

Crossroads

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Preventive maintenance saves money

"Most people probably don't do enough preventive maintenance on equipment, especially in smaller municipalities where budgets are small and a trained mechanic may not be available," says Carl Garrod, Diesel Mechanics Instructor at Fox Valley Technical College. Garrod spoke to local streets and highway folks at the T.I.C.'s December Equipment Maintenance Workshops.

Fixing it when it breaks is called *demand maintenance*, and that can be a "penny wise and dollar foolish" approach to equipment upkeep. For example, wheel bearings cost about \$40 to \$50. But if one fails while the equipment is operating, it may destroy a whole spindle, causing unplanned downtime and costing \$700 to \$800 to repair. Checking and repacking wheel bearings on a *preventive maintenance* schedule is considerably less expensive.

Because demand maintenance is done when something happens, you can't plan for it, and that costs in:

- increased downtime
- more road calls
- poorer service
- increased risk of accidents
- non-compliance with state and federal laws
- work delays

Demand maintenance also causes budgeting problems, Garrod says, because there's no regular pattern for parts replacement and maintenance.

In addition to saving money and time, preventive maintenance can help you cut down on repetitive repairs, predict when to replace equipment, spec new vehicles, and spot driver abuse. For example, if the alternator on a truck keeps wearing out, the alternator may be too small. You will know to spec a larger one the next time you order a new truck.

Frequent clutch adjustments, drive shaft damage, premature engine wear, or turbo charger failure can all be caused by drivers operating a truck incorrectly. The mechanic and the supervisor can work with the driver to change those behaviors, saving on equipment repairs.

P.M. takes inspection

"Equipment inspection is the heart of a good preventive maintenance program," says Garrod. "Follow the manufacturer's recommendations for when to inspect and what to



Inspect vehicles systematically everytime. See page 4.

check on each vehicle." And be wary of misinformation that may be going around, especially on things like cooling system additives.

Do routine inspections at regular intervals, Garrod says, and do them the same way every time. The senior or lead mechanic should train all other mechanics to follow the same systematic inspection procedures and to inspect the same way every time. Garrod

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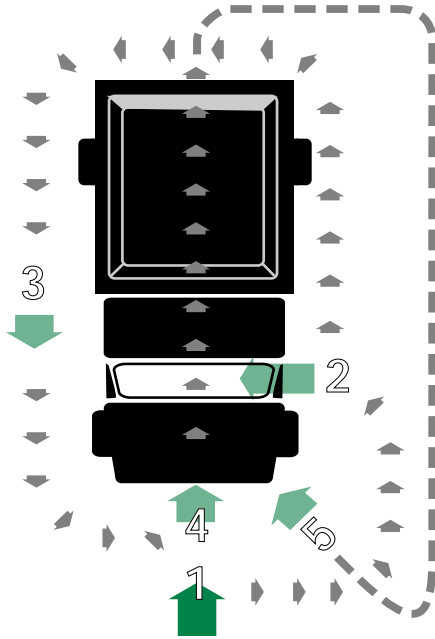
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recommends a five-part general inspection procedure:

- 1 Approaching the vehicle
- 2 In cab inspection
- 3 Around the vehicle
- 4 Under the vehicle
- 5 Engine compartment

A summary of what to look for in each step was distributed to workshop participants. Copies are available from the T.I.C. Call, fax or e-mail for a copy.



General guidelines for equipment inspection intervals

Operation hrs	Miles	Days	Inspection type*
50-100	3000-6000	30	A
250	10,000-20,000	90	B
500	40,000-50,000	365	C

* Maintenance items for each inspection type:

- A = checking fluid levels, greasing, and general check over
 B = all A inspection items plus changing engine oil and filters
 C = A & B plus repacking wheel bearings, changing differential and transmission fluids, and similar activities

Don't just follow the routine, though, Garrod says. Think also about how the vehicle is used. For example, a vehicle with low mileage may be incurring a lot of wear because it is constantly idling. It should be inspected sooner.

Driver inspections

The driver knows more about how a vehicle is operating than anyone. Drivers should inspect their vehicles daily before they take them out and after they return to the yard.

Continued next column

Maintain cooling system, prolong

Forty percent of all diesel engine problems are directly or indirectly related to improper maintenance of cooling systems, says Carl Garrod, Diesel Mechanics Instructor at Fox Valley Technical School. Garrod reviewed how and when to maintain cooling systems at the T.I.C.'s December Equipment Maintenance Workshops.



Check coolant and test often for acidity, dissolved solids, and proper additive levels, as well as freeze protection.

When cooling system chemicals are not tested and properly maintained you get corrosion, cavitation, scale, and silicate drop out, Garrod says.

Scale is a residue build up on cooling system walls. It insulates the metal from the engine coolant, letting it get overheated. Every 1/32nd of an inch of scale has the insulating effect of two inches of metal. Overheating can damage engine parts and cause premature failure.

Cavitation is a pitting of the exterior cylinder walls. It happens when coolant lets bubbles form on the walls, and then the bubbles are

Routine driver inspections promote vehicle safety and help spot developing problems before they become serious.

Federal law requires such inspections for commercial operators — which includes private firms or individuals who contract with a municipality to do street maintenance and repair. Although municipalities are exempt from the law, the inspections make good sense, not only for preventive maintenance, but also in case of a lawsuit.

Many drivers have little mechanical background, so shop mechanics should explain how to inspect the truck. Inspection forms, like the one required for commercial CDL holders, help ensure thoroughness.

Driver condition reports will let you know about problems— if the reports are clear, complete and detailed. The report from the CDL test works well, says Garrod.

"If you don't use the drivers' condition reports, neither will they," says Garrod. Take the reports seriously, and the driver will too.

For printed summaries of the standardized inspection method, contact the