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48TH INTERNATIONAL  
TURFGRASS  
**CONFERENCE  
& SHOW**  
PORTLAND, OREGON  
FEB. 6-11 1977

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MANAGEMENT:  
A SYNERGISTIC  
APPROACH"**

is the theme for the educational International Turfgrass Conference and Show, sponsored by the Golf Course Superintendents Association of America. Turfgrass managers, educators and industry representatives will gather in Portland for this annual symposium. Exhibits of the newest products for turfgrass management will be open Feb. 8-10; the conference will be in session Feb. 6-11.



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HIGHLIGHTS:**

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# TREE CABLING AND BRACING

by Robert Felix

Among the many services that the truly professional arborist has available for his clientele, cabling and bracing are the least appreciated until their need is demonstrated. After a storm, fallen trees, broken leaders and split crotches make tree owners very much aware of what might have been prevented had their trees been properly cabled or braced.

Is it the fault of the tree owner or the arborist? Many times a cabling and bracing job could have been provided as a preventative if the arborist had taken the time to diagnose the need and make the proper presentation to the tree owner.

Color photos of storm ravaged trees provide a good basis, not as a scare technique but as an illustration of what can happen. Diagrams illustrating how a Vee-shaped crotch becomes weaker as a tree grows are also helpful.

The use of threaded rods to add support to cavities or other weak structures is also well illustrated with photos.

Although preventative cabling and bracing is important, remedial treatment can be a valuable service available from the true professional. Needless to say many trees are critical to a particular landscape. If they are damaged in a storm it is imperative that every attempt be made to restore them.

Several years ago in early summer a tornado-like wind storm swept through a golf course in the northeast. An eastern red oak that had been guarding a green was badly twisted resulting in a three-inch opening in at the base of a vee crotch tapering down for about four feet. The top of the tree was somewhat broken but most of it remained intact. The tree was about 18 inches in diameter.

Without this tree the golf hole would be a simple drive and a wedge shot to the green. However the tree was positioned about 220 yards from the tee at the apex of a slight dog leg to the right. The spread of

the tree was about forty feet providing an interesting hazard that made the hole a good par four.

If there was any possibility of saving this tree the golf club management was interested. There was no way that they wanted to lose this tree or attempt to replace it. A professional arborist was called in immediately and remedial steps were undertaken.

First a rope sling was installed about two thirds of the way up the tree between the two major leaders. A come-along was then attached and the two leaders slowly pulled together. When the leaders were pulled as tightly as possible, a  $\frac{3}{8}$ -inch hole was drilled into the trunk every 12 inches from the base of the crack on up. Then a  $\frac{3}{8}$ -inch wood screw rod was installed and firmly anchored on each end with large washers and nuts which were countersunk.

As the nuts were gradually tightened the fissure began to close at which point additional pressure was exerted with the come-along. This process was repeated until such time as the fissure was entirely closed. A 5/16 cable was then installed where the rope sling and come-along were attached to the two leaders. This cable was attached to  $\frac{3}{8}$ -inch by 12-inch drop forged eye bolts which had been installed. These eye bolts were firmly anchored with washers and nuts which had also been countersunk. The cable was seven strand, soft lay, galvanized cable that was spliced through 5/16 thimbles running through the eyes of the eye bolts. No turnbuckle was used. The standard, two turn splice method was used.

As tension was exerted on the cable, the nuts at the ends of the threaded rods were tightened until all could be tightened no further. At this point an additional threaded rod was installed for added support about six inches above the crotch. However, the method of instal-

lation was entirely different. Although the same  $\frac{3}{8}$ -inch threaded rod was used, the hole drilled was only 9/16-inch and did not protrude through the opposite leader. The rod was dead ended. The length that rod had to be was then determined by using a lesser diameter rod and the threaded rod to be inserted was cut  $\frac{3}{4}$  of the way through so that it could be broken off inside the hole and the cambium could readily grow over it.

One end of the threaded rod was then inserted in the chuck of a low speed,  $\frac{3}{4}$ -inch drilled and threaded into the hole with the protruding threads locking into the sides of the smaller diameter hole. The scars resulting from the split were then backtraced and treated, the tree cut back, fed and nature left to take its course.

