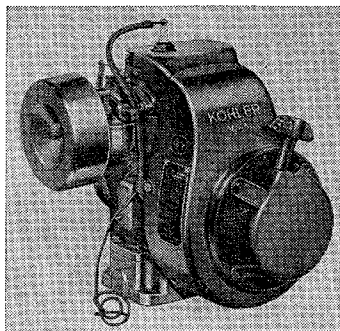


# KOHLER ENGINES

4-CYCLE • SHORT-STROKE • AIR-COOLED



M O D E L

K91T

Spec. No. 31388A

WHEEL-HORSE PRODUCTS CO.

1.8 HP. at 1800 R.P.M.

2.6 HP. at 2400 R.P.M.

3.5 HP. at 3200 R.P.M.

3.8 HP. at 3600 R.P.M.

4.0 HP. at 4000 R.P.M.

Kohler 4-cycle air cooled engines are built under close inspection, tested under load and adjusted to meet rigid specifications before shipment is made from the factory.

General design—rugged heavy duty, cast iron block

and base, modern short stroke, built-in mechanical governor.

This folder is designed to give Wheel-Horse tractor owners information on the proper care of their Kohler Engine. Follow the instructions carefully to insure trouble-free operation and long life.

## OPERATING INSTRUCTIONS

### 1. Before Starting

- a. Remove oil filler cap and check oil level. Add clean oil to mark indicated on dipstick (SAE 30 in summer; SAE 10 in winter; SAE 5W, sub-zero). *Oil should not be over full mark.*
- b. Fill the fuel tank with clean, fresh, gasoline of regular grade. **DO NOT MIX OIL WITH THE GASOLINE.** Be sure that fuel tank cap vent hole is open.

### 2. To Start

- a. Open valve on the sediment bowl.
- b. On initial start pull dash mounted choke lever to wide open and push the throttle lever about  $\frac{1}{2}$  way open. Close the choke gradually after engine starts and adjust throttle after warm up. Experience will teach you the degree of choking necessary under varying conditions.
- c. Start the engine with a quick steady pull of the starter cable. Do not jerk or pull the retractable starter to the end of its cable—return the handle slowly in a straight line. If a second pull is necessary, close choke and repeat the starting operation.

