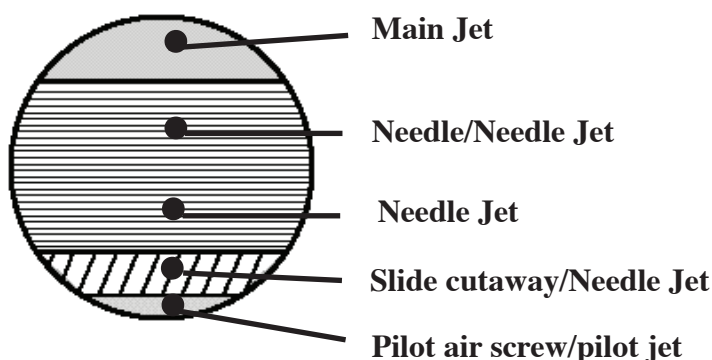


Tuning Your Carburetor

Amal — The Basics (version 5.0 July 2013)

Before you start tuning be sure of the following:

- New plugs, points and condenser (if used) are installed, adjusted, and timing set
- Valves are adjusted and the bike passes a compression test.
- If one is installed, the air cleaner is clean.
- Factory recommended jets are installed and are not worn or damaged.
- The gas cap vent is clear and there are no air leaks in the intake manifold.
- The fuel taps, fuel line, fuel filter and fuel connections will flow enough gasoline.
- **You know how to operate the choke.**



5 Stages of an Amal Concentric Carburetor

Five Stages Of An Amal Carburetor:

Stage one:	Idle to just off idle	Pilot air screw and pilot jet
Stage two:	0 to 1/4 Throttle	Slide cutaway #2 Rich to #4 Lean
Stage three:	1/8 to 1/3 Throttle	Needle Jet
Stage four:	1/4 to 3/4 Throttle	Needle and Needle jet combination
Stage five:	3/4 to Full Throttle	Main Jet

To change: Adjust pilot screw or replace pilot jet

To change: Replace slide - change needle jet

To change: Replace - change needle jet

To change: Raise - Lower Needle or replace needle

To change: Replace main jet

Too Rich Condition

Float level too high — Raise the float brass needle seat in bowl

Float "sunk" full of gas — replace float

Main jet too large — Install a lower numbered main jet

Slide cutaway too low — Install slide with higher number

Needle jet too large — Install needle jet with smaller number

Wrong needle jet type — Replace needle jet check spec's

Needle clip too low — Raise needle clip to higher groove

Wrong needle - too rich — check motorcycle specifications

Wrong spray tube — replace spray tube with leaner type

Pilot jet too large or missing — install smaller numbered jet

Pilot air screw too far in — turn pilot screw out

Choke on — turn off

Fuel leaking past float needle — replace needle/seat

Too Lean Condition

Float level too low — Lower the float brass needle seat in bowl

Float Bowl gasket surfaced warped - Replace or flatten surface

Main jet too small — Install a higher numbered main jet

Slide cutaway too high — Install slide with lower number

Needle jet too small — Install needle jet with larger number

Needle jet cross drill hole too large — replace needle jet

Wrong needle jet type — Replace needle jet check spec's

Needle clip too high — Lower needle clip to lower groove

Wrong needle - too lean — Check motorcycle specifications

Wrong spray tube — Replace spray tube with richer type

Pilot jet too small or blocked — Install larger numbered jet

Idle pilot gas circuit blocked

Idle circuit spray holes, at back edge of slide blocked

Pilot air screw too far out — Turn screw in

Gas cap vent blocked — Clean out

Fuel flow from tank restricted or blocked

Float bowl vent restricted or blocked — Open vent

Orifice in float needle brass seat too small — Install larger seat

Flow restricted at float needle/seat — Cut slit in bowl to seat

Beyond the Basics

The following apply when you are tuning a worn carburetor:

RICH

Needle jet worn— Replace needle jet (common problem)
Choke plunger leaking (MK1 1/2 & II) Replace choke plunger
Air bleed too small (MKII) — Remove or install larger air bleed

Float needle leaking fuel — Replace needle and/or seat
Slide too tight in body — Slide clearance should be .0035
to .004" clearance in bore

LEAN

Needle jet damaged — Replace jet
Choke plunger body worn (MKII) — Replace carburetor body
Air bleed too large (MKII) — Install smaller air bleed
Float bowl vent blocked — Clear blockage
Float Bowl gasket surface warped — straighten or replace bowl
Float needle seat too small — Check cycle's specifications
Air Leak at float bowl gasket — Replace gasket
Air leak at worn slide or body — Replace or re-sleeve
Air leak at flange or spigot — Replace body
Air leak at balance tube — Repair
Air leak at choke cable hole — Install cable or plug (4/137A)
Pilot Jet blocked - Clean out with #78 Drill

Things to Consider:

- Fuel level will effect the carburetion across the range of the instrument! Set the level before you make any other adjustments!!!!
- Main jets are the same for all Monobloc, Concentric, MKI 1/2 and MKII carburetors.
- Slides are unique for each model (Monobloc, 600 series MKI, 900 series MKI, etc.) and can vary by size of carburetor.
- Needle jets are unique to each Amal model and application. Needle jets are NOT interchangeable between models of Amal carbs. There are two stroke and four stroke needle jets as well as specific ones for each model.
- Spray tubes are unique for the application 2 stroke, 4 stroke, etc.: Cut straight across or cut at slant or stepped.
- Needles are unique for each model and application. Needles are not generally interchangeable between models or applications.
- Float bowls, with their float needle seat, are unique for each model and vary upon application (gravity fed, side car - fuel pump, alcohol or exotic fuels, etc.).
- Two stroke MKI Concentrics can generally be identified by the removable pilot jet (124/026). Four stroke concentrics have a pilot jet bush (622/107) pressed into airway passage. Two stroke carburetors also have slant cut spray tube.
- BSA & Triumph used Concentric carbs with removable pilots jets (124/026) in 1968 only. When replacing these early carbs, it is proper to use the later model with the pressed in pilot jet bush. If used, these early BSA & Triumph carbs should also have 622/235 update kit installed.
- Two stroke concentric's spray tube is cut on a slant. Four stroke concentric's have a spray tube cut straight across. Except Triumph BSA triples which are slanted or Norton MKIII which are stepped.

NOTE:

— If your bike is running rich at lower or mid-range throttle openings do not assume, even if you see Amal stamped on the needle jet, that it is the size it claims to be! This applies EVEN IF THE JET IS NEW. Measure ALL needle jets (use CS-0398 measuring standards) before installing them. Very little wear, or being out of tolerance as little as .0005" over the specified size, will cause the motorcycle to run very rich or lean. .

— Wear on the straight, portion of the jet needle will have little, if any, effect upon the Air/Fuel mixture. Most Amal Jet Needles measure .0985". Any defect with the straight part of the jet needle will show up at lower throttle openings (closed to 1/4 opening).

— Wear on the tapered portion of the jet needle will have little effect on the mixture and the effect decreases as the needle is raised out of the jet. What I am saying is that unless damaged, clip groove is worn, needle bent or needle taper is severely worn it is not normally necessary to replace the needle.

— As far as wear of the needle and needle jet, the greatest effect on the mixture occurs when the needle jet is worn, and the effect is the greatest when the straight portion of the needle is in the needle jet (around closed to 1/3rd throttle). Any net percentage change in the mixture, as a result of needle jet or needle wear, decreases rapidly as the tapered portion of the needle is raised out of the jet. Worn needle jets effect slow speed running, say up to 30-50 mph or 1/3rd throttle

— To get maximum performance with multiple carbureted motorcycles, it is not uncommon to run different main jets and/or needle settings in each carburetor. Using a main jet one size smaller or larger can cost you several horsepower. The same goes for the jet needle/needle jet settings. Not only will a properly jetted motorcycle be easier to ride, it will have more usable power.

— The design of the needle jet (lengths, internal and external dimensions, location of jet orifices, and air bleeds) effect the mixture the jet will deliver. Needle jets vary from one Amal model to another and from one application to another. They are not all the same, or are they interchangeable!

— Changing the style of spray tube will change the fuel mixture a carburetor will deliver. Amal has three standard spray tubes: straight across, beveled, and stepped. A lot of low end power can be found getting the spray tube correct

— Changing the size of the cross drilled hole in a four stroke needle jet will change how much fuel the needle jet delivers. Making the cross drilled hole larger decreases the flow of fuel through the jet (makes the jet leaner at low throttle openings) and removing, or making it smaller, increases the fuel flow. This has the greatest effect while the straight portion of the jet needle is still in the needle jet. The effect decreases to practically nothing as the needle is raised out of the jet. This is a great tip for those experiencing "megaphonitis."

