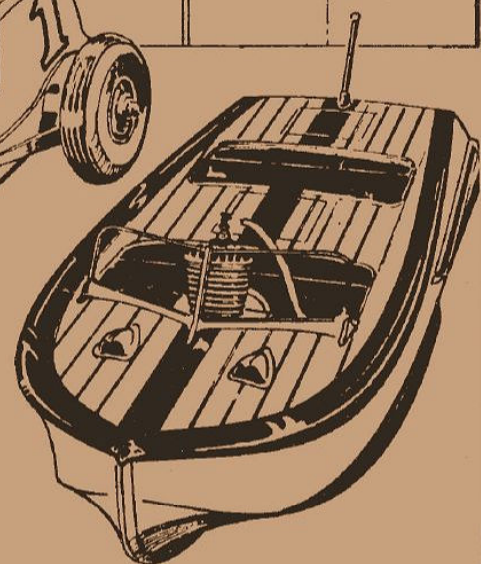
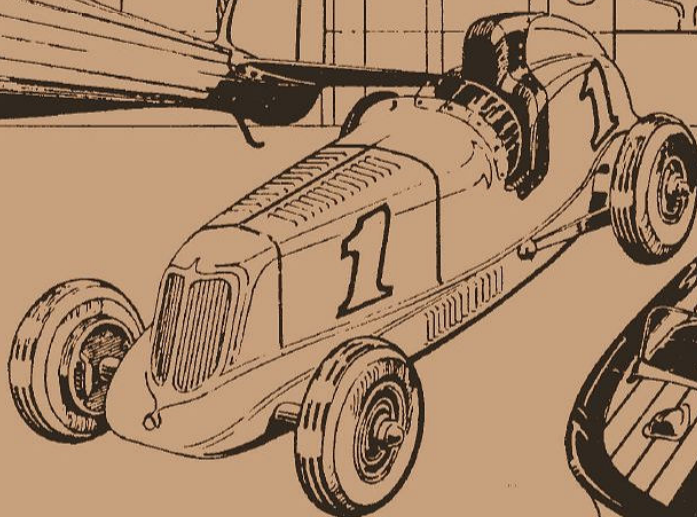
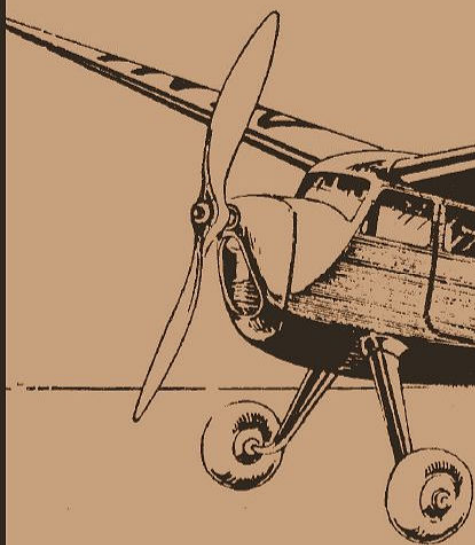


# BUNCH

# Gas Model Engines



20¢

## BUNCH MOTOR COMPANY

★ 6714 McKINLEY AVENUE LOS ANGELES, CALIF. ★





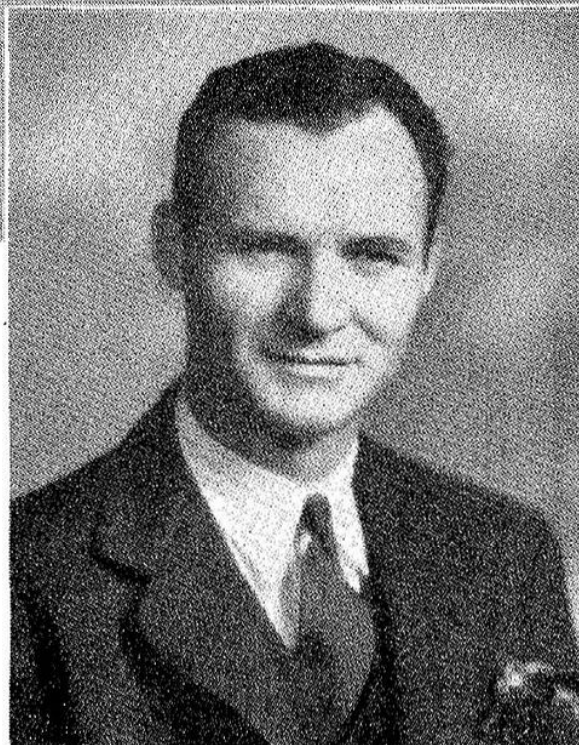
# OUR 'SPECIAL' AIM

**T**HE WORD **SPECIAL** as applied to model engines is probably the most overworked word in America. We have made it our job—the constant working purpose of the Bunch Engineering Staff to give the word **SPECIAL** a **true** meaning when applied to a Bunch engine.

There are many engines that are good because today an engine must be at least good to be worthy of a name. Needless to say extravagant claims do not make a good engine, much less an engine of **SPECIAL** qualities.

Even an honestly established reputation built up for a model engine does not last forever. In engine design increased performance is an ever challenging objective. It is the product of research and the hard work of daily experience. The result is improved design, greater power, enhanced appearance, extended reliability, lighter weight—in short, the refinements that build a reputation for today's most modern engines.

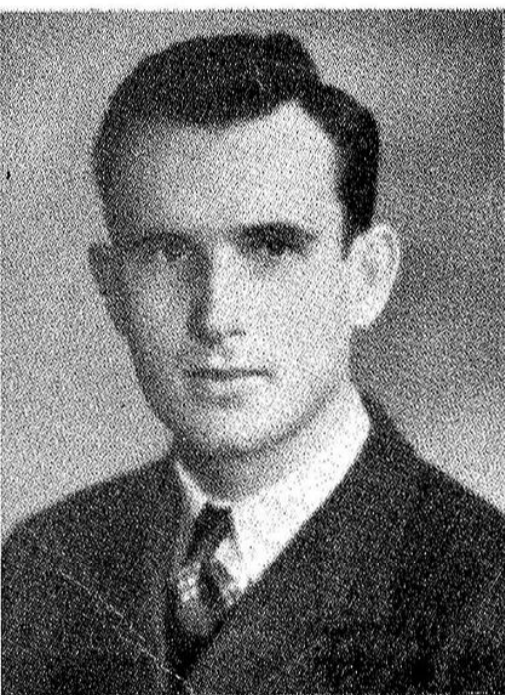
Judged by present accomplishments all model motors in early days were crude affairs to be sure. Since that time Bunch Engineers have not stopped working. At each turn **SPECIAL** problems meant **SPECIAL** work to find a **SPECIAL** solution.



*J. D. BUNCH, General Manager*

It is important that Bunch Engineers have not been dormant—'asleep' at the switch.' For today you can buy Bunch engines in every price range, unsurpassed for every model purpose. By comparison the engines that best met the needs of only a few years ago are outmoded, obsolete.

Be sure you fully investigate the **SPECIAL** Bunch engines herein described. Look to Bunch engines this year! We of the Bunch Engineering Staff pledge **SPECIAL** performance.



*H. A. BROUGHTON, JR.  
Project Engineer  
and Advertising Mgr.*

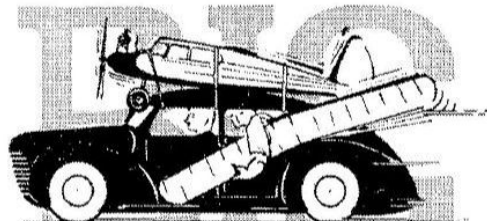
*J. R. CAIN  
Production Engineer*



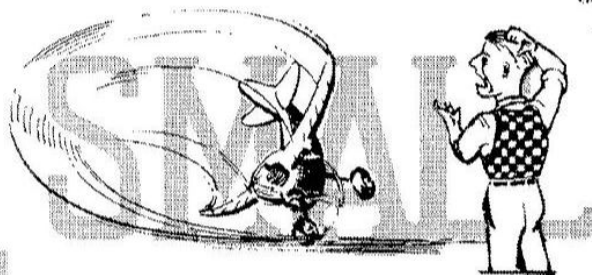
# MIGHTY MIDGET

## SPECIFICATIONS

|  |                  |                  |  |
|--|------------------|------------------|--|
| Displacement   | 45/100 cu. in.   | Rotation         | Counter clockwise                                |
| Bore   | 7/8"             | Operating Speed  | 6,000 R.P.M.                                     |
| Stroke   | 3/4"             | Port Area:       |  |
| Height Overall                                       | 4 1/4"           | Intake           | 0973 sq. in.                                     |
| Flying Weight  | 9 1/2 oz.        | By-Pass          | 0973 sq. in.                                     |
| (Includes engine, fuel tank,<br>Powerhouse Ignition) |                  | Exhaust          | 0973 sq. in.                                     |
| Bare Engine Weight                                   | 7 oz.            | Compression Seal | Two piston rings plus<br>lapped in steel piston. |
| Exhaust  | Open to the rear | Fuel Tank        | Transparent                                      |
|  |                  | (To inverted)    | Metal  |



**TOO BIG**—You've seen this fellow. He swears the "bigger you build them the better they fly." He also does a bit of swearing when he loads and unloads his monster every trip to the flying field. Today model airplanes that fit easily into an automobile. If powered with the correct engine have a lower power loading as well as the lowest wing loadings. With hardly an exception they outfly the big ones 6 feet or over.



## THE OPTIMUM SIZE

All things made seek to find the optimum size. Consider such products of industry as wrist watches, silverware or automobiles. We have come to accept them without question in their present proportions because each is designed at that size which best renders the service or special utility peculiar to itself.

Silverware in miniature, for instance, would excite attention but would prove exasperating if used to eat a full course dinner. Likewise a double size automobile would not prove as convenient or operate as efficiently as the present accepted size.

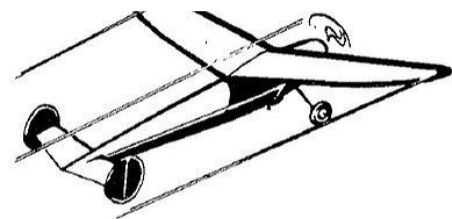
There is also an optimum size with model gasoline engines and power models. By careful study and analysis Bunch engineers have determined 45 hundredths cubic inch engines to be most satisfactory, operating models large enough for greatest efficiency, and small enough for convenience. Investigate this fact before you consider an engine of any other size.



**TOO SMALL**—Here's the boy who built the "cute" little three and a half footer. Sure he saved a few pennies on material and built the whole job on the family breadboard. But it took longer to build than he was led to believe and as he says, "She came out a little heavy due to the extra weight of reliable batteries, regular timer and beefed-up landing gear required to fly it."

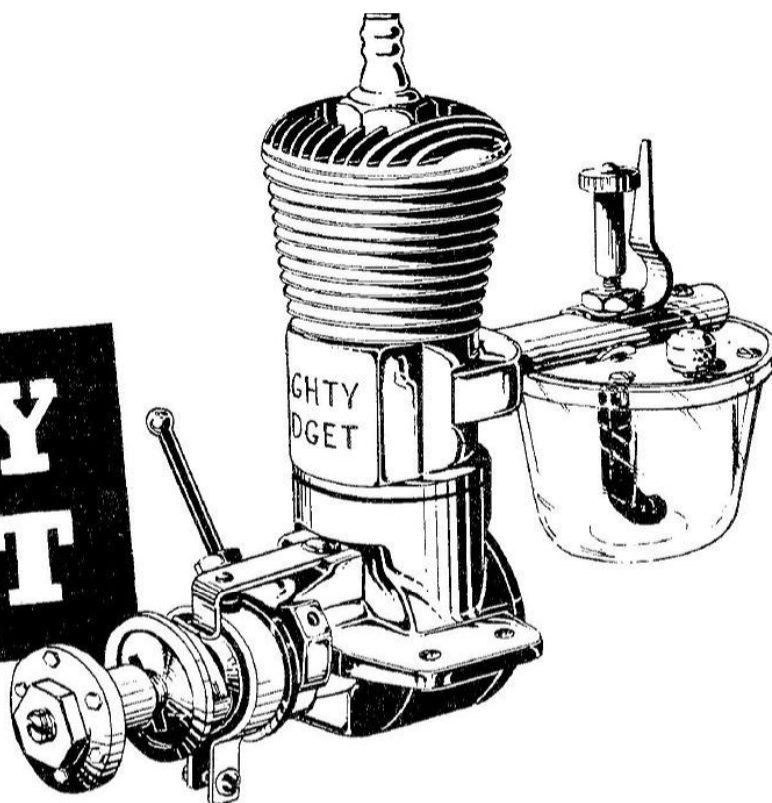
The rough ground is too much for this pint sized job on the take-off. And worst of all every gust of wind quickly produces a spin and crack-up which means a trip home for repairs.





*The famous*

# MIGHTY MIDGET



Over a period of years the famous Mighty Midget has gained a reputation far and wide as 'a thoroughly reliable engine at a low cost'. In model motors it's the answer to the statement, "It can be done."

Presented today in a new Sport Model the Mighty Midget is built to incorporate a new group of Bunch developments. If you have yet to see and admire this new Mighty Midget with lapped steel piston plus two piston rings, multi-fined cylinder and transparent fuel tank, you will be only more amazed when you hear it run.

The intense application of Bunch Engineers designing for more power, efficiency and reliability together with super-efficient production methods have produced the Mighty Midget at a price every model flyer can afford. Only what is proved as best in basic method of construction and the best of materials go into the Mighty Midget.

It is with this spirit and object in view that the Mighty Midget is now vastly superior from every standpoint.

The true value, individually tested and guaranteed performance of each Sport Model Mighty Midget is witnessed daily by many who visit the Bunch factory. And because it is such a fine engine built and sold at such a low cost it is often regarded as the greatest of all Bunch accomplishments.

Buy the Mighty Midget with confidence—it is your greatest money's worth in motor performance.

## LOOK!

# \$9.50

*Is the cost for  
this engine anywhere*

### TECHNICAL FEATURES

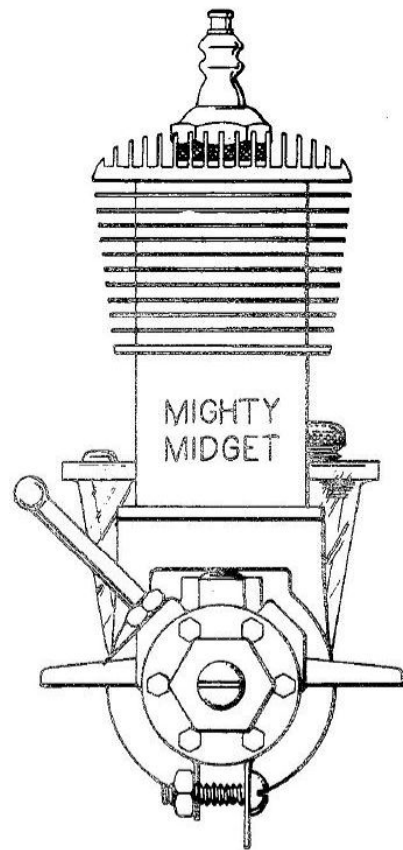
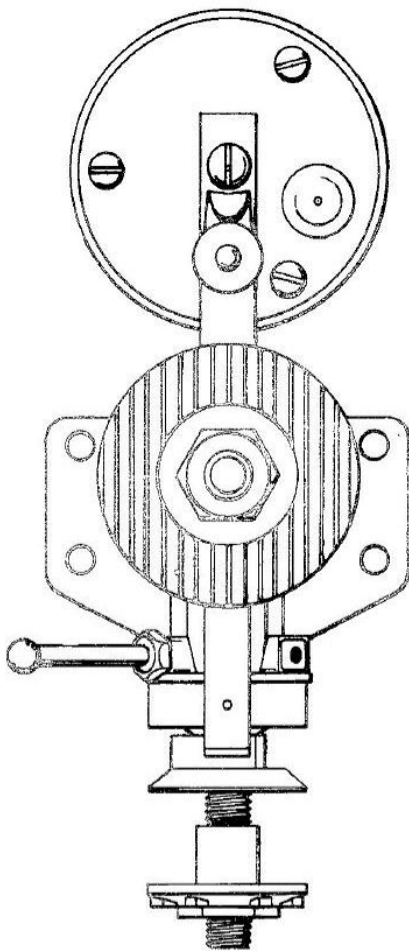
Every Bunch development described in this booklet contributes to the amazing performance of the Sport Model Mighty Midget.

Model builders standby and basis of all Bunch engine design this Sport Model Mighty Midget is gaining renown anew. It's the fully-lapped-in steel piston fitted with two compression piston rings; multi-finned, high compression cylinder; and Powerhouse Ignition that puts it every inch in the expensive engine class.

