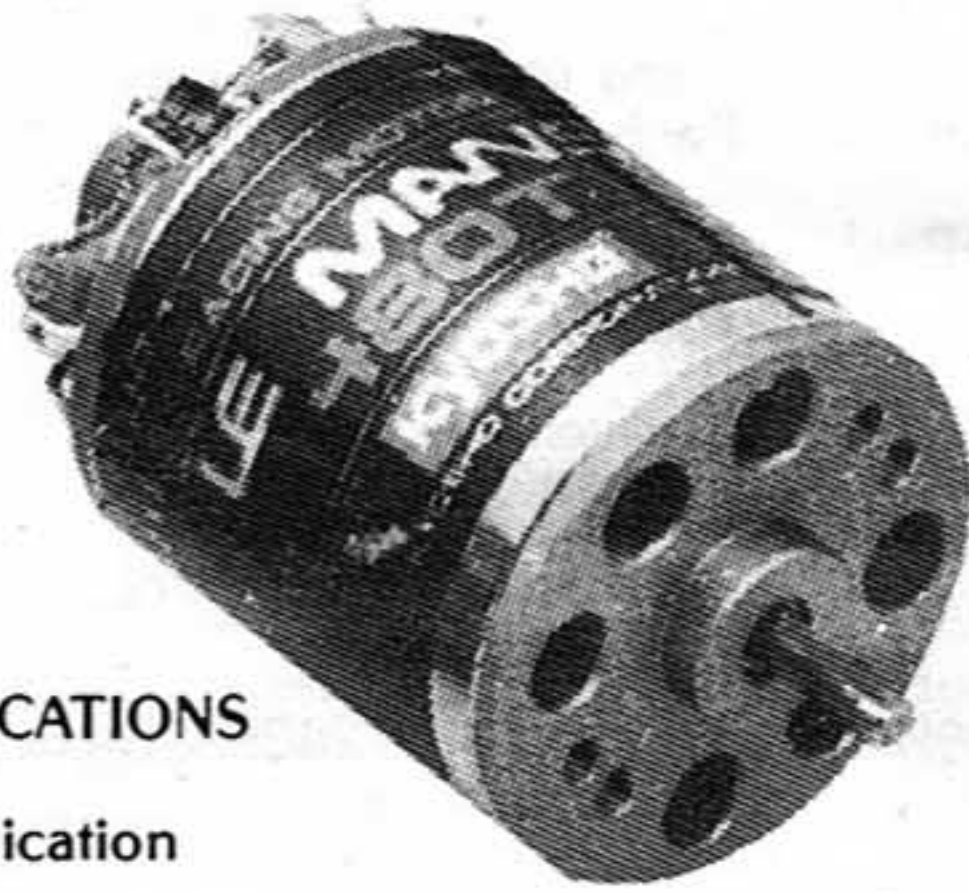


NOTICE: READ THIS MANUAL THOROUGHLY BEFORE YOU ATTEMPT TO USE THE MOTOR!



LE MANS

RACING MOTORS

MODELS: 480G 480S 480T 240S 240SB
600E 360G 360PT

LeMANS APPLICATIONS

Model #	Application
480G	The ultimate motor for all-around racing for on- or off-road buggies. Like the 480 series, it has standard duration, high-torque and high RPM. It also has the high-performance aluminum endbell that keeps you in the race.
480S	Designed for 1/12 scale cars used on larger, more oval tracks. Slightly faster than the 480T.
480T	Ideal for 1/12 scale cars that require extra torque for difficult tracks, lots of turns, etc.
240S	High RPM, short endurance motor for 4-minute sprint racing.
240SB	Is designed for short duration (4-minutes) high-speed racing. It has a high performance aluminum endbell which helps it generate up to 30,000 RPM.
600E	Designed for any off-road electric car. A highly efficient, long endurance motor with more power than a stock RS-540.
360G	This is also a very heavy-duty high-performance motor designed for high-torque, high RPM, medium endurance applications. This motor has an aluminum endbell which helps stop motor melt down.
360PT	Very heavy-duty, high-performance off-road use. The ultimate motor for 1/10 scale buggies.

