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AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9  
MISSILE SYSTEMS MAINTENANCE SPECIALIST AFSC 31651/1F/1P.(U)  
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9 OCCUPATIONAL SURVEY REPORT  
ELECTRONIC PRINCIPLES



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6 MISSILE SYSTEMS MAINTENANCE SPECIALIST  
AFSC 31651/1F/1P

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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 Missile Systems Maintenance Specialist, AFSC 36151/1F/1P.

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 Mr. Harry G. Lawrence. 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  
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USAF Occupational Measurement Center

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USAF Occupational Measurement Center

ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT  
MISSILE SYSTEM MAINTENANCE SPECIALISTS  
AFSC 36151/1F/1P

INTRODUCTION

✓ This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Missile Systems Maintenance Specialists (AFSC 36151/1F/1P). 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 31651/1F/1P airmen worldwide. Responses from 49 individuals represented 69 percent of the total of all AFSC 31651/1F/1P 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	O845	30
44	PULSE MODULATION SYSTEMS	O875	31
45	ANTENNAS	O914	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  
SHREDOUT REPRESENTATION OF SURVEY SAMPLE

SHREDOUT	36151/1F/1P	
	PERCENT ASSIGNED	PERCENT OF SAMPLE
31651F	42	33
31651P	<u>58</u>	<u>61</u>
TOTAL	100	100

Total Assigned - 77  
 Total Sampled - 49  
 Percent Sampled - 64%

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 seven 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 Resistance (pp. 2-3) and Multimeter Uses (p. 3) to low in areas such as Microphones (p. 12) and Speakers (p. 13). Additional AFSC 361X1/1F/1P data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

PET MEMS RESPONDING 'YES' BY SELECTED GMFS

GP5M26 PAGE 1

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS  
IN THE 31651/IF/IL/JP CANEEM FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY - SPC026	ALL AIRMEN DAFSC 31651/IF/IL/JP/14	CONTAINING	49 MEMBERS.
GROUP IDENTITY - SPC027	ALL AIRMEN DAFSC 31651P	CONTAINING	16 MEMBERS.
GROUP IDENTITY - SPC028	ALL AIRMEN DAFSC 31651P ASSIGNED TO ATC	CONTAINING	3 MEMBERS.
GROUP IDENTITY - SPC029	ALL AIRMEN DAFSC 31651P ASSIGNED TO SAC	CONTAINING	13 MEMBERS.
GROUP IDENTITY - SPC037	ALL AIRMEN DAFSC 31651P	CONTAINING	33 MEMBERS.
GROUP IDENTITY - SPC038	ALL AIRMEN DAFSC 31651P ASSIGNED TO ADC	CONTAINING	3 MEMBERS.
GROUP IDENTITY - SPC039	ALL AIRMEN DAFSC 31651P ASSIGNED TO TAC	CONTAINING	20 MEMBERS.

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035	SPC 036	SPC 037	SPC 038	SPC 039
1 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.	73	69	100	62	76	67	75							
2 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.	49	54	33	62	45	67	45							MATHEMATICS
3 A 3 AI-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	55	81	100	77	42	67	35							
4 A 4 AI-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	12	19	100	0	9	0	0							
5 A 5 AI-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	29	44	100	31	21	0	15							
6 A 6 AI-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	6	13	67	0	3	0	0							
7 A 7 AI-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	6	13	67	0	3	0	0							
8 A 8 AI-08 DO YOU SOLVE QUADRATIC EQUATIONS.	10	6	33	0	12	0	0							
9 A 9 AI-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	2	0	0	0	3	0	0							
10 A 10 AI-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	10	13	67	0	9	0	0							
11 A 11 AI-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	18	31	67	23	12	0	5							
12 A 12 AI-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	12	19	67	8	9	0	5							
13 A 13 AI-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	6	0	0	0	9	0	0							
14 A 14 AI-14 DO YOU SOLVE OR USE PROPORTIONS.	14	19	67	8	12	0	10							
15 A 15 A2-01 DO YOU USE THE TERM VOLTAGE ON VOLTS (V).	98	100	100	100	97	100	100							DIRECT CURRENT AND VOLTAGE
16 A 16 A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	22	38	100	23	15	67	13							
17 A 17 A2-03 DO YOU USE THE TERM OHM.	98	100	100	100	97	100	100							
18 A 18 A2-04 DO YOU USE THE TERM ION.	10	19	100	0	6	0	0							
19 A 19 A2-05 DO YOU USE THE TERM DYNE.	10	19	100	0	6	0	0							
20 A 20 A2-06 DO YOU USE THE TERM AMPERE.	98	100	100	100	97	100	100							
21 A 21 A2-07 DO YOU USE THE TERM NEUTRON.	12	25	100	8	6	0	5							
22 A 22 A2-08 DO YOU USE THE TERM COULOMB.	12	25	100	8	6	0	5							
23 A 23 A2-09 DO YOU USE THE TERM PROTON.	10	19	100	0	6	0	5							
24 A 24 A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	76	75	100	69	76	100	70							
25 A 25 A3-02 DO YOU INSPECT RESISTORS.	63	38	67	31	76	100	62							
26 A 26 A3-03 DO YOU CLEAN RESISTORS.	53	38	67	31	61	67	45							
27 A 27 A3-04 DO YOU ADJUST RESISTORS.	76	88	100	65	70	67	70							
28 A 28 A3-05 DO YOU CHECK OHMIC VALUE OR RESISTORS.	82	81	100	77	82	100	75							
29 A 29 A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	63	50	100	38	70	100	55							
30 A 30 A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	22	25	100	8	21	0	20							
31 A 31 A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	76	75	100	69	76	100	75							RESISTANCE
32 A 32 A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	67	63	100	54	70	100	55							
33 A 33 A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	55	50	100	38	58	100	50							

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	
	026	027	028	029	037	038	039	049	50	100	38	49	100	35	8	0	0	12	0	15
A 34 A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	49	50	100	38	49	100	35													
A 35 A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	8	0	0	0	12	0	15													
A 36 A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TRD OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	37	38	100	23	36	33	45													
A 37 A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	80	88	100	85	74	100	70													
A 38 A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	33	50	100	38	24	67	20													
A 39 A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	29	44	100	31	21	67	15													
A 40 A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	33	69	100	62	15	67	5													
A 41 A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	31	56	100	46	18	67	5													
A 42 A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	27	38	100	23	21	67	15													
A 43 A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	24	31	100	15	21	67	15													
A 44 A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	29	56	100	46	15	67	5													
A 45 A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	22	36	100	23	15	67	5													
A 46 A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	27	44	100	31	18	67	5													
A 47 A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	27	38	100	23	21	67	15													
A 48 A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	22	31	100	15	18	67	10													
A 49 A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	29	56	100	46	15	67	5													
A 50 A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	22	36	100	23	15	67	5													
A 51 A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	22	44	100	31	12	67	0													
B 52 B1-01 DO YOU MEASURE RESISTANCE.	94	100	100	100	91	100	90													
B 53 B1-02 DO YOU REPAIR OHMMETERS.	8	13	33	8	6	0	10													
B 54 B1-03 DO YOU MEASURE VOLTAGE.	96	100	100	100	94	100	95													
B 55 B1-04 DO YOU REPAIR VOLTMETERS.	8	13	33	8	6	0	10													
B 56 B1-05 DO YOU REPAIR AMPMETERS.	6	13	33	8	3	0	5													
B 57 B1-06 DO YOU MEASURE CURRENT.	82	75	100	69	85	67	85													
B 58 B1-07 DO YOU USE MULTIMETERS.	96	100	100	100	94	100	95													
B 59 B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	2	0	0	0	3	0	5													
E 60 B1-09 DO YOU READ SCHEMATICS.	94	94	100	92	94	100	95													

MULTIMETER USES

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

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	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
B 61 R2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS)?	47	50	100	38	45	67	45	ALTERNATING CURRENT
B 62 R2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE?	57	63	100	54	55	67	45	
B 63 R2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC)?	59	50	100	38	64	100	55	
B 64 R2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH?	51	50	100	46	48	67	50	
B 65 R2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY?	92	100	100	100	88	100	90	
B 66 R2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE?	24	19	67	8	27	67	15	
B 67 R3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	20	25	100	8	18	67	10	
B 68 R3-02 DO YOU INSPECT INDUCTORS.	14	6	33	0	18	67	10	
B 69 R3-03 DO YOU CLEAN INDUCTORS.	12	6	33	0	15	67	10	
B 70 R3-04 DO YOU ADJUST INDUCTORS.	6	13	67	0	3	0	0	
B 71 R3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	10	19	100	0	6	0	0	
B 72 R3-06 DO YOU USE OR REFER TO INDUCTANCE.	16	19	100	0	15	67	5	INDUCTORS AND INDUCTIVE REACTANCE
B 73 R3-07 DO YOU USE OR REFER TO HENRIES.	14	19	100	0	12	67	0	
B 74 R3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	14	19	100	0	12	67	0	
B 75 R3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	6	13	67	0	3	0	0	
B 76 R3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	10	19	100	0	6	0	0	
B 77 R3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS.	8	19	100	0	3	0	0	
B 78 R3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL.	4	13	67	0	0	0	0	
B 79 R3-13 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.	4	13	67	0	0	0	0	
B 80 R3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	4	13	67	0	0	0	0	
B 81 R3-15 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.	6	13	67	0	3	0	0	
B 82 R3-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	8	19	100	0	3	0	0	
B 83 R3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	6	19	100	0	3	0	0	
B 84 R3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	8	19	100	0	3	0	0	
B 85 R3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	10	19	100	0	4	0	0	
B 86 R3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	10	19	100	0	6	0	0	
B 87 R3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	14	19	100	0	12	67	0	
B 88 R3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	16	19	100	0	15	67	5	
B 89 R3-23 DO YOU WORK WITH POWER INDUCTORS.	8	13	67	0	6	0	0	
B 90 R3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	6	13	67	0	3	0	0	
B 91 R3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	10	13	67	0	9	0	5	

