

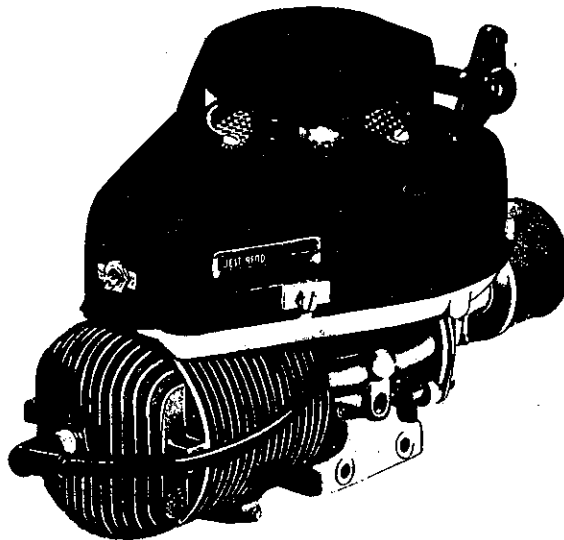
OPERATING INSTRUCTIONS AND PARTS LIST  
FOR



FEATHER-WEIGHT 2 CYCLE

# GASOLINE ENGINE

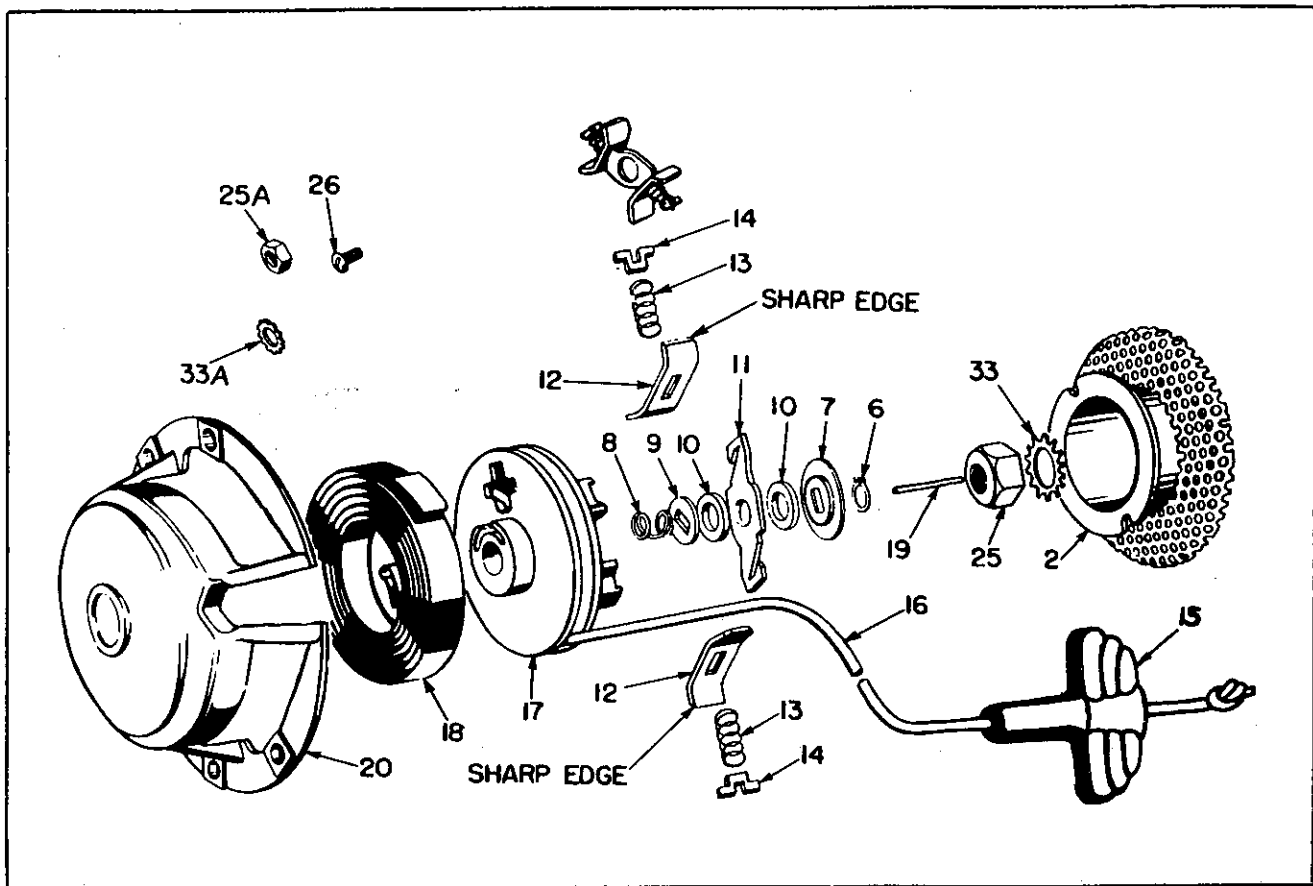
Models 58003  
58004



Always mention both the Model Number and Serial Number of your engine when ordering parts. These numbers are found on the identification plate attached to the engine.

