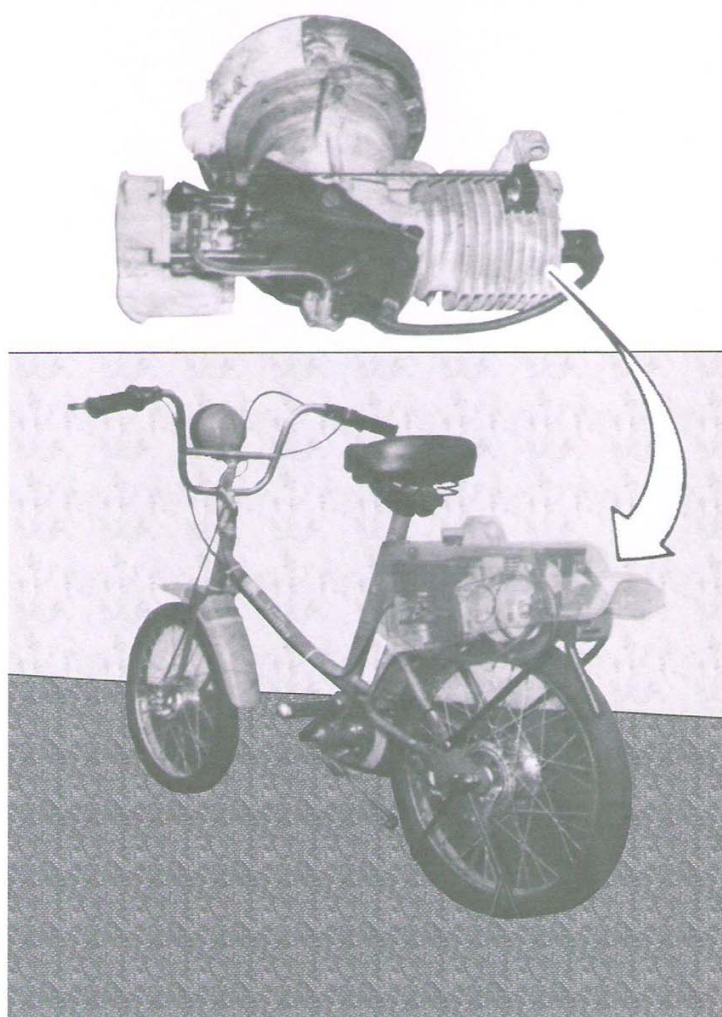


McCULLOCH BHE 900 MOPED ENGINE

OWNER'S MANUAL



(This Owner's Manual covers maintenance and adjustment of the McCulloch engine. Refer to your AMF Moped Owner's Manual for all information which is not covered in this manual.)

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501227-R5

ILLUSTRATED PARTS LIST

BHE 900 MOPED ENGINE

BHE 900 Moped Engines are identified by a model number (400612) followed by a suffix letter (B,C,D,E) stamped on the identification plate attached to the engine. Suffix letters denote variations in parts or assemblies in the manufacture of the engine.

Part numbers which have one or more dots (.) preceding their description may be ordered individually but they are also included in the kit or assembly whose description begins directly above the dot(s).

The policy of McCulloch Corporation is one of continual improvement in design, manufacturing and engineering advancement wherever possible to assure still finer two-cycle power units. Hence, specifications, equipment, colors, design and manufacturer's suggested list prices are subject to change without notice and McCulloch Corporation reserves the right to make such changes without prior notification or obligation to backfit or supply backfit components for units previously shipped from the factory.

MODEL NUMBERS

11400612B
11400612C
11400612D
11400612E

December 1978

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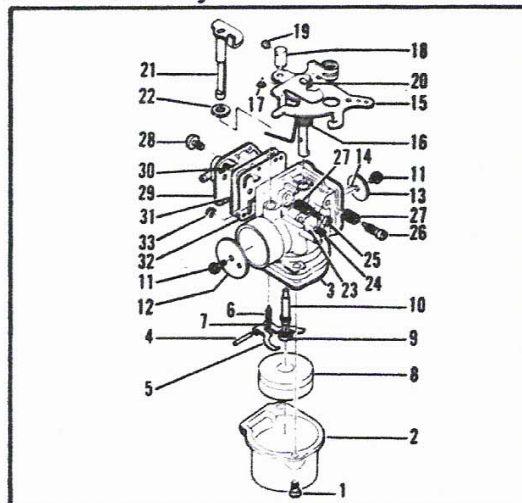
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501229-R4

Figure 1. Carburetor Assembly

ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASY.
1	501235	① Carburetor Asy (Zama)	1
2	501319	. Screw	2
3*	501317	. Bowl	1
4*	501318	. Gasket - Bowl	1
5*	93942	. Pin - Lever	1
6*	501314	. Arm - Float	1
7*	91810	. Valve - Needle	1
8*	501313	. Spring - Valve	1
9*	501316	. Float	1
(9)	501320	. Jet - Main	1
(9)	501344	② . Jet - Main	Alt.
(9)	501343	③ . Jet - Main	Alt.
(9)	501358	④ . Jet - Main	Alt.
10	501321	. Nozzle - Main	1
11	91804	. Screw - Plate	2
12	501329	. Valve - Choke	1
13	501327	. Valve - Throttle	1
14	501306	. Ball - Plug	1
15	501325	. Shaft Asy - Throttle	1
16	501326	. Spring - Throttle return	1
17*	91805	. "E" Ring	1
18	501330	. Post	1
19*	501332	. Screw	1
20	501333	. Washer	1
21	501328	. Shaft Asy - Choke	1
22	501324	. Cover - Dust	1
23*	501305	. Plug - Welch	1
24*	501322	. Jet - Slow	1
25	501331	. Screw - Idle adjust	1
26*	501323	. Screw - Idle mixture	1
27*	91819	. Spring - Needle	2
28	501311	. Screw	1
29	501309	. Cover Asy - Pump	1
30*	501310	⑤ . Spring - Pump cover	1
31*	501308	⑤ . Gasket - Pump	1
32*	501307	⑤ . Diaphragm - Pump	1
33*	501304	⑤ . Strainer - Main	1



① Used on engines with Model Number suffix letter D&E.

② Recommended for use at 2,000 to 4,000 ft. alt.

③ Recommended for use at 4,000 to 6,000 ft. alt.

④ Recommended for use above 6,000 ft. altitude.

⑤ Contained in Pump Repair Kit, P/N 501315.

*Contained in Repair Kit, P/N 501312.

