

PRACTICAL IDEAS...here's the trading post for your



How Good Charging Methods, Maintenance Stretch Battery Life

LIFE RECORD of 62-cell battery installed in 1918—35 years ago—in Blue Island, Ill. station of Public Service Co of Northern Illinois, shows how good charging methods and maintenance can stretch battery life.

First 12 years, this battery was recharged by "cycle charge" method recommended at that time. Beginning in 1930, battery has been charged by "float charging," preferred at present.

Since installation, battery has received a 4-step maintenance inspection:

(1) Voltage of each cell is checked

every three months. (2) Overall voltage of entire battery is checked daily. (3) Periodic check is made of panel meter against a standard meter. (4) Specific gravity of each cell is checked monthly.

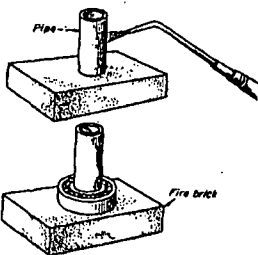
Written record is kept of all points checked. Deviations from normal are easily caught and remedies immediately made. Cell repairs are also recorded. For instance, repair records show that in first 15 years, 96 separator repairs were made. This is one separator repair per cell, every ten years. Ever



since the float-charging method has been in use, there's been a sharp decline in number of repairs.

Battery is used for oil-circuit-breaker control, power for indicating lights and emergency lighting. Test in 1941 revealed that battery gave better than 100% capacity, also that only one cell showed any deviation from normal—but not until end of discharge period.

Maintenance department reported in 1942 that battery would give ten more years of service. It's still going strong. Courtesy, Gould National Batteries, Inc.



Expanding Ball Bearing

SKETCHES show quick way to heat a ball bearing before expanding on a shaft. First, take a short piece of pipe that fits inside ball bearing. Then stand pipe on end on a brick and heat pipe with torch. Slip ball bearing down over pipe so it also rests on the brick. Heat radiating from pipe expands bearing. It is then slipped in place over shaft.

H C POOLEY Wilmington, Del.

Make Paper Work Easy

Guys who think paper work is labor, as I do, should make graphs to speed this unpleasant chore. Plot manometer reading against gas flow, for example—and gas-flow or steam-flow efficiency. If an operator can figure quickly just what he is doing, he is more apt to do his best. We have good luck with this visual method of speeding work.

H HOLCOMB Los Alamos, N. M.

operating and maintenance short cuts

STEVE ELONKA, Associate Editor

Keep Your Coffee Hot

COFFEE STAYS right temperature if you keep coffee pot on a steam trap. H HOLCOMB Los Alamos, N. M.

Finding Condenser Air Leaks by Easy Method

FINDING condenser air leaks comes up often, and locating exact trouble spot can take a long time. This fast method works well for checking turbine gland seals and other points in areas that cannot be visually observed.

We used a Prest-O-Lite halide detector. This is a small burner arranged to pull primary combustion air through a tube and into burner. Flame is a pale blue if only air is pulled into burner through suction hose. If small amounts of vapor from carbon tetrachloride enter suction tube, flame turns green.

Torch was developed to detect leaks in refrigerating equipment using organic halides as refrigerant. But since these materials are not always available around a power plant we tried carbon tet. Vapors from this liquid color flame.

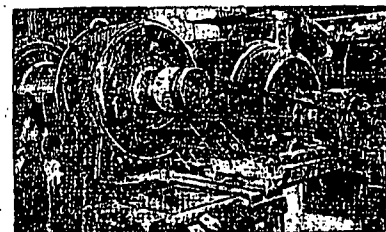
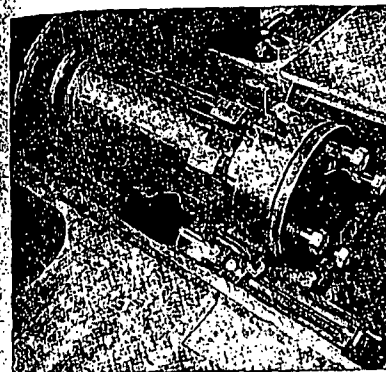
Find condenser air leaks by placing burner where (1) it burns with a small, steady flame (2) suction hose can be placed inside exhaust air line from after-condenser on air ejectors or vacuum-pump discharge line.

If used for first time, test to observe reaction of flame when carbon tetrachloride vapor is present in air entering suction tube. A few drops of carbon tet may be added through the vacuum-breaker valve. After a few seconds, flame on lamp shows a greenish color.

After this experiment, use a pint-size pump oil-can to pump carbon tet on any joint or seal to be tested. With suction tube of detector in air-exhaust line, pump a few drops of carbon tet on a suspected point. Then observe detector flame for 30 or 40 seconds. Greenish discoloration in flame tells carbon-tet vapors are present in air exhaust of ejectors. If carbon tet is confined to a small area or a single connection, you can almost pinpoint a leak. Make double check by waiting for flame to clear. Then use another carbon-tet shot on same area.

Remember, carbon-tet vapors are toxic. Never use unless place is well ventilated. Continued exposure to vapors is dangerous. Brief persons using this material so testing is safe.

P H RENOFT Berger, Texas
(Continued on page 150)



Turning Down Generator's Shaft Ends in Place

DURING TURBINE inspection and repair periods, we had to renew bearing-ring segments that support flexible coupling on the shaft ends of the turbine and the generator.

After old segments were removed and new installed, we had to turn down new rings to size. This called for some kind of a turning device to turn turbine and generator shafts, as well as a cutting tool rig to turn rings to size.

Photographs show how we rigged an air-holst motor to turn rings down on end of generator shaft. They also show compound rest bolted to inside of center bearing pedestal to hold cutting tool for turning rings to size. Dial indicator was used to check shaft movement while machining segment rings.

To turn rings down on turbine end of shaft, same turning rig was used. On generator end, exciter armature was re-

moved from generator shaft for repairs, and this made it quite easy to turn shaft.

On steam end, emergency governor was removed from shaft end and a pulley fastened by bolts. We used bolt holes that bolted emergency governor assembly to end of turbine shaft. This work was done on a 25,000-kva turbine generator which runs like new.

E E SMITH Clarks Summit, Pa.

For Clean Drawings

THE YOUR SANDING BOARD END to a 3-ft piece of string, tacked to side of drafting table. Then it will always be handy, and your drawings won't get smudged with pencil carbon dust.

ED ECKERT New York, N. Y.