The tree recovered beautifully and is still thriving. Had a cable been installed previously perhaps the extensive damage might not have occurred.

Several years ago the National Arborist Association developed standards for bracing, cabling and guying shade trees. The purpose was to establish the classes and types of bracing cabling and guying used in the maintenance and repair of shade trees. These standards are available from the National Arborist Association, 3537 Stratford Road, Wantagh, New York 11793 for \$1.25 each.

The situation and remedy described above illustrate the highly complex repair jobs that can be done using cabling and bracing techniques. Surely even more extensive repair jobs have been successfully completed.

When diagnosing a tree care situation keep cabling in mind. It is an important service as a preventative as well as a remedy. □

*Mr. Felix is executive secretary of the National Arborist Association.*

## Meeting Dates

**Louisiana Turfgrass Association Annual Fall Meeting and Equipment Show**, Sheraton Motel, Alexandria, La., November 8-10.

**Holly Society of America Annual Meeting**, Stouffer's Valley Forge Inn, King of Prussia, Pa., November 9-13.

**Landscape Maintenance Symposium**, Marriott's Lincolnshire Resort, Lincolnshire, Ill., November 11-12.

**Eastern US Horticultural and Landscaping Trade Exposition**, Ocean City Convention Center, Ocean City, Md., November 12-14.

**Delaware Turfgrass Conference**, Clayton Hall, University of Delaware, Newark, Del., December 6.

**International Plant Propagators' Society**, Southern Region Inaugural Meeting, Sheraton Inn, Mobile, Ala., December 7-9.

**University of Maryland Corn Technology Conference**, Civic Center, Salisbury, Md., December 9.

**University of Maryland Agronomy Short Course**, National 4-H Center, Chevy Chase, Md., December 13-15.

**Connecticut Nurserymen's Association Annual Meeting**, Ramada Inn, North Haven, Conn., December 28.

**Western Association of Nurserymen Annual Meeting and Trade Show**, Hilton Plaza Inn, Kansas City, Mo., January 2-4.

**North Carolina Nurserymen's Association Short Course and Trade Fair**, Royal Villa Motel, Raleigh, N.C., January 2-4.

**Northeastern Weed Science Society Annual Meeting**, Baltimore Hilton Hotel, Baltimore, Md., January 4-6.

**Indiana Association of Nurserymen and Indiana Arborists' Association Annual Winter Meetings**, Stouffer's Inn, Indianapolis, Ind., January 4-6.

**Garden Living Industries of the Eastern US Annual Convention and Trade Exposition**, Concord Hotel, Kiamesha Lake, N.Y., January 4-7.

**Iowa Nurserymen's Association Annual Convention**, Roosevelt Royale, Cedar Rapids, Ia., January 5-7.

**Mid-Atlantic No-Tillage Conference**, Sheraton Inn, Gettysburg, Pa., January 7.

**Wholesale Nursery Growers of America Membership Meeting**, Hyatt Regency-O'Hare, Rosemont, Ill., January 9.

**National Association of Plant Patent Owners Membership Meeting**, Hyatt Regency-O'Hare, Rosemont, Ill., January 9-10.

**Louisiana Association of Nurserymen Short Course and Convention**, International Motel, New Orleans, La., January 9-11.

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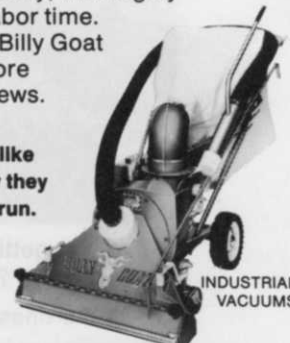
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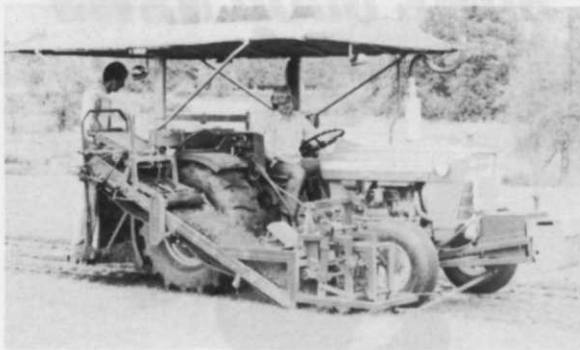
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**Mid-America Trade Show**, O'Hare International Trade and Exposition Center, Rosemont, Ill., January 9-12.