BHE 900

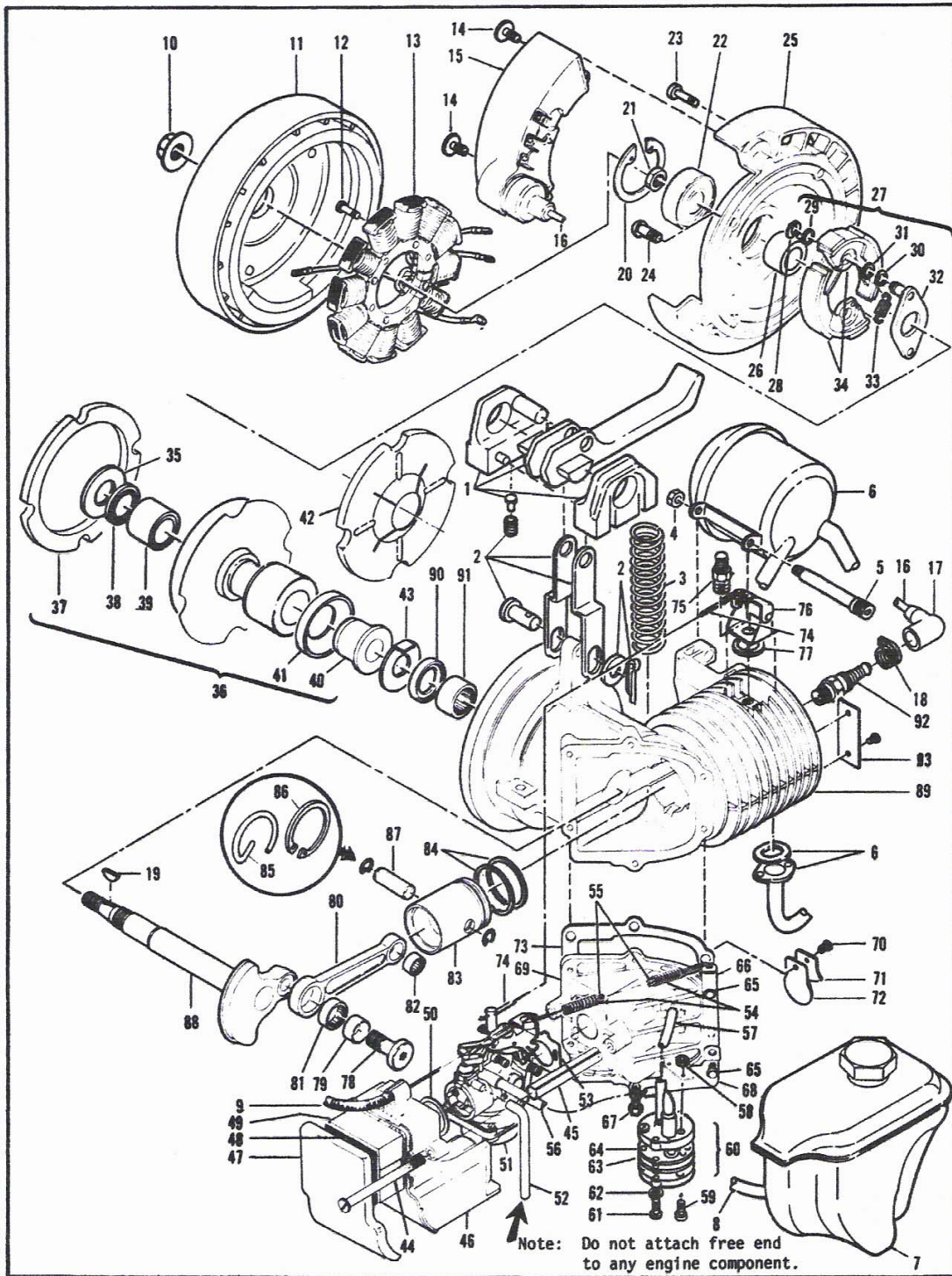


FIGURE 2. BHE 900 ENGINE ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASY.	ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASY.
1*		Lever Asy-Lift		49	501022	Filter-Air	1
2*		Pin/Bracket Asy-Lift		50	501133	Gasket-Air inlet	1
3*		Spring-Engine	1	51		Carburetor Asy(Figs. 1,3,4)	1
4*		Nut-Engine attaching	1	52	501205	Hose-Vent	1
5*		Bolt-Engine attaching	1	53	501107B	Gasket-Carburetor	1
6*		Muffler and Muffler gasket	1	54	501352	Spring-Throttle	1
7*		Tank Asy-Fuel	1	55	501350	Damper-Throttle spring	1
8*		Hose-Fuel	1	56	501205	② Hose-Vent	1
9*		Cable Asy-Throttle	1	57	501206	③ Pulse Hose-Fuel pump	1
10	501359	Nut-Hx Flg M10 x 1.5	1	58	120079	③ Nut-Hx M3 x 0.5	2
11	501060	Flywheel/Fan Asy	1	59	120078	③ Screw-Pn M3 x 0.5 x 1	2
12	120022	Screw-Hx M5 x .80 x 18	4	60	501398	③ Pump Asy-Fuel	1
13	501081A	Stator Asy	1	61	501277	③ . Screw	3
14	120083	Screw-Hx M5 x 0.8-10 (SEMS)	2	62	501276	③ . Washer-Spring	3
15	501087	Module Asy-Ignition	1	63	501278	③ . Packing-Pump	1
16	501088	. Wire Asy-Spark plug	1	64	501279	③ . Diaphragm-Pump	1
17	85758	. . Boot-Spark plug	1	65	120065	Screw-Hx M5 x .8-16	2
18	102556	. . Connector-Spark plug	1	66	501134	Bracket-Throttle spring	1
19	100106	Key-Woodruff	1	67	120058	Screw-Hx M5 x .8-18	4
20	103794	① Ring-Retaining	1	68	501204	② Bracket-Fuel pump	1
21	501047	Nut-Crankshaft	1	69	501252	③ Cover Asy-C'case	1
22	120047	Bearing-Ball seal	1	70	111006	③ . Screw-Pn hd 6-19 x .4	1
23	120063	Screw-Hx hd W M5 x .8-14	3	71	501069	③ . Stop-Reed	1
24	120080	Screw-Oval M5 x 14	1	72	501016	③ . Valve-Reed	1
25	501146A	Support-Bearing	1	69	501242	④ Cover Asy-C'case	1
26	501049	Spacer-Clutch	1	70	111006	④ . Screw-Pn hd 6-19 x .4	1
27	501141	Clutch Asy	1	71	501069	④ . Stop-Reed	1
28	501048	. Ring-Retaining	2	72	501016	④ . Valve-Reed	1
29	120077	. Washer-Special	2	73	501012	Gasket-C'case	1
30	120072	. Washer-Wavey	2	74	501137	Rod-DSP	1
31	120071	. Washer-Phenolic	2	75	501151	Valve-DSP	1
32	501006	. Rotor-Clutch	1	76	501129	Actuator Asy-DSP	1
33	501212	. Spring-Clutch	2	77	501220	Gasket-DSP	1
34	501190	. Kit-Clutch shoe	1	78	501066	Screw-Crankpin	1
35	501245	Washer-Thrust	1	79	501068	Crankpin	1
36	501367	Kit-Drive/Roller & Drum	1	80	501248	Rod and Bearing Asy	1
37	501363	. Gasket-Clutch shield	1	81	111000	. Bearing-Needle	1
38	62060	. Seal-Oil	1	82	110984	. Bearing-Needle	1
39	501244	. Bushing	1	83	501249	Piston Asy	1
40	501221	. Bushing	1	84	501250	. Set-Piston ring	1
41	501057	. Cup-Slinger	1	85	92023	① . Ring-Retaining	2
42	501196A	② Shield-Clutch	1	86	111026	② . Ring-Snap	2
43	501055A	Washer-Thrust	1	87	92836	Pin-Piston	1
44	120061	Screw-Hx M4 x .7-53	2	88	501000	Crankshaft	1
45	501239	Spacer-Carburetor	2	89	501013	Block Asy-Engine	1
46	501251	Silencer Asy	1	90	111003	. Seal-Oil	1
47	501025	. Cover-Silencer	1	91	111001	. Bearing-Needle	1
48	501340	Screen-Air filter	1	92	63097	Spark Plug	1
				93		⑥ Tag-Identification	