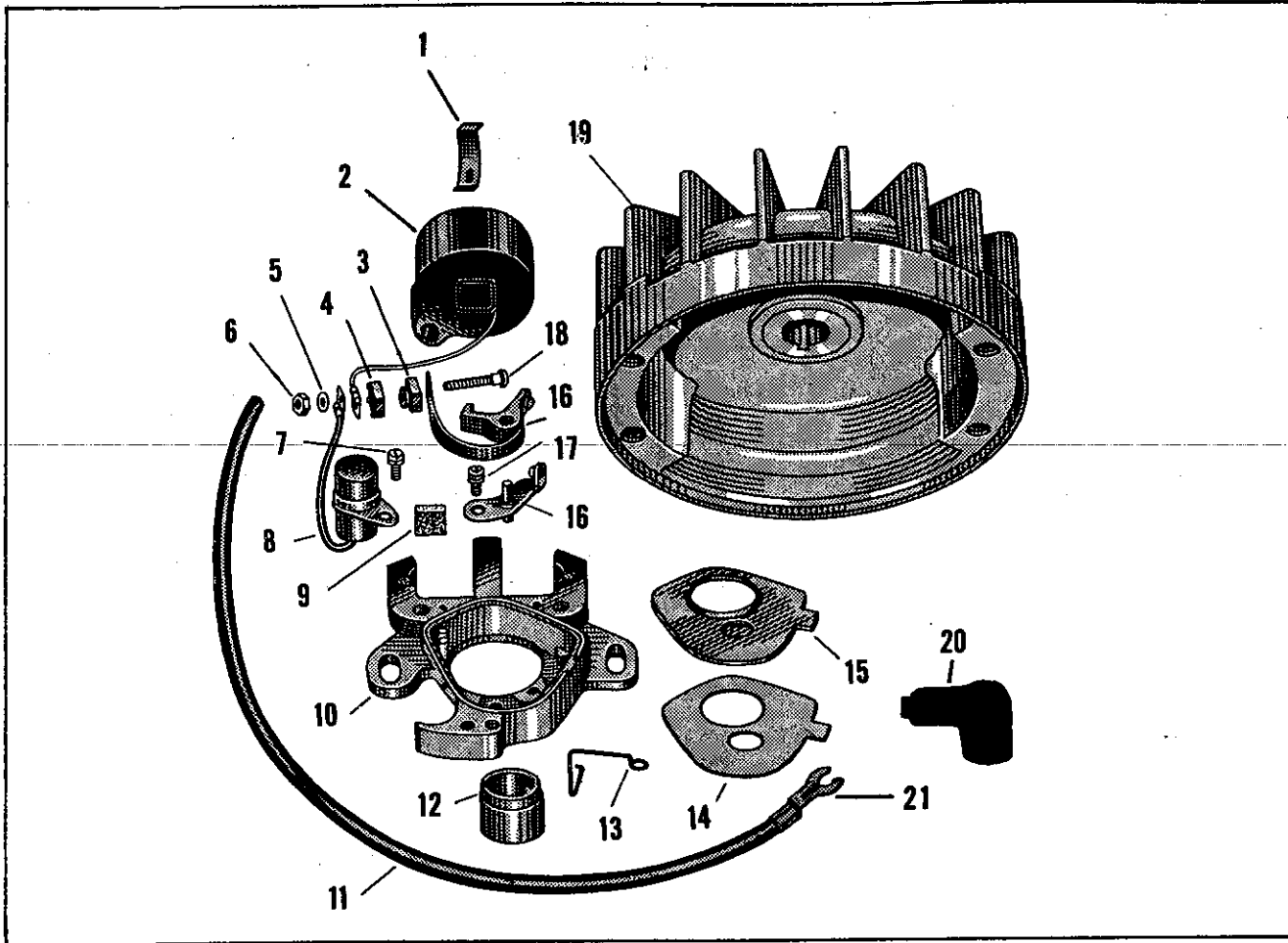
**WEST BEND ALUMINUM CO.**  
ENGINE DIVISION: HARTFORD, WISCONSIN

# PARTS LIST FOR MODELS 375-14 AND 375-14L REWIND STARTER



Item No.	Part No.	Description	Quantity
2	14-114-100	Cup and screen assembly	1
6	29-13	Retainer ring	1
7	27-49	Brake retainer washer	1
8	120-31	Brake spring	1
9	127-3	Brake washer	2
10	127-2	Fibre washer	2
11	116-4	Brake lever	1
12	11-71	Friction shoe plate	2
13	29-2	Friction shoe spring	2
14	111-19	Spring retainer plate	2
15	144-2	T-Handle	1
16	40-7	Cord	1
17	13-15	Rotor	1
18	20-35	Rewind spring	1
19	125-9	Centering pin	1
20	151-120	Cover assembly	1
25	2778091-1	Flywheel nut (Left hand thread)	1
25A	19091	Flywheel nut (Right hand thread)	1
26	10-24 x 7/16	Pan head machine screw w/internal external tooth lockwasher	4
33A	7/16	External tooth lockwasher (Right hand)	1
33	7/16	External tooth lockwasher (left hand)	1
	375-14K	Starter assembly complete (Right hand) Not shown	1
	375-14LK	Starter assembly complete (Left hand) Not shown	1