**Mailorder Association of nurserymen Membership Meeting**, Hyatt Regency-O'Hare, Rosemont, Ill., January 10.

**New Jersey Association of Nurserymen Annual Winter Meeting**, Governor Morris Inn, Morristown, N.J., January 11-13.

**Maine Nurserymen's Association Annual Meeting**, Augusta Civic Center, Augusta, Me., January 13.

**Landscape Materials Information Service Winter Meeting**, The Biltmore, New York, N.Y., January 13.

**Kentucky Nurserymen's Association Annual Meeting**, Galt House, Louisville, Ky., January 14-15.

**South Carolina Nurserymen's Association Short Course**, Mills Hyatt House, Charleston, S.C., January 16-18.

**Mid-Atlantic Nurserymen's Trade Show**, Hunt Valley Inn, Cockeysville, Md., January 17-19.

**Landscape Ontario Congress**, Four Seasons Sheraton Hotel, Toronto, Ont., Canada, January 18-20.

**Connecticut Nurserymen's Association Short Course**, Northeast Utilities Auditorium, Berlin, Conn., January 19-20.

**Georgia Nurserymen's Association Winter Meeting**, Holiday Inn, Athens, Ga., January 19-21.

**Utah Association of Nurserymen Convention**, Wahweap Lodge & Marina, Page, Ariz., January 19-21.

**Washington State Nurserymen's Association Convention**, Everett Holiday Inn, Everett, Wash., January 20-22.

**International Society of Arboriculture**, Ohio Chapter Annual Meeting, Sheraton-Columbus Hotel, Columbus, O., January 23-25.

**National Tropical Foliage Short Course**, Sheraton-Towers Hotel, Orlando, Fla., January 23-26.

**Ohio Nurserymen's Association Trade Show**, Sheraton-Columbus Hotel, Columbus, O., January 23-27.

**Ohio State University Short Course**, Sheraton-Columbus Hotel, Columbus, O., January 23-27.

**Associated Landscape Contractors of America Trade Exhibit and Annual Meeting**, Riviera Resort Hotel, Palm Springs, Calif., January 23-28.

**Northwest Agricultural Show**, Multnomah County Expo Center, Portland, Ore., January 25-27.

**Massachusetts Horticultural Congress**, Howard Johnson's 57 Motor Hotel, Boston, Mass., January 26-27.

**Del-MarVa Soybean Meeting**, Civic Center, Salisbury, Md., January 27.

**Tropical Plant Industry Exhibition**, Diplomat Hotel, Hollywood-by-the-Sea, Fla., January 27-29.



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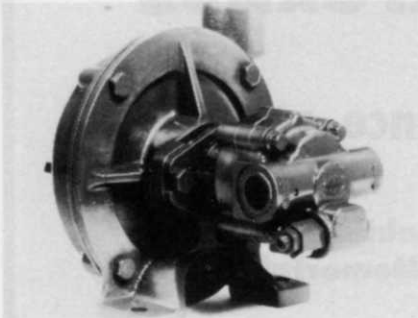
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which reduce belt stretch and a flat front idler pulley. Manufactured in both rear and center mounting designs, the mower cuts a width of 60 inches with a cutting height of 1 to 5 inches.

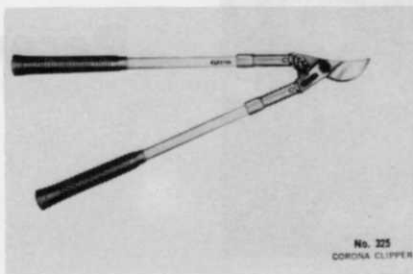
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The Miralinks plastic chain from Mercury Products Corp. provides both protection and direction for outdoor applications. Made of

colorful plastic forged from a special polyethylene formula, the chain requires no maintenance as well as being non-conductive and rustproof. It's available in a wide variety of colors which withstand rigors of weather and time and supports any message provided such as "walk here," "keep of the grass" or "golf cart area."

