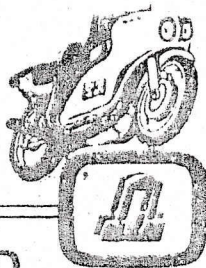


PHOENIX



HIGH WOODLAND LITTLE GAIN HILTON
Nr. BRIDGNORTH SHROPSHIRE WV15 5PA
ENGLAND

MOTORCYCLES LTD.

DEVELOPMENT AND TEST FACILITY
AT HALFPENNY GREEN AIRPORT
UNITS 14 & 26.

SU CARBURETTOR CONVERSION - FITTING INSTRUCTIONS.

Application - NORTON COMMANDO 850 and 750 Models. Kit No. WZX 1805
Carburettor - SU HIF 6. Ph Com

Fitting the conversion;

N.B. READ INSTRUCTIONS THOROUGHLY PRIOR TO COMMENCING CONVERSION.

Tools Required; Allen Key for 5/16" Unified Screws, 13mm Spanner, Knife with sharp pointed blade (eg. a Stanley Knife), Small Screwdriver and Pliers.

Note; Use high temperature Loctite or similar on all threads to ensure retention of all screws and bolts. Hylomar or RTV Sealant (eg. Loctite or Hermetite RTV sealants) on manifold to cylinder head gasket

- 1/ Remove tank and side covers, original carburettors and manifold.
- 2/ Clean joint faces on rear of cylinder head carefully.
- 3/ 850 models with plastic "Black Box" filter unit, this should be retained after modification to accept the new foam filter unit supplied, but, if you prefer, it is possible to remove the box completely and run with the new filter exposed. We recommend that the box should be retained for better weather protection and ease of routing the breather pipe of the oil tank venting system. The front of the box should be cut out as shown in the diagram to provide space for the new filter unit.
On earlier models with the metal-cased paper filter, the filter and its metal plates should be removed completely
- 4/ Attach the new filter element supplied to the ram pipe casting, up to the machined shoulder, making sure the clamping joint is on the underside. This aids subsequent removal for cleaning. The element should be very lightly coated with light oil (eg SAE 20) before final assembly.
*** (press out centre carefully) **
- 5/ Lightly coat the new manifold gasket with Hylomar or RTV sealant and fit the new manifold using the two 5/16 UNC socket capscrews provided. (Do not forget to apply a little Loctite to the threads)
- 6/ If the "Black Box" filter case is used insert the new filter and ram pipe through the newly cut aperture and leave with the flange resting just outside the box.
- 7/ Remove the Black plastic cap from the top of the SU Carburettor carefully and top up the "dashpot" under this cap with clean 20/50 grade engine oil and refit cap and the attached damper rod taking care not to bend the rod. (DO NOT USE HEAVY GRADE OIL)
- 8/ Fit the SU Carburettor and the square gasket, using four of the M8 bolts provided. (We recommend using a light smear of grease on each side of this gasket) Use a spot of Loctite on each bolt but take care not to overtighten these bolts, which screw into alloy.
- 9/ Fit the other gasket on the carburettor, using the other two bolts

which screw into the flange of the ram pipe casting, again applying Loctite to the threads.

- 10/ Fit the throttle cable supplied (this is the longer of the two) to the twist grip of your machine. Thread the other end through the hole in the manifold and attach one of the swivel nipples supplied. Remove all slack before tightening carefully, but ensure that the throttle does not move slightly when the handlebars are turned.

The cable supplied is universal. If low or flat bars are fitted, it may be shortened by withdrawing the inner cable, removing the ferrule from the carb. end, and cutting to the desired length with a pair of wire cutters, and refitting the ferrule.

- 11/ Fit the other cable to the cold start unit in the same way, using your existing handlebar lever. The other end is passed through the lug on the carburettor body. Shorten the cable if desired.

The two cables are Acetal-lined to give smooth operation and should be lubricated with light oil only (eg. 3 in 1).

- 12/ Push the new fuel feed pipes onto the carburettor tubes and secure with the clips provided. Fit the other ends to the existing taps.

- 13/ The oil breather tube fitted to the "Black Box" casing should be routed so that its open end presses against the foam of the new filter element to allow the engine to consume the recirculated fumes, etc. On earlier types where no air box is fitted, this pipe can be routed as a rear chain oiler or, preferably, routed to the new filter element. To do this pierce a small hole through the foam at the rear of the element and push the end of the breather pipe through into the element (after suitably shortening the pipe). The foam will expand to closely fit the end of the pipe without leaks.

- 14/ The mixture adjustment on the SU HIF carburettors is varied by means of the jet adjusting screw (2) shown in Fig. 2. This is pre-set to 2 turns out as a starting point for this model. The fast idle screw (5) is set to give 2mm clearance between the screw and the cold start enrichment lever cam (10) which should be positioned in the 'off' position as shown.