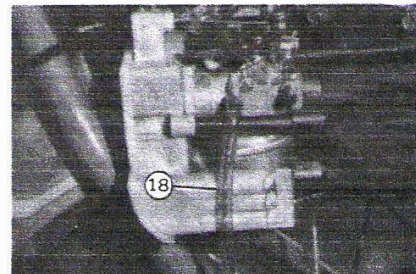
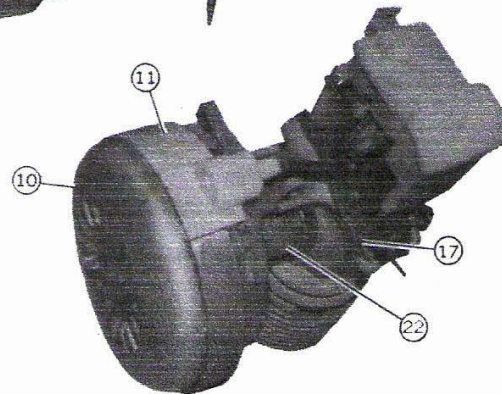
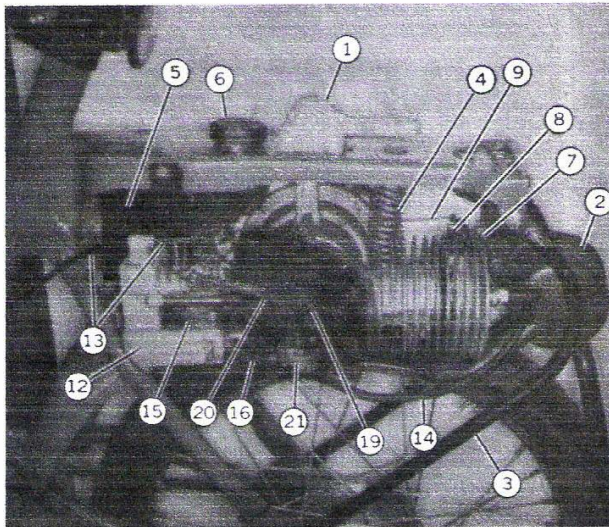
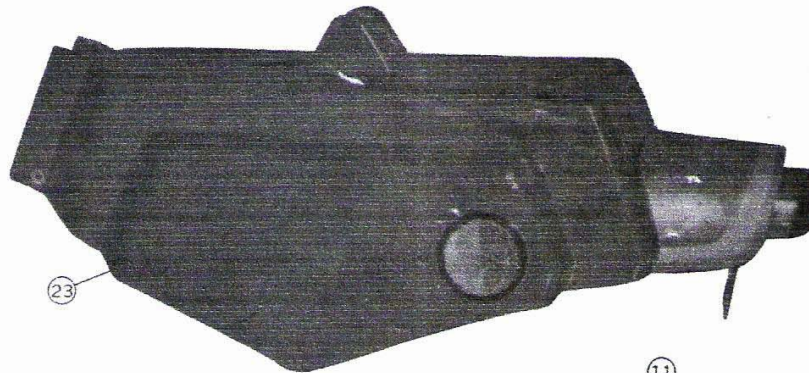
*Refer to AMF Moped Owner's Manual for this part number.

- ① Used on some early models.
- ② This white, plastic clutch shield can be used for service replacement only on Drive/Roller assemblies that were originally equipped with them.
- ③ Used on models with engine model number suffix letters B and C.
- ④ Used on models with engine model number suffix letters D and E.
- ⑤ One of two types of piston pin retainers used. Replacement retainers must be the same type originally used with the piston. Identify the retainer before ordering parts.
- ⑥ Make a record of the model and serial numbers for identification in case the engine is lost or stolen and keep the record in a safe place.

ACCESSORIES

PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
501228	Shop Manual	501334	Ignition Tester
501222	Piston Stop	501335	Alternator Tester
501337	Bicycle Stand	501336	Pressure Test Kit
501174	Torx Driver T-45	501173	Seal Protector Tool

IDENTIFICATION



1. Lift Lever
2. Muffler
3. Support Brace
4. Engine Spring
5. Fuel Tank
6. Fuel Tank Cap
7. Engine Mounting Bosses
8. Compression Release (DSP) Valve
9. DSP Valve Rod
10. Flywheel
11. Electronic Ignition Assembly

12. Air Filter Box
13. Throttle Cable
14. Spark Plug Wire
15. Carburetor
16. Fuel Hose
- 17.*Carburetor Vent Line (Keihin, T.K.)
- 18.*Carburetor Vent Line (Zama)
19. Fuel Pump Pulse Line (Keihin, T.K.)
20. Fuel Pump Fuel Hose (Keihin, T.K.)
21. Fuel Pump Assembly (Keihin, T.K.)
22. Drive Roller
23. Engine Cover

NOTE: All screws used in your McCulloch engine are of metric dimension.

NOTE: Throughout this manual, a number circled in black indicates the illustration which corresponds to the text where the number appears.

*Attaches to carburetor vent opening only; do not attach free end to any engine component.

OWNER'S NOTE

The McCulloch engine that powers your AMF Moped is one of the finest two-cycle engines produced in the world today. The McCulloch engine should provide you with outstanding performance if properly used and maintained. The AMF Moped (including the McCulloch engine) has been designed and manufactured for on-road use only. Running your Moped off-road is considered abuse and any damage that results to the engine from off-road use is not covered by the engine warranty.

An extensive network of McCulloch Authorized Service Centers, Moped Engine (M.A.S.C.M.E.) has been established to assist you in servicing this engine. The participating M.A.S.C.M.E. will display a Moped engine service sign. Contact the store where you purchased your Moped for information concerning M.A.S.C.M.E.'s.

SAFETY INSTRUCTIONS

These safety instructions are related to maintenance and adjustments of your Moped engine only.

READ YOUR OWNER'S MANUAL(S) and any supplements that may be enclosed **BEFORE PERFORMING ANY ENGINE MAINTENANCE ADJUSTMENTS.**

Keep engine free of dirt and/or an accumulation of fuel residue.

Do not start engine in a poorly ventilated area where gas fumes may have accumulated.

Exhaust fumes are dangerous; therefore, do not run engine in confined or poorly ventilated areas.

KEEP THE MOPED IN AN UPRIGHT POSITION while performing maintenance or adjustments; there may be fuel leakage out of the carburetor if unit is leaning over to one side or the other.

Following normal fueling procedures as outlined in the Moped Operating Manual, **BE CERTAIN FUEL TANK CONTAINS SUFFICIENT FUEL** so it is not necessary to refuel after engine cover is removed, and during maintenance or adjustment procedures. **NEVER REFUEL A HOT ENGINE with the ENGINE COVER REMOVED.**

KEEP ALL SCREWS AND FASTENERS TIGHT. Never operate the engine if it is damaged, improperly adjusted or is not completely and securely assembled.