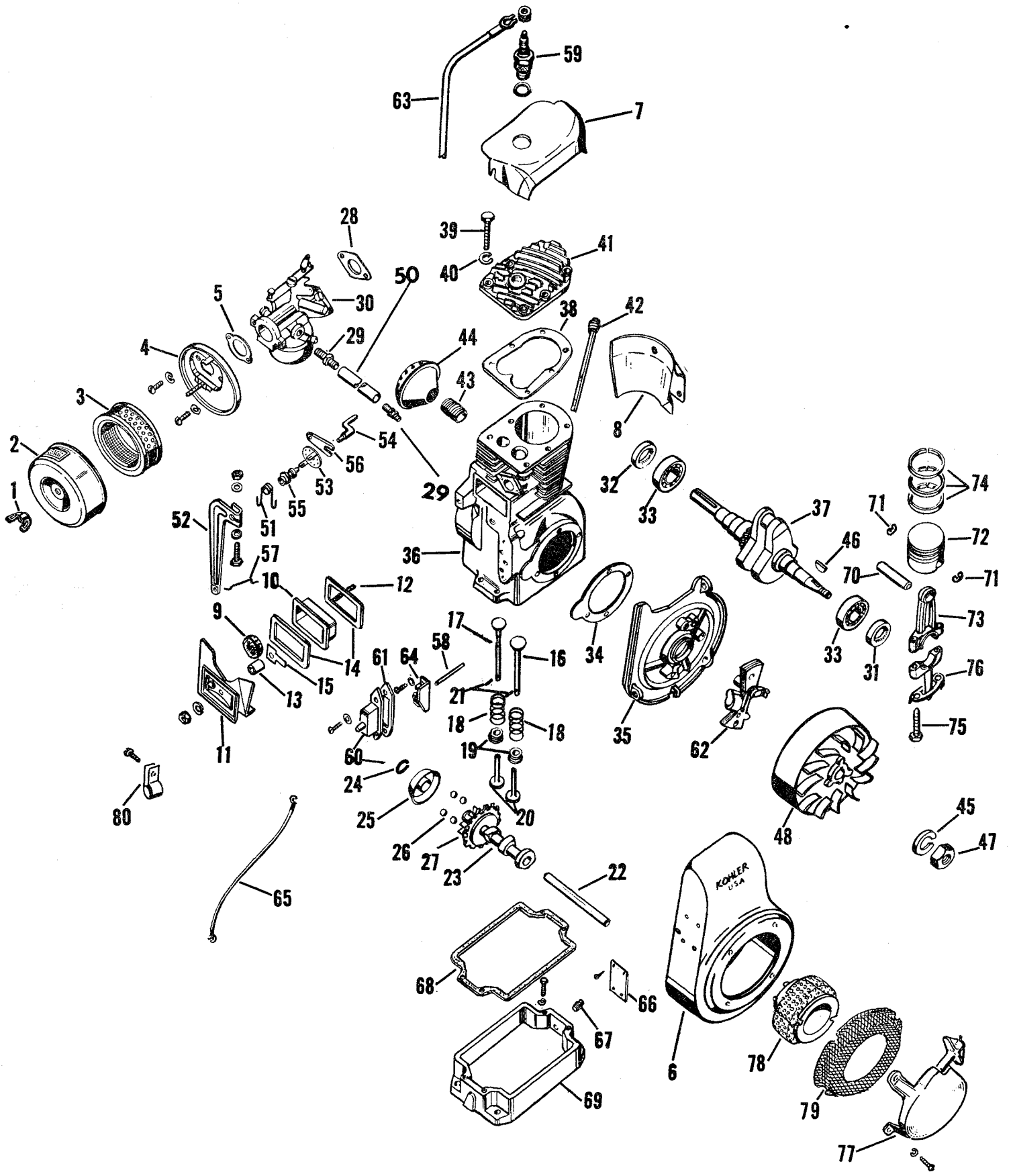
### 3. To Stop

- a. Slowly move the dash mounted throttle lever to "off" position allowing the engine to idle before actual shut-off.

### 4. Precautions

Stop engine before filling fuel tank. Avoid spilling gasoline on a hot engine. Always use fresh, clean gasoline.

- a. Avoid injuries. *Always disconnect spark plug cable before making any adjustments to the machine powered by the engine.*
- b. Be sure crankcase is full and serviced properly at all times. Fill crankcase with  $1\frac{1}{2}$  pints of fresh, clean oil.
- c. Clean air cleaner cartridge periodically by *gently* tapping on a flat surface. **DO NOT DAMAGE.** Be sure cartridge seals on bottom adapter plate and wing nut on top plate is finger tight. Replace cartridge if bent, crushed, or damaged and under extreme dust conditions after 100 to 200 hours operation. Clean or replace cartridge when loss of power is noticeable.
- d. Let engine warm up before applying load.
- e. Keep cylinder block and cylinder head cooling fins and air screen clean. This is very important for proper cooling on air cooled engines.
- f. Do not operate at speeds greater than governor setting or run continuously at maximum load.



