

A JOB ORDER SYSTEM FOR A MAINTENANCE DEPARTMENT  
IN A PETROLEUM REFINERY

by

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We accept this thesis as conforming to the  
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## ABSTRACT

This thesis reports the development by the author of a job order system for a maintenance department in a Burnaby petroleum refinery during the summer of 1952. The requirements of this system are (1) to provide a practical channel of communication for the planning and control of all maintenance department work, (2) to provide an adequate description and estimate of the work requested, (3) to provide information necessary for scheduling requested work, (4) to ensure the proper approval authorities for all expenditures, (5) to provide information necessary for costing all work done, and (6) to measure the overall efficiency of the maintenance department.

These requirements have been fulfilled partially by (1) the establishment of approval authority limits, (2) the introduction of job order and job order memo forms, and (3) the employment of a job order clerk.

At present, however, expenditures are controlled only by maximum approval authority limits. It is recommended, therefore, that the services of a qualified estimator be sought in order that costs may be controlled more closely by means of accurate job cost estimates. This method of control, in turn, will provide satisfactory measures of the overall efficiency of the maintenance department.

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## CHAPTER I

### INTRODUCTION TO AND STATEMENT OF THE PROBLEM

Before stating the specific problem at hand, it would be well to discuss briefly two points which have a direct bearing on the situation. The first, organization, is an implicit part of any system. Consequently, the refinery organization chart has been presented in FIG. 1, page 2.

The refinery is composed of two production and six service departments. The finished goods and processing departments fall into the former category, the safety, treasury, personnel, technological, engineering, and purchasing-stores departments into the latter. The maintenance department is defined as that portion of the engineering department falling beneath the jurisdiction of the maintenance engineer. The specific duties of the maintenance field engineer are the planning and scheduling of maintenance department work.

Secondly, an outline of the duties of the maintenance department of a petroleum refinery is in order. These duties are:

1. To make or be responsible for all necessary repairs to machinery and equipment during both operating and shutdown periods<sup>1</sup>
  - (a) To carry out a well-defined program of preventive maintenance<sup>2</sup>
  - (b) To effect emergency repairs
2. To perform minor installations
  - (a) To carry out minor plant change projects
  - (b) To carry out minor capital projects
3. To assist the operating departments in operational work best carried out by the maintenance department, e.g., blinding lines.<sup>3</sup>

With this short introduction, the problem may now be stated. In order

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<sup>1</sup> A continuous process such as petroleum refining requires periodic shutdowns of units to permit repairs, changes, and inspection for corrosion thinning of pressure equipment, not possible during operations under high pressures and temperatures.

<sup>2</sup> Regular, routine inspection and servicing of plant machinery and equipment.

<sup>3</sup> Positive closing of lines to control flow.

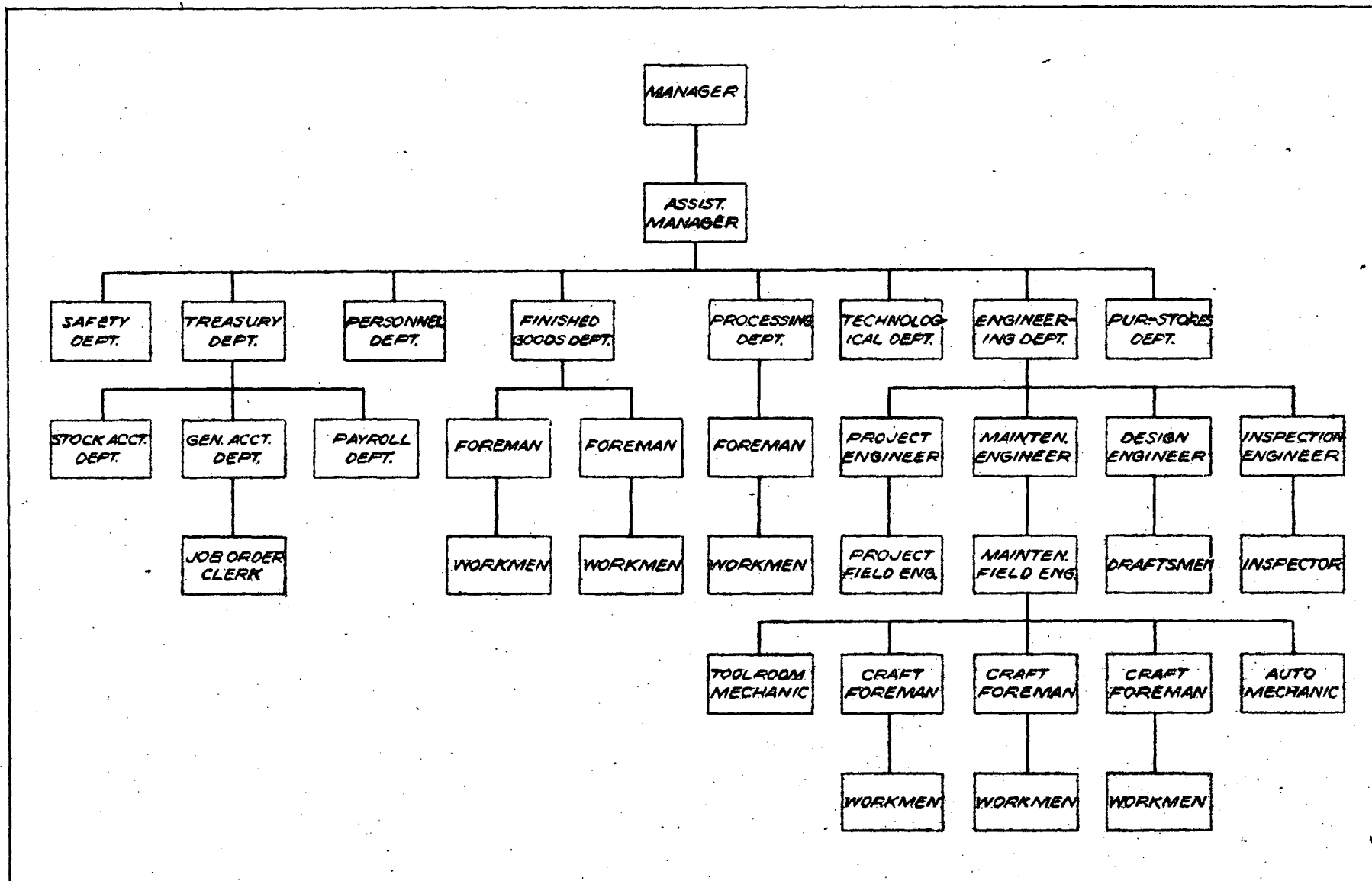


FIG. 1. REFINERY ORGANIZATION CHART

to meet the requirements of an increasing sales volume, production from existing facilities has been stepped up considerably. In turn, demands on the maintenance department have increased to the point where management requires a rigid job order system for the planning and control of all maintenance department work.

The requirements of this system are:

1. To provide a practical channel of communication for the planning and control of all maintenance department work
2. To provide an adequate description and estimate of the work requested
3. To provide information necessary for scheduling requested work
4. To ensure the proper approval authorities for all expenditures
5. To provide information necessary for costing all work done
6. To measure the overall efficiency of the maintenance department.

The problem, then, is to establish a maintenance department job order system to meet the above requirements.

## CHAPTER II

### CHANNELS OF COMMUNICATION

In the preceding chapter, an introduction to and a statement of the problem at hand have been given. This chapter deals with the establishment of a practical channel of communication for requesting work of the maintenance department.

Barnard<sup>1</sup> recognized seven controlling factors as being essential to the frictionless operation of lines of communication:

1. The channels of communication should be definitely known.
2. A definite, formal channel of communication is required to every member of an organization.
3. The line of communication must be as direct or short as possible.
4. The complete line of communication should usually be used.
5. The competence of the persons serving as communication centers, that is, officers (and) supervisory heads must be adequate.
6. The line of communication should not be interrupted during the time when the organization is to function.
7. Every communication transmitted along the line of communication should be authenticated.

Here, then, are the broad principles to be followed in establishing channels of communication. Of particular significance in this case is Barnard's third point: "The line of communication must be as direct or short as possible." On this subject, the French industrialist, Henri Fayol,<sup>2</sup> has stated:

The need for a hierarchic channel arises both from the need for safe transmission of information and orders and from unity of command, but it is not always the quickest channel, and in very big enterprises, the

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<sup>1</sup> Chester I. Barnard, The Functions of the Executive, Cambridge, Harvard University Press, 1938, p. 84.

<sup>2</sup> Henri Fayol, Administration Industrielle et Generale, as translated and quoted in Alford and Bangs, Production Handbook, New York, The Ronald Press Company, 1945, p. 30.

State in particular, it is sometimes disastrously long. As, however, there are many operations whose success depends on rapid execution, we must find a means of reconciling respect for the hierarchic channel with the need for quick action.

To illustrate this statement in terms of our problem, let us take the case of a foreman in the finished goods department desiring to contact the maintenance field engineer. The hierarchic channel of communication is:

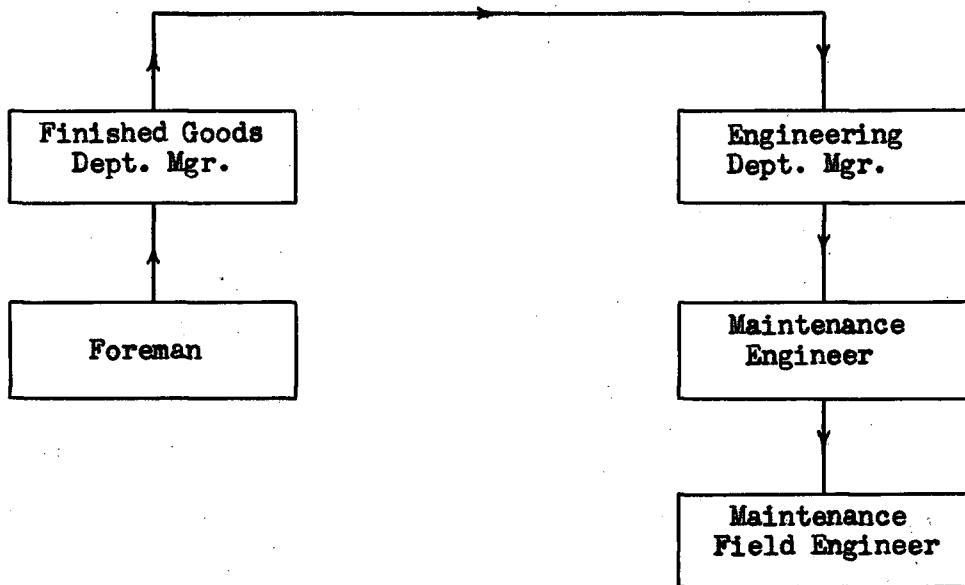


FIG. 2. AN EXAMPLE OF A HIERARCHIC CHANNEL OF COMMUNICATION

Thus, the communication must pass through three persons before reaching its destination. Obviously, this is not the quickest nor the most practical channel.

Fayol<sup>3</sup> offers the following solution to problems of this type:

Let us suppose that it is necessary to put function F in communication with function P, in an undertaking whose hierarchy is represented by the double ladder G-A-Q (FIG. 3, page 6). In order to follow the hierarchic channel, we should have to climb the ladder from F to A and then go down from A to P, stopping at each rung, and then repeat this journey in the opposite direction in order to get back to our starting point.

It is clearly much simpler and quicker to go straight from F to P by using the "Bridge" F-P and this is what is most frequently done. The

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<sup>3</sup> Loc. cit.

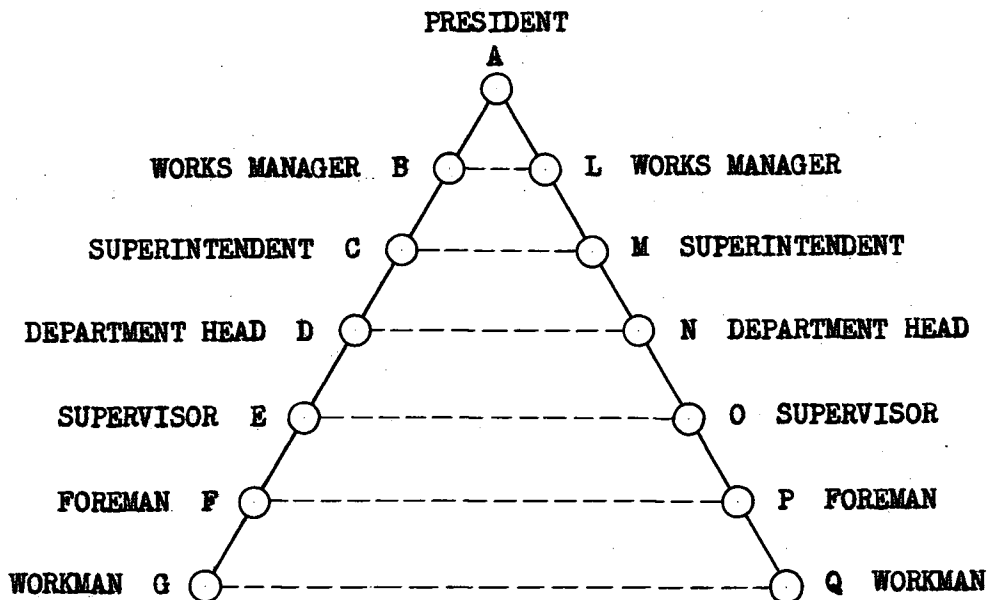


FIG. 3. CROSS CONTACTS OR RELATIONSHIPS ILLUSTRATED BY THE "LADDER" OR "BRIDGE" OF FAYOL

hierarchical principle will be safeguarded if E and O have authorized their respective subordinates F and P to enter into direct relations, and the situation finally will be perfectly in order if F and P immediately tell their respective chiefs what they have agreed to do. So long as F and P remain in agreement and their actions are approved by their immediate superiors, direct relations can be continued, but as soon as either of these conditions ceases to exist, direct relations must stop and the hierarchical channel must be resumed.

Use of the "bridge" is simple, swift, sure; it allows the two employees F and P, in one meeting of a few hours, to deal with a question which by the hierarchical channel would go through 20 transmissions, inconvenience many people, entail an enormous amount of writing, and waste weeks or months in arriving at a solution, which would probably not be so good as the one obtained by putting F in direct contact with P.

To summarize, Fayol states that the executives at any level in the line of authority may contact each other, reach decisions, and initiate action, provided these requirements are satisfied: (1) The contact or relationship should only be initiated with the consent of the immediate line superiors, and (2) Before any action is taken it must be approved by immediate line superiors.

In the case at hand, in order to avoid the difficulties which arise "where the vertical lines of authority cross and conflict with the horizontal lines of relations", management delegated approval authority limits

to certain individuals to enable them to deal directly with the maintenance field engineer.

An approval authority limit is simply the upper limit of expenditure that a specific individual may authorize. The amount of this limit, of course, varies with the position of the individual in the organization.<sup>4</sup> It may be seen readily that this arrangement meets Fayol's requirements since (1) Management has empowered certain individuals to act within defined limits, and (2) Any items requiring additional approval must be presented to the immediate line superiors before any action can be taken.

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<sup>4</sup> See Appendix A, page 46.

### CHAPTER III

#### MEANS OF COMMUNICATION

Having established a practical channel of communication for requesting work of the maintenance department, we come now to the problem of providing means for communicating requests for work. This problem was attacked, first, by a consideration of the requirements of communicative devices for maintenance department work. To be known specifically as job orders, these devices had to:

1. Provide an adequate description and estimate of the work requested
2. Provide information necessary for scheduling requested work
3. Ensure the proper approval authorities for all expenditures
4. Provide information necessary for costing all work done
5. Provide information necessary for measuring the overall efficiency of the maintenance department.

To design one form to encompass all the above requirements would not be difficult. However, before the design of a job order form could be finalized, it was necessary to consider a second factor - how the maintenance department's time was distributed amongst its various duties. Approximately 70 per cent of the department's time was taken up with work of a routine nature, such as inspections, shutdowns, and operational work. Non-repetitive work, such as plant change and capital projects occupied the remaining time.

By their nature, many routine jobs of small import were carried out several times a month. While it was necessary that specific instructions and scheduling information be provided for each of these jobs, to cost these jobs individually would result in a large volume of cost statements of little importance relative to non-repetitive job cost statements. Thus, a list of routine jobs was drawn up to which permanent job order numbers were assigned. Summary cost statements by job order number would be pre-



pared monthly for these jobs provided, management stipulated, the cost of any one individual job did not exceed three hundred dollars.

