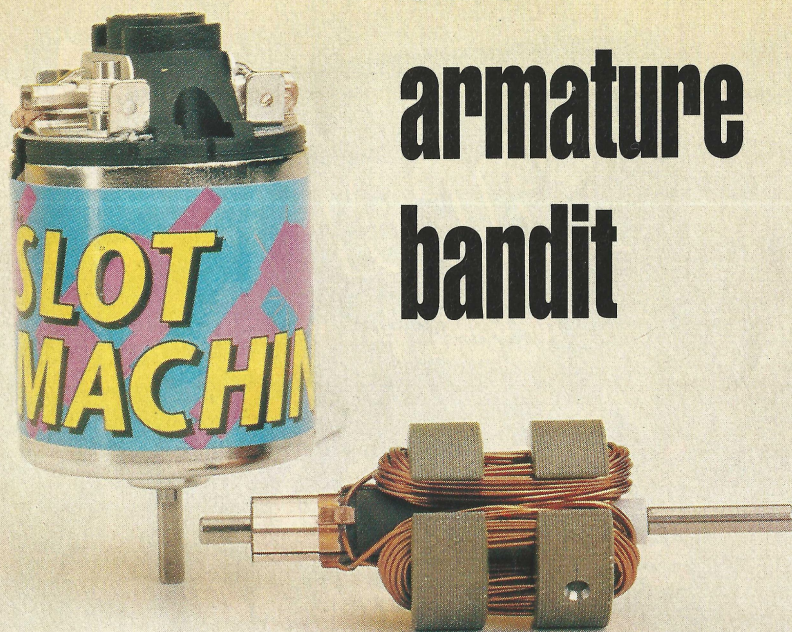


# one- armature bandit



# S TRINITY slot

# machine

TRINITY'S\* NEW Slot Machine was the first motor to be approved under the 1991 ROAR rules requiring that stock-class motors have locking devices on their commutators to restrict timing to a maximum of 24 degrees. The fixed commutator prevents racers from tampering with the motor's timing—a too-common practice at large-scale R/C racing events.

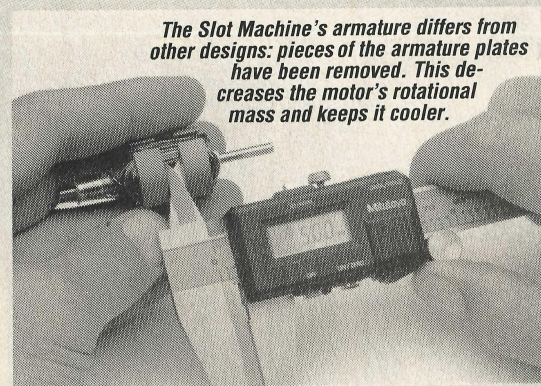
That the Slot Machine was the first motor of this type to be approved isn't its mark of distinction; it's the motor's patented armature design, among other things, that may separate the Slot Machine from others in its class.

The Slot Machine has a redesigned commutator that includes the locking device, which extends from the commutator down around the three segments of the armature. This prevents the commutator from being twisted in relation to the armature to increase timing.

The magnets also affect the motor's timing. Previously, there was no way to know if the magnets had been positioned correctly in the motor can. The more user-friendly Slot Machine has guides at the zero timing mark to ensure that the magnets are properly placed.

A tab on the endbell fits tightly into a slot on the can. Previously, stock-motor endbells were held in place with two tabs (one on each side of the can) that were bent into slots on the endbell. This method held the endbell to the can, but it could still be twisted slightly to obtain a small timing increase. The tab on the Slot Machine's endbell fits snugly into the slot in the can, so the endbell can't be twisted at all without noticeably damaging it.

According to Trinity, the Slot Machine's redesigned armature provides much better performance *despite* the reduction in timing. The standard armatures used in R/C motors are a series of laminations stacked to form what's referred to as a "three-slot armature." The Slot Machine's



*The Slot Machine's armature differs from other designs: pieces of the armature plates have been removed. This decreases the motor's rotational mass and keeps it cooler.*

armature is assembled similarly, but a 5mm-wide section of the lamination has been removed from the armature's center. This reportedly reduces the motor's running resistance and provides additional cooling for it.

## HITTING THE JACKPOT

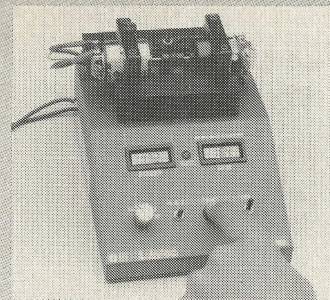
We tested the Slot Machine in the LAVco\* Pro Dyno and afterwards on the track. At that time, no other ROAR 1991 stock motors were available for comparison, so we found a couple with higher timing and compared them with the Slot Machine.

