

# Clear the Air

Users will benefit from two-cycle engine equipment with reduced emissions – but at what cost?

By Larry Aylward, Managing Editor

**M**anufacturers must deal with it, but don't think the EPA's and the California Air Resources Board's new emission standards for two-cycle engines won't have an impact on users.

Because of the standards, two-cycle engine equipment such as weed trimmers, chain saws and leaf blowers must become more environmentally friendly. As a result, the products could also become more expensive and heavy.

EPA released its final ruling on March 9. It says: "New emission standards are now in place for small hand-held engines at or below 25 horsepower that are used in lawn and garden equipment. When the new standards are fully in place in 2007, the ground-level ozone pollution caused by these engines will be cut by 70 percent or 350,000 tons each year."

"Clearly, workers will benefit from significantly lower exposure to harmful exhaust emissions," says Bob

Larson, deputy director of EPA's assessment and standards division in Ann Arbor, Mich.

EPA requires production of cleaner equipment beginning in 2002.

The California Air Resources Board's Tier II emission limits, in effect this year, are intended to cut total emission of hydrocarbons and nitrogen oxides by 74 percent in hand-held equipment by 2010. CARB's Tier I standards, implemented in 1995, cut emissions from this equipment by up to 70 percent.

Larson says EPA doesn't expect a reduction in product availability or perfor-



mance from manufacturers. However, the new standards present manufacturers with several engineering challenges, whose end results could affect superintendents.

Manufacturers' goals include retaining the power and

simplicity in two-cycle engine equipment while abiding by the new regulations — but they'll have to go back to the drawing board to do so.

Manufacturers have spent many years trying to lower the weight of two-cycle engine products without decreasing performance. But the new emission reduction standards may force some manufacturers to add catalytic converters to products, hence adding weight.

"If you add another pound to a product that weighs 8 pounds, it makes a substantial weight difference," says Mark Michaels, senior product manager for Charlotte, N.C.-based Husqvarna

Increased weight could impact safety. "The entire balance changes when you add even one-half pound to a power head on a trimmer," Michaels notes.

Husqvarna, however, has a new engine technology — E-Tech — that adheres to the new regulations. Michaels says new E-Tech equipment will have less emissions but not at the loss of performance.

"We increased the efficiency of the engine by increasing crankcase pressure, which made fuel burn more efficiently," he explains. "Once we made it more efficient, we could add a low-weight catalytic converter to it."

Other manufacturers will soon be introducing emission-reduced equipment. Moline, Ill.-based John Deere says its new

LE small engine technology will reduce emissions in its hand-held products by up to 70 percent. "These LE machines run more efficiently, produce about the same amount of heat and have proven equally safe for the operator," says John Jenkins, president of Deere's consumer and commercial equipment division.

Norcross, Ga.-based RedMax/Komatsu Zenoah America says its new Strato-Charged Air Head complies with the new regulations without using a catalytic muffler. Last July, the company released seven new products powered by the Strato-Charged low-emission two-cycle engine. Don Kyle, vice president of marketing, says the Strato-Charged engine reduces emissions by 70 percent and increases fuel efficiency by nearly 35 percent.

Michaels says Husqvarna has received no feedback from superintendents regarding the new standards. However, he says superintendents are counting on manufacturers to comply with the standards and introduce equipment.

Larson says some manufacturers are bound to charge more for new equipment. "Cleaner emissions don't come without some cost," he says. ■

## A Breath of Fresh Air

There's good news for those who like to breathe. EPA's latest air-quality report reveals that air quality nationwide continues to improve, although smog (ground-level ozone) is rising in certain regions, including many rural areas.

A number of improvements were made from 1989 to 1998, including these reductions:

- Lead concentrations by 56 percent.
- Carbon monoxide by 39 percent.
- Sulfur dioxide by 39 percent.
- Coarse particulate matter (dirt, dust, soot) by 25 percent.
- Nitrogen dioxide by 14 percent.
- Smog by 4 percent.

