

Servis machines are built with one simple idea in mind.

If you're familiar with the name, Servis, you know that we've been manufacturing rotary mowers, cutters and shredders, box scrapers, landscape rakes and rear-mounted blades for a long time. Since 1946 to be exact.

Interestingly enough, some of the first equipment we put in the field is still being used today. That's dependability.

And that kind of dependability is no accident. Servis equipment is designed to do specific jobs. And to do them better than anything else. It's also designed to last.

Take construction. Servis frameworks are unibody constructed to provide extra frame strength. And the high-stress areas are reinforced with heavy gauge tubing.



To be the best.

In addition, all of our rotary cutters feature safety devices to protect the tractor and cutter drive trains.


The gears and gear box shafts used on our machines are precision machined to increase strength and durability, and reduce noise.



And Servis is one of the few lines of equipment that offers you an option of blade carriers on rotary cutters. The Cyclone (dishpan type) for cutting up to 3" brush. And the Gyro ("A" frame type) for cutting heavy 4" brush.

Of course, this is only part of our story. The point is that Servis builds a complete line of equipment with one simple idea in mind. To be the best.

So whether you've got 4" brush to cut, stalks to shred, ditches to dig, soil to move or land to level, see your Servis dealer. He's got the equipment you need.

For more information about the Servis line, contact your nearest authorized Servis dealer, or write: Austin Products, Inc.,  Dept. 2-75 S, P.O. Box 1590, Dallas, Texas 75221.

We build equipment the way we do because you wouldn't settle for less.



AUSTIN PRODUCTS, INC. An Austin Industries Company

Repair or Replace?

An Economical Guide to Mower Life Expectancy

By J. R. WATSON, Vice President, Customer Relations, The Toro Co.

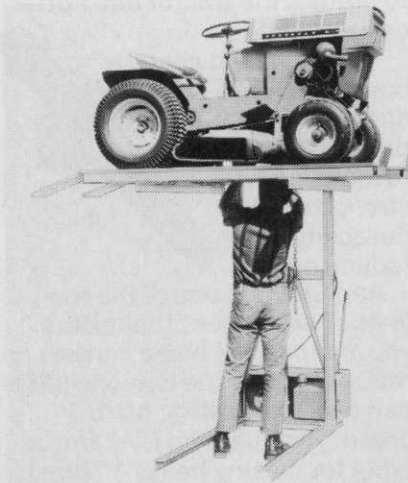
IN ORDER to obtain maximum efficiency from the equipment used to maintain and groom any turfgrass facility, the turfgrass manager must first have access to some very pertinent data. He needs to know; What are the tasks that must be accomplished? What does he have available to do those jobs, in terms of budget, manpower and current equipment? What degree of maintenance does his equipment get? And at what point, should that equipment be replaced rather than repaired?

It isn't sufficient to know his current labor force and what their pay scales are now. He also must be able to project what these are apt to be one or two or three years hence. Are there any prospects that his facility may be expanded or redesigned? Such information will, of course, have a profound effect upon labor and equipment needs. Finally, the turfgrass manager should be aware of what new equipment is on the market, what it will and — even more importantly — what it won't do, what its life span is, and a host of other considerations.

In other words, he must have a plan of operations based on accurate records. One cannot emphasize enough the overriding importance of clear, concise operating records. They are the measuring stick of what is being done and a guide to future decisions. They are truly the key to good management.

Toro has developed a simple record form for registering, by machine and operator, such items as: hours operated, gas and oil consumption, down hours, service required, replacement parts and labor costs. At the end of the cutting season, these records will show the number of hours the equipment has been operated, plus the cost of

(continued on page 30)



A common rule for determining replacement time is when the total costs of repair reach 50 percent of the original purchase price. This process can be hastened, manufacturers say, by using the machine for the wrong job. When choosing equipment: (A) Consider the terrain to be cut. (B) Consider the size of the area and buy the largest machine practical. (C) Look for simplicity of design. (D) Check for construction and durability. Other considerations may also improve efficiency.





By December, 1975 the Cushman golf car will be a legend.

