



A SAFER PLACE TO PLAY

Park safety was emphasized at the Interior Department's annual Safety Management Planning Conference held this spring at Yosemite National Park. Although hosted by the National Park Service, the conference yielded many safety ideas that may be helpful to managers and safety personnel in all park and recreational areas—Federal, State and local.

"We must be concerned with the safety of visitors, employees, concessioners and contractors," said John Hast, chief safety officer for the National Park Service. "We must see that employees have a safe place to work and that visitors have a rewarding experience without injury to themselves or their property."

Making Supervisors Accountable

According to Mark Roach, a safety engineer from Marsh and McLennan, Inc., insurance carriers, the weakest link in any safety program is enforcement—and the key to enforcement lies in making supervisors responsible and accountable for accidents.

"Accidents are just as much an expense factor as anything else," Roach said. "They're a cost of production." He recommended holding supervisors accountable by charging the cost of accidents back to their accounts, by pro-rating insurance, by including their accident records in their personnel files, and by giving bonuses when they deserve them.

"As a regular part of their jobs, supervisors should hold periodic short safety talks with their men, require inspections, investigate accidents, participate in job safety and education programs, and have weekly activity reports. They should have a simple working manual to guide them.

"Each park should have a strong safety committee. The key man is the organizer, the committee chairman. Before each meeting of the committee, he should contact each supervisor to recheck areas and see what changes are needed. He should study all injuries that occurred since the last meeting and determine what has to be done to eliminate problems in the future.

"The boss is the key man," Roach concluded. "Safety posters and all other things have no effect on the employee unless he's convinced it matters to his boss."

Using Cost Data

Cassius Hooper, chief safety officer for the California Department of Conservation, recommended using cost-accident data to discover safety problems and eliminate their causes. For instance, often older employees have more injuries because of heart conditions—a problem that could be eased by lowering the retirement age.

Because many accidents are due to the poor physical condition of employees, Hooper recommended pre-employment physical exams and height-weight standards.

Protecting Visitors

"Parks have special problems," said Jack Hobbs, safety officer for National Capital Parks in Washington, D.C. "When a visitor comes to a park, he assumes safety has been taken care of. Usually it has, but visitors can always find new ways to get hurt."

"Stumbling and tripping are the most frequent causes of injuries, particularly among older visitors. Often very old people will try to climb rocks that challenge even much younger persons. Also visitors are usually unfamiliar with the area and don't know what to expect."

Hobbs said that park employees must pay attention to the little things and "do the common things uncommonly well.

"How do you comfort the three people who were injured when a park superintendent poured gasoline into a hole to clean out a yellow jacket nest?"

"How do you comfort a lady who sprained her ankle by stepping into a hole filled with glass? Park employees knew about it, but thought 'someone else' would take care of it.

"There's always 'someone else.' If we could find out who this someone else is, we'd solve a lot of problems in our parks!"

UNBREAKABLE GLASS

Safer glass in park houses has been called for by Emmet A. Nichols, supervisory park ranger at Fort Clatsop National Memorial.

He refers to several articles in "Family Safety" magazine attesting to the danger of the aluminum framed, glass storm

doors of the type commonly used in NPS dwellings. In one case, he notes, a child merely pushed against the glass resulting in broken glass and an almost fatal cut to an artery in the child's arm.

"In my own experience a glass storm door was blown against my elbow by the wind, breaking the glass and covering me with jagged glass fragments," says Nichols. "Luckily I had on a storm coat and only the coat was cut."

Since the majority of park houses are occupied by families with children, unbreakable storm door glazing should be a worthwhile and necessary investment.

Such glass is now available from General Electric. It is Lexan unbreakable polycarbonate sheet glazing. It has been tested by the New York City School Board and by the National Capital Housing Authority, Washington, D. C. In both cases, window breakage has been eliminated.

FLAME-RESISTANT COTTON SHIRT

An improved flame-resistant cotton shirt is now available through GSA. Developed by the USDA Forest Service Equipment Development Center, the shirt was specially designed for firefighters. The firefighters shirt formerly supplied is no longer in stock, and all orders will be filled with the new ones.

New features include sleeves cut for free movement of the arms and improved durability of the elbows. For better protection against radiant heat, the collar can be worn standing, and sleeves can be drawn snugly around the wrists. Buttons are oversized for easy fastening. A fly front protects the buttons against snagging and provides added protection against heat.

There are two large pockets with flaps. One pocket has an inner pencil holder. The shirt can be worn inside the trousers or outside, like a jacket. The new shirts are yellow, because safety engineers find yellow more visible than orange in dark, smoky conditions.

The Center has completed full-size patterns and a specification (5100-0093) covering shirt manufacture. The new shirts are available in four sizes under stock numbers listed for the old shirt in the March 1970 fire (equipment) supplement to the GSA catalog. The price remains \$5.70 each.

(The above was taken from the February 1971 EQUIP-TIPS, USDA, Forest Service Equipment Development Center, Missoula, Montana.)

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MULTIPLE MODULE PICNIC SHELTER

Here's an economical way to provide covered picnic area facilities. It is so designed that any number of additional 20' x 24' units may be combined to give the desired size.

The frames are heavy steel channel primed with red oxide paint. The supports, which enter concrete 28", are 20' on center in the 20' direction and 13' 4" on center in the 24' direction.

The roof panels are 24 gauge galvanized steel deck, 40" wide, 4" deep and 24" long, painted white. Ends have channel shaped fascia, and ridges are fitted with ridge plates. Roof height at valley is 7' 8" and at ridge, 10' 2".

Model SH-1, shown here, costs \$724 for one 20' x 24' basic module, with discounts on quantities. Further information is available from the manufacturer: Sturdisteel Company, Division of Central Texas Iron Works, Inc., Box 949, Waco, Texas 76703.

UNDERGROUND CABLE LAYER

At Pea Ridge National Military Park there was a need to lay 2,300 feet of underground cable (three wires) to a wayside station. A commercial estimate for the job was \$1150. Caretaker Elbert F. Raymer, Jr., and Russell W. Walker constructed the cable layer shown here from material around the shop and did the job for about \$444.

A thrifty subsoiler was used as the basic unit and to it was attached a 5' piece of

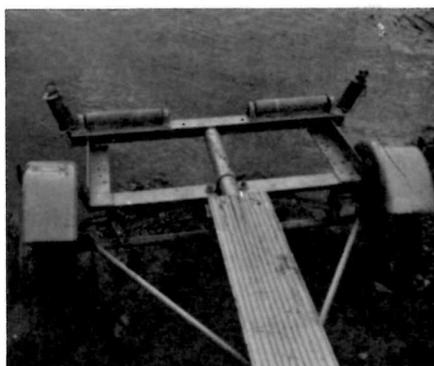


JON BOAT LAUNCH AND RECOVERY SPEED-UP

This boat trailer modification devised by Thomas D. Mulhern, Jr., superintendent, Horseshoe Bend National Military Park, not only will permit faster launching and recovery of boats but will make the operation possible in less than two inches of water.

Remove from the trailer the carpeted skids or bunkers and, if it has a pipe extension with roller extending rear of the wheels, remove this also. Obtain two rubber-covered rollers from the wringers of an old hand-type washing machine. Mount them at the rear of the wheels (see photos) either in homemade bearing of hardwood or in holes drilled in angle iron which has been welded or bolted to the frame.

For launching, the trailer does not have to be backed into the water, only to the water's edge. The boat rolls off the trailer instead of having to be floated or dragged off. To recover the boat, the trailer is backed to the water's edge then the bow is lifted onto the rollers and winched up.



used 1" pipe. A 4' section of 3/4" pipe was placed on wooden blocks bolted to the tractor fenders, making it possible to carry three spools of wire at one time. Photo A shows now the spool support is attached to the tractor fenders. The guide-pipe for the wire is simply bent to conform to the subsoiler and properly positioned to lay the wire. Photo B shows three wires being laid at the same time and



photo C shows how little the turf is disturbed in the process.

