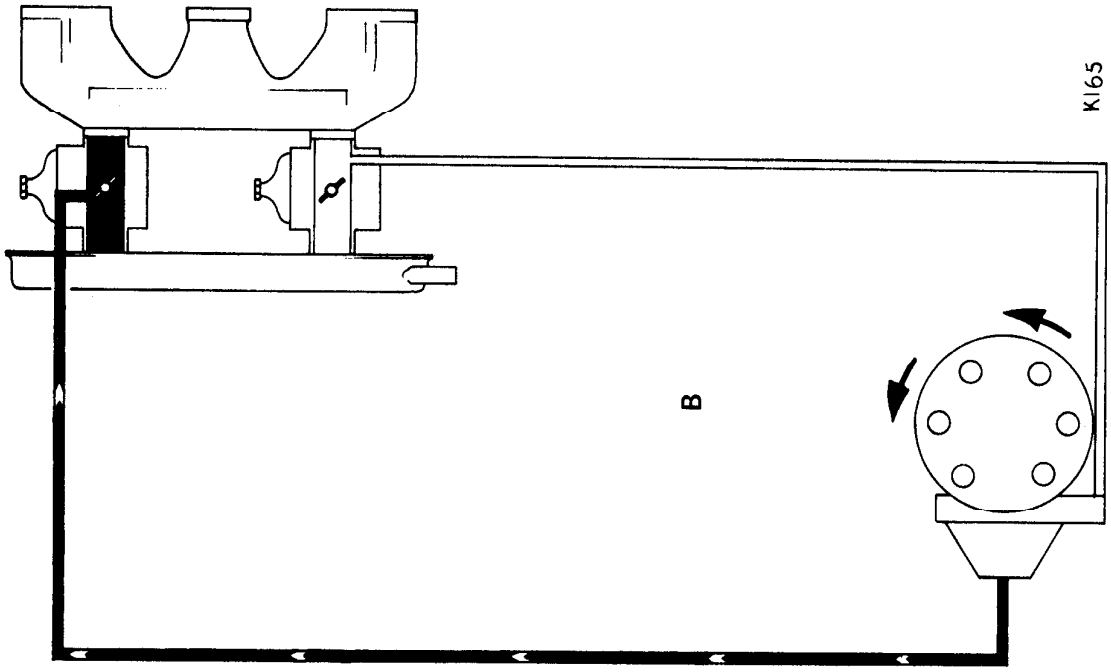
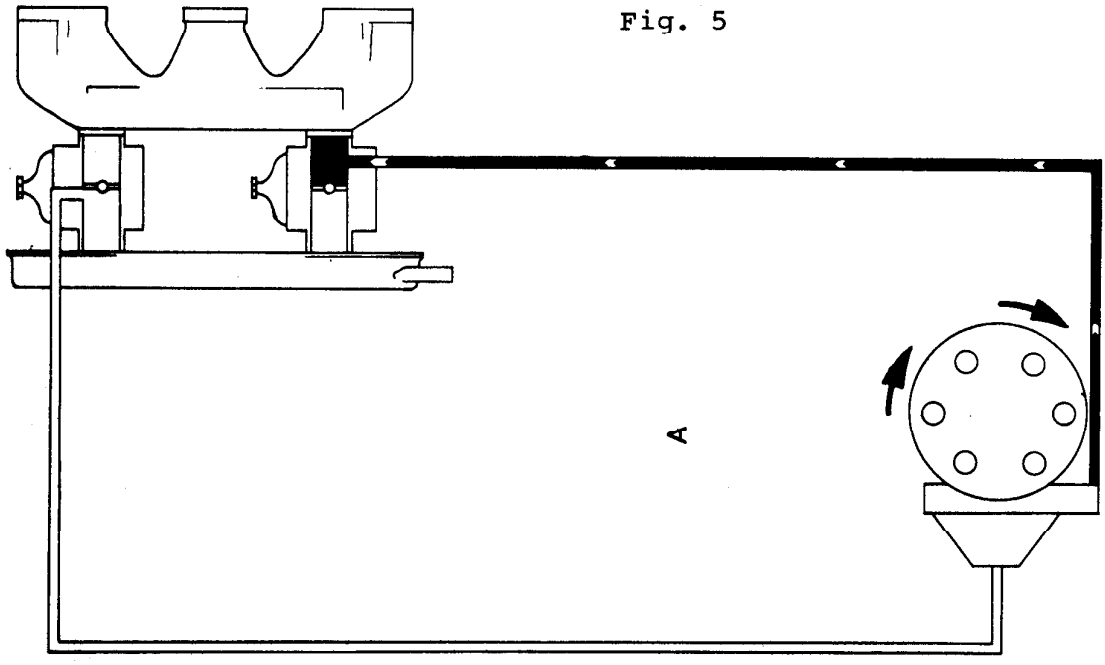