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Corona Clipper Co. is introducing a new No. 325 lopper designed to prune with less fatigue and greater ease. The product uses fiberglass handles which are bolted on to a



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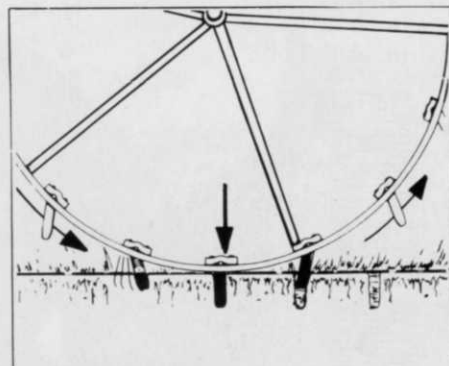


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## Gorilla-proof sprinklers or It's a Jungle out here

Interesting reactions to irrigation sprinklers have been displayed by endangered and not so endangered species of animals that inhabit San Diego's fascinating Wild Animal Park. Elaborate sprinkler and drip irrigation systems maintain the jungles, compounds, mammoth aviary and exotic gardens in the 1,800-acre park in the subtropical hills near the Southern California community of Escondido.

Three million people have visited the park since it opened four years ago. They can see it by walking and also by riding quiet, pollution-free, electric safari cars that traverse a five-mile route through the compounds.

Sprinklers of various sizes distribute most of the 850,000 gallons of water that the park consumes every day. Irrigated are the 600 acres of the park that are nearly developed.

Many sprinklers are in compounds with the animals and irrigate grasses and plants on which the animals browse. The animals, some of them endangered species, have reacted in a variety of ways to living with sprinklers.

The elephants and elands make good use of them. The elephants seem to enjoy waving their trunks through the streams of water. On warm days, the graceful elands are apt to lie in the paths of the spray.

But the gorillas and lions react in a most negative way. The gorillas are the most demonstrative. The nails of their little fingers are especially strong, says Park Horticulturist Jim Gibbons, and they use them to pry out the sprinklers in their compound. The gorillas accomplish this even though the sprin-





klers, like many in the park, are sunk below the ground in concrete collars and pop up when the water is turned on.

"We need gorilla-proof sprinklers!" commented Gibbons.

He could use lion-proof ones also. The great cats simply rip out the sprinklers with their claws. The tigers react differently again. They apparently are not annoyed by water and ignore the sprinklers entirely. So do the white rhinos, which are rather ponderous animals. They sometimes step on the concrete collars and snap the risers, not out of aggravation but simply out of ignorance.

More predictable and positive to the elaborate and extensive irrigation systems at the park is the response of the many varieties of plants. Grasses, bushes and trees are combined by skillful landscaping into looking like glamorous replicas of the African and Asian habitats of the animals.

Most of the 15,000 sprinklers in the park are Rain Birds because, as Gibbons explains, that company makes a sprinkler for every purpose and its consulting and engineering facilities are excellent.

Most of the irrigating is automatically timed by electric controllers. Power for the timers in the more remote areas is provided by batteries. Most pop-ups are set in concrete collars and are operated by valves that open and close slowly to prevent any sand in the water lines from clogging the valves.

Many of the sprinklers water native California grasses and experimental grasses in the large 100-acre compound in which a variety of animals live together: rhinos, elands, impalas, giraffes and other hoofed animals. A species of bird such as the great hornbill lives with them too. The hornbills are great black birds that don't fly. Zebras had to be removed from this community because they tended to kick the young of their neighbors.

Many of the animals in the 100-acre compounds are browsers, feeding on the indigenous fescues, bermudas and other grasses. Some of the irrigating in this compound is done with big guns which throw water for a radius of 150 feet. These sprinklers remain above ground and

are protected by piles of heavy rocks.

The principal diet of the browsers is not grass but hay and acacia trees. The park maintains an orchard where acacias are grown. These trees are cut when they are 20 feet or so high and are tied upside down onto big trees in the compound. Tender acacias are a favorite diet of the browsers, the animals

consuming 20 of the trees a day. The orchard is expanding and plans call for a stand of more than 3,000 trees.

