Instruction for Adjustment

This type of carburetor is plain tube in principle, and of the two-jet type.

The metering of both jets or nozzles is controlled through the medium of adjustable needles. These two adjustments accomplish the same purpose—that of regulating the fuel requirements of a given engine—but through slightly different methods which should be carefully noted.

STARTING INSTRUCTIONS FOR CARBURETOR NOT PREVIOUSLY ADJUSTED

Turn both idle and high speed adjustment screws clockwise, or in, to their seats (do not force against seat). Open high speed adjustment from two to two and one-half turns counter clockwise, or out. Open low speed adjustment from one-half to one full turn counter clockwise, or out. Adjust throttle stop screw (located on the throttle lever) to cause a slight opening of the throttle. Open throttle, approximately one-fourth of its travel, close choke fully, and turn motor two or three revolutions to prime. Next, move choke to "warm up" position and crank, starting motor. When motor is thoroughly warm, move choke to running position, and make final adjustments as follows:

FACTS TO REMEMBER

In starting a cold engine, advance spark fully. Choke in the usual manner. In starting a warm engine—*KEEP THROTTLE CLOSED AND RETARD SPARK FULLY. CHOKING IS UNNECESSARY.*

THE BY-PASS OR LOW SPEED ADJUSTMENT

The low speed jet is regulated as follows: turning to the right (clockwise) or in, increases the suction imposed in the By Pass Tube, at the same time reducing the amount of air bled around the needle control. Thus the mixture is richened. Turning to the left, (counter-clockwise) or out, decreases the suction in the tube by bleeding more air around the needle control. In this manner the mixture is thinned.

THE MAIN OR HIGH SPEED ADJUSTMENT

By turning to the right (clockwise) or in, the flow of gasolene is restricted and the high speed mixture thinned. By turning to the left (counter-clockwise) or out, the fuel restriction is opened and the mixture is richened. *Note that the low speed and the high speed adjustments operate exactly opposite in thinning and richening mixtures. That is, where the low speed turns to the right to richen, the high speed is thinned in so doing.*

The low speed adjustment will be found approximately correct when the knurled screw stands from one-half to one full turn off its seat. The high speed adjustment will be found from one and one-half to two full turns off seat when correctly adjusted.

FUEL LEVEL

It is important that the fuel stand at the proper level within the float bowl. This level is recommended as being fifteen-sixteenths inches when measured from the top edge of bowl to fuel level. The float cover must, of course, be removed when making this check.

THROTTLE SHUTTER RELATIONSHIP

There are two holes drilled through the neck of the carburetor connecting the by-pass mixing chamber with the barrel near the flange coupling. Through these holes the mixture is delivered for idling requirements. The smaller of the two holes is exposed to suction at all times, while the larger hole is caused to function in delivering mixture by the relationship of the throttle shutter to this larger hole when the shutter is in the tight closed position.

To check this relationship, it will be found necessary to remove the carburetor from the engine. The throttle stop screw (idling set screw) found on the throttle lever, should be either removed or backed out until flush with clamp lug on lever. Take out the plug screw in the by-pass mixing chamber so that an inspection can be made of the larger of the two holes. When the throttle shutter is closed tightly, seven-eighths of the area of the hole should be exposed behind the shutter. That is, the shutter should pass over the hole leaving seven-eighths exposed to atmosphere on the main nozzle side of the shutter.

Remember that the engine will not idle properly unless the shutter is regulated by the set screw on the throttle lever. Find the correct idling speed through this adjustment and lock with clamp screw.

Make carburetor adjustment of both low and high speeds with warm engine at full retard spark.

CARE OF CARBURETOR

The Tillotson carburetor when once adjusted will continue to function accurately unless interrupted by dirt or water, in which case the carburetor must be cleaned.

The nozzles should never be cleaned by using a wire or small drill—always use compressed air or gasolene.

