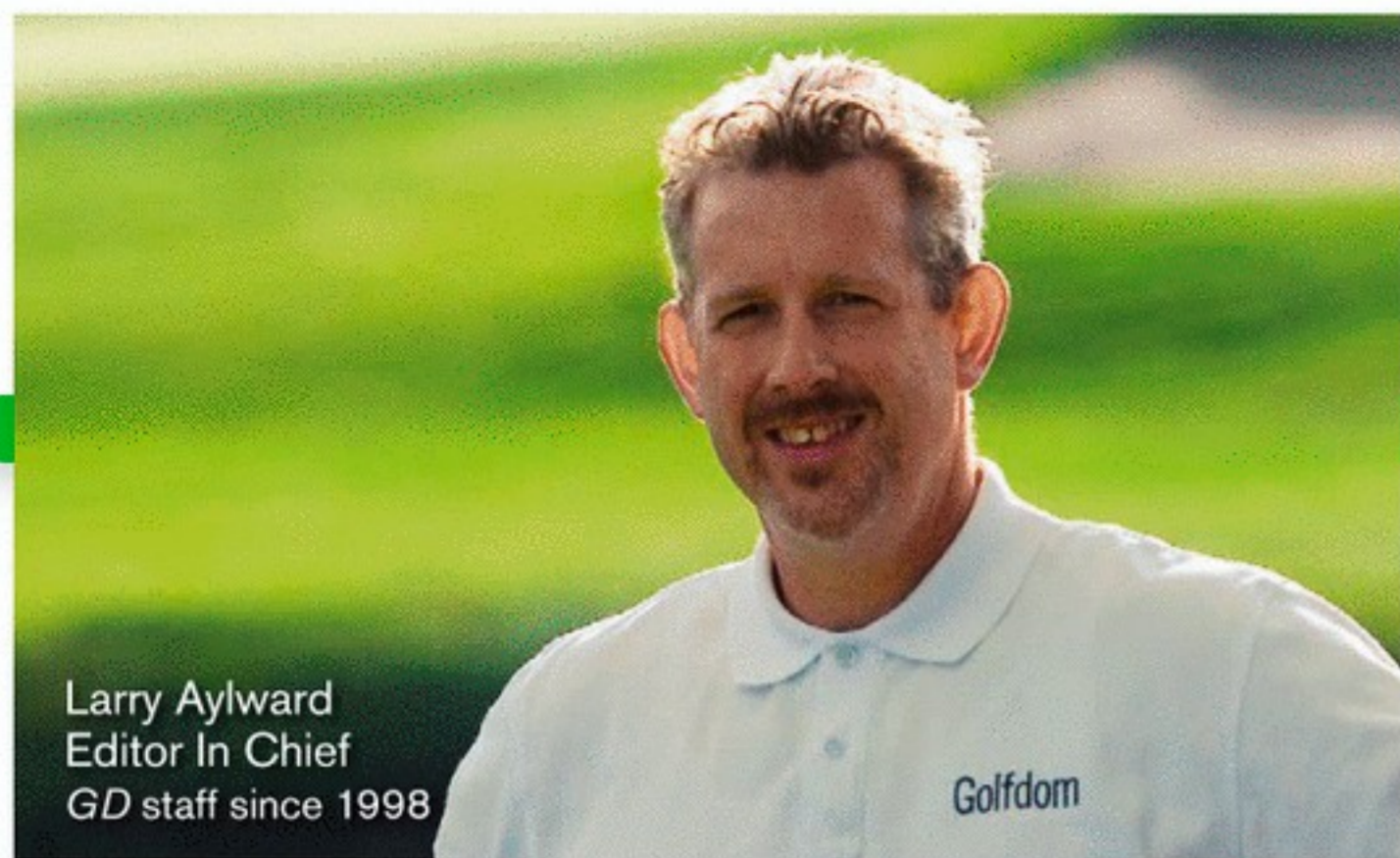
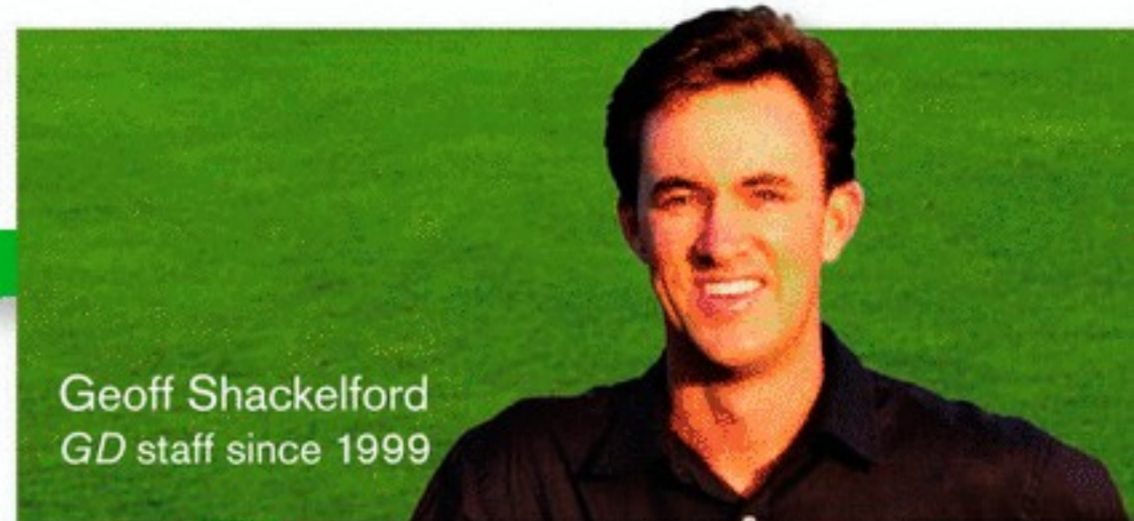