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	U26	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
C 92	CI-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	51	44	100	31	54	67	40
C 93	CI-02 DO YOU INSPECT CAPACITORS.	37	25	33	23	42	67	30
C 94	CI-03 DO YOU CLEAN CAPACITORS.	24	13	31	8	30	67	20
C 95	CI-04 DO YOU ADJUST CAPACITORS.	27	31	100	15	24	67	20
C 96	CI-05 DO YOU TEST CAPACITORS.	43	31	100	15	48	67	45
C 97	CI-06 DO YOU DISCHARGE CAPACITORS.	39	31	100	15	42	67	35
C 98	CI-07 DO YOU REMOVE OR REPLACE CAPACITORS.	41	25	100	8	48	67	35
C 99	CI-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	10	19	100	0	6	0	0
C 100	CI-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS I. A DIELECTRIC.	6	13	67	0	3	0	0
C 101	CI-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	33	31	100	15	33	67	10
C 102	CI-11 DO YOU USE OR REFER TO CAPACITANCE.	43	31	100	15	48	67	35
C 103	CI-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	8	19	100	0	3	0	0
C 104	CI-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	27	31	100	15	24	67	15
C 105	CI-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	20	31	100	15	15	33	5
C 106	CI-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	18	6	0	8	24	33	20
C 107	CI-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	47	31	67	23	55	67	55
C 108	CI-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	41	31	100	15	45	67	45
C 109	CI-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC CIRCUITS	37	31	100	15	39	67	40
C 110	CI-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	10	0	0	0	15	0	15
C 111	CI-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	10	25	100	8	3	0	0
C 112	CI-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	8	19	100	0	3	0	0
C 113	CI-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	8	19	100	0	3	0	0
C 114	CI-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	14	25	100	8	9	0	0
C 115	CI-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	14	25	100	8	9	0	0
C 116	CI-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	14	25	100	8	9	0	0
C 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	16	31	100	15	9	0	10
C 118	CI-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	16	31	100	15	9	0	10
C 119	CI-28 DC YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	16	25	100	8	12	67	5
C 120	CI-29 DO YOU CALCULATE CAPACITIVE REACTANCE	16	25	100	8	12	67	5

CAPACITORS AND CAPACITIVE REACTANCE

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TSK

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031	032	033	034	035	036	039
C 121 C1-30 DO YOU WORK WITH MOTOR-STATOR (VARIABLE) CAPACITORS	12	19	67	8	9	0	10					
C 122 C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	8	13	33	6	6	33	0					
C 123 C1-32 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	29	31	100	15	27	67	10					
C 124 C1-33 DO YOU WORK WITH PAPER (FIXED) CAPACITORS	27	25	100	8	27	67	15					
C 125 C1-34 DO YOU WORK WITH MICA (FIXED) CAPACITORS	27	19	67	8	30	67	15					
C 126 C1-35 DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	35	25	67	15	39	67	25					
C 127 C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	20	19	33	15	21	0	30					
C 128 C2-01 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	43	69	100	62	30	67	20					
C 129 C2-02 DO YOU INSPECT TRANSFORMERS	35	44	33	46	30	67	20					
C 130 C2-03 DO YOU CLEAN TRANSFORMERS	24	25	33	23	24	33	15					
C 131 C2-04 DO YOU ADJUST TRANSFORMERS	24	38	33	38	18	0	15					
C 132 C2-05 DO YOU TROUBLESHOOT TRANSFORMERS	39	56	67	54	30	67	20					
C 133 C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	39	56	67	54	30	67	20					
C 134 C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	2	0	0	0	3	0	5					
C 135 C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTANCE AND MUTUAL INDUCTANCE (M)	6	13	67	0	3	0	0					
C 136 C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	10	19	100	0	6	0	5					
C 137 C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	8	13	67	0	6	0	5					
C 138 C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	12	19	67	8	9	33	5					
C 139 C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	6	6	33	0	6	0	5					
C 140 C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	4	6	33	0	3	0	0					
C 141 C2-14 DO YOU WORK WITH AUTOTRANSFORMERS	12	19	100	0	4	0	5					
C 142 C2-15 DO YOU WORK WITH POWER TRANSFORMERS	35	50	100	38	27	33	20					
C 143 C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS	14	25	100	8	9	0	5					
C 144 C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	12	19	100	0	9	0	0					
C 145 C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	6	13	0	15	3	0	5					
C 146 C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	37	56	67	54	27	67	20					
C 147 C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	35	56	67	54	24	67	15					
C 148 C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	33	44	67	38	27	67	20					
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	14	19	67	8	12	67	5					
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	18	25	100	8	15	67	5					
C 151 C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	41	56	100	46	33	67	25					

TRANSFORMERS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031	032	033	034
UY-TSK									
C 152 C2-25 DC YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	29	31	100	15	27	67	15		
C 153 C2-26 DC YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	35	50	100	38	27	67	20		
C 154 C2-27 DC YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	33	50	100	36	24	67	15		
C 155 C2-28 DC YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	20	31	100	15	15	67	5		
C 156 C2-29 DC YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	24	44	100	31	15	67	5		
C 157 C2-30 DC YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	27	38	100	23	21	67	15		
C 158 C2-31 DC YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	27	31	100	15	24	67	10		
C 159 C2-32 DC YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	18	25	100	8	15	67	5		
C 160 C2-33 DC YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	8	13	67	0	6	0	0		
C 161 C2-34 DC YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	22	31	100	15	18	67	5		
C 162 C2-35 DC YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	8	19	100	0	3	0	0		
C 163 C2-36 DC YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	8	19	100	0	3	0	0		
C 164 C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	24	38	100	23	18	67	5		
C 165 C2-38 DC YOU INSPECT THREE PHASE TRANSFORMERS	16	13	0	15	18	67	5		
C 166 C2-39 DC YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	6	13	0	15	3	0	5		
C 167 C2-40 DC YOU ADJUST THREE PHASE TRANSFORMERS	8	13	0	15	6	0	5		
C 168 C2-41 DC YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	16	13	0	15	18	67	5		
C 169 C2-42 DC YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	16	19	0	23	15	67	5		
C 170 C2-43 DC YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	0	0	0	0	0	0	0		
C 171 C3-01 DC YOU USE OR REFER TO PERMANENT MAGNETS	20	25	100	8	18	33	14		
C 172 C3-02 DC YOU USE OR REFER TO TEMPORARY MAGNETS	14	19	100	0	12	0	15		
C 173 C3-03 DC YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	10	19	100	0	6	0	5		MAGNETISM
C 174 C3-04 DC YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	10	19	100	0	6	0	5		
C 175 C3-05 DC YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	12	25	100	6	6	0	5		
C 176 C3-06 DC YOU USE OR REFER TO RESIDUAL MAGNETISM	14	25	100	6	12	0	10		
C 177 C3-07 DC YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	33	25	100	8	36	33	40		
C 178 C3-08 DC YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	6	25	100	8	0	0	0		

PCT MEMS RESPONDING 'YES' BY SELECTED GRPS

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TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035
C 179 C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM	8	25	100	8	0	0	0	0	0	0
C 180 C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION	18	25	100	6	15	33	10	10	0	0
C 181 C3-11 DO YOU USE OR REFER TO FLUX DENSITY	20	25	100	8	18	0	20	0	0	0
C 182 C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT	31	38	100	23	27	0	30	0	0	0
C 183 C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES	18	38	100	23	9	0	10	0	0	0
C 184 C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL	14	31	100	15	6	0	5	0	0	0
D 185 D1-01 DO YOU WORK WITH RCL, LR, RCL CIRCUITS IN YOUR PRESENT JOB	16	19	67	8	15	67	10	0	0	0
D 186 D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS	6	13	67	0	3	0	0	0	0	0
D 187 D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS	4	13	67	0	0	0	0	0	0	0
D 188 D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS	12	19	67	8	9	67	5	0	0	0
D 189 D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS	8	19	67	8	3	0	5	0	0	0
D 190 D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS	8	19	67	8	3	0	5	0	0	0
D 191 D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS	14	19	67	8	12	33	10	0	0	0
D 192 D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS	10	19	67	8	6	33	5	0	0	0
D 193 D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS	6	13	33	8	3	0	5	0	0	0
D 194 D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS	10	13	33	8	9	33	5	0	0	0
D 195 D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS	10	19	67	8	6	0	5	0	0	0
D 196 D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS	6	19	67	8	0	0	0	0	0	0
D 197 D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS	6	13	67	0	3	0	0	0	0	0
D 198 D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS	6	13	67	0	6	33	5	0	0	0
D 199 D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS	8	13	67	0	6	0	10	0	0	0
D 200 D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS	10	13	67	0	9	67	5	0	0	0
D 201 D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS	6	19	67	8	0	0	0	0	0	0
D 202 D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS	4	13	67	0	0	0	0	0	0	0
D 203 D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS	4	13	67	0	0	0	0	0	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
U 204	DI-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	10	13	67	0	9	33	5
D 205	DI-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	4	13	67	0	0	0	0
D 206	DI-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	8	13	67	0	6	0	0
D 207	DI-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	4	13	67	0	0	0	0
D 208	DI-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	6	19	67	8	0	0	0
D 209	DI-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 210	DI-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	4	13	67	0	0	0	0
D 211	DI-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 212	DI-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 213	DI-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 214	DI-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	6	19	67	8	0	0	0
D 215	DI-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	4	13	67	0	0	0	0
D 216	DI-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	2	6	33	0	0	0	0
D 217	DI-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	6	19	67	6	0	0	0
D 218	DI-34 DO YOU CHECK CAPACITORS USING OHMMETERS	20	25	67	15	18	67	10
D 219	DI-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	14	6	33	0	18	67	10
D 220	DI-36 DO YOU CHECK INDUCTORS USING OHMMETERS	20	25	67	15	18	67	10
D 221	DI-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	10	6	33	0	12	67	5
D 222	DI-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT $\Delta ETAM = U, PF = 1,$ AND $PA = PT$ FOR RESONANT CIRCUITS	4	13	67	0	0	0	0
D 223	DI-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	4	13	67	0	0	0	0
D 224	DI-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	6	13	67	0	3	0	0
D 225	DI-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	8	13	67	0	6	0	5
D 226	DI-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	12	25	67	15	6	33	0
D 227	DI-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	4	13	67	0	0	0	0
D 228	DI-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	8	25	67	15	0	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035	SPC 036	SPC 037	SPC 038	SPC 039
0 229 02-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	10	13	67	0	9	0	5							
0 230 02-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	12	13	67	0	12	33	5							
0 231 02-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	6	13	67	0	6	6	5							
0 232 03-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	8	13	67	0	6	0	5							
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)	6	13	67	0	3	0	0							
0 234 02-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	6	13	67	0	3	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	4	13	67	0	0	0	0							
0 236 02-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS	4	13	67	0	0	0	0							
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	4	13	67	0	0	0	0							
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	4	13	67	0	0	0	0							
0 239 03-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	31	44	100	31	24	100	15							
0 240 03-02 DO YOU INSPECT FILTER CIRCUITS	18	19	0	23	14	67	10							
0 241 03-03 DO YOU CLEAN FILTER CIRCUITS	12	13	0	15	12	33	10							
0 242 03-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	12	19	33	15	9	33	5							
0 243 03-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	18	25	67	15	15	33	10							
0 244 03-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	18	31	100	15	12	67	0							
0 245 03-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT PARTS	24	31	33	31	21	100	10							
0 246 03-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENTS	12	13	67	0	12	67	5							
0 247 03-09 DO YOU WORK WITH LOW PASS FILTERS	16	19	67	8	15	100	0							
0 248 03-10 DO YOU WORK WITH HIGH PASS FILTERS	14	19	67	6	12	100	0							
0 249 03-11 DO YOU WORK WITH BANDPASS FILTERS	12	19	67	8	9	67	0							
0 250 03-12 DO YOU WORK WITH BAND-REJECT FILTERS	10	14	67	8	6	33	0							
0 251 03-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	14	25	33	23	9	0	15							
0 252 03-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	14	19	100	0	12	67	0							
0 253 03-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	12	13	67	0	12	67	0							
0 254 03-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	12	19	100	0	9	67	0							
0 255 03-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	14	19	0	23	12	33	15							
0 256 03-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	6	13	67	0	3	0	0							
0 257 03-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	16	19	100	0	15	67	5							
0 258 03-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	6	13	67	0	3	0	0							