You'll need the following materials:

- 5 feet of 1-inch pipe
- 4 feet of 3/4-inch pipe
- 2 flat iron straps, 3/16" x 1 1/4"
- 2 wooden blocks, 2" x 6" 10"
- 4 bolts, 1 1/2" and 4 bolts, 2"

CHLORINE RESIDUAL ANALYZER AND MONITOR

Municipal, State, and Federal pollution control agencies are emphasizing round-the-clock, instrumented proof of chlorine residual in water and in waste water treatment plants. Capital Controls Company announces a system for this purpose, the new CAPITAL RR Chlorine Residual Analyzer and Monitor. This system, the result of experience gained in the design and manufacture of ADVANCE^R Gas Chlorinators, incorporates a new precision analytical instrument, the Analyzer, and a strip chart recorder which uses no ink and will run for 30 days before requiring



a paper refill.

The Analyzer makes readings in seconds and uses a unique and automatic self-scouring mechanism to keep the instrument's electrodes at a constant level of cleanliness, eliminating problems of corrosion and instrument drift. Accuracy is said to be plus/minus 4 percent. The electrical signal is sent directly from the Analyzer to the Recorder—no intermediate amplifier to malfunction.

The CAPITAL RR is designed for wall mounting, preferably indoors, and access is through the front of the unit. The complete unit is mounted on a panel (15" x 15" x 6") which takes less than two square feet of wall space. Installation cost is minimal—wall mounting and piping can be accomplished in 30 minutes or less, usually without disturbing existing installations.

The unique design is said to eliminate need for frequent daily checking, and without the drift problem, standardization checks are needed only infrequently.

For more information write for Bulletin 915, Capital Controls Co., Inc., Advance Lane, Colmar, Pennsylvania 18915.

LITTER CATCHER

At Tumacacori National Monument containers for disposition of litter are neatly concealed in plywood units like the one shown in the photo, which was designed by Maintenanceman Joseph W. Dexter.

Materials required are:

- 4 pc. - 5/8" plywood, 24" x 27"
- 1 pc. - 5/8" plywood, 27" x 27"
- 4 pcs. - 2" x 4", 33 inches long
- 108 inches - 3/4" L molding
- 4 each - steel dowel, 3/8" x 4"
- 24 feet - 1" x 4"
- 24 feet - 1" x 2"

Make the frame, using four 2 x 4's, and place the 4 pieces of plywood around it. Construct the cover, using 1 piece of plywood and four 10-inch pieces of 2 x 4 into each of which holes have been made to insert the steel dowels. Make a lip with 1" x 4" at the top of the can holder. Place molding around the outside edge of the



plywood top and finish side edges of can holder. Finish around bottom and re-enforce bottom side of top with 1 x 2's. Drill 1/2" holes in the frame 2 x 4's into which the doweling in the cover will fit. Paint the desired color.

The unit shown here was made to house a 32-gallon garbage can, but size may, of course, be adjusted to fit your needs. Materials cost about \$15, and construction required ten hours.

JUNIOR RANGERS ENLISTED IN LITTER CLEANUP

A program to arouse awareness of the litter problem and enlist cooperation among young campers was initiated in District 5, California Department of Parks and Recreation. Junior Ranger patches, complete with California bear symbol and the words, "California State Park System" (see photo), were silk screened on inexpensive felt material. Green and yellow were the only colors used. One square foot yellow felt patches were screened

using green ink, and the patches were cut out quickly with a paper cutter. Smaller bear badges were produced in large quantities the same way.

D. E. Merket, interpretive specialist, District 5, reports that the program was initiated at Morro Bay State Park, Atascadero State Beach, and Pismo State Beach.

At the campfire programs the patches are shown and announcements are made



that for the first 50 aluminum cans or flip tops picked up, a Junior Ranger patch may be earned. After the Junior Ranger patch is earned, whenever 25 or more flip tops, cans, or gum wrappers are brought in, a small bear badge is awarded. Only one Junior Ranger patch may be earned, but any number of bear badges can be worked for. Children are put on their honor to pick up only litter and not to raid trash cans.

The program started in July 1970 and within two weeks the response was tremendous. Activity in the campground by children searching for litter was remarked upon by adult campers and rangers. Litter disappeared fast in the camp area and on roads leading into it. Extra trash barrels had to be installed near the collecting point for the Junior Rangers.

The district is now working on a Junior Ranger card to be given with the first patch. The card will pledge the holder to leave the park in a better condition and will certify that the holder earned his Junior Ranger patch.

ASPHALT TEMPERATURE GAUGE

Because the temperature of asphalt is a critical factor in its application, Paul A. Riley, equipment operator, Shenandoah National Park, had the idea to install a water temperature gauge on an asphalt distributor.

The gauge is mounted just below the hatch and is visible from the operator's side of the distributor. The probe wire extends from the gauge down the inside, and the sensing element lies on the bottom of the distributor.

Paul's suggestion takes the guesswork out of "shooting" asphalt.

Speaking of Interpretation

PUSH AND SEE—WHO EATS WHAT?

Ever wonder what a bobcat eats for breakfast? Is a turtle a vegetarian simply because he can't catch anything that moves? Does an earthworm whet the appetite of a passing mole?

Questions such as these are answered in seconds on a lighted forest food chain board located in the Employee's Recreation Building at Tennessee Eastman Company in Kingsport, Tennessee. Buttons and lights are positioned next to pictures of typical forest inhabitants and the foods they eat. (See photo.)

You may obtain from the National Audubon Society, 1130 Fifth Ave., New York, N.Y. 10028, chart O, "Forest Food Chains," which gives the information needed for the board.

Wiring behind the 2' x 3' piece of tempered masonite was done on two Keystone vector boards, number 1733, using 1498 CP clips to hold the diodes. A heavy duty 12-volt battery provided power to a series of .12 amp miniature bulbs. The T3 1/4 bulb with bayonet base was set in a Dialco 91-0410-0931-101 socket with cap. Switches used were Switchcraft 101 SPNO. (See wiring diagram.)

A numerical listing of all animals and birds which were to go on the board and their corresponding food items determined the number of diodes required. When clips were mounted to accommodate the diodes, they were tied together at an anode end. This end was then connected to the side of the lamp indicating a food

item; the other end was connected to one side of the appropriate animal bird switch.

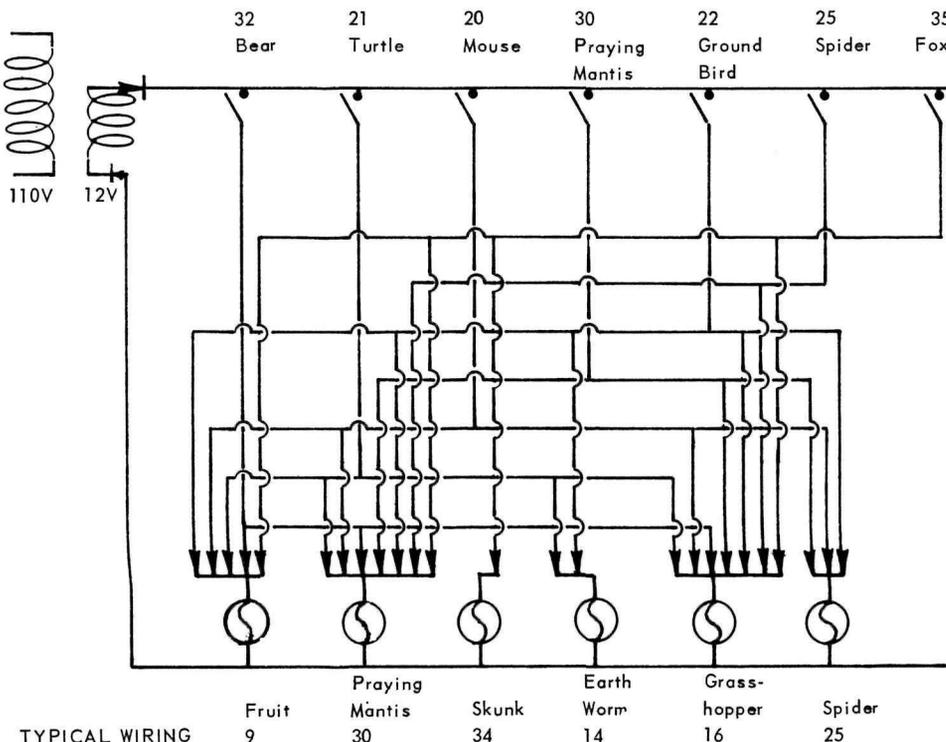
Wiring can be simplified if each anode group is labeled "Eaten" and a notation made on the other end of each diode of the number of the "Eater". All similar "Eater" numbers are wired together on the back of the vector board and affixed to a terminal strip which requires only one lead to the switch. The other contacts on the switches are wired together with a lead as the connector to the positive terminal on the battery. The other contacts on the lamps are wired together and connected to the negative battery terminal.

