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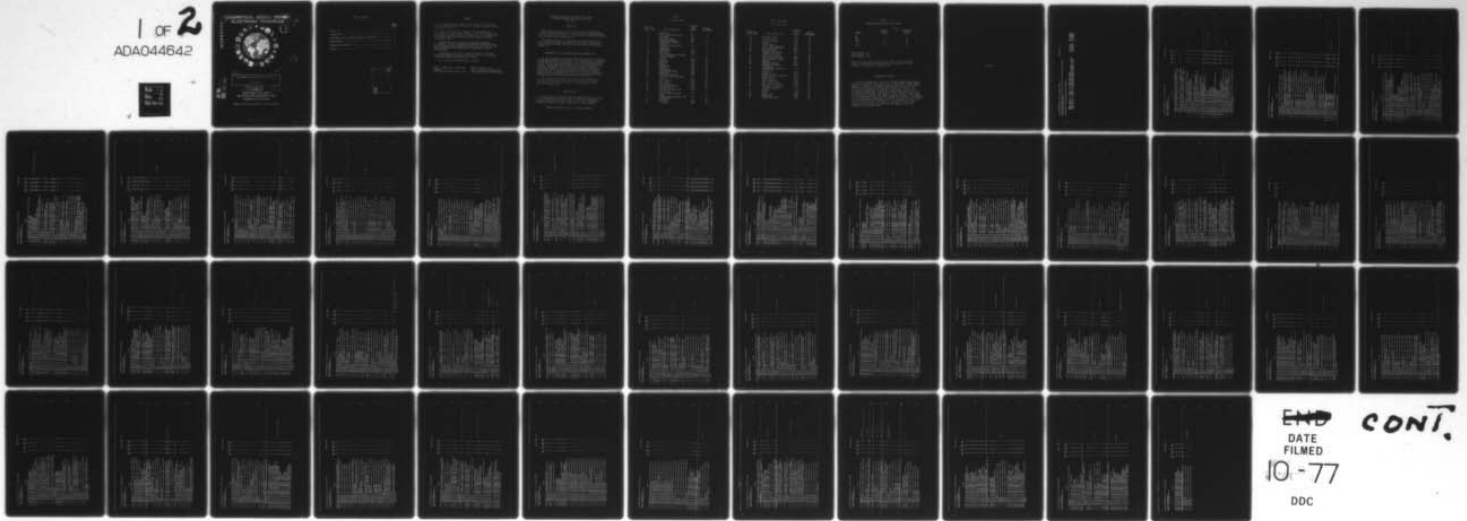
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TELEPHONE EQUIPMENT INSTALLER SPECIALIST, AFSC 36254.(U)
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9 OCCUPATIONAL SURVEY REPORT.
ELECTRONIC PRINCIPLES

Apr-Jun 77

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TELEPHONE EQUIPMENT INSTALLER SPECIALIST

AFSC 36254

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OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

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PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Telephone Equipment Installer Specialist, AFSC 36254.

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

ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
TELEPHONE EQUIPMENT INSTALLATION SPECIALIST
AFSC 36254

INTRODUCTION

✓ This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Telephone Equipment Installer Specialist (AFSC 36254). 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 36254 airmen worldwide. Responses from 108 individuals represented 15 percent of the total of all AFSC 36254 personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

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TABLE 1
EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
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

COMMAND	PERCENT ASSIGNED	36254	PERCENT OF SAMPLE
ADC	1		4
ATC	1		1
AFCS	97		82
OTHER	1		13
TOTAL	100		100

Total Assigned - 702
 Total Sampled - 108
 Percent Sampled - 15%*

*NOTE: Only a 40 percent sampling of this career specialty had been ordered. Of the booklets distributed only 53 percent were returned resulting in the low percent sampled figure.

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 Soldering (pp. 11-12) and Relays (p. 12) to low in areas such as Limiters and Clampers (p. 21) and Lasers (pp. 42-43). Additional AFSC 362X4 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

PCT NBS RESPONDING 'YES' BY SELECTED GRPS

GPSUM4 PAGE 1

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 36244 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY = SPC076 ALL AIRMEN DAFSC 36254
GROUP IDENTITY = SPC077 ALL AIRMEN DAFSC 36254 STATIONED IN CONUS
GROUP IDENTITY = SPC078 ALL AIRMEN DAFSC 36254 STATIONED OVERSEAS
GROUP IDENTITY = SPC079 ALL AIRMEN DAFSC 36254 ASSIGNED TO AFCS

CONTAINING 108 MEMBERS.
CONTAINING 83 MEMBERS.
CONTAINING 25 MEMBERS.
CONTAINING 87 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

0Y-TSK

Task ID	Description	SPC 076	SPC 077	SPC 078	SPC 079
A 1	AI-01 DO YOU 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.	37	37	36	35
A 2	AI-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.	20	19	24	24
A 3	AI-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	9	11	4	9
A 4	AI-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	3	2	4	2
A 5	AI-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	6	6	8	6
A 6	AI-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	0	0	0	0
A 7	AI-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	0	0	0	0
A 8	AI-08 DO YOU SOLVE QUADRATIC EQUATIONS.	4	4	4	3
A 9	AI-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	0	0	0	0
A 10	AI-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	1	1	0	1
A 11	AI-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	2	1	4	1
A 12	AI-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	2	2	0	1
A 13	AI-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	1	0	4	0
A 14	AI-14 DO YOU SOLVE OR USE PROPORTIONS.	0	0	0	0
A 15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).	81	77	92	78
A 16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	33	35	28	35
A 17	A2-03 DO YOU USE THE TERM OHM.	76	72	88	74
A 18	A2-04 DO YOU USE THE TERM ION.	10	8	16	10
A 19	A2-05 DO YOU USE THE TERM DYNE.	6	4	16	7
A 20	A2-06 DO YOU USE THE TERM AMPERE.	71	70	76	70
A 21	A2-07 DO YOU USE THE TERM NEUTRON.	10	8	16	10
A 22	A2-08 DO YOU USE THE TERM COULOMB.	8	6	16	8
A 23	A2-09 DO YOU USE THE TERM PROTON.	11	6	20	10
A 24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	45	42	56	46
A 25	A3-02 DO YOU INSPECT RESISTORS.	31	29	36	33
A 26	A3-03 DO YOU CLEAN RESISTORS.	7	8	4	9
A 27	A3-04 DO YOU ADJUST RESISTORS.	15	13	20	15
A 28	A3-05 DO YOU CHECK OHMIC VALUE OR RESISTORS.	43	39	56	42
A 29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	35	34	40	36
A 30	A3-07 DO YOU USE OH REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	6	7	4	8
A 31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	46	43	56	47
A 32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	35	31	48	35
A 33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	36	33	48	35

DIRECT CURRENT AND VOLTAGE

RESISTANCE

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

		SPC	SPC	SPC	SPC	SPC	SPC
		074	077	078	079	076	079
A 34	A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	30	30	28	28		
A 35	A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	16	14	20	17		
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.	39	35	52	40		
A 37	A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	56	53	68	57		
A 38	A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	33	31	40	33		
A 39	A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	32	33	32	30		
A 40	A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	31	30	32	29		
A 41	A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	23	22	28	21		
A 42	A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	26	28	20	22		
A 43	A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	25	28	16	21		
A 44	A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	24	27	16	21		
A 45	A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	23	25	16	21		
A 46	A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	19	20	12	16		
A 47	A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	23	27	12	21		
A 48	A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	22	27	8	20		
A 49	A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	22	27	8	20		
A 50	A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	20	24	8	19		
A 51	A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	14	17	4	12		
B 52	B1-01 DO YOU MEASURE RESISTANCE.	66	64	72	65		
B 53	B1-02 DO YOU REPAIR OHMMETERS.	6	5	8	2		
B 54	B1-03 DO YOU MEASURE VOLTAGE.	74	71	64	75		
B 55	B1-04 DO YOU REPAIR VOLTMETERS.	4	4	4	1		
B 56	B1-05 DO YOU REPAIR AMMETERS.	4	4	4	1		
B 57	B1-06 DO YOU MEASURE CURRENT.	60	60	60	58		
B 58	B1-07 DO YOU USE MULTIMETERS.	73	70	84	72		
B 59	B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	2	0	8	1		
B 60	B1-09 DO YOU READ SCHEMATICS.	82	80	92	81		