DO NOT ATTEMPT TO REMOVE OR INSTALL ENGINE COVER WHILE ENGINE IS RUNNING.

WHEN PERFORMING MAINTENANCE OR ADJUSTMENTS WHILE THE ENGINE IS RUNNING WITH THE ENGINE COVER REMOVED:

- Avoid any contact with 1) a hot muffler, 2) a hot cylinder, 3) the spark plug wire. Wear eye protection. Work in an open area. Never lean the Moped against any object. Be certain the muffler is properly installed.
- Keep all parts of your body (hands, legs, hair, etc.) away from the flywheel area. Do not allow any other persons (especially children) or animals close to a running engine.
- Do not wear loose-fitting clothing (scarves, long coats, loose shirts, etc.) while servicing a running engine.

FUEL AND LUBRICATION

FUEL

Use only regular grade leaded gasoline. Do not use highly leaded (premium), unleaded, or low lead gasolines. Your engine fuel will be a mixture of gasoline and lubricating oil. **THE CORRECT RATIO OF GASOLINE TO OIL IS VERY IMPORTANT.** Too little oil in the fuel mix could result in severe engine damage. Too much oil in the fuel mix could result in poor engine performance.

NOTE: Boating Industry Association (BIA) Certified for Service TC-W Two-Cycle oils (such as McCulloch 40 to 1 Custom Lubricant or Mobil Two-Cycle oil) must be used in this engine, and that this oil be mixed at 40 to 1 (gasoline to oil) ratio.

Non BIA certified oil may be used in an emergency, but must be mixed at a 16 to 1 (gasoline to oil) ratio. At the 16 to 1 ratio, spark plug fouling could occur.

CAUTION: NEVER RUN THE ENGINE USING ONLY GASOLINE FOR FUEL. DO NOT use fuel additives of any kind; **DO NOT** use oils other than recommended in this manual.

Follow the ratios in the Fuel Mixture Table. McCulloch 40 to 1 Two-Cycle Custom Lubricant is recommended.

NOTE: Do not mix fuel in your fuel tank. Fuel should be mixed in a separate container before being poured into the fuel tank. Always use clean fresh fuel. Fuel should not be used if it has been stored for over 30 days.

MIXING FUEL

Thoroughly mixed fuel will make your engine run better and last longer. Mix fuel in a clean, enclosed container equipped with a flexible spout and strainer. Pour half of the gasoline and all of the oil into the container. Shake the container vigorously! Add the rest of the gasoline and shake the container vigorously again.

FUEL MIXTURE TABLE

Gasoline	McCulloch 40 to 1 Custom Lubricant	
1/2 U.S. Gal.	1.6 oz.	48ml (cc)
1 U.S. Gal.	3.2 oz.	95ml (cc)
5 U.S. Gal.	16.0 oz.	475ml (cc)
1 Liter	.9 oz.	25ml (cc)
5 Liter	4.3 oz.	125ml (cc)
20 Liter	17.0 oz.	500ml (cc)
1 Imp. Gal.	4.3 oz.	125ml (cc)
2 Imp. Gal.	8.6 oz.	250ml (cc)
5 Imp. Gal.	21.4 oz.	625ml (cc)

1ml = 1cc

OPERATING INSTRUCTIONS

BREAK-IN PERIOD

Breaking-in a new engine is very important. The recommended break-in period for your engine is the first 5 hours of use. During this break-in period:

1. Vary the engine speed (Revolutions Per Minute). The engine should not be run continually at the same speed for a long period of time.
2. Do not run the engine at full throttle for a sustained period of time.
3. Avoid long steep inclines which would require the engine to be run at full throttle for a long period of time.

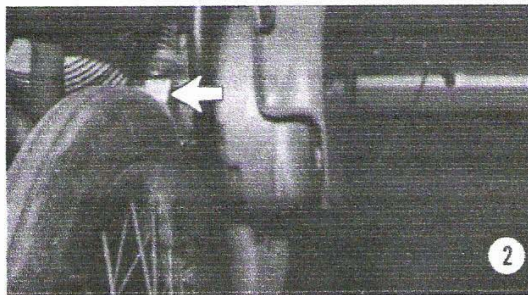
ENGINE COVER REMOVAL

INSPECTION NOTE: Whenever the engine cover is removed, it is advisable to inspect the throttle linkage to be certain it functions properly. The throttle cable, throttle lever and DSP valve should move freely, without any binding. If there are problems, contact your appropriate servicing dealer.

WARNING: Before you perform any maintenance on an engine which has recently been run, allow the engine components, including the muffler, to cool.

If it is necessary to remove the engine cover:

1. Raise the lift lever so that it is parallel to the seat mast, then insert a wedge between the top of the tire and the drive roller so the lever remains in this position. ① ②
2. Remove the fuel tank cap.
3. Remove the two bolts from the top rear and the front sides of the cover. ①
4. Remove the seat.
5. Pull the cover up and back in the same movement. Be certain to replace the fuel tank cap after removing the cover.
6. Disconnect the taillight wires.
7. To replace the cover, reverse this procedure.



THROTTLE CABLE ADJUSTMENT

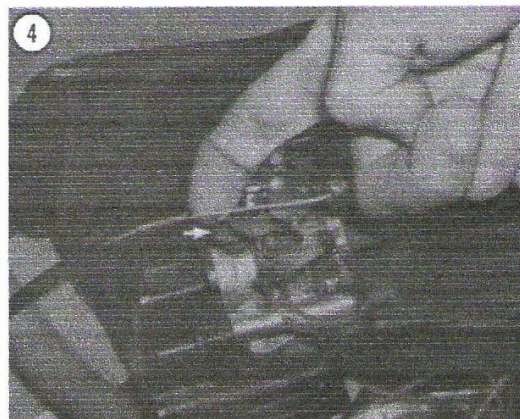
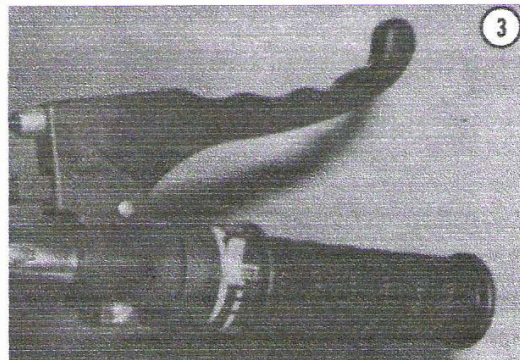
When your AMF Moped was assembled, the throttle cable was adjusted for the best starting and running performance of the engine. If, during shipment, reassembly or for any other reason this adjustment is altered, the cable must be readjusted to ensure maximum engine performance.

