

AD-A044 645

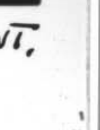
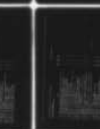
AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9
MISSILE CONTROL COMMUNICATIONS SYSTEMS SPECIALIST AFSC 36253.(U)
SEP 77

UNCLASSIFIED

AFPT-90-362-222

NL

1 OF 2
ADA044645



END
DATE
FILMED
10-77
DDC

CONT.

9 OCCUPATIONAL SURVEY REPORT
ELECTRONIC PRINCIPLES 2

AD A 044645



MISSILE CONTROL COMMUNICATIONS SYSTEMS
SPECIALIST

AFSC 36253

AFPT-90-362-222

11 15 September 1977

OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

COPY AVAILABLE TO DDC DOES NOT
PERMIT FULLY LEGIBLE PRODUCTION

408 889

AD No. _____
DDC FILE COPY

12 52p.

TABLE OF CONTENTS

	<u>PAGE NUMBER</u>
PREFACE -----	2
INTRODUCTION -----	3
DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI) -----	3
ADMINISTRATION -----	3
PRESENTATION OF RESULTS -----	6
APPENDIX -----	7

PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Missile Control Communications Systems Specialist, AFSC 36253.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Captain Frederick B. Bower, Jr. All are members of the Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas.

Computer programs for analyzing the data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Distribution of this report is made upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

JAMES A. TURNER, JR., Colonel, USAF
Commander
USAF Occupational Measurement Center

WALTER E. DRISKILL, Ph.D.
Chief, Occupational Survey Branch
USAF Occupational Measurement Center

ACTION FOR	
NTIS	
DDC	
UNANNOUNCED	
JUSTIFICATION	
BY	
DISTRIBUTION/AVAILABILITY	
Dist	AVAIL
A	29

ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
MISSILE CONTROL COMMUNICATIONS SYSTEMS SPECIALIST
AFSC 36253

INTRODUCTION

✓ This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Missile Control Communications Systems Specialist (AFSC 36253). The data for this report were collected during the period April through June 1977.

This report describes: (1) development and administration of the survey instrument; and (2) electronic principles used by DAFSC 5-skill level personnel both CONUS and overseas and assigned to selected major commands.

DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI)

The EPI was developed by personnel from the Occupational Survey Branch who were well qualified in theoretical physics and electronics, as well as in task analysis and survey development. Over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFCS participated in the development of the inventory. Representing the five ATC training centers, electronics experts who averaged 12 years of maintenance experience and four years of electronic principles instruction experience spent several weeks refining the EPI. In addition, personnel at the Electrical Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory were consulted during the development of the inventory.

The final version of the EPI used in this survey contained 1,257 items in 62 subject matter areas covering all electronic principles training given at the five ATC technical training centers. Table 1 lists the 62 subject areas.

ADMINISTRATION

The Electronic Principles Inventory was administered by mail to AFSC 36253 airmen worldwide. Responses from 61 individuals represented 69 percent of the total of all AFSC 36253 personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

TABLE 1
EPI SUBJECT AREAS

<u>SEQUENCE OF SUBJECT AREAS</u>	<u>SUBJECT AREA TITLE</u>	<u>BEGINNING ITEM NUMBER</u>	<u>GPSUM PAGE NUMBER</u>
1	MATHEMATICS	A1	2
2	DIRECT CURRENT AND VOLTAGE	A15	2
3	RESISTANCE	A24	2
4	MULTIMETER USES	B52	3
5	ALTERNATING CURRENT	B61	4
6	INDUCTORS AND INDUCTIVE REACTANCE	B67	4
7	CAPACITORS AND CAPACITIVE REACTANCE	C92	5
8	TRANSFORMERS	C128	6
9	MAGNETISM	C171	7
10	RCL CIRCUITS	D185	8
11	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)	D229	10
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	11
15	RELAYS	E295	12
16	MICROPHONES	F314	12
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	13
20	TRANSISTORS	G404	15
21	TRANSISTOR AMPLIFIERS	G428	16
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	19
25	MULTIVIBRATORS	I539	20
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	22
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	23
31	AM SYSTEMS	K638	23
32	FM SYSTEMS	K666	24

TABLE 1 (CONTINUED)

EPI SUBJECT AREAS

<u>SEQUENCE OF SUBJECT AREAS</u>	<u>SUBJECT AREA TITLE</u>	<u>BEGINNING ITEM NUMBER</u>	<u>GPSUM PAGE NUMBER</u>
33	NUMBERING SYSTEMS	K685	25
34	LOGIC FUNCTIONS	L695	25
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	27
38	USE OF SIGNAL GENERATORS	M769	28
39	MOTORS AND GENERATORS	M779	28
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	29
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	0845	30
44	PULSE MODULATION SYSTEMS	0875	31
45	ANTENNAS	0914	32
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	35
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	P1034	37
49	REGISTERS	Q1110	39
50	STORAGE DEVICES	Q1117	40
51	DIGITAL TO ANALOG CONVERTERS	Q1126	40
52	PHANTASTRONS	Q1140	41
53	SCHMITT TRIGGERS	R1141	41
54	CABLE FABRICATION	R1144	41
55	INPUT/OUTPUT DEVICES	S1146	41
56	PHOTO SENSITIVE DEVICES	S1149	41
57	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)	S1150	41
58	INFRARED	T1159	41
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	43
62	DB AND POWER RATIOS	U1255	44

TABLE 2
COMMAND REPRESENTATION OF SURVEY SAMPLE

<u>COMMAND</u>	36253	
	<u>PERCENT ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
ATC	3	2
AFCS	96	95
SAC	1	-
OTHER	—	<u>3</u>
TOTAL	100	100

Total Assigned - 119
Total Sampled - 61
Percent Sampled - 69%

PRESENTATION OF RESULTS

Personnel responded "yes" or "no" to the 1,257 electronic principles questions as related to their present job. A Group Summary (GPSUM) computer printout is provided in the Appendix portion of this report. Page 1 of the GPSUM lists the four selected groups identified for this report. Pages 2-44 show the percentage of the incumbents responding to the EPI items. The computer program results display the percent members answering "yes" to the subject area questions. The reader can locate a specific subject area by referring to the Appendix page number as listed in Table 1. For example, the Transformers area results are given on page 6 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Alternating Current (p. 4) and Soldering (pp. 11-12) to low in areas such as Infrared and Lasers (pp. 41-43). Additional AFSC 362X3 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

PCT "BRS RESPONDING 'YES' BY SELECTED GRPS

GPSUMJ PAGE 1

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 362X3 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY = SPC051	ALL AIRMEN DAFSC 36253	CONTAINING	61 MEMBERS.
GROUP IDENTITY = SPC052	ALL AIRMEN DAFSC 36253	CONTAINING	61 MEMBERS.
GROUP IDENTITY = SPC054	ALL AIRMEN DAFSC 36253	CONTAINING	58 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
051 052 054

A 1 A1-01 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10.

A 2 A1-02 DO YOU USE PUBLICATIONS, SUCH AS A TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB.

A 3 A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.

A 4 A1-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.

A 5 A1-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.

A 6 A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.

A 7 A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.

A 8 A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.

A 9 A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.

A 10 A1-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.

A 11 A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.

A 12 A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.

A 13 A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.

A 14 A1-14 DO YOU SOLVE OR USE PROPORTIONS.

A 15 A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).

A 16 A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).

A 17 A2-03 DO YOU USE THE TERM OHM.

A 18 A2-04 DO YOU USE THE TERM ION.

A 19 A2-05 DO YOU USE THE TERM DYNE.

A 20 A2-06 DO YOU USE THE TERM AMPERE.

A 21 A2-07 DO YOU USE THE TERM NEUTRON.

A 22 A2-08 DO YOU USE THE TERM COULOMB.

A 23 A2-09 DO YOU USE THE TERM PROTON.

A 24 A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.

A 25 A3-02 DO YOU INSPECT RESISTORS.

A 26 A3-03 DO YOU CLEAN RESISTORS.

A 27 A3-04 DO YOU ADJUST RESISTORS.

A 28 A3-05 DO YOU CHECK OHMIC VALUE OR RESISTORS.

A 29 A3-06 DO YOU REMOVE OR REPLACE RESISTORS.

A 30 A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.

A 31 A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.

A 32 A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.

A 33 A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.