Tuning instructions;

- 15/ Turn on fuel tap and switch ignition on. Operate the cold start enrichment (choke) lever on the handlebar and start engine. Once started progressively close the lever as the engine warms up.
- 16/ Run the engine for 15 minutes. By turning the throttle adjusting screw (4) set the idle speed to around 1000 RPM.
- 17/ Adjust mixture by turning the jet adjusting screw (2) anti-clockwise until the engine begins to falter, then turn the screw clockwise a quarter turn. Blip the throttle, if the engine dies on return to tickover position, screw in (richen) the jet adjusting screw (2) by one eighth of a turn.
- 18/ Re-adjust idle speed to 800-1000 RPM.
- 19/ Check cable adjustment and smooth operation. Trim the free ends of the inner cables as required.

Note: THE ENGINE MUST BE HOT WHEN THE MIXTURE IS SET.

Road test the machine.

- 20/ A small amount of adjustment may be necessary to optimise the mixture settings. Hesitation in pick-up may be overcome by slightly richening (turn screw 2 clockwise by 1/8th turn only at a time). If this is not required try turning the screw anti-clockwise by 1/8th turn at a time to give optimum economy without hesitation during pick-up. The lean mixtures made possible by the efficiency of the SU carburettor result in a warm-up time of three to five minutes.

under light load and the cold start lever should be closed progressively during this period to obtain good throttle response coupled with smooth operation during warm up. This takes more time to explain than to do, and you should quickly become accustomed to obtaining very good operatic

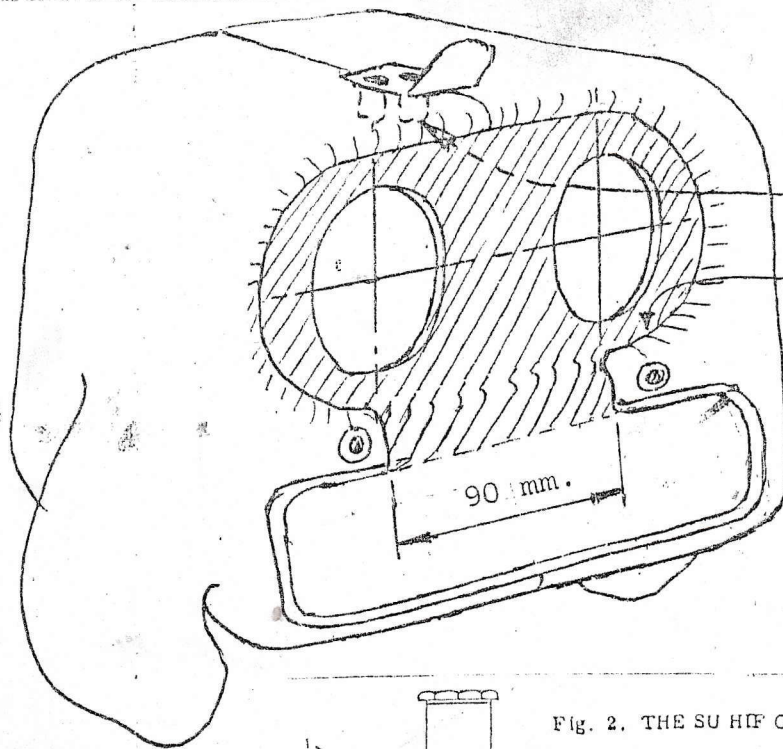


Fig. 1.

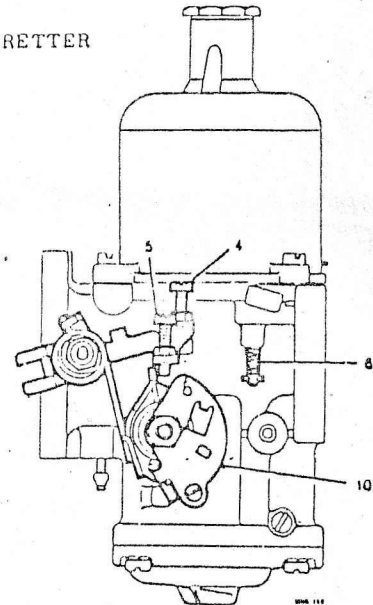
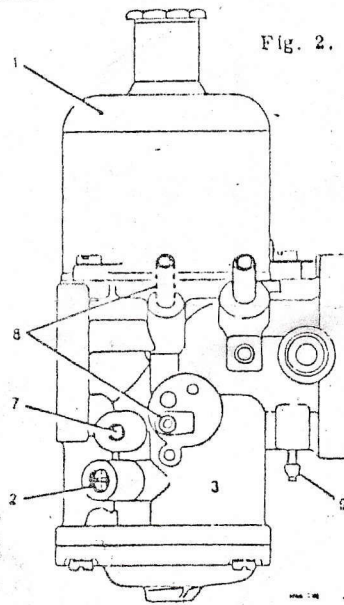
Modification to "Black Box" Air Filter Casing.

File excess metal from pop-rivets inside box.

Cut out whole of recessed area as shown shaded.

