VALUE ENGINEERING

OF

PROCEDURES

ORGANISATIONS.

CASE STUDIES

OUTLINE OF "VALUE ANALYSIS FOR BETTER MANAGEMENT"

BY WARREN RIDGE

A.M.A.

PROGRAM OF INSTRUCTION & WORKSHOPS FOR

PLESSEY CO 1970.

OUTLINES OF PRESENTATIONS & VISUAL AIDS.

FORMS USED

VA OF ORGANIZATIONS

VA OF METHODS & PROCEDURES

VALUE ANALYSIS FOR BETTER MANAGEMENT

1. Causes of Paperwork expansion:-
   - Computer
   - Education
   - Experts Advice
   - Socioeconomic - Comparison less and less useful.

Need to determine optimum level of staffing.

Procedures - essential - Guide for handling recurring problems.
Must ensure that events conform to plans.
Must assign specific parameters to excessiveness.

Mock simplification attempt.
Flow process chart - symbolically chart events.
Procedure Flow Chart - paper, people relationship.
Work distribution study - how much, what types work by whom.
Provide overall visualization.

Work measurement - difficulty in est. stds. for paperwork.

Value Analysis helps remove immunity enjoyed by superflous paperwork and organisation, to evaluate procedure and organisation worth.

2. VAMP - combination of VA and Simp.Techn.
Pure V.E. not work too effectively on paperwork procedures.

Look at Workshop
+ Project selection - a problem
+ Data Collection - relevant facts
  Flow Process Chart)
  Multiple Activity Chart) Tools of data collection.
  Procedure Flow Chart)
  Work Distribution Chart)
+ Challenge Everything
  Difference of V.A. and W.S. noted.
  V.A. Function W.S. Procedure
+ Developing and Implementing a new method
  Sell - motivation - test - install - report.

6 Inadequances
1. Analysis of existing procedures lacks depth.
2. Systems or Product oriented - output - input.
3. No effort to determine essential function.
4. Development of alternative superficial.
5. Evaluation of alternative lacks organisation.
6. Danger of simplifying the unnecessary.

Value Engineering

Value discussed
+Job Plan - 5 phases
+Functional Approach
+Blast and Create
+Roadblocks
+Challenge Reqmts.
+Other techniques
Summary.

3. Integration of Techniques
Blend V.E. and W.S. for best application

Flow Process Chart - P47
- Modified for VAMP - add cost column.
- Provide for functional definitions
- Analysis - the cost operation - first Functional Definition.

Procedure Flow Chart - P50.
- Multi Column
- Vertical
- Horizontal - selected for VAMP
- Flexibility - wide latitude

3. Procedure Flow Chart - Cont..
Horizontal - See chapter 8.

Can visualise the interaction
Basic functions in red.

Work Distribution Chart. P.54

Required) + an activities list.(By Managers)
Supporting) + individual task data lists.(By emp.)
Forms) + Summary task list (By Managers)

Analysis -
Activities (Functions) Reviewed and Analysed.
Do they reflect purpose of organisation.
Organisational view
Does it belong
Can it be performed elsewhere
Record any proposed changes
Tasks reviewed
Departmental view
Does task support activity
Are tasks duplicated
Should be done this way - this time.
Record proposed changes
Personal view of tasks
Make job interesting
Adjust work load
Prepare new wall chart

Need for functional approach to define basic and secondary functions of organisation.

Organisation Value Analysis Chart (OVAC)
Organisation Value Analysis Chart P.57
(modified Work Distribution Chart)

Purpose to describe work.

1. Define basic and seondary functions
Depth and accuracy
Not superficial
2. Apply creativity
3. Evaluate and select best alternatives
4. Record on Task Analysis Sheet
If drastic new method created - New OVAC should be prepared.

4. Selecting an organisation for study.
Supervisors - cooperation - desire - something to gain
Criteria for selection.
1. A New Supervisor
2. A Re-assigned Supervisor
3. Combined organisation
4. Back log of work
5. Reduction of Manpower
Useful to supervisor who has to
6. Size of organisation
Start small - ideal 10 people
Work up to high level - rountine activity.
7. Types of organisation
Diversified - difficult - but good potential
Repetitive and well defined - Easier.

Team Approach.
Objectivity - proportional to loss or gain
Supvr. - leader + other supervisors
Add formality - ensure better objectivity
Unsuitable Study Subjects.
1. One to be reorganised in future
2. One with unmeasurable output
P.R., I.R., Programme, advert.
3. Apathetic Supervisor
4. Training
Necessary

5. OVAC Preparation
   Collected data must reflect actual conditions
   Motivation needed - Supvr. and employee.
      Security not jeopardized
      Job will be improved
      Advised of reasons and methods
   Forms needed -
      1. Activities List P.71/2
         Output or services performed
         Judgement as to level required
         Between 6 and 10 activities
      2. Task Data Sheet P.72/3
         Select survey period - 1 wk.up.
         Instruct employees
         Tasks - vs - activities
         Degree of detail appropriate
         One sheet/employee each day
         Trial one day - Supvr. review - explain.
      3. Task List P.76/77
         By Supvr. from Task Data Sheets

         Adjust original activities list.

   OVAC - Prepare from Data Forms
         By activity - by employee
         Wall Chart

6. OVAC Analysis - Functional approach
         Define Functions - Verb - Noun
                  appropriate level

   Activity Analysis or Task Analysis
         High Cost activities
         Reduce to functional definition
         Translate abstract terminology to more specific
                  verb - nouns.

   Activity Evaluation - or Task Evaluation
         Requires judgement
         If majority of costs associated with basic
            function may be good value.

   Proposed Organisation
         Develop new OVAC - List activities
         Enter best ideas for tasks
         Identify class of personnel required
         List est. times
         Final review.

   Final review.
         1st - each activity done by proper organisation
         2nd Task done in best sequence.
              Employee best suited
              Frequency of timing
              Dome simpliest way
         3rd - Ensure max. use of skills
              Avoid monotony
              Good morale

7. Benefits of OVA Analysis.
         Staffing methods
         1. Clairvoyance
         2. Equating output with people
         3. Comparison method.
         All these methods defective
   Organisational V.A. - diminishes, changes of over staffing.
         1. Determine essential function
         2. Establish activity functions that support it
         3. Establish individual taks - contribute to activity
         4. Objectivity by steady team.

7. Continued.

Reducing an existing organisation
Not by edict 10% but by OVAC
Management by objective
OVAC more specific - measurable
provides value rating priority
Program Plan
OVAC contributes to its development
Human Relations
OVAC helps - objective job analysis
Work measurement
Establish standard of performance - set of criteria
job loading assisted by OVAC
Training
Assists employee to know job.
Speeds orientation
Asst. supvr. - training - job insight
Team study - helps Supvr develop - organisation
Improve morale
Team spirit - improves cooperation - communication
Helps employee to understand and enjoy job.
Flexibility
Start at any level progress up or down
Constructive discontent developed - long term benefits.

8. Procedure Value Analysis
Procedures hard to change
Procedures - beneficial but can cause loss

Benefits	Losses
Insure policy compliances	Over control - unnecessary paper, files
Guides for consistant action	More copies and paper than necessary
Reduce errors	Temporary becomes permanent
Training aids	Stifle creativity, blind following
Continuity of action	Creates unnecessary organisation
Eliminate snap judgement	Scapegoat - justify action
Record of standard practice	Make simpler complex, useless data

The Procedure Flow Chart
Provides visualization
Use Std. symbols
Left to right flow brief descriptions
Collecting data - critical
Workers interviewed - validity
Divide tasks among teams
Provide chronological listing of operations
Assign symbol to each step
Produce flow chart
Chart Analysis
Information Phase

Information Phase
Select basic function
Develop ladder of obstruction
Creative Phase
Develop alternatives
Evaluation Phase
Judge alternatives
Investigation Phase
Refine ideas - develop secondary functions
Reporting Phase
Wall size procedure charts old - new
Cost estimates - old and new
Functions identified
Advantages
Implementation cost and programme.

9. Benefits of Procedure V.A.
   More opportunities for Procedure V.A.
   Selecting a Procedure
      High ratio - savings/study time
      Minimum resistances to change
      1. Bottleneck jobs
      2. Time consuming jobs.
      3. Multiple operations - levels of organisation
      4. Heavy organisational involvement
      5. Long lived procedures
      6. Temporary conditions
      7. High cost personnel - doing routine tasks
      8. Chronic irritants - annoying
      9. Few "do" operating
      10. Standard forms - high cost low value.
          a. Many copies
          b. Many form organisation
          c. Voluminous data forms
          d. Used extensively forms
          e. Similar data forms
   Sources of help in selecting procedure
      1. Procedure Manual
      2. Record controls - or records management
      3. Contractual reports
      4. Central forms control - NIH problems
      5. Computer - Systems O & M
   The approach
      Team - preferred - objectivity
                         Implementation better
      Individual - may avoid embarrassment if done by originator
      Human relations - anticipate roadblocks
      1. Authorship
      2. Job Security
      3. Resistance to Change

   Study subject complexity
      Not too complex to begin
   Benefits of PVA
      1. Promotes cost sensitivity
      2. Promotes cost visibility of procedures
      3. Management communications
      4. Managerial morale
      5. Training device.

10. VAMP TRAINING
    Lecture and Conference - Orientation
    Workshop
    Objectives
    Management support
    Seminar organisation - Times important
                           ½ time 2 weeks
                           3 - 8 teams
    Project selection
    one organisation, one procedure
    6 - 10 employees simple
                      related
    Student selection
    Team captain from organisation management
    Others related to procedure
    Facilities and curriculum.

10. Cont...

Training Materials
Training Staff
Guest Speaker
Follow-up
Master Schedule
Training Evaluation

11. VAMP in Schools/Hospitals and Government.

Generalities

12. Designing a VAMP Program

Planning and Tailoring

a. Program purpose
   Profit Improvement
   Morale Improvement
   Communication Improvement

b. Program Objectives - Methods

1. VAMP Specialists
2. Company wide recognition
3. Establish Study Selection Criteria
4. Establish and direct training program
5. Provide Consulting Service

c. Program Schedule

Time and targets

d. Programme Administration

IE, VE, CR, O & M (Systems and Procedures)

e. VAMP Director
   Full time

f. VAMP Staff

g. Method of Implementation

h. Program funding

Budget Bank

i. Savings Validation.