From these two considerations, then, two types of job order form were devised. The first, termed simply a job order, would be used to request the following types of work:

1. Work of a non-repetitive or unusual nature which occurs rather infrequently or is unique because of its magnitude in relationship to the value of equipment or facilities
2. Work that is estimated to cost over three hundred dollars
3. Plant changes
4. Capital items.

The second, termed a job order memo, would be used to request jobs covered by permanent job order numbers not exceeding an estimated three hundred dollars.

While it is essentially true that shutdown work is of a routine nature, the fact that this work entails the stoppage of processing operations places it in an unique category. Shutdown work must be carried out efficiently and quickly to minimize both present and future down-time. In order to achieve maximum co-ordination between the processing and maintenance departments, the use of job orders as means of communication was abandoned for a detailed shutdown work list. This list, drawn up by the processing and engineering departments, states all the jobs to be performed during the particular shutdown period, specific instructions, and required completion times. For costing purposes, permanent job numbers have been established for specific types of shutdown work. A cost statement is prepared at the end of each shutdown.

In summary, then, the three means for communicating requests for work to the maintenance department are job orders, job order memos, and shutdown work lists. This thesis will be confined to a discussion of job orders and job order memos only.

## CHAPTER IV

### FORM DESIGN - JOB ORDERS AND JOB ORDER MEMOS

Frank M. Knox<sup>1</sup> has stated the requirements of a good form design in the following terms:

1. It must create a favourable mental attitude on the part of the clerical worker toward the job at hand.
2. It must afford the easiest possible method of entering the data on the form.
3. It must afford the easiest possible method of using the data after they have been entered on the form.
4. It must help reduce the tendency to err in entering or using the data.
5. It must make for paper and printing economy within the limits set by efficient clerical use.

The content requirements of job order forms in this case have been set out in Chapter III, page 8. By the nature of these requirements, the forms must pass through the originating department, the maintenance department and the accounting department in order to be completed. With reference to the job order form presented in FIG. 4, page 11, it will be noted that the form has been divided into three sections marked A, B and C. These sections are to be completed by the originator, the maintenance field engineer and the job order clerk respectively. Thus Knox's first two stipulations have been met in that all the data required of each person concerned have been consolidated into separate sections of the form.

Referring to section A, provision has been made for recording

1. The type of tradesmen desired
2. The area in which the job is to be performed
3. The identification number of the equipment upon which the job is to be performed

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<sup>1</sup> Frank M. Knox, Design and Control of Business Forms, New York, McGraw-Hill Book Company, Inc., 1952, p. 5.

**NY 100-1252**

**JOB ORDER NO 2117**

## REVISED

## TRADE

## AREA

EQUIP. No.

DATE ISSUED

TIME

DATE \_\_\_\_\_

**COMPLETION REQUESTED**

REQUESTED BY

APPROVED BY

ACCOUNT No.

JOINT DIRECT

## WORK ORDER

A.F.E.

### DESCRIPTION OF JOB

### MATERIAL PURCHASES

**REQ. NOS.****AMOUNT**

日

## INSTRUCTIONS

**PRIORITY**

ENGINEER (MAINTENANCE DEPT.)

DATE: \_\_\_\_\_

**COMPLETED**

LYCEL LYN

$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$$
$$\frac{d\alpha}{dt} = \frac{\partial \alpha}{\partial t} + \frac{\partial \alpha}{\partial x} \frac{dx}{dt}$$

DECLINED

INSPECTED AND ACCEPTED BY (ORIG. DEPT.)

## TIME

V.24.5.87

DATE \_\_\_\_\_

**DISTRIBUTION:**

**WHITE: MAINTENANCE, FOREMAN, COSTING, EQUIPMENT FILES.**

GREEN: MAINTENANCE, FOREMAN, MECHANIC, FOREMAN, COSTING, FILES.

**YELLOW: MAINTENANCE, CONTROL, COSTING, SUPERVISOR (ORIGINATING DEPT.)**

**PINK: ORIGINATOR.**

4. The date of issue of the job order
5. The completion time and date requested
6. The signature of the requesting party
7. The signature of the approving party
8. The accounting charge
9. A description of the job requested
10. The requisition numbers of materials ordered.

While most of these provisions are self-explanatory, items (1) and (10) perhaps require further clarification. It may be argued that the maintenance department should be the department responsible for determining the personnel required to perform a given job. However, in the case at hand, standard labour requirements have not as yet been established for specific types of work. Therefore, in order to assist the maintenance field engineer in scheduling his department's work, provision has been made for the originator to state what he thinks to be the personnel requirements for the job requested. It is to be noted that the originator's choice of personnel is not binding upon the maintenance field engineer.

Concerning item (10), here again it may be argued that the maintenance department should be the department responsible for ordering the material required for a given job. However, the extensive technical specifications associated with equipment and machinery used in petroleum refining make it more practical for the originator himself to order any special material requirements. The recording of requisition numbers on the job order form is necessary for purposes of job costing.

Finally, a word on the placement of the items on the form is in order. To assist the maintenance field engineer in filing his copies of job orders received, the provisions for listing the tradesmen required and the completion time and date desired have been placed at the top of the form. Thus, job orders can be filed by both trade and completion date. It will be noted in passing that the design of section A with respect to the main-

tenance department meets Knox's third requirement of a good form design, i.e., "It must afford the easiest possible method of using the data after they have been entered on the form."

The maintenance field engineer is responsible for completing section B. Here, space is provided for specific job instructions, the assigning of a priority, and the "go-ahead" approval. In his capacity as planner and scheduler for maintenance department work, the maintenance field engineer must, where required, issue detailed instructions as to the performance of a given job. Furthermore, in the case of a heavy work schedule, it is his duty to assign priority ratings to jobs in order of their necessity. Obviously, this function can be performed satisfactorily only by the maintenance field engineer. The relative importance of various jobs can be ascertained solely from his position as co-ordinator. After these two provisions have been completed, the accounting charge is checked by the job order clerk and corrected where necessary. "Go-ahead" approval can now be given the job order by the maintenance field engineer.

When the job is finished, the foreman in charge records the completion time and date in the space provided. Where necessary, acceptance of the work may be signified by a representative of the originating department.

The distribution of the four copies of the form is straight-forward. The originator makes out the job order in quadruplicate, retains the pink copy, and routes the remaining copies to the maintenance department. After scrutiny by the maintenance field engineer, the white and green copies are passed on to the foreman in charge of the work. The latter passes the green copy on to his lead hand.<sup>2</sup> The yellow copy of the job order is retained by the job order clerk for costing and control purposes.

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<sup>2</sup> Experience has proven the value of passing on written job descriptions and instructions to lead hands. At present, each foreman has approximately 20 workmen under his jurisdiction. Since these men are usually widely scattered over refinery territory, the foreman's copy of the job order provides him with a useful reference for work currently in process.

Upon completion of the job, the white and green copies are returned by the foreman to the job order clerk who, in turn, costs the job in triplicate. The white copy is then routed to the engineering department, the green copy to the accounting department, and the yellow copy to the originating department.

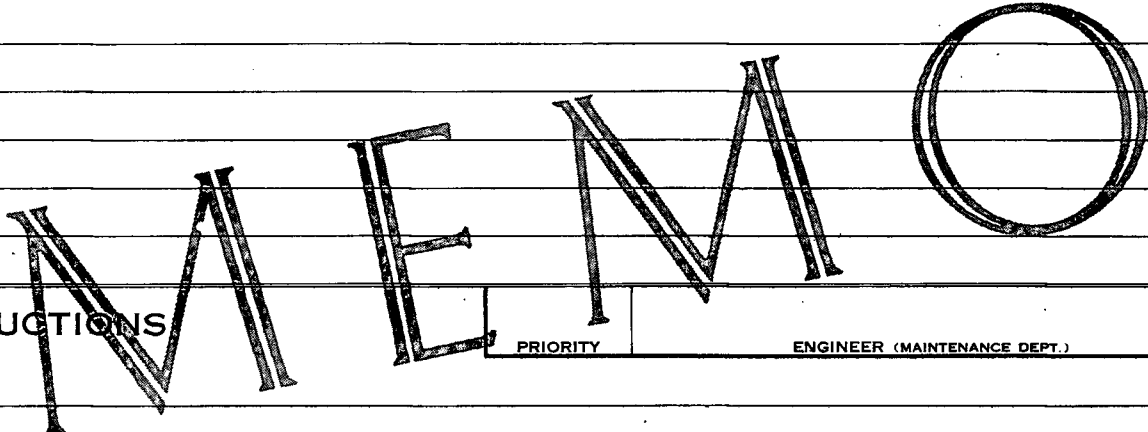
Section C provides for costing the job. Here, space is allocated for estimating and recording labour, materials, and overhead expenditures. For purposes of analysis, labour costs are divided into three categories: straight time, overtime, and supplementary rates. Supplementary rates refer to such items as special callouts, change of shift differentials, and "dirty" money. Columns are provided to record the hours and dollar amount for each category of labour daily. At the end of the job, actual and estimated direct labour hours and costs can be compared for each column.

Materials charges arise out of direct purchases, stores issues, cartage, and miscellaneous items. Material purchases and cartage charges may be posted from the invoices bearing the material requisition numbers listed on the front of the form. Stores issues slips can be accumulated by job order number and the total cost posted upon completion of the job. Miscellaneous items may be charged from interdepartmental memoranda. Here again, an estimate column is provided for each type of material expenditure.

As originally planned, the overhead allotment was to represent the cost of fringe benefits afforded direct labour. At the month-end, the payroll department allocated these costs to the different accounts on the basis of the percentage of fringe benefit costs to the total direct labour costs of each department. Obviously, the overhead charged to each job on this basis would not be representative of the total overhead applicable to the job. This point will be discussed more fully in Chapter XI.

To conclude our discussion of the job order form, it will be noted

FIG. 5. JOB ORDER MEMO

T104-10-92		<b>JOB ORDER MEMO</b>		TIME	DATE	<b>JOB ORDER No.</b>	
A	TRADE	ZONE	COMPLETION REQUESTED		ACCOUNT No.		
			EQUIP. No.				
REQUESTED BY			APPROVED BY			DATE ISSUED	
<div style="text-align: center;">  </div>							MATERIAL PURCHASES REQ. NOS.
B	INSTRUCTIONS		PRIORITY	ENGINEER (MAINTENANCE DEPT.)		DATE	
COMPLETED	TIME	DATE	FOREMAN		INSPECTED AND ACCEPTED BY (ORIG. DEPT.)		TIME DATE
WHITE: MAINTENANCE, FOREMAN, EQUIPMENT FILES GREEN: MAINTENANCE, FOREMAN, MECHANIC, DISCARD YELLOW: MAINTENANCE, CONTROL, SUPERVISOR (ORIGINATING DEPT.) PINK: ORIGINATOR							

that the form has been laid out in such a manner as to minimize errors in entering or using data. Also, the form may be manufactured from standard 17" x 22" paper stock. Thus, Knox's fourth and fifth requirements for good form design have been satisfied.

The job order memo presented in FIG. 5, page 15, is very similar in make-up to the job order form. It should be noted, however, that provision is made in section A for the insertion of a job order number, this number to be taken from the list of routine job order numbers. In addition, the provision for accounting charges is reduced to one line. By definition, expense items only may be requested on job order memos.

With reference to costing information, it is to be remembered that monthly summary cost statements by job order number were deemed sufficient for job order memos. Consequently, no costing provisions appear on these forms. Instead, a monthly posting sheet (FIG. 6, page 17) is used for each routine job order number. Charges can be entered daily for labour and materials, overhead being computed at the month-end. This form is essentially similar to the costing section of the job order form explained above.



**FIG. 6. MONTHLY POSTING SHEET**

[illegible]

## CHAPTER V

### FORM DESIGN - MAINTENANCE DEPARTMENT DAILY TIME SHEETS

No mention has been made in the discussion to date of means to collect and distribute direct labour charges. If this job order system is to control maintenance department expenditures satisfactorily, an adequate device must be established to record labour charges - the most variable of all expenses.

Petroleum refineries, in general, cover a good deal of territory. Consequently, at any one time, maintenance department personnel usually will be dispersed widely. This fact together with the requirement for extensive supervision necessitated by the highly technical nature of refinery equipment indicates the need for a high supervisor-labour force ratio.

Thus, by the first statement, we may eliminate the possibility of a time-keeper for recording maintenance department direct labour charges. On the other hand, by the second requirement, if supervisors are to be held responsible for preparing daily time sheets, this work must be minimized. A third possibility is that the workers report their own time distribution. However, this procedure may lead to inaccuracies, both innocent and deliberate. Furthermore, in work of this nature, the location of each workman should be known at all times by some central authority.

From a consideration of these three factors, the time sheets presented in Appendix B, page 112, have been designed for foremen. It should be noted that the use of three forms is necessitated by the extremely complex stipulations of the union agreement. Different colours are used for identification purposes. Instructions on the use of these forms are given in Appendix B also.

Briefly, these forms enable the foremen to distribute labour charges with a minimum of effort. The clock number, name of the workman, and

the accounting charge only need be entered once.<sup>1</sup> Upon completion by the foremen, both copies of the forms are routed to the payroll department. Here, recorded total times are checked against time clock times and the hours worked on various jobs extended to dollar amounts. Horizontal totals give the daily hours and earnings of individual workmen, vertical totals the daily hours and expenditures on individual jobs. The former totals are posted to individual earnings records and control accounts. The duplicate copies of the extended time sheets are returned to the maintenance department where the job order clerk posts the daily direct labour hours and expenditures totals by job to the cost records concerned. It will be noted that the time sheets are designed to facilitate entries to the appropriate labour category columns of the cost records.

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<sup>1</sup> Also note the provisions in the cases of "Change of shift schedule" and "Half time overtime" enabling the foremen to authorize completion of the pertinent forms by some other party (Appendix B, p. 112).

## CHAPTER VI

### ROUTINE JOB ORDER MANUAL

In Chapter III, mention was made of a list of routine jobs to which permanent job order numbers were assigned. This list is contained in what is known as the Routine Job Order Manual. This manual is presented in Appendix A, page 44.

Briefly, the manual gives detailed instructions on the use of the various forms and a list of routine job order numbers. Routine jobs are classified by operating cost center accounts. Job order numbers are of four digits to prevent possible confusion with five-digit work order numbers.<sup>1</sup> Allowance has been made for possible additions to the list.

While this discussion is short, it should be noted that the preparation of this manual constituted the major portion of this writer's work. A multitude of jobs is covered which arose out of numerous discussions with various department officials.

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<sup>1</sup> Authorizations for capital expenditures.

## CHAPTER VII

### RECORDS

While copies of job order forms serve as records in themselves, a monthly summary of routine job costs is required. A summary form is illustrated in FIG. 7, page 22. This summary, of course, is prepared directly from the monthly posting sheets. Copies are distributed to all department officials concerned.

At the month-end, the white copies of both completed job orders and job order memos are filed by equipment number in the engineering department, thus facilitating future reference by that department. At the same time, the green copies of completed job orders and the monthly posting sheets are filed by job order and routine job order number respectively in the accounting department. This file serves as a permanent record of all maintenance department work. The yellow copies of completed job orders and job order memos may be filed if desired in the originating departments.

[illegible]

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## CHAPTER VIII

### JOB ORDER CLERK

The job order clerk is responsible for maintaining the job order system. For control purposes, he is a member of the treasury department (See FIG. 1, page 2) although he is physically located in the offices of the maintenance department. The duties of his position are:

1. To check the accounting charge on all job orders and job order memos received by the maintenance department
2. To keep a daily record of all labour and materials expended on job orders and job order memos
3. To ensure that expenditures do not exceed approval authority limits
4. To prepare a statement of job order costs for both the engineering department and the originating department
5. To prepare a monthly statement of routine job costs for circulation to all departments concerned
6. To keep a permanent record of all work carried out by the maintenance department.

A detailed description of the work of the job order clerk is in order:

#### 1. Job Orders

(a) After the maintenance field engineer has added any necessary instructions and has assigned a priority to a job order, the job order clerk checks the accounting charge assigned the job order.

(b) After receiving "go-ahead" approval from the maintenance field engineer, the three copies are distributed as follows:

1. White copy to the maintenance field engineer
2. Green copy to the maintenance field engineer
3. Yellow copy to the "Job Orders Received" file. File numerically.

(c) As labour and material charges are received, active job orders are withdrawn from the "Job Orders Received" file and are placed in the "Job Orders Active" file. Charges are then posted to the respective job orders daily.

(d) Upon completion of a job, the white and green copies of the job order are returned to the job order clerk who, after adding the yellow copy, totals the materials and labour charges in triplicate.