MODEL MS-33A

List Price $16.00

No.	Name	Price
0124	Lever Pin	$ 0.05
0138	Plug Screw	.05
0162	Cross Channel Plug Screw Gasket	.05
0225	Nozzle Plug Screw Gasket	.05
0337	Inlet Seat Gasket	.05
0513	Throttle Shaft Collar Set Screw	.05
0676	By Pass Plug Screw Gasket	.05
0802	Inlet Screen	.10
0890	Float	1.00
01397	Float Bowl Cover Screw Lockwasher	.05
01400	Float Bowl Cover Gasket	.10
01412	Cross Channel Plug Screw	.05
01413	Float Bowl Cover Screw	.05
01415	By Pass Plug Screw	.15
01419	Float Lever Pinion Screw	.15
01462	Shutter Clamp Screw	.05
01471	Throttle Shutter	.25
01675	Shutter Clamp Screw Lockwasher	.05
01878	Air Horn Clamp Screw	.05
02068	Throttle Adjusting Screw	.05
02110	Lever Screw	.05
02113	Float Cover Vent Screw Lockwasher	.05
02306	Nozzle Plug Screw	.25
02410	Inlet Connection Screw Gasket	.05
02431	Body	6.00
02515	Inlet Connection Screw	.10
02550	Fuel Adjusting Washer	.05
02558	By Pass Adjusting Needle Seat	.15
02559	By Pass Adjusting Needle Spring	.05
02560	By Pass Adjusting Needle	.25
02585	Air Horn	2.00
02586	Float Bowl Cover	.25
02587	Strangle Quadrant	.30
02588	Strangle Lever	.30
02589	Throttle Lever	.50
02590	Inlet Connection	.25
02598	Choke Quadrant Clamp Screw	.05
02599	Collar Stud	.25
02600	Strangle Shaft	.25
02602	Compression Spring	.05
02603	Throttle Shaft Collar	.05
02604	Throttle Shaft	.25
02605	Nozzle	.35
02608	Inlet Seat	.40
02609	Float Bowl Cover Vent Screw	.20
02610	Plug Screw	.05
02614	Inlet Needle	1.00
02615	By Pass Tube	.60
02616	Adjusting Screw	1.00
02661	Throttle Shaft Bushing	.20
02713	Strangle Shaft Spring Retainer	.05
02714	Strangle Shaft Spring	.05
02799	Throttle Friction Pin Spring	.05
02991	Order Part No. 01412 and 0138	
03063	Strangle Shutter	.10
03064	Throttle Friction Pin	.10

PARTIAL ASSEMBLIES

02570	By Pass Adjusting Needle Assembly	.50
02613	Strangle Shaft Assembly	.65
02617	Throttle Lever Assembly	.60

MODEL MS-34A

All parts used on the MS-33A are interchangeable with the Model MS-34A except:

02638	Body	6.00
02654	Nozzle	.35

1924 Sales 73

Tillotson

DIE CAST

Carburetor

Model MS-33A Carburetor

Standard Equipment on

Scout Model 37

Model MS-34A Carburetor

Standard Equipment on

Scout Model 45

MANUFACTURED FOR

Indian Motocycle Company

SPRINGFIELD, MASSACHUSETTS

The Logical One is Tillotson

The Tillotson Mfg. Co.

TOLEDO, OHIO
U. S. A.

McManus-Troup Co., Toledo, Ohio 84063—2M 3-19-30
Printed in U. S. A.

MS-33A

See opposite page when ordering parts for MS-34A

Models MS-33A and MS-34A
Scout Model 37 and Scout Model 45
1929 and 1930

ADJUSTING OF TIMKEN WHEEL BEARINGS

In adjusting the Timken Wheel bearings as supplied on late Indian models, caution should be taken to keep them free. The easiest way to obtain the proper adjustment is to loosen the adjusting nut lock nut, remove the locking washer and tighten the adjusting nut until the wheel has a slight drag when turned. Then back off on the adjusting nut until the wheel runs freely but has a small amount of side-shake. Reassemble the locking washer, binding one of the sides on a flat on the adjusting nut and assemble the lock nut. Under no condition should Timken roller bearings be run with a tight adjustment. These wheel bearings should be packed with Indian Gredag at least once in every six months if the motorcycle has had average use.