VALUE ANALYSIS OF MANAGEMENT PRACTICES

PRESENTATION TO EXECUTIVE BOARD

18 SEPTEMBER. 1970

VALUE ANALYSIS TECHNIQUES FOR HARDWARE

WORK SIMPLIFICATION TOOLS ADDED FOR:-

PAPERWORK SYSTEMS

ORGANISATIONS

DIFFERENCES BETWEEN VALUE ANALYSIS OF MANAGEMENT PRACTICES AND O & M

1.	VA JOB PLAN	- PROVIDES ORGANISED APPROACH (SYSTEMATIC)
2.	TEAM STUDIES	- PROVIDE OBJECTIVITY AND VARYING VIEWPOINTS (INVOLVE LINE PERSONNEL)
3.	FUNCTION DEFINITION	- PROVIDES CLEAR DEFINITION OF PURPOSE
4.	FUNCTION EVALUATION	- PROVIDES EMPHASIS ON COST AND ESTABLISHES TARGETS
5.	CREATIVE TECHNIQUES	- PROVIDE EFFECTIVE DEVELOPMENT OF ALTERNATIVES
6.	SEPARATION OF FUNCTIONS FROM CONSTRAINTS	- PROVIDES BETTER IDENTIFICATION OF PURPOSE AND CLIMATE FOR CREATIVITY.

TECHNIQUES OF VALUE ANALYSIS OF MANAGEMENT PRACTICES

(VALUE ANALYSIS + WORK SIMPLIFICATION TOOLS)

ORGANISATION VALUE ANALYSIS

(APPLIED TO ALL LEVELS OF MANAGEMENT)

1. MANAGEMENT BY OBJECTIVES (MEASURABLE)
2. PREPARATION OF ORGANISATION VALUE ANALYSIS CHART (OVAC)
   - FUNCTIONS
   - ACTIVITIES
   - TASKS
3. DETERMINATION OF COSTS
4. COMPARISON OF TASKS, ACTIVITIES, FUNCTIONS, AND OBJECTIVES OF ORGANISATION.
5. DEVELOPMENT OF ALTERNATIVES
6. EVALUATION OF ALTERNATIVES
   REFINEMENT

   } ADDITION OF CONSTRAINTS
7. RECOMMENDATION OF IMPROVEMENTS

ORGANIZATION VALUE ANALYSIS CHART

FUNCTIONS:

BASIC:
(VERB - NOUN)

SECONDARY:
(VERB - NOUN)

CHARTED BY	APPROVED BY

ACTIVITY NUMBER	ACTIVITY (VERB - NOUN)	HRS PER WEEK	COST PER WEEK	% OF TOTAL

NAME		NAME		NAME	
JOB TITLE		JOB TITLE		JOB TITLE	
TASKS (INDIVIDUAL)	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK	TAS (INDIVI	

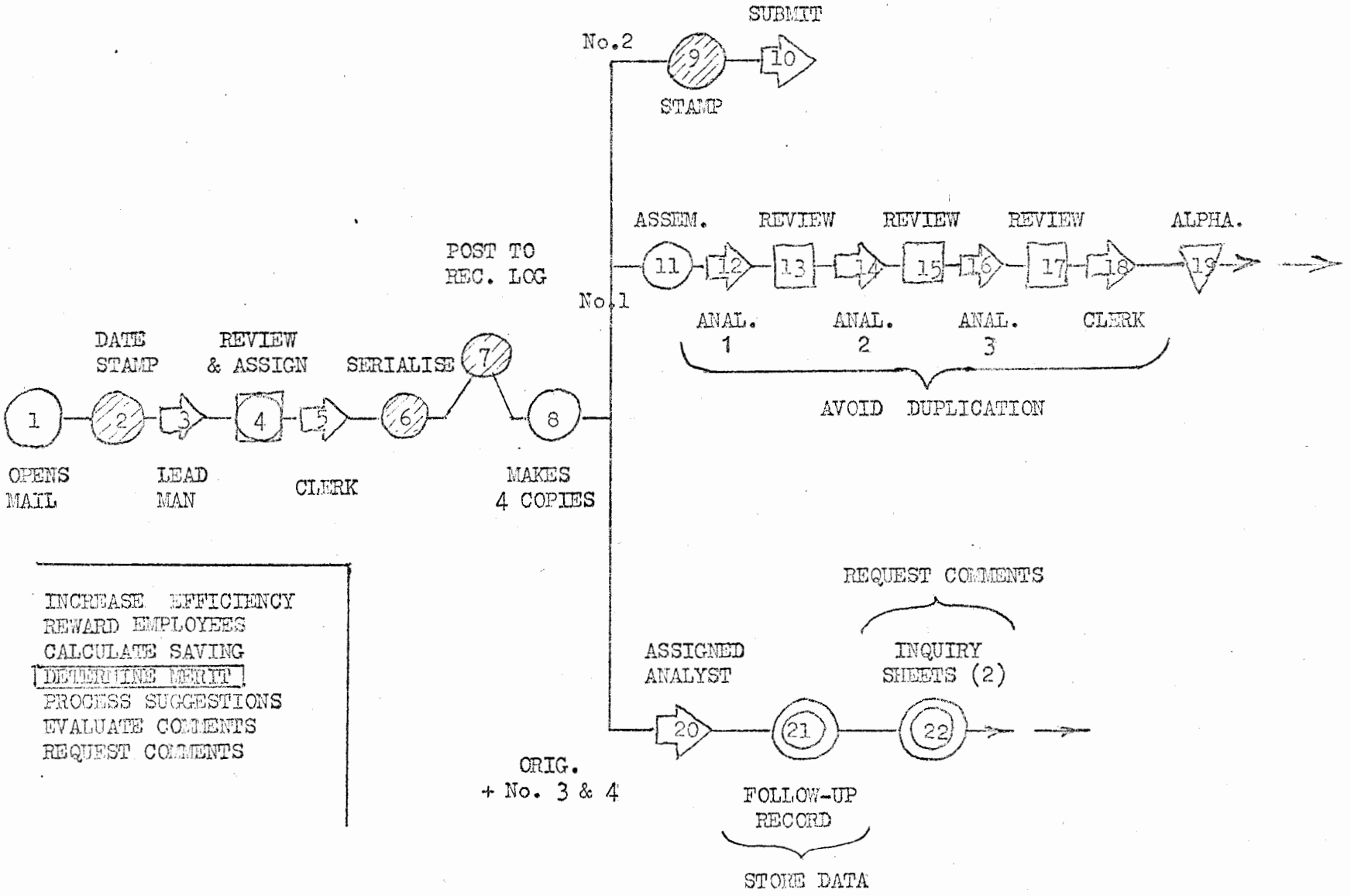
TECHNIQUES OF VALUE ANALYSIS OF MANAGEMENT PRACTICES

(CONTINUED)

PROCEDURE VALUE ANALYSIS

1. PREPARE PROCEDURE FLOW CHART
2. ESTABLISH COSTS AND CYCLE TIMES
3. DEFINE FUNCTIONS
4. EVALUATE FUNCTIONS
5. DEVELOP ALTERNATIVES
6. EVALUATE ALTERNATIVES
7. INVESTIGATE ALTERNATIVES — ADD CONSTRAINTS
   REFINE
8. RECOMMEND IMPROVEMENTS

EMPLOYEE SUGGESTION PROCESSING



PLESSEY PROGRAMME

PURPOSE

1. TRAIN LINE PEOPLE - ADD SKILLS TO JOB
   (MAKE O & M MORE EFFECTIVE
   EXPAND O & M EFFORTS)
2. IMPROVE VALUE - PROPOSE AND IMPLEMENT CHANGES

PROGRAMME - (PROCEDURE VALUE ANALYSIS ONLY)

TEN TEAMS IN FIVE DIVISIONS

PRIVATE SYSTEMS DIVISION (BEESTON)	4	(EFFICIENCY PANEL CHAIRMEN)
DATA & DISPLAY DIVISION (ADDLESTONE)	2	
SOFTWARE SYSTEMS DIVISION (STOKE PARK)	1	
AUTOMATION DIVISION + N.C.(POOLE)	2	
GARRARD DIVISION (SWINDON)	1	
TOTAL	10 TEAMS	

TEAM COMPOSITION

LINE MANAGERS AND LINE PERSONNEL
O & M REPRESENTATIVE
VALUE ENGINEERING REPRESENTATIVE

6 TO 8 MEMBERS

PLESSEY PROGRAMME

(CONTINUED)

STUDY PROJECTS - TEN PROCEDURES

TITLE	NO. OF MEMBERS.
ENGINEERING CHANGE NOTE	7
DEPARTMENTAL RETURNS TIME SHEETS, ABSENCES, OVERTIME	7
PURCHASE REQUISITION	7
SMALL ORDERS	7
DRAWING CHANGE REQUEST	6
DRAWING OFFICE DATA PREPARATION OF COMPUTERISED ITEMS LIST	6
PRODUCTION OF MACHINE CODE FROM CODED SCRIPT	6
DRAFT WORKS ORDERS & INQUIRY	7
CHANGE NOTE (PRODUCTION CONTROL)	6
SUPPLY SCHEDULE	7
TOTAL	66

PLESSEY PROGRAMME
(CONTINUED)

FORMAT

APPROX. SEVEN MEETINGS WITH EACH TEAM
TWO HOUR DURATION
SOME WORK FOR INDIVIDUAL TEAM MEMBERS
BETWEEN MEETINGS
TOTAL TIME PER MEMBER - 14 TO 22 HOURS

STATUS - (AS OF 18TH SEPTEMBER)

TWO, THREE, OR FOUR MEETINGS HAVE BEEN HELD
WITH VARIOUS TEAMS
STUDIES EXPECTED TO BE COMPLETED APPROX. 15TH OCTOBER.

