

O & R TWO-SPEED TIMER, WITH JIM WALKER'S U-REELY CONTROL HANDLE. ALLOWS CHANGE OF SPEED IN FLIGHT



O & R Two-Speed

The accompanying diagram and instructions, provided by Jim Walker, explain the installation of the O.R.R. Two-Speed Tirner in connection with the U-Reely Control.

TIMER INSTRUCTIONS

Speed Timer in connection with the U-Rerly Control.

The high-speed point makes connect and times, and stow speed in obtained by delaying the fining time through the two-speed point. Notice in the factoring that the dispo-ced high result is the speed of the control of the con-trol of the control of the term of the control of the control of the control of the term of the control of the control of the control of the term of the control of the control of the control of the term of the control of t

(a) Leach Relay: 1,280 ohms, 221/2 or 30 volts. (b) Price Relay (shown in diagram): 1,800 ohms.

(c) Sigma and either type sensitive relays: 2,000 ohms, 22½ to 45 volts. 5,000 ohms, 45 volts. 8,000 ohms, 45 to 67½ volts.

Note that 4½-volt boosters are specified. You will find that most of your ignition tooobles disappear if you use 4½-volts for boosters, and that the life of your flight bassesies will be increased five to eight times. The batteries are mounted in two Austin pen cell type boxes, with one end of each removed and fastened to 3½" plywood.



OR



OHLSSON & RICE, INC.

GENERAL INSTRUCTIONS

OHLSSON & RICE ENGINES are the product of the world's largest manufacturers of ministrate aircraft engines and are designed exposuly for and intended to be seed in model aircraft operation only. Every part of the finished engine has been inapecied and stored, and a Warszerty Card is included with each engine.

is included with each engine.

It is of the unnor importance that you fill our your
Warranty Card and seems it to the factory for registration.
KEEP A RECORD of your settal number, so that in the
event your engine is lost, or stolen, we can assist you in
proving your ownership.

To secure the best performance and efficiency from your Ohlston & Rice Engine it is important to muly carefully the instructions in this folder and be sure they are thoroughly understood before operating the engine.

understood betwee operating the engine.

An important feature of Olitons on Rice Engines is their one-piece construction. Cylinders are secured to the exastcase, using special factory equipment, and can only be removed and replaced at the factory or authorized factory service studies. Do not attempt to tensore the cylinder from the translesse, so it will damage the engine.

FUEL MIXTURE AND LUBRICATION

For the first cline, you can now use a special "hoc fuel" with safety by using Oblison & Rice Fuel No. 1 for standard ignition engines and Oblison & Rice Fuel No. 2 with glow-play ignition. All dealers have these fuels, which constain one high-performance lubricanes not feemently available to model these.



The ignition system is a most important part of your eagine. To hook it up, follow the wiring diagram, using only well-ensulated (not ensuated), stranded togoes with. The cut operates on these wists. When the ignition is all update places and both it is feet from the crackious. Now easy large and point it is feet from the crackious. Now sens the posp over quickly, at spark should jump from the entrials to the crackious every time the prop is resented (Fig. 1). If no, replace the wise on the plag and the engine is needly to stratt.





not to choke the engine excessively. This is particularly true with the type of fuel admission on the rotary valve engine. If the engine becomes flooded, close the needle valve and crask the engine until the excess mixture is forced out.

After the engine starts, advance the timer control arm and turn down the needle valve so that the engine runs smoothly. After a little practice, the correct spark and needle valve seeing for easy starting will be second nature to you.

As each On R. Engine has been expertly assembled and meted before shipping, block resting in not accessary, and the engine will receive more adequate cooling in fight. However, it is recommended that the engine be booken in orderfully when firm installed in the model. Causion should be extrained and the engine nor ran "wide open" for at least a period on you and a half down. The nor ran the engine famer than 54 threated during the breakings period, as we extensi bear may count the pinton or forces in the edjine

der or do other damage to closely working parts, resulting in delay and costly repairs. During this period the needle valve should be allowed to set on the rich (open) side to insure a rich mixture that will adequately lobelcate all movements to be a set of the rich that the richer's few dense of constructions.

If your eagine fails so start, CHECK the following issues:

If your eagine fails so start, CHECK the following issues:

A broken or loose connection; found or dirry spark plag;
exhausted barriers; ignation pairs so to making connect,
encelle valve body founder, out of gas; improper fard missure;
flooded eagine; metallic cell mounting or improperly
grounded conference.

and be sure all the connections are secure.

CHECK the spark by opening the ignition points. Move the peop so that the piston is at the bottom of the stroke. The points are now open. With the ignition on, complete the circuit by grounding the stationary point against the timer bresting (Fig. 4). Each time yes complete the circuit,













a spark should jump between the gap and the point of contact. If the ignition points are not making proper con-tact, remove them from the ciner housing and clean, or hose them on an entery stoon. After cleaning, replace the points. The gap should be .005 to .010.

points. The gap should be .005 to .010.

CHECK to spark Pagis by removing the plag from the cylinder, using a box or socket wrench. With the hi-sensitive statement of the spark page of the plag terminal, the small base of the regard page generated gap to the control of the spark page generated gap to the spark page of the page of the page of the spark page of the page with each revolution of the page. (However, this does NOT accessarily mean that the spark plag is not at fault, take it is not fixing under compensation.)

The timer mechanism on Ohlsson & Rice Engines con trols the speed and acts as an ignition switch when the time control arm is in the full retacked position (Fig. 6).

