SU Carburetor Tips

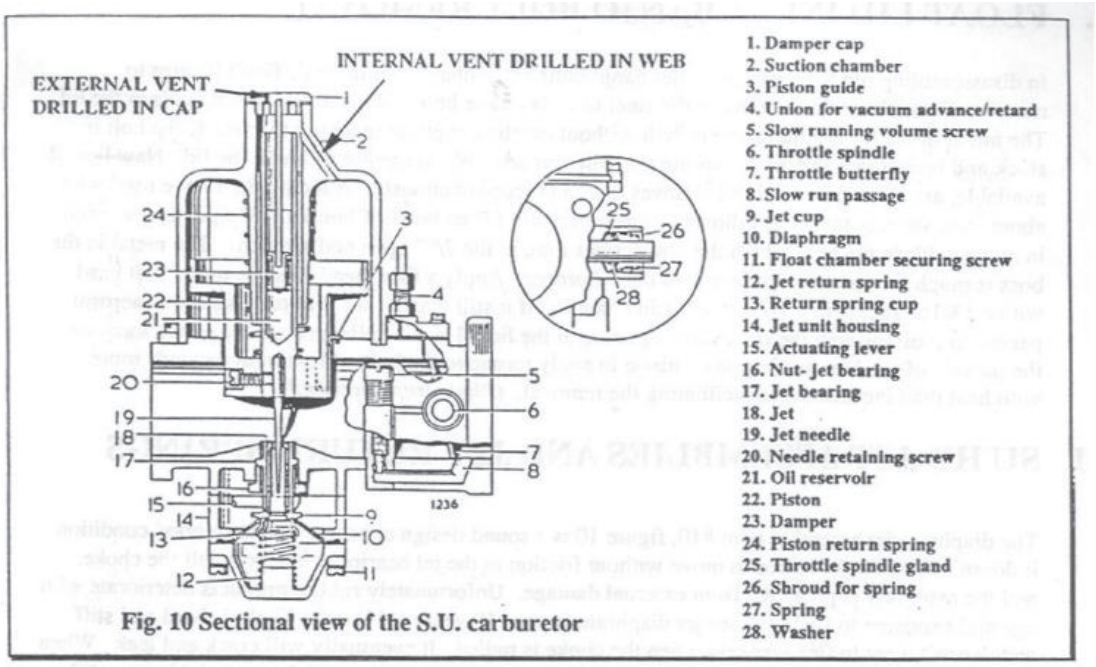

Fig. 10 Sectional view of the S.U. carburetor

I. DAMPERS

Many of the SU carbs I see have had dampers replaced with the wrong type. Referring to figure 10 it should be noted that the area above the hollow piston rod must be vented. otherwise pressure will build up on the upward movement of the piston and vacuum will occur with downward movement. This will restrict normal piston travel. Venting may be done in two ways. The cap may be drilled to allow venting to atmosphere or the web or gusset on the chamber neck may be drilled to allow internal venting back into the suction chamber. You must have one or the other but not both. If you have a solid cap and no internal drilling there is no vent and pressure/ vacuum conditions will occur as aforementioned. If the cap is drilled and the web is also drilled. then there is a direct air leak into the suction chamber. If the chamber neck, such as found on 1 1/4″ Sprite carbs, has no web then it cannot be drilled internally and must have a vented cap. If the chamber neck. as found on 1 1/2″ and larger carbs. has a web or gusset it mayor may not be drilled. The only way to know for sure is to remove the damper and look inside the neck. If you have a plastic damper cap which is wrong, you probably should just replace it with the correct one. If you have a brass damper cap which is wrong you can drill the solid cap with a l/16." diameter drill, or plug the vented brass cap with a short piece of 14 gauge copper wire. Cut the wire just barely longer than the thickness of the cap and peen from the underside with a hammer and punch. Polishing the top surface with a fine wire rotary brush on a drill will make the plug barely visible.