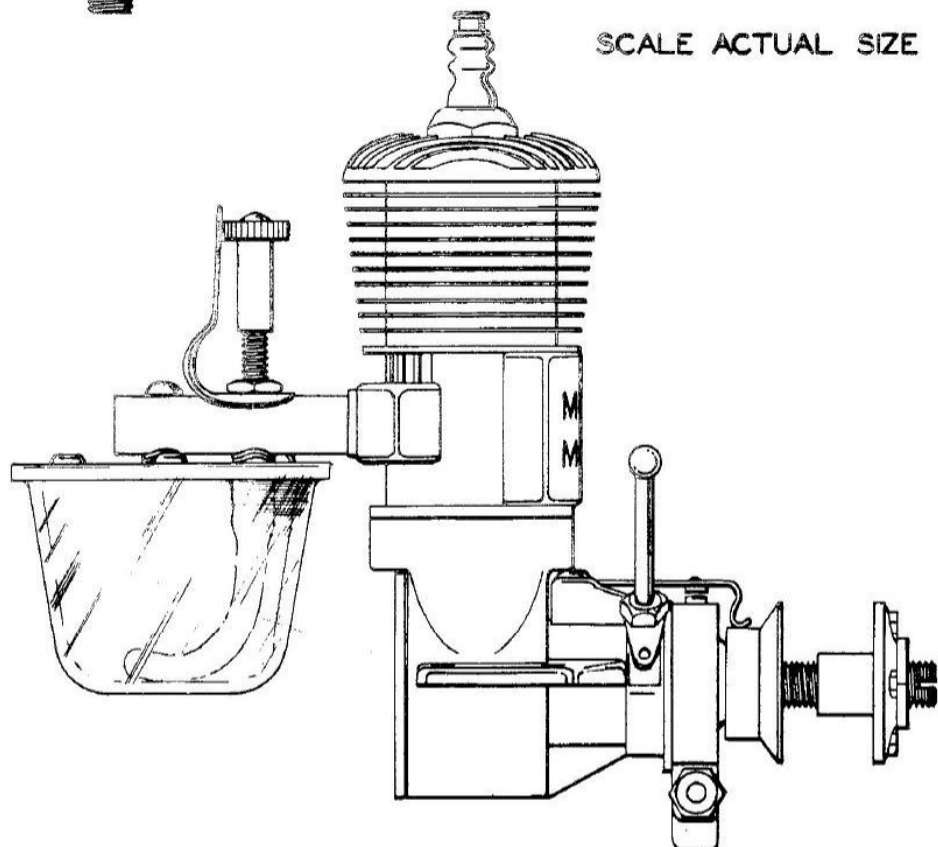
## BUY BUNCH and OWN THE BEST



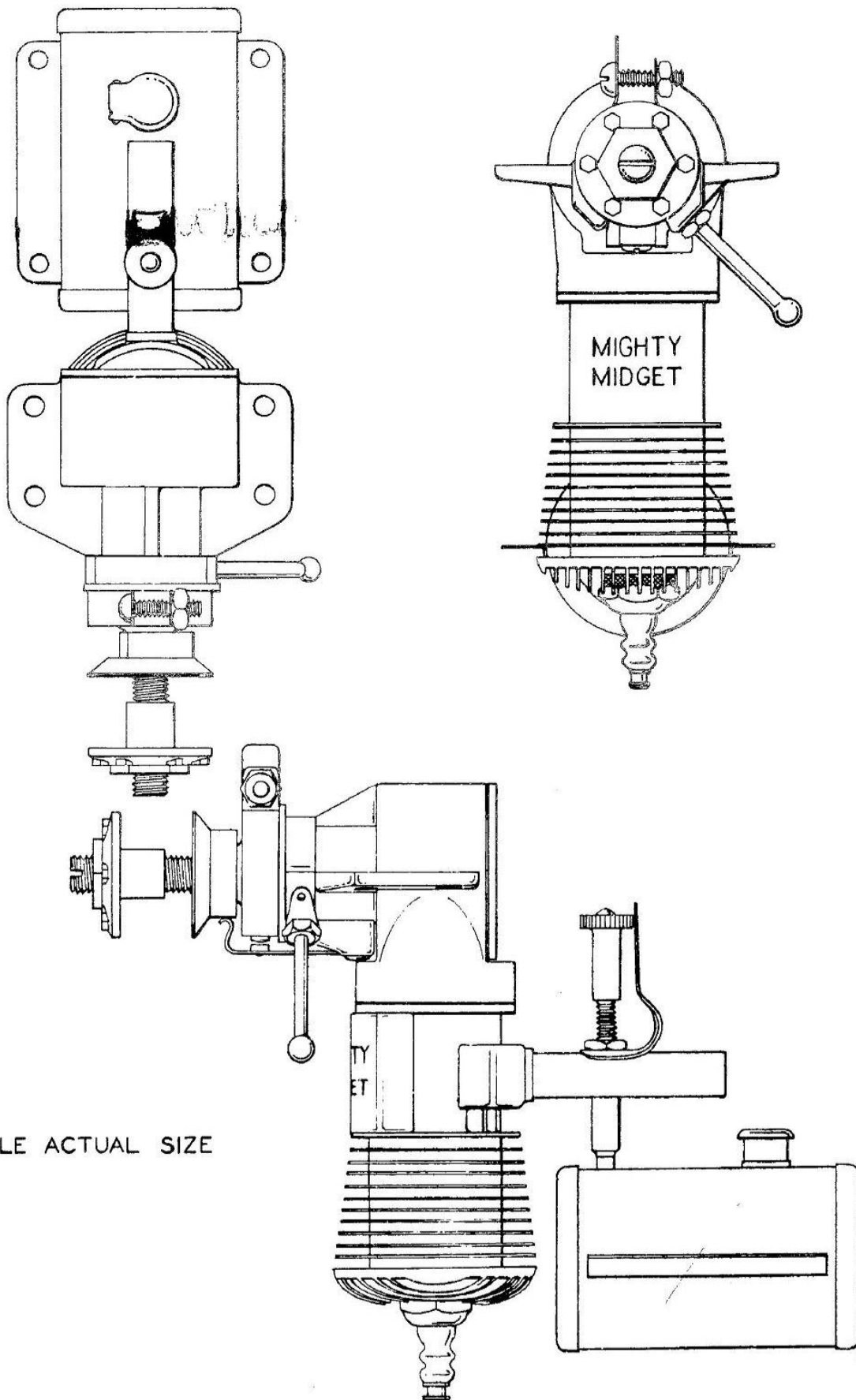
INSTALLATION DRAWING FOR MIGHTY MIDGET UPRIGHT MOTOR



SCALE ACTUAL SIZE



INSTALLATION DRAWING FOR MIGHTY MIDGET INVERTED MOTOR

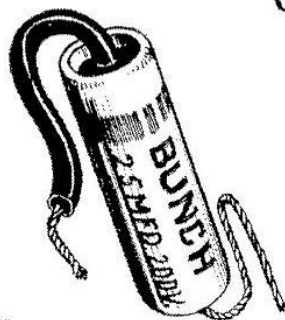
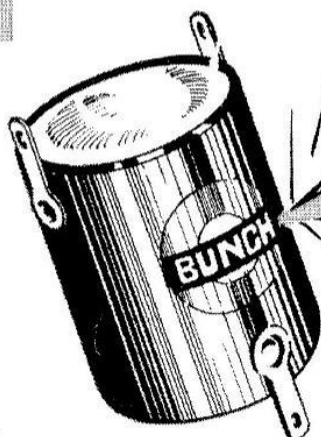




# GWIN AERO

## SPECIFICATIONS

|  |                    |                  |  |
|--|--------------------|------------------|--|
| Displacement   | 45/100 cu. in.     | Rotation         | Counter clockwise                                |
| Bore   | 7/8"               | Operating Speed  | 8,500 R.P.M.                                     |
| Stroke   | 3/4"               | Port Area:       |  |
| Height Overall                                       | 4 1/4"             | Intake           | .0973 sq. in.                                    |
| Flying Weight  | 93 3/4 oz.         | By-Pass          | .0973 sq. in.                                    |
| (Includes engine, fuel tank,<br>Powerhouse Ignition) |                    | Exhaust          | .0973 sq. in.                                    |
| Bare Engine Weight                                   | 7 1/4 oz.          | Compression Seal | Two piston rings plus<br>lapped in steel piston. |
| Exhaust  | Stack to left side | Fuel Tank        | Transparent                                      |
|  |                    | (To inverted)    | Transparent                                      |



## POWERHOUSE

"PRODUCES THE SPARK . . . THAT STARTS"

## IGNITION

MORE THAN JUST a coil and condenser "Powerhouse Ignition" is a balanced ignition unit. On smallest model airplane batteries a "sizzling," blue, thunderbolt spark is produced at the high tension lead. A spark that makes starting a snap.

This superior ignition system is standard equipment with every Bunch engine made and is included in the motor prices listed.

An advanced theory in producing electrical energy has been applied in constructing and winding this Powerhouse Coil. Its design produces a reserve voltage that operates most efficiently with a large capacity .25 Mfd. condenser. While large in capacity this condenser is small in physical size and metallic foil covered. Undue arcing at the points as produced by all lesser capacity condensers is now an unnecessary hazard. A stuttering engine where excess arcing has pitted the points is no longer necessary with Powerhouse Ignition. Every Bunch motor is more efficient because of Powerhouse Ignition.

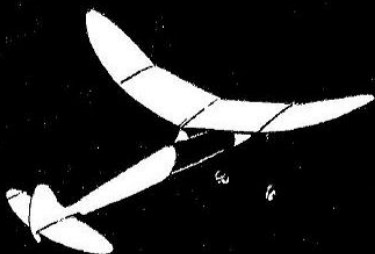
ACTUAL SIZE of Powerhouse coil is 1 1/8" in diameter by 1 3/4" long. Total weight is only 1 3/8 oz. This is most amazing since no model coil is its equal in producing electrical energy with small battery drainage. Nor is any as light in weight.

Bunch condenser metal foil covered is .25 Mfd., Weight 1/4 oz.; 1/2" diameter by 1 1/2" long. Flying with Powerhouse Ignition the total weight of Bunch engines is actually no greater than many motors classed as small bore motors using heavier coils.



*The winning*

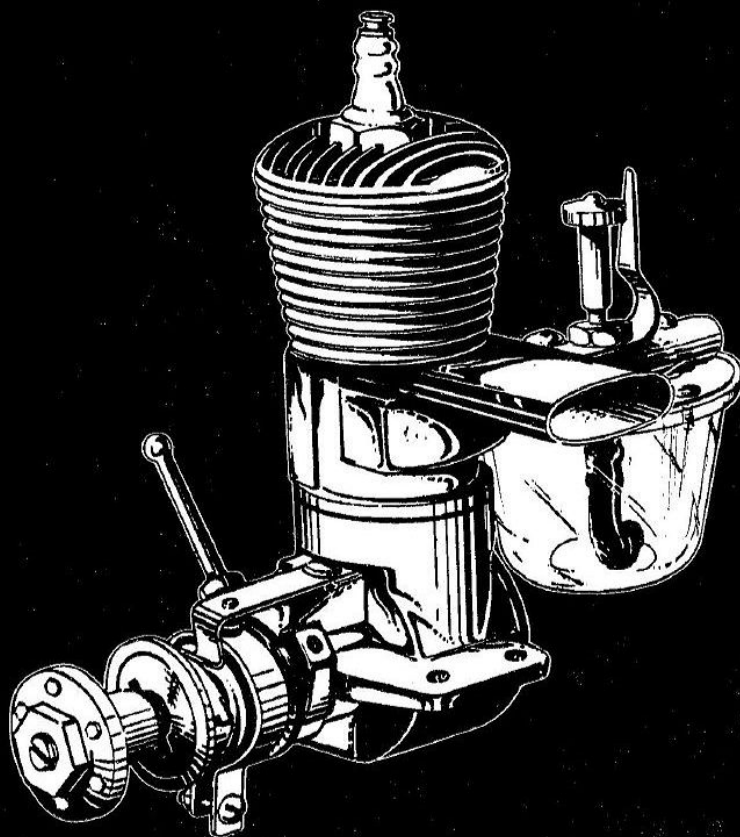
# **GWIN AERO**



The chief feature that distinguishes the Gwin Aero motor is the full length steel exhaust stack which is part of the cylinder construction. The by-pass porting construction is of special design to permit a side exhaust.

Model engines require complete freedom in expelling exhaust gases. The Gwin Aero stack does not cover over any exhaust port area but is scientifically designed in shape and length so as to increase scavenging efficiency. Compared with straight-back exhaust types this correctly proportioned Gwin Aero stack increases power and R.P.M.

For contest work where the extra margin of engine performance may mean a winning flight this advantage is important. It is not gained with bolted-on exhaust stacks or with short stacks less than an inch long.



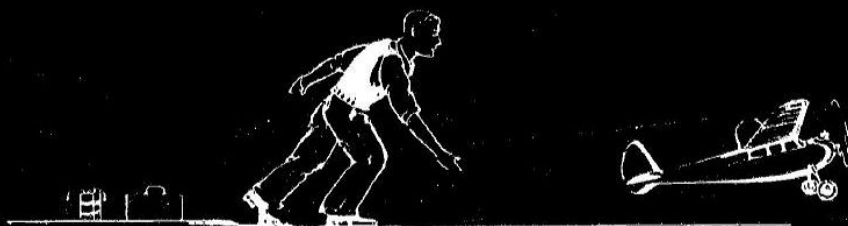
★ With the model builders who become experts, the Gwin Aero is proving the increasingly popular choice. Every day it is more apparent that the Gwin Aero delivers the extra margin of performance. In contest after contest all over the United States, Gwin Aero motor performance has yielded winning flights. In all major West Coast contests it's the Gwin Aero owners who step up at the finish and collect the "lion's share" of the awards.

Today this new Gwin Aero has been stepped-up, improved, and built with an extra capacity to establish future records.

With the dynamic scavenging efficiency and clean exhaust achieved with the full length exhaust stack, the Gwin Aero is more compact and beautiful in design than ever. Cooling efficiency is increased through multi-finned cylinder and head construction coupled with a substantial reduction in weight compared with former models.

This new Sport Model Gwin Aero motor is the lightest, most compact exhaust stack engine of standard size available to contest winners anywhere. If you intend to win, your best bet is a Gwin!

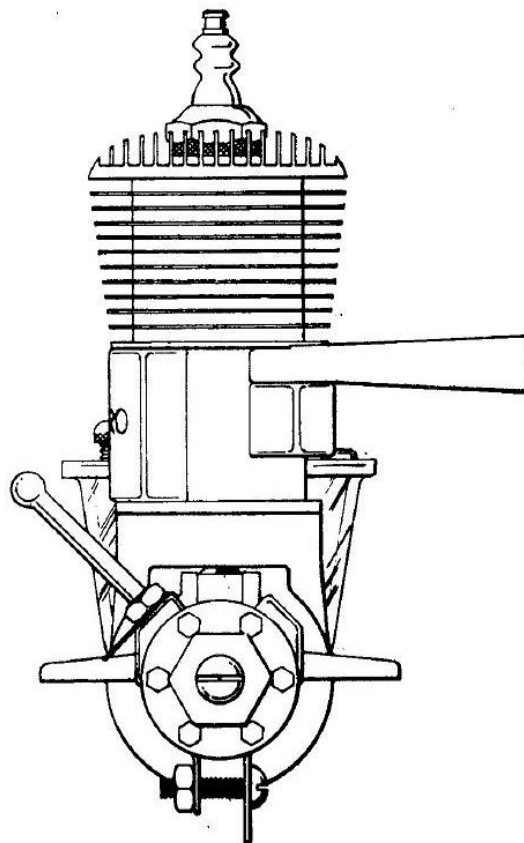
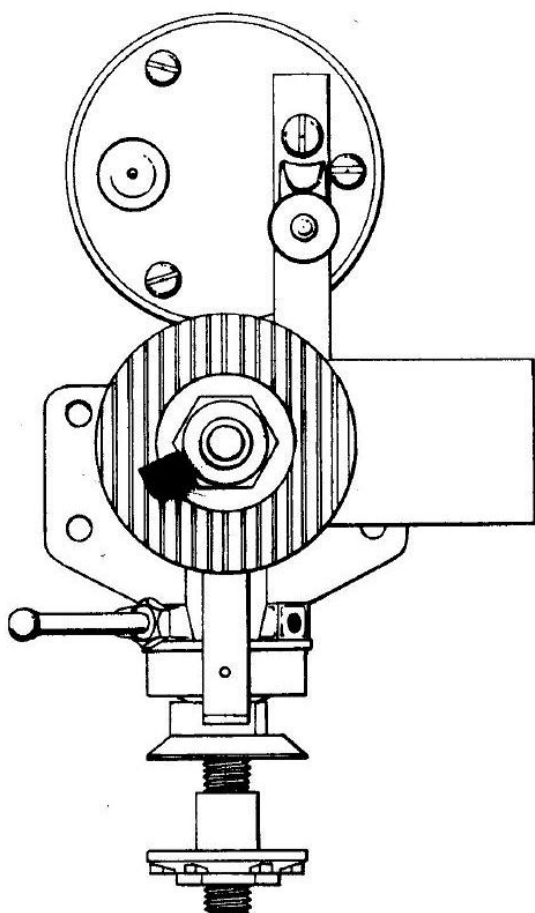
**\$12<sup>00</sup>**