Side port engines can be operated satisfactorily either upright or inverted simply by using an inverted fuel tank up (Fig. 7).

TARY VALVE ENGINE in this manual

CLEANING THE ENGINE

It is seldom necessary to disassemble your engine. How-ever, if you have flown it under dusty field conditions, the engine should be thoroughly cleaned. Remove the crankcase bolts, fully retard the timer control arm and pull the entire crankcase front section away from the crankcase eatire carakcase front section away from the crankcase. With the times term in this position, the moring contact point is disengaged from the cam, allowing the crankcase frost section to be removed without loajury to the timer mechanism (Fig. 8). Turn the connecting rod to that the beating is cross-wise in the crankcase and "drop" the pisson and rod out of the cylinder (Fig. 9). Wash all parts thorand rod out of the cylinder (Fig. 9). What hill parts there oughly in class passilie and wipe dry with a clean rag. Re-oil the bearing surfaces and the piston, and be sure that, upon reasonabiling, the piston deficence is on the side of the cylinder opposite the exhaust port. The engine will not operate if assembled in any other manner (Fig. 10).

When it is necessary to replace the basic parts, such as the pisson and cylinder and rear section, the factory or factory-authorized repair service stations have exchange replacement units to facilitate such renairs.

If it becomes necessary to return your engine to the factory, carefully package it so that it will not be damaged in transit. In addition, send a letter, telling the factory how your engine behaves, and be sure to INCLUDE THE SERIAL NUMBER. Only those parts that are absolutely necessary for satisfactory operation will be replaced. The old parts will not be returned.

After being repaired, the engine is thoroughly inspected and tested before shipment to you.

Unless advance nayment has been made, all repairs are shipped CO.D. The factory is taxed to espacing, and special wiring book-ups or innovations on the engine, such as special porting, etc., cannot be undertaken by us.

To obtain the maximum efficiency and performance from your Ohlsson & Rice Bingine, the choice of propeller is im-portant. There are many variables in choosing the proper propeller to get the utmost efficiency, but the following sizes come within the range for general use:

For O&R "19" Engine— Free Flight-9 in. 4 pitch U-Control -8 in. 6 pitch

For O & R "25" Engine— Free Flight—10 in. 4 pitch U-Control-8 to 9 in. 6 pitch

For O & R "60" Engine— Free Flight=13 to 14 in. 4 to 6 pitch U.Control -10 in 8 ninh to 12 in 6 ninh

INSTRUCTIONS FOR ROTARY VALVE AND TANK MOUNT INSTALLATION





- lation:

 Remove cranktuse front section and times and take our cranktuse front section and CLEANING THE ENGINE in this manual.

 Install iones on new rocary valve caskicuse front section and insert new crashchult with thrus bearing and areas in place.

 Oll moving patts and ceasanable cagine, following instructions in section on CLEANING THE ENGINE in this manual.

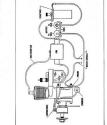
- Cut off the needle valve body on the bent end, approximately $\frac{1}{2}4^{\circ}$ beyond rwaged flange, so that a flexible fuel line may be connected from the tank.
- 8. Install original needle valve washer, lock and our.
- Arach the new flexible fuel line to the needle valve body and new fuel tank. 10. Insert needle valve and start engine in usual manner.

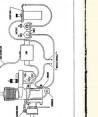
This is a large-capacity fuel tank and engine mount designed for either side port or rotary valve engines for longer U-controlled flights and as a mounting system for free flight. The tank mount is designed for various methods of mounting:

- 1. On the frewall, using the four lugs in the rear of the tank.
- Either upright or inverted, when using rotary valve con-version unit. 5. Upright, using standard side port engine.

In mounting, use 4-90 mixture screws os secure the unit to the model. Mount engine to the unit by first remov-ing the three must from the craskness screws that committy hold the canadactie front section so the engine, then fasten the engine to the unit by tightening these screws in the large provided in the assembly.







WIRING DIAGRAM

MANUAL

OPERATION &

MAINTENANCE

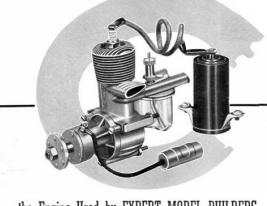


Emery at Grande Vista, Los Angeles 23, Calif

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Ohlsson & Rice, Inc.

OHLSSON

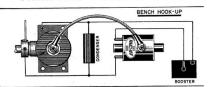


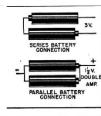
the Engine Used by EXPERT MODEL BUILDERS

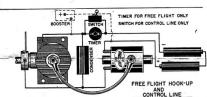
and those who want to be!



STANDARD IGNITION HOOK-UPS







FOR BEST IGNITION RESULTS

Mount Are Cells by inserting cell body or core ends in wooden supports or other non-magnetic material. Never mount cell with a metal band to a metal base. If convenient, mount cell acress the body of the model for added safety in case of a crack-up. All wires should be short as possible. Use good insulated multi-strand wire.

Always use booster battery when starting or adjusting engine. Booster battery should be disconnected when engine is not in use. Batteries up to 4 $\frac{1}{2}$ volts may be used without damage to the coll. Use proper type condenser recommended for model enginuse.

SINCE HALF THE ENGINE TROUBLES CAN BE TRACED TO IGNITION FAILURE-BUY PROVED IGNITION PRODUCTS ONLY.