MULTIMETER USES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		SPC	SPC	SPC	SPC	SPC	SPC
		076	077	078	079	076	079
B 61	B2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	20	19	24	18		
B 62	B2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	15	13	20	15		
B 63	B2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	35	34	40	31		ALTERNATING CURRENT
B 64	B2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	6	8	0	7		
B 65	B2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY.	26	22	40	24		
B 66	B2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	5	5	4	6		
B 67	B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	16	14	20	13		
B 68	B3-02 DO YOU INSPECT INDUCTORS.	11	11	12	10		
B 69	B3-03 DO YOU CLEAN INDUCTORS.	4	4	4	3		
B 70	B3-04 DO YOU ADJUST INDUCTORS.	1	1	0	0		
B 71	B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	11	11	12	10		
B 72	B3-06 DO YOU USE OR REFER TO INDUCTANCE.	12	12	12	12		
B 73	B3-07 DO YOU USE OR REFER TO HENRIES.	8	7	12	9		
B 74	B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	7	7	8	7		
B 75	B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	2	2	0	2		
B 76	B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	2	2	0	2		
B 77	B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS.	1	1	0	1		
B 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.	5	5	4	6		INDUCTORS AND INDUCTIVE REACTANCE
B 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.	2	2	0	2		
B 80	B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	2	2	0	2		
B 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.	4	4	4	4		
B 82	B3-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	2	2	0	2		
B 83	B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	2	2	0	2		
B 84	B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	2	2	0	2		
B 85	B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	2	2	0	2		
B 86	B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	4	5	0	4		
B 87	B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	2	2	0	2		
B 88	B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	4	5	0	3		
B 89	B3-23 DO YOU WORK WITH POWER INDUCTORS.	6	7	4	8		
B 90	B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	5	5	4	4		
B 91	B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	1	1	0	1		

PCT MBRS RESPONDING *YES* BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 076	SPC 077	SPC 078	SPC 079
92	CI-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	51	47	64	51
93	CI-02 DO YOU INSPECT CAPACITORS.	33	30	44	30
94	CI-03 DO YOU CLEAN CAPACITORS.	13	8	28	13
95	CI-04 DO YOU ADJUST CAPACITORS.	6	7	0	6
96	CI-05 DO YOU TEST CAPACITORS.	28	24	40	28
97	CI-06 DO YOU DISCHARGE CAPACITORS.	25	20	40	26
98	CI-07 DO YOU REMOVE OR REPLACE CAPACITORS.	31	29	40	33
99	CI-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	3	4	0	3
100	CI-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	2	2	0	2
101	CI-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	20	22	16	19
102	CI-11 DO YOU USE OR REFER TO CAPACITANCE.	30	25	44	28
103	CI-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	2	2	0	2
104	CI-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	17	16	20	17
105	CI-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	10	10	12	11
106	CI-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	8	7	12	10
107	CI-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	42	37	56	39
108	CI-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	43	37	60	40
109	CI-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC	38	35	48	36
110	CI-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	14	10	28	15
111	CI-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	3	4	0	3
112	CI-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	3	4	0	3
113	CI-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	2	2	0	2
114	CI-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	8	11	0	9
115	CI-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	11	13	4	10
116	CI-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	11	11	12	12
117	CI-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO	15	13	20	12
118	CI-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	11	12	8	11
119	CI-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	6	6	8	7
120	CI-29 DO YOU CALCULATE CAPACITIVE REACTANCE	6	5	8	7

CAPACITORS AND CAPACITIVE REACTANCE

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC
076 077 078 079

C 121	CI-30	DO YOU WORK WITH ROTOR-STATOR (VARIABLE) CAPACITORS	13	12	16	16
C 122	CI-31	DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	4	5	0	4
C 123	CI-32	DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	25	25	24	25
C 124	CI-33	DO YOU WORK WITH PAPER (FIXED) CAPACITORS	23	23	24	20
C 125	CI-34	DO YOU WORK WITH MICA (FIXED) CAPACITORS	17	16	20	18
C 126	CI-35	DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	25	24	28	25
C 127	CI-36	DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	18	14	28	17
C 128	C2-01	DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	20	17	32	20
C 129	C2-02	DO YOU INSPECT TRANSFORMERS	19	14	32	18
C 130	C2-03	DO YOU CLEAN TRANSFORMERS	11	5	32	12
C 131	C2-04	DO YOU ADJUST TRANSFORMERS	6	4	12	4
C 132	C2-05	DO YOU TROUBLESHOOT TRANSFORMERS	16	12	28	15
C 133	C2-06	DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	19	13	36	19
C 134	C2-07	DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	5	1	16	6
C 135	C2-08	DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTANCE AND MUTUAL INDUCTANCE (M)	1	1	0	1
C 136	C2-09	DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	0	0	0	0
C 137	C2-10	DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	0	0	0	0
C 138	C2-11	DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	2	2	0	2
C 139	C2-12	DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	1	1	0	1
C 140	C2-13	DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	0	0	0	0
C 141	C2-14	DO YOU WORK WITH AUTOTRANSFORMERS	0	0	0	0
C 142	C2-15	DO YOU WORK WITH POWER TRANSFORMERS	21	16	40	20
C 143	C2-16	DO YOU WORK WITH AUDIO TRANSFORMERS	6	7	4	6
C 144	C2-17	DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	2	2	0	1
C 145	C2-18	DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	6	2	16	6
C 146	C2-19	DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	14	13	16	12
C 147	C2-20	DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	11	10	16	10
C 148	C2-21	DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	15	13	20	13
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	8	8	8	8
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	7	6	12	7
C 151	C2-24	DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	17	16	20	17

TRANSFORMERS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TASK	SPC	SPC	SPC	SPC
	076	077	078	079
C 152 C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	10	16	24	18
C 153 C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	11	10	16	11
C 154 C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	14	12	20	15
C 155 C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	14	13	16	15
C 156 C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	16	14	20	16
C 157 C2-30 DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	15	12	24	15
C 158 C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	6	6	4	7
C 159 C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	4	4	4	4
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	0	0	0	0
C 161 C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	6	6	8	7
C 162 C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	2	2	0	2
C 163 C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	2	2	0	2
C 164 C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	1	1	0	1
C 165 C2-38 DO YOU INSPECT THREE PHASE TRANSFORMERS	1	1	0	1
C 166 C2-39 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	0	0	0	0
C 167 C2-40 DO YOU ADJUST THREE PHASE TRANSFORMERS	0	0	0	0
C 168 C2-41 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	1	1	0	1
C 169 C2-42 DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	1	1	0	1
C 170 C2-43 DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	1	1	0	1
C 171 C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS	28	24	40	28
C 172 C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS	19	20	12	18
C 173 C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	6	7	0	6
C 174 C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	6	7	0	6
C 175 C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	6	8	0	7
C 176 C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM	7	8	4	8
C 177 C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	12	12	12	13
C 178 C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	4	4	4	4

MAGNETISM

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 076	SPC 077	SPC 078	SPC 079
0 204 D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	1	1	0	1
0 205 D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	1	1	0	1
0 206 D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	1	1	0	1
0 207 D1-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	2	2	0	2
0 208 D1-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	1	1	0	1
0 209 D1-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	2	2	0	2
0 210 D1-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	2	2	0	2
0 211 D1-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	0	0	0	0
0 212 D1-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	1	1	0	1
0 213 D1-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	1	1	0	1
0 214 D1-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	2	2	0	2
0 215 D1-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	1	1	0	1
0 216 D1-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	2	2	0	2
0 217 D1-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	3	4	0	3
0 218 D1-34 DO YOU CHECK CAPACITORS USING OHMMETERS	9	11	4	7
0 219 D1-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	5	5	4	3
0 220 D1-36 DO YOU CHECK INDUCTORS USING OHMMETERS	8	10	4	6
0 221 D1-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	5	5	4	3
0 222 D1-38 DO YOU USE OH REFER TO THE GENERAL RULE THAT $\theta = \theta$, $PF = I$, AND $PA = PT$ FOR RESONANT CIRCUITS	1	1	0	1
0 223 D1-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	1	1	0	1
0 224 D1-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS	1	1	0	1
0 225 D1-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS	1	1	0	1
0 226 D1-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	2	2	0	0
0 227 D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	0	0	0	0
0 228 D1-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	1	1	0	1

