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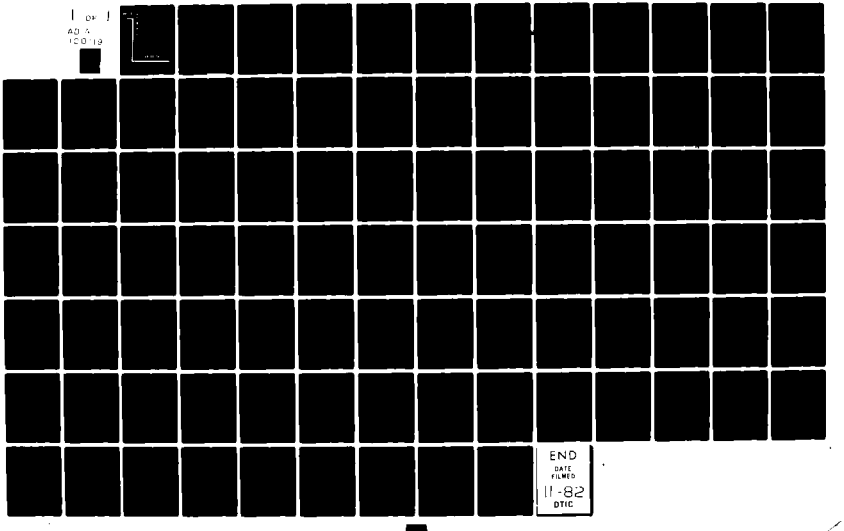

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STANDARDIZED POSITION ORIENTED TRAINING SYSTEM (SPOTS): TASK LISTING GENERATION PROCEDURES

By

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This paper has been reviewed and is approved for publication.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Over the past several years, supervisors have voiced strong concern about using the Specialty Training Standard of the Job Proficiency Guide as a guide for training tasks in on the job training (OJT). The development of an automated procedure for identifying training tasks in each job for an Air Force specialty resulted from multiple regression analysis of task factors common to four diverse specialties. A single regression equation was derived to predict the priority of OJT tasks for jobs in a specific specialty. The applicability of the equation to both technical and non-technical specialties enables the use of an existing data base routinely collected by the Air Force Occupational Measurement Center. The Comprehensive Occupational Data Analysis Programs (CODAP) and procedures for generating the SPOTS task listings are documented in this technical paper.		

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This publication is primarily a working paper.
It is published solely to document work performed.
It delineates the computer runstreams required to support
the Standardized Position Oriented Training System.

PREFACE

Analysis of Air Force specialties for the development of the Standardized Position Oriented Training System (SPOTS) was conducted under the Task Oriented Measurement Technologies work unit (77191901). Work on SPOTS was initiated 13 April 1979 and concluded 31 August 1981.

SPOTS task listing generation was implemented on a UNIVAC 1100 series computer at level 36 operating system. All the computer programs cited in the appendix were specifically developed for the UNIVAC 1100 series. The Comprehensive Occupational Data Analysis Programs (CODAP) used are written in the FORTRAN V programming language or PILOT, a computer assisted instruction utility language. The Versatile Information Retrieval and Update System (VIRUS) program used to develop runstreams was created at AFHRL by Charles R. Rogers. We wish to acknowledge the many hours of programming creativity within the CODAP system and technical foresight contributed by Dr Raymond E. Christal and Mr Johnny J. Weissmuller, additional programming support by Sgt Michael C. Thew and the analytical consultation of Mr William J. Phalen.

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SPOTS TASK LIST GENERATION PROCEDURES

1. Background

1.1 Requirement

The Standardized Position Oriented Training System (SPOTS) was developed in response to a Request for Personnel Research (RPR 78-20) submitted to the Air Force Human Resources Laboratory by the Air Force Manpower and Personnel Center (AFMPC). The purpose of the research and the development of SPOTS was to provide a method for recommending which tasks to include in on the job training (OJT) for specific jobs within Air Force enlisted specialties. Recommendations were made in the form of SPOTS priority scores assigned to each task for each job.

1.2 System Development

The development of SPOTS priority scores was based on a judgment analysis approach. The scores indicate the training priority for each task in each job in an Air Force specialty (AFS). Using the judgment analysis approach, supervisors provided judgments regarding the tasks which required training for the jobs they supervised. Supervisor judgment was the criterion against which a mathematical model was developed. This model was then used to generate automated SPOTS task training requirements lists for each job in a specialty. Four representative specialties differing in technicality (hardware oriented, not hardware oriented) and diversity (many jobs, few jobs) were used for the study. The specialties selected were: (a) 423X0 - Aircraft Electrical Systems (Gentner & Pont, 1979), defined as high hardware technicality and low diversity, (b) 461X0 - Munitions Systems (Jones & Street, 1977), defined as high hardware technicality and high diversity, (c) 645X0 - Inventory Management (Nolte & Ulrich, 1978) defined as low hardware technicality and high diversity, and (d) 645X0A - Inventory Management Munitions (Nolte & Ulrich, 1978), defined as low hardware technicality and low diversity.

The major result of the study was the development of a single SPOTS mathematical model that could be used in all jobs across the four specialties. This model included the percentage of members in the job performing the task and the interaction of the percentage of members in the job performing the task with the task's learning difficulty. Application of the model resulted in a SPOTS training priority score for each task in a given job within a specialty. The SPOTS training priority score was designed to be used to rank order tasks in a job for OJT in order of their training priority. Using the model, each job in a specialty would have a different rank ordered listing of tasks for OJT.

1.3 Products

To report the SPOTS task listings and training priority scores, three presentation formats were developed: (a) an automated SPOTS listing, which arranges the tasks for each job in descending order on SPOTS priority scores (Figure 1), (b) an automated version of the Job Proficiency Guide (JPG), as specified in Air Force Manual 50-23 (AFM 50-23, 1979), containing the SPOTS training tasks listing (Figure 2), (c) an automated SPOTS Executive Summary, which displays the tasks occurring across all SPOTS listings for a specialty (Figure 3).

Task Factor Information of SPOTS Analysis on AFSC 751X2

Task Factor Decks for 751X2 by Job - Ordered on SPOT Priority Score
751X2 JOBGRP 359 Unit OJT Managers/Counselors

D	TSK	TITLES	SEQ NUM	359[a] PS4	MEM[b] 359	MEM[c] TOT	TSK[d] DIF	AVG[e] GRD
C	65	Conduct OJT Staff Visits	1	1.677	85.7	78.7	6.72	5.87
A	11	Develop Procedures for OJT Programs	2	1.087	92.9	62.3	6.01	6.13
B	36	Draft Correspondence	3	1.032	78.6	72.0	4.96	6.06
K	239	Advise Supervisors Conducting Qualification Training	4	1.029	100.0	69.2	4.68	5.98
K	483	Review Preparation of AF Form 2095 or 2096	5	.847	100.0	74.2	4.70	5.11
K	326	Determine Unit OJT Training Needs	6	.829	92.9	60.1	6.03	5.28
C	96	Evaluate Training Programs	7	.818	64.3	61.3	6.27	6.36
K	310	Counsel Trainers or Supervisors on Their Trainees' Progress	8	.794	100.0	62.2	5.17	5.28
C	85	Evaluate OJT Trainers	9	.745	85.7	61.6	5.40	5.83
K	309	Counsel Trainees on Training Progress	10	.710	100.0	59.2	5.02	5.28
K	238	Advise Supervisors Conducting Career Development Course (CDC) Review Training	11	.691	100.0	70.8	4.48	5.11
C	84	Evaluate OJT Trainees	12	.686	85.7	63.8	5.34	5.50
B	27	Counsel Personnel on Personal or Military Related Problems	13	.674	78.6	56.9	5.51	6.29
K	485	Review USAF Publications Bulletins	14	.566	85.7	66.1	3.87	6.10
C	83	Evaluate OJT Supervisors	15	.562	71.4	61.7	5.61	5.94
K	240	Advise Supervisors Selecting OJT Trainers	16	.536	92.9	62.1	4.77	5.44
D	120	Advise Individuals on Community College of the Air Force (CCAF) Programs	17	.533	100.0	29.5	4.46	5.62
D	118	Advise Individuals on Career Development, such as Professional Military Education (PME) Courses	18	.527	100.0	48.3	4.39	5.50
C	77	Evaluate Internal Office OJT Programs	19	.461	71.4	47.4	5.07	6.40
C	95	Evaluate Training Methods	20	.457	64.3	49.0	5.70	6.32
K	434	Review Training Statistics	21	.454	71.4	68.2	4.72	5.76
K	286	Assist Supervisors in Development of Master JPG	22	.425	71.4	56.0	5.28	5.66
D	123	Advise Individuals on Extension Course Institute (ECI) Courses	23	.412	92.9	57.3	4.09	5.49
K	437	Maintain Files of Staff Assistance Visit Reports	24	.404	92.9	68.7	3.29	5.43
B	29	Develop or Improve Work Methods or Procedures	25	.353	64.3	46.6	5.46	6.76
D	117	Advise Individuals on Available Off Duty Education Programs	26	.329	92.9	33.5	4.16	5.51
J	222	Coordinate with Agencies such as Field Training Detachments, Tech Schools, or Civilian Schools to Schedule Cla	27	.318	57.1	56.8	5.18	6.15

Figure 1. Sample SPOTS Task listing.

K	237	Administer Written Tests	28	.318	78.6	40.0	3.57	6.24
J	221	Coordinate Training Schedules and Requirements with All Affected Activities to Determine Training Priorities	29	.313	42.9	56.4	5.38	6.10
C	97	Evaluate Training Techniques	30	.294	50.0	46.5	6.00	6.39
K	303	Consult with Other (CBPO) Sections on Matters Dealing with Classification Relating to OJT	31	.277	71.4	57.5	4.38	5.69
K	465	Prepare Requisitions for Specialty Training Standards (STS) or CDC Materials	32	.234	92.9	40.0	3.39	5.54
K	450	Participate in the Development of Job Proficiency Guide Continuation Sheet Forms (AF Form 797)	33	.233	50.0	52.5	5.39	6.11
C	106	Select Individuals for Specialized Training	34	.224	50.0	12.2	5.00	7.78
C	79	Evaluate Job Proficiency Guide (JPG)	35	.223	64.3	40.0	5.31	6.38
K	490	Select Individuals for Evaluation During Staff Assistance Visits	36	.219	85.7	52.6	4.17	5.23
I	216	Open Computer Terminals	37	.204	.0	33.2	3.22	5.09
I	211	Contact Maintenance Personnel When Computers Malfunction	38	.200	.0	14.9	2.62	5.72
I	220	Shutdown or Secure Terminals	39	.200	.0	30.2	3.07	5.01
A	5	Determine Work Priorities	40	.192	50.0	49.2	4.87	6.89
C	105	Recommend Individuals for Promotion/Demotion, or Reclassification	41	.153	42.9	21.0	5.64	7.50
K	448	Observe Task Performance	42	.150	57.1	41.9	4.99	5.83
A	12	Plan Briefings	43	.145	64.3	49.5	5.11	6.39
D	115	Advise Individuals on AF Educational Goals	44	.134	85.7	24.0	4.26	5.21
A	3	Assign Sponsors for Newly Assigned Personnel	45	.129	7.1	11.4	2.27	7.86
C	75	Evaluate Inspection Reports or Procedures	46	.122	42.9	35.1	5.39	7.16
K	497	Update Data in Maintenance Management Information and Control System (MMICS)	47	.112	7.1	31.8	5.44	5.43
B	44	Initiate Personnel Action Requests	48	.110	64.3	61.7	3.72	5.52

****
* Tasks omitted for which: *
* The value in column 359PS4 is less than .010 *
****

Figure 1. Sample SPOTS task listing (Concluded)

a 359PS4 - SPOT priority scores for job 359
b MEM359 - Percentage of members performing based on the number of members in job 359
c MEMTOT - Percentage of members performing based on total sample
d TSKDIF - Average task difficulty ratings
e AVGGRD - Average grade (E1 thru E9)

Task No.		Tasks	Skill Level	Date OJT Started	Date Proficiency Attained	Trainee Initials	Supervisor Initials
C	65	Conduct OJT Staff Visits					
A	11	Develop Procedures for OJT Programs					
B	36	Draft Correspondence					
K	239	Advise Supervisors Conducting Qualification Training					
K	483	Review Preparation of AF Form 2095 or 2096					
K	326	Determine Unit OJT Training Needs					
C	96	Evaluate Training Programs					
K	310	Counsel Trainers or Supervisors on Their Trainees' Progress					
C	85	Evaluate OJT Trainers					
K	309	Counsel Trainees on Training Progress					
K	238	Advise Supervisors Conducting Career Development Course (CDC) Review Training					
C	84	Evaluate OJT Trainees					
B	27	Counsel Personnel on Personal or Military Related Problems					
K	485	Review USAF Publications Bulletins					
C	83	Evaluate OJT Supervisors					
K	240	Advise Supervisors Selecting OJT Trainers					
D	120	Advise Individuals on Community College of the Air Force (CCAF) Programs					
D	118	Advise Individuals on Career Development, such as Professional Military Education (PME) Courses					
C	77	Evaluate Internal Office OJT Programs					
C	95	Evaluate Training Methods					
K	434	Review Training Statistics					
K	286	Assist Supervisors in Development of Master JPG					
D	123	Advise Individuals on Extension Course Institute (ECI) Courses					
K	437	Maintain Files of Staff Assistance Visit Reports					
B	29	Develop or Improve Work Methods or Procedures					

SPOT Priority Scores: 751X2 - Group 359

Figure 2. Sample SPOTS JPG form.