FILTERS

SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	037	038	039	039	039	039	039
0 259 03-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT	16	25	32	23	12	33	10				
0 260 03-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS	2	6	33	0	0	0	0				
E 261 E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB	20	25	100	8	18	100	5				
E 262 E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING	16	19	100	0	15	67	5				
E 263 E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING	16	19	100	0	15	67	5				
E 264 E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING	20	25	100	6	18	100	5				
E 265 E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING	14	19	100	0	12	67	0				
E 266 E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING	12	13	67	0	12	67	0				
E 267 E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING	14	19	67	8	12	67	0				
E 268 E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS	16	25	100	8	12	67	0				
E 269 E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS	14	19	100	0	12	67	0				
E 270 E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS	8	13	67	0	6	33	0				
E 271 E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS	16	25	100	8	12	67	0				
E 272 E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS	2	0	0	0	3	33	0				
L 273 E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS	94	94	100	92	94	100	95				
E 274 E2-02 DO YOU SELECT TYPE OF SOLDER TO USE	88	100	85	88	100	85	90				
E 275 E2-03 DO YOU ADD FLUX TO CONNECTIONS	86	75	100	69	91	67	95				
E 276 E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS	80	69	100	62	85	67	85				
E 277 E2-05 DO YOU STRIP INSULATION FROM WIRES	94	94	100	92	94	100	95				
E 278 E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS	84	94	100	92	79	100	76				
E 279 E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS	94	94	100	92	94	100	95				
E 280 E2-08 DO YOU CUT WIRES	94	94	100	92	94	100	95				
E 281 E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS	88	94	100	92	85	100	90				
E 282 E2-10 DO YOU TIN SOLDERING IRON TIPS	92	94	100	92	91	100	90				
E 283 E2-11 DO YOU CLEAN SOLDERING IRON TIPS	94	94	100	92	94	100	95				
E 284 E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS	69	94	100	92	58	100	45				
E 285 E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS	86	88	100	85	85	100	85				
E 286 E2-14 DO YOU INSPECT SOLDERED CONNECTIONS	92	94	100	92	91	100	90				
E 287 E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING	67	69	67	69	67	100	55				
E 288 E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS	55	56	67	54	56	67	50				
E 289 E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS	69	88	67	92	61	100	50				
E 290 E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL	20	19	33	15	21	33	20				

SOLDERING



PCT MBMS RESPONDING 'YES' BY SELECTED GMPs

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035
F 327 F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	0	0	0	0	0	0	0	0	0	0
F 328 F2-02 DO YOU INSPECT SPEAKERS	0	0	0	0	0	0	0	0	0	0
F 329 F2-03 DO YOU CLEAN SPEAKERS	0	0	0	0	0	0	0	0	0	0
F 330 F2-04 DO YOU OPERATE SPEAKERS	0	0	0	0	0	0	0	0	0	0
F 331 F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS	0	0	0	0	0	0	0	0	0	0
F 332 F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	0	0	0	0	0	0	0	0	0	0
F 333 F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	0	0	0	0	0	0	0	0	0	0
F 334 F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	0	0	0	0	0	0	0	0	0	0
F 335 F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	0	0	0	0	0	0	0	0	0	0
F 336 F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	0	0	0	0	0	0	0	0	0	0
F 337 F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	0	0	0	0	0	0	0	0	0	0
F 338 F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	0	0	0	0	0	0	0	0	0	0
F 339 F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	0	0	0	0	0	0	0	0	0	0
F 340 F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	0	0	0	0	0	0	0	0	0	0
F 341 F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SORT IRON CORES	0	0	0	0	0	0	0	0	0	0
F 342 F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	69	81	67	85	64	100	45			
F 343 F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	73	94	100	92	64	100	45			OSCILLOSCOPES
F 344 F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	59	69	67	69	55	67	45			
F 345 F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	61	94	67	100	45	67	30			
F 346 F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	67	100	100	100	52	67	30			
F 347 F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	55	94	100	92	36	67	30			
F 348 F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	51	50	100	36	52	67	40			
F 349 F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	41	38	33	38	42	67	30			
F 350 F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING RELAY TIME MULTIPLIERS	43	75	100	69	27	67	15			
F 351 F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	69	100	100	100	55	67	40			
F 352 F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	53	81	33	92	39	67	25			
F 353 F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	67	94	100	92	55	100	35			
G 354 G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	57	44	67	38	64	100	65			
G 355 G1-02 DO YOU INSPECT DIODES	45	19	33	15	58	67	60			SEMICONDUCTOR DIODES
G 356 G1-03 DO YOU REMOVE OR REPLACE DIODES	41	25	67	15	48	100	40			
G 357 G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	55	44	100	31	61	100	60			
G 358 G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	10	6	33	0	12	33	10			
G 359 G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE	10	13	67	0	9	33	5			
G 360 G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	14	19	100	0	12	0	15			

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	037	038	039	040	041	042	043	044	045
G 361 G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	35	25	100	8	39	33	40						
G 362 G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	49	31	100	15	58	100	55						
G 363 G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF LOOPING ON CURRENT FLOW	12	19	100	0	9	0	10						
G 364 G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	35	38	100	23	33	67	30						
G 365 G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	20	0	0	0	30	33	35						
G 366 G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	10	19	100	0	6	0	5						
G 367 G1-14 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	10	19	100	0	6	0	5						
G 368 G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS JN 538	35	19	33	15	42	100	40						
G 369 G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	8	13	67	0	6	0	5						
G 370 G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	10	19	100	0	6	0	5						
G 371 G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	33	38	100	23	30	67	30						
G 372 G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	10	19	100	0	6	0	5						
G 373 G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	8	13	67	0	6	0	5						
G 374 G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	10	19	100	0	6	0	5						
G 375 G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	10	19	100	0	6	0	5						
G 376 G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	10	19	100	0	6	0	5						
G 377 G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	47	31	100	15	55	100	50						
G 378 G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	12	13	67	0	12	0	5						
G 379 G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	20	25	100	8	18	33	10						
G 380 G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS	14	19	100	0	12	33	5						
G 381 G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	33	31	100	15	33	67	30						
G 382 G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0						

DY-TSK

PCT MRS RESPONDING \*YES\* BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
6 363	GI-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0
6 384	GI-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0
6 385	GI-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0
6 386	GI-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	8	19	100	0	3	0	0
6 387	GI-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	18	25	100	8	15	0	20
6 388	GI-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	8	19	100	0	3	0	0
6 389	GI-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	10	19	100	0	6	0	5
6 390	GI-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	16	19	100	0	15	33	10
6 391	GI-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	16	19	100	0	15	33	10
6 392	GI-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	10	19	100	0	6	0	5
6 393	GI-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	10	19	100	0	6	0	5
6 394	GI-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	8	19	100	0	3	0	0
6 395	GI-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	8	19	100	0	3	0	0
6 396	GI-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER HEIGHT AND DIFFERENCE OF POTENTIAL	22	19	67	8	24	33	23
6 397	GI-44 DO YOU USE OR REFER TO THE 10:1 RATIO OF RESISTANCE RATIO FOR DIODES	12	19	100	0	9	0	5
6 398	GI-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	14	0	0	0	21	33	20
6 400	GI-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	14	19	100	0	12	33	5
6 401	GI-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	12	19	100	0	9	33	0
6 402	GI-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	16	19	100	0	14	33	10
6 403	GI-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	16	31	100	15	9	33	0
6 404	GZ-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	29	31	100	15	27	67	15
6 405	GZ-02 DO YOU INSPECT TRANSISTORS	27	13	33	8	33	67	25
6 406	GZ-03 DO YOU REMOVE OR REPLACE TRANSISTORS	22	19	67	8	24	33	15
6 407	GZ-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	27	19	67	8	30	67	20
6 408	GZ-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	27	25	100	8	27	67	15
6 409	GZ-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	24	25	100	6	24	67	15

TRANSISTORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031	032	033	034	035
G 410 G2-07 DO YOU USE OH REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	24	25	100	8	24	67	15			
G 411 G2-08 DO YOU USE OH REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	12	19	100	0	9	0	5			
G 412 G2-09 DO YOU USE OH REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	12	19	100	0	9	0	5			
G 413 G2-10 DO YOU USE OH REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	20	19	100	0	21	67	15			
G 414 G2-11 DO YOU USE OH REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	12	19	100	0	9	0	5			
G 415 G2-12 DO YOU USE OH REFER TO TRANSISTOR SCHEMATIC SYMBOLS	31	31	100	15	30	67	20			
G 416 G2-13 DO YOU USE OH REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	27	25	100	8	27	67	15			
G 417 G2-14 DO YOU USE OH REFER TO TRANSISTOR SUBSTITUTION INFORMATION	12	6	33	0	15	33	10			
G 418 G2-15 DO YOU USE OH REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT IS USUALLY BEING 2 TO 6 PERCENT OF IE)	14	19	100	0	12	33	5			
G 419 G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	16	19	100	0	15	33	10			
G 420 G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	12	19	100	0	9	0	5			
G 421 G2-18 DO YOU USE OH REFER TO TRANSISTOR CHARACTERISTIC CURVES	10	19	100	0	6	0	5			
G 422 G2-19 DO YOU USE OH REFER TO BETA TRANSISTOR GAINS	10	19	100	0	6	0	5			
G 423 G2-20 DO YOU USE OH REFER TO ALPHA TRANSISTOR GAINS	10	19	100	0	6	0	5			
G 424 G2-21 DO YOU USE OH REFER TO GAMMA TRANSISTOR GAINS	10	19	100	0	6	0	5			
G 425 G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	8	19	100	0	3	0	0			
G 426 G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	8	19	100	0	3	0	0			
G 427 G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	8	19	100	0	3	0	0			
G 428 G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	29	38	100	23	24	67	15			
G 429 G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	20	19	33	15	21	33	10			TRANSISTOR
G 430 G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	14	13	33	8	15	33	5			AMPLIFIERS
G 431 G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	24	31	100	15	21	67	10			
G 432 G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	12	19	100	0	9	67	5			
G 433 G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	27	25	33	23	27	67	15			
G 434 G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	8	13	67	0	6	33	0			
G 435 G3-08 DO YOU USE OH REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	14	19	100	0	12	33	5			
G 436 G3-09 DO YOU USE OH REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	8	19	100	0	3	0	0			

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031	032	033	034	035
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	12	19	100	0	9	0	5			
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	8	19	100	0	3	0	0			
6 439 G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	12	19	100	0	9	0	5			
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	10	19	100	0	6	0	0			
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)	8	19	100	0	3	0	0			
6 442 G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	8	19	100	0	3	0	0			
6 443 G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	6	19	100	0	3	0	0			
6 444 G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	22	38	100	23	14	0	10			
6 445 G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	16	25	67	15	12	0	10			
6 446 G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	12	25	67	15	6	0	5			
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	8	19	100	0	3	0	0			
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	8	19	100	0	3	0	0			
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	8	19	100	0	3	0	0			
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 (Q) OF THE TRANSISTOR)	6	19	100	0	3	0	0			
6 451 G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT (Q) OF A TRANSISTOR AT DIFFERENT TEMPERATURES	0	0	0	0	0	0	0			
6 452 G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION	10	19	100	0	6	0	5			
6 453 G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION	10	25	100	6	3	0	0			

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

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TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035
01-TSK										
G 454 G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTON STABILIZATION	10	25	100	6	3	0	0	0		
G 455 G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	12	25	100	8	6	0	5			
G 456 G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	12	25	100	8	6	0	5			
G 457 G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	12	25	100	8	6	0	5			
G 458 G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	12	25	100	8	6	0	5			
G 459 G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	12	31	100	15	3	0	0			
G 460 G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	6	19	67	8	3	0	0			
G 461 G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	12	25	67	15	6	0	5			
G 462 G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	12	25	67	15	6	0	5			
G 463 G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	12	25	67	15	6	0	5			
G 464 G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	12	31	100	15	3	0	0			
G 465 G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	4	13	67	0	0	0	0			
G 466 G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	14	31	100	15	6	0	5			
G 467 G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	12	31	100	15	3	0	0			
G 468 G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	4	13	33	6	0	0	0			
G 469 G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	6	13	33	8	3	0	5			
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	10	19	100	0	6	0	5			
G 471 G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	14	19	100	0	12	33	5			
G 472 G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	6	19	67	6	0	0	0			
G 473 G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	12	25	100	8	6	0	5			
G 474 G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	6	19	67	8	3	0	0			
G 475 G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	12	25	67	15	6	0	5			



PCT MBRs RESPONDING \*YES\* BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	037	038	039	038	038	039	038	039	039
M 513 M3-02 DO YOU INSPECT OSCILLATORS	29	31	33	31	27	67	30						
M 514 M3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	33	50	33	54	24	67	30						
M 515 M3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	27	31	33	31	24	67	30						
M 516 M3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	4	13	67	0	3	0	5						
M 517 M3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	27	25	100	8	27	67	30						
M 518 M3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	10	19	100	0	6	0	5						
M 519 M3-08 DO YOU USE OR REFER TO FEEDBACK	14	19	100	0	12	0	20						
M 520 M3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES	29	38	100	23	24	67	30						
(FDD)													
M 521 M3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	31	50	100	38	21	67	20						
M 522 M3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	35	56	100	46	24	67	30						
M 523 M3-12 DO YOU USE OR REFER TO DAMPING	10	25	100	8	3	0	5						
M 524 M3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	8	19	100	0	3	0	5						
M 525 M3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	8	19	100	0	3	0	5						
M 526 M3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	8	19	100	0	3	0	5						
M 527 M3-16 DO YOU USE OR REFER TO OVER DAMPING	8	19	100	0	3	0	5						
M 528 M3-17 DO YOU USE OR REFER TO UNDER DAMPING	8	19	100	0	3	0	5						
M 529 M3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK	10	19	100	0	6	0	10						
CIRCUITS AS FDD													
M 530 M3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS	12	19	100	0	6	67	5						
FDD													
M 531 M3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS	12	19	100	0	9	67	5						
FDD													
M 532 M3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER	16	13	0	15	18	0	30						
WHICH TYPE OF FDD													
M 533 M3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL	10	19	100	0	6	67	0						
OSCILLATORS													
M 534 M3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0						
M 535 M3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0						
M 536 M3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0						
M 537 M3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0						
M 538 M3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF	16	19	0	23	15	0	45						
OSCILLATORS													
I 539 I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	14	19	67	8	12	67	0						
I 540 I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	16	19	33	15	15	67	0						
I 541 I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING	12	19	33	15	9	67	0						
CIRCUITS													
I 542 I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	10	13	33	6	9	67	0						
I 543 I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING	14	19	67	8	12	67	0						
CIRCUITS													
I 544 I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING	8	19	100	0	3	33	0						
CIRCUIT COMPONENTS													
I 545 I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR	10	19	67	8	6	33	0						
SHAPING CIRCUITS													
I 546 I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING	6	19	100	0	0	0	0						
COMPONENTS													
I 547 I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK	2	6	33	0	0	0	0						
CIRCUITS													

MULTIVIBRATORS

PCT HRS RESPONDING YES BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031 032 039

1 548	11-10	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	12	19	100	0	9	67	0
1 549	11-11	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	2	6	33	0	0	0	0
1 550	11-12	DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN COMPT REMEMBER WHICH TYPE OF FDD	2	6	0	6	0	0	0
1 551	11-13	DO YOU WORK WITH ASTABLE MULTIVIBRATORS	14	19	100	0	12	67	0
1 552	11-14	DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	14	19	100	0	12	67	0
1 553	11-15	DO YOU WORK WITH BISTABLE MULTIVIBRATORS	2	6	0	6	0	0	0
1 554	11-16	DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	16	19	100	0	15	67	5
1 555	12-01	DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	10	19	100	0	6	0	5
1 556	12-02	DO YOU WORK WITH SERIES DIODE LIMITERS	12	19	100	0	9	0	5
1 557	12-03	DO YOU WORK WITH SHUNT DIODE LIMITERS	8	19	100	0	3	0	0
1 558	12-04	DO YOU WORK WITH LIMITERS WITH BIAS	12	19	100	0	9	0	0
1 559	12-05	DO YOU WORK WITH ZENER DIODE LIMITERS	10	19	100	0	6	0	0
1 560	12-06	DO YOU WORK WITH TRANSISTOR LIMITERS	4	0	0	0	6	13	0
1 561	12-07	DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	8	19	100	0	3	0	0
1 562	12-08	DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	8	19	100	0	3	0	0
1 563	12-09	DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	8	19	100	0	3	0	0
1 564	12-10	DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	6	0	0	0	12	33	5
1 565	13-01	IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	20	38	100	23	12	67	10
1 566	13-02	DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	16	25	67	15	12	67	10
1 567	13-03	DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES	8	13	67	0	6	33	5
1 568	13-04	DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES	14	19	100	0	12	67	10
1 569	13-05	DO YOU USE SCOPES TO CHECK ELECTRON TUBES	8	13	67	0	6	0	10
1 570	13-06	DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES	16	31	67	23	9	67	5
1 571	13-07	DO YOU USE OR REFER TO CUTOFF	8	19	100	0	3	0	5
1 572	13-08	DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING	8	19	100	0	3	0	5
1 573	13-09	DO YOU USE OR REFER TO PEAK CURRENT RATING	8	19	100	0	3	0	5
1 574	13-10	DO YOU USE OR REFER TO TRANSIT TIME	4	13	67	0	0	0	0
1 575	13-11	DO YOU USE OR REFER TO PLATE DISSIPATION RATING	6	13	67	0	3	0	5
1 576	13-12	DO YOU USE OR REFER TO SATURATION	10	19	100	0	6	0	10
1 577	13-13	DO YOU USE OR REFER TO DC PLATE RESISTANCE	10	19	100	0	6	0	10
1 578	13-14	DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES	8	19	100	0	3	0	5
1 579	13-15	DO YOU USE OR REFER TO PLATE VOLTAGE	12	31	100	15	3	0	5
1 580	13-16	DO YOU USE OR REFER TO PLATE CURRENT	8	19	100	0	3	0	5
1 581	13-17	DO YOU USE OR REFER TO GRID VOLTAGE	8	19	100	0	3	0	5
1 582	13-18	DO YOU USE OR REFER TO GRID CURRENT	8	19	100	0	3	0	5
1 583	13-19	DO YOU USE OR REFER TO CATHODE VOLTAGE	8	19	100	0	3	0	5
1 584	13-20	DO YOU USE OR REFER TO CATHODE CURRENT	8	19	100	0	3	0	5
1 585	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)	8	19	100	0	3	0	5

