

# Efficient oil heating

If you plan to continue heating with oil the first thing you should do is consult a knowledgeable heating professional. There are many opportunities to reduce the cost of oil heating, but a complete assessment of the condition of your furnace is necessary to allow you to make sound decisions.

This professional should already be visiting you at least once a year. Every oil furnace requires an annual cleaning and servicing to ensure safety, reliability and combustion efficiency. For many of the questions posed below, the serviceman is your most reliable source of information. **Has your oil furnace had a tune-up lately?**

A thorough cleaning and tuning operation will take one to two hours and involve the partial disassembly of your furnace and oil burner. Internal heat exchanger, flue pipe and lower chimney surfaces should be brushed and vacuumed to remove soot and debris. Moving parts such as dampers need to be lubricated, belts should be tightened. Clean and test safety controls. The entire system, from the fuel tank oil filter to the nozzle that mixes fuel with air for combustion should be inspected, cleaned, adjusted and, where necessary, parts should be replaced. Properly done, this cleaning and tuning can increase furnace efficiency by 10 to 20 per cent, depending on the condition of the furnace beforehand.

## Did the service mechanic do an efficiency test?

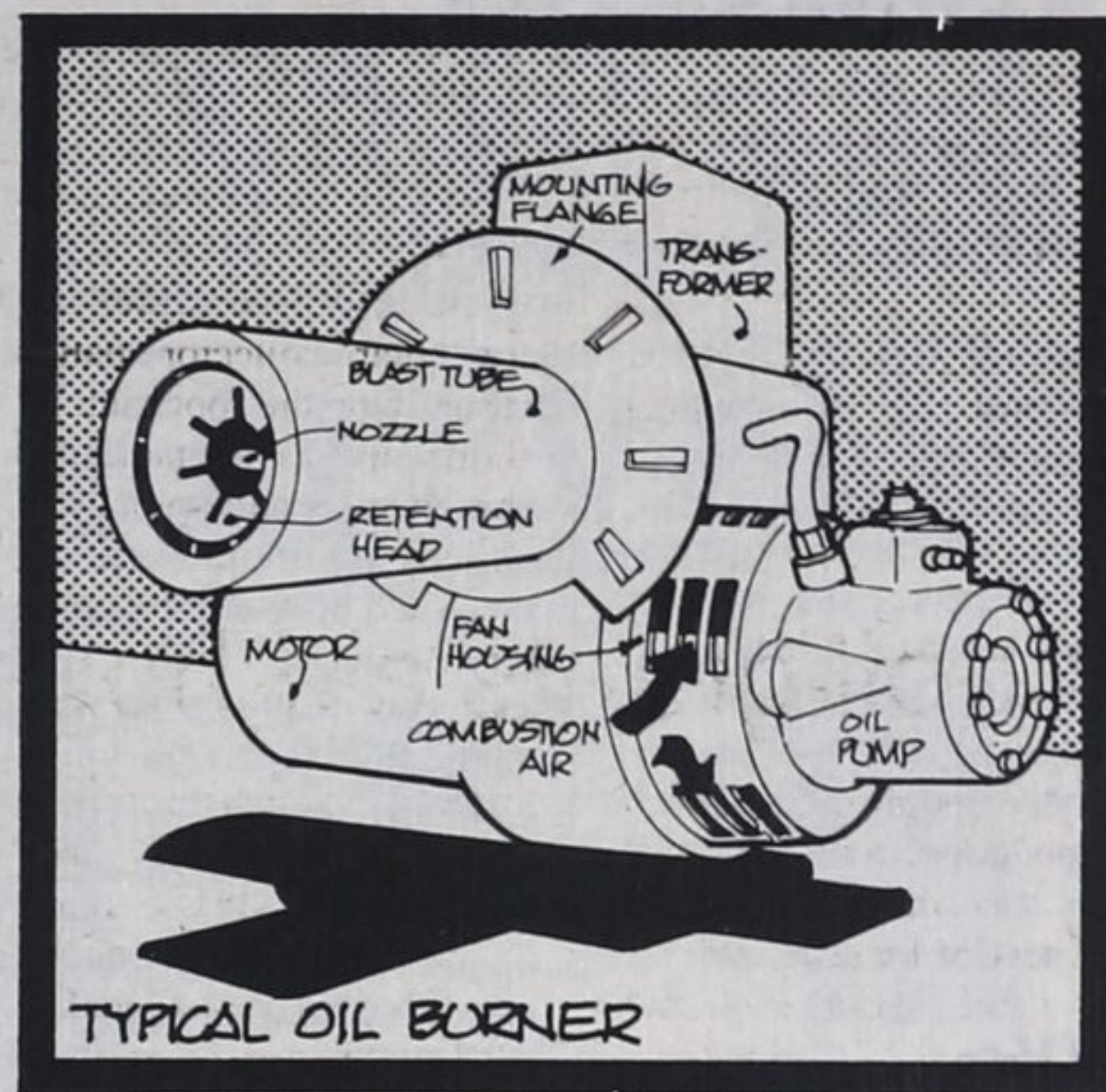
With modern instruments, an oil furnace efficiency rating can be produced in minutes. In fact, testing for efficiency both before and after tuning can give you a precise measure of improvement. Beware of any "expert" who scorns the use of test equipment or tries to convince you that high efficiency can be achieved or measured by looking at the colour of the flame in the combustion chamber. If you wish to alter or retrofit your oil furnace for greater efficiency a reasonable measure of your potential fuel savings is very important.