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**Aurora Hills Superintendent Michael Osley likes the system's individual sprinkler head control.**

# Irrigation Upgrade

## New technology makes golf course watering a lot less complex

By Larry Aylward, Editor in Chief

**S**omething looks different about the Aurora Hills Golf Course — above-ground and underground. Scan the course above-ground, and you'll notice the irrigation system's controller boxes are missing. And if you had the Superman-like ability to gaze underground, you would see a much simpler irrigation system — a system that, incredibly, eliminates the need for satellite controllers or decoders on a golf course.

The system, developed by Rain Bird's Tucson, Ariz.-based golf division, is called the IC (Integrated Control) System. The

system is a control platform that uses Rain Bird's patented Integrated Control Technology to link a course's central control directly with its rotors. Basically, it's a system that provides a higher level of control at a lower price, according to the company.

"They've taken the technology up to a level where the computer is talking directly to the sprinkler head," says Dennis Lyon, manager of golf for the City of Aurora's Golf Division, including Aurora Hills. "It's less complex. Simpler is always better."

Each rotor or valve is fastened with a small Integrated Control Module (ICM), which acts as a think center and eliminates

*Continued on page 44*

PHOTOS BY: LARRY AYLWARD

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## Irrigation Upgrade



Michael Osley says he's impressed with the IC System's diagnostics, which enable him to troubleshoot the system from his computer.

*Continued from page 42*

the need for satellite controllers and decoders. The ICM is built into the rotor or valve and protected under a flange.

"Basically, we made a single-station satellite that plugs right into the rotor and valve," says Matt Mikucki, product manager for Rain Bird's golf central control systems.

The ICM can turn a sprinkler on and off and also aid in troubleshooting.

"It lets us talk to it and get a lot of information," Mikucki says.