Each circuit can be easily traced if color coded wire is used. Wire of this

type is available at telephone maintenance offices. The forest food chain board makes use of 39 separate wiring color combinations.

Because of the popularity of the food chain board, a check on the battery power drain indicated that a bell-ringing transformer be wired into the line, replacing the battery. An M2.5A Mallory diode with the anode toward the switch was wired on one terminal. On the wire from the lamps, the anode was toward the transformer terminal. Twelve-volt taps were used.

A sheet of clear Uvex plastic protects the face of the board. Holes were cut to permit use of the switch and to simplify lamp changing. Wiring on the back is visible through a solid sheet of clear



Uvex (Eastman Kodak registered trademark) plastic.

R. D. Delius of the Tennessee Eastman Recreation Club, Box 511, Kingsport, Tennessee 37660, who supplied this information says that the fascination of pushing a button and watching the lights come on has made the food chain board a popular addition to the recreation program.

INEXPENSIVE REAR PROJECTION SCREEN

There wasn't any more "give" in the budget when at Pinnacles National Monument they needed a rear screen projection assembly for an off-site exhibit. Chief Park Naturalist Robert C. Zink improvised and saved a chunk of money.

A 40" x 40" commercial screen for the assembly which Bob designed would have cost about \$95. For \$1.50 he bought two yards of 48", one-side frosted .007 (thick) engineering tracing plastic. This he stretched across a frame, stapled it down, and covered the raw edges with filament tape.

The plastic can be obtained in 36" and

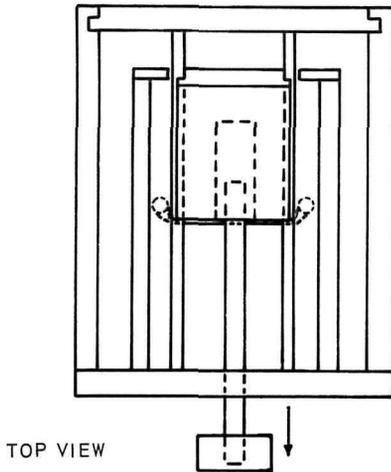
Speaking of Interpretation

**ONE-AT-A-TIME
MINIFOLDER DISPENSER**

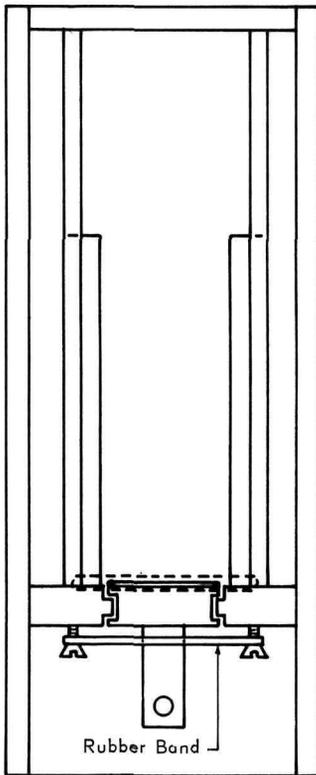
When visitors to the Statue of Liberty National Monument (like visitors everywhere) see a stack or rack full of attractive folders their thoughts seem to go right to all those folks back home who would like one, so everybody in the family takes a handful for Grandma, Uncle Zach, and Cousin Mabel. The visitor-to-folder ratio rises to an unacceptable level. So—what to do about it? Supervisory Park Ranger Donald J. Colville designed a holder which dispenses one folder at a time.

The design is attractive, compact, and provides the visitor with one folder by pulling a knob. Simplicity is its key feature, and it can be made from plywood in a surprisingly short time with simple tools. It has only one moving part, the carrier return “mechanism” (the only part ever likely to need replacement) which is an ordinary rubber band. A prototype was built, tested, and found to work without a problem. The dispenser was designed for countertop use, but by making one minor change it is easily adapted for wall mounting.

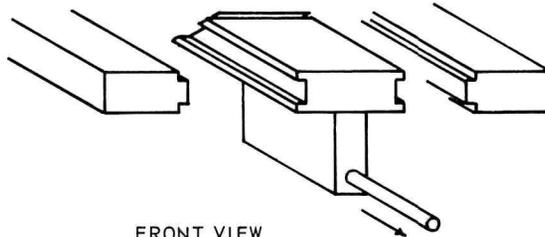
The heart of the unit is a grooved wooden block with an adjustable “blade” mounted on the back (see drawing). The block moves



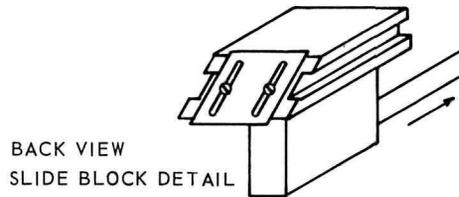
TOP VIEW



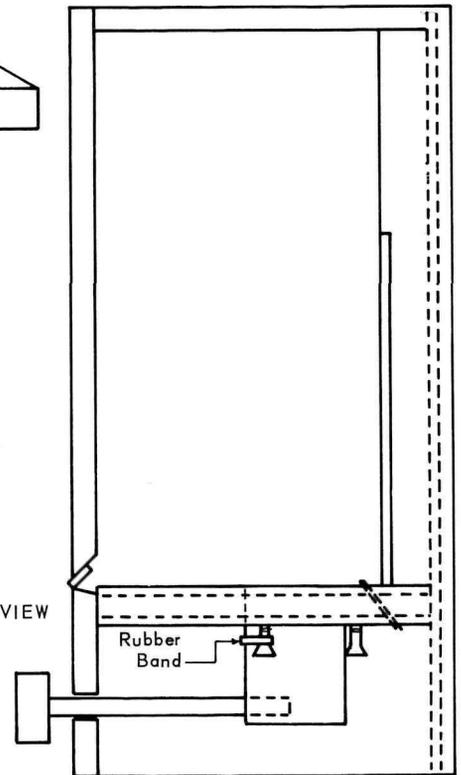
FRONT VIEW



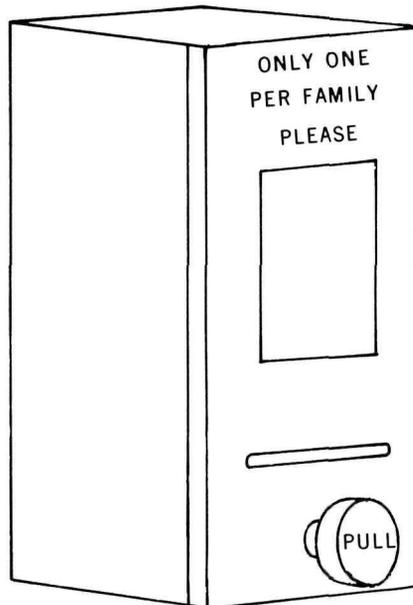
FRONT VIEW
SLIDE BLOCK DETAIL



BACK VIEW
SLIDE BLOCK DETAIL



SIDE VIEW



ASSEMBLED DISPENSER

48" widths from some commercial suppliers who cut standard rolls for small sales, or from art supply houses, or possibly from your Design and Construction office. Bob has since learned that the plastic is now available with both sides frosted, and he recommends its use to eliminate the possibility of reflections from the one shiny surface.

The quality of the pictures is most acceptable and Bob recommends use of the frosted plastic to any area needing short-term or intermittent-use rear screen projection.

forward when the operating knob is pulled, and the “blade” pulls one folder forward through a dispensing slot on the face of the box. When the knob is released the rubber band returns the slide to the ready position for the next operation. The prototype, designed to hold 400 folders, measures 6" wide, 7 3/4" deep, and 15 1/2" high.