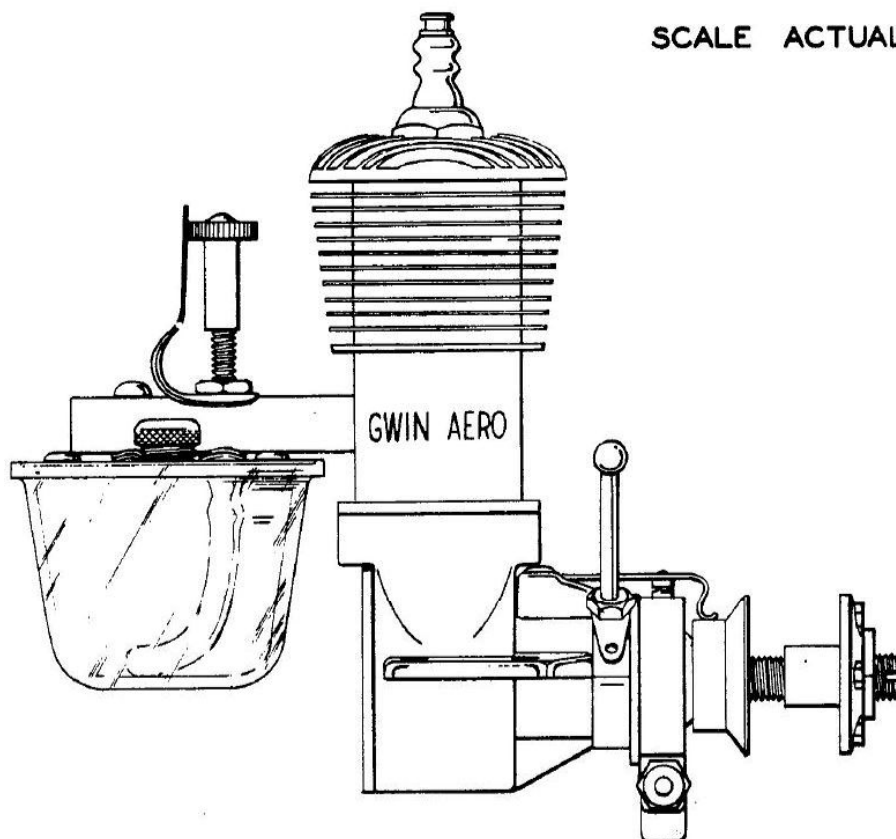
# **BUNCH BUILDS THE BEST**



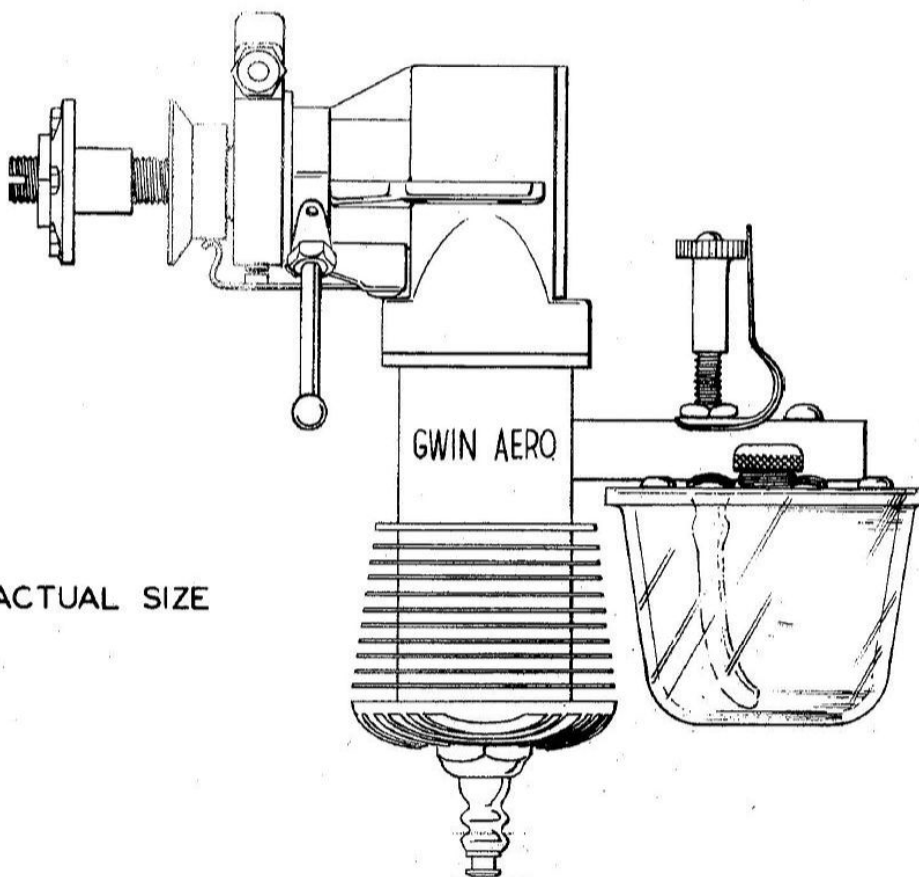
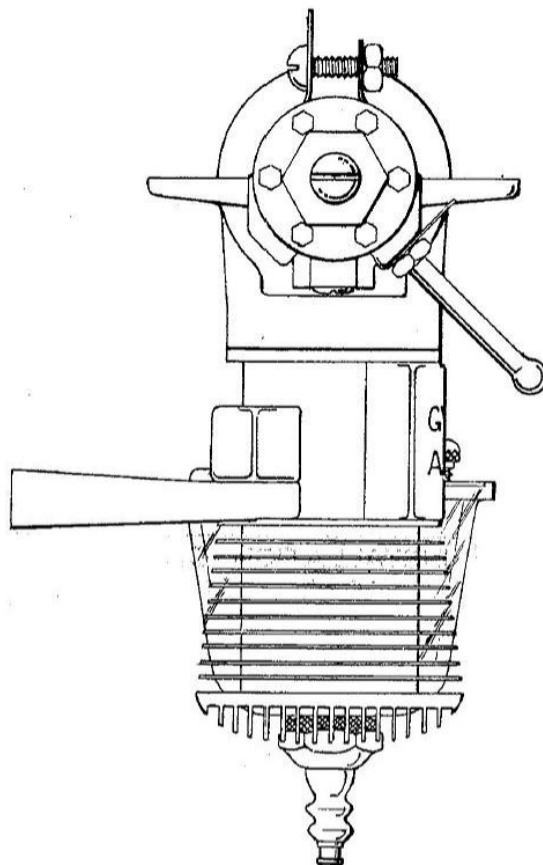
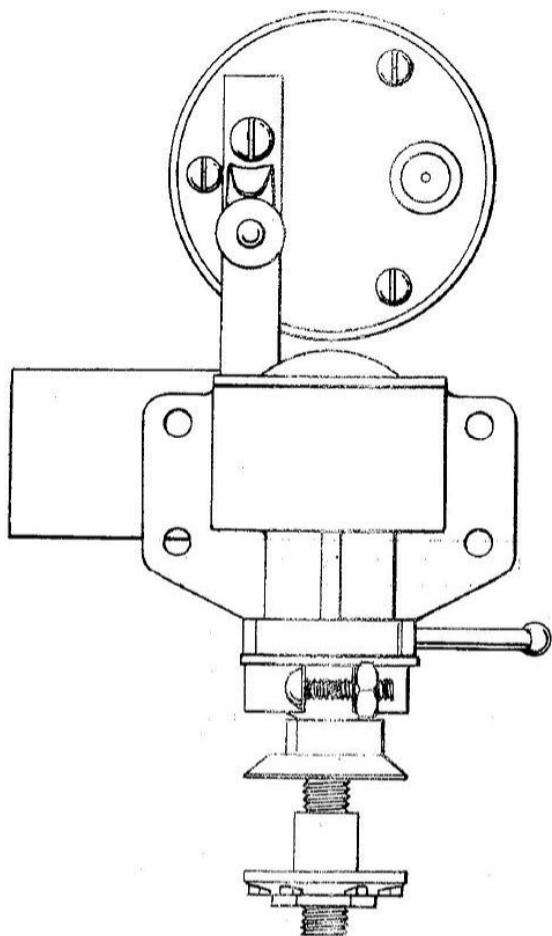
INSTALLATION DRAWING FOR GWIN AERO UPRIGHT MOTOR



SCALE ACTUAL SIZE



INSTALLATION DRAWING FOR GWIN AERO INVERTED MOTOR



SCALE ACTUAL SIZE



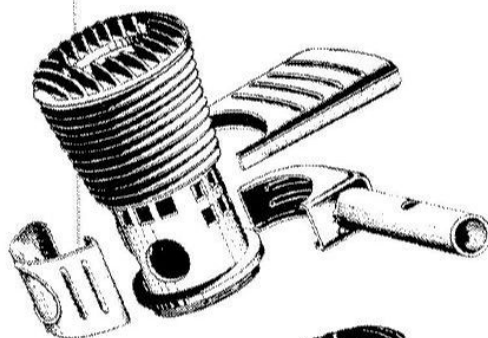
# SPEEDWAY

## SPECIFICATIONS

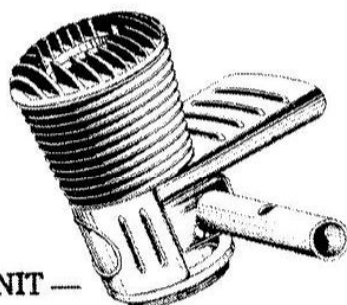
**Displacement** ..... 45/100 cu. in.  
**Bore** .....  $7/8$ "  
**Stroke** .....  $3/4$ "  
**Height Overall** .....  $4 1/4$ "  
**Complete Engine Weight** .....  $16 3/4$  oz.  
 (Includes engine, fuel tank, Powerhouse  
 Ignition and  $6 1/2$  oz. flywheel)  
**Bare Engine Weight** .....  $7 1/4$  oz.  
**Exhaust** ..... Stack on right side

**Rotation** ..... Optional (Two cams supplied)  
**Operating Speed** ..... 12,000 to 15,000 R.P.M.  
**Port Area:**  
 Intake ..... 1165 sq. in.  
 By-Pass ..... 0973 sq. in.  
 Exhaust ..... 0973 sq. in.  
**Compression Seal** ..... Two piston rings plus  
 lapped in steel piston.  
**Fuel Tank** ..... Metal  
**Flywheel** ..... Steel  $6 1/2$  oz. Hole  $1/4$ "  
 Slotted for universal attachment.

★ THE PARTS, ALL STEEL —



WELDED  
 TOGETHER  
 INTO ONE  
 LEAK-PROOF  
 CYLINDER UNIT —



ALL  
CYLINDER  
STEEL

The most distinguishing thing in Bunch engine construction is the one piece, modern aircraft cylinder. From the standpoint of service it has no equal. The method by which steel manifolds and exhaust stack is welded to the multi-finned cylinder is considered a marvel in modern welding practice. It is the only system absolutely leak-proof with the high pressures and temperatures occurring at the peak speeds now expected in the best model engines. One look at the smooth even appearance of a new Bunch cylinder will attest the fact that original Bunch engineering and shop practice has advanced this most practical system of construction to produce an engine that is the most beautiful in finished appearance and most adapted to modern design.

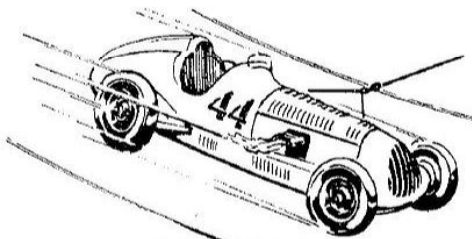
The common faults with thin wall cast iron cylinder construction are undue breakage because of brittleness or else excess weight to achieve minimum permissible strength. Cast aluminum manifold surrounding or pressed over a steel cylinder is subject to leakage after a limited amount of service due to unequal expansion of different character metals.

This Bunch machined all-steel cylinder with manifolds fused together as one light weight unit is not subject to these limitations and lends itself to lightest weight construction. These are basic facts and the Bunch reputation producing "Engines that never wear out," is based on the development of this matchless steel cylinder.

★ WITH ELECTROPLATED SILVER FINISH

# SPEEDWAY

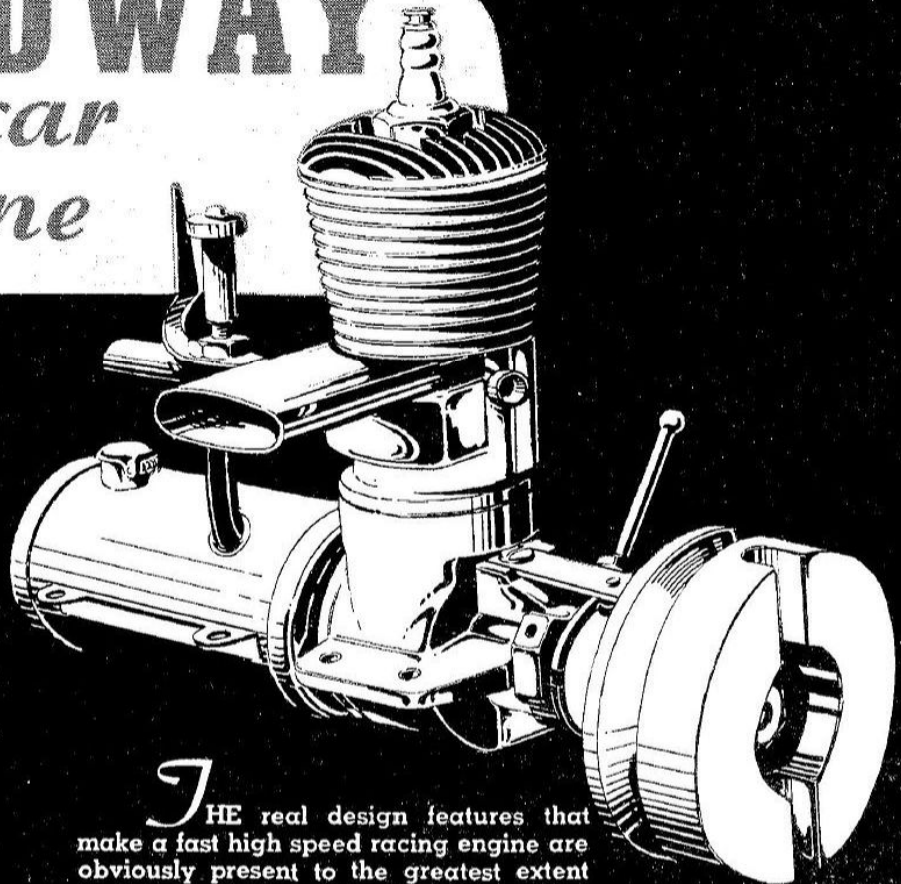
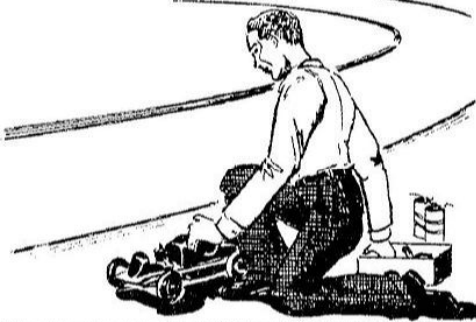
*race car  
engine*



## SPECIAL SPEEDWAY FEATURE

★ Note the front of this Speedway cylinder. An external "breather eye," an extra supercharging intake port, is built into the wall of the cylinder. The capacity for this Speedway engine to take in a greater charge of fuel and air exceeds the limitations of standard airplane engines.

By careful track testing Bunch Engineers have found that the addition of this power yielding feature to the Speedway makes it possible to easily exceed the present record marks. Even now owners are setting new records with this Speedway — an engine just like you can buy ready to go.



**T**HE real design features that make a fast high speed racing engine are obviously present to the greatest extent in Bunch engines. The Speedway is a "hopped up" version developed by the Bunch Engineering Staff. Everyone knows the advantage in R.P.M. to be gained with a short stroke engine using high head compression balanced with high crankcase compression.

These elements of basic design give Bunch motors a head start as racing engines: (1)  $\frac{7}{8}$ " bore with  $\frac{3}{4}$ " stroke. (2) Seven and one-half to one compression ratio. (3) The smallest crankcase volume to be found on any regular size model engine.

Construction features are even more important for consistent results. Almost every part of the Speedway is machined or fabricated from steel. The multi-finned cylinder, the piston, the connecting rod, the crankshaft are all of the proper steel alloy. High grade steel is the only material to withstand the high racing speeds and operate at the correspondingly higher heat ranges.

The crankcase of aluminum alloy is the only casting and extends no further than the base of the cylinder. There are no detachable manifolds, screws or bolts to loosen. No cylinder sleeve to leak and lose power.

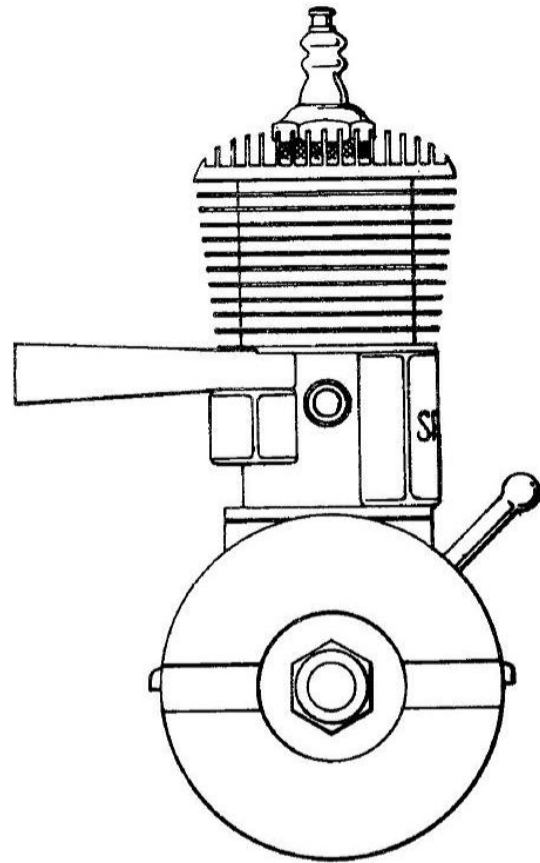
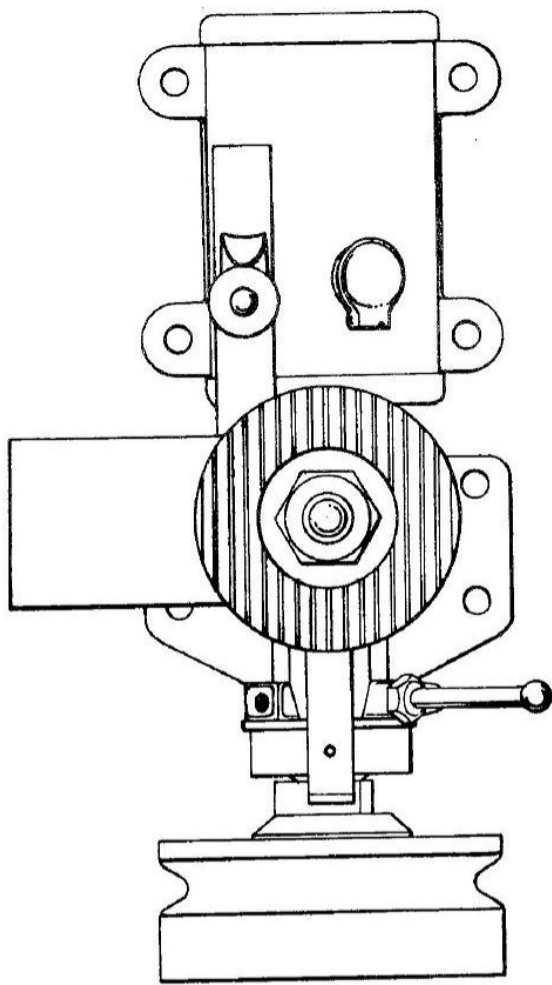
When the going's tough and others loosen up, crack, or fly apart the Speedway stays on the job. Reliability counts.