MATHEMATICS

DIRECT CURRENT AND VOLTAGE

RESISTANCE

62 62 62

15 15 14

25 25 21

5 5 3

16 16 17

5 5 5

3 3 3

3 3 3

2 2 2

7 7 5

3 3 3

3 3 3

7 7 7

93 93 93

31 31 29

93 93 93

10 10 7

2 2 2

93 93 93

13 13 10

8 8 9

11 11 9

82 82 81

85 85 84

57 57 55

75 75 74

87 87 86

84 84 84

15 15 14

80 80 79

84 84 83

84 84 84

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC US1	SPC US2	SPC US4
A 34 A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	70	70	71
A 35 A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	26	26	26
A 36 A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	46	46	47
A 37 A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	93	93	93
A 38 A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	46	46	45
A 39 A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	39	39	38
A 40 A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	44	44	43
A 41 A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	36	36	36
A 42 A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	48	48	47
A 43 A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	39	39	38
A 44 A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	43	43	41
A 45 A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	41	41	40
A 46 A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	36	36	36
A 47 A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	43	43	41
A 48 A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	36	36	34
A 49 A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	38	38	36
A 50 A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	36	36	34
A 51 A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	34	34	34
B 52 B1-01 DO YOU MEASURE RESISTANCE.	92	92	91
B 53 B1-02 DO YOU REPAIR OHMMETERS.	5	5	5
B 54 B1-03 DO YOU MEASURE VOLTAGE.	93	93	93
B 55 B1-04 DO YOU REPAIR VOLTMETERS.	5	5	5
B 56 B1-05 DO YOU REPAIR AMMETERS.	3	3	3
B 57 B1-06 DO YOU MEASURE CURRENT.	70	70	69
B 58 B1-07 DO YOU USE MULTIMETERS.	93	93	93
B 59 B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	3	3	3
B 60 B1-09 DO YOU READ SCHEMATICS.	93	93	93

MULTIMETER USES

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

	SPC 051	SPC U52	SPC 054
61 B2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	74	74	72
62 B2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	80	80	79
63 B2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	70	70	69
64 B2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	62	62	62
65 B2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY.	84	84	83
66 B2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	15	15	14
67 B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	48	48	48
68 B3-02 DO YOU INSPECT INDUCTORS.	46	46	45
69 B3-03 DO YOU CLEAN INDUCTORS.	26	26	26
70 B3-04 DO YOU ADJUST INDUCTORS.	25	25	22
71 B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	46	46	47
72 B3-06 DO YOU USE OR REFER TO INDUCTANCE.	31	31	29
73 B3-07 DO YOU USE OR REFER TO HENRIES.	20	20	17
74 B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	26	26	26
75 B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	7	7	5
76 B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	8	8	9
77 B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS.	11	11	12
78 B3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL.	13	13	12
79 B3-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE.	10	10	10
80 B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	10	10	10
81 B3-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL.	7	7	7
82 B3-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	15	15	14
83 B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	13	13	12
84 B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	15	15	14
85 B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	13	13	12
86 B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	15	15	14
87 B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	13	13	14
88 B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	13	13	14
89 B3-23 DO YOU WORK WITH POWER INDUCTORS.	15	15	16
90 B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	33	33	33
91 B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	8	8	7

INDUCTORS AND INDUCTIVE REACTANCE

ALTERNATING CURRENT

PCT MBMS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 051	SPC 052	SPC 054
C 92 C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	85	85	84
C 93 C1-02 DO YOU INSPECT CAPACITORS.	80	80	79
C 94 C1-03 DO YOU CLEAN CAPACITORS.	56	54	55
C 95 C1-04 DO YOU ADJUST CAPACITORS.	28	28	28
C 96 C1-05 DO YOU TEST CAPACITORS.	74	74	74
C 97 C1-06 DO YOU DISCHARGE CAPACITORS.	69	69	67
C 98 C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	77	77	78
C 99 C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	13	13	12
C 100 C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	2	2	2
C 101 C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	56	56	55
C 102 C1-11 DO YOU USE OR REFER TO CAPACITANCE.	70	70	72
C 103 C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	5	5	5
C 104 C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	48	48	47
C 105 C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	26	26	26
C 106 C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	16	16	17
C 107 C1-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	85	85	84
C 108 C1-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	64	64	64
C 109 C1-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC	64	64	64
C 110 C1-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	18	18	17
C 111 C1-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	8	8	9
C 112 C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	5	5	5
C 113 C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	7	7	7
C 114 C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	15	15	16
C 115 C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	15	15	14
C 116 C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	16	16	16
C 117 C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO	26	26	24
C 118 C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	15	15	16
C 119 C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	10	10	10
C 120 C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE	10	10	10

CAPACITORS AND CAPACITIVE REACTANCE

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
051 052 054

C 121 C1-J30 DO YOU WORK WITH MOTOR-STATOR (VARIABLE) CAPACITORS
C 122 C1-J31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS
C 123 C1-J32 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS
C 124 C1-J33 DO YOU WORK WITH PAPER (FIXED) CAPACITORS
C 125 C1-J34 DO YOU WORK WITH MICA (FIXED) CAPACITORS
C 126 C1-J35 DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS
C 127 C1-J36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS

C 128 C2-01 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB
C 129 C2-02 DO YOU INSPECT TRANSFORMERS
C 130 C2-03 DO YOU CLEAN TRANSFORMERS
C 131 C2-04 DO YOU ADJUST TRANSFORMERS
C 132 C2-05 DO YOU TROUBLESHOOT TRANSFORMERS
C 133 C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS
C 134 C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING
C 135 C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTANCE AND MUTUAL INDUCTANCE (M)

C 136 C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M
C 137 C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS
C 138 C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS
C 139 C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS
C 140 C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS

C 141 C2-14 DO YOU WORK WITH AUTOTRANSFORMERS
C 142 C2-15 DO YOU WORK WITH POWER TRANSFORMERS
C 143 C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS
C 144 C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS
C 145 C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS

C 146 C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE
C 147 C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE
C 148 C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES
C 149 C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO
C 150 C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO
C 151 C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS

TRANSFORMERS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

	SPC	SPC	SPC
	051	052	054
C 152 C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	49	49	47
C 153 C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	48	48	47
C 154 C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	57	57	55
C 155 C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	36	36	36
C 156 C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	44	44	43
C 157 C2-30 DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	44	44	43
C 158 C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	13	13	14
C 159 C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	10	10	10
C 160 C2-33 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	21	21	21
C 161 C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	38	38	36
C 162 C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	15	15	14
C 163 C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	15	15	16
C 164 C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	5	5	5
C 165 C2-38 DO YOU INSPECT THREE PHASE TRANSFORMERS	3	3	3
C 166 C2-39 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	3	3	3
C 167 C2-40 DO YOU ADJUST THREE PHASE TRANSFORMERS	3	3	3
C 168 C2-41 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	3	3	3
C 169 C2-42 DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	3	3	3
C 170 C2-43 DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	2	2	2
C 171 C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS	23	23	24
C 172 C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS	18	18	17
C 173 C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	5	5	5
C 174 C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	7	7	7
C 175 C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	7	7	7
C 176 C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM	15	15	14
C 177 C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	13	13	12
C 178 C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	5	5	5

MAGNETISM

PCT MBMS RESPONDING 'YES' BY SELECTED GRPS

GPSUM3 PAGE 8

TASK GROUP SUMMARY PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
051 052 054

C 179 C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM
C 180 C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION
C 181 C3-11 DO YOU USE OR REFER TO FLUX DENSITY
C 182 C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR
MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT
C 183 C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE
DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES
C 184 C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH
POLE OF A CURRENT CARRYING COIL

U 185 D1-01 DO YOU WORK WITH RCL, LR, RCL CIRCUITS IN YOUR
PRESENT JOB

U 186 D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL
CIRCUITS

U 187 D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN
WORKING WITH RCL CIRCUITS

U 188 D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL
CIRCUITS

U 189 D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL
CIRCUITS

U 190 D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL
CIRCUITS

U 191 D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL
CIRCUITS

U 192 D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING
WITH RCL CIRCUITS

U 193 D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN
WORKING WITH RCL CIRCUITS

U 194 D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN
WORKING WITH RCL CIRCUITS

U 195 D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN
WORKING WITH RCL CIRCUITS

U 196 D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING
WITH RCL CIRCUITS

U 197 D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN
WORKING WITH RCL CIRCUITS

U 198 D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH
RCL CIRCUITS

U 199 D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH
RCL CIRCUITS

U 200 D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN
WORKING WITH RCL CIRCUITS

U 201 D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN
WORKING WITH RCL CIRCUITS

U 202 D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING
WITH RCL CIRCUITS

U 203 D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH
RCL CIRCUITS

RCL CIRCUITS

5 5 5
13 13 12
7 7 7
33 33 33
15 15 16
15 15 16
25 25 24
2 2 2
3 3 3
3 3 3
3 3 3
3 3 3
7 7 5
2 2 2
2 2 2
7 7 7
2 2 2
3 3 3
8 8 7
10 10 9
8 8 7
10 10 9
0 0 0
7 7 5
0 0 0