# K91T ENGINE PARTS LIST

Item No.	Quantity	Part No.	Description	Item No.	Quantity	Part No.	Description	Item No.	Quantity	Part No.	Description
<b>AIR INTAKE GROUP</b>											
	2	X-18-2	Washer, 8x32x $\frac{3}{8}$		4	X-5-1	Screw, H.C. $\frac{1}{4}$ -20x $\frac{5}{8}$		2	X-15-6	Screw, F.H.M. 10-24x $\frac{3}{8}$
	2	X-51-12	Screw, R.H.M.		4	X-25-55	Washer, copper $\frac{1}{4}$		2	X-15-10	Screw, F.H.M. 10-24x $\frac{5}{16}$
	1	A-230837	Cleaner, air	31	1	X-271-15	Seal, front oil		4	X-19-1	Washer, lock #10
1	1	X-376-4	Nut, wing	32	1	X-271-16	Seal, rear oil		2	X-67-22	Screw, self tap 10-24x $\frac{7}{8}$
2	1	230839	Cover, cleaner		1	X-301-6	Button, plug	58	1	X-489-1	Rod, breaker
3	1	230840	Element, cleaner	33	2	200110	Bearing, ball	59	1	220040-S	Plug, spark
4	1	230838	Base, cleaner	34	1	220071	Gasket, bearing plate	60	1	A-220136	Cover, breaker
5	1	220537	Gasket	35	1	220385	Plate, bearing	61	1	220174	Gasket, cover
	1	220720	Decal, instruction	36	1	A-220496	Block, cylinder	62	1	A-220409	Stator - assem.
<b>CRANKCASE GROUP</b>											
	4	X-5-1	Screw, H.C. $\frac{1}{4}$ -20x $\frac{5}{8}$		1	220418	Crankshaft		1	220434	Condenser
	4	X-20-1	Washer, lock		1	220418	Crankshaft		1	220435	Coil, magneto
6	1	220220	Housing, blower		1	220418	Crankshaft	63	1	A-220432	Cable, hi-tension
7	1	A-220605	Baffle, head - assem.		1	220418	Crankshaft	64	1	A-220474	Breaker - assem.
8	1	220054	Baffle, cylinder		1	220418	Crankshaft		1	220475	Points, breaker
<b>CRANKSHAFT GROUP</b>											
	4	X-5-1	Screw, H.C. $\frac{1}{4}$ -20x $\frac{5}{8}$		1	A-220092	Dipstick		1	220476	Bracket, breaker
	4	X-20-1	Washer, lock		1	A-220092	Dipstick		1	220476	Bracket, breaker
6	1	220220	Housing, blower		1	A-220092	Dipstick		1	A-220512	Lead, breaker
7	1	A-220605	Baffle, head - assem.		1	A-220092	Dipstick		1	A-220696	Lead, ground
8	1	220054	Baffle, cylinder		1	A-220092	Dipstick		1	275183	Clip, cable
<b>CYLINDER HEAD GROUP</b>											
	1	220124	Gasket, head		1	A-220092	Dipstick		1	275183	Clip, cable
	6	220257	Screw, H.C. $\frac{5}{16}$ -18x $\frac{1}{4}$		1	A-220092	Dipstick		1	275183	Clip, cable
	6	220534	Washer $\frac{5}{16}$		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220541	Head, cylinder		1	A-220092	Dipstick		1	275183	Clip, cable
<b>EXHAUST GROUP</b>											
	1	X-206-2	Nipple		1	A-220092	Dipstick		1	275183	Clip, cable
	1	214045	Muffler		1	A-220092	Dipstick		1	275183	Clip, cable
<b>IGNITION GROUP</b>											
	4	X-15-6	Screw, F.H.M. 10-24x $\frac{3}{8}$		1	A-220092	Dipstick		1	275183	Clip, cable
	2	X-15-10	Screw, F.H.M. 10-24x $\frac{5}{16}$		1	A-220092	Dipstick		1	275183	Clip, cable
	4	X-19-1	Washer, lock #10		1	A-220092	Dipstick		1	275183	Clip, cable
	2	X-67-22	Screw, self tap 10-24x $\frac{7}{8}$		1	A-220092	Dipstick		1	275183	Clip, cable
	1	X-489-1	Rod, breaker		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220040-S	Plug, spark		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220136	Cover, breaker		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220174	Gasket, cover		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220409	Stator - assem.		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220434	Condenser		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220435	Coil, magneto		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220432	Cable, hi-tension		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220474	Breaker - assem.		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220475	Points, breaker		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220476	Bracket, breaker		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220512	Lead, breaker		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220696	Lead, ground		1	A-220092	Dipstick		1	275183	Clip, cable
	1	275183	Clip, cable		1	A-220092	Dipstick		1	275183	Clip, cable
<b>NAMEPLATE GROUP</b>											
	4	X-67-18	Screw, sheet metal #7x $\frac{3}{8}$		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220630	Nameplate		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220673	Decal, 4 H.P.		1	A-220092	Dipstick		1	275183	Clip, cable
<b>OIL PAN GROUP</b>											
	4	X-21-1	Washer, lock $\frac{5}{16}$		1	A-220092	Dipstick		1	275183	Clip, cable
	1	X-75-2	Plug, pipe $\frac{1}{4}$		1	A-220092	Dipstick		1	275183	Clip, cable
	4	X-125-4	Screw, H.C. $\frac{5}{16}$ -18x $\frac{7}{8}$		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220157	Gasket, pan		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220723	Base, oil pan		1	A-220092	Dipstick		1	275183	Clip, cable
<b>PISTON AND ROD GROUP</b>											
	1	220003	Pin, piston - std.		1	A-220092	Dipstick		1	275183	Clip, cable
	2	220004	Retainer, piston pin		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220103	Piston (w/ pin and retainer)		1	A-220092	Dipstick		1	275183	Clip, cable
	1	B-220111	Rod, connecting - assem.		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220467	Ring set - std.		1	A-220092	Dipstick		1	275183	Clip, cable
	2	220491	Screw, connecting rod		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220492	Lock, connecting rod		1	A-220092	Dipstick		1	275183	Clip, cable
<b>RETRACTABLE STARTER GROUP</b>											
	4	X-19-1	Washer, lock #10		1	A-220092	Dipstick		1	275183	Clip, cable
	4	X-25-7	Washer, #10		1	A-220092	Dipstick		1	275183	Clip, cable
	4	X-50-2	Screw, R.H.M. 10-32x $\frac{3}{8}$		1	A-220092	Dipstick		1	275183	Clip, cable
	1	A-220589	Starter recoil		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220724	Cup, drive w/ screen		1	A-220092	Dipstick		1	275183	Clip, cable
	1	220683	Screen, grass		1	A-220092	Dipstick		1	275183	Clip, cable

Indented part numbers and descriptions are components of preceding assembly.

