The Development and Background of the Position Analysis Questionnaire (PAQ)

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INTRODUCTION

The Position Analysis Questionnaire (PAQ) is a job analysis questionnaire that includes job elements that are essentially worker-oriented in nature, as contrasted with job-oriented (McCormick, 1959). As such, most of the elements tend to characterize human behaviors (or work activities that have reasonably strong implications in terms of human behaviors) rather than activities that are expressed in technological or strictly job terms. In addition, the PAQ includes job elements that characterize the contextual and situational aspects of jobs to which the worker presumably needs to adapt; some of these variables may have implications in terms of job demands, and of "personal" variables that are desirable on the part of the worker (such as personality characteristics, interests, personal values, etc.).

In the development of the PAQ it has been the intent to incorporate job elements that generally embrace the spectrum of human behaviors in work that parallel the conventional S-O-R (stimulus-organism-response) paradigm, but with different labels. The general organization of the PAQ, given below, reflects this, along with a special section dealing with communication activities and the situational and contextual aspects of jobs. The organization is shown for the two forms (A and B) which are discussed later.

PAQ: Form A	PAQ: Form B
1. Information Input	1. Information Input
2. Mediation Processes	2. Mental Processes
3. Work Output	3. Work Output
4. Interpersonal Activities	4. Relationships With Other Workers
5. Work Situation and Job Context	5. Job Context
6. Miscellaneous Aspects	6. Other Job Characteristics

All together there are 189 job elements in Form A and 194 in Form B. Some of the elements are of a checklist nature, whereas most provide for the use of rating scales. Various rating scales (such as "time," "importance," etc.) are used for different elements or groups of elements, the rating scale used in each case being the one that logically seems to be most appropriate. In the case of certain elements special rating scales are provided.

The PAQ was developed with the hope that it could be used with a minimum of training on the part of the individual who uses it in analyzing a job. In general, the experience with it has indicated that it can be readily used by job analysts, supervisors, employment and personnel officers, and even by some incumbents.

DEVELOPMENT OF THE POSITION ANALYSIS QUESTIONNAIRE (PAQ)

The most current form of the PAQ (Form B) is the result of an evolutionary process.

Check List of Worker Activities

The early predecessor of the present PAQ was a Check List of Worker Activities developed by McCormick and Palmer (Palmer, 1958, Appendix A). It consisted of 178 elements organized into sections corresponding somewhat with those of the PAQ. Various rating scales and special codes were to be used with individual elements or groups of elements. It was used as the basis for the analysis of 250 jobs in the steel industry. A principal components analysis of the resulting data was carried out, this analysis resulting in the identification of 14 initial factors (Palmer and McCormick, 1961). These 14 factors, in turn, were subjected to a higher order principal components analysis, resulting in four more general factors.

Worker Activity Profile

The successor to the Check List of Worker Activities was called the Worker Activity Profile (WAP). It underwent a sequence of stages during which various individuals made significant input (especially Drs. George G. Gordon, David L. Peters, and Joseph W. Cunningham). The development of the Worker Activity Profile is reported by Gordon (June 1963) and will simply be summarized here. This development consisted of two phases, namely the development of a classification system of worker-oriented variables, and the construction of elements (items) to measure these variables.

Development of classification system. In the development of a classification system of worker-oriented variables it was decided initially to establish various major categories of behavioral areas that might have relevance to human work, and then to concentrate attention on these, one at a time. The initial categories were: environmental effects; physical activities (including sensory); mental activities; activities involving special talents and abilities; communication activities; supervisory activities; and "personal requirements."

Within each of these areas there was then developed a list of more specific variables (activities, behaviors, etc.) that might ultimately be developed into items of the Worker Activity Profile. Although some of these variables were not actually "behavioral" in nature (such as those characterizing physical aspects of the environment) the variables so listed generally were those that, if incorporated in a job, would have some implications in terms of the human characteristics that an incumbent should possess. Various potential source materials were reviewed in the process of developing these variables; the sources included: the Check List of Worker Activities; the USES Training and Reference Manual for Job Analysis (1944); the USES Work Performed Manual (1954); the USES Worker Trait Requirements for 4000 Jobs (undated); the J-Coefficient (Primoff, 1953, 1955); Jaspen (1949); Mosel,

Fine, and Boling (1960); Norris (1957); and Palmer (1958). All together 138 such elements were listed.

Element development. These variables were then considered for use as the basis for developing individual elements for the Worker Activity Profile. In this process, the main objective was that of converting the concept implied by the variable into one or more statements that would be descriptive of human behavior in a job, or of some job situation or context.

Some of the resulting elements of the Worker Activity Profile were of a check list nature (to be used to indicate the presence or absence of the element in a job); in the case of other elements, scales were provided, these being either general scales or scales constructed for the individual element. In this connection, the results of a study by Peters and McCormick (1962) pointed out the desirability, in the case of scales, of actually scaling examples of varying "levels" of a given continuum, in order to identify examples to use as benchmarks of different points along the scale. However, since this procedure would have to be carried out separately for many elements of the total questionnaire, it was not followed in the development of elements because of the tremendous effort that would have been involved.

In the development of elements, the original structure of categories was modified. The Worker Activity Profile as finally developed consisted of 163 elements in the following 9 categories:

1. Discrimination activities
2. Mental activities
3. Body and limb activities
4. Supervisory activities
5. Communications and interpersonal relations
6. Rhythm of work activities
7. General characteristics of the job activities
8. Physical environment
9. Psychological and social aspects of the job.

Use of the Worker Activity Profile. A series of studies involving the Worker Activity Profile included factor analyses (McCormick, Cunningham and Gordon, 1967), and experimental application in the context of job evaluation (Champagne and McCormick, 1964) and in the context of synthetic validity (McCormick, Cunningham, and Thornton, 1967).

Position Analysis Questionnaire: Form A

Experience with the Worker Activity Profile reflected certain deficiencies with that particular instrument. As an initial phase of the present research program, therefore, the next "generation" of the same type of job analysis instrument was developed. This underwent a series of editions, with the inputs into these editions consisting of further reviews of relevant sources, analysis of data from the Worker Activity Profile, and hours of discussions. In addition, one intermediate version was used in a very modest reliability study. Arrangements were made with certain

organizations to have two independent analysts analyze each of 30 jobs. These data were analyzed element by element in order to obtain some indication of the reliability with which pairs of independent analysts concurred in the use of individual elements of that intermediate form of the PAQ. The sample of jobs was of course small, and some of the elements occurred so infrequently in the sample in question that item reliability analyses in the case of such elements were not particularly meaningful. However, the item reliability data that was based on sufficient usage, data on item intercorrelations, and comments by analysts,aided in the further development of the PAQ. (The individuals primarily involved in this phase were James J. Waibel, Thomas A. Jeswald, and David B. Kyner.) The resulting version of the PAQ, Form A, was used as the basic job analysis instrument in a research program relating to the study of job dimensions (McCormick, 1969).

Reliability of the PAQ: Form A. During the collection of data with the PAQ in connection with the study of job dimensions,the opportunity arose to have two or more individuals analyze certain jobs independently. All together the independent analyses made it possible to identify 62 "pairs" of job analyses that could be used for reliability analysis. The "pairs" of analysts consisted of various combinations of job analysts, supervisors, and incumbents. The resulting data were analyzed in two ways. In the first place a reliability analysis was made of the pairs of responses to individual job elements across 60 of these "pairs"(the disparity between 60 and 62 need not be explained, but was of minor concern). In this analysis it should be pointed out that no two analysts analyzed all of the jobs. Therefore, in computing a coefficient of reliability for any given job element the "data" consisted of pairs of job ratings for the item, with the "pairs" of analysts for the various jobs comprising different pairs of raters, although in some cases the same two analysts did analyze two or several jobs in common.

The reliability coefficients of the individual elements ranged from .00 to 1.00 with a mean of about .80. Table 1 shows a distribution of these coefficients. Table 3 in Appendix A gives the coefficients for the individual elements. It should be pointed out that, in the case of some elements, the frequency with which they were used in the sample of jobs was so small that the reliability coefficients must be viewed with extreme caution.

The second reliability analysis consisted of a study of the responses, across all job elements of the PAQ, of pairs of individuals who analyzed the same job. Thus, for a given job a correlation was computed for the responses of the two analysts across all elements. In turn, these coefficients were averaged (using Fisher's z-transformation) for various groups of analysts (i.e. two job analysts, one analyst and a supervisor, one analyst and an incumbent, and one supervisor and one incumbent, as well as for the entire group.). The results of these analyses are given in Table 2. It can be seen that the average coefficient across all types of raters was a respectable .79.

Table 1

Frequency Distribution of Coefficients of

Reliability of 179 Job Elements of the PAQ as used by Two Analysts

(N = 60 pairs of analysts)

Reliability Coefficient	Frequency	Proportion
.96-1.00	24	13.4
.91- .95	16	8.9
.86- .90	20	11.2
.81- .85	12	6.7
.76- .80	14	7.8
.71- .75	11	6.1
.66- .70	21	11.7
.61- .65	12	6.7
.56- .60	9	5.0
.51- .55	12	6.7
.46- .50	1	.6
.41- .45	6	3.4
.36- .40	2	1.1
.31- .35	2	1.1
.26- .30	1	.6
.21- .25	5	2.8
.16- .20	4	2.2
.11- .15	2	1.1
.06- .10	2	1.1
.00- .05	3	1.7

Table 2

Averages of Coefficients of Reliability for

Individual Jobs Analyzed with PAQ by Pairs of Analysts

Pairs of Individuals Analyzing Same Job	Number of Pairs	Average Reliability Coefficient
Two job analysts	44	.74
One job analyst-one supervisor	4	.83
One job analyst-one incumbent	4	.84
One supervisor- one incumbent	10	.89
All pairs combined	62	.79

Position Analysis Questionnaire: Form B

With some moderate changes, Form B of the PAQ is substantially the same in its basic nature, content, and format as Form A, and is therefore essentially a refinement of Form A. The development of Form B was based primarily on the experience obtained with Form A. Many of the modifications stemmed from suggestions and comments of job analysts, supervisors and job incumbents who used Form A experimentally in the actual analysis of over 800 jobs in the field. A detailed list of their comments, referring to either specific job elements, rating scales, instructions, format, or the PAQ in general, was compiled and carefully reviewed. In addition, the reliability analysis of a few individual elements (Table 3, Appendix A) pointed up certain job elements which were of questionable value, in the form in thich they were written, because of their low inter-analyst reliability.

With this assortment of information from the field, reliability analyses, and experience in reviewing PAQ's for errors as they came in, the three following general improvements were undertaken:

1. The simplification of the language as used in Form A. This was accomplished in part by having 20 students in a freshman psychology course read over Form A and identify words or phrases that they did not understand, or that they felt were inappropriate for general usage. Consequently some of the psychological jargon in Form A was replaced by more common terminology in Form B.

2. The refining of the form to elicit more reliable responses. Toward this end the following changes were incorporated in Form B: the instructions and a number of job elements were substantially rewritten and simplified; all rating scales were expanded or shortened to a five point scale or to a dichotomous format; additional examples were added to job elements where it was thought they would reduce confusion; and the form was so designed that some response was to be entered for each job element (in particular this meant that a dash should be entered in the case of an element that did "not apply", thus eliminating any question about whether the user had considered the job element in making the ratings).

3. The more inclusive sampling of job-relevant human behavior. Several additional items were incorporated into Form B which were thought to be relevant to work behavior. Further, several items were deleted because of infrequent usage or because of their relatively unimportant nature.

While very little information is known to date about the use of Form B in the field, it seems reasonable to assume that it will lend itself to more reliable, complete, and convenient usage because of the comprehensive information which was generally available in its developing stages.

JOB SAMPLE DATA BASE

The possible ultimate use of the PAQ for such purposes as the development of job attribute requirements or job evaluation would require the establishment of appropriate sets of norms for use in relating data on any given job to jobs in general. For any given type of data to be generated (such as job dimension scores, attribute scores, job evaluation points, etc.) it would then be possible to relate values for any given job to those of other jobs. For this purpose, it is expected that such norms would be based on an arbitrary mean of 100 and a standard deviation of 20.