PROCEDURE VALUE ANALYSIS - CONDUCTING STUDY

INFORMATION PHASE	-	DESCRIBE PROCEDURE GATHER INFORMATION: INCLUDING COSTS AND CYCLE TIMES PREPARE FLOW PROCESS CHART PREPARE PROCEDURE FLOW CHART - PRESENT FUNCTIONAL DEFINITION & EVALUATION
CREATION PHASE	-	CREATE ALTERNATIVES; BLAST, CREATE
EVALUATION PHASE	-	EVALUATE ALTERNATIVES, SELECT) ADD CONSTRAINTS
INVESTIGATION PHASE	-	DEVELOP, TEST, REFINE)
RECOMMENDATION PHASE	-	PREPARE PROCEDURE FLOW CHART - PROPOSED DETERMINE COSTS AND SAVINGS ESTABLISH IMPLEMENTATION COSTS AND SCHEDULE
IMPLEMENTATION		

BENEFITS OF PROCEDURE VALUE ANALYSIS

- REDUCED COSTS

- REDUCED CYCLE TIMES

- SIMPLIFIED TASKS - REDUCED ERRORS

- IMPROVED COMMUNICATIONS

(1)

ORGANIZATION VALUE ANALYSIS CHART
ACTIVITY LIST

DEPARTMENT	SECTION	DEPT NO.	SUPERVISOR	DATE

ACTIVITY NO.	ACTIVITY (VERB-NOUN)

5173 (10-68)

2

DEPT NO.	ORGANIZATION VALUE ANALYSIS CHART TASK DATA SHEET FOR TASK LIST	NAME
DATE		JOB TITLE

TO GATHER DATA FOR PREPARATION OF YOUR TASK LIST, YOU MAY WISH TO KEEP TRACK OF THINGS YOU DO, IN THE COLUMNS BELOW. WRITE THE DESCRIPTION OF YOUR FIRST TASK IN THE MORNING UNDER TASK #1. THEN MARK #1 OPPOSITE ALL TIMES YOU WORK ON TASK #1. DO THE SAME FOR #2, #3, ETC. AS YOU GO THROUGH THE DAY. INTERRUPTIONS MARK A, B, ETC. IN THAT COLUMN, AND DESCRIBE UNDER "DESCRIPTION." PHONE INTERRUPTIONS, SHOW TALLY MARKS FOR EACH ONE, OPPOSITE THE TIME THEY OCCUR. IN THIS WAY YOU CAN SUMMARIZE THE DATA AT THE END OF EACH DAY, AND USE AS A GUIDE FOR YOUR TASK LIST.

TASK NO.	DESCRIPTION	TOTAL TIME	TASK NO.	DESCRIPTION	TOTAL TIME
1			11		
2			12		
3			13		
4			14		
5			15		
6			TOTAL TASK TIMES (1 TO 15) (EXCLUDING LUNCH, ETC.)		MIN.
7			A	INTERRUPTIONS (DETAIL IN PHONE AND OTHERS HERE)	QUANTITY
8			B		
9			C		
10			D		

TIME	TASK NO.	INTERRUPTIONS A	B	C	D	MISC.	TIME	TASK NO.	INTERRUPTIONS A	B	C	D	MISC.	TIME	TASK NO.	INTERRUPTIONS A	B	C	D	MISC.
8:00							11:00							2:00						
:15							:15							:15						
:30							:30							:30						
:45							:45							:45						
9:00							12:00							3:00						
:15							:15							:15						
:30							:30							:30						
:45							:45							:45						
10:00							1:00							4:00						
:15							:15							:15						
:30							:30							:30						
:45							:45							:45						

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(3)

ORGANIZATION VALUE ANALYSIS CHART
TASK LIST

NAME	JOB TITLE	DATE

DEPARTMENT	SECTION	DEPT NO.	SUPERVISOR

TASK NUMBER	DESCRIPTION	QUANTITY	POSTED TO ACTIVITY NO.	HOURS PER WEEK
			TOTAL	

5172 (10-65)

ORGANIZATION

FUNCTIONS:

BASIC:
(VERB - NOUN)

SECONDARY:
(VERB - NOUN)

CHARTED BY	APPROVED BY	NAME	NAME
		JOB TITLE	JOB TITLE

ACTIVITY NUMBER	ACTIVITY (VERB - NOUN)	HRS PER WEEK	COST PER WEEK	% OF TOTAL	TASKS (INDIVIDUAL)	HRS PER WEEK	T (INDI
	TOTAL						

5170 (10-65)

4

LUE ANALYSIS CHART

DATE

ORGANIZATIONAL UNIT CHARTED

PRESENT ORGANIZATION

PROPOSED ORGANIZATION

		NAME JOB TITLE		NAME JOB TITLE		NAME JOB TITLE	
:S UAL)	HRS PER WEEK	TASKS (INDIVIDUAL	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK

ORGANIZATION VALUE ANALYSIS CHART
ACTIVITY/TASK ANALYSIS SHEET

5

ACTIVITY NO. _____ COST PER WEEK $ _____

TASK _____

_____

ALTERNATES

1
2
3
4
5
6
7
8
9
10

SELECTION	EST. COST
1	
2	
3	

ORGANIZATION VALUE ANALYSIS CHART
ACTIVITY/TASK ANALYSIS SHEET

ACTIVITY NO. _____ COST PER WEEK $ _____

TASK _____

_____

ALTERNATES

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

SELECTION	EST. COST
1	
2	

ORGANIZATION VALUE ANALYSIS CHART
TASK LIST

NAME	JOB TITLE	DATE

DEPARTMENT	SECTION	DEPT NO.	SUPERVISOR

TASK NUMBER	DESCRIPTION	QUANTITY	POSTED TO ACTIVITY NO.	HOURS PER WEEK
			TOTAL	

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ORGANIZATION VALUE ANALYSIS CHART
ACTIVITY LIST

DEPARTMENT	SECTION	DEPT NO.	SUPERVISOR	DATE

ACTIVITY NO.	ACTIVITY (VERB-NOUN)

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DEPT NO.	**ORGANIZATION VALUE ANALYSIS CHART** **TASK DATA SHEET** FOR TASK LIST	NAME
DATE		JOB TITLE

TO GATHER DATA FOR PREPARATION OF YOUR TASK LIST, YOU MAY WISH TO KEEP TRACK OF THINGS YOU DO. IN THE COLUMNS BELOW. WRITE THE DESCRIPTION OF YOUR FIRST TASK IN THE MORNING UNDER TASK #1. THEN MARK #1 OPPOSITE ALL TIMES YOU WORK ON TASK #1. DO THE SAME FOR #2, #3, ETC. AS YOU GO THROUGH THE DAY. INTERRUPTIONS MARK A, B, ETC. IN THAT COLUMN, AND DESCRIBE UNDER "DESCRIPTION." PHONE INTERRUPTIONS, SHOW TALLY MARKS FOR EACH ONE, OPPOSITE THE TIME THEY OCCUR. IN THIS WAY YOU CAN SUMMARIZE THE DATA AT THE END OF EACH DAY, AND USE AS A GUIDE FOR YOUR TASK LIST.

TASK NO.	DESCRIPTION	TOTAL TIME	TASK NO.	DESCRIPTION	TOTAL TIME
1			11		
2			12		
3			13		
4			14		
5			15		
6			TOTAL TASK TIMES (1 TO 15) (EXCLUDING LUNCH, ETC.)		MIN.
7			A	INTERRUPTIONS (DETAIL IN PHONE AND OTHERS HERE)	QUANTITY
8			B		
9			C		
10			D		

TIME	TASK NO.	INTERRUPTIONS					TIME	TASK NO.	INTERRUPTIONS					TIME	TASK NO.	INTERRUPTIONS				
		A	B	C	D	MISC.			A	B	C	D	MISC.			A	B	C	D	MISC.
8:00							11:00							2:00						
:15							:15							:15						
:30							:30							:30						
:45							:45							:45						
9:00							12:00							3:00						
:15							:15							:15						
:30							:30							:30						
:45							:45							:45						
10:00							1:00							4:00						
:15							:15							:15						
:30							:30							:30						
:45							:45							:45						

FLOW PROCESS CHART

PAGE ____ OF ____

☐ PRESENT METHOD

☐ PROPOSED METHOD

☐ MAN ☐ MATERIAL

SUMMARY	PRESENT		PROPOSED		DIFFERENCE		
	NO.	COST	NO.	COST	NO.	COST	PERCENT
○ OPERATIONS							
⇨ TRANS.							
□ INSPECTIONS							
D DELAYS							
▽ STORAGES							
TOTAL							

QUESTION EACH DETAIL

ANALYZE WHY?

WHAT | WHERE | WHEN | WHO | HOW

TASK

PROCESS BEGINS | DATE

PROCESS ENDS | PREPARED BY

	DETAILS OF METHOD (VERB - NOUN)	○ OPERATION	⇨ TRANSPORT	□ INSPECTION	D DELAY	▽ STORAGE	QUANTITY	TIME	COST	POSSIBILITIES: ELIMINATE	COMBINE	CHANGE SEQUENCE	CHANGE PLACE	CHANGE PERSON	NOTES
1															
2															
3															
4															
5															
6															
7															
8															
9															
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16															
17															
18															
19															
20															
21															
22															

FUNCTIONS:

BASIC:
(VERB - NOUN)

SECONDARY:
(VERB - NOUN)

CHARTED BY	APPROVED BY	NAME	NAME
		JOB TITLE	JOB TITLE

ACTIVITY NUMBER	ACTIVITY (VERB - NOUN)	HRS PER WEEK	COST PER WEEK	% OF TOTAL	TASKS (INDIVIDUAL)	HRS PER WEEK	T (INDI
	TOTAL						

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LUE ANALYSIS CHART

DATE

ORGANIZATIONAL UNIT CHARTED	
	PRESENT ORGANIZATION
	PROPOSED ORGANIZATION

		NAME		NAME		NAME	
		JOB TITLE		JOB TITLE		JOB TITLE	
S UAL)	HRS PER WEEK	TASKS (INDIVIDUAL	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK

FUNCTIONS:

BASIC:
(VERB - NOUN)

SECONDARY:
(VERB - NOUN)

CHARTED BY	APPROVED BY	NAME	NAME
		JOB TITLE	JOB TITLE

ACTIVITY NUMBER	ACTIVITY (VERB - NOUN)	HRS PER WEEK	COST PER WEEK	% OF TOTAL	TASKS (INDIVIDUAL)	HRS PER WEEK	TASKS (INDIVIDUAL)
TOTAL							

ALYSIS CHART

DATE

ORGANIZATIONAL UNIT CHARTED

PRESENT ORGANIZATION

PROPOSED ORGANIZATION

		NAME JOB TITLE		NAME JOB TITLE		NAME JOB TITLE	
	HRS PER WEEK	TASKS (INDIVIDUAL	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK	TASKS (INDIVIDUAL)	HRS PER WEEK

Presentation on Value Analysis of Organizations and Procedures 22 MAR 71

Paperwork explosion - burden - What do about it? Joe Smith, Jolly - Efficiency Experts. duplication.