Task No.		Tasks	Skill Level	Date OJT Started	Date Proficiency Attained	Trainee Initials	Supervisor Initials
D	117	Advise Individuals on Available Off Duty Education Programs					
J	222	Coordinate with Agencies such as Field Training Detachments, Tech Schools, or Civilian Schools to Schedule Classes					
K	237	Administer Written Tests					
J	221	Coordinate Training Schedules and Requirements with all Affected Activities to Determine Training Priorities					
C	97	Evaluate Training Techniques					
K	303	Consult with Other (CBPO) Sections on Matters Dealing with Classification Relating to OJT					
K	465	Prepare Requisitions for Specialty Training Standards (STS) or CDC Materials					
K	450	Participate in the Development of Job Proficiency Guide Continuation Sheet Forms (AF Form 797)					
C	106	Select Individuals for Specialized Training					
C	79	Evaluate Job Proficiency Guide (JPG)					
K	490	Select Individuals for Evaluation During Staff Assistance Visits					
I	216	Open Computer Terminals					
I	211	Contact Maintenance Personnel When Computers Malfunction					
I	220	Shutdown or Secure Terminals					
A	5	Determine Work Priorities					
C	105	Recommend Individuals for Promotion, Demotion, or Reclassification					
K	448	Observe Task Performance					
A	12	Plan Briefings					
D	115	Advise Individuals on AF Educational Goals					
A	3	Assign Sponsors for Newly Assigned Personnel					
C	75	Evaluate Inspection Reports or Procedures					
K	497	Update Data in Maintenance Management Information and Control System (MMICS)					
B	44	Initiate Personnel Action Requests					

Figure 2. Sample SPOTS JPG form (Concluded)

D	Task	Titles	SEQ[a] NUM	COM[b] IND	MEM[c] 068	MEM 470	MEM 453	MEM 384	MEM 359	MEM 377
A	5	Determine Work Priorities	1	100.0	84.8	90.8	71.7	37.4	50.0	18.2
B	29	Develop or Improve Work Methods or Procedures	2	100.0	58.7	80.3	68.8	37.9	64.3	36.4
B	27	Counsel Personnel on Personal or Military Related Problems	3	100.0	63.0	78.3	84.9	56.6	78.6	36.4
C	96	Evaluate Training Programs	4	100.0	21.7	86.8	87.9	71.4	64.3	63.6
B	36	Draft Correspondence	5	100.0	89.1	96.1	92.6	77.7	78.6	45.5
C	65	Conduct OJT Staff visits	6	93.8	19.6	96.7	96.3	96.0	85.7	81.8
J	222	Coordinate with Agencies such as Field Training Detachments, Tech Schools, or Civilian Schools to Schedule Classes	7	93.8	23.9	89.5	83.1	49.9	57.1	100.0
A	12	Develop Work Methods or Procedures	8	93.8	54.3	63.8	61.8	22.5	35.7	36.4
K	221	Coordinate Training Schedules and Requirements with all Effected Activities to Determine Training Priorities	9	93.8	28.3	73.0	86.0	55.7	42.9	90.9
K	434	Review Training Statistics	10	93.8	34.8	91.4	92.6	81.4	71.4	54.5
A	18	Plan Briefings	11	93.8	52.2	74.3	76.8	49.1	64.3	54.5
K	435	Review USAF Publications Bulletins	12	93.8	32.6	90.8	86.4	80.6	85.7	72.7
A	11	Develop Procedures for OJT Programs	13	87.5	32.6	90.1	89.7	75.7	92.9	63.6
C	83	Evaluate OJT Supervisors	14	87.5	23.9	90.8	89.3	80.4	71.4	54.5
C	34	Evaluate OJT Trainers	15	87.5	19.6	86.8	90.1	80.8	85.7	45.5
C	34	Evaluate OJT Trainees	16	87.5	26.1	90.1	92.6	81.7	85.7	45.5
C	77	Evaluate Internal Office OJT Programs	17	87.5	32.6	82.2	77.9	45.9	71.4	63.6
K	433	Review Preparation Of AF Form 2095 or 2096	18	87.5	34.8	94.7	96.0	95.5	100.0	100.0
K	239	Advise Supervisors Conducting Qualification Training	19	87.5	.0	80.9	97.4	93.1	100.0	63.6
A	14	Establish Organizational Policies, Office Instructions (OTS) or Standing Operating Procedures (SOPs)	20	87.5	67.4	61.3	66.9	27.3	21.4	27.3
C	79	Evaluate Job Proficiency Guide (JPG)	21	87.5	21.7	58.6	71.3	39.3	64.3	27.3
B	46	Interpret Policies, Directives, or Procedures for Subordinates	22	85.7	80.4	82.9	67.3	34.7	35.7	18.2
K	450	Participate in the Development of Job Proficiency Guide Continuation Sheet Forms (AF Form 797)	23	87.5	26.1	58.6	88.2	72.4	50.0	27.3
C	99	Evaluate Training Methods	24	87.5	15.2	72.4	75.7	52.5	64.3	45.5
K	437	Maintain Files of Staff Assistance Visit Reports	25	81.3	.0	94.7	94.9	86.7	92.9	81.8
K	336	Determine Unit OJT Training Needs	26	81.3	15.2	60.5	92.6	85.6	92.9	72.7
B	35	Direct or Implement Internal Office OJT Programs	27	81.3	39.1	80.3	79.8	47.2	42.9	36.4
B	44	Initiate Personnel Action Request	28	81.3	54.3	82.9	89.7	75.9	64.3	54.5
K	368	Extract System or Job Data from Air Force Regulations, Manuals, or Pamphlets	29	81.3	.0	52.6	57.3	24.7	14.3	27.3

Figure 3. Sample SPOTS executive summary

K	479	Recommend Remedial Actions for Students Failing to Meet Training Standards	30	81.3	.0	52.0	69.9	60.2	57.1	27.3
C	97	Evaluate Training Techniques	31	81.3	.0	73.0	75.4	49.9	50.0	36.4
C	93	Complete Training Statistics	32	81.3	.0	81.6	73.5	47.7	50.0	54.5
C	81	Evaluate Maintenance Management Information and Control System (MMICS)	33	75.0	.0	13.8	43.8	.0	14.3	45.5
K	238	Advise Supervisors Conducting Career Development Course (CDC) Review Training	34	75.0	.0	82.9	97.8	95.5	100.0	81.8
K	402	Identify Causes of High Failure Rates	35	75.0	.0	60.5	58.1	34.2	14.3	.0
K	305	Coordinate OJT Advisory Service Courses With Supervisors	36	75.0	.0	62.5	87.1	80.6	64.3	27.3
K	443	Maintain or Update Automated Report Printouts	37	75.0	.0	59.2	76.5	49.9	35.7	72.7
K	490	Select Individuals for Evaluation During Staff Assistance Visits	38	75.0	.0	86.2	73.2	72.7	85.7	72.7
K	310	Counsel Trainers or Supervisors on Their Trainees Progress	39	75.0	.0	69.1	95.2	93.6	100.0	63.6
C	72	Evaluate Course Outlines or Lesson Plans	40	75.0	15.2	13.2	43.8	.0	21.4	54.5
K	236	Assist Supervisors in Development of Master JPG	41	75.0	.0	66.4	84.9	75.3	71.4	54.5
K	309	Counsel Trainees on Training Progress	42	75.0	.0	59.9	93.8	86.5	100.0	63.6
K	440	Maintain Individual Training Status Records, such as On-The-Job Training Record Forms (AF Form 623)	43	75.0	37.0	65.1	73.9	43.3	50.0	72.7
D	123	Advise Individuals on Extension Course Institute (ECI) Courses	44	75.0	.0	69.1	87.5	76.4	92.9	45.5
A	7	Develop Orientation Programs for All Newly Assigned Personnel	45	75.0	37.0	35.5	70.2	33.2	64.3	54.5
K	303	Consult with Other (CBPO) Sections on Matters Dealing with Classification Relating to OJT	46	68.8	.0	86.8	83.8	76.1	71.4	45.5
D	118	Advise Individuals on Career Development, such as Professional Military Education (PME) Courses	47	68.8	21.7	41.4	84.2	63.9	100.0	.0
K	237	Assist Supervisors in Preparation of Training Quality Report (TQR) Forms (AF Form 1284)	48	68.8	.0	52.6	66.9	63.7	42.9	36.4
K	240	Advise Supervisors Selecting OJT Trainers	49	68.8	.0	70.4	93.0	89.9	92.9	54.5
C	108	Write Staff Studies, Surveys, or Special Reports	50	68.8	26.1	54.6	42.3	13.3	.0	18.2

****
* Tasks omitted for which: *
* The value in column sequence is greater than 50 *
****

Figure 3. Sample SPOTS executive summary (Concluded)

a SEQNUM - Sort code based on order of commonality index, percentage of members performing and SPOT priority scores
b COMIND - Index of the percentage of jobs a task is included in
c MEM#### - Percentage of members performing based on the number of members in that job

2. Documentation Overview

2.1 Format Descriptions

The procedures involved in generating SPOTS require building a special data base. This data base consists of job descriptions for each single job. Each job description is a subset of tasks taken from the occupational survey task list. Within this data base, each task is used to identify a record. Each record consists of task factor information at the job level. In order to produce a SPOTS task listing, the task factors are used to predict the SPOTS priority score for each task within the job. Once the priority scores have been obtained, they are used to generate the presentation formats. These reports are the SPOTS task listing for each job (Figure 1), the modified SPOTS Job Proficiency Guide (JPG) for each job (Figure 2), and the SPOTS Executive Summary (Figure 3). The SPOTS task listing provides tasks in descending order of their training priority within each job along with related task factor information. The SPOTS Job Proficiency Guide provides the SPOTS tasks on a modified JPG form for recording an individual's task proficiency information. The Executive Summary provides a commonality index for tasks included across jobs. This last report readily shows which tasks rank highest on training priority within a specialty.

2.2 Sequential Documentation Presentation

The generation of a data base for the SPOTS task listings requires the sequential development of task factors, files, Comprehensive Occupational Data Analysis Programs (CODAP), and runstreams. The documentation is organized in this format. Section 2 contains a description and listing of the Task Factors used. Section 3 is an overview of the computer programs used. Section 4 provides explanations of the format and function of files used. Section 5 consists of documentation of the support programs. Section 6 consists of documentation of the SPOTS task list generation programs. Section 7 consists of documentation of the Executive Summary report generation programs.

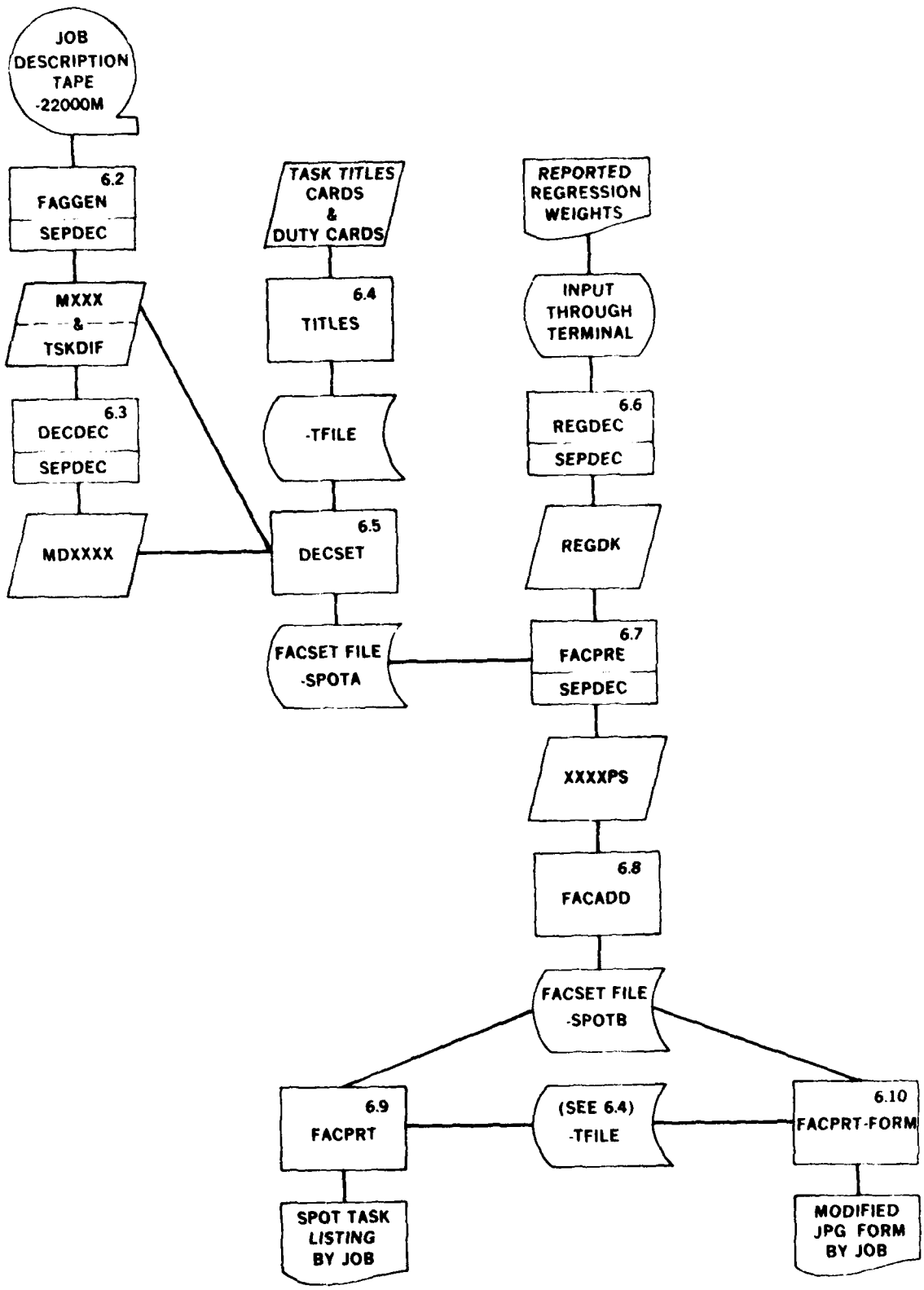

Figure 4. Flowchart of SPOTS Task Listing Generation for the Task Listing and JPG Reports