Needle Part Numbers

Monobloc—	375 models		375/063 marked "B" on top with 5 circlip grooves
	376 models		376/063 marked "C" on top with 5 circlip grooves
	389 models		389/063 marked "D" on top with 5 circlip grooves
Concentric—	622/063	1 ring	Two stroke used with 622/079 needle jet and 622/080 jet holder (600 series)
	622/099	"Y"	Alcohol
	622/124	2 rings	Four stroke used with 622/122 needle jet and 622/128 jet holder (600-900 series)
	622/278	5 rings	T160 2.725" o.a. (part of the Trident lean kit)
	928/063	3 rings	Two stroke used with 622/079 needle jet and 622/080 jet holder (900 series)
	928/099	"Z"	Alcohol
	928/104	4 rings	Four stroke (developed for Norton 850s)
Mark II—	2622/063	2B1	Two stroke
	2622/124	2A1	Four stroke
	2622/125	2A2	alcohol
	2928/030	2C3	Four stroke
	2928/063	2D1	Two stroke
	2928/124	2D2	Two stroke
	2928/125	2C2	alcohol
	2036/063	2F1	Two stroke
	2036/077	2E3	Alcohol - rich
	2036/125	2E2	Alcohol only

Most Common Needles:

MKI Concentric four stroke models:

Standard 622/124 - Identification 2 rings Norton MKIII models 928/104 id. 4 rings Triumph T160 622/278 id. 5 rings

MKII Concentric four stroke models:

Standard 2622/124 - Identification: 2A1 Triumph EPA 2928/030 (stainless) - identification 2C3

Needle Jet Part Numbers:

Monobloc—	376/072	state size: .105", .106", .1065", .107" & up
Concentric—	622/079	Two stroke state size: .106", .107", .108" not crossed drilled. (.714" o.a. - counter-bored .138" from botom)
	622/100	alcohol only state size: .120" and up
	622/122	Four stroke state size: .105", .106", .107", .108" (crossed drilled with .035" hole. - .803" o.a. - counter bored .158" from top)
MKII—		
	2928/031	Four stroke stainless steel .105" (Special to Triumph T140)
	2928/079	Two stroke state size: .106", .107", .108", .109". (Not crossed drilled - .770" o.a. - counter bored .140" from bottom.)
	2928/100	alcohol only state size: .120" and up
	2928/122	Four stroke state size: .105", .106", .107", .108" (crossed drilled with .035" hole. - .860" o.a. counter bored .158" from top. - with annular identifying groove.)

Note:

- Needle jets are the only Amal jet where the number relates to an actual inch dimension. A 622/122-105 is .105" i.d..
- Gasoline carburetors, two and four stroke, are commonly fitted with needle jets ranging from .105" to .107"
- Alcohol carburetors are commonly fitted with .120 or larger needle jets.
- Changing one size either way from the proper needle jet has a strong influence on low to mid range running.
- A slightly worn or oversize needle jet will cause the motorcycle to run very rich from closed to approx. 1/3rd throttle.
- The size of the cross drilled hole in the needle jet (.035 inch) can be made larger to lean out the mixture. It has the most effect while the "straight" portion of the needle is still in the needle jet (under 1/3rd throttle). It has less and less effect as the needle is raised out of the jet. Until some experience is gained, do this one or two thousands at a time (To prevent embarrassment later, always mark any needle jet modified in this manner.). When increasing the size of the cross drilled hole make very small changes. .Changing the size as little as .002" will make a big difference. As you approach .050" the carburetor will stop working!

Main Jet Holders used on Concentric and MKII:

622/128	Four stroke models
622/080	Two stroke models

Float Bowls:

Concentric				
	622/052	.062" float needle orifice		Two stroke fuel pump
	622/054	.156" " " "		Two stroke
	622/055*	.100" " " "		Four stroke drain plug type
	622/056	.125" " " "		Four stroke drain plug type
	622/057	.062" " " "		Fuel pump drain plug type
	622/058	.052" " " "		Four stroke fuel pump
MKII—				
	2622/055	.100" " " "		
	2622/056	.062" " " "		Two stroke fuel pump
	2622/057*	.125" " " "		Four stroke standard
	2622/058	.156" " " "		Alcohol
	2622/059	.052" " " "		Four stroke fuel pump

* Fitted as standard on replacement carburetors.

Initial float level should have the rounded top edge of the plastic float between .060" and .080" below top edge of bowl. Depress the white tang that straddles the float needle and note the measurement at the opposite edge of float. When the float level is adjusted properly you might have to adjust the float tickler assembly. It is adjusted by moving the roll pin in or out of the aluminum button until it depresses the float properly. The fuel level in the bowl is listed as .170" to .240" below the top edge of the bowl.

Note: Burlen recently introduced what they call a StayUp float. It is made from a solid black plastic material originally used in some Monobloc floats and commonly seen in Mikuni and other oriental carburetors. Being solid, it will not fill up with fuel and sink. The float's traditional plastic float needle fork has been replaced with a brass one. While it can be bent to change the fuel level in the bowl, I prefer to keep it level. This maintains the original position in the float needle groove. If I need to change the fuel level I will move the needle seat in the float bowl as before.

Spray Tubes

Concentric—	622/074	Four stroke	Cut straight across
	622/075	Two stroke	Cut at a slight angle from opposite side
	622/123	Trident	Cut at angle from mid point
	928/107	Norton MKIII (special)	Stepped Used with 928/104 needle

Identifying replacement carbs

Concentric & MKII	Four stroke	right hand 300	left hand 301	930/300 would be a right hand 4 stroke 30mm
	Two stroke	right hand 302	left hand 303	932/303 would be a left hand 2 stroke 32mm
	Alcohol	right hand 304	left hand 305	
MKII—	Power jet	right hand 306	left hand 307	

NOTE: To cure swelling rubber adaptors on MKII carbs caused by modern gasoline, racing fuel or alcohol use:

- 28 to 34mm carbs use 2928/119 adaptors
- 36 to 40mm carbs use 2036/119 adaptors

FLOAT BOWLS: Float bowls have different part numbers relating which float needle seating has been installed. The inside diameter of the needle seat hole varies with application. The size of the orifice varies due to whether the application is: Gravity fed or pressure fed; two stroke or four stroke; racing or street; and if gasoline, alcohol or "fuel" (Nitro-methane etc.) is being used. Typical street Four stroke gasoline float needle seat for Concentric measures .100" inch and MKII carbs .125" inch.

- Typical MKI Concentric two stroke settings: Spray tube 622/075, needle jet 622/079, pilot jet 124/026 (removable), jet needle 622/063, needle 928/063 or 1034/063.
- Typical Concentric four stroke settings: Spray tube 622/074, needle jet 622/122, pilot jet 622/107 (non-removable pressed in bush), needle 622/124.

INITIAL RACING SETTINGS:

- Straight pipe: Increase the size of the main jet 1 to 2 sizes from stock settings, change the slide to a #4.
 - Megaphone: Increase the size of the main jet 2 to 3 sizes from stock settings, change the slide to a #2.
- Note: Often a four stroke bike fitted with megaphones has a rich spot at 1/4 throttle. Although caused by a "double charge" or what is called reversion and is caused by camshaft overlap. The condition can be improved by increasing the diameter of the .035 inch cross drilled hole in the needle jet. It will only take a few thousandths to see some benefit. As little as .004 inch will lean out the mixture at this cross over point where the mixture is controlled by a rich slide and transferring to the straight part of the needle/ needle jet orifice size.

AIR CLEANERS: With some air cleaners you will need to lean out the mixture from standard settings. Install one or two size smaller main jet and you may have to lower the needle a notch.

SLIDES: Concentric— 626/060 and 928/060 available in 2, 2 1/2, 3, 3 1/2 and 4 cutaways.

There are presently Chromed Brass slides available for the MKI Concentric from after market suppliers.

Mark II— 2622/060, 2928/060 and 2036/060 available in 2, 2 1/2, 3, 3 1/2 and 4 cutaways.

Also available for MKII's are chrome plated brass slides: 2622/170, 2928/170 and 2036/170 in standard cutaways.

(Solid brass slides are recommended if you plan to race with MK1 or MKII carburetors)

Note: Burlen has recently introduced an anodized solid forged aluminum slide. This goes a long way in addressing slide/body wear common on the original design.

SLIDE CUTAWAYS: Slides are listed in 1/16" steps. A #2 slide has a 1/8" cutaway, a #3 has a 3/16" cutaway, etc.

Rich				Lean
2	2 1/2	3	3 1/2	4

Triumph MKII update kit:

—When using MKII carbs on a Triumph for off-road or racing, it is possible to use Non-EPA jetting. This jetting is for stock pistons and mufflers. ANY modifications to compression or exhaust will require different jetting.

Original EPA Jetting		Equivalent Non-EPA Jetting
124/026	#25 Pilot Jet	124/026 #15 Pilot Jet
124/026	#50 Choke Jet	124/026 #35 Choke Jet
2928/031	.105 Needle Jet (special Stainless)	2928/122 .106 Needle Jet
2928/060	#3 Slide	2928/060 #3 1/2 Slide
2928/030	2C3 Needle	2622/124 2A1 Needle
Air Jet	3.5	No Air Jet

Note: Non-EPA Jetting refers to the jetting Amal would supply if the carburetor was not being set-up to meet U.S. EPA emissions.

Note: You will have to remove the air jet from behind the velocity stack. It is the small aluminum disc used to restrict the flow of air through the center hole in the face of the carburetor. Removing the air jet reduces the vacuum signal on the needle/main jet leaning out the overall mixture, as the slide approaches wide open operation.

Part Numbers that are hard to find:

Welsh plug for idle mixing chamber in bottom of carb body:	622/085
Pressed in pilot jet:	622/107 (state size)
Alcohol float needle for Concentric carburetor:	622/099
Replacement float needle brass seat with .100" seating:	622/121
T160 Lean Kit:	622/278 Needle, 622/060#4 slide

Where do I start?

Amal Suggested Basic Settings

Settings listed assume stock muffler and air cleaners are fitted.

Two Stroke MK2

Two Stroke Settings suggested as a basis to commence tuning:

Type No.	Jet Size		Thr. Valve	Needle Position	Needle Jet
	Main	Pilot			
2622	120	25	3	2	.106
2624	140	25	3	2	.106
2626	160	25	3	2	.106
2627	180	25	3	2	.106
2928	200	25	3	2	.107
2930	240	25	3	2	.107
2932	280	25	3	2	.107
2934	320	25	3	2	.107
2036	360	25	3	2	.108
2038	400	25	3	2	.108
2040	440	25	3	2	.108

Two Stroke Concentric

Two Stroke settings suggested as a basis to commence tuning:

Type No.	Jet Size		Thr. Valve	Needle Position	Needle Jet
	Main	Pilot			
622	110	25	3	2	.106
624	140	25	3	2	.106
626	160	25	3	2	.106
627	180	25	3	2	.106
928	200	25	3	2	.106
930	230	25	3	2	.106
932	260	25	3	2	.106
1034*	360	25	3	2	.108
1036*	380	25	3	2	.108
1038*	400	25	3	2	.108

* No longer available

Four Stroke MKII

Four Stroke Settings suggested as a basis to commence tuning.