**\$ 14<sup>00</sup>** COMPLETE  
WITH FLYWHEEL

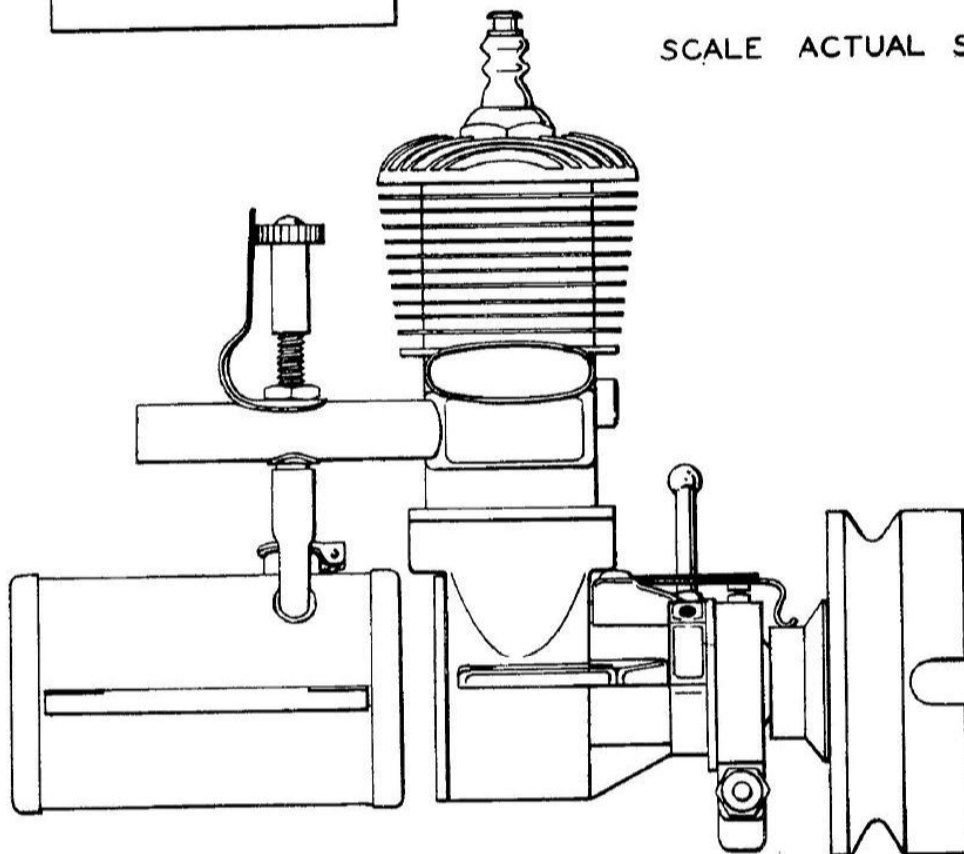
# NO FINER ENGINES CAN BE MADE



INSTALLATION DRAWING FOR SPEEDWAY MOTOR



SCALE ACTUAL SIZE

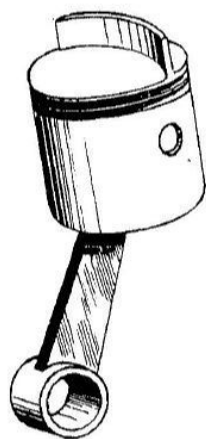




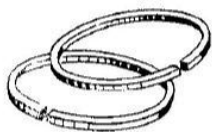
# MIGHTY MARINE

## SPECIFICATIONS

|                        |  |                  |  |
|------------------------|--|------------------|--|
| Displacement           | 45/100 cu. in.   | Rotation         | Counter clockwise  |
| Bore                   | 7/8"   | Operating Speed  | 8,500 R.P.M.   |
| Stroke                 | 3/4"   | Port Area:       |  |
| Height Overall         | 4 1/4"   | Intake           | .0973 sq. in.  |
| Complete Engine Weight | 18 1/4 oz.<br>(Includes engine, fuel tank, Powerhouse Ignition and 8 oz. flywheel) | By-Pass          | .0973 sq. in.  |
| Bare Engine Weight     | 7 1/4 oz.  | Exhaust          | .0973 sq. in.  |
| Exhaust                | Stack on right side  | Compression Seal | Two piston rings plus lapped in steel piston.                |
|                        |  | Fuel Tank        | Metal  |
|                        |  | Flywheel         | Steel 8 oz. Hole 11/32"<br>Slotted for universal attachment. |



A STEEL PISTON IS  
FITTED WITH—



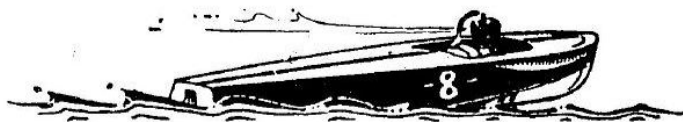
TWO PISTON  
RINGS AND—

— IS ALSO LAPPED  
TO THE CYLINDER

LAPPING THE PISTON produces static compression—the kind you can feel. Piston rings produce dynamic compression—compression that never wears out. Every full size engine, gasoline or diesel, aircraft or automotive uses piston rings. We all know piston rings are best. Bunch produces the only model engines with this double-compression feature—piston rings plus lapped in piston.







# MIGHTY MARINE



SEVERAL YEARS ago the original planning and pioneer work of the Bunch Engineering Staff first made available to power boat enthusiasts a reliable, factory built speedboat engine—the Mighty Marine. And now a new sport model Mighty Marine is presented. Greater reliability which is the keynote in Marine engine design is combined with the extra power yielding features that make the new Bunch engines famous.

Full marine equipment includes a balanced 8 oz. fly-wheel  $1\frac{7}{8}$ " in diameter. Starting method is similar to out-board motors. A recessed groove for the starting cord is designed to give maximum finger room when wrapping cord around the flywheel. Starting problems are eliminated. The amazing performance of the air-cooled Mighty Marine is making power boating increasingly popular.

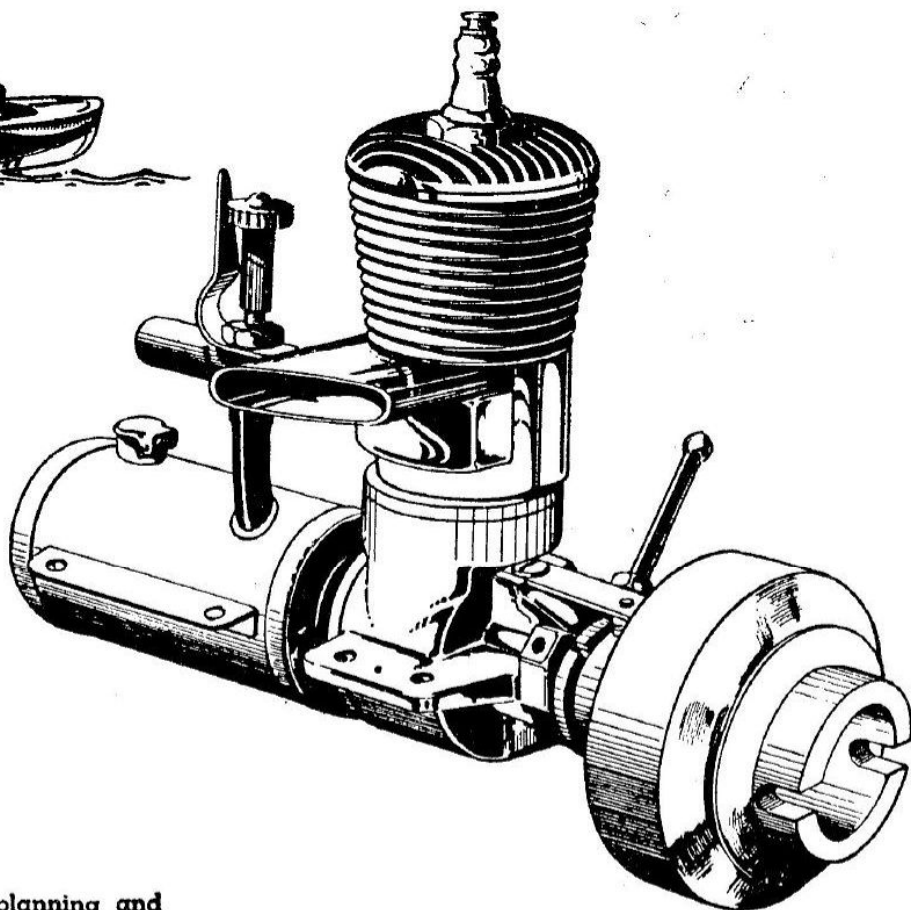
The Mighty Marine with full  $\frac{1}{4}$  horsepower developed at 8,500 R.P.M. is sufficiently light and small enough to perfectly balance and power racing hulls 20" to 30" long.

Possessing every essential feature for speedboat operation and trouble-free performance, you can depend on the Mighty Marine to give instant starting, maximum power and reliability at extreme operating speeds. With the Mighty Marine it's a 'cinch' to get going and launch a speedboat every time.

MIGHTY MARINE

**\$12<sup>50</sup>**

—Completely equipped



## TECHNICAL FEATURES



By popular request this new Mighty Marine is built with the side exhaust stack. This stack is bevel cut to avoid overheating deck planking when cowled in close. It can be used with an exhaust extension to outside the hull to suit individual requirements.

Of special note is the flexible "neoprene" (oil resistant) gas line replacing metal gas lines frequently a source of trouble to boat owners. This greatly simplifies fuel tank mounting since the tank is automatically adjustable to fit uneven\* or tilted mounting beams.

Electro-plating protects all external parts of the engine from salt water corrosion.

Through experience in conducting tests with engines in actual speedboat operation, Bunch Marine engines overcome all difficulties peculiar to speedboats as powered with model airplane motors. Let nobody fool you—power with a specialized marine engine.

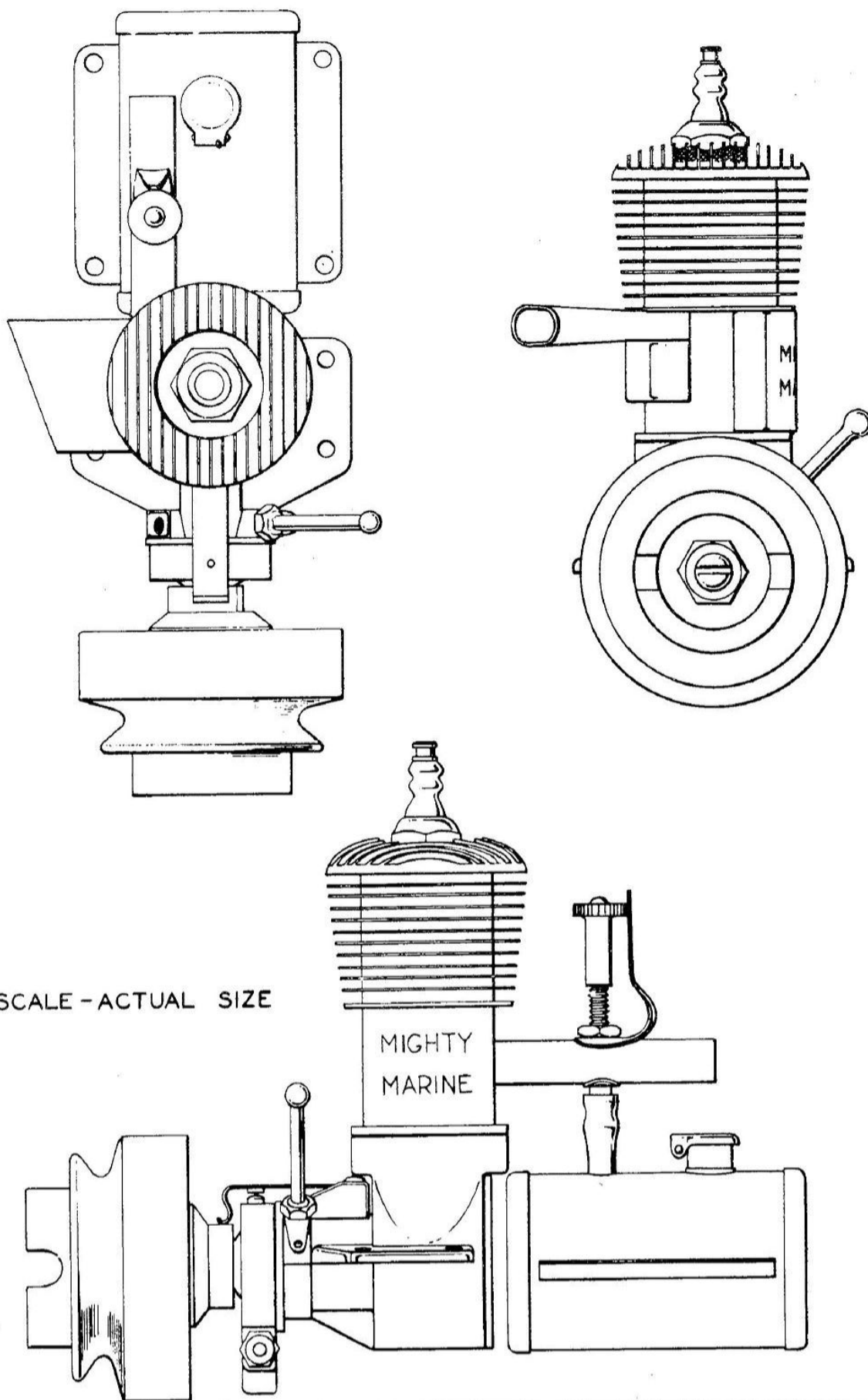


# LEADERS IN DESIGN





INSTALLATION DRAWING FOR MIGHTY MARINE MOTOR





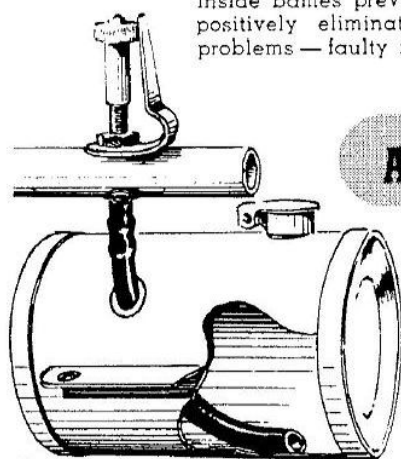
# TIGER AERO

## SPECIFICATIONS

|  |                     |                        |  |
|--|---------------------|------------------------|--|
| Displacement .....                                   | 45/100 cu. in.      | Rotation .....         | Counter clockwise                                |
| Bore .....   | 7/8"                | Operating Speed .....  | 10,000 R.P.M.                                    |
| Stroke .....   | 3/4"                | Port Intake:           |  |
| Height Overall .....                                 | 4 1/4"              | Intake .....           | 1460 sq. in.                                     |
| Flying Weight .....                                  | 9 3/4 oz.           | By-Pass .....          | 1460 sq. in.                                     |
| (Includes engine, fuel tank,<br>Powerhouse Ignition) |                     | Exhaust .....          | 1460 sq. in.                                     |
| Bare Engine Weight .....                             | 7 1/4 oz.           | Compression Seal ..... | Two piston rings plus<br>lapped in steel piston. |
| Exhaust .....  | Stack on right side | Fuel Tank .....        | Transparent                                      |
|  |                     | (To inverted) .....    | Transparent*                                     |

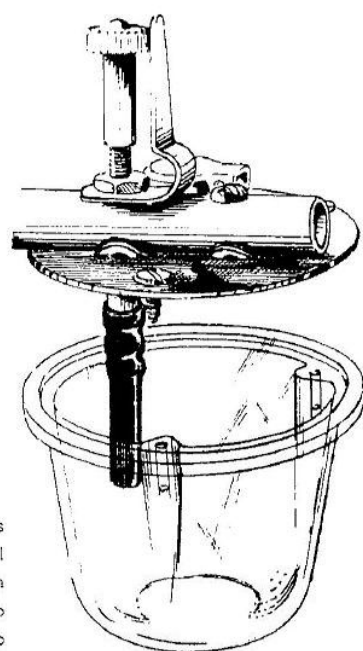
### TRANSPARENT FUEL TANK

This crystal-clear transparent fuel tank is perfected and overcomes defects common to ordinary suspended tanks. Standard on all Bunch aircraft engines. This tank has three point connection to the duraluminum cover which is double bolted to the intake tube "jitter proof" and leak proof this tank will not crack in service. Flexible, oil resisting, "Neoprene" gas line draws fuel from the rear of the tank. Inside baffles prevent swirling fuel. This Bunch fuel system positively eliminates the most aggravating of operation problems — faulty fuel systems.