(e) The white and green copies are filed under "Job Orders Complete - (Month)". Overhead is calculated on the yellow copy only, a percentage direct labour figure for a comparable period being used. The

total job cost is then summed and the yellow copy routed to the supervisor of the originating department.<sup>1</sup>

(f) At the month-end, the actual overhead charges are computed for all job orders completed during the month. These overhead charges are then posted to the white and green copies of the job orders and the total job costs calculated. Finally, the white copies are routed to the engineering department's equipment files, the green copies being filed numerically in the accounting department.

(g) In the case of a job order extending over a month-end, materials and labour charges are totalled to the month-end, the actual labour overhead computed, and the totals transferred to a monthly posting sheet which, in turn, is filed under "Job Orders Complete - (Month)". The notation "Partially Complete - (Month)" is made on the yellow copy of the job order which then is returned to the "Job Orders Active" file.

When this job is completed, materials and labour charges are totalled on the three copies of the job order. The overhead charge, made up of (1) the actual overhead apportionment assigned the job during the preceding month and (2) the estimated overhead apportionment for the current month, is calculated on the yellow copy only which is then routed to the originating department.

The green copy of the job order is marked "Partially Complete - (Month)" and is filed along with the white copy in the "Job Orders Complete - (Month)" file.

## 2. Job Order Memos

(a) After the maintenance field engineer has added any necessary instructions and has assigned a priority to a job order memo, the job order clerk checks the accounting charge assigned the memo.

(b) After receiving "go-ahead" approval from the maintenance field engineer, the three copies are distributed as follows:

1. White copy to the maintenance field engineer
2. Green copy to the maintenance field engineer
3. Yellow copy to the "Job Order Memos Control" file.<sup>2</sup>

File numerically and by requested completion date.

(c) As labour and materials charges are received, monthly

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<sup>1</sup> This procedure, based on the method of overhead apportionment discussed in Chapter IV, is designed to enable the cost statement to be forwarded to the originating department at the earliest possible time after completion of the job. Only in this manner will the statement bear its full significance to the originator. While the data therein contained will not present an absolutely accurate dollar statement of costs, it is felt that this fact is subordinate to the need for rapid transmission of actual direct labour and materials costs. (For a further discussion of this point, see Chapter XI.)

<sup>2</sup> In this manner, a copy of every job order memo is available in the case of loss in the field.



posting sheets are prepared for each routine job number and the charges posted. These sheets are then filed numerically in the "Job Order Memos Active" file.

(d) Upon completion of a job, the white and green copies of the job order memo are returned to the job order clerk who, in turn, routes the white copy to the engineering department's equipment files and discards the green copy. The yellow copy is withdrawn from the "Job Order Memos Control" file and is routed to the originating department.

(e) At the month-end, labour and materials costs are totalled on the monthly posting sheets, the actual overhead computed, and the total monthly job costs transferred to a "Summary of Routine Job Costs". The monthly posting sheets are then filed numerically in the accounting department.

The work of the job order clerk has been outlined in detail above. It should be noted, however, that the subject of reconciling job orders and job order memos cost statements to controlling accounts has not been mentioned. An explanation of this apparent omission is given below.

Under the operation cost method of accounting used at this refinery, labour, material, and labour overhead expenditures for both operational and maintenance work are charged first, to an operating center control account, second, to subsidiary accounts according to the nature of the work performed. Thus, at a first glance, it would appear possible to reconcile job cost statements with the appropriate subsidiary account balances. However, it must be borne in mind that apart from its maintenance work, the maintenance department performs minor installations and assists the operating departments in operational work. The charges arising out of the performance of this latter duty prevent the immediate reconciliation of job cost statements to subsidiary account balances. Obviously, the subsidiary account for operating expense will contain charges originating from both the operating department concerned and the maintenance department.

While it is possible to separate out job cost statements by specific

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<sup>3</sup> Subsidiary accounts include classification by operating labour, operating material, maintenance labour, maintenance material, plant change labour, plant change material, etc.

accounting charges, only maintenance, plant change and capital project charges could be reconciled in this manner. One method of avoiding this difficulty would be to set up additional columns in the operating expense subsidiary ledgers to record all charges bearing job numbers. At present, however, this proposal has not been adopted. A second proposal which would enable all operations in the refinery to be costed specifically and reconciled to controlling accounts would be to assign job numbers to operating as well as maintenance work. Under this arrangement, a whole new field for costing and control would be opened up. As yet, management has not acted in this direction.

Flow charts of the job order system are presented in FIG. 8 and 9, pages 27 and 28.

FIG. 8. JOB ORDER FLOW CHART

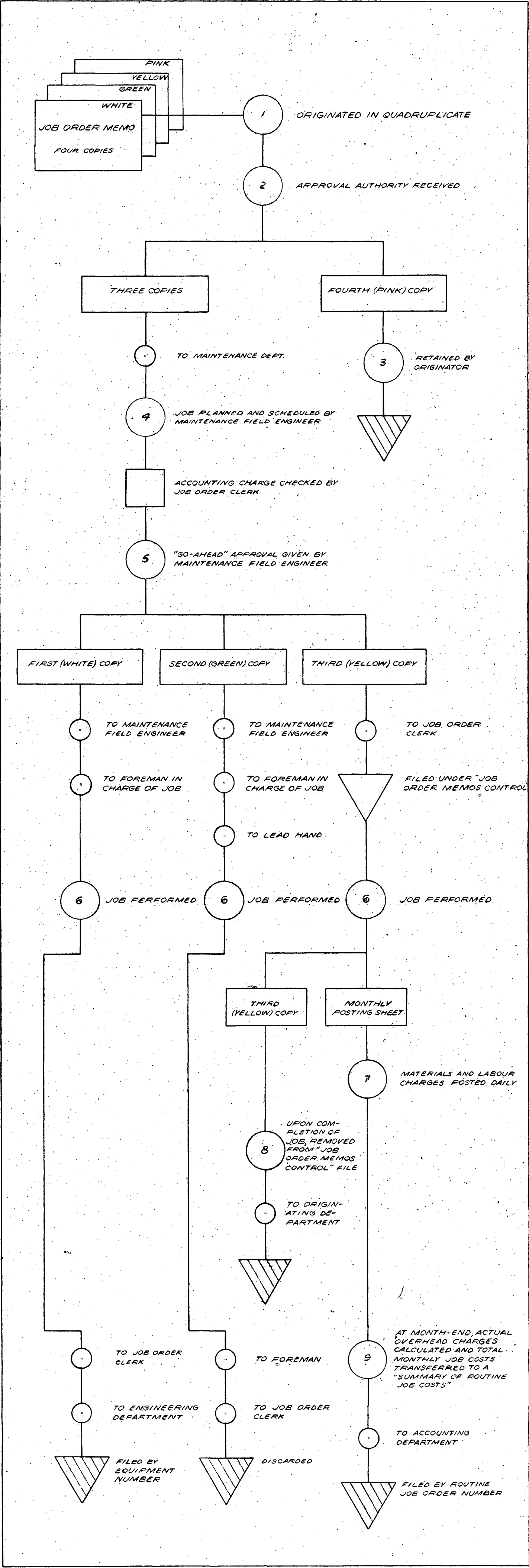


FIG. 9. JOB ORDER MEMO FLOW CHART

## CHAPTER IX

### POINTS OF CONTROL

Control may be defined as "the ensuring that all which occurs is in accordance with the rules established and the instructions issued" (Henri Fayol). When one considers that the refinery has no established standards in the way of budgets, labour requirements, or jobs, it is rather difficult to imagine the installation of effective control devices. Obviously, any control measures superimposed upon these conditions must necessarily be of a very general financial nature as opposed to specific labour time and wage and material quantity and price controls.

Two such financial control points are present in this job order system. The first arises with the origination of the job order or the job order memo. The proper approval authority must be obtained before work on the order can proceed. The job order clerk represents the second control point. It is his duty to ensure that expenditures do not exceed approval authority limits.

While it may be argued that the estimates of job costs leading up to approval authorities represent standards of sorts, the fact remains that at their best, estimates represent merely what costs will probably be, not what they should be. Furthermore, in the absence of a qualified estimator, a good number of the estimates stated are liable to substantial inaccuracies. This latter statement, of course, is a challenge to the usefulness of the present system. The subject of standards will be discussed at some length in Chapter XI.

## CHAPTER X

### REVIEW OF SYSTEM IN OPERATION

Having outlined the job order system as originally developed, the time has come now for a brief review of the device in operation. The channels of communication established by the system are being adhered to satisfactorily except in the case of emergency items. This exception, of course, would be expected. The means of communication - job orders and job order memos - are meeting with great success. Once the initial difficulties of definition were overcome, the use of these forms proceeded exceptionally well.

In general, the form designs have proven adequate. However, the placement of estimating columns on the reverse of job order forms has hindered rather than facilitated the use of estimates, section A of the forms giving no indication to originators that detailed estimates are required. In the case of job order memos, no provision at all is made for job cost estimates. Finally, the presently employed method of overhead apportionment is not satisfactory since all applicable overhead expenses are not being charged to completed work.

As was to be expected, a number of additions have been made to the list of routine jobs. However, adequate provision was made to enumerate these additions.

With reference to records, the originally proposed practice of routing the yellow copies of completed job orders to originating departments is not being carried out due to the slow receipt of materials invoices. As was pointed out in Chapter VIII, the significance of these reports is greatest when they are received immediately upon the completion of specific jobs. The slow receipt of invoices has increased the time lag to the point where the practice of routing these cost statements to originating departments has little merit.

The position of job order clerk presently is being filled by a treasury department trainee. Management feels that this position will serve well to acquaint new personnel with the overall refinery operation. Thus, it would appear that the system is sufficiently simple to be clerically maintained by relatively untrained employees.

Finally, the financial controls outlined in Chapter IX are being utilized to their fullest, though limited, extent.

In conclusion, it may be stated that all refinery personnel connected with the job order system are co-operating satisfactorily in its overall operation.

## CHAPTER XI

### RECOMMENDATIONS

Channels of communication undoubtedly will always be a problem in such a system as this. The greater the expenditure, the longer the channel required to initiate the work. In times of emergency, this channel may prove costly. The solution to this problem, of course, lies in the hands of the company's policy-makers. So-called "red tape" can be reduced only by the enlarging of approval authority limits at the lower executive levels. On the other hand, any action along this line will result in a reduction of financial control. Care must be taken to reconcile both these conflicting points before any modifications to existing policies are adopted.

One of the most apparent weaknesses of the system as it now exists is its failure to take into account all the overhead charges applicable to maintenance department work. Obviously, the question of whether to make or buy cannot be answered satisfactorily until all the costs of self-fabrication are considered. This writer, therefore, recommends that all variable and fixed overhead costs applicable to maintenance department work be charged to cost statements on the basis of direct labour hours expended on specific jobs. Since overhead accrues on a time basis, direct labour hours appears to be the most equitable basis of distribution, there being no other applicable measure of time.

To date, it has been found that the computation of job costs has been delayed considerably by the slow receipt of materials invoices. Consequently, cost statements have not been transmitted to originating departments as was originally planned. To enable this transmission, it is recommended that estimated materials costs<sup>1</sup> be used in the immediate absence

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<sup>1</sup> This company has a policy of ordering practically all repair parts directly from vendors when required. Accurate material cost estimates, therefore, are readily obtainable from prospective suppliers. These quotations normally vary little from final invoice figures.



of invoices for computing job costs on the yellow copies of job orders. The remaining copies of the job orders can be retained in the "Job Orders Active" file until invoices are received. Thus, labour costs will be the only actual costs reported on job cost statements to the originator. However, in the great majority of cases, labour costs are the most variable costs, and since labour hours determine the amount of the overhead apportionment, cost statements computed in this manner will still be useful. Coupled with the advantage of rapid transmission, this recommendation appears justified.

One point with respect to mechanics appears capable of modification. It was noted in Chapter VIII that on a job order extending over a month-end, the notation "Partially Complete - (Month)" was transferred from the yellow copy to the green copy of the job order upon completion of the job. The question arises: "Why not keep the yellow copy and route the green copy to the originator, thus eliminating the need for recopying the notation?" There appears no justification for the former practice and this writer therefore recommends that the distribution of job order forms be revised to route the completed green copy to the originator and the yellow copy to the accounting department for eventual filing.

The necessity for rapid transmission of job cost data to the originator has been discussed at great length. However, can the practice of routing copies of both completed job orders and job order memos to the originator be justified in concrete terms? Let us first deal with job orders. In the absence of labour and materials standards and a qualified estimator, the only possible means of keeping management "cost conscious" is through the use of periodic cost reports. While it is one of the duties of the job order clerk to ensure that approval authority limits are not exceeded, he works only from a maximum financial limit. As long as the maximum is not exceeded, the clerk will not interfere. Thus, all expendi-

tures below the limit will be accepted without question. In the hands of the originator, however, all expenditures should bear some significance, either for a current appraisal of the job completed or else in planning future projects. Job order cost statements are thereby justified.

In the case of job order memos, however, there seems little point in routing a copy to the originator upon completion of the job. Management stipulates that costs need be accumulated by the month only. Furthermore, a member of the originating department usually inspects the job upon its completion. Consequently, a copy of the job order memo will add nothing to the originator's present knowledge. It is recommended, therefore, that the yellow copy of job order memos be discarded upon completion of the job rather than routed to the originator.

The question of standards is an important and difficult one. Obviously, standards of some description are necessary before this system can fulfil satisfactorily its last requirement, i.e., measure the overall efficiency of the maintenance department. It has been noted that approximately 70 per cent of the time of the maintenance department is taken up with work of a routine nature. Further, management has stipulated that summary cost statements by month are sufficient for jobs of this type. On the assumption that these routine jobs recur at regular intervals and are constant in scope, budgets of standard labour requirements<sup>2</sup>, times, and materials requirements can be established and employed by the job order clerk in controlling routine job costs.

The term "routine nature" as presently applied, however, cannot justify the preceding assumption. While the jobs listed in the Routine Job Order Manual are routine in as much as they recur in a general sense periodically, a good number of them do not recur regularly. Furthermore, they are not constant in scope. Thus, if standards are to be used satisfactorily,

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<sup>2</sup> Type of labour trade, e.g., welder, carpenter.

these "semi-routine" jobs must be separated from the strictly routine jobs such as instrument inspection. In other words, the Routine Job Order Manual<sup>3</sup> should be restricted to jobs of constant scope and regular recurrence. In addition, the fine degree of control exercisable over these jobs should eliminate the need for issuing job orders for individual routine jobs costing over three hundred dollars. All other jobs must be originated on job order forms.

The next problem is that of controlling job order costs. Since these jobs vary in extent, it is impossible to establish a standard time for each job. However, there will be common elements of work amongst these jobs which are capable of standardization. Also, standard labour and material requirements should be determinable from the description of the job. Given these data, the solution to this problem may be found in accurate job cost estimates based on both available standards and extensive experience. These estimates will enable the job order clerk to control expenditures in the most satisfactory manner available.

What about "semi-routine" jobs costing less than three hundred dollars? Is it worthwhile to estimate costs on this type of work? If any useful degree of control is to be exercised over these jobs, estimates must be used. The costs of control, however, must be justified against possible losses from the lack of control. This is a difficult analysis to make. All that can be said here is that the costs of control will decrease with the accumulation of standard times for both jobs and elements of work.

The preceding discussion points out the need for a qualified estimator. At the present time, management is endeavouring to fill this need.

The introduction of standard and estimated costs will necessitate further changes in the present job order form and the system as a whole. With

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<sup>3</sup> In this case, the present "Routine Job Order Manual" might better be termed the "Standard Routine Job Order Manual".

reference to the job order form, it is recommended that the size of the form be doubled thus enabling all estimated and actual cost data to appear on the front. This change will facilitate the work of the estimator. In addition, in order to control labour by trade, columns should be provided to show the hours spent daily by workers of each trade on a specific job. Thirdly, the distribution of copies of job orders must be revised to route the four forms first from the originator to the estimator and second from the estimator to the approving party. After approval, three copies of the form can proceed as formerly to the maintenance field engineer. Upon completion of the job, if estimates are rigidly adhered to, there is no point in routing a job cost statement to the originating department. Substantial variances, however, should be reported. A revised job order form and job order flow chart incorporating all recommended changes are presented in FIG. 10 and 11, pages 37 and 38.