Type No.	Jet Size		Thr. Valve	Needle Position	Needle Jet
	Main	Pilot			
2622	120	25	3	2	.105
2624	140	25	3	2	.105
2626	160	25	3	2	.106
2627	180	25	3	2	.106
2928	200	25	3	2	.106
2930	220	25	3	2	.106
2932	240	25	3	2	.106
2934	260	25	3	2	.106
2036	300	25	3	2	.106
2038	320	25	3	2	.106
2040	340	25	3	2	.106

Four Stroke Concentric

Four Stroke settings suggested as a basis to commence tuning:

Type No.	Jet Size		Thr. Valve	Needle Position	Needle Jet
	Main	Pilot			
622	120	25 ¹	3	2	.106
624	140	25 ¹	3	2	.106
626	160	25 ¹	3	2	.106
627	170	25 ¹	3	2	.106
928	180	25 ¹	3	2	.106
930	200	25 ¹	3	2	.106
932	220	25 ¹	3	2	.106
1034*	360	25 ¹	3	2	.108
1036*	340	25 ¹	3	2	.108
1038*	380	25 ¹	3	2	.108

* No longer available

Note: ¹ pilot jet non-removable pressed in bush.

Alcohol MKII Settings

Alcohol Settings suggested as a basis to commence tuning:

Type No.	Jet Size		Thr. Valve	Needle Position	Needle Jet
	Main	Pilot			
2622	350	25	3	2	.120
2624	400	25	3	2	.120
2626	450	25	3	2	.120
2928	500	25	3	2	.120
2930	550	25	3	2	.120
2932	600	25	3	2	.120
2934	650	25	3	2	.120
2036	700	25	3	2	.120
2038	800	25	3	2	.120
2040	850	25	3	2	.120

Basic Tuning Techniques

by John Healy

Before you start tuning your carburetor it is important that you check the condition of the engine. Anything that effects the strength of manifold vacuum will directly effect the function of the carburetor. There a list of a dozen things that will effect intake manifold vacuum such as the condition of the piston rings, ignition timing, cam timing, etc.. Any irregularities in intake manifold vacuum caused by engine problems must be identified, and corrected, before the carburetor will work properly.

Amal Concentric carburetors are actually two carburetors in one (the MKII is three in one).

The individual carburetors consist of:

1. **The Idle Carburetor**
2. **The Main**
3. **The Enrichment carburetor (MKII).**

Each of these are separate carburetors, They have their own jetting, air supply, but share a common fuel source.

The Idle Carburetor: The **Pilot Jet** controls fuel while the **Pilot Air Screw** controls the air.

The Main Carburetor: The **main Jet** controls fuel, which is tempered by the **Needle Jet, Needle** while the **Slide**, and it's cutaway, controls the air.

The Enrichment Carburetor (MKII):

The **Enrichment Jet** controls the fuel while the **Plunger** controls the air.

A lot of attention is given in Amal literature, workshop and owner manuals to the Main Jet, but if you want your bike to start and idle you must give just as much attention to the Pilot Jet.

The Pilot Jet is the Main Jet for the idle carburetor. The Pilot jet in the MKI Concentric takes two forms:
a. Removable (124/026).
b. Pressed in (622/107)

The removable Pilot Jet is screwed into the bottom of the bowl and used in Two Stroke applications. The pressed-in Pilot Jet is located in the hole behind the Pilot Air Screw and used in Four Stroke applications

Since the introduction of the pressed-in pilot jet in 1969, keeping it clear of obstructions (dried gasoline)

has been a real bother. If this jet is blocked the Idle Carburetor will not work! The bike will be hard, if not impossible to start, and will not idle.

The Idle Carburetor has three functions:

1. **It works with the choke, when used, and “tickling” to supply the fuel required to get a cold engine running.**
2. **It allows the engine to idle.**
3. **It is of prime importance in allowing the engine to transfer from the Idle to the Main carburetor.**

Even when the bike has the choke closed, and has been “tickled,” to the point to where fuel is flowing out the float bowl vent, if the Pilot Jet is blocked, or not properly sized, the bike will be hard, if not impossible, to start.

It is not good enough to clean the Pilot Jet. Like its cousin the Main Jet, it must be properly sized. The Pilot Jet size for most Concentrics is .016 inch. Remember the Pilot Jet is a “JET” and is designed to flow a predetermined amount of fuel, it is not just a hole in a piece of brass.

The question is often asked, “Why not use a screwed in Pilot Jet common to the Two Stroke version of the Concentric”? Without getting into a long explanation, basically the Two Stroke version will not work well in a Four Stroke application, and in some instances, like the Triumph Daytona, not at all. This problem was overcome with Burlen Fuel System's new Amal Premier Concentric, where a removable Pilot Jet is located in the same location as the “pressed in” jet.

The Pilot Air Screw:—

Turning the Pilot Air Screw “in” will make the Air/Fuel mixture richer.

Turning the Pilot Air Screw “out” will make the Air/Fuel mixture leaner.

Because of how air reacts to how fast it is moving, with this instrument you want the Pilot Air screw to end up with the a steady idle when it is 1 1/2 turns out from fully seated. If it ends up at 1, or less, turns out you should increase the size of the Pilot Jet. If it ends up at 2, or more, turns out you should decrease the size of the Pilot Jet. This instrument performs best when the air flow is passing through the orifice created by the taper on the Pilot Air Screw when

it is 1 1/2 turns out. The orifice created controls the vacuum signal on the Pilot Jet, and thus fuel flow.

Air and fuel passing through the Idle carburetor enters and exits into the intake port through two transfer holes. They are located either side of the back edge of the slide. The smaller of the two, located behind the slide, is the Primary and the one located under the slide is the Secondary.

The Primary has one job. That is to deliver fuel. The Secondary has two: When the slide is closed, it provides additional air to mix with the fuel in the mixing chamber located just under the two holes. As the slide is opened it starts delivering additional fuel helping to make the transition between the Idle and Main carburetor. It acts like an accelerator pump to provide fuel before fuel starts to flow out of the needle jet. This is why they want you to adjust the Idle carburetor after checking the main jet and before checking the operation of the slide cutaway and needle.

Main Carburetor:

The Fuel Part of the Main Carburetor

Main Jet—

The Main Jet is often misunderstood. While all of the fuel for the Main carburetor is delivered through the Main Jet, the actual flow is varied as it passes through the Needle and Needle Jet. Only when the Needle lifts clear of the Needle Jet does all of the fuel flowing through the Main Jet reach the venturi. This happens above 3/4 throttle at the point where the Needle is lifted completely out of the Needle Jet.

This means that you can actually remove the Main Jet, and the mixture will remain under the influence of the Needle/Needle Jet, and the engine will continue to run properly, until the Slide approaches approx. 3/4 throttle.

There are two very important tips you should consider about Main Jets:

1. Not all Main Jets are created equal. There are a lot of aftermarket Main Jets available that will not flow the amount of fuel indicated by the size imprinted on them. Some of the people making bogus Main Jets are “cheeky” enough to stamp Amal on them.
2. Main Jets are subject to the same fuel contamination and corrosion seen in Pilot Jets, especially with our Modern Fuel. Very little corrosion will dramati-

cally effect the amount of fuel a Main Jet will flow!! Don't dig out old corroded Main Jet from the bottom of the race box you used 30 years ago. Start your work using new Main Jets from a reliable source. Burlen now puts their Main Jets in sealed plastic bags with their Logo on them.

For a stock motorcycle start with the manufacturer's recommended Main Jet. If you have made some small changes, and haven't been tuning carburetors all of your life start, with a Jet that is couple sizes larger than stock. If it is too big, the first time you lift the slide past 3/4 throttle you will quickly learn what is meant by eight stroking, or having combustion every other engine combustion cycle. Instead of the smooth, crisp “broom” you will experience a loss of power and rhythmic “bah, bah, bah, bah...” The correct Main Jet is typically one or two sizes smaller than the one where the eight stoking stops and the engine takes throttle or 3/4 throttle giving a smooth, crisp response.

To check to see if the Main Jet is too small, experienced tuners will do what is called a “Roll Off” test. “This is based upon the fact that as the throttle is closed the air/fuel mixture momentarily becomes richer.”¹ The Roll Off test takes advantage of the momentary richness created as the slide is closed. If the bike gains power the Air/Fuel mixture is too lean and you need a bigger Main Jet.

A very good explanation of this technique of tuning is at:

www.mikuni.com/pdf/hsr_tuningmanual_021003.pdf

Needle Jet—

I have a friend who is a noted Triumph expert and runs a British repair facility. You will often see him in a T-shirt that has a picture of an Amal Needle Jet screened on it and the saying, “Its the Needle Jet Stupid!” The poor, often overlooked Needle Jet is the source of many British bike owners frustration.

The Needle Jet has its greatest effect upon the Air/Fuel mixture while the **straight portion** of the Tapered Needle resides in the Needle Jet's measuring orifice. In reality, this is from slide closed to approximately 1/3rd open. This is where we do an awful lot of your riding.

Any defects in the Needle Jet are amplified because of the size of the area formed by the id of the jet's orifice and the diameter of the Needle are so small. The typical orifice of the Needle Jet is .106 inches and the o.d of the most Amal needles is .0985 inches. That gives you a "doughnut," or Delta area, that is only .00325 inches wide or about the thickness of a human hair. To put this in perspective a engine that has the correct Air/Fuel mixture with a .106 inch needle jet would be too lean with a .105 inch or too rich with a .107 inch needle jet.

