

nance manuals. For more information on the seminars contact Rain Bird, 7045 N. Grand Ave., Glendora, CA 91740.

Weathermatic Div. of Telsco Industries has developed an irrigation malfunction report to help identify specific problems with an irrigation

Product Malfunction Report

I. Type of product malfunctioning:

- ☐ Control Cat. No. _____ Serial No. _____
☐ Rotary Cat. No. _____ Nozzle(s) _____
 Sprinkler
☐ Electric Cat. No. _____ Size _____
 Valve
☐ Pop-up Cat. No. _____ Nozzle _____
 Spray Head
☐ Shrub Head Cat. No. _____
☐ Other (describe) _____ Cat. No. _____

II. Description of malfunction, in detail:

III. Answer the following only if control problem:

- A. Is clock programmed properly? Yes _____ No _____
 Pin Position? In _____ Middle _____ Out _____
 B. Is calendar programmed properly?
 Yes _____ No _____
 Pin Position? In _____ Middle _____ Out _____
 C. Power switch "On"? Yes _____ No _____
 D. Rain-Stat? Yes _____ No _____ Rain-Stat cup
 checked? Yes _____ No _____
 Rain-State bypass attempted? Yes _____ No _____
 E. Mode switch in: Auto _____ Manual _____
 Dry Index _____
 F. Power switch: Off _____ On _____
 G. 120VAC to control tested? Yes _____ No _____
 H. 24VAC tested at valve terminals?
 Yes _____ No _____
 I. Is a pump wired to control? Yes _____ No _____
 J. If "Yes" to pump, is wiring done according to
 Weather-matic specifications? Yes _____ No _____
 K. Will controller operate valves in manual mode?
 Yes _____ No _____
 L. Tested circuit breaker? Yes _____ No _____

IV. Answer only if electric valve problem:

- A. Flow adjustment stem? Yes _____ No _____
 Open? Yes _____ No _____
 B. Mainline pressure (static) _____ Actual Test?
 Yes _____ No _____ If not actual test, how determined?

 C. Estimated flow in GPM? _____
 D. Was pgwe4@50 solenoid leads tested?
 With meter? Yes _____ No _____ If "Yes," meter
 reading _____ VAC
 E. Are diaphragm and solenoid ports clear?
 Yes _____ No _____
 F. Was valve seat checked for obstructions?
 Yes _____ No _____

G. Are all valves on the same control?

Yes _____ No _____ Has controller valve output
 been tested? Yes _____ No _____ Reading _____

H. Approximate distance from valves to control? _____ Feet.

I. Type and size of valve wiring?

V. Answer only if rotary head problem:

- A. Pressure at head? _____ psi. How tested (Pitot
 tube, pressure guage, other) _____
 B. Are sprinklers flush with ground? Yes _____
 No _____ If "No," Above _____ or Below _____
 C. Are heads vertically plumb? Yes _____ No _____
 D. Was an internal assembly removed to check
 for obstructions?
 Yes _____ No _____ Result of inspection:
 Flow tube? _____ Nozzles? _____
 E. Was a gravel sump at base of sprinkler
 provided (when applicable)? Yes _____ No _____
 F. Do sprinklers show damage from mowers or
 other maintenance equipment? Yes _____ No _____
 G. Does nozzle drive mechanism (impact arm or gear
 drive) function properly? Yes _____ No _____
 H. If "No" to above, what did investigation show?

I. Is problem with — Full circle? _____ Part circle? _____ Both? _____

VI. General (A):

- A. Water source? City Main _____ Well _____ Lake or
 Pond _____ Other (specify) _____
 B. Type or condition of water? Potable _____
 Effluent _____ Brackish _____ Sand or Dirt _____
 Other (specify) _____
 C. If cause of malfunction was determined, give a
 brief description of what you found:

D. How many of product on this project? _____ How many are malfunctioning? _____

E. Were repairs made? Yes _____ No _____

VII. General (B):

- A. Job Name: _____
 B. Location: City _____ State _____
 C. Installer: _____
 D. Distributor: _____
 E. Date of Installation: _____
 Owner: _____
 F. System Designer: _____
 G. Type of Installation: _____
 (Residence, industrial plant, football field, park, etc.)

