

Important Steps to Automatic Irrigation

by **JOHN DUNLAP**, Superintendent, Oakwood Club, Cleveland, Ohio

A great deal has been written and said about automatic irrigation systems in the past 10 years—some of it good and some bad. Many of the first automatic systems were badly engineered and also poorly installed; consequently many people objected to them. In recent years equipment advances and new technologies have greatly increased the reputations of automatics.

The new super automatic systems are very large investments, costing up to \$200,000. Any project of this magnitude takes careful planning and engineering. What is involved in getting one of these systems into the ground?

Planning and design should begin at least a year before it is to be installed. Contact qualified irrigation personnel to help lay out a basic plan. After the basic plan is made, the superintendent should then go over it and make all necessary changes so that the system is custom designed to water this particular course as effectively as possible.

The next step is to contact as many equip-

ment manufacturers as possible and get some of their equipment for testing. It is quite surprising to see performance differences between various makes of equipment. You should decide which type of electric valve will do the best job, whether you prefer electric or hydraulic operation, and what type of pipe you think will best fit your needs. But choose carefully because there are no bargains, and beware of people offering "deals."

Above all, do not design the system to a present cost. Design to meet your specifications of performance, then put this plan out for bids to good irrigation installers. Beware of plumbing contractors bidding on such installations—they rarely have the experience necessary to install something this complex.

When bids are received, turn them and the contracts over to your club lawyers. Be sure everything is down on the contract. In the final analysis, the lowest bid does not necessarily represent the best value, so here again choose



carefully. Even though the system will probably be installed by an outside contractor and his crew, it is the course superintendent's responsibility to see that the system is installed properly.

Important Items

Planning should start at least a year ahead so that the contract can be signed several months ahead of actual installation date, and the installer can have time to order material and have it delivered to the site. Delays caused by lack of piping and sprinkler materials are very costly. When the paper version of the system design is transferred to the course, the superintendent should be responsible for the placing of all sprinkler heads and, where necessary he should also be prepared to make field changes if they will improve upon the basic design.

The pumping facility of a super-automatic is very important. Many systems have been installed with much too small a GPM capacity, and this impaired the proper programming of the system. The GPM should be adequate to run all controllers simultaneously without loss of pressure. This is of particular value when a syringe cycle is included in the system, since a syringe cycle must be completed in as little time as possible to be of value. A good syringe cycle should be able to wash off the entire golf course in no more than 30 minutes, and in order to do this the pumping capacity for most systems should be at least 1200 GPM: Better yet, around 1500 GPM.

Consider some type of pressure regulating valve so that main line pressure will remain constant at all times no matter if 1 or 20 heads are in operation. All pump controls should be fully automatic and should be kept as simple as possible. This is one area where designers tend to over-design. Flow switches and pressure switches still give the best pump control available and are almost completely free of trouble.

The master control is the heart of an automatic system. Without a master control panel the superintendent becomes a virtual slave of the system. With every change in the weather, he must visit all the controllers and reschedule the watering program. With a master control he can change, stop, or start all watering cycles from his office. This convenience will pay for itself many times over because the superintendent will easily change his watering program to match day-to-day weather changes instead of letting it go as previously programmed.

After the system is installed and in operation, you can expect to spend at least a year balancing and adjusting it for perfection. Time clocks must be adjusted to compensate for various soil conditions. Nozzle sizes on some sprinklers will have to be changed and pressure might have to be adjusted at individual heads to give proper operation.

All of the things we have mentioned sound like a lot of work. And they are. But when you are finished you will have a most efficient irrigation system and it will be able to give you quality control of the water that is applied to the course.

On the left the hose and sprinkler, an early method of irrigation, and on the right the modern, controlled method of automatic irrigation.