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC 076	SPC 077	SPC 078	SPC 079
0 229 02-01 DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	4	4	4	3
0 230 02-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	1	1	0	0
0 231 02-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	2	2	0	1
0 232 03-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	1	1	0	1
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)	1	1	0	0
0 234 02-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	0	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	1	1	0	1
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	1	1	0	1
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	1	1	0	1
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	0	2
0 239 03-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	17	16	20	16
0 240 03-02 DO YOU INSPECT FILTER CIRCUITS	10	10	12	10
0 241 03-03 DO YOU CLEAN FILTER CIRCUITS	4	2	6	4
0 242 03-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	3	2	4	3
0 243 03-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	8	7	12	8
0 244 03-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	6	6	6	7
0 245 03-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	13	12	16	13
0 246 03-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	8	8	8	10
0 247 03-09 DO YOU WORK WITH LOW PASS FILTERS	9	8	12	9
0 248 03-10 DO YOU WORK WITH HIGH PASS FILTERS	6	7	0	7
0 249 03-11 DO YOU WORK WITH BANDPASS FILTERS	4	4	4	4
0 250 03-12 DO YOU WORK WITH BAND-REJECT FILTERS	4	4	4	4
0 251 03-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	8	10	4	7
0 252 03-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	3	2	4	3
0 253 03-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	2	1	4	2
0 254 03-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	2	1	4	2
0 255 03-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	9	10	8	9
0 256 03-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	3	4	0	2
0 257 03-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	6	6	4	4
0 258 03-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	4	5	0	3

SERIES AND PARALLEL RESONANCE
(TIME CONSTANTS)

FILTERS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

OY-TSK

SPC SPC SPC SPC
076 077 078 079

6 6 8 7
2 2 0 1

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

6 6 4 4
5 6 0 3

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

5 5 4 4

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

6 8 0 4

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

4 5 0 2

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

3 2 4 2

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

4 5 0 2

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

5 6 0 2

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

5 6 0 2

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

5 6 0 2

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

5 6 0 3

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

1 0 4 1

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

79 78 80 79

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

66 66 64 69

E 275 E2-03 DO YOU ADD FLUX TO CONNECTIONS

46 48 40 51

E 276 E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS

39 40 36 39

E 277 E2-05 DO YOU STRIP INSULATION FROM WIRES

80 80 80 80

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

36 34 44 36

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

78 77 80 79

E 280 E2-08 DO YOU CUT WIRES

80 80 80 80

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

69 70 68 69

E 282 E2-10 DO YOU TIN SOLDERING IRON TIPS

73 72 76 73

E 283 E2-11 DO YOU CLEAN SOLDERING IRON TIPS

79 78 80 79

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

37 36 40 37

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

58 60 52 58

E 286 E2-14 DO YOU INSPECT SOLDERED CONNECTIONS

77 76 80 78

E 287 E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING

36 33 48 37

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

34 36 28 33

E 289 E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS

40 41 36 38

E 290 E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL

15 14 16 13

COUPLING

SOLDERING

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

0Y-TSK

Task Description	SPC 076	SPC 077	SPC 078	SPC 079
E 291 E2-19 DO YOU MAKE HARDWIRE CONNECTIONS	71	71	72	70
E 292 E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS	18	17	20	17
E 293 E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS	14	12	20	13
E 294 E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS	9	8	12	10
E 295 E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB	80	80	80	80
E 296 E3-02 DO YOU ADJUST RELAYS	69	65	80	71
E 297 E3-03 DO YOU CLEAN RELAYS	81	82	80	82
E 298 E3-04 DO YOU INSPECT RELAYS	81	81	84	82
E 299 E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS	69	67	76	72
E 300 E3-06 DO YOU REMOVE OR REPLACE PARTS OR RELAYS	38	40	32	37
E 301 E3-07 DO YOU TROUBLESHOOT RELAYS	80	80	80	80
E 302 E3-08 DO YOU STRAIGHTEN RELAY CONTACTS	77	76	80	76
E 303 E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS	81	80	84	81
E 304 E3-10 DO YOU PERFORM TASKS ON RELAY CORES	19	17	24	18
E 305 E3-11 DO YOU PERFORM TASKS ON RELAY COILS	24	23	28	22
E 306 E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES	34	35	32	33
E 307 E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS	48	47	52	49
E 308 E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPER (NO) SCHEMATIC SYMBOLS FOR RELAYS	49	47	56	49
E 309 E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS	47	46	52	47
E 310 E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS	46	46	48	46
E 311 E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS	45	46	44	45
E 312 E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	62	60	68	63
E 313 E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	33	33	36	34
F 314 F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	18	19	12	16
F 315 F1-02 DO YOU INSPECT MICROPHONES	16	17	12	13
F 316 F1-03 DO YOU CLEAN MICROPHONES	11	12	8	11
F 317 F1-04 DO YOU OPERATE MICROPHONES	16	18	8	13
F 318 F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OR MICROPHONES	12	12	12	9
F 319 F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	6	8	0	4
F 320 F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	15	16	12	12
F 321 F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	6	7	0	6
F 322 F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	16	17	12	13
F 323 F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	4	5	0	4
F 324 F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	3	4	0	2
F 325 F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	3	2	4	3
F 326 F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	1	1	0	1

RELAYS

MICROPHONES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC
076 077 078 079

F 327 F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS

39 34 56 39

SPEAKERS

F 328 F2-02 DO YOU INSPECT SPEAKERS

33 31 40 34

F 329 F2-03 DO YOU CLEAN SPEAKERS

25 23 32 26

F 330 F2-04 DO YOU OPERATE SPEAKERS

32 31 36 31

F 331 F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS

36 31 52 37

F 332 F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS

12 8 24 11

F 333 F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS

33 29 48 34

F 334 F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS

6 6 4 4

F 335 F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES

1 0 4 0

F 336 F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS

1 0 4 0

F 337 F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS

1 0 4 0

F 338 F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS

3 0 12 0

F 339 F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS

3 1 8 0

F 340 F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS

3 1 8 0

F 341 F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES

2 0 8 0

F 342 F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB

5 6 0 4

F 343 F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS

4 5 0 3

F 344 F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS

3 4 0 2

F 345 F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS

5 6 0 4

F 346 F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY

4 5 0 3

F 347 F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME

1 1 0 1

F 348 F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS

1 1 0 1

F 349 F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES

2 2 0 2

F 350 F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS

1 1 0 1

F 351 F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE

3 4 0 3

F 352 F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS

2 2 0 2

F 353 F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE

4 5 0 3

G 354 G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB

16 17 12 12

G 355 G1-02 DO YOU INSPECT DIODES

13 14 8 10

G 356 G1-03 DO YOU REMOVE OR REPLACE DIODES

10 11 8 9

G 357 G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT

12 12 12 9

G 358 G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES

1 1 0 1

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 LIAS RESISTANCE

3 4 0 3

G 360 G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES

5 6 0 4

SEMICONDUCTOR DIODES

OSCILLOSCOPES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC
076 077 078 079

6 361	61-08	DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	9	12	0	9
6 362	61-09	DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	10	12	4	8
6 363	61-10	DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	3	4	0	2
6 364	61-11	DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	6	8	0	7
6 365	61-12	DO YOU USE OR REFER TO DIODE COLOR CODING	6	7	0	6
6 366	61-13	DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	2	2	0	2
6 367	61-14	DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	2	2	0	2
6 368	61-15	DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	7	10	0	8
6 369	61-16	DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	3	4	0	3
6 370	61-17	DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	3	4	0	3
6 371	61-18	DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	6	7	0	7
6 372	61-19	DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	2	2	0	2
6 373	61-20	DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	2	2	0	2
6 374	61-21	DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	2	2	0	2
6 375	61-22	DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	3	4	0	3
6 376	61-23	DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	3	4	0	3
6 377	61-24	DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	16	18	8	15
6 378	61-25	DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	5	5	4	6
6 379	61-26	DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	8	10	4	9
6 380	61-27	DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT	2	2	0	2
6 381	61-28	DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	8	11	0	8
6 382	61-29	DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	3	4	0	3

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

DY-TSK

G 383	61-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	3	4	0	3
G 384	61-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	2	2	0	2
G 385	61-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	3	4	0	3
G 386	61-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	2	2	0	2
G 387	61-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	2	2	0	2
G 388	61-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	2	2	0	2
G 389	61-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	2	2	0	2
G 390	61-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	6	8	0	7
G 391	61-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	6	8	0	7
G 392	61-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	4	5	0	3
G 393	61-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	4	5	0	3
G 394	61-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	3	4	0	3
G 395	61-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	2	2	0	2
G 396	61-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	3	4	0	3
G 397	61-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	1	1	0	1
G 398	61-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	0	0	0	0
G 399	61-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	4	5	0	3
G 400	61-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	5	6	0	3
G 401	61-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	4	5	0	2
G 402	61-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	5	6	0	3
G 403	61-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	4	5	0	2
G 404	62-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	26	29	16	25
G 405	62-02 DO YOU INSPECT TRANSISTORS	18	19	12	16
G 406	62-03 DO YOU REMOVE OR REPLACE TRANSISTORS	11	13	4	12
G 407	62-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	13	13	12	13
G 408	62-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	14	16	8	15
G 409	62-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	15	17	8	16