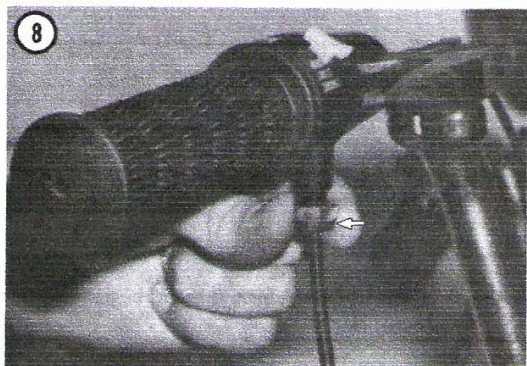
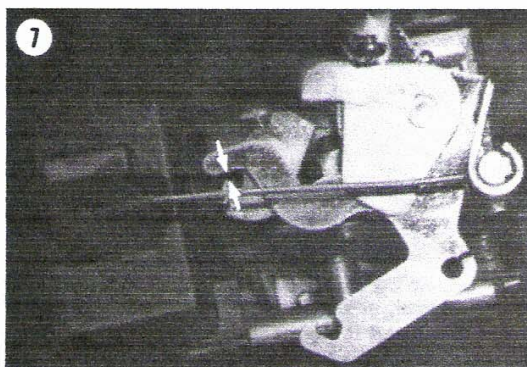
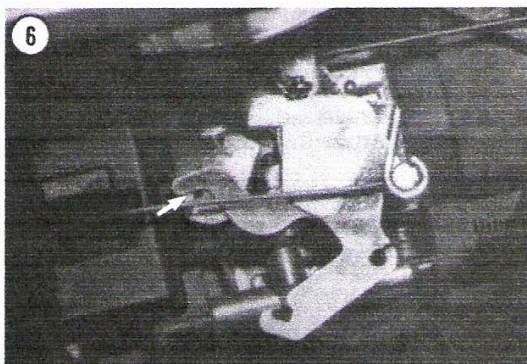
To properly adjust the throttle cable:

1. Set the twist grip in the idle position. ③
2. With the engine cover removed, manually push the choke lever to the fully closed position. ④
3. Loosen the throttle cable lock nut, then set the twist grip in the engine start/stop position. ⑤
4. The throttle linkage should make contact with the choke lever. If there is no contact adjust the throttle cable. ⑥
5. Slowly screw the throttle cable adjuster into the housing until the throttle linkage comes into contact with the choke lever. The choke and the throttle will now open and close fully. ⑥
6. Tighten the lock nut slightly more than finger tight. ⑥

When properly adjusted, the bare cable that runs from the air filter box to the carburetor linkage should be fairly taut, but not so tight that it prevents the choke from closing.

To remove any excess play, screw the throttle cable adjuster out of the control housing until the slack is taken up. However, be certain that the throttle linkage and the choke lever remain in contact.





CARBURETOR ADJUSTMENT

The carburetor has been properly adjusted at the factory. However, minor adjustment may be necessary. Carburetor adjustment is critical and, if done carelessly, can lead to carburetor and/or engine damage. To adjust the carburetor needles, it will be necessary to remove the engine cover. Be certain to replace the fuel tank cap and the seat before starting the adjustment procedures.

WARNING: Avoid any contact with hot engine components and/or the flywheel during this procedure. Wear close fitting clothes. Keep other persons (especially children) and animals away from the right side of the Moped while the engine is running.

NOTE: Before making any carburetor adjustments, make sure the throttle cable is properly adjusted, the air filter is clean and the engine is completely warmed up.

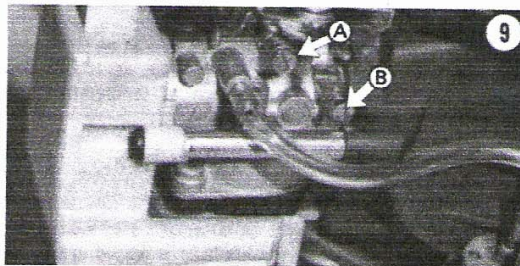
Very often a dirty air filter will cause the engine to operate as though the carburetor needs adjustment. Cleaning the air filter may correct the problem (see Air Filter section of this manual).

Start the engine and run it at wide open throttle for 8 minutes to make certain the engine is completely warmed up. Allow the engine to return to idle speed. Position yourself on the left-hand side of the Moped in order to adjust the carburetor needles.

WARNING: While performing the following procedures, avoid any contact with the throttle grip or throttle cable linkage that could cause the engine speed to increase. If it becomes necessary to stop the engine, place the lift lever in the rear position.

Idle Mixture Needle ①

When the idle mixture needle is properly set, the engine will maintain a smooth steady idle. An improperly set mixture needle will result in a fuel mix that is either too rich or too lean.



A. Idle Speed Screw B. Idle Mixture Needle

A too rich fuel mix will cause the engine to slow down and quit. To correct a too rich mixture, turn the mixture needle in (clockwise) until the engine maintains a smooth, steady idle.

A too lean fuel mix will cause the engine to run too fast in the idle position or cause the engine RPM to increase without manual adjustment.

To correct a too lean mixture, turn the mixture needle out (counterclockwise) until the engine maintains a smooth steady idle.

NOTE: When making adjustments of the idle mixture needle, do not turn the needle more than 1/8 of a turn per adjustment.

If you have difficulty establishing a starting point during these adjustment procedures, the mixture needle should be adjusted to its initial setting. To do this:

1. Gently seat (turn in all the way) the idle mixture needle by turning it clockwise.
2. Turn the needle out 1-1/8 turns (Zama, T.K.) or 2-1/4 to 2-1/8 turns (Keihin).
3. Start the engine and make whatever adjustments to the mixture needle that are necessary to achieve a smooth steady idle.

NOTE: As altitude increases substantially, to approximately 5,000 feet (1500 meters) and above, it may be necessary to adjust the mixture needle slightly below the sea level setting.

Idle Speed Screw ①

Correct idle speed is just below clutch engagement (approximately 1350 to 1500 Revolutions Per Minute). If it is necessary to adjust the idle speed screw:

1. **FIRMLY** grasp the seat mast.
2. Slowly turn the idle speed screw clockwise until the Moped begins to move slightly.
3. Slowly turn the screw counterclockwise until the Moped no longer moves.

The carburetor is equipped with a fixed high speed jet. No adjustment is possible or necessary. Alternate high speed jets are available from your McCulloch dealer which will provide improved performance at altitudes above 2,000 feet.

All engines lose power as altitude increases. This is due to the "thin" air (less oxygen in the atmosphere at higher altitudes). The rate of power loss is approximately 3% per 1,000 feet (300 meters) of elevation. Therefore, an engine will develop only 85% of its sea level power at an altitude of 5,000 feet (1,500 meters), and only 70% at 10,000 feet (3,000 meters). Other factors, such as temperature and humidity, will affect power output also.

AUTOMATIC STOP SWITCH

The engine is equipped with an automatic stop switch that shuts off the engine when the lift lever is placed in the rear position (lifting the engine and the drive roller from contact with the wheel). Never leave the engine running while you are off and/or away from the Moped other than for maintenance reasons.

MAINTENANCE

All engine service, other than that listed here in your Owner's Manual maintenance instructions should be performed by a McCulloch Authorized Service Center, Moped Engine dealer. Contact the AMF Moped dealer from whom you purchased your Moped for the names of M.A.S.C.M.E.'s or other servicing dealers in your area.