In connection with the possible pool of jobs to use as the base in the development of such norms, data are now available for a total of 882 jobs. These are classified by occupational categories of the Dictionary of Occupation Titles (U. S. Employment Service, 1965) as follows:

	Occupational Category	Number of Jobs
1.	Professional, technical, and managerial occupations	259
2.	Clerical and sales occupations	196
3.	Service occupations	40
4.	Farming, fishery, forestry and related occupations	8
5.	Processing occupations	54
6.	Machine trades occupations	148
7.	Bench work occupations	38
8.	Structural work occupations	59
9.	Miscellaneous occupations	77
10.	Unclassified jobs	3
	Total	882

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APPENDIX A

Table 3

Coefficients of Reliability of Individual Job Elements of the PAQ as used by Two Analysts

PAQ Element Number[a]	Reliability Coefficient[b] (N=60 pairs)	PAQ Element Number[a]	Reliability Coefficient[b] (N=60 pairs)	PAQ Element Number[a]	Reliability Coefficient[b] (N=60 pairs)
1	.78	39	.84	80	.32
2	.69	40	.68	81	.00
3	.23	41	.47	82	.69
4	.70	42	.72	83	.93
5	.74	44	.10	84	.95
6	.61	45	.90	85	.63
7	.59	46	.68	87	.60
8	.53	47	.81	88	.26
9	.75	49	.83	89	.44
10	.89	50	.20	90	.77
11	.54	51	.70	91	.69
12	.86	52	.92	92	.74
13	.68	53	.58	93	.79
14	.95	54	.38	94	.54
15	.42	55	.42	95	.54
16	.78	56	.59	96	.65
17	.53	57	.23	97	.54
18	.87	58	.94	98	.42
19	.95	59	.92	100	.93
21	.52	61	.88	101	.61
22	.82	62	.66	102	.84
23	.44	63	.87	103	.63
24	.92	64	.80	104	.90
25	.71	65	.91	105	.24
26	.90	66	.60	106	.66
27	.85	67	.67	107	.67
28	.80	68	.73	108	.85
29	.92	69	.78	109	1.00
30	.83	71	1.00	110	1.00
31	.68	72	.86	111	.83
32	.10	73	1.00	113	.74
33	.66	74	1.00	114	.71
34	.64	75	.44	115	.59
35	.53	76	.34	116	.65
36	.86	77	.91	117	.12
37	.88	78	.76	118	.76
38	.54	79	.17	119	.63

APPENDIX A (continued)

Table 3 (continued)

PAQ Element Number[a]	Reliability Coefficient[b] (N=60 pairs)	PAQ Element Number[a]	Reliability Coefficient[b] (N=60 pairs)	PAQ Element Number[a]	Reliability Coefficient[b] (N=60 pairs)
120	.89	144	.61	167	.76
121	1.00	145	.61	168	1.00
122	1.00	146	.64	169	1.00
123	.52	147	.94	170	1.00
124	.70	148	.79	171	.93
125	1.00	149	.24	172	.85
126	.90	150	.59	173	1.00
128	1.00	151	.86	174	.25
129	.69	152	.17	175	.81
130	.67	153	.02	176	.63
131	1.00	154	.80	177	.74
132	1.00	155	.80	178	.74
133	.90	156	.89	179	.70
134	.93	157	1.00	180	.70
135	.97	158	.95	181	.78
136	.03	159	.89	182	.54
137	.56	160	1.00	183	.54
138	1.00	161	.89	184	.69
139	1.00	162	1.00	186	.74
140	.14	163	1.00	187	.87
141	.36	164	.86	188	.58
142	.20	165	1.00	189	.84
143	.69	166	1.00		

[a]PAQ elements of an open-ended nature (i.e. elements 20, 43, 48, 60, 70, 86, 99, 112, 127, and 185) as well as element 147 were eliminated from this analysis.

[b]Coefficients rounded to two places.

APPENDIX B

POSITION ANALYSIS QUESTIONNAIRES:

FORM A AND FORM B

POSITION ANALYSIS QUESTIONNAIRE (PAQ)

Occupational Research Center
Department of Psychology
Purdue University

INSTRUCTIONS FOR USE BY ANALYSTS

General

This Position Analysis Questionnaire (PAQ) is to be used in characterizing various aspects of positions. It consists of a listing of elements, each of which is descriptive of, or infers or implies, some human behavior or activity, or some aspect of the work situation that impinges upon the worker.

Before attempting to use the PAQ, the analyst should read carefully each item in the Questionnaire. In doing so, the analyst will become familiar with both the structure of the various items and the organization of the items into sections of the Questionnaire. In addition, he should be familiar with the job to be analyzed and with the various aspects of the work situation. If there is a need to develop such a familiarity, this typically should be accomplished through interview and observation techniques.

In the case of some elements, it may be necessary, during an interview with the incumbent or his supervisor, to ask questions that are specifically relevant to the element in question, in order to elicit information for use in responding to the element.

Organization of the PAQ

The Position Analysis Questionnaire is organized by major divisions. These divisions are listed below, along with a "question" that can be kept in mind in considering the elements within each division.

1. Information Input (What are the sources of information used by the incumbent, and what sensory and perceptual skills are involved?)
2. Mediation Processes (What mental, reasoning, decision-making, information processing, and other mediation processes are involved?)
3. Work Output (What are the overt physical activities that the incumbent carries out as the consequence of the intervening mediation processes?)
4. Interpersonal Activities (What are the interpersonal activities and relationships of the position?)
5. Work Situation and Job Context (In what physical and social situation does the incumbent work? And what are some of the sociological and psychological concomitants of the work?)
6. Miscellaneous Aspects

In analyzing a position it may be helpful to keep the above frame of reference in mind, as a means of providing "structure" to the analysis.

PAQ (Form A, 9-67)

Specific Instructions

Determine if an item applies to the position:

A few items, those identified by a box preceding the item are considered "universal" and apply to all jobs. For these items, the information requested should always be provided when analyzing any job. If the item is not identified by a box, the analyst is to determine whether the item does, or does not, apply to the job. When an item does not apply to the job analyzed, enter a dash (—) and proceed to the next item.

When an item applies to a job, provide the information requested:

An item may apply to a job either because it is "universal," or because the analyst has decided that it applies. In either situation, the analyst is to provide the information requested by entering the appropriate response in the space provided. For a given item, one of four general "types" of information may be required. These different types of information can be recognized by the code letter in the blank space or box preceding the item. The types of information, and their "identification" in the PAQ, are given below:

How to Identify	Information to be Recorded
I ___ or [I]	Importance of item to the job. When the letter "I" appears in the space preceding the item (and when the item applies to the job) rate the item in terms of its Importance to the job, using the scale below. Importance should be considered to refer to the relative extent to which the item in question applies to the job being analyzed, considering such factors as the relative amount of time involved, the possible degradation in overall job performance that might result if the incumbent would be deficient in fulfilling this aspect of his job, etc.

Code	Importance (I)
—	Does not apply
1	Very minor (is an incidental, minor aspect of the job)
2	Low (is of below average importance to the job)
3	Moderate (is a moderately important aspect of the job)
4	High (is an aspect of substantial importance to the job)
5	Extreme (is a very important aspect of the job--one of the most important)

An abbreviated version of the Importance scale appears in the upper right-hand corner of every page containing an item that uses this scale.

T ___ or [T]	Time
U ___ or [U]	Use

Where "T" or "U" identify items, the code to be used appears in the upper corner of the page. These refer to the Time for which the behavior or situation is applicable, or the extent of Use of the specified information sources on the job. Each of these scales applies to items on the page in question.

S ___ or [S] — Special Code. When an "S" identifies an item, there is a special code for use with that particular item; this special code appears immediately below the item. This code does not apply to any other item.

X ___ or [X] — Check items. Where an "X" identifies an item, simply check the space if the item applies to the job.

POSITION ANALYSIS QUESTIONNAIRE

Occupational Research Center
Department of Psychology
Purdue University

Job Title _____ Date _____

Organization _____ Analyst _____

Department/Unit _____ Name of Employee (optional) _____

1. INFORMATION INPUT

1.1 SOURCES OF JOB INFORMATION

Rate the following items in terms of the extent to which they are used by the worker as sources of information in performing his job.

Code	Extent of Use (U)
—	Does not apply
1	Nominal/very infrequent
2	Occasional
3	Moderate
4	Considerable
5	Very substantial

1.1.1 Visual Sources of Job Information

CARD 1

1 (18)	U___	Written materials (publications, reports, memos, articles, job instructions, computer print-outs, signs, etc.)
2 (19)	U___	Pictorial materials (non-verbal sources of information appearing on paper, film, etc., e.g., drawings, blueprints, diagrams, charts, maps, tracings, etc.)
3 (20)	U___	Quantitative materials (graphs, accounts, specifications, tabular presentations of data, etc., except measuring devices)
4 (21)	U___	Measuring devices (rules, micrometers, calipers, scales, etc., which are sources of quantitative or qualitative information)
5 (22)	U___	Work-aid devices (work aids, e.g., templates, patterns, etc., used as sources of information when observed during use)
6 (23)	U___	Mechanical devices (tools, equipment, machinery, etc., which are sources of information when observed during use or operation)
7 (24)	U___	Materials in process (parts, materials, objects, etc., which are sources of information when being modified, worked on, or otherwise processed)
8 (25)	U___	Materials not in process (parts, materials, objects, etc., which are sources of information when being handled, inspected, packaged, etc., but not "in process")
9 (26)	U___	Visual displays (dials, gauges, signal lights, radar scopes, etc.)
10 (27)	U___	Natural environment (landscapes, fields, geological samples, vegetation, cloud formations, and other "natural aspects" of the indoor and outdoor environment which are observed or inspected to provide job-relevant information)

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PAQ (Form A, 9-67)

Code	Extent of Use (U)
—	Does not apply
1	Nominal/very infrequent
2	Occasional
3	Moderate
4	Considerable
5	Very substantial

1.1 SOURCES OF INFORMATION (cont.)

1.1.1 Visual Sources (cont.)

11 (28) U — Man-made environment (structures, interiors of buildings, dams, highways, and other "man-made" or altered aspects of the indoor and outdoor environment which are observed or inspected to provide job-relevant information)

12 (29) U — Behavior (observing the actions of people or animals, e.g., in teaching, supervision, sports officiating, etc., where this behavior is a source of job-relevant information)

13 (30) U — Events or circumstances (those in which the worker is an immediate observer or participant, e.g., flow of traffic, movement of materials, etc.)

14 (31) U — Art or decorative objects or arrangements (paintings, sculpture, jewelry, window displays, etc.)

1.1.2 Non-visual Sources of Job Information

15 (32) U — Verbal sources (verbal instructions, orders, requests, conversations, interviews, discussions, formal meetings, etc.)

16 (33) U — Sounds (random or specific sounds, signals, noises, etc., e.g., engine sounds, sonar, whistles, musical instruments, etc.)

17 (34) U — Tactual (pressure, pain, temperature, moisture, etc.)

18 (35) U — Odor

19 (36) U — Taste

20 (37) U — Other non-visual sources (specify)_____

1.2 DISCRIMINATION AND PERCEPTUAL ACTIVITIES

1.2.1 Discrimination Activities

21 (38) S — Near visual discrimination (indicate by code the degree of precision required to discriminate objects, events, or detailed features within arm's reach)

Code	Degree of Precision
1	Gross (very little precision in near visual discrimination is required of the worker, e.g., crating products, farming, etc.)
2	Intermediate (moderate precision in near visual discrimination is required of the worker, e.g., reading dials and gauges, sorting mail, etc.)
3	Substantial (extensive precision in near visual discrimination is required of the worker, e.g., using microscope, repairing watches, etc.)

Code	Importance of...
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

1.2 DISCRIMINATION AND PERCEPTUAL ACTIVITIES (cont.)

1.2.1 Discrimination Activities (cont.)

Rate the following items in terms of how important they are to completion of the job.

22 (39) I____ Far visual discrimination (discriminating objects, events, or detailed features beyond arm's reach, e.g., operating a vehicle, landscaping, sports officiating, etc.)

23 (40) I____ Depth discrimination (judging depth or relative distance of objects)

24 (41) I____ Color discrimination (differentiating or identifying by color objects, materials, or details thereof)

25 (42) I____ Sound pattern discrimination (differentiating patterns or sequences of sounds, e.g., those involved in Morse code, heart beats, engine malfunctions, etc.)

26 (43) I____ Sound discrimination (discriminating sounds in terms of their intensity, pitch, and/or tone quality, or changes therein)

27 (44) I____ Body movement discrimination (discriminating changes in velocity of body, primarily by use of the semi-circular canals, as in flying aircraft, etc.)

28 (45) I____ Postural discrimination (discriminating changes in body position and/or orientation to upright, as in body balancing under unusual circumstances, etc.)

1.2.2 Estimation Activities

In this section are various operations involving estimation or judging activities. In each case consider activities in which the worker may use any or all sensory cues available to him, e.g., visual, auditory, tactual, etc.

29 (46) I____ Estimating speed of moving parts (estimating the speed of the moving parts associated with stationary objects, e.g., the revolutions per minute of a motor, etc.)

30 (47) I____ Estimating speed of moving objects (estimating the speed of moving objects relative to a fixed point or other moving objects, e.g., the speed of vehicles, etc.)

31 (48) I____ Estimating speed of processes (estimating the speed of on-going processes within a system, e.g., chemical reaction, assembly line operations, etc.)

32 (49) I____ Judging quality (estimating the value of objects or the quality of workmanship, e.g., antique dealer, appraiser, etc.)

33 (50) I____ Estimating quantity (estimating the quantity of objects including weight, number, volume, etc.)

34 (51) I____ Estimating size (estimating the dimensions of objects including length, depth, thickness, etc.)

35 (52) I____ Inspecting (inspecting one's own work or the work of others for quality, e.g., identifying defects, classifying by grade, etc.)

2. MEDIATION PROCESSES

2.1 DECISION MAKING AND REASONING

36 (53) S

Decision making (indicate by code the level of decision making (typically) involved in the job, considering: the number and complexity of the factors that are taken into account; the variety of alternatives available; the consequences and importance of the decisions; the background experience, education, and training required; the precedents available for guidance; and other relevant considerations. The examples given for the following codes are only suggestive)

Code	Level of Decision
1	Low ("decisions" in selecting parts in routine assembly, shelving items in a warehouse, pasting labels on cartons, tending automatic machines, etc.)
2	Below average ("decisions" in operating a wood planer, dispatching a taxi, lubricating an automobile, etc.)
3	Average ("decisions" in setting-up machine tools for operation, diagnosing mechanical disorders of aircraft, ordering office supplies several months in advance, etc.)
4	Above average ("decisions" in determining production quotas, making personnel decisions such as promoting and hiring, etc.)
5	High ("decisions" in approving corporation annual budget, recommending surgery, selecting the location for a new plant, etc.)