## Does inspection and testing indicate that any of the following tuning or retrofit measures make sense?

- **Downsizing** the oil spray nozzle may allow a closer match of your furnace's heat production with your home's heat needs. Most furnaces are oversized and home re-insulation and lowered thermostat settings can make this worse. A smaller nozzle allows less oil into the combustion chamber, reducing the heat output of the furnace. If your furnace clicks on for short periods of time even in cold weather, downsizing should be possible and will save fuel.
- **The circulating fan** in your furnace delivers heated air into your house. Sometimes this fan can be reset to run longer on each heat-

ing cycle, extracting more heat from the furnace and circulating it into the living space. A continuous or two-speed fan is sometimes effective in distributing heat more evenly from a wood-fired space heater or south-facing windows.

- **A delayed action solenoid valve** fitted between the oil supply pump and burner nozzle delays oil flow to the nozzle until the pump reaches full operating pressure and the combustion air fan reaches full speed. On both startup and shutdown the solenoid valve reduces the release of unburned oil into the combustion chamber. This reduces soot buildup and keeps the nozzle clean, both of which help to maintain the furnace's efficiency.
- **Retention head burners** produce a turbulent flow of combustion air, mixing the oil and air more completely for better combustion. This is a more expensive option than the other measures listed but provides significant fuel savings. An older or unreliable burner should be replaced by the highest efficiency burner available. This will often be a retention head unit or some similar variation.
- **Ductwork** can be a hidden culprit when efficiency is considered. For example, heated air needs a clear path for its return to the furnace for reheating. The



duct system should allow for adequate circulation, and registers should never be obstructed. An open or loose panel on the furnace casing will draw cool basement air into the system, making the furnace work harder. Warm air ducts can be profitably insulated, especially when they pass through un-







heated spaces or into exterior walls.

## Have you considered your dual-fuel options?

It is possible to save heating dollars by combining another heat source with oil. Electric plenum heaters are one good example. Plenum heaters are electric resistance elements and a control system, which are in-

stalled in the hot air plenum above the furnace's combustion chamber. Electricity can be used when heating loads are light, while oil provides the bulk of heat during the coldest weather. This maximizes the advantages of both.

Wood is an economical option in many parts of Canada. A two-speed fan can help distribute heat from a wood-fired space heater. A more ambitious approach is the installation of a CSA-certified add-on wood furnace, or the replacement of the entire furnace with a new combination wood-oil unit. Householders displacing 50 per cent or more of their oil consumption in these ways are eligible for grant assistance from the Canada Oil Substitution Program (COSP), funded by Energy, Mines and Resources Canada (EMR). Consult your EMR regional office or local utility for more information.