Maintenance

system. Donald Cooper, Weathermatic's customer service manager, sees the prime factor in irrigation maintenance as identifying the problem. By using the form you can help the irrigation repairman locate the problem without a time-consuming and expensive search.

Weathermatic has designed plug-in timing boards for easy replacement and has instituted a rebuild/exchange program to keep repair costs down.

Cooper recommends the following service:

Controls

Before working on controls make sure that the problem is in a control. You may have a valve problem. A majority of timing problems can be remedied by replacing the timing board. This process is simplified with plug-in timing boards.

Valves

Check for proper operation of solenoids and diaphragms. Replace as needed. Also check for leaks at all times.

Sprays

Clean or replace nozzles and bodies when plugged. Adjust to ground height.

Rotaries

Clean and flush. Adjust to ground height. If the problem is not readily discernable, replace inner assemblies and return to distributor for repair or rebuild/exchange.

Cooper recommends stocking the following spare parts:

Controls — timing board, clock motor, relays

Valves — solenoids, diaphragms, exhaust fittings

Sprays — spare nozzles and bodies

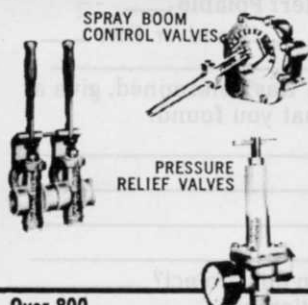
Rotaries — complete inner assemblies, strainers,

Rain Bird turf product technical manager Cozz Regele cautions that heads should be the right height for the grass and should be perpendicular to grade. Regele also cautions that wire connections be checked for corrosion regularly and that water tight fittings be used. Flushing new systems will avoid headaches later with plugging. To flush properly, cap all risers except the last one on the circuit and flush. After a thorough flushing, cap all risers except the lowest one on the circuit and flush again. On larger looped systems, Regele suggests that small sections be isolated by shutting off zone valves before flushing. Regular cleaning of filter screens should prevent plugging after thorough flushing.

WTT

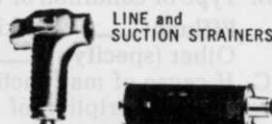
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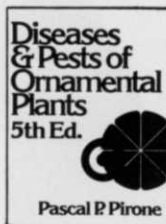
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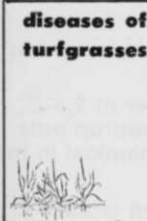
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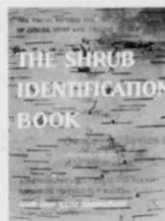
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Trimec® is now the answer for brush and tree control as well as broadleaf weeds.

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You said that with today's budget squeeze you can no longer afford to use expensive man hours cutting brush and weeds and trees.

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We knew as early as 1969 that Trimec was extremely effective in controlling brush and trees, but we made no attempt to register it for such use because highway superintendents seemed satisfied

with a combination of 2,4-D, mowing-and-cutting machinery, and manpower... So we diverted our energies toward those who wanted to maintain immaculate turf.

But by 1975 labor costs were forcing the highway superintendent to depend more on sophisticated chemicals, which in turn attracted more attention from the environmentalists.

Highway Superintendents: 2-4-5-T/Silvex problems? Help has Arrived!

The chemical 2-4-5-T was being questioned; other effective herbicides were being restricted; new herbicides were too expensive; and some of the older ones were damaging farmers' crops.

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Now you have an efficient, effective, economical, environmentally acceptable chemical that controls broadleaf weeds, brush and trees along highways, and encourages the growth of desirable grasses.

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- Trimec formulation works slowly and translocates to the root system.
- Wide-spectrum control of brush, trees and broadleaf weeds.

A test proposal: Take your toughest problem—brush and tall weeds that restrict visibility at an intersection. Use Trimec on one side, any other chemical on the other side. Record the costs and the effectiveness. If Trimec doesn't win hands down, we'll be very much surprised.

If there is not a Trimec distributor near you, call us direct — toll free 1-800-255-4450. Ask for Brush Control Department.