LeMANS FEATURES

- Timing angle of the brushes can be easily adjusted.
- Dynamically balanced rotor.
- Magnetic field is concentrated on the rotor by using a non-ferrous front plate for more power.
- Skewed slots on the rotor allow smooth operation with increased torque and RPM.
- Coils are potted in epoxy for increased reliability.
- Diamond-tooled commutator which allows ultimate precision.
- Direction of rotation can be changed without switching the lead wires.
- Ball Bearings in all but the 600E.
- May be used with 6- and 7-Cell batteries.

A note about LeMans model numbers – the model numbers refer to the running time in seconds that you might expect from a fully charged 7.2V, 1200 mAh battery pack. For example, a 480S should run for about eight minutes on a full charge; while the 240S will only last approximately four minutes.

SOLDERING THE LEADS

If you have never soldered before, we **STRONGLY RECOMMEND** that you find a friend with soldering experience to help you. If you got your LeMans with the purchase of a kit or one of the Kyosho Prop Drive Units, the leads may already be soldered for you.

Solder the leads from your model's speed control or switch to the silver terminals on the endbell. Polarity, at this point is not important because the direction of rotation can be changed without switching the lead wires. Just be sure that one wire is soldered to the (+) terminal and the other to the (-) terminal.

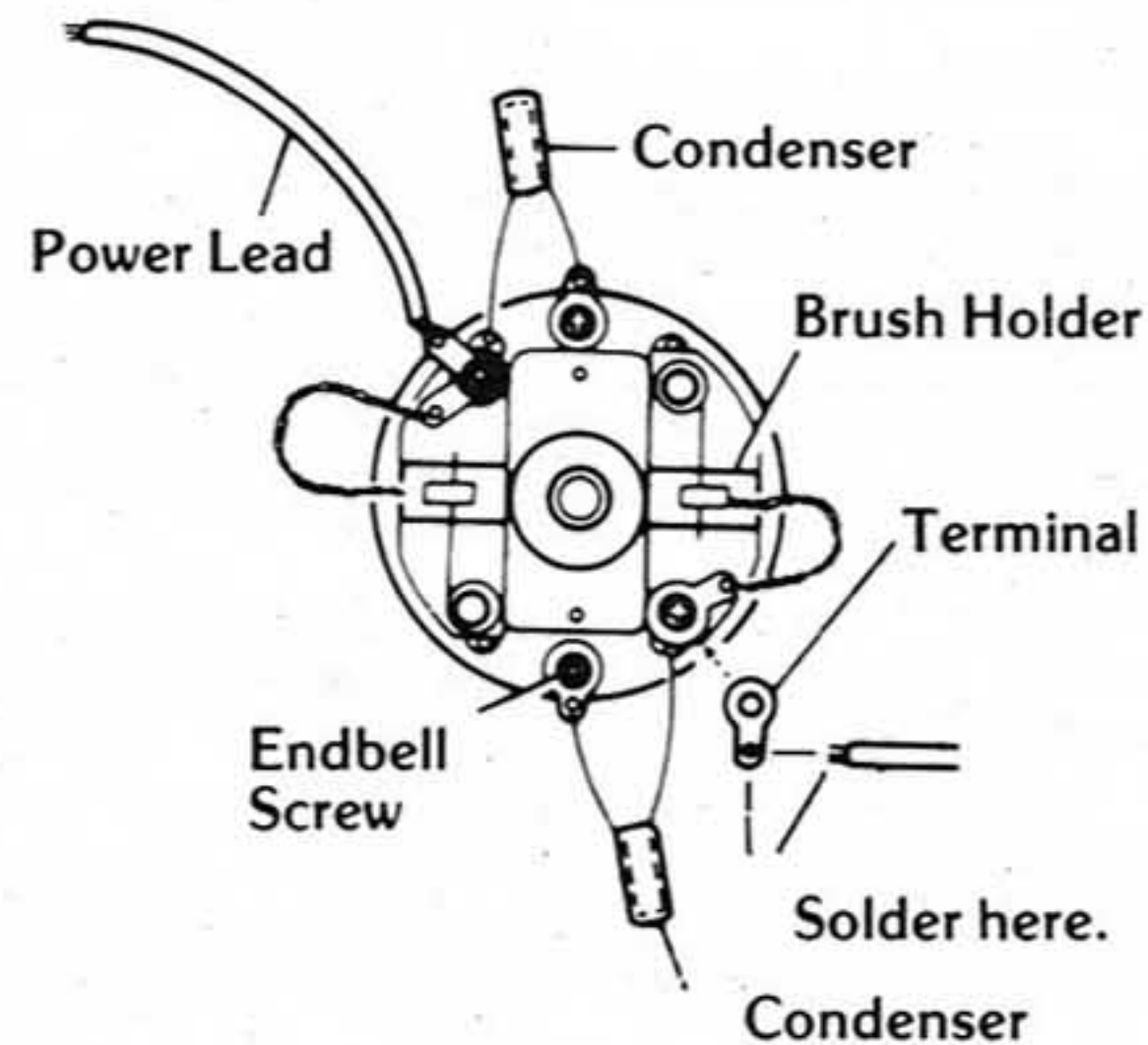
Solder the two condensers between the power terminals and the endbell screws' terminals as shown in the illustration.

