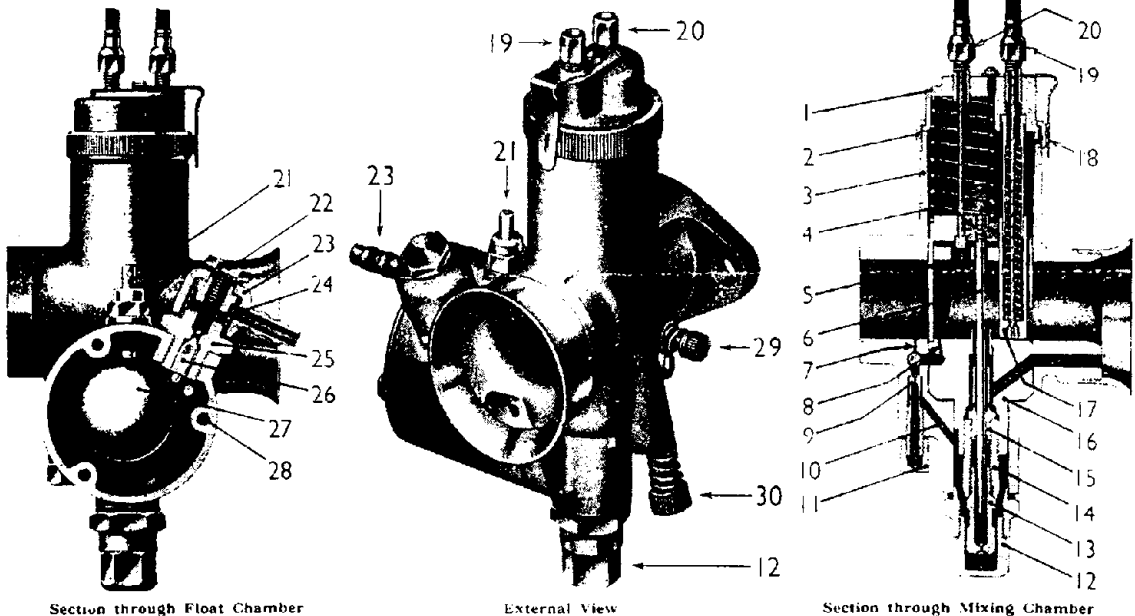


# TUNING THE AMAL MONOBLOC CARBURETOR

By JIM DAVIS



Section through Float Chamber

External View

Section through Mixing Chamber

## ILLUSTRATIONS OF CARBURETOR (AS FOR DOUBLE LEVER CONTROL)

- |                       |                           |                               |                               |
|-----------------------|---------------------------|-------------------------------|-------------------------------|
| 1. Mixing Chamber Top | 9. Pilot Jet              | 17. Air Valve                 | 24. Filter Gauge              |
| 2. Mixing Chamber Cap | 10. Gas Feed to Pilot Jet | 18. Mixing Chamber Cap Spring | 25. Needle Seating            |
| 3. Carburetor Body    | 11. Pilot Jet Cover Nut   | 19. Cable Adjuster (Air)      | 26. Needle                    |
| 4. Jet Needle Clip    | 12. Main Jet Cover Nut    | 20. Cable Adjuster (Throttle) | 27. Float                     |
| 5. Throttle Valve     | 13. Main Jet              | 21. Tickler                   | 28. Side Cover Screws         |
| 6. Jet Needle         | 14. Jet Holder            | 22. Banjo Bolt                | 29. Pilot Air Adjusting Screw |
| 7. Pilot Outlet       | 15. Needle Jet            |                               | 30. Throttle Adjusting Screw  |
| 8. Pilot By-pass      | 16. Jet Block             |                               |                               |

PUTTING a fine tune on a carburetor has always been regarded by many people as a difficult job reserved only for experts. In this article, we will try to simplify this procedure so that even a beginner can achieve good results. As an example we will use the Amal Monobloc carburetor. This piece of equipment is standard on almost all English motorcycles.

To begin with, find a long, slightly uphill road. I specify uphill, because the engine must be pulling slightly in order to insure accuracy in the next step. Make sure that the engine is thoroughly warmed up, and then make a run with the throttle wide open. Pull the clutch in and stop the engine as quickly as you can. Pull the spark plug out and examine the condition of the center electrode. If it has a glossy, brown appearance—everything is fine. If it has a coating of black soot, the mixture is too rich. If the electrode has a grey, burnt look, the engine is running too lean.

Richness in an engine is indicated

by black smoke from the exhaust, rough running, soot on the spark plug, eight-stroking and backfiring in the mufflers.

Lean running or weakness is evidenced by spitting in the carburetor, overheating, rough idling, lack of acceleration and a burned spark plug.

Before we can start turning screws and adjusting cables we have to run some simple checks. These are:

1. See that the air cleaner is not clogged or dirty and is clamped on securely.
2. Tighten all jets (pilot, main, etc.)
3. Check the wear of the needle and needle jet. If they need replacing, do this now.
4. Make sure gas is getting to and through the carburetor. Clean the filters in the gas tank, replace all collapsed gas lines and blow out the carburetor with compressed air.
5. See that the small needle in the float chamber is seating completely. If it isn't, it will cause the carburetor to flood.
6. Last of all, check the ignition components (points, plugs, etc.) for condition and correct gapping.