Trimec® is a registered trademark of PBI/Gordon Corporation, U.S. patent No. 3,284,186.

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NURSERY

Roundup registered for nursery crops

Use of Roundup (glyphosate) in nursery crops has been given EPA approval, announced the Monsanto Chemical Co. Its long-awaited use has been approved for application as a preplant treatment to control weeds prior to planting all nursery crops and as a directed spray under 15 genera of woody ornamentals.

The following are some of the perennial weeds that are controlled at rates of 2-5 quarts/acre depending on species, stage of weed growth, and environmental conditions: bindweed, bluegrass, cattail, dock, fescues, Johnsongrass, milkweed, orchardgrass, quackgrass, and thistle.

Roundup will be used as a directed spray toward the base of established woody ornamental species, such as: arborvitae, azalea, boxwood, crabapple, euonymus, fir, hollies, lilac, magnolia, maple, oak, privet, pine, spruce, and yew.

Extreme care must be exercised to avoid contact of spray with foliage

of desirable turfgrasses, trees, shrubs, or other desirable vegetation since severe damage or destruction may result.

EQUIPMENT

Tree transplanter may help China mechanize

Hoping for a contract for 1,000 tree transplanters, Big John Manufacturing Co., Heber Springs, AK, is shipping a 2,800 cubic foot truck and machine to China.

The company received a formal invitation from the Chinese to demonstrate the device in Peking.

Big John stockholders Sam and Jim Manatt observed tree transplanting by hand on a recent trip to China. The company has printed a brochure in Chinese for the event.

What's So Good About Aquatic Weed Harvesting?



This is the big AQUAMARINE H-650 HARVESTER—the ultimate in weed-harvesting efficiency.

This is the AQUAMARINE CHUB—Economical, transportable, dependable. Draws only eight inches of water. Maneuvers like a minnow.



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ECONOMICAL — Independent studies show that when it comes to the bottom line, you can't beat aquatic weed harvesting in the cost of work completed. Studies are available on request.

CLEAN — If water is clean enough for swimming before the HARVESTER makes its pass, it's clean enough for swimming in its wake.

LET US TELL YOU MORE — The CHUB & H-650 HARVESTER are just two of many machines and systems pioneered by AQUAMARINE for clean, safe, effective water weed control. Reliable? After twelve years continuous production, every piece of equipment is still in service. Let us help you select the right machine or design a system for you.

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on the market...
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Learn why no other broadleaf herbicide matches Trimec for efficiency, economy:

First, let's get one thing straight. We're not talking about dandelions and chickweeds. Sure, you have to kill them. But anybody can do that.

What we're talking about is *immaculate* turf. Flawless. Beautiful. Pure. The kind you're dedicated to producing, paid to achieve. And you can. Because that's what we do best... *immaculate* turf.

To have it, you need just two things: the will to have it; and the broad-spectrum power of TRIMEC... the herbicide that wipes out practically *all* broadleaf weeds. We've identified at least 30 species that Trimec controls. If we find one it doesn't control, we'll be very much surprised!

But power isn't all. We promised efficiency. And that goes beyond mere broad-spectrum power. Efficiency entails economy, as well. And ecological merit. And conservation of your time and energy. In all of these ways, we say TRIMEC has no equal.

How can we be so confident? Because we have massive supporting evidence based on research and testing and years of field experience by turf professionals like you. The key to this impressive performance is in the Trimec patented formulation.

Why Trimec is unique

The Trimec formula, unlike any other in the world, uses ordinary components in an *extraordinary* way. We're talking about 2,4-D, MCPP and Dicamba, the familiar chemicals. But there's a marked difference in the way they're put together. The result is best explained by the word *synergism*. That is, the interaction of Trimec ingredients produces an intense yet gentle strength: weedkill power *much greater* than the *sum* of the components separately. This mathematical phe-



Bent grass formula also available

Herbicide efficiency entails more than broad-spectrum power. It demands economy, ecological merit and conservation of your time and energy.

nomenon (a kind of $2 + 2 = 5$ effect) brings important benefits:

- 1) Broad-spectrum power that kills practically all weeds.
- 2) A smaller chemical dosage per acre of coverage.
- 3) The consequent reduced threat to ornamentals through less root-absorption and less-concentrated "drift".
- 4) The lower cost of more efficient chemical usage.
- 5) Low-temperature efficiency: effective at 50° F. or cooler.