The initial tests took place on the bench with the LAVco Pro Dyno. We ran five Slot Machines to test the consistency of their performance, and we found that the tamper-proofing seemed to make the motors more consistent! The motors didn't differ by more than 300rpm at any load setting. Previous Trinity and other stock motors had varied by as much as a couple of thousand rpm. Obviously, five motors isn't a large sample, but their performances must show what we can expect from this line.

The Slot Machine was tested against two proven hot performers that are frequently used in stock-class racing: the Reedy\* Ultra Series stock with 37 degrees of timing; and the B&R\* Pro Magnum with a reported 44 degrees of timing.

The testing revealed that the Slot Machine was the most powerful and efficient motor at lower amp settings: It had a Dyno power reading of close to 170; the Reedy and the B&R had readings of 130 to 140. (This is a good indication of straightaway power and speed.) The results obtained at higher settings were more comparable and, at the 25A and 30A load settings, the "mega-timing" motors outperformed the Slot Machine. (This indicates that, given the same gear ratio, they would pull more strongly out of turns.)

The Slot Machines were track-tested in both oval and off-road cars. Early on, we dropped a tooth or two on the pinion gear to keep the Slot Machine pulling strongly through the turns. The Dyno readings proved to be true: the Slot Machine runs best when it has been given a chance to rev-up. Overgearing just softens the throttle response com-



ing out of the turns, but there's no appreciable difference in top speed. In head-on competition, the Slot Machine has made believers out of the "over 40 degrees club," because it motored right past some of those big guns.

It's too soon to determine how the Slot Machine will do against other ROAR-legal '91 stock motors, but the results of our tests indicate that this motor's reduced timing won't reduce performance. In fact, most of our tests proved this motor is faster!

*\*Here are the addresses of the companies mentioned in this article:*

**Trinity**, 1901 E. Linden Ave., Linden, NJ 07036.

**LAVco**, 3150 E. La Palma, Unit B, Anaheim, CA 92806.

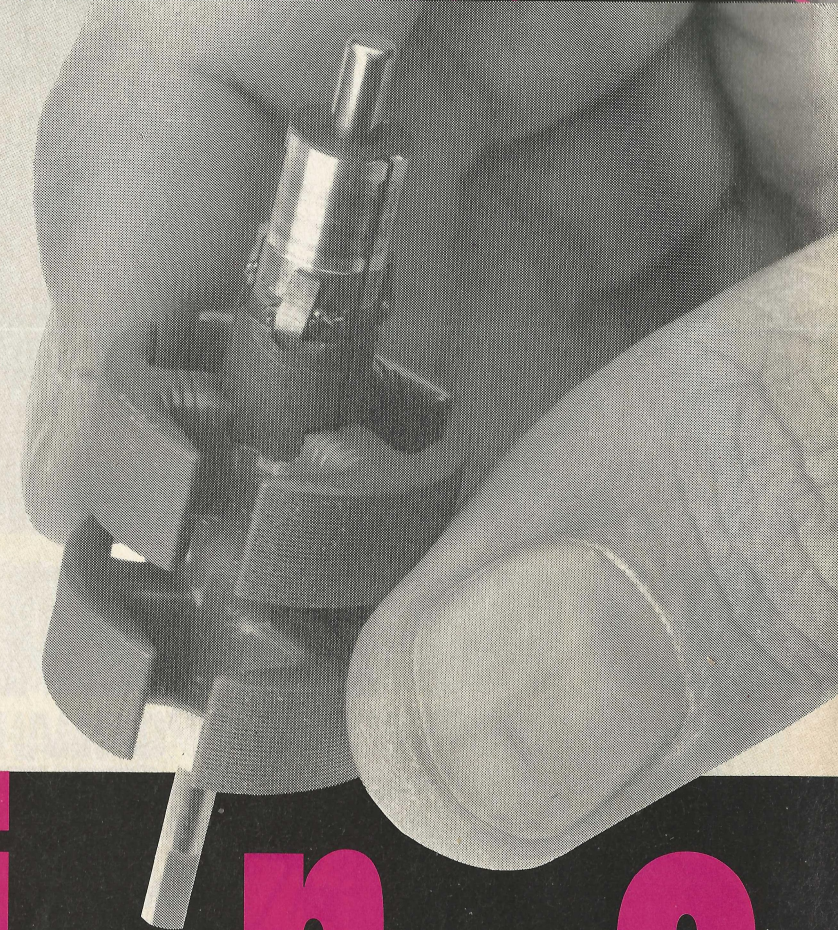
**Reedy**, distributed by Associated Electrics, 3585 Cadillac Ave., Costa Mesa, CA 92626.

**B&R Motorworks**, 28000 Tohill Dr., Saugus, CA 91350. ■

■ *Left: The Slot Machine was tested against other stock-class motors on the LAVco Pro Dyno.*

■ *Below: What's the secret of the Slot Machine's success? Its radical new armature design makes it a more efficient, higher-revving racing motor.*

**"The testing revealed that the Slot Machine was the most powerful and efficient motor at lower amp settings."**



by STEVE POND