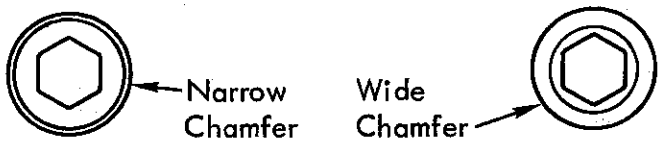
BULLETIN K151 A
MODELS AFFECTED: All
SUBJECT: Torque Values for Rolled-Thread Cap Screws

This Service Bulletin replaces K-151 which should be destroyed.

Rolled-thread connecting rod cap screws (P/N 60210A, 60211A and 47819A) are furnished on current production engines and are available for service. The process of thread rolling after heat treatment greatly increases fatigue resistance of the cap screws. The thread-rolled after heat treat screws can be told from the glass-peened or standard cap screws as shown in the illustration.



GLASS-PEENED AND STANDARD CAP SCREWS

ROLLED THREAD AFTER HEAT TREAT CAP SCREWS

When installing the new screws, first oil the threads and then tighten the screws to a torque of 105-110 inch-pounds (1.22-1.28 mkg).

Because of the greater compression ratios and higher speeds at which the modern two-cycle engine operates, it is desirable to use new screws each time the connecting rod is reassembled rather than attempt to re-use the old screws. Once a screw has been torqued to the above values, a certain amount of stretch will occur. If the same screw is re-used, it will be stretched further yet. Naturally this additional stretch may prove to be detrimental to the future service life of the screw. The use of new screws each time the connecting rod is reassembled, postpones, if not prevents, breakage and subsequent damage to the engine.

McCULLOCH CORPORATION

BULLETIN K152
MODELS AFFECTED: All
SUBJECT: Loose Coils and Coil Retainers

Rigid kart engine mounts, rough tracks, and continuous high speeds can cause vibrations severe enough to shake the coil loose or break the retainers. If the coil drops down on the flywheel, extensive engine damage can result.

Most of such damage can be avoided by keeping the coil lamination mounting screws very tight. It will also be helpful to apply a sealant to the coil retainers, to assure a firmer grip on the lamination leg. To apply the sealant, the retainers must be removed from the coil.

Smear a small amount of RTV 732 Sealant on each of the four corners of the lamination center leg, covering about 1/2 inch of the open end of the leg. Allow the sealant to dry approximately one minute, then reassemble the coil, lamination, and retainers.

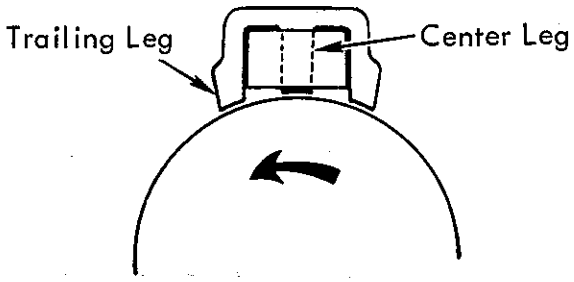
RTV 732 Sealant is sold in a two-ounce tube under P/N 110083.

ADJUSTING THE LAMINATION-TO-FLYWHEEL GAP

It has been standard practice for many years to adjust the lamination-to-flywheel gap by inserting 0.010-inch (0.254 mm) feeler gauges between the flywheel and the two outer legs of the coil lamination assembly. This may not be the best method in all cases however, because variations in the stampings which make up the lamination assembly can result in the center leg being slightly longer than the two outer legs. In such cases the center leg could be too close to the flywheel and cause interference even though the two outer legs were properly spaced.

To avoid any possibility of future trouble from this source, it is now recommended that the gap between the lamination and the flywheel be adjusted as described on Page 2.

"Adjust the gap by turning the flywheel until the magnets are directly under the coil. Insert one 0.010-inch (0.254 mm) feeler gauge between the flywheel and the center leg of the lamination, and one between the flywheel and the trailing leg. Loosen the lamination mounting screws so the magnet can pull the lamination onto the feeler gauges. Tighten the mounting screws, remove the feeler gauges and turn the flywheel several times to make sure that no part of the wheel touches the lamination legs."



McCULLOCH CORPORATION

BULLETIN K153A
MODELS AFFECTED: All
SUBJECT: Revision of Torque Values

This service bulletin supercedes Service Bulletin K-153 which should be destroyed.