Unmatched efficiency

Normally, one light application controls nearly all broadleaf weeds, even hard-to-kill species. Trimec costs less per acre of immaculate turf than any other herbicide. You use fewer gallons, you seldom need retreatment, your total cost is lower.

Environmentally sound

The same qualities that make Trimec more efficient also make it more trouble-free in use. Biodegradable, precisely factory-formulated, Trimec eliminates "field chemistry" and the chance of mixing errors that could harm soil and ornamentals.

Trimec benefits

- Controls the wide range of broadleaf weeds
- Gets hard-to-kill species with one treatment
- Wide safety margin for lawn grasses, ornamentals
- Minimum hazard from root absorption
- No vapor action after application
- Effective weed control in wide temperature range
- Unique formula overcomes water hardness problems
- Treated areas may be reseeded within two weeks
- Non-flammable and non-corrosive in use
- Product stable several years above 32° F.
- Biodegradable, friendly to the environment

A test proposal

Search out the worst weed patch in your turf. *On one half*, apply your customary herbicide. *On the other half*, spray Trimec at the label recommendation. Record labor and material costs. Study the results. If Trimec is not everything we say, please report your experience to Gordon's Technical Service department.

Meanwhile, get acquainted with your Trimec distributor and his full range of products and services. He's a good man to know.

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VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

Q: We would like some information on Devrinol by Stauffer Chemical Company and growth retardants for ivy.

A: Devrinol (common name, napropamide) is a selective herbicide with an acute oral LD₅₀ greater than 5000 mg/kg. Devrinol, available as an emulsifiable concentrate (2-E), a wettable powder (50%) and as 10% granules, is labeled for the control of several grass and broadleaf weeds in orchards and vineyards. It is also effective for weed control in direct seeded tomatoes, strawberries, tobacco, and certain other crops. Read the label and check with your local extension agent for specific instructions in your area.

Q: Much has been written about insecticides and chinch bug controls. What are the procedures for repairing the damaged turf areas, basically on home lawns?

A: The simplest method of renovation would be to verticut the damaged area and seed with a compatible mixture or blend. The soil should be moist (but not wet) and verticutter adjusted to cut into the soil about 1/4 inch in order to provide the proper seed bed.

Q: I would like to know if there are any new methods to kill moles. Is chlordane still used?

A: I do not know of any new materials or methods to control or kill moles.

Chlordane was used to eliminate grubs, a primary food source for moles, but chlordane is no longer labeled for use on turf. Diazinon, Dursban and Proxol are currently labeled for grubs, but the timing of application is more critical than with chlordane because of the shorter residuals. Also, elimination of grubs is no guarantee that the moles will go away.

Other standard methods of mole control are traps, poison baits or fumigation. The most effective method probably is the use of the harpoon or choker traps. To find actively inhabited tunnels, raised sod should be rolled or trampled down. If the tunnels are raised the next day, a trap should be set in that place. Traps which are not "tripped" should be reset in another place daily. Gases have proven ineffective since gas will diffuse out of the tunnel through the thin layer of sod overhead. Poisoned baits are generally ignored by moles.

Q: Because of very hard water from our own well, the trees at our golf course become coated with a