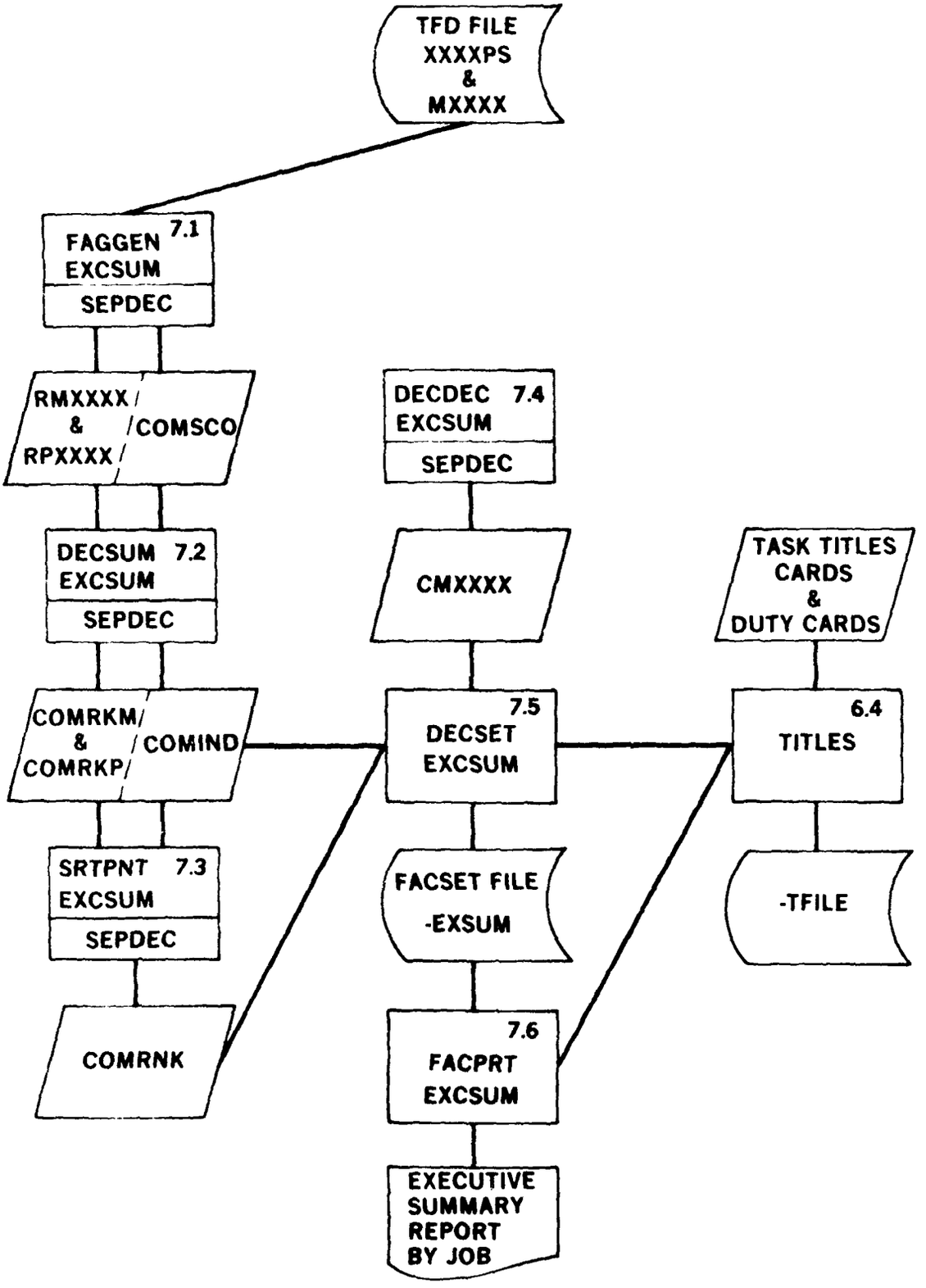

Figure 5. Flowchart of SPOTS Executive Summary Report Generation

2.3 Task Factors as Predictors

Generation of the core set of tasks for determining OJT requirements for a position is driven by the predictors used in the regression equation developed in the research. For every predictor, regression weights have been computed. These weights are then applied across each corresponding predictor data set to produce a set of predicted scores for each specific job. A predictor data set consists of occupational survey data for a particular job. For example, percentage of members performing by job contains percentages of personnel who perform the tasks that identify that job. Each set of predictor data is contained in separate FORTRAN format files referred to as TASK FACTOR DECKS. Table 1 lists the predictors' full titles and labels. These labels or acronyms are important since they are used as identifiers (IDs) of the task factor decks. Note that the CODAP programs used limit the task factor titles to a maximum of six alphanumeric characters. Two guidelines must be emphasized when creating the predictor titles.

1. THE ORDER OF THE PREDICTORS MUST BE MAINTAINED THROUGHOUT THE TASK LIST GENERATION. PREFERABLY THE ORDER OF PREDICTORS SHOULD MATCH THE ORDER OF THE REGRESSION WEIGHTS DECK.

2. PREDICTOR TITLES AND TASK FACTOR DECK IDs MUST BE CONSISTENT THROUGHOUT THE PROCEDURE.

TABLE 1

Task Factor Titles List

PREDICTOR IDs	VARIABLE TITLES
MXXXX	% MEMBRS PERFORMING BY JOB
MDXXXX	% MEMBRS PERFORMING/JOB BY TASK DIFFICULTY
XXXXPS	PREDICTED SCORE FROM REGRESSION EQUATION #

Note: The IDs in column 1 are suggested predictor labels; IDs up to six characters may be used as long as they are consistent and in the order corresponding to the regression weights. Throughout the documentation, the predictor IDs are used in the examples. Each predictor that is associated uniquely with a job has four X's in it. These X's should be replaced with the appropriate CODAP job group number for the job in question. Job group numbers are obtained from the Job Description File index.

3. Computer Program Overview

3.1 Computer Program Usage

To illustrate the generation procedure, jobs an identified in a United States Air Force Occupational Measurement Center (USAFOMC) Occupational Survey Report (OSR) for the Training Career Ladder - 751X2 (Cole & Mellors, 1981) were used. The following programs create the task factor decks for the predictor variables. Due to the number of jobs per AFS, the runstream used to generate a product for the SPOTS task listing can be hundreds of lines in length. To create each runstream manually is cumbersome and subject to error. A runstream employing the VIRUS (VERSATILE INFORMATION RETRIEVAL AND UPDATE SYSTEM) program generates runstreams with minimal preparation and run time. A brief explanation of how to use VIRUS to create runstreams is provided in section 5.3. These runstreams generated by VIRUS are then used to generate products for a particular step in the SPOTS task list generation. All programs in the first column of Table 2 are CODAP programs used to generate the task lists and have VIRUS counterparts. The second column lists the programs used to generate the Executive Summary (also with VIRUS counterparts). Programs in the first and second columns are numbered according to the procedural sequence employed in the flowcharts of the SPOTS task list generation procedure (Figures 4 & 5). The third column contains support programs to aid in file maintenance. If a more comprehensive write-up is needed for any of the programs, a copy of the current CODAP documentation should be consulted.

TABLE 2

Computer Programs Required for SPOTS List Generation

TASK LIST GENERATION PROGRAMS	EXECUTIVE SUMMARY PROGRAMS	SUPPORT PROGRAMS
6.2 FACGEN	7.1 FACGEN EXCSUM	BRKFIL
6.3 DECDEC	7.2 DECSUM EXCSUM(a)	SEPDEC
6.4 TITLES(a)	7.3 SRTPNT EXCSUM(a)	COMMENTS
6.5 DECSET	7.4 DECDEC EXCSUM	VIRUS
6.6 REGDEC(a)	7.5 DECSET EXCSUM	
6.7 FACPRE	7.6 FACPRT EXCSUM	
6.8 FACADD		
6.9 FACPRT		
6.10 FACPRT-FORM		

(a) A VIRUS runstream is *not* required for these programs.

4. File Descriptions

4.1 File Overview

To generate the SPOTS task listings, five types of mass storage (on-line) files and a tape file are used. In order to minimize data transcription and reformatting errors, program, data and symbiont files are standardized. Note throughout the documentation that study number 7428 is used for illustration of the STUDY# notation. The files that are needed are listed in Table 3.

TABLE 3

Files Required for SPOTS List Generation

JOB DESCRIPTION FILE (tape)
PROGRAM FILE
TASK FACTOR DECKS FILE
SYMBIONT FILES
FACSET FILES
TASK TITLES FILE

Explanations of these files are provided below.

4.2 JOB DESCRIPTION FILE

STUDY#-22000m. This tape file is used as input to the FACGEN program. The FACGEN program uses the Job Description Tape to extract or create task factors. The Job Description Tape contains task factor information by persons grouped together by background or task factor information. Each job description is identified by a job group number. This number is used in the six-character ID job codes defined in Table 1.

4.3 PROGRAM FILE

STUDY#. This file should contain 26 elements: 11 'VIRUS' runstreams, 14 program runstreams, and the Job List element (STUDY#.Job-List). Note that these elements can be included in existing program files of similiar study numbers. The elements should be given unique element names so that they can be identified as part of the SPOTS list generation.

4.4 TASK FACTOR DECKS FILE

STUDY#DKS. This file contains the task factor decks (TFDs) as elements. The task factor decks file is crucial to the generation procedure because all the data are placed here by the SEPDEC program. The TFD file should be assigned 640 tracks of mass storage when catalogued. All TFDs created by the SPOTS task list generation procedure are listed in Table 4.

4.5 SYMBIONT FILES

STUDY#XXPRT. OR
STUDY#XXPUN. This naming convention is for the symbiont PRINT and PUNCH files. The 'XX' portion of the file name stands for the two-character abbreviation of the source program. For example, '7428FGPRT.' is the file name for the output from the FACGEN program for study 7428. The PUNCH files are of considerable importance because they eliminate the use of physical card decks. Although the CODAP programs punch more than one task factor deck to the punch file, the SEPDEC program separates each deck and writes them to the TFD file as elements.

TABLE 4

Task Factor Decks Listing

Percent Members Performing by Job (MXXXX)
Task Difficulty (TSKDIF)
Percent Members Performing by Job times Task Difficulty (MDXXXX)
Regression Weights (REGDK)
SPOTS Priority Scores (XXXXPS)
Commonality Scores by Job (CSXXXX)
Percent Members Performing by Job in Rank Order (RMXXXX)
Priority Scores by Job in Rank Order (RPXXXX)
Commonality Index (COMIND)
Mean Rank Order of Percent Members Performing by Job (COMRKM)
Mean Rank Order of Priority Scores by Job (COMRKP)
Common Percent Members Performing (CMXXXX)
Commonality Ranking (COMRNK)

Note: All decks with XXXX notation represent task factors that require a deck for each job in the specialty.

4.6 FACSET FILES

STUDY#-SPOTA. This FACSET file contains the percentage of members performing by job and the percentage of members performing by job times the task difficulty vectors. Each FACSET file holds 100 vectors. Therefore, the number of jobs per FACSET file is limited to 33; i.e., 33 percent members performing by job vectors and 33 percent members performing by job times task difficulty vectors. Naming of the FACSET file is crucial because each FACSET file is updated. The FACSET files are updated when the corresponding 33 priority scores vectors (one for each job on the FACSET files) are added. The updated FACSET (labeled STUDY#-SPOTB.) files are used as input to the SPOTS task list FACPRT program and the FACPRT-FORM program.

STUDY#-EXSUM This FACSET file is input to the Executive Summary FACPRT report. The factors loaded onto this FACSET file are the commonality ranking for all SPOTS listing tasks, the commonality index and the percentage of members performing by job common to all SPOTS listing tasks.

4.7 TASK TITLES FILE

STUDY#-TFILE. The task titles file contains the list of duties and tasks for an AFS. Normally, a task titles file has been created under USAFOMC study. However, if it is easier to recreate a task titles file, there is a CODAP program called TITLES that creates a task titles file.

5. Support Programs

5.1 BRKFIL

Catalogues and updates symbiont print and punch files. The program is executed in the following format:

```
@Z*CODAP.BRKFIL,PD STUDY#XXPRT.  - FOR PRINT FILES
@Z*CODAP.BRKFIL,C STUDY#XXPUN.   - FOR PUNCH FILES
```

5.2 SEPDEC

Separates task factor decks out of the symbiont punch file and writes each deck to the TFD file as individual elements. This program is executed in the following format:

```
@Z*CODAP.SEPDEC INPUTFILE.,,OUTPUTFILE.

    INPUTFILE = STUDY#XXPUN.
    OUTPUTFILE = STUDY#DKS.
```

5.3 COMMENTS

Provides a means of placing documentary text within computer runstreams. The COMMENTS program is used in the SPOTS generation runstreams to document procedures not covered in the conventional CODAP documentation. This program is executed in the following format:

```
@Z*Z.COMMENTS
```

Any number of indented lines containing comments can follow the execution card.

5.4 VIRUS

Automates the building of program runstreams. VIRUS has the ability to do numerous functions. However, for this application, the punch option was

used to create the line images for the program runstreams. To generate these line images, a Job List element is referred to in order to generate non-repetitive characters within the line image. The Job List element is an element within a standard data file (SDF). When this element is used in a VIRUS runstream the input file acronym (SDF) must follow the element name. VIRUS runstreams are provided in detail in the runstream section of the documentation, but as a reminder, VIRUS is executed in the following manner:

@Z*Z.VIRUS,P

All the VIRUS runstreams are formatted in the same processing sequence. They read job information from the Job List element which is used by the punch command to write lines of the runstream to a breakpoint file. Next an element in the program file is created. Lines not punched by VIRUS are input and the breakpoint file containing the VIRUS output is added to the program element. This results in a program element containing the actual program runstream.

Within the VIRUS punch command, a runstream line is created by formatting the line image within quotes. When information from the Job List element is needed, it is denoted by the format nc/sc (number of characters/starting column). This format is placed outside of the quotes. For example, to create the following line:

GROUP 0470 KPATH SEQUENCE 0047 to 0198 - BASE OJT MANAGERS the VIRUS punch card would appear as:

PUNCH 'GROUP ' 4/5 ' KPATH SEQUENCE ' 12/14 ' - BASE OJT MANAGERS'

Alphanumeric characters and blanks between the quotes are printed as they appear. Note that a blank is needed between a closing quote and the nc/sc notation and a following opening quote. An ETC command is used to continue a single punch card image to create a single runstream line. When using the ETC command, the line to be continued must end with a comma. All the VIRUS runstreams are set up to run in DEMAND mode.

TABLE 5

Job List Element Layout

JOB LIST DESCRIPTOR	CARD COLUMNS (NC/SC)
3 digit paired sequence #	7/1
Priority score sequence #	3/9
JOBGRP #	4/13
# of members in JOBGRP	3/18
KPATH sequence of JOBGRP MBRS	12/22
Report # of JOBGRP on JOB DESCRIPTION Tape	3/35
Job Title	50/39

Provided above is the layout of the Job List element (Table 5). The positioning of the information contained in the Job List element (Table 6) is crucial for execution. Inclusion of information in the element is up to the programmer's discretion; however, the information presented has been proven through trial and error to be indispensable on more than one occasion.