LIMITERS AND CLAMPERS

ELECTRON TUBES

PCT MBRS RESPONDING \*YES\* BY SELECTED GMPs

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TSK	SPC U26	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035
I 586 13-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	8	19	100	0	3	0	5			
I 587 13-23 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	8	19	100	0	3	0	5			
I 588 13-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G <sub>m</sub> ) WHICH IS MEASURED IN MMOSI	8	19	100	0	3	0	5			
I 589 13-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	8	19	100	0	3	0	5			
I 590 13-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	8	19	100	0	3	0	5			
I 591 13-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	8	19	100	0	3	0	5			
I 592 13-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	8	19	100	0	3	0	5			
I 593 13-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	8	19	100	0	3	0	5			
I 594 13-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	8	19	100	0	3	0	5			
I 595 13-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	8	19	100	0	3	0	5			
I 596 13-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	8	19	100	0	3	0	5			
I 597 13-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	8	19	100	0	3	0	5			
I 598 13-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	14	31	100	15	8	0	10			
I 599 13-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	8	19	100	0	3	0	5			
I 600 13-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	8	13	67	0	6	0	10			
I 601 13-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	12	25	100	6	6	0	10			
I 602 13-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	8	19	100	0	3	0	5			
I 603 13-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	8	19	100	0	3	0	5			
I 604 13-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	2	6	33	0	0	0	0			
I 605 13-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	16	25	67	15	12	67	10			
I 606 13-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	16	25	100	8	12	67	10			
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	6	13	67	0	3	0	5			
I 608 13-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	4	6	33	0	3	0	5			
J 609 JI-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	12	25	100	8	6	67	0			
J 610 JI-02 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	4	13	67	0	0	0	0			ELECTRON TUBE AMPLIFIERS AND CIRCUITS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

TASK GROUP	DESCRIPTION	U26		U27		U28		U29		U30		U31		U32		U33		U34		U35	
		U26	U27	U28	U29	U30	U31	U32	U33	U34	U35	U36	U37	U38	U39	U40	U41	U42	U43	U44	U45
J 611	J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	2	6	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 612	J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	2	6	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 613	J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	2	6	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 614	J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	6	6	33	0	6	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 615	J1-07 DO YOU TROUBLESHOOT OR REPAIR DON'T KNOW WHICH TYPE OF AMPLIFIER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 616	J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	12	25	100	8	6	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 617	J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	12	31	100	15	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
J 618	J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF HEAM POWER TUBES	8	25	100	8	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 620	J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	2	6	33	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	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 (CMT)	8	19	100	0	3	0	5	0	0	0	0	0	0	0	0	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)	6	19	100	0	0	0	0	0	0	0	0	0	0	0	0	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)	6	19	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 625	J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	14	25	100	8	9	67	5	0	0	0	0	0	0	0	0	0	0	0	0	0
J 626	J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	8	19	100	0	3	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 627	J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	8	25	100	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 628	J2-13 DO YOU USE OR REFER TO PERSISTENCE	8	13	67	0	6	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 629	J2-14 DO YOU USE OR REFER TO DECAY TIMES	6	19	67	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 630	J2-15 DO YOU USE OR REFER TO FLUORESCENCE	6	25	100	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 631	J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	6	25	100	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 632	J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	20	0	0	0	30	33	35	0	0	0	0	0	0	0	0	0	0	0	0	0
J 633	J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	8	0	0	0	12	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
J 634	J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	6	0	0	0	9	33	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 636	J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J 637	J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K 639	K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K 640	K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K 641	K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SPECIAL PURPOSE  
ELECTRON TUBES

HETERODYNING,  
MODULATION, AND  
DEMODULATION

AM SYSTEMS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DT-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
K 642 KI-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS COMPONENTS	0	0	0	0	0	0	0
K 643 KI-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0
K 644 KI-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0
K 645 KI-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0
K 646 KI-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	0	0	0	0	0	0	0
K 647 KI-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0	0	0	0
K 648 KI-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	0	0	0	0	0	0	0
K 649 KI-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0	0	0	0
K 650 KI-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	0	0	0	0	0	0	0
K 651 KI-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0	0	0	0	0
K 652 KI-15 DO YOU PERFORM TASKS ON DETECTORS	0	0	0	0	0	0	0
K 653 KI-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	0	0	0	0	0	0	0
K 654 KI-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	0	0	0	0	0	0	0
K 655 KI-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	0	0	0	0	0	0	0
K 656 KI-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	0	0	0	0	0	0	0
K 657 KI-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	0	0	0	0	0	0	0
K 658 KI-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	0	0	0	0	0	0	0
K 659 KI-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	0	0	0	0	0	0	0
K 660 KI-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	0	0	0	0	0	0	0
K 661 KI-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	0	0	0	0	0	0	0
K 662 KI-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	0	0	0	0	0	0	0
K 663 KI-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	0	0	0	0	0	0	0
K 664 KI-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	0	0	0
K 665 KI-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0	0	0
K 666 K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	8	0	0	0	12	33	10
K 667 K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5
K 668 K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5
K 669 K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	4	0	0	0	6	0	5
K 670 K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5
K 671 K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	6	0	0	0	9	0	5
K 672 K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5
K 673 K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	2	0	0	0	3	0	5
K 674 K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	6	0	0	0	9	0	5
K 675 K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	6	0	0	0	9	0	5

FM SYSTEMS

PCT MBRS RESPONDING \*YES\* BY SELECTED GMPs

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035	SPC 036	SPC 037	SPC 038	SPC 039
K 676 K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	4	0	0	0	0	6	0	0	5					
K 677 K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0	12	33	5							
K 678 K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0	12	33	5							
K 679 K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	4	0	0	0	6	0	5							
K 680 K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	4	0	0	0	6	0	5							
K 681 K2-16 DO YOU PERFORM TASKS ON LIMITERS	4	0	0	0	6	0	5							
K 682 K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	4	0	0	0	6	0	5							
K 683 K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	4	0	0	0	6	0	5							
K 684 K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	4	0	0	0	6	0	5							
K 685 K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	31	38	100	23	77	0	15							
K 686 K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	29	31	100	15	27	0	20							
K 687 K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	27	38	100	23	21	0	10							
K 688 K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	29	50	100	38	14	0	10							
K 689 K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	35	50	100	38	27	0	20							
K 690 K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	31	50	100	38	21	0	15							
K 691 K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	31	44	100	31	24	0	40							
K 692 K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	20	31	100	15	15	0	10							
K 693 K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	29	50	100	38	14	0	15							
K 694 K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	31	69	100	62	12	0	10							
L 695 L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	22	44	100	31	17	0	5							
L 696 L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	14	31	100	15	6	0	0							
L 697 L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	14	31	100	15	6	0	0							
L 698 L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR LOGIC SYMBOLS WITH STATE INDICATORS	12	19	100	0	9	0	0							
L 699 L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	10	19	100	0	6	0	0							
L 700 L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	12	25	100	8	6	0	0							
L 701 K1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	12	25	100	8	6	0	0							
L 702 K1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	12	19	100	0	9	0	0							
L 703 L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	14	24	100	8	9	0	5							
L 704 L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	24	44	100	31	15	0	10							
L 705 L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	24	44	100	31	15	0	10							
L 706 L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	22	38	100	23	15	0	10							

NUMBERING SYSTEMS

LOGIC FUNCTIONS



PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

LY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035	SPC 036	SPC 039
L 733 L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	49	69	67	69	39	67	35					
L 734 L3-02 DO YOU USE OR REFER TO UP-COUNTERS	33	50	67	46	24	0	25					
L 735 L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	24	25	67	15	24	0	25					
L 736 L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	12	25	67	15	6	0	0					
L 737 L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	10	19	67	8	6	0	0					
L 738 L3-06 DO YOU USE OR REFER TO RING COUNTERS	6	13	67	0	3	0	0					
L 739 L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	22	6	0	8	30	67	35					
L 740 L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	4	0	0	0	4	0	0					
L 741 L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	14	19	67	8	12	0	10					
L 742 L3-10 DO YOU USE OR REFER TO UP CLOCKS	16	25	67	15	12	0	10					
L 743 L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	6	13	67	0	3	0	0					
L 744 L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	6	13	67	0	3	0	0					
L 745 L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	6	0	0	0	9	67	5					
L 746 L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	6	13	67	0	3	0	0					
L 747 L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	6	13	67	0	6	0	0					
L 748 L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	14	13	67	0	15	67	5					
L 749 L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	16	25	33	23	12	67	5					
L 750 L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	8	13	67	0	6	0	5					
L 751 L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	6	13	67	0	3	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	6	13	67	0	3	0	0					
L 753 L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	14	25	33	23	9	0	10					
L 754 L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	0	0	0	0	0	0	0					
L 755 L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	6	13	67	0	3	0	0					
L 756 L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REMAINDER COUNT	4	6	33	0	3	0	0					
M 757 MI-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	18	44	100	31	6	0	7					
M 758 MI-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	12	38	100	23	0	0	0					
M 759 MI-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	10	31	100	15	0	0	0					
M 760 MI-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	10	31	100	15	0	0	0					