So while we used to only worry about Needle Jet wear, today, with all of the pirate parts available, we need to be concerned that the new 106 Needle Jet we just bought actually measures .106 inches. We routinely use plug gages to measure Needle Jets before we use them. We match up ones that are a little small or big to be used when we want to make a subtle change to the Air/Fuel mixture while the straight portion of the needle is in the Needle Jet orifice. It is frustrating to try to tune a engine with dual carburetors when one Needle Jet is .1058 inches and the other is .1065 inches.

Needle —

With a few exceptions, Four Stroke British bikes running gasoline use a standard Needle. For a 376 series Monobloc this is the "C" Needle, for a 389 Monobloc this is the "D" Needle, for a Concentric this is a 622/124 Needle marked with 2 small grooves near the top.

While the Monobloc Needle has five Needle Clip grooves, the Concentric typically has three. It is rare that the proper Air/Fuel mixture cannot be found with the Needle Clip in one of these grooves. A Mikuni needle shim under the Needle Clip can be used to fine tune the height of the Needle. The top groove is considered #1.

You raise the Needle (put the Needle Clip in a lower groove) to make the Air/Fuel mixture richer.

You lower the Needle (put the Needle Clip in a higher groove) to make the Air/Fuel mixture leaner.

The Roll Off technique can also be used while the engine is running on the Needle Taper (above 1/3rd to 3/4 throttle) to get the Air/Fuel mixture correct.

The Air Part of the Main Carburetor Slide Cutaway—

For a stock motorcycle start with the manufacturer's recommended Slide. Most stock bikes will use a # 3 or a # 3 1/2. If you have installed open reverse cone megaphones use a 2 (rich) Slide or with straight pipes (TT style) start with a 4 (lean) Slide. You do not need to ride the bike to check the operation of the Slide. This can be done with the bike on the center stand.

— Crisply open the throttle open. If the motorcycle stumbles, has a rhythmic misfire, but slowly picks up rpm the Air/Fuel mixture is too rich. Install a Slide with a higher number (leaner).

— As above, if the motorcycle spits, has a erratic misfire or just stops running, only to pick back up again as the Slide is closed, the Air/Fuel mixture is too lean. Install a Slide with a lower number (richer). The Slide cutaway works in conjunction with the Idle Carburetors secondary transfer port (the larger of the two holes, and located under the back edge of the Slide).

Tuning is a lot about the tricks you learn.

Because the Air/Fuel mixture will be effected by changes made outside the carburetor they can be used as an aid to help tune a carburetor. We already discussed the Roll Off technique but there are other tricks you can use. Another common trick is removing the Air Cleaner. Removing it will cause the Air/Fuel mixture to become leaner. Conversely taping over the filter's air holes with tape will cause the Air/Fuel mixture to become richer. Another approach is turning off the fuel supply to lower the fuel level in the float bowl. There are more. Each of these can be used with any one of the fuel metering stages of the carburetor. Slide Cutaway through Main Jet.

Your Amal carburetor is a couple of carburetors within a single body. Each has its own Air and Fuel controls and must be considered individually. Actual carburation happens in stages using different components within the carburetor. The stage that is working when a problem with the Air/Fuel mixture is under investigation must be addressed directly. Putting in a larger Main Jet when the bike is running lean at 1/4 throttle just isn't going to work.

Quote#1:

www.mikuni.com/pdf/hsr_tuningmanual_021003.pdf

Amal Carb Secrets... well a few.

by John Healy

Do I have a 2 Stroke or 4 Stroke Carb...?

Over the years Amal delivered Monobloc, Concentric and MKII carburetors in two basic configurations: **Two stroke** and **Four stroke**. They may look alike, but they are not interchangeable.

To make it worse, excess stocks of two stroke Concentric carburetors have found their way onto dealer's shelves. Trying to use one of these instruments on a four stroke motor could lead to much frustration.

How do I tell which one I have?

Spray Tube:

With the Trident as the exception, the quickest way to identify a two stroke body is examining the spray tube. The spray tube is the small brass tube that extends up into the venturi and is readily visible when the slide is lifted. On a two stroke the spray tube will be cut back at a slight angle toward the motor while the four stroke spray tube will be cut straight across, or for the Norton, stepped. Yes, it is possible to swap spray tubes.

Needle Jet:

Going deeper into the carb one should examine the needle jet. Needle jets are not interchangeable between Monoblocs, Concentrics and MKIIs. Each series have unique dimensions and each series comes in two and four stroke configurations.

There are two features on the needle jet you should look for: Location of the jet orifice (the restricted portion that determines its size) and bleed holes. The four stroke needle jet has the jet orifice on the threaded end of the jet and has a .035" bleed hole drilled through it. The two stroke needle jet has the jet orifice on the outlet end of the jet and has no bleed hole.

With a little practice it is easy to pick out a Monobloc needle jet because of its height, but telling a Concentric from the MKII needle jet required Amal to put a small annular groove on the jet.

Jet Needle:

Concentrics have specific needles for two and four stroke engines. They can be identified by the annular rings above the needle clip grooves. There are 5 standard gasoline needles with 1 to 5 identification rings. (See chart).

MKIIs also have specific needles for two and four stroke engines. There are 6 standard gasoline needles with the alphanumeric code stamped above the clip grooves. (See chart)

Monoblocs were the same except they came with a standard needle. The 376 models used "C" needle and the 389 use the "D" needle. The letter was stamped above the needle clip grooves. A Bit More Confusion...

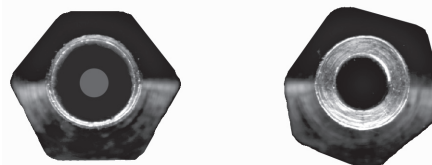
Pilot jet:

When Concentrics were first fitted in 1968 they were in, what is now called, a two stroke condition. This included the removable pilot jet we see in many after market repair manuals.

Low speed problems led to further testing giving us what we now know as the four stroke carb. It had the pilot jet pressed in the body, the spray tube was modified, a new needle and needle jet design was developed and the main jet holder was lengthened to allow the main jet to be deeper in the bowl.

All British four stroke twins (late 1968) soon came with the new four stroke carb and a "update kit" (Amal # 622/235) was offered for bikes fitted with the early carb.

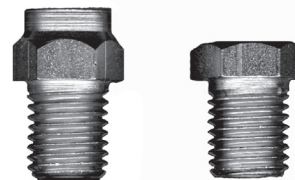
Two stroke bodies continue to be supplied with the removable pilot jet. Another unique feature of two stroke carbs is they are fitted with fuel screens over the main jet.



4 Stroke

2 Stroke

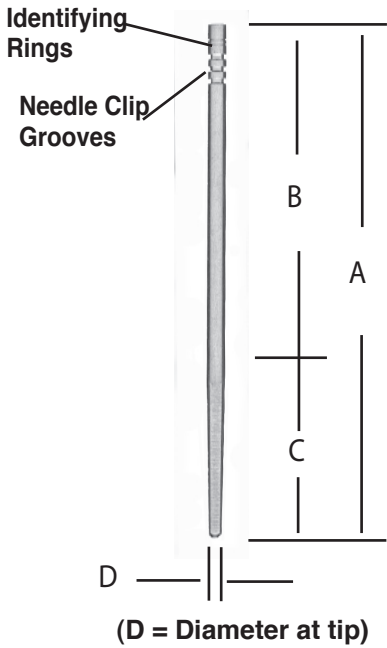
Needle Jets: Top views of a 4 stroke (left) and 2 stroke (right). Note the jet is located at the top of the 2 stroke while it is in the bottom (threaded end) of the 4 stroke).



4 Stroke

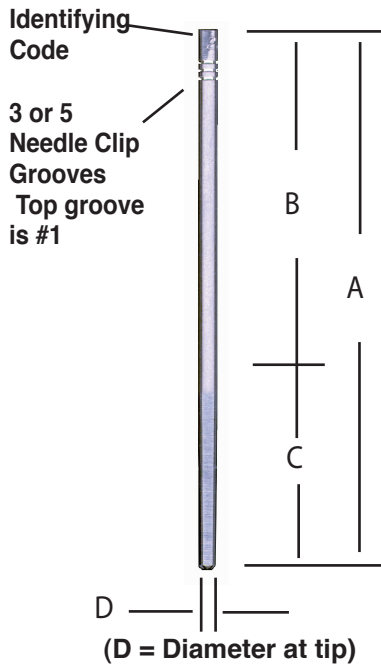
2 Stroke

Main Jet Holder: Left - The longer 4 stroke main jet holder, introduced in 1969, lowers the main jet in float bowl.



Concentric Jet Needles					
	2 stroke models		4 stroke models		
	622/063 1 ring Rich	928/063 3 rings Lean	622/124 2 rings Standard	928/104 4 rings Norton 850	622/278 5 rings T160
A	2.290"	2.485"	2.677"	2.765"	2.735"
B	1.450"	1.693"	1.860"	1.873"	1.836"
C	0.840"	0.792"	0.817"	0.892"	0.899"
D	0.060"	0.065"	0.071"	0.076"	0.076"

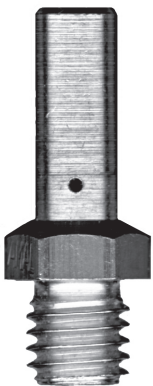
The straight part of the needle (B) is .0985". Needles listed are typical for gasoline engines – Amal did make needles for special applications. Dimensions shown are typical - they were not taken from factory drawings.



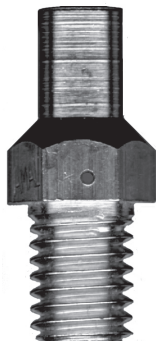
Mark II Jet Needles					
	2 stroke models			4 stroke models	
	2622/063 2B1	2928/063 2D1	2928/124 2D2	2622/124 2A1	2928/030 2C3
A	2.319"	2.500"	2.570"	2.696"	2.800"
B	1.440"	1.486"	1.320"	1.916"	1.930"
C	0.878"	1.014"	1.250"	0.780"	0.930"
D	0.060"	0.065"	0.065"	0.072"	0.076"

The straight part of the needle (B) is .0985". Needles listed are typical for gasoline engines – Amal did make needles for special applications. Dimensions shown are typical - they were not taken from factory drawings.