TRANSISTORS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

0Y-TSK

Task ID	Description	SPC 076	SPC 077	SPC 078	SPC 079
G 410	62-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	14	17	4	15
G 411	62-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	10	11	8	11
G 412	62-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	9	11	4	10
G 413	62-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	8	11	0	10
G 414	62-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	4	5	0	4
G 415	62-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	21	23	16	20
G 416	62-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	21	23	16	20
G 417	62-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	7	10	0	7
G 418	62-15 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)	9	11	4	8
G 419	62-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	10	12	4	9
G 420	62-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	6	7	4	7
G 421	62-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	3	4	0	3
G 422	62-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	5	6	0	4
G 423	62-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	5	6	0	4
G 424	62-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	5	6	0	4
G 425	62-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	2	2	0	1
G 426	62-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	2	2	0	1
G 427	62-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	2	2	0	1
G 428	63-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	9	11	4	7
G 429	63-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	6	7	4	3
G 430	63-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	6	6	4	3
G 431	63-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	6	7	4	3
G 432	63-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	5	6	0	2
G 433	63-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	8	10	4	6
G 434	63-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	2	2	0	0
G 435	63-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	2	2	0	1
G 436	63-09 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	1	1	0	0

TRANSISTOR AMPLIFIERS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

DY-TSK

6 437 G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT

6 438 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

6 439 G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL

6 440 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

6 441 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)

6 442 G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR

6 443 G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR

6 444 G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION

6 445 G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION

6 446 G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION

6 447 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 IN COLLECTOR VOLTAGE TO DETERMINE THE VOLTAGE GAIN

6 448 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

6 449 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

6 450 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 EQ) OF THE TRANSISTOR)

6 451 G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT EQ OF A TRANSISTOR AT DIFFERENT TEMPERATURES

6 452 G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION

6 453 G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

	SPC 076	SPC 077	SPC 078	SPC 079
G 454 G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	3	4	0	2
G 455 G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	2	2	0	1
G 456 G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	2	2	0	1
G 457 G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	2	2	0	1
G 458 G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	3	4	0	2
G 459 G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	2	2	0	2
G 460 G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	4	5	0	3
G 461 G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	3	4	0	2
G 462 G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	3	4	0	2
G 463 G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	3	4	0	2
G 464 G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	1	1	0	0
G 465 G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	3	4	0	1
G 466 G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	2	2	0	1
G 467 G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	1	1	0	1
G 468 G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	0	0	0	0
G 469 G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	0	0	0	0
G 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	0	0	0	0
G 471 G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	1	1	0	1
G 472 G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	1	1	0	1
G 473 G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	2	2	0	1
G 474 G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	0	0	0	0
G 475 G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	1	1	0	1

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 076	SPC 077	SPC 078	SPC 079
M 513	H3-02 00 YOU INSPECT OSCILLATORS	2	2	0	2
M 514	H3-03 00 YOU ALIGN OR ADJUST OSCILLATORS	1	1	0	1
M 515	H3-04 00 YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	0	0	0	0
M 516	H3-05 00 YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	0	0	0	0
M 517	H3-06 00 YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	1	1	0	1
M 518	H3-07 00 YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	1	1	0	1
M 519	H3-08 00 YOU USE OR REFER TO FEEDBACK	2	1	4	2
M 520	H3-09 00 YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	0	0	0	0
M 521	H3-10 00 YOU USE OR REFER TO AMPLITUDE STABILITY	0	0	0	0
M 522	H3-11 00 YOU USE OR REFER TO FREQUENCY STABILITY	1	1	0	1
M 523	H3-12 00 YOU USE OR REFER TO DAMPING	0	0	0	0
M 524	H3-13 00 YOU USE OR REFER TO REGENERATIVE FEEDBACK	0	0	0	0
M 525	H3-14 00 YOU USE OR REFER TO PIEZOELECTRIC EFFECT	0	0	0	0
M 526	H3-15 00 YOU USE OR REFER TO CRITICAL DAMPING	0	0	0	0
M 527	H3-16 00 YOU USE OR REFER TO UNDER DAMPING	0	0	0	0
M 528	H3-17 00 YOU USE OR REFER TO OVER DAMPING	0	0	0	0
M 529	H3-18 00 YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	1	1	0	1
M 530	H3-19 00 YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	2	2	0	2
M 531	H3-20 00 YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	0	0	0	0
M 532	H3-21 00 YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	2	2	0	2
M 533	H3-22 00 YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	0	0	0	0
M 534	H3-23 00 YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	0	0	0	0
M 535	H3-24 00 YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	0	0	0	0
M 536	H3-25 00 YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	0	0	0	0
M 537	H3-26 00 YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	0	0	0	0
M 538	H3-27 00 YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	3	4	0	3
I 539	I1-01 00 YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	1	1	0	0
I 540	I1-02 00 YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	0	0	0	0
I 541	I1-03 00 YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	0	0	0	0
I 542	I1-04 00 YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	0	0	0	0
I 543	I1-05 00 YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	0	0	0	0
I 544	I1-06 00 YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	0	0	0	0
I 545	I1-07 00 YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	1	1	0	0
I 546	I1-08 00 YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	0	0	0	0
I 547	I1-09 00 YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	0	0	0	0

MULTIVIBRATORS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

UY-TSK

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 PFD
I 551 11-13 DO YOU WORK WITH ASTABLE 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
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)

LIMITERS AND CLAMPERS

ELECTRON TUBES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

0Y-TSK

I 586	13-22	DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	0	0	0	0
I 587	13-23	DO YOU USE OR REFER TO MULTIGRID (TETRODE), PENTODE, ETC) AMPLIFICATION FACTORS	0	0	0	0
I 588	13-24	DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G _m) WHICH IS MEASURED IN MMOS	0	0	0	0
I 589	13-25	DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	0	0	0	0
I 590	13-26	DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	0	0	0	0
I 591	13-27	DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	0	0	0	0
I 592	13-28	DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	0	0	0	0
I 593	13-29	DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	0	0	0	0
I 594	13-30	DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	0	0	0	0
I 595	13-31	DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	0	0	0	0
I 596	13-32	DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	0	0	0	0
I 597	13-33	DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	0	0	0	0
I 598	13-34	DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0
I 599	13-35	DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	0	0	0	0
I 600	13-36	DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0
I 601	13-37	DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0
I 602	13-38	DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0
I 603	13-39	DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0
I 604	13-40	DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	0	0	0	0
I 605	13-41	DO YOU USE OR REFER TO TUBE SOCKET NOTATION	0	0	0	0
I 606	13-42	DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	0	0	0	0
I 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	0
I 608	13-44	DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	0	0	0	0
J 609	J1-61	DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	0	0	0	0
J 610	J1-62	DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	0	0	0	0

ELECTRON TUBE AMPLIFIERS
AND CIRCUITS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

DY-TSK

J 611	J1-03	DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	0	0	0	0	0
J 612	J1-04	DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	0	0	0	0	0
J 613	J1-05	DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	0	0	0	0	0
J 614	J1-06	DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	0	0	0	0	0
J 615	J1-07	DO YOU TROUBLESHOOT OR REPAIR DONAT KNOW WHICH TYPE OF AMPLIFIER	0	0	0	0	0
J 616	J2-01	DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	0	0	0	0	0
J 617	J2-02	DO YOU WORK WITH CATHODE-RAY TUBES	0	0	0	0	0
J 618	J2-03	DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	0	0	0	0	0
J 619	J2-04	DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM POWER TUBES ARE USED	0	0	0	0	0
J 620	J2-05	DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	0	0	0	0	0
J 621	J2-06	DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH THYRATRONS ARE USED	0	0	0	0	0
J 622	J2-07	DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	0	0	0	0	0
J 623	J2-08	DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	0	0	0	0	0
J 624	J2-09	DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	0	0	0	0	0
J 625	J2-10	DO YOU USE OR REFER TO PHOSPHOR SCREENS	0	0	0	0	0
J 626	J2-11	DO YOU USE OR REFER TO AQUADAG COATINGS	0	0	0	0	0
J 627	J2-12	DO YOU USE OR REFER TO ELECTRON OPTICS	0	0	0	0	0
J 628	J2-13	DO YOU USE OR REFER TO PERSISTENCE	0	0	0	0	0
J 629	J2-14	DO YOU USE OR REFER TO DECAY TIMES	0	0	0	0	0
J 630	J2-15	DO YOU USE OR REFER TO FLUORESCENCE	0	0	0	0	0
J 631	J2-16	DO YOU USE OR REFER TO PHOSPHORESCENCE	0	0	0	0	0
J 632	J3-01	DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	11	11	12	9	
J 633	J3-02	DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	0	0	0	0	0
J 634	J3-03	DO YOU PERFORM TASKS ON FREQUENCY MIXERS	0	0	0	0	0
J 635	J3-04	DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0
J 636	J3-05	DO YOU PERFORM TASKS ON RESONANCE MODULATORS	0	0	0	0	0
J 637	J3-06	DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	0	0	0	0	0
K 638	K1-01	DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0
K 639	K1-02	DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0
K 640	K1-03	DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0
K 641	K1-04	DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0