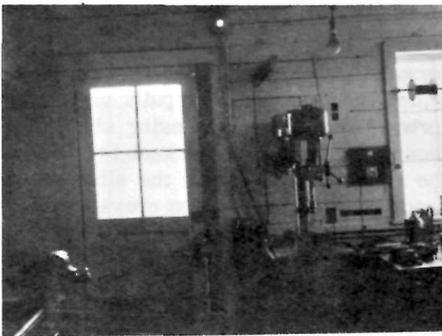
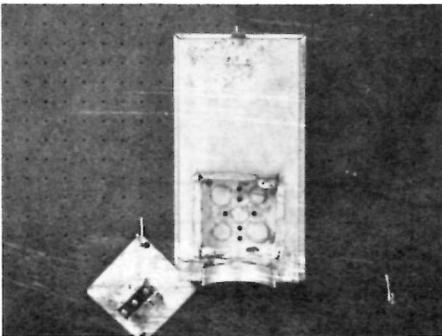
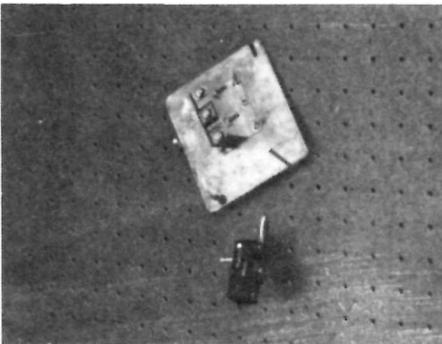
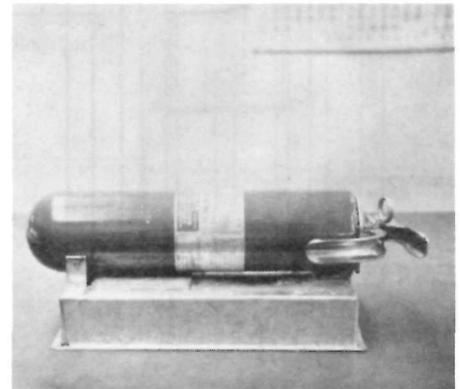
The height of the “blade” on the slide block is adjusted by means of two set screws. It can be set to proper height for any minifolder thickness by loosening the set screws, moving the “blade” to the desired height above the block and re-tightening the screws. Once properly adjusted and set, there is no need to touch it again.

FIRE EXTINGUISHER INDICATOR AND ALARM SYSTEM

After several inspections of shops and other buildings in Yellowstone National Park, Maintenance Foreman William E. Hape noticed that in many cases fire extinguishers were not visible because of objects or materials piled in front of them, others had been removed from their hangers and not replaced. He found, too, that on routine night inspections it was impossible to find many of the extinguishers in dark rooms or in buildings filled with smoke unless a person knew the exact location. Another serious situation existed. Several times fires have started and been extinguished on main floors unknown to employees working in overheads

box a cradle was constructed to hold the fire extinguisher in such a position that it would apply pressure to the micro switch. The micro switch was wired to a keyless porcelain receptacle placed approximately

8 feet above the floor (depending upon ceiling height) (see photo 3). This receptacle was fitted with a 15-watt red bulb. A single warning circuit was connected in series to all extinguisher stations,

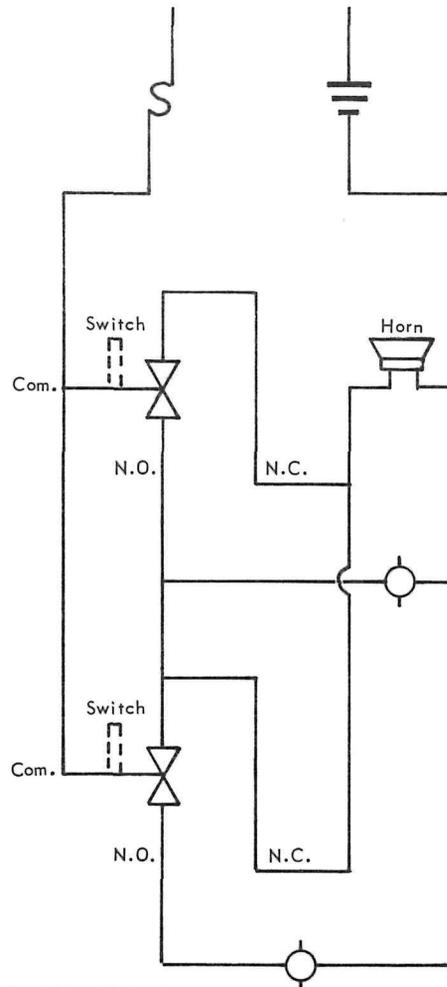


MATERIAL LIST

1. Fused Switch
2. Horn, Circuit Alarm
3. Two Micro-switches, Single Pole, Double Throw
4. Two 4" Octagon Conduit Boxes
5. Two 4" Porcelain Keyless Receptacles
6. Two 10 Watt Red Bulbs

which were in turn connected to a single alarm horn.

Any time an extinguisher is removed from its hanging position, the small red light located above the extinguisher goes out and the alarm sounds, alerting all employees in a shop or area that a fire extinguisher is in use. In case of fire, employees can tell from the extinguished lights which fire extinguishers are in use, and they can then go to the stations where the lights are lit to obtain available extinguishers.

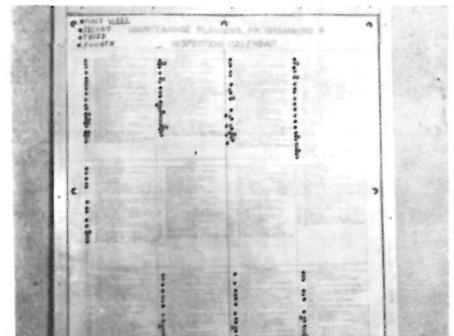


WIRING DIAGRAM

COLOR-CODE YOUR MAINTENANCE CALENDAR

Color minimizes the time required to keep up-to-date the Maintenance Planning, Programming, and Inspection Calendar at Natchez Trace Parkway. The suggestion of Foreman John D. Herring, Jr., also makes it possible to get the maintenance picture at a glance (see photo).

Tacks with colored heads about the size



of a kitchen matchhead are used. There is a color for each week in the month: red denotes the first week; green, the second week; yellow, the third; and blue, the fourth. A fifth color is used for any job not done in the month it was listed for accomplishment. Looking back to a previous month, the fifth color quickly gives the message that that job is overdue.

or storage areas who could have been trapped without warning.

Bill had an indicator and warning system installed (as shown in the photographs and wiring diagram). At each fire extinguisher station a metal box was installed (photos 1 and 2), each box housing a 4" octagon conduit box and one micro switch single pole double throw. On the outside of each

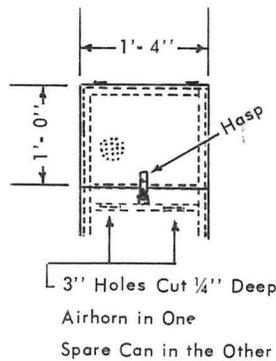
RESCUE BOAT AND ALARM SYSTEM

Director R. H. Ahrens, Department of Recreation and Conservation, Parks Br., British Columbia Province, Canada, sends information about the rescue boat and alarm station which is in use on the beaches of their Provincial Parks.