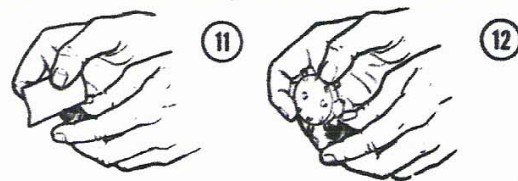
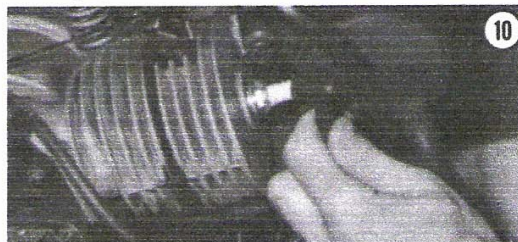
SPARK PLUG

For efficient operation of the engine, the spark plug must be kept clean and properly gapped.

WARNING: If your engine has just been run, allow all components to cool.

To clean or gap the plug:

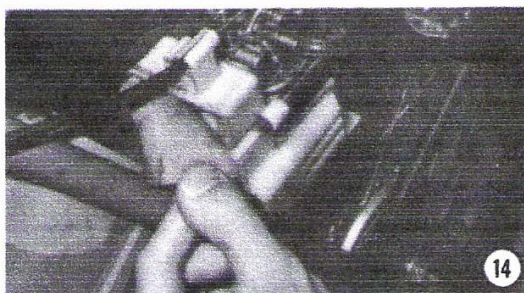
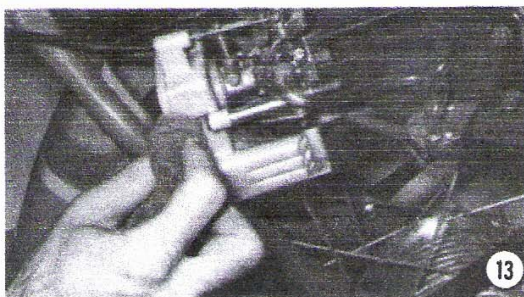
1. Disconnect the black rubber connector on the end of the wire from the spark plug by twisting and pulling at the same time. ⑩
2. Remove the spark plug with a 16mm (5/8 inch) box end wrench, being certain the wrench is completely on the metal nut portion of the plug.
3. Clean minor accumulations of carbon with a metal scraper. Wearing eye protection, blow all particles away. Should there be excessive carbon on or around the electrodes, install a new, properly gapped spark plug. ⑪
4. Adjust the electrode air gap to .025" by bending the side electrode only. ⑫
5. Using a 16mm (5/8 inch) wrench, securely install the spark plug. Attach the black rubber connector onto the plug.



AIR FILTER

Never operate the engine with the air filter and/or air filter screen removed, or dust and dirt will be sucked into the engine and damage it. The air filter and air filter screen must be kept clean. Replace either component if they become damaged. To clean or replace the air filter components:

1. Thoroughly clean the area around the air filter cover to prevent dirt from falling into the air box. ⑬
2. Remove the air filter cover, the air filter screen and the air filter. ⑭
3. Thoroughly wash the air filter and air filter screen in liquid detergent and water. Wrap the air filter in a clean dry cloth and squeeze dry. Shake any excess water from the screen and allow it to dry completely.
4. Saturate the air filter with a light oil (e.g. SAE 30), then squeeze out the excess oil.
5. Properly install the air filter, then the air filter screen. Snap the air filter cover into place, being certain the cover is completely over all the ridges on the air filter box. ⑮



MUFFLER

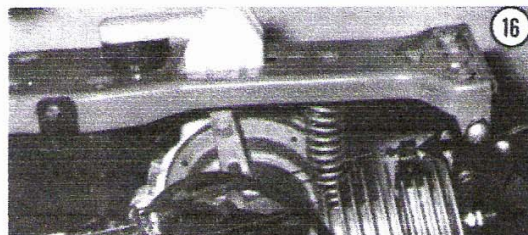
Operating the engine with a dirty, loose or damaged muffler can lead to loss of engine power and/or engine damage. As shown in the preventive maintenance chart, the muffler should be inspected on a regular basis. For service procedures on the muffler, refer to your AMF Moped Owner's Manual.

COMPRESSION RELEASE (DSP) VALVE ⑭

Your engine is equipped with a compression release (DSP) valve which allows the engine to start easier. Refer to your AMF Moped Owner's Manual for DSP valve operation during starting procedures.

If the valve functions properly during the starting procedures, you will note a slight chugging sound. This indicates that the valve is releasing a measured amount of compression from the engine. An indication of valve malfunction would be difficulty in pedalling the Moped during starting procedures.

If the DSP valve does not close as the engine accelerates, the engine will not run properly. Adjust the throttle cable according to your AMF Moped Owner's Manual instructions. If the valve still does not function properly, it should be inspected by your servicing dealer.



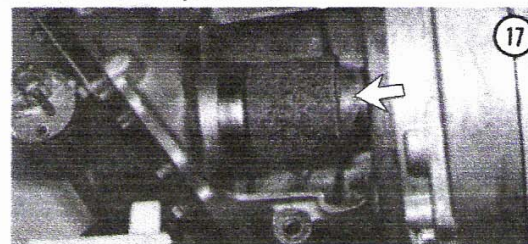
DRIVE ROLLER ⑮

The drive roller should be inspected periodically for any signs of damage or for accumulation of dirt and/or debris. A damaged drive roller can adversely affect the Moped tire and should be replaced.

Under normal road conditions, dirt accumulation on the drive roller will be minimal and should not affect performance. However, should dirt build-up on the drive roller become excessive due to extreme road conditions (i.e. soft tar or oil road surfaces), the roller may have to be cleaned to prevent excessive tire wear and to maintain best performance.

To clean the drive roller:

1. Remove the rear wheel (see AMF Moped Owner's Manual for rear wheel removal procedure).
2. Using a putty knife and/or a wire brush, remove any dirt or debris from the drive roller.
3. Install the rear wheel (see AMF Moped Owner's Manual for installation procedure).

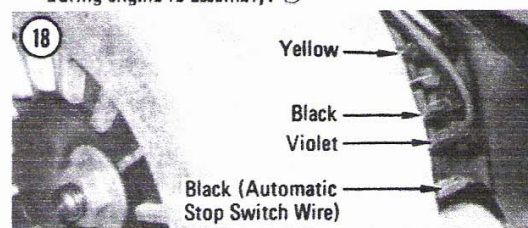


ENGINE REMOVAL

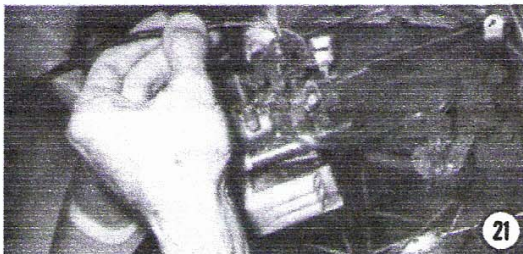
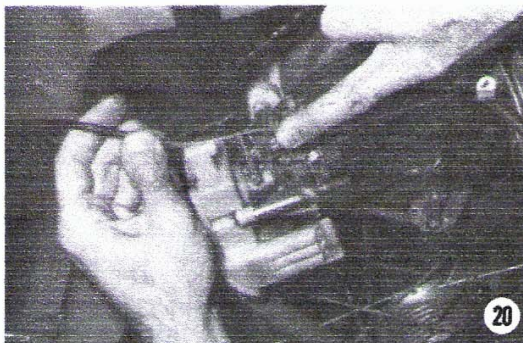
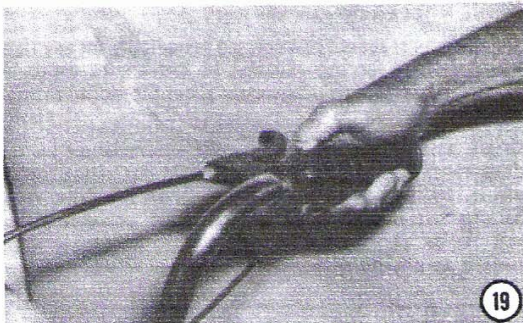
WARNING: Before you perform any maintenance on an engine which has recently been run, allow the engine components, including the muffler, to cool.