The system has been in development and testing for more than three years and is in place

at four other golf courses: Pebble Beach (Calif.) Golf Club, Sun Bird Golf Course in Chandler, Ariz.; Colony West Country Club in Tamarac, Fla., and Moor Hall Golf Club in the West Midlands, United Kingdom.

Mikucki, who has been at Rain Bird for 11 years, has been involved with the project from the onset. He says Rain Bird studied its current satellite technology with the goal of simplifying the concept and minimizing the pieces that go with it. When developing the IC System, the company aimed to combine simplicity with lower costs — knowing both attributes would attract superintendents' attention.

The IC System functions on software that can operate through a handheld radio and cell phone in addition to a computer. It also features single-head control over the entire golf course.

### Superintendents like simplicity

Michael Osley, certified golf course superintendent at Aurora Hills, says the complexity of today's golf course irrigation systems can be challenging. There are different components inside a controller — lots of pieces and parts, including bundles of wires — that lead to sprinklers and valves.

"Do we really need all of those items," Osley asks. "Can we go straight from the central control to the sprinkler?"

Turns out the answer is "yes."

At Aurora Hills, where Osley had a Rain Bird decoder system, the ICMs were incorporated easily into an existing single wire path that included 439 sprinkler heads. Each ICM required only two splices into the wire path, a 50-percent reduction of the four splices needed for the decoder system. A satellite system has several more connection points.

Because there are fewer connection points for each mod-

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ule, there are fewer potential failures, Osley says.

The system requires as much as 90 percent less copper wire when compared to a satellite system, which equates to cost savings in raw materials and installation, Mikucki says. This also lessens the chance for vandalism because there's less copper, a popular commodity among thieves.

The system was also designed for simple installation, Mikucki says. Dale Kuehner, certified superintendent and director of golf maintenance at Colony West, upgraded the course's irrigation system with the IC System and says it "was amazing how easy the system went in" when his course was selected to serve as one of the

test sites.

Kuehner, 45, has been a superintendent long enough to remember quick-coupler irrigation systems.

"We took sprinkler cans and moved them around the green by hand," he says. "Going to this is a whole different level in terms of control and sophistication. And eliminating satellite controllers is a huge cost savings."

Osley says he's impressed with the IC's diagnostics,

## Each rotor or valve is fastened with a small Integrated Control Module, which acts as a think center.

which can help him track any problems from his computer — meaning he doesn't have to involve his irrigation technician in a time-consuming troubleshooting process.

Mikucki says the idea was to create a system for a superintendent to do most troubleshooting from his office computer. "If there's a problem with the wire path or an individual unit, you can find it from the office before you have to dig it up," he says.

### Watering wisely

The system fits well with Rain Bird's Intelligent Use of Water initiative. Just ask Kuehner, who is impressed with the system's irrigation efficiency. His previous system had heads that were paired together.

"That was a problem," he says. "There were heads in areas that might have needed more water paired with heads that should've probably been getting a little less water. This system is all individual head controls. You can dial in and change settings for each specific head on the golf course."

Osley likes that he can operate one irrigation head for five minutes and another head for 10 minutes.

"This system allows you to make those changes in the most efficient way possible," he says. "When you take that concept

and spread it over 1,800 heads, it can save you a lot of water."

Osley says the system is easily expandable. An irrigation technician can run pipe and wire and splice the ICM's into the system. "There's no need to run a wire all the way back to a satellite controller," he adds. "And you can do [that work] in-house."

Lyon is pleased there are no more controller boxes on the course that can get damaged after being run over by golf cars or struck by lightning. No more controller boxes also means less maintenance — for instance, no more cleaning up after mice that nested in the boxes over the winter.

Above all, Lyon says the system has helped improve the golf course's appearance.

"This has been a very good investment," Lyon says. "Our play went down during construction, but the conditions of the course improved significantly after construction. It's not that conditions were bad before — they just went from being very good to excellent. And our business has responded."