Fig. 5



VACUUM ADVANCE 'B' AND RETARD 'A' CIRCUITS

4. Crankcase Ventilation

GT 6+ Models: An emission control valve is connected between the rocker cover and the inlet manifold. The valve is a control device that uses manifold depression to evacuate blow-by gasses from the rocker cover to inlet manifold without detriment to satisfactory idling.

TR 6 and Spitfire MK III Models: The characteristic depression in the 'constant depression' carburetor(s) is used to evacuate blow-by gasses from the rocker cover to the combustion chambers via the carburetor(s).

A gauze filter situated in the rocker cover (or, on early models, in a flame trap adjacent to the rocker cover) prevents oil sludge contaminating the piping and carburetor(s). (See Fig. 6)

5. Crankcase Ventilation Servicing

Every 12,000 miles remove and clean the piping. Remove the rocker cover and wash the wire gauze in clean fuel and reassemble. In the case of the GT 6+, the Smith's crankcase breather valve should also be serviced.

Some early models may have a flame trap in the pipe work in place of the wire gauze in the rocker cover. This should also be washed in clean fuel.

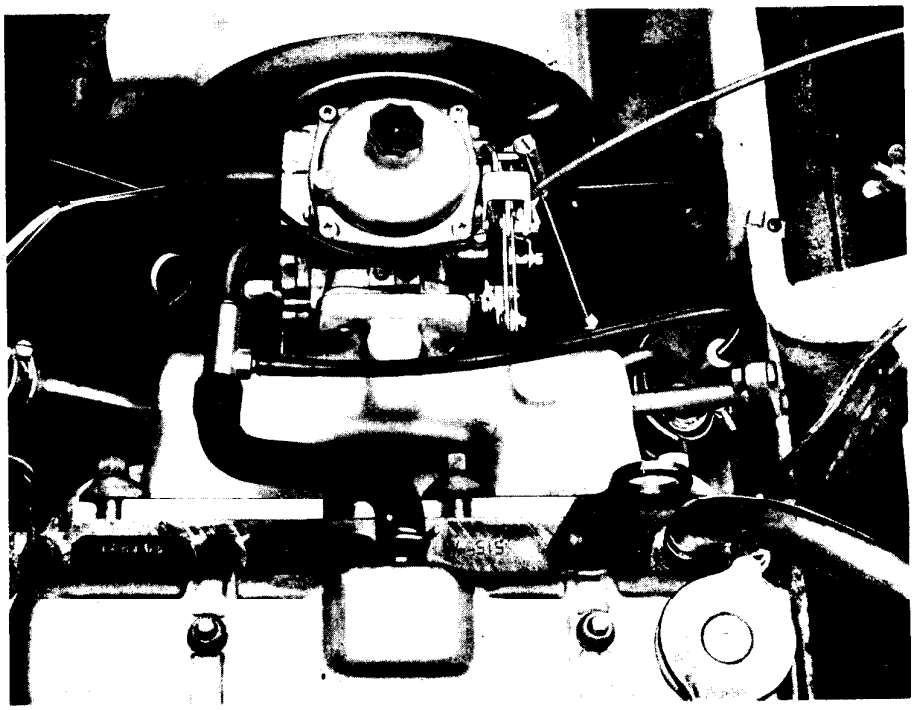


Fig. 6

Engine Bay Layout - SPITFIRE III

SPITFIRE MK III

STROMBERG SINGLE CARBURETOR ARRANGEMENT

The Spitfire MK III 1970 model year vehicle uses a single Stromberg CDSE 150 carburetor which is designed and built to stringent emission control standards.

