



Customer Service Bulletin Commercial Business Group

All Liquid Cooled Commercial Products Date: March 31, 2005

Model/Serial Range: **Model Number:** **Serial Numbers:**
000000-999999 (All) 00000 – 250999999 (All)

Subject: Cleaning Radiators of Debris –Maintenance Recommendations

The normal operating environment of all turf industry equipment could be categorized as “off road, severe duty”. In order for equipment to provide continuous service in this type of environment, routine cleaning and scheduled maintenance needs to be performed.

Cleaning the equipment cooling systems (radiators and screens) will assure optimum performance and engine life from all liquid cooled machines, and should be done on a daily basis. In dirty, dusty conditions, you may need to clean the radiator/screen more than once throughout the day to ensure the cooling system is operating at peak performance.

The Toro Groundsmaster 4000 Series mowers (4000-D, 4100-D, 4500-D, 4700-D) incorporates significant improvements in operator comfort and performance over other machines by drawing the air for the cooling system from the rear of the mower. Noise is greatly reduced for operators. This advantage requires attentive radiator cleaning by the operators. The air flow in the 4000 Series comes through the rear of the machine, through the screen, through the oil cooler, through the radiator and out the bottom of the unit. All of these areas need to be kept clean for the system to function properly.

The following is a quick checklist that will help you keep these vital components clean on all liquid cooled machines.

Cooling System Cleaning Checklist:

- Engage the parking brake, stop the engine and remove the key from the switch.
- Brush off the air intake screen thoroughly to eliminate chaff and debris.
- Open the hood or swing out the screen by unlatching the clips on each side.
- Remove the retaining nuts that hold the oil cooler. Tilt the oil cooler back to access the radiator.
- Using an OSHA-compliant extended air nozzle that can reach into the radiator, blow the debris out from the fan side of the radiator first. Do a thorough job, making sure to clean the corners, bottom half and center of the radiator. These are the spots that are most often missed or overlooked.

NOTE: Do not use water to clean Radiators! Water can mix with debris in the radiator fins and result in dense, packed mud which can block airflow. If water has been used to clean the radiator, there may be a build-up of hardened, packed debris which may require additional effort to remove before these procedures will be effective.

- Once the debris has been cleaned out from the fan side of the radiator, blow out debris from the cooler side of the radiator towards the fan. Use your air nozzle to remove the rest of the debris from the oil cooler side of the radiator. Again, make sure to clean the corners, bottom and the center section. After the radiator and oil cooler have been cleaned, reinstall the oil cooler and fasten it with the retaining nuts.
- Finally, use compressed air to blow any remaining chaff and debris from the backside of the radiator screen and the hood area.

(Note: On the Groundsmaster 4000-D and 4100-D, there is a lower panel that can be removed to clean the bottom of the radiator area.)

Alternator Belt Check:

To ensure proper cooling system circulation and fan speed, the alternator belt should be checked for proper tension and belt condition every 100 hours.

- Visually check the belt to make sure that it is not frayed, torn, glazed or worn. Then, to perform the tension check, you will need to measure the belt deflection on the alternator belt. The belt should not deflect more than 3/8" (10mm) when a 10-pound force (up or down) is applied midway between the water pump pulley and the alternator pulley. These procedures are also detailed in the Operator's Manual.
- On the Groundsmaster 4000 series, an alternative method to check the alternator belt tension is the "13 mm Wrench" Check. Place a 13mm open end wrench on one of the clutch fan to water pump retaining bolts (these are the bolts that hold the fan hub to the water pump). Apply a slight amount of pressure on the wrench in a clockwise direction – or towards the alternator. Applying pressure in this direction will ensure that you do not loosen any of the bolts. If you cannot turn the hub itself with the wrench, then the alternator belt for the cooling fan is tight enough to properly cool the system. If the fan hub turns (belt slipping), the belt needs to be tightened or replaced.

Performing these cleaning and alternator belt inspection procedures will ensure the cooling system will provide optimal performance on all your liquid cooled products.

A short (approx 5 min) video is available for viewing at www.toro.com. Simply click on www.toro.com/golf/mower/rough/gm4000/4000view_form.html to view the video.

For more information, contact your local authorized Toro Commercial Product Distributor.