Osley says he's not afraid to try new technology and jumped at the chance to test the system. Osley jokes he had to phone Mikucki once or twice in the wee morning hours because of occasional minor glitches in the system.

*Continued on page 46*



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## Irrigation Upgrade

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“He probably looked at his phone when I was calling and said, ‘Crimany, it’s Osley calling again,’” he says.

Mikucki laughs. “We can put it through all the tests in the world in the lab, but you won’t know everything about it until it gets into the hands of a real superintendent and on a real golf course,” Mikucki says. “It has been in the ground for two years here. We’ve learned a lot from Mike’s input and from assistant superintendent Jeff Danaher and irrigation technician Blake Larsen.”

Osley says most golfers realize there’s something better looking about the course, but many of them can’t put their fingers on what’s missing.

“It doesn’t seem like a big deal, but there’s a different feel

**Rain Bird’s Matt Mikucki (left) holds an Integrated Control Module in his hand and discusses its role in the IC System with Michael Osley.**



to playing a golf course where there are no controller boxes,” Osley says. “And one of the best parts about being a superintendent is taking that morning drive around the golf course every day. I enjoy not having to see controller boxes.”

While Osley can’t see what’s going on underground with the system, he enjoys *that* aspect just as well. ■



August  
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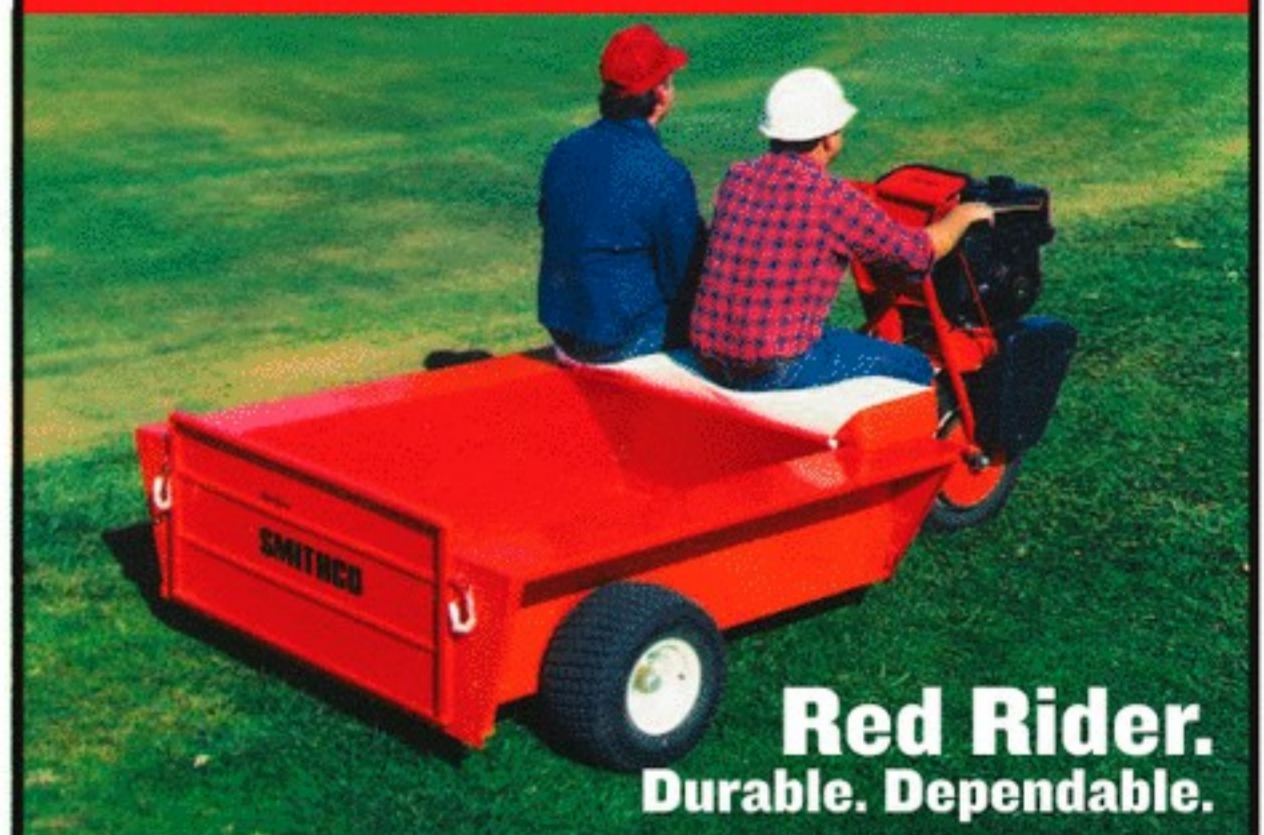
Heat stroke can kill or seriously injure your dog, but it can be easily avoided. Never leave dogs in cars on warm days, exercise them during the cool part of the day, and monitor them for rapid breathing, loud panting or staggering. Professional help might be needed if a dog is having a heat stroke. But one thing you can do is get your dog quickly to a shady and ventilated area and sponge with cool water.