TILLOTSON MS TYPE CARBURETORS

STARTING INSTRUCTIONS FOR CARBURETOR NOT PREVIOUSLY ADJUSTED

(See Fig. 32). Turn both idle "B" and high speed "A" adjustment screws clockwise, or into their seats (do not force against seat). Open high speed adjustment from two to two and one-half turns counter clockwise, or out. Open low speed adjustment from one-half to one full turn counter clockwise, or out. Adjust throttle stop screw "D" (located on the throttle lever) to cause a slight opening of the throttle. After making throttle adjustments be sure to tighten set screw "E". Open throttle, approximately one-fourth of its travel, close choke "F" fully, and turn motor two or three revolutions to prime. Next, move choke to "warm up" position and crank, starting motor. When motor is thoroughly warm, move choke to running position, and make final adjustments as follows:

FACTS TO REMEMBER

In starting a cold engine, advance spark fully. Choke in the usual manner. In starting a warm engine—KEEP THROTTLE CLOSED AND RETARD SPARK FULLY. CHOKING IS UNNECESSARY.

THE BY-PASS OR LOW SPEED ADJUSTMENT

The low speed jet is regulated as follows: Turning to the right (clockwise) or in, increases the suction imposed in the By-Pass Tube, at the same time reducing the amount of air bled around the needle control. Thus the mixture is richened. Turning to the left, (counter-clockwise) or out, decreases the suction in the tube by bleeding more air around the needle control. In this manner the mixture is thinned.

THE MAIN OR HIGH SPEED ADJUSTMENT

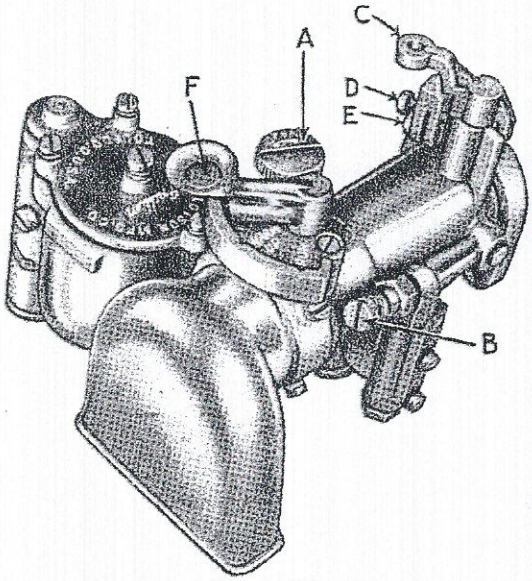

Figure 32

By turning to the right (clockwise) or in, the flow of gasoline is restricted and the high speed mixture thinned. By turning to the left (counter-clockwise) or out, the fuel restriction is opened and the mixture is richened. *Note that the low speed and the high speed adjustments operate exactly opposite in thinning and richening mixtures.*

That is, where the low speed turns to the right to richen, the high speed is thinned in so doing.

The low speed adjustment will be found approximately correct when the knurled screw stands from one-half to one full turn off in its seat. The high speed adjustment will be found from one and one-half to two full turns off seat when correctly adjusted.

FUEL LEVEL

It is important that the fuel stand at the proper level within the float bowl. This level is recommended as being fifteen-sixteenths inches when measured from the top edge of bowl to fuel level. The float cover must, of course, be removed when making this check.

CARE OF THE CARBURETOR

The Tillotson carburetor when once adjusted will continue to function accurately unless interrupted by dirt or water, in which case the carburetor must be cleaned.

The nozzles should never be cleaned by using a wire or small drill—always use compressed air or gasoline.