I What is Value Analysis? communication instructively
History & Description - Example -
→ Un Example -

II A Value Analysis/Engineering Program - Policy
Continual - planned application of techniques -

1) Value Engineering - Value Analysis Specialists -
Training, Support, Catalyst,
2) V-A Studies - Projects -
Matl, Labor, Overhead - Cost Areas.
Individuals, Specialists, Teams -

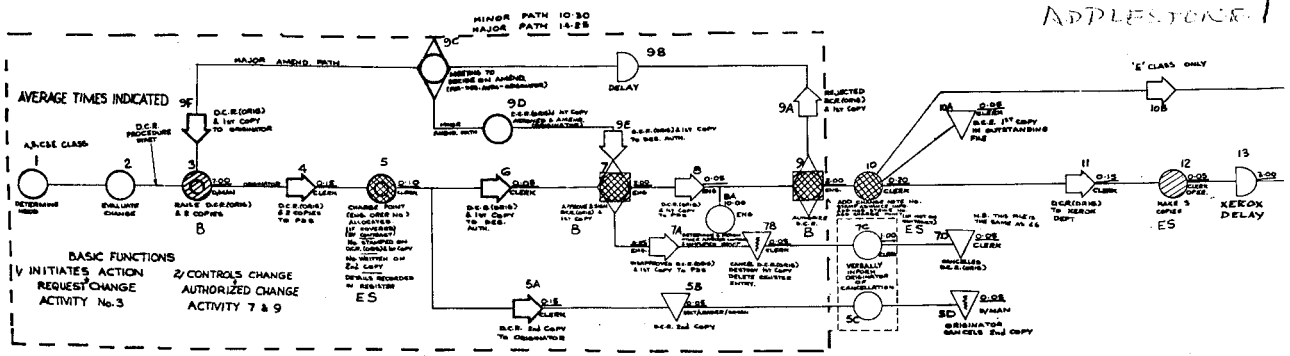
3) Cost Target - Cost Avoidance - during B & D. Policy
4) Cost Reduction -
Goals, assigned - line function -
Incentives - Measurement -
Most C.R. work - Direct Labor - Matl-oriented.

III Value Analysis of Organizations & Procedures -
History, experience, Results -
Need = Increasing O.H. Costs -
Paperwork explosion -
Simplification techniques not enough
→ Dynamic new approach needed
with vastly more planned studies
by line personnel.

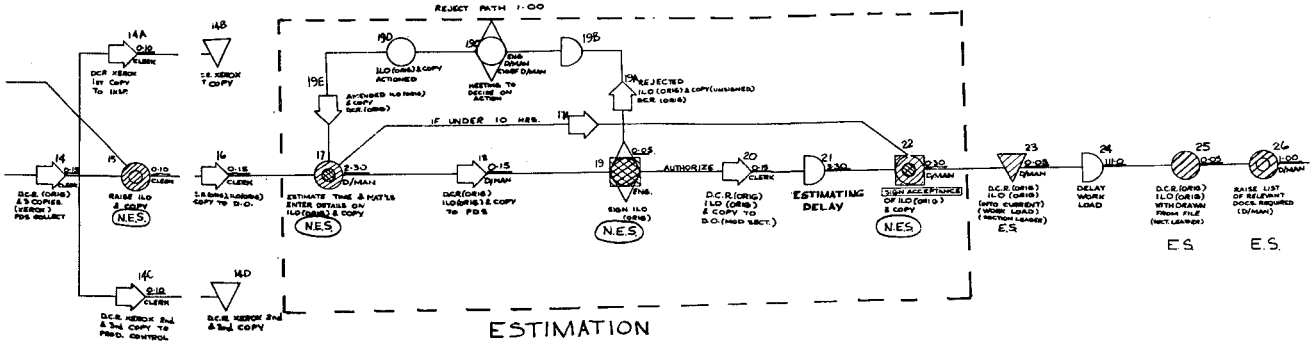
EXISTING PROCEDURE

D.C.R. SYSTEM AS APPLIED BY THE D.O. (D & D.D.)

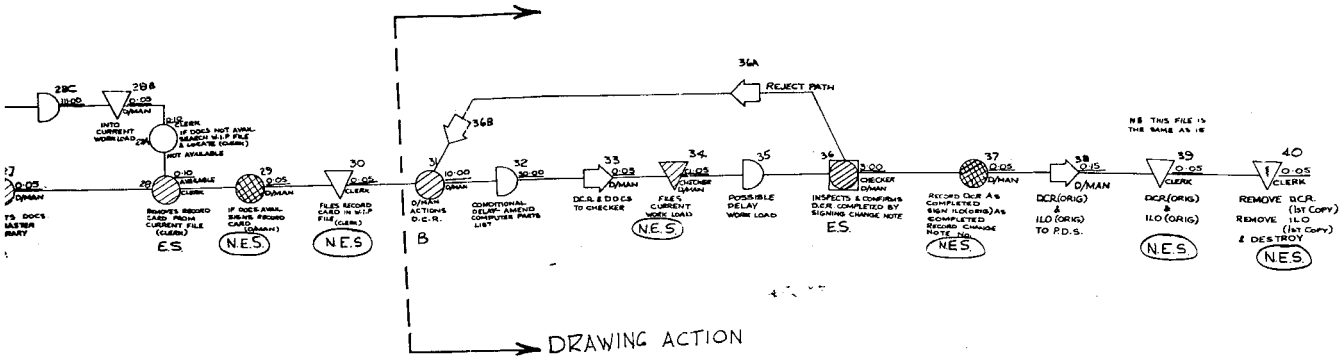
DRAWING CHANGE REQUEST
APPLESTONE 1



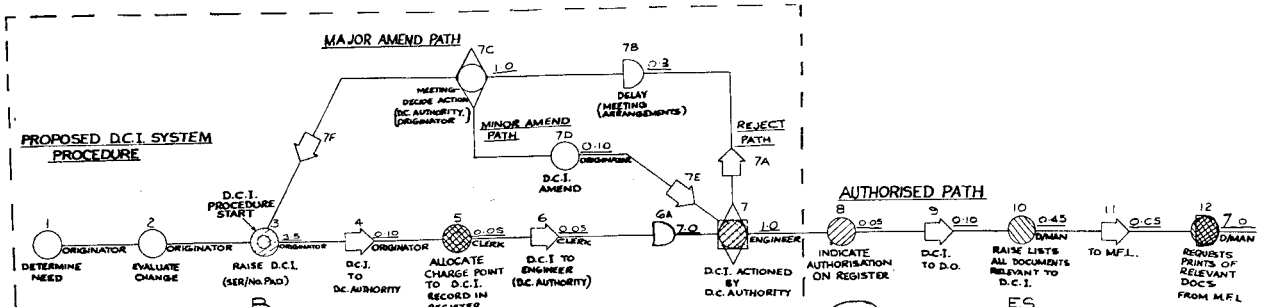
ORIGINATION & AUTH.N



ESTIMATION



PROPOSED PROCEDURE



PROCEDURE VA - CONDUCTING STUDY

INFO. PHASE - DESCRIBE PROCEDURE
GATHER INFO. - INCL. COSTS
PREP. FLOW PROC. CHART
PREP. PFC - PRESENT
FUNCT. DEF. & EVAL.