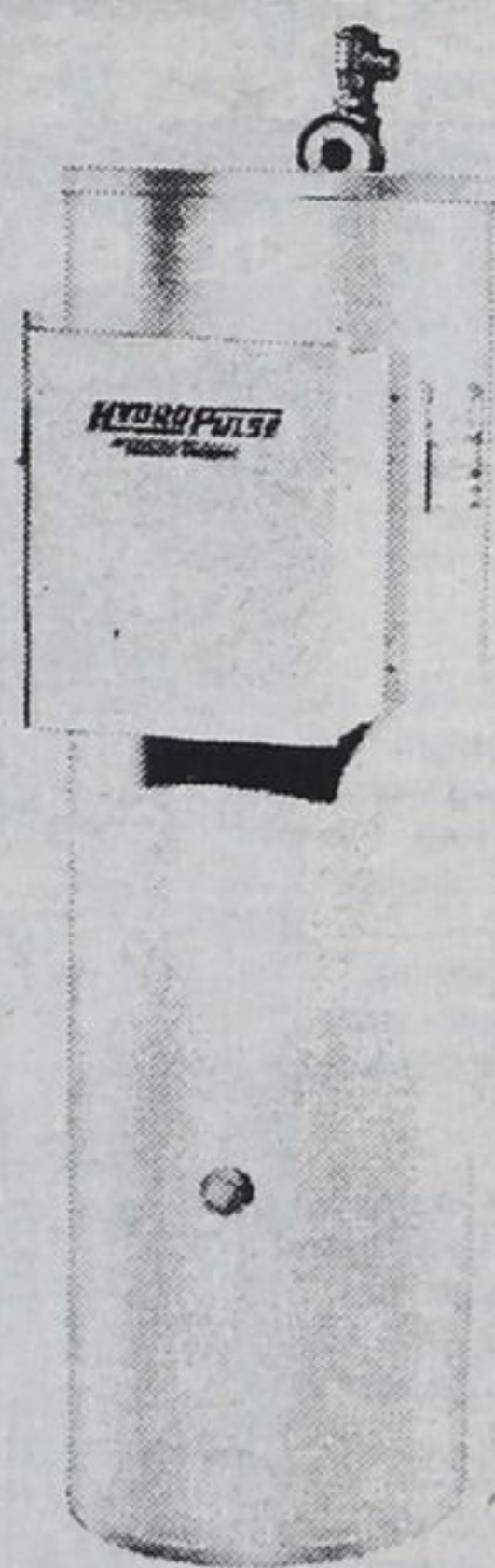
 <b>MINI-METRICS</b> Most pies are baked at 220°C (425°F). NC	 <b>MINI-METRICS</b> Normal room temperature is 20°C. NC	 <b>MINI-METRICS</b> Normal body temperature is 37°C. NC
 <b>MINI-METRICS</b> Roast pork in an oven set at 160°C (325°F) for 65 to 75 min/kg. NC	 <b>MINI-METRICS</b> If the temperature is -30°C, it's a really cold day. NC	 <b>MINI-METRICS</b> 1 g is about the weight of a paper clip. NC