SPECIAL PURPOSE ELECTRON TUBES

HETERODYNING, MODULATION, AND DEMODULATION

AM SYSTEMS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK	SPC	SPC	SPC	SPC
	076	077	078	079
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 COMPONENTS	0	0	0	0
K 644 K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 645 K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0
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	1	1	0	1
K 649 K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0
K 650 K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	0	0	0	0
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 TRANSMITTERS	0	0	0	0
K 655 K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	0	0	0	0
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 IMAGE REJECTION RATIOS	0	0	0	0
K 664 K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0
K 665 K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0
K 666 K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	0	0	0	0
K 667 K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 668 K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 669 K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 670 K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 671 K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0
K 672 K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
K 673 K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0
K 674 K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	0	0	0	0
K 675 K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	0	0	0	0

FM SYSTEMS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

DY-TSK

Task ID	Description	SPC 076	SPC 077	SPC 078	SPC 079
K 676	K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	0	0	0	0
K 677	K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0
K 678	K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0
K 679	K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	0	0	0	0
K 680	K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0	0
K 681	K2-16 DO YOU PERFORM TASKS ON LIMITERS	0	0	0	0
K 682	K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	0	0	0	0
K 683	K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	0	0	0	0
K 684	K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	0	0	0	0
K 685	K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	1	1	0	1
K 686	K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	0	0	0	0
K 687	K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	0	0	0	0
K 688	K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	0	0	0	0
K 689	K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	0	0	0	0
K 690	K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	0	0	0	0
K 691	K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	1	1	0	1
K 692	K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	0	0	0	0
K 693	K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	1	1	0	1
K 694	K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	1	0	4	1
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	0	0	0	0
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	0	0	0	0
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	0	0	0	0
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	0	0	0	0
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	0	0	0	0
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	0	0	0	0
L 701	L1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	0	0	0	0
L 702	L1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	0	0	0	0
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	0	0	0	0
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	0	0	0	0
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	0	0	0	0
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND OR NOR GATES	0	0	0	0

NUMBERING SYSTEMS

LOGIC FUNCTIONS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

0Y-TSK	SPC 076	SPC 077	SPC 078	SPC 079
L 707 L1-L3 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	0	0	0	0
L 708 L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	0	0	0	0
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	0	0	0	0
L 711 L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	0	0	0	0
L 712 L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	0	0	0	0
L 713 L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	0	0	0	0
L 714 L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	0	0	0	0
L 715 L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	0	0	0	0
L 716 L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	0	0	0	0
L 717 L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	0	0	0	0
L 718 L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	0	0	0	0
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	0	0	0	0
L 721 L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	0	0	0	0
L 722 L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	0	0	0	0
L 723 L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	0	0	0	0
L 724 L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	0	0	0	0
L 725 L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	0	0	0	0
L 726 L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	0	0	0	0
L 727 L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	0	0	0	0
L 728 L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	0	0	0	0
L 729 L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	0	0	0	0
L 730 L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	0	0	0	0
L 731 L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	0	0	0	0
L 732 L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	0	0	0	0

BOOLEAN EQUATIONS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK	SPC 076	SPC 077	SPC 078	SPC 079
L 733 L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	0	0	0	0
L 734 L3-02 DO YOU USE OR REFER TO UP-COUNTERS	0	0	0	0
L 735 L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	0	0	0	0
L 736 L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	0	0	0	0
L 737 L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	0	0	0	0
L 738 L3-06 DO YOU USE OR REFER TO RING COUNTERS	0	0	0	0
L 739 L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	0	0	0	0
L 740 L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	0	0	0	0
L 741 L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	0	0	0	0
L 742 L3-10 DO YOU USE OR REFER TO UP CLOCKS	0	0	0	0
L 743 L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	0	0	0	0
L 744 L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	0	0	0	0
L 745 L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	0	0	0	0
L 746 L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	0	0	0	0
L 747 L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	0	0	0	0
L 748 L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	0	0	0	0
L 749 L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	0	0	0	0
L 750 L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	0	0	0	0
L 751 L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	0	0	0	0
L 752 L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	0	0	0	0
L 753 L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	0	0	0	0
L 754 L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	0	0	0	0
L 755 L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	0	0	0	0
L 756 L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	0	0	0	0
M 757 MI-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	0	0	0	0
M 758 MI-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	0	0	0	0
M 759 MI-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	0	0	0	0
M 760 MI-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	0	0	0	0

COUNTERS

TIMING CIRCUITS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

SPC SPC SPC SPC
076 077 078 079

M 761	M1-05	DO YOU WORK WITH BLOCKING OSCILLATORS	0	0	0	0	0
M 762	M1-06	DO YOU USE OR REFER TO RISE TIME	0	0	0	0	0
M 763	M1-07	DO YOU USE OR REFER TO FALL OR FLYBACK TIME	0	0	0	0	0
M 764	M1-08	DO YOU USE OR REFER TO SWEEP TIME	0	0	0	0	0
M 765	M1-09	DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	0	0	0	0	0
M 766	M1-10	DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	0	0	0	0	0
M 767	M1-11	DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	0	0	0	0	0
M 768	M1-12	DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	0	0	0	0	0
M 769	M2-01	DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	5	6	0	4	4
M 770	M2-02	DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	4	5	0	4	4
M 771	M2-03	DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	2	2	0	2	2
M 772	M2-04	DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	3	4	0	3	3
M 773	M2-05	DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	1	1	0	1	1
M 774	M2-06	DO YOU USE AUDIO SINE-WAVE GENERATORS	2	2	0	2	2
M 775	M2-07	DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	1	1	0	1	1
M 776	M2-08	DO YOU USE RF GENERATORS LESS THAN 1,000 MH	2	2	0	2	2
M 777	M2-09	DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	1	1	0	1	1
M 778	M2-10	DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	3	4	0	3	3
M 779	M3-01	IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	19	18	24	24	20
M 780	M3-02	DO YOU INSPECT MOTORS	15	14	16	16	16
M 781	M3-03	DO YOU CLEAN OR LUBRICATE MOTORS	7	7	8	8	8
M 782	M3-04	DO YOU OPERATE MOTORS	11	10	16	10	10
M 783	M3-05	DO YOU REMOVE OR REPLACE COMPLETE MOTORS	15	13	20	15	15
M 784	M3-06	DO YOU REMOVE OR REPLACE MOTOR PARTS	4	5	0	3	3
M 785	M3-07	DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	16	13	24	16	16
M 786	M3-08	DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	5	6	0	4	4
M 787	M3-09	DO YOU PERFORM ANY TASKS ON FIELD COILS	2	2	0	1	1
M 788	M3-10	DO YOU PERFORM ANY TASKS ON ARMATURES	4	4	4	3	3
M 789	M3-11	DO YOU PERFORM ANY TASKS ON ROTORS	3	2	4	2	2
M 790	M3-12	DO YOU PERFORM ANY TASKS ON BRUSHES	3	4	4	2	2
M 791	M3-13	DO YOU PERFORM ANY TASKS ON SLIP RINGS	4	4	4	4	3
M 792	M3-14	DO YOU PERFORM ANY TASKS ON COMMUTATORS	2	2	0	1	1
M 793	M3-15	DO YOU PERFORM ANY TASKS ON POLE PIECES	3	4	0	2	2