With regard to the system as a whole, once management has approved the standards set up for routine jobs, there seems little point in making out a job order memo every time a routine job requires carrying out. The establishment of standard labour and time budgets for these jobs along with routine work schedules should provide all the approval required by the foremen to initiate these jobs. For purposes of comparison, the "Summary of Routine Job Costs" can be revised to show standard as well as actual material, labour, and overhead expenditures (FIG. 12, page 39). If required, detailed variance analyses can be determined from the monthly posting sheets. Since job orders are now required to initiate "semi-routine" jobs, the job order memo can be eliminated. A revised job order memo flow chart is presented in FIG. 13, page 40.

At present, the company has not established budgets for its service departments. Consequently, overhead costs cannot be controlled satisfactorily. This fact, of course, prevents the preparation of accurate normal standard overhead rates and thus reduces the accuracy of both job estimates

[illegible]

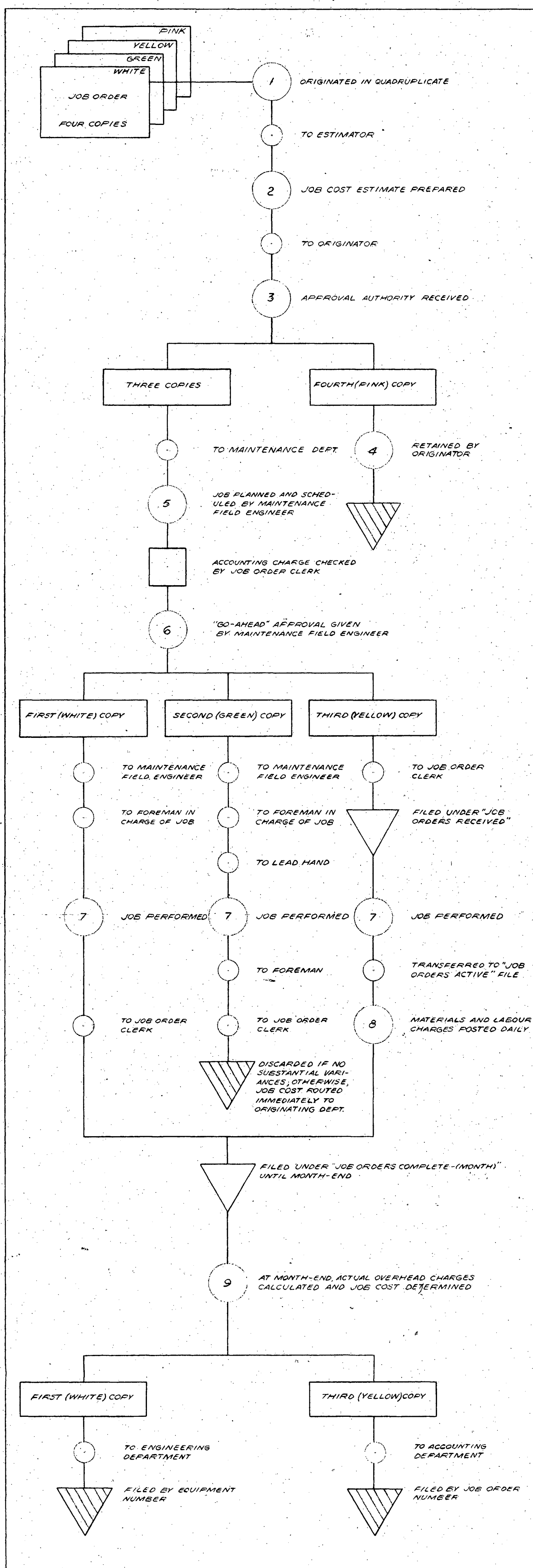


FIG. 11. REVISED JOB ORDER FLOW CHART

[illegible]

FIG. 12. REVISED SUMMARY OF ROUTINE JOB COSTS

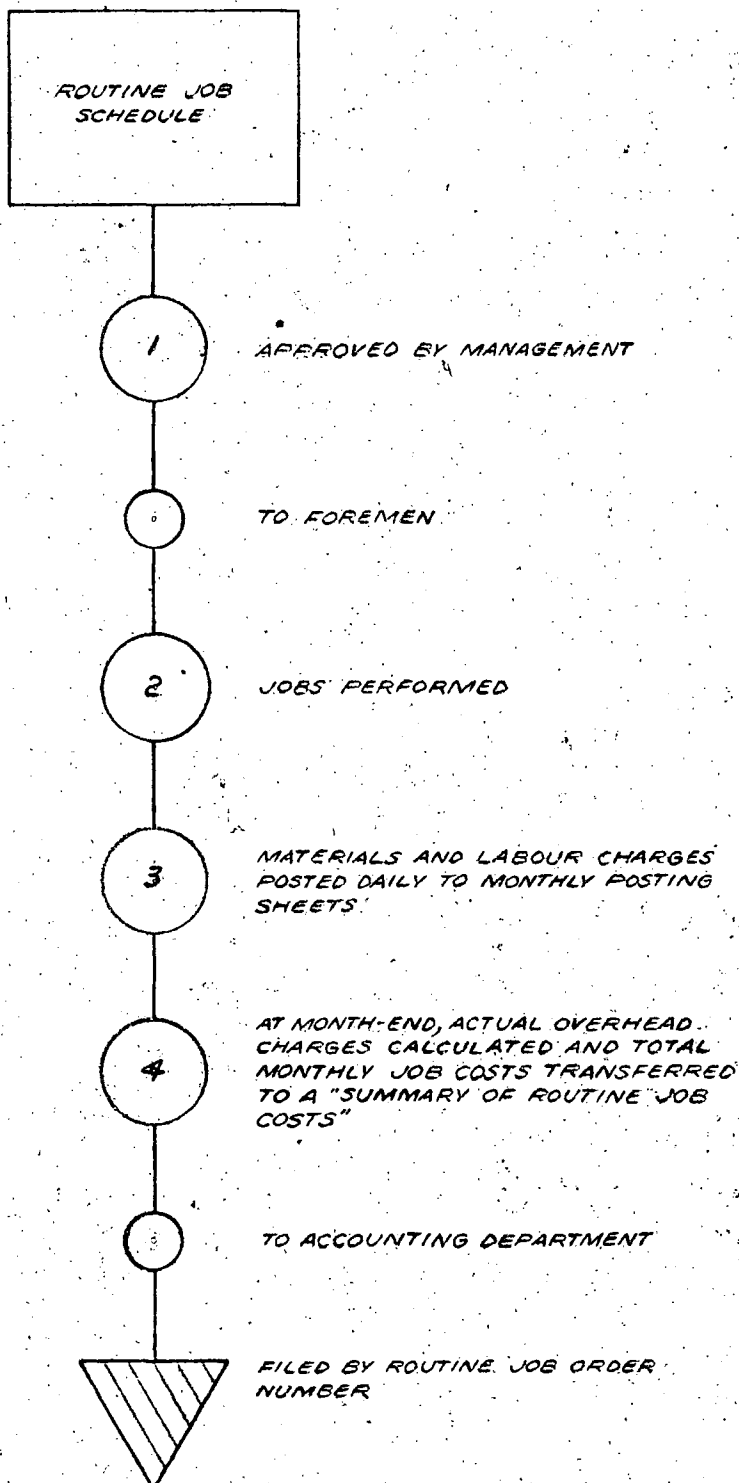


FIG. 13. REVISED JOB ORDER MEMO FLOW CHART



and final job costs. It is strongly recommended, therefore, that management take steps to inaugurate a system of budgetary control.

Finally, it was noted in Chapter VII that the white copies of all completed job orders are routed to the engineering department for filing by equipment number. In addition to serving as useful references for the engineering department, these copies may be used to prepare periodic equipment cost reports. These reports should be of great use in determining machinery and equipment replacements and additions. FIG. 14, page 42, illustrates a proposed equipment cost report. Here, provision is made for listing the equipment number, a brief description of the equipment, the initial cost, depreciation charged to date, total maintenance costs to date, and maintenance costs for the period just ended. Maintenance costs should be normal rather than actual figures to prevent charging equipment for either overly-efficient or inefficient repair operations. Where applicable, normal routine job costs per period should be included also.

[illegible]

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## CHAPTER XII

### SUMMARY

Chapters I-IX have dealt with the establishment of a job order system for a maintenance department in a petroleum refinery. Chapter X has reviewed the system in operation while Chapter XI has, to all intents and purposes, torn the system asunder. This is a rather distressing state of affairs when one realizes that the author was responsible for setting up the system in the first place. Embarrassing as it may be, however, perfection can only be achieved by the constant review and appraisal of methods in operation.

At the present time, the system has established practical channels of communication for maintenance department work. Job scheduling has been facilitated and accurate prime costs determined. Also, a loose financial control device by maximum approval authority limits has been set up. However, concrete standards for comparison are not present in the system. Only extreme cost deviations can be noted.

The recommendations put forth in Chapter XI are concerned primarily with the subject of control. If they are adopted, the usefulness of the system will be increased immensely. If not, the system merely will serve as a vehicle to collect detailed job costs and provide a limited amount of control.

**Appendix A**

**MAINTENANCE DEPARTMENT JOB ORDER SYSTEM**

T103-12-52		101V JOB COST	
<b>JOB ORDER</b>		101V JOB ORDER No. <b>2118</b>	
A	DATE ISSUED	TIME	DATE
		COMPLETION	REQUESTED
TRADE	AREA	REQUESTED BY	
EQUIP. No.		101V	
DATE ISSUED		APPROVED BY	
DESCRIPTION OF JOB		CARRIAGE	
		CLOSED 10005	
		EXCLUSIVE LAUNCHES	
		MATERIAL PURCHASES	
		REQ. NOS.	AMOUNT
B INSTRUCTIONS		PRIORITY	
		ENGINEER (MAINTENANCE DEPT.)	
		DATE	
DATE	HOURS	AMOUNT	HOURS
COMPLETED	TIME	DATE	FOREMAN
INSPECTED AND ACCEPTED BY (ORIG. DEPT.)		TIME	DATE
DISTRIBUTION: WHITE: MAINTENANCE, FOREMAN, COSTING, EQUIPMENT FILES. GREEN: MAINTENANCE, FOREMAN, MECHANIC, FOREMAN COSTING FILES. YELLOW: MAINTENANCE, CONTROL, COSTING, SUPERVISOR (ORIGINATING DEPT.) PINK: ORIGINATOR.			

## MAINTENANCE DEPARTMENT JOB ORDER SYSTEM

Commencing September 22, 1952, a revised Maintenance Department Job Order System will be inaugurated. This system is designed primarily to serve the following purposes:

1. To establish a method of costing both individual and routine jobs daily
2. To ensure that all expenditures are kept within approval authority limits (See page 46).

ALL WORK REQUESTED OF THE MAINTENANCE DEPARTMENT MUST BE COVERED BY JOB ORDERS.

Two forms have been designed to replace the present job order form (R 207):

1. Job Order (T 103-8/52)
2. Job Order Memo (T 104-8/52).

### DEFINITION OF FORMS

#### 1. Job Order

This form is to be used for requesting the following types of work:

(a) Work of a non-repetitive or unusual nature which occurs rather infrequently or is unique because of its magnitude in relationship to the value of equipment or facilities

(b) Work that is estimated to cost over three hundred dollars (\$300.00)

(c) Plant changes

(d) Capital items.

#### 2. Job Order Memo

This form is to be used for requesting jobs not exceeding an estimated three hundred dollars (\$300.00), covered by routine job order numbers.

### MECHANICS OF FORM PREPARATION

#### 1. Job Order (See opposite)

This form is to be prepared in quadruplicate and distributed as indicated (Three copies to the maintenance department, fourth copy retained by the originator). Sections A, B and C are to be completed by the originator, maintenance department engineer and job order clerk respectively.

##### (a) Section A

Where work is to be performed on a specific piece of

APPROVAL AUTHORITY LIMITS

	<u>REFINERY EXPENSE</u>	<u>CAPITAL ITEMS</u>
Foremen	\$ 100.00	-
Maintenance Field Engineer	100.00	-
Maintenance Engineer	100.00	\$ 250.00
Project Engineer	100.00	250.00
Department Heads	250.00	500.00
Assistant Refinery Manager	500.00	1,000.00
Refinery Manager	5,000.00	5,000.00

T104-10-52

## JOB ORDER MEMO

A

TRADE

ZONE

EQUIP. No.

REQUESTED BY

TIME

DATE

COMPLETION REQUESTED

APPROVED BY

JOB ORDER No.

ACCOUNT No.

DATE ISSUED

## DESCRIPTION OF JOB

MATERIAL  
PURCHASES  
REQ. NOS.

B

## INSTRUCTIONS

PRIORITY

ENGINEER (MAINTENANCE DEPT.)

DATE

## COMPLETED

TIME

DATE

FOREMAN

INSPECTED AND ACCEPTED BY (ORIG. DEPT.)

TIME

DATE

WHITE: MAINTENANCE, FOREMAN, EQUIPMENT FILES  
 GREEN: MAINTENANCE, FOREMAN, MECHANIC, DISCARD  
 YELLOW: MAINTENANCE, CONTROL, SUPERVISOR (ORIGINATING DEPT.)  
 PINK: ORIGINATOR



equipment, the equipment number must be stated so as to facilitate permanent filing. In other cases, the accounting charge will suffice.

The requisition numbers of any materials ordered by the originator for the job requested must be quoted on the job order and the "Makers File Copy" (Pink copy of the "Requisition for Material and Services") forwarded to the maintenance department for expediting (In the case of job orders written on capital items, the "Makers File Copy" must first be routed to the engineering department clerk for estimating purposes).

The job order number as well as the account number must be stated on the "Requisition for Material and Services". (State job order number in "To Be Used For" section.)

(b) Section B

The maintenance department engineer will add any necessary instructions and assign a priority to all job orders received. The requisition numbers of any additional materials ordered must be stated on the form.

The job order clerk will check the charges and approvals on all job orders before work may commence.

(c) Section C

The job order clerk will keep a daily record of all labour and materials expended on jobs and will forward statements of the job costs to the supervisors of the originating departments upon completion of the work.

2. Job Order Memo (See opposite)

This form is to be prepared in quadruplicate and distributed as indicated (Three copies to the maintenance department, fourth copy retained by the originator). Sections A and B are to be completed by the originator and maintenance department engineer respectively.

(a) Section A

Where work is to be performed on a specific piece of equipment, the equipment number must be stated so as to facilitate handling in the maintenance department.

The requisition numbers of any materials ordered by the originator for the job requested must be quoted on the job order memo and the "Makers File Copy" (Pink copy of the "Requisition for Material and Services") forwarded to the maintenance department for expediting.

The routine job order number as well as the account number must be stated on the "Requisition for Material and Services" (State routine job order number in "To Be Used For" section).

(b) Section B

The maintenance department engineer will add any nec-

essary instructions and assign a priority to all job order memos received. The requisition numbers of any additional materials ordered must be stated on the form.

The job order clerk will check the charges and approvals on all job order memos before work may commence.

The job order clerk will keep a daily record of all labour and materials expended on routine jobs and will prepare a monthly statement of routine job costs which will be distributed to all departments concerned.

The list of routine job orders will be revised periodically.

Stationery pertaining to the Maintenance Department Job Order System will be available at the treasury department stationery room.