**Snickers.** His owner is Ed Kirchenwitz, golf course superintendent of Sunset Hills Golf Course in Sheboygan Falls, Wis. (Photo by: Ed Kirchenwitz)



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# TOP Assistants

## Joe Trombino III doesn't stop until achieving perfection

**Editor's note:** *If you'd like to nominate someone for the Top Assistants feature, please send an e-mail to Larry Aylward at [lalward@questex.com](mailto:lalward@questex.com). The feature will run intermittently in *Golfdom*.*

Joe Trombino III, assistant superintendent of the Rim Golf Club in Payson, Ariz., grew up playing golf on Silver Lake Golf Course, a public facility on Staten Island, N.Y. In fact, Trombino decided he wanted to become a golf course superintendent because he wanted to improve the turfgrass conditions at Silver Lake, where he ended up working on the grounds crew as a youngster for five years.

Trombino graduated from Rutgers University in 1993.

Justin Ruiz, certified golf course superintendent of the Rim Club, says Trombino has helped the course improve agronomically and on the irrigation front. "He walks the course almost everyday during the growing season to make sure no water is wasted," Ruiz says.

Ruiz says Trombino has a different mindset from other turf managers of which he has worked.

"Joe will not stop until perfection is achieved," Ruiz says. "He is definitely a top assistant."

*Golfdom* caught up with Trombino recently to talk about the profession.

### ■ What's your favorite part of the job?

Solving problems that lead to improved turf and playing conditions. Real satisfaction is when golfers actually notice the work you've done and give you the thumbs up.