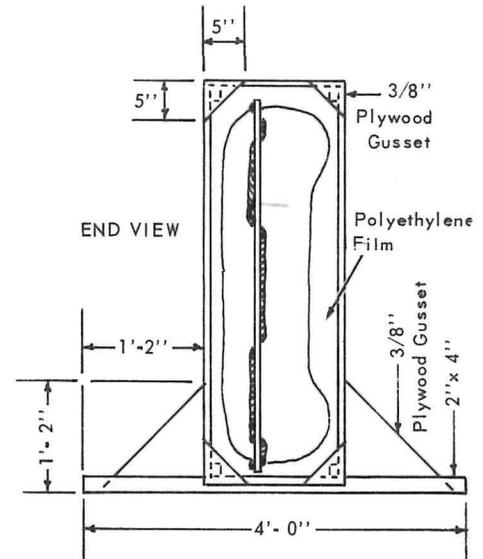
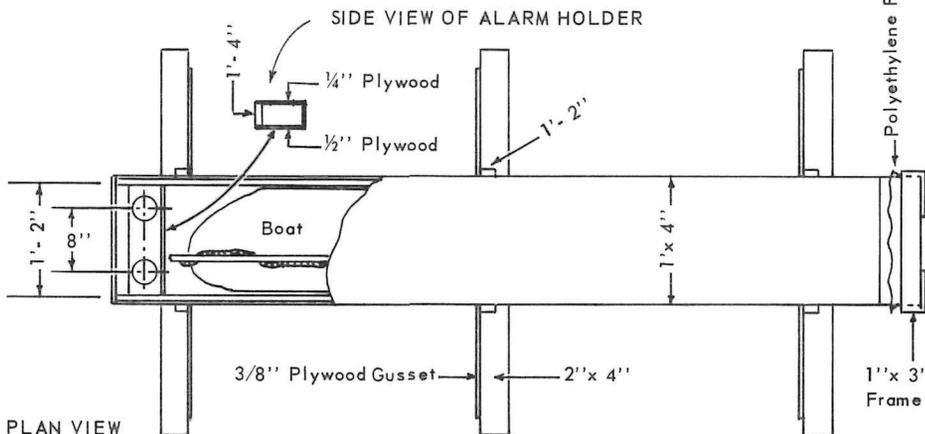
The plywood container, as you can see in the photos, contains a plastic boat. The Sportyak was chosen because of its light weight (under 40 pounds) to permit its being lifted or dragged to the water by one person. Its construction makes it unsinkable, and its low freeboard allows easy

flagging tape has proved most satisfactory for this purpose). The open end of the container is covered by polyethylene film to deter tampering with the boat.

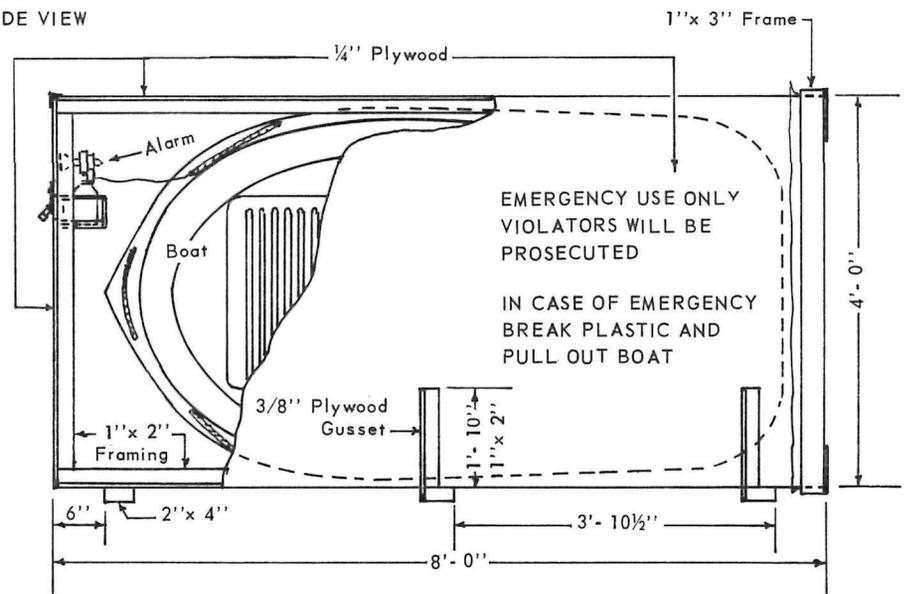
When the boat is withdrawn from the plywood container, the air horn is set off, thus alerting the public and park attendants to the emergency. The alarm has also proven useful in preventing unauthorized use of the boat. Access to the air horn is only through a locked door in the rear of the container.



DETAIL OF ALARM DOOR



SIDE VIEW



boarding by a person in the water. An air horn of the aerosol type is attached to the boat with a light lanyard (plastic survey

PROTECTION FOR BUOY LIGHTS

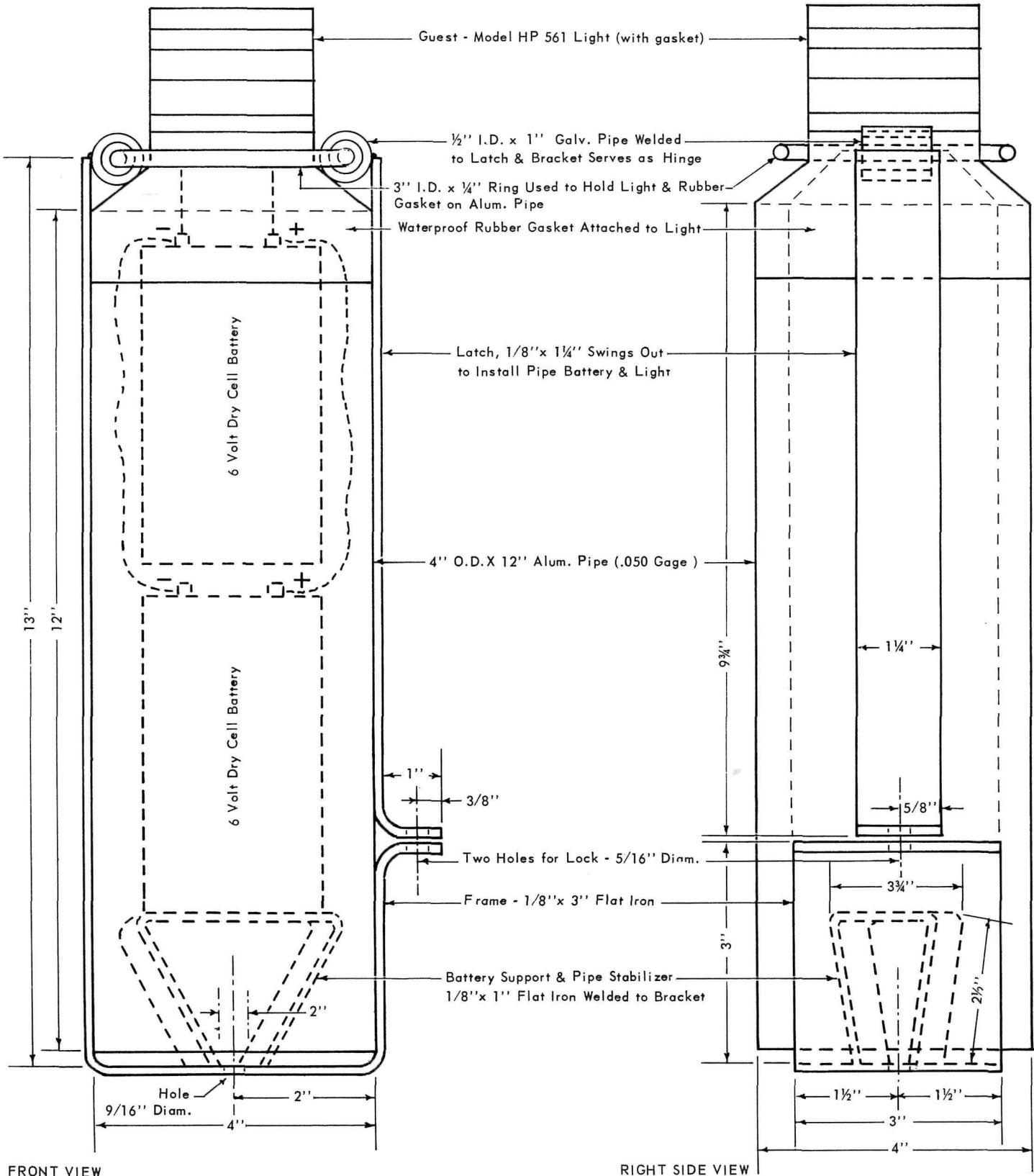
From the Operations Division, Civil Works, Office of Chief of Engineers, Department of the Army, comes information about a device to protect light buoys. Lester Sutphin, Reservoir Manager, John H. Kerr Reservoir (Virginia and North

Carolina), designed the device which has proven effective against vandalism.