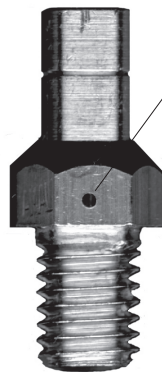
Needle Jets



Monobloc



Concentric &
MKII 22-26mm
MKII 36-40mm



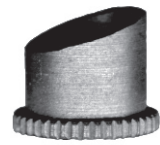
Mark II
28-34mm

Bleed hole

Spray Tubes



622/074
4 Stroke



622/075
2 Stroke



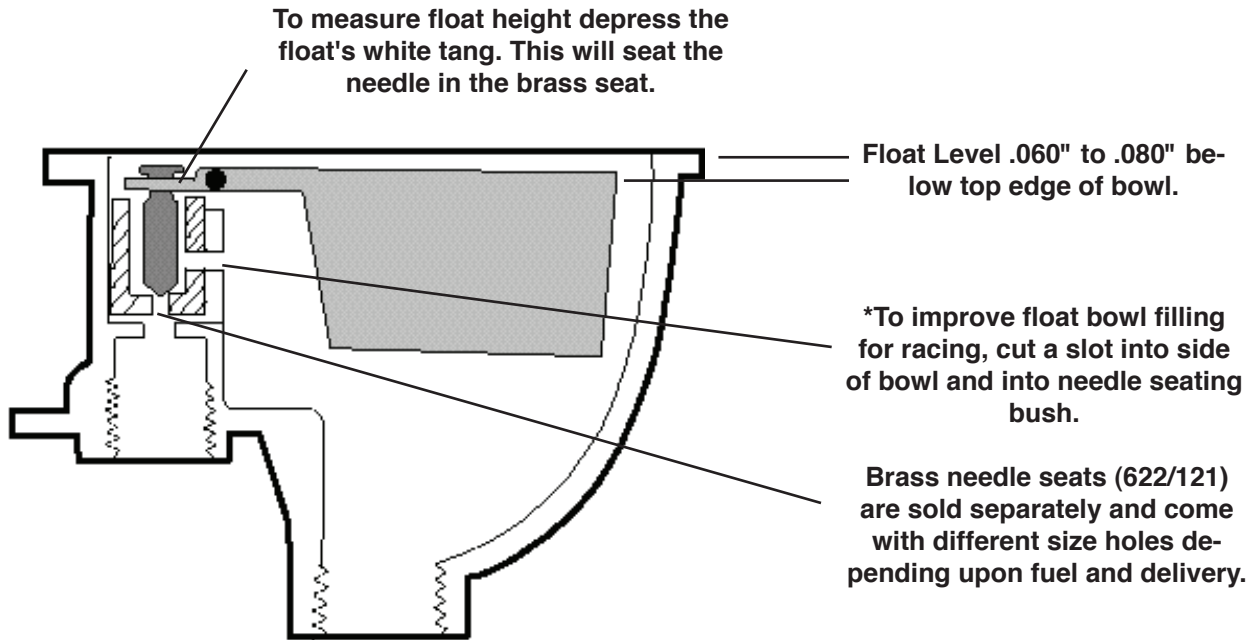
622/123
Trident
Rocket III



928/107
Late
Norton 850

4 stroke illustrated (note bleed hole) – part number for 2 stroke (no bleed hole) may vary for MKII models

Float Level as Described in Triumph Service Bulletin



- Some Norton Amal experts like the float, level with the top of the float bowl.
- The float level can be adjusted by carefully moving the brass needle seat (622/121).
 - With a suitable drift, and a level solid surface, drift the seat up to lower float level or down to raise the float level. It is recommended that the bowl be warmed before adjusting the seat.
Note, after lowering the float you may have to readjust the float tickler roll pin by pulling it out of the aluminum button a little bit. This can easily done by levering it out with a pair of diagonal wire cutters.
- Amal floats are available in a non-sinkable type. They are called a Stay-Up Float (622/069A). Small changes in fuel level can be changed by bending the brass bracket.
- A carburetor with a too high float level will run rich, while one with a too low float level will run lean.
- It is possible for the edge of the float bowl gasket to catch the float where the pivot pin is located and cause it to hold open the float needle.
- 622/197 Viton float needles, first used in Concentric carbs, were designed to be a direct replacement in a Monobloc carburetor.
- 622/197 Viton float needles are also available in aluminum - (622/197AL).
- The float bowl **MUST** have adequately venting for the carburetor to work properly.
- A warped float bowl gasket surface can prevent the idle gas circuit from working properly. Any air leak at this joint can break the vacuum that draws the pilot carburetor fuel from the bowl.
- After many years of use, it is possible for the float pivot pin to wear through the float bowl gasket which will raise the float level.
- Check to see that float bowl gasket doesn't interfere with the movement of the float.
- Cutting a slot into the brass needle seat from the float bowl with a small keyway cutter increases fuel flow (see * above).

Maintainence:

The major problem that plagues any carburetor today, whether it is your motorcycle or lawn mower, is evaporation of fuel in the float bowl. When modern fuel evaporates it leaves a crusty residue that clings to jet orifices and blocks fuel passages. A pilot jet or main jet with evaporated fuel residue blocking the orifice will cause poor performance. While it is easy to replace a corroded main jet, the pressed in pilot jet in the 4 stroke models, is another story.

When the pilot jet is partially blocked by fuel residue it will no longer flow the correct amount of fuel. It must flow a predetermined amount of fuel to allow the bike to idle and make the transisiton to the needle jet circuit. This is controlled by the size of the pilot jet (.016" - #78 drill).

While the #78 drill technique requires mounting the small drill in a suitable holder, I prefer it. If you twirl the drill clockwise it will draw any swarf back out of the jet and down stream of the jet. Using a guitar string will open up the jet, it will also push the swarf upstream of the jet where it can flow back to block the jet again.

Just because you can spray brake clean, or the like, through the pilot jet passage does not mean the bike will idle, or make a smooth transition as the bike accelerates. The pilot jet is a fixed size orifice and the size, and the amount of fuel it passes, is critical to how the pilot carburetor operates. One should also concern themselves with the two idle circuit transfer holes either side of the back edge of the slide. They too must be clear of hardened fuel residue and on size.

Second to fuel problems is distortion of the carb body by heavy handed mechanics. While most understand that you can bend the carburetor by over tightening the flange bolts, one should not overlook the effects of over tightening the float bowl and top screws. They to cn bend the body of the carburetor. Problems caused by a warped carburetor body are more than inconvenience and can to lead to death or worse. The slide must be free to move full full throttle and snap back to idle.

Amal - Carburetors

Type 29-276 (with float bowl)

276FH/1AT Triumph T100 1 inch
276DK/1AT Triumph 5T 15/16 inch
276C/1B BSA M20 1 inch
276CD/2DS Vincent Rapide (rear)
276DQ/1DV Vincent Rapide (front)

Monobloc

376/15 15/16" bore
376/16 1" bore
376/17 1 1/16" bore
389/18 1 1/8" bore
389/18.5 1 5/32" bore
389/19 1 3/16" bore

Concentric

L622 22mm bore left hand
R622 22mm bore right hand
L624 24mm bore left hand
R624 24mm bore right hand
L626 26mm bore left hand
R626 26mm bore right hand
L928 28mm bore left hand
R928 28mm bore right hand
L930 30mm bore left hand
R930 30mm bore right hand
L932 32mm bore left hand
R932 32m bore right hand

Bodies add: /BOD to part number
example: R932/BOD

MarkI 1/2 Concentric - flange style

L1928 28mm bore left hand
R1928 28mm bore right hand
L1930 30mm bore left hand
R1930 30mm bore right hand
L1932 32mm bore left hand

Bodies add: /BOD to part number

MarkII

L2622 22mm bore left hand
R2622 22mm bore right hand
L2624 24mm bore left hand
R2624 24mm bore right hand
L2626 26mm bore left hand
R2626 26mm bore right hand
L2627 27mm bore left hand
R2627 27mm bore right hand
L2928 28mm bore left hand
R2928 28mm bore right hand
L2930 30mm bore left hand
R2930 30mm bore right hand
L2932 32mm bore left hand
R2932 32mm bore right hand
L2934 34mm bore left hand
R2934 34mm bore right hand
L2036 36mm bore left hand
R2036 36mm bore right hand
L2038 38mm bore left hand
R2038 38mm bore right hand
L2040 40mm bore left hand
R2040 40mm bore right hand

Mark II Bodies: special order

Power Jet - 2 stroke applications

R2036PJ 36mm bore right hand
R2038PJ 38mm bore right hand
R2040PJ 40mm bore right hand

