

BUILDING MECHANICAL EQUIPMENT

SCHEDULING ROUTINE MAINTENANCE

1. GENERAL

1.01 This section outlines a plan for scheduling the routine maintenance of building mechanical equipment. The procedures suggested apply to mechanical plant permanently located in the building and not to fixtures, tools or portable equipment.

1.02 The procedures include the following:

- (a) A numbering system to identify the various items of mechanical plant for record purposes.
- (b) A card record system for establishing and maintaining an inventory of the units of equipment in each building and for recording the maintenance procedures to be followed for each unit.
- (c) A method of scheduling the routine maintenance required on each item of equipment and for indicating completion of the work.
- (d) A procedure for reporting repairs and replacements with provisions for associating these reports with the equipment record.

2. IDENTIFICATION OF EQUIPMENT

2.01 In order to provide a positive means of identification and reference, each major item of equipment is numbered. Following is an illustrative numbering system.

1. Air Conditioning (Package) Unit
2. Air Filter Unit
3. Blower, Ventilating
4. Boiler, Heating
5. Boiler, Hot Water Supply
6. Burner, Gas
7. Burner, Oil
8. Compressor, Air
9. Compressor, Refrigerating
10. Conveyor
11. Damper
12. Drinking Water Cooler
13. Elevator
14. Fan, Ventilating
15. Furnace, Warm Air Heating
16. Generator, Motor
17. Heater, Hot Water

18. Heater, Space
19. Heater, Unit
20. Hoist
21. Incinerator
22. Kitchen Equipment
23. Meter
24. Panel, Switch, Electric
25. Pump, Water
26. Pump, Sump
27. Pump, Vacuum
28. Softener, Water
29. Stoker
30. Tank, Air
31. Tank, Fuel Oil
32. Tank, Hot Water Storage
33. Tank, Water Supply
34. Valve, Motorized

2.02 The number of the major item of equipment is used as a prefix followed by consecutive numbering of the individual units of that type of equipment. For example, if there were two heating boilers in a building, they would be numbered 4-1 and 4-2.

2.03 This method has the advantage of grouping similar items of equipment together in numerical order and allows for the addition of equipment without breaking the numerical sequence of the records. For instance, if in the above example, a heating boiler were added, it would be given the number 4-3.

2.04 Accessories and controls associated with each major item of equipment but located away from it are given the same number as the major unit. This serves to properly identify the accessories and controls and is especially advantageous in cases where switches and relays controlling several major units are mounted together on a remote wall or panel.

2.05 Elevators or other pieces of machinery that are maintained by others under contract are numbered for record purposes.

2.06 The numbers should be applied to each principal unit of mechanical plant and its related accessories and controls in a permanent manner. For easy readability, contrasting colors should be used and the sizes of the numbers should be commensurate with the size of the equipment. Stenciling the numbers on with paint is a satisfactory method and the use of decalcomania numbers is also suitable. The

numbers should be located so as to be readily discernible from the normal approach to the equipment.

3. BUILDING MECHANICAL EQUIPMENT RECORD  
FORM E-3925

3.01 Form E-3925 serves as an inventory record and for posting maintenance information on the various items of equipment. A separate card is used for each major unit. Exhibit 1 shows a completed record card.

3.02 The name of the equipment and its assigned number are written in at the top of the card in the spaces indicated. The city and the address or name of the building are also entered in the appropriate space.

3.03 In the space headed "Description," pertinent data on the equipment item are to be shown. This should include all data usually appearing on the name plate such as make, serial number, size, type, capacity, etc. The use of the equipment, area served by it, or other data may be entered here as may be desirable. Guarantees if any should be noted. Data on electric motors used to drive the unit are recorded on the lower part of the card as described in Paragraph 3.05.

3.04 Data on accessories and controls associated with the equipment are entered in the space headed "Accessories and Controls." This should include such items as switches, relays, limit controls, gauges and other minor items.

3.05 Provision is made at the bottom of the card for entering data on the main drive motor for items which are electrically driven. The necessary information is generally shown on the motor name plate.