The carburetor is an integral part of the emission and evaporation control systems. It is, therefore, desirable, and in many cases necessary, to include all aspects of related systems (ignition timing, fuel tank, etc.) where their function is integral with the correct operation of the emission or evaporation control systems.

Routine servicing, carried out at the recommended mileage intervals will rectify any deterioration to the system. In addition to normal lubrication and nut tightness checks, those items which should receive attention during routine servicing include: distributor maintenance, carburetor dashpot oil replenishment and slow running adjustment, spark plugs, valve rocker clearances, air cleaner and fuel filter.

One special tool only is required for the servicing of the emission control system. This (illustrated in use in Fig.'s 7 & 8) is for the top adjustment of the jet needle, setting the needle height relative to the jet.

As this adjustment alters the air/fuel ratio and consequently the C.O. level, its use is severely restricted to personnel trained in the use of the tool in conjunction with C.O. measuring equipment.

It is envisaged that this tool will only be required when the normal setting has been disturbed by the replacement of any relative parts during carburetor rebuilding.

It is important to note that the jet needle is biased away from the throttle towards the air cleaner.

The basic setting for the needle is with the washer flush with the air valve. It is important to check this condition with the needle in the vertical position. (See Fig. 10)

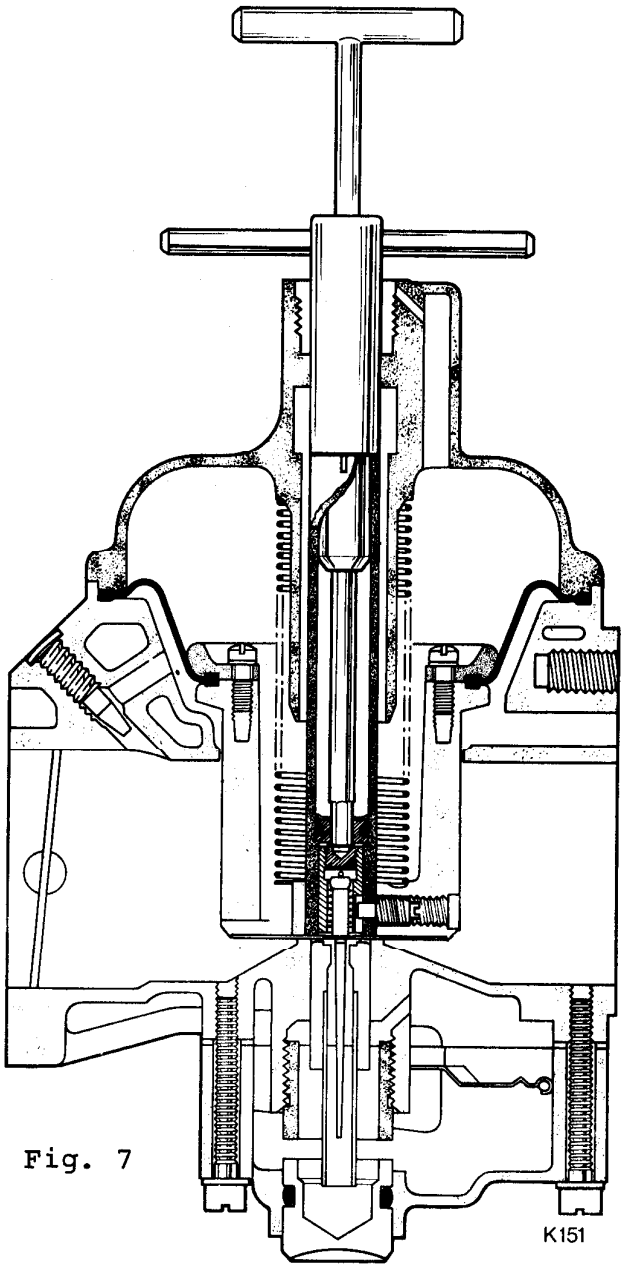


Fig. 7

JET ADJUSTING TOOL POSITIONED FOR USE

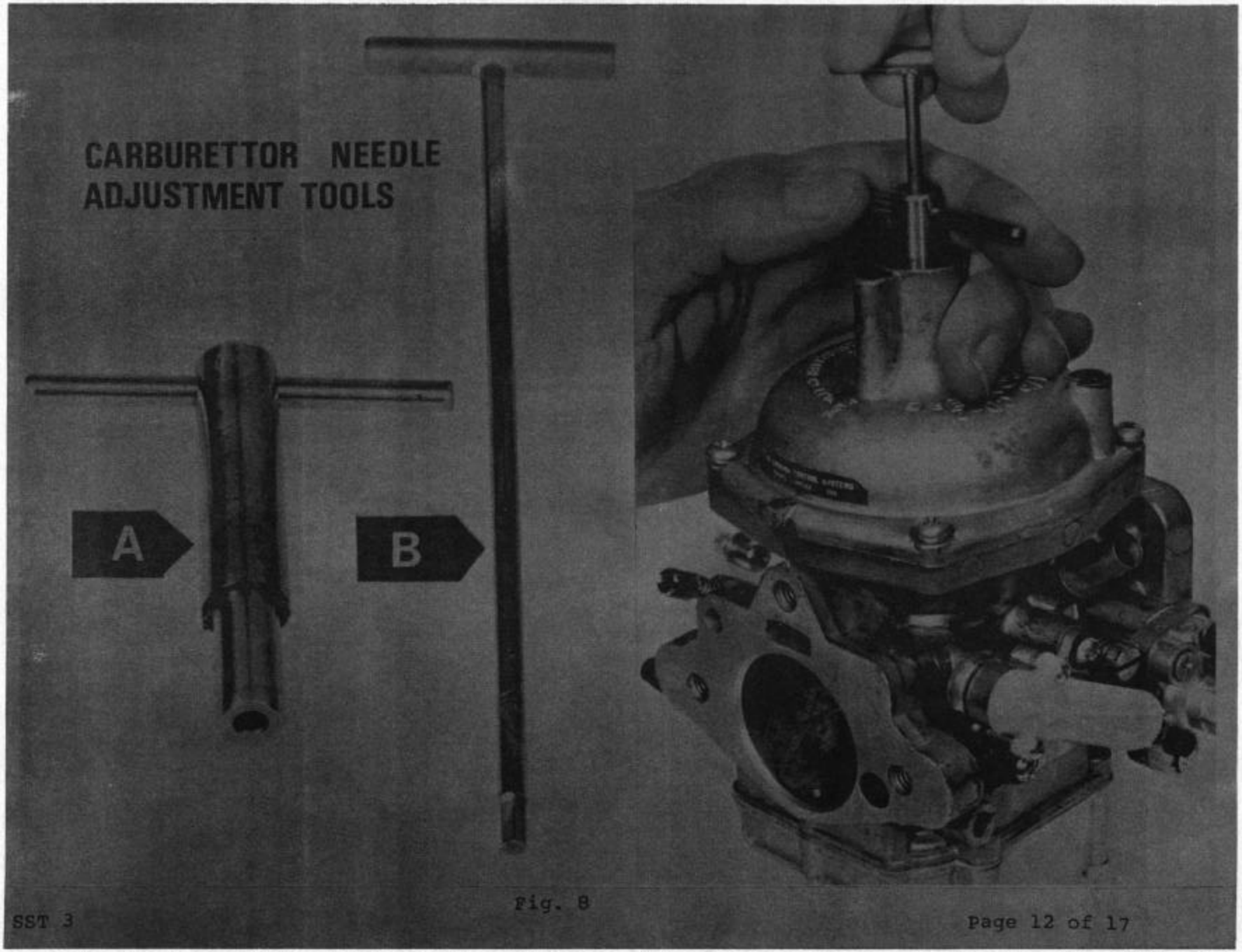


Fig. 8

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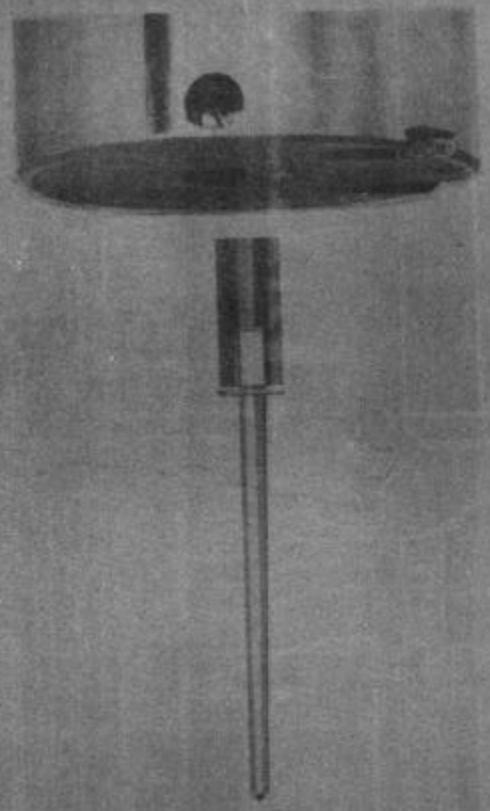
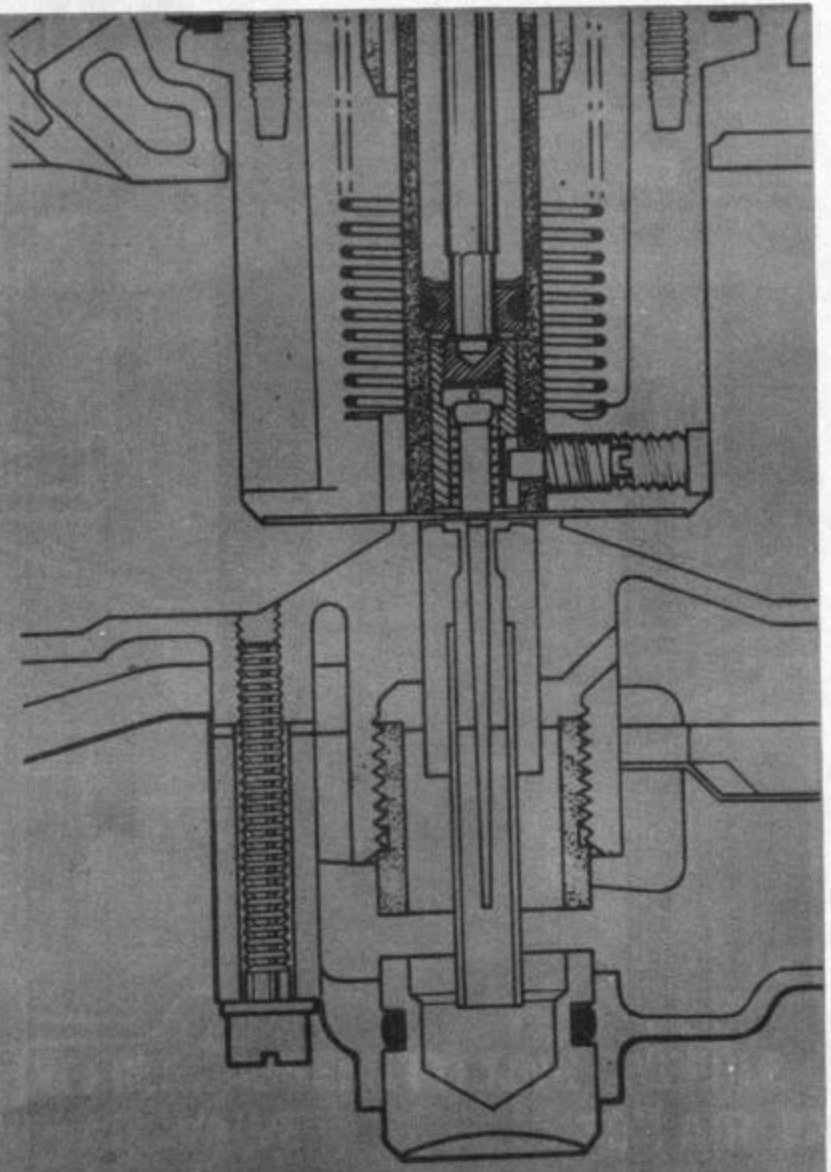