II. FLOAT LID INLET BANJO BOLT REMOVAL

In disassembling old SU carbs, the inlet banjo bolts are probably the most difficult fittings to remove. Corrosion occurs between the steel threads on the bolt and the aluminum threads in the lid. The metal in the lid is a thin domed shell without much strength in resisting torque. If the bolt is stuck and brute force is used in turning the bolt you probably are going to break the lid. New lids, if available. are about $30.00 so it behooves one to proceed cautiously. A technique I have used with about 90% success rate is as follows: Remove lid from float bowl. Clamp a 7/8t' open end wrench in a vise. Place the boss which the bolt screws into, in the 7/8″ open end wrench. The

metal in the boss is much thicker and stronger than the lid proper. Apply a firm steady torque to the bolt head with a 13/l6″ socket in a 1/2″ drive ratchet handle. If it still doesn't want to turn. squirt an aerosol penetrating oil through the float valve opening in the lid. Have a colleague gently play a torch on the outside of the boss while you continue to apply torque to the bolt. Aluminum expands more with heat than the steel, thus facilitating the removal.

III. SU HD JET ASSEMBLIES AND JET RETURN SPRINGS

The diaphragm jet assembly item #10. figure 10 is a sound design concept. When in good condition it doesn't leak. the jet is free to move without friction in the jet bearing when you pull the choke, and the assembly is protected from external damage. Unfortunately rubber products deteriorate with age and exposure to fuel. If your jet diaphragm is over 10 years old it quite likely is hard and stiff and doesn't want to flex properly when the choke is pulled. It eventually will crack and leak. When replacing a jet assembly it is a good idea to have replacement jet return springs available item #12. figure 10. The springs sit down in the lowest part of the carburetor where water collects and will frequently be badly corroded.

IV. FURTHER DISASSEMBLY TIPS – SU CARBS

On HD carbs, breaking loose the jet bearing locking nut. item #16 figure 10. may be troublesome. After removing the float chamber, jet, and jet housing, access to the locking nut is attained. Squirt an aerosol penetrating oil around the nut head. Rap the head of the nut sharply with a hammer and 3/16″ punch around the periphery of the head in about a dozen places. A properly sized Whitworth socket and ratchet handle will then usually easily break it loose.

Carbs that have been in storage in a coastal atmosphere for long periods may present special disassembly problems. The piston may be stuck in the suction chamber and also in the body of the carburetor. There is not much access, nor much way to apply any force. After removing the jet bearing locking nut as described above, the jet bearing, and the suction chamber screws, it is possible to insert a 3/8″ O.D. steel tube from the bottom through the hole for the jet bearing and drive the piston along with its suction chamber out of the body. Once removed from the body, the piston may be driven out of its suction chamber by inserting a 5/16″ brass bar inside the hollow piston rod in place of the damper. All impact in both steps is on the steel piston rod base and thus does not damage the soft aluminum parts.

V. CORK SEALS ON H-SERIES SU CARB

On the old original SU H-series carbs, cork seals are used around the jet and also the jet locking nut. The jet gland seals are small and fragile. To facilitate installation without breaking, it is desirable to soak the jet gland seals in engine oil for about 24 hours before assembly .This softens, lubricates, and slightly expands the cork. There is nothing more frustrating than to have 4 seals for 2 carbs in your rebuild kit and to break one. Before replacing cork seals it probably is a good idea to have a few extras on hand. The large cork seal around the jet bearing locking nut is a static seal and does not need lubrication. Soaking it in water for about 30 minutes is sufficient to soften and expand it slightly before installation.

VI. FLASH METAL REMOVAL – SU CARBS

In the factory machining of SU carb bodies there always seems to be some rough flash metal protrusions left, some quite prominent, where the horizontal bore of the body proper intersects the vertical bore for the piston. These protrusions create turbulence and increased resistance to flow. Flow characteristics can be enhanced if these protrusions are removed creating a smooth transition at this intersection. I use a cutting bit on a Dremel Moto-tool to grind out the protrusions. I then polish the complete bore with a fine wire brush on the Moto-tool.