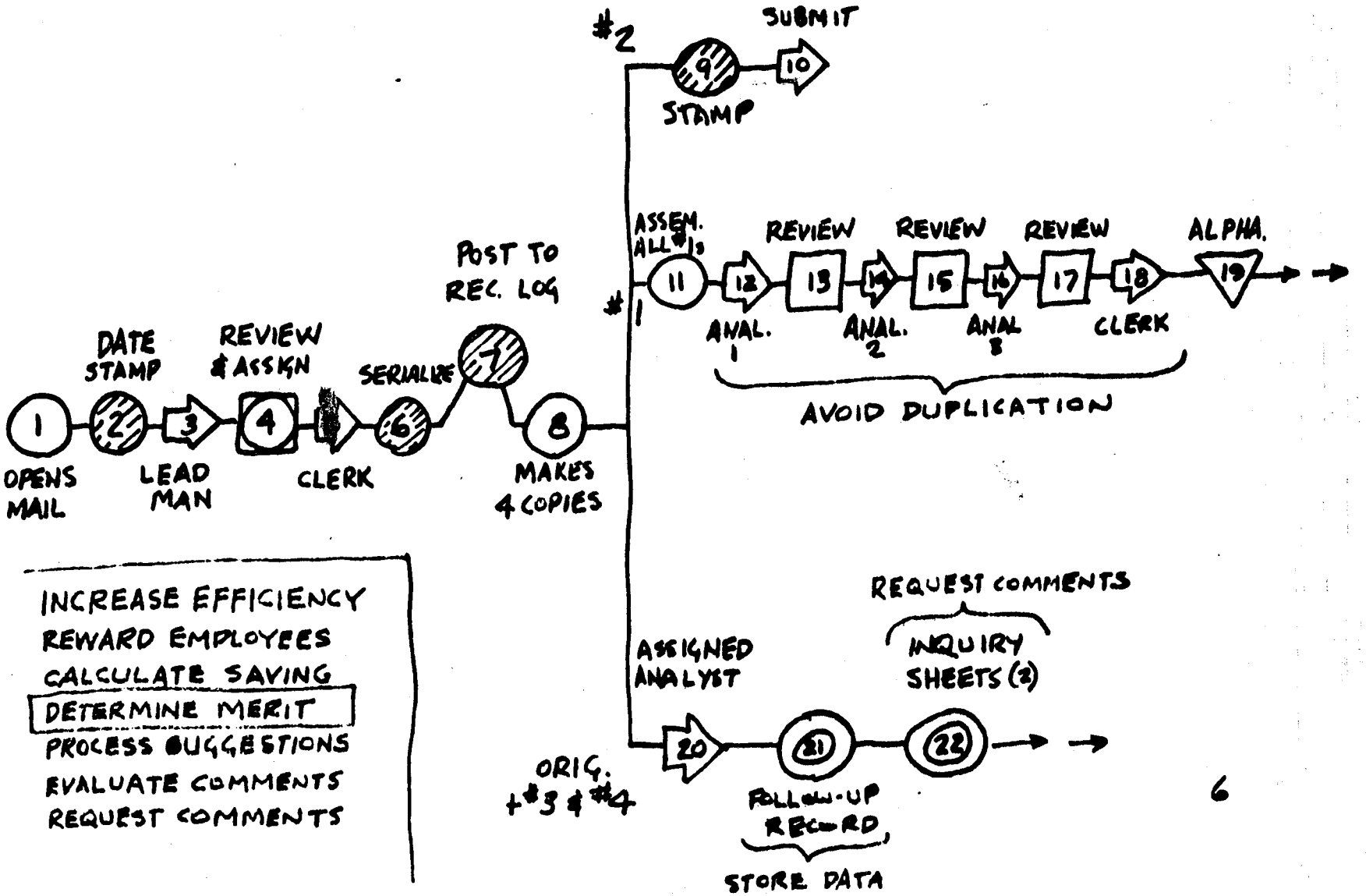
CREATION PH. - CREATE ALTS. - BLAST, CREATE

EVAL. PH. - EVAL. ALTS., SELECT
INVEST. PH. - DEVELOP, TEST. REFINE
} ADD CONSTRAINTS

RECOM. PH. - PREP. PFC - PROPOSED
COSTS & SAVINGS
IMPL. COSTS & SCHED.

IMPLEMENTATION

EMPLOYEE SUGGESTION PROCESSING



FLOW PROCESS CHART

1. CLERK RECEIVES ES IN MAIL.
2. CLERK STAMPS ES WITH DATE RECEIVED.
3. CLERK SENDS ES TO LEADMAN.
4. LEADMAN ASSIGNS ES TO A SPECIFIC ANALYST.
5. LEADMAN RETURNS ES TO CLERK.
6. CLERK SERIALIZES ES.
7. CLERK RECORDS ES IN RECEIPT LOG.
8. CLERK MAKES FOUR COPIES OF ES.
9. CLERK STAMPS NO.2 COPY FOR SUBMITTER.
10. CLERK SENDS NO. 2 COPY TO SUBMITTER.
11. CLERK ASSEMBLES ALL NO. 1 COPIES.
12. CLERK SENDS NO. 1 COPIES TO ANALYST NO.1.
13. ANALYST NO. 1 REVIEWS FOR DUPLICATION.
14. ANALYST NO. 1 SENDS ES'S TO ANALYST NO. 2.
15. ANALYST NO. 2 REVIEWS FOR DUPLICATION.
16. ANALYST NO. 2 SENDS ES'S TO ANALYST NO.3.
17. ANALYST NO. 3 REVIEWS FOR DUPLICATION.
18. ANALYST NO. 3 SENDS ES'S TO CLERK.
19. CLERK FILES ES'S IN ALPHA FILE.
20. CLERK SENDS COPIES NO. 3 AND NO. 4 TO ANALYST.
21. ANALYST PREPARES FOLLOW-UP RECORD.
22. ANALYST PREPARES AN AVERAGE OF TWO INQUIRY SHEETS.

Unit Under Study: LAMP BULB HOLDER — Cost Data Based on: 1,000,000 Units/Year, Auto

Drawing Number: 1-7

Level 1	2	3	4	5	2.1 Description	Drawing No.	Qty/Unit	2.2 Cost (Adjusted to W.C.) / PIECE Matrl	A/Unit	Matrl	Fab.	Asmy.	Insp.	Test
					LAMP BULB HOLDER ASSY	1-7	1	8.78	8.78	5.78		3.00		
✓					MOUNT CAP	1	1	.56	.56	.40	.16			
✓					SHADE HOLDING CAP	2	1	.32	.32	.20	.12			
✓					SOCKET ASSY	3	1	1.22	1.22	1.02		.20		
	✓				SOCKET (HOLDING)	3a	1	.72	.72	.60	.12			
	✓				SLEEVE (BRASS)	3b	1	.30	.30	.24	.06			
✓					POST	4	2	1.24	2.48	1.00	.24			
✓					SCREW	5	2	.20	.40	.10	.10			
✓					SPRING	6	2	.10	.20	.10				
✓					CONTACT	7	2	.30	.60	.20	.10			
							Total Unit Cost		8.78					

High Cost Specs Reqmts Tolerances

P. 4 & 5

*These

4.1 Basic function(s): FACILITATE (verb) CONNECTION (noun) (BULB...

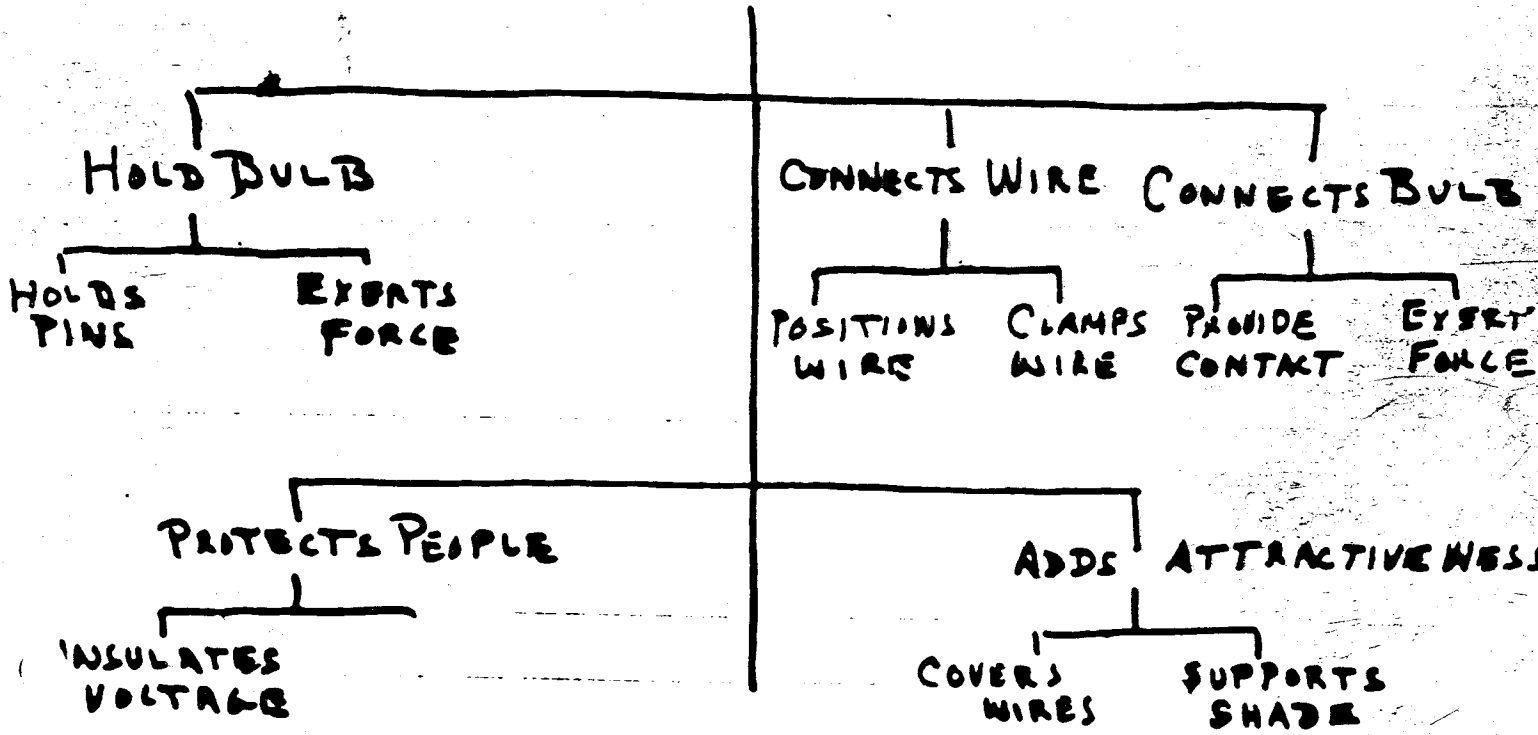
Quantify the function: PERMIT LAMP BULB REPLACEMENT IN 30 DEG., NO TOO[illegible]

4.2 Function Definition		4.3 Function Identification		5.1 Value of Basic Functions	5.2 Basis of Evaluation
Verb	Noun	Basic	Secondary		
FACILITATES	CONNECTION	✓			
POSITIONS	BULB		✓		
HOLDS	SOCKET		✓		
ADDS	ATTRACTIVENESS		✓		
INSULATES	VOLTAGE		✓		
HOLDS	SHADE		✓		
ADDS	ATTRACTIVENESS		✓		
HOLDS	BULB	✓		.10	PLASTIC TUBE 1" LONG 1/32" TH[illegible] C/V = [illegible]/1
HOLDS	BULB	✓			
HOLDS	CONTACTS		✓		
INSULATES	VOLTAGE		✓		
HOLDS	SHADE		✓		
HOLDS	CAP (SHADE)		✓		
HOLDS	SPRING		✓		
HOLDS	BULB	✓			
INCREASES	STRENGTH		✓		
POSITIONS	WIRE		✓		
HOLDS	SCREW		✓		
CONDUCTS	CURRENT		✓		
HOLDS	SPRING		✓		
HOLDS	CONTACT		✓		
CLAMPS	WIRE	✓		.10	ALUMINIUM STRIP [illegible] C/V = 56/1
EXERTS	FORCE	✓			
PROVIDES	CONTACT	✓			
CONDUCTS	CURRENT		✓		
HOLDS	SPRING		✓		
		Total Unit Value		.20	5.3 Cost to Value Ratio 44/1

DO V.E. ON HIGH COST, POOR VALUE AREAS

LAMP BULB HOLDER

FUNCTIONS.