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

GPSUM3 PAGE 9

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

0Y-TSK

	SPC 051	SPC 052	SPC 054
0 204 01-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	8	8	7
0 205 01-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	2	2	2
0 206 01-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	3	3	3
0 207 01-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	5	5	5
0 208 01-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	2	2	2
0 209 01-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	3	3	3
0 210 01-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	3	3	3
0 211 01-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	3	3	3
0 212 01-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	3	3	3
0 213 01-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	5	5	5
0 214 01-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	5	5	5
0 215 01-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	3	3	3
0 216 01-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	3	3	3
0 217 01-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	8	8	9
0 218 01-34 DO YOU CHECK CAPACITORS USING OHMMETERS	23	23	22
0 219 01-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	11	11	12
0 220 01-36 DO YOU CHECK INDUCTORS USING OHMMETERS	20	20	19
0 221 01-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	10	10	10
0 222 01-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT $\theta = \phi$, $PF = 1$, AND $PA = PT$ FOR RESONANT CIRCUITS	3	3	3
0 223 01-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	3	3	3
0 224 01-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS	8	8	7
0 225 01-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS	7	7	5
0 226 01-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	3	3	3
0 227 01-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	2	2	2
0 228 01-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	7	7	7

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		SPC SPC SPC		SPC SPC SPC		SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
		051 052 054		051 052 054		
DY-TSK						
0 229	02-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	8	8	9		
0 230	02-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	5	5	5		
0 231	02-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	5	5	5		
0 232	02-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	3	3	3		
0 233	02-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)	3	3	3		
0 234	02-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	0	0	0		
0 235	02-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS	2	2	2		
0 236	02-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS	2	2	2		
0 237	02-09 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES	2	2	2		
0 238	02-10 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS	2	2	2		
0 239	03-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	48	48	48		
0 240	03-02 DO YOU INSPECT FILTER CIRCUITS	39	39	40		
0 241	03-03 DO YOU CLEAN FILTER CIRCUITS	23	23	24		
0 242	03-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	20	20	19		
0 243	03-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	36	36	36		
0 244	03-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	28	28	28		
0 245	03-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	41	41	43		
0 246	03-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	20	20	21		
0 247	03-09 DO YOU WORK WITH LOW PASS FILTERS	39	39	40		
0 248	03-10 DO YOU WORK WITH HIGH PASS FILTERS	36	36	36		
0 249	03-11 DO YOU WORK WITH BANDPASS FILTERS	25	25	24		
0 250	03-12 DO YOU WORK WITH BAND-REJECT FILTERS	20	20	19		
0 251	03-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	13	13	14		
0 252	03-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	10	10	10		
0 253	03-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	5	5	5		
0 254	03-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	5	5	5		
0 255	03-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	31	31	33		
0 256	03-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	16	16	17		
0 257	03-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	20	20	21		
0 258	03-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	15	15	16		

FILTERS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
051 052 054

D 259 D3-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT
D 260 D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE
CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC
FILTERS

25 25 26
5 5 5

E 261 E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB
E 262 E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO
THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC
COUPLING

10 10 9
11 11 10

COUPLING

E 263 E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO
THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH
IMPEDANCE COUPLING

11 11 10
11 11 10

E 264 E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO
THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH
TRANSFORMER COUPLING

13 13 12
13 13 12

E 265 E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS
WHICH PERFORM RC COUPLING

11 11 10
11 11 10

E 266 E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS
WHICH PERFORM IMPEDANCE COUPLING

11 11 10
11 11 10

E 267 E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS
WHICH PERFORM TRANSFORMER COUPLING

11 11 10
11 11 10

E 268 E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS

11 11 10
11 11 10

E 269 E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED
CIRCUITS

11 11 10
11 11 10

E 270 E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED
CIRCUITS

8 8 7
0 0 0

E 271 E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS

89 89 90
89 89 90

E 272 E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS
E 273 E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING
TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS

75 75 74
61 61 59

E 274 E2-02 DO YOU SELECT TYPE OF SOLDER TO USE

56 56 55
92 92 91

E 275 E2-03 DO YOU ADD FLUX TO CONNECTIONS

79 79 78
90 90 90

E 276 E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS

92 92 91
87 87 86

E 277 E2-05 DO YOU STRIP INSULATION FROM WIRES

90 90 90
90 90 90

E 278 E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS

92 92 91
80 80 79

E 279 E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS

90 90 90
90 90 90

E 280 E2-08 DO YOU CUT WIRES

74 74 72
75 75 76

E 281 E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS

75 75 76
33 33 33

E 282 E2-10 DO YOU TIN SOLDERING IRON TIPS

74 74 72
80 80 79

E 283 E2-11 DO YOU CLEAN SOLDERING IRON TIPS

90 90 90
90 90 90

E 284 E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS

56 56 53
74 74 72

E 285 E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS

74 74 72
80 80 79

E 286 E2-14 DO YOU INSPECT SOLDERED CONNECTIONS

90 90 90
90 90 90

E 287 E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING

74 74 72
75 75 76

E 288 E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING
TOOLS

74 74 72
75 75 76

SOLDERING

PCT MBSRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMINGSPC SPC SPC
051 052 054

DY-TSK

E 291 E2-19 DO YOU MAKE HANDWIRE CONNECTIONS
E 292 E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS
E 293 E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS
E 294 E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS

E 295 E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB
E 296 E3-02 DO YOU ADJUST RELAYS
E 297 E3-03 DO YOU CLEAN RELAYS
E 298 E3-04 DO YOU INSPECT RELAYS
E 299 E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS
E 300 E3-06 DO YOU REMOVE OR REPLACE PARTS OR RELAYS
E 301 E3-07 DO YOU TROUBLESHOOT RELAYS
E 302 E3-08 DO YOU STRAIGHTEN RELAY CONTACTS
E 303 E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS
E 304 E3-10 DO YOU PERFORM TASKS ON RELAY COILS
E 305 E3-11 DO YOU PERFORM TASKS ON RELAY COILS
E 306 E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES
E 307 E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS
E 308 E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS
E 309 E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS
E 310 E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS
E 311 E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS
E 312 E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS
E 313 E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE

RELAYS

F 314 F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES

F 315 F1-02 DO YOU INSPECT MICROPHONES
F 316 F1-03 DO YOU CLEAN MICROPHONES
F 317 F1-04 DO YOU OPERATE MICROPHONES
F 318 F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OR MICROPHONES

MICROPHONES

F 319 F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS
F 320 F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES
F 321 F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS
F 322 F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES
F 323 F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES
F 324 F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES
F 325 F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES
F 326 F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES

SPC SPC SPC
051 052 054

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY=TSK		SPC	SPC	SPC
		051	052	054
F 327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	61	61	60
F 328	F2-02 DO YOU INSPECT SPEAKERS	62	62	62
F 329	F2-03 DO YOU CLEAN SPEAKERS	52	52	53
F 330	F2-04 DO YOU OPERATE SPEAKERS	57	57	57
F 331	F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS	59	59	59
F 332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	23	23	24
F 333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	62	62	64
F 334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	16	16	17
F 335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	10	10	10
F 336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	5	5	5
F 337	F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	10	10	10
F 338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	8	8	9
F 339	F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	8	8	9
F 340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	8	8	9
F 341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	5	5	5
F 342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	64	64	66
F 343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	84	84	84
F 344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	74	74	76
F 345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	84	84	84
F 346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	69	69	71
F 347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	48	48	50
F 348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	15	15	16
F 349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	43	43	45
F 350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	26	26	28
F 351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	70	70	71
F 352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	49	49	50
F 353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	79	79	79
G 354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	62	62	62
G 355	G1-02 DO YOU INSPECT DIODES	64	64	64
G 356	G1-03 DO YOU REMOVE OR REPLACE DIODES	61	61	62
G 357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	59	59	59
G 358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	2	2	2
G 359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE	10	10	9
G 360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	13	13	10

SPEAKERS

OSCILLOSCOPES

SEMICONDUCTOR DIODES

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

LY-TSK

	SPC 051	SPC 052	SPC 054
361 61-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	39	39	38
362 61-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	46	46	45
363 61-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	8	8	5
364 61-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	21	21	21
365 61-12 DO YOU USE OR REFER TO DIODE COLOR CODING	18	18	19
366 61-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	0	0	0
367 61-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	0	0	0
368 61-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	25	25	24
369 61-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	2	2	2
370 61-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	0	0	0
371 61-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	21	21	21
372 61-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	2	2	2
373 61-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	2	2	2
374 61-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	2	2	2
375 61-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	2	2	2
376 61-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	2	2	2
377 61-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	43	43	41
378 61-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	11	11	12
379 61-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	11	11	10
380 61-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)	8	8	7
381 61-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	28	28	26
382 61-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	0	0	0

