

GETTING THERE: At 100 miles per gallon!

Popular Mechanics

APRIL 1974
60 CENTS

SPECIAL!
36-PAGE

HOME
IDEAS
GUIDE
Page 145

MOTORCYCLES:

- Complete guide to '74 models Page 86
- Sidecars are back Page 77
- Cycle-car conversions Page 80
- A quiet electric cycle Page 82
- Dirt bikes can be street legal Page 84

**THIS CYCLE-CAR
GIVES 50 MPG (!)
and sports-car
performance**

Page 80



**Better mileage:
You must check
those emission controls** Page 128

**Mustang II and Matador owners
say what they think** Pages 98 and 124

ELECTRIC MOWERS

four forward speeds, electric start, and a 36-inch mower. It costs \$680. Yard-Man's top rider uses the same engine, cuts a 32-inch swath and costs \$640.

The gasoline pinch and the growing awareness of noise pollution have given

(Please turn to page 142)



GE Elec-Trak line now includes eight models with the addition of this 8-hp, 36-inch riding mower. It has suggested list of \$695, including mower.



Jacobsen's unit in the electric mower market is the Electra Mark IV (above). Other makers' entries are the John Deere Electric 90 (left, top), the International 95 (middle) and the Wheel Horse E-60 Electric Horse. These units have 32, 34 or 36-inch mowers. Typically, the Jacobsen uses three 12-volt batteries to power two mower motors and one traction motor. A full charge permits more than one and a half hours' mowing.



cassette, outside the deck designer's control. An early and still valid approach was to make rotating parts heavier, with more mass at the rim for more flywheel effect. (Some motors are even built inside-out, with outer-rotor armatures rotating around a fixed field coil.) Dual capstans (see Nakamichi diagram, page 140) are sometimes employed to insure absolutely constant tape tension between the heads. And two other approaches—multimotor and servomotor drives—offer interesting bonuses:

Using separate motors for the capstan and the take-up and feed hubs helps keep hub-motion variations from affecting the tape's speed and tension as it passes the heads. And it also results in a simpler, more reliable mechanism that can be remote-controlled. Servomotors, whose speed is constantly monitored and instantaneously corrected by electronic circuits, also allow slight, deliberate speed changes in playback for musical pitch control.

Program search devices have advanced quite a bit since tape counters became nearly universal. Some counters now are connected to a memory; press a button, and the tape rewinds to whatever "zero" point you've preset. Nakamichi's more expensive deck rewinds automatically at the tape's end. Sharp now has an Automatic Program Finder, which scans for the silences between tunes on a tape—if you don't like what you hear, you can have it automatically fast-forwarded to the start of the next tune. Both Pioneer and TEAC will soon offer fast-cue modes that let you hear the "monkey-chatter" from the tape while fast-forwarding, to help you locate the section you want.

For more convenience in recording, many decks now feature bigger, easier-to-read VU meters and mixing controls that let you record from line and microphone sources simultaneously (handy for adding background music to a taped slide-show narration, for instance). Some models from Concord and Nakamichi even include three microphones: one for each channel, plus a center microphone bridged across both. And both TEAC and JVC have models that can be timer-controlled, to tape an FM program while you're out.

None of this quite means the millenium is here for cassette decks. Though they rival many open-reel decks in fidelity, they still don't quite match the best. But they're no longer jokes—just a lot more fun. ★★

YARDPOWER ROUNDUP FOR '74

(Continued from page 106)

electric riders a boost. There are several new entries. General Electric, pioneer maker of electric tractors, has come up with a rider about equal in power to an 8-hp gas engine. The Elec-Trak ER 8-36 has five forward speeds and a 36-inch mower. Its \$695 price makes it, according to GE spokesmen, "the lowest-priced electric rider you can buy that we know of."

The ER 8-36 reportedly can mow up to three-fourths of an acre on one battery charge. You get full power with an overnight charge; 85 percent of full power is achieved in five hours.

Sears Roebuck and Wheel Horse are also introducing electric riders for '74. The Sears All-Electric has a molded fiberglass body, a 32-inch mower and an all-gear transmission with three forward speeds, reverse and neutral. The price: about \$750.

The Wheel Horse entry, the Electric Horse, has a six-speed transmission and a 32-inch mower. Like other electrics, it gets its power from three 12-volt batteries. An on-board charger enables you to recharge the batteries by plugging into regular 110-volt service. A full charge is attained in about 12 hours.

Other makers of electric riders include Jacobsen, Roper and John Deere. The John Deere Electric 90 has been on the market since 1971.

When you get into the tractor market, you find a wide range of prices—from about \$550 for a "stripped down" 8-hp job to over \$3000 for a 20-hp unit with a lot of special features and capabilities. A typical 14-hp machine with standard transmission and a 42-inch mower costs \$1625. With a variable speed transmission, the same tractor sells for \$1920.

Similarly, a John Deere 10-hp tractor with recoil start lists for \$1115. With electric start this unit sells for \$1230. Also keep in mind that the price of most tractors does not include the mower.

Buying a riding mower or tractor represents a sizable investment. As you shop, be sure to ask about service, availability of parts, what the warranty covers and for how long.

Shopping takes time and effort, but it's a must if you want to get a machine that will meet your garden needs—and your budget, too. ★★