FLOW PROCESS CHART

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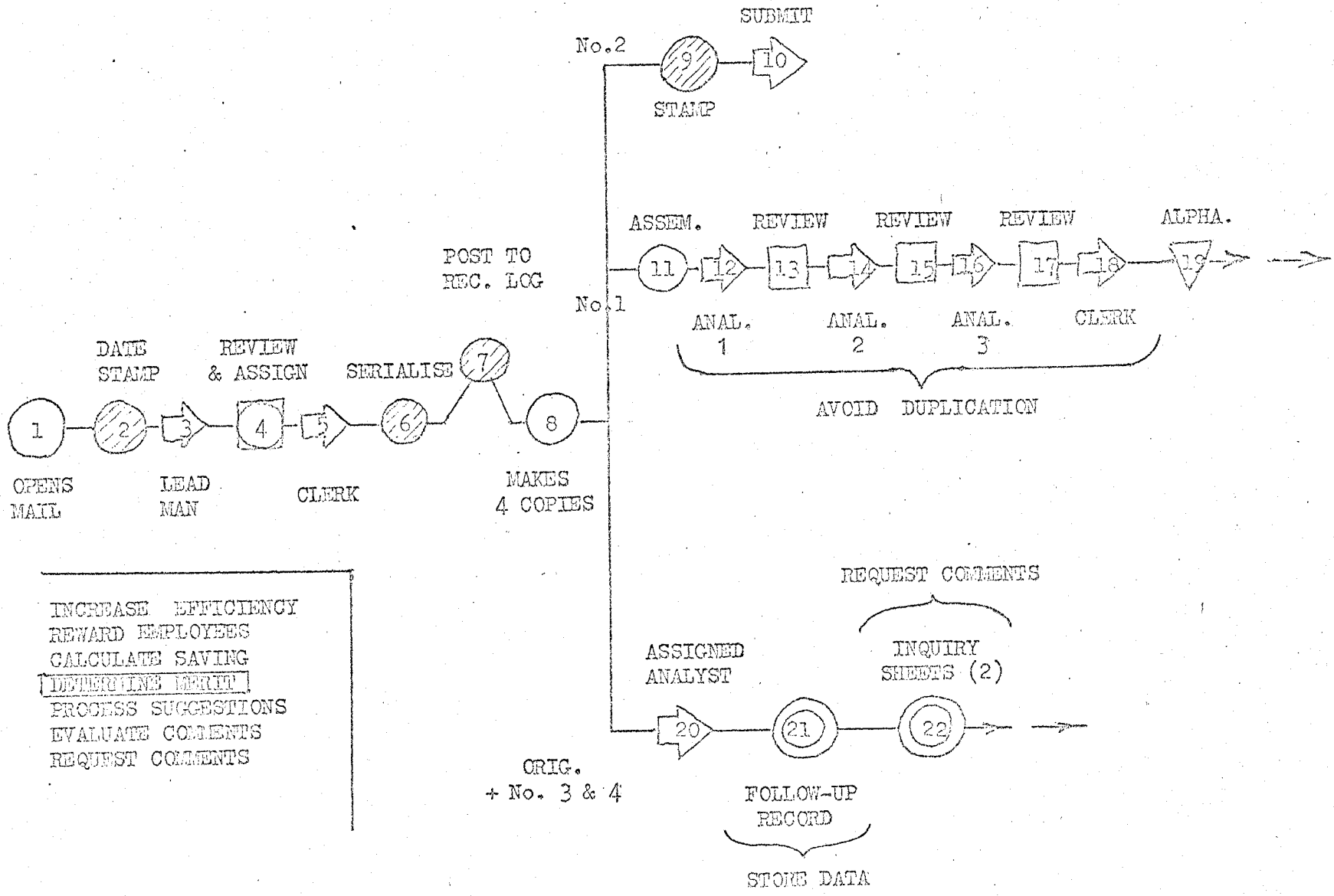
EMPLOYEE SUGGESTION PROCESSING



INCREASE EFFICIENCY
REWARD EMPLOYEES
CALCULATE SAVING
DETERMINE MERIT
PROCESS SUGGESTIONS
EVALUATE COMMENTS
REQUEST COMMENTS

Outline for Completion of Procedure VA Study

Information Phase (Refer to V.E. Project Workbook, Section IV, and Section IX)

Gather data
Make list of steps
Determine "costs" : (a) Man-hours of labor
other costs such as reproduction
(b) Elapsed (or cycle) time.
Define functions: (a) For whole procedure
(b) For each step, or group of steps forming a functional area.

Compare functions of steps with function(s) of procedure and identify those steps contributing directly to the performance of the basic function of the procedure.

Total the present cost of those steps contributing to the performance of the basic function of the procedure and compare with total cost. This gives an upper limit for the value of the function being performed.

Analyse costs: Where are the high cost areas? Are there any high cost areas for steps not contributing to the basic function? If elapsed time is important, examine transportation and delays - do they contribute significantly to total elapsed time? Identify steps involving high salaried people for examination as to whether lower skills are needed. Examine inspection and approval steps and establish statistics for number of times, or percent of times failure to pass occurs with time limitations, concentrate on high cost areas.

Creation Phase (Refer to V.E. Project Workbook, Section V)

Use brainstorming/group creativity techniques:

Assign recorder to list all ideas as they are suggested by team members; preferably on flip-chart paper or chalk-board visible to all team members.

Generate largest quantity of ideas possible
Suspend judgement temporarily
Hitch hike on other ideas; combine, modify
The wilder the ideas the better

Blast, using basic function of procedure, down to the simplist thing you can think of that will just perform the basic function. Ignore constraints, specification requirements, etc.

Think up as many ways as possible to perform functions of steps contributing essential secondary functions.

Evaluation Phase: (Refer to V.E. Project Workbook, Section VI)

Evaluate ideas generated in Creation Phase, Select better ones for further investigation and development.

Add to the simplist idea for performing the basic function those ideas necessary for performing essential secondary functions, considering all constraints.

Gradually build up new procedure, retaining more than one alternative to allow choice.

Cont....

Investigation Phase: (Refer to V.E. Project Workbook, Section VI)

In this training exercise there will be time only for a limited amount of investigation. It must be assumed that the team can at least do sufficient evaluation and investigation to enable them to make some fairly positive recommendations to management, with the recognition that further investigation must be done to prove out the recommendations fully.

Recommendation Phase:

For the purpose of this training exercise the team should complete a written report containing their recommendations in detail, a Procedure Flow Chart showing the present procedure, and a Proposed Procedure Flow Chart.

Comparison should be shown between the present method and the proposed for:

- Number of steps of present and proposed procedures
- Cost of present and proposed procedures for one cycle and per year.
- Elapsed time for one cycle of present Method and proposed
- Cost difference (saving) between old and new (if any)
- Elapsed time difference between old and new (if any)
- Point out effects of elapsed-time saving in terms of impact on other systems or actions outside of the procedure studied.

Implementation should be discussed including:

- Additional investigation necessary or recommended
- Who should make additional investigation (if possible)
- Estimated time required for additional investigation
- Total implementation time and cost, including identification of decision-makers and implementors (to the extent known) (Cost of study should be included)

An oral presentation should be prepared, not to exceed 15 minutes summarizing the above.

Visual aids should include a wall chart

- PFC - present method, and a wall chart
- PFC - proposed method
- plus flip charts showing comparison of costs, etc. outlined in written report.

Oral report should not include a complete description of procedures, but highlight difference only. Some discussion of process of study should be included, and potential for future application of techniques learned.

Some Results of V.A. Procedures

Plessey Co.

1. Draft Works Order and Enquiry

   Reduced cycle time from 2 - 3 weeks to 1 - 7 days

2. Change Note Procedure - Production end

   Saved 2,500 hours/year

3. Change Note Procedure

   Reduced cycle time 29%
   Reduced number of steps by 50%
   Savings /year £5,120

4. Small Orders Procedure

   Reduced number of steps from 74 to 15
   Cost Reduced £6,590 /year
   Elapsed time 10 - 20 days to 1 to 3 days

5. Drawing Change Request Procedure

   Reduced cycle time 180 hours to 24 hours
   Reduced cost £28,000 /year
   Reduced no of steps 33 to 21

6. Computerised Parts List

   Reduced cost of £6,800 /year - £5 to £1
   Reduced steps 28 to 12
   Reduced cycle time $4\frac{1}{2}$ to 3 days

7. Production of Machine Code Tapes

   Savings £8,200 /year
   Improved system - less errors
   Reduced steps and cycle

Other Studies

Engineering Planned Layout - £1000
Purchase Requisition
Departmental Returns

Some Results of V.A. of Procedures

Other Companies

1. Engineering Drawing Release to Production

   Reduced 18 steps to 4
   Reduced 45 days to 15

2. Engineering Drawing Release System

   Reduced elapsed time by 30%
   Reduced inventory by $90,000 /year

3. Engineering Change Note Procedure

   Reduced time span by 75%
   Saved $31,000 in man hours /year
   Scrap loss - due to delay - reduced $10,000

4. A Wage Payment System

   Saved 42% or $21,000

5. A Production Control Procedure - Provisioning List

   Saved $49,000 /year

Other Studies

Defective Material Rejection Procedure
Purchasing Procedure
Invoice Procedure
Standard and Calibration Lab - Test gear calibration
Travel order and expense report

6. Vendor (Supplier) Information Request System

   Reduce process time
   Saved $45,000 /year

7. Employee Suggestion System

   Reduced steps from 94 to 44
   Suggestions processed more quickly - greater savings
   Reduced people from 9 to $3\frac{1}{2}$ clerk

TEAM RESULTS.