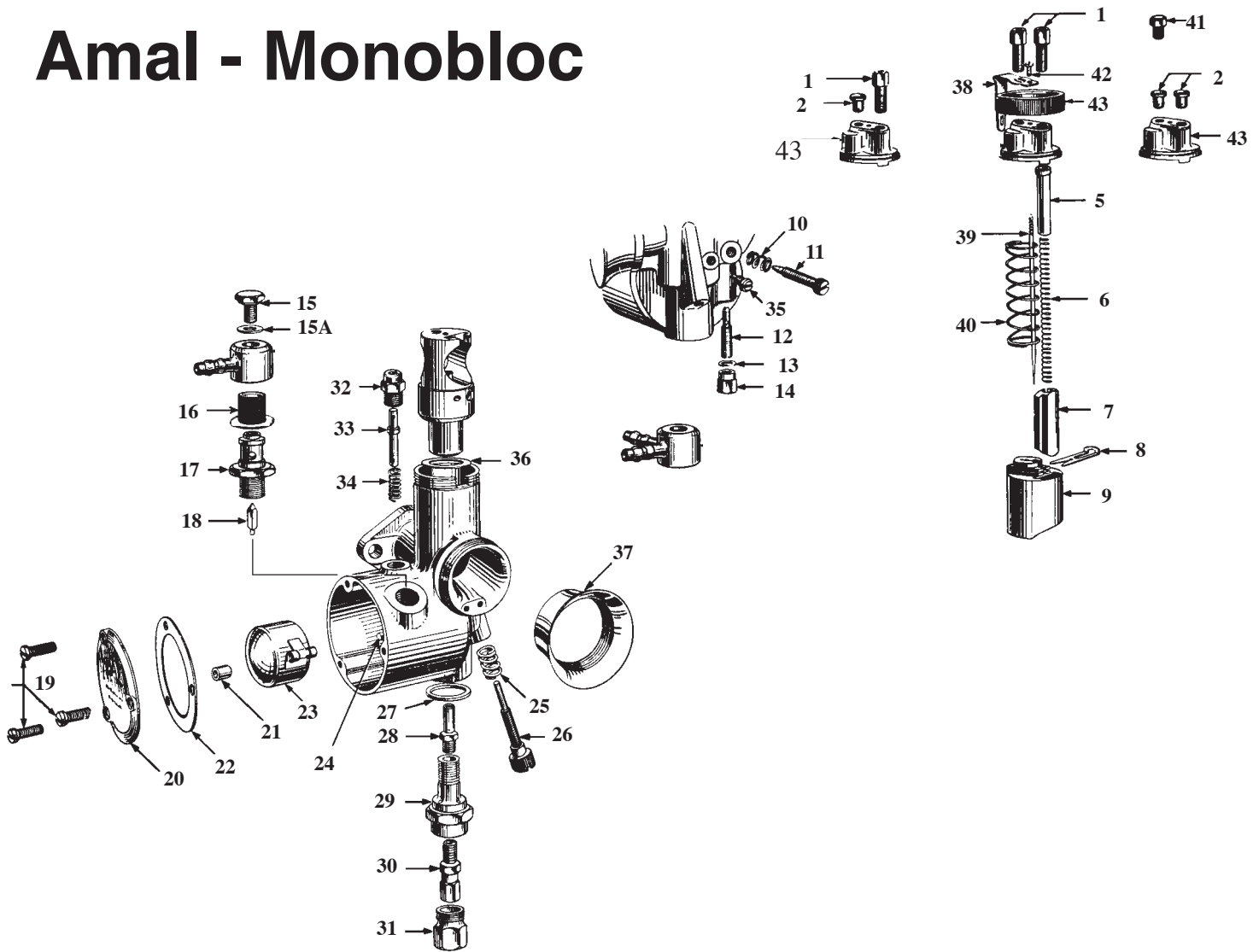
Bodies: special order

Smooth Bore

L2034T 34mm bore left hand
R2034T 34mm bore right hand
L2036T 36mm bore left hand
R2036T 36mm bore right hand
L2038T 38mm bore left hand
R2038T 38mm bore right hand

Smooth Bore Bodies: special order

Amal - Monobloc



		15/16" - 1 1/16"	1 3/32" - 1 3/16"	1 3/32" - 1 3/16"
	Description	376 Series	389 Series	689 Series
1	Cable Adjuster	4/035	4/035	4/035
2	Cable Ferrule	6/132A	6/132A	6/132A
3	"O" Ring intake flange	244/1048	244/1048	244/1048
4	Mixing Chamber Top Cap Ring		376/065	389/065 389/065
5	Choke Guide Tube	6/047	29/057	29/057
	Note: Choke Guide Tube must always be fitted if choke assembly fitted			
6	Choke Spring	4/046	4/046	4/046
7	Choke Valve	376/062	389/062	389/062
8	Needle Clip	4/230	4/230	4/230
9	Slide - state size	376/060	389/060	689/060
10	Pilot Air Screw Spring	4/148	4/148	4/148
11	Pilot Air Screw	332/017	332/017	332/017
12	Pilot Jet - state size	376/076	376/076	376/076
	(376/076A #15 376/076B #20 376/076C - #25 376/076D - #30)			
13	Pilot Jet gasket	116/162	116/162	116/162
14	Pilot Jet Nut	376/095	376/095	376/095

Description	376 Series	389 Series	689 Series
15 Banjo Bolt Screw	376/091	376/091	376/091
16 Filter	376/093	376/093	376/093
17 Needle Seating	376/088	376/088	376/088
18 Needle	622/197	622/197	622/197
19 Float Bowl Screws	376/079	376/079	376/079
20 Float Bowl Cover	376/077	376/077	376/077
21 Float Spacer	376/094	376/094	376/094
22 Float Bowl Gasket	376/078	376/078	376/078
23 Float	376/083	376/083	376/083
24 Float Spindle	376/085	376/085	376/085
25 Throttle Stop Spring	376/069	376/069	376/069
26 Throttle Stop Screw	376/068	376/068	376/068
27 Main Jet Holder Gasket	376/074	376/074	376/074
28 Needle Jet -state size	376/072	376/072	376/072
(two stroke - non crossed drilled - needle jets stamped "T")			
29 Main Jet Holder	376/073	376/073	376/073
30 Main Jet -state size 50 to 500	376/100	376/100	376/100
31 Main Jet Holder Cover	376/075	376/075	376/075
32 Tickler Body	343/011	343/011	343/011
33 Tickler Pin	376/086	376/086	376/086
34 Tickler Pin Spring	376/087	376/087	376/087
35 Locating Peg for jet block	376/070	376/070	376/070
36 Gasket for jet block	376/067	376/067	376/067
37 Velocity Stack	376/066	389/066	389/066
38 Cap Spring	29/301	29/301	29/301
39 Needle	376/063	389/063	389/063
40 Throttle Slide Spring	376/061	389/061	389/061
41 Plug Choke hole	4/137A	4/137A	4/137A
42 Clip Spring Screw	4/421	4/421	4/421
43 Top - tapped for 4/035 Adjuster	376/064	376/064	389/064
43 Top - Drilled for 6/132A Ferrule		376/099	389/099

Complete Monobloc Carburetors

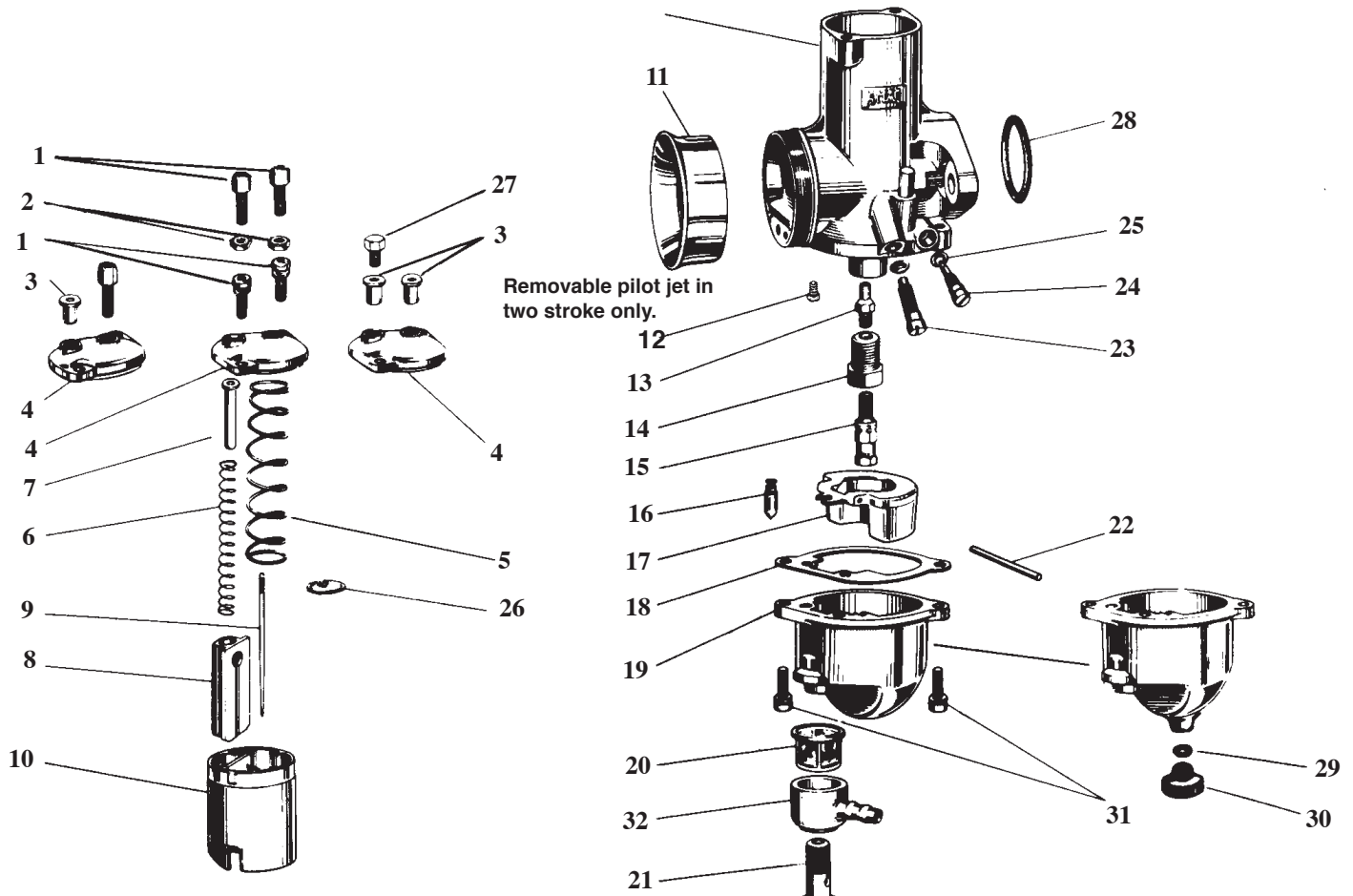
376/15	15/16" bore
376/16	1" bore
376/17	1 1/16" bore
389/18	1 1/8" bore
389/18.5	1 5/32" bore
389/19	1 3/16" bore