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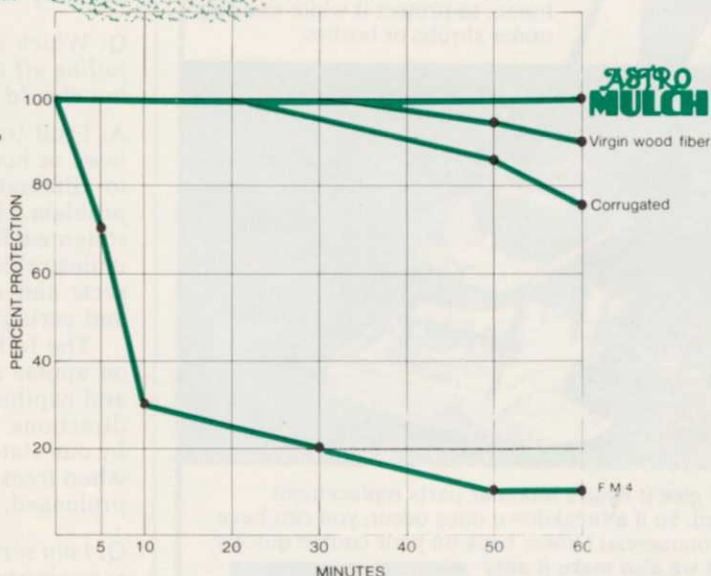


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That's the way we build the Ryan Commercial Mower: to last.

We use a rugged, 2-cycle engine with electronic ignition and a quick-response governor that keeps the power coming even in tall or thick grass. (Because it's a 2-cycle, you get constant engine lubrication without the danger of oil starvation when mowing on slopes.)

We put that engine on a 12-gauge steel housing and surround it with a tubular steel frame, to protect it while mowing under shrubs or bushes.

We give it Ryan's modular parts replacement system. So if a breakdown does occur, you can have the Commercial Mower back on your course quickly.

But we also make it easy to use. With a 1.25-gallon fuel tank for longer running, five adjustable cutting heights, a two-speed throttle and fold-down handle for storage or transportation.

Together, these features make the Commercial Mower the right tool for professional turf maintenance. Ask your Ryan dealer today about the Ryan Commercial Mower. The one machine that may outlast even the most dependable worker on your course: you.



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**Easy to use,
built to last.**



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79-CUR-1

white material which covers leaves, needles and trunks. This either chokes the trees to death or weakens them to a point that they grow very little.

Is there any chemical which I can put on the trees to eliminate this hard water deposit buildup?

A: Calcium deposits are extremely common where there is hard water. When the water dries, the calcium remains on the trees and shrubs.

I have not found an economical way to treat the large volume of water required in irrigating a golf course. The U.S. Department of Agriculture is conducting studies on desalting farm and range land which may provide answers for your problem; I suggest you contact the USDA office in your area.

Another branch of the government is working on utilization of sea (salt) water for irrigation. The same procedure could be used on your water; however, it presently does not appear to be economically feasible.

Q: Which chemical will prevent crabapples from falling off the tree? What time of year and how often should application be made?

A: Fruit trees are sometimes planted for shade in lawn or home garden areas, but the owner wishes to eliminate the fruit which normally becomes a problem. Unsprayed fruit will become wormy and rotten each year and drop before it matures. The undesirable fruit attracts bees, flies and other insects and makes additional problems in mowing and caring for the lawn.

The following chemicals are suggested for trial on apples and crabapples: naphthalene acetic acid and naphthalene acetamide. Apply according to the directions. Rates of 15-30 ppm have been suggested by one state experimental station. Apply the spray when trees are in full bloom; if the bloom period is prolonged, make a second application in 3-4 days.

Q: I am seriously considering starting my own lawn spray business. I have some experience in the field but need to get some answers, such as licensing required in Michigan. Also, any tips on starting my business would be much appreciated.

A: Since you are in Detroit, contact Carl Dollhopf, the regional supervisor, 1120 West State Fair, Detroit, Michigan 48203, phone (313) 368-2230. Unless the procedure has changed recently, it is as follows: 1) Apply for applicator certification tests, accompanied by fee; 2) Receive self-study guide; 3) Take test and, if passed, will receive certification number valid for three years; 4) Apply for company license, submitting fee, and for applicator's certification number. You must also submit proof of bonding (annual renewal).

Q: I would like to know about any products that inhibit growth on broadleaf evergreens such as privet, photinia and English laurel, used for hedges.

A: There are two plant growth retardants which have been commercially available for a number of years; both are labeled for a limited number of trees and shrubs. The products are maleic hydrazide, sold by Uniroyal, Inc., under the trade name Slo-Gro; and chlorthalurenil, sold by U.S. Borax and Chemical Corporation, under the trade name Maintain CF-125.