VII. SU NEEDLE MARKING

SU jet needles are identified by letters and occasionally numbers stamped in the needle shank. This causes an upset in the metal at the letters and may make it difficult to push the needle shank into the hole in the bottom of the piston. Don't ever force the needle in the hole or you may never get it out again without ruining it. Take an ignition point file and judiciously smooth the ridges around the letters until the needle will slide in easily. To remove an old needle that you may want to re-use: remove the jet locking screw and pull gently on the needle with your fingers. If it doesn't budge, resist the urge to grab the needle with a pair of pliers. Squirt some choke cleaner in the locking screw hole and leave for about 30 seconds followed by an aerosol penetrating oil. Gently tap the needle inward (usual movement about 1/8″). This breaks the needle loose as well

as lubricating a dry area of the shank. Pull gently again with your fingers. If it still doesn't move, clamp the needle in a vise with Masonite faced jaws and gently pull and twist the piston. If all else fails you can still resort to the pliers and sacrifice the needle.

VIII. SU CARBURETOR FLOAT VALVES

The use of Grose-Jet float valves has done more to improve the reliability of SU carbs than any other single improvement that I am aware of. The double ball design meters well and shuts off tight. The balls rotate in the flow stream so wear patterns are minimized. The balls are retained so they don't fall out on disassembly of the float lid. The only problem I have ever encountered is that the seating ball will stick shut if left sitting with stale fuel in it for 6 months to a year. But that's not the only place stale fuel causes problems. Petroleum refiners never intended for gasoline to stay in inventory over 90 days. Gasoline in your tank for long periods is not a particular problem. It's when it sits in cracks and crevices in fuel pumps and carburetors for 6 months or more that it causes problems. Gum will coat the jet needle and varnish will set up around the jet and fuel pump valves almost like an epoxy. Disassembly and cleaning with a commercial carb cleaner is about the only cure other than avoiding the stale fuel problem by driving your car every few weeks.

IX. OVERFLOW PIPES ON SU CARBS

The overflow pipe off of the float bowl lid on SU carbs serves a dual function. It provides for overflows (which are rare with Grose-Jet float valves) to be directed to some non-hazardous location but more importantly it is the means of venting any vapor buildup out of the float chamber. A fuel level is maintained in the float bowl by the float and float valve assembly. Fuel flows by gravity to the jet orifice. If the vent pipe for some reason becomes blocked. vapor pressure can build up in the float chamber and cause severe flooding at the jet. I have seen gasoline squirt 2 feet in the air out of the jet when a vent was plugged off. The following causes have been observed:

1. End of overflow/vent plugged with dirt or rust
2. Plastic vent line got against exhaust pipe and melted end shut
3. Owner vented one float chamber into the other float chamber (tied them together)
4. Owner tied vent line from carb into vent line from fuel tank
5. Rubber vent hose kinked where it went into carbon canister
6. Vent lines cut off with side cutter pliers thus crimping tube ends
7. Carb ID. tags put underneath overflow/vent banjo thus blocking off annular vent area.

X. A. THROTTLE RETURN SPRINGS FOR SU'S

Most H series carburetors and HD-6's used a helical throttle return spring around the throttle shaft. If too little pre-load is used there is insufficient force to shut the throttle. If too much pre-load is used it makes the throttle awfully hard to open. I find 1/2 turn of pre-load to be about optimum. With the throttle closed, rotate the spring clip in a direction that will be winding the spring up. Turn until free movement is eliminated, then wind or pre-load 1/2 turn and tighten pinch bolt.

B. INLET BANJO ORIENTATION – SU CARBS

Separate inlet banjos are frequently used with flexible fuel lines, such as on the HD-8 Healey carbs. These brass banjos have one flat face and one recessed face. A fiber washer is used on each side. It is essential that the banjo flat side go towards the float lid and the recessed face go towards the bolt head. If installed backwards the rim around the recess will make metal to metal contact with the float lid boss before the fiber washer is fully compressed. This is so basic I'm almost reluctant to mention it but I do see an awfully lot of them backwards.

XI. A. SU DAMPERS -ADDITIONAL TIPS

The purpose of the SU damper is to retard the rapid upward movement of the piston on rapid throttle opening associated with acceleration. This delay in piston movement causes a momentary decrease in pressure at the throat thus achieving a momentary increase in richness much the same as with an accelerator pump. The weight of the oil in the damper determines the amount of dampening. A lot of race mechanics use automatic transmission fluid for some misguided reason

obscure to me. I think it is too light for normal use. SU publications recommend 20 weight which I would follow. Do not overfill the damper. The proper procedure is to fill to 1/2″ below the top of the hollow piston rod. not 1/2″ below the top of the chamber neck. Overfilling just spills over into the suction chamber and makes a mess. One easy check is to remove the damper and then re-insert it. If you feel resistance before you reach the threads on the cap you have enough oil.