TABLE 6

Job List Element

```
001 002 033 0068 046 0001 TO 0046 295 TRAINING SUPERVISORS & MANAGERS
003 004 034 0470 152 0047 TO 0198 209 BASE OJT MANAGERS
005 006 035 0453 272 0199 TO 0470 207 UNIT OJT MANAGERS/MMICS
007 008 036 0384 377 0481 TO 0857 192 UNIT OJT MANAGERS
009 010 037 0359 014 0858 TO 0871 185 UNIT OJT MANAGERS/COUNSELORS
011 012 038 0337 011 0874 TO 0884 178 MAINT. TRAINING SCHEDULERS/OJT ADVISORS
013 014 039 0247 056 0904 TO 0959 158 OJT MANAGERS/ADVISORS
015 016 040 0331 061 0960 TO 1020 176 UNIT OJT MANAGERS/MAINT TRAINING SCHEDULER
017 018 041 0196 076 1021 TO 1096 129 OJT TRAINING MANAGERS & SUPERVISORS
019 020 042 0183 032 1097 TO 1128 126 UNIT OJT MANAGERS (EVALUATORS)
021 022 043 0156 055 1129 TO 1183 121 BASE OJT MANAGERS
023 024 044 0165 052 1191 TO 1242 124 FTD INSTRUCTORS
025 026 045 0482 017 1282 TO 1298 213 TRAINING PROGRAM DEVELOPERS & REVIEW TECH.
027 028 046 0063 044 1318 TO 1361 100 OJT MANAGERS/EVALUATORS
029 030 047 0103 078 1368 TO 1445 108 MAINTENANCE TRAINING SCHEDULERS
031 032 048 0070 049 1637 TO 1685 101 INSTRUCTORS
12345678901234567890123456789012345678901234567890123456789012345678901234567890
        1         2         3         4         5         6         7         8
```

6. Programs for SPOTS Task List Generation

6.1 Generation Overview

This section contains all the runstreams required to generate the SPOTS task listing and Job Proficiency Guide reports. Each program description includes program application, an annotated VIRUS runstream, and program runstream. The programs are presented in the identical order as numbered in the flowcharts (Figures 4 & 5). All output from the runstreams is breakpointed to symbiont print and punch files. When symbiont punch files are used, the punched output is formatted as task factor decks by the SEPDEC program. All TFDs are stored in the STUDY#DKS. file as elements.

6.2 FACGEN

Creates TFDs from variables contained on the JOB DESCRIPTION Tape. The task factors that need to be extracted from this tape are percentage of members performing by job and task difficulty. Input to FACGEN is the Job Description Tape and job description request cards. Output are task factor decks.

Table 7 provides the VIRUS runstream used to create the FACGEN runstream.

Line 1 creates the breakpoint file labeled 'FACGENPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case, a SDF file).

Lines 4 through 6 are punch command cards that create FACGEN control cards that are repeated for every job.

Line 7 is the END command card to close the punch section of the VIRUS runstream.

Line 8 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.
Line 9 creates the program element labeled STUDY#.FGN/SPOTS. This element is now in Input mode.

Line 10 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 11 is the run card.

Lines 12 through 14 reserves the tape drive for this run.

Lines 15 and 16 are the Z*CODAP.BRKFIL execution cards to create the print and punch symbiont output files.
Line 17 is the FACGEN execution card.

Line 18 is the filenames card for FACGEN. Only the Job Description Tape is needed.

Line 19 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FGN/SPOTS element immediately after the filenames card.

Lines 20 and 21 are the FACGEN control cards for the task difficulty task factor which is requested only once.

Line 22 is an EXEC 8 command to write output to the symbiont punch file.

Line 23 is the CODAP program SEPDEC which separates the task factor decks from the punch file and writes them to the TFD file.

Line 24 is an EXEC 8 command to write output to the symbiont print file.

Line 25 is an EXEC 8 command that releases all files assigned to this run.

Line 26 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 27 is an edit command that closes out the newly created FGN/SPOTS element.

TABLE 7

VIRUS Runstream for FACGEN

```
 1  @Z*CODAP.BRKFIL,C FACGENPUN.
 2  @Z*Z.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH 'FACGEN 1 0         M' 4/13 ' ' 43/39 ' %MEM'
 5  PUNCH '7428751X  % MEMBERS PERFORMING - GRP ' 4/13 '  ' 12/22 '          ',
 6  ETC '     M   ' 3/35
 7  END
 8  FACGENPUN.
 9  @ED,I 7428.FGN/SPOTS
10    INSERT BLANK LINE TO RETURN TO EDIT MODE
11  I @RUN RUN-ID,ACCOUNT#,PROJECT,200,201/5000 . FACGEN OF S7428 TO CREATE TFD
12  I @ASG,AX Z*CTAPE1.
13  I @ASG,NT TAPE1.,16N . FIRST DUMMY ASSIGN
14  I @FREE,S TAPE1. .
15  I @Z*CODAP.BRKFIL,PD 7428FGPRT.
16  I @Z*CODAP.BRKFIL,C 7428FGPUN.
17  I @XQT Z*Z.FACGEN
18  I FACGEN 7428-22000
19  ADD+ FACGENPUN.
20  I FACGEN 1 0         TSKDIF TASK DIFFICULTY -  751X2
21  I 7428751X  TASK DIFFICULTY -751X2                                    338
22  I @BRKPT PUNCH$
23  I @Z*CODAP.SEPDEC 7428FGPUN.,,7428DKS.
24  I @BRKPT PRINT$
25  I @Z*Z.FREE
26  I @SYM,U 7428FGPRT.
27  EXI
```

The runstream in Table 8 is an abridged version of the FACGEN runstream. There are two types of output: a printed report and a punched card decks file. The printed report for FACGEN provides summary statistics of the task factors obtained from the Job Description Tape. It is an intermediate product of the task list generation and is needed only for audit purposes. The card decks file (STUDY#FGPUN.) contains the task factor decks which are separated and placed in the decks file (STUDY#DKS.). These decks are used as input to the DECDEC and DECSET programs. This program can be run only in BATCH mode (see Tables 7 & 8).

TABLE 8

CODAP Runstream for FACGEN

```
@RUN RUN-ID,ACCOUNT#,PROJECT,200,201/5000 . FACGEN OF S7428 TO CREATE TFD
@ASG,AX Z*CTAPE1.
@ASG,NT TAPE1.,16N . FIRST DUMMY ASSIGN
@FREE,S TAPE1. .
@Z*CODAP.BRKFIL,PD 7428FGPRT.
@Z*CODAP.BRKFIL,C 7428FGPUN.
@XQT Z*Z.FACGEN
FACGEN 7428-22000
FACGEN 1 0          M0068 TRAINING SUPERVISORS & MANAGERS              %MEM
7428751X  % MEMBERS PERFORMING - GRP 0068  0001 TO 0046                  M   295
                    :                              :
                    :                              :
                    :                              :
FACGEN 1 0          TSKDIF TASK DIFFICULTY -  751X2
7428751X  TASK DIFFICULTY -751X2                                             338
@BRKPT PUNCH$
@Z*ZX.SEPDEC 7428FGPUN.,,7428DKS.
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428FGPRT.
```

6.3 DECDEC

Performs simple arithmetic operations on two task factor decks. DECDEC is used to create squared and interaction factors not available on the Job Description Tape. The interaction factor created by DECDEC is percentage of members performing by job times task difficulty.

Table 9 provides the VIRUS runstream used to create the DECDEC runstream.

Line 1 creates the breakpoint file labeled 'DECDECPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 6 are punch command cards that create DECDEC control cards that are repeated for every job.

Line 7 is the END command card to close the punch section of the VIRUS runstream.

Line 8 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 9 creates the program element labeled STUDY#.DECDEC/SPOTS. This element is now in Input mode.

Line 10 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 11 is the run card.

Lines 12 and 13 are the Z*CODAP.BRKFIL execution cards to create the print and punch symbiont output files.

Line 14 assigns the input file to the run. The input file is the TFD file which contains the output from the FACGEN program.

Line 15 is the DECDEC execution card.

Line 16 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the DECDEC/SPOTS element immediately after the execute card.

Line 17 is an EXEC 8 command to write output to the symbiont punch file.

Line 18 is the CODAP program SEPDEC which separates the task factor decks from the punch file and writes them to the TFD file.

Line 19 is an EXEC 8 command to write output to the symbiont print file.

Line 20 is an EXEC 8 command that releases all files assigned to this run.

Line 21 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 22 is an edit command that closes out the newly created DECDEC/SPOTS element.

TABLE 9

VIRUS Runstream for DECDEC

```
 1  @Z*CODAP.BRKFIL,C DECDECPUN.
 2  @Z*Z.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH '3   MD' 4/13 '  % MBRS PERFORMING/JOB ' 4/13 ' BY TASK DIFFICULTY'
 5  PUNCH '@ADD 7428DKS.M' 4/13
 6  PUNCH '@ADD 7428DKS.TSKDIF'
 7  END
 8  DECDECPUN.
 9  @ED,I 7428.DECDEC/SPOTS
10    INSERT BLANK LINE TO RETURN TO EDIT MODE
11  I @RUN RUN-ID,ACCOUNT#,PROJECT#,320,9990/9990 . CREATE INTERACTION VECTOR
12  I @Z*CODAP.BRKFIL,PD 7428DDPRT.
13  I @Z*CODAP.BRKFIL,C 7428DDPUN.
14  I @ASG,AX 7428DKS.
15  I @XQT Z*Z.DECDEC
16  ADD+ DECDECPUN.
17  I @BRKPT PUNCH$
18  I @Z*CODAP.SEPDEC 7428DDPUN.,,7428DKS.
19  I @BRKPT PRINT$
20  I @Z*Z.FREE
21  I @SYM,U 7428DDPRT.
22  EXI
```

The runstream in Table 10 is an abridged version of the DECDEC runstream. There are two types of output: a printed report and a punched card decks file. The printed report for DECDEC provides summary statistics of the mathematical operations performed on the requested decks. It is an intermediate product of the task list generation and is needed only for audit purposes. The card decks file (STUDY#DDPUN.) contains the task factor decks which are separated and placed in the decks file (STUDY#DKS.). This deck, along with the decks from FACGEN, is used as input to the DECSET program. This program can be run in DEMAND mode (see Table 10).

TABLE 10

CODAP Runstream for DECDEC

```
@RUN RUN-ID,ACCOUNT#,PROJECT#,320,9990/9990 . CREATE INTERACTION VECTORS
@Z*CODAP.BRKFIL,PD 7428DDPRT.
@Z*CODAP.BRKFIL,C 7428DDPUN.
@ASG,AX 7428DKS.
@XQT Z*Z.DECDEC
3   MD0068  % MBRS PERFORMING/JOB 0068 BY TASK DIFFICULTY
@ADD 7428DKS.M0068
@ADD 7428DKS.TSKDIF
                    :                              :
                    :                              :
                    :                              :
3   MD0070  % MBRS PERFORMING/JOB 0070 BY TASK DIFFICULTY
@ADD 7428DKS.M0070
@ADD 7428DKS.TSKDIF
@BRKPT PUNCH$
@Z*CODAP.SEPDEC 7428DDPUN.,,7428DKS.
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428DDPRT.
```

6.4 TITLES

Creates a task titles file that is used with a FACSET file as input to the DECSET programs and all three FACPRT programs. Two types of format cards are needed by the TITLES program: TASK WITHIN DUTY cards and TASK TITLE cards. Input to TITLES is the format cards and a dummy KPATH/HISTORY file. Output from TITLES is the TITLES file labeled STUDY#-TFILE.

The runstream for the TITLES program is shown in Table 11.

Line 1 is the run card.

Line 2 is the Z*CODAP.BRKFIL execution card that creates the symbiont print output file.

Line 3 is the TITLES program execution card.

Line 4 is the filenames card. The input file is a dummy KPATH/HISTORY file.

Line 5 is the program control card.

Lines 6 and 7 are the format cards for duties and titles.

Line 8 is an EXEC 8 command to write output to the symbiont print file.

Line 9 is an EXEC 8 command that releases all files assigned to this run.

Line 10 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

TABLE 11

CODAP Runstream for TITLES

```
 1  @RUN RUN-ID,ACCOUNT#,PROJECT,320,9990/9990 . TITLES TO CREATE TFILES
 2  @Z*CODAP.BRKFIL,PD 7428TPRT.
 3  @XOT Z*Z.TITLES
 4  TITLES 7428-25000
 5  TITLES  540 15 7428751X   120 EDUCATION & TRAINING 751X2 TFILE
 6  @ADD 7428.TASK-WITHIN/DUTY-TABLE
 7  @ADD 7428.TASK-DUTY/TITLES
 8  @BRKPT PRINT$
 9  @Z*Z.FREE
10  @SYM,U 7428TPRT.
```

6.5 DECSET

Loads TASK FACTOR DECKS onto newly created FACSET files. A FACSET file is a mass storage file used as input to the FACPRT program. The FACSET file holds a maximum of 100 vectors (TASK FACTOR DECKS). If there are a large number of jobs in the specialty, then more than one FACSET file is needed. Input to DECSET is the task factor decks created by FACGEN and DECDEC and the TFILE. Output is a mass storage FACSET file.

Table 12 provides the VIRUS runstream used to create the DECSET runstream.

Line 1 creates the breakpoint file labeled 'DECSETPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 and 5 are punch command cards that create DECSET control cards that are repeated for every job.

Line 6 is the END command card to close the punch section of the VIRUS runstream.

Line 7 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 8 creates the program element labeled STUDY#.DECSET/SPOTS. This element is now in Input mode.

Line 9 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 10 is the run card.

Line 11 is the Z*CODAP.BRKFIL execution card to create the symbiont print output file.

Line 12 assigns the input file to the run. The input file is the TFD file which contains the output from the FACGEN and DECDEC programs.

Line 13 is the DECSET execution card.

Line 14 is the filenames card that assigns the FACSET and TFILE files to the run.

Line 15 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the DECSET/SPOTS element immediately after the filenames card.

Line 16 is an EXEC 8 command to write output to the symbiont print file.

Line 17 is an EXEC 8 command that releases all files assigned to this run.