POOLE

1. DRAFTWORKS ORDER ENQUIRY - CREATIVE
2. CHANGE NOTE PROCEDURE - 2,240

BEESTON

Implemented 1. CHANGE NOTE PROCEDURE - 5,120
2. DEPARTMENTAL RETURNS PROCED. 900
3. PURCHASE REQUISITION. -
Implemented 4. SMALL ORDERS PROCEDURE - 6,540

APPLESTONE

Implemented 1. DRAWING CHANGE REQUEST - 28,000
Implemented 2. COMPUTERIZED ITEMS LIST - 6,500

CARRIED

1. MASTER PROGRAMME PROCEDURE -
MONTHLY SUPPLY SCHEDULE

ILFORD

Implemented 1. ENGINE PLANNED LAYOUT - 840
DRAFT COPY PROCEDURE

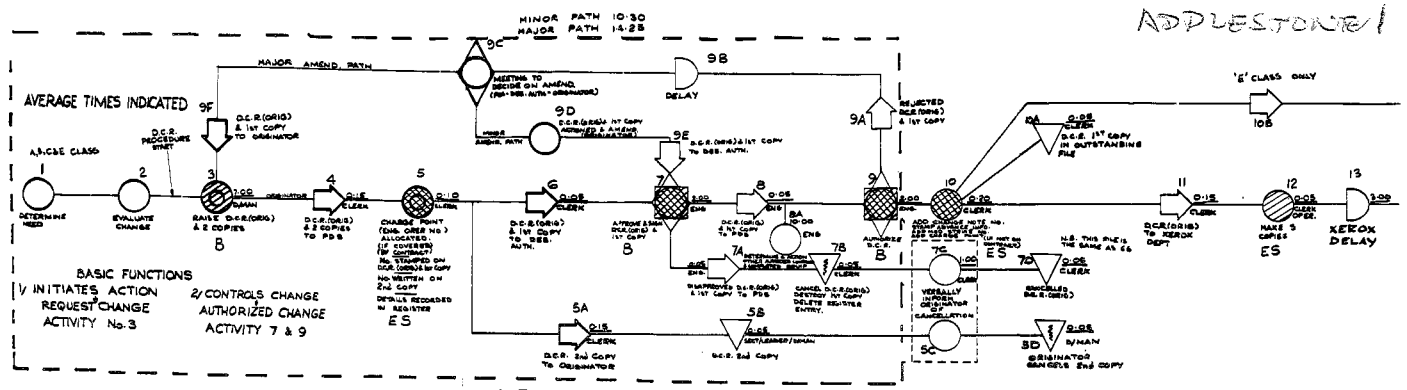
STOKE PARK

1. PRODUCTION OF MACHINE CODE - 8,200
FROM CODED SCRIPT

EXISTING PROCEDURE

D.C.R. SYSTEM AS APPLIED BY THE D.O. (D & D.D.)

DRAWING CHANGE REQUEST
ADDLESTONE 1



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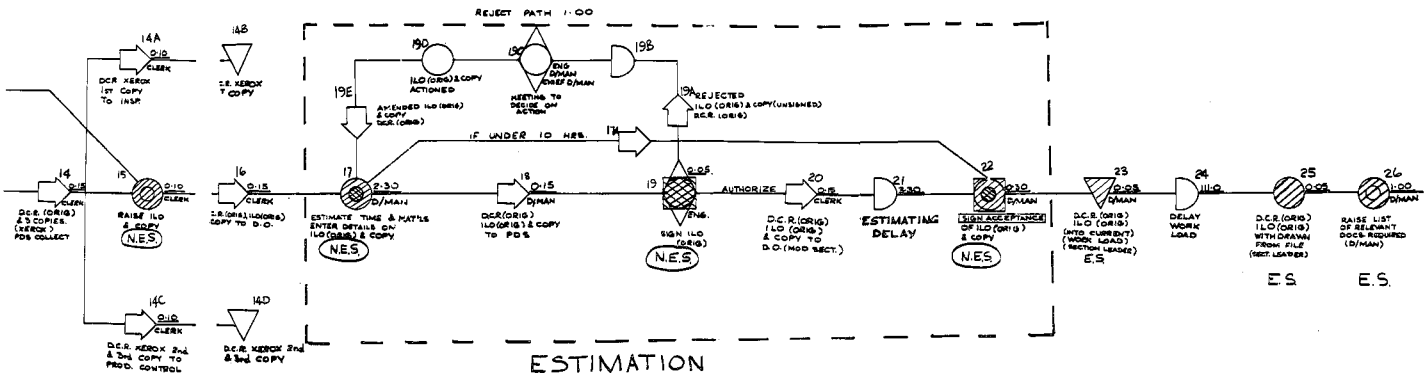
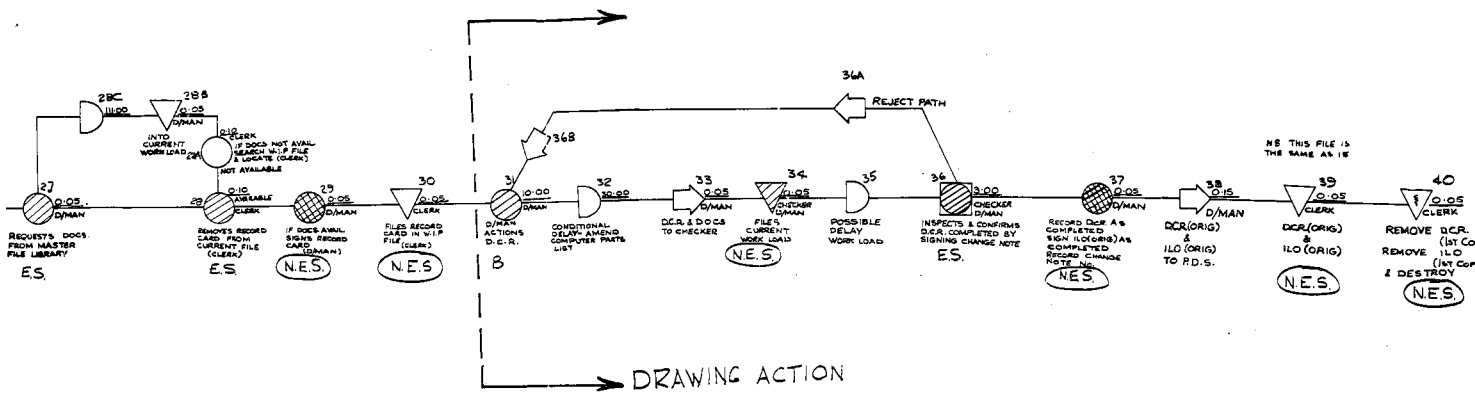
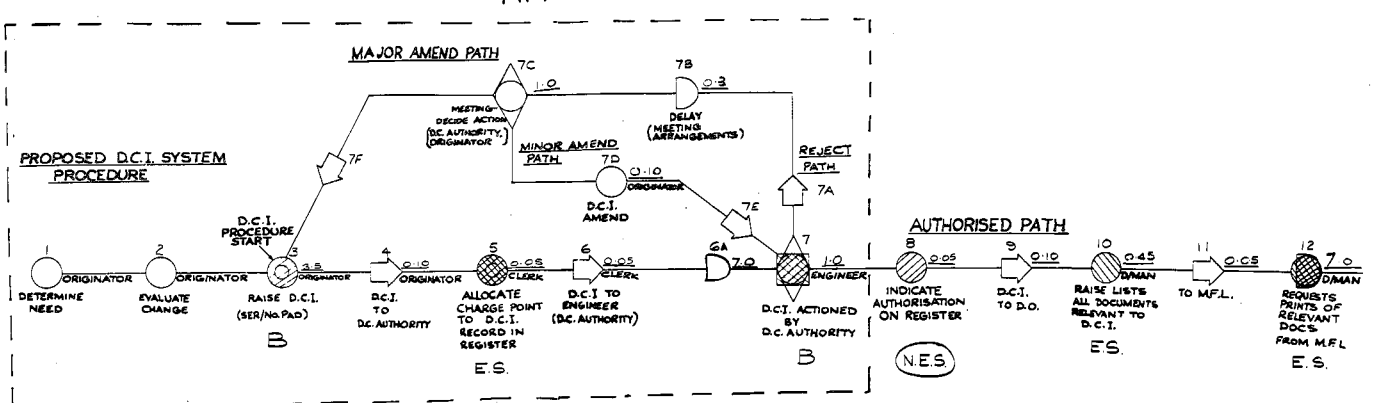


ESTIMATION



PROPOSED PROCEDURE



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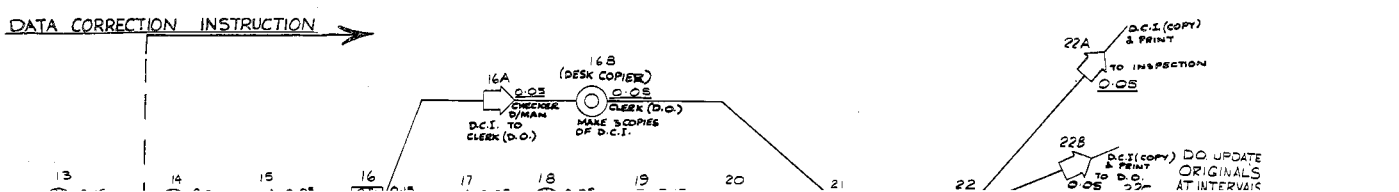