MOTORS AND GENERATORS

USE OF SIGNAL GENERATORS

PCT MBRS RESPONDING *YES* BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

0Y-TSK

M 794 M3-16	DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	1	1	0	1
M 795 M3-17	DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	2	2	0	2
M 796 M3-18	DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	1	1	0	1
M 797 M3-19	DO YOU WORK WITH SYNCHRONOUS MOTORS	2	2	0	2
M 798 M3-20	DO YOU WORK WITH INDUCTION MOTORS	3	4	0	3
M 799 M3-21	DO YOU WORK WITH SPLIT-PHASE MOTORS	3	1	8	2
M 800 M3-22	DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	3	2	4	3
M 801 M3-23	DO YOU INSPECT GENERATORS	3	4	0	3
M 802 M3-24	DO YOU CLEAN OR LUBRICATE GENERATORS	3	4	0	3
M 803 M3-25	DO YOU OPERATE GENERATORS	3	9	0	3
M 804 M3-26	DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	3	4	0	3
M 805 M3-27	DO YOU REMOVE OR REPLACE GENERATOR PARTS	3	4	0	3
M 806 M3-28	DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	3	4	0	3
M 807 M3-29	DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	2	2	0	2
N 808 N1-01	DO YOU WORK WITH METERS IN YOUR PRESENT JOB	44	41	52	43
N 809 N1-02	DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	9	12	0	9
N 810 N1-03	DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	8	11	0	8
N 811 N1-04	DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	7	8	4	8
N 812 N1-05	DO YOU READ METER SCALES	46	43	56	45
N 813 N1-06	DO YOU EXTEND THE RANGE OF AMMETERS	17	14	24	15
N 814 N1-07	DO YOU ZERO OHMMETERS	45	42	56	44
N 815 N1-08	DO YOU ZERO AMMETERS	16	16	16	15
N 816 N1-09	DO YOU EXTEND THE RANGE OF VOLTMETERS	22	18	36	21
N 817 N1-10	DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	23	23	24	22
N 818 N2-01	DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	0	0	0	0
N 819 N2-02	DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0
N 820 N2-03	DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0
N 821 N2-04	DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0
N 822 N2-05	DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0
N 823 N2-06	DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0
N 824 N2-07	DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	0	0	0	0

METER MOVEMENTS

SATURABLE REACTORS AND MAGNETIC AMPLIFIERS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK	SPC 076	SPC 077	SPC 078	SPC 079
N 825 N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	0	0	0	0
N 826 N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT	0	0	0	0
WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF				
SINGLE WINDING SATURABLE REACTORS				
N 827 N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR	0	0	0	0
WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE				
REACTORS				
N 828 N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT	0	0	0	0
WAVEFORMS FOR MAGNETIC AMPLIFIERS				
N 829 N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE	0	0	0	0
REACTORS				
N 830 N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN	0	0	0	0
SATURABLE REACTORS				
N 831 N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE	0	0	0	0
REACTORS				
N 832 N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN	0	0	0	0
SATURABLE REACTORS				
N 833 N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC	0	0	0	0
SYMBOLS				
N 834 N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT	0	0	0	0
JOB				
N 835 N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	0	0	0	0
N 836 N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	0	0	0	0
N 837 N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	0	0	0	0
N 838 N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY	0	0	0	0
(PRF)				
N 839 N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	0	0	0	0
N 840 N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	0	0	0	0
N 841 N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME	1	1	0	0
CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT				
N 842 N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS	0	0	0	0
DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT				
AND OUTPUT CONFIGURATION				
N 843 N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	0	0	0	0
N 844 N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	0	0	0	0
N 845 O1-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR	0	0	0	0
PRESENT JOB				
O 846 O1-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
O 847 O1-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
O 848 O1-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0
O 849 O1-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE	0	0	0	0
SYSTEMS				
O 850 O1-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE	0	0	0	0
COMPONENTS				
O 851 O1-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE	0	0	0	0
SYSTEMS				
O 852 O1-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE	0	0	0	0
COMPONENTS				

WAVESHAPING CIRCUITS

SINGLE SIDEBAND SYSTEMS

PCT MBRS RESPONDING *YES* BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

DY-TSK

0 853	01-09	DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0	0	0
0 854	01-10	DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0	0	0
0 855	01-11	DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	1	1	0	0	0
0 856	01-12	DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0	0	0
0 857	01-13	DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0	0	0
0 858	01-14	DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0	0	0
0 859	01-15	DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0	0	0
0 860	01-16	DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0	0	0
0 861	01-17	DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0	0	0
0 862	01-18	DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0	0	0
0 863	01-19	DO YOU PERFORM TASKS ON SSB HF AMPLIFIERS	0	0	0	0	0
0 864	01-20	DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0	0	0
0 865	01-21	DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0	0	0
0 866	01-22	DO YOU PERFORM TASKS ON SSB DEMODULATORS	0	0	0	0	0
0 867	01-23	DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	0	0	0	0	0
0 868	01-24	DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0	0	0
0 869	01-25	DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	0
0 870	01-26	DO YOU USE OR REFER TO FREQUENCY STABILITY	0	0	0	0	0
0 871	01-27	DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	0	0	0	0	0
0 872	01-28	DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	0	0	0	0	0
0 873	01-29	DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	0
0 874	01-30	DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0
0 875	02-01	DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	1	1	0	1	1
0 876	02-02	DO YOU INSPECT PULSE MODULATION SYSTEMS	1	1	0	1	1
0 877	02-03	DO YOU CLEAN PULSE MODULATION SYSTEMS	1	1	0	1	1
0 878	02-04	DO YOU ALIGN PULSE MODULATION SYSTEMS	0	0	0	0	0
0 879	02-05	DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS COMPONENTS	1	1	0	1	1
0 880	02-06	DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	1	1	0	1	1
0 881	02-07	DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS COMPONENTS	1	1	0	1	1
0 882	02-08	DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	1	1	0	1	1
0 883	02-09	DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	0	0	0	0	0
0 884	02-10	DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	0	0	0	0	0
0 885	02-11	DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	0	0	0	0	0
0 886	02-12	DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	0	0	0	0	0
0 887	02-13	DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	1	1	0	1	1
0 888	02-14	DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	1	1	0	1	1

PULSE MODULATION SYSTEMS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

0Y-TSK	SPC 076	SPC 077	SPC 078	SPC 079
0 889 02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	1	1	0	1
0 890 02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOSES AND CHARGING DIODES	0	0	0	0
0 891 02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	1	1	0	1
0 892 02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	0	0	0	0
0 893 02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	0	0	0	0
0 894 02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	0	0	0	0
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	0	0	0	0
0 897 02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	0	0	0	0
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	0	0	0	0
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	0	0	0	0
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)	0	0	0	0
0 905 02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	0	0	0	0
0 906 02-32 DO YOU USE OR REFER TO PULSE SHAPE	0	0	0	0
0 907 02-33 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0
0 908 02-34 DO YOU USE OR REFER TO AVERAGE POWER	0	0	0	0
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	0	0	0	0
0 913 02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0
0 914 03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	1	1	0	1
0 915 03-02 DO YOU INSPECT ANTENNAS	1	1	0	1

ANTENNAS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC
	076	077	078	079
0 916 03-03 DO YOU CLEAN ANTENNAS	0	0	0	0
0 917 03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	1	1	0	1
0 918 03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS	1	1	0	1
0 919 03-06 DO YOU TROUBLESHOOT TO ANTENNAS	1	1	0	1
0 920 03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	0	0	0	0
0 921 03-08 DO YOU REMOVE OR INSTALL ANTENNAS	1	1	0	1
0 922 03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	0	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
0 924 03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES	0	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
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
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
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
0 929 03-16 DO YOU WORK WITH HERTZ ANTENNAS	0	0	0	0
0 930 03-17 DO YOU WORK WITH MARCONI ANTENNAS	0	0	0	0
0 931 03-18 DO YOU WORK WITH BROADSIDE ARRAYS	1	1	0	1
0 932 03-19 DO YOU WORK WITH END-FIRE ARRAYS	0	0	0	0
0 933 03-20 DO YOU WORK WITH CARDIOD ARRAYS	0	0	0	0
0 934 03-21 DO YOU WORK WITH COLLINER ARRAYS	0	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
0 936 03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	0	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
0 938 03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	0	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
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
0 941 03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	0	0	0	0
0 942 03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	0	0	0	0
0 943 03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	0	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	0