ROUTINE JOB ORDER NUMBERS

ACCOUNT: CRUDE OIL DISTILLATION

ACCOUNT NO. 0200

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1001	4072 - 0200.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1002	4072 - 0200.04,05
MAINTENANCE OF COMPRESSED AIR SYSTEM	1003	4072 - 0200.04,05
MAINTENANCE OF COOLING WATER SYSTEM	1004	4072 - 0200.04,05
MAINTENANCE OF DOMESTIC WATER SYSTEM	1005	4072 - 0200.04,05
MAINTENANCE OF CIRCULATING COOLING WATER SYSTEM	1006	4072 - 0200.04,05
MAINTENANCE OF OIL FUEL SYSTEM	1007	4072 - 0200.04,05
MAINTENANCE OF GAS FUEL SYSTEM	1008	4072 - 0200.04,05
MAINTENANCE OF AMMONIA SYSTEM	1009	4072 - 0200.04,05
MAINTENANCE OF VALVES	1010	4072 - 0200.04,05
MAINTENANCE OF PIPING	1011	4072 - 0200.04,05
MAINTENANCE OF INSULATION	1012	4072 - 0200.04,05
MAINTENANCE OF VESSELS AND TOWERS	1013	4072 - 0200.04,05
MAINTENANCE OF FURNACES	1014	4072 - 0200.04,05
MAINTENANCE OF EXCHANGERS	1015	4072 - 0200.04,05
MAINTENANCE OF PRESSURE INSTRUMENTS	1016	4072 - 0200.04,05
MAINTENANCE OF TEMPERATURE INSTRUMENTS	1017	4072 - 0200.04,05
MAINTENANCE OF FLOW INSTRUMENTS	1018	4072 - 0200.04,05
MAINTENANCE OF MISCELLANEOUS INSTRUMENTS	1019	4072 - 0200.04,05
OPERATIONAL CHECK OF INSTRUMENTS	1020	4072 - 0200.02,03
MAINTENANCE OF PUMPS	1021	4072 - 0200.04,05
MAINTENANCE OF TURBINE DRIVES FOR PUMPS	1022	4072 - 0200.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1023	4072 - 0200.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1024	4072 - 0200.04,05
MAINTENANCE OF MISCELLANEOUS MECHANICAL EQUIPMENT	1025	4072 - 0200.04,05
SHIFT STAND-BY (IDLE TIME)	1026	4072 - 0200.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: CRUDE OIL DISTILLATION

ACCOUNT NO. 0200

DESCRIPTION OF JOB	J.O.	ACCOUNT
CLEAN-UP (EXCEPT WHEN NECESSITATED BY MAINTENANCE OR PLANT CHANGE JOBS)	1027	4072 - 0200.02,03
JANITOR SERVICE	1028	4072 - 0200.02,03
CHANGING BLINDS	1029	4072 - 0200.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: CRACKING - DUBBS PLANTS

ACCOUNT NO. 0400

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1041	4072 - 0400.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1042	4072 - 0400.04,05
MAINTENANCE OF COMPRESSED AIR SYSTEM	1043	4072 - 0400.04,05
MAINTENANCE OF COOLING WATER SYSTEM	1044	4072 - 0400.04,05
MAINTENANCE OF DOMESTIC WATER SYSTEM	1045	4072 - 0400.04,05
MAINTENANCE OF OIL FUEL SYSTEM	1046	4072 - 0400.04,05
MAINTENANCE OF GAS FUEL SYSTEM	1047	4072 - 0400.04,05
MAINTENANCE OF AMMONIA SYSTEM	1048	4072 - 0400.04,05
MAINTENANCE OF VALVES	1049	4072 - 0400.04,05
MAINTENANCE OF PIPING	1050	4072 - 0400.04,05
MAINTENANCE OF INSULATION	1051	4072 - 0400.04,05
MAINTENANCE OF VESSELS AND TOWERS	1052	4072 - 0400.04,05
MAINTENANCE OF FURNACES	1053	4072 - 0400.04,05
MAINTENANCE OF EXCHANGERS	1054	4072 - 0400.04,05
MAINTENANCE OF PRESSURE INSTRUMENTS	1055	4072 - 0400.04,05
MAINTENANCE OF TEMPERATURE INSTRUMENTS	1056	4072 - 0400.04,05
MAINTENANCE OF FLOW INSTRUMENTS	1057	4072 - 0400.04,05
MAINTENANCE OF MISCELLANEOUS INSTRUMENTS	1058	4072 - 0400.04,05
OPERATIONAL CHECK OF INSTRUMENTS	1059	4072 - 0400.02,03
MAINTENANCE OF PUMPS (EXCEPTIONS ARE HOT OIL PUMPS - P-1, P-2, P-62, P-4, P-4A)	1060	4072 - 0400.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1061	4072 - 0400.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1062	4072 - 0400.04,05
MAINTENANCE OF MISCELLANEOUS MECHANICAL EQUIPMENT	1063	4072 - 0400.04,05
SHIFT STAND-BY (IDLE TIME)	1064	4072 - 0400.04,05
CLEAN-UP (EXCEPT WHEN NECESSITATED BY MAINTENANCE OR PLANT CHANGE JOBS)	1065	4072 - 0400.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: CRACKING - DUBBS PLANTS

ACCOUNT NO. 0400

DESCRIPTION OF JOB	J.O.	ACCOUNT
JANITOR SERVICE	1066	4072 - 0400.02,03
MAINTENANCE OF HOT OIL PUMPS - P-1, P-2	1067	4072 - 0400.04,05
MAINTENANCE OF HOT OIL PUMPS - P-62, P-4, P-4A	1068	4072 - 0400.04,05
CHANGING BLINDS	1069	4072 - 0400.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: GAS PLANTS - POLYMERIZATION

ACCOUNT NO. 0660

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1081	4072 - 0660.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1082	4072 - 0660.04,05
MAINTENANCE OF COMPRESSED AIR SYSTEM	1083	4072 - 0660.04,05
MAINTENANCE OF COOLING WATER SYSTEM	1084	4072 - 0660.04,05
MAINTENANCE OF DOMESTIC WATER SYSTEM	1085	4072 - 0660.04,05
MAINTENANCE OF VALVES	1086	4072 - 0660.04,05
MAINTENANCE OF PIPING	1087	4072 - 0660.04,05
MAINTENANCE OF INSULATION	1088	4072 - 0660.04,05
MAINTENANCE OF VESSELS AND TOWERS	1089	4072 - 0660.04,05
MAINTENANCE OF EXCHANGERS	1090	4072 - 0660.04,05
MAINTENANCE OF PRESSURE INSTRUMENTS	1091	4072 - 0660.04,05
MAINTENANCE OF TEMPERATURE INSTRUMENTS	1092	4072 - 0660.04,05
MAINTENANCE OF FLOW INSTRUMENTS	1093	4072 - 0660.04,05
MAINTENANCE OF MISCELLANEOUS INSTRUMENTS	1094	4072 - 0660.04,05
OPERATIONAL CHECK OF INSTRUMENTS	1095	4072 - 0660.02,03
MAINTENANCE OF PUMPS	1096	4072 - 0660.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1097	4072 - 0660.04,05
MAINTENANCE OF RECIPROCATING STEAM DRIVERS	1098	4072 - 0660.04,05
MAINTENANCE OF MISCELLANEOUS MECHANICAL EQUIPMENT	1099	4072 - 0660.04,05
SHIFT STAND-BY (IDLE TIME)	1100	4072 - 0660.04,05
CLEAN-UP (EXCEPT WHEN NECESSITATED BY MAINTENANCE OR PLANT CHANGE JOBS)	1101	4072 - 0660.02,03
JANITOR SERVICE	1102	4072 - 0660.02,03
CHANGING BLINDS	1103	4072 - 0660.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ACID TREATER AND RERUN COLUMN

ACCOUNT NO. 0730

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1111	4072 - 0730.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1112	4072 - 0730.04,05
MAINTENANCE OF COOLING WATER SYSTEM	1113	4072 - 0730.04,05
MAINTENANCE OF VALVES	1114	4072 - 0730.04,05
MAINTENANCE OF PIPING	1115	4072 - 0730.04,05
MAINTENANCE OF VESSELS AND TOWERS	1116	4072 - 0730.04,05
MAINTENANCE OF INSULATION	1117	4072 - 0730.04,05
MAINTENANCE OF MISCELLANEOUS INSTRUMENTS	1118	4072 - 0730.04,05
MAINTENANCE OF PUMPS	1119	4072 - 0730.04,05
MAINTENANCE OF RECIPROCATING STEAM DRIVERS	1120	4072 - 0730.04,05
MAINTENANCE OF MISCELLANEOUS MECHANICAL EQUIPMENT	1121	4072 - 0730.04,05
CLEAN-UP (EXCEPT WHEN NECESSITATED BY MAINTENANCE OR PLANT CHANGE JOBS)	1122	4072 - 0730.02,03
CHANGING BLINDS	1123	4072 - 0730.02,03



ROUTINE JOB ORDER NUMBERS

ACCOUNT: DOCTOR TREATER

ACCOUNT NO. 0731

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1131	4072 - 0731.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1132	4072 - 0731.04,05
MAINTENANCE OF VALVES	1133	4072 - 0731.04,05
MAINTENANCE OF PIPING	1134	4072 - 0731.04,05
MAINTENANCE OF VESSELS AND TOWERS	1135	4072 - 0731.04,05
MAINTENANCE OF INSULATION	1136	4072 - 0731.04,05
MAINTENANCE OF MISCELLANEOUS INSTRUMENTS	1137	4072 - 0731.04,05
MAINTENANCE OF RECIPROCATING STEAM DRIVERS	1138	4072 - 0731.04,05
CLEAN-UP (EXCEPT WHEN NECESSITATED BY MAINTENANCE OR PLANT CHANGE JOBS)	1139	4072 - 0731.02,03
CHANGING BLINDS	1140	4072 - 0731.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: BLENDING AND ETHYLIZING (GASOLINE)

ACCOUNT NO. 0780

DESCRIPTION OF JOB	J.O.	ACCOUNT
CONNECTING AND DISCONNECTING TANK-CARS	1151	4072 - 0780.02,03
MAINTENANCE OF PUMPS	1152	4072 - 0780.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1153	4072 - 0780.04,05
MAINTENANCE OF VALVES	1154	4072 - 0780.04,05
MAINTENANCE OF PIPING	1155	4072 - 0780.04,05
CHANGING BLINDS	1156	4072 - 0780.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: COLAS PLANT

ACCOUNT NO. 0820

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1171	4072 - 0820.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1172	4072 - 0820.04,05
MAINTENANCE OF VALVES	1173	4072 - 0820.04,05
MAINTENANCE OF LINES	1174	4072 - 0820.04,05
MAINTENANCE OF TANKS	1175	4072 - 0820.04,05
MAINTENANCE OF PUMPS	1176	4072 - 0820.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1177	4072 - 0820.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: UNLOADING - CRUDE OIL (ALL TYPES INCLUDING 532-B) ACCOUNT NO. 2101

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF ELECTRIC SYSTEM	1191	4072 - 2101.04,05
MAINTENANCE OF LINES	1192	4072 - 2101.04,05
MAINTENANCE OF TANKS	1193	4072 - 2101.04,05
MAINTENANCE OF PUMPS	1194	4072 - 2101.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1195	4072 - 2101.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1196	4072 - 2101.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: STORING - CRUDE OIL

ACCOUNT NO. 2110

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1211	4072 - 2110.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1212	4072 - 2110.04,05
MAINTENANCE OF VALVES	1213	4072 - 2110.04,05
MAINTENANCE OF PIPING	1214	4072 - 2110.04,05
CLEAN-UP (EXCEPT WHEN NECESSITATED BY MAINTENANCE OR PLANT CHANGE JOBS)	1215	4072 - 2110.04,05
CHANGING BLINDS	1216	4072 - 2110.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: UNLOADING LIGHT OILS - BULK

ACCOUNT NO. 2201

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF VALVES	1231	4072 - 2201.04,05
MAINTENANCE OF LINES	1232	4072 - 2201.04,05
MAINTENANCE OF PUMPS	1233	4072 - 2201.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1234	4072 - 2201.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: FINISHED AND UNFINISHED PRODUCTS -  
STORING AND TRANSFERRING

ACCOUNT NO. 2300

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF PIPING	1241	4072 - 2300.04,05
MAINTENANCE OF VALVES	1242	4072 - 2300.04,05
MAINTENANCE OF PUMPS	1243	4072 - 2300.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1244	4072 - 2300.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1245	4072 - 2300.04,05
CHANGING BLINDS	1246	4072 - 2300.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LIGHT OIL SHIPPING - T/C LOADING RACK

ACCOUNT NO. 2500

DESCRIPTION OF JOB	J.O.	ACCOUNT
TO SUPPLY LABOUR FOR ASSISTING AT T/C LOADING RACK	1261	4072 - 2500.02
MINOR MAINTENANCE AT TANK-CAR LOADING RACK	1262	4072 - 2500.04,05



ROUTINE JOB ORDER NUMBERS

ACCOUNT: LIGHT OIL SHIPPING - T/W LOADING RACK

ACCOUNT NO. 2501

DESCRIPTION OF JOB	J.O.	ACCOUNT
TO SUPPLY LABOUR FOR ASSISTING AT T/W LOADING RACK	1271	4072 - 2501.02
MAINTENANCE OF METERS AT T/W LOADING RACK	1272	4072 - 2501.04,05
MAINTENANCE OF SCREENS AT T/W LOADING RACK	1273	4072 - 2501.04,05
MAINTENANCE OF VALVES AT T/W LOADING RACK	1274	4072 - 2501.04,05
MINOR MAINTENANCE AT T/W LOADING RACK	1275	4072 - 2501.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LIGHT OIL SHIPPING - BULK (INCLUDING T/C) BY WHARF ACCOUNT NO. 2502

DESCRIPTION OF JOB

J.O.

ACCOUNT

TO SUPPLY LABOUR FOR LOADING AND UNLOADING AT WHARF 1281

4072 - 2502.02

ROUTINE JOB ORDER NUMBERS

ACCOUNT: WHARF STRUCTURE AND SHED

ACCOUNT NO. 2503

DESCRIPTION OF JOB

J.O.

ACCOUNT

MAINTENANCE OF ELECTRIC SYSTEM

1291

4072 - 2503.04,05

MAINTENANCE OF WHARF STRUCTURE

1292

4072 - 2503.04,05

MAINTENANCE OF SHED

1293

4072 - 2503.04,05

MAINTENANCE OF WINCHES

1294

4072 - 2503.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LIGHT OIL FILLING AND SHIPPING - CONTAINERS  
(44 GAL. DRUMS TO 1 GAL. CANS)

ACCOUNT NO. 2600

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF ELECTRIC SYSTEM	1361	4072 - 2600.04,05
MAINTENANCE OF LIGHT OIL FILLING METERS	1362	4072 - 2600.04,05
MAINTENANCE OF FILLING HOSES	1363	4072 - 2600.04,05
MAINTENANCE OF ROLLERS AND TRIPS	1364	4072 - 2600.04,05
MAINTENANCE OF NORDSTROM FILLING COCKS	1365	4072 - 2600.04,05
MAINTENANCE OF DRUM INSPECTION LIGHT	1366	4072 - 2600.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: DRUM RECONDITIONING

ACCOUNT NO. 2700

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1301	4072 - 2700.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1302	4072 - 2700.04,05
MAINTENANCE OF COMPRESSED AIR SYSTEM	1303	4072 - 2700.04,05
MAINTENANCE OF PORTCO OVENS	1304	4072 - 2700.04,05
MAINTENANCE OF DE-RUSTER	1305	4072 - 2700.04,05
MAINTENANCE OF CHIME MACHINE	1306	4072 - 2700.04,05
MAINTENANCE OF DRUM INSPECTION LIGHTS	1307	4072 - 2700.04,05
MAINTENANCE OF PUMPS	1308	4072 - 2700.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1309	4072 - 2700.04,05
MAINTENANCE OF OVEN CYCLE CONTROL SWITCHES	1310	4072 - 2700.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ASPHALT - STORING, HANDLING, FILLING & SHIPPING

ACCOUNT NO. 2800

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1321	4072 - 2800.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1322	4072 - 2800.04,05
MAINTENANCE OF PUMPS	1323	4072 - 2800.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1324	4072 - 2800.04,05
MAINTENANCE OF VALVES	1325	4072 - 2800.04,05
MAINTENANCE OF METER	1326	4072 - 2800.04,05
MAINTENANCE OF LOADING SPOUTS (TRUCK AND TANK-CAR)	1327	4072 - 2800.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: COLAS - STORING, HANDLING, FILLING & SHIPPING

ACCOUNT NO. 2820

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1341	4072 - 2820.04,05
MAINTENANCE OF ELECTRIC SYSTEM	1342	4072 - 2820.04,05
MAINTENANCE OF PUMPS	1343	4072 - 2820.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1344	4072 - 2820.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1345	4072 - 2820.04,05
MAINTENANCE OF TRUCK LOADING SPOUTS	1346	4072 - 2820.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: BLOWING FLUX - STORING, HANDLING, FILLING & SHIPPING ACCOUNT NO. 2830

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM AT TANK 4 & LOADING LINES	1351	4072 - 2830.04,05



ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL - RECEIVING AND STORING - BULK

ACCOUNT NO. 3102

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1381	4072 - 3102.04,05
MAINTENANCE OF PUMPS	1382	4072 - 3102.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1383	4072 - 3102.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OILS - COMPOUNDING

ACCOUNT NO. 3200

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STEAM SYSTEM	1401	4072 - 3200.04,05
MAINTENANCE OF PUMPS	1402	4072 - 3200.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1403	4072 - 3200.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1404	4072 - 3200.04,05
MAINTENANCE OF METERS	1405	4072 - 3200.04,05
CLEAN-OUT OF SCREENS	1406	4072 - 3200.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL - BULK FILLING AND SHIPPING

ACCOUNT NO. 3300

DESCRIPTION OF JOB

J.O.