The Table of Torque Values for Cylinder Head Screws contained in the McCulloch Kart Engine Manuals, P/N 47838A and 48661B, should be revised as follows:

WAS:

INCH-POUNDS	FOOT-POUNDS	mk/g
55 to 60	4-1/2 to 5	0.64 to 0.69

IS:

INCH-POUNDS	FOOT-POUNDS	mk/g
65 to 75	5-1/2 to 6-1/4	0.75 to 0.87

Prior to installation lightly coat the Cylinder Head Screws with SAE 10 oil. This revision of the Table of Torque Values is incorporated to prevent the possibility of leaking head gaskets.

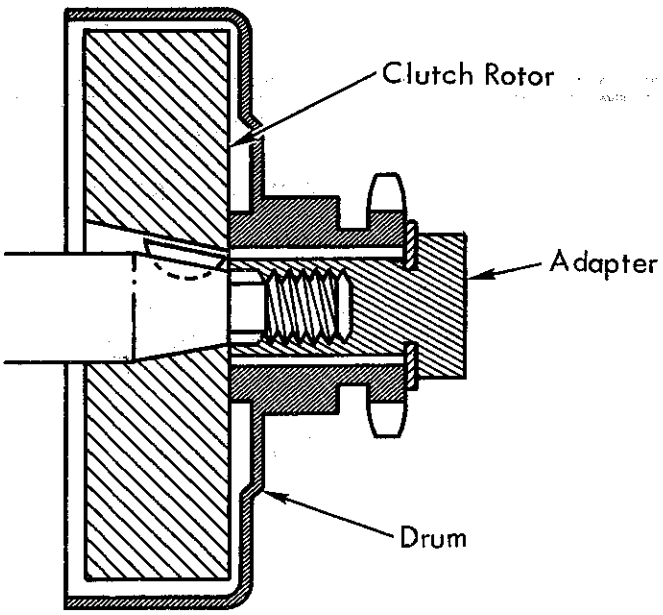
McCULLOCH CORPORATION

BULLETIN K154
MODELS AFFECTED: All
SUBJECT: Fractures of Crankshaft-Sprocket Ends

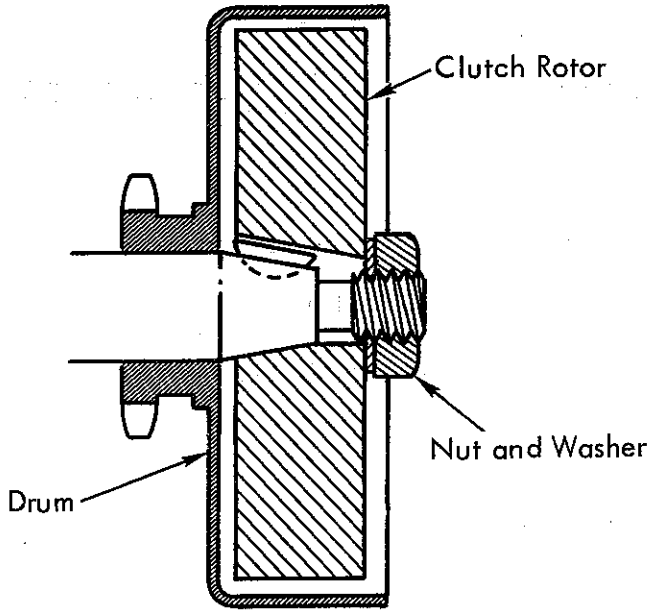
"Outboard-type" clutches (see illustration) should not be used with McCulloch kart engines. Recent investigations of reports which indicated breakage of the threaded portion of crankshafts, revealed that "outboard-type" clutches had been used.

"Outboard-type" clutches, due to their weight, put an excessive load onto the crankshaft.

We recommend that only McCulloch or McCulloch-type clutches be used and that the retaining nuts be torqued to our specification.



OUTBOARD-TYPE CLUTCH



McCULLOCH OR McCULLOCH-TYPE CLUTCH

McCULLOCH CORPORATION

BULLETIN K155
MODELS AFFECTED: All
SUBJECT: Breaker Points - Timing

It has been determined by careful study that breaker point adjustment can be upset when the breaker box cover screws are installed. Gasket compression and possibly metal distortion can occur when the screws are tightened down on the cover retaining clips. The effect on breaker point setting can be as much as a 2 degree advance in timing.