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC
OS1 OS2 OS4

0Y-TSK

G 383 G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	2	2	2
G 384 G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	2	2	2
G 385 G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	2	2	2
G 386 G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	0	0	0
G 387 G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	5	5	5
G 388 G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	0	0	0
G 389 G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	0	0	0
G 390 G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	18	18	17
G 391 G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	18	18	17
G 392 G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	7	7	7
G 393 G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	5	5	5
G 394 G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	2	2	2
G 395 G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	2	2	2
G 396 G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	3	3	3
G 397 G1-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	0	0	0
G 398 G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	0	0	0
G 399 G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	23	23	24
G 400 G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	8	8	9
G 401 G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	7	7	7
G 402 G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	7	7	7
G 403 G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	5	5	5
G 404 G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	74	74	74
G 405 G2-02 DO YOU INSPECT TRANSISTORS	74	74	74
G 406 G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	70	70	72
G 407 G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	62	62	62
G 408 G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	36	36	36
G 409 G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	36	36	36

TRANSISTORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK	SPC	SPC	SPC	SPC
	051	052	054	
G 410 G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	34	34	34	34
G 411 G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	13	13	12	12
G 412 G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	13	13	12	12
G 413 G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	36	36	36	36
G 414 G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	8	8	9	9
G 415 G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	66	66	66	66
G 416 G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	62	62	62	62
G 417 G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	39	39	40	40
G 418 G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IB IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT IE (USUALLY IB BEING 2 TO 8 PERCENT OF IE)	13	13	14	14
G 419 G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	34	34	33	33
G 420 G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	8	8	9	9
G 421 G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	5	5	3	3
G 422 G2-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	8	8	9	9
G 423 G2-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	8	8	9	9
G 424 G2-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	8	8	9	9
G 425 G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	3	3	3	3
G 426 G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	3	3	3	3
G 427 G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	3	3	3	3
G 428 G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	43	43	43	43
G 429 G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	46	46	47	47
G 430 G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	41	41	41	41
G 431 G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	41	41	41	41
G 432 G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	30	30	29	29
G 433 G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	43	43	45	45
G 434 G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	28	28	29	29
G 435 G3-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	11	11	12	12
G 436 G3-09 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	7	7	7	7

TRANSISTOR AMPLIFIERS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

GPSUM3 PAGE 17

TASK GROUP SUMMARY PERCENT MEMBERS PERFORMING

Q1-TSK

	SPC	SPC	SPC
	051	052	054
G 437 G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT	13	13	14
G 438 G3-11 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	5	5	5
G 439 G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	11	11	12
G 440 G3-13 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL	5	5	5
G 441 G3-14 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)	5	5	5
G 442 G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	7	7	7
G 443 G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	3	2	3
G 444 G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	28	28	29
G 445 G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	11	11	12
G 446 G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	15	15	16
G 447 G3-20 DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE THE BASE COLLECTOR VOLTAGE TO DETERMINE THE VOLTAGE GAIN	5	5	5
G 448 G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT TO DETERMINE THE CURRENT GAIN	3	3	3
G 449 G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE CURRENT GAIN TIMES THE VOLTAGE GAIN TO DETERMINE THE POWER GAIN	5	5	5
G 450 G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE INCREASES (THIS AFFECTS THE STATIC OPERATING POINT (Q) OF THE TRANSISTOR)	2	2	2
G 451 G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT (Q) OF A TRANSISTOR AT DIFFERENT TEMPERATURES	2	2	2
G 452 G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAPPING) RESISTOR STABILIZATION	11	11	10
G 453 G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION	7	7	5

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC 051	SPC 052	SPC 054
6 454 G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	8	8	7
6 455 G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	8	8	7
6 456 G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	6	8	7
6 457 G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	8	8	7
6 458 G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	10	10	9
6 459 G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	8	8	7
6 460 G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	10	10	9
6 461 G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	8	8	7
6 462 G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	8	8	7
6 463 G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	8	8	7
6 464 G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	33	33	33
6 465 G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	30	30	29
6 466 G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	28	28	26
6 467 G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	13	13	12
6 468 G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	10	10	9
6 469 G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	20	20	19
6 470 G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS IN THE COMMON COLLECTOR CONFIGURATION	7	7	7
6 471 G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	16	16	17
6 472 G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	5	5	5
6 473 G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	23	23	22
6 474 G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	7	7	7
6 475 G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	11	11	12

UY-TSK

PCT MARS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

Dy-TSK

DY-TSK		SPC SPC SPC		SOLID-STATE SPECIAL PURPOSE DEVICES	
6	476	63-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	5	5	5
477	M1-01 DO YOU USE OR REFER TO VAXACTORS	5	5	5	
478	M1-02 DO YOU USE OR REFER TO TUNNEL DIODES	2	2	2	
479	M1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	8	8	7	
480	M1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	7	7	5	
481	M1-05 DO YOU USE OR REFER TO ZENER DIODES	49	49	48	
482	M1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	39	39	38	
483	M2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	75	75	74	
484	M2-02 DO YOU INSPECT POWER SUPPLIES	74	74	72	
485	M2-03 DO YOU CLEAN POWER SUPPLIES	64	64	64	
486	M2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	64	64	62	
487	M2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	61	61	59	
488	M2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	51	51	48	
489	M2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	70	70	71	
490	M2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	49	49	50	
491	M2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	34	34	34	
492	M2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	44	44	45	
493	M2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	36	36	36	
494	M2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	11	11	12	
495	M2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	59	59	60	
496	M2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	38	38	38	
497	M2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	46	46	47	
498	M2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	41	41	43	
499	M2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	28	28	29	
500	M2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	23	23	24	
501	M2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	18	18	19	
502	M2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	34	34	34	
503	M2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	44	44	47	
504	M2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	33	33	34	
505	M2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	26	26	28	
506	M2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	21	21	22	
507	M2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	18	18	19	
508	M2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	10	10	10	
509	M2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	13	13	14	
510	M2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DONT REMEMBER WHICH TYPE OF FILTER	41	41	41	
511	M2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	2	2	2	
512	M3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	61	61	60	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK	SPC 051	SPC 052	SPC 054
M 513 M3-02 DO YOU INSPECT OSCILLATORS	52	52	52
M 514 M3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	43	43	41
M 515 M3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	43	43	43
M 516 M3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	7	7	7
M 517 M3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	30	30	29
M 518 M3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	7	7	7
M 519 M3-08 DO YOU USE OR REFER TO FEEDBACK	20	20	19
M 520 M3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	15	15	16
M 521 M3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	26	26	26
M 522 M3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	28	28	28
M 523 M3-12 DO YOU USE OR REFER TO DAMPING	7	7	7
M 524 M3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	8	8	7
M 525 M3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	3	3	3
M 526 M3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	5	5	5
M 527 M3-16 DO YOU USE OR REFER TO UNDER DAMPING	3	3	3
M 528 M3-17 DO YOU USE OR REFER TO OVER DAMPING	3	3	3
M 529 M3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	10	10	9
M 530 M3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	11	11	10
M 531 M3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	7	7	7
M 532 M3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	26	26	28
M 533 M3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	3	3	3
M 534 M3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	5	5	5
M 535 M3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	2	2	2
M 536 M3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	2	2	2
M 537 M3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	2	2	2
M 538 M3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	30	30	31
I 539 I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	13	13	10
I 540 I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	7	7	5
I 541 I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	5	5	3
I 542 I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	5	5	3
I 543 I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	5	5	3
I 544 I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	7	7	5
I 545 I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	5	5	3
I 546 I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	5	5	5
I 547 I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	7	7	5

MULTIVIBRATORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

SPC SPC SPC
051 052 054

I 548 11-10 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS
I 549 11-11 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS
I 550 11-12 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF FDD
I 551 11-13 DO YOU WORK WITH STABLE MULTIVIBRATORS
I 552 11-14 DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS
I 553 11-15 DO YOU WORK WITH BISTABLE MULTIVIBRATORS
I 554 11-16 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS
I 555 12-01 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB
I 556 12-02 DO YOU WORK WITH SERIES DIODE LIMITERS
I 557 12-03 DO YOU WORK WITH SHUNT DIODE LIMITERS
I 558 12-04 DO YOU WORK WITH LIMITERS WITH BIAS
I 559 12-05 DO YOU WORK WITH ZENER DIODE LIMITERS
I 560 12-06 DO YOU WORK WITH TRANSISTOR LIMITERS
I 561 12-07 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS
I 562 12-08 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS
I 563 12-09 DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS
I 564 12-10 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT

LIMITERS AND CLAMPERS

I 565 13-01 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES
I 566 13-02 DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD
I 567 13-03 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES
I 568 13-04 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES
I 569 13-05 DO YOU USE SCOPES TO CHECK ELECTRON TUBES
I 570 13-06 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES
I 571 13-07 DO YOU USE OR REFER TO CUTOFF
I 572 13-08 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING
I 573 13-09 DO YOU USE OR REFER TO PEAK CURRENT RATING
I 574 13-10 DO YOU USE OR REFER TO TRANSIT TIME
I 575 13-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING
I 576 13-12 DO YOU USE OR REFER TO SATURATION
I 577 13-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE
I 578 13-14 DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES
I 579 13-15 DO YOU USE OR REFER TO PLATE VOLTAGE
I 580 13-16 DO YOU USE OR REFER TO PLATE CURRENT
I 581 13-17 DO YOU USE OR REFER TO GRID VOLTAGE
I 582 13-18 DO YOU USE OR REFER TO GRID CURRENT
I 583 13-19 DO YOU USE OR REFER TO CATHODE VOLTAGE
I 584 13-20 DO YOU USE OR REFER TO CATHODE CURRENT
I 585 13-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)

ELECTRON TUBES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC	SPC	SPC	SPC		
051	052	053	054		
1	586	13-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	0	0	0
1	587	13-23 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	0	0	0
1	588	13-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	0	0	0
1	589	13-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	0	0	0
1	590	13-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	0	0	0
1	591	13-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	0	0	0
1	592	13-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	0	0	0
1	593	13-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	0	0	0
1	594	13-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	0	0	0
1	595	13-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	0	0	0
1	596	13-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	0	0	0
1	597	13-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	0	0	0
1	598	13-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	0	0	0
1	599	13-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	0	0	0
1	600	13-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	2	2	2
1	601	13-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0
1	602	13-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0
1	603	13-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0
1	604	13-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	0	0	0
1	605	13-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	2	2	2
1	606	13-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	3	3	3
1	607	13-43 DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE EMITTING SURFACE IN THE ELECTRON TUBES YOU WORK ON	0	0	0
1	608	13-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	2	2	2
J	609	J1-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	0	0	0
J	610	J1-02 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	0	0	0

ELECTRON TUBE AMPLIFIERS
AND CIRCUITS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

SPC SPC SPC
051 052 054

J 611 J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS
J 612 J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS
J 613 J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED
AMPLIFIERS
J 614 J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED
AMPLIFIERS
J 615 J1-07 DO YOU TROUBLESHOOT OR REPAIR DONIT KNOW WHICH TYPE
OF AMPLIFIER
J 616 J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD
CATHODE)
J 617 J2-02 DO YOU WORK WITH CATHODE-RAY TUBES
J 618 J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM
POWER TUBES
J 619 J2-04 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM
POWER TUBES ARE USED
J 620 J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF
THYRATONS
J 621 J2-06 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH
THYRATONS ARE USED
J 622 J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF
ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)
J 623 J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF
ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES
(CRT)
J 624 J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF
ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES
(CRT)
J 625 J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS
J 626 J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS
J 627 J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS
J 628 J2-13 DO YOU USE OR REFER TO PERSISTENCE
J 629 J2-14 DO YOU USE OR REFER TO DECAY TIMES
J 630 J2-15 DO YOU USE OR REFER TO FLUORESCENCE
J 631 J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE
J 632 J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR
PRESENT JOB
J 633 J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS
J 634 J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS
J 635 J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS
IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS
J 636 J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS
J 637 J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS
K 638 K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR
PRESENT JOB
K 639 K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS
K 640 K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS
K 641 K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS

SPECIAL PURPOSE ELECTRON TUBES

HETERODYNING, MODULATION, AND
DEMODULATION

AM SYSTEMS

PCT MBRS RESPONDING TEST BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DT-TSK

	SPC 051	SPC 052	SPC 053	SPC 054
K 642 K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 643 K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE	0	0	0	0
COMPONENTS				
K 644 K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE	0	0	0	0
SYSTEMS				
K 645 K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE	0	0	0	0
COMPONENTS				
K 646 K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	0	0	0	0
K 647 K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0
K 648 K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	2	2	2	2
K 649 K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	2	2	2	2
K 650 K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	2	2	2	2
K 651 K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0	0
K 652 K1-15 DO YOU PERFORM TASKS ON DETECTORS	0	0	0	0
K 653 K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	0	0	0	0
K 654 K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN	0	0	0	0
TRANSMITTERS				
K 655 K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN	0	0	0	0
TRANSMITTERS				
K 656 K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	0	0	0	0
K 657 K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	0	0	0	0
K 658 K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	0	0	0	0
K 659 K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	0	0	0	0
K 660 K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	0	0	0	0
K 661 K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	0	0	0	0
K 662 K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	0	0	0	0
K 663 K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR	0	0	0	0
IMAGE REJECTION RATIOS				
K 664 K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM	0	0	0	0
TRANSMITTER SCHEMATIC DIAGRAMS				
K 665 K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM	0	0	0	0
RECEIVER SCHEMATIC DIAGRAMS				
K 666 K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN	2	2	2	2
YOUR PRESENT JOB				
K 667 K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	2	2	2	2
K 668 K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	2	2	2	2
K 669 K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	2	2	2	2
K 670 K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE	2	2	2	2
SYSTEMS				
K 671 K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE	2	2	2	2
COMPONENTS				
K 672 K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE	0	0	0	0
SYSTEMS				
K 673 K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE	2	2	2	2
COMPONENTS				
K 674 K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	2	2	2	2
K 675 K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	0	0	0	0

FM SYSTEMS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

	SPC 051	SPC 052	SPC 054
K 676 K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	0	0	0
K 677 K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0
K 678 K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0
K 679 K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	0	0	0
K 680 K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0
K 681 K2-16 DO YOU PERFORM TASKS ON LIMITERS	0	0	0
K 682 K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	0	0	0
K 683 K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	0	0	0
K 684 K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	2	2	2
K 685 K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	0	0	0
K 686 K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	0	0	0
K 687 K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	0	0	0
K 688 K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	0	0	0
K 689 K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	2	2	2
K 690 K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	0	0	0
K 691 K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	2	2	2
K 692 K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	0	0	0
K 693 K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	2	2	2
K 694 K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	0	0	0
L 695 L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	16	16	17
L 696 L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	3	3	3
L 697 L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	3	3	3
L 698 L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	3	3	3
L 699 L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	3	3	3
L 700 L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	7	7	7
L 701 L1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	7	7	7
L 702 L1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	7	7	7
L 703 L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	7	7	7
L 704 L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	18	18	19
L 705 L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	18	18	19
L 706 L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	18	18	19

NUMBERING SYSTEMS

LOGIC FUNCTIONS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

QY-TSK	SPC	SPC	SPC	SPC
	051	052	054	
L 707 L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	18	18	18	19
L 708 L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	3	3	3	3
L 709 L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	0	0	0	0
L 710 L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	2	2	2	2
L 711 L2-04 DO YOU DRAW LOGIC DIAGRAMMS FROM GIVEN BOOLEAN EQUATIONS	0	0	0	0
L 712 L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	3	3	3	3
L 713 L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	3	3	3	3
L 714 L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	2	2	2	2
L 715 L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	3	3	3	3
L 716 L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	3	3	3	3
L 717 L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	3	3	3	3
L 718 L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	2	2	2	2
L 719 L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	0	0	0	0
L 720 L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	3	3	3	3
L 721 L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	5	5	5	5
L 722 L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	3	3	3	3
L 723 L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	7	7	7	7
L 724 L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	3	3	3	3
L 725 L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	5	5	5	5
L 726 L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	5	5	5	5
L 727 L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	3	3	3	3
L 728 L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	3	3	3	3
L 729 L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	5	5	5	5
L 730 L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	7	7	7	7
L 731 L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	7	7	7	7
L 732 L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	3	3	3	3

BOOLEAN EQUATIONS

PCT MBS RESPONDING 'YES' BY SELECTED CMPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