ACCOUNT

MAINTENANCE OF STEAM SYSTEM

1421

4072 - 3300.04,05

MAINTENANCE OF PIPING

1422

4072 - 3300.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL - DRUM FILLING AND SHIPPING  
(44 GAL. TO 10 GAL.)

ACCOUNT NO. 3351

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF LOADING LINES	1431	4072 - 3351.04,05
MAINTENANCE OF DRUM CONVEYORS	1432	4072 - 3351.04,05
MAINTENANCE OF AIR BRAKES ON DRUM CONVEYORS	1433	4072 - 3351.04,05
MAINTENANCE OF NORDSTROM COCKS	1434	4072 - 3351.04,05
MAINTENANCE OF SCALES	1435	4072 - 3351.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL - 4 GALLON CAN FILLING

ACCOUNT NO. 3352

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF LOADING HOSES	1441	4072 - 3352.04,05
MAINTENANCE OF CAN CONVEYOR	1442	4072 - 3352.04,05
MAINTENANCE OF NORDSTROM COCKS	1443	4072 - 3352.04,05
MAINTENANCE OF SCALES	1444	4072 - 3352.04,05
CLEAN-OUT OF SCREENS	1445	4072 - 3352.04,05
CLEAN-OUT OF STORAGE DRUMS	1446	4072 - 3352.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL - 1 GALLON CAN FILLING

ACCOUNT NO. 3353

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF CAN SCRAMBLER	1461	4072 - 3353.04,05
MAINTENANCE OF CONVEYORS AND SHUTES	1462	4072 - 3353.04,05
MAINTENANCE OF FILLING MACHINE	1463	4072 - 3353.04,05
MAINTENANCE OF METER	1464	4072 - 3353.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL - 24/1 QUART FILLING

ACCOUNT NO. 3354

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF CAN SCRAMBLER	1471	4072 - 3354.04,05
MAINTENANCE OF CONVEYORS AND SHUTES	1472	4072 - 3354.04,05
MAINTENANCE OF FILLING MACHINE	1473	4072 - 3354.04,05
MAINTENANCE OF METER	1474	4072 - 3354.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: PACKAGED GOODS WAREHOUSE

ACCOUNT NO. 3370

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF ELECTRIC SYSTEM	1481	4072 - 3370.04,05
MAINTENANCE OF UNIT HEATERS	1482	4072 - 3370.04,05
MAINTENANCE OF HAYES-LAWRENCE FORK LIFT TRUCK	1483	4072 - 3370.04,05
MAINTENANCE OF TOWMOTOR	1484	4072 - 3370.04,05
MAINTENANCE OF STENCILS	1485	4072 - 3370.04,05



ROUTINE JOB ORDER NUMBERS

ACCOUNT: LUBE OIL FILLING BUILDING

ACCOUNT NO. 3380

DESCRIPTION OF JOB

J.O.

ACCOUNT

MAINTENANCE OF ELECTRIC SYSTEM

1491

4072 - 3380.04,05

MAINTENANCE OF LUBE OIL FILLING BUILDING

1492

4072 - 3380.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ANTI-FREEZE - RECEIVING, BLENDING & STORING

ACCOUNT NO. 3800

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF PUMPS	1511	4072 - 3800.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1512	4072 - 3800.04,05
MAINTENANCE OF RECIPROCAL STEAM DRIVERS	1513	4072 - 3800.04,05
MAINTENANCE OF ADDITIVE STIRRER	1514	4072 - 3800.04,05
MAINTENANCE OF SCREENS	1515	4072 - 3800.04,05
CLEAN-OUT OF SCREENS	1516	4072 - 3800.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ANTI-FREEZE - FILLING 1 GALLON CANS

ACCOUNT NO. 3831

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF CAN SCRAMBLER	1541	4072 - 3831.04,05
MAINTENANCE OF CONVEYORS AND SHUTES	1542	4072 - 3831.04,05
MAINTENANCE OF FILLING MACHINE	1543	4072 - 3831.04,05
MAINTENANCE OF METER	1544	4072 - 3831.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ANTI-FREEZE - FILLING 16/1 QUART CANS

ACCOUNT NO. 3835

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF CAN SCRAMBLER	1551	4072 - 3835.04,05
MAINTENANCE OF CONVEYORS AND SHUTES	1552	4072 - 3835.04,05
MAINTENANCE OF FILLING MACHINE	1553	4072 - 3835.04,05
MAINTENANCE OF METER	1554	4072 - 3835.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: SPECIALTIES & CHEMICALS - RECEIVING, HANDLING,  
FILLING, BLENDING & SHIPPING

ACCOUNT NO. 3900

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF ELECTRIC SYSTEM	1561	4072 - 3900.04,05
MAINTENANCE OF LIGHTER FLUID FILLING MACHINE	1562	4072 - 3900.04,05
MAINTENANCE OF BOSTITCH MACHINE	1563	4072 - 3900.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: OIL FUEL SYSTEM

ACCOUNT NO. 4100

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF OIL FUEL SYSTEM

1571

4072 - 4100.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: PUMP HOUSES

ACCOUNT NO. 4102

DESCRIPTION OF JOB

J.O.

ACCOUNT

MINOR MAINTENANCE AT PUMP HOUSES

1581

4072 - 4102.04,05

PERIODIC OILING AND OPERATIONAL CHECKS OF PUMPS  
AT PUMP HOUSES

1582

4072 - 4102.02,03

CHANGING BLINDS AS REQUIRED AT PUMP HOUSES

1583

4072 - 4102.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LINES AND CONNECTIONS

ACCOUNT NO. 4200

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF LINES AND CONNECTIONS

1591

4072 - 4200.04,05



ROUTINE JOB ORDER NUMBERS

ACCOUNT: GAS FUEL SYSTEM

ACCOUNT NO. 4400

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF GAS FUEL SYSTEM

1601

4072 - 4400.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: STEAM SYSTEM AND BOILER HOUSE

ACCOUNT NO. 5200

DESCRIPTION OF JOB	J.O.	ACCOUNT
TO REPAIR STEAM LEAKS IN MAIN STEAM LINES AND AT BOILER HOUSE	1611	4072 - 5200.04,05
MAINTENANCE OF INSTRUMENTS AT BOILER HOUSE	1612	4072 - 5200.04,05
OPERATIONAL CHECK OF INSTRUMENTS AT BOILER HOUSE	1613	4072 - 5200.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ELECTRIC SYSTEM

ACCOUNT NO. 5400

DESCRIPTION OF JOB	J.O.	ACCOUNT
ROUTINE MAINTENANCE OF ELECTRIC SYSTEM	1621	4072 - 5400.04,05
WEEKLY INSPECTION OF ELECTRIC SYSTEM	1622	4072 - 5400.02,03
TO REPLACE BURNED-OUT ELECTRIC LIGHT BULBS AND FUSES	1623	4072 - 5400.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: COMPRESSED AIR SYSTEM

ACCOUNT NO. 5600

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF AIR COMPRESSORS	1631	4072 - 5600.04,05
MAINTENANCE OF MOTOR DRIVES FOR AIR COMPRESSORS	1632	4072 - 5600.04,05
MAINTENANCE OF STEAM DRIVERS FOR AIR COMPRESSORS	1633	4072 - 5600.04,05
ROUTINE MAINTENANCE OF COMPRESSED AIR SYSTEM	1634	4072 - 5600.04,05
PERIODIC DRAINING OF ALL AIRLINE CONDENSATE TRAPS	1635	4072 - 5600.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: COOLING WATER SYSTEM (INCLUDING DOMESTIC WATER)	ACCOUNT NO. 5800
DESCRIPTION OF JOB	J.O. ACCOUNT
MAINTENANCE OF PUMPS	1641 4072 - 5800.04,05
MAINTENANCE OF TURBINE DRIVES FOR PUMPS	1642 4072 - 5800.04,05
MAINTENANCE OF MOTOR DRIVES FOR PUMPS	1643 4072 - 5800.04,05
PERIODIC CHECK OF PUMPS	1644 4072 - 5800.02,03
MAINTENANCE OF FANS	1645 4072 - 5800.04,05
MAINTENANCE OF FAN MOTORS	1646 4072 - 5800.04,05
MAINTENANCE OF COOLING TOWERS	1647 4072 - 5800.04,05
ROUTINE MAINTENANCE OF COOLING WATER SYSTEM	1648 4072 - 5800.04,05
CLEAN-OUT OF SCREENS AND LINES	1649 4072 - 5800.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: LABORATORIES

ACCOUNT NO. 6100

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF ELECTRICAL EQUIPMENT IN LABORATORIES	1661	4072 - 6100.04,05
MAINTENANCE OF REFRIGERATION SYSTEM IN LABORATORIES	1662	4072 - 6100.04,05
MAINTENANCE OF MISCELLANEOUS EQUIPMENT IN LABORATORIES	1663	4072 - 6100.04,05
TRANSPORTING MATERIAL AND EQUIPMENT WITHIN THE REFINERY FOR LABORATORIES	1664	4072 - 6100.02,03
CLEANING AND WAXING FLOORS AND CLEANING WINDOWS IN LABORATORIES	1665	4072 - 6100.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: REFINERY STORES

ACCOUNT NO. 6200

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF STORES BUILDING AND YARDS	1671	4072 - 6200.04,05
TO SUPPLY LABOUR TO ASSIST IN STORES	1672	4072 - 6200.02
TRANSPORTING MATERIAL FROM STORES TO JOBSITE	1673	4072 - 6200.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: SHOPS

ACCOUNT NO. 6300

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF CENTRAL AND FIELD SHOPS INCLUDING UTILITIES	1681	4072 - 6300.04,05
MAINTENANCE OF STATIONARY SHOP EQUIPMENT	1682	4072 - 6300.04,05
JANITOR SERVICE FOR CENTRAL AND FIELD SHOPS	1683	4072 - 6300.02,03



ROUTINE JOB ORDER NUMBERS

ACCOUNT: SALVAGE

ACCOUNT NO. 6400

DESCRIPTION OF JOB

J.O.

ACCOUNT

SALVAGE SORTING, DISMANTLING AND CLEANING USED MATERIALS

1701 4072 - 6400.02,03

REPAIRING SALVAGED EQUIPMENT

1702 4072 - 6400.02,03

TRANSPORTING OF USED MATERIAL FROM SALVAGE

1703 4072 - 6400.02,03

LOADING OF SCRAP

1704 4072 - 6400.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: TOOLS - TOOL ROOM

ACCOUNT NO. 6500

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF TOOLS IN TOOL ROOM	1711	4072 - 6500.04,05
MAINTENANCE OF PORTABLE EQUIPMENT (COMPRESSORS, WELDERS, ETC.)	1712	4072 - 6500.04,05
TO COVER TIME OF MEN WORKING IN TOOL ROOM	1713	4072 - 6500.02
TO COVER PURCHASES OF NEW TOOLS CARRIED IN TOOL ROOM	1714	4072 - 6500.03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: ROADS, WALKS & GROUNDS

ACCOUNT NO. 6600

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF ROADS AND GROUNDS	1721	4072 - 6600.04,05
MAINTENANCE OF STAIRS AND WOODEN WALKWAYS	1722	4072 - 6600.04,05
CLEAN-UP OF ROADS, WALKS AND GROUNDS	1723	4072 - 6600.02,03
CLEAN-OUT OF CATCH-BASINS AND DRAINS	1724	4072 - 6600.02,03
GARBAGE DISPOSAL	1725	4072 - 6600.02,03
HAYING	1726	4072 - 6600.02,03
WEED CONTROL	1727	4072 - 6600.02,03
SNOW REMOVAL	1728	4072 - 6600.02,03
SANDING	1729	4072 - 6600.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: STAFF HOUSE

ACCOUNT NO. 6701

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF EQUIPMENT AT STAFF HOUSE	1741	4072 - 6701.04,05
ROUTINE MAINTENANCE OF STAFF HOUSE	1742	4072 - 6701.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: CLUB HOUSE

ACCOUNT NO. 6702

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF CLUB HOUSE

1751

4072 - 6702.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: AUTOMOTIVE EXPENSES

ACCOUNT NO. 6800

DESCRIPTION OF JOB	J.O.	ACCOUNT
<u>PASSENGER CARS - LICENSED</u>		
MAINTENANCE OF UNIT NO. 6801	1771	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6803	1772	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6804	1773	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6805	1774	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6806	1775	4072 - 6800.04,05
<u>TRUCKS - LICENSED</u>		
MAINTENANCE OF UNIT NO. 6841	1776	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6842	1777	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6843	1778	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6844	1779	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6845	1780	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6846	1781	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6847	1782	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6848	1783	4072 - 6800.04,05
<u>TRUCKS - NOT LICENSED</u>		
MAINTENANCE OF UNIT NO. 6861	1784	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6862	1785	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6864	1786	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6865	1787	4072 - 6800.04,05
MAINTENANCE OF UNIT NO. 6866	1788	4072 - 6800.04,05
CLEANING AND GASSING AUTOMOTIVE EQUIPMENT	1789	4072 - 6800.02,03
SERVICING AUTOMOTIVE EQUIPMENT	1790	4072 - 6800.02,03
OPERATION OF AUTOMOTIVE EQUIPMENT (GASOLINE AND OIL)	1791	4072 - 6800.03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: TELEPHONE, TELEGRAPH SYSTEM & REFINERY INTERCOM. ACCOUNT NO. 7000  
SYSTEM

DESCRIPTION OF JOB	J.O.	ACCOUNT
ROUTINE MAINTENANCE OF SYSTEM	1801	4072 - 7000.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: FIRE PROTECTION, SAFETY & SERVICES

ACCOUNT NO. 7100

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF SAFETY EQUIPMENT	1811	4072 - 7100.04,05
MAINTENANCE OF FIRST AID EQUIPMENT	1812	4072 - 7100.04,05
MAINTENANCE OF FIRE FIGHTING EQUIPMENT	1813	4072 - 7100.04,05
MAINTENANCE OF GATE EQUIPMENT	1814	4072 - 7100.04,05
TO COVER TIME OF MEN ATTENDING FIRE DRILLS	1815	4072 - 7100.02
TO COVER TIME SPENT AT GROUP SAFETY COMMITTEE MEETINGS	1816	4072 - 7100.02



ROUTINE JOB ORDER NUMBERS

ACCOUNT: EFFLUENT CONTROL

ACCOUNT NO. 7200

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF EFFLUENT CONTROL SYSTEM

1831

4072 - 7200.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: PERSONNEL AND INDUSTRIAL RELATIONS DE-  
PARTMENT

ACCOUNT NO. 7300

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF EQUIPMENT	1841	4072 - 7300.04,05
TO COVER TIME OF TRAINING SESSIONS	1842	4072 - 7300.02

ROUTINE JOB ORDER NUMBERS

ACCOUNT: GENERAL EXPENSE

ACCOUNT NO. 7400

DESCRIPTION OF JOB	J.O.	ACCOUNT
TO COVER TIME OF UNION NEGOTIATION MEETINGS	1851	4072 - 7400.02
TO COVER TIME SPENT IN MEETINGS WITH MANAGEMENT	1852	4072 - 7400.02
TO COVER TIME SPENT BY SHOP STEWARDS ATTENDING TO UNION BUSINESS AS PER AGREEMENT	1853	4072 - 7400.02
TO COVER TIME OF EMPLOYEE INDUCTIONS	1854	4072 - 7400.02
TO COVER TIME OF PHYSICAL EXAMINATIONS AND OUT- LINING OF COMPANY BENEFIT PROGRAMME	1855	4072 - 7400.02
TO COVER TIME SPENT IN CONNECTION WITH MIS- CELLANEOUS ACTIVITIES, E.G., BLOOD CLINICS, X-RAY CLINICS, CHARITY CANVASSERS, ETC.	1856	4072 - 7400.02
TO COVER MISCELLANEOUS GENERAL EXPENSE (OPERATING)	1857	4072 - 7400.02,03
TO COVER MISCELLANEOUS GENERAL EXPENSE (MAIN- TENANCE)	1858	4072 - 7400.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: SLOP RECOVERY AND DISPOSAL

ACCOUNT NO. 7500

DESCRIPTION OF JOB	J.O.	ACCOUNT
MAINTENANCE OF PUMP AT SLOP OIL BASIN	1871	4072 - 7500.04,05
MAINTENANCE OF MISCELLANEOUS EQUIPMENT AT SLOP OIL BASIN	1872	4072 - 7500.04,05
CLEANING SLOP OIL BASIN	1873	4072 - 7500.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: RAILROADS

ACCOUNT NO. 7700

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF RAILROADS

1881

4072 - 7700.04,05

ROUTINE JOB ORDER NUMBERS

ACCOUNT: TECHNOLOGICAL DEPARTMENT

ACCOUNT NO. 8000

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF TECHNOLOGICAL DEPARTMENT  
OFFICE

1911 4072 - 8000.04,05

JANITOR SERVICE

1912 4072 - 8000.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: MAIN OFFICE ENGINEERING

ACCOUNT NO. 8100

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF MAIN OFFICE ENGINEERING

1921

4072 - 8100.04,05

JANITOR SERVICE

1922

4072 - 8100.02,03

ROUTINE JOB ORDER NUMBERS

ACCOUNT: MAIN OFFICE TREASURY DEPARTMENT

ACCOUNT NO. 8200

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF MAIN OFFICE TREASURY  
DEPARTMENT

1941

4072 - 8200.04,05

JANITOR SERVICE

1942

4072 - 8200.02,03



ROUTINE JOB ORDER NUMBERS

ACCOUNT: LOWER WAREHOUSE OFFICES

ACCOUNT NO. 8201

DESCRIPTION OF JOB

J.O.