BREAK-IN RUNNING

Breaking in your new motor is necessary to allow the brushes, commutator, and bearings or bushings to seat themselves into position. Break-in running should be done with no load placed on the motor; don't break it in while installed in your model. Since higher voltages tend to cause some vibration before break-in, the ideal break-in procedure is to run the motor at around three or four volts for a total period of ten hours. If a source of three or four volts is unavailable, run the motor at a higher voltage for less time. Just remember, the lower the voltage, the better. Never exceed 7.2V for break-in.

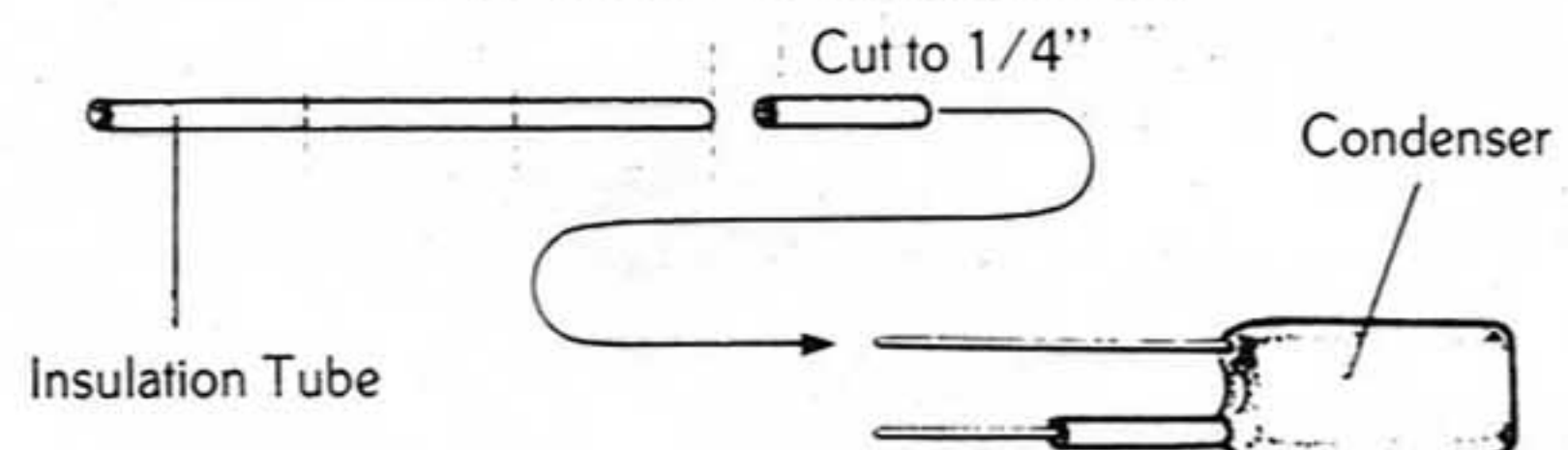
INSTRUCTIONS

ENDBELL



After a particularly rough run in your model, the brushes and commutator may become dirty and start to bind. If this is the case, run the motor with a 7.2V battery for about 15-20 minutes with no load. This should restore the motor to its proper operating condition. **NOTE:** On all G-Series motors the endbell is aluminum. When the condensers are installed, a section of insulation tube must be placed on the metal leads of the condensers. This is done to prevent unnecessary short circuits between the positive and negative leads.