It almost seems incredible to those who have known Cushman golf cars over the years, but by the end of 1975, Cushman will no longer manufacture golf cars.

To us, it's rather sad news. To you, it means incredibly low prices on a premium golf car.

In fact, it's probably the last time you'll be able to buy a truly great golf car. As you know, most of today's golf cars have become stripped-down versions of the

original Cushman. They have sacrificed player conveniences, beautiful styling and rugged construction for price. At Cushman we just couldn't do that. So we're offering the last of our premium cars at extreme reductions.

Parts availability is guaranteed for a minimum of 7 years. So whether you're looking for a fleet or your own personal car, see

CUSHMAN[®]

OMC-Lincoln,
a Division of Outboard Marine Corporation
4356 Cushman Dr., P.O. Box 82409,
Lincoln, Nebraska, 68501

your Cushman distributor.

Or write to us. Together we'll find the cars you need at a price you can afford.

We will still be putting our efforts into the other products we made famous...like Cushman industrial/commercial vehicles and Cushman turf vehicles. We will continue to offer products that increase productivity and cut costs. But we will not sacrifice our quality.

Europeans Examine U.S. Implant System

By WARREN WOLFE, Creative Sales, Inc.

REVIEWING the history of tree implantation or tree trunk injection, we readily admit that we are not the "pioneers of the system". Leonardo da Vinci is given credit for introducing chemicals into trees (via an auger) as early as the 15th century. Was his idea really that "undesireable"? It appears his only short-coming was to develop an easy-to-use, economical, commercial technique to place the chemical into the tree's system.

With the advent of the first commercially offered trunk injection applicators in the late 1950's; it's easy to think of one or another of the popular injection techniques as being the answer to nearly all tree problems or pests. In reality, however, systemic injection is still in it's infancy. We could list many reasons why tree service companies, commercial growers, landscape pest control operators, and homeowners are still spraying the tree foliage or introducing chemicals into the soil. It is increasingly evident that new improved injection techniques have in fact increased the total awareness, interest and use of direct trunk injection. While we don't hear the term "ecology" used quite as much today, the public is still very concerned about our environment. And the preservation and care of our valuable shade trees is gaining enthusiasm.

In early 1973 one of Italy's leading chemical marketers became interested in Iron MEDICAPS for testing on peaches, pears, grapes, and citrus. The calcareous soils abundant in the Mediterranean often

(continued on page 40)



European fruit growers are expressing quick and positive interest in encapsulated iron for chlorosis control. Above: Dr. Alberto Giacchero (left), MONTESHELL managing director, Warren Wolfe, and Dr. Flavio Lucchi, managing director (MONTESHELL) discuss 1975 test market plans for Italy. Below: The tree on the left is a Clark Avacado with severe chlorosis. This picture was taken the day of treatment as part of a 1974 University of Southern California implant test. The picture on the right shows the same tree two months later. Researchers claimed the treatment is economical for fruit trees in arid calcareous soils where lime-induced chlorosis may be expensive to control using chelates.



FIRST CLASS PERMIT
NO. 665
DULUTH, MINN.

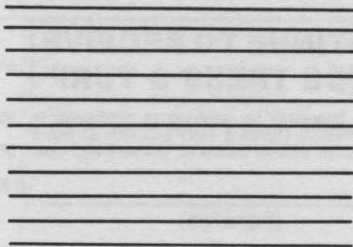
BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

WEEDS TREES & TURF

Box 6049
Duluth, Minnesota 55806



CIRCLE FOR FREE INFORMATION

CIRCLE the numbers which correspond to advertising, or new product listings in this issue. Then complete the form at right and mail. Inquiries serviced for 90 days from date of issue.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

101	137	173	209	245
102	138	174	210	246
103	139	175	211	247
104	140	176	212	248
105	141	177	213	249
106	142	178	214	250
107	143	179	215	700
108	144	180	216	701
109	145	181	217	702
110	146	182	218	703
111	147	183	219	704
112	148	184	220	705
113	149	185	221	706
114	150	186	222	707
115	151	187	223	708
116	152	188	224	709
117	153	189	225	710
118	154	190	226	711
119	155	191	227	712
120	156	192	228	713
121	157	193	229	714
122	158	194	230	715
123	159	195	231	716
124	160	196	232	717
125	161	197	233	718
126	162	198	234	719
127	163	199	235	720
128	164	200	236	721
129	165	201	237	722
130	166	202	238	723
131	167	203	239	724
132	168	204	240	725
133	169	205	241	726
134	170	206	242	727
135	171	207	243	728
136	172	208	244	729

CONTINUE TO RECEIVE WEEDS TREES & TURF

Are you interested in receiving or continuing to receive WEEDS TREES & TURF? YES NO. If yes, complete all information on this card and mail.