Line 18 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 19 is an edit command that closes out the newly created DECSET/SPOTS element.

TABLE 12

VIRUS Runstream for DECSET

```
 1  @7*CODAP.BRKFIL,C DECSETPUN.
 2  @Z*Z.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH '@ADD 7428DKS.M' 4/13
 5  PUNCH '@ADD 7428DKS.MD' 4/13
 6  END
 7  DECSETPUN.
 8  @ED,I 7428.DECSET/SPOTS
 9    INSERT BLANK LINE TO RETURN TO EDIT MODE
10  I @RUN RUN-ID,ACCOUNT#,PROJECT,320,9990/9990 . CREATE FACSET FILES
11  I @Z*CODAP.BRKFIL,PD 7428DSPRT.
12  I @ASG,A 7428DKS.
13  I @XQT Z*Z.DECSET
14  I DECSET 7428-SPOTA  7428-TFILE
15  ADD+ DECSETPUN.
16  I @BRKPT PRINT$
17  I @Z*Z.FREE
18  I @SYM,U 7428DSPRT.
19  EXI
```

The runstream shown in Table 13 is an abridged version of the DECSET runstream. There are two types of output: a printed report and a FACSET file. The printed report for DECSET provides a descriptive summary of the FACSET file created by DECSET. The FACSET file contains the percentage of members performing by job and the percentage of members performing by job times task difficulty vectors. These task factors loaded onto this FACSET file are ordered in pairs for each job. If there are 33 jobs, then there are 66 vectors on the FACSET file. Each vector is assigned a sequence number. Therefore, the percentage of members performing by job vector for job 1 is 001 and for job 33 is 065. The percentage of members performing by job times task difficulty vector for job 1 is 002 and for job 33 is 066. Note that the first two columns of the Job List element contain these pairs of sequence numbers. The FACSET files are used as input into the FACPRE program. The sequence numbers of the task factors are also used as input to the FACPRE program. The order in which the variables are loaded onto the FACSET files is extremely important. They should be entered in the same order as the regression weights, and their order should be consistent across all FACSET files. The printed report provides the indices to each of the FACSET files. If the order is not maintained, the FACPRE runstream built by VIRUS will be incorrect and will abort when executed. This runstream can be run in DEMAND mode (see Table 13).

TABLE 13

CODAP Runstream for DECSET

```
@RUN RUN-ID,ACCOUNT#,PROJECT,320,9990/9990 . DECSET TO CREATE FACSET FILES
@ASG,A 7428DKS.
@Z*CODAP.BRKFIL,PD 7428DSPRT.
@XOT Z*Z.DECSET
DECSET 7428-SPOTA  7428-TFILE
@ADD 7428DKS.M0068
@ADD 7428DKS.MD0068
                    :                          :
                    :                          :
                    :                          :
@ADD 7428DKS.M0070
@ADD 7428DKS.MD0070
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428DSPRT.
```

6.6 REGDEC

Creates a regression weights deck of the raw regression weights for input into the FACPRE program. The output from REGDEC is a modified TFD containing the criterion weight (in this case 0), the raw regression weights and the regression constant. This program is an interactive program and does not need aa runstream or VIRUS counterpart. The program is executed in the format displayed in TABLE 14.

TABLE 14

REGDEC - Program to Create the Regression Weight Deck

```
@Z*CODAP.BRKFIL,C REGDECPUN.
@XQT Z*Z.REGDEC
  ENTER THE NUMBER OF VARIABLES IN THE MATRIX
  ENTER PROBLEM ID AND TITLE OR "@EOF" TO QUIT
    (REGDK  REGRESSION WEIGHTS FROM SPOTS ANALYSIS)
  ENTER THE VAR # OF THE CRITERION FOR NEXT MODEL
    (In this case the criterion is the first variable and is equal to 0.0)
  ENTER RAW WEIGHT FOR VARIABLE #02 = % members performing by job (-.005797)
  ENTER RAW WEIGHT FOR VARIABLE #03 = #02 times task difficulty (.002742)
  ENTER THE REGRESSION CONSTANT (-.019506)
  ENTER PROBLEM ID AND TITLE OR "@EOF" TO QUIT
  END OF REGDEC
@BRKPT PUNCH$
@Z*CODAP.SEPDEC REGDECPUN.,,7428DKS.
```

Note: Numbers in parentheses are weights based on research as of 31 August 1981.

6.7 FACPRE

Creates a priority score task factor deck for each job using regression weights obtained from the research equation. Input to FACPRE is the regression weights deck and the FACSET file. Output is the priority score decks.

Table 15 provides the VIRUS runstream used to create the FACPRE runstream.

Line 1 creates the breakpoint file labeled 'FACPREPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 8 are punch command cards that create FACPRE control cards that are repeated for every job. Note that on Line 6 the first sequence number is repeated. To do this, only the first three columns (3/1) from the Job List element are used first; then the pair of sequence numbers (7/1) is used.

Line 9 is the END command card to close the punch section of the VIRUS runstream.

Line 10 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 11 creates the program element labeled STUDY#.FACPRE/SPOTS. This element is now in Input mode.

Line 12 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 13 is the run card.

Lines 14 and 15 are the Z*CODAP.BRKFIL execution cards to create the print and punch symbiont output files.

Line 16 is the COMMENTS program execution card.

Lines 17 through 22 are comments cards.

Line 23 assigns the task factor decks file to the run.

Line 24 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FACPRE/SPOTS element immediately after the TFD file assignment card. Note that the FACPRE execution card is produced by the VIRUS program. The FACPRE program is executed for each job to produce a priority scores deck for each job.

Line 25 is an EXEC 8 command to write output to the symbiont punch file.

Line 26 is an EXEC 8 command to write output to the symbiont print file.

Line 27 is an EXEC 8 command that releases all files assigned to this run.

Line 28 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 29 is an editor command that opens the symbiont punch file for editing at the termination of the FACPRE run, not the VIRUS run (See comments cards).

Line 30 is an edit command that closes out the newly created FACPRE/SPOTS element.

TABLE 15

VIRUS Runstream for FACPRE

```
 1  @Z*CODAP.BRKFIL,C FACPREPUN.
 2  @Z*Z.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH '@XQT Z*Z.FACPRE'
 5  PUNCH 'FACPRE 7428-SPOT1'
 6  PUNCH 'USE ' 3/1 ' ' 7/1
 7  PUNCH 'END'
 8  PUNCH '@ADD 7428DKS.REGDK'
 9  END
10  FACPREPUN.
11  @ED,I 7428.FACPRE/SPOTS
12    INSERT BLANK LINE TO RETURN TO EDIT MODE
13  I @RUN RUN-ID,ACCOUNT#,PROJECT,200,9990/9990 . FACPRE TO CREATE PRESCORES
14  I @Z*CODAP.BRKFIL,PD 7428FPAPRT.
15  I @Z*CODAP.BRKFIL,C 7428FPAPUN.
16  I @Z*Z.COMMENTS
17  I     AT THE TERMINATION OF THIS DEMAND RUN, THE '@ED,U' COMMAND
18  I     OPENS THE SYMBIONT PUNCH FILE SO THAT THE PREDICTED SCORE
19  I     DECK IDS CAN BE CHANGED TO THE SUGGESTED FORMAT 'XXXPS'.
20  I     IDS ARE FOUND ON LINE 1, COLUMNS 8-13 OF EACH PREDICTED SCORE
21  I     DECK.  AFTER IDS HAVE BEEN CHANGED, THEN EXECUTE THE SEPDEC
22  I     PROGRAM AS FOLLOWS:  @Z*CODAP.SEPDEC 7428FPPUN.,,7428DKS.
23  I @ASG,AX 7428DKS.
24  ADD+ FACPREPUN.
25  I @BRKPT PUNCH$
26  I @BRKPT PRINT$
27  I @Z*Z.FREE
28  I @SYM,U 7428FPPRT.
29  I @ED,U 7428FPPUN.
30  EXI
```

The runstream shown in Table 16 is an abridged version of the FACPRE runstream. There are two types of output: a printed report and a punched card decks file. The printed report for FACPRE provides summary statistics of the predicted score task factors. FACPRE requires a criterion factor in order to calculate the correlation between the criterion and predictor variables. This function of FACPRE is irrelevant to the purposes of the task list generation so no criterion variable is needed. Instead, the percentage of members performing by job, for each job, is the first factor on each 'USE' card. Every 'USE' card will have the percentage of members performing by job vector sequence number repeated as the first two numbers on the card. The printed report is an intermediate product of the task list generation and is needed only for audit purposes. The card decks file (STUDY#FPAPUN.) contains the predicted score task factor decks which are separated and placed in the decks file (STUDY#DECKS.). These decks are used as input to the DECDEC program to be added to the FACSET files. Changing the deck IDs is important because that is what SFPDEC uses to name the elements that it creates and places into the decks file. This program can be run in DEMAND mode (see Table 16).

TABLE 16

CODAP Runstream for FACPRE

```
@RUN RUN-ID,ACCOUNT#,PROJECT,200,9990/9990 . FACPRE TO CREATE PRESCORES
@Z*CODAP.BRKFIL,PD 7428FPAPRT.
@Z*CODAP.BRKFIL,C 7428FPAPUN.
@Z*Z.COMMENTS
     AT THE TERMINATION OF THIS DEMAND RUN, THE '@ED,U' COMMAND OPENS THE
     SYMBIONT PUNCH FILE SO THAT THE PREDICTED SCORE DECK IDS CAN BE CHANGED TO
     THE SUGGESTED FORMAT 'XXXPS'.  IDS ARE FOUND ON LINE 1, COLUMNS 8-13 OF
     EACH PREDICTED SCORE DECK.  AFTER IDS HAVE BEEN CHANGED, THEN EXECUTE THE
     SEPDEC PROGRAM AS FOLLOWS:     @Z*CODAP.SEPDEC 7428FPPUN.,,7428DKS.
@ASG,AX 7428XDKS.
@XQT Z*Z.FACPRE
FACPRE 7428-SPOTA
USE 001 001 002
END
@ADD 7428DKS.REGDK
                    :                              :
                    :                              :
@XQT Z*Z.FACPRE
FACPRE 7428-SPOTA
USE 031 031 032
END
@ADD 7428DKS.REGDK
@BRKPT PUNCH$
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428FPPRT.
@ED,U 7428FPPUN.
```

6.8 FACADD

Adds task factor decks to an existing FACSET file. This is used to add the priority score decks to an updated FACSET file. Input to FACADD is the priority score decks and the initial FACSET file. Output is the updated FACSET file.

Table 17 provides the VIRUS runstream used to create the FACADD runstream.

Line 1 creates the breakpoint file labeled 'FACADDPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Line 4 is a punch command card that creates FACADD control cards that are repeated for every job.

Line 5 is the FMS command card to close the punch section of the VIRUS runstream.

Line 6 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 7 creates the program element labeled STUDY#.FACADD/SPOTS. This element is now in Input mode.

Line 8 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 9 is the run card.

Lines 10 is the Z*CODAP.BRKFIL execution card to create the print symbiont output file.

Line 11 assigns the TFD file to the run. The TFD file contains the output from the FACPRE program.

Line 12 is the FACADD execution card.

Line 13 is the filenames card that assigns the initial FACSET and the updated FACSET files to the run.

Line 14 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FACADD/SPOTS element immediately after the filenames card.

Line 15 is an EXEC 8 command to write output to the symbiont print file.

Line 16 is an EXEC 8 command that releases all files assigned to this run.

Line 17 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 18 is an edit command that closes out the newly created FACADD/SPOTS element.

TABLE 17

VIRUS Runstream for FACADD

```
 1  @Z*CODAP.BRKFIL,C FACADDPUN.
 2  @Z*7.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH '@ADD 7428DKS.' 4/13 'PS'
 5  END
 6  FACADDPUN.
 7  @ED,I 7428.FACADD/SPOTS
 8    INSERT BLANK LINE TO RETURN TO EDIT MODE
 9  I @RUN RUN-ID,ACCOUNT#,PROJECT,200,9990/9990 . FACADD TO CREATE NU
    FACSET FILES
10  I @Z*CODAP.BRKFIL,PD 7428FAPRT.
11  I @ASG,A 7428DKS.
12  I @XQT Z*Z.FACADD
13  I FACADD 7428-SPOTA  7428-SPOTB
14  ADD+ FACADDPUN.
15  I @BRKPT PRINT$
16  I @Z*Z.FREE
17  I @SYM,U 7428FAPRT.
18  FXI
```

The runstream shown in Table 18 is an abridged version of the FACADD runstream. There are two types of output: a printed report and an updated FACSET file which now contains 99 vectors if 33 jobs were used. The printed report for FACADD provides a descriptive summary of the FACSET files created by FACADD. Each FACSET file contains all the task factor decks created and loaded onto the initial FACSET files plus the priority score decks created by FACPRE. The printed output should be saved because it provides indexes to each of the FACSET files. The FACSET files are used as input to the FACPRT program. This program can be run in DEMAND mode (see Table 18).

TABLE 18

CODAP Runstream for FACADD

```
@RUN RUN-ID,ACCOUNT#,PROJECT,200,9990/9990 . FACADD TO CREATE NU FACSET FILES
@Z*CODAP.BRKFIL,PD 7428FAPRT.
@ASG,A 7428DKS.
@XQT Z*Z.FACADD
FACADD 7428-SPOTA  7428-SPOTB
@ADD 7428DKS.0068PS
@ADD 7428DKS.0470PS
                    :                          :
                    :                          :
                    :                          :
@ADD 7428DKS.0103PS
@ADD 7428DKS.0070PS
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428FAPRT.
```

6.9 FACPRT

Reports vectors from the FACSET file across specified tasks. This report gives the SPOTS task list ordered on the priority scores along with any other requested predictors. Input is the updated FACSET file and the TFILE.

Table 19 provides the VIRUS runstream used to create the FACPRT runstream.

Line 1 creates the breakpoint file labeled 'FACPRTPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 11 are punch command cards that create FACPRT control cards that are repeated for every job.

Line 12 is the END command card to close the punch section of the VIRUS runstream.

Line 13 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 14 creates the program element labeled STUDY#.FACPRT/SPOTS. This element is now in Input mode.

Line 15 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 16 is the run card.

Line 17 is the Z*CODAP.BRKFIL execution cards to create the print symbiont output file.

Line 18 assigns the TFILE to the run.