If it is necessary to remove the engine from the bicycle:

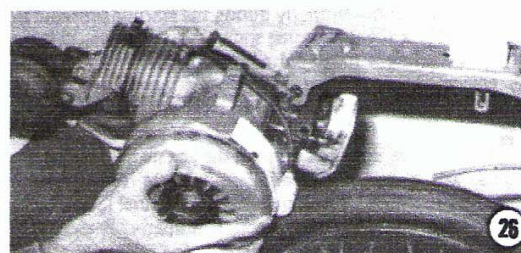
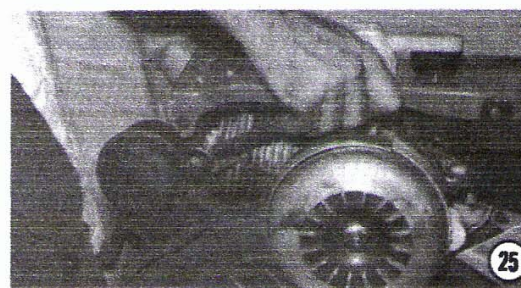
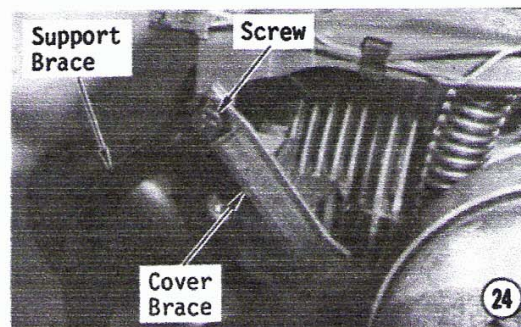
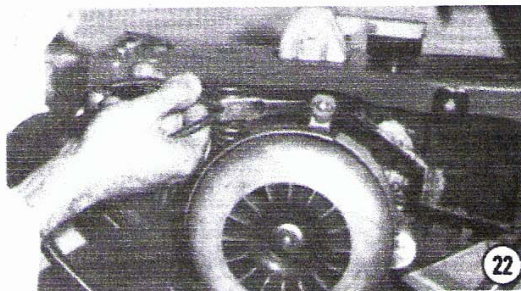
1. Remove the engine cover (Engine Cover Removal).
2. Remove the fuel hose from the carburetor inlet and drain the fuel tank in a safe place.
3. Disconnect the three plugs and the automatic stop switch wire from the ignition module terminals. These plugs must be connected to the terminals as shown during engine re-assembly. ⑯



4. Place the twist grip in the engine start/stop position. ⁽¹⁸⁾
5. Push the throttle lever completely forward, then remove the throttle cable and casing from the retainer on the air filter box. ⁽²⁰⁾
6. Loop the throttle cable around the retainer on the end of the throttle lever, then remove the cable from the holder. ⁽²¹⁾
7. Deflate the rear tire.



8. Remove the cotter pin, cotter pin bolt and washers located under the engine deck. ⁽²²⁾
9. Press down on the flywheel section of the engine and remove the engine spring. ⁽²³⁾
WARNING: The spring will be under tension during this procedure.
10. Loosen and remove the two engine support brace screws and the engine cover brace. Rotate the support braces downward. ⁽²⁴⁾
11. Loosen and remove the engine attaching bolt. ⁽²⁵⁾
12. Slowly pull the engine to the rear, guiding the engine mounting boss between the three bracket screws. ⁽²⁶⁾



If it is necessary to ship the engine to an M.A.S.C.M.E. dealer:

1. Remove the engine from the Moped. Be certain all fuel has been purged from the engine components.

NOTE: To drain any remaining fuel from the carburetor, tilt the engine so the fuel drains from the carburetor vent line into a proper container.

2. Manually close the choke and DSP valve.
3. The engine should be securely packaged to prevent damage during shipment. Special care should be taken to protect the carburetor and muffler during packaging.

NOTE: Ship the engine only (never ship the Moped) to an M.A.S.C.M.E. for service. Refer to your AMF Moped Owner's Manual for Moped service. The cost of shipment and the safety of any part(s) shipped are the responsibility of the owner.

ENGINE INSTALLATION

1. Guide the engine into position under the engine deck. ②
2. Attach the engine to the deck using the engine attaching bolt. ②
3. Attach the support braces and the engine cover brace to the engine deck.

CAUTION: The engine cover brace must be positioned as shown to ensure adequate air flow for engine cooling. ②

4. Press down on the flywheel section of the engine and install the engine spring. ②

WARNING: The spring will be under tension during this procedure.

5. Attach the upper mounting boss to the lever assembly using the cotter pin bolt, the washers and the cotter pin. ②
6. Place the twist grip in the engine start/stop position. ⑩
7. Push the throttle lever completely forward, then insert the throttle cable into the retainer on the end of the throttle lever. ② ⑦
8. Guide the cable into the groove in the retainer, then into the retainer on the air filter box. ②
9. Attach the fuel hose to the carburetor inlet.
10. Connect each of the plugs to their proper terminals on the electronic ignition assembly. ⑩
11. Install the engine cover, then inflate the rear tire.

ENGINE CLEANING

WARNING: Never clean the engine while it is running. Allow the engine to cool before cleaning.

1. It is necessary to remove the engine cover to clean the engine (see ENGINE COVER REMOVAL).
2. Avoid bending or disconnecting the fuel lines and/or the DSP rod during cleaning. Be certain carburetor adjustments are not changed.
3. Avoid spraying the complete engine with solvents, detergents or water. A direct spray could possibly cause a malfunction or damage to the engine.
4. Use a small wooden scraper to remove any dirt or residue that has collected between the cylinder fins,

around the carburetor and/or on the air filter box.

5. While cleaning the vanes on the flywheel and the air openings in the bearing housing, scrape the dirt to the outside to keep dirt from entering the area behind the flywheel.
6. Use a nylon or fiber brush to finish cleaning all parts.
7. Replace the engine cover.