ACCOUNT

ROUTINE MAINTENANCE OF LOWER WAREHOUSE OFFICES

1951

4072 - 8201.04,05

- 112 -

Appendix B

MAINTENANCE DEPARTMENT DAILY TIME SHEETS

MAINTENANCE DEPARTMENT JOB ORDER SYSTEM

DAILY TIME SHEETS  
INSTRUCTIONS TO FOREMEN

Commencing September 22, 1952, a revised Maintenance Department Job Order System will be inaugurated. The following forms have been designed to facilitate the collection of labour costs:

1. Daily Time Sheet - Straight Time (T100-8/52)
2. Daily Time Sheet - Overtime (T101-8/52)
3. Daily Time Sheet - Supplementary Rates (T102-8/52)

Foremen will be responsible for the recording and distribution of all labour costs incurred by the Department, and will complete all time sheets except as noted below.

Prior to being forwarded to the Payroll Department, all forms must be signed by the foreman in charge and checked by Mr. W. P. Webster.

DEFINITIONS OF FORMS

1. DAILY TIME SHEET - STRAIGHT TIME.

This form will be used to record and distribute all labour costs incurred at straight time wage rates. Shift work is included in this category.

2. DAILY TIME SHEET - OVERTIME.

This form will be used to record and distribute all labour costs incurred at the following wage rates:

- (a) Half time (Excluding half time change of shift schedule).
- (b) Time and one-half.
- (c) Double time.

3. DAILY TIME SHEET - SUPPLEMENTARY RATES.

This form will be used to record and distribute all labour costs incurred at the following supplementary wage rates:

- (a) Special Callout.
- (b) Half time change of shift schedule.
- (c) Dirty money.

MECHANICS OF FORMS PREPARATION (See attached samples).

Charges will be taken from either Job Orders (T103-8/52) or Job Order Memos (T104-8/52). In the cases of such men as Kolbus, Kettlewell, Lambie, Brendon, D. Fraser, and their helpers, charges for preventative maintenance and routine work will be taken directly from the list of routine job order numbers.

ALL LABOUR CHARGES MUST BE COVERED BY JOB ORDER NUMBERS AS WELL AS BY ACCOUNT NUMBERS.

1. DAILY TIME SHEET - STRAIGHT TIME.

This form is to be completed by the foreman only, the shift and date being noted (See EXAMPLE 1.).

In the case of either (a) Change of shift schedule, or (b) Half time overtime, the foreman will check the appropriate column (See EXAMPLES 1. (a) and 1. (b).), thereby authorizing the completion of respective Overtime or Supplementary Rates forms. Prior to being forwarded to the Payroll Department, however, these latter forms must be signed by the foreman in charge.

2. DAILY TIME SHEET - OVERTIME.

This form is to be completed by the foreman in the following manner, the shift and date being noted:

(a) Half time

Completed as authorized by the foreman (See EXAMPLE 2.(a).).

(b) Time and one-half

1. If an employee works through his lunch period, check "TIME AND ONE HALF" and "LUNCH PERIOD" (See EXAMPLE 2.(b) 1.).

2. If an employee is retained immediately after completing eight hours of work in one day, check "TIME AND ONE-HALF" (See EXAMPLE 2.(b) 2.).

3. If an employee works on his first day off, check "TIME AND ONE-HALF" and "FIRST DAY OFF" (See EXAMPLE 2.(b) 3.). Do not confuse with "SPECIAL CALLOUT".

(c) Double time

If an employee works on his second day off, check "DOUBLE TIME" and "SECOND DAY OFF" (See EXAMPLE 2.(c).).

3. DAILY TIME SHEET - SUPPLEMENTARY RATES.

This form is to be completed by the foreman in the following manner, the shift and date being noted:

(a) Special callout.

1. If an employee is called out after having completed eight hours of work in one day, check "SPECIAL CALLOUT" and record the actual number of hours worked (See EXAMPLE 3.(a) 1.).

2. If an employee is called out on his first day off, check "SPECIAL CALLOUT" and "FIRST DAY OFF", and record the actual number of hours worked (See EXAMPLE 3.(a) 3.).

3. If an employee is called out on his second day off, check "SPECIAL CALLOUT" and "SECOND DAY OFF", and record the actual number of hours worked (See EXAMPLE 3.(a) 3.).

(b) Half time change of shift schedule.

Completed as authorized by the foreman (See EXAMPLE 3. (b).).

(c) Dirty money.

If dirty money is to be paid, check "DIRTY MONEY" (See EXAMPLE 3.(c).).

Please observe the following additional points in preparing time sheets\*

(a) Each employee must be shown for his full normal time (8 hours) on one sheet only.

(b) Temporary wage rate numbers are to be circled.

(c) Distribute charges to the nearest hour except for overtime, lateness, etc.

(d) If possible, lump the names of all employees engaged on one job order together.

For further details concerning wage payment, consult the Payroll Department.

EXAMPLE 1

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - STRAIGHT TIME (T100-8/52)  
WITH STRAIGHT TIME WAGE RATES.

THE FOLLOWING MEN WERE ON THE 8-4 SHIFT, DECEMBER 17, 1951.

<u>CLOCK NO.</u>	<u>NAME</u>	<u>WAGE RATE NO.</u>	<u>JOBS WORKED</u> <u>Hours Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	4 4372	4072 - 0400.04
			2 4266	4072 - 0600.04
			2 4455	4072 - 2600.04
411	F.J. SMITH	85	4 4372	4072 - 0400.04
			2 4266	4072 - 0660.04
			2 4455	4072 - 2600.04
325	L.V. BROWN	101	2 4372	4072 - 0400.04
			6 4211	4072 - 6200.02
333	O.B. MACKIE (MACKIE TOOK TWO (2) HOURS OFF FOR PERSONAL REASONS)	86	6 4460	4072 - 5400.02
426	T.W. WHITE	106	OFF SICK	P.D. 02
367	J.W. GREEN	106	OFF ON WORKMEN'S COMPENSATION	P.D. 03

T-100

DAILY TIME SHEET - STRAIGHT TIME  
MAINTENANCE DEPARTMENT

12-8

8-4

4-12

Shift

Foreman

DECEMBER 17, 1951

Date

CLOCK NO.	NAME	Change of Shift Half-time Overt.	VAC., Sick, W.CB P.R., etc.	Wage Rate No.	TOTAL		Shift Diff.	J.O. 4372		J.O. 4263		J.O. 4455		J.O. 4211		J.O. 4660		J.O.		J.O.		J.O.		J.O.	
					HRS	AMOUNT		ACCT. 4072 0900.04		ACCT. 4072 0660.04		ACCT. 4072 2600.04		ACCT. 4072 6200.02		ACCT. 4072 5900.02		ACCT. P.O. 02		ACCT. P.O. 03		ACCT.		ACCT.	
								HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT
309	W.G. JONES			83	8			4		2		2													
411	F.L. SMITH			85	8			4		2		2													
325	L.V. BROWN			101	8			2					6												
333	C.B. MACKIE		P.R.	83	6									6											
426	T.W. WHITE		SICK	106	8										8										
367	J.W. GREEN		W.C.B.	106	8											8									
TOTAL																									

DISTRIBUTION:

1. Both copies to Payroll Department for Extension

2. Duplicate extension to Maintenance Department



EXAMPLE 1. (a)

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - STRAIGHT TIME (T 100-8/52)  
WITH CHANGE OF SHIFT SCHEDULE WAGE RATES.

THE FOLLOWING MEN WERE ON THE 4-12 SHIFT, DECEMBER 18, 1952:

CLOCK <u>NO.</u>	<u>NAME</u>	WAGE RATE <u>NO.</u>	JOBS WORKED <u>Hours</u> <u>Number</u>		<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	8	4777	4072 - 0400.02
411	F.J. SMITH	85	8	4778	4072 - 0200.02
325	L.V. BROWN	101	8	4880	4072 - 0200.02

PRIOR TO DECEMBER 18TH, THESE MEN HAD BEEN ON THE 8-4 SHIFT.







EXAMPLE 1 (b)

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - STRAIGHT TIME (T 100-8/52)  
WITH HALF TIME OVERTIME WAGE RATES

THE FOLLOWING MEN ON THE 4-12 SHIFT, DECEMBER 18, 1951 WORKED  
THROUGH TO 8:00 A.M., DECEMBER 19, 1951.

<u>CLOCK NO.</u>	<u>NAME</u>	<u>WAGE RATE NO.</u>	<u>JOBS WORKED</u>	<u>ACCOUNT NUMBERS</u>
			<u>Hours</u> <u>Number</u>	
309	W.G. JONES	83	8 4777	4072 - 0400.02
411	F.J. SMITH	85	8 4778	4072 - 0200.02
325	L.V. BROWN	101	8 4880	4072 - 0200.02

T-100

DAILY TIME SHEET - STRAIGHT TIME  
MAINTENANCE DEPARTMENT

12-8 ✓

8-4

4-12

Shift

Foreman

DECEMBER 19, 1951

Date

CLOCK NO.	NAME	Change of Shift Half-time Overt.	VAC., Sick, W.CB P.R., etc.	Wage Rate No.	TOTAL		Shift Diff.	J.O. 4777		J.O. 4778		J.O. 4880		J.O.		J.O.		J.O.		J.O.		J.O.				
					HRS	AMOUNT		ACCT. 4072 0400.02	HRS	AMOUNT	ACCT. 4072 0200.02	HRS	AMOUNT	ACCT. 4072 0200.02	HRS	AMOUNT	ACCT.	HRS	AMOUNT	ACCT.	HRS	AMOUNT	ACCT.	HRS	AMOUNT	ACCT.
309	W. G. JONES	✓		83	8			8																		
411	F. J. SMITH	✓		85	8					8																
325	L. V. BROWN	✓		101	8							8														
TOTAL																										

DISTRIBUTION:

1. Both copies to Payroll Department for Extension

2. Duplicate extension to Maintenance Department

T-100 DAILY TIME SHEET - STRAIGHT TIME MAINTENANCE DEPARTMENT										12-8 <input checked="" type="checkbox"/>			8-4 <input type="checkbox"/>		4-12 <input type="checkbox"/>		Foreman				DECEMBER 19, 1951 Date					
CLOCK NO.	NAME	Change of Shift, Half-time Overt.	VAC., Sick, W.CB P.R., etc.	Wage Rate No.	TOTAL		Shift Diff.	J.O. 9777		J.O. 9778		J.O. 9880		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		
								ACCT. 4072 0400.02		ACCT. 4072 0200.02		ACCT. 4072 0200.02		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		
					HRS	AMOUNT		HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS	AMOUNT	HRS
309	W.G. JONES	✓		85	8			8																		
411	F.J. SMITH	✓		85	8					8																
325	L.V. BROWN	✓		101	8							8														
TOTAL																										
DISTRIBUTION: 1. Both copies to Payroll Department for Extension 2. Duplicate extension to Maintenance Department																										

EXAMPLE 2. (a)

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - OVERTIME (T 101-8/52)  
WITH HALF TIME WAGE RATES.

THE FOLLOWING MEN ON THE 4-12 SHIFT, DECEMBER 18, 1951  
WORKED THROUGH TO 8:00 A.M., DECEMBER 19, 1951.

<u>CLOCK NO.</u>	<u>NAME</u>	<u>WAGE RATE NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	8 4777	4072 - 0400.02
411	F.J. SMITH	85	8 4778	4072 - 0200.02
325	L.V. BROWN	101	8 4880	4072 - 0200.02

T. 101 - 8/52

DAILY TIME SHEET - OVERTIME

MAINTENANCE DEPARTMENT

12-3

3-4

4-12

SHIFT

HALF TIME

TIME AND ONE-HALF

DOUBLE TIME

✓

LUNCH PERIOD

1000

FIRST DAY OFF

SECOND DAY OFF

DECEMBER 19, 1951

DATE \_\_\_\_\_

FOREMAN

[illegible]

DISTRIBUTION:

1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

T 101 - 8/52			<div>12-3</div> <input checked="" type="checkbox"/>		HALF TIME		<input checked="" type="checkbox"/>		LUNCH PERIOD		<input type="checkbox"/>		DECEMBER 19, 1961										
DAILY TIME SHEET - OVERTIME			<div>3-4</div>		TIME AND ONE-HALF		<input type="checkbox"/>		FIRST DAY OFF		<input type="checkbox"/>		DATE										
MAINTENANCE DEPARTMENT			<div>4-12</div>		DOUBLE TIME		<input type="checkbox"/>		SECOND DAY OFF		<input type="checkbox"/>		FOREMAN										
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL		SHIFT DIFF	J.O. 4777		J.O. 4778		J.O. 4880		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
						ACCT. 4072 0400-02		ACCT. 4072 0200-02		ACCT. 4072 0200-02		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.	
			HR	AMOUNT		HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
309	W. G. JONES	83	8			8																	
411	F. J. SMITH	85	8					8															
325	L. V. EROWN	101	8							8													
TOTAL																							

DISTRIBUTION: 1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.  
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.



EXAMPLE 2. (b) 1.

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - OVERTIME (T 101-8/52)  
WITH TIME AND ONE-HALF WAGE RATES (LUNCH PERIOD)

THE FOLLOWING MEN ON THE 8-4 SHIFT, DECEMBER 17, 1951, WORKED THROUGH  
THEIR LUNCH PERIODS:

<u>CLOCK NO.</u>	<u>NAME</u>	<u>WAGE RATE NO.</u>	<u>JOBS WORKED</u> <u>Hours    Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	$\frac{1}{2}$ 4372	4072 - 0400.04
411	F.J. SMITH	85	$\frac{1}{2}$ 4372	4072 - 0400.04
325	L.V. BROWN	101	$\frac{1}{2}$ 4372	4072 - 0400.04

T 101 - 8/52			<div>12-3</div>		HALF TIME		<input type="checkbox"/>		LUNCH PERIOD		<input checked="" type="checkbox"/>		DECEMBER 17, 1951 DATE										
DAILY TIME SHEET - OVERTIME			<div>8-4</div>		TIME AND ONE-HALF		<input checked="" type="checkbox"/>		FIRST DAY OFF		<input type="checkbox"/>												
MAINTENANCE DEPARTMENT			<div>4-12</div>		DOUBLE TIME		<input type="checkbox"/>		SECOND DAY OFF		<input type="checkbox"/>		FOREMAN										
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL		SHIFT DIFF	J.O. 4372		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
			ACCT.			ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.	
			4072			0400.09																	
			HRS	AMOUNT		HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
309	W. G. JONES	83	1/2			1/2																	
411	F. J. SMITH	85	1/2			1/2																	
325	L. V. BROWN	101	1/2			1/2																	
TOTAL																							
DISTRIBUTION: 1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION. 2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.																							

MAINTENANCE DEPARTMENT

12-3

8-4

4-12

SHIFT

HALF TIME

TIME AND ONE-HALF

DOUBLE TIME

LUNCH PERIOD

FIRST DAY OFF

SECOND DAY OFF

DECEMBER 17, 1951.

DATE \_\_\_\_\_

FOREMAN

[illegible]

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2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

EXAMPLE 2. (b) 2.

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - OVERTIME (T 101-8/52)  
WITH TIME AND ONE-HALF WAGE RATES.