METHOD OF INSULATION



INSTALLATION

Install the motor using two 3mm screws bolted through the threaded holes in the front plate. Four holes have been provided for your convenience to suit most any model. If you are using your LeMans in an off-road car, take special care to keep dust and water out of the motor. You may wish to consider installing our #SC-040 motor cover or "boot" over it to keep it clean and dry.

ADJUSTING THE TIMING

LeMans motors are shipped from our factory with the timing set at 0 degrees. At this setting, the motor draws the least amount of electrical current and also produces the least amount of RPM. The timing can be altered by simply loosening the two endbell screws and turning the endbell. To increase RPM, the endbell should be rotated in the direction OPPOSITE FROM MOTOR ROTATION. Turning the endbell in the same direction as motor rotation will not only decrease RPM but will cause the current draw to increase so be careful about which direction you turn the endbell. Keep the amount of adjustment within the 0 degree to 6 degree range as printed on the outside of the motor housing. A small timing mark is notched into the endbell for your reference. You can reverse the direction of rotation by turning the endbell a full 180 degrees. When the direction is reversed, use the timing marks on the opposite side of the motor's label.

You may wish to consider purchasing the **Kyosho #1896 Motor Checker**. It is a very handy tool for adjusting timing and diagnosing problems for your LeMans motors.

MAINTENANCE

To keep your new LeMans motor in top condition, keep it clean and inspect it often.

Dissassembly

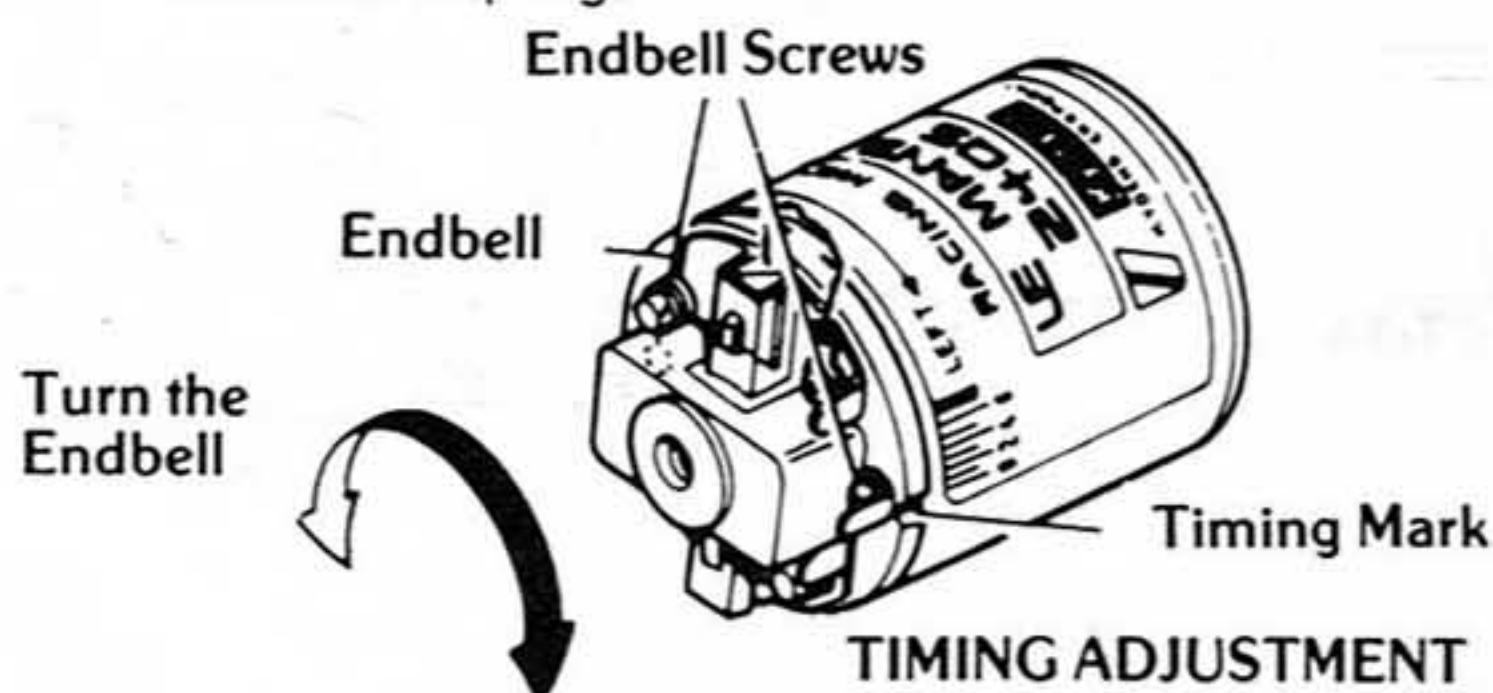
1. Slide the brush springs forward at the spring holder tabs and pull them back so that the brushes can be removed.
2. Carefully remove the brushes.
3. Take out the endbell screws and remove the endbell.
4. Turn the retaining ring so that its notches line up with the small tabs on the motor housing. Remove the retaining ring.
5. The rotor can now be removed. Be careful not to lose any of the small washers on the front or rear of the motor assembly.