3.06 New cards are prepared when existing equipment is replaced and when additional items are installed.

4. ROUTINE MAINTENANCE REQUIREMENTS

4.01 After the descriptive data have been recorded on the obverse of Form E-3925, for each major plant unit and its accessory equipment, the routine maintenance required on each particular piece of equipment is posted on the reverse side. This information may be obtained from various sources such as manufacturer's instructions, Company practices or instructions, and from experience with the type of equipment involved.

4.02 The space on the reverse side of the inventory card is provided for briefly describing the maintenance routines required. When more detailed or supplementary information is considered necessary, it may be incorporated into a Bell System Practice or other suitable form of instruction. Reference is made to such additional information in the column headed "Reference."

4.03 The frequency at which each routine is to be performed is indicated in the column headed "Freq." using the abbreviations shown at the bottom of the card.

4.04 The estimated time required for the performance of each routine is entered in the last column. This information is necessary in order to properly schedule the routines.

4.05 Exhibit 1 shows the reverse side of Form E-3925 filled out for a typical item of equipment.

4.06 If desired, a card identifying the item and bearing the routine maintenance information outlined in Paragraphs 4.02 and 4.03 for a particular piece of equipment may be appropriately mounted on or adjacent to the unit.

5. SCHEDULING ROUTINE MAINTENANCE

5.01 The routine maintenance requirements detailed on the reverse side of Forms E-3925 are used to prepare a schedule for the routine maintenance of all items of mechanical plant in the building. Form E-3926, Building Mechanical Equipment, Routine Schedule and Progress Chart is used for this purpose. (Exhibit 2)

5.02 Form E-3926 provides space for recording the equipment number, name of the equipment, location, description of routine, reference to detailed instructions, name of employee to whom the routine is assigned, and the frequency at which the routine is to be performed. The right side of the form is set up to indicate the week or weeks of the year in which each routine is scheduled to be carried out.

5.03 In a small building, the routines on all equipment can generally be listed on the same schedule. In larger buildings, where there is a considerable amount of equipment consideration may be given to making separate schedules for shifts or individuals or for certain items of equipment as may be appropriate.

5.04 Separate schedules are usually prepared for elevators since such equipment is generally maintained by specialized personnel and a considerable number of routines are required on the various principal components.

5.05 When the grouping of routines has been determined as outlined in Paragraphs 5.03 and 5.04, the description of the routines and associated information is entered on Form E-3926 as shown in Exhibit 2.

5.06 The time each routine is to be performed is indicated by placing a diagonal mark in the space for the appropriate week on the schedule portion of the form. Daily routines should be made a part of the daily work assignments and are not to be included on this schedule. Weekly routines are scheduled first and then those performed biweekly. The less frequent routines are scheduled in turn so that the work is spread out as evenly as practicable throughout the year. Items requiring seasonal work such as boilers must, of course, be scheduled in accordance with seasonal requirements.

5.07 The completed schedules may be posted on a bulletin board or placed in a book, depending on which method is most convenient in each case.

5.08 Completion of the routines is indicated by crossing the diagonal strokes on the schedule.

#### 6. REPORTS ON TROUBLE, REPAIRS AND REPLACEMENT

6.01 It is intended that when the various routines are performed the equipment will be inspected for general condition and for any necessary adjustments or repairs. Minor adjustments or repairs should be made at the time the routine is performed if possible. Unless unduly frequent, minor repairs and adjustments are considered part of normal maintenance and need not be reported.

6.02 Where the inspection discloses trouble that can not be cleared at the time the routine is performed or there is an indication that major repairs or replacements are necessary, a report should be made of the matter for corrective action on Form E-3927, Building Mechanical Equipment, Report of Trouble Found, Repairs, Replacements or Removals. (Exhibit 3)

6.03 The heading of the form is to be filled out as indicated, showing the item, equipment number, location, and date. The form is directed to the foreman or supervisor responsible for the maintenance of the equipment as local practice may require. In the space headed "Trouble Found," the trouble or defect is described and recommendations are made for corrective action.