37 (54) S

Reasoning in problem solving (indicate by code the level of reasoning that is required of the worker in applying his knowledge, experience, and judgment to problems)

Code	Level of Reasoning in Problem Solving
1	Use of common sense to carry out simple, or relatively uninvolved instructions, e.g., janitor, deliveryman, etc.
2	Use of some training and/or experience to select from a limited number of solutions the correct information required by the job, e.g., salesclerk, librarian, etc.
3	Use of relevant principles to solve practical problems and to deal with a variety of concrete variables in situations where only limited standardization exists, e.g., bookkeeper, draftsman, etc.
4	Use of logic or scientific thinking to define problems, collect information, establish facts, and draw valid conclusions, e.g., surveyor, trouble-shooter, etc.
5	Use of principles of logical or scientific thinking to solve a wide range of intellectual and practical problems, e.g., research chemist, nuclear engineer, etc.

Code	Importance @
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

2.2 INFORMATION PROCESSING ACTIVITIES

In this section are various human operations involving the "processing" of information or data. Rate the following items in terms of how important the activity is to the completion of the job.

36 (55) I___ Synthesizing/integrating (combining organized information or data from two or more sources, e.g., aircraft pilot, lawyer, accountant, etc.)

39 (56) I___ Analyzing information or data (for the purpose of identifying underlying principles or facts by breaking down information into component parts, e.g., interpreting financial reports, diagnosing mechanical disorders or medical symptoms, etc.)

40 (57) I___ Grouping/filing (of information or data in some meaningful order or form, e.g., alphabetizing, classifying items into similar groups, etc.)

41 (58) I___ Encoding/decoding (interpreting, converting, recording, transmitting, or using in some fashion a coding system, such as shorthand, Morse code, foreign language, mathematical symbols, computer language, drafting symbols, etc.)

42 (59) I___ Transcribing (transferring data or information from one place or form to another, for later use, e.g., reading meters, calculating financial statements, taking dictation, etc.)

43 (60) I___ Other information processing activities (specify)_____

2.3 USE OF STORED INFORMATION

44 (61) [ ] Short-term memory (learning and storing pertinent information and selectively recalling that information within a brief period of time, e.g., a set of specific instructions, a list of orders given to a waitress, items to be obtained from a stockroom, etc.)

45 (62) [8] Education (indicate by code the level of education generally or typically required by persons entering the occupation)

Code	Education (given level or equivalent)
1	Little or no formal education
2	Elementary school (through sixth grade)
3	Some high school (but not diploma)
4	High school diploma
5	Beyond high school (but not degree)
6	College degree
7	Advanced degree (M.S., Ph.D., M.D., etc.)

46 (63) [8] Job-related experience (indicate by code the amount of all previous job-related experience generally required by persons entering the occupation)

Code	Job-related Experience
1	None
2	Less than 1 year
3	1 - 2 years
4	3 - 4 years
5	5 years or more

47 (64) [8] Training (indicate by code the amount of training generally required of persons when selected for the job in order for them to perform adequately in the job situation. Consider all types of training, e.g., apprentice, on-the-job, lectures, films, etc.)

Code	Training
1	Little or no training i.e., a day or so
2	2 - 5 days
3	1 - 4 weeks
4	2 - 11 months
5	1 - 2 years
6	3 - 4 years
7	5 years or more

48 (65) [X] Licensing/certification required (check (X) item if applicable)

49 (66) [S] Using mathematics (indicate by code the highest level of mathematics used in the position)

Code	Level of Mathematics
—	Does not apply
1	Basic (addition, subtraction, multiplication, division, etc.)
2	Intermediate (calculations and concepts involving fractions, decimals, and percentages)
3	Advanced (algebraic, geometric, and statistical concepts, techniques, and procedures, usually applied in standard practical situations)
4	Very advanced (advanced mathematical and statistical theory, concepts, and techniques, e.g., calculus, topology, vector analysis, factor analysis, probability theory, etc.)

Code	Importance (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3 WORK OUTPUT

3.1 USE OF PHYSICAL DEVICES

In this section are included various classes of devices that people use or operate on their jobs. Rate the following items in terms of how important the use of each type of device is to the completion of the job.

3.1.1 Hand Tools

Manually-powered

50 (67) I____ Precision tools (manually-powered instruments for fine precision work, e.g., engraver's tools, etc.)

51 (68) I____ Gross tools (manually-powered hand tools, e.g., hammers, pliers, etc.)

52 (69) I____ Long-handle tools (hoes, rakes, shovels, brooms, mops, etc.)

53 (70) I____ Handling devices (tongs, ladles, etc., used for moving or handling objects and materials)

Powered

54 (71) I____ Precision tools (powered instruments for fine precision work, e.g., dentist's drills, glass-etching devices, etc.)

55 (72) I____ Gross tools (powered tools and devices, e.g., hand-held drills and saws, buffing wheels, etc.)

3.1.2 Other Hand Devices

56 (73) I____ Drawing and related devices (pens, pencils, drawing instruments, etc., used in writing, sketching, and related activities)

57 (74) I____ Applicators (brushes, rags, etc., for applying materials)

58 (75) I____ Measuring devices (calipers, rules, etc.)

59 (76) I____ Technical and related devices (cameras, stopwatches, slide rules, etc.)

60 (77) I____ Other hand tools and devices (specify)_____

3.1.3 Stationary Devices

61 (78) I____ Machines/equipment (used to process, fabricate, or otherwise modify parts, objects, materials, etc.; use this category in addition to indicating the controls used in connection with it)

3.1 4 Control Devices
(on any equipment operated or used)

62 (79) I____ Activation controls (hand or foot operated devices used to start, stop, or otherwise activate mechanisms)

Code	Importance (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3.1 USE OF PHYSICAL DEVICES (cont.)

3.1.4 Control Devices (on any equipment operated or used) (cont.)

63 (80) I____ Detent setting controls (hand or foot operated devices with distinct positions or detents, e.g., TV selector switch, clutch, etc.)

CARD 2

64 (18) I____ Variable setting controls (hand or foot operated devices that can be set at beginning of operation, or infrequently, at any position along a scale, e.g., TV volume control, etc.)

65 (19) I____ Keyboard devices (typewriters, calculators, pianos, etc.)

Frequent adjustment controls (used in making frequent adjustments of mechanisms)

66 (20) I____ Hand-operated controls (controls operated by hand for making frequent, but not continuous, adjustments, e.g., helm of ship, etc.)

67 (21) I____ Foot-operated controls (controls operated by foot for making frequent, but not continuous, adjustments, e.g., brakes, etc.)

Continuous controls (used continuously in operation or use)

68 (22) I____ Hand-operated controls (controls operated by hand and used continuously for adjusting to changing, or possibly changing, situations, e.g., tracking, use of steering wheel, etc.)

69 (23) I____ Foot-operated controls (controls operated by foot and used continuously for adjusting to changing, or possibly changing, situations, e.g., accelerator, etc.)

70 (24) I____ Other control devices (specify)_____

3.1.5 Mobile and Transportation Equipment

71 (25) I____ Man-powered vehicles (bicycles, rowboats, canoes, etc.)

72 (26) I____ Powered land vehicles (automobiles, trucks, etc.)

73 (27) I____ Powered sea vehicles (ships, submarines, etc.)

74 (28) I____ Air vehicles (planes, balloons, etc.)

75 (29) I____ Man-powered mobile equipment (hand lawn mowers, hand trucks, etc.)

76 (30) I____ Powered mobile equipment (warehouse trucks, fork lifts, street sweepers, powered lawn mowers, road graders, etc., for short-range movement of materials)

77 (31) I____ Operating equipment (cranes, hoists, elevators, etc.)

78 (32) I____ Remote-controlled equipment (conveyer systems, etc.)

Importance (I)		Amount of Time (T)	
Code	Importance	Code	Time
—	Does not apply	—	Does not apply
1	Very minor	1	Infrequently/rarely
2	Low	2	Under 1/3 of the time
3	Average	3	Between 1/3 and 2/3 of the time
4	High	4	Over 2/3 of the time
5	Extreme	5	Almost continually

3.2 INTEGRATIVE MANUAL ACTIVITIES

79 (33) I____ Handling objects/materials (either manually or with nominal use of aiding device, e.g., tongs; typically there is little requirement for careful positioning or arrangement of objects)

80 (34) I____ Arranging/positioning (manually placing objects or materials in some orderly arrangement or specific position, e.g., stocking shelves, etc.)

81 (35) I____ Feeding/off-bearing (manually feeding, introducing or inserting materials into, or removing materials from, machines; this category is not to be used where the worker controls the materials or parts during processing)

82 (36) I____ Material-controlling (manually controlling or guiding materials being processed, e.g., in operating sewing machine, jig saw, etc.)

83 (37) I____ Assembling (manually putting parts or components together to form more complete items)

84 (38) I____ Manually modifying (using hands directly to form or otherwise modify materials or products, e.g., kneading dough by hand, etc.)

85 (39) I____ Setting-up (adjusting machines or equipment for operation or use, e.g., replacing or altering tools, etc.)

86 (40) I____ Other integrative manual operations (specify)_____

3.3 GENERAL BODY ACTIVITIES

87 (41) I____ Mobility (frequent changes in body position as required by the work to be done, e.g., kneeling, stooping, crawling, and crouching; such positions usually being uncomfortable or awkward)

88 (42) I____ Agility (activities involving extensive, and typically highly-learned body coordination activities, e.g., athletics, dancing, etc.)

Indicate by code the approximate proportion of working time during which the worker is engaged in the following activities (nos. 89, 90, 91, 92)

89 (43) T____ Balancing (maintaining a body position that is critical to some job activity, e.g., repairing roofs, ballet dancing, etc.)

90 (44) T____ Standing (activities involving continual standing with infrequent opportunity to sit or walk, e.g., bank teller, etc.)

91 (45) T____ Climbing (e.g., house painter, telephone lineman, etc.)

92 (46) T____ Walking

Code	Importance (I)
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3.3 GENERAL BODY ACTIVITIES (cont.)

93 (47) S ___ Moving actions (indicate by code the maximum amount of weight the worker is required to move manually)

Code	Amount of Weight
1	Lifting or carrying less than 10 lbs
2	Lifting up to 20 lbs. or carrying up to 10 lbs.
3	Lifting up to 50 lbs. or carrying up to 25 lbs.
4	Lifting up to 100 lbs. or carrying up to 50 lbs.
5	Lifting over 100 lbs. or carrying over 50 lbs.

3.4 MANIPULATION/COORDINATION ACTIVITIES

Rate the following items in terms of how important the activity is to completion of the job.

94 (48) I ___ Finger manipulation (making careful finger movements in various types of activities, e.g., fine assembly, use of precision tools, repairing watches, use of writing and drawing instruments, operating keyboard devices, etc.; usually the hand and arm are not involved to any great extent)

95 (49) I ___ Hand-arm manipulation (the manual control or manipulation of objects through hand and/or arm movements, which may or may not require continuous visual control, e.g., repairing automobiles, packaging products, etc.)

96 (50) I ___ Hand-arm steadiness (maintaining a uniform, controlled hand-arm posture or movement, e.g., using a welding torch, performing surgery, etc.)

97 (51) I ___ Eye-hand-foot coordination (the coordination of hand and/or foot movements where the movement must be coordinated with what the eyes see, e.g., driving a vehicle, operating a sewing machine, etc.)

98 (52) I ___ Blind positioning (movement of body limbs from one position to another without the use of vision, e.g., reaching for controls without looking, playing musical instruments, touch typing, etc.)

99 (53) I ___ Other body activity (specify) _____

Code	Importance (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

4. INTERPERSONAL ACTIVITIES

This section deals with different aspects of interpersonal relationships involved in various kinds of work, including communications

4.1 COMMUNICATIONS

Rate the following items in terms of how important the activity is to the completion of the job.

Oral (communicating by speaking)

100 (54) I____ Advising (dealing with individuals in order to counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual, and/or other professional principles)

101 (55) I____ Negotiating (dealing with others in order to reach an agreement or solution, e.g., labor bargaining, diplomatic relations, etc.)

102 (56) I____ Persuading (dealing with others in order to influence them toward some action or point of view, e.g., selling, political campaigning, etc.)

103 (57) I____ Instructing (formal or informal training and/or teaching of others)

104 (58) I____ Interviewing (conducting interviews toward some specific objective, e.g., interviewing job applicant, census taking, etc.)

105 (59) I____ Exchanging information (providing information for and/or receiving information from other individual(s) such as dispatching taxis, ordering materials, making appointments, etc.)

106 (60) I____ Public speaking (making speeches or formal presentations before relatively large audiences e.g., political addresses, radio/TV broadcasting, delivering a sermon, etc.)

Written (communicating by written/printed material)

107 (61) I____ Writing (e.g., composing letters, writing reports, writing copy for ads, writing articles, etc.)

Other communications

108 (62) I____ Signaling (communicating by some type of signal, e.g., hand signals, semaphore, whistles, horns, bells, lights, etc.)

109 (63) I____ Code communications (teletype, telegraph, cryptography, etc.)

Code	Importance (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

4.2 MISCELLANEOUS INTERPERSONAL RELATIONSHIPS

110 (64) I___ Entertaining (performing to amuse or entertain others, e.g., on stage, TV, nightclubs, etc.)

111 (65) I___ Serving/catering (attending to the needs of, or performing personal services for, others, e.g., waiting on tables, hairdressing, etc.)

112 (66) I___ Other interpersonal relationships (specify)_____ _____

4.3 AMOUNT OF PERSONAL CONTACT

113 (67) [3] Job-related personal contact (indicate by code the extent of job-related contact with others, individually or in groups, required by the job, e.g., contact with customers, patients, students, the public, superiors, subordinates, fellow employees, etc. Consider only personal contact which is definitely part of the job. For example, entertaining customers during or following regular working hours is frequently considered to be part of the job.)

Code	Extent of Personal Contact
1	Very infrequent (almost no contact with others is required)
2	Infrequent (limited contact with others is required)
3	Occasional (moderate contact with others is required)
4	Frequent (considerable contact with others is required)
5	Very Frequent (almost continual contact with others is required)

4.4 TYPES OF PERSONAL CONTACT

This section lists types of individuals with whom the worker may have personal contact. Check (X) those types of individuals with whom the worker has personal contact, if such contact is frequent and important to the job. Do not check if contact is incidental.