Monobloc Gasket Sets

376/421	376 models
389/121	389/689 models

Brass Slides for Monobloc

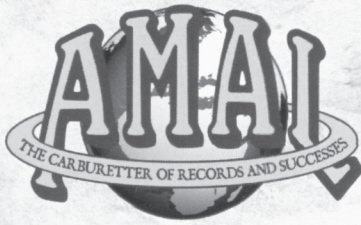
376/060B	available in 3 and 3 1/2 cutaway
389/060B	available in 3 and 3 1/2 cutaway



Amal Concentric - MKI

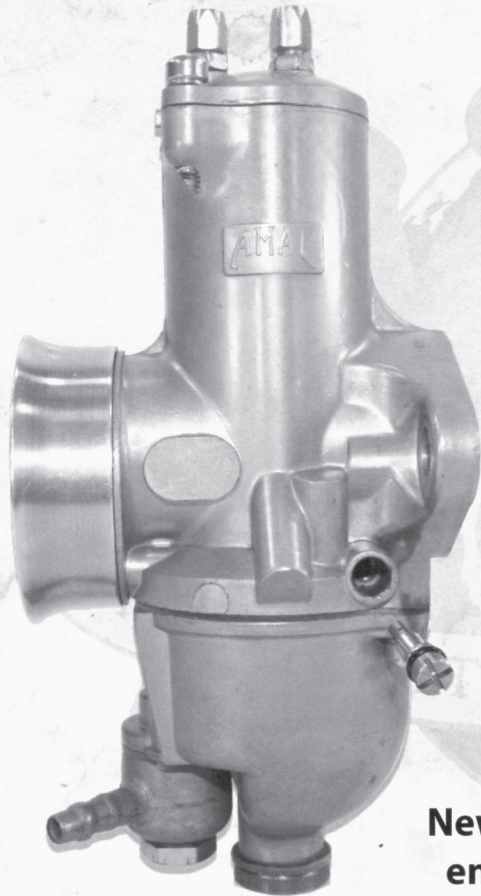
	Description	22 - 26 mm		28 - 32 mm	
		600 Series		900 Series	
1	Cable Adjuster	4/035		4/035	
2	Cable Adjuster Nut	5/077		5/077	
3	Cable Ferrule	6/132A		6/132A	
4	Mixing Chamber Top threaded for one adjuster and Ferrule	622/097		928/097	
4	Mixing Chamber Top threaded for two adjusters	622/064		928/064	
4	Mixing Chamber Top for two Ferrules	622/098		928/098	
5	Throttle Slide Spring	622/131		622/131	
6	Choke Valve Spring	622/129		622/129	
7	Choke Valve Guide	622/134		928/103	
Note: Choke Guide Tube must always be fitted if choke assembly fitted					
8	Choke Valve	622/062		928/062	
9	Throttle Needle (paired with 622/079)	622/063 (1 ring)		928/063 (3 rings)	
9	Throttle Needle (paired with 622/122)	622/124 (2 rings)		622/124 (2 rings)	
9	Throttle Needle (Norton - 850)			928/104 (4 rings)	
9	Throttle Needle (T160)	622/278 (5 rings - use with #4 slide as part of T150 lean kit)		928/099 ("Z")	
9	Throttle Needle Alcohol	622/099 ("Y")		928/099 ("Z")	
10	Throttle Slide - rich	622/060A	2	928/060A	2
	Solid Brass - Chromed			928/060AB	2
	Throttle Slide	622/060B	2.5	928/060B	2.5
	Solid Brass - Chromed			928/060BB	2.5
	Throttle Slide	622/060C	3	928/060C	3
	Solid Brass - Chromed			928/060CB	3
	Throttle Slide	622/060D	3.5	928/060D	3.5
	Chromed			928/060DB	3.5

		600 Series 22-26 mm	900 Series 28-32mm
10	Throttle Slide - lean Solid Brass - Chromed	622/060E 4	928/060E 4 928/060EB 4
11	Velocity Stack - plastic Velocity stack spun alloy Velocity stack - grub screw (3 used)	376/066	928/066 928/076 622/195
12	Removable pilot Jet - very early twins and two stroke models only. 124/026 state size (15 lean - 50 rich) 124/026 #15 124/026A #20 124/026B #25 124/026C #30 124/026D #40 124/026E #35 124/026F #50 124/026G #60		124/026 state size
NOTE: All four stroke Concentrics supplied after 1968 have pilot jet 622/107 permanently installed in body.			
13	Needle Jet 2-stroke lean Needle Jet 2-stroke Needle Jet 2-stroke rich Needle Jet 4-stroke lean Needle Jet 4-stroke Needle Jet 4-stroke rich Needle Jet Needle Jet alcohol	622/079A 105 622/079B 106 622/079C 107 622/122A 105 622/122B 106 622/122C 107 622/122D 108 622/122E 109 622/100 120	622/079A 105 622/079B 106 622/079C 107 622/122A 105 622/122B 106 622/122C 107 622/122D 108 622/122E 109 622/100 120
14	Jet Holder tall - standard 4 stroke	622/128	622/128
15	Main Jet 50 to 500 state size	376/100	376/100
16	Float Needle- Viton Float Needle - Viton Float Needle alloy - for alcohol	622/197 622/197A 622/279	622/197 622/197A 622/279
17	Float Float - Stay-UP	622/069 622/069A	622/069 622/069A
18	Float Bowl Gasket	622/073	622/073
19	Float Bowl 0.100 in seating Float Bowl 0.100 in. seating with drain Float Bowl 0.062 in. seating Float Bowl 0.062 in. seating with drain Float Bowl 0.125 in. seating Float Bowl 0.125 in. seating Float Bowl 0.156 in. seating alcohol	622/050 622/055 622/052 622/057 622/051 622/056 622/054	622/050 622/055 622/052 622/057 622/051 622/056 622/054 use w/alloy needle 622/279
20	Filter Filter alcohol	376/093 376/093B	376/093 376/093B
21	Banjo Bolt Banjo Bolt Washer	622/078 13/163	622/078 13/163
22	Float Spindle	622/071	622/071
23	Throttle Stop Adjusting Screw	622/077	622/077
24	Pilot air adjusting Screw	622/076	622/076
25	"O" Rings	622/082	622/082
26	Needle Clip	622/067	622/067
27	Plug for mixing chamber top	4/137A	4/137A
28	"O" Ring for flange thin "O" Ring for flange thick	622/101 70-9711	622/101 70-9711
29	Float Bowl Drain Plug Gasket	622/151	622/151
30	Float Bowl Drain Plug - plastic Float Bowl Drain Plug - Metal Main Jet Filter - screen-2 stroke models	622/147 622/155 928/071	622/147 622/155 928/071
31	Float Bowl and Mixing Chamber Screws - Phillips Mixing Chamber top Screws - slotted Mixing Chamber top Screws - Allen	622/086 622/086S 622/086A	622/086 622/086S 622/086A
32	Banjo -single 1/4" tubing Banjo -double, 150°, 5/16" tubing Banjo -double, 55°, 5/16" tubing Banjo -double, 180°, 1/4" tubing	376/097 376/139 376/410 376/419	376/097 376/139 376/410 376/419
Not Illustrated			
	Bush - pilot jet .016"	622/107	622/107
	Spray Tube 4 stroke straight	622/074	622/074
	Spray Tube 2 stroke beveled	622/075	622/075
	Spray Tube Norton 932 stepped		928/107



Premier range Mk1 Concentric carburettors

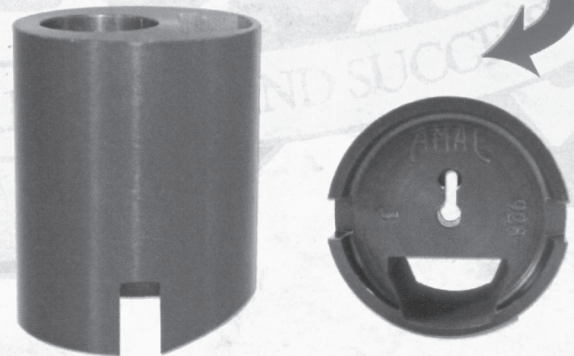
"Why premier?"