B. DAMPER RODS -SU CARBS

The damper rods can occasionally get bent which will force the damper piston off center. This will create a drag or side force on the hollow piston rod and restrict normal piston movement. Remove the suction chamber and look at the end of the damper rod with cap screwed snugly into the chamber neck. If the end of the rod appears to be in the center of the bore. everything's OK. If the rod is noticeably offset in one direction. mark the cap with a magic marker in the direction the rod needs to be bent. Remove damper and gently bend rod in the indicated direction. Several passes may be required to get it right. Visual centering is adequate as there is some lateral float in the damper piston. Just as a matter of interest. the new SU plastic capped dampers have a ball socket in the cap which allows the rod to be self aligning.

XII. VACUUM DROP TESTS -SU CARBS

SU carburetor suction chambers and pistons are furnished as matched assemblies from the factory. There is a controlled clearance and thus controlled air leakage between the piston and suction chamber bore. A convenient means of checking this is a vacuum drop test. The proper damper should be in place. Chamber and piston should be clean and dry .Check piston for any spots of drag or interference over full travel. Spray piston rod lightly with WD-40. Turn assembly upside down with piston against top of chamber. Plug holes in the bottom of piston with windshield caulking (commonly referred to as Dum-Dum). Measure the time for the chamber to slide down and fall off the piston. Specified times are as follows:

1 1/4″ and smaller carb = 3-5 seconds

1 1/2″ and 1 3/4″ carb = 5-7 seconds

2″ carb = 7-10 seconds

If vacuum drop time is too fast, carb will tend to run rich. If drop time is too slow carb will tend to run lean. If both carbs are too fast there is nothing you can do to correct. Chances are someone has sanded inside of chambers to clean them which is a no-no. If they are too slow you can polish the chambers or pistons or both. very lightly and recheck frequently for compliance. If one carburetor is fast and one is slow there is a good chance pistons have been interchanged. Try switching them. I recently had a pair of 1 1/2″ TF carbs where the front was 5 seconds and the rear was 8 In seconds. Switching pistons gave me 7 seconds on the front and 6 1/2 seconds on the rear -just lovely. It is ideal if both are alike and right in the middle of specification. It doesn't happen very often. Minor disparities from specified drop times can be accommodated by tuning adjustments. If I had a 1 1/2″ carb with a drop time of 4 seconds I wouldn't fret about it. If it was 1 second or 1/2 second (which I've seen) I'd hunt for some different pans. It should be noted that if you do interchange pistons. it will be necessary to re-center both jet assemblies. Ideally this type checking should be done at the time of a major rebuild.

XIII. SUCTION CHAMBERS & PISTONS – SU CARBS

Suction chambers and pistons are machined to close tolerances and furnished as selectively matched assemblies from the factory. It is essential for proper operation that the piston move freely in the chamber. The piston is center guided by the piston rod and there should be no contact between the large outer diameter of the piston and the chamber bore. With both parts thoroughly cleaned in carburetor cleaner and dried, it should be possible to spin the piston over its full length of travel without any drag or interference. Over many years service it is possible, with external dings on the chamber and burrs on the piston, for interference to occur. To remedy this I coat the large diameter of the piston with a thin film of rubbing compound and rotate the piston in its chamber. If the interference is minor, the compound will knock off the corresponding high spots on both components and the problem is corrected. If the interference is more severe, the rubbing compound will leave a black smear on the offending area in the chamber. This smear serves as an indicator of the spot that needs to be sanded out. I use a fine grit sanding drum on a Dremel tool as an effective means to remove a spot caused by an external ding. If the compound leaves a black smear uniformly around the complete circumference of the chamber bore, chances are the pistons have been interchanged or a piston (improperly sized) has replaced the original.