L 733 L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB
 L 734 L3-02 DO YOU USE OR REFER TO UP-COUNTERS
 L 735 L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS
 L 736 L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS
 L 737 L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS
 L 738 L3-06 DO YOU USE OR REFER TO RING COUNTERS
 L 739 L3-07 DO YOU USE OR REFER TO DECADE COUNTERS
 L 740 L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS
 L 741 L3-09 DO YOU USE OR REFER TO DOWN CLOCKS
 L 742 L3-10 DO YOU USE OR REFER TO UP CLOCKS
 L 743 L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS
 L 744 L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-
 FLOPS
 L 745 L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 DECADE COUNTERS
 L 746 L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 RING COUNTERS
 L 747 L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER
 L 748 L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 SHIFT REGISTERS
 L 749 L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF
 OTHER TYPE OF COUNTERS
 L 750 L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT
 PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS
 L 751 L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT
 PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENT-
 ING FLIP-FLOPS
 L 752 L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT
 PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE
 REGISTER
 L 753 L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT
 PULSES FOR OTHER TYPES OF COUNTERS
 L 754 L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF
 DECADE COUNTERS
 L 755 L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING
 COUNTERS FOR SPECIFIC INPUT PULSES
 L 756 L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY
 IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT
 M 757 M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS
 M 758 M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS
 M 759 M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE
 FEEDBACK
 M 760 M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT
 REGENERATIVE FEEDBACK

SPC SPC SPC
051 052 054

COUNTERS

TIMING CIRCUITS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
051 052 054

761 M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS
 762 M1-06 DO YOU USE OR REFER TO RISE TIME
 763 M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME
 764 M1-08 DO YOU USE OR REFER TO SWEEP TIME
 765 M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH
 WAVEFORMS
 766 M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH
 WAVEFORMS
 767 M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH
 WAVEFORMS
 768 M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH
 WAVEFORMS

769 M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB
 770 M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL
 GENERATORS
 771 M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS
 ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL
 GENERATORS
 772 M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY
 WHILE USING SIGNAL GENERATORS
 773 M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE
 COMPONENT WHILE USING SIGNAL GENERATORS
 774 M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS
 775 M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH
 AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE
 776 M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH
 777 M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH
 778 M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION
 GENERATORS

779 M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING
 WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR
 GENERATORS
 780 M3-02 DO YOU INSPECT MOTORS
 781 M3-03 DO YOU CLEAN OR LUBRICATE MOTORS
 782 M3-04 DO YOU OPERATE MOTORS
 783 M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS
 784 M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS
 785 M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE
 CONNECTIONS OF MOTORS
 786 M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS
 787 M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS
 788 M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES
 789 M3-11 DO YOU PERFORM ANY TASKS ON ROTORS
 790 M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES
 791 M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS
 792 M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS
 793 M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES

USE OF SIGNAL GENERATORS

MOTORS AND GENERATORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UT-TSK

SPC SPC SPC
051 US2 054

N 825 N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS
N 826 N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT
WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF
SINGLE WINDING SATURABLE REACTORS
N 827 N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR
WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE
REACTORS
N 828 N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT
WAVEFORMS FOR MAGNETIC AMPLIFIERS
N 829 N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE
REACTORS
N 830 N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN
SATURABLE REACTORS
N 831 N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE
REACTORS
N 832 N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN
SATURABLE REACTORS
N 833 N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC
SYMBOLS
N 834 N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT
JOB
N 835 N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS
N 836 N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)
N 837 N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)
N 838 N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY
(PRF)
N 839 N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS
N 840 N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS
N 841 N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME
CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT
N 842 N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS
DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT
AND OUTPUT CONFIGURATION
N 843 N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS
N 844 N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS
O 845 O1-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR
PRESENT JOB
U 846 O1-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS
O 847 O1-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS
O 848 O1-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS
O 849 O1-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE
SYSTEMS
U 850 O1-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE
COMPONENTS
O 851 O1-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE
SYSTEMS
O 852 O1-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE
COMPONENTS

WAVESHAPING CIRCUITS

SINGLE SIDEBAND SYSTEMS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

GPSUM3 PAGE 31

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK

	SPC 051	SPC 052	SPC 054
0 853 01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0
0 854 01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0
0 855 01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	0	0	0
0 856 01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0
0 857 01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0
0 858 01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0
0 859 01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0
0 860 01-16 DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0
0 861 01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0
0 862 01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0
0 863 01-19 DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	0	0	0
0 864 01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0
0 865 01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0
0 866 01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	0	0	0
0 867 01-23 DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB	0	0	0
SYSTEM STAGES			
0 868 01-24 DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0
0 869 01-25 DO YOU USE OR REFER TO PEAK POWER	0	0	0
0 870 01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	0	0	0
0 871 01-27 DO YOU USE OR REFER TO RESPONSE CURVES FOR	0	0	0
BANDWIDTH FILTERS			
0 872 01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB	0	0	0
TRANSMITTERS			
0 873 01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB	0	0	0
TRANSMITTER SCHEMATIC DIAGRAMS			
0 874 01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB	0	0	0
RECEIVER SCHEMATIC DIAGRAMS			
0 875 02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR	3	3	3
PRESENT JOB			
0 876 02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	2	2	2
0 877 02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	2	2	2
0 878 02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	0	0	0
0 879 02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	2	2	2
0 880 02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM	0	0	0
COMPONENTS			
0 881 02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	2	2	2
0 882 02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM	0	0	0
COMPONENTS			
0 883 02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM)	0	0	0
SYSTEMS			
0 884 02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDH)	0	0	0
SYSTEMS			
0 885 02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPH)	0	0	0
SYSTEMS			
0 886 02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	0	0	0
0 887 02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	0	0	0
0 888 02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF	3	3	3
MODULATION SYSTEM			

PULSE MODULATION SYSTEMS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK	SPC	SPC	SPC	SPC
	051	052	054	054
0 889 02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	3	3	3	3
0 890 02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	2	2	2	2
0 891 02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	3	3	3	3
0 892 02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	3	3	3	3
0 893 02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATONS	0	0	0	0
0 894 02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	2	2	2	2
0 895 02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	0	0	0	0
0 896 02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	2	2	2	2
0 897 02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	2	2	2	2
0 898 02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	0	0	0	0
0 899 02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	3	3	3	3
0 900 02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	0	0	0	0
0 901 02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	0	0	0	0
0 902 02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	2	2	2	2
0 903 02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	0	0	0	0
0 904 02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	2	2	2	2
0 905 02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	3	3	3	3
0 906 02-32 DO YOU USE OR REFER TO PULSE SHAPE	2	2	2	2
0 907 02-33 DO YOU USE OR REFER TO PEAK POWER	2	2	2	2
0 908 02-34 DO YOU USE OR REFER TO AVERAGE POWER	2	2	2	2
0 909 02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	0	0	0	0
0 910 02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	0	0	0	0
0 911 02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	0	0	0	0
0 912 02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	2	2	2	2
0 913 02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	2	2	2	2
0 914 03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	0	0	0	0
0 915 03-02 DO YOU INSPECT ANTENNAS	0	0	0	0

ANTENNAS

PCT HRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
DS1 DS2 DS4

0 916 03-03 DO YOU CLEAN ANTENNAS 0 0 0
 0 917 03-04 DO YOU PHYSICALLY ALIGN ANTENNAS 0 0 0
 0 918 03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS 0 0 0
 0 919 03-06 DO YOU TROUBLESHOOT TO ANTENNAS 0 0 0
 0 920 03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS 0 0 0
 0 921 03-08 DO YOU REMOVE OR INSTALL ANTENNAS 0 0 0
 0 922 03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS 0 0 0
 0 923 03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES 0 0 0
 0 924 03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES 0 0 0
 0 925 03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS 0 0 0
 0 926 03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS INDUCTIVE LOADS TO THE GENERATOR 0 0 0
 0 927 03-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS TO THE GENERATOR 0 0 0
 0 928 03-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS TO THE GENERATOR 0 0 0
 0 929 03-16 DO YOU WORK WITH HERTZ ANTENNAS 0 0 0
 0 930 03-17 DO YOU WORK WITH MARCONI ANTENNAS 0 0 0
 0 931 03-18 DO YOU WORK WITH BROADSIDE ARRAYS 0 0 0
 0 932 03-19 DO YOU WORK WITH END-FIRE ARRAYS 0 0 0
 0 933 03-20 DO YOU WORK WITH CARDIOID ARRAYS 0 0 0
 0 934 03-21 DO YOU WORK WITH COLLINER ARRAYS 0 0 0
 0 935 03-22 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS 0 0 0
 0 936 03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS 0 0 0
 0 937 03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS 0 0 0
 0 938 03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS 0 0 0
 0 939 03-26 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION 0 0 0
 0 940 03-27 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD 0 0 0
 0 941 03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED 0 0 0
 0 942 03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED 0 0 0
 0 943 03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON 0 0 0
 0 944 03-31 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS 0 0 0

