## TYPES KB-873, KB-897, KB-878 AND KB-890

**DESCRIPTION:**—The Owen-Dyneto Starter-generator for outboard engines is a six pole, compound wound machine. The armature is keyed directly on the upper end of the crankshaft and serves as the engine flywheel. It revolves within the field frame which is mounted on the upper end of the crankcase. The two main brushes and a movable control brush are mounted on the brush ring which is centered on the upper end of the field frame by six small tongues. A battery charge regulator is also mounted on the brush ring. The ignition unit is mounted on the upper end of the shaft under the cover plate of the starter-generator.

**OPERATION:**—The starter-generator is controlled by a three position 'slide bar' type switch. The three positions of the switch are:

**OFF.** In this position of the switch the starter-generator is disconnected from the battery and the ignition is likewise disconnected from the battery. It is the normal position of the switch when the engine is not running.

**NEUTRAL.** In this position of the switch, the ignition is connected to the battery but the starter-generator is not connected. The switch should be placed on 'Neutral' when for any reason it is desired to hand-crank the engine. It may also be used for high speed operation to eliminate the drag of the generator. No damage will occur to the starter-generator windings if the engine is run with the switch in 'Neutral' as both the series and shunt windings are open. The neutral position of the switch is secured by sliding the switch bar 3/16 inch from the 'Off' position.

**ON.** When the switch is placed on the 'On' position the ignition is turned on and the starter-generator is connected to the battery. In addition the shunt field circuit of the generator is completed. The starter-generator then acts as a motor to spin the engine at approximately 400-450 R.P.M. The starter continues to assist the engine until the engine speed reaches 1000 R.P.M. when it begins to charge the battery. At all speeds above 1000 R.P.M. the machine will operate as a generator to charge the battery. Whenever the engine speed drops below 1000 R.P.M. the machine operates as a motor which prevents the engine from stalling at low speeds. The cut-in speed of the Types KB-873, KB-878 and KB-897 six volt starter-generators is 1000 R.P.M. as above. On the Type KB-890 starter-generator this cut-in speed is 1500 R.P.M. The Type KB-890 is a twelve volt machine.

The generator output is controlled by an Owen-Dyneto 'Battery Charge Regulator' operating in conjunction with the third brush shunt field control. The control brush or 'third brush' can be shifted on the brush ring to change the generator output. The control brush should be shifted in the direction of armature rotation to increase the charging rate and in the opposite direction to decrease the charging rate. The Battery Charge Regulator is fully covered on a separate page. See Generators.

**Generator Performance Data**

Types KB-873, 878, 897

| Amperes | Volts | R.P.M. |
|---|---|---|
| 0 | 6.3 | 1000 |
| 16 | 7.6 | 2500 |
| 13 | 7.4 | 4500 |

Type KB-890

| Amperes | Volts | R.P.M. |
|---|---|---|
| 0 | 13 | 1500-1600 |
| 9 | 14 | 3500 |
| 8 | 14 | 4500 |

**Starter Performance Data**

Types KB-873, 878, 897

| Torque | R.P.M. | Volts | Amperes |
|---|---|---|---|
| 4 lb. ft. | 400 | 6 | 65 |
| 27 " | Lock | 5.5 | 290 |

Type KB-890

| Torque | R.P.M. | Volts | Amperes |
|---|---|---|---|
| 14 lb. ft. | 400 | 11 | 130 |
| 35 " | Lock | 9.5 | 330 |