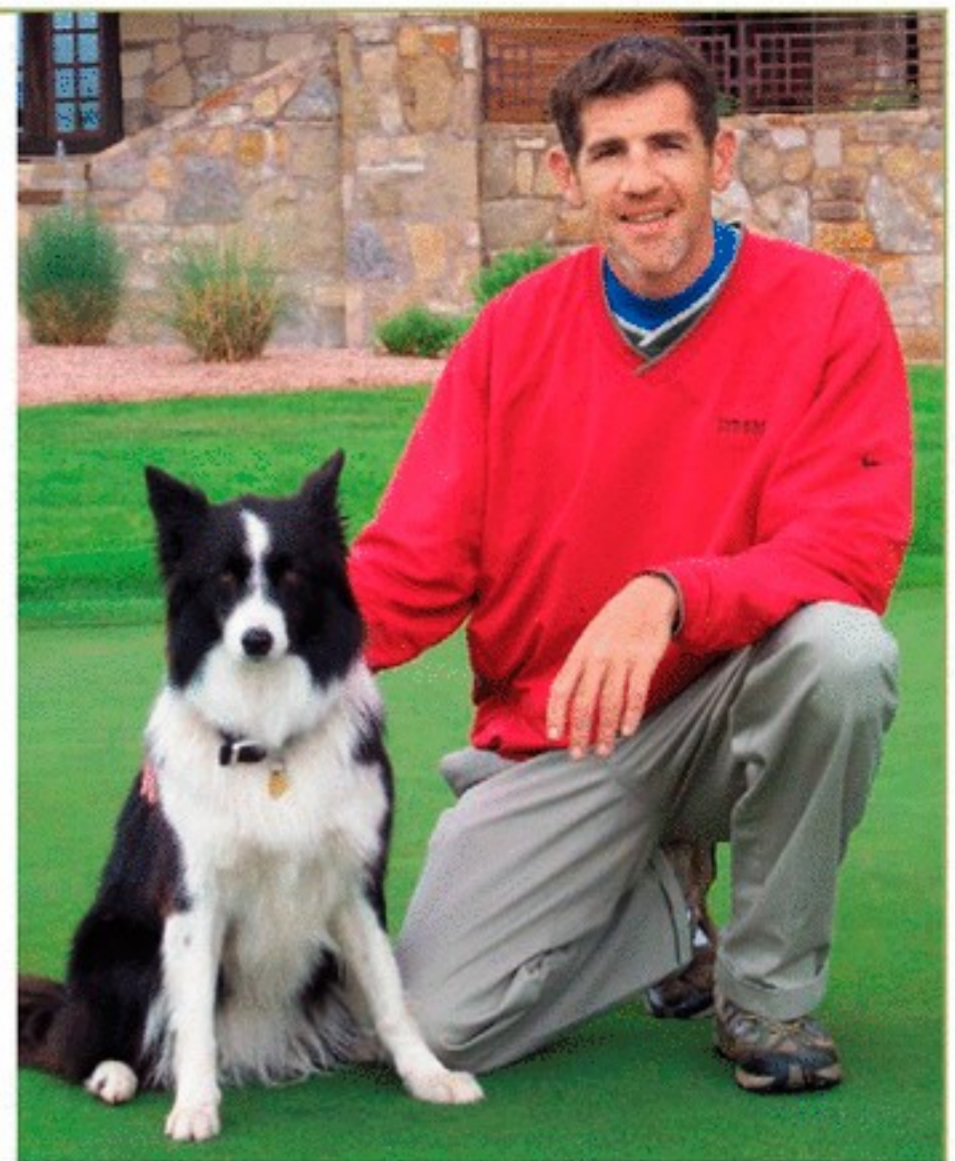
■ **Who has been the biggest influence on your career and why?** Paul R. Latshaw, who is considered by many to be the best superintendent to walk the planet. I was extremely lucky to have the chance to work for him at Winged Foot Golf Club, where he taught me how to maintain a golf course in U.S. Open conditions for daily member play. I have Mr. Latshaw to thank for any success I may experience in the future.

■ **What's your favorite product or piece of equipment and why?** My favorite piece of equipment is any aerifier. To me, aerification is the foundation on which everything else is built. Without it, you have nothing.

■ **If you could change something about the industry right now, what would you change?** I'd like to change the amount of time and effort we put into bunker maintenance. Golfers have come to expect great playing and bunker conditions in the United States. Because bunkers are hazards, we should not expect them to be perfect, and golfers should change their level of expectation for bunker maintenance.

■ **Describe yourself in one word.** Perfectionist.

■ **What is your favorite hobby and why?** Poker. Even though there's a huge element of luck with any individual hand, the goal of the game is to make correct decisions. The more correct decisions you make, the more money you make. Basically, it's instant gratification (making correct decision), followed



by positive reinforcement (winning the money)!

■ **What's your favorite vacation spot?** The Caribbean. The Bahamas has great snorkeling, beautiful people and awesome weather.

■ **What's your favorite golf course besides your own?** Galloway National Golf Club in New Jersey. It's a Tom Fazio design, and I worked as an assistant after turf school. The course is so beautiful I would gladly volunteer my services as superintendent.