This problem may be solved by a slight change in the procedure for adjusting the breaker points. Parts involved in the procedure are the breaker box cover and crankcase cover retaining screws. Adjust breaker points as follows:

1. Remove the screw and cover retainer.
2. Remove the breaker box cover.
3. Loosen the five remaining crankcase cover screws but do not remove.
4. Install the screw removed in step 1.
5. Tighten all six screws equally to the correct torque value of 60 to 65 inch-pounds (0.069 to 0.075 mkg).
6. Adjust breaker points to the proper setting.
7. Remove the screw installed in step 4, reinstall the breaker box cover and cover retainer.
8. Reinstall the retainer screw and tighten to the correct torque value (same as in step 5 above).

Follow the same procedure when adjusting breaker points on saws which have the breaker box cover secured by two clips and four retaining screws. In all cases, breaker points should be adjusted for a condition in which all crankcase cover screws are tightened equally to the correct torque value.

McCULLOCH CORPORATION

K-159

MODEL: MC91 and MC101 Kart Engines

SUBJECT: Pressure Pulse Carburetor Adjustments

Recent reports about performance characteristics of the pressure pulse carburetor indicate that the carburetor adjustment procedures are not being correctly followed.

The incorrect adjustment that is being made is to run the idle too rich. This, no doubt, is a carry over from adjusting the standard McCulloch kart carburetor, which has a venturi and is run rich at idle to provide good acceleration.

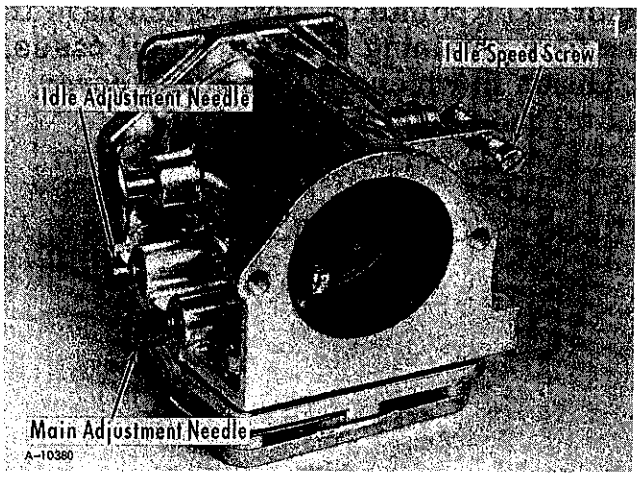
The pressure pulse carburetor does not have to be run overly rich at idle because in this type carburetor acceleration is controlled by the main fuel adjustment needle.

If the pressure pulse carburetor is run too rich at idle, the main fuel adjustment is then used to compensate for the richness. The possible result is that the engine will run lean at high RPM's.

The following instructions should be followed when adjusting the pressure pulse carburetor:

Preliminary Adjustment

1. Close the main and idle fuel adjustment needles (turn clockwise) until they just seat (Figure 1).



CAUTION: Do not jam needles into their seats beyond the point of resistance. This will damage the needles and the carburetor body beyond repair.

2. Open (turn counterclockwise) the main and idle fuel adjustment needles 3/4 to 1 turn.

3. Start the engine and warm it up to operating temperature.

4. Adjust the idle speed regulating screw until the engine runs smoothly at lowest speed with the throttle off (Figure 1).

Final Adjustment

1. Put the kart on the track and warm it up thoroughly.

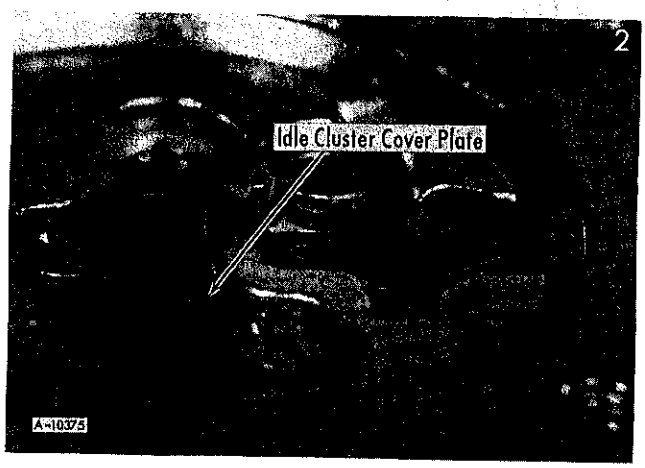
2. Adjust the idle fuel adjustment needle to obtain a smooth idle. The idle speed regulating screw may have to be re-adjusted slightly at this point.

NOTE: Do not adjust the idle fuel needle on the track.