A plastic case without locking devices which had been in use was subject to considerable vandalism. The improved device shown here was put into use in

1969 and none have been damaged since. The saving at the reservoir, where they have forty light buoys, has amounted to about \$500.

Following is some information to supplement the drawings and specifications.



FRONT VIEW

RIGHT SIDE VIEW

MERCURY IN OUR MACKEREL

It is not only tuna that has too high mercury levels, and it is not only mercury that is threatening fish and human life. Coastal waters and the seabed are infested with pesticides, metals, and other toxic pollutants in such quantities that, unless checked, they could possibly kill people, according to the results of a study sponsored by SPORTS ILLUSTRATED and reported by Bob Boyle in an October issue.

The study reveals that poisonous chemical compounds in the flesh and eggs of some of the most popular saltwater sport fishes have reached levels that are alarming to health authorities and fishery biologists. Specifically, sea trout from Louisiana, striped bass from California, and Spanish mackerel from South Carolina contain more mercury than the 0.5 ppm (parts per million) allowed by the U.S. Food and Drug Administration in fish sold for human consumption.

The reproductive process of at least four fish populations may be threatened by high residue levels of chlorinated hydrocarbon pesticides in their eggs. There are high levels of DDT residues (a combination of DDT, DDD, and DDE) in

eggs of striped bass from California, from the Hudson and Rappahannock Rivers, and in eggs of bluefish caught off the coast of South Carolina. Moreover, eggs of California and New York bass have high residues of PCB, an industrial compound which has escaped into the environment by accident.

Boyle points out that, disturbing as are the findings, this study is just a first effort. Nationwide monitoring programs of more samples are needed to determine the presence and levels of contaminants in wildlife and how much contaminant is harmful to all species, including humans. He also urges research on the ecological side effects of new pesticides coming on the market.

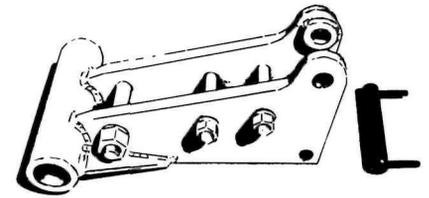
Another point made by Boyle is that salesmen for pesticide manufacturers, although they deal with extremely complex ecological problems and deal in some of the most deadly and ecologically disruptive chemicals devised by science, are not required by law to demonstrate qualifications nor are they licensed.

Government officials, Boyle feels, must enforce antipollution laws and be on guard against spread of possible contaminants, but that in the long run enforcement will depend upon public opinion.

ADAPTER FOR FIRE PLOW USE WITH VERTICAL LIFT HITCH

An adapter is now available which makes possible the use of the Sieco (Southern Iron and Equipment Company) medium fire plow with the vertical lift hitch. When fitted with the adapter, a change from Forestland Tree Planter to Sieco Plow can be made in a matter of minutes, involving only the tilt cylinder and horizontal implement pins.

The vertical lift hitch has been modified to provide towing capability. It can be used with towed fire plows, such as Mathis, Hester, and others equipped for hydraulic control.



The adapter provides a hitch point for the hydraulic tilt cylinder. After initial installation, the plow can be detached from the vertical lift hitch by removing the tilt cylinder pin and the horizontal implement pin. The adapter is identical to the Forestland Tree Planter drawbar, so a change to either unit can be made quickly. Installation required removal of the stops on existing plows; bolt holes match those in the drawbar, so no drilling is required.

To use the vertical lift hitch for towed implements, it is necessary to pull the king pin and remove the lateral control cylinder and bracket as well as the implement tilt cylinder. Hydraulic lines which normally control the implement tilt cylinder are used to actuate the implement hydraulic system. The hitch carriage must be secured and the king pin lowered to serve as a drawbar pin. No shop facilities are required to make this change-over, but it does take about 20 to 30 minutes.

The information given here is from the October 1970 issue of EQUIP-TIPS, published by U.S. Forest Service, Equipment Development Center, 444 East Bonita Avenue, San Dimas, Calif. 91773.

The adapter may be purchased from Southern Iron and Equipment Co., Chamblee, Ga. 30341. Cost, about \$100.

NON-SLIP TREADING FOR VEHICLES

Howard L. Maiden foreman III (R&T), Shenandoah National Park, has suggested non-slip treading on vehicles as a safety precaution. The flexible material is installed on running boards of trucks, on top of rear bumpers of pickups, and other places where employees are likely to place their feet when climbing in or out of vehicles.

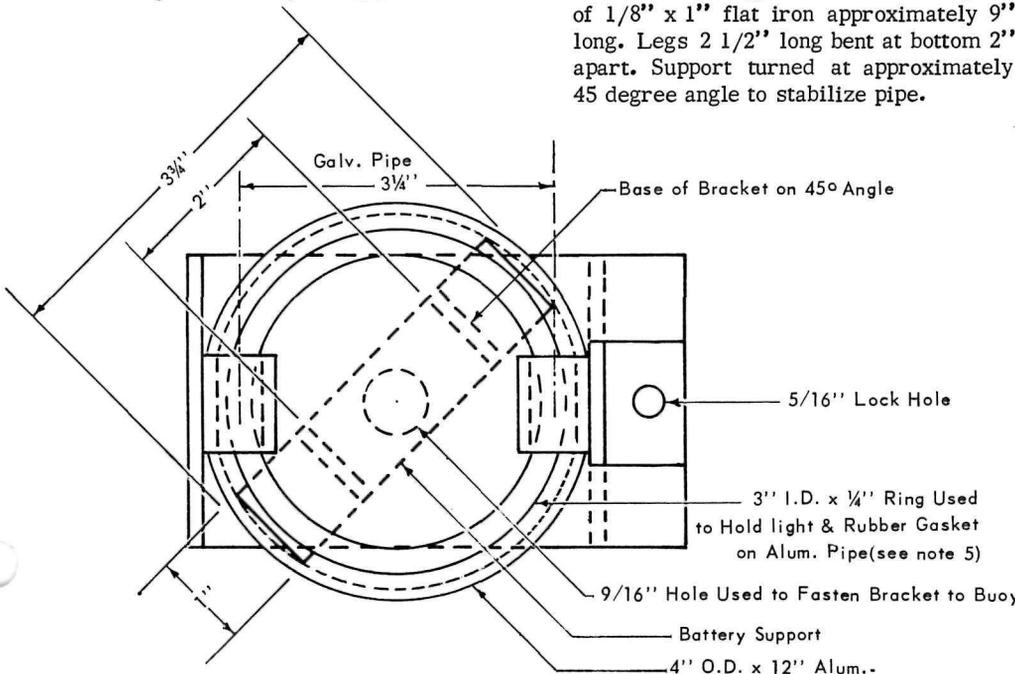
NOTES:

1. Two 6-volt batteries hooked in parallel () to () to lengthen life of the light.
2. Foam rubber may be needed to cushion batteries inside cylinder.
3. Four inch aluminum cylinder was cut from piece of irrigation pipe.

4. Rubber gasket will stay on aluminum pipe better if the end is flared.

5. Ring formed from piece of 1/4" cold roll steel rod, approximately 11" long, passed through galvanized pipe hinges, then ends are welded to complete ring. (5/16" rod may be used instead of 1/4" rod.)

6. Battery support formed from piece of 1/8" x 1" flat iron approximately 9" long. Legs 2 1/2" long bent at bottom 2" apart. Support turned at approximately 45 degree angle to stabilize pipe.