Line 19 is the FACPRT execution card.

Line 20 is the filenames card for FACPRT. The updated FACSET file and the TFILE are needed.

Line 21 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FACPRT/SPOTS element immediately after the filenames card.

Line 22 is an EXEC 8 command to write output to the symbiont print file.

Line 23 is an EXEC 8 command that releases all files assigned to this run.

Line 24 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 25 is an edit command that closes out the newly created FACPRT/SPOTS element.

TABLE 19

VIRUS Runstream for FACPRT

```
 1  @Z*CODAP.BRKFIL,C FACPRTPUN.
 2  @Z*Z.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH 'FACPRT 2 1 TASK FACTOR INFORMATION OF SPOTS ANALYSIS ON AFSC 751X2'
 5  PUNCH 'TASK FACTOR DECKS FOR 751X2 BY JOB - ORDERED ON SPOT PRIORITY SCORE'
 6  PUNCH '751X2   JOBGRP ' 4/13 '   ' 50/39
 7  PUNCH 'PRT SEQ ' 3/9 ' ' 7/1
 8  PUNCH 'SRT ' 3/9 ' DES'
 9  PUNCH 'REP TSK'
10  PUNCH 'SUP ' 3/9 ' LT .10'
11  PUNCH 'END'
12  END
13  FACPRTPUN.
14  @FD,I 7428.FACPRT/SPOTS
15    INSERT BLANK LINE TO RETURN TO EDIT MODE
16  I @RUN RUN-ID,ACCOUNT#,PROJECT,,9990/9990 . FACPRT OF AFSC 751X2
17  I @Z*CODAP.BRKFIL,PD 7428FPPRT.
18  I @ASG,A 7428-TFILE.
19  I @XQT Z*Z.FACPRT
20  I FACPRT 7428-SPOTB                7428-TFILE
21  ADD+ FACPRTPUN.
22  I @BRKPT PRINT$
23  I @Z*Z.FREE
24  I @SYM,U 7428FPPRT.
25  EXI
```

The runstream shown in Table 20 is an abridged version of the FACPRT runstream. There is one type of output: a printed report. This report is one of the final products of the SPOTS task list generation procedure. The FACPRT report lists the selected task factor values for the tasks that meet the cutoff value of .1 for the SPOTS priority scores. There is a FACPRT report for each of the jobs. The tasks are ordered on the priority scores. The FACSET file used as input to FACPRT is the FACSET file that was created by the FACADD program. If more than one FACSET file has been created, this runstream can be copied and used with the next FACSET file as input. This program can be run in DEMAND mode (see Table 20).

TABLE 20

CODAP Runstream for FACPRT

```
@RUN RUN-ID,ACCOUNT#,PROJECT,,9990/9990 . FACPRT OF AFSC 751X2
@Z*CODAP.BRKFIL,PD 7428FPPRT.
@ASG,A 7428-TFILE.
@XQT Z*Z.FACPRT
FACPRT 7428-SPOTB                7428-TFILE
FACPRT 2 1 TASK FACTOR INFORMATION OF SPOTS ANALYSIS ON AFSC 751X2
TASK FACTOR DECKS FOR 751X2 BY JOB - ORDERED ON SPOT PRIORITY SCORE 751X2
JOBGRP 0068  TRAINING SUPERVISORS & MANAGERS
PRT SEQ 033 001 002
SRT 033 DES
REP TSK
SUP 033 LT .10
END
                    :                              :
                    :                              :

FACPRT 2 1 TASK FACTOR INFORMATION OF SPOTS ANALYSIS ON AFSC 751X2
TASK FACTOR DECKS FOR 751X2 BY JOB - ORDERED ON SPOT PRIORITY SCORE
751X2   JOBGRP 0103  MAINTENANCE TRAINING SCHEDULERS
PRT SEQ 047 029 030
SRT 047 DES
REP TSK
SUP 047 LT .10
END
FACPRT 2 1 TASK FACTOR INFORMATION OF SPOTS ANALYSIS ON AFSC 751X2
TASK FACTOR DECKS FOR 751X2 BY JOB - ORDERED ON SPOT PRIORITY SCORE
751X2   JOBGRP 0070  INSTRUCTORS
PRT SEQ 048 031 032
SRT 048 DES
REP TSK
SUP 048 LT .10
END
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428FPPRT.
```

6.10 FACPRT-FORM

This is a modified form of the FACPRT program. It creates SPOTS task listings in the JOB PROFICIENCY GUIDE (JPG) format for use by OJT managers. Input to FACPRT-FORM is the same as to the previous FACPRT run: the updated FACSET file and the TFILE.

Table 21 provides the VIRUS runstream used to create the FACPRT-FORM runstream.

Line 1 creates the breakpoint file labeled 'FFORMPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 20 are punch command cards that create FACPRT-FORM control cards that are repeated for every job.

Line 21 is the END command card to close the punch section of the VIRUS runstream.

Line 22 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 23 creates the program element labeled STUDY#.FFORM/SPOTS. This element is now in Input mode.

Line 24 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 25 is the run card.

Line 26 is the Z*CODAP.BRKFIL execution cards to create the symbiont print output file.

Line 27 assigns the TFILE to the run.

Line 28 is the FACPRT-FORM execution card. The execution statement is @Z*CODAP.FACPRT-FORM.

Line 29 is the filenames card for FACPRT-FORM. The updated FACSET file and the TFILE are needed.

Line 30 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FFORM/SPOTS element immediately after the filenames card.

Line 31 is an EXEC 8 command to write output to the symbiont print file.

Line 32 is an EXEC 8 command that releases all files assigned to this run.

Line 33 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 34 is an edit command that closes out the newly created FFORM/SPOTS element.

TABLE 21

VIRUS Runstream for FACPRT-FORM

```
 1  @Z*CODAP.BRKFIL,C FFORMPUN.
 2  @Z*Z.VIRUS,P
 3  FILE 'SPOTS.JOB/LIST' SDF
 4  PUNCH 'FACPRT 3 1'
 5  PUNCH ''
 6  PUNCH '                                        SPOT JOB PROFICIENCY GUIDE'
 7  PUNCH '751X2  JOBGRP ' 4/13 '  ' 50/39
 8  PUNCH 'FN1'
 9  PUNCH 'FN2 DATE: JAN 81          SPOT PRIORITY SCORES: 751X2 - GROUP ' 4/13
10  PUNCH 'PRT SEQ XXX ' 3/9
11  PUNCH 'SRT ' 3/9 ' DES'
12  PUNCH 'REP TSK'
13  PUNCH 'PL1 I         I           I              I            I             I'
14  PUNCH 'PL2 I         I           I              I            I             I'
15  PUNCH 'HL1                            DATE'
16  PUNCH 'HL2   SKILL     DATE OJT      PROFICIENCY      TRAINEE      SUPERVISOR'
17  PUNCH 'HL3   LEVEL     STARTED        ATTAINED       INITIALS      INITIALS'
18  PUNCH 'BPG 0001'
19  PUNCH 'CAT ' 3/9 ' GE .1'
20  PUNCH 'END'
21  END
22  FFORMPUN.
23  @ED,I 7428.FFORM/SPOTS
24    INSERT BLANK LINE TO RETURN TO EDIT MODE
25  I @RUN RUN-ID,ACCOUNT#,PROJECT,,9990/9990 . FACPRT FORM - 751X2
26  I @Z*CODAP.BRKFIL,PD 7428FFPRT.
27  I @ASG,A 7428-TFILE.
28  I @XQT Z*CODAP.FACPRT-FORM
29  I FACPRT 7428-SPOTB              7428-TFILE
30  ADD+ FFORMPUN.
31  I @BRKPT PRINT$
32  I @Z*Z.FREE
33  I @SYM,U 7428FFPRT.
34  EXI
```

The runstream shown in Table 22 is an abridged version of the FACPRT-FORM runstream. If more than one FACSET file has been created, this runstream can be copied and used with the next FACSET file as input. There is one type of output: a printed report. This report is one of the final products of the SPOTS task list generation procedure. The FACPRT-FORM report lists the tasks that meet the cutoff value of .1 for the SPOTS priority scores. There is a

FACPRT report for each of the jobs. The tasks are ordered on the priority scores. This report is the actual SPOTS task list. It is in the format of a Job Proficiency Guide and can be given directly to the users requesting the information or can be reduced to a more managable size. The symbiont print file can be modified to be used as the format for a data entry file. This program can be run in DEMAND mode (see Table 22).

TABLE 22

CODAP Runstream for FACPRT-FORM

```
@RUN RUN-ID,ACCOUNT#,PROJECT,,9990/9990 . FACPRT FORM - 751X2
@Z*CODAP.BKFIL,PD 7428FFPRT.
@ASG,A 7428-TFILE.
@XQT Z*CODAP.FACPRT-FORM
FACPRT 7428-SPOT2
FACPRT 3 1
                                                SPOT JOB PROFICIENCY GUIDE
751X2  JOBGRP 0068  TRAINING SUPERVISORS & MANAGERS
FN1
FN2 DATE: JAN 81          SPOT PRIORITY SCORES: 751X2 - GROUP 0068
PRT SEQ XXX 033
SRT 033 DES
REP TSK
PL2 I        I           I               I            I            I
HL1                           DATE
HL2   SKILL     DATE OJT     PROFICIENCY     TRAINEE     SUPERVISOR
HL3   LEVEL     STARTED       ATTAINED      INITIALS      INITIALS
BPG 0001
CAT 033 GE .1
END
                    :                              :
                    :                              :
                    :                              :

FACPRT 3 1
                                                SPOT JOB PROFICIENCY GUIDE

751X2  JOBGRP 0070  INSTRUCTORS
FN1
FN2 DATE: JAN 81          SPOT PRIORITY SCORES: 751X2 - GROUP 0070
PRT SEQ XXX 048
SRT 048 DES
REP TSK
PL1 I        I           I               I            I            I
PL2 I        I           I               I            I            I
HL1                           DATE
HL2   SKILL     DATE OJT     PROFICIENCY     TRAINEE     SUPERVISOR
HL3   LEVEL     STARTED       ATTAINED      INITIALS      INITIALS
BPG 0001
CAT 048 GE .1
END
@BRKPT PRINT$
@SYM,U 7428FFPRT.
```

7. Programs for Executive Summary Report

7.1 FACGEN EXCSUM

The FACGEN program is now used to generate three other factors for the Executive Summary report. They are the commonality score, (1-0 conversion of the priority scores for each job labeled CSXXXX); the ranking of percent members performing for each job labeled RMXXXX; and the ranking of the priority scores for each job labeled RPXXXX. Input to this application of FACGEN is the percent members performing by job and the priority score task factor decks. Output is the CSXXXX, RMXXXX and the RPXXXX task factor decks.

Table 23 provides the VIRUS runstream used to create the FACGEN EXCSUM runstream.

Line 1 creates the breakpoint file labeled 'FACGENXPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 10 are punch command cards that create FACGEN EXCSUM control cards that are repeated for every job.

Line 11 is the END command card to close the punch section of the VIRUS runstream.

Line 12 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 13 creates the program element labeled STUDY#.FGNX/EXSUM. This element is now in Input mode.

Line 14 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 15 is the run card.

Lines 16 and 17 are the Z*CODAP.BRKFIL execution cards to create the print and punch symbiont output files.

Line 18 assigns the TFD file to the runstream.

Line 19 is the FACGEN execution card.

Line 20 is the filenames card for FACGEN. No files are listed because no tapes are being used. The only input file is the TFD file, which is an on-line mass storage ile.

Line 21 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FGNX/EXSUM element immediately after the filenames card.

Line 22 is an EXEC 8 command to write output to the symbiont punch file.

Line 23 is the CODAP program SEPDEC which separates the task factor decks from the punch file and writes them to the TFD file.

Line 24 is an EXEC 8 command to write output to the symbiont print file.

Line 25 is an EXEC 8 command that releases all files assigned to this run.

Line 26 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 27 is an edit command that closes out the newly created FGNX/EXSUM element.

TABLE 23

VIRUS Runstream of Executive Summary FACGEN

```
 1  @Z*CODAP.BRKFIL,C FACGENXPUN.
 2  @Z*Z.VIRUS,P
 3  FILE '7428.JOB/LIST' SDF
 4  PUNCH 'FACGEN 0 0 D       COM' 4/13 'COMMONALITY SCORE FOR JOB ' 4/13
 5  PUNCH '@ADD 7428DKS.' 4/13 'PS
 6  PUNCH 'MIN 0,1'
 7  PUNCH 'FACGEN 0 0 RM      RM' 4/13 ' RANK OF % MEMBERS IN JOB ' 4/13
 8  PUNCH '@ADD 7428DKS.M' 4/5
 9  PUNCH 'FACGEN 0 0 RM     RP' 4/13 ' RANK OF PRIORITY SCORES FOR JOB ' 4/13
10  PUNCH '@ADD 7428DKS.' 4/13 'PS'
11  END
12  FACGENXPUN.
13  @ED,I 7428.FGNX/EXSUM
14        INSERT BLANK LINE TO RETURN TO EDIT MODE
15  I @RUN RUN-ID,ACCOUNT#,PROJECT,200,200/5000 . FACGEN TO CREATE EXSUM DKS
16  I @Z*CODAP.BRKFIL,PD 7428FGNXPRT.
17  I @Z*CODAP.BRKFIL,C 7428FGNXPUN.
18  I @ASG,A 7428DKS.
19  I @XQT Z*Z.FACGEN
20  I FACGEN
21  ADD+ FACGENXPUN.
22  I @BRKPT PUNCH$
23  I @Z*CODAP.SEPDEC 7428FGNXPUN.,,7428DKS.
24  I @BRKPT PRINT$
25  I @Z*Z.FREE
26  I @SYM,U 7428FGNXPRT.
27  EXI
```

The runstream in Table 24 is an abridged version of the FACGEN runstream. There are two types of output: a printed report and a punched card decks file. The printed report for FACGEN provides summary statistics of the task factors obtained from the Job Description Tape. It is an intermediate product of the task list generation and is needed only for audit purposes. The card decks file (STUDY#FGNXPUN.) contains the task factor decks which are separated and placed in the decks file (STUDY#DKS.). These decks are used as input to the DECDEC and DECSUM programs. This program can be run in DEMAND mode (see Table 24).