114 (68) X___ Executives/officials (corporation vice-president, etc.)

115 (69) X___ Professional personnel (doctors, lawyers, scientists, professors, teachers, etc.)

116 (70) X___ Middle management personnel

117 (71) X___ Supervisors (foremen, office managers, etc.)

118 (72) X___ Clerical personnel (secretaries, etc.)

4.4 TYPES OF PERSONAL CONTACT (cont.)

119 (73) X — Manual and service workers

120 (74) X — Sales personnel

121 (75) X — Buyers (purchasing agents, not public customers)

122 (76) X — Public customers (as in stores, restaurants, etc.)

123 (77) X — The public (not including customers or other specified categories)

124 (78) X — Students/trainees

125 (79) X — Clients/patients

126 (80) X — Special interest groups (stockholders, lobbyists, fraternal organizations, etc.)

127 (18) X — Other individuals (specify)_____

4.5 SUPERVISION AND COORDINATION

4.5.1 Supervision Given

128 (19) S — Line management/supervision (use this category for those who are responsible, in a line management relationship, for the management or supervision of personnel or of groups of personnel in an organization, and who have such responsibilities as a major aspect of their position; indicate the level of the activity using the code below)

Code	Level of Line Management/Supervision
—	Does not apply
1	Immediate supervision (supervises work group, giving "close" or "immediate" supervision, typically making specific work assignments, indicating methods of work, maintaining frequent supervising contacts with subordinates, etc.)
2	General supervision (supervises work group, typically giving more general supervision, usually indicating general work assignments, allowing subordinates considerable latitude in methods, scheduling, etc.)
3	General direction (directs and integrates activities of several work groups, each of which has its own supervisor; is not a "first-line" supervisor, himself, but accomplishes job objectives through directing activities of supervisors)
4	Manages operations (manages an entire organization, or a very major phase of it)

4.5 SUPERVISION AND COORDINATION (cont.)

4.5.1 Supervision Given (cont.)

Check (X) the following items if they apply:

129 (20) [X] Supervises fellow workers (straw boss, etc.; this item would not apply if the above item, 128, has been used)

130 (21) [X] Supervises assistants (supervision is incidental to the job, e.g., secretary, lab technician, etc.)

131 (22) [X] Supervises non-employees (students, patients, campers, etc.)

132 (23) [X] Coordinates activities (coordinating, monitoring, or organizing the activities of others to achieve certain objectives, but does not have line management authority, e.g., social director, committee chairman, etc.)

133 (24) [X] Staff functions (advising, consulting, or giving other types of assistance to line management personnel, e.g., legal adviser, administrative assistant, etc.)

134 (25) [5] Number of personnel supervised (indicate by code the typical number of personnel for whom the worker is responsible in any type of relationship whether in a line management relationship, by supervising non-employees, coordinating activities, etc.)

Code	Number
—	Does not apply
1	Less than 5
2	6-10
3	11-20
4	21-50
5	51-100
6	More than 100

4.5.2 Supervision Received

135 (26) [ ] Supervision received (indicate by code the level of supervision typically received)

Code	Level of Supervision
1	Immediate supervision (receives close supervision relating to specific work activities, including assignments, methods, etc.; usually receives frequent surveillance over job activities)
2	General supervision (receives general supervision relating to work activities)
3	General direction (receives only very general guidance relating to job activities, primarily guidance with respect to general objectives; rather broad latitude for determining how to achieve objectives, methods, work scheduling, etc., e.g., first-line supervisors, lower management individuals, most staff personnel, people whose work is quite independent of others, etc.)
4	Nominal direction (receives only very nominal direction or guidance in job, if any, as in case of manager of organizations or major subdivision thereof, and therefore subject only to very broad policy guidelines, e.g., owner-manager, free-lance writer, some research scientists who are given virtually free reign, etc.)

5. WORK SITUATION AND JOB CONTEXT

5.1 PHYSICAL WORKING CONDITIONS

This section lists various working conditions. Check (X) those conditions to which the worker is frequently exposed and are considered part of the work location environment. Do not check if such exposure is incidental.

Outdoor

136 (27) X — Out-of-door environment (susceptible to changing weather conditions)

Indoor (do not consider indoor temperature conditions related to weather, e.g., heat in summer)

137 (28) X — High temperature (boiler rooms, steel furnaces, etc.)

138 (29) X — Low temperature (refrigerated rooms, etc.)

139 (30) X — High humidity (hothouse, etc.)

Outdoor/Indoor

140 (31) X — Air pollution (dust, fumes, toxic conditions, etc.)

141 (32) X — Vibration (vibration of whole body, e.g., driving a tractor or truck, or of body limbs, e.g., operating a pneumatic drill, etc.)

142 (33) X — Improper illumination (inadequate lighting, excessive glare, etc.)

143 (34) X — Dirty environment (garage, coal mine, foundry, etc.)

144 (35) X — Awkward or confining work space

145 (36) X — Physical hazards

146 (37) X — Noise (disturbing/loud)

Noise intensity

147 (38) S — Noise intensity (indicate by code the dominant level during exposure to unsatisfactory noise levels; rate this item only if Item 146 above was rated)

Code	Noise Intensity
—	Does not apply
1	Moderate (noisy office, light traffic, etc.)
2	Loud (factory, heavy traffic, etc.)
3	Very loud (boiler room, riveting, etc.)

Code	Importance (if applicable)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

5.2 PSYCHOLOGICAL AND SOCIOLOGICAL ASPECTS

This section includes various psychological and sociological aspects of jobs. Indicate by code the importance of these aspects as a part of the job. If the item does not apply, leave it blank.

148 (39) I___ Civic obligations (assuming certain civic obligations or responsibilities)

149 (40) I___ Frustrating situations (facing situations that are potentially frustrating)

150 (41) I___ Strained personal contacts (dealing with individuals or groups in "unpleasant" or "strained" situations, e.g., certain aspects of police work, certain types of negotiations, handling certain mental patients, etc.)

151 (42) I___ Personal sacrifice (being willing to make certain personal sacrifices while being of service to other people or the objectives of an organization, e.g., military, ministry, social work, etc.)

152 (43) I___ Social value conflicts (activities which may be in conflict with generally-accepted, social/value norms of the public)

153 (44) [5] Non-job-related social contact (indicate by code the opportunity to socialize, gossip, etc., with others while on the job, e.g., barber, taxi driver, etc.)

Code	Opportunity for Non-job-related Social Contact
1	Very infrequent (almost no opportunity)
2	Infrequent (limited opportunity)
3	Occasional (moderate opportunity)
4	Frequent (considerable opportunity)
5	Very Frequent (almost continual opportunity)

6. MISCELLANEOUS ASPECTS

6.1 WORK SCHEDULE, METHOD OF PAY, AND APPAREL

This section includes categories relating to work schedules, method of pay, and apparel worn during work. Check (X) those that apply to the position.

Continuity of work (as relevant to total year; check one of these two)

154 (45) [X] Regular work

155 (46) [X] Irregular work (depending on weather, season, production fluctuation, etc.)

6.1 WORK SCHEDULE, METHOD OF PAY, AND APPAREL (cont.)

Regularity of working hours (check one of the following three)

156 (47) [X] Regular hours (same basic work schedule every week)

157 (48) [X] Variable shift work (work shift varies from time to time)

158 (49) [X] Irregular hours (works variable or irregular hours, depending on requirements of employer, convenience of customers, etc., e.g., insurance agents, etc.)

Day-night schedule (check one of the following three)

159 (50) [X] Typical day hours

160 (51) [X] Typical night hours (including evening work)

161 (52) [X] Typical day and night hours (depending on job demands, schedules, or other job factors, e.g., some truck drivers, etc.)

Type of remuneration/income (check each one that applies)

162 (53) [X] Salary

163 (54) [X] Hourly

164 (55) [X] Incentive pay (individual or group)

165 (56) [X] Commission

166 (57) [X] Tips

167 (58) [X] Supplementary compensation (e.g., stocks, profit sharing, dividends, bonus, donations, gifts, etc.)

168 (59) [X] Self-employed

Apparel worn (check any which may apply during working hours)

169 (60) [X] Business suit or dress (expected to wear presentable clothing, e.g., tie and jacket, street dress, etc., as customary in offices, stores, etc.)

170 (61) [X] Specific uniform (nurse, doorman, bus driver, etc.)

171 (62) [X] Work clothing ("blue collar" apparel worn in factories, construction work, etc.)

Code	Importance (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

6.1 WORK SCHEDULE, METHOD OF PAY, AND APPAREL (cont.)

172 (63) X — Informal attire (sports wear, etc.)

173 (64) X — Apparel style specified (robe, costume, tuxedo, etc.)

174 (65) X — Apparel style optional

6.2 JOB DEMANDS

In this section are listed various types of demands that the job situation may impose upon the worker, usually requiring that he adapt to these in order to perform his work satisfactorily. Rate the following items in terms of how important they are on the job.

175 (66) I — Specified work pace (on continuous assembly line, etc.)

176 (67) I — Time pressure of situation (rush hours in a restaurant, urgent time deadlines, rush jobs, etc.)

177 (68) I — Repetitive activities (performance of the same physical or mental activities, repetitively, without interruption, for periods of time)

178 (69) I — Precision (need to be more than normally precise and accurate)

179 (70) I — Attention to detail (need to give careful attention to various details of one's work, being sure that nothing is left undone)

180 (71) I — Speed of discrimination (need to make discrimination more rapidly than normal)

181 (72) I — Vigilance: infrequent events (need to continually search for very infrequently occurring but relevant events in the job situation, e.g., forest lookout, observing instrument panel to identify infrequent change from "normal," etc.)

182 (73) I — Vigilance: continually changing events (need to be continually aware of variations in a continually or frequently changing situation, e.g., driving in traffic, controlling aircraft traffic, etc.)

183 (74) I — Working under distractions (telephone calls, interruptions, disturbances from others, etc.)

184 (75) I — Updating job knowledge (need to keep abreast of new developments related to the position)

6.2 JOB DEMANDS (cont.)

Code	Time (T)
—	Does not apply
1	Infrequently/rarely
2	Under 1/3 of the time
3	Between 1/3 and 2/3 of the time
4	Over 2/3 of the time
5	Almost continually

185 (76) X ___ Special talent (check (X) this item to indicate if a job requires some particularly unique talent or skill that is not covered by other items; typically this item would apply to jobs in which the very unique skill or characteristic of the worker is clearly dominant, as in certain entertainment activities, the item may be used however, in certain other kinds of situations, but only where there is some distinctly unique or special skill or talent involved) Special talent: _____

_____

186 (77) T ___ Travel (indicate by code the proportion of time the worker is required to spend away from his home because of his job)

6.3 RESPONSIBILITY

This section includes types of responsibility which may be associated with the decisions and actions of the worker. Indicate by code the degree of each type of responsibility involved in the job

187 (78) S ___ Responsibility for the safety of others (indicate by code the degree to which the work requires diligence and effort to prevent injury to others. Do not consider hazards beyond the control of the individual concerned with the job.)

Code	Degree of Responsibility for the Safety of Others
—	Does not apply
1	Very limited (employee has minimum responsibility for the safety of others, e.g., use of small hand tools, operation of safety engineered machines, etc.)
2	Limited (employee must exercise reasonable care in order to avoid injury to others, e.g., operating lathes, punch presses, and other industrial machines, etc.)
3	Intermediate (employee must exercise considerable care in order to avoid injury to others, e.g., operating overhead cranes, driving vehicles, etc.)
4	Substantial (employee must exercise constant and substantial care in order to prevent serious injury to others, e.g., handling dangerous chemicals, using explosives, etc.)
5	Very substantial (the safety of others depends almost entirely on the correct action of the employee, e.g., piloting an aircraft, performing surgery, etc.)

6.3 RESPONSIBILITY (cont.)

188 (79) S Responsibility for assets (indicate by code the degree to which the worker is directly responsible for waste, damage, defects, or other loss of value to assets, such as materials, products, parts, equipment, cash, etc., that might be caused by inattention or inadequate job performance)

Code	Degree of Responsibility for Assets
1	Very limited (e.g., a few dollars)
2	Limited (e.g., up to about one hundred dollars)
3	Intermediate (e.g., a few hundred dollars)
4	Substantial (e.g., one or two thousand dollars)
5	Very substantial (e.g., more than two thousand dollars)

189 (80) S Job structure (indicate by code the amount of "structure" of the job, that is, the degree to which the job activities are "pre-determined" for the worker by the intrinsic nature of the work, the procedures, or other job characteristics; the more highly-structured jobs permit less deivation from pre-determined patterns, and little if any need for innovation, decision making, or adaptation to changing situations)

Code	Amount of Job Structure
1	Very high structure (virtually no deviation from pre-determined job routines, e.g., routine assembly work, etc.)
2	Considerable structure (only moderate deviation from pre-determined work routine is possible, e.g., bookkeeper, stock handler, etc.)
3	Intermediate structure (considerable variability from a "routine" is possible; work activities vary considerably from day to day or even from hour to hour, but usually within some reasonable and expected bounds, e.g., carpenter, automobile mechanic, machinist, etc.)
4	Limited structure (relatively little routinization of activities; the job is characterized by considerable opportunity for innovation and necessity of making decisions, e.g., store manager, industrial engineer, etc.)
5	Very low structure (virtually no established routine of activities; the position involves a wide variety of problems which must be dealt with, and the solutions to these problems allows for unlimited resourcefulness and initiative, e.g., research chemist, corporation vice-president, college professor, etc.)