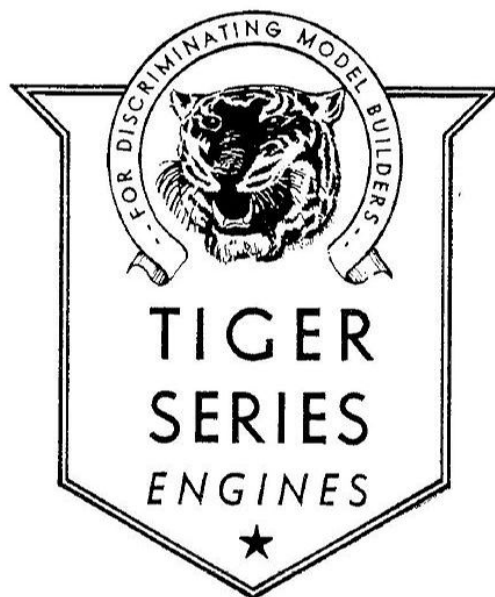
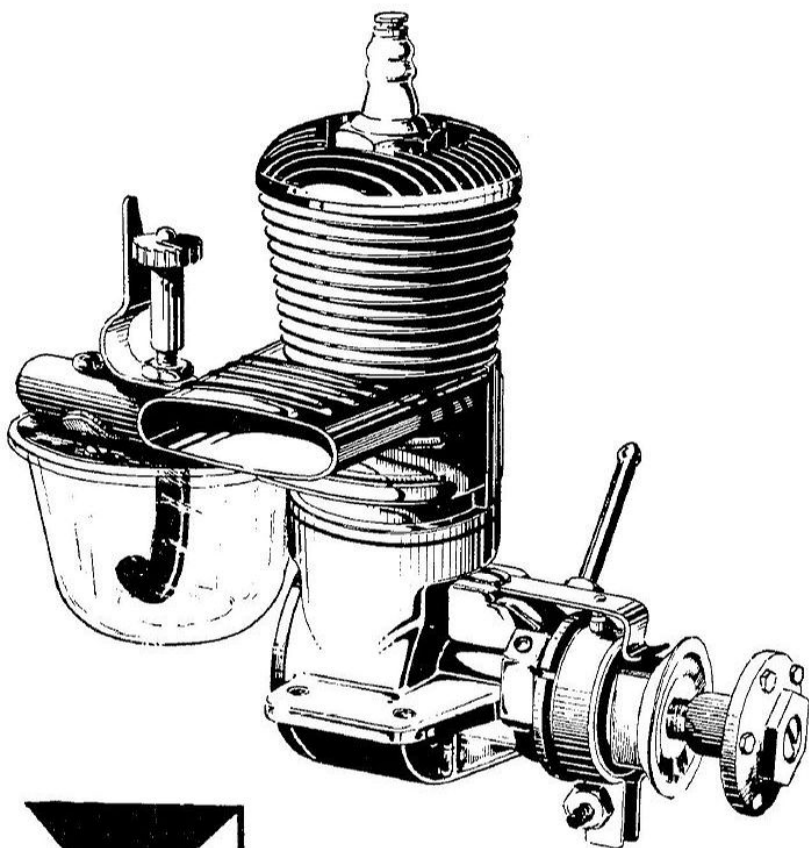


### ALL METAL FUEL TANK

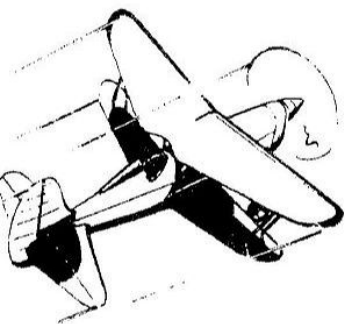
Bunch engines for use in race cars and speed boats are equipped with this large capacity all metal fuel tank. Mounted independent of the engine on its own mounting ears it can be raised or lowered slightly to line up with any type mount. Flexible gas line to engine requires no soldering, eliminates faulty carburation due to vibrating fuel line. Another plus value in engineering that makes Bunch Motors best







# TIGER AERO



★ If this is your first view of the TIGER — the new series of Bunch engines — you have yet to see these engines in action and fully realize their merit. If it's still more power in a little engine you are looking for, these Tigers have what you want.

The Tiger engines have an appeal that pleases the expert. By demonstration the Bunch Tiger series of engines deliver 30% more power than any engine ever produced compared on a basis of displacement, outside dimensions or flying weight. Each Tiger engine is custom built by the selective method, and all parts must meet the new precision demands set up by the Bunch Engineering Staff for this new series.

The Tiger Aero is scarcely larger or heavier than engines classed as small bore motors and yet it turns up with design propeller to exceed  $\frac{1}{4}$  horsepower. You can take-off at speeds that parallel race car R.P.M.

Before you advance the spark for full power your ship had better have all the kinks removed if it is to "hold these Tigers." The Tiger Aero stands to be the best and most favored engine with those who insist on winning. If you have always owned the best you'll need a Tiger to stay ahead.

## TECHNICAL FEATURES

Inside the substantial, business-like exhaust stack on the Tiger engines lie 6 mammoth ports — a 50% increase in porting efficiency over other engines. On the by-pass side is a corresponding increase in super power porting. An oversize intake tube balances out this increased capacity carburation and rapid scavenging exhaust.

The Tiger requires an individual type machined steel piston with special deflector. This piston is lapped to the cylinder and fitted with two piston rings.

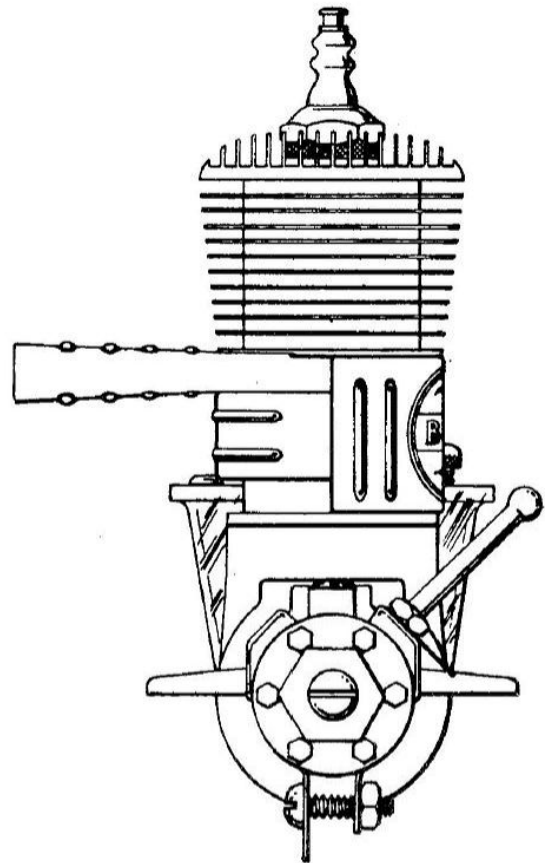
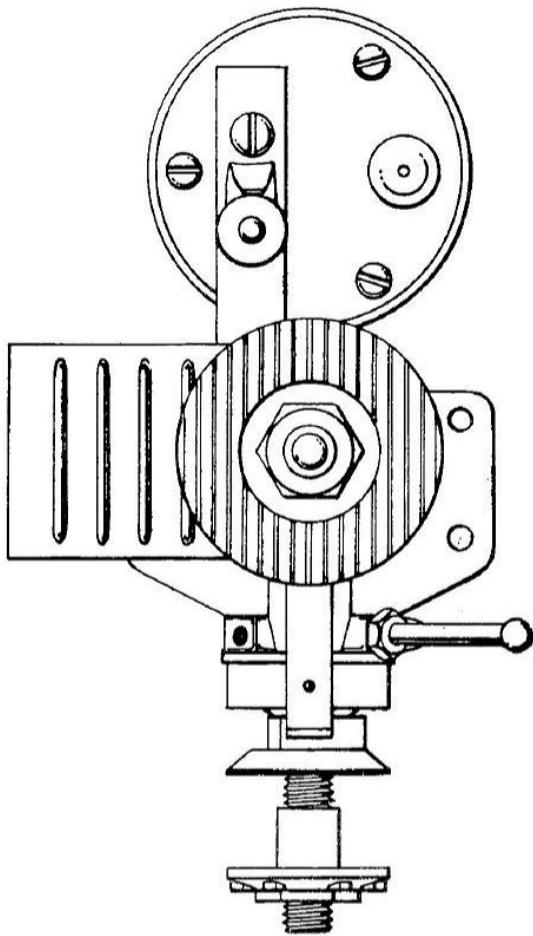
**\$16<sup>50</sup>**

WILL POWER  
YOUR MODEL  
WITH THE BEST

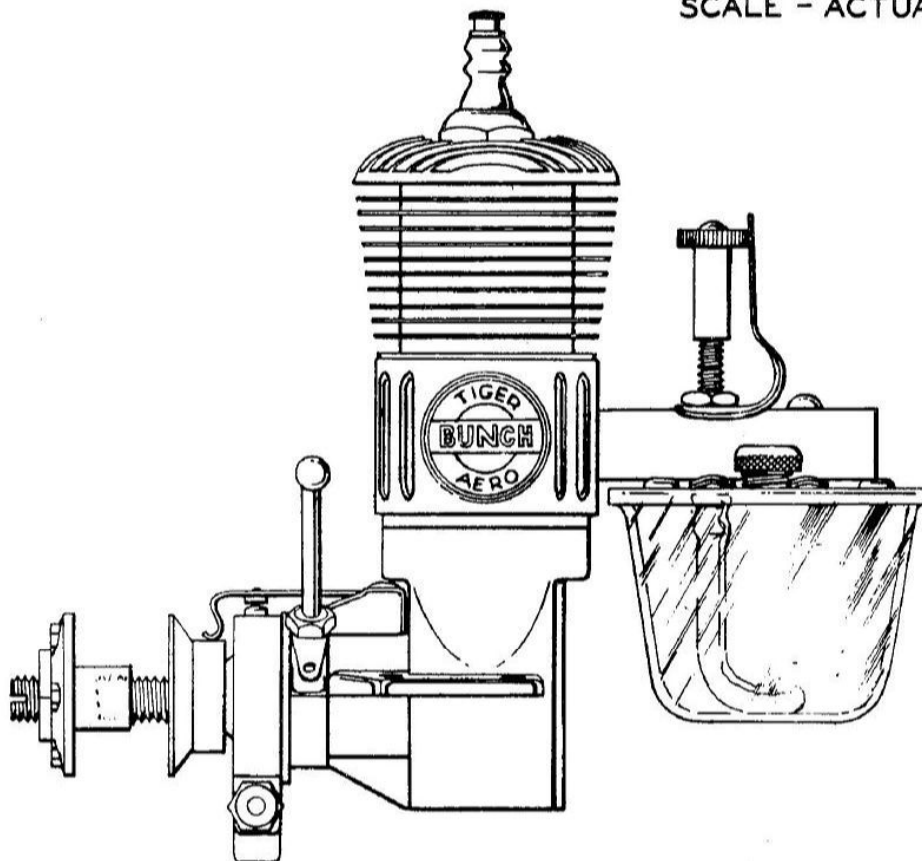
# BUNCH TIGERS SURPASS THEM ALL



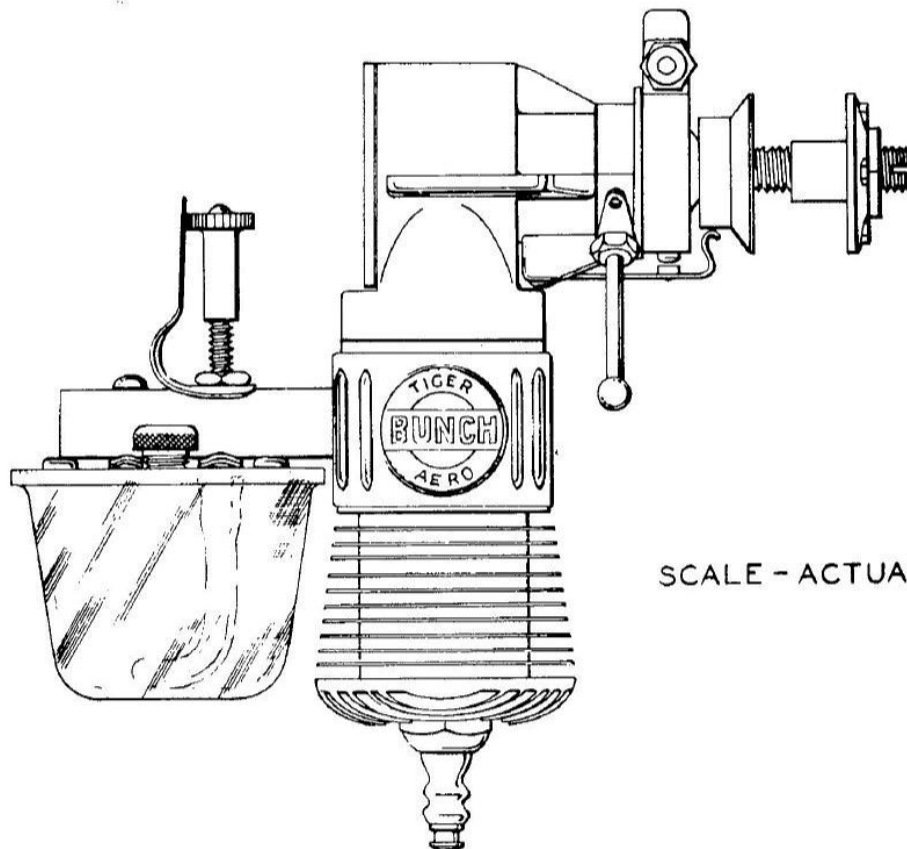
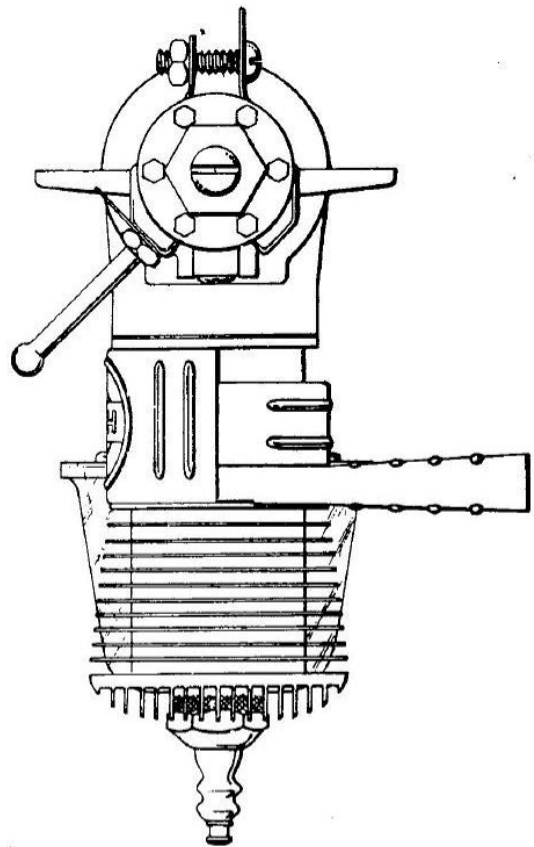
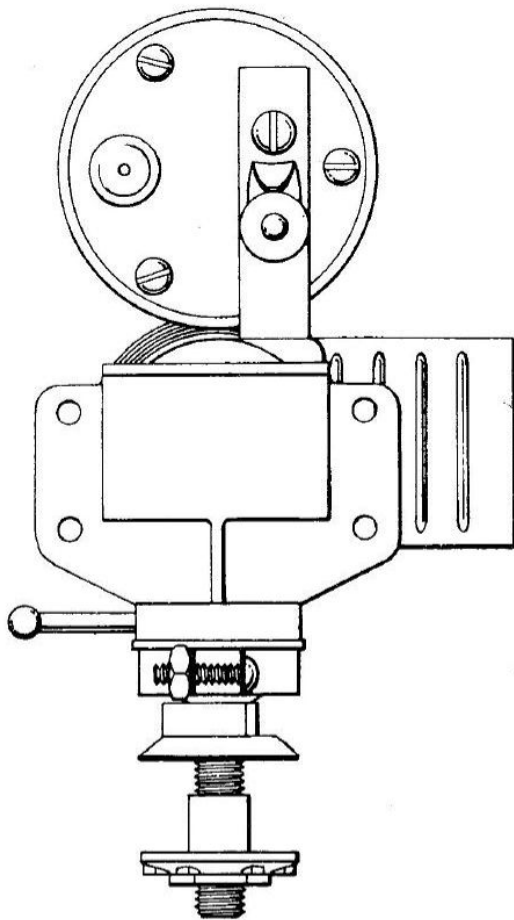
INSTALLATION DRAWING FOR TIGER AERO UPRIGHT MOTOR



SCALE - ACTUAL SIZE



INSTALLATION DRAWING FOR TIGER AERO INVERTED MOTOR



SCALE - ACTUAL SIZE



# TIGER SPEEDWAY

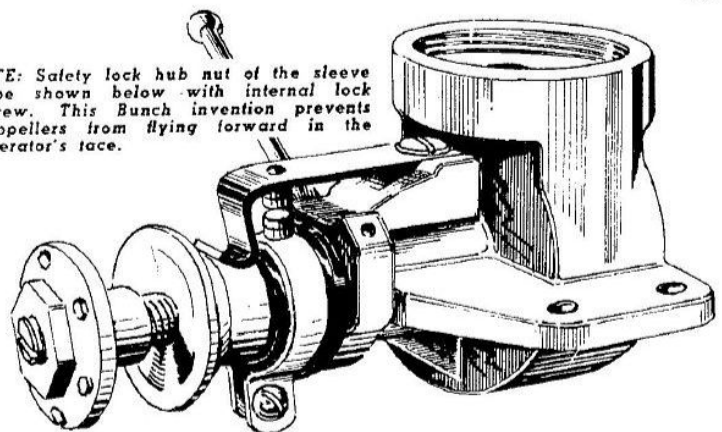
## SPECIFICATIONS

**Displacement** ..... 45/100 cu. in.  
**Bore** .....  $7/8$ "  
**Stroke** .....  $3/4$ "  
**Height Overall** .....  $4 1/4$ "  
**Complete Engine Weight** .....  $16 1/2$  oz.  
 (Includes engine, fuel tank, Powerhouse  
 Ignition and  $6 1/2$  oz. flywheel)  
**Bare Engine Weight** .....  $7 1/4$  oz.  
**Exhaust** ..... Stack on right side

**Rotation** ..... Optional (two cams supplied)  
**Operating Speeds** ..... 15,000 to 20,000 R.P.M.  
**Port Area:**  
 Intake ..... 2045 sq. in.  
 By-Pass ..... 1460 sq. in.  
 Exhaust ..... 1460 sq. in.  
**Compression Seal** ..... Two piston rings plus  
 lapped in steel piston.  
**Fuel Tank** ..... Metal  
**Flywheel** ..... Steel  $6 1/2$  oz. Hole  $1/4$ "  
 Slotted for universal attachment.

## A TIMER THAT NEVER .. MISSES

★ NOTE: Safety lock hub nut of the sleeve  
 type shown below with internal lock  
 screw. This Bunch invention prevents  
 propellers from flying forward in the  
 operator's face.