TABLE 24

CODAP Runstream of Executive Summary FACGEN

```
@RUN RUN-ID,ACCOUNT#,PROJECT,200,200/5000 . FACGEN OF S7428 TO CREATE TFD
@Z*CODAP.BRKFIL,PD 7428FGNXPRT.
@Z*CODAP.BRKFIL,C 7428FGNXPUN.
@ASG,A 7428DKS.
@XQT Z*Z.FACGEN
FACGEN
FACGEN 0 0 D      CS0068 COMMONALITY SCORE FOR TASKS IN JOB 0068 for 751X2
@ADD 7428DKS.M0068
MIN 0.1
                    :                                  :
                    :                                  :
                    :                                  :
FACGEN 0 0 D      CS0070 COMMONALITY SCORE FOR TASKS IN JOB 0070  for 751X2
@ADD 7428DKS.M0070
MIN 0.1
FACGEN 0 0 RM     RM0068 RANK OF % MEMBERS IN JOB 0068
@ADD 7428DKS.M0068
                    :                                  :
                    :                                  :
                    :                                  :
FACGEN 0 0 RM     RM0070 RANK OF %MEMBERS IN JOB 0070
@ADD 7428DKS.M0070
FACGEN 0 0 RM     RM0068 RANK OF PRIORITY SCORES FOR JOB 0068
@ADD 7428DKS.M0068
                    :                                  :
                    :                                  :
                    :                                  :
FACGEN 0 0 RM     RM0070 RANK OF PRIORITY SCORES FOR JOB 0070
@ADD 7428DKS.M0070
@BRKPT PUNCH$
@Z*ZX.SEPDEC 7428FGNXPUN.,,7428DKS.
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428FGNXPRT.
```

7.2 DECSUM EXCSUM

The DECSUM program is used to generate three factors that produce the task listing of the Executive Summary report. DECSUM is designed to perform four functions across a maximum of 100 task factor decks. The first function applied here is the percentage of hits across decks on a 1-0 category factor. The new factor created by using this function is the Commonality Index (COMIND). The input to create this factor is the commonality score decks produced by the FACGEN program. The second and third factors are produced by the function that calculates the mean value for each task across all decks. The second factor created is the mean ranking of percent members performing by job, labeled COMRKM. The third factor is the mean ranking of priority scores for each task across all jobs, labeled COMRKP. Input to DECSUM is the CSXXXX, RMXXXX and RPXXXX task factor decks created by the FACGEN run. Output is the COMIND, COMRKM and COMRKP task factor decks. The DECSUM runstream cannot employ VIRUS to generate the program runstream because of the order of the task factor decks within the runstream.

Table 25 provides the CODAP runstream used to create the DECSUM runstream.

Line 1 is the run card.

Lines 2 and 3 are the Z*CODAP.BRKFIL execution cards to create the print symbiont output files.

Line 4 assigns the TFD file to the run. The input file is the TFD file which contains the output from the FACGEN program.

Line 5 is the first DECSUM execution card. The first execution of the DECSUM program is to sum the CSXXXX decks.

Line 6 is the DECSUM control card that specifies the number of option cards to follow.

Line 7 is the DECSUM control card that specifies the option to be performed on the task factor decks and the new task factor title. Option 2 specifies that 1-0 dichotomous decks be summed.

Lines 8 through 23 are the commonality score decks that are to be summed.

Line 24 is the end card that specifies the end of task factor decks to be summed.

Line 25 is the second DECSUM execution card. The second execution of the DECSUM program is to rank order the RPXXXX decks.

Line 26 is the DECSUM control card that specifies the number of option cards to follow.

Line 27 is the DECSUM control card that specifies the option to be performed on the task factor decks and the new task factor title. Option 4 specifies that priority scores decks are to be ranked.

Lines 28 through 43 are the RPXXXX decks that are to be ranked.

Line 44 is the end card that specifies the end of task factor decks to be ranked.

Line 45 is the third DECSUM execution card. The third execution of the DECSUM program is to rank order the RMXXXX decks.

Line 46 is the DECSUM control card that specifies the number of option cards to follow.

Line 47 is the DECSUM control card that specifies the option to be performed on the task factor decks and the new task factor title. Option 4 specifies that percent members performing by job decks are to be ranked.

Lines 48 through 63 are the RMXXXX decks that are to be ranked.

Line 64 is the end card that specifies the end of task factor decks to be ranked.

Line 65 is an EXEC 8 command to write output to the symbiont punch file.

Line 66 is the CODAP program SEPDEC which separates the task factor decks from the punch file and writes them to the TFD file.

Line 67 is an EXEC 8 command to write output to the symbiont print file.

Line 68 is an EXEC 8 command that releases all files assigned to this run.

Line 69 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

TABLE 25

CODAP Runstream of Executive Summary DECSUM

```
 1  @RUN RUN-ID,ACCOUNT#,PROJECT,200,200/5000 . DECSUM OF S7428 TO CREATE TFD
 2  @Z*CODAP.BRKFIL,PD 7428DSUMPRT.
 3  @Z*CODAP.BRKFIL,C 7428DSUMPUN.
 4  @ASG,A 7428DKS.
 5  @XQT Z*Z.DECSUM
 6  DECSUM 1
 7  DECSUM 2 COMIND COMMONALITY INDEX FOR TASKS IN 751X2
 8  @ADD 7428DKS.CS0068
                  :                                  :
                  :                                  :
                  :                                  :
23  @ADD 7428DKS.CS0070
24  END
25  @XQT,Z Z*Z.DECSUM
26  DECSUM 1
27  DECSUM 4 COMRKP COMMONALITY RANK OF PRIORITY SCORES TASKS IN 751X2
28  @ADD 7428DKS.RP0068
                  :                                  :
                  :                                  :
                  :                                  :
43  @ADD 7428DKS.RP0070
44  END
45  @XQT,Z Z*Z.DECSUM
46  DECSUM 1
47  DECSUM 4 COMRKM COMMONALITY RANK OF % MEMBERS FOR TASKS IN 751X2
48  @ADD 7428DKS.RM0068
                  :                                  :
                  :                                  :
                  :                                  :
63  @ADD 7428DKS.RM0070
64  END
65  @BRKPT PUNCH$
66  @Z*CODAP.SEPDEC 7428DSUMPUN.,,7428DKS.
67  @BRKPT PRINT$
68  @Z*Z.FREE
69  @SYM,U 7428DSUMPRT.
```

7.3 SRTPNT EXCSUM

SRTPNT is used to generate a pseudo task factor used to order the tasks on the Executive Summary report. The SRTPNT program is designed to create a task factor deck that has been sorted on more than one task factor. The output from SRTPNT can be either a sorted pointer deck or a sorted sequence deck. For generating the Executive Summary report, a sorted sequence deck labeled COMRNK (Commonality Ranking) is required. The factors used to sort the tasks are (least important sort to most important sort) the mean ranking of the priority scores (COMRKP), the mean ranking of the percent members performing by job (COMRKM) and the commonality index (COMIND). Input to SRTPNT is the COMIND, COMRKM and the COMRKP task factor decks. Output is the COMRNK task factor deck. There is no need to employ VIRUS to create the SRTPNT runstream.

Table 26 provides the CODAP runstream used to create the SRTPNT runstream.

Line 1 is the run card.

Lines 2 and 3 are the Z*CODAP.BRKFIL execution cards to create the print symbiont output files.

Line 4 assigns the TFD file to the run. The input file is the TFD file which contains the output from the DECSUM program.

Line 5 is the Comments program execution card.

Lines 6 through 9 are comments cards to document the control card format.

Line 10 is the SRTPNT execution card.

Line 11 is the SRTPNT control card that specifies the sorting order (1=ascending, 0=descending) of the least important task factor to order the sort sequence. The task factor ID and title are also specified on this line. The ID and title are needed only once.

Line 12 calls up the task factor deck to be sorted.

Line 13 is the SRTPNT control card that specifies the sorting order (1=ascending, 0=descending) of the next task factor to order the sort sequence.

Line 14 calls up the task factor deck to be sorted.

Line 15 is the SRTPNT control card that specifies the sorting order (1=ascending, 0=descending) of the most important task factor to order the sort sequence.

Line 16 calls up the task factor deck to be sorted.

Line 17 is the end card that specifies the end of task factor decks to be sorted.

Line 18 is an EXEC 8 command to write output to the symbiont punch file.

Line 19 is the CODAP program SEPDEC which separates the task factor decks from the punch file and writes them to the TFD file.

Line 20 is an EXEC 8 command to write output to the symbiont print file.

Line 21 is an EXEC 8 command that releases all files assigned to this run.

Line 22 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

TABLE 26

CODAP Runstream of Executive Summary SRTPNT

```
 1  @ZUN RUN-ID,ACCOUNT#,PROJECT#,320,9990/9990 . CREATE COMRNK VECTOR
 2  @Z*CODAP.BRKFIL,PD 7428SPXPRT.
 3  @Z*CODAP.BRKFIL,C 7428SPXPUN.
 4  @ASG,AX 7428DKS.
 5  @Z*Z.COMMENTS
 6     THERE MUST BE A CONTROL CARD AND A TASK FACTOR DECK FOR EACH FACTOR TO
 7     BE SORTED ON.  TO CREATE A SEQUENCE DECK, THE CONTROL CARD MUST READ
 8     'SRTSEQ'.  THE MOST IMPORTANT FACTOR FOR SORTING IS THE LAST FACTOR TO
 9     ENTER INTO THE RUNSTREAM.
10  @XQT Z*Z.SRTPNT
11  SRTSEQ 0 COMRNK SEQUENCE DECK FOR XSUM REPORT ON COMIND-%MBRS-SPOTS SCORES
12  @ADD 7428DKS.COMRKP
13  SRTSEQ 0
14  @ADD 7428DKS.COMRKM
15  SRTSEQ 0
16  @ADD 7428DKS.COMIND
17  END
18  @BRKPT PUNCH$
19  @Z*CODAP.SEPDEC 7428SPXPUN.,,7428DKS.
20  @BRKPT PRINT$
21  @Z*Z.FREE
22  @SYM,U 7428SPXPRT.
```

7.4 DECDEC EXCSUM

DECDEC is now used to generate the Executive Summary report. DECDEC creates a new factor labeled common percent members (CMXXXX). CMXXXX is defined as percent members performing by job factor times the commonality score. This new factor provides percent members performing information for only those tasks included in SPOTS task listings. Input is the commonality score and percent members performing by job task factor decks. Output is the commonality percent members task factor decks.

Table 27 provides the VIRUS runstream used to create the DECDEC runstream.

Line 1 creates the breakpoint file labeled 'DECDECXPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 6 are punch command cards that create DECDEC control cards that are repeated for every job.

Line 7 is the END command card to close the punch section of the VIRUS runstream.

Line 8 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 9 creates the program element labeled STUDY#.DECDEC/EXSUM. This element is now in Input mode.

Line 10 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 11 is the run card.

Lines 12 and 13 are the Z*CODAP.BRKFIL execution cards to create the print and punch symbiont output files.

Line 14 assigns the input file to the run. The input file is the TFD file which contains the MXXXX decks from the FACGEN program and the CSXXXX decks from the FACGEN EXCSUM program.

Line 15 is the DECDEC execution card.

Line 16 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the DECDEC/EXSUM element immediately after the execute card.

Line 17 is an EXEC 8 command to write output to the symbiont punch file.

Line 18 is the CODAP program SEPDEC which separates the task factor decks from the punch file and writes them to the TFD file.

Line 19 is an EXEC 8 command to write output to the symbiont print file.

Line 20 is an EXEC 8 command that releases all files assigned to this run.

Line 21 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 22 is an edit command that closes out the newly created DECDEC/EXSUM element.

TABLE 27

VIRUS Runstream of Executive Summary DECDEC

```
 1  @Z*CODAP.BRKFIL,C DECDECXPUN.
 2  @Z*Z.VIRUS,P
 3  FILE '7428.JOB/LIST' SDF
 4  PUNCH '3  CP' 4/13 ' COMMONALITY SCORE BY % MBRS IN JOB ' 4/5 ' FOR 751X2'
 5  PUNCH '@ADD 7428DKS.CS' 4/13
 6  PUNCH '@ADD 7428DKS.M' 4/13
 7  END
 8  DECDECXPUN.
 9  @ED,I 7428.DECDEC/EXSUM
10    INSERT BLANK LINE TO RETURN TO EDIT MODE.
11  I @RUN RUN-ID,ACCOUNT #,PROJECT,100,9990/9990 . CREATE CPXXXX DKS,ALL JOBS
12  I Z*CODAP.BRKFIL,PD 7428DDXPRT.
13  I Z*CODAP.BRKFIL,C 7428DDXPUN.
14  I @ASG,A 7428DKS.
15  I @XQT Z*Z.DECDEC
16  ADD+ DECDECXPUN.
17  I @BRKPT PUNCH$
18  I @Z*CODAP.SEPDEC 7428DDXPUN.,,7428DKS.
19  I BRKPT PRINT$
20  I @Z*Z.FREE
21  I @SYM,U 7428DDXPRT.
22  EXI
```

The runstream in Table 28 is an abridged version of the DECDEC runstream. There are two types of output: a printed report and a punched card decks file. The printed report for DECDEC provides summary statistics of the mathematical operations performed on the requested decks. It is an intermediate product of the task listing generation and is needed only for audit purposes. The card decks file (STUDY#DDXPUN.) contains the task factor decks which are separated and placed in the decks file (STUDY#DKS.). This deck, along with the decks from FACGEN, is used as input to the DECSET program. This program can be run in DEMAND mode (see Table 28).

TABLE 28

CODAP Runstream of Executive Summary DECDEC

```
@RUN RUN-ID,ACCOUNT#,PROJECT#,320,9990/9990 . DECDEC TO CREATE CMXXXX VECTORS
@Z*CODAP.BRKFIL,PD 7428DDXPRT.
@Z*CODAP.BRKFIL,C 7428DDXPUN.
@ASG,AX 7428DKS.
@XQT Z*Z.DECDEC
3   CM0068  COMMONALITY SCORE BY % MBRS IN JOB 0068 FOR 751X2
@ADD 7428DKS.CS0068
@ADD 7428DKS.M0068
                    :                              :
                    :                              :
                    :                              :
3   CM0070  COMMONALITY SCORE BY % MBRS IN JOB 0070 FOR 775lX2
@ADD 7428DKS.CS0070
@ADD 7428DKS.M0070
@BRKPT PUNCH$
@Z*CODAP.SEPDEC 7428DDXPUN.,,7428DKS.
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428DDXPRT.
```

7.5 DECSET EXCSUM

DECSET is used here to create the FACSET file for input to the Executive Summary FACPRT. The factors loaded onto this file are the CMXXXX DECKS for each job, the COMIND and the COMRNK decks.