On hilly land, the orchard is irrigated with a drip system. Water is dripped slowly into the ground from outlets located in the vicinity of each tree. Drippers prevent evaporation, maintain good soil moisture—even on steep hillsides — and discourage weeds because they irrigate

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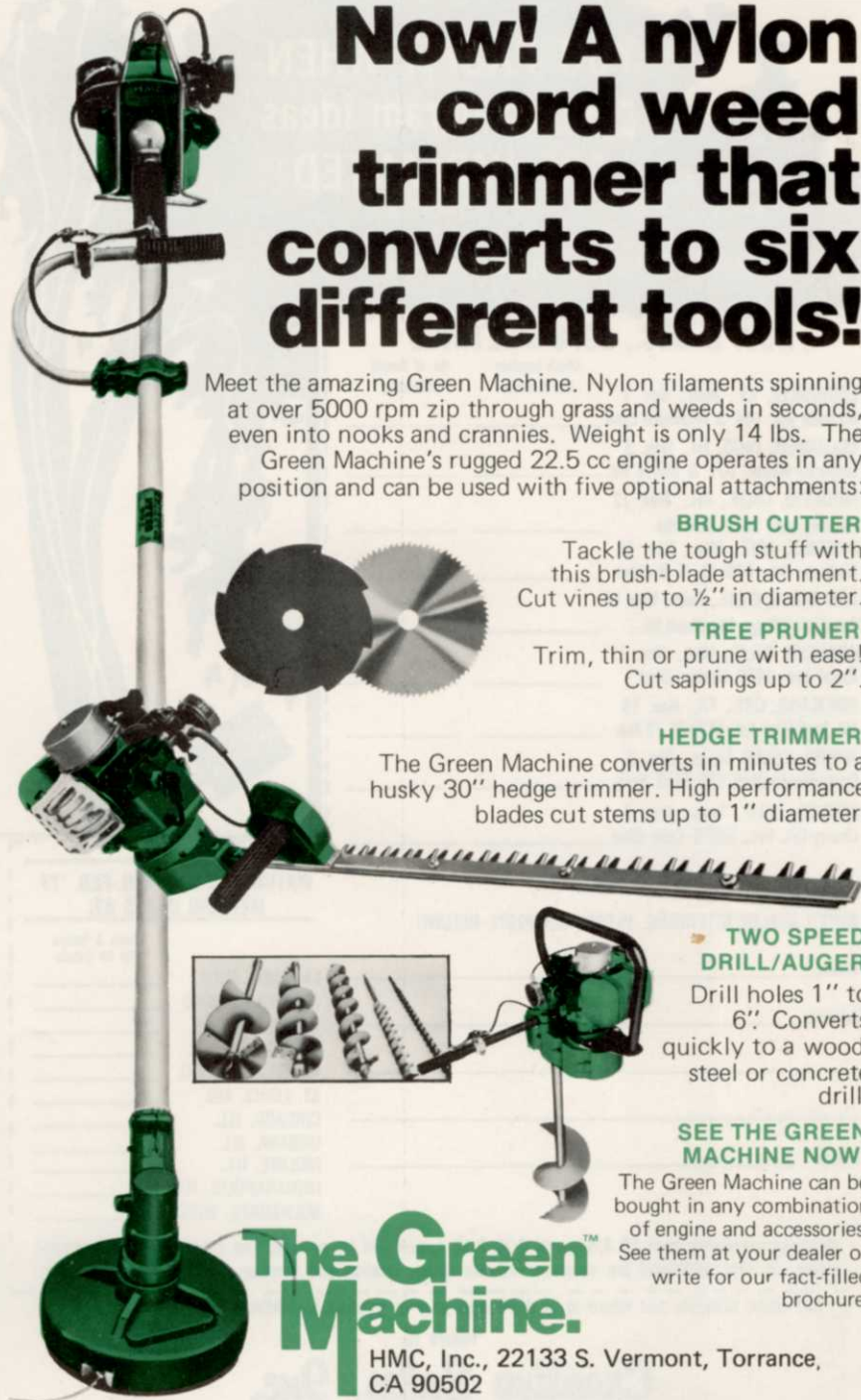
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# gorilla-proof sprinklers

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Many golf courses and parks fertilize through their sprinklers. However, this isn't possible at the San Diego Wild Animal Park because it is linked with the Escondido municipal water system via a ten-inch asbestos main. The park administration wants to avoid the

possibility of contaminating the city water. So fertilizing is done by helicopter.