PCT MEMS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

CY-TSK		SPC	SPC	SPC
		051	052	054
0 945	03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	0	0	0
0 946	03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	0	0	0
0 947	03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	0	0	0
0 948	03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	0	0	0
0 949	03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	0	0	0
0 950	03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS	0	0	0
0 951	03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	0	0	0
0 952	03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS	0	0	0
P 953	PI-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS BETWEEN RECEIVERS AND ANTENNAS, TELEPHONE LEADS, AS WELL AS HIGH VOLTAGE POWER LINES, ETC. DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES)	54	54	55
P 954	PI-02 DO YOU REFER TO OR USE COPPER LOSS OR IZR LOSS IN TRANSMISSION LINES	5	5	3
P 955	PI-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	2	2	2
P 956	PI-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	2	2	0
P 957	PI-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	5	5	3
P 958	PI-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	3	3	2
P 959	PI-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	38	38	38
P 960	PI-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	26	26	26
P 961	PI-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	21	21	21
P 962	PI-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	13	13	12
P 963	PI-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	2	2	2
P 964	PI-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	51	51	52
P 965	PI-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)	11	11	10
P 966	PI-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	7	7	5
P 967	PI-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	36	36	36
P 968	PI-16 DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	3	3	3
P 969	PI-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	2	2	2
P 970	PI-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS	5	5	5

TRANSMISSION LINES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMINGSPC SPC SPC
051 052 054

DY-TSK

P 971 P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED
TO LOADS USING MATCHING TRANSFORMERS

P 972 P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED
TO LOADS USING DELTA MATCHING

P 973 P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED
FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA

P 974 P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC
IMPEDANCE (Z0) OF TRANSMISSION LINES

P 975 P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF
TRANSMISSION LINES

P 976 P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF
TRANSMISSION LINES

P 977 P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K)
OF TRANSMISSION LINES

P 978 P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION
LINES FOR PARTICULAR FREQUENCIES

P 979 P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR
ELECTRICAL LENGTH FOR GIVEN FREQUENCIES

P 980 P1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE
FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF
TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH
INCREASES

P 981 P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION
LINES

P 982 P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES

P 983 P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED
TO LOADS USING STUB MATCHING

P 984 P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN
YOUR PRESENT JOB

P 985 P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS

P 986 P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS

P 987 P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS

P 988 P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS

P 989 P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS

P 990 P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS

P 991 P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS

P 992 P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES

P 993 P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS

P 994 P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS

P 995 P2-12 DO YOU REMOVE OR INSTALL E BENDS

P 996 P2-13 DO YOU REMOVE OR INSTALL H BENDS

P 997 P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS

P 998 P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS

P 999 P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS

P1000 P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS

P1001 P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS

P1002 P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES

WAVEGUIDES AND CAVITY RESONATORS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC
	051	052	054
UY-TSK			
P1003 P2-20 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES	0	0	0
P1004 P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	0	0	0
P1005 P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	0	0	0
P1006 P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	0	0	0
P1007 P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	0	0	0
P1008 P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	0	0	0
P1009 P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	0	0	0
P1010 P2-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OF .7 WAVELENGTHS OF THE OPERATING FREQUENCY	0	0	0
P1011 P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 USED AS AN AVERAGE	0	0	0
P1012 P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	0	0	0
P1013 P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	0	0	0
P1014 P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR DIRECTION OF "H" FIELD IN WAVEGUIDES	0	0	0
P1015 P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES	0	0	0
P1016 P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES	0	0	0
P1017 P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES	0	0	0
P1018 P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0
P1019 P2-36 ARE LOW POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0
P1020 P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0
P1021 P2-38 ARE APERTURES (WINDOWS OR IRISES) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0
P1022 P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0
P1023 P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0
P1024 P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC
051 052 054

UY-TSK

P1025 P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES
IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO
TECHNICAL DATA

P1026 P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY
RESONATORS YOU WORK WITH

P1027 P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY
RESONATORS YOU WORK WITH

P1028 P2-45 ARE DONUT REMEMBER THE KIND OF JOINTS USED IN
WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH

P1029 P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING

P1030 P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING

P1031 P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING

P1032 P2-49 DO YOU TUNE CAVITY RESONATORS USING DONUT REMEMBER
THE METHOD OF TUNING

P1033 P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY
RESONATORS

P1034 P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS,
TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR
MAGNETRONS

P1035 P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE

P1036 P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME

P1037 P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE

P1038 P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL
CIRCUITRY

P1039 P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY
MODULATION

P1040 P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING

P1041 P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS

P1042 P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS

P1043 P3-10 DO YOU WORK WITH REFLEX KLYSTRONS

P1044 P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)

P1045 P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC
AMPLIFIERS

P1046 P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS

P1047 P3-14 DO YOU WORK WITH MAGNETRONS

P1048 P3-15 DO YOU INSPECT KLYSTRONS OR TWT

P1049 P3-16 DO YOU CLEAN KLYSTRONS OR TWT

P1050 P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY

P1051 P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY

P1052 P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR
TWT

P1053 P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT

P1054 P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT

P1055 P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS

P1056 P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS

P1057 P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS

P1058 P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS

MICROWAVE AMPLIFIERS AND
OSCILLATORS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC 051	SPC 052	SPC 054
DY-TSK			
P1059 P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	0	0	0
P1060 P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	0	0	0
P1061 P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	0	0	0
P1062 P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	0	0	0
P1063 P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	0	0	0
P1064 P3-31 DO YOU INSPECT MAGNETRONS	0	0	0
P1065 P3-32 DO YOU CLEAN MAGNETRONS	0	0	0
P1066 P3-33 DO YOU ADJUST MAGNETRONS	0	0	0
P1067 P3-34 DO YOU TUNE MAGNETRONS	0	0	0
P1068 P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	0	0	0
P1069 P3-36 DO YOU TROUBLESHOOT MAGNETRONS	0	0	0
P1070 P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	0	0	0
P1071 P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	0	0	0
P1072 P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	0	0	0
P1073 P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	0	0	0
P1074 P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	0	0	0
P1075 P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	0	0	0
P1076 P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	0	0	0
P1077 P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	0	0	0
P1078 P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	0	0	0
P1079 P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	0	0	0
P1080 P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	0	0	0
P1081 P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REFLECTOR (REFLECTOR) PLATES	0	0	0
P1082 P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	0	0	0
P1083 P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	0	0	0
P1084 P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	0	0	0
P1085 P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	0	0	0
P1086 P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	0	0	0
P1087 P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 051	SPC 052	SPC 054
P108 P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	0	0	0
P109 P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	0	0	0
P100 P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	0	0	0
P101 P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRID	0	0	0
P102 P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	0	0	0
P103 P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELICES	0	0	0
P104 P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	0	0	0
P105 P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	0	0	0
P106 P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	2	2	2
P107 P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	0	0	0
P108 P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	0	0	0
P109 P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	0	0	0
P100 P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	0	0	0
P101 P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	0	0	0
P102 P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	0	0	0
P103 P3-70 DO YOU PERFORM TASKS ON ANODES	0	0	0
P104 P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	0	0	0
P105 P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	0	0	0
P106 P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	0	0	0
P107 P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	0	0	0
P108 P3-75 DO YOU PERFORM TASKS ON CATHODES	0	0	0
P109 P3-76 DO YOU PERFORM TASKS ON MAGNETS	0	0	0
G110 Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	0	0	0
G111 Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	0	0	0
G112 Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	0	0	0
G113 Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	0	0	0
G114 Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	0	0	0
G115 Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	2	2	2

REGISTERS

PCT MBS RESPONDING 'YES' BY SELECTED GNPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMINGSPC SPC SPC
051 052 054

DY-TSK

4116 Q1-Q7 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A
SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES
HAVE PASSED

4117 Q2-Q1 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR
STORAGE DEVICES IN YOUR PRESENT JOB

4118 Q2-Q2 DO YOU USE OR REFER TO DELAY LINES

4119 Q2-Q3 DO YOU USE OR REFER TO MAGNETIC CORES

4120 Q2-Q4 DO YOU USE OR REFER TO MAGNETIC DRUMS

4121 Q2-Q5 DO YOU USE OR REFER TO MAGNETIC TAPES

4122 Q2-Q6 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR
MEMORY SYSTEMS

4123 Q2-Q7 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY
SYSTEMS

4124 Q2-Q8 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS

4125 Q2-Q9 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES

4126 Q3-Q1 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-
ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D)
CONVERTERS, OR BINARY-TO-DECIMAL READOUT CONVERTERS

4127 Q3-Q2 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL
DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT
VOLTAGES

4128 Q3-Q3 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE
COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A)
CONVERTERS IS DETERMINED BY ADDING THE DENOMINATORS OF THE
RESISTORS