Table 29 provides the VIRUS runstream used to create the DECSET runstream.

Line 1 creates the breakpoint file labeled 'DECSETXPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Line 4 is the punch command card that creates the DECSET control card which is repeated for every job.

Line 5 is the END command card to close the punch section of the VIRUS runstream.

Line 6 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 7 creates the program element labeled STUDY#.DECSET/EXSUM. This element is now in Input mode.

Line 8 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 9 is the run card.

Line 10 is the Z*CODAP.BRKFIL execution card to create the symbiont print output file.

Line 11 assigns the input file to the run. The input file is the TFD file which contains the output from all the previous programs.

Line 12 is the DECSET execution card.

Line 13 is the filenames card that assigns the FACSET and TFILE files to the run.

Line 14 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the DECSET/EXSUM element immediately after the filenames card.

Line 15 calls the COMIND task factor deck to be loaded to the FACSET file.

Line 16 calls the COMRNK task factor deck to be loaded to the FACSET file.

Line 17 is an EXEC 8 command to write output to the symbiont print file.

Line 18 is an EXEC 8 command that releases all files assigned to this run.

Line 19 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 20 is an edit command that closes out the newly created DECSET/EXSUM element.

TABLE 29

VIRUS Runstream of Executive Summary DECSET

```
 1  @Z*CODAP.BRKFIL,C DECSETXPUN.
 2  @Z*Z.VIRUS,P
 3  FILE '7428.JOB/LIST' SDF
 4  PUNCH '@ADD 7428DKS.CP' 4/13
 5  END
 6  DECSETXPUN.
 7  @ED,I 7428.DECSET/EXSUM
 8    INSERT BLANK LINE TO RETURN TO EDIT MODE.
 9  I @RUN RUN-ID,ACCOUNT #,PROJECT,100,9990/9990 . CREATE FACSET FILE - XSUM RPT
10  I Z*CODAP.BRKFIL,PD 7428DSXPRT.
11  I @ASG,A 7428DKS.
12  I @XQT Z*Z.DECSET
13  I DECSET 7428-EXSUM  7428-TFILE
14  ADD+ DECSETXPUN.
15  I @ADD 7428DKS.COMIND
16  I @ADD 7428DKS.COMRNK
17  I BRKPT PRINT$
18  I @Z*Z.FREE
19  I @SYM,U 7428DSXPRT.
20  EXI
```

The runstream shown in Table 30 is an abridged version of the DECSET runstream. There are two types of output: a printed report and a FACSET FILE with Common Percent Members factor for each job, the Commonality Index and the Commonality Ranking Index. The printed report for DECSET provides a descriptive summary of the FACSET file created by DECSET. Each FACSET file contains all the task factor decks created by the previous Executive Summary runs. The printout should be saved because it contains indexes of the FACSET file. The FACSET file is used as input into the FACPRT program. This runstream can be run in DEMAND mode (see Table 30).

TABLE 30

CODAP Runstream of Executive Summary DECSET

```
@RUN RUN-ID,ACCOUNT#,PROJECT,320,9990/9990 . DECSET TO CREATE EXCSUM FACSET
@ASG,A 7428DKS.
@Z*CODAP.BRKFIL,PD 7428DSXPRT.
@XQT Z*Z.DECSET
DECSET 7428-EXSUM  7428-TFILE
@ADD 7428DKS.CM0068
@ADD 7428DKS.CM0470
                    :                              :
                    :                              :
                    :                              :
@ADD 7428DKS.CM0070
@ADD 7428DKS.COMIND
@ADD 7428DKS.COMRNK
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428DSXPRT.
```

7.6 FACPRT EXCSUM

This FACPRT creates the Executive Summary report. The sorted sequence deck of the commonality rankings (COMRNK) must be used in place of the 'seq' vector on the 'prt' control card for the tasks to be printed in a meaningful sequence. The other factors printed on this report are the Commonality Index (immediately following the COMRNK column), and the CMXXXX factors for each job. No more than eight jobs' CMXXXX factors can be listed on a single page. Input to FACPRT is the FACSET file created by DECSET (STUDY#-EXSUM.) and the TFILE. Output is the Executive Summary report. The program example presented in Table 32 limits the number of tasks to 50; however, the number of tasks listed is at the discretion of the analyst.

Table 31 provides the VIRUS runstream used to create the FACPRT runstream.

Line 1 creates the breakpoint file labeled 'FACPRTXPUN.', where the punched output from the VIRUS runstream is written.

Line 2 is the VIRUS execution card.

Line 3 is the input filename card. This file element is the Job List element. This card requires that the type of input file be specified (in this case an SDF file).

Lines 4 through 16 are punch command cards that create FACPRT control cards that are repeated for every job.

Line 17 is the END command card to close the punch section of the VIRUS runstream.

Line 18 is the output filename card. This line writes the lines created by the VIRUS command cards to the symbiont file created in Line 1.

Line 19 creates the program element labeled STUDY#.FACPRT/EXSUM. This element is now in Input mode.

Line 20 is a blank line which returns the element to Edit mode. The remaining lines starting with 'I ' occur once within the runstream and are input at this point.

Line 21 is the run card.

Lines 22 is the Z*CODAP.BRKFIL execution cards to create the symbiont print output file.

Line 23 assigns the TFILE to the run.

Line 24 is the Comments program execution card.

Lines 25 through 30 are comments cards documenting the required control card options and placement of the vectors to format the report.

Line 31 is the FACPRT execution card.

Line 32 is the filenames card for FACPRT. The Executive Summary FACSET file and the TFILE are needed.

Line 33 is the editor command 'ADD+' which adds the output from the VIRUS portion of the runstream to the FACPRT/EXSUM element immediately after the filenames card.

Line 34 is an EXEC 8 command to write output to the symbiont print file.

Line 35 is an EXEC 8 command that releases all files assigned to this run.

Line 36 is an EXEC 8 command that sends the symbiont print file to the printer for production of a hard copy.

Line 37 is an edit command that produces a numbered line print of the FACPRT/EXCSUM element in order to determine the number of the lines to be repeated.

Line 38 is an edit command that will move the editor to the line where the section of the runstream is to be repeated.

Line 39 is the editor DITTO command that copies the FACPRT control cards needed to manufacture the report for the second set of jobs.

Line 40 is an edit command that will move the editor to the line where the task factor numbers need to be changed.

Line 41 is an editor command used to change the task factor numbers to the second set of factors.

Line 42 is an edit command that closes out the newly created FACPRT/EXSUM element.

TABLE 31

VIRUS Runstream of Executive Summary FACPRT

```
 1  @Z*CODAP.BRKFIL,C FACPRTXPUN.
 2  @Z*Z.VIRUS,P
 3  FILE '7428.JOB/LIST' SDF
 4  PUNCH 'FACPRT 4 1 EXECUTIVE SUMMARY OF SPOTS LISTINGS FOR AFSC 751X2'
 5  PUNCH 'TASKS ARE ORDERED ON A THREE FACTOR RANKED COMMONALITY INDEX.  TASKS',
 6  ETC 'ARE RANKED '
 7  PUNCH 'FIRST ON % OF JOBS IN WHICH TASK OCCURS - SECOND ON % MBRS
    PERFORMING',
 8  ETC '- AND'
 9  PUNCH 'THIRD ON SPOTS PRIORITY SCORE. THE FIRST 50 TASKS ARE LISTED.  THE %',
10  ETC ' MEMBERS'
11  PUNCH 'PERFORMING WITHIN EACH JOB IS PROVIDED FOR EACH OF THE TASKS LISTED.'
12  PUNCH 'PRT 018 017 001 002 003 004 005 006 007 008'
13  PUNCH 'SRT 018 ASC'
14  PUNCH 'REP TSK'
15  PUNCH 'SUP 018 GT 50'
16  PUNCH 'END'
17  END
18  FACPRTXPUN.
19  @ED,I 7428.FACPRT/EXSUM
20    INSERT BLANK LINE TO RETURN TO EDIT MODE
21  I @RUN RUN-ID,ACCOUNT#,PROJECT,,9990/9990 . FACPRT EXCSUM OF AFSC 751X2
22  I @ASG,A 7428-TFILE.
23  I @Z*CODAP.BRKFIL,PD 7428FPXPRT.
24  I @Z*Z.COMMENTS
25  I     *REMINDER - THE COMMONALITY RANKING FACTOR'S SEQUENCE NUMBER ON THE
26  I      FACSET FILE IS USED IN PLACE OF THE PSEUDO VECTOR 'SEQ'.  THE COMRNK
27  I      VECTOR IS USED WITH THE SORT OPTION IN ASCENDING SEQUENCE AND THE
28  I      SUPPRESSION OPTION WITH A CUTOFF VALUE OF APPROXIMATELY 50 TASKS. THE
29  I      COMMONALITY INDEX ALWAYS FOLLOWS THE COMMONALITY RANKING IN THE EXCSUM
30  I      REPORT.  THEN THE COMMON PERCENT MEMBERS FOR EACH JOB ARE LISTED.
31  I @XQT Z*Z.FACPRT
32  I FACPRT 7428-EXSUM                7428-TFILE
33  ADD+ FACPRTXPUN.
34  I @BRKPT PRINT$
35  I @Z*Z.FREE
36  I @SYM,U 7428FPXPRT.
37  LNP!
38  L END
39  DIT 12 22
40  L PRT
41  C /001 002 003 004 005 006 007 008/009 010 011 012 013 014 015 016/
42  EXI
```

Since the Job List element is not used here, it is necessary to use the ditto command and create the lines that are punched by VIRUS as many times as needed for the number of task factors (jobs) contained on one FACSET file. The runstream shown in Table 32 is a complete version of the FACPRT runstream for an AFS with 16 jobs. There is one type of output: a printed report. This report is the final product of the SPOTS task list generation procedure. The FACPRT report lists the tasks common to SPOTS listings across all jobs ordered on the commonality ranking for the first 50 tasks. There is also the common percent members for each job for the tasks listed. The sequence numbers found on the FACSET EXSUM file used as input to FACPRT EXCSUM is the FACSET file that is created by the DECSET EXCSUM program. If more than one FACSET file has been created, this runstream can be copied and used with the next FACSET file as input. This program can be run in DEMAND mode (see Table 32).

TABLE 32

CODAP Runstream of Executive Summary FACPRT

```
@RUN RUN-ID,ACCOUNT#,PROJECT,320,9990/9990 . FACPRT TO CREATE EXCSUM REPORT
@ASG,A 7428.TFILE.
@Z*CODAP.BRKFIL,PD 7428DSXPRT.
@Z*Z.COMMENTS
   *REMINDER - THE COMMONALITY RANKING FACTOR'S SEQUENCE NUMBER ON THE
    FACSET FILE IS USED IN PLACE OF THE PSEUDO VECTOR 'SEQ'.  THE COMRNK
    VECTOR IS USED WITH THE SORT OPTION IN ASCENDING SEQUENCE AND THE
    SUPPRESSION OPTION WITH A CUTOFF VALUE OF APPROXIMATELY 50 TASKS. THE
    COMMONALITY INDEX ALWAYS FOLLOWS THE COMMONALITY RANKING IN THE EXCSUM
    REPORT.  THEN THE COMMON PERCENT MEMBERS FOR EACH JOB ARE LISTED.
@XQT Z*Z.FACPRT
FACPRT 7428-EXSUM              7428-TFILE
FACPRT 4 1 EXECUTIVE SUMMARY OF SPOTS LISTINGS FOR AFSC 751X2
TASKS ARE ORDERED ON A THREE FACTOR RANKED COMMONALITY INDEX.  TASKS ARE
RANKED FIRST ON % OF JOBS IN WHICH TASK OCCURS - SECOND ON % MBRS PERFORMING -
AND THIRD ON SPOTS PRIORITY SCORE.  THE FIRST 50 TASKS ARE LISTED.  THE %
MEMBERS PERFORMING WITHIN EACH JOB IS PROVIDED FOR EACH OF THE TASKS LISTED.
PRT 018 017 001 002 003 004 005 006 007 008
SRT 018 ASC
REP TSK
SUP 018 GT 50
END
FACPRT 4 1 EXECUTIVE SUMMARY OF SPOTS LISTINGS FOR AFSC 751X2
TASKS ARE ORDERED ON A THREE FACTOR RANKED COMMONALITY INDEX.  TASKS ARE
RANKED FIRST ON % OF JOBS IN WHICH TASK OCCURS: SECOND ON % MBRS PERFORMING -
AND THIRD ON SPOTS PRIORITY SCORE. THE FIRST 50 TASKS ARE LISTED.  THE %
MEMBERS PERFORMING WITHIN EACH JOB IS PROVIDED FOR EACH OF THE TASKS LISTED.
PRT 018 017 009 010 011 012 013 014 015 016
SRT 018 ASC
REP TSK
SUP 018 GT 50
END
@BRKPT PRINT$
@Z*Z.FREE
@SYM,U 7428FPXPRT.
```

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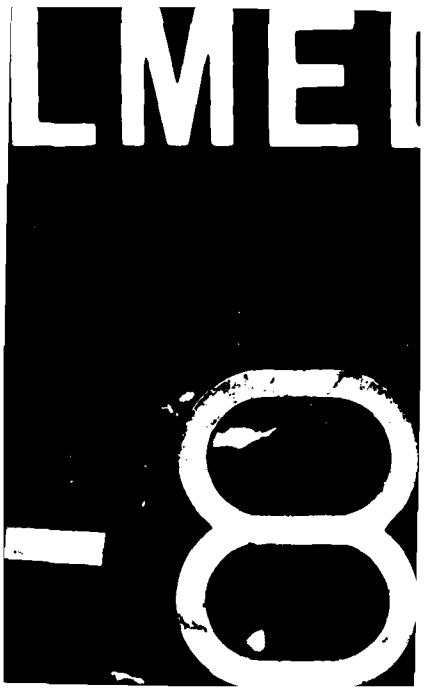
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