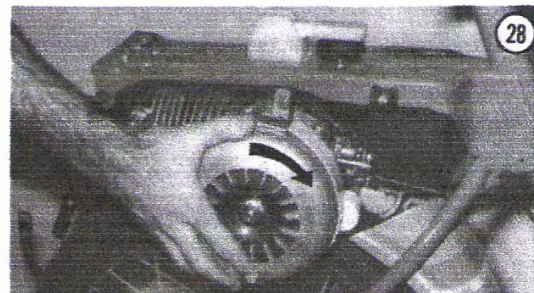
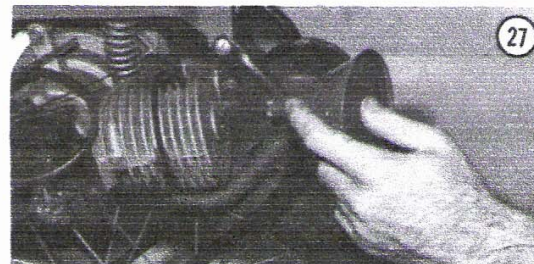
PREVENTIVE MAINTENANCE

ENGINE STORAGE

Never allow the engine to sit inactive for over thirty (30) days without performing these procedures:

1. Drain the fuel tank in a safe place.
2. Start the engine and run at idle speed until it stops. This will remove most of the fuel from the fuel system.
3. Remove the spark plug with a 16mm (5/8 inch) wrench and put approximately a teaspoon of oil through the spark plug hole into the combustion chamber. Rotate the flywheel to distribute the oil throughout the engine. Firmly install the spark plug. ⑦ ②
4. Clean the outside surfaces of the engine.
5. Store the engine in a dry place away from possible sources of ignition such as furnaces, heaters, etc.

Ideally, the engine should be operated for a short period of time (5 minutes) every thirty (30) days.



REMOVAL FROM STORAGE

Remove the spark plug. With the drive roller disengaged from the wheel (engine lever to the rear), briskly rotate the flywheel to clear the cylinder of excess oil. Clean and gap the spark plug or install a new one. Fill the fuel tank with the correct fuel mixture.

PREVENTIVE MAINTENANCE PROGRAM

A good preventive maintenance program of regular inspection and care will increase the life and improve the performance of your engine. The Preventive Maintenance Check Chart is a guide for such a program. Cleaning, adjustment and parts replacement may, under certain conditions, be required at more frequent intervals than those indicated.

PREVENTIVE MAINTENANCE CHECK CHART

Operation	Frequency*						
	After 30 Hrs.	After 60 Hrs.	After 90 Hrs.	Every 30 Hrs.	Every 60 Hrs.	Every 90 Hrs.	As Required
Check, adjust carburetor	✓			✓			✓
Retighten bolts and nuts	✓			✓			✓
Clean, set spark plug		✓			✓		
Clean air filter		✓			✓		
Change air filter							✓
Clean cylinder fins							✓
Clean carburetor**							✓
Clean, inspect carburetor linkage							✓
Clean exhaust ports**			✓			✓	
Clean muffler**			✓			✓	
Clean roller	✓			✓			
Compression release (DSP) valve**							✓

*The frequencies established in this chart are based on engine operation on dry paved surfaces. If the engine is operated in wet, muddy or sandy areas, maintenance should be more frequent.

**Recommended for maintenance by an authorized McCulloch dealer.

ENGINE SPECIFICATIONS

Description: One cylinder, two stroke, internal combustion Displacement: 49cc (3 cubic inches) Bore and Stroke: 38mm (1.5 in.) x 43mm (1.7 in.) Main Bearings: Ball & Needle Connecting Rod bearings: Needle Roller Clutch: Automatic Centrifugal Engine Idle Speed: 1350-1500 RPM Ignition System: Breakerless Electronic	Carburetor: Float type, fixed high speed jet with automatic choke Fuel Tank Capacity: .946 Liters (1 quart) Fuel Type: Regular grade automotive gasoline/oil mixture Fuel to Oil Mixture Ratio: 40:1 with McCulloch Oil and other approved oils Primary Drive: Direct with friction roller Spark Plug: AC CS 45T or Champion DJ-8J (gap .025")
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LIMITED WARRANTY

1. Duration

- A. 180 days from date of purchase when used for personal, family or household purposes provided that they are not professional or commercial purposes.
- B. Thirty (30) days from date of original purchase when used for purposes other than noted in "A" above, e.g., commercial, rental, institutional, etc.
- C. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

2. Who gives this warranty

McCulloch (Warrantor)
P.O. Box 92180
Los Angeles, California 90009

3. Who receives this warranty

- A. The buyer (other than for purposes of resale) of the McCulloch product.
- B. Any person to whom such product is transferred within the duration of the implied or written warranty applicable to the product.
- C. Any other person who is entitled by the terms of the warranty or under applicable State Law to enforce against the Warrantor the obligation of the warranty.

(The above mentioned parties are hereinafter referred to as "Consumer".)

4. What products are covered by this warranty

- A. The McCulloch engine used to power the AMF Moped.

5. What IS covered under this warranty

Any failure which occurs within the duration of the warranty period which is the result of defects in materials or workmanship.

6. What IS NOT covered under this warranty

- A. **ANY INDIRECT OR CONSEQUENTIAL DAMAGES THAT MAY RESULT FROM THE FAILURE OR MALFUNCTION OF THE McCULLOCH PRODUCT. (SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THESE LIMITATIONS MAY NOT APPLY TO YOU.)**
- B. Any failure that results from accident, consumer's abuse, neglect, failure to operate the product in accordance with the instructions provided in the owner's manual(s) supplied with the product, unauthorized modification, and normal wear.

- C. Pre-delivery set up which includes installation of the engine or controls.

- D. Normal engine adjustments which are explained in the owner's manual(s) provided with the product, i.e., carburetor.

- E. Any component not sold or manufactured by the warrantor.

NOTE: Mufflers, controls, engine shrouds, and fuel tank are AMF components and, therefore, are covered by the AMF warranty.

- F. Items or service that are normally required to maintain the product, i.e., spark plugs, filters, lubricants, and periodic tune up service.

7. Responsibilities of Warrantor under the warranty

- A. Repair or replace components which have failed within the duration of the applicable warranty period at no cost to the consumer.
- B. Ensure that the authorized repair station is reimbursed for parts and labor costs incurred due to performance of a warranty repair in accordance with established policies and procedures.

8. Responsibilities of the Consumer under this warranty

- A. Deliver or ship the McCulloch product covered under this warranty to the dealer from whom it was originally purchased or the nearest McCulloch Authorized Service Center, Moped Engine (M.A.S.C.M.E.).
- B. Freight costs, if any, will be borne by the consumer.
- C. Use reasonable care in maintenance, operation, and storage of the product as explained in the owner's manuals.

9. When Warrantor will perform obligation under this warranty

- A. Warrantable product failures will be scheduled and repaired according to the normal work flow at the servicing location and depending on the availability of replacement parts.
- B. Repair time which exceeds ten (10) days from the time the product was delivered to the servicing agent will extend the warranty coverage by the number of days the product remained inoperable.

10. Remedies

- A. If Consumer does not receive satisfactory results from local servicing outlet, Consumer must contact the McCulloch Corporation, Product Service Department (See Item 2).
- B. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



McCULLOCH

P.O. BOX 92180, LOS ANGELES, CALIFORNIA 90009

McCulloch BHE 900 Engine Manual

*Downloaded from:
Project Moped Manual*

*Originally posted at:
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<http://www.mopedarmy.com/forums/discuss/1/622907/622907/>*