



DEPENDABLE • COMPACT

Johnson

JOHNSON IRON HORSE ENGINES are available in size and equipment to develop from $\frac{1}{2}$ to $1\frac{1}{3}$ horsepower (see power curves page 4) and with a wide range of adaptability. They are widely used on washing machines, lawn mowers, pumps, electric generators and numerous other machines where DEPENDABLE power and long life are required.

For more than nineteen years Johnson has been noted for the quality and performance of its famous Sea Horse Outboard Motors. Iron Horse Four-Cycle, air cooled industrial type gasoline engines are designed by the same competent engineering staff, built by the same skilled workmen on the same modern precision machines in the same efficient factory. And Johnson Iron Horse engines are also the last word in their field.

Mounting dimensions, power curves, illustrations, list of features and complete specifications are given on the following pages.

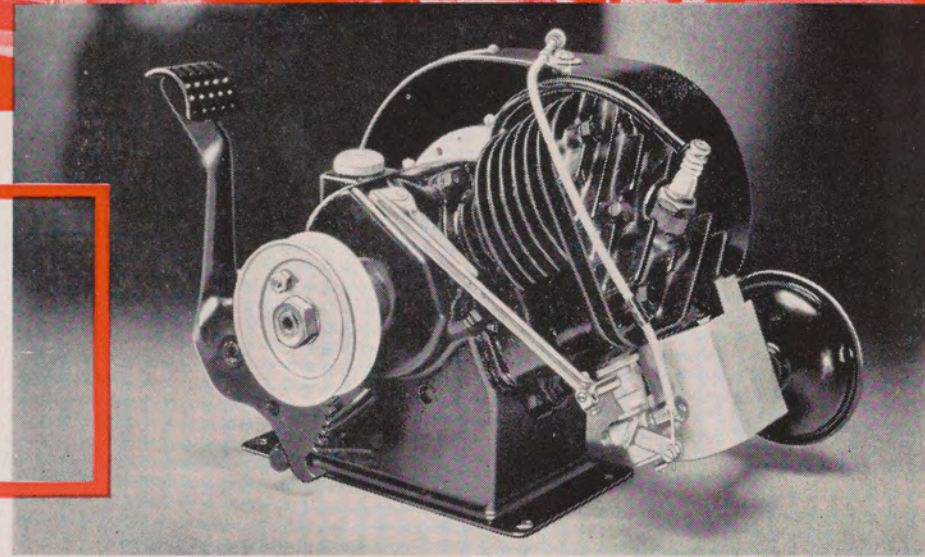
G A S O L I N E E N G I N E S

A PRODUCT OF JOHNSON MOTORS, WAUKEGAN, ILL.

FOR THESE... AND MANY OTHER *Power* USES



This is the Iron Horse with suction-feed carburetor and foot-starting pedal—also available in numerous combinations.



Adaptability

JOHNSON IRON HORSE ENGINES are compact. The angle cylinder permits low height for mounting in close quarters, for keeping center of gravity low.

Beyond that, however, adaptability to numerous installations is made possible by wide variations in equipment. Either rope, foot-pedal or hand-lever starting is available.

The regular gasoline tank (for suction-feed) is one quart capacity, but the user may supply his own tank of special dimensions. A one gallon cast iron tank, also serving as a substantial base, may be had. Where the down-draft float-feed carburetor is used, the overhead tank mounted on the engine or other gravity arrangement may be used. Exhaust outlets also may be modified and a special screen for the air intake to flywheel-fan is available. On some generator-set applications shielding of ignition is required. Shielding can be supplied.

Belt or direct connection drive may be taken from either end of the crankshaft. Iron Horse engines are regularly equipped with V-belt pulleys on each side and these may be had in various sizes.

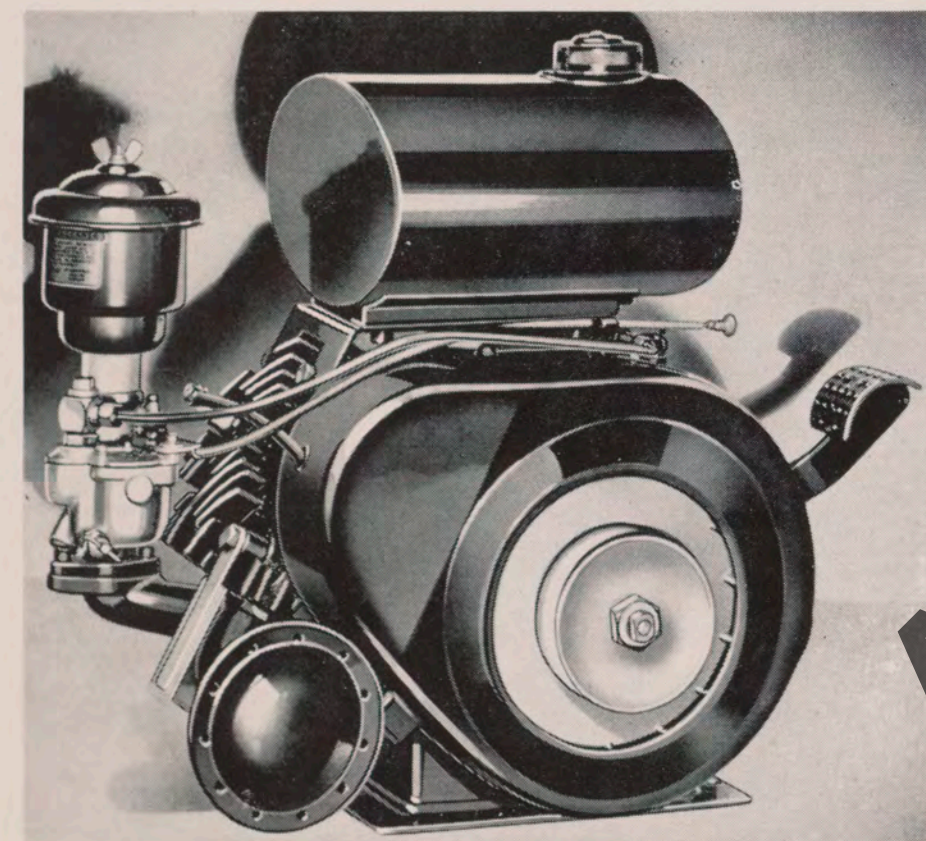
While an effective dry-type air cleaner can be attached to the suction-feed carburetor intake, the oil-bath type is applicable only to the down-draft float-feed type as illustrated.