Optional: Please enter in the appropriate blank, the wage, salary, or other remuneration paid for this job. (Fill in those that apply).

Wage and Salary

Annual Salary $_____

Monthly Salary $_____

Weekly Salary $_____

Hourly Wage $_____

Other Remuneration (monthly average)

Commission $_____

Tips $_____

Bonus $_____

Other $_____

Explain _____

If the job title (page 1) is not self-explanatory, please enter a brief job description listing four or five of the principle duties performed.

POSITION ANALYSIS QUESTIONNAIRE (PAQ)

Occupational Research Center
Department of Psychology
Purdue University

Ernest J. McCormick, P. R. Jeanneret, Robert C. Mecham

General Purpose

This questionnaire is used for describing certain job activities and certain aspects of situations in which jobs are performed. Before beginning a job analysis using this questionnaire, carefully read the explanatory material which follows. Once you have the instructions clearly in mind, read through the remainder of the questionnaire to familiarize yourself with its contents.

After you understand what is required, you should familiarize yourself with the job you are going to analyze (in the event this has not already been done). In this connection, it is suggested that you talk to the worker and/or supervisor about what the worker does, and watch him perform as many aspects of the job as possible. In addition you may find it helpful to ask the worker and/or his supervisor questions similar to those found in the questionnaire.

Organization of the Questionnaire

The questionnaire is divided into the six major divisions listed below. In addition to the division titles, a "question" is included which you can keep in mind when going through each division.

DIVISIONS:

1. Information Input (Where and how does the worker get the information that he uses in performing his job?) Pages 1-4

2. Mental Processes (What reasoning, decision-making, planning, and information processing activities are involved in performing the job?) Pages 5-8

3. Work Output (What physical activities does the worker perform and what tools or devices does he use?) Pages 8-13

4. Relationships With Other Workers (What relationships with other people are required in performing the job?) Pages 14-17

5. Job Context (In what physical and social contexts is the work performed?) Pages 18-20

6. Other Job Characteristics (What activities, conditions, or characteristics other than those described above are relevant to the job?) Pages 20-25

Prepared under provisions of Office of Naval Research Contract Nonr 1100 (28), Purdue Research Foundation Contract No. 4497.

The divisions listed on the preceding page are further divided into sections and subsections. Each section or subsection is made up of a group of related job elements (in the questionnaire these are referred to as "items"). Each job element describes some general work activity, work condition, or job characteristic. In most cases examples are given to illustrate the "central idea" of the job element. However, these examples are intended only to help illustrate the idea and include only a few of the possible examples that could characterize the job element.

How To Use The Questionnaire

For each job element, provision is made for using a "rating scale." Several different rating scales are used throughout the questionnaire and are located on those pages to which they pertain. In general they look like this:

Code	Extent of Use (U)
—	Does not apply
1	Nominal/very infrequent
2	Occasional
3	Moderate
4	Considerable
5	Very substantial

OR

Code	Applicability (A)
—	Does not apply
1	Does apply

At the beginning of each job element you will find an answer blank that begins with a capital letter indicating the "scale" to be used for that element. For example, answer blank number one looks like this: 1 U___. The "U" refers to the "Extent of Use (U)" rating scale which is shown above. Other rating scales are marked with the letters which follow:

LETTER	RATING SCALE
U	Extent of Use (shown above)
T	Amount of Time
I	Importance to the Job
P	Possibility of Occurrence
A	Applicability (shown above)
S	Special Code (When this code is used, it applies only to the job element of which it is a part.) Note that some "Special (S)" rating scales do not have a "— Does not apply" answer because the statement applies to some degree to every job.

Caution: For each statement use only the rating scale identified by the capital letter in the answer blank. Each "Special (S)" rating scale applies only to the job element of which it is a part.

Other instructions will be given as you go through the questionnaire. Please read and follow them carefully.

BE SURE TO ENTER A RESPONSE TO EVERY JOB ELEMENT

POSITION ANALYSIS QUESTIONNAIRE (PAQ)

Occupational Research Center
Department of Psychology
Purdue University

Job Title(s)_____ Organization_____

Name of
Employee (optional)_____ Department/Unit_____

Person Completing
Questionnaire_____ Title_____ Date_____

Code	Extent of Use (U)
—	Does not apply
1	Nominal/very infrequent
2	Occasional
3	Moderate
4	Considerable
5	Very substantial

1 INFORMATION INPUT

1.1 Sources of Job Information

Rate each of the following items in terms of the extent to which it is used by the worker as a source of information in performing his job.

1.1.1 Visual Sources of Job Information

1	U___	Written materials (books, reports, office notes, articles, job instructions, signs, etc.)	1
2	U___	Quantitative materials (materials which deal with quantities or amounts, such as graphs, accounts, specifications, tables of numbers, etc.)	2
3	U___	Pictorial materials (pictures or picture-like materials used as sources of information, for example, drawings, blueprints, diagrams, maps, tracings, photographic films, X-ray films, TV pictures, etc.)	3
4	U___	Patterns/related devices (templates, stencils, patterns, etc., used as sources of information when observed during use; do not include here materials described in item 3 above)	4
5	U___	Visual displays (dials, gauges, signal lights, radar scopes, speedometers, clocks, etc.)	5
6	U___	Measuring devices (rulers, calipers, tire pressure gauges, scales, thickness gauges, pipettes, thermometers, protractors, etc., used to obtain visual information about physical measurements; do not include here devices described in item 5 above)	6
7	U___	Mechanical devices (tools, equipment, machinery, and other mechanical devices which are sources of information when observed during use or operation)	7
8	U___	Materials in process (parts, materials, objects, etc., which are sources of information when being modified, worked on, or otherwise processed, such as bread dough being mixed, workpiece being turned in a lathe, fabric being cut, shoe being resoled, etc.)	8

Prepared under provisions of Office of Naval Research Contract Nonr 1100 (28), Purdue Research Foundation Contract No. 4497.
PAQ (Form B, 5-69)

1.1.1 Visual Sources of Job Information (cont.)

Code	Extent of Use (U)
—	Does not apply
1	Nominal/very infrequent
2	Occasional
3	Moderate
4	Considerable
5	Very substantial

9 U___ Materials not in process (parts, materials, objects, etc., not in the process of being changed or modified, which are sources of information when being inspected, handled, packaged, distributed, or selected, etc., such as items or materials in inventory, storage, or distribution channels, items being inspected, etc.) 9

10 U___ Features of nature (landscapes, fields, geological samples, vegetation, cloud formations, and other features of nature which are observed or inspected to provide information) 10

11 U___ Man-made features of environment (structures, buildings, dams, highways, bridges, docks, railroads, and other "man-made" or altered aspects of the indoor or outdoor environment which are observed or inspected to provide job information) 11

12 U___ Behavior (observing the actions of people or animals, for example, in teaching, supervising, sports officiating, etc., where this behavior is a source of job information) 12

13 U___ Events or circumstances (those events the worker visually observes and in which he may participate, such as flow of traffic, movement of materials, airport control tower operations, etc.) 13

14 U___ Art or decor (artistic or decorative objects or arrangements used as sources of job information, for example, paintings, sculpture, jewelry, window displays, interior decoration, etc.) 14

1.1.2 Non-visual Sources of Job Information

15 U___ Verbal sources (verbal instructions, orders, requests, conversations, interviews, discussions, formal meetings, etc.; consider only verbal communication which is relevant to job performance) 15

16 U___ Non-verbal sounds (for example, noises, engine sounds, sonar, whistles, musical instruments, signals, horns, etc.) 16

17 U___ Touch (pressure, pain, temperature, moisture, etc.; for example, feeling texture of surface, etc.) 17

18 U___ Odor (odors which the worker needs to smell in order to perform his job; do not include odors simply because they happen to exist in the work environment) 18

19 U___ Taste (bitter, sour, sweet, or salty qualities which are sources of job information, for example, wine taster, candy taster, etc.) 19

1.2 Sensory and Perceptual Processes

20 S — Near visual differentiation (using the code below, rate the amount of detail the worker must see to adequately obtain job information from objects, events, features, etc. within arm's reach) 20

Code	Degree of Detail
—	Does not apply (worker is blind or works in total darkness)
1	Very little detail (for example, that required in moving boxes, dumping trash, opening desk drawers, etc.)
2	Limited detail (for example, that required in bagging & taking tickets, grinding hamburger, etc.)
3	Moderate detail (for example, that required in hammering nails, reading typed letters, reading dials and gauges, etc.)
4	Considerable detail (for example, reading small legal print, setting ignition points, etc.)
5	Extreme detail (for example, that required in diamond cutting, repairing watches, assembling small electrical transistors, etc.)

Note on rating "Importance to This Job:"

Each of the items in the questionnaire which uses the "Importance to This Job (I)" scale is to be rated in terms of how important the activity described in the item is to the completion of the job, as compared with the other activities which are part of this job. Consider such factors as amount of time spent, the possible influence on overall job performance if the worker does not properly perform this activity, etc.)

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

21 I — Far visual differentiation (seeing differences in the details of objects, events, or features beyond arm's reach, for example, operating a vehicle, landscaping, sports officiating, etc.) 21

22 I — Depth perception (judging the distance from the observer to objects, or the distances between objects as they are positioned in space, as in operating a crane, operating a dentist's drill, handling and positioning objects, etc.) 22

23 I — Color perception (differentiating or identifying objects, materials, or details thereof on the basis of color) 23

24 I — Sound pattern recognition (recognizing different patterns, or sequences of sounds, for example, those involved in Morse code, heart beats, engines not functioning correctly, etc.) 24

25 I — Sound differentiation (recognizing differences or changes in sounds in terms of their loudness, pitch, and/or tone quality, for example, piano tuner, sound-system repairman, etc.) 25

26 I — Body movement sensing (sensing or recognizing changes in the direction or speed at which the body is moving without being able to sense them by sight or hearing, for example, as in flying aircraft, working in a submarine, etc.) 26

27 I — Body balance (sensing the position and balance of the body when body balance is critical to job performance, as when walking on "I" beams, climbing high poles, working on steep roofs, walking on slippery floors, etc.) 27

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

1.3 Estimation Activities

In this section are various operations involving estimation or judging activities. In each case consider activities in which the worker may use any or all of the senses, for example, sight, hearing, touch, etc.

28 I___ Estimating speed of moving parts (estimating the speed of the moving parts associated with stationary objects, for example, the revolutions per minute of a motor, the speed at which a lathe turns, etc.) 28

29 I___ Estimating speed of moving objects (estimating the speed of moving objects or materials relative to a fixed point or to other moving objects, for example, the speed of vehicles, materials on a conveyor belt, flow of liquids in transparent pipes, etc.) 29

30 I___ Estimating speed of processes (estimating the speed of on-going processes or a series of events while they are taking place, for example, chemical reactions, assembly operations, timing of food preparation in a cafeteria, etc.) 30

31 I___ Judging condition/quality (estimating the condition, quality, and/or value of objects, for example, antique dealer, appraiser, jeweler, used car dealer, coin dealer, etc.) 31

32 I___ Inspecting (inspecting products, objects, materials, etc., either one's own workmanship or that of others, in terms of established standards, for example, identifying defects, classifying by grade, etc.; do not include here activities described in item 31 above) 32

33 I___ Estimating quantity (estimating the quantity of objects without direct measurement, including weight, number, volume, etc., for example, estimating the board feet of lumber in a log, the weight of a beam, the number of bacteria in an area by looking through a microscope, etc.) 33

34 I___ Estimating size (estimating the dimensions of objects without direct measurement, including length, thickness, etc., for example, estimating the height of a tree, judging sizes of boxes or furniture in loading a truck, etc.) 34

35 I___ Estimating time (estimating the time required for past or future events or work activities, for example, judging the amount of time to make a delivery, estimating the time required to service a worn machine part or piece of equipment, judging the length of time required to change a production line procedure, etc.) 35

2 MENTAL PROCESSES

2.1 Decision Making, Reasoning, and Planning/Scheduling

36 S Decision making (indicate, using the code below, the level of decision making typically involved in the job, considering: the number and complexity of the factors that are taken into account; the variety of alternatives available; the consequences and importance of the decisions; the background experience, education, and training required; the precedents available for guidance; and other relevant considerations. The examples given for the following codes are only suggestive.) 36

Code	Level of Decision
1	Low ("decisions" such as those in selecting parts in routine assembly, shelving items in a warehouse, pasting labels on cartons, tending automatic machines, etc.)
2	Below average ("decisions" such as those in operating a wood planer, dispatching a taxi, lubricating an automobile, etc.)
3	Average ("decisions" such as those in setting-up machine tools for operation, diagnosing mechanical disorders of aircraft, ordering office supplies several months in advance, etc.)
4	Above average ("decisions" such as those in determining production quotas, making personnel decisions such as promoting and hiring, etc.)
5	High ("decisions" such as those in approving corporation annual budget, recommending major surgery, selecting the location for a new plant, etc.)

37 S Reasoning in problem solving (indicate, using the code below, the level of reasoning that is required of the worker in applying his knowledge, experience, and judgment to problems) 37

Code	Level of Reasoning in Problem Solving
1	Low (use of common sense to carry out simple, or relatively uninvolved instructions, for example, janitor, deliveryman, hod carrier, etc.)
2	Below average (use of some training and/or experience to select from a limited number of solutions the most appropriate action or procedure in performing the job, for example, sales clerk, postman, electrician apprentice, keypunch operator, etc.)
3	Average (use of relevant principles to solve practical problems and to deal with a variety of concrete variables in situations where only limited standardization exists, for example, draftsman, carpenter, farmer, etc.)
4	Above average (use of logic or scientific thinking to define problems, collect information, establish facts, and draw valid conclusions, for example, mechanical engineer, personnel director, manager of a "chain" store, etc.)
5	High (use of principles of logical or scientific thinking to solve a wide range of intellectual and practical problems, for example, research chemist, nuclear engineer, corporate president, or manager of a large branch or plant, etc.)