THE FOLLOWING MEN ON THE 8-4 SHIFT, DECEMBER 17, 1951, WORKED OVERTIME:

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	2½ 4372	4072 - 0400.04
411	F.J. SMITH	85	2½ 4372	4072 - 0400.04
325	L.V. BROWN	101	2½ 4372	4072 - 0400.04

T 101 - 8/52			12-3		HALF TIME		<input type="checkbox"/> LUNCH PERIOD		DECEMBER 17, 1951 DATE														
DAILY TIME SHEET - OVERTIME			3-4 ✓		TIME AND ONE-HALF		<input checked="" type="checkbox"/> FIRST DAY OFF																
MAINTENANCE DEPARTMENT			4-12		DOUBLE TIME		<input type="checkbox"/> SECOND DAY OFF		FOREMAN														
			SHIFT																				
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL		SHIFT DIFF	J.O. 4372		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
						ACCT. 4072 0400.04		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.	
			HR	AMOUNT		HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
309	W. G. JONES	83	2 1/2			2 1/2																	
411	F. J. SMITH	85	2 1/2			2 1/2																	
325	L. V. BROWN	101	2 1/2			2 1/2																	
TOTAL																							
DISTRIBUTION: 1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION. 2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.																							

[illegible]

EXAMPLE 2 (b) 3.

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - OVERTIME (T 101-8/52)  
WITH TIME AND ONE-HALF WAGE RATES (FIRST DAY OFF).

THE FOLLOWING MEN WORKED ON THEIR FIRST DAY OFF, DECEMBER 20TH, 1951

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>		<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	4	4372	4072 - 0400.04
411	F.J. SMITH	85	4	4372	4072 - 0400.04
325	L.V. BROWN	101	4	4372	4072 - 0400.04

T 101 - 8/52				<div>12-3</div>		HALF TIME		<input type="checkbox"/>		LUNCH PERIOD		<input type="checkbox"/>		DECEMBER 20, 1951 DATE											
DAILY TIME SHEET - OVERTIME				<div>8-4</div>		TIME AND ONE-HALF		<input checked="" type="checkbox"/>		FIRST DAY OFF		<input checked="" type="checkbox"/>													
MAINTENANCE DEPARTMENT				<div>4-12</div>		DOUBLE TIME		<input type="checkbox"/>		SECOND DAY OFF		<input type="checkbox"/>		FOREMAN											
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL		SHIFT DIFF	J.O. 4372 ACCT. 4072 0400.04		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.		J.O. ACCT.	
			HRS	AMOUNT		HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
309	W. G. JONES	83	4			4																			
411	F. J. SMITH	85	4			4																			
325	L. V. BROWN	101	4			4																			
TOTAL																									
DISTRIBUTION: 1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION. 2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.																									



T 101 - 8/52  
DAILY TIME SHEET - OVERTIME  
MAINTENANCE DEPARTMENT

12-3  
8-4  
4-12

SHIFT

HALF TIME  
TIME AND ONE-HALF  
DOUBLE TIME

☐☒☐

LUNCH PERIOD  
FIRST DAY OFF  
SECOND DAY OFF

DECEMBER 20, 1951  
DATE

FOREMAN

CLOCK NO.	NAME	WAGE RATE NO.	TOTAL		SHIFT DIFF	J.O. 4372 ACCT. 4072 0400.04		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
			HRS	AMOUNT		HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
308	W. G. JONES	85	4			4															
411	F. J. SMITH	85	4			4															
325	L. H. BROWN	101	4			4															
TOTAL																					

DISTRIBUTION:

1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.  
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

EXAMPLE 2. (c)

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - OVERTIME (T 101-8/52)  
WITH DOUBLE TIME WAGE RATES.

THE FOLLOWING MEN WORKED ON THEIR SECOND DAY OFF, DECEMBER 21, 1951.

<u>CLOCK NO.</u>	<u>NAME</u>	<u>WAGE RATE NO.</u>	<u>JOBS WORKED</u>	<u>ACCOUNT NUMBERS</u>
			<u>Hours</u> <u>Number</u>	
309	W.G. JONES	83	6 4372	4072 - 0400.04
411	F.J. SMITH	85	6 4372	4072 - 0400.04
325	L.V. BROWN	101	6 4372	4072 - 0400.04

T 101 - 8/52			<div>12-3</div>		HALF TIME		<input type="checkbox"/>		LUNCH PERIOD		<input type="checkbox"/>		DECEMBER 21, 1951								
DAILY TIME SHEET - OVERTIME			<div>8-4</div>		TIME AND ONE-HALF		<input type="checkbox"/>		FIRST DAY OFF		<input type="checkbox"/>		DATE								
MAINTENANCE DEPARTMENT			<div>4-12</div>		DOUBLE TIME		<input checked="" type="checkbox"/>		SECOND DAY OFF		<input checked="" type="checkbox"/>		FOREMAN								
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL		SHIFT DIFF	J.O. 4372		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
						ACCT. 4072 0900.04		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.	
			HR	AMOUNT		HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
309	W. G. JONES	83	6			6															
411	F. J. SMITH	85	6			6															
325	L. V. BROWN	101	6			6															
TOTAL																					
DISTRIBUTION: 1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION. 2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.																					

MAINTENANCE DEPARTMENT

12-3

3-4

4-12

SHIFT

HALF TIME

TIME AND ONE-HALF

DOUBLE TIME

LUNCH PERIOD

FIRST DAY OFF

SECOND DAY OFF

DECEMBER 21, 1951

DATE \_\_\_\_\_

FOREMAN

[illegible]

DISTRIBUTION:

1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

EXAMPLE 3. (a) 1.

TO ILLUSTRATE THE USE OF THE DAILY TIME-- SHEET SUPPLEMENTARY RATES (T 102-8/52)  
WITH SPECIAL CALLOUTS.

THE FOLLOWING MEN WERE CALLED OUR AFTER HAVING COMPLETED EIGHT HOURS OF WORK ON  
DECEMBER 17, 1951.

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	1½ 4372	4072 - 0400.04
411	F.J. SMITH	85	1½ 4372	4072 - 0400.04
325	L.V. BROWN	101	1½ 4372	4072 - 0400.04



[illegible]

1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

EXAMPLE 2. (a) 2.

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - SUPPLEMENTARY RATES (T 102-8/52)  
WITH SPECIAL CALLOUTS (FIRST DAY OFF)

THE FOLLOWING MEN WERE CALLED OUT ON THEIR FIRST DAY OFF, DECEMBER 20, 1951:

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>	<u>ACCOUNT NUMBERS</u>
301	P.L. BLACK	83	1½ 4121	4072 - 0660.04
257	K.G. GORDON	83	1½ 4121	4072 - 0660.04
415	A.J. CRAIG	86	1½ 4121	4072 - 0660.04



T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>			DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>			DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>			DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>			DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input checked="" type="checkbox"/>	FIRST DAY OFF	<input checked="" type="checkbox"/>	DECEMBER 20, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>			DATE
MAINTENANCE DEPARTMENT	4 - 12 SHIFT	DIRTY MONEY	<input type="checkbox"/>	SECOND DAY OFF	<input type="checkbox"/>	FOREMAN

[illegible]

DISTRIBUTION:

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2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

- DISTRIBUTION:
1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
  2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

T 102 - 8/52				12 - 8		SPECIAL CALLOUT <input checked="" type="checkbox"/>				FIRST DAY OFF <input checked="" type="checkbox"/>				DECEMBER 30, 1951							
DAILY TIME SHEET - SUPPLEMENTARY RATES				8 - 4		HALF TIME CHANGE OF SHIFT SCHEDULE <input type="checkbox"/>								DATE							
MAINTENANCE DEPARTMENT				4 - 12		DIRTY MONEY <input type="checkbox"/>				SECOND DAY OFF <input type="checkbox"/>											
				SHIFT										FOREMAN							
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL	J.O. 4/21		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
				ACCT. 4072 0660.04		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.	
				HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
301	P. L. BLACK	85	1 1/2			1 1/2															
257	K. G. GORDON	85	1 1/2			1 1/2															
415	A. J. CRAIG	86	1 1/2			1 1/2															
TOTAL																					
DISTRIBUTION:				1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.																	
				2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.																	

EXAMPLE 3. (a) 3.

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - SUPPLEMENTARY RATES (T 102-8/52)  
WITH SPECIAL CALLOUTS (SECOND DAY OFF).

THE FOLLOWING MEN WERE CALLED OUT ON THEIR SECOND DAY OFF; DECEMBER 21, 1951.

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>		<u>ACCOUNT NUMBERS</u>
301	P.L. BLACK	83	2 $\frac{1}{2}$	4121	4072 - 0660.04
257	K.G. GORDON	83	2 $\frac{1}{2}$	4121	4072 - 0660.04
415	A.J. CRAIG	86	2 $\frac{1}{2}$	4121	4072 - 0660.04

T 102 - 8/52

DAILY TIME SHEET -  
SUPPLEMENTARY RATES

MAINTENANCE DEPARTMENT

DAILY TIME SHEET -  
SUPPLEMENTARY RATES

MAINTENANCE DEPARTMENT

8 - 4

SHIFT

SPECIAL CALLOUT  
HALF TIME CHANGE  
OF SHIFT SCHEDULE

DIRTY MONEY

FIRST DAY OFF

SECOND DAY OFF

DECEMBER 21, 1951  
DATE

FOREMAN

[illegible]

DISTRIBUTION:

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2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

DAILY TIME SHEET - SUPPLEMENTARY RATES				12 - 8		SPECIAL CALLOUT		FIRST DAY OFF		DATE									
MAINTENANCE DEPARTMENT				8 - 4		HALF TIME CHANGE OF SHIFT SCHEDULE													
				4 - 12		DIRTY MONEY		SECOND DAY OFF											
				SHIFT						FOREMAN									
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL	J.O. 4121		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
				ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.				
				4072															
				0660.04															
				HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
501	R.L. BLACK	83	2 1/2			2 1/2													
257	R.G. GORDON	83	2 1/2			2 1/2													
215	A.J. CRAIG	86	2 1/2			2 1/2													
TOTAL																			

DISTRIBUTION:

- BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
- DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

DISTRIBUTION: 1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.  
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

EXAMPLE 3. (b)

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - SUPPLEMENTARY RATES (T 102-8/52)  
WITH HALF TIME CHANGE OF SHIFT SCHEDULE WAGE RATES.

THE FOLLOWING MEN WERE ON THE 4-12 SHIFT, DECEMBER 18, 1951.

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	8 4777	4072 - 0400.02
411	F.J. SMITH	85	8 4778	4072 - 0200.02
325	L.V. BROWN	101	8 4880	4072 - 0200.02

PRIOR TO DECEMBER 18TH, THESE MEN HAD BEEN ON THE 8-4 SHIFT.

T 102 - 8/52				12 - 8		SPECIAL CALLOUT										FIRST DAY OFF		DECEMBER 18, 1951									
DAILY TIME SHEET - SUPPLEMENTARY RATES				8 - 4		HALF TIME CHANGE OF SHIFT SCHEDULE										<input checked="" type="checkbox"/>		DATE									
MAINTENANCE DEPARTMENT				4 - 12✓		DIRTY MONEY										<input type="checkbox"/>		SECOND DAY OFF									
				SHIFT														FOREMAN									
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL	J.O. 4777		J.O. 4778		J.O. 4880		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.					
				ACCT. 4072 0400.02		ACCT. 4072 0200.02		ACCT. 4072 0200.02		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.		ACCT.					
				HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT				
309	W. G. JONES	83	8			8																					
411	F. J. SMITH	85	8				8																				
325	L. V. BROWN	101	8						8																		
TOTAL																											
DISTRIBUTION:				1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION. 2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.																							

T 102 - 8/52		12 - 8		SPECIAL CALLOUT		FIRST DAY OFF		DECEMBER 13, 1951													
DAILY TIME SHEET - SUPPLEMENTARY RATES		8 - 4		HALF TIME CHANGE OF SHIFT SCHEDULE		<input checked="" type="checkbox"/>		DATE													
MAINTENANCE DEPARTMENT		4 - 12 <input checked="" type="checkbox"/>		DIRTY MONEY		<input type="checkbox"/>		SECOND DAY OFF													
		SHIFT						FOREMAN													
CLOCK NO.	NAME	WAGE RATE NO.	TOTAL	J.O. 4777		J.O. 4778		J.O. 4880		J.O.		J.O.		J.O.		J.O.		J.O.		J.O.	
				ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.	ACCT.
				4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072	4072
				0400.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02	0200.02
				HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT	HR	AMOUNT
309	W.G. JONES	83	8			8															
411	F.J. SMITH	85	8			8															
325	L.V. BROWN	101	8					8													
TOTAL																					

DISTRIBUTION:

- BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
- DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.



EXAMPLE 3. (c)

TO ILLUSTRATE THE USE OF THE DAILY TIME SHEET - SUPPLEMENTARY RATES (T 102-8/52)  
WITH DIRTY MONEY RATES.

THE FOLLOWING MEN, ON THE 4-12 SHIFT, DECEMBER 18, 1951, WERE ELIGIBLE FOR DIRTY  
MONEY ON THEIR RESPECTIVE JOBS

<u>CLOCK</u> <u>NO.</u>	<u>NAME</u>	<u>WAGE</u> <u>RATE</u> <u>NO.</u>	<u>JOBS WORKED</u> <u>Hours</u> <u>Number</u>	<u>ACCOUNT NUMBERS</u>
309	W.G. JONES	83	8 4777	4072 - 0400.02
411	F.J. SMITH	85	8 4778	4072 - 0200.02
325	L.V. BROWN	101	8 4880	4072 - 0200.02

T 102 - 8/52

DAILY TIME SHEET -  
SUPPLEMENTARY RATES

MAINTENANCE DEPARTMENT

DAILY TIME SHEET -  
SUPPLEMENTARY RATES

MAINTENANCE DEPARTMENT

4 - 12 ✓

SHIFTS

SPECIAL CALLOUT  
HALF TIME CHANGE  
OF SHIFT SCHEDULE

DIRTY MONEY

FIRST DAY OFF

SECOND DAY OFF

DECEMBER 18, 1951

DATE \_\_\_\_\_

FOREMAN

[illegible]

DISTRIBUTION:

1. BOTH COPIES TO PAYROLL DEPARTMENT FOR EXTENSION.
2. DUPLICATE EXTENSION TO MAINTENANCE DEPARTMENT.

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input type="checkbox"/>		DECEMBER 18, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>	FIRST DAY OFF	DATE
MAINTENANCE DEPARTMENT	4 - 12 ✓	DIRTY MONEY	<input checked="" type="checkbox"/>	SECOND DAY OFF	FOREMAN
	SHIFT				

T 102 - 8/52	12 - 8	SPECIAL CALLOUT	<input type="checkbox"/>		DECEMBER 18, 1951
DAILY TIME SHEET - SUPPLEMENTARY RATES	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>	FIRST DAY OFF	DATE
MAINTENANCE DEPARTMENT	4 - 12 ✓	DIRTY MONEY	<input checked="" type="checkbox"/>	SECOND DAY OFF	FOREMAN
	SHIFT				

T 102 - 8/52  DAILY TIME SHEET - SUPPLEMENTARY RATES  MAINTENANCE DEPARTMENT	12 - 8	SPECIAL CALLOUT	<input type="checkbox"/>	FIRST DAY OFF <input type="checkbox"/>  SECOND DAY OFF <input type="checkbox"/>	DECEMBER 18, 1951  DATE
	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>		FOREMAN
	4 - 12 ✓	DIRTY MONEY	<input checked="" type="checkbox"/>		
	SHIFT				

T 102 - 8/52  DAILY TIME SHEET - SUPPLEMENTARY RATES  MAINTENANCE DEPARTMENT	12 - 8	SPECIAL CALLOUT	<input type="checkbox"/>	FIRST DAY OFF <input type="checkbox"/>  SECOND DAY OFF <input type="checkbox"/>	DECEMBER 18, 1951  DATE
	8 - 4	HALF TIME CHANGE OF SHIFT SCHEDULE	<input type="checkbox"/>		FOREMAN
	4 - 12 ✓	DIRTY MONEY	<input checked="" type="checkbox"/>		
	SHIFT				

T 102 - 8/52  DAILY TIME SHEET - SUPPLEMENTARY RATES  MAINTENANCE DEPARTMENT	12 - 8	SPECIAL CALLOUT	<input type="checkbox"/>	FIRST DAY OFF <input type="checkbox"/>  SECOND DAY OFF <input type="checkbox"/>	DECEMBER 18, 1951  DATE
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	4 - 12 ✓	DIRTY MONEY	<input checked="" type="checkbox"/>		
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	4 - 12 ✓	DIRTY MONEY	<input checked="" type="checkbox"/>			

[illegible]

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NOTE

Pages 112-127 are charts separately bound.

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May 21, 1953