■ **If a movie were made about your life, what famous actor would play you?** When I explain to fellow turf guys how low I want to mow my tees, approaches and fairways, most of them tell me I'm out of my tree house. They think I fell off my rocker, so a good actor to play me would be Robin Williams because he played a therapist in "Good Will Hunting."

■ **It's your last day on Earth. What would you do?** I'd spend the morning with my daughter Grace, whose morning smile makes my heart melt. During the afternoon, I'd squeeze in a round of golf at Galloway or Winged Foot and then return to my family to enjoy the rest of my evening, possibly watching "Caddyshack." ■

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# TURFGRASS TRENDS

## BUNKERS AND PHYSICS

### The Great Rake Debate

Should rakes be placed in or outside bunkers?  
Or partially out? A golf course architect studies the options

*By Forrest Richardson, American Society of Golf Course Architects*

In or out? That has been the basic question ever since bunker rakes came into popularity about 70 years ago. However, there is the partially-in and partially-out option. My term for this is the "propped position." It's amazing I can write an entire article about bunker positioning, but it's an important topic. So, let's get to all you want to know about bunker rakes and some basic physics.

Besides the details of the tines, length of shaft and grip design, where to place the bunker rake has been an age-old question. Sure, we can discuss some of the innovations — subterranean compartments where rakes become the subject of hide-and-seek, looping handles that keep most of a rake above the turf, and the old rake and spike with its weapon-like, spear-fishing design. While these may work for some courses, the estimated 1.3 million bunkers worldwide are destined to have a simple, low-cost rake. And so, the question remains: Do we leave the rakes out, in or propped?

Honestly, I don't have a passion for bunker rakes. I somewhat prefer the no-rake-at-all approach, where hazards are ... well ... hazards. However, in an era where golf has come to accept the wooden tee (not widely used until well after World War II), precision-engineered cart paths (whatever happened to charming gravel trails with fescues popping up between the ruts?) and, at last count, the more than 14,000 corporations that manufacture products specifically for the golf industry, the saga of the ideal bunker rake positions will undoubtedly go on until we scientifically quantify our options.

The concerns with bunker rakes involve interference to play, ruling complexities, access to the golfer, aesthetics, interference with maintenance, wear and tear to the rake, speed of play and game traditions. This last concern has to do with the likeliness of a rake to change the outcome of a match compared with having no rake at all. Frankly, I feel this to be among the most essential questions. A rake is movable obstruction and my view is that movable obstructions are clutter to a golf course. The game is better off when we have fewer such obstructions.

I've used two forms of data to approach the question. The first is the physics of bunker rakes when set in each of the three positions. The three figures on the following pages show the linear dimensions of contact each rake has with the golf course for each position. The second data set is a grade given for each of these areas of concern. By canvassing rules officials, course operators and other experts, the goal was to arrive at an objective and fair grade (A, B, C, D or F) for each of these

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At Peacock Gap Golf Club in California, bunker rakes are left in the propped position where they are easily accessible and yet out of sight until needed.