2.1 Decision Making, Reasoning, and Planning/Scheduling (cont.)

36 ___ Amount of planning/scheduling (indicate, using the code below, the amount of planning/scheduling the worker is required to do which affects his own activities and/or the activities of others) 36

Code	Amount of Planning
—	Does not apply (has no opportunity to plan even his own activities the specific activities of the worker are virtually predetermined for him)
1	Very limited (has limited opportunity to plan or schedule his own activities, for example, ticket seller at a theater, "typical" assembly line worker, etc.)
2	Limited (some planning is required but not a great deal, for example, the planning that would be done by a milkman, janitor, [illegible]
3	Moderate (a moderate amount of planning of his own or other activities is required, for example, a carpenter who must plan the best way to build a structure, a taxi dispatcher, etc.)
4	Considerable (a fairly large amount of planning/scheduling is required, for example, a foreman who must plan the activities of his subordinates, a teacher who must prepare lectures or lesson plans, a material co-ordinator who must plan/schedule the arrival and distribution of materials, etc.)
5	Extensive (substantial amount of planning/scheduling is required, for example, a department store manager, an executive who must plan the activities of different work groups, an architect, a scientist who must make comprehensive and detailed plans to perform experiments, etc.)

2.2 Information Processing Activities

In this section are various human operations involving the "processing" of information or data. Rate each of the following items in terms of how important the activity is to the completion of the job.

Code	Importance to This Job
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

39 ___ Combining information (combining, synthesizing, or integrating information or data from two or more sources to establish new facts, hypotheses, theories, or a more complete body of related information, for example, an economist using information from various sources to predict future economic conditions, a pilot flying aircraft, a judge trying a case, etc.) 39

40 ___ Analyzing information or data (for the purpose of identifying underlying principles or facts by breaking down information into component parts, for example, interpreting financial reports, diagnosing mechanical disorders or medical symptoms, etc.) 40

41 ___ Compiling (gathering, grouping, classifying, or in some other way arranging information or data in some meaningful order or form, for example, preparing reports of various kinds, filing correspondence on the basis of content, selecting particular data to be gathered, etc.) 41

2.2 Information Processing Activities (cont.)

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

42 I Coding/decoding (coding information or converting coded information back to its original form, for example, "reading" Morse Code, translating foreign languages, or using other coding systems such as shorthand, mathematical symbols, computer languages, drafting symbols, replacement part numbers, etc.) 42

43 I Transcribing (copying or posting data or information for later use, for example, copying meter readings in a record book, entering transactions in a ledger, etc.) 43

44 I Other information processing activities (specify)_____ 44

2.3 Use of Learned Information

45 I Short-term memory (learning and retaining job related information and recalling that information after a brief period of time, for example, waitress, short-order cook, telephone operator, etc.) 45

46 S Education (indicate, using the code below, the level of education generally or typically required by persons who are selected for this job; include education in elementary, high school, colleges, etc.; do not include technical or vocational school training - see item 46) 46

Code	Education (given level or equivalent)
—	Does not apply (little or no formal education required)
1	Less than high school diploma
2	High school diploma
3	Some college education (some college but not a 4 year college degree)
4	College degree (degree requiring 4 years or more to complete, for example, B.A., B.S., etc.)
5	Advanced degree (M.S., Ph.D., M.D., L.L.D., etc.)

47 S Job-related experience (indicate, using the code below, the amount of all previous job-related experience in other related or lower-level jobs generally required by persons selected for the job; do not include formal education as described in item 46) 47

Code	Job-related Experience
—	Does not apply (no experience required)
1	Less than 1 month
2	Over 1 month up to and including 12 months
3	Over 1 year up to and including 3 years
4	Over 3 years up to and including 5 years
5	Over 5 years

2.2 Information Processing Activities (cont.)

48 S — Training (indicate, using the code below, the total amount of training generally required for persons who have had no prior job training to learn to perform adequately on this job; consider all types of required job-related training except for education described in item 46; include training at barber schools, technical and vocational schools, business schools, etc., as well as apprentice, on-the-job-, off-the-job and orientation training, etc.) 48

Code	Training
—	Does not apply or very limited (no more than one day's training required)
1	Over 1 day up to and including 30 days
2	Over 30 days up to and including 6 months
3	Over 6 months up to and including 1 year
4	Over 1 year up to and including 3 years
5	Over 3 years

49 E — Using mathematics (indicate, using the code below, the highest level of mathematics required by the job) 49

Code	Level of Mathematics
—	Does not apply
1	Simple basic (counting, addition and subtraction of 2-digit numbers or less)
2	Basic (addition and subtraction of numbers of 3-digits or more, multiplication, division, etc.)
3	Intermediate (calculations and concepts involving fractions, decimals, percentages, etc.)
4	Advanced (algebraic, geometric, trigonometric, and statistical concepts, techniques, and procedures, usually applied in standard practical situations)
5	Very advanced (advanced mathematical and statistical theory, concepts, and techniques, for example, calculus, topology, vector analysis, factor analysis, probability theory, etc.)

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3 WORK OUTPUT

3.1 Use of Devices and Equipment

3.1.1 Hand-held Tools or Instruments

Consider in this category those devices which are used to move or modify work pieces, materials, products, or objects. Do not consider measuring devices here.

Manually-powered

50 I — Precision tools/instruments (that is, tools or instruments powered by the user to perform very accurate or precise operations, for example, the use of engraver's tools, watchmaker's tools, surgical instruments, etc.) 50

51 I — No precision tools/instruments (tools or instruments powered by the user to perform operations not requiring great accuracy or precision, for example, hammers, wrenches, trowels, knives, scissors, chisels, putty knives, screwdrivers, hand grease guns, etc.; do not include long-handle tools here) 51

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3.1.1 Hand-held Tools or Instruments (cont.)

52 | I___ | Long-handle tools (hoes, rakes, shovels, picks, axes, brooms, mops, etc.) | 52

53 | I___ | Handling devices/tools (tongs, ladles, dippers, forceps, etc., used for moving or handling objects and materials; do not include here protective gear such as asbestos gloves, etc.) | 53

Powered (manually controlled or directed devices using an energy source such as electricity, compressed air, fuel, hydraulic fluid, etc., in which the component part which accomplishes the modification is hand-held, such as dentist drills, welding equipment, etc., as well as devices small enough to be entirely hand-held)

54 | I___ | Precision tools/instruments (hand-held powered tools or instruments used to perform operations requiring great accuracy or precision, such as dentist drills, soldering irons, welding equipment, saws, etc. used for especially accurate or fine work) | 54

55 | I___ | Non-precision tools/instruments (hand-held, energy-powered tools or instruments used to perform operations not requiring great accuracy or precision, for example, ordinary power saws, drills, sanders, clippers, hedge trimmers, etc., and related devices such as electrical soldering irons, spray guns or nozzles, welding equipment, etc.) | 55

3.1.2 Other Hand-held Devices

56 | I___ | Drawing and related devices (instruments or devices used in writing, sketching, illustrating, drafting, etc., for example, pens, pencils, drawing instruments, artist's brushes, drafting equipment, etc.; do not include measuring instruments here, see item 58) | 56

57 | I___ | Applicators (brushes, rags, paint rollers, etc., which are hand-held and used in applying solutions, materials, etc.; do not consider devices covered by items 50-55 above) | 57

58 | I___ | Measuring devices (rules, measuring tapes, micrometers, calipers, protractors, squares, thickness gauges, levels, volume measuring devices, tire gauges, etc.) | 58

59 | I___ | Technical and related devices (cameras, stopwatches, slide rules, etc.) | 59

60 | I___ | Other hand tools and devices (specify)_____ | 60

3.1.3 Stationary Devices

61 | I___ | Machines/equipment (used to process, fabricate, or otherwise modify parts, objects, materials, etc.; use this category in addition to indicating the controls used in the subsection which follows) | 61

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3.1.4 Control Devices (on any equipment operated or used)

62 I___ Activation controls (hand or foot operated devices used to start, stop, or otherwise activate energy-using systems or mechanisms, for example, light switches, electric motor switches, ignition switches, etc.) 62

63 I___ Fixed setting controls (hand or foot operated devices with distinct positions, detents, or definite settings, for example, TV selector switch, gear-shift, etc.) 63

64 I___ Variable setting controls (hand or foot operated devices that can be set at the beginning of operation, or infrequently, at any position along a scale, for example, TV volume control, room thermostat, rheostat, etc.) 64

65 I___ Keyboard devices (typewriters, adding machines, calculators, pianos, key-punch machines, etc.) 65

Frequent adjustment controls (used in making frequent adjustments of mechanisms)

66 I___ Hand-operated controls (controls operated by hand or arm for making frequent, but not continuous, adjustments, for example, hand controls on a crane or bulldozer, helm of ship, etc.) 66

67 I___ Foot-operated controls (controls operated by foot or leg for making frequent, but not continuous, adjustments, for example, automobile brakes, etc.) 67

Continuous controls (used continuously in operation or use)

68 I___ Hand-operated controls (controls operated by hand and used continuously for adjusting to changing, or possible changing, situations, for example, use of steering wheel, controls on a "tracking" device, etc.) 68

69 I___ Foot-operated controls (controls operated by foot and used continuously for adjusting to changing, or possibly changing, situations, for example, accelerator, etc.) 69

3.1.5 Transportation and Mobile Equipment

70 I___ Man-powered vehicles (bicycles, rowboats, canoes, etc.) 70

71 I___ Powered highway/rail vehicles (vehicles intended primarily for highway or railroad transportation, for example, automobiles, trucks, buses, trains, etc.) 71

72 I___ Powered mobile equipment (movable vehicles not primarily intended for highway use, for example, warehouse trucks, fork lifts, self-propelled lawn mowers, road graders, tractors, combines, etc.) 72

73 I___ Powered water vehicles (ships, submarines, motor boats, etc.) 73

3.1.5 Transporation and Mobile Equipment (cont.)

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

74 I___ Air/space vehicles (planes, helicopters, balloons, gliders, rocketships, etc.) 74

75 I___ Man-moved mobile equipment (hand-pushed lawn mowers with or without powered blades, hand trucks, wheel barrows, floor polishers and buffers, etc.) 75

76 I___ Operating equipment (cranes, hoists, elevators, etc.) 76

77 I___ Remote-controlled equipment (conveyor systems, etc.) 77

3.2 Manual Activities

This section describes manual activities in which tools may or may not be used.

78 I___ Setting up/adjusting (adjusting, calibrating, aligning and/or setting up of machines or equipment, for example, setting up a lathe or drill press, adjusting an engine carburetor, adjusting, calibrating, and aligning electric circuitry, etc.) 78

79 I___ Manually modifying (using hands directly to form or otherwise modify materials or products, for example, kneading dough by hand, folding letters, massaging, etc.) 79

80 I___ Material-controlling (manually controlling or guiding materials being processed, for example, in operating sewing machine, jig saws, etc.) 80

81 I___ Assembling/disassembling (either manually or with the use of hand tools putting parts or components together to form more complete items, or taking apart or disassembling items into their component parts) 81

82 I___ Arranging/positioning (manually placing objects, materials, persons, animals, etc., in a specific position or arrangement, for example, arranging library books, window displays, stocking shelves, positioning patients for certain medical and dental procedures, etc.; do not include here arranging/positioning which is a part of the operations listed in items 78-81) 82

83 I___ Feeding/off-bearing (manually inserting, throwing, dumping or placing materials into or removing them from machines or processing equipment; this category is not to be used in describing operations in which the worker manually guides or controls the materials or parts during processing, as in item 80) 83

84 I___ Physical handling (physically handling objects, materials, animals, human beings, etc., either manually or with nominal use of aiding devices, for example, in certain warehousing activities, loading/unloading conveyor belts, trucks, packaging, farming activities, hospital procedures, etc.; typically there is little requirement for careful positioning or arrangement of objects; include here relatively uninvolved handling operations not provided for in item 78-83) 84

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3.3 Activities of The Entire Body

85 I — Highly skilled body coordination (activities involving extensive, and often highly-learned coordination activities of the whole body, for example, athletics, dancing, etc.) 85

86 I — Balancing (maintaining body balance or equilibrium to prevent falling when standing, walking, running, crouching, etc., on narrow, slippery, steeply inclined or erratically moving surfaces, for example, walking on narrow elevated beam, working on steep roof, etc.) 86

3.4 Level of Physical Exertion

87 S — Level of physical exertion (indicate, using the code below, the general level of body activity, considering the frequency and effort required to perform job tasks involving pushing, pulling, carrying, lifting, etc., during an average work day) 87

Code	Level of Physical Exertion
1	Very light (occasionally walking or standing and/or occasionally moving light objects, materials, etc., such as secretary, draftsman, watchmaker, telephone operator, etc.)
2	Light (frequently walking or standing and/or frequently exerting force equivalent to lifting up to approximately 10 pounds and/or occasionally exerting force equivalent to lifting about 20 pounds, for example, sales clerk, bank teller, etc.)
3	Moderate (frequently exerting forces equivalent to lifting up to approximately 25 pounds and/or occasionally exerting forces equivalent to lifting up to approximately 50 pounds, for example, auto mechanic, coin vending machine serviceman, bus driver, etc.)
4	Heavy (frequently exerting forces equivalent to lifting up to approximately 50 pounds and/or occasionally exerting forces equivalent to lifting up to approximately 100 pounds, for example, general laborer, millwright, bulldozer operator, baggage porter, etc.)
5	Very heavy (frequently exerting forces equivalent to lifting over 50 pounds and/or occasionally exerting forces over that required to lift 100 pounds, for example, hod carrier, quarry miner, etc.)