(Signature) _____

Date _____

CHECK ONE THAT APPLIES MOST

- (1) Sod Growers
 (2) Tree Service Companies
 (3) City Managers
 (4) Contract Applicators (Ground and helicopter)
 (5) Rights-of-Way Maintenance, Highway
 (6) Rights-of-Way Maintenance, Utility

- (7) Rights-of-Way Maintenance, Railroad
 (8) Golf Course Superintendents
 (9) City Purchasing Agents
 (10) Parks & Grounds Superintendents, (federal, state, municipal)
 (11) Irrigation & Water Supply Contractors
 (12) Turf Specialists (Includes Seed Growers)
 (13) Armed Forces Installations
 (14) Airports
 (15) Hospitals, Schools, Colleges, Race Tracks, Shopping Centers
 (16) Cemeteries
 (17) Athletic Fields
 (18) Industrial Parks (Factory Lawns)
 (19) Golf Course Greens Chairmen, Owners, Managers and other Supervisory personnel
 (20) Consultants
 (21) Industrial Research
 (22) Institutional Research and Teaching
 (23) Formulators of Herbicides, Insecticides, and Related Compounds for Vegetation Maintenance and Control
 (24) Retailers or Wholesalers of Chemicals Used in Vegetation Maintenance
 (25) Libraries
 (26) Regulatory Agencies, Associations

Government News Business

EPA recently filed notice to persons responsible for Federal registration of pesticides and Federal requirements for registration of intrastate pesticides stating:

"As provided therein persons holding State Registrations for pesticide products that are not registered under the Federal Insecticide, Fungicide, and Rodenticide Act are required to submit a completed "Notice of Application for Federal Registration for an Intrastate Pesticide Product" (EPA Form 8570-8) within 60 days of the effective date of regulations under Section 3 of FIFRA, as amended; otherwise such pesticide products can no longer be lawfully shipped after that period. Since Section 3 Regulations have been promulgated, the cut-off date for filing such notice will be letters postmarked no later than October 4, 1975."

The form is only applicable to products that meet the following criteria:

1. Currently registered by a State.
2. Not registered by the Federal Government.
3. Marketed only within a single State.
4. Does not contain chemicals or use patterns subject to suspension or denial actions by the Agency of which have been cancelled for substantive causes.

Outboard Marine Corporation announced that the production of motorized golf cars will end in December. Sales figures from fiscal 1974 and thus far in the current fiscal year indicate losses. Golf car sales accounted for about 2 percent of fiscal 1974 sales of \$480.1 million.

OSHA issued final rules on procedures for formal administrative proceedings to withdraw initial or final approval of state safety and health plans. Under the rules, effective June 30, OSHA will consider the following as cause for initiating withdraw proceedings:

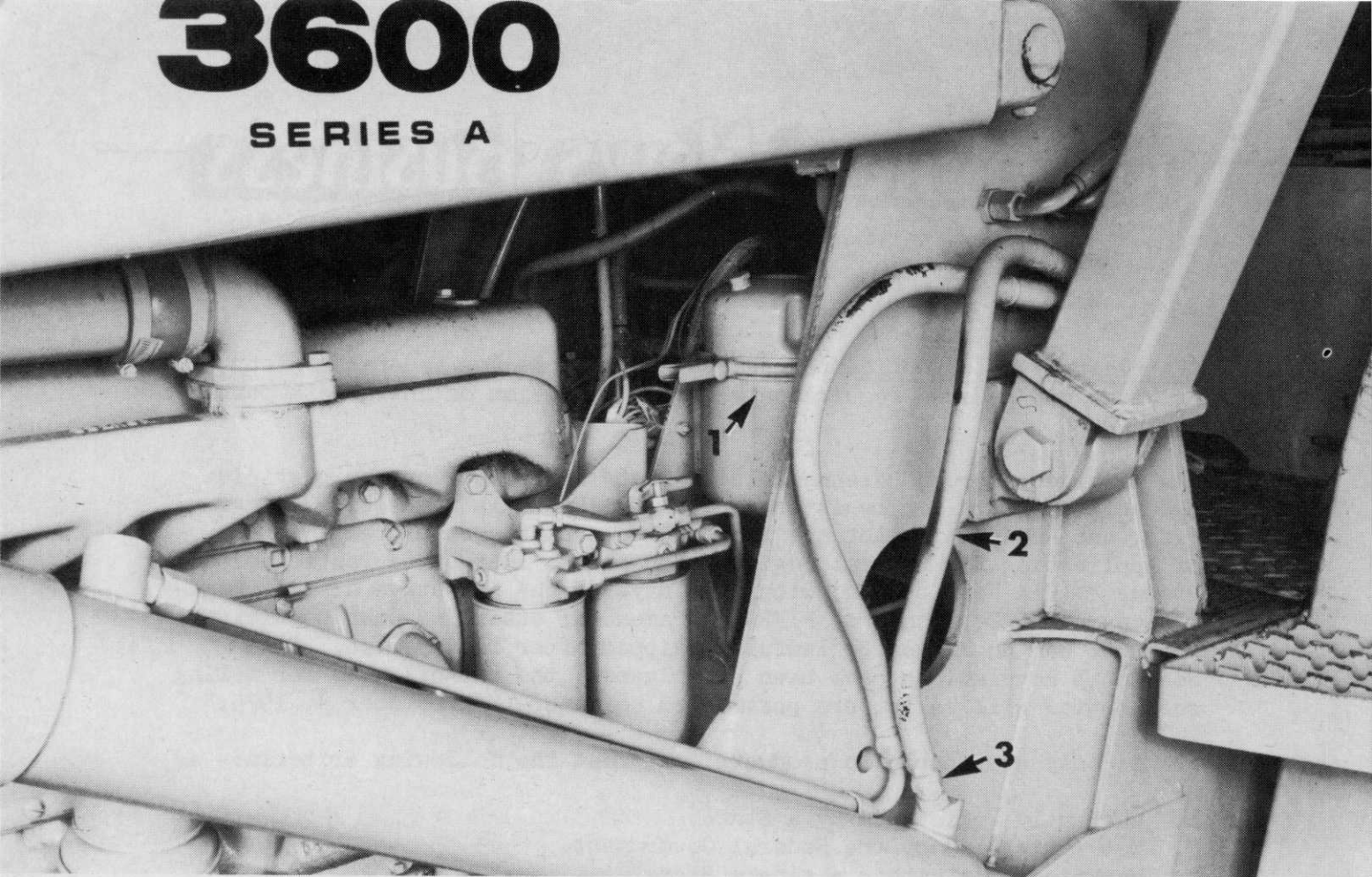
When a state has not substantially completed steps of its plan at the end of three years from the date it began operations under an initially approved plan.

When there is no longer a "reasonable expectation" that a state plan will meet the criteria for completion of developmental steps within the three year period.

OSHA boss, John H. Stender, announced the availability of three new free booklets covering various phases of programs and policy of OSHA. The three booklets are: "SBA Loans for OSHA Compliance," "Protection for Workers in Imminent Danger," and "How OSHA Monitors State Plans." Stender explained that each booklet will be part of four series of pamphlets designed to assist employers and employees in understanding and complying with OSHA standards and regulations. Copies of the booklets can be requested from OSHA regional offices or from OSHA's Office of Publications, Room N-3644, Washington, D.C. 20210.

3600

SERIES A



Hydraulic Maintenance Is Back

By J. L. LOVE, Service Supervisor, International Harvester

ALMOST EVERY PIECE of industrial equipment today uses hydraulics. The hydraulic systems used have become so refined in the past few years that proper maintenance is no longer a "do as I have time" situation but an absolute necessity, if proper performance and longevity of the system is to be expected.