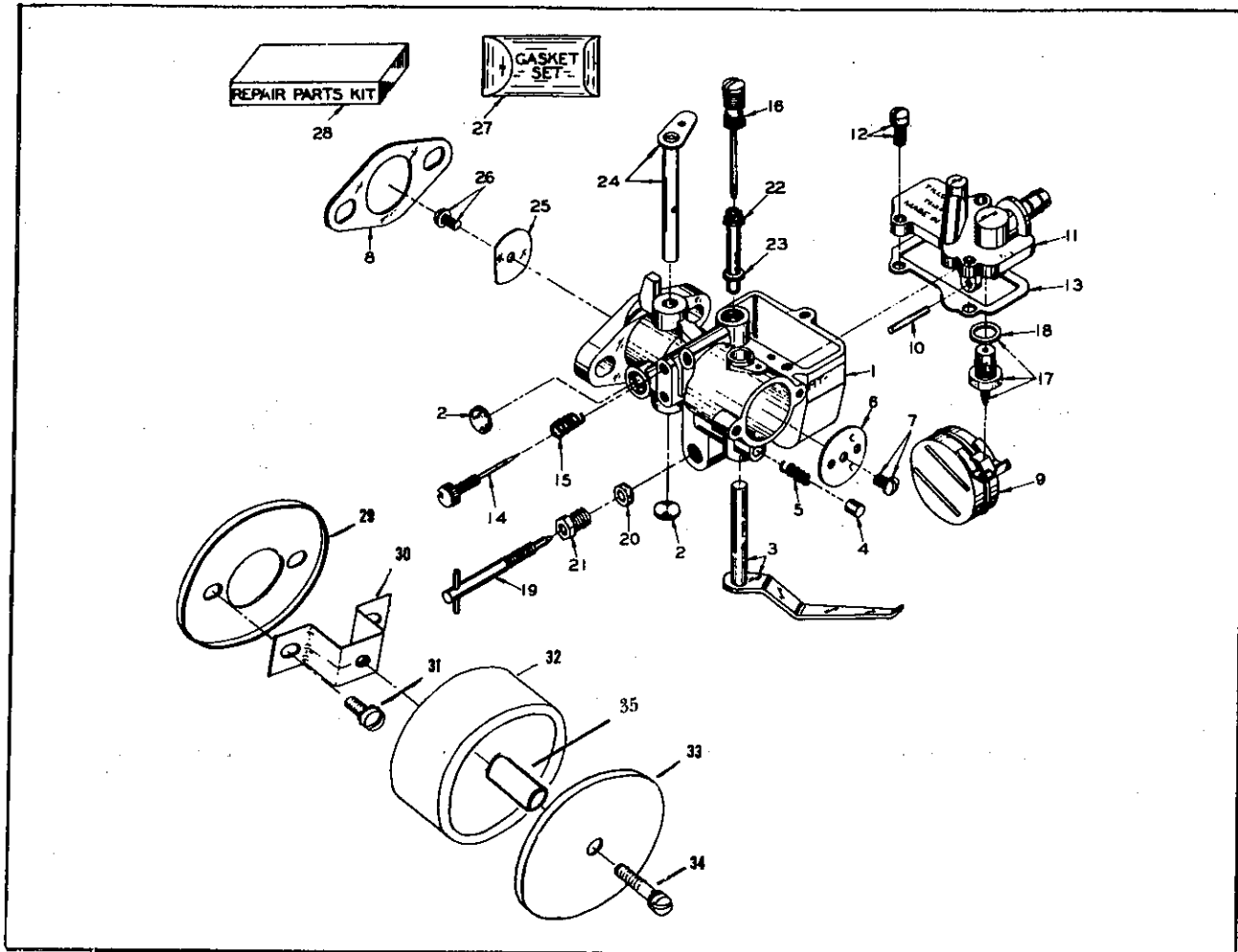
# PARTS LIST FOR FW 2605 AND FW 2639 MAGNETOS



ILLUS. NO.	PART NO.	QTY.	DESCRIPTION	ILLUS. NO.	PART NO.	QTY.	DESCRIPTION
1	11028	1	Coil wedge spring	17	5900	1	Fixed contact clamp screw
2	X11260	1	Coil	18	9996	1	Connection stud
3	11027	1	Connection stud insulator	19	See Chart	1	Rotor
4	11025	1	Connection stud insulator	20	K-750	1	Sparkie kit
5	M-90X	1	Lockwasher	21	30673	1	Lead wire terminal
6	11015	1	Nut		X11061	1	Terminal connection unit
7	5431	1	Condenser clamp screw				(not shown) (includes items 3, 4, 5, 6, 18)
8	X11000	1	Condenser		11092	1	Shaft key (not shown)
9	6318	1	Cam wiper felt		30907	1	Ground lead (not shown)
10	X11060	1	Stator plate (plate and core only)		X11189	1	Stator plate unit complete
11	2732841	1	High tension lead (with terminal)		See Chart	1	Magneto complete (not shown)
12	See Chart	1	Breaker cam		11785	1	Ground lead terminal (not shown)
13	11024	1	Breaker box cover spring				
14	11019	1	Breaker box cover gasket				
15	11018	1	Breaker box cover				
16	X11030	1	Breaker point replacement set				