FITTING NEEDLE ASSEMBLY TO AIR VALVE

Fig. 9

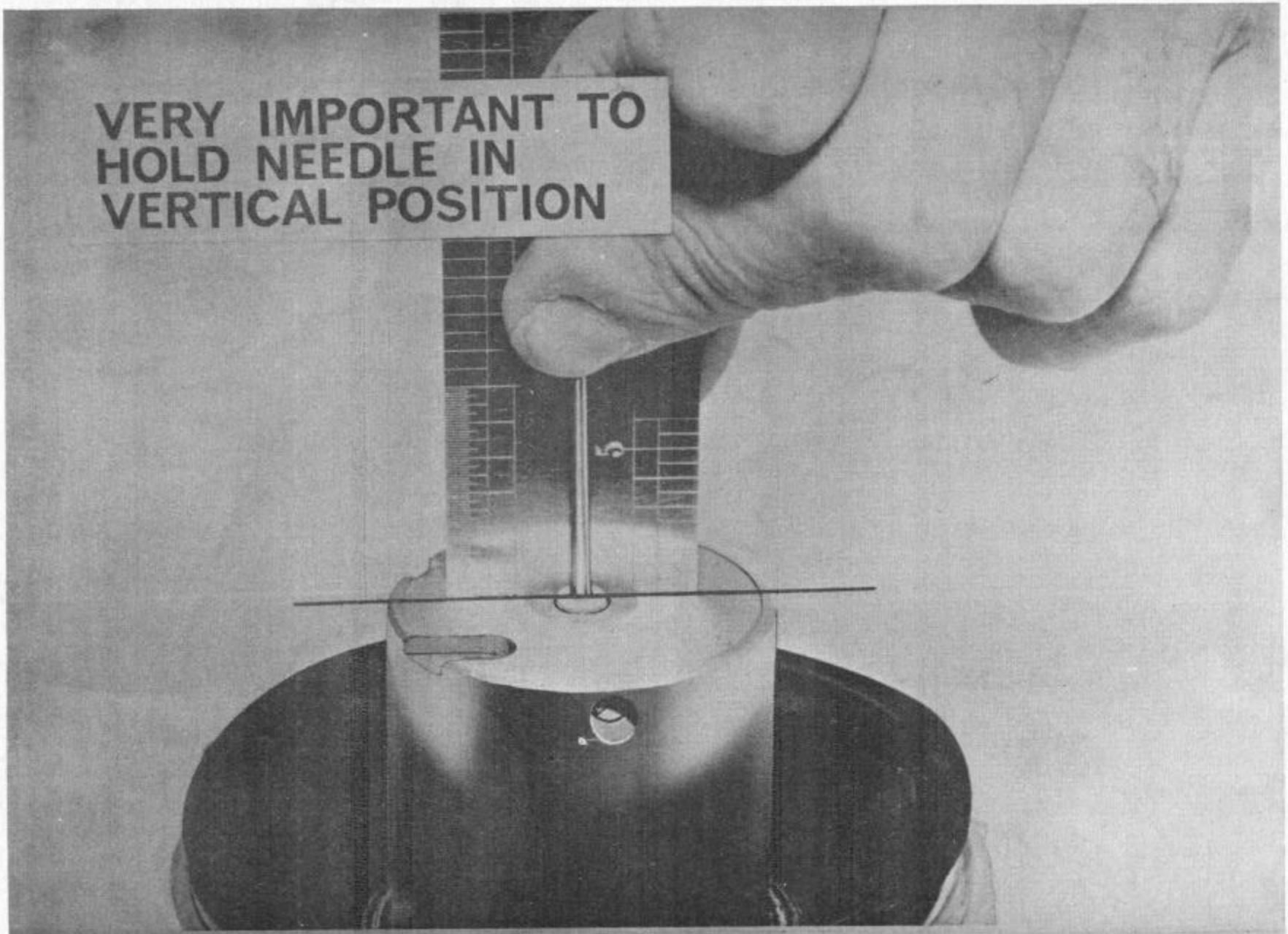


Fig. 10