3.5 Body Positions/Postures

Indicate by code the approximate proportion of working time the worker is engaged in the following activities (Nos. 88-92)

Code	Amount of Time (T)
—	Does not apply (or is very incidental)
1	Under 1/10 of the time
2	Under 1/3 of the time
3	Between 1/3 and 2/3 of the time)
4	Over 2/3 of the time
5	Almost continually

88 T — Sitting 88

Code	Amount of Time (T)
—	Does not apply (or is very incidental)
1	Under 1/10 of the time
2	Under 1/3 of the time
3	Between 1/3 and 2/3 of the time)
4	Over 2/3 of the time
5	Almost continually

3.5 Body Positions/Postures

89 | T | Standing (do not include walking) | 89

90 | T | Walking/running | 90

91 | T | Climbing (for example, house painter, telephone lineman, etc., | 91

92 | T | Kneeling/stooping (kneeling, stooping, crawling, crouching, and other related body positions which may be uncomfortable or awkward) | 92

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

3.6 Manipulation/Coordination Activities

Rate the following items in terms of how important the activitiy is to completion of the Job.

93 | I | Finger manipulation (making careful finger movements in various types of activities, for example, fine assembly, use of precision tools, repairing watches, use of writing and drawing instruments, operating keyboard devices, etc.; usually the hand and arm are not involved to any great extent) | 93

94 | I | Hand-arm manipulation (the manual control or manipulation of objects through hand and/or arm movements, which may or may not require continuous visual control, for example, repairing automobiles, packaging products, etc.) | 94

95 | I | Hand-arm steadiness (maintaining a uniform, controlled hand-arm posture or movement, for example, using a welding torch, performing surgery, etc.) | 95

96 | I | Eye-hand/foot coordination (the coordination of hand and/or foot movements where the movement must be coordinated with what is seen, for example, driving a vehicle, operating a sewing machine, etc.) | 96

97 | I | Limb movement without visual control (movement of body limbs from one position to another without the use of vision, for example, reaching for controls without looking, playing a musical instrument, touch typing, etc.) | 97

98 | I | Hand-ear coordination (the coordination of hand movements with sounds or instructions that are heard, for example, tuning radio receivers, tuning musical instruments by ear, piloting aircraft by control tower instructions, etc.) | 98

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

4 RELATIONSHIPS WITH OTHER WORKERS

This section deals with different aspects of interaction between people involved in various kinds of work.

4.1 Communications

Rate the following in terms of how important the activity is to the completion of the job. Some jobs may involve several or all of the items in this section.

4.1.1 Oral (communicating by speaking)

99 | I | Advising (dealing with individuals in order to counsel, and/or guide them with regard to problems that may be resolved by legal, financial, scientific, technical, clinical, spiritual, and/or other professional principles) | 99

100 | I | Negotiating (dealing with others in order to reach an agreement or solution, for example, labor bargaining, diplomatic relations, etc.) | 100

101 | I | Persuading (dealing with others in order to influence them toward some action or point of view, for example, selling, political campaigning, etc.) | 101

102 | I | Instructing (the teaching of knowledge or skills, either in an informal or formal manner, to others, for example, a public school teacher, a journeyman teaching an apprentice, etc.) | 102

103 | I | Interviewing (conducting interviews directed toward some specific objective, for example, interviewing job applicants, census taking, etc.) | 103

104 | I | Routine information exchange (the giving and/or receiving of information of a routine or simple nature, for example, ticket agent, taxi-cab dispatcher, receptionist, etc.) | 104

105 | I | Non-routine information exchange (the giving and/or receiving of information of a non-routine or complex nature, for example, professional committee meetings, engineers discussing product design, etc.) | 105

106 | I | Public speaking (making speeches or formal presentations before relatively large audiences, for example, political addresses, radio/TV broadcasting, delivering a sermon, etc.) | 106

4.1.2 Written (communicating by written/printed material)

107 | I | Writing (for example, writing or dictating letters, reports, etc., writing copy for ads, writing newspaper articles, etc.; do not include transcribing activities described in item 42) | 107

4.1.3 Other Communications

108 | I | Signaling (communicating by some type of signal, for example, hand signals, semaphore, whistles, horns, bells, lights, etc.) | 108

109 | I | Code communications (telegraph, crypotography, shorthand, etc.) | 109

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

4.2 Miscellaneous Interpersonal Relationships

110 | I | Entertaining (performing to amuse or entertain others, for example, on stage, TV, nightclubs, etc.) 110

111 | I | Serving/catering (attending to the needs of, or performing personal services for, others, for example, waiting on tables, hairdressing, etc.) 111

4.3 Amount of Job-required Personal Contact

112 | S | Job-required personal contact (indicate, using the code below, the extent of job-required contact with others, individually or in groups, for example, contact with customers, patients, students, the public, superiors, subordinates, fellow employees, prospective employees, official visitors, etc.; consider only personal contact which is definitely part of the job) 112

Code	Extent of Required Personal Contact
1	Very infrequent (almost no contact with others is required)
2	Infrequent (limited contact with others is required)
3	Occasional (moderate contact with others is required)
4	Frequent (considerable contact with others is required)
5	Very frequent (almost continual contact with others is required)

4.4 Types of Job-required Personal Contact

This section lists types of individuals with whom the worker must have personal contact in order to perform his job. Indicate by code the importance of contact with each of the types of individuals listed below. Consider personal contact not only with personnel within the organization or company, but also with personnel from other organizations, if contact with them is part of the job.

113 | I | Executives/officials (corporation vice-presidents, government administrators, plant superintendents, etc.) 113

114 | I | Middle management/staff personnel 114

115 | I | Supervisors (those personnel who have immediate responsibility for a work group, for example, foremen, office managers, etc.) 115

116 | I | Professional personnel (doctors, lawyers, scientists, engineers, professors, teachers, consultants, etc.) 116

117 | I | Semi-professional personnel (technicians, draftsmen, designers, photographers, surveyors, and other personnel who are engaged in activities requiring fairly extensive education or practical experience but which typically involve a more restricted area of operation than that of professional personnel) 117

118 | I | Clerical personnel (personnel engaged in office work, such as clerks, bookkeepers, receptionists, etc.) 118

119 | I | Manual and service workers (personnel in skilled, semi-skilled, unskilled agricultural, fishing, forestry, service, and related types of occupations etc.) 119

4.4 Types of Job-required Personal Contact (cont.)

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

120 I Sales personnel 120

121 I Buyers (purchasing agents, not public customers) 121

122 I Public customers (as in stores, restaurants, etc.) 122

123 I The public (not including customers or persons in other specified categories; include the "public" as contacted by, for example, park attendants, police officers, etc.) 123

124 I Students/trainees/apprentices 124

125 I Clients/patients/counselees 125

126 I Special interest groups (stockholders, lobbyists, fraternal organizations, property owners, etc.) 126

127 I Other individuals (include here types of persons not described in items 113-126 above, but, whenever possible, use one of the above categories) (Specify)_____ 127

4.5 Supervision and Coordination

4.5.1 Supervision/Direction Given

128 S Supervision of non-supervisory personnel (indicate, using the code below, the number of persons directly supervised who are actually involved in the production of goods and services and do not supervise others; this item would apply, for example, to most "first line" supervisors, most foremen and section heads, service managers in garages, head butchers in meat departments of grocery stores, head pharmacists, plumbers with assistants, etc.) 128

Code	Number of Non-supervisory Personnel Supervised
—	Does not apply
1	1 or 2 workers
2	3 to 5 workers
3	6 to 8 workers
4	9 to 12 workers
5	13 or more workers

129 S Direction of supervisory personnel (indicate, using the code below, the number of supervisory personnel -- those who have responsibility for the supervision or direction of others -- who report directly to the person holding this position; this item would apply to many middle and upper managers, but would also apply to managers of many small businesses or other activities who delegate supervisory authority to others, etc.) 129

Code	Number of Supervisory Personnel Directed
—	Does not apply (does not direct supervisors)
1	1 or 2 supervisory personnel
2	3 to 5 supervisory personnel
3	6 to 8 supervisory personnel
4	9 to 12 supervisory personnel
5	13 or more supervisory personnel

130 S Total number of personnel for whom responsible (indicate, using the code below, the total number of personnel for whom the person holding this job is either directly or indirectly responsible, for example, the president of a corporation would be responsible for all corporation employees, the branch manager would be responsible for personnel in his branch, a foreman for personnel he supervises, a plumber for his assistant, etc.; use this item in addition to 128 and/or 129) 130

Code	Total number of personnel for whom responsible
—	Does not apply (not responsible for other personnel)
1	10 or fewer workers
2	11 to 50 workers
3	51 to 250 workers
4	251 to 750 workers
5	751 or more workers

4.5.2 Other Organizational Activities

This subsection includes activities of a coordinating, staff, or supervisory nature.

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

131 I Supervises non-employees (students, patients, campers, etc.) 131

132 I Coordinates activities (coordinates, monitors, or organizes the activities of others to achieve certain objectives, but does not have line management authority, for example, social director, committee chairman, etc.) 132

133 I Staff functions (advises, consults, or gives other types of assistance to line management personnel, for example, legal adviser, administrative assistant, etc.) 133

4.5.3 Supervision Received

134 S Supervision received (indicate, using the code below, the level of supervision the worker typically receives) 134

Code	Level of Supervision Received
1	Immediate supervision (receives close supervision relating to specific work activities, including assignments, methods, etc.; usually receives frequent surveillance over job activities)
2	General supervision (receives general supervision relating to work activities)
3	General direction (receives only very general guidance relating to job activities, primarily guidance with respect to general objectives; has rather broad latitude for determining methods, work scheduling, how to achieve objectives, etc., for example, first-line supervisors, lower management individuals, most staff personnel, people whose work is quite independent of others, etc.)
4	Nominal direction (receives only nominal direction or guidance in job, as in the case of a manager of an organization or a major subdivision thereof, and is therefore subject only to very broad policy guidelines, for example, some research scientists who are giving virtually free reign, many plant superintendents, etc.)
5	No supervision (this category is applicable to those personnel who function independently, for example, owner-managers of stores, independent physicians, independent consultants, etc.)

Code	Amount of Time (T)
—	Does not apply (or is very incidental)
1	Under 1/10 of the time
2	Under 1/3 of the time
3	Between 1/3 and 2/3 of the time)
4	Over 2/3 of the time
5	Almost continually

5 JOB ENVIRONMENT AND WORK SITUATION

5.1 Physical Working Conditions

This section lists various working conditions. Rate the average amount of time the worker is exposed to each condition during a typical work period.

5.1.1 Outdoor Environment

135 T___ Out-of-door environment (susceptible to changing weather conditions) 135

5.1.2 Indoor temperatures (do not consider indoor temperature conditions that are simply a function of the weather, for example, heat in summer; consider only those conditions which are associated with this job regardless of the natural climate in which it might be performed.)

136 T___ High temperature (conditions in which the worker might experience severe discomfort or heat stress, such as in boiler rooms, around furnaces, etc.; typically this would occur in a dry atmosphere at about 90° F. and in a humid atmosphere at about 80° F. or 85° F.) 136

137 T___ Low temperature (conditions in which the worker is exposed to low temperatures which are definitely uncomfortable even though clothing appropriate for the conditions may be worn, such as in refrigerated rooms, etc.) 137

5.1.3 Other Physical Working Conditions

138 T___ Air contamination (dust, fumes, smoke, toxic conditions, disagreeable odors, etc.; consider here air contamination or pollution which is an irritating or undesirable aspect of the job) 138

139 T___ Vibration (vibration of whole body or body limbs, for example, driving a tractor or truck, operating an air hammer, etc.) 139

140 T___ Improper illumination (inadequate lighting, excessive glare, etc.) 140

141 T___ Dirty environment (an environment in which the worker and/or his clothing easily becomes dirty, greasy, etc., for example, environments often associated with garages, foundries, coal mines, highway construction, furnace cleaning, etc.) 141

142 T___ Awkward or confining work space (conditions in which the body is cramped or uncomfortable) 142

143 S___ Noise intensity (indicate, using the code below, the typical noise level the worker is exposed to) 143

Code	Noise Intensity
1	Very quiet (intensive care ward in hospital, greenhouse, photo lab, etc.)
2	Quiet (many private offices, libraries, etc.)
3	Moderate (business office where typewriters are used, light automobile traffic, department store, etc.)
4	Loud (many factories, heavy traffic, machine shops, carpenter shops, etc.)
5	Very loud (close to jet engines, large earth-moving equipment, riveting, etc.)

Code	Possibility of Occurrence (P)
—	No possibility
1	Very limited
2	Limited
3	Moderate
4	Fairly high
5	High

5.2 Physical Hazards

The four items which follow describe accidents or illnesses which may result from exposure to hazards. Rate the possibility of the occurrence of each of the types of accidents/illnesses to the typical worker on this job. In making the ratings consider the safety/accident record of employees on this job, and/or the possibility of accidents due to such factors as: traveling at high speeds, being in high places, working with machinery, sharp tools, hot or very cold materials, exposure to falling objects, dangerous chemicals, explosives, toxic fumes, radiation, etc.

144 P___ First-aid cases (minor injuries or illnesses which typically result in a day or less of "lost" time and are usually remedied with first-aid procedures) 144

145 P___ Temporary disability (temporary injuries or illnesses which prevent the worker from performing his job from one full day up to extended periods of time but which do not result in permanent disability or impairment) 145

146 P___ Permanent partial impairment (injuries or illnesses resulting in the amputation or permanent loss of use of any body member or part thereof, or permanent impairment of certain body functions) 146

147 P___ Permanent total disability/death (injuries or illnesses which totally disable the worker and permanently prevent his further gainful employment, for example, loss of life, sight, limbs, hands, radiation sickness, etc.) 147

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

5.3 Personal and Social Aspects

This section includes various personal and social aspects of jobs. Indicate by code the importance of these aspects as a part of the job.

