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AEROSPACE PHOTOGRAPHIC SYSTEMS SPECIALIST AFSC 40451.(U)  
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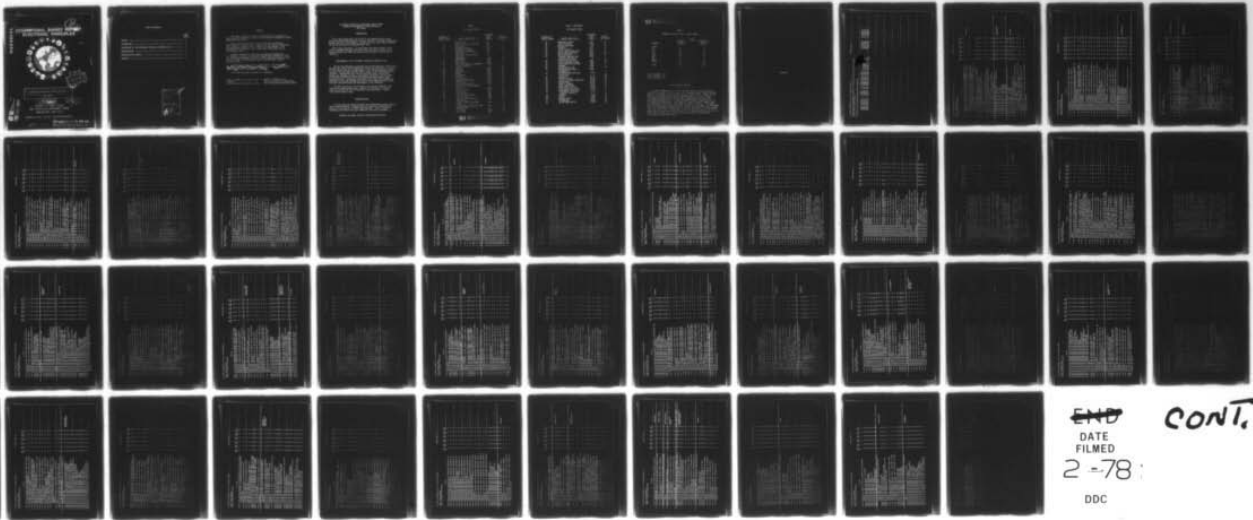
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# OCCUPATIONAL SURVEY REPORT ELECTRONIC PRINCIPLES



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AEROSPACE PHOTOGRAPHIC SYSTEMS SPECIALIST  
AFSC