Accelerator Pedal Linkage

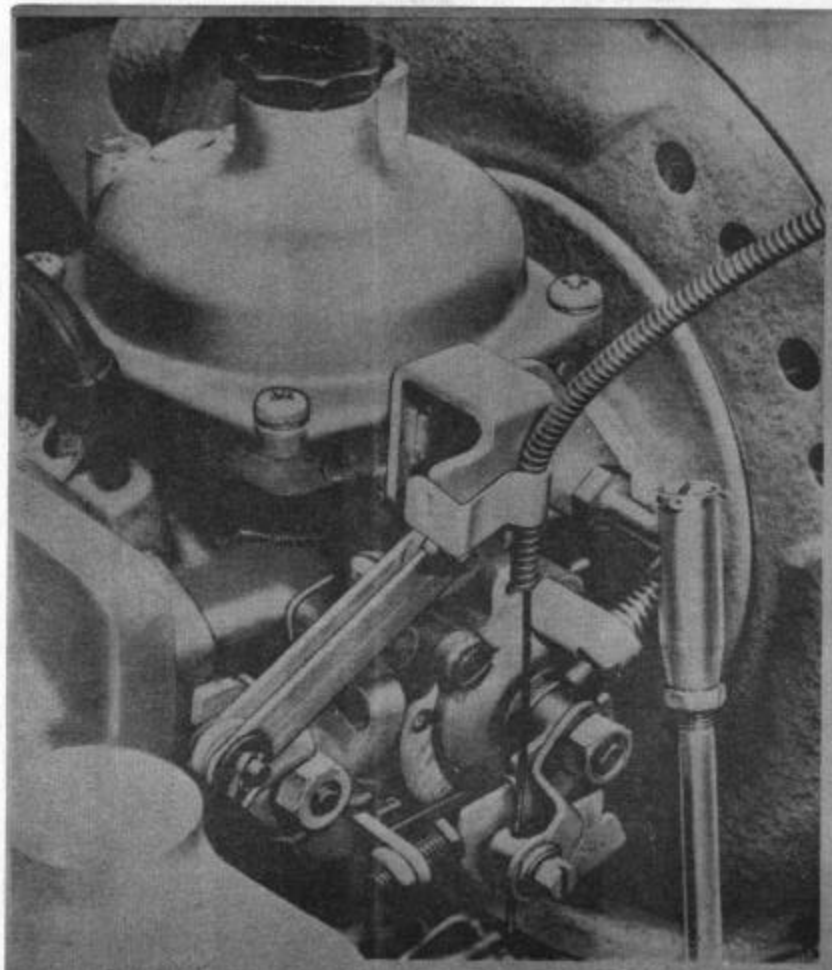
No adjustment required during normal operation.