★ It's almost impossible to imagine the  
 amazing efficiency of the timer (point  
 system) developed for Bunch engines.  
 With a racing engine turning-up 15,000 revolutions  
 per minute the points make and break contact to  
 fire the plug 250 times each and every second.  
 Using a standard timer with double leaf spring as  
 supplied on all flywheel engines extreme speeds  
 have been reached, 20,000 R. P. M. without misfir-  
 ing a single revolution. The engine thus completes  
 666 cycles while you can blink your eyes.

No other model engine can boast of 100% effi-  
 cient point action at the new peak speeds achieved  
 by Bunch racing engines.

The secret lies in simplicity of design. A short  
 spring actuates the moving point with unbelievable

rapidity making a clean and even break at  
 these speeds.

The insulated point is instantly adjustable  
 with a screwdriver to exactly the right clear-  
 ance. The points are visible in the clear open  
 air above the crankcase and can be seen,  
 cleaned and adjusted without removing pro-  
 peller or flywheel.

Usually the points and spark plug are the  
 only parts needing replacement after ex-  
 tended service with Bunch engines. A com-  
 plete change of both points and spring costs  
 only 40 cents.

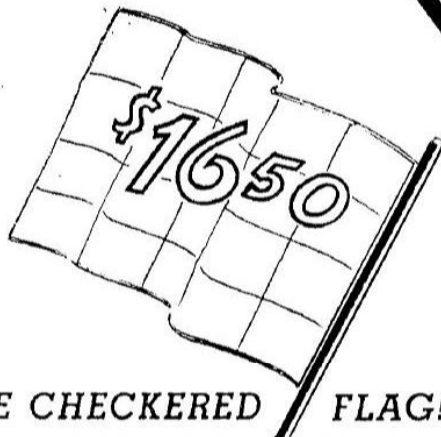
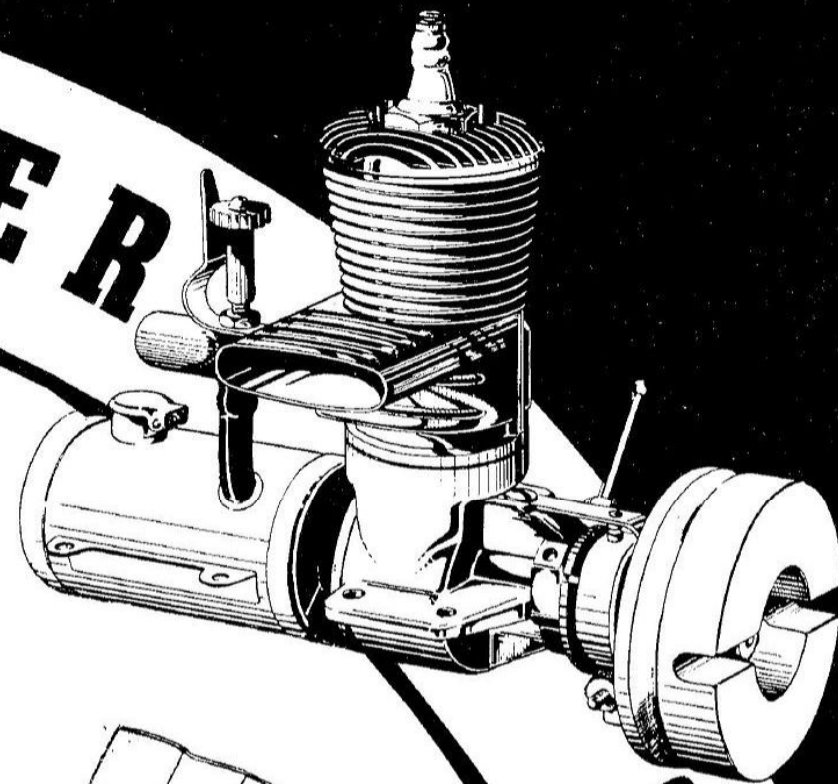
Bunch engines give maximum efficiency at  
 a negligible service cost.

# TIGER

## TECHNICAL FEATURES

The Tiger Speedway has an individual porting arrangement all its own. Like the other Tigers it has 6 instead of 4 broaches at every port location extending a full 180 degrees on each side of the cylinder. However, on the intake side the port area is even further increased and allowed to remain open for a longer period of stroke.

Maximum efficiency is thus gained above 10,000 R.P.M. where it has been demonstrated a high-speed velocity supplements the ordinary reduced pressure in the crankcase. This performs the function of a supercharger, enlarging the capacity to intake fuel and air.

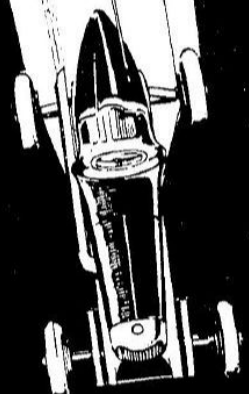


BE FIRST TO GET THE CHECKERED FLAG!

★ MORE THAN anything else the racing automobile demand for increased speed and power from a given size engine gave rise to the Tiger Design. To win races the Tiger Speedway reaches a new high in top engine speed plus a tremendous slugging-power to get going. Topping these requirements the Tiger Speedway 'can take it!'. You can open up your Tiger Speedway for one race after another and each and every part will stand the gaff.

Bunch race car engines hold all major speed records and trophies and is first in nearly every competition. The Tiger Speedway is on a record breaking career. It will make the car you race a winner.

As each Tiger Speedway is run in on the test stand it is checked and certified to reach engine speeds of 15,000 R. P. M. before it leaves the factory. After a short running-in period in an automobile, stock Tiger Speedway engines have been checked at peak speeds of 18,000 to 20,000 R. P. M.

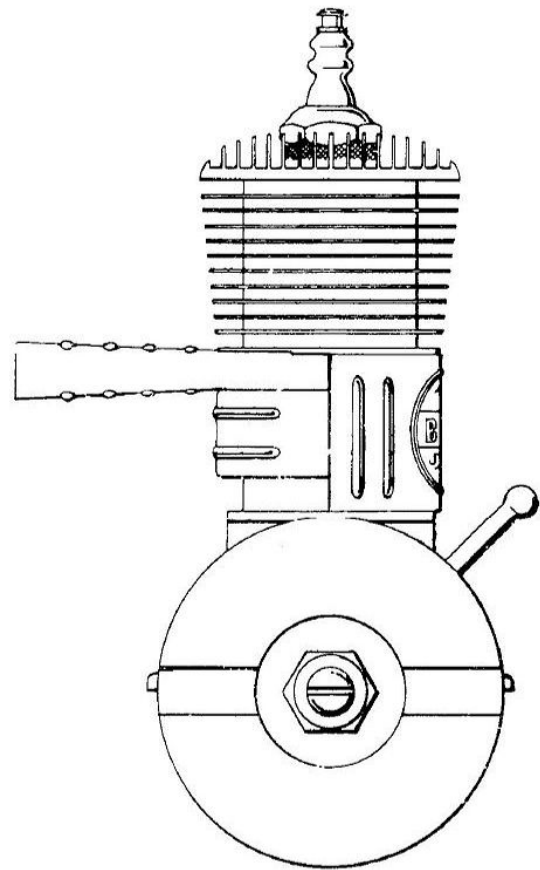
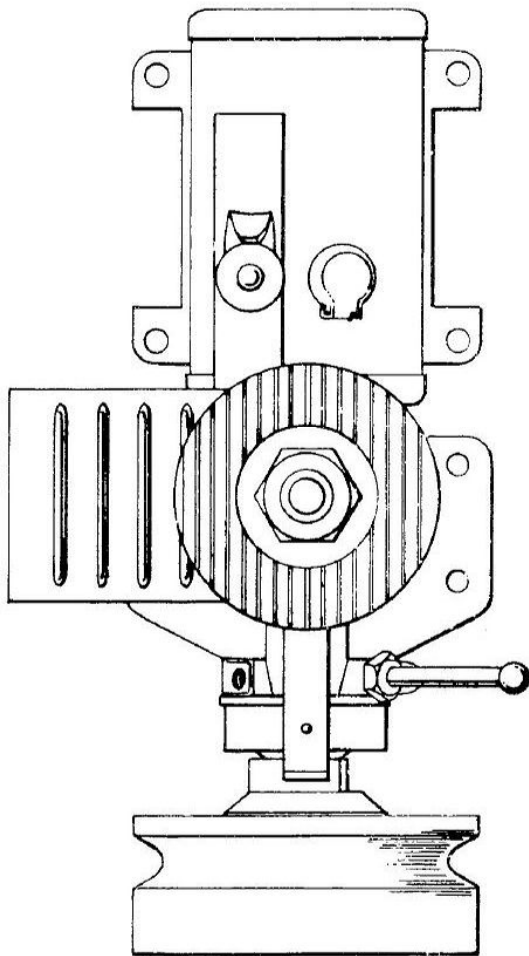


SPEEDWAY

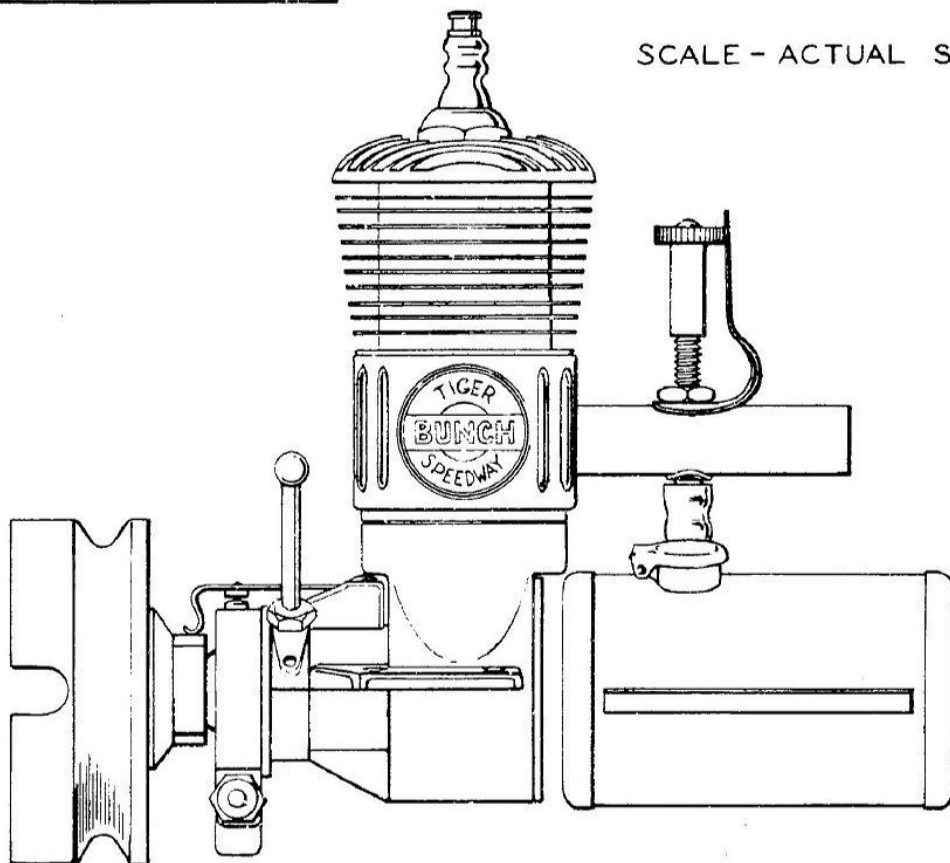
# WATCH THE TIGERS OUTPERFORM



INSTALLATION DRAWING FOR TIGER SPEEDWAY MOTOR



SCALE - ACTUAL SIZE





# TIGER MARINE

## SPECIFICATIONS

Displacement ..... 45/100 cu. in.

Bore .....  $\frac{7}{8}$ "

Stroke .....  $\frac{3}{4}$ "

Height Overall .....  $4\frac{1}{4}$ "

Complete Engine Weight ..... 18 oz.  
(Includes engine, fuel tank, Powerhouse  
Ignition and 8 oz. flywheel)

Bare Engine Weight .....  $7\frac{1}{4}$  oz.

Exhaust ..... Stack on right side.

Rotation ..... Counter clockwise.

Operating Speed ..... 10,000 R.P.M.

Port Area

Intake ..... 1460 sq. in.

By-Pass ..... 1460 sq. in.

Exhaust ..... 1460 sq. in.

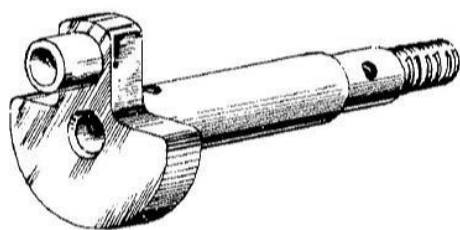
Compression Seal ..... Two piston rings plus  
lapped in steel piston.

Fuel Tank ..... Metal

Flywheel ..... Steel 8 oz. Hole  $1\frac{1}{32}$ "  
Slotted for universal attachment.



## TRUE BALANCE CRANKSHAFT



In designing, machining, and finishing the crankshaft Bunch Engineers have "followed thru" to produce the very best.

This shaft with counterbalance and crankpin is all one piece. First machined from selected steel bar stock a full 180 degree counterbalance achieves an ultimate in balance. The main journal and crankpin are hollow drilled removing over 1/3 the weight of the solid shaft without impairing strength.

Heat treatment after initial grinding removes all work stresses that ordinarily cause weak spots and failure. A hardening operation produces a thin hard shell that stiffens the shaft and defeats wear without causing brittleness. Final grinding to absolute tolerances finishes the shaft true, straight and perfectly round. Checked at one ten thousandths of an inch accuracy.

Pressure lubrication is afforded the main bearing through the hollow shaft and a triple oil feed is drilled to the bearing surface.

## CHROME-MOLY CONNECTING ROD

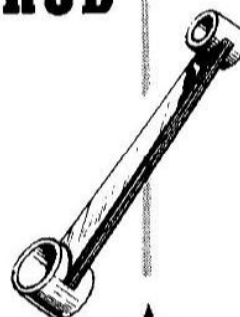


The most highly stressed part in a model engine is the connecting rod. For this reason Bunch engineers have selected the world's strongest known material — **chrome molybdenum steel**.

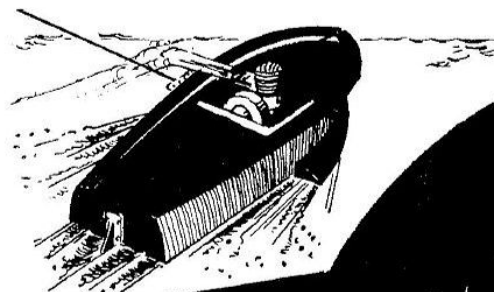
Any appreciable amount of wear at these chrome moly con rod bearings is next to impossible under any service condition.

The bearing at the large end of the rod is fitted with a specific and accurate amount of clearance around the

hardened crank pin. This clearance is greater than is commonly used with bronze or babbitt bearing material. However, because a two-cycle engine exerts a full compression load on the rod at all periods of the stroke the properly fitted steel to steel connecting rod bearing found in Bunch engines proves best for friction-free operation without the short life limit of common soft bearing material.

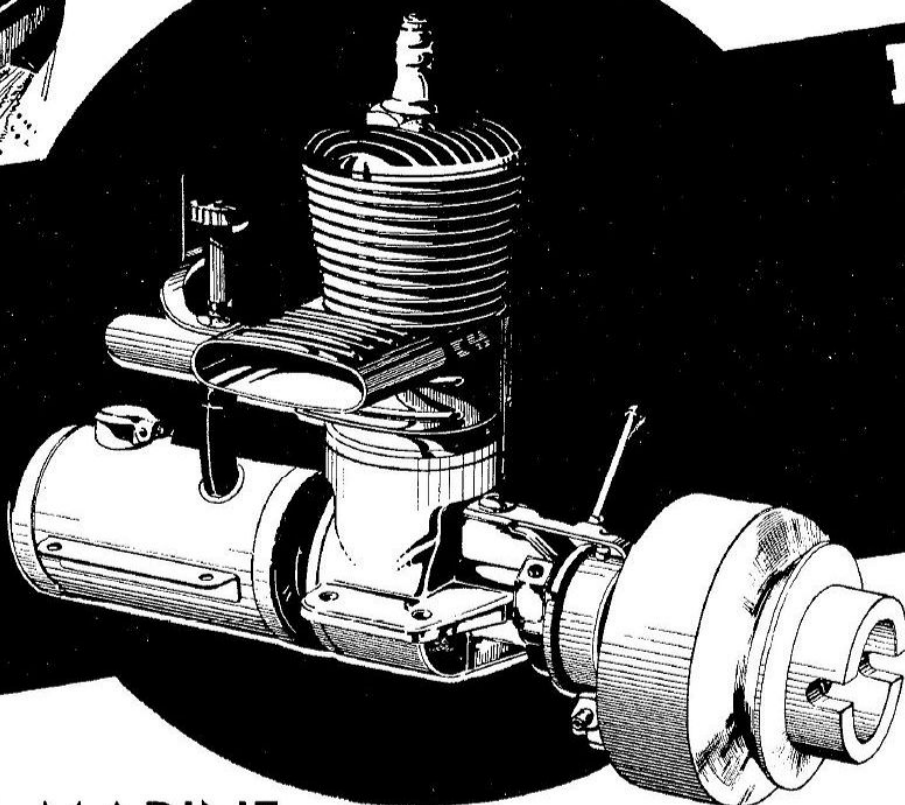






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## TIGER MARINE FEATURES

The unique porting arrangement that characterizes the Tiger engine works to particular advantage in a marine engine. This 50% increase achieved without increasing displacement, size or weight of the Basic Bunch 45 hundredths cubic inch engines is invaluable. Increasing speeds over water requires a greater power output per unit of speed gained than do airplanes or even race cars.

The Tiger Marine is electro-plated for protection and is equipped with an 8 oz. Bunch flywheel slotted for universal attachment. Fuel tank is all metal of large 1½ oz. capacity and is fitted with a flexible fuel line.