(Retain removed piece for future use should you wish to transfer your kit to a "new" bike)

Fig. 2. THE SU HIF CARBURETTER



- 1 Suction chamber assembly
- 2 Jet adjusting screw
- 3 Float chamber
- 4 Throttle adjusting screw

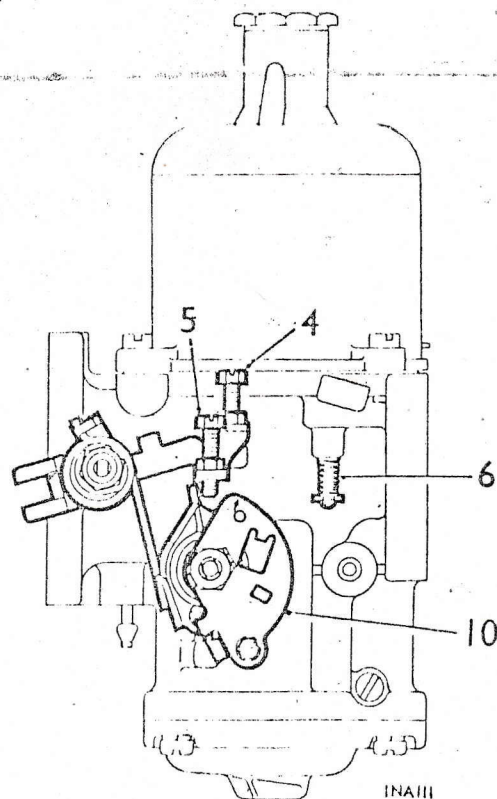
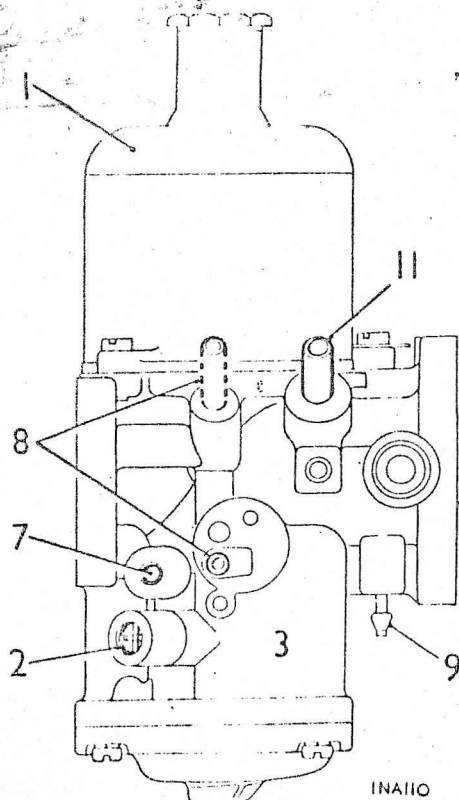
- 5 Fast-idle adjusting screw
- 6 Piston lifting pin
- 7 Fuel inlet
- 8 Float chamber vent tube (alternative positions)

- 9 Auto ignition connection
- 10 Cold start enrichment lever (cam lever)

needle BFD

SU Carburetter Kit Contents - Commando 850/750;

SU HIF 6 1/4 in. Low Emission Carburetter Complete.....	1	
Special Manifold developed for free flow.....	1	
Ram Pipe inlet flange developed for performance.....	1	
Air Filter of free flow foam type.....	1	
Gasket - Manifold to Cyl.Head.....	1	
Gasket - Carburetter to Manifold	1	
Gasket - Ram Pipe Flange to Carburetter..	1	
Cable Complete - Throttle.....	1	
Cable Complete - Cold Start Unit....	1	
Swivel Clamps (Nipples) for cables..	2	
Socket Cap Screws 7/16 UNC x 1 1/4 in.		
		Bolts M8 x 20mm.....
		Washers M8.....
		Special Fuel Pipes.....
		Pipe Clips... ..



The Type HIF Carburetter

1. Suction chamber assembly
2. Jet adjusting screw
3. Float chamber
4. Throttle adjusting screw

5. Fast idle adjusting screw
6. Piston lifting pin
7. Fuel inlet
8. Vent tube (alternative positions)

9. Auto ignition connection
10. Cold start enrichment lever (cam lever)
11. Crankcase ventilation tube

TUNING—TYPE HIF CARBURETTERS

Foreword

These instructions are intended as a general guide for tuning and servicing the Type HIF carburetter in both single and multi-installations. It is essential, particularly where vehicles are equipped and tuned to comply with engine emission control regulations, that the carburetters are tuned in accordance with the vehicle manufacturer's tuning data.

To achieve the best results when tuning, the use of a reliable tachometer, balancing meter and an exhaust gas analyser (CO meter of the infra-red non-dispersive type or equivalent) are required. **These instruments are essential when tuning vehicles equipped to conform with exhaust emission regulations.**

Before servicing or tuning a carburetter in an endeavour to rectify poor engine performance, make sure that the maladjustment or fault is not from another source by checking the following:

- Valve clearance
- Spark plug condition
- Contact breaker (dwell angle)
- Ignition timing and advance
- Presence of air leaks into the induction system

NOTE: Each instruction in this leaflet has a sequence number, and to complete a tuning or servicing operation efficiently it is essential that the instructions are performed in numerical sequence. Where applicable, the sequence numbers identify the relevant components in the appropriate illustration.