Ethanol resistant, puncture proof Stayup® float



Precision manufactured forged alloy hard anodised throttle slide



New precision engineered idle circuit

The 900 series Amal Mk1 carburettor for four stroke applications has been re-designed to improve

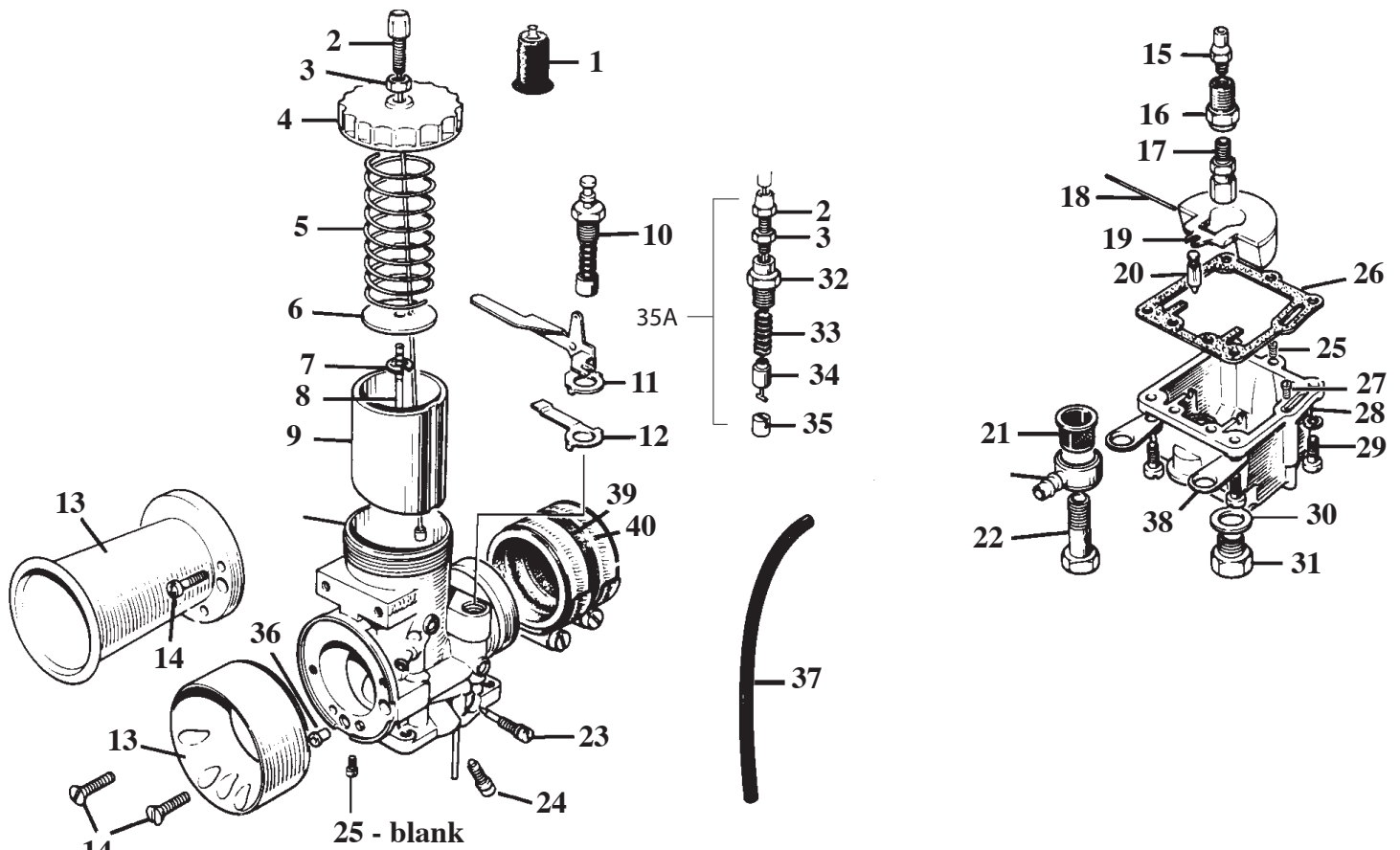
Stay-Up float	622/069A
Pilot Jet .015"	622/50212 1 ring
Pilot Jet .017"	622/50217 2 rings
Pilot Jet .019"	622/50219 3 rings
Pilot Jet .021"	622/50221 4 rings
Pilot Jet .023"	622/50223 5 rings

Anodised Aluminum Forged Slides

622/060BA	2.5 Anodised slide
622/060CA	3 Anodised slide
622/060DA	3.5 Anodised slide
622/060EA	4 Anodised slide
928/060BA	2.5 Anodised slide
928/060CA	3 Anodised slide
928/060DA	3.5 Anodised slide
928/060EA	4 Anodised slide

Premier Concentric Carburetors

R626/PREM	26 mm Right Hand
L626/PREM	26 mm Left Hand
R928/PREM	28 mm Right Hand
L928/PREM	28 mm Left Hand
R930/PREM	30 mm Right Hand
L930/PREM	30 mm Left Hand
R932/PREM	32 mm Right Hand
L932/PREM	32 mm Left Hand
R932/PREM	32 mm Right late MKII-MKIII
L932/PREM	32 mm Left late MKII-MKIII



Amal Concentric - MKII

Description	22 - 26 mm	28 - 34 mm	36 - 40 mm
	2600 Series	2900 Series	2000 Series
1 Rubber Cable Sleeve	316/083	316/083	316/083
2 Cable Adjuster	4/035	4/035	4/035
3 Cable Adjuster Nut	5/077	5/077	5/077
4 Mixing Chamber Top	2622/064	2928/064	2036/064
5 Throttle Spring	2622/061	2928/061	2928/061
6 Needle Retaining Disc	2622/071	2828/071	2928/071
7 Needle Clip	2622/067	2622/067	2622/067
8 Throttle Needle 2-stroke	2622/063	2928/063	2036/063
Throttle Needle 4-stroke	2622/124	2622/124	2622/124
Throttle Needle alcohol	2622/125	2928/125	2036/077
9 Throttle Slide - Zinc - rich	2622/060 2	2928/060A 2	2036/060A 2
Throttle Slide - Zinc	2622/060 2.5	2928/060B 2.5	2036/060B 2.5
Throttle Slide - Zinc	2622/060 3	2928/060C 3	2036/060C 3
Throttle Slide - Zinc	2622/060 3.5	2928/060D 3.5	2036/060D 3.5
Throttle Slide - Zinc - lean	2622/060 4	2928/060E 4	2036/060E 4
Throttle Slide - Chromed Brass		2928/170A 2	2036/170A 2
Throttle Slide - Chromed Brass		1928/170B 2.5	2036/170B 2.5
Throttle Slide - Chromed Brass		2928/170C 3	2036/170C 3
Throttle Slide - Chromed Brass		2928/170D 3.5	2036/170D 3.5
Throttle Slide - Chromed Brass		2928/170E 4	2036/170E 4
10 Cold Start Plunger Assy	2622/079	2622/079	2622/079
11 Cold Start Lever & Bracket	2622/075	2622/075	2622/075
Cold Start Bracket (no lever)	2622/169	2622/169	2622/169
12 Cold Start Click Spring	2622/087	2622/087	2622/087

	Description	22 - 26 mm 2600 Series	28 - 34 mm 2900 Series	36 - 40 mm 2000 Series
13	Air Intake Adaptor	2622/062	2928/062	2036/062
13	Velocity Stack	2622/126	2928/126	2036/126
14	Air Intake adaptor Screws	2622/073	2622/073	2622/073
	Velocity Stack Screws	2036/073	2036/073	2036/073
	Velocity Stack - grub screw	622/195	622/195	622/195
15	Needle Jet 4-stroke lean	622/122 105	2928/122 105	622/122 105
	Needle Jet 4-stroke	622/122 106	2928/122 106	622/122 106
	Needle Jet 4-stroke rich	622/122 107	2928/122 107	622/122 107
	Needle Jet 2-stroke lean	622/079 105	2928/079 105	2928/079 105
	Needle Jet 2-stroke	622/079 107	2928/079 106	2928/079 106
	Needle Jet 2-stroke rich	622/079 107	2928/079 107	2928/079 107
	For special applications 2 and 4-stroke needle jets are also available in 108, 109 and up			
	Needle Jet alcohol	622/100 120	2928/100 120	2928/100 120
	Needle Jet alcohol	622/122 125	2928/100 125	2928/120 125
16	Jet Holder long	622/128	622/128	622/128
	Jet Holder short	1034/080	1034/080	
17	Main Jet - state size	376/100	376/100	376/100
18	Float Spindle	2622/069	2622/069	2622/069
19	Float - shallow (standard)	622/069	622/069	622/069
	Float - Stay-Up	622/069A	622/069A	622/069A
	Float - deep	622/196	622/196	622/196
20	Float Needle - viton	622/149	622/149	622/149
	Float Needle - alcohol	622/279	622/279	622/279
21	Filter	376/093	376/093	376/093
	Filter - alcohol	376/093B	376/093B	376/093B
	Banjo Washer for alcohol	14/175	14/175	14/175
22	Banjo bolt	622/078	622/078	622/078
	Banjo Bolt alcohol	2622/155	2622/155	2622/175
23	Pilot air Screw	2622/128	2622/128	2622/128
24	Throttle Stop Screw	2622/129	2622/129	2622/129
25	Pilot Jet	124/026	124/026	124/026
	124/026 #15 124/026A #20	124/026B #25	124/026C #30 124/026D #40	124/026E #35
	124/026F #50 124/026G #60			
	Pilot Jet - no hole - blanking	2622/142	2622/142	2622/142
26	Float Bowl Gasket	2622/070	2622/070	2622/070
27	Cold Start Jet	124/026	124/026	124/026
	124/026 #15 124/026A #20	124/026B #25	124/026C #30 124/026D #40	124/026E #35
	124/026F #50 124/026G #60			
28	Float Bowl 0.100 in. seating	2622/139	2622/139	2622/139
	Float Bowl 0.062 in. seating			
	for fuel pump applications	2622/055	2622/055	2622/055
	Float Bowl 0.125 in. seating			
	standard applications	2622/056	2622/056	2622/056
	Float Bowl 0.156 in. seating			
	for alcohol applications	2622/057	2622/057	2622/057
29	Float Bowl Screws	622/086	622/086	622/086
30	Float Bowl Plug Washer	2622/066	2622/066	2622/066
31	Float Bowl Plug	2622/065	2622/065	2622/065
32	Cold Start Adaptor	2622/091	2622/091	2622/091
33	Cold start Spring	2622/084	2622/084	2622/084
34	Cold Start Plunger Cap	2622/092	2622/092	2622/092
35	Cold Start Plunger	2622/094	2622/094	2622/094
35A	Cable Operated cold start kit	2622/149	2622/149	2622/149
36	Primary air Jet 3.5	2622/135C	2622/135C	2622/135
37	Air Vent Pipe	2622/145	2622/145	2622/145
38	Air Vent Clip	2622/134	2622/134	2622/134
39	Intake Rubber Connector	2622/123	2928/123	2036/123
	Intake Rubber Connector alcohol		2928/119	2036/119
40	Connector Hose Clamp	2622/146	2928/146	2036/146