If black smears show up 180 degrees apart it is likely that the chamber is slightly egg shaped either from being dropped or being heat distorted while polishing. A few judicious raps with a rubber mallet near the open end of the chamber will often restore its roundness. After the piston free movement is restored, remove all traces of rubbing compound with choke cleaner on a paper towel.

XIV. PISTON SPRINGS -SU CARBS

A piston spring combined with the weight of the aluminum piston provides the necessary downward force to maintain essentially a constant pressure loss (depression) at the throat of the carburetor. The springs are initially color coded with paint for identification. The paint disappears with time. Common piston springs are as follows:

Code	Force in Oz.	@ Height
Blue	2 1/2	2 5/8”
Red	4 1/2	2 5/8”
Yellow	8	2 3/4”
Green	12	3”
Red & Green	11 1/4	3 7/8”

It is difficult to identify springs visually since ones with the same load rating may have different free lengths, different wire diameter, and different number of coils. The springs may also sag slightly with age and use. To identify and check for proper specification I have made cylindrical weights from aluminum bar stock corresponding to the above table. I put the spring in a glass tube with the correct weight on top of it and measure the compressed height. If the spring is too tall it must be replaced. If it is not over 1/2″ too short it usually can be stretched. Springs can be brought back exactly to spec and matched with each other. A squirt from a can of spray paint will serve for future identification.

XV. AFTER MARKET PARTS -SU CARBS

Unfortunately, the people assembling after market carb kits don’t always appreciate the significance of the original specifications, or in some cases just have poor quality control. Two items come to mind:

1. On the H series carbs the upper jet bearing copper washer is supposed to be 0.016″ thick. Many after market kits have this washer 0.025″ or even 0.033″ thick. This holds the complete jet assembly down farther away from the needle than intended and defeats about 1/2 turn of the mixture adjustment nut (ability to lean out).

2. Jet orifice sizes are 0.090″, 0.100″, and 0.125″ in diameter. I have made a set of pin gages to check these orifice diameters. The typical smaller gage is 0.089″ diameter on one end, is 2″ long, and tapers uniformly to 0.090″ on the big end, When the small end is inserted in the orifice the gage ideally should become snug about 1/2 way up its length. If it slides all the way through I don’t use the jet. An orifice 0.0005″ too large, and many are, may give you trouble in leaning out the mixture enough.

XVI. HD CARB SLOW RUN ADJUSTMENT

On the HD series carb the throttle plate is completely closed at idle with slow running being controlled by a needle valve by-passing the throttle plate. The choke lever actuates a fast idle cam which opens the throttle plate slightly during cold starts. The fast idle screw should have about 1/2 turn clearance from the throttle lever when the choke is in the off position. Do not set normal idle speed with this screw. Use the slow run needle valve.

XVII. GROSE-JETS FOR RACING

The virtues of Grose-Jet float valves were extolled in a previous article (#VIII.) The standard SU-301 Grose-Jet used for essentially all of the SU carbs, except the HIP series, has an orifice

of 0.084″ diameter. This is satisfactory for most normal use. For racing applications where full throttle accelerations or full throttle high speed runs are needed with the bigger carbs such as HD8's, an optional 0.099″ orifice is available. Specify SU-301-0.099″.

XVIII. AIR CLEANERS – SU CARBS

The inlet flange on SU carbs normally has 4 holes drilled in it. The two holes on the center-line are for mounting the air cleaner. Two holes slightly above the center-line are vent holes bringing atmospheric air to the underside of the piston. These vent holes must match with holes in the air cleaner shell or mounting plate. Since most of the pancake cleaners are symmetrical. they can be installed upside down thus blocking off the holes. Be Sure air cleaners are installed right side up with vent holes matching.

XIX. HS SERIES CARBS

The HS series carbs as used on BJ-7 Healeys and most Sprites, Midgets, MGB's have a small rectangular lug cast on the side of the body. This lug engages a slot in the float bowl rubber grommet to determine the tilt of the float bowl. Due to accident or rough handling sometimes the lug is broken off. It may be replaced with a 5/32″ diameter x 3/8″ long roll pin. Drill a 5/32″ hole x 3/16″ deep, drive in the roll pin and set in LocTite for good measure. It works adequately.