DY-TSK

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

OY-TSK

SPC SPC SPC
076 077 078 079

0 945	03-32	DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	0	0	0	0
0 946	03-33	DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	0	0	0	0
0 947	03-34	DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	0	0	0	0
0 948	03-35	DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	1	1	0	1
0 949	03-36	DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	0	0	0	0
0 950	03-37	DO YOU WORK ON BIDIRECTIONAL ANTENNAS	0	0	0	0
0 951	03-38	DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	1	1	0	1
0 952	03-39	DO YOU WORK WITH ROTAR ANTENNA ARRAYS	0	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)	66	64	72	64
P 954	PI-02	DO YOU REFER TO OR USE COPPER LOSS OR IZR LOSS IN TRANSMISSION LINES	6	6	4	6
P 955	PI-03	DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	3	4	0	3
P 956	PI-04	DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	2	2	0	2
P 957	PI-05	DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	5	5	4	4
P 958	PI-06	DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	8	8	8	8
P 959	PI-07	DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	52	49	60	52
P 960	PI-08	DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	37	35	44	38
P 961	PI-09	DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	31	33	24	30
P 962	PI-10	DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	19	17	28	21
P 963	PI-11	DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	10	11	8	11
P 964	PI-12	DO YOU THROULESHOOT TRANSMISSION LINES	62	60	68	62
P 965	PI-13	DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)	8	11	0	9
P 966	PI-14	DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	6	7	0	7
P 967	PI-15	DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	32	28	48	33
P 968	PI-16	DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	2	2	0	2
P 969	PI-17	DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	2	2	0	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	3	4	0	3

TRANSMISSION LINES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 076	SPC 077	SPC 078	SPC 079	SPC 10	SPC 11	SPC 8	SPC 10
P 971 P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	10	11	8	10				
P 972 P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	3	4	0	2				
P 973 P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	17	19	8	17				
P 974 P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	6	7	4	7				
P 975 P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	3	4	0	3				
P 976 P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	6	7	0	4				
P 977 P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	2	2	0	2				
P 978 P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	2	2	0	2				
P 979 P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	3	2	4	3				
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	6	7	4	7				
P 981 P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	11	13	4	13				
P 982 P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	11	13	4	12				
P 983 P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	3	4	0	3				
P 984 P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	0	0	0	0				
P 985 P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 986 P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 987 P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 988 P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 989 P2-06 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 990 P2-07 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 991 P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0				
P 992 P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	0	0	0	0				
P 993 P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	0	0	0	0				
P 994 P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	0	0	0	0				
P 995 P2-12 DO YOU REMOVE OR INSTALL E BENDS	0	0	0	0				
P 996 P2-13 DO YOU REMOVE OR INSTALL H BENDS	0	0	0	0				
P 997 P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	0	0	0	0				
P 998 P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS	0	0	0	0				
P 999 P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	0	0	0	0				
P1000 P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	0	0	0	0				
P1001 P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	0	0	0	0				
P1002 P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES	0	0	0	0				

WAVEGUIDES AND CAVITY RESONATORS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK

SPC SPC SPC SPC
076 077 078 079

P1003 P2-20 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES
 P1004 P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES
 P1005 P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES
 P1006 P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES
 P1007 P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS
 P1008 P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS
 P1009 P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS
 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
 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
 P1012 P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF
 P1013 P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION
 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
 P1015 P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES
 P1016 P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES
 P1017 P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES
 P1018 P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH
 P1019 P2-36 ARE LOW POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH
 P1020 P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH
 P1021 P2-38 ARE APERTURES (WINDOWS OR PRISMS) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH
 P1022 P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH
 P1023 P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA
 P1024 P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC 076	SPC 077	SPC 078	SPC 079
P1025 P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0
P1024 P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0
P1027 P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0
P1028 P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0
P1029 P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	0	0	0	0
P1030 P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	0	0	0	0
P1031 P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	0	0	0	0
P1032 P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	0	0	0	0
P1033 P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	0	0	0	0
P1034 P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	0	0	0	0
P1035 P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	0	0	0	0
P1036 P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	0	0	0	0
P1037 P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	0	0	0	0
P1038 P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	0	0	0	0
P1039 P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	0	0	0	0
P1040 P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	0	0	0	0
P1041 P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	0	0	0	0
P1042 P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	0	0	0	0
P1043 P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	0	0	0	0
P1044 P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	0	0	0	0
P1045 P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	0	0	0	0
P1046 P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	0	0	0	0
P1047 P3-14 DO YOU WORK WITH MAGNETRONS	0	0	0	0
P1048 P3-15 DO YOU INSPECT KLYSTRONS OR TWT	0	0	0	0
P1049 P3-16 DO YOU CLEAN KLYSTRONS OR TWT	0	0	0	0
P1050 P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	0	0	0	0
P1051 P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	0	0	0	0
P1052 P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	0	0	0	0
P1053 P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	0	0	0	0
P1054 P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	0	0	0	0
P1055 P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	0	0	0	0
P1056 P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	0	0	0	0
P1057 P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	0	0	0	0
P1058 P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	0	0	0	0

MICROWAVE AMPLIFIERS AND OSCILLATORS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC 076	SPC 077	SPC 078	SPC 079
PI059 P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	0	0	0	0
PI060 P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	0	0	0	0
PI061 P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	0	0	0	0
PI062 P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	0	0	0	0
PI063 P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	0	0	0	0
PI064 P3-31 DO YOU INSPECT MAGNETRONS	0	0	0	0
PI065 P3-32 DO YOU CLEAN MAGNETRONS	0	0	0	0
PI066 P3-33 DO YOU ADJUST MAGNETRONS	0	0	0	0
PI067 P3-34 DO YOU TUNE MAGNETRONS	0	0	0	0
PI068 P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	0	0	0	0
PI069 P3-36 DO YOU TROUBLESHOOT MAGNETRONS	0	0	0	0
PI070 P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	0	0	0	0
PI071 P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	0	0	0	0
PI072 P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	0	0	0	0
PI073 P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	0	0	0	0
PI074 P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	0	0	0	0
PI075 P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	0	0	0	0
PI076 P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	0	0	0	0
PI077 P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	0	0	0	0
PI078 P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	0	0	0	0
PI079 P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	0	0	0	0
PI080 P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	0	0	0	0
PI081 P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	0	0	0	0
PI082 P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	0	0	0	0
PI083 P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	0	0	0	0
PI084 P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	0	0	0	0
PI085 P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	0	0	0	0
PI086 P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	0	0	0	0
PI087 P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	0	0	0	0

0Y-TSK

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC
076 077 078 079

UY-TSK

P108	P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	0	0	0	0
P109	P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	0	0	0	0
P109	P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	0	0	0	0
P109	P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	0	0	0	0
P109	P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	0	0	0	0
P109	P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELICES	0	0	0	0
P109	P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	0	0	0	0
P109	P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	0	0	0	0
P109	P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	0	0	0	0
P109	P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	0	0	0	0
P109	P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	0	0	0	0
P109	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLEM CAVITIES	0	0	0	0
P110	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	0	0	0	0
P110	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	0	0	0	0
P110	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	0	0	0	0
P110	P3-70 DO YOU PERFORM TASKS ON ANODES	0	0	0	0
P110	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	0	0	0	0
P110	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	0	0	0	0
P110	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	0	0	0	0
P110	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	0	0	0	0
P110	P3-75 DO YOU PERFORM TASKS ON CATHODES	0	0	0	0
P110	P3-76 DO YOU PERFORM TASKS ON MAGNETS	0	0	0	0
W110	Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	3	4	0	0
W111	Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	0	0	0	0
W112	Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	0	0	0	0
W113	Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	0	0	0	0
W114	Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	0	0	0	0
W115	Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	0	0	0	0

REGISTERS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

UY-TSK	SPC 076	SPC 077	SPC 078	SPC 079	DESCRIPTION
4116	1	1	0	1	41-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED
4117	0	0	0	0	41-07 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB
4118	0	0	0	0	42-02 DO YOU USE OR REFER TO DELAY LINES
4119	0	0	0	0	42-03 DO YOU USE OR REFER TO MAGNETIC CORES
4120	0	0	0	0	42-04 DO YOU USE OR REFER TO MAGNETIC DRUMS
4121	0	0	0	0	42-05 DO YOU USE OR REFER TO MAGNETIC TAPES
4122	0	0	0	0	42-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS
4123	0	0	0	0	42-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS
4124	0	0	0	0	42-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS
4125	0	0	0	0	42-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES
4126	1	1	0	1	43-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D) CONVERTERS, OR BINARY-TO-DECIMAL HEADOUT CONVERTERS
4127	1	1	0	1	43-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES
4128	0	0	0	0	43-03 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	0	0	0	0	43-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS
4130	0	0	0	0	43-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS
4131	1	1	0	1	43-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS
4132	0	0	0	0	43-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS
4133	0	0	0	0	43-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS
4134	0	0	0	0	43-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS
4135	0	0	0	0	43-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS
4136	0	0	0	0	43-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS
4137	0	0	0	0	43-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS
4138	0	0	0	0	43-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS
4139	0	0	0	0	43-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS

STORAGE DEVICES

DIGITAL TO ANALOG CONVERTERS

PCT MARKS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	
	076	077	078	079		
DI-TSK						
R1140 R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	0	0	0	0	0	PHANTASTRONS
R1141 R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	0	0	0	0	0	
R1142 R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	0	0	0	0	0	SCHMITT TRIGGERS
R1143 R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	0	0	0	0	0	
R1144 R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	16	18	8	18		CABLE FABRICATION
R1145 R3-02 DO YOU FABRICATE COAXIAL CABLES	3	4	0	3		
S1146 S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	5	5	4	6		
S1147 S1-02 DO YOU PERFORM ANY TASKS ON MIXIE LIGHTS OR MIXIE LIGHT DECODER SYSTEMS	0	0	0	0		INPUT/OUTPUT DEVICES
S1148 S1-03 DO YOU ANALYZE MIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	0	0	0	0		
S1149 S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	0	0	0	0		PHOTO SENSITIVE DEVICES
S1150 S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	0	0	0	0		
S1151 S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	0	0	0	0		
S1152 S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	0	0	0	0		
S1153 S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	0	0	0	0		
S1154 S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	0	0	0	0		SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)
S1155 S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	0	0	0	0		
S1156 S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	0	0	0	0		
S1157 S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	0	0	0	0		
S1158 S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	0	0	0	0		
T1159 T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	0	0	0	0		
T1160 T1-02 DO YOU INSPECT INFRARED SYSTEMS	0	0	0	0		
T1161 T1-03 DO YOU CLEAN INFRARED SYSTEMS	0	0	0	0		
T1162 T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	0	0	0	0		INFRARED
T1163 T1-05 DO YOU OPERATE INFRARED SYSTEMS	0	0	0	0		
T1164 T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	0	0	0	0		
T1165 T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	0	0	0	0		
T1166 T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	0	0	0	0		
T1167 T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	0	0	0	0		
T1168 T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	0	0	0	0		

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DI-TSK	SPC	SPC	SPC	SPC	SPC	SPC
	076	077	078	079	079	079
T1169 T1-11 DO YOU USE OR REFER TO FAR REGION	0	0	0	0	0	0
T1170 T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	0	0	0	0	0	0
T1171 T1-13 DO YOU USE OR REFER TO NEAR REGION	0	0	0	0	0	0
T1172 T1-14 DO YOU USE OR REFER TO MICRON	0	0	0	0	0	0
T1173 T1-15 DO YOU USE OR REFER TO GRAY BODIES	0	0	0	0	0	0
T1174 T1-16 DO YOU USE OR REFER TO BLACK BODIES	0	0	0	0	0	0
T1175 T1-17 DO YOU USE OR REFER TO ABSORPTION	0	0	0	0	0	0
T1176 T1-18 DO YOU USE OR REFER TO SCATTERING	0	0	0	0	0	0
T1177 T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	0	0	0	0	0	0
T1178 T1-20 DO YOU PERFORM TASKS ON BLITZ	0	0	0	0	0	0
T1179 T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	0	0	0	0	0	0
T1180 T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	0	0	0	0	0	0
T1181 T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	0	0	0	0	0	0
T1182 T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	0	0	0	0	0	0
T1183 T1-25 DO YOU PERFORM TASKS ON FILTERS	0	0	0	0	0	0
T1184 T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	0	0	0	0	0	0
T1185 T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	0	0	0	0	0	0
T1186 T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	0
T1187 T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	0
T1188 T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	0
T1189 T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0
T1190 T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0
T1191 T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	0
T1192 T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0
T1193 T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0
T1194 T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0
T1195 T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0
T1196 T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0	0	0	0
T1197 T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	0
T1198 T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	0
T1199 T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	0
T1200 T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	0
T1201 T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	0
T1202 T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	0
T1203 T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	0
T1204 T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0	0	0	0
T1205 T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	0
T1206 T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	0
T1207 T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	0
T1208 T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	0
T1209 T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0	0	0	0

LASERS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 076	SPC 077	SPC 078	SPC 079
T120	YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	0	0	0	0
T121	YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0
T122	YOU WORK WITH RUBY	0	0	0	0
T123	YOU WORK WITH HELIUM-NEON	0	0	0	0
T124	YOU WORK WITH HELIUM-XENON	0	0	0	0
T125	YOU WORK WITH XENON	0	0	0	0
T126	YOU WORK WITH CESIUM-HELIUM	0	0	0	0
T127	YOU WORK WITH ARGON	0	0	0	0
T128	YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0
T129	YOU WORK WITH GALLIUM ARSENIDE	0	0	0	0
T120	IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE STORAGE TUBES (MMST)	0	0	0	0
T121	DO YOU INSPECT DVST OR MMST	0	0	0	0
T122	DO YOU CLEAN DVST OR MMST	0	0	0	0
T123	DO YOU ADJUST OR CALIBRATE DVST OR MMST	0	0	0	0
T124	DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	0	0	0	0
T125	DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	0	0	0	0
T126	DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	0	0	0	0
T127	DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	0	0	0	0
T128	DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF MMST	0	0	0	0
T129	DO YOU PERFORM TASKS ON FLOOD GUNS	0	0	0	0
T130	DO YOU PERFORM TASKS ON WRITE GUNS	0	0	0	0
T131	DO YOU PERFORM TASKS ON ATTACK GUNS	0	0	0	0
T132	DO YOU PERFORM TASKS ON ERASE GUNS	0	0	0	0
T133	DO YOU PERFORM TASKS ON STORAGE GRIDS	0	0	0	0
U1234	IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	0	0	0	0
U1235	DO YOU USE OR REFER TO DECIMAL SYSTEMS	0	0	0	0
U1236	DO YOU USE OR REFER TO PROGRAMS	0	0	0	0
U1237	DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	0	0	0	0
U1238	DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	0	0	0	0
U1239	DO YOU USE OR REFER TO FOUR SYSTEMS	0	0	0	0
U1240	DO YOU USE OR REFER TO BINARY SYSTEMS	0	0	0	0
U1241	DO YOU USE OR REFER TO TIME-SHARING	0	0	0	0
U1242	DO YOU USE OR REFER TO DATA WORDS	0	0	0	0
U1243	DO YOU USE OR REFER TO ADDRESS WORDS	0	0	0	0
U1244	DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	0	0	0	0
U1245	DO YOU USE OR REFER TO STEERING/INFORMATION	0	0	0	0
U1246	DO YOU USE OR REFER TO INFORMATION WORDS	0	0	0	0
U1247	DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	0	0	0	0
U1248	DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	0	0	0	0

PROGRAMMING

DISPLAY TUBES

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

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TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

0Y-TSK

SPC SPC SPC SPC
076 077 078 079

U1249 U1-16 00 YOU PERFORM TASKS ON INPUT DEVICES	0	0	0	0
U1250 U1-17 00 YOU PERFORM TASKS ON STORAGE DEVICES	0	0	0	0
U1251 U1-18 00 YOU PERFORM TASKS ON ARITHMETIC SECTIONS	0	0	0	0
U1252 U1-19 00 YOU PERFORM TASKS ON CONTROL SECTIONS	0	0	0	0
U1253 U1-20 00 YOU PERFORM TASKS ON OUTPUT DEVICES	0	0	0	0
U1254 U1-21 00 YOU PERFORM TASKS ON POWER SUPPLIES	0	0	0	0
U1255 U2-01 00 YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	10	11	8	8
U1256 U2-02 00 YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	3	1	8	2
U1257 U2-03 00 YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	2	1	4	1
U1258 U2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	6	6	4	7

DB AND POWER RATIOS

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AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9
TELEPHONE EQUIPMENT INSTALLER SPECIALIST, AFSC 36254.(U)
SEP 77 T J O'CONNOR, F B BOWER

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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 Telephone Equipment Installer Specialist (AFSC 36254). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder. <i>Over</i> CONTINUED		

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This specialty has the following functions:

Installs and maintains telephone subsets, key telephone systems, key switch systems, and associated equipment. Maintains inspection and maintenance records and completes maintenance data collection forms. Supervises telephone installation and repair specialist personnel.



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