While tuning your carburetor, there are

several important points to remember. These are what parts of the carburetor control different engine speeds. The pilot jet controls throttle openings up to  $\frac{1}{8}$ . The cut-out section on the throttle slide controls from  $\frac{1}{8}$  to  $\frac{1}{2}$  open. The position of the needle then takes over from  $\frac{1}{2}$  to  $\frac{3}{4}$  and from  $\frac{3}{4}$  to full open the main jet is in command.

Now we're all ready to begin. First run the bike out for its full throttle check and examine the plug as we have previously mentioned. Rough, heavy running means that your main jet size is too large. If you have more power at smaller throttle openings, your main jet is too small. Replace with larger or smaller jets until this condition no longer exists and the machine runs smoothly at large throttle openings.

If you are planning on racing your machine, put in a main jet one increment larger than the one that gives maximum power. This will keep the engine cooler and lessen chances of "freezing" a piston.

Next we adjust the pilot jet. Set your throttle at a medium-fast idle. If you have manual spark advance, retard the spark a little bit. Unscrew the idle screw which is on the right-hand side of the carburetor barrel near the bottom. Turn this until the engine falters as if it's going to stop. Then turn the pilot air screw in or out until the

(Continued on next page)

## GLOVER TOPS IN IOWA DRAGS



Junior Glover with his daughter Gloria and wife Georgia right after title run in the Iowa State Championship Drags at Des Moines.

► DES MOINES, Iowa—Junior Glover, riding a Harley-Davidson, won the Iowa State Championship Drags with a run of 116.27 mph and an elapsed time of 11.31 seconds, beating Leo Payne in the title run. Other winners were:

250cc class: Jerry Allen, Parilla, ET 17.68 seconds at 68.70 mph.

40 inch stock class: Virgil Eilings, BSA, ET 14.12 seconds at 91.46 mph.

55 inch stock class: Jerry Towers, H-D, ET 13.89 seconds at 92.68 mph.

40 inch ohv, 55 inch sv class: Jim Boyd, modified H-D, ET 13.91 seconds at 93.26 mph.

55 inch modified class: Leo Payne, H-D, ET 12.68 seconds at 107.14 mph.

Open class: Junior Glover, H-D, ET 11.31 seconds at 116.58 mph.

Iowa Championship: Junior Glover, H-D, ET 11.31 at 116.27 mph.

## AMAL - Continued

engine runs smoothly. Repeat what you have just done until the engine has a smooth, even idle. Remember that screwing the pilot air adjustment in will enrich the mixture and unscrewing it will weaken the mixture.

Now we check our throttle slide outaway. Open the throttle sharply several times. If the carburetor spits or the engine misfires, try closing down the pilot mixture screw. If this doesn't work, and it still spits, you'll need a throttle slide with a larger outaway.

Now we'll check the position of the needle. This should be in the lowest position that still gives good acceleration. The higher the needle is in the spring clip, the richer the mixture. When it is at its lowest point and the mixture is still too rich, this means that the needle jet is worn and must be replaced.

At the finish, reset the pilot air screw to give the fastest smooth idling speed for the position of the throttle stop.

Remember that things like removing a muffler or an air cleaner will radically affect the carburetor mixture. If all these steps are followed in the order they are presented, your carburetor will be tuned to make your motorcycle give peak performance.—JIM DAVIS.

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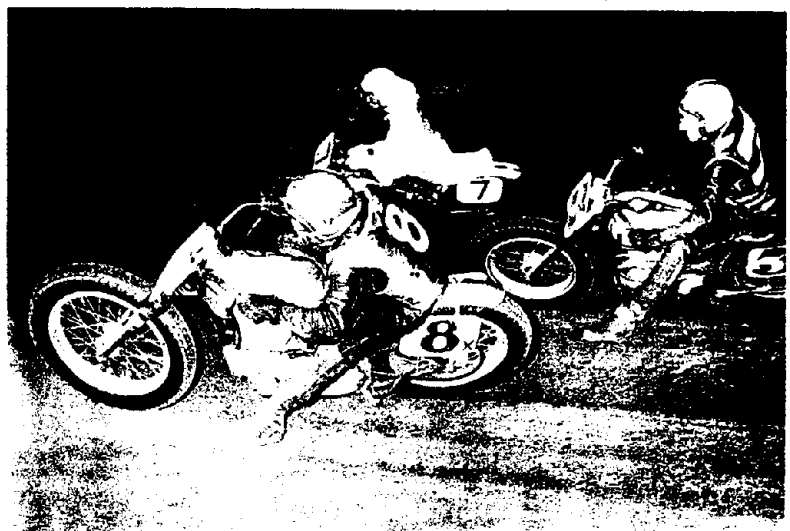
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ASCOT STADIUM, GARDENA, CALIFORNIA—#8x Stuart Morley takes the lowest of three grooves to pass national numbers 7 and 3, Sammy Tonner (Triumph) and Al Gunter (BSA), during running of 20-lap Pacific Coast Championship race. Morley, wheeling the Dick Bultmann-tuned BSA in truly spectacular manner, went on to win by a full straightaway over second place Gunter and establish a new 20-lap track record for the half-mile oval.