6.04 When corrective action has been taken, a description of the repairs, replacements or removals is to be reported in the space headed "Repairs, Replacements or Removals." Cost data may be entered here. However, cost data are of secondary importance for the purpose of this Practice and may be omitted. The labor hours required to effect the repair are reported in the space indicated when the work is performed by an employee. These data may be summarized at monthly or other intervals to determine the total hours that the building mechanics devote to repair operations. This time plus the total hours scheduled for routine maintenance on Forms E-3925 provides the data necessary to estimate the time it is necessary for building mechanics to spend in the building or in the case of large buildings, the number of mechanics required.

6.05 Completed Forms E-3927 are filed with Forms E-3925, the inventory record card, as outlined in Paragraph 7.05.

#### 7. FILING OF RECORDS

7.01 The equipment record cards, Form E-3925, are to be filed in numerical order. The 8" x 5" card is a standard size and filing devices are available to suit almost any requirement.

7.02 In general, it is preferable to keep the records in the building in which the equipment is installed. However, it may be desirable to keep the file in a district or area headquarters in cases where several buildings are supervised from an area or district office.

7.03 Where routine maintenance for a number of buildings is performed by a mechanical maintenance group, consideration should be given to maintaining the records in the building to which the group normally reports.

7.04 Reports on trouble, repairs, replacements and removals may be filed with the inventory card so that all information on each particular item of equipment is associated.

7.05 Forms E-3927 related to a particular equipment item are filed with the corresponding inventory card (Form E-3925) in an 8" x 5" kraft file folder. The folder is designed so that when the inventory card is placed in it the name of the item and the equipment number show above the front flap and it is therefore not necessary to label the folders. Forms E-3927 are filed in the folder in back of the inventory card. The folders are packed in lots of 100 and may be ordered as follows:

(Quantity) Folder, File, Vertical, RHP

Attached:

Exhibits 1 through 3, inclusive.

BUILDING MECHANICAL EQUIPMENT RECORD

E-3925  
(1-52)

ITEM Pump, Sump EQUIP. NO. 26-1  
 CITY Alphatown BUILDING LOCATION 130 Main Street  
 EQUIP. LOCATION Basement-Boiler Rm. DATE INSTALLED 1947  
 DESCRIPTION: MAKE Yecman Bros. Co. SERIAL NUMBER SD-6-45-2-H  
Model B - "Drain-Dri"

ACCESSORIES & CONTROLS: Cutler-Hammer Magnetic Switch, Bulletin 9586, Size 0  
Index 9586H, 1245-U  
Square "D" Line Switch. Cat. #45351, Series 4, 3 phase.

MOTOR DATA: MAKE Howell Elec. Co. SERIAL NO. 11110H15 H.P. 1/2 VOLTS 220 A.C.  
3-Ø  
 PHASE 3 R.P.M. 1725 AMPS. 1.84 FRAME NO. A - 171

FRONT

Reference	Description of Routine Maintenance	Freq.	Est. Time
Mfg.Inst.	Fill Guide Bearing grease cup	M	1/4
" "	Clean Sump and strainer, check float for water, check start and stop adjustment.	SA	2
" "	Check Thrust Bearing Lubrication. Add ball bearing grease as necessary.	SA	1/4
" "	Check switch contacts and operation of switches.	A	1/2
	Clean motor and check operation	A	1/2
	Note: Motor bearings are sealed type and require no additional lubricant.		

D-Daily SM-Semi-Monthly Q-Quarterly A-Annually  
 W-Weekly M-Monthly SA-Semi-Annually AD-As Directed

Date 4-4-51 Recorded By M. Jackson Approved A. Jones

BACK



BUILDING MECHANICAL EQUIPMENT  
REPORT OF TROUBLE FOUND, REPAIRS, REPLACEMENTS OR REMOVALS

E-3927  
(1-52)

ITEM Pumps, Sump EQUIP. NO. 26-1

CITY Alphatown BUILDING LOCATION 130 Main

TO Supervisor of Building Maintenance DATE June 25, 1951

TROUBLE FOUND

Float leaks and is water logged. Should be replaced.

REPAIRS, REPLACEMENTS OR REMOVALS

Replaced Float

LABOR HOURS 2 DATE COMPLETED 7-2-51

N. Jones