Water in the park is used at least twice. The park has its own sewage system which is yielding purified, nitrogen-rich water that is reused through a separate sprinkling system.

The park makes good use of indigenous grasses and other plants, such as the wild evergreen shrub called California buckwheat, and more exotic plants such as rocket pincushion from South Africa. The latter grows wild in southwestern Cape Province and reaches a height of ten feet. It has a brilliant red flower.

More than 50 acres of the park have been planted with a new technique — hydro-seeding. Seed, mulch and fertilizers are mixed in a tank and pumped out through nozzles onto the desired terrain. The seeds are protected by the mulch and nourished by the fertilizer. Grasses are started this way and even eucalyptus trees. It's a fast way to cover hillsides and valleys with green.

The San Pasqual Valley in which the park is located enjoys a climate and topography very much like that of South Africa, Gibbons observed. The Southern California valley, 30 miles north of downtown San Diego and still within the city limits, is a bit colder than Africa in winter. Last winter — an unusually chilly one — the thermometer dipped to 22 degrees above zero. The temperature can climb to 100 degrees in the summer.

The park has more than 2,200 wild animals living in settings much like their own native haunts in Africa, Asia and Australia. They are thriving and multiplying.

The park is operated by the Zoological Society of San Diego for the preservation of wildlife. Gibbons proudly declared that the white rhino no longer is on the endangered list because it has enjoyed a population boom at the Wild Animal Park and in several zoos.

In 1975 more than 25 endangered species babies were born at the park, including two gorillas and an Arabian oryx. The previous year 14 of the 19 endangered species at the park added to their respective populations.

As Dr. James Dolan, curator of San Diego Wild Animal Park, said: "The park is fulfilling its primary purpose — to preserve endangered species and to serve as a haven for vanishing wildlife." □

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	Check Location You'll Attend	No. of People Attending
LOUISVILLE, KY., Mon., Nov. 1		
Ramada Inn, I-64 & Hirschborn Lane	_____	_____
COLUMBUS, OHIO, Fri., Nov. 5		
Imperial House, I-71 & Morse Rd.	_____	_____
MODESTO, CALIF., Fri., Nov. 12		
Holiday Inn, 1612 Dale Rd.	_____	_____
PHOENIX, ARIZ., Mon., Nov. 15		
Rodeway Inn, 24th St. & Buckeye	_____	_____
SAN DIEGO, CALIF., Tues., Nov. 16		
Vacation Village, Ingraham St.	_____	_____
ANAHEIM, CALIF., Wed., Nov. 17		
Royal Inn, 1855 Harbor Blvd.	_____	_____
PORTLAND, ORE., Fri., Nov. 19		
Mt. Scott Com. Ctr., 5530 SE 72 Ave.	_____	_____
IRVING, TEXAS, Thurs., Dec. 2		
Ramada Inn West, 120 Airpt. Frwy.	_____	_____
DENVER, COLO., Tues., Dec. 7		
Cherry Crk. Inn., 600 S. Colo. Blvd.	_____	_____



### WATCH FOR OUR JAN.-FEB. '77 MEETING DATES AT:

NOTE!! DEALER ATTENDING, PLEASE COMPLETE BELOW!!

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Phone \_\_\_\_\_

	Check & Return For All Details
LANSING, MICH.	_____
CLEVELAND, OHIO	_____
ROCHESTER, N.Y.	_____
FREMONT, NEBR.	_____
KANSAS CITY, MO.	_____
ST. LOUIS, MO.	_____
CHICAGO, ILL.	_____
URBANA, ILL.	_____
MOLINE, ILL.	_____
INDIANAPOLIS, IND.	_____
MILWAUKEE, WISC.	_____

Meetings scheduled from 10 A.M. until 2:30 P.M. Lunch will be provided (no charge) for one key employee per firm, additional are welcome. Indicate above, location and number attending from your firm.

Clip above schedule and return at least 10 days prior to meeting as confirmation of your attendance.

Return To:

## Creative Sales, Inc.

200 S. Main St.      FREMONT, NE 68025      Phone 402-727-4800

Circle 120 on free information card