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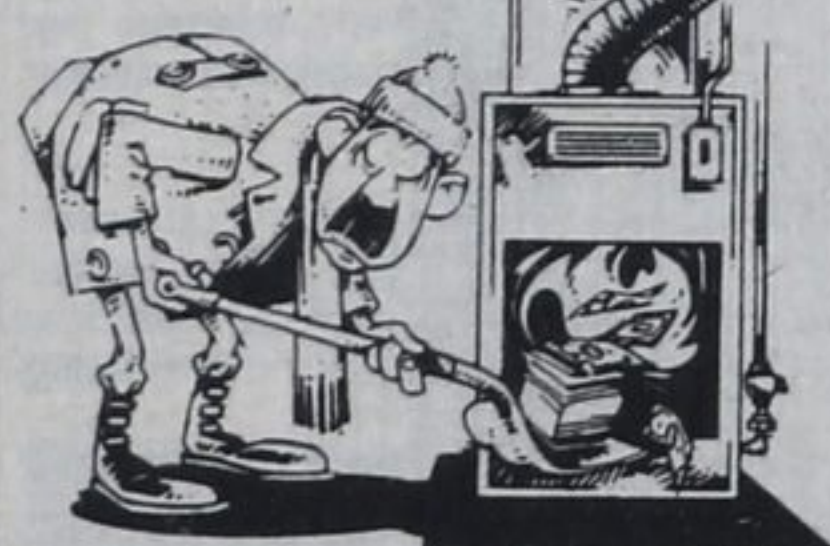
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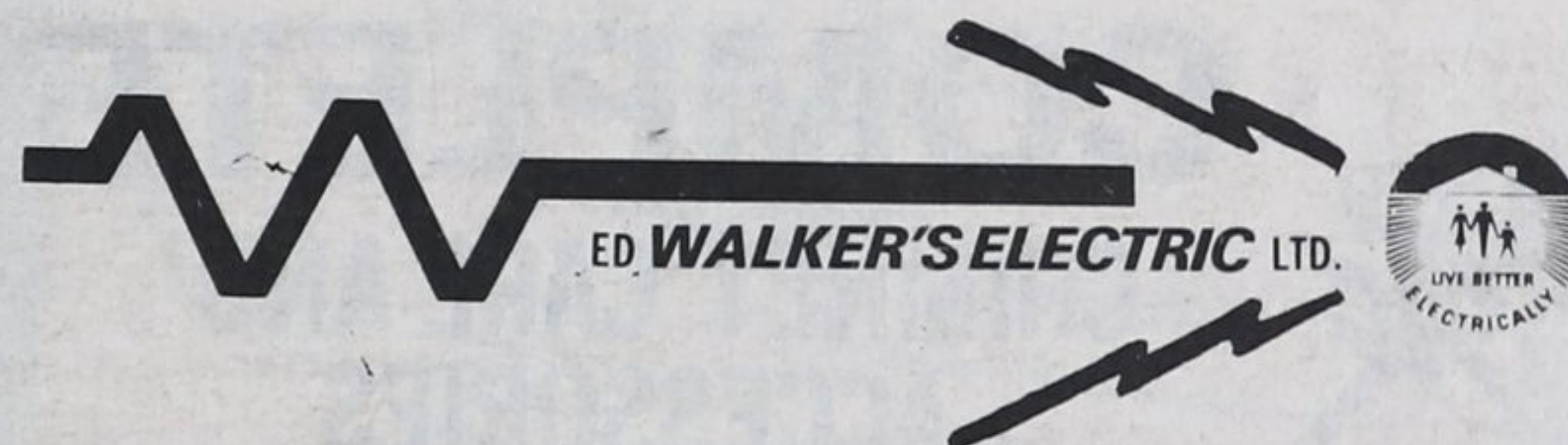
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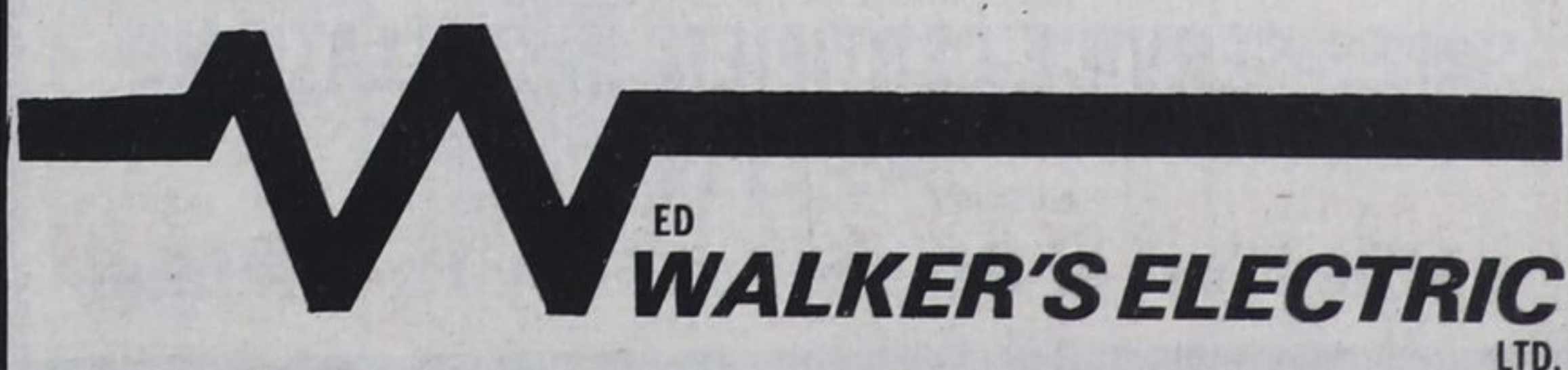
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