4129 Q3-Q4 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY
COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS

4130 Q3-Q5 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME
ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS

4131 Q3-Q6 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME
ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS

4132 Q3-Q7 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE
TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS

4133 Q3-Q8 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE
TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS

4134 Q3-Q9 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS
ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER
CIRCUITS

4135 Q3-Q10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D
CONVERTERS

4136 Q3-Q11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D
CONVERTERS

4137 Q3-Q12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D
CONVERTERS

4138 Q3-Q13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D
CONVERTERS

4139 Q3-Q14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-
DIGITAL (A/D) CONVERTERS

STORAGE DEVICES

DIGITAL TO ANALOG CONVERTERS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC
051 052 054

R1140 R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB

0 0 0

PHANTASTRONS

R1141 R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS

13 13 12

SCHMITT TRIGGERS

R1142 R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS

11 11 10

SCHMITT TRIGGERS

R1143 R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS

11 11 10

SCHMITT TRIGGERS

R1144 R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES

5 5 5

CABLE FABRICATION

R1145 R3-02 DO YOU FABRICATE COAXIAL CABLES

2 2 2

CABLE FABRICATION

S1146 S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS

11 11 10

INPUT/OUTPUT DEVICES

S1147 S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS

0 0 0

INPUT/OUTPUT DEVICES

S1148 S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA

0 0 0

INPUT/OUTPUT DEVICES

S1149 S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB

0 0 0

PHOTO SENSITIVE DEVICES

S1150 S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS

3 3 2

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1151 S3-02 DO YOU MEASURE EXCITATION FREQUENCIES

0 0 0

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1152 S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS

2 2 2

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1153 S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES

0 0 0

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1154 S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS

2 2 2

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1155 S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION

3 3 2

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1156 S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION

2 2 2

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1157 S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION

0 0 0

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

S1158 S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION

0 0 0

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

T1159 T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS

0 0 0

INFRARED

T1160 T1-02 DO YOU INSPECT INFRARED SYSTEMS

0 0 0

INFRARED

T1161 T1-03 DO YOU CLEAN INFRARED SYSTEMS

0 0 0

INFRARED

T1162 T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS

0 0 0

INFRARED

T1163 T1-05 DO YOU OPERATE INFRARED SYSTEMS

0 0 0

INFRARED

T1164 T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS

0 0 0

INFRARED

T1165 T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS

0 0 0

INFRARED

T1166 T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS

0 0 0

INFRARED

T1167 T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS

0 0 0

INFRARED

T1168 T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS

0 0 0

INFRARED

PCT MEMS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

Task ID	Task Description	SPC 051	SPC 052	SPC 054
T1169	T1-11 DO YOU USE OR REFER TO FAR REGION	0	0	0
T1170	T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	0	0	0
T1171	T1-13 DO YOU USE OR REFER TO NEAR REGION	0	0	0
T1172	T1-14 DO YOU USE OR REFER TO MICRON	0	0	0
T1173	T1-15 DO YOU USE OR REFER TO GRAY BODIES	0	0	0
T1174	T1-16 DO YOU USE OR REFER TO BLACK BODIES	0	0	0
T1175	T1-17 DO YOU USE OR REFER TO ABSORPTION	0	0	0
T1176	T1-18 DO YOU USE OR REFER TO SCATTERING	0	0	0
T1177	T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	0	0	0
T1178	T1-20 DO YOU PERFORM TASKS ON BLITZ	0	0	0
T1179	T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	0	0	0
T1180	T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	0	0	0
T1181	T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	0	0	0
T1182	T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	0	0	0
T1183	T1-25 DO YOU PERFORM TASKS ON FILTERS	0	0	0
T1184	T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	0	0	0
T1185	T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	0	0	0
T1186	T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0
T1187	T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0
T1188	T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0
T1189	T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0
T1190	T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0
T1191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0
T1192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0
T1193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0
T1194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0
T1195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0
T1196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0
T1197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0
T1198	T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0
T1199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0
T1200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0
T1201	T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0
T1202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0
T1203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0
T1204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0
T1205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0
T1206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0
T1207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0
T1208	T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0
T1209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0

LASERS

PCT MBRS RESPONDING 'YES' BY SELECTED GNPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMINGSPC SPC SPC
051 052 054

UY-TSK

T1210 T2-25 DO YOU WORK WITH HALF SILVERED (928 REFLECTIVE)

MIRRORS

T1211 T2-26 DO YOU WORK WITH HELICAL FLASHTUBES

T1212 T2-27 DO YOU WORK WITH RUBY

T1213 T2-28 DO YOU WORK WITH HELIUM-NEON

T1214 T2-29 DO YOU WORK WITH HELIUM-XENON

T1215 T2-30 DO YOU WORK WITH XENON

T1216 T2-31 DO YOU WORK WITH CESIUM-HELIUM

T1217 T2-32 DO YOU WORK WITH ARGON

T1218 T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS

T1219 T2-34 DO YOU WORK WITH GALLIUM ARSENIDE

T1220 T3-01 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES,

SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE

STORAGE TUBES (HMST)

T1221 T3-02 DO YOU INSPECT DVST OR HMST

T1222 T3-03 DO YOU CLEAN DVST OR HMST

T1223 T3-04 DO YOU ADJUST OR CALIBRATE DVST OR HMST

T1224 T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR HMST

T1225 T3-06 DO YOU TROUBLESHOOT DVST OR HMST

CIRCUITS

T1226 T3-07 DO YOU REMOVE OR REPLACE DVST OR HMST TUBES FROM

MAJOR ASSEMBLIES OR UNITS

T1227 T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME

THE VARIOUS ELEMENTS OF DVST

T1228 T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME

THE VARIOUS ELEMENTS OF HMST

T1229 T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS

T1230 T3-11 DO YOU PERFORM TASKS ON WRITE GUNS

T1231 T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS

T1232 T3-13 DO YOU PERFORM TASKS ON ERASE GUNS

T1233 T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS

T1234 U1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING

TASKS

U1235 U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS

U1236 U1-03 DO YOU USE OR REFER TO PROGRAMS

U1237 U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS

U1238 U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS

U1239 U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS

U1240 U1-07 DO YOU USE OR REFER TO BINARY SYSTEMS

U1241 U1-08 DO YOU USE OR REFER TO TIME-SHARING

U1242 U1-09 DO YOU USE OR REFER TO DATA WORDS

U1243 U1-10 DO YOU USE OR REFER TO ADDRESS WORDS

U1244 U1-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS

U1245 U1-12 DO YOU USE OR REFER TO STEERING/INFORMATION

U1246 U1-13 DO YOU USE OR REFER TO INFORMATION WORDS

U1247 U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING

U1248 U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING

DISPLAY TUBES

PROGRAMMING

PCT MRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY=YSK		SPC	SPC	SPC
		051	052	054
U1249	U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	0	0	0
U1250	U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	0	0	0
U1251	U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	0	0	0
U1252	U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	0	0	0
U1253	U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	0	0	0
U1254	U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	0	0	0
U1255	J2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	62	62	64
U1256	J2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	2	2	2
U1257	J2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	2	2	2
U1258	J2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	3	3	3

DB AND POWER RATIOS

AD-A044 645

AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9
MISSILE CONTROL COMMUNICATIONS SYSTEMS SPECIALIST AFSC 36253.(U)
SEP 77 T J O'CONNOR, F B BOWER

UNCLASSIFIED

NL

2 OF 2
ADA
044645



SUPPLEMENTARY

INFORMATION



END
DATE
FILMED

1 -79
DDC

SUPPLEMENTARY

INFORMATION

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Corrected

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFPT 90-362-222	2. GOVT ACCESSION NO. AD A044645	3. RECIPIENT'S CATALOG NUMBER 654
4. TITLE (and Subtitle) Missile Control Communications System Specialist AFSC 36253		5. TYPE OF REPORT & PERIOD COVERED FINAL April 77 - June 77
7. AUTHOR(s) Thomas J. O'Connor Frederick B. Bower, Jr.		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Occupational Survey Branch USAF Occupational Measurement Center Lackland AFB TX 78236		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS SAME AS ITEM 9		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS N/A
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 15 September 1977
		13. NUMBER OF PAGES 44
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Electronic principles Electronics Basic electronics Air Force Training Avionics Teaching methods Electronic equipment Training Electronic technicians		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Missile Control Communications Systems Specialist (AFSC 36253). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.		

CONTINUED

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

→ This specialty has the following functions:

Maintains and repairs missile control communications equipment and systems. Performs preventive maintenance routines. Maintains, replaces and repairs missile control communications systems and components. Maintains inspection and maintenance records. Supervises missile control communications systems repair personnel. ←

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)