TIMING CIRCUITS

PCT MBRN RESPONDING YES BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task Description	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031	032	033	034	035	036	037	038
M 761 M1-05 DO YOU MONK WITH BLOCKING OSCILLATORS	8	25	100	8	0	0	0	0	0	0	0	0	0
M 762 M1-06 DO YOU USE OR REFER TO RISE TIME	29	63	100	54	12	67	5	5	5	5	5	5	5
M 763 M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	18	31	100	15	12	67	15	15	15	15	15	15	15
M 764 M1-08 DO YOU USE OR REFER TO SWEEP TIME	33	63	100	54	18	67	15	15	15	15	15	15	15
M 765 M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	12	31	100	15	3	0	0	0	0	0	0	0	0
M 766 M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	14	31	100	15	6	0	5	5	5	5	5	5	5
M 767 M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	10	25	100	8	3	0	0	0	0	0	0	0	0
M 768 M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	12	25	100	6	6	0	5	5	5	5	5	5	5
M 769 M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	78	100	100	100	67	67	70	70	70	70	70	70	70
M 770 M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	63	69	0	85	61	67	60	60	60	60	60	60	60
M 771 M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	31	38	0	46	27	67	30	30	30	30	30	30	30
M 772 M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	39	56	0	69	30	67	30	30	30	30	30	30	30
M 773 M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	12	19	0	23	9	33	5	5	5	5	5	5	5
M 774 M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	47	56	67	54	42	67	45	45	45	45	45	45	45
M 775 M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	22	31	33	31	18	67	15	15	15	15	15	15	15
M 776 M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MHZ	14	25	33	23	9	0	15	15	15	15	15	15	15
M 777 M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MHZ	10	13	33	8	9	0	15	15	15	15	15	15	15
M 778 M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	35	44	33	46	30	67	20	20	20	20	20	20	20
M 779 M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	51	63	100	54	45	67	50	50	50	50	50	50	50
M 780 M3-02 DO YOU INSPECT MOTORS	35	44	0	54	30	0	35	35	35	35	35	35	35
M 781 M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	27	44	0	54	18	0	20	20	20	20	20	20	20
M 782 M3-04 DO YOU OPERATE MOTORS	37	38	0	46	36	67	35	35	35	35	35	35	35
M 783 M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	27	25	0	31	27	0	30	30	30	30	30	30	30
M 784 M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	14	31	0	38	6	0	5	5	5	5	5	5	5
M 785 M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIPE CONNECTIONS OF MOTORS	33	13	0	15	42	67	45	45	45	45	45	45	45
M 786 M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	10	19	0	23	6	0	5	5	5	5	5	5	5
M 787 M3-09 DO YOU PERFORM ANY TASKS ON FILLED COILS	4	13	67	0	0	0	0	0	0	0	0	0	0
M 788 M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	10	25	67	15	3	0	0	0	0	0	0	0	0
M 789 M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	10	25	67	15	3	0	0	0	0	0	0	0	0
M 790 M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	20	56	67	54	3	0	0	0	0	0	0	0	0
M 791 M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS	10	25	67	15	3	0	0	0	0	0	0	0	0
M 792 M3-14 DO YOU PERFORM ANY TASKS ON COMPUTATORS	10	25	67	15	3	0	0	0	0	0	0	0	0
M 793 M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	4	13	67	0	0	0	0	0	0	0	0	0	0

MOTORS AND GENERATORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TSK	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031	032	033	034	039
M 794 M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	2	6	33	0	0	0	0	0	0	0
M 795 M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	8	13	67	0	6	0	0	0	0	5
M 796 M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	4	6	33	0	3	0	0	0	0	5
M 797 M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	16	25	100	8	12	0	15	0	15	0
M 798 M3-20 DO YOU WORK WITH INDUCTION MOTORS	14	19	100	0	12	0	15	0	15	0
M 799 M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	12	13	33	8	12	0	15	0	15	0
M 800 M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	24	19	0	23	27	47	30	0	30	0
M 801 M3-23 DO YOU INSPECT GENERATORS	22	38	33	38	15	0	15	0	15	0
M 802 M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	12	31	0	38	3	0	0	0	0	0
M 803 M3-25 DO YOU OPERATE GENERATORS	29	38	33	38	24	67	15	0	15	0
M 804 M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	12	13	0	15	12	0	10	0	10	0
M 805 M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	10	19	0	23	6	0	0	0	0	0
M 806 M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	24	25	0	31	24	33	20	0	20	0
M 807 M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	8	13	0	15	6	0	0	0	0	0
N 808 N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	90	100	100	100	85	100	90	0	90	0
N 809 N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	16	25	100	8	12	33	10	0	10	0
N 810 N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	16	25	100	8	12	33	10	0	10	0
N 811 N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPINAL SPRINGS	20	31	100	15	15	33	10	0	10	0
N 812 N1-05 DO YOU READ METER SCALES	90	100	100	100	85	100	90	0	90	0
N 813 N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	37	38	100	23	38	0	35	0	35	0
N 814 N1-07 DO YOU ZERO OHMMETERS	86	94	100	92	62	100	85	0	85	0
N 815 N1-08 DO YOU ZERO VOLTMETERS	35	25	33	23	39	0	50	0	50	0
N 816 N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	59	69	100	62	55	67	45	0	45	0
N 817 N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	59	75	100	69	57	67	55	0	55	0
N 818 N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	8	25	100	8	0	0	0	0	0	0
N 819 N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	0	0	0	3	0	0	0	0	0
N 820 N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0	0	0	0	0	0	0
N 821 N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	6	0	6	0	0	0	0	0	0
N 822 N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	6	0	8	0	0	0	0	0	0
N 823 N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	6	0	8	0	0	0	0	0	0
N 824 N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	0	0	0	0	0	0	0	0	0	0

SATURABLE REACTORS  
AND MAGNETIC  
AMPLIFIERS

METER MOVEMENTS

PCT HRS RESPONDING \*YES\* BY SELECTED GAPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DT-TSK

SPC SPC SPC SPC SPC SPC SPC SPC

026 027 028 029 030 031 032 033

N 825 N2-08 DO YOU USE ON REFER TO HYSTERESIS CURVES OR LOOPS  
 N 826 N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT  
 WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF  
 SINGLE WINDING SATURABLE REACTORS  
 N 827 N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR  
 WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE  
 REACTORS  
 N 828 N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT  
 WAVEFORMS FOR MAGNETIC AMPLIFIERS  
 N 829 N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE  
 REACTORS  
 N 830 N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN  
 SATURABLE REACTORS  
 N 831 N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE  
 REACTORS  
 N 832 N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN  
 SATURABLE REACTORS  
 N 833 N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC  
 SYMBOLS

N 834 N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT  
 JOB

N 835 N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS  
 N 836 N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)  
 N 837 N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)  
 N 838 N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY  
 (PRF)

N 839 N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS  
 N 840 N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS  
 N 841 N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME  
 CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT

N 842 N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS  
 DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT  
 AND OUTPUT CONFIGURATION

N 843 N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS  
 N 844 N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS

U 845 O1-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR  
 PRESENT JOB

U 846 O1-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS  
 U 847 O1-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS  
 U 848 O1-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS  
 U 849 O1-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 850 O1-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 851 O1-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 852 O1-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 853 O1-09 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 854 O1-10 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 855 O1-11 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 856 O1-12 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 857 O1-13 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 858 O1-14 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 859 O1-15 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 860 O1-16 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 861 O1-17 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 862 O1-18 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

U 863 O1-19 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 SYSTEMS

U 864 O1-20 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE  
 COMPONENTS

WAVESHAPING  
CIRCUITS

SINGLE SIDEBAND  
SYSTEMS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

UY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035
0 853 01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0	0	0	0	0	0	0	0
0 854 01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0	0	0	0	0	0	0	0
0 855 01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	0	0	0	0	0	0	0	0	0	0
0 856 01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0	0	0	0	0	0	0	0
0 857 01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0	0	0	0	0	0	0	0
0 858 01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0	0	0	0	0	0	0	0
0 859 01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0	0	0	0	0	0	0	0
0 860 01-16 DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0	0	0	0	0	0	0	0
0 861 01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0	0	0	0	0	0	0	0
0 862 01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0	0	0	0	0	0	0	0
0 863 01-19 DO YOU PERFORM TASKS ON SSB HF AMPLIFIERS	0	0	0	0	0	0	0	0	0	0
0 864 01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0	0	0	0	0	0	0	0
0 865 01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0	0	0	0	0	0	0	0
0 866 01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	0	0	0	0	0	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	0	0	0	0
0 868 01-24 DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0	0	0	0	0	0	0	0
0 869 01-25 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	0	0	0	0	0	0
0 870 01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	0	0	0	0	0	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	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	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	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	0	0	0	0
0 875 02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	10	19	0	23	4	0	0	0	0	5
0 876 02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	6	13	0	15	3	0	0	0	0	0
0 877 02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	2	6	0	8	0	0	0	0	0	0
0 878 02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	4	13	0	15	0	0	0	0	0	0
0 879 02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS COMPONENTS	6	6	0	8	0	0	0	0	0	0
0 880 02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS COMPONENTS	2	6	0	8	0	0	0	0	0	0
0 881 02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS COMPONENTS	6	6	0	8	0	0	0	0	0	0
0 882 02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS COMPONENTS	0	0	0	0	0	0	0	0	0	0
0 883 02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	4	6	0	8	3	0	0	0	0	0
0 884 02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	6	6	0	8	5	0	0	0	0	0
0 885 02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	2	0	0	0	0	0	0	0	0	0
0 886 02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	4	0	0	0	0	0	0	0	0	0
0 887 02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	4	6	0	8	3	0	0	0	0	0
0 888 02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	6	13	0	15	3	0	0	0	0	0

PULSE MODULATION SYSTEMS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	SPC 032	SPC 033	SPC 034	SPC 035
0 889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	4	13	0	15	0	0	0	0	0	0
0 890	02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	0	0	0	0	0	0	0	0	0	0
0 891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	0	0	0	0	0	0	0	0	0	0
0 892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	4	13	0	15	0	0	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	0	0	0	0	0
0 894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	4	6	0	6	3	0	0	0	0	0
0 895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	2	0	0	0	3	0	0	0	0	0
0 896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	2	0	0	0	3	0	0	0	0	0
0 897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	4	0	0	0	6	0	0	0	0	5
0 898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	2	0	0	0	3	0	0	0	0	0
0 899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	4	6	0	8	3	0	0	0	0	0
0 900	02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	0	0	0	0	0	0	0	0	0	0
0 901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	0	0	0	0	0	0	0	0	0	0
0 902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DONT REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	4	6	0	8	3	0	0	0	0	5
0 903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRPF)	2	6	0	8	0	0	0	0	0	0
0 904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	2	6	0	8	0	0	0	0	0	0
0 905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	8	13	0	15	6	0	0	0	0	5
0 906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	4	6	0	8	3	0	0	0	0	0
0 907	02-33 DO YOU USE OR REFER TO PEAK POWER	2	6	0	8	0	0	0	0	0	0
0 908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	2	6	0	8	0	0	0	0	0	0
0 909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	2	6	0	8	0	0	0	0	0	0
0 910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	2	6	0	8	0	0	0	0	0	0
0 911	02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	2	6	0	8	0	0	0	0	0	0
0 912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	2	0	0	0	3	0	0	0	0	0
0 913	02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	2	0	0	0	3	0	0	0	0	0
0 914	03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	24	6	0	8	33	33	33	33	35	35
0 915	03-02 DO YOU INSPECT ANTENNAS	18	0	0	0	27	33	33	33	25	25

ANTENNAS

PCT NBR8 RESPONDING \*YES\* BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