3. Test acceleration coming out of tight turns on the track. If the engine runs rough and smokes heavily on acceleration, close the main fuel needle (turn clockwise) until it smooths out. If the engine falters and mis-fires on acceleration, open the main fuel needle (turn counterclockwise) until the engine accelerates smoothly and without hesitation. Make adjustments or changes in the needle setting in stops of about 1/16 turn at a time.

   Adjusting the carburetor for best acceleration will also provide the best high speed operation, under most conditions. If a compromise must be made between maximum RPM's and acceleration, always favor a richer main fuel adjustment for maximum RPM's.

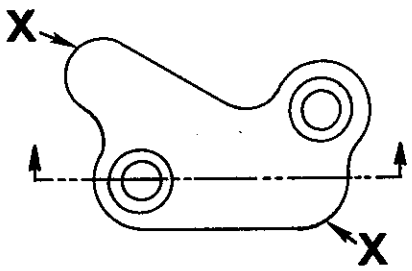
CAUTION: Always adjust the main fuel needle under load conditions to avoid carburetor settings that will run the engine too lean. If the setting is too lean, over heating and lack of lubrication will seriously damage the engine in a very short time.

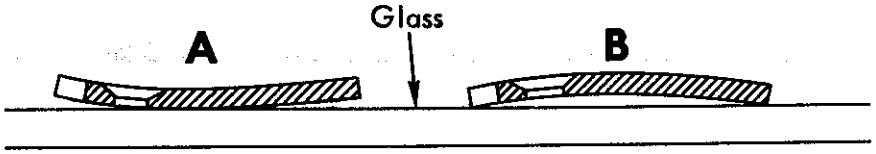


IDLE CLUSTER COVER PLATE

Another possible cause of incorrect carburetor adjustment is fuel leaking under the cover for the idle fuel cluster (identified as "cover - capillary" in the Illustrated Parts List) at high speed. If there is a leak, unmetered fuel flows, under pressure, from the two idle pick off holes in the barrel of the carburtor and again the main adjustment needle is used to compensate for a rich condition (Figure 2).

The cover may be checked by removing it from the carburetor body and checking it on a surface plate. If the cover is bent as shown at "A", it should be sanded flat on a surface plate. If the cover is bent as shown at "B", it is all right.





INLET NEEDLES

The inlet needle used in the stock pressure pulse carburetor has a viton tip which will swell and restrict fuel flow, if certain additives are used in the mix such as acetone and ketone.

The inlet needle used in the high capacity needle and valve kit, P/N 66409, is also viton tipped and will also swell which will restrict fuel flow. This kit was developed to adapt the pressure pulse carburetor to larger engines rather than to specifically allow the use of exotic fuels when running out of the stock class. Alcohol alone will not affect the viton tip.

McCULLOCH CORPORATION

By Jack Carroll
Service Manager

MODEL: MC 101

SUBJECT: Performance with Retarded Timing & Reed Valve Life

Recent tests have shown that the MC 101 stock engine will operate with improved performance if the engine is timed to fire at 22° BTC. This timing is retarded 3° from recommended timing in the Owner's Manual and is the result of a change in the design of the combustion chamber.

Reed valve life can be increased if the reed tips are installed with minimum over-lap at the tips. This can be accomplished easily by pushing the reeds up from the bottom of the valve body while the retaining screws are being tightened.

McCULLOCH CORPORATION

By Jack Carroll
Service Manager

K-161

MODEL: MC 91

SUBJECT: Torque-Connecting Rod Screws

The torque value for connecting rod screws in the MC 91 kart engine, as shown in the Owner's Manual, P/N 65946, is incorrect. Torque values for these screws are listed on page 32 of the manual as follows:

MC 91 - 65 to 70 inch/pounds 0.75 to 0.81 mk/g

Please correct these listings to read - 105 to 110 inch/pounds, 1.18 to 1.23 mk/g.

McCULLOCH CORPORATION

By Jack Carroll
Service Manager

MODEL: MC 91, MC 101

SUBJECT: PRESSURE PULSE CARBURETOR

MC 91 and MC 101 kart engines are equipped with an all new and radically different design in carburetors - The McCulloch Pressure Pulse Carburetor.

Because it is new and of such importance to operators of McCulloch kart engines, we have prepared a fully illustrated, twelve page booklet covering the pressure pulse carburetor theory, operation, servicing, testing and trouble shooting. This booklet, ST-136, a copy of which is enclosed, is available on order at a net price of fifty cents.

McCULLOCH CORPORATION

By Jack Carroll
Service Manager