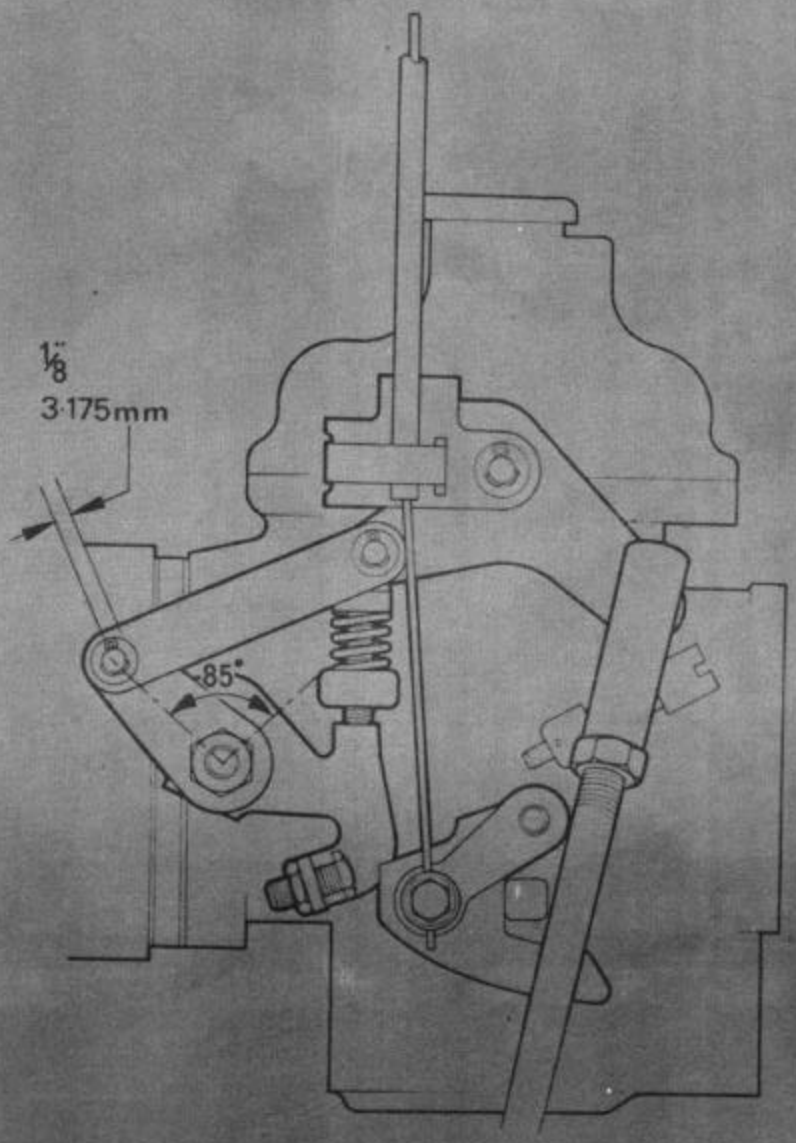
If adjustment is required after fitting replacement parts proceed as follows:-

1. Fit the accelerator pedal just below the brake pedal.
2. Ensure the carburetor links allow the full movement of the throttle (85° between stops). (See Fig. 11)
3. Adjust the vertical rod to suit. Fit the rod and tighten the lock nuts.

NOTE: A degree of lost motion is incorporated in the linkage. This is not adjustable and must not be confused with wear. (See Fig. 11)

The linkage corrections and the choke cable would occasionally be lubricated with a light oil.





SPITFIRE 3

CARBURETTOR LINKAGE

Fig. 11

Ignition and Steering Lock Switch

The combined ignition starter steering lock switch is operated by a special key and has four positions as follows:-

Symbol O Off - Key may be inserted and removed.

Symbol I Auxiliary - Ignition circuit isolated to allow use of radio when stationary.

Symbol II Ignition on.

Symbol III Starter operation.

If difficulty is experienced in disengaging the steering lock, the key being stiff to turn, movement of the steering wheel will help to release the locking mechanism.

Key Warning System

The warning system is designed to remind the driver to remove the ignition key from the lock when leaving the vehicle.

If the driver's door is opened with the ignition key in the lock, an audible buzzer will sound. Removing the key or closing the door will stop the buzzer.

The buzzer is housed in a cylindrical container behind the dash panel on the left side. It is operated by the left hand door switch.