0Y-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 037 038 039

Task Description	026	027	028	029	037	038	039
0 916 03-03 DO YOU CLEAN ANTENNAS	12	0	0	0	18	33	15
0 917 03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	8	0	0	0	12	33	5
0 918 03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS	0	0	0	0	0	0	0
0 919 03-06 DO YOU TROUBLESHOOT TO ANTENNAS	22	0	0	0	33	0	40
0 920 03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	2	0	0	0	3	0	0
0 921 03-08 DO YOU REMOVE OR INSTALL ANTENNAS	22	0	0	0	33	33	35
0 922 03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	0	0	0	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	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	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	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	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	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	0	0
0 929 03-16 DO YOU WORK WITH HERTZ ANTENNAS	2	0	0	0	0	3	0
0 930 03-17 DO YOU WORK WITH MARCONI ANTENNAS	0	0	0	0	0	0	0
0 931 03-18 DO YOU WORK WITH BROADSIDE ARRAYS	0	0	0	0	0	0	0
0 932 03-19 DO YOU WORK WITH END-FIRE ARRAYS	0	0	0	0	0	0	0
0 933 03-20 DO YOU WORK WITH CARDIOID ARRAYS	0	0	0	0	0	0	0
0 934 03-21 DO YOU WORK WITH COLLINER ARRAYS	0	0	0	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	0	0
0 936 03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	0	0	0	0	0	0	0
0 937 03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	2	0	0	0	0	3	0
0 938 03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	0	0	0	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	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	0	0
0 941 03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	0	0	0	0	0	0	0
0 942 03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	2	0	0	0	0	3	33
0 943 03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	0	0	0	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	0	0	0

PCT MRS RESPONDING 'YES' BY SELECTED GRPS

SPM26 PAGE 34

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031 032 033

DT-TSK

0 945 03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS

0 946 03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS

0 947 03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS

0 948 03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS

0 949 03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS

0 950 03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS

0 951 03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY

0 952 03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS

P 953 P1-01 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)

P 954 P1-02 DO YOU REFER TO OR USE COPPER LOSS OR I2R LOSS IN TRANSMISSION LINES

P 955 P1-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES

P 956 P1-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES

P 957 P1-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES

P 958 P1-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES

P 959 P1-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES

P 960 P1-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES

P 961 P1-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES

P 962 P1-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES

P 963 P1-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES

P 964 P1-12 DO YOU THROU-SHOOT TRANSMISSION LINES

P 965 P1-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)

P 966 P1-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS

P 967 P1-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS

P 968 P1-16 DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES

P 969 P1-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES

P 970 P1-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS

TRANSMISSION LINES

6 0 0 0 0 12 100 0

0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0

2 0 0 0 3 33 0

2 0 0 0 3 33 0

0 0 0 0 0 0 0

0 0 0 0 0 0 0

10 0 0 0 14 100 5

4 0 0 0 4 67 0

2 0 0 0 3 33 0

0 0 0 0 0 0 0

2 0 0 0 3 0 0

2 0 0 0 3 0 5

0 0 0 0 0 0 0

0 0 0 0 0 0 0

0 0 0 0 0 0 0

0 0 0 0 0 0 0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

UY-TSK	U26	U27	U28	U29	U30	U31	U32	U33	U34	U35	U36	U37	U38	U39
P 971 P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 972 P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 973 P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 974 P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 975 P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 976 P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 977 P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 978 P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 979 P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	2	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 981 P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 982 P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 983 P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 984 P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	22	0	0	0	0	0	0	0	0	0	0	0	0	0
P 985 P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	18	0	0	0	0	0	0	0	0	0	0	0	0	0
P 986 P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	6	0	0	0	0	0	0	0	0	0	0	0	0	0
P 987 P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	2	0	0	0	0	0	0	0	0	0	0	0	0	0
P 988 P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	4	0	0	0	0	0	0	0	0	0	0	0	0	0
P 989 P2-06 DO YOU PURSUITE WAVEGUIDES OR CAVITY RESONATORS	4	0	0	0	0	0	0	0	0	0	0	0	0	0
P 990 P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	4	0	0	0	0	0	0	0	0	0	0	0	0	0
P 991 P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	12	0	0	0	0	0	0	0	0	0	0	0	0	0
P 992 P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	24	0	0	0	0	0	0	0	0	0	0	0	0	0
P 993 P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	24	0	0	0	0	0	0	0	0	0	0	0	0	0
P 994 P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	6	0	0	0	0	0	0	0	0	0	0	0	0	0
P 995 P2-12 DO YOU REMOVE OR INSTALL E BENDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 996 P2-13 DO YOU REMOVE OR INSTALL H BENDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P 997 P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	8	0	0	0	0	0	0	0	0	0	0	0	0	0
P 998 P2-15 DO YOU REMOVE OR INSTALL CHORE JOINTS	2	0	0	0	0	0	0	0	0	0	0	0	0	0
P 999 P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	2	0	0	0	0	0	0	0	0	0	0	0	0	0
P1000 P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	4	0	0	0	0	0	0	0	0	0	0	0	0	0
P1001 P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	2	0	0	0	0	0	0	0	0	0	0	0	0	0
P1002 P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES	0	0	0	0	0	0	0	0	0	0	0	0	0	0

WAVEGUIDES AND  
CAVITY RESONATORS



PCT MBRS RESPONDING +YES+ BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TSK	026	027	028	029	030	031	032	033	034	035	036	037	038	039
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	0	0	0	0	0	0	0	0	0	0
P1026 P2-43 ARE CHOKER JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	0	0	0	0	3	0	0	0	0	0	0	0	0
P1027 P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	0	0	0	0	3	0	0	0	0	0	0	0	0
P1028 P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	16	0	0	0	0	24	0	0	0	0	0	0	0	0
P1029 P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1030 P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1031 P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1032 P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	2	0	0	0	0	3	0	0	0	0	0	0	0	0
P1033 P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1034 P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	6	0	0	0	0	9	33	0	0	0	0	0	0	0
P1035 P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1036 P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1037 P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1038 P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	2	0	0	0	0	3	0	0	0	0	0	0	0	0
P1039 P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1040 P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1041 P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1042 P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1043 P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1044 P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT) AMPLIFIERS	6	0	0	0	0	9	33	0	0	0	0	0	0	0
P1045 P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1046 P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1047 P3-14 DO YOU WORK WITH MAGNETRONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1048 P3-15 DO YOU INSPECT KLYSTRONS OR TWT	4	0	0	0	0	9	33	0	0	0	0	0	0	0
P1049 P3-16 DO YOU CLEAN KLYSTRONS OR TWT	4	0	0	0	0	4	33	0	0	0	0	0	0	0
P1050 P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	2	0	0	0	0	3	0	0	0	0	0	0	0	0
P1051 P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	2	0	0	0	0	3	0	0	0	0	0	0	0	0
P1052 P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	6	0	0	0	0	9	33	0	0	0	0	0	0	0
P1053 P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1054 P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	6	0	0	0	0	9	33	0	0	0	0	0	0	0
P1055 P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1056 P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1057 P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P1058 P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MICROWAVE  
AMPLIFIERS AND  
OSCILLATORS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

UY-TSK	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	037	038	039		
P1088 P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	0	0	0	0	0	0	0	0	0
P1089 P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	4	0	0	0	0	0	0	0	0
P1090 P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	2	0	0	0	0	0	0	0	0
P1091 P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	0	0	0	0	0	0	0	0	0
P1092 P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	2	0	0	0	0	0	0	0	0
P1093 P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELICES	2	0	0	0	0	0	0	0	0
P1094 P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	2	0	0	0	0	0	0	0	0
P1095 P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	0	0	0	0	0	0	0	0	0
P1096 P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	4	0	0	0	0	0	0	0	0
P1097 P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	0	0	0	0	0	0	0	0	0
P1098 P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	0	0	0	0	0	0	0	0	0
P1099 P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	0	0	0	0	0	0	0	0	0
P1100 P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTON DIODES	0	0	0	0	0	0	0	0	0
P1101 P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	0	0	0	0	0	0	0	0	0
P1102 P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	0	0	0	0	0	0	0	0	0
P1103 P3-70 DO YOU PERFORM TASKS ON ANODES	0	0	0	0	0	0	0	0	0
P1104 P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	0	0	0	0	0	0	0	0	0
P1105 P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	0	0	0	0	0	0	0	0	0
P1106 P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	0	0	0	0	0	0	0	0	0
P1107 P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	0	0	0	0	0	0	0	0	0
P1108 P3-75 DO YOU PERFORM TASKS ON CATHODES	0	0	0	0	0	0	0	0	0
P1109 P3-76 DO YOU PERFORM TASKS ON MAGNETS	0	0	0	0	0	0	0	0	0
Q1110 W1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	20	19	67	8	21	0	0	0	20
Q1111 W1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	22	19	67	8	24	0	0	0	45
W1112 W1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	14	19	67	6	12	0	0	0	10
W1113 W1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	12	19	67	6	9	0	0	0	5
Q1114 W1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	6	6	33	0	6	0	0	0	0
W1115 W1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	8	13	67	0	6	0	0	0	0

REGISTERS

PCT MURS RESPONDING \*YES\* BY SELECTED GMPs

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DI-TASK	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	024	027	028	029	037	038	039		
W1116 Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED	12	13	67	0	12	0	10		
W1117 Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	91	69	100	62	27	0	30		
W1118 Q2-02 DO YOU USE OR REFER TO DELAY LINES	14	25	100	8	9	0	5		STORAGE DEVICES
W1119 Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	14	25	100	8	9	0	5		
W1120 Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	24	56	100	46	9	0	5		
W1121 Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	18	31	100	15	12	0	5		
W1122 Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED ON MEMORY SYSTEMS	20	38	100	23	12	0	5		
W1123 Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	20	31	67	23	15	0	10		
W1124 Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	10	19	67	8	6	0	0		
W1125 Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	6	6	33	0	6	0	0		
W1126 Q3-01 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	29	19	67	8	33	0	35		
W1127 Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES	6	13	67	0	3	0	0		DIGITAL TO ANALOG CONVERTERS
W1128 Q3-03 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	6	6	33	0	6	0	5		
W1129 Q3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	6	13	67	0	3	0	0		
W1130 Q3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	10	13	67	0	9	0	10		
W1131 Q3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	6	13	67	0	6	0	10		
W1132 Q3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	12	13	67	0	12	0	10		
W1133 Q3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	10	13	67	0	9	0	5		
W1134 Q3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	4	0	0	0	6	0	10		
W1135 Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	10	13	67	0	9	0	10		
W1136 Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	6	13	67	0	3	0	5		
W1137 Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	8	13	67	0	6	0	5		
W1138 Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	10	13	67	0	9	0	10		
W1139 Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	8	6	33	0	9	0	10		