All hydraulic systems used today contain some type of filtration. This may be composed of:

1. Suction line filters,
2. Return line filters, or
3. Pressure line filters.

One or more of these filters are used in addition to a screen which may be incorporated in the reservoir filler. The manufacturer's recommended change period should be followed. Suction and return lines filters quite often have an initial change at less than 50 hours operation to ensure initial system cleaning and then an additional change at 100 hours.

This ensures that any contaminant which may have been in the system as well as from wear-in of components is removed from the system prior to its causing damage to other components of the system such as relief valves, control valve spools, or cylinder piston seals. The filters then require changing at regular intervals as indicated in the manufacturer's operator's manual.

Return line filters are placed between the last valve or component and the reservoir. This removes any contamination generated in the hydraulic system preventing its returning to the reservoir and subsequently into the remainder of the system.

Pressure line filters when used as a primary filtering element may have the same change interval as suction or return line filters. Some systems incorporate a pressure line filter only as a safety filter. This element is placed after a specific com-

ponent so in case of a failure the entire system will not be contaminated. This element is only changed after a failure of a component upstream of the filter or at manufacturer's recommended interval.

Whenever a hydraulic system is plagued with repeated failures of relief valves and/or cylinder piston seals, the hydraulic filters should be checked. Quite often the filter incorporates a by-pass valve to prevent starvation of the hydraulic pump. When the filter element becomes plugged with contaminants to the

(continued on page 18)

Above:

1. **Filter:** May be suction or pressure filter. Should be serviced regularly at manufacturer's recommended intervals.
2. **Hoses:** Must be routed properly to avoid sharp corners, prevent sharp bends or kinks and twisting of the hose.
3. **Fittings:** Must be kept tight to prevent leaks.

SKID STEER LOADERS

The Little, Big Machines

COMPACT, four-wheel-drive, skid steer loaders continue to rise in popularity as industrial materials handling machines. And for good reason: the two most important and obvious features of the little machines are maneuverability and versatility.

And while the dozen or more loader models currently available appear to be almost carbon copies of one another, there are important differences to consider in selecting the best machine for your particular needs.

All skid steer loaders have the same basic design characteristics: they're relatively compact; all four wheels are the same size; each is power driven.

Additionally, not one of a skid steer loader's four wheels pivots for steering. Both wheels on each side of the machine are powered in unison and can be driven forward, reverse, or stopped independently of the wheels on the opposite side. Steering direction is obtained by independent control of the wheel rotation on each side of the vehicle.

Engines on skid steer loaders are located over the machines' rear wheels, providing an effective counterweight for lifting loads. Engine location over the rear places the operator's station up front, affording unobstructed visibility.

Engine power is transmitted by either of two drives,

mechanical or hydraulic. With one set of wheels in reverse and the other set driven in counter rotation, the skid steer loader will pivot around its own midpoint, producing the shortest possible turning radius.

Use Determines Size and Equipment

Skid steer loaders are available in a wide range of sizes. Although the best guidelines to loader size are rated operating load and engine horsepower, a further measure of a machine is its tipping load.

Tipping load is the maximum weight a loader can lift without tipping forward, and the machine's rated operating load is calculated at one-half its tipping load. At rated operating load, then, a loader is well within the limits of safe operation.

Skid steer loaders are available with rated operating loads ranging from 500 to 3,000 lbs., with machines in the 1,000 to 1,500 range representing the most popular sizes.

On all machines, several different bucket sizes are available to adapt the loader for use with various materials. Larger buckets speed productivity when handling relatively light materials. With heavier materials, smaller buckets permit greater maneuver-

(continued on page 34)



HYDRAULICS (from page 16)

point at which it will not pass sufficient fluid to satisfy the system's demand, the by-pass valve will open. There is usually a screen over this valve to prevent passage of large particles of contaminants but small minute particles can pass through the screen and lead to early relief valve or cylinder piston seal failures.