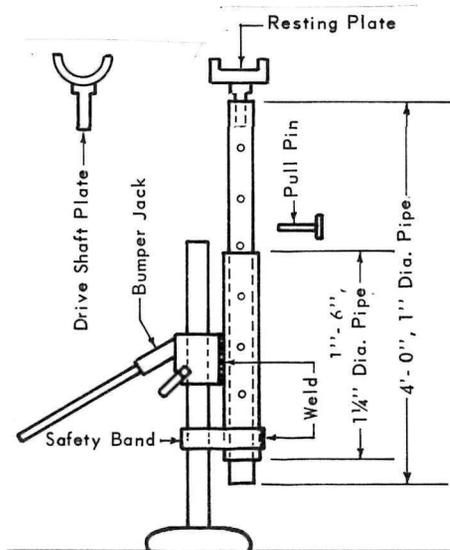
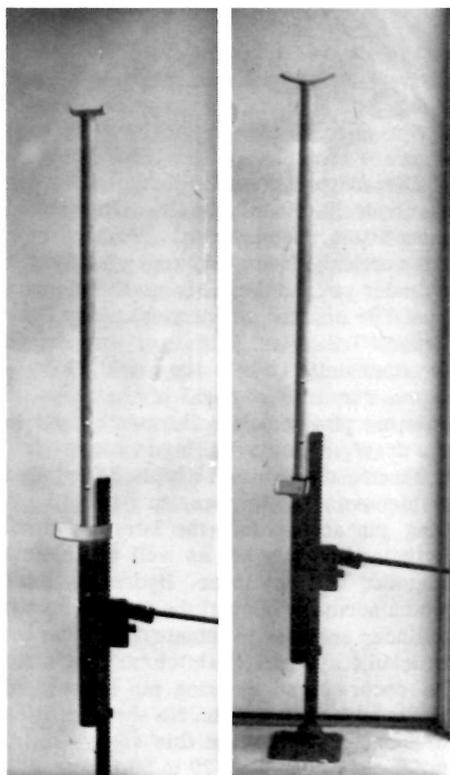
TOP VIEW- WITHOUT LIGHT, RUBBER, GASKET, & BATTERIES

ONE-MAN ENGINE SUPPORT JACK

Hammond E. Skeen, auto mechanic, Natchez Trace Parkway, converted an old bumper jack for use when a vehicle is on a hydraulic post lift. With it one man can do jobs which formerly required two.

Weld a 1 1/4" pipe approximately 18" long to the lift of an old bumper jack. Drill holes in this pipe at 6" intervals. In another piece of pipe 1" in diameter and 4' long (this can vary according to lift height), drill holes 6" apart to line up with the drilled hole in the 1 1/4" diameter pipe. Make interchangeable resting plates from 3/4" diameter pipe for different jobs.

The jack is being used at Tupelo maintenance area to support the engine



for removal of the transmission or clutch assembly; to support the body for removal or rear wheels; to support the drive shaft when replacing center bearings, removing and replacing gas tank; and for many other jobs.

Using an old bumper jack and old pipe, the adaptation can be made for about \$2.

PREVENTING BUILDING BREAK-INS

Is there any simple way to keep people from breaking into locked buildings? Believe it or not, Ed Fahey, senior park manager, Cherry Creek Recreation Area, Colorado Division of Game, Fish and Parks, says that they have kept break-ins down with the following short notice.

ATTENTION ALL EMPLOYEES:

Be sure to disengage ALARM system

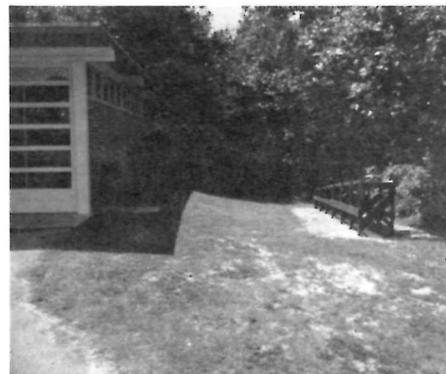
BEFORE inserting the key.

The notices were just typed on a standard typewriter and fastened to the door window.

IMPROVED FIRE HOSE MAINTENANCE

Headquarters firehouse at Natchez Trace Parkway has 3,300 feet of firehose (structural and forest) worth \$2,300. Proper care of it was almost impossible for several reasons. The only places to wash the hose were either the firehouse floor or the macadam apron in front of it, and neither one was suitable because of oil residue which was damaging to the hose, abrasion of the hose, and the uncomfortable necessity to scrub on hands and knees. Also there was no drying tower, which would have been too expensive to construct.

Proper maintenance requires that the hose be gently scrubbed with mild soap or detergent and rinsed well after each field use. At least quarterly, the hose should be stretched out and water run through each section to preserve the lining. Proper drainage, as well as exterior drying, is vital to hose life. Improper drainage can lead to formation of sulfuric acid which causes cracks and weak spots—even a small amount of water in the lining will cause problems. Improper drying of the jacket can lead to mildew and mold or rot in a very short time. Exposure to direct sunlight or to surfaces (concrete, pavement, etc.) with excessive heat build-up must be avoided because it will crack and dry the rubber lining, making the hose unserviceable. Drying on an incline is not adequate because all the water cannot drain (due to hose collapse) and because proper air circulation must be maintained for exterior drying. This kind of maintenance to protect the sizeable investment



Wash rack in relationship to the fire house.



Wash rack

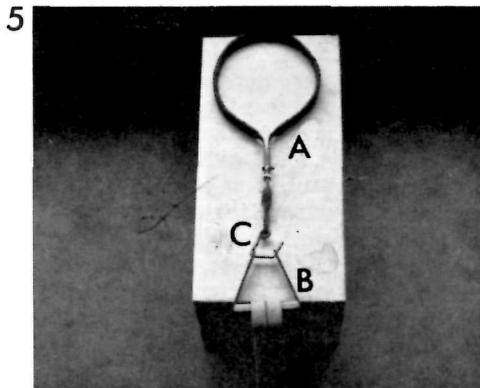
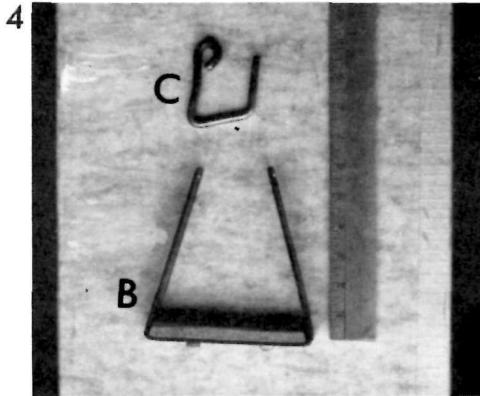


Drying tree 100 feet behind fire house.

in hose was needed and not being achieved.

Fire Control Aid Vester E. Sample designed the washing-drying-draining facility shown in the photographs. Near the firehouse is the wash rack (photos 1 and 2) built at comfortable height for scrubbing the hose. It was made from scrap lumber. Instead of building a drying tower, a large oak tree was selected at the rear of the firehouse in the woods and away from public view. A large limb about 28 feet from the ground was used to provide a support for the hanging hose. (See photo 3.)

The hose hanger (photo 4) was made



A. Attachment bracket covered with rubber inner tubing.
 B. Hose hanger with pine wood insert.
 C. Locking pin.

from scrap strap iron with a pine wood insert for the hose to pass over (hose is placed slightly off center to prevent the couplings from striking together). The bracket for attachment to the limb (photo 5) was also constructed from scrap strap iron and covered with used rubber inner tubing to prevent damage to the limb. The hanger is attached to one end of the pull rope which passes over a pulley (attached to the limb bracket) and back to the ground. One man can take a section of hose, insert it over the hanger, then raise it by himself. There is a hitch rail (photo 6) near the base of the tree with pegs around which to loop the polypropylene rope to secure it.

Hitch rail

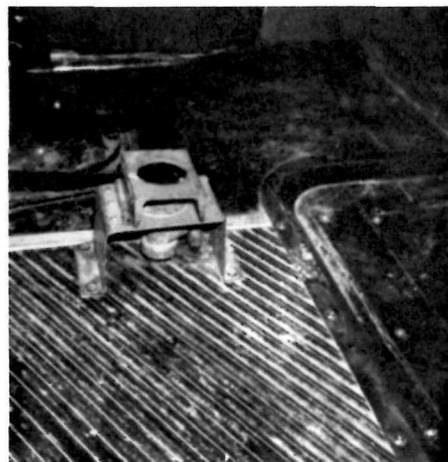
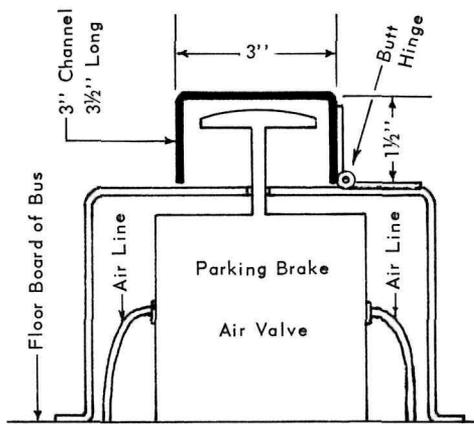


This method has been in use for two years and Vester says that it has achieved total drainage, exterior drying away from direct sunlight, and has resulted in about a 66 percent saving in hose replacement.