XX. PINCH BOLT ORIENTATION -SU CARBS

Throttle return spring clips, interconnecting throttle shaft 'W' couplings, and interconnecting shaft levers are all anchored to their respective shafts with a pinch bolt. The clips, couplings, and levers all have a recess to retain the pinch bolt head and prevent it from turning. Always install the bolt head in the recess with the nut and plain washer on the smooth side of the fitting. When orienting the fittings on their respective shafts always have the nut facing up so it is readily accessible to a nut driver for making synchronization adjustments on the carburetors.

XXI. FLOAT BOWL ORIENTATION – SU CARBS

On the H series carbs, float bowls are mounted to the carb body with a single mounting bolt. The float bowl will pivot around the mounting bolt Correct orientation of the float bowl is at right angles to the carb body. Fiber washers used with the shouldered mounting bolt will essentially lock the float bowl in place. Rubber grommets used with the later straight sided mounting bolts will allow the float bowl to inadvertently be moved. Don't let the bowl be swung too far towards the rear of the carb or it will foul the spring return clip on the throttle shaft. Carb kits frequently contain both fiber washers and rubber grommets to accommodate either type of mounting bolt. Don't intermix fiber washers and rubber grommets on the same bolt. You may not be able to compress the rubber sufficiently to get the fiber washer to seal.

XXII. TEFLON SLEEVE BUSHINGS

The HD-8 carbs fitted to the BJ-8 AH are equipped with teflon SLEEVE bushings. These minimize shaft wear and are easily replaceable. About 90% of the BJ-8 carbs I see have shaft wear less than 0.001″ and thus do not require new throttle shafts. Replacement of the teflon sleeves will restore a good fit. The sleeves are furnished flat and must be rolled, much like a cigarette paper, for installation. The sleeves are kept from walking on the shaft by split

0 retainer rings on each side of the sleeve. It is imperative that the person disassembling the throttle shaft assembly knows that the split retainer rings are there and must exercise diligence to assure that the rings do not fall out and become lost The split rings are not available anymore. Many of the replacement teflon sleeves are not precisely cut (they are too large) and thus the edges will overlap each other or the retainer rings causing binding. The proper dimensions in the flat state are 33/32″ on the long edge and 17/32″ at right angles to the long edge.. The sleeves may be trimmed with a straight edge and an X-Acto knife.

XXIII. SPRING ANCHOR ORIENTATION

The helical throttle return springs used on "H" series carbs and HD-6 series carbs are anchored to the body With a brass spider-like anchor having five fingers. The outer end of the spring is anchored to the shaft with a clip and pinch bolt. On the "H" series anchors the two long fingers must straddle the throttle stop lug on the carb body. On the HD-6 series anchor, which is slightly larger, the wide gap between the fingers goes over the wide lug and one long finger must bear against the thin lug.

XXIV. FORK END

Jet levers on the HD-6 carbs are connected through a threaded choke rod with a fork or clevis on each end. The rod length must be adjusted by screwing the fork ends in or out so that with the jet levers in the full off position the clevis pin will fit easily through the hole in the lever and fork end. The fork end is formed out of fairly thin metal so the threaded hole in the fork end has only about three threads. It is essential that the lock nut be tight against the fork end to prevent vibration from ruining the threads in the fork end and on the rod.

XXV. MAXIMUM SHUT-OFF PRESSURE

The original high pressure SU fuel pumps fitted to the AH only put up 2 1/2 PSI discharge pressure. Many after market pumps which are purchased because they are less expensive and readily available may put up 4, 7, or 10 PSI discharge pressure. At some point these higher pressures will overpower the float mechanism in the carburetor and cause flooding. If you have an after market pump and flooding problems, check the pump pressure with a 0-10 PSI fuel pressure gauge. It may be necessary to install a pressure regulator.