Cleaning

1. Polish the commutator lightly with a soft pencil eraser (don't get the eraser crumbs in the rotor!) or 1500 grit sandpaper. Examine the grooves on the commutator. Carbon dust from the brushes accumulates here diminishing power output and efficiency. Use the non-sharpened side of a hobby knife to carefully clear out these grooves if they are clogged. Do not oil the commutator!
2. Oil the front and rear bearings/bushings with a light machine oil such as 3-IN-1 Oil. Don't allow any oil to contaminate the commutator.
3. Wipe the inside of the motor housing with a soft, dry cloth. Small pieces of iron dust may be cleaned away from the magnets by moving the tip of a screwdriver near them. Be careful not to scratch the magnets.

Reassembly

1. Make sure that all of the washers are back in place on the rotor assembly.
2. Replace the rotor into the motor housing.
3. Replace the retaining ring into the motor housing by first lining up the notches with the small tabs on the motor housing, pushing it into position past the tabs, then turning the ring so that one of the screw holes lines up with the tab at the 0 degree timing position.
4. Replace the endbell with the endbell screws and install the brushes and springs.

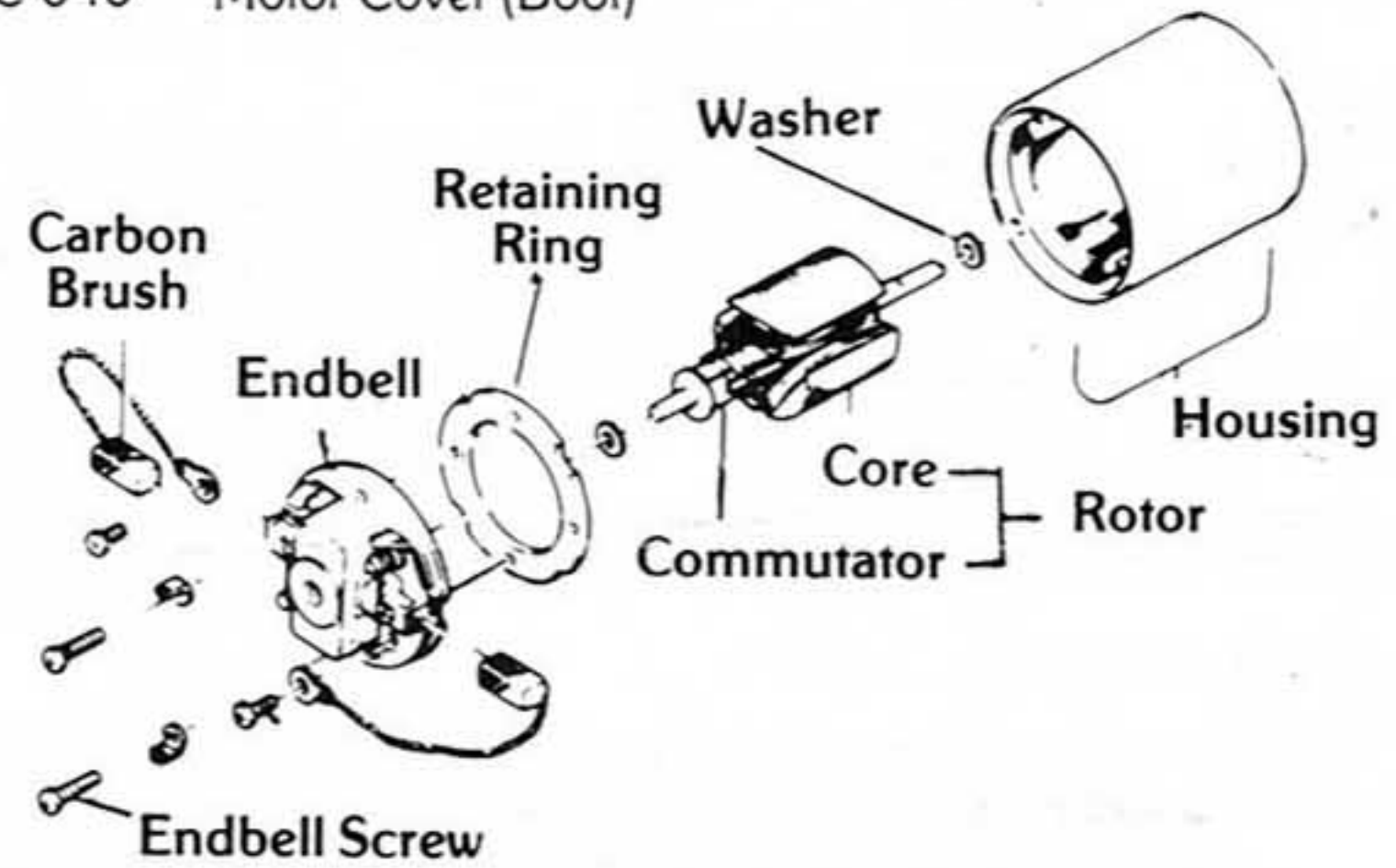


PARTS LIST

A full line of replacement parts is available for your LeMans motor. When asking your dealer for parts, please refer to the **Kyosho Parts Pack** number shown in the left hand column.

Parts Pack

Number	Description
LM-01	480S Rotor
LM-02	480T Rotor
LM-03	240S Rotor
LM-04	Housing (Fits all except 360 Series)
LM-06BK	Endbell 360PT (Black)