FLOW PROCESS CHART — INFO PHASE

PURPOSE OF PROCEDURE _____

BASIC FUNCTION _____ _____

STEPS OF PROCEDURE.	TIME	PERSON

☐ PRESENT METHOD

☐ PROPOSED METHOD

☐ MAN ☐ MATERIAL

FLOW PROCESS CHART

PAGE ____ OF ____

SUMMARY	PRESENT NO.	PRESENT COST	PROPOSED NO.	PROPOSED COST	DIFFERENCE NO.	DIFFERENCE COST	DIFFERENCE PERCENT
○ OPERATIONS							
⇨ TRANS.							
☐ INSPECTIONS							
D DELAYS							
▽ STORAGES							
TOTAL							

QUESTION EACH DETAIL — ANALYZE WHY? — WHAT | WHERE | WHEN | WHO | HOW

TASK

PROCESS BEGINS | DATE

PROCESS ENDS | PREPARED BY

	DETAILS OF METHOD (VERB - NOUN)	○ OPERATION	⇨ TRANSPORT	☐ INSPECTION	D DELAY	▽ STORAGE	QUANTITY	TIME	COST	POSSIBILITIES FOR CHANGE: ELIMINATE	COMBINE	SEQUENCE	PLACE	PERSON	NOTES
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
13															
12															
14															
15															
16															
17															
18															
19															
20															
21															
22															

5175 (10-65)

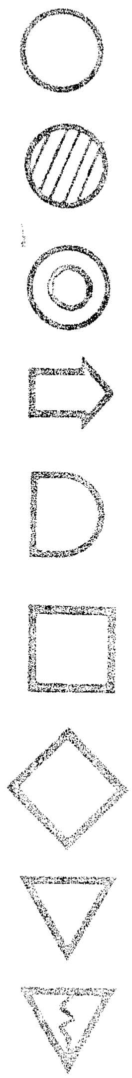
OR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED

SECURITY CLASSIFICATION

3RD ANGLE PROJECTION

DO NOT SCALE

USED ON



OPERATION

ADD

CREATE

TRANSPORT

DELAY

INSPECT

DECIDE

STORE

DISCARD

ISSUE No.	
DATE	

MATERIAL

FINISH

TOLERANCES

2000 SH 00008

DRN.

CHKD.

APPD.

SIMILAR TO

SECURITY CLASSIFICATION

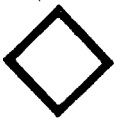
TITLE

PROCEDURE FLOW –

SECURITY CLASSIFICATION

3RD ANGLE PROJECTION

USED ON

	**OPERATION**	Indicates an event denoting "work" or change
	**ADD**	Indicates something added to a form or record, such as signing, posting, or stamping
	**CREATE**	Indicates the origin of a new form, record, and so forth
	**TRANSPORT**	Indicates moving something from one place to another
	**DELAY**	Indicates a planned or unplanned temporary delay
	**INSPECT**	Indicates an examination or verification such as a signature authorization
	**DECIDE**	Indicates choosing a course of action from alternates
	**STORE**	Indicates retaining something for future use or reference
	**DISCARD**	Indicates eliminating something from the procedure

ISSUE No.								DIMENSIONS IN mm / INCHES
DATE								
C.N. No.								
CERTIFIED								
AS or MOD. No.								

MATERIAL	FINISH	TOLERANCES–UNLESS OTHERWISE STATED, GENERAL REQUIREMENT TO PLESSEY SPECIFICATION 2000 SH 00008
DRN.		SIMILAR TO
CHKD.		SECURITY CLASSIFICATION
APPD.	TITLE **PROCEDURE FLOW – CHART SYMBOLS**	DRG. No. A 4

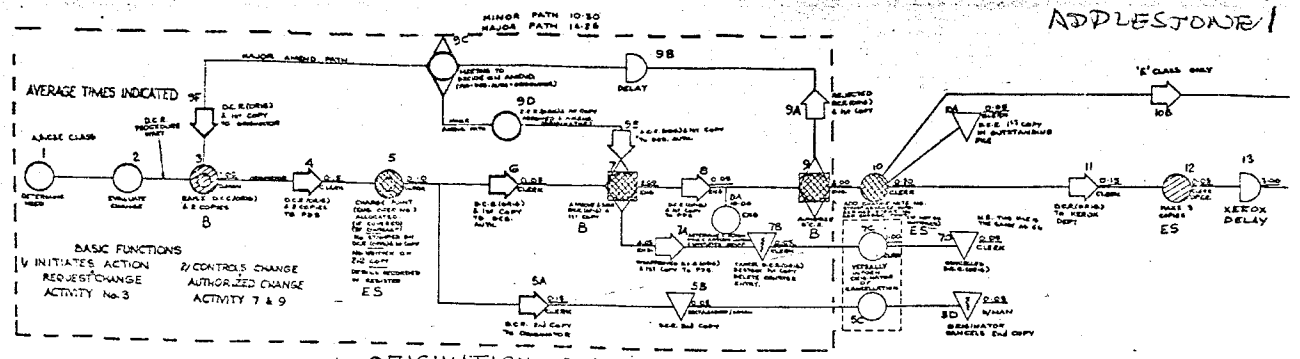
VALUE ENGINEERING METHODS & PRACTICE

Stationery Form F2121

EXISTING PROCEDURE

D.C.R. SYSTEM AS APPLIED BY THE D.O. (D & D.O.)

DRAWING CHANGE REQUEST
APPLESTONE/1



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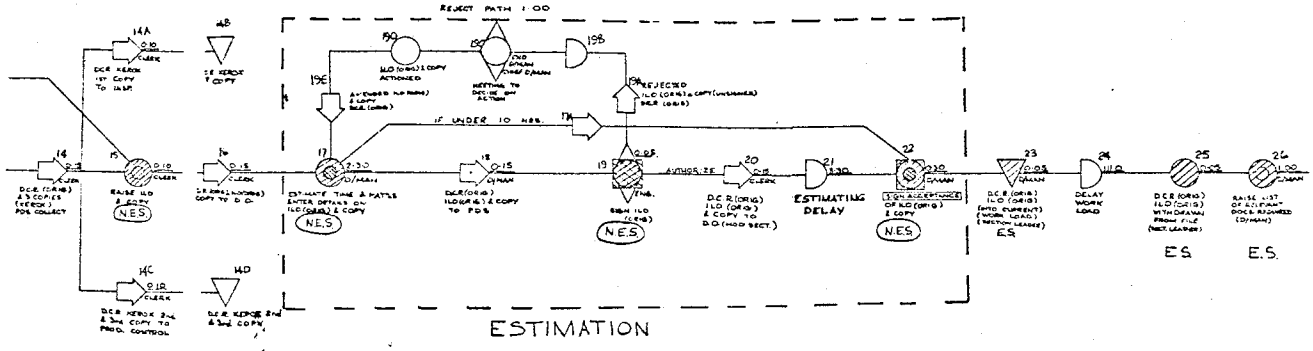
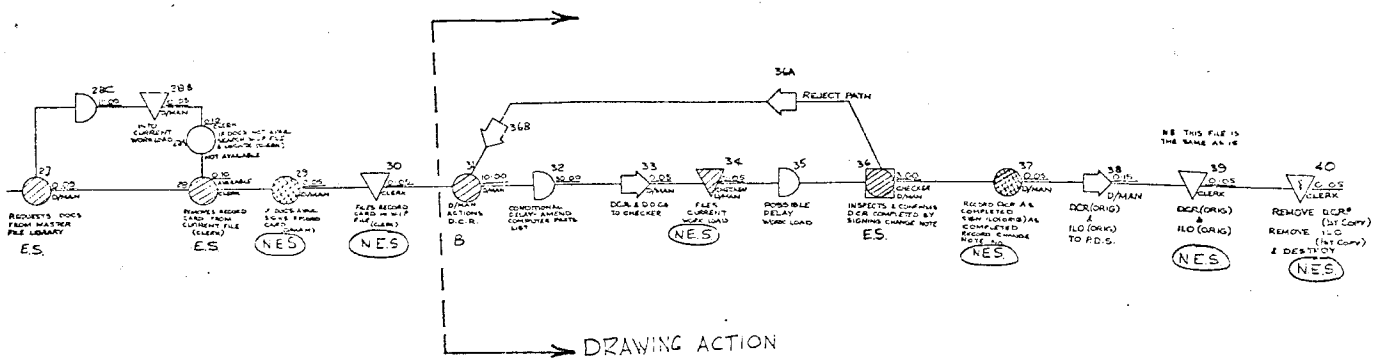
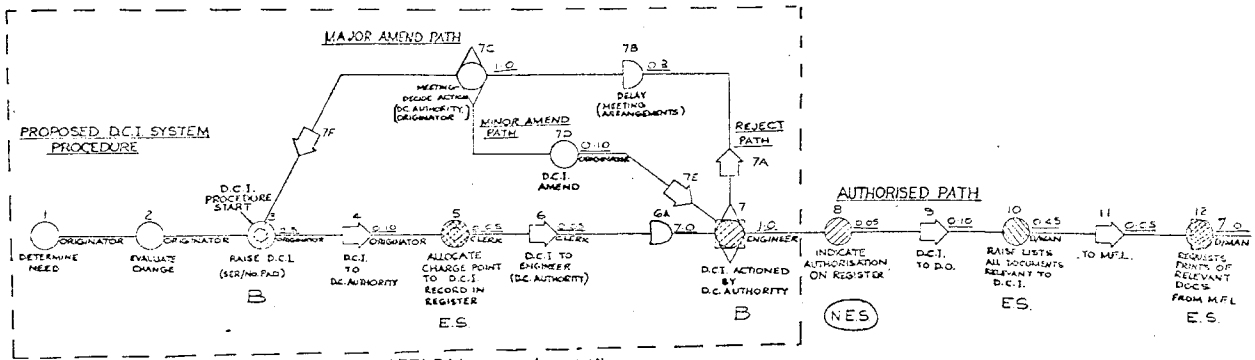


ESTIMATION



PROPOSED PROCEDURE



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