Another part of the hydraulic system that is probably the most ignored component in the entire system is the hydraulic fluid. Certainly, fluid is added, usually when it gets low enough that it causes aeration (noise) in the hydraulic system. Hydraulic fluid has several additives in it to prevent foaming and corrosion, aid in water suspension, provide ease of flow under low ambient temperatures. These additives break down after prolonged use and these properties are lost. Most manufacturers recommend that hydraulic fluid be changed at least yearly or after a specific num-

ber of hours of operation. Other manufacturers, if the system is in constant use and maintained at a fairly constant temperature, extend this change period. In some cases of extreme moisture, condensation or use, the change suggested, a yearly change, in the fall of the year, would usually be beneficial.

Practically all hydraulic systems utilize hoses to some extent. The proper routing and the elements to which these hoses are exposed can greatly affect their life. All hoses should be routed to prevent sharp bends or kinks in the line as well as preventing any twist in the hose. The hose should be properly supported while the fittings are being tightened to prevent the hose itself from turning with the fitting resulting in a twist in the hose.

CAUTION: If a leak does occur in a hose, one should never place his hand over the leak. Most systems operate at high pressure and the pressure of the fluid escaping from the leak can be great enough to puncture the skin. Due to the addi-

tives in the fluid as well as some of the contaminants in the fluid, infection can result. If the skin is punctured, a physician should be consulted immediately.

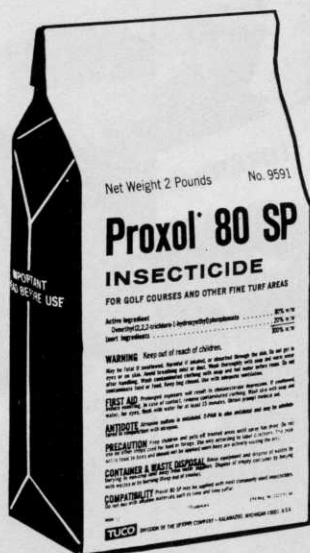
Normal maintenance of the system which would include tightening of loose fittings, correction of leaks and replacements of seals as required is also a necessity. A small leak not only results in an unsightly machine but also results in a necessity to add fluid frequently. This small leak can add up to many dollars in wasted fluid in a short period of time.

Proper maintenance of a hydraulic system is not only a necessity to attain proper performance from the machines involved, but also means good business as correction of minor problems as they occur can prevent major problems from happening later. A few dollars spent today can prevent many dollars spent or lost later to correct a once minor problem which has resulted in a major breakdown and costly downtime. □

Take the guesswork out of turf insect control

Diagnostic Aid from **TUCO**

Many turf insect larvae are night feeders, so the first evidence of their activity frequently is damaged turf. Diagnostic Aid, applied to turf as directed, causes insects to emerge to the surface within 10 minutes. They can be identified and counted to determine the level of infestation and whether an insecticide should be applied. It also can be used after insecticide application to measure the control obtained.



