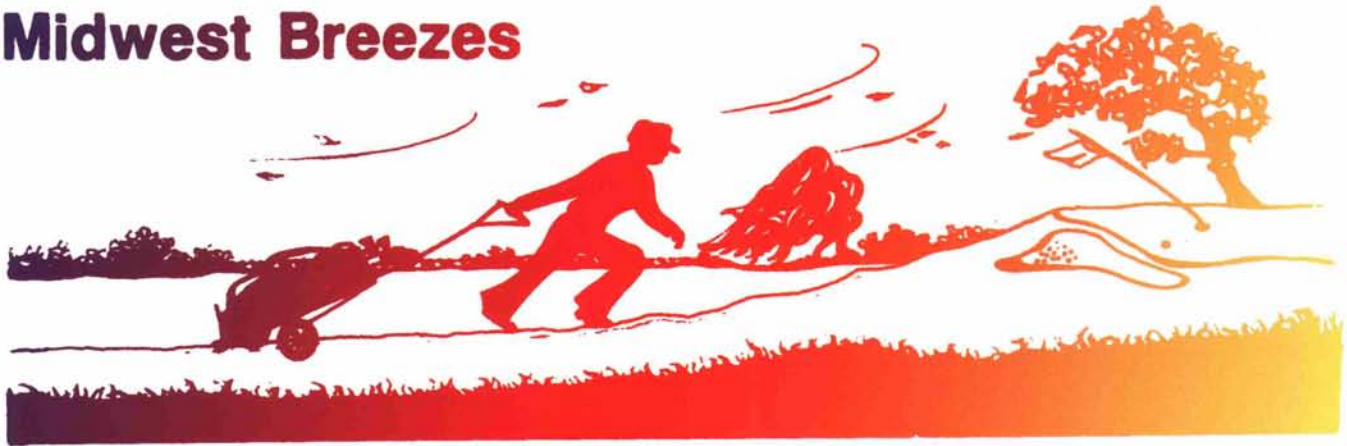


Midwest Breezes



Innovations at Biltmore Country Club

Several years ago, Biltmore Country Club rebuilt the main work area of their maintenance building. At that time, superintendent **Brian Thomson, CGCS** designed and constructed a new oil supply system into the area that any Jiffy Lube would envy. The new system is cleaner, better organized, and dramatically more efficient.

The supply system is comprised of ten 60-gallon tanks secured to two separate racks along one of the shop walls. The tanks contain every grade of engine oil, hydraulic oil, and antifreeze needed for the club's fleet of equipment. The fluids are gravity fed through individual hoses to a panel of ten valves located below the tanks. Every valve is assigned its own filling can. Each valve, its filling can, and the dipsticks from any piece of equipment requiring that fluid are spray painted the same color so that the operator or technician can quickly distinguish the type of fluid needed. This feature saves time by eliminating the need to look up oil types in equipment manuals and helps safeguard against the mixing of non-compatible fluids.

Each of the ten tanks has a sight gauge along the side to easily recognize when a tank needs to be refilled. Two air pumps are located below the tanks. One is for the refilling process. This pump has two hoses, an intake and an output. To fill one of the storage tanks, the intake hose is inserted into the drum, bucket, or other type of container the fluid is delivered in and the output hose is connected to the valve of the appropriate storage tank in the shop. The air pump is switched on, the valve is

opened, and depending on the type of fluid, in five to eight minutes the tank is filled.

The second air pump is used solely for waste oil. Throughout the week, all used oil is dumped into a 100-gallon waste tank that sits below the air pumps. The other air pump is used to move waste oil. This pump has one hose running into the 100-gallon waste tank and another that feeds to a 550-gallon tank located outside. With a flip of a switch, the discarded oil is pumped outside to the larger collection tank.

In past years, Brian would pay to have the waste oil picked up when the outside tank was full. This past winter, however, he purchased a waste oil heater that utilizes this oil to heat the shop. Oil is pumped from the waste tank up to the ceiling mounted waste oil heater. The oil is then converted into a fine mist by an air compressor that atomizes the oil. The oil is burned, heat is produced, and the exhaust is vented outside. The system is environmentally friendly and only uses up to 1 gallon of oil per hour. Brian reports that in addition to eliminating the need for waste oil pickups, he is saving a significant amount on natural gas charges because the existing heaters are only occasionally used to supplement the new waste oil heater.

*Brian Mores
Inverness Golf Club*



Biltmore's oil supply system—storage tanks above, valves to the right, and waste oil tank below.



Notice the color coding of each filling can and hose on the valve panel.



The new waste oil heater. Waste oil is pumped to the heater through the copper tubing to the left.