LM-06BR	Aluminum Endbell 240SB (Brown)
LM-06B	Endbell 480S (Blue)
LM-06G	Endbell 480T (Green)
LM-06R	Endbell 240S (Red)
LM-07	Brush Springs
LM-08	Silicon Steel Board Ring - Optional (Improves torque)
LM-09	Rotor Kit (.7mm-Unwound)
LM-10	Rotor Kit (.75mm-Unwound)
LM-11	360PT Rotor
LM-12	Housing for 360 Series
LM-13	480G Rotor
LM-14	Aluminum Endbell 360G & 480G (Gold)
LM-15	Heatsink Plate/Filter
LM-16	240SB Rotor
LM-17	360G Rotor
LM-18	Maintenance Kit (Contains - Retainer Ring, Washers, Screws, Capacitors, Terminals)
SC-040	Motor Cover (Boot)



LM-08 SILICON STEEL RING

This ring or tube of silicon steel is mounted around the outer case of the motor. This will concentrate the magnetic field of the motor. By concentrating this field the torque of the motor will increase and the RPMs will decrease but the duration of running time will increase about 5% to 10%. This ring/tube is designed to be used according to the race and track conditions.

Specifications:

Motor	Armature	Max. Revolution	Bearing
LeMans 480G	0.40mmx25 Turn	21,000 - 22,000 RPM	Ball Bearing
LeMans 480S	0.80mmx24 Turn	21,000 - 22,000 RPM	Ball Bearing
LeMans 480T	0.75mmx26 Turn	20,000 - 21,000 RPM	Ball Bearing
LeMans 240S	0.90mmx19 Turn	24,000 - 25,000 RPM	Ball Bearing
LeMans 240SB	0.65mmx19 Turn	29,000 - 30,000 RPM	Ball Bearing
LeMans 600E	0.70mmx30 Turn	17,000 - 18,000 RPM	Metal
LeMans 360G	0.65mmx18 Turn	22,000 - 23,000 RPM	Ball Bearing
LeMans 360PT	0.90mmx19 Turn	20,000 - 21,000 RPM	Ball Bearing

Note: the 360 series rotors are significantly longer than the rest.

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