SAFETY COVER FOR BRAKE PARKING VALVE

The International 1700 loadstar buses used by Job Corps at Cumberland Gap National Historical Park have a safety hazard in the location of the parking brake air valve, which is extremely sensitive. It is located to the right of the driver's seat in the bus aisle. A slight touch of a passenger's foot, or a light object falling on it, while the bus is in motion would apply the parking brake, causing the wheels to lock immediately. The potential for a serious accident is obvious.

After an incident in which some corpsmen came dangerously close to touching the valve during a bit of horse-play,



Maintenanceman Eugene Miracle made a safety cover for it (see sketch).

He used a piece of 3" channel iron about 3" long with a hole cut in the top to allow driver access to the valve. This was hinge-mounted to the air brake valve bracket, allowing full access to the valve when necessary. The protective cover was painted red.

DOUBLE-DUTY DOOR SAFETY MEASURE

Elloween M. Saunders, clerk, Badlands National Monument, had at least two reasons to be conscious of the hazard of

glass doors. A little boy walked into the glass door of the new visitor center, bumped his head, but was not seriously injured. In the other case, however, a good friend's daughter walked into the glass door of a bank building, a piece of glass pierced her heart.

Elloween didn't lose any time doing something about that glass door. A "Prevent Range Fires" poster placed on one side serves as a warning that the door is there and also gets in another word about the dangers of range fires.

LIGHT WEIGHT FIRE HYDRANT COVERS



Fire hydrants in park housing areas at Horseshoe Bend N. M. have iron covers weighing 136 lbs which are a hazard during removal and replacement. A park wife would be the most likely person to respond to a fire in the housing area, so the difficulty of removing a lid would in most cases be greater, if not impossible, and the hazard compounded.

Bennie V. Moran, maintenanceman, pointed out the hazard and suggested a way to eliminate it. He used the metal cover as a pattern to cut one from 3/4-inch marine plywood, which he then "copper-toxed" to further resist weathering. This lighter cover, with metal handle attached weight only 9 pounds.

FIRST AID SUPPLY SOURCE

From A, for adhesive bandages, to T, from Tammi the life saving manikin, you'll find just about any type of first aid item you are looking for in the catalog of Uni/Flex Medical Supply Company, Rockford, Illinois 61101.

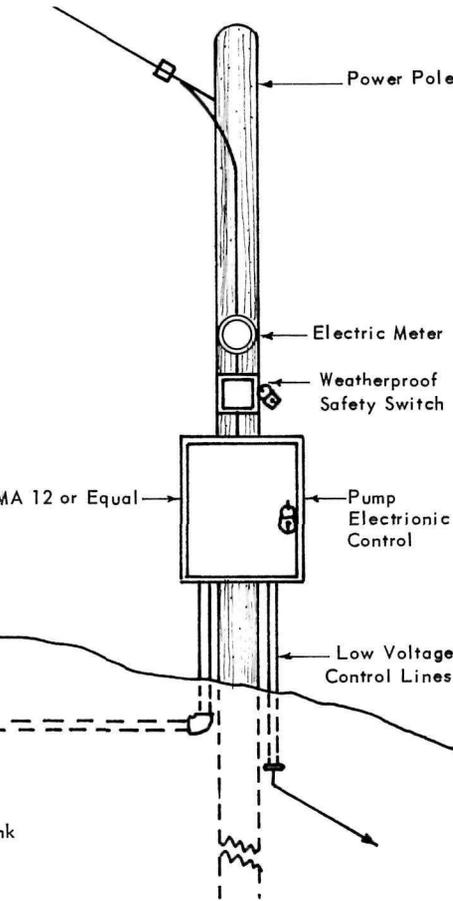
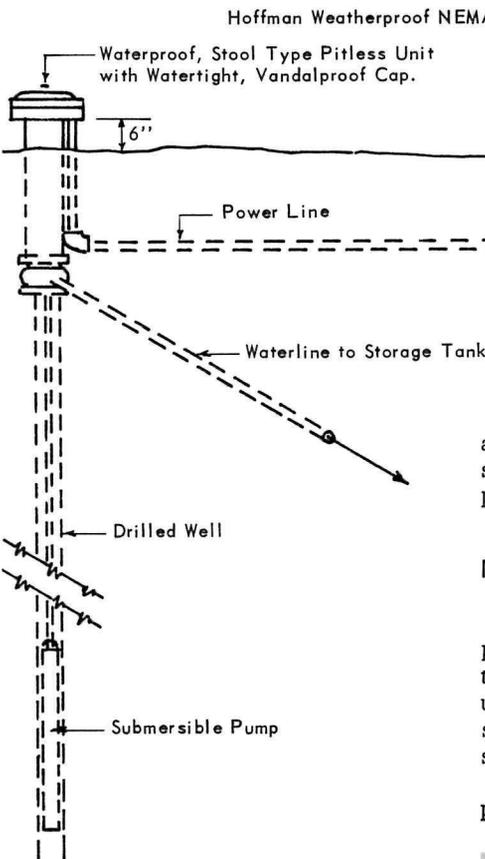
This company specializes in first aid supplies and you'll find black widow spider killer; poison plant first aid; a wide variety of first aid kits; breather for mouth-to-mouth resuscitation; compact, light weight, transparent, like-keeper blankets; and much more.

POLE-MOUNTED HOUSING FOR SUBMERSIBLE WATER PUMP

Many wells along Blue Ridge Parkway are located near the motor road too far from existing buildings to permit economical indoor control mounting, and erection of a standard pumphouse building is often not desirable.

Glenn W. Richie, electronic technician, proposed a pole-mounted housing unit consisting of custom designed and fabricated, grouped electronic control and electric supply panel to be used with a pitless sanitary wellhead (see sketch).

All materials are obtainable from electrical and plumbing supply houses.



average pumphouse, \$516. Maintenance savings he estimates at \$535 for a 10-year period.

MINIATURE OIL DISTRIBUTOR

Production and job quality can be improved when applying hot oil to walks, trails, and other close-quarters areas, by using the miniature oil distributor designed by Mayo O. Zabriskie, maintenance supervisor, Badlands National Monument.

A Bendix truck-type air compressor, powered with a Briggs and Stratton 3 HP



motor was attached to a 45-gallon tank mounted on a small trailer. Ten feet of 1-inch hose with a spray nozzle was attached at the rear and bottom of the tank.

This unit is towed by a 7 HP lawn mower tractor and works on grades up to 20 percent without difficulty.

Construction was from salvaged parts except for the pressure tank which cost \$35. Total cost, including design time, was about \$65.

A safety hazard has been eliminated since hot oil is no longer carried in buckets, the cost of sealing and chipping trails has been reduced by an estimated 150 percent, and the amount of trail sealed per day has been increased.

RESUSCITATION TRAINING URGED

Irreversible brain damage will occur within four to six minutes after heart stoppage. External cardiopulmonary resuscitation has proved to be of such value when respiration and functional circulation stop as a result of an accident, heart attack, or shock that more and more non-medical groups are being given training in the method. Given these facts, Edward Hummel, assistant director, National Park Service, recently issued a memorandum to all field directors encouraging all National Park Service personnel whose jobs bring them into frequent contact with the visiting public, especially personnel in isolated areas, to avail themselves of training opportunities when offered by qualified organizations or individuals.

Two organizations now offering courses in external cardiopulmonary resuscitation are the American Heart Association (local chapters) and the National Highway Safety Bureau. The latter's course is titled, "Immediate Care and Transportation of Sick and Injured." Refresher courses should be taken semi-annually in order to keep the techniques fresh in the minds of all trained personnel.

THE SURVIVAL KIT



by Jim Burnett