XXVI. SPRING MOUNTED JET NEEDLES

On ’69 and later HS series carbs (Sprites, MIDGETS, MGB’s) the jet needle was spring mounted eliminating the need to center the jet. Since emission requirements were becoming more stringent, the selection of alternate spring mounted needles for a specific engine was limited. These later carbs can be converted to fixed needles by installing a needle bush kit, SU #WZX-2003. It will be necessary to install the earlier jet bearing also which will permit centering the jet

XXVII. STRAIGHTENING JET NEEDLES

Sometimes jet needles will inadvertently get bent causing them to drag on the jet orifice subsequently wearing out both parts. Even with a new needle it is desirable to check for concentricity. Install the needle in the piston. Lay the suction chamber and piston assembly on its side. Rotate the piston in the chamber with a reflective backdrop behind the tip of the needle as a fixed reference point. I find the blue surface on a can of WD-40 works fine. A few thousandths run out is readily visible to the naked eye. Bend the needle gently in the desired direction with your fingers until there is minimal wobble or run out. Since the needle is much smaller at the tip, a very slight run out at the tip will not present a problem.

XXVIII. SU CARD FLOATS

The “H” and HD series and the very early HS-tri-carb series had brass floats. The later HS series carbs had plastic floats, some with metal hinged levers and more recently molded plastic hinges. If flooding occurs or during routine rebuilding it is a good plan to inspect the floats. Shake the float and if you hear liquid sloshing you know you have leakage into the float decreasing it buoyancy. Replacement is the best answer. Brass floats should also be buffed with a fine wire brush and the curved section inspected for hair-line stress cracks which are a potential leak source. The hinge points on the plastic should be inspected for wear. They may be worn through or paper thin with failure imminent.

XXIX. HD SERIES FAST IDLE RODS

The HD series carbs have a vertical fast idle rod that is activated by a cam and cam shoe on the choke mechanism. The fast idle rod is moved downward opening the throttle slightly during starting and warm up periods when the choke is pulled out. This fast idle rod will often be stuck due to lack of lubrication and subsequent corrosion of the brass rod. When the rod is stuck it becomes impossible to move the choke mechanism. To free up this rod, first remove the arm from the upper end of the rod but replace the fixing screw. Buff or polish the exposed surface of the rod with a fine rotary wire brush or emery paper. Spray the exposed rod with WD-40 and gently tap the ends of the rod, working first one direction and then the other. Continue to polish freshly exposed rod areas working the rod back and forth until loose enough to be pulled out Buffing the full length of the rod after removal and spraying with WD-40 will restore its free movement. Periodic spraying of the upper rod with WD-40 will prevent its sticking again. Freeing up a tightly stuck rod is probably best done with the carburetor removed from the car .

XXX. SHAFT SEALS

The HD-6 carburetors were equipped with a cork shaft seal backed up by a beveled gland washer, a spring, and a retainer cup. Current SU kits replace the cork seal with a kind of wimpy rubber

seal, part #AUD-3S77 developed for the HIF carburetor. Other seal components remain the same. Another alternative is a seal used in Rolls Royce carburetors, pan #AUC-2037. This is a substantial rubber seal resembling a master cylinder seal. With this seal the beveled washer, spring, and retainer cup are not required.

XXXI. BRASS JET LEVERS

The "H" series carbs use brass jet levers as a means to move the jet when the choke is pulled. The main pivot hole in these brass levers is 5/16″ in diameter with a 3/16″ clevis pin as a pivot. The ensuing lost motion allows the fast idle cam to be actuated before enrichment occurs. I see many times where owners have tried to bush this large hole thinking it too sloppy. They didn't realize it was made this way for a definite purpose.

XXXII. CHOKE ACTUATION

The manual choke on most SU carbs consists of a cable pulling a choke lever against the resistance of a jet return spring and moving a fast idle rod against the resistance of a throttle return spring. Friction in the cable, friction in the choke and fast idle mechanism, and resistance of the two springs makes pulling the choke cable a formidable task. One of my MG customers pointed out to me that if you opened the throttle with your foot before pulling the choke you eliminated the resistance of the throttle return springs making the task much easier.

XXXIII. FLOAT LEVEL SETTINGS

An illustration the AH shop manual shows setting the float level with a 5/16″ bar under the curved portion of the float lever. This setting is appropriate only for the early HS-4 tri-carb series with brass floats. All "H" and HD series use a 7/16″ diameter test bar. The HS series carbs with plastic floats specify 1/8″ to 3/16″ between the float and the lid in the inverted position.