Order parts from your nearest Kohler dealer giving part number and description of part and model number, specification number and serial number of engine.

## MAINTENANCE

### 1. Each Day

- a. Check the oil level. Add oil only as needed, keeping the level between the marks on the gauge.
- b. Be sure that rotating screen is in proper position and clean. A bent screen will allow chaff and dirt to collect under the shroud and cause the engine to overheat.

### 2. Every 25 Operating Hours

- a. Change oil in the crankcase. (Change more often under extremely dusty conditions.) Be sure there are no air leaks at gasket joints between air cleaner, carburetor and cylinder block.
- b. Wipe oil and dirt from fins, shroud and baffles.

### 3. Every 100 Operating Hours

Make regular 25 hour inspection and in addition—

- a. Clean spark plug and reset gap to .025".
- b. Remove, clean and replace the sediment bowl.
- c. Check breaker points and reset to .020".

- d. Keep air intake area and cooling fins clean.
- e. Oil recoil starter periodically through hole as indicated on starter housing.

### 4. Instructions for Storing

If your engine is to be out of service for a considerable length of time the following procedure is recommended:

- a. Drain fuel tank.
- b. Drain carburetor by loosening nut on bottom of carburetor bowl, and retighten.
- c. Remove, clean, and replace sediment bowl.
- d. Clean exterior of engine.
- e. Spread a film of light oil over any exposed surfaces of engine subject to corrosion.
- f. Pour a tablespoon full of SAE 30 oil into spark plug hole and crank engine slowly by hand. Replace spark plug.
- g. Store in dry place.

## TROUBLE SHOOTING

Following is a list of troubles which may occur from average use and normal wear.

### 1. Hard Starting

- a. Faulty ignition.
  - (1) Loose or grounded high tension or breaker point leads.
  - (2) Improper breaker point gap.
  - (3) Faulty spark plug.
  - (4) Faulty condenser or coil.
  - (5) Incorrect spark timing.
- b. Faulty carburetion.
  - (1) Gasoline not getting to carburetor.
    - (a) Dirt or gum in fuel line.
    - (b) Fuel line bent or broken.
  - (2) Dirt in carburetor.
  - (3) Carburetor improperly adjusted.
- c. Compression loss.
  - (1) Valves leaking or sticking.
  - (2) Rings worn.
  - (3) Head gasket leaking.
  - (4) Air cleaner in need of service.

### 2. Overheating

- a. Insufficient available cool air.
- b. Dirty air intake screen, shroud or cooling fins.
- c. Improper fuel.
- d. Fuel mixture too lean.
- e. Improper ignition timing.

### 3. Backfiring

- a. Fuel mixture too lean.
- b. Sticky intake valve.
- c. Improper timing.

### 4. Occasional Missing at High Speed

- a. Spark plug gap too wide.
- b. Improper carburetor setting or lack of fuel.
- c. Wrong type spark plug. Use recommended spark plug.
- d. Improper timing.

### 5. Missing Under Slow Hard Pull

- a. Spark plug gap too wide.
- b. Pitted breaker points.
- c. Partially fouled spark plug.
- d. Defective ignition cable.

### 6. Knocking

- a. Fuel octane rating too low.
- b. Overheated engine.
- c. Improper timing
- d. Loose connecting rod.
- e. Excessive carbon in combustion chamber.

### 7. Operating Erratically

- a. Clogged fuel line.
- b. Water in fuel.
- c. Faulty choke control.
- d. Improper fuel mixture.
- e. Loose ignition system connections.
- f. Air leaks in manifold or carburetor connections.
- g. Clogged air cleaner, replace element.

### 8. Engine Will Not Idle

- a. Improper carburetor idling adjustment.
- b. Carburetor jets clogged.
- c. Spark plug gap too small.
- d. Leaking carburetor or manifold gaskets.
- e. Sticking or leaking valves.
- f. Weak coil or condenser.

**CONTACT YOUR NEAREST KOHLER DEALER FOR REPAIR SERVICE**

**KOHLER CO. Established 1873 KOHLER, WIS.**

**K O H L E R O F K O H L E R**