**\$16<sup>50</sup>**

—WILL TIGER-IZE  
YOUR SPEEDBOAT

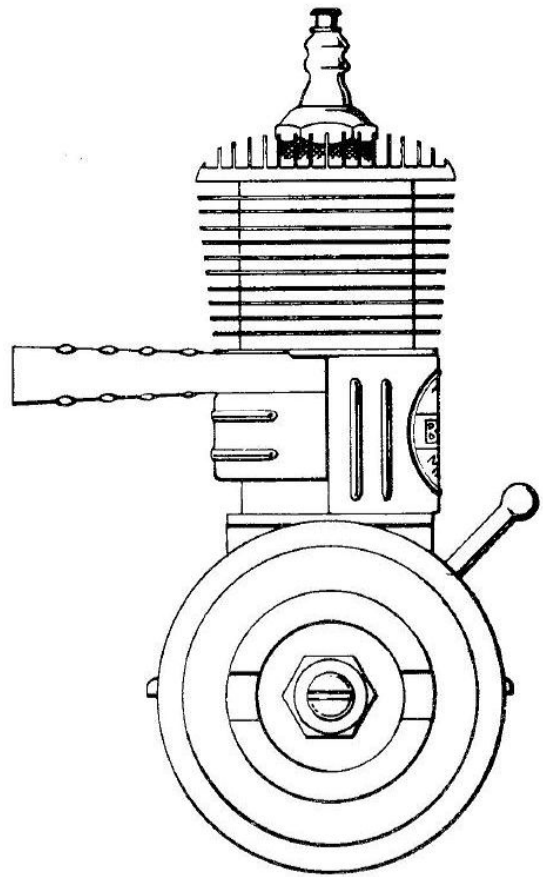
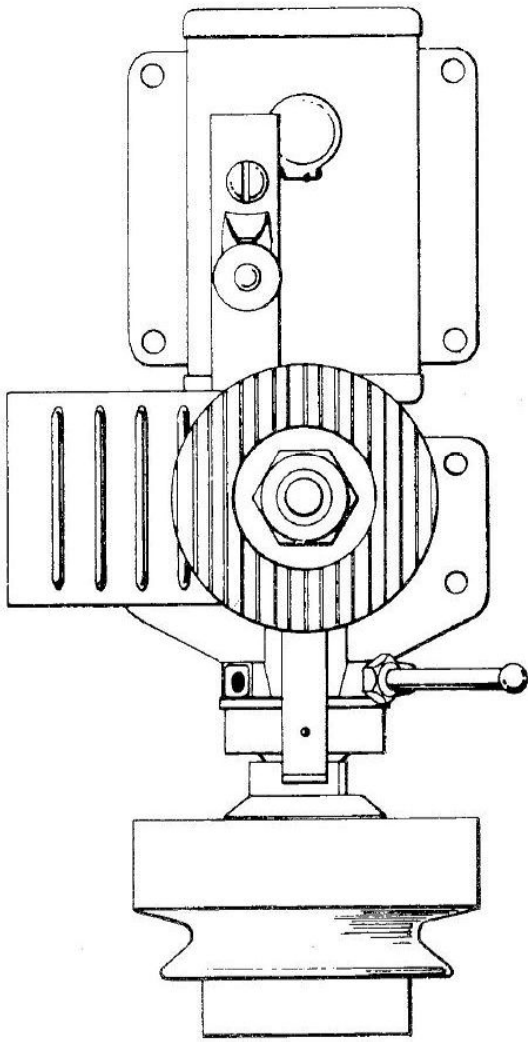
● Here's the motor that will get your Speedboat up on the step in regular "Gar Wood Style." The Tiger Marine brings to power boating the unequaled power and super engine speed of the Tiger Series Bunch engines. The greatest speed possibilities with speedboats using this new Tiger Marine engine are not yet fully exploited.

Development in the design of strictly racing speedboat hulls has hardly been scratched. The Tiger Marine is a challenge to the power boat experimenter if he is to achieve results in hull performance and stability that will match the power possibilities of a Tiger engine.

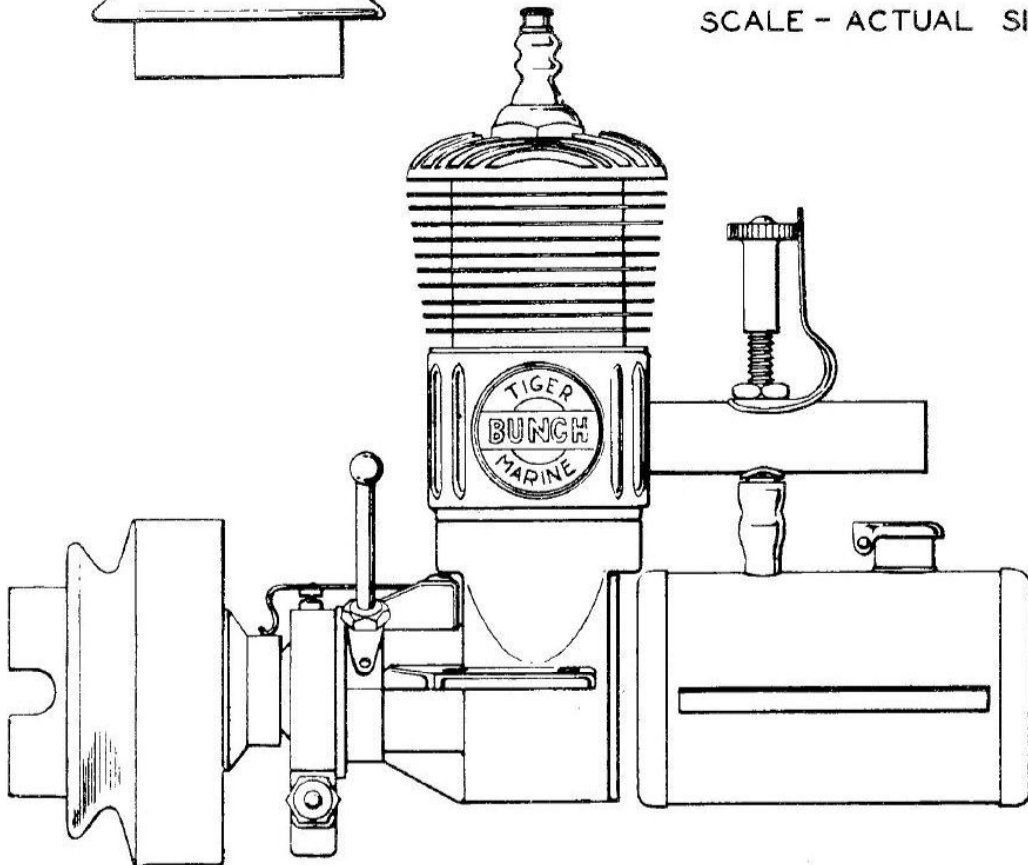
Today power boat racing provides far greater opportunities for enjoyment, individual achievement, and original development than any other gas model activity. The high compression Tiger Marine capable of operating efficiently and reliably above 15,000 R.P.M. takes care of your 'power problem'. As received it is a racing engine with advanced features to beat the best.

# THE TIGER'S TOPS FOR POWER

INSTALLATION DRAWING FOR TIGER MARINE MOTOR



SCALE - ACTUAL SIZE





# ★ CHOOSING THE RIGHT PROPELLER ★

If you are determined to get the most from a high performance engine the importance of proper propeller design with correct diameter and pitch ratio cannot be overemphasized.

Model fliers are interested in achieving the maximum angle of climb possible with a limited motor run. Power cruising at level flight is not important since our object is to get altitude. How this can be best accomplished is easy to understand by making the following comparison:

When driving your car on level ground "high gear" is best because the car engine easily reaches its most efficient running speed. Likewise, a modern full size airplane in level flight flies best with the propeller set at high pitch. The propeller thus takes a larger "bite" of air and in level

**HIGH GEAR**



**LEVEL GROUND**

**HIGH PITCH**



**LEVEL FLIGHT**

flight the engine will maintain proper speed. Very much like your automobile in "high gear."

Now consider driving up a steep hill. Your car engine must turn up faster to deliver the extra power required to push the car up hill. So you shift to "low gear."

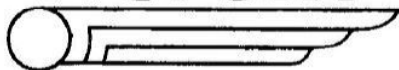
Likewise an airplane in the take off requires higher engine speed to maintain power for take off and fast climb. Setting the controllable pitch propeller in "low pitch" take off position gives this increased engine speed.

With this in mind and with a faster, steeper climb being the objective with gas models it stands to reason that a low pitch propeller of proper size turning at the fastest



For winning flights use...  
**"VICTORY"**  
propellers

## VICTORY



**"THE PROPELLER FOR BUNCH ENGINES"**

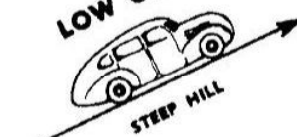


Carved with progressive pitch and correct camber. Available in 11", 12" and 13" diameters. Hub 7/16" thick is drilled 11/32" for Bunch Safety Hub. (1/4" hole on request). Hand balanced with sanded smooth surface.

ANY  
**25¢**  
SIZE

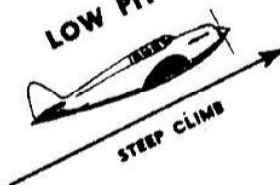
Postage 5c.  
None if order  
for 4 or more.

**LOW GEAR**



**STEEP HILL**

**LOW PITCH**



**STEEP CLIMB**

practical speed is required.

You will note in Specifications that the new Bunch aircraft engines are built and recommended to turn from 6,000 to 10,000 R.P.M. with design propellers. There is no valid objection to flying at these prop speeds. Small diameter propellers used on model engines can turn three to five times the speeds of full size aircraft engines and lose no efficiency. Tip speeds must exceed the speed of sound to lose efficiency.

In the past high prop speeds have been criticized because the increased thrust and torque reactions with high speed props was often enough to crack up models otherwise O.K. with less power developed through larger, slower propellers.

Throttled down a proper, small, low pitch propeller is safe to fly any gas model. Opened up it will SKYROCKET a properly designed and fully adjusted model.

Following this modern trend Bunch motors produce more power by increasing engine and propeller speeds rather than increasing engine, size, weight, and displacement. Correct propellers for Bunch engines should be 11", 12", or 13" diameter and not exceed 1/2" thickness at the hub. Note: Small propellers also offer much less resistance when stopped. An important factor in gliding efficiency.

Prove these facts yourself. Use a Bunch "VICTORY" propeller!

# NOW!

## BUNCH ENGINE KITS READY FOR ASSEMBLY

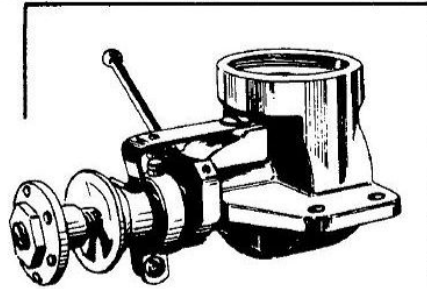
priced  
everywhere

**\$7.85**  
COMPLETE

### A NEW KIT IDEA! No Extra Tools Required

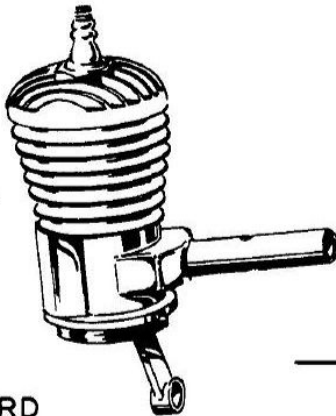
Never before have Bunch high performance engine been offered complete requiring only final set up before running. Your dealer is anxious to show these kits that you can have running in a few minutes without buying extra tools.

(Engine kits supplied as illustrated)



CRANKCASE  
ASSEMBLY

*Crankshaft fitted and  
timer assembled.*

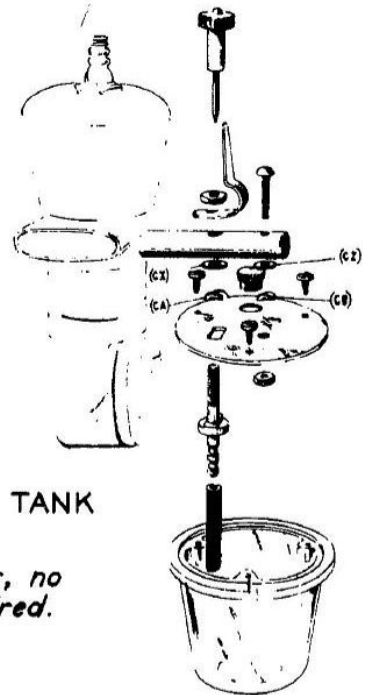


STANDARD  
CYLINDER  
ASSEMBLY

*Steel piston is lapped-in and  
fitted with 2 piston rings  
Champion Spark Plug.*

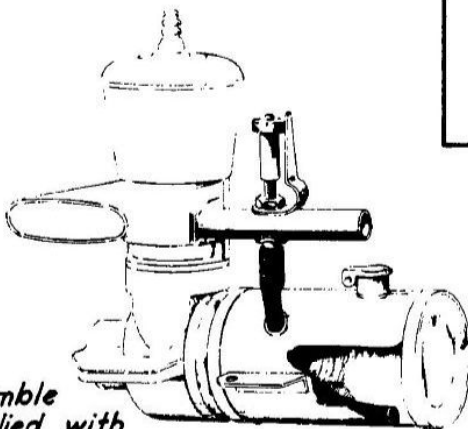
### — MOTOR KITS —

|                               |         |
|-------------------------------|---------|
| MIGHTY MIDGET Upright         | \$ 7.85 |
| MIGHTY MIDGET Inverted        | 7.85    |
| GWIN AERO Upright or Inverted | 9.85    |
| MIGHTY MARINE Engine Kit      | 10.85   |
| SPEEDWAY Engine Kit           | 11.85   |



TRANSPARENT TANK

*Bolts together, no  
soldering required.*

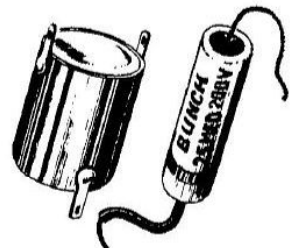


ALL METAL  
TANK

*Parts to assemble  
this tank supplied with  
Mighty Marine, Speedway and Inverted  
Mighty Midget kits*

### POWERHOUSE IGNITION

*Every Bunch engine  
kit includes genuine  
Powerhouse coil with  
matched condenser.*





# HOW TO ORDER

## 4

## Ways to buy a Bunch Engine



### #1 SEE YOUR DEALER . . .

Go to your nearest model dealer. There are thousands of model stores, hardware and department stores in the United States where you can see and compare these Bunch Motors. Be sure the dealer in your community shows you a Bunch engine packed in the red and yellow winged carton. Feel the compression. A live-wire dealer will give you a demonstration run in his shop and can help you with your model problems.

### #2 SEND POSTAL MONEY ORDER . . .

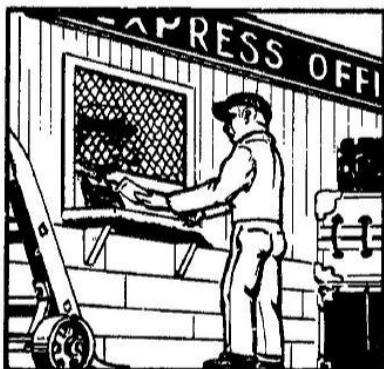
Mail orders may be addressed directly to the Bunch Motor Company, 6714 McKinley Avenue, Los Angeles, Calif. You can also order from leading distributors listing Bunch engines in magazine advertisements. Go to your post office, ask the clerk for a money order blank and fill it out to the amount listed for the engine desired. Enclose a note with your name and address stating engine desired. A few cents will be charged at the post office for the money order service but your money is protected by the U. S. Government. The factory has a complete stock of engines for immediate shipment at all times.



### #3 SEND EXPRESS MONEY ORDER . . .

If convenient a Bunch motor may be ordered at your nearest Express Office by securing an express money order. Mail this express money order to the Bunch Motor Company with the name of the engine desired.

Personal checks also accepted. C.O.D. orders must be accompanied by one half the purchase price. The balance plus C.O.D. fee you pay the postman.



### #4 CALL AT THESE STORES . . .

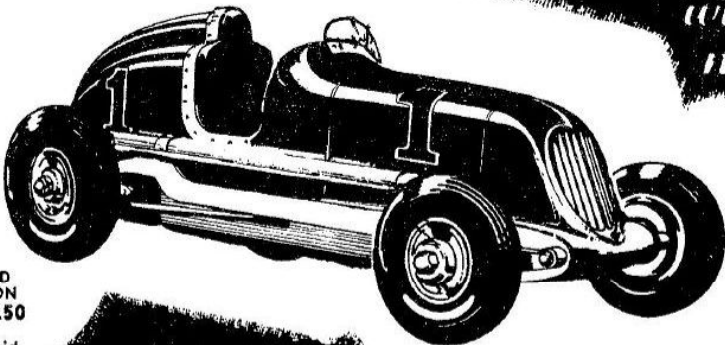
Model Airplane Shops  
Model Shops  
Model Dealers  
Model Engineering Shops  
Model Race Car Shops  
Model Boat Shops  
Model Supply Stores  
Model Machine Shops  
Auto Parts Stores  
Auto Repair Shops  
Bicycle Shops  
Boat Works

Barber Shops  
Book Stores  
Camera Shops  
Cabinet Shops  
Department Stores  
Drug Stores  
Gift Shops  
Garages  
Grocery Stores  
General Merchandise Stores  
Hardware Stores  
Hobby Stores  
Jewelry Stores

Lumber Yards  
Locksmiths  
Motorcycle Shops  
Magazine Stores  
Machinery Supply Stores  
Novelty Stores  
Paint Stores  
Radio Shops  
Sporting Goods Stores  
Stamp Stores  
Service Stations  
Stationery Stores  
Toy Departments



# BUNCH Presents the *SPEED DEMON*



with new **'WIZARD' GEAR DRIVE**

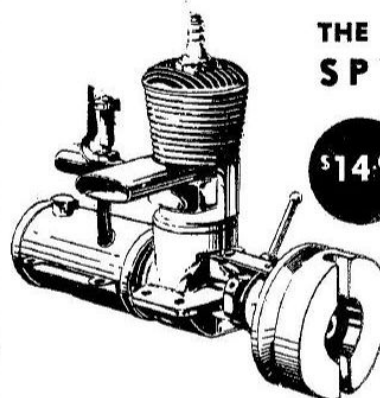
**SPEED DEMON \$16.50**  
Postpaid

★ Many new features make the Speed Demon race car every inch a winner. Especially adapted to time trial racing the Speed Demon has been stepped-up to keep pace with record speeds above 60 miles per hour made possible with the new Bunch Engines.