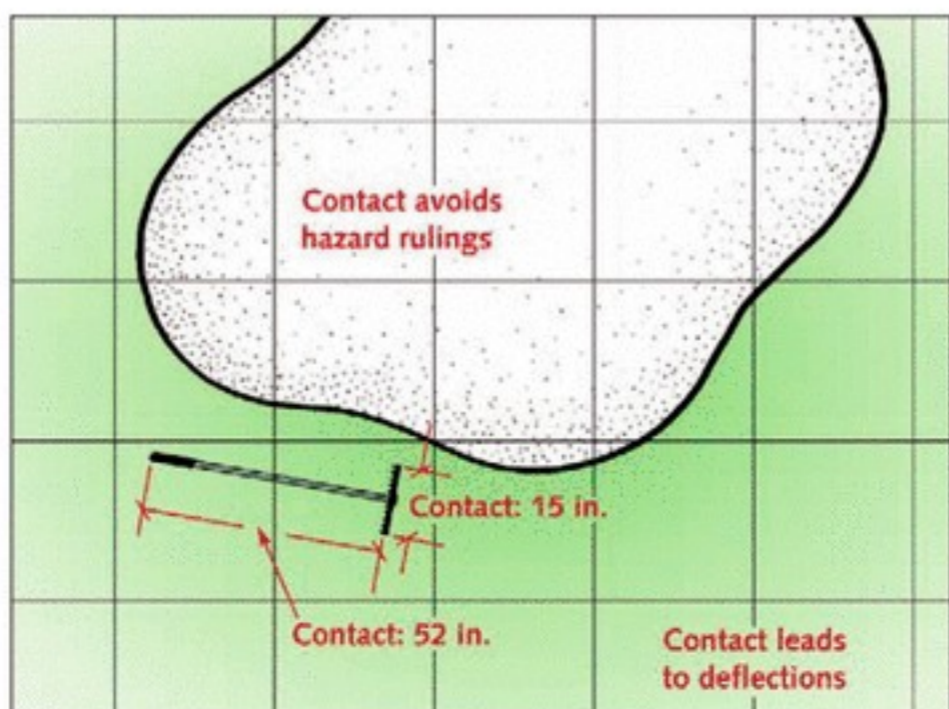
Continued from page 49  
factors. After grading each concern for each option, an average grade was calculated for the three positions.

### Outside the bunker

This is the preferred position of the United States Golf Association, and it seems to be the most common policy in effect. Simply put, the USGA opines there are far less worries and hassles of interference with a ball when the rake or any portion is not in the bunker itself. They promote that rakes be aligned parallel to play, although few balls I know have been trained to follow this alignment.

The issue of accidentally smoothing the sand while picking up the rake is eliminated with a rake outside the bunker. So, too, is the odd circumstance when moving a rake causes a ball in a bunker to move. When this occurs, and replacing the ball is not possible because of a steep slope, the golfer's only option is to incur a stroke penalty under the unplayable lie rule.

However, there are downsides to the rake



being left outside. They include the potential deflection of a ball — either toward the bunker or away from it — and several other undesirable conditions.

Here are my grades:

- **Interference to play** — Rakes lying outside bunkers have significant ground contact with the course. *Grade: C*
- **Ruling complexities** — Very few issues. *Grade: A*
- **Access to the golfer** — Rakes can be difficult to find among some grass heights. *Grade: B*
- **Aesthetics** — Not bad, but can be unsightly. *Grade: C*
- **Interference with maintenance:** Requires undue labor during mowing. *Grade: D*
- **Wear and tear to the rake:** Among the worst and wettest of places. Lessens rake lifespan. *Grade: D*
- **Speed of play:** Any difficulty in finding rakes may be outweighed by the less cumbersome ruling hassles. *Grade: B*
- **Game traditions:** The rake has the potential to deflect a ball toward or away from the bunker, constituting an artificial influence to the game that may change the outcome of a match. *Grade: D*

**OVERALL GRADE: C+**

### Inside the bunker

My take is this seems to be driven by aesthetics and maintenance at many clubs. With the rake placed back in the bunker, it is hidden from the tee, yet it is easy to find when we need it. Obviously it does not impede mowing. In contrast to leaving the rake entirely outside the bunker, this option has the potential for the most troublesome rulings.

Since we can't expect every player to be diligent in making sure the rakes are not awkwardly lying along steep slopes, there is the risk of balls coming to rest against a rake in spots where it may be impossible to replace the ball, take a stance or find a spot within the bunker that's not near the hole.

Here are my grades:

- **Interference to play** — Rakes lying entirely within bunkers have significant ground contact with the course. *Grade: C*

Continued on page 52



#### QUICK TIP

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