THREE SIZES

While other combinations are possible, three power-output engines are available —

1. X-400 series with suction-feed carburetor. Nominal rating $\frac{3}{8}$ hp.
2. X-400 series with down-draft float-feed carburetor. Nominal rating $\frac{3}{4}$ hp.
3. X-500 series (larger bore, higher r.p.m.) with down-draft float-feed carburetor. Nominal rating 1 hp.

SEE TORQUE and POWER CURVES, PAGE 4.



Iron Horse with Down-draft Carburetor and Gravity-Feed Tank.

Johnson Features

"JUST ANOTHER ENGINE" cannot be said of the Johnson Iron Horse. These are different and back of every unique design feature there is a sound reason. Besides, years of service by many thousands of engines prove their superiority.

- Four Cycle (of course)
- Compact, symmetrical design
- Sturdy, light weight
- Effective, forced, air cooling
- Mechanically operated valves
- Vacuum sealed crankcase
- Improved "dirt-proof" breather
- Sealed main bearings
- Cylinder detachable
- Ignition stop button
- Metered splash automatic lubrication
- Johnson flywheel magneto
- Quick easy starting
- Mechanical governor (enclosed running in oil)
- Counter-balanced crankshaft
- Either suction-feed or down-draft carburetor
- Integral gear and camshaft
- Anodic treated aluminum piston
- Ample oil capacity
- Two pulleys regular equipment
- Three (horsepower) sizes
- Air cleaners available
- Silchrome exhaust valve
- Simple to adjust and operate
- Exceptional gasoline economy
- Nominal speed—1800 to 2600 r.p.m.
- Minimum vibration
- Large, long-life bearings

Specifications

TYPE — 4 cycle, single cylinder, (30° from horizontal) air cooled.

POWER — (Nominal ratings, see power curves page 4)
 X-400 series, suction-feed carburetor $\frac{3}{8}$ hp. 1800 r.p.m.
 X-400 series, down-draft carburetor $\frac{3}{4}$ hp. 1900 r.p.m.
 X-500 series, down-draft carburetor 1 hp. 2000 r.p.m.

BORE, STROKE, R.P.M. —
 X-400 series, $2\frac{1}{8} \times 1\frac{3}{4}$, 1750 to 1950 r.p.m.
 X-500 series, $2\frac{1}{4} \times 1\frac{3}{4}$, 1800 to 2600 r.p.m.

STARTING — Optional, foot-pedal, hand-lever or rope.

IGNITION — Johnson built flywheel magneto, enclosed, moisture proof, high tension type.

SPARK PLUG — 14 m.m. Champion, J-8.

CARBURETORS — Adjustable, efficient suction-feed built by Johnson.
 Down-draft, float-feed with high and low speed jets and adjustment.

COOLING — Radial fan blades on flywheel force strong air current over cylinder and head directed by shroud.

CRANKCASE — Cast separately. Improved check-valve breather. Oil capacity $\frac{3}{4}$ pint. (Special, one pint available).

CYLINDER — Nickel iron. Separate from crankcase. Ground and honed to mirror finish, close dimensions. Valve guide inserts.

GOVERNOR — Mechanical fly-ball type mounted on crankshaft inside crankcase. Close speed control. Speed adjustment.

BEARINGS — Main journals, steel backed babbitt. Protected by oil and dust seals.

CRANKSHAFT — Drop-forged steel, ground to smooth close limits.

VALVES — Steel forgings. Exhaust valve silchrome; intake valve nickel steel.

CONNECTING RODS — Pressure die-cast aluminum alloy.

PISTON — Pressure die-cast aluminum alloy. Anodic treated for hardness and long life. Two compression rings, one oil control ring.

LUBRICATION — Exclusive Johnson design metered splash to all internal parts.

FINISH — Sprayed black enamel.

WEIGHT — Depending on model and equipment, from 37 to 42 pounds.

GASOLINE TANK — Regular with suction-feed carburetor, one quart; overhead for gravity feed, 3 quarts; base-tank available, one gallon.

AIR CLEANER — Approved oil bath type regular on down-draft carburetor. Special dry type for suction-feed carburetor.

PULLEYS — V-belt type (several sizes) both ends of crankshaft.

DIRECT MOUNTING — Crankcase available with flange mounting provision when foot-pedal starting not used.