XXXIV. BRASS DAMPERS

Reproduction brass dampers are available from Joe Curto, phone (718) 465-4829. Specify whether vented or non-vented are required. On original installations sometimes wear occurs between the threads on the damper and the chamber neck making it impossible to tighten up the damper. The reproduction dampers seem to have a better cut thread and a slightly longer threaded portion. Often, use of the new damper with a slightly thinner gasket (0.030″) will allow adequate tightening.

XXXV. HD-8 JET NEEDLES

The HD-8 series carbs use a 0.125″ jet and needle. Consequently there is no shoulder on the needle shank to serve as a reference point for fixing the needle in the piston. Genuine SU needles have a narrow groove cut to serve as a reference point. Some after market needles have no reference mark at all. Before installing, take a knife edge and scribe a reference mark 7/16″ down from the top end of the needle. Install the needle with the reference mark flush with the bottom of the piston.

XXXVI. FAULTY HD JET ASSEMBLIES

Recently there have been some flawed after market diaphragm jet assemblies in circulation. The jet tube has not been pressed through the spring retainer cup far enough. The effective length of the jet tube is thus too short and may still be 1/8″ or so below the bridge in the uppermost position. The exposed length of the jet should be the same as that of the jet bearing. Fortunately the problem can be corrected by tapping or pressing the jet tube on through the cup until it is the correct length.

XXXVII. BJ-8 CARBURETOR PISTON SPRINGS

A previous article dealt with a means of checking the carburetor piston springs for proper height at specified load. For the BJ-8 HD-8 carbs the red/green code piston springs should be 3-7/8″ high with an imposed load of 11 1/4 ounces. I find these springs have almost always sagged. often to 2-1/2″ high at specified load. They can be stretched back to proper specifications with a previously described spring tester. A lighter spring pressure will tend to make the carbs run lean.

XXXVIII. POLISHING CARBURETOR SUCTION CHAMBERS

Polishing SU suction chambers to a mirror finish seems to be a popular activity with British car owners. There are two hazards to beware of. Some metal polishers get in a hurry and buff too long and too hard in one spot causing localized heating and warping of the chamber. The other hazard is losing your grip on the chamber and seeing it become air-borne landing on the concrete floor halfway across the shop. This also warps the chamber. Often the original concentricity of the chamber may be restored with a rubber mallet bumping technique previously described.

XXXIX. VENTING OF THE 100-4 AND 100-M CARBS

The float lids of the 100-4 carbs had horizontal notches cut in the lid neck for venting and did not use an overflow banjo and pipe. The 100-M float lids had only the vertical slots for venting and did use an overflow banjo and pipe. It is essential on the 100-M that the aluminum washer and strap brace for the float bowl go above the overflow banjo. The red fiber washer with the three internal tabs only should go under the banjo. This permits proper venting into the annular area between the lid nut and the banjo lower face.

XL. THROTTLE LEVER PINS

The standard taper pins for pinning throttle levers to new throttle shafts requires drilling a 0.120″ hole (#31 drill). Sometimes the holes in the levers get a little sloppy and allow the lever to rock slightly on the shaft. An 1/8″ roll pin fits tighter than an 1/8″ taper pin and often will tighten up a loose lever. Use an 1/8″ diameter x 1/2″ long roll pin

XLI. BANJO AND BANJO BOLT THREADS

The float lid banjo bolt thread on H & HD Series carbs is a 3/8″-19 British straight pipe thread. Sealing of the banjo faces is accomplished with fiber washers. The male threaded connection on some SU carburetor and fuel pump banjos is a 1/4″-19 British straight pipe thread. Sealing is on a tapered seat with a union back-up nut. It was never intended for sealing to be done by the threads. American Standard tapered pipe threads are essentially the same diameter as the British threads but have 18 threads per inch. I often see where owners have tried to screw on American Standard pipe thread adapters and use teflon tape as a sealant. The thread mismatch will distort the original threads and careless installation of the teflon tape can cause strands of tape to be sheared off the thread ends and lodge somewhere in the fuel system Use the correct fitting for the job. Use teflon paste or Permatex anti-seize compound #133-K if a thread lubricant is desired.