Proxol* 80 SP Insecticide from **TUCO**

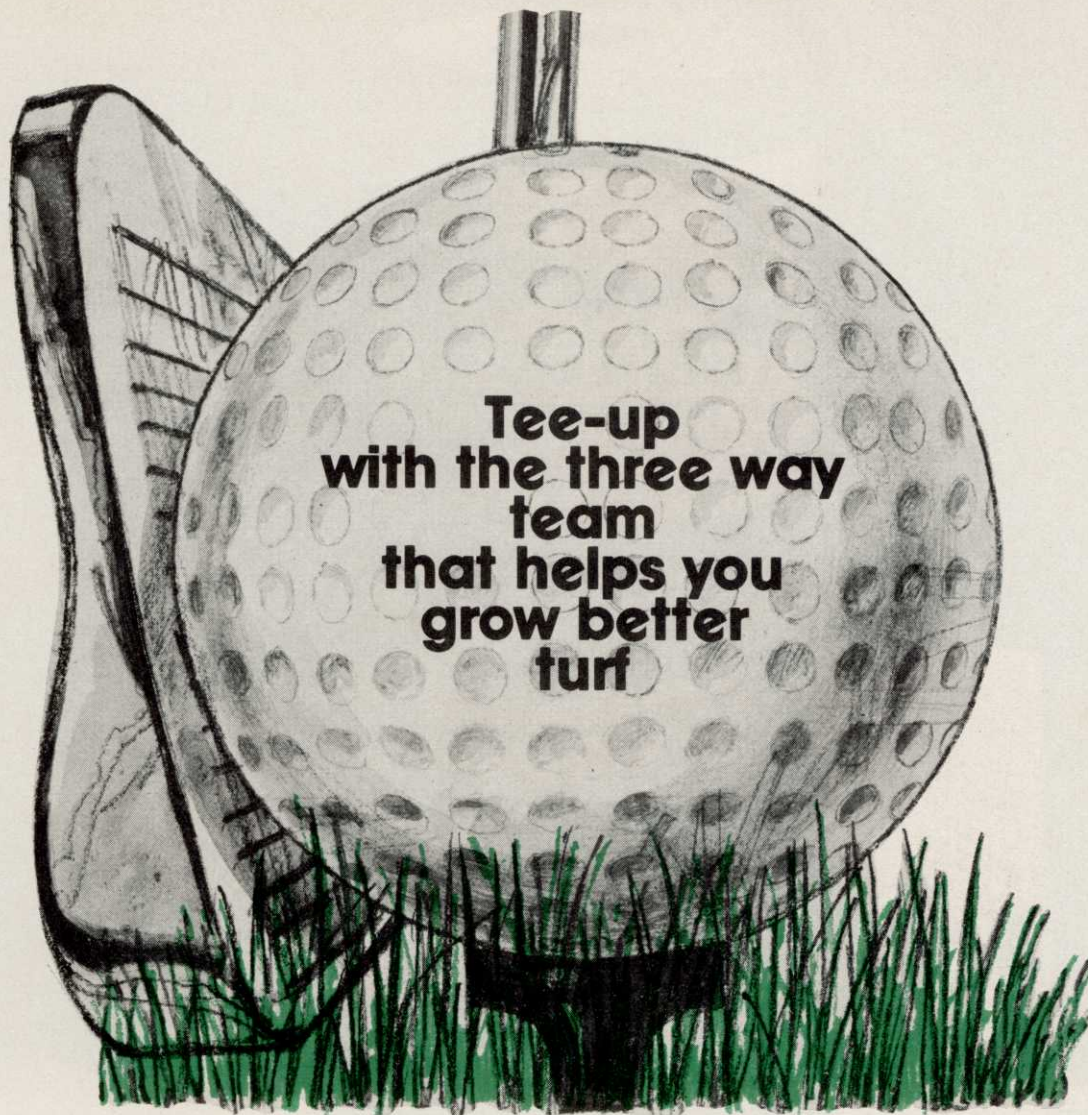
Proxol is the one insecticide developed especially for use on fine turf and ornamentals. Sod webworms and cutworms are two major groups of turf insects controlled by Proxol. It is estimated that each sod webworm larva can chew up 20 square inches of turf in its average life span of 20 to 40 days; the cutworm larva can devour up to 36 square inches. With 300 to 500 larvae generated from each adult in a period of 10 to 21 days, it becomes apparent why early detection and control are desirable. Using Diagnostic Aid and Proxol together lets you program insect control.

*Trademark

One bottle of Diagnostic Aid FREE in each case of Proxol 80 SP.



Division of The Upjohn Company, Kalamazoo, Michigan 49001



**Tee-up
with the three way
team
that helps you
grow better
turf**

KERB[®], FORE[®] AND TRITON[®] CS-7

Three proven products from Rohm and Haas to make your job a little easier and your course or grounds more attractive. KERB 50-W herbicide stops *Poa annua* in Bermudagrass, can be applied anytime from pre-germination to seed formation. FORE fungicide protects turf and ornamentals from a wide range of fungus diseases including Brown Patch, Fusarium blight and certain other damaging diseases of turf. TRITON CS-7 wetting agent has been shown useful in removing dew from greens, and as an aid in increasing water penetration. Ask your chemical supplier for additional information on teaming up these products this year.

**ROHM
AND
HAAS** 
PHILADELPHIA, PA. 19105