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DT-TSK

DT-TSK	DESCRIPTION	026	027	028	029	030	031	032	033	034	035
MI190	RI-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	0	0	0	0	0	0	0	0	0	0
MI191	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	12	19	100	0	9	67	0	0	0	0
MI192	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	12	19	100	0	9	67	0	0	0	0
MI193	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	10	13	67	0	9	67	0	0	0	0
MI194	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	22	19	0	23	24	33	25	0	0	0
MI195	R3-02 DO YOU FABRICATE COAXIAL CABLES	18	13	0	15	21	33	15	0	0	0
MI196	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	45	31	0	38	52	67	91	0	0	0
MI197	S1-02 DO YOU PERFORM ANY TASKS ON MIXIE LIGHTS OR MIXIE LIGHT DECODER SYSTEMS	20	0	0	0	30	67	41	0	0	0
MI198	S1-03 DO YOU ANALYZE MIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	4	0	0	0	6	33	0	0	0	0
MI199	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	29	81	0	100	3	0	5	0	0	0
MI200	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	2	0	0	0	3	0	0	0	0	0
MI201	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	2	0	0	0	3	0	0	0	0	0
MI202	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	2	0	0	0	3	0	0	0	0	0
MI203	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	0	0	0	0	0	0	0	0	0	0
MI204	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	0	0	0	0	0	0	0	0	0	0
MI205	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	0	0	0	3	0	0	0	0	0
MI206	S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	0	0	0	0	0	0	0	0	0	0
MI207	S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	0	0	0	3	0	0	0	0	0
MI208	S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	0	0	0	3	0	0	0	0	0
TI159	TI-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI160	TI-02 DO YOU INSPECT INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI161	TI-03 DO YOU CLEAN INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI162	TI-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI163	TI-05 DO YOU OPERATE INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI164	TI-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI165	TI-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI166	TI-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0	0	0	0	0
TI167	TI-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	2	0	0	0	3	0	0	0	0	0
TI168	TI-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0	0	0	0	0

PHOTO SENSITIVE DEVICES

INFRARED

PHANTASTRONS

SCHMITT TRIGGERS

CABLE FABRICATION

INPUT/OUTPUT DEVICES

SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)

PCT MBRS RESPONDING 'YES' BY SELECTED GMPs

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
		026	027	028	029	030	031	032	033	034	035	036
T1169	DO YOU USE OR REFER TO FAR REGION	0	0	0	0	0	0	0	0	0	0	0
T1170	DO YOU USE OR REFER TO INTERMEDIATE REGION	0	0	0	0	0	0	0	0	0	0	0
T1171	DO YOU USE OR REFER TO NEAR REGION	0	0	0	0	0	0	0	0	0	0	0
T1172	DO YOU USE OR REFER TO MICRON	0	0	0	0	0	0	0	0	0	0	0
T1173	DO YOU USE OR REFER TO GRAY BODIES	0	0	0	0	0	0	0	0	0	0	0
T1174	DO YOU USE OR REFER TO BLACK BODIES	0	0	0	0	0	0	0	0	0	0	0
T1175	DO YOU USE OR REFER TO ABSORPTION	0	0	0	0	0	0	0	0	0	0	0
T1176	DO YOU USE OR REFER TO SCATTERING	0	0	0	0	0	0	0	0	0	0	0
T1177	DO YOU USE OR REFER TO ABSOLUTE ZERO	0	0	0	0	0	0	0	0	0	0	0
T1178	DO YOU PERFORM TASKS ON RLITZ	0	0	0	0	0	0	0	0	0	0	0
T1179	DO YOU PERFORM TASKS ON TARGET BUTTONS	2	6	0	0	0	0	0	0	0	0	0
T1180	DO YOU PERFORM TASKS ON EJECTOR LENSES	2	6	0	0	0	0	0	0	0	0	0
T1181	DO YOU PERFORM TASKS ON OCULAR LENSES	2	6	0	0	0	0	0	0	0	0	0
T1182	DO YOU PERFORM TASKS ON CORRECTION LENSES	2	6	0	0	0	0	0	0	0	0	0
T1183	DO YOU PERFORM TASKS ON FILTERS	2	6	0	0	0	0	0	0	0	0	0
T1184	DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	0	0	0	0	0	0	0	0	0	0	0
T1185	DO YOU PERFORM TASKS ON PLANE MIRRORS	4	6	0	0	0	0	0	0	0	0	0
T1186	DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	0	0	0	0	0	0
T1187	DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1188	DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1189	DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1190	DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1191	DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1192	DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	2	0	0	0	0	0	0	0	3	0	0
T1193	DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1194	DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1195	DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	0	0	0	0	0
T1196	DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0	0	0	0	0	0	0	0	0
T1197	DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	0	0	0	0	0	0
T1198	DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	0	0	0	0	0	0
T1199	DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	0	0	0	0	0	0
T1200	DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	0	0	0	0	0	0
T1201	DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	0	0	0	0	0	0
T1202	DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	0	0	0	0	0	0
T1203	DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	0	0	0	0	0	0
T1204	DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0	0	0	0	0	0	0	0	0
T1205	DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	0	0	0	0	0	0
T1206	DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	0	0	0	0	0	0
T1207	DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	0	0	0	0	0	0
T1208	DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	0	0	0	0	0	0
T1209	DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0	0	0	0	0	0	0	0	0

LASERS

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

UTSK	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	037	038	039			
T1210 T2-25 DO YOU WORK WITH HALF SILVERED (928 REFLECTIVE) MIRRORS	0	0	0	0	0	0	0			
T1211 T2-26 DO YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0	0	0	0			
T1212 T2-27 DO YOU WORK WITH RUBY	0	0	0	0	0	0	0			
T1213 T2-28 DO YOU WORK WITH HELIUM-NEON	0	0	0	0	0	0	0			
T1214 T2-29 DO YOU WORK WITH HELIUM-ALMON	0	0	0	0	0	0	0			
T1215 T2-30 DO YOU WORK WITH XENON	0	0	0	0	0	0	0			
T1216 T2-31 DO YOU WORK WITH CESIUM-HELIUM	0	0	0	0	0	0	0			
T1217 T2-32 DO YOU WORK WITH ARGON	0	0	0	0	0	0	0			
T1218 T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0	0	0	0			
T1219 T2-34 DO YOU WORK WITH GALLIUM ARSENIDE	0	0	0	0	0	0	0			
T1220 T3-01 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE STORAGE TUBES (MMST)	4	0	0	0	0	6	0			5
T1221 T3-02 DO YOU INSPECT DVST OR MMST	2	0	0	0	0	3	0			5
T1222 T3-03 DO YOU CLEAN DVST OR MMST	2	0	0	0	0	3	0			5
T1223 T3-04 DO YOU ADJUST OR CALIBRATE DVST OR MMST	0	0	0	0	0	0	0			0
T1224 T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	0	0	0	0	0	0	0			0
T1225 T3-06 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	0	0	0	0	0	0	0			0
T1226 T3-07 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	2	0	0	0	0	3	0			5
T1227 T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	0	0	0	0	0	0	0			0
T1228 T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF MMST	0	0	0	0	0	0	0			0
T1229 T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS	0	0	0	0	0	0	0			0
T1230 T3-11 DO YOU PERFORM TASKS ON WRITE GUNS	0	0	0	0	0	0	0			0
T1231 T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS	0	0	0	0	0	0	0			0
T1232 T3-13 DO YOU PERFORM TASKS ON CHASE GUNS	0	0	0	0	0	0	0			0
T1233 T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS	0	0	0	0	0	0	0			0
T1234 U1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	39	31	0	38	47	0	50			
U1235 U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS	14	19	0	23	12	0	9			
U1236 U1-03 DO YOU USE OR REFER TO PROGRAMS	33	31	0	38	33	0	40			
U1237 U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	2	0	0	0	3	0	0			
U1238 U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	6	13	0	15	3	0	0			
U1239 U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS	2	0	0	0	3	0	0			
U1240 U1-07 DO YOU USE OR REFER TO PRIMARY SYSTEMS	22	38	0	46	15	0	15			
U1241 U1-08 DO YOU USE OR REFER TO TIME-SHARING	6	0	0	0	9	0	5			
U1242 U1-09 DO YOU USE OR REFER TO DATA WORDS	35	25	0	31	39	0	50			
U1243 U1-10 DO YOU USE OR REFER TO ADDRESS WORDS	29	0	0	0	42	0	50			
U1244 U1-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	12	0	0	0	16	0	15			
U1245 U1-12 DO YOU USE OR REFER TO STYLING/INFORMATION	16	19	0	23	15	0	10			
U1246 U1-13 DO YOU USE OR REFER TO INFORMATION WORDS	20	19	0	23	21	0	20			
U1247 U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	22	13	0	15	27	0	30			
U1248 U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	10	13	0	15	9	0	5			

PCT MURS RESPONDING 'YES' BY SELECTED GRPS

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TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	037	038	039				
U1299 U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	20	25	0	31	18	0	15				
U1250 U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	20	25	0	31	18	0	15				
U1251 U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	14	19	0	23	12	0	10				
U1252 U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	18	13	0	15	21	0	20				
U1253 U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	18	13	0	15	21	0	20				
U1254 U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	18	19	0	23	18	0	20				
U1255 U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	10	6	33	0	12	0	10				
U1256 U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	6	6	33	0	6	33	5				DB AND POWER RATIOS
U1257 U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	6	6	33	0	6	33	5				
U1258 U2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	0	0	0	0	0	0	0				

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AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9  
MISSILE SYSTEMS MAINTENANCE SPECIALIST AFSC 31651/1F/1P.(U)  
SEP 77 T J O'CONNOR, H G LAWRENCE

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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 Missile Systems Maintenance Specialists (AFSC 36151/1F/1P). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.		

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This specialty has the following functions:

Performs maintenance of missile and Remotely Piloted Vehicle (RPV) guidance and control systems, subsystems, and components; operates, calibrates, and maintains related test, monitoring, and checkout equipment; ~~performs malfunction analysis, and repairs, maintains, related test, monitoring, and checkout equipment;~~ performs malfunction analysis, and repairs, maintains modifies, inspects, and services missile and RPV systems, subsystems, and ground operating equipment to component level; performs field maintenance on electronic test, launch control, checkout, and related ground support equipment used by missile activities; and assembles and disassembles missiles and RPVs.