A fully adjustable "Wizard Gear Drive" delivers full motor power to the front driving axle. These large utility steel gears case hardened are not to be confused with the inadequate miniature type cramped into an undersized sand cast gear box with hit or miss alignment.

The 12 tooth  $\frac{3}{4}$ " pinion is adjustable by the owner up and down and in and out to make perfect mesh with the  $1\frac{1}{2}$ " 24 tooth ring gear. Easily inspected the teeth on these gears have sufficient bearing area to minimize "pressure wear" which strips out smaller overloaded types. "Pressure wear" is the wear from the terrific power impulses of the engine. Abrasive wear is negligible with case hardening. Lubrication between runs is sufficient with no excessive oil drag.

All assemblies and parts are ready built on the Speed Demon and assemble in a few hours. Resilient Gardner ribbed tread tires provide greatest traction, prevent undue bouncing. Motor mounted in rubber. Body semi-finished balsa wood. Can be finished with standard body and radiator or with new streamlined head rest, to owner's liking.



**THE NEW  
SPEEDWAY  
RACE CAR  
ENGINE**

**\$14.00**

★ USING  
TWO PISTON  
RINGS PLUS  
LAPPED-IN  
PISTON

★ Developed for the severe running condition of competitive racing this is the engine that turns better than 15,000 R.P.M. in operation at 60 M.P.H. with 2 to 1 drive ratio.

At no extra cost the Speedway is furnished now with an external "supercharging" direct air-breather intake that has put the engine over the top to capture every major speed award in every racing event entered. This sport model Speedway with stepped up compression ratio, all steel lapped-in piston plus piston rings, in the hands of regular customers has cleaned house on factory racing teams with larger special built engines with features not generally available.

This is the winning performance you have been reading about. Performance you can actually buy in this sport model Bunch engine.

## REACHES A NEW HIGH! THE 20,000 R. P. M. BUNCH TIGER

Everyone's asking, "What about the new Bunch Tiger? Where does it get that winning speed?" The secret's this. The whole porting scheme and manifold structure has been magnified. The capacity to intake fuel is increased 65%. Exhaust porting increased 50%. Each piston is individually hand lapped on special Tiger gauges, fitted with rings and assembled by the selective process.

Retaining all the stamina and long life for which Bunch engines are famous the Tiger is the only factory built "hopped up" engine. Built without the weaknesses in construction and short life that defeats the amateur who "butchers" his engine by the hand filing route.

The Tigers are breaking records now! See to it that you own one!

All Bunch engines 45/100 cu. in. displacement. Bore  $\frac{7}{8}$ ". Stroke  $\frac{3}{4}$ ". Prices listed postpaid. At dealers or shipped parcel post from factory. Use money order.

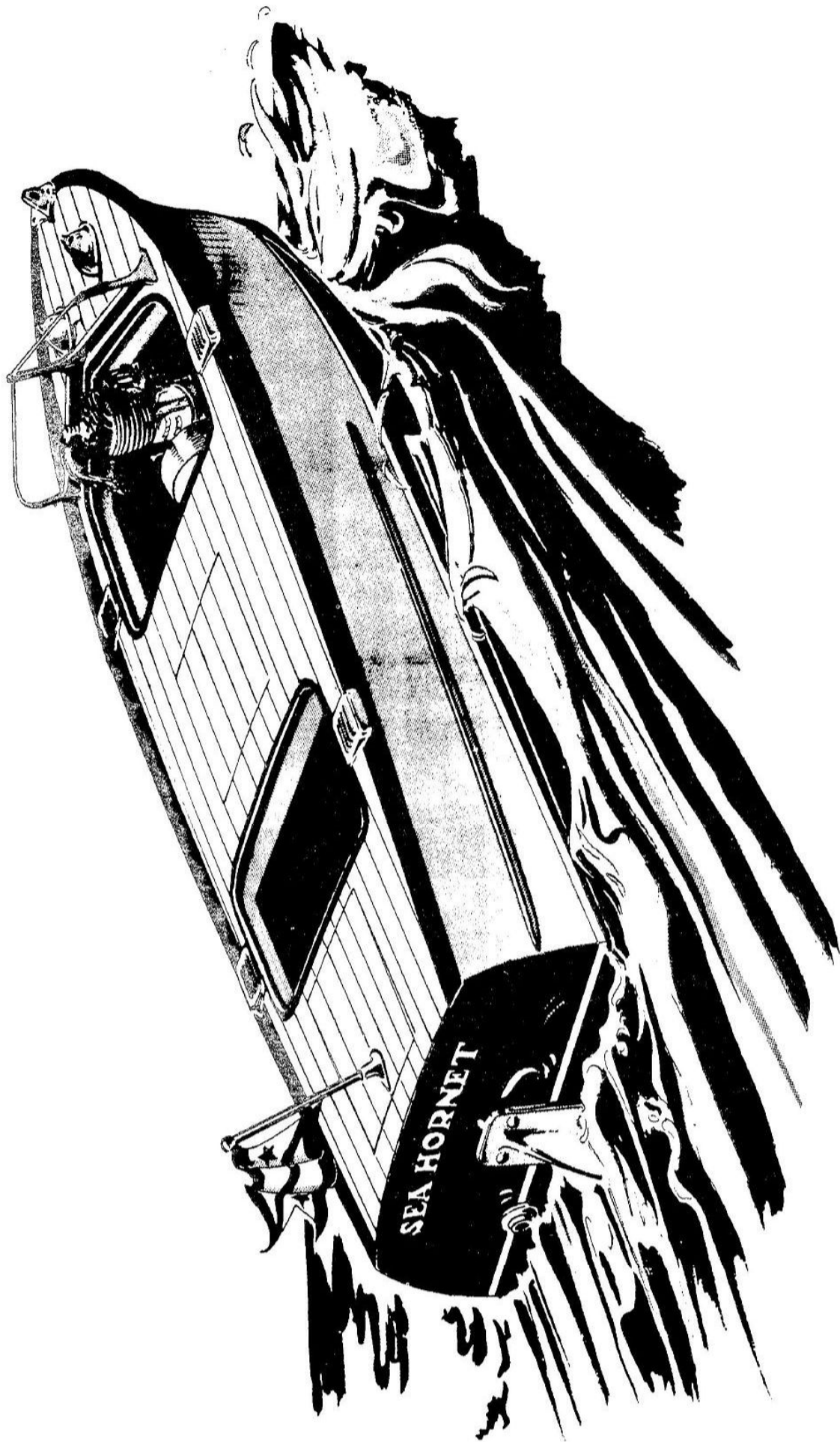


**TIGER  
SPEEDWAY  
RACE CAR ENGINE**

**\$16.50** ASSEMBLED  
AND  
BLOCK  
TESTED

**BUNCH MOTOR CO.** 6714 McKINLEY AVE.,  
LOS ANGELES, CAL.



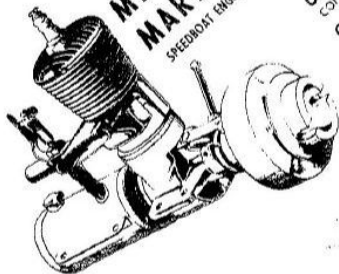


Newest THRILL for the MODEL builder

# SEA-HORNET SPEED BOAT

SEA-HORNET  
Hydroplane  
Speed Boat

An ideal model boat engine the Mighty Marine is designed to run with greater efficiency at high speeds. The Mighty Marine is air cooled. No troublesome water-jacket hook-up is required. Easily adjusted on land, the Mighty Marine makes a full-power run at top speed and does not "conk" upon launching. For trouble-free peak performance from your model boat, install the Mighty Marine. Specification—Bore,  $\frac{1}{2}$ "; Stroke,  $\frac{1}{4}$ " 175 h.p. at 8500 R.P.M. Order the Mighty Marine in kit form at \$200 R.P.M. \$10.85. Completely assembled and block-tested \$12.50. Send Postal Money Order. All Prices Post Paid.



**MIGHTY MARINE**  
SPEEDBOAT ENGINE

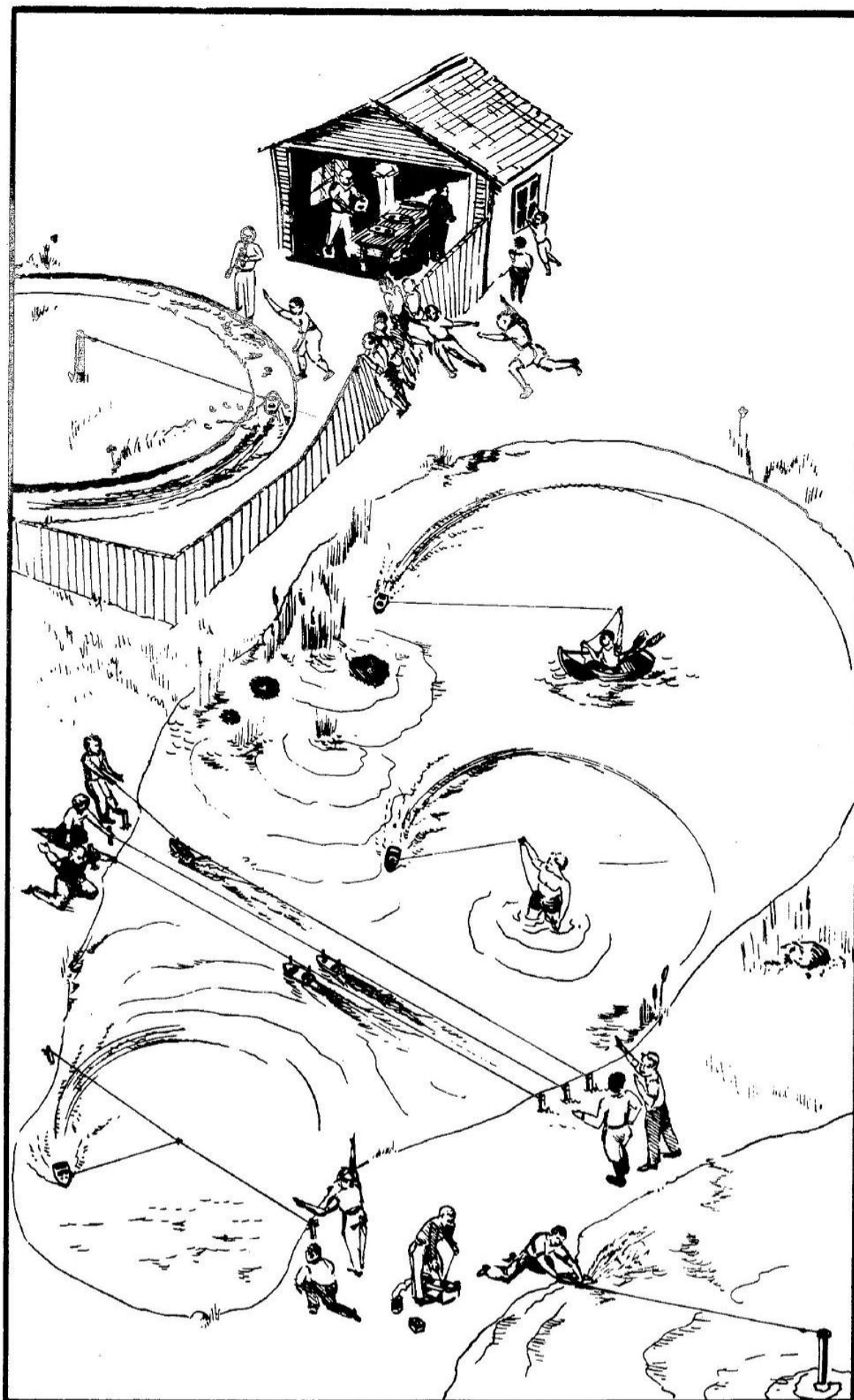
Easy to build with threaded steel driveshaft and coupling, aluminum rear strut, cast aluminum propeller, special driving dog and stuffing box, the Sea-Hornet construction kit makes a real gas-powered speed boat. The frames, sheer planks, motor mount beams and all special parts are ready cut from balsa. The planking and deck pieces are easily made from 20 step-by-step illustrations explain every construction and installation detail. The Sea-Hornet is the most thoroughly worked out gas-powered speed boat ever presented. Buy the only Car Wood Style model speed boat today. Master Kit—Complete with all parts, fittings, assembled and extra materials. All parts, fittings, covering and quart dope to protect and waterproof engine. Also fabric propeller drive. Stuffing box and other fittings furnished. Plans, instructions only. 50c.

STEPPING OVER THE WATER at a fast clip the Sea-Hornet speed boat breaks all records for thrilling gas-powered achievements. Authentic snapshots of the racing Sea-Hornet in action on lakes, sea and river. Attaining speeds over 20 M.P.H. the 24-inch Sea-Hornet is run in a circular path on a 50-foot line anchored to a stake or from a small boat.

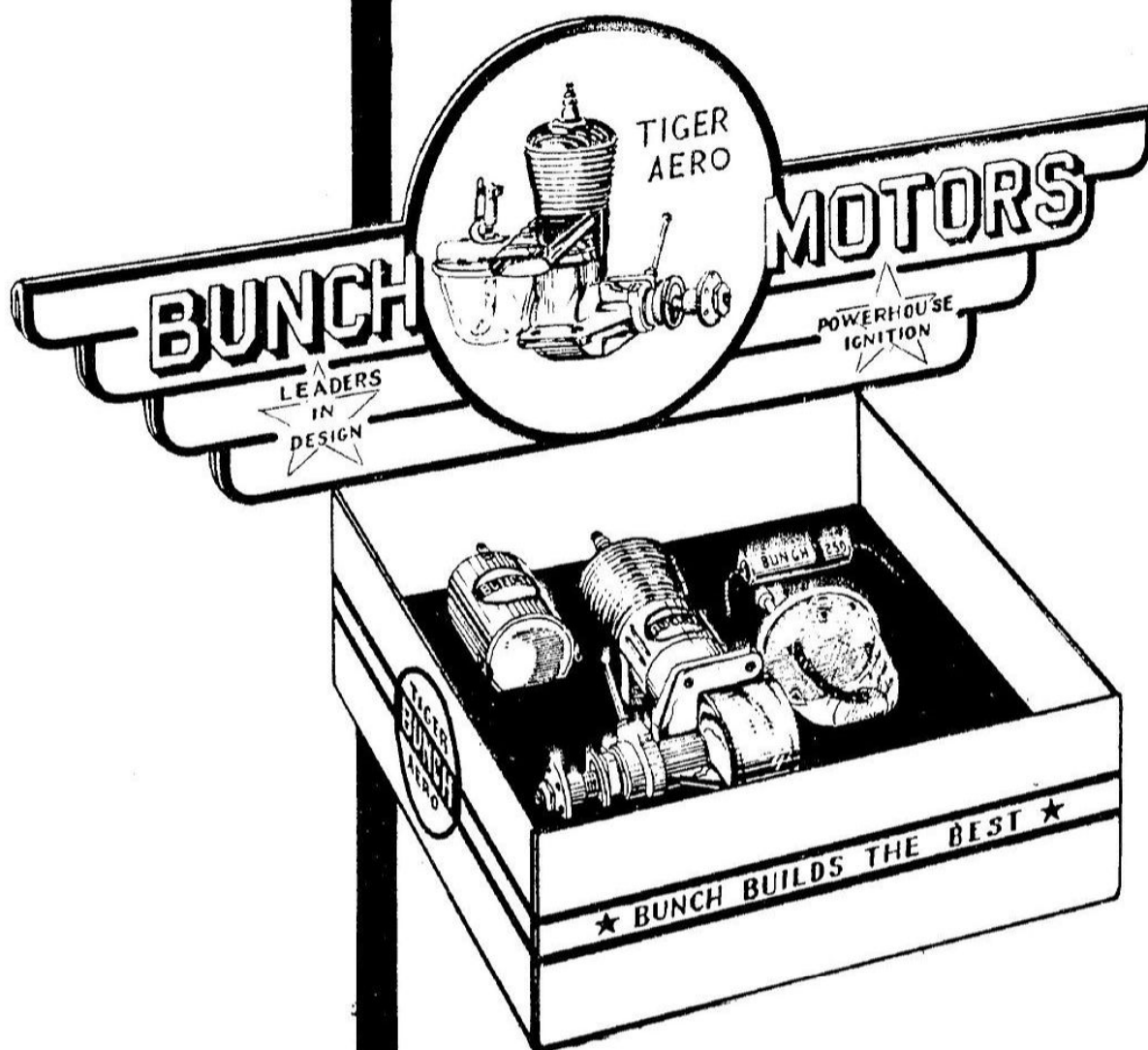
## BUNCH MODEL AIRPLANE CO.

6714 McKinley Ave. ★ Los Angeles, California





**NOTE:** Pictured here are several practical schemes for operating the gas-powered Sea Hornet on lakes, sea, rivers and ponds.



## ★ **READY FOR ACTION!**

EVERY SPORT MODEL BUNCH ENGINE IS RUN IN AND CHECKED BY FACTORY EXPERTS AT PEAK R.P.M. YOUR BUNCH MOTOR, GUARANTEED FOR WORKMANSHIP PACKED IN THIS WINGED CARTON LEAVES THE FACTORY READY FOR ACTION.

# **BUNCH MOTOR COMPANY**

★ 6714 MCKINLEY AVENUE

LOS ANGELES, CALIF. ★