148 I___ Civic obligations (because of the job the worker assumes, or is expected to assume, certain civic obligations or responsibilities) 148

149 I___ Frustrating situations (job situations in which attempts to deal with problems or to achieve job objectives are obstructed or hindered, and may thus contribute to frustration on the part of the worker) 149

150 I___ Strained personal contacts (dealing with individuals or groups in "unpleasant" or "strained" situations, for example, certain aspects of police work, certain types of negotiations, handling certain mental patients, etc.) 150

151 I___ Personal sacrifice (being willing to make certain personal sacrifices while being of service to other people or the objectives of an organization, for example, policemen, ministry, social work, etc.; do not consider physical hazards here) 151

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

5.3 Personal and Social Aspects (cont.)

152 I___ Interpersonal conflict situations (job situations in which there are virtually inevitable differences in objectives, opinions, or viewpoints between the worker and other persons or groups of persons, and which may "set the stage" for conflict, for example, persons involved in labor negotiations, supervisors who must enforce an unpopular policy, etc.) 152

153 S___ Non-job-required social contact (indicate, using the code below, the opportunity to engage in informal, non-job-required conversation, social interaction, etc. with others while on the job, for example, barber, taxi driver, receptionist, journeyman and apprentice, etc.; do not include here the personal contacts required by the job as described in item 112) 153

Code	Opportunity for Non-job Required Social Contact
1	Very infrequent (almost no opportunity)
2	Infrequent (limited opportunity)
3	Occasional (moderate opportunity)
4	Frequent (considerable opportunity)
5	Very infrequent (almost continual opportunity)

6 OTHER JOB CHARACTERISTICS

Code	Applicability (A)
—	Does not apply
1	Does apply

6.1 Apparel Worn

For each item mark a dash (—) if the item does not apply, a one (1) if the item applies. Note: One or more items in this section may be applicable.

154 A___ Business suit or dress (expected to wear presentable clothing such as tie and jacket, street dress, etc., as customary in offices, stores, etc.) 154

155 A___ Specific uniform/apparel (nurse, doorman, bus driver, etc.) 155

156 A___ Work clothing ("blue collar" apparel worn in factories, construction work, etc.) 156

157 A___ Protective clothing or gear (clothing or equipment worn as a regular part of the job to protect the worker, for example, safety helmets, goggles, noise suppressors, safety shoes, insulated gloves or clothing, protective masks, etc.; this item does not apply if only worn occasionally or rarely) 157

158 A___ Informal attire (sports wear, etc.) 158

159 A___ Apparel style optional 159

6.2 Licensing

160 A___ Licensing/certification required 160

6.3 Work Schedule

Code	Applicability (A)
—	Does not apply
1	Does apply

In each of the three groups of items (in boxes) below: enter a one (1) for the item in each boxed group that most nearly applies, enter a dash (—) for all other items in the boxed group.

6.3.1 Continuity of work (as relevant to total year)

161 [A] Regular work 161

162 [A] Irregular work (depending on weather, season, production changes, etc.) 162

6.3.2 Regularity of working hours

163 [A] Regular hours (same basic work schedule every week) 163

164 [A] Variable shift work (work shift varies from time to time) 164

165 [A] Irregular hours (works variable or irregular hours, depending on requirements of employer, convenience of customers, etc., for example, insurance agents, etc.) 165

6.3.3 Day-night schedule

166 [A] Typical day hours 166

167 [A] Typical night hours (including evening work) 167

168 [A] Typical day and night hours (works some days and some nights, depending on work shifts, job demands, schedules, or other job factors, for example, some policemen, some truck drivers, some steel workers, etc.) 168

6.4 Job Demands

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

This section lists various types of demands that the job situation may impose upon the worker, usually requiring that he adapt to these in order to perform his work satisfactorily. Rate the following items in terms of how important they are on the job.

169 [I] Specified work pace (on continuous assembly line, etc.) 169

170 [I] Repetitive activities (performance of the same physical or mental activities repeatedly, without interruption, for periods of time) 170

171 [I] Cycled work activities (performance of a sequence or schedule of work activities which typically occurs on a weekly, daily, or hourly basis and which typically allows the worker some freedom of action so long as he meets a schedule, for example, a postman or milkman making rounds on his route, a security guard patrolling his beat, etc.; do not include here activities more nearly described as repetitive activities in item 170 above) 171

Code	Importance to This Job (I)
—	Does not apply
1	Very minor
2	Low
3	Average
4	High
5	Extreme

6.4 Job Demands (cont.)

172 I___ Following set procedures (need to follow specific set procedures or routines in order to obtain satisfactory outcomes, for example, following check-out list to inspect equipment or vehicles, following procedures for changing a tire, performing specified laboratory tests, etc.) 172

173 I___ Time pressure of situation (rush hours in a restaurant, urgent time deadlines, rush jobs, etc.) 173

174 I___ Precision (need to be more than normally precise and accurate) 174

175 I___ Attention to detail (need to give careful attention to various details of one's work, being sure that nothing is left undone) 175

176 I___ Recognition (need to identify, recognize, or "perceive" certain objects, events, processes, behavior, etc., or aspects, features, or properties thereof; this item is primarily concerned with "recognition" of that which is "sensed" by vision, hearing, touch, etc.) 176

177 I___ Vigilance: infrequent events (need to continually search for very infrequently occurring but relevant events in the job situation, for example, forest look-out watching for forest fires, worker observing instrument panel to identify infrequent change from "normal" etc.) 177

178 I___ Vigilance: continually changing events (need to be continually aware of variations in a continually or frequently changing situation, for example, driving in traffic, controlling aircraft traffic, continually watching frequently changing dials and gauges, etc.) 178

179 I___ Working under distractions (telephone calls, interruptions, disturbances from others, etc.) 179

180 I___ Updating job knowledge (need to keep job knowledge current, being informed of new developments related to the job) 180

Code	Applicability (A)
—	Does not apply
1	Does apply

181 A___ Special talent (using the code above indicate if a job requires some particularly unique talent or skill that is not covered by other items; typically this item would apply to jobs in which the very unique skill or characteristic of the worker is clearly dominant, as in certain entertainment activities; the item may be used however, in certain other kinds of situations, but only where there is some distinctly unique or special skill or talent involved) 181

Special talent: _____

6.4 Job Demands (cont.)

Code	Amount of Time (T)
—	Does not apply (or is very incidental)
1	Under 1/10 of the time
2	Under 1/3 of the time
3	Between 1/3 and 2/3 of the time)
4	Over 2/3 of the time
5	Almost continually

182 T___ Travel (indicate by code the proportion of time the worker is required to spend away from his home because of his job) 182

6.5 Responsibility

This section includes types of responsibility which may be associated with the decisions and actions of the worker. Indicate by code the degree of each type of responsibility involved in the job.

183 S___ Responsibility for the safety of others (indicate, using the code below, the degree to which the work requires diligence and effort to prevent injury to others; do not include hazards beyond the control of the individual concerned with the job) 183

Code — Degree of Responsibility for the Safety of Others

- — Does not apply
- 1 Very limited (worker has minimum responsibility for the safety of others, for example, he may only use small hand tools, non-hazardous machines, etc.)
- 2 Limited (worker must exercise reasonable care in order to avoid injury to others, for example, operating lathes, punch presses, and other industrial machines, etc.)
- 3 Intermediate (worker must be especially careful in order to avoid injury to others, for example, operating overhead cranes, driving vehicles, etc.)
- 4 Substantial (worker must exercise constant and substantial care in order to prevent serious injury to others, for example, handling dangerous chemicals, using explosives, etc.)
- 5 Very substantial (the safety of others depends almost entirely on the correct action of the employee, for example, piloting an aircraft, performing major surgery, etc.)

184 S___ Responsibility for material assets (indicate, using the code below, the degree to which the worker is directly responsible for waste, damage, defects, or other loss of value to material assets or property, such as materials, products, parts, equipment, cash, livestock, etc., that might be caused by inattention or inadequate job performance) 184

Code — Degree of Responsibility for Material Assets

- 1 Very limited (for example, a few dollars)
- 2 Limited (for example, up to about one hundred dollars)
- 3 Intermediate (for example, a few hundred dollars)
- 4 Substantial (for example, one or two thousand dollars)
- 5 Very substantial (for example, more than two thousand dollars)

6.5 Responsibility (cont.)

183. S ___ General responsibility (indicate, using the code below, the degree of "general" responsibility associated with this job in terms of the extent to which the worker is "responsible" for any of a number of activities such as: accounting, analyzing, composing, developing, designing, evaluating, forecasting, initiating, planning, programming, proposing, scheduling, sponsoring, staffing, writing, etc.; do not consider here responsibility for the safety of others or responsibility for assets as described in items 183 and 184).

Code	Degree of General Responsibility
1	Very limited
2	Limited
3	Intermediate
4	Substantial
5	Very substantial

6.6 Job Structure

184. S ___ Job structure (indicate, using the code below, the amount of "structure" of the job, that is, the degree to which the job activities are "predetermined" for the worker by the nature of the work, the procedures, or other job characteristics; the more highly-structured jobs permit less deviation from pre-determined patterns, and little if any need for innovation, decision making, or adaptation to changing situations)

Code	Amount of Job Structure
1	Very high structure (virtually no deviation from a predetermined job "routine," for example, routine assembly work, etc.)
2	Considerable structure (only moderate deviation from predetermined work "routine" is possible, for example, bookkeeper, stock handler, etc.)
3	Intermediate structure (considerable change from a "routine" is possible; work activities change considerably from day to day or even from hour to hour, but usually within some reasonable and expected bounds, for example, carpenter, automobile mechanic, machinist, etc.)
4	Limited structure (relatively little routine work; the job is characterized by considerable opportunity for improving methods, devices, etc. and the necessity for making decisions, for example, store manager, industrial engineer, etc.)
5	Very low structure (virtually no established "routine" of activities; the position involves a wide variety of problems which must be dealt with; the solutions to these problems allows for unlimited resourcefulness and initiative, for example, research chemist, corporation vice-president, college professors, etc.)

6.7 Criticality of Position

187 [3] Criticality of position (indicate, using the code below, the degree to which inadequate job performance by the worker in this position is critical in terms of possible detrimental effects on the organizational operations, assets, reputation, etc. or on the public or other people; consider the duration of such consequences, whether immediate or long term, their seriousness, and the extent to which they have restricted or widespread effects) 187

Code	Degree of Criticality of Position
1	Very low
2	Low
3	Moderate
4	High
5	Very high

6.8 Pay/Income

The following items are used to describe the typical method or way in which the worker receives pay/income and the amount he receives.

Method of Receiving Pay/Income

On this side of the page, enter a dash (—) if the item does not apply, a one (1) if it does apply.

Code	Applicability (A)
—	Does not apply
1	Does apply

Amount of Pay/Income (Optional)

On this side of the page, write in the approximate amount of pay/income for each corresponding item which applied on the left side of the page. Pay/income need only be reported for one time period in each case. (If this optional information on amount of pay/income is forwarded to Purdue University for research purposes, it will be held in strictest confidence.

188	[A]	Salary	188 (a) Weekly salary, or	$	188 a
			(b) Salary every 2 weeks, or	$	b
			(c) Monthly salary, or	$	c
			(d) Yearly salary	$	d
189	[A]	Hourly wage	189 (a) Wage per hour	$	189 a
190	[A]	Incentive pay (individual or group)	190 (a) Weekly average, or	$	190 a
			(b) Monthly average	$	b
191	[A]	Commission	191 (a) Weekly average, or	$	191 a
			(b) Monthly average, or	$	b
			(c) Yearly average	$	c
192	[A]	Tips	192 (a) Weekly average, or	$	192 a
			(b) Monthly average, or	$	b
			(c) Yearly average	$	c
193	[A]	Supplementary compensation (for example, stocks, profit sharing, dividends, bonuses, donations, gifts, etc.)	193 (a) Yearly average	$	193 a
194	[A]	Self-employed	194 (a) Yearly average	$	194 -

(Supplementary Information)

Note: If this Position Analysis Questionnaire is sent to Purdue University for research purposes, will you please furnish the following information:

1. A brief description of the principal duties performed by the worker. This description is used in classifying the job according to the coding system found in the Dictionary of Occupational Titles (D.O.T.) of the U.S. Employment Service.

_____

_____

_____

_____

_____

If the D.O.T. code is already known for this job, enter here: _____

2. Seniority of worker:

   a. How long has the worker been on the present job? yrs._____mo._____

   b. How long has the worker been with the organization? yrs._____mo._____

3. Any additional information you wish to include regarding the use of the PAQ, this job, or any comments:

_____

_____

_____

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13 ABSTRACT

This report deals with the background and the development of the Position Analysis Questionnaire (PAQ), which was used as the basic job analysis instrument in the research program covered by this contract. The PAQ (Form A) used in the study includes 189 job elements of an essentially "worker-oriented" nature, these elements generally characterizing work activities of a behavioral nature (or that have strong implications in behavioral terms), and elements that characterize certain aspects of the context within which human work is performed. The job elements of the PAQ have been used as the basis for deriving various sets of job dimensions, and for studies of an exploratory nature that deal with the potential use of the PAQ as the basis for developing synthetically-derived job attribute requirements, and for job evaluation purposes. This particular report describes the development of the PAQ, Form A, from earlier job analysis instruments, and the more recent development of a modified version of the PAQ, Form B.

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KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Job analysis						
Job description						
Job quantification						
Job variables						
Worker-oriented job variables						
Check List of Worker Activities						
Position Analysis Questionnaire (PAQ)						
Worker Activity Profile						