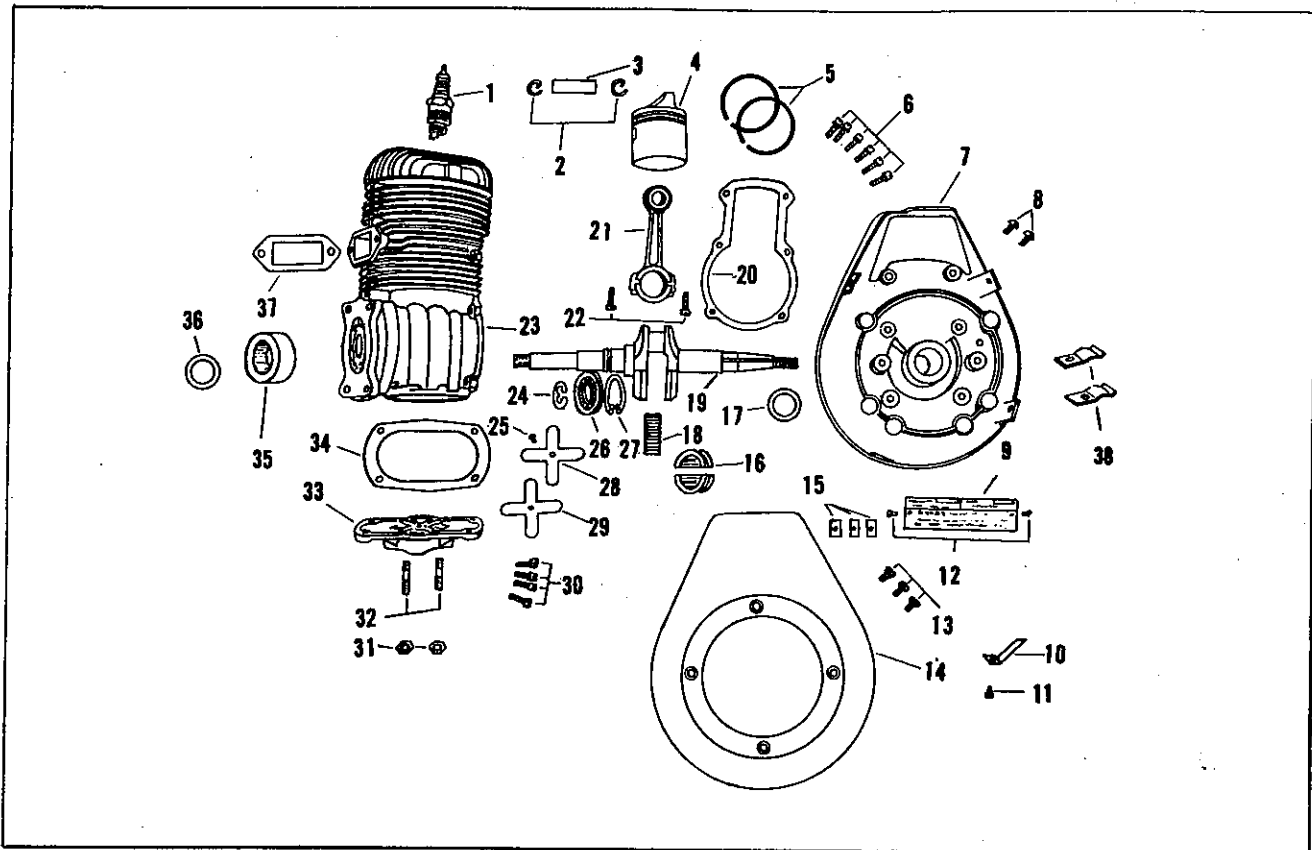
MODEL NO.	REPLACEMENT MAGNETO NO.	ROTOR	BREAKER CAM
58004	FW2639	Y12341	11084
58003	FW2605	Y9987	11021

# PARTS LIST FOR MT 34-AR CARBURETOR



ILLUS. NO.	PART NO.	QTY.	DESCRIPTION	ILLUS. NO.	PART NO.	QTY.	DESCRIPTION
1		1	Carburetor body, Order MT-34AR carburetor complete	20	0,112	1	Main adjustment screw packing
2	02531	2	* Body channel welch plug	21	07282	1	Main adjustment screw packing nut
3	09916	1	Choke shaft and lever	22	09070	1	* Main nozzle
4	05454	1	* Choke friction pin	23	06076	1	Main nozzle gasket
5	08805	1	* Choke friction pin spring	24	011259	1	Throttle shaft and lever
6	03739	1	Choke shutter	25	010128	1	Throttle shutter
7	08942	1	Choke shutter screw w/lockwasher	26	05204	1	* Throttle shutter screw
8	18906	1	Carburetor gasket	27	GS-106	1	* Gasket and packing set
9	08656	1	Float	28	RK-135	1	* Repair parts kit, includes items marked *
10	08796	1	* Float lever pin	29	2770650-1	1	Air cleaner adapter
11	010471	1	Float bowl cover	30	2770652-1	1	Air cleaner bracket
12	08315	3	Float bowl cover screw w/lockwasher	31	8-32 x 3/8	2	Fillister head machine screw
13	08658	1	Float bowl cover gasket	32	2770653	1	Air cleaner element (Skinner type)
14	08765	1	* Idle adjustment screw	33	2703651	1	Air cleaner cover
15	08793	1	* Idle adjustment screw spring	34	10-24 x 3/4	1	Fillister head machine screw, w/spring lockwasher (use w/Aluminum foil type only)
16	08875	1	* Idle tube	35	2770617	1	Air cleaner spacer (use w/Skinner type only.)
17	09145	1	* Inlet needle, seat and gasket	36	MT-34AR	1	Carburetor complete (not shown)
18	02510	1	Inlet seat gasket		2703653	1	Air cleaner element (Aluminum foil type)
19	07972	1	* Main adjustment screw		10-24 x 1-7/8	1	Fillister head machine screw w/spring lockwasher (use w/Skinner type only.)

# POWER HEAD



## PARTS LIST

ILLUS. NO.	PART NO.	QTY.	DESCRIPTION	ILLUS. NO.	PART NO.	QTY.	DESCRIPTION
1	64227	1	Spark plug (H8J)	19	See Chart	1	Crankshaft
2	31410	2	Piston pin lock ring	20	27277	1	Bearing cage gasket upper
3	7017	1	Piston pin	21	AA36016-3	1	Connecting rod assembly
4	30015	1	Piston	22	36634	2	Connecting rod screw
5	IA30260	1	Piston ring set	23	A129010	1	Cylinder
6	10-24 x 5/8	6	Pan head machine screw w/lockwasher	24	2770410	1	Crankshaft retaining ring
7	See Chart	1	Support plate	25	6-32 x 1/4	1	Round head screw
8	1/4-20 x 5/8	2	Round head machine screw w/external tooth lockwasher	26	127910-1	1	Ball bearing
9	27395	1	Identification plate	27	30410	1	Crankshaft bearing retaining ring
10	2703449	1	Ignition shorting contact	28	27160	1	Reed
11	10-24 x 3/8	1	Fillister head machine screw w/lockwasher	29	30161	1	Reed stop
12	4 x 1/4	2	Sheet metal screw	30	1/4-20 x 7/8	4	Hex slotted head screw
13	1/4-20 x 1/2	3	Nylok hex head screw w/lockwasher	31	1/4-20	2	Hex nut
14	See Chart	1	Fan housing	32	19209-1	2	Carburetor stud
15	2775595	3	Fan housing washer	33	AA2771158	1	Reed plate assembly
16	31241	1	Crankpin roller cage	34	2770159-1	1	Reed plate gasket
17	30146	1	Crankshaft seal upper	35	AA2771581	1	Crankshaft seal collar assembly
18	A31228	1	Crankpin roller set	36	2770146	1	Crankshaft seal
				37	27279	1	Cylinder exhaust gasket
				38	9010	2	Lead wire clip
					2700392	1	Name plate decal (not shown)
					KG2725	1	Gasket kit (not shown)

MODEL NO.	REPLACEMENT SUPPORT PLATE	FAN HOUSING	CRANKSHAFT
58003	A30038	A30596	A2761018
58004	A31038-2	A31596	A2762018

# CHECK CHART

TROUBLE	CAUSE	WHAT TO DO
1. Engine fails to start.	No fuel in tank. Gasoline shut-off valve closed. Fuel line or fuel tank screen clogged. Flooded.	Fill tank. Open shut-off valve. Clean fuel line and screen. Close carburetor main adjustment needle and crank until engine starts. Then turn needle to 1 turn open. Install new spark plug. Replace spark plug.
	Spark plug shorted or fouled. Spark plug broken (cracked porcelain or electrodes broken.) Magneto lead wire shorted, broken or disconnected from spark plug. Magneto inoperative (No spark from lead wire.) Breaker points out of adjustment.	Replace lead wire or attach to spark plug. Contact the factory or your nearest authorized dealer. Reset breaker points to .020" gap.
2. Engine hard to start.	Water in gasoline or stale fuel mixture. Too much oil in fuel mixture. Engine over or under choked.	Drain entire fuel system and refill with fresh fuel. Drain and refill with correct mixture. If flooded by over-choking, proceed according to instructions in previous section. If under-choked, move choke lever to closed position and crank two or three times. See "Adjustments" on page 7. Replace gaskets.
	Carburetor out of adjustment. Gasket leaks (carburetor or reed plate gaskets.) Weak spark at lead wire. Breaker points out of adjustment	Contact the factory or your nearest authorized dealer. Reset breaker points to .020" gap.
3. Engine misses.	Dirt in fuel line or carburetor. Carburetor improperly adjusted. Spark plug fouled, broken or incorrect gap setting. Weak or intermittent spark at lead wire. Breaker points out of adjustment.	Remove and clean. See "Adjustment" on page 7. Clean or replace spark plug - set gap to .040. Contact the factory or your nearest authorized dealer. Reset breaker points to .020" gap.
	Air cleaner clogged. Carburetor out of adjustment. Muffler clogged. Clogged exhaust ports.	Clean air cleaner. See "Adjustments" on page 7. Clean carbon from muffler. Remove muffler, rotate engine until the piston is at bottom of cylinder. With a wooden scraper or blunt tool, remove all carbon from exhaust ports. Be careful not to scratch or damage piston or cylinder walls. Blow out loose carbon with compressed air. Start engine and run briefly to remove all carbon, then install muffler and gasket. Contact the factory or your nearest authorized dealer. Reset breaker points to .020" gap.
4. Engine lacks power.	Poor compression	Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen.
	Breaker points out of adjustment.	Tighten flywheel nut. Replace with plugs specified for engine. Contact the factory or your nearest authorized dealer. Remove fan housing and straighten bent portion.
5. Engine overheats	Insufficient oil in fuel mixture.	
	Air flow obstructed.	
6. Engine noisy or knocking.	Loose flywheel. Spark plugs incorrect heat range.	
	Worn bearings, piston rings or cylinder walls. Bent fan housing.	
7. Engine "Stalls" under load.	Carburetor main adjustment too "lean". Engine overheats.	Readjust carb. as shown under carb. adjustments on page 7. See section No. 5 above.

# OPERATING INSTRUCTIONS

## FUEL MIXTURE

In a separate, clean container thoroughly mix 1/2 pint SAE No. 30 or No. 40 oil with each gallon of gasoline.

Use regular grade of gasoline. High test, ethyl gasoline is not recommended.

Use any good quality Outboard, 2-cycle, or equivalent motor oil.

Strain the fuel mixture through a fine meshed screen when filling gasoline tank on engine to remove dirt and water if present.

## PREPARATION FOR STARTING

1. Fill gasoline tank with fuel mixture prepared per above instructions. Wipe up all spilled gasoline.
  2. Open gasoline shut off valve.
  3. Move choke lever to closed position.
- Note: If engine is warm, it may not require choking.
4. Turn ignition switch "ON".
  5. Open the throttle and crank engine.
  6. When engine starts, move choke lever to open position.

Note: The normal main adjustment needle settings are approximately one turn open. Occasional readjustment may be required but it is not necessary to readjust for starting except for cold weather starting when it may be necessary to open the high speed adjusting needle an additional 1/2 turn.

## TO STOP ENGINE

Moving ignition toggle switch to "OFF" position will stop engine by shorting magneto to ground.

Engines not equipped with toggle switch will have a shorting contact which when depressed will short the spark plug to ground.

## CARBURETOR ADJUSTMENT

1. Turn both adjustment needles (diaphragm carburetor) clockwise until completely closed.
- CAUTION: Do not force needle tightly closed as the seat may be damaged.
2. Turn both needles counter-clockwise one turn. This is the average setting for proper engine operation.
  3. Start engine and allow it to warm up, then, if carburetor setting is too "Lean", engine will not run at full speed and will "Pop", and may stop. Turn main adjustment needle counter-clockwise an eighth of a turn at a time until the engine runs smoothly.

If engine runs at full speed without load, but will not maintain full speed under load, richen the main adjustment needle 1/8 turn.

If carburetor setting is too "Rich", engine will not develop full power but will roll and run unevenly under load. Turn main adjustment needle clockwise an eighth of a turn at a time until the engine runs smoothly.

4. To verify proper idle needle setting, start engine and allow to warm up. If motor surges and runs at uneven speed, turn the idle adjustment needle slowly clockwise up to 1/4 turn. If this aggravates rather than corrects the situation, return to the original setting, then turn the idle adjustment needle slowly counter-clockwise up to 1/4 turn. This should cause the engine to "settle down" and run at a constant speed. If engine fails to accelerate, open idle screw 1/8 turn.
5. If engine runs too fast at idling speed, loosen the idle stop screw a little at a time until desired speed is obtained. To increase idling speed tighten the idle stop screw.

## MAGNETO

1. Breaker point gap should be set at .020. Set points with cam follower at highest point of breaker cam.
2. Directional arrow on cam must be UP.
3. For magneto inspection or service, contact your nearest authorized dealer.
4. If magneto stator plate is loosened or removed from the engine for any reason, be sure it is re-installed as follows:
  - (a) Place stator plate in position.
  - (b) Install hold down screws, but do not tighten.
  - (c) Turn stator plate to the mid-range position.
  - (d) Tighten screws.

This places the stator plate in the position for correct ignition timing.

## AIR CLEANER

Under ordinary operating conditions, the air cleaner should be cleaned daily. However, under extremely dirty conditions, more frequent cleaning or brushing off of loose dirt is recommended. To clean the air cleaner:

1. Remove the air cleaner from the carburetor.
2. Wash thoroughly using kerosene, gasoline or other good solvent.
3. Blow or wipe dirt from filter element.
4. Re-install air cleaner.

**IMPORTANT:** Dirt that enters the engine through the carburetor is one of the greatest causes of engine wear. Therefore, it is very important that the air cleaner be serviced regularly as outlined above.

## SPARK PLUG

Check and clean spark plugs regularly. A fouled, dirty, or carboned spark plug causes hard starting and poor engine performance.

Set spark plug gap at .040.

## STARTER SCREEN

The screen keeps dirt, etc., from entering the fan housing, and clogging the air cooling passages.

Because this engine is air-cooled, it is necessary to keep this screen clean at all times to permit the unrestricted passage of air into the fan housing.

## STORING MOTOR

The following steps should be taken to prepare your engine for storage:

1. Close gasoline shut off valve.
2. Start engine and allow to run until it stops from lack of fuel. This will use up all the fuel in the carburetor and prevent the formation of deposits due to evaporation of fuel.
3. Disconnect fuel line and permit all fuel to drain from the gasoline tank. Replace fuel line.
4. Remove spark plug and pour 1/4 cup of motor oil into cylinder. Replace spark plug.
5. Crank engine two or three times to distribute oil throughout cylinder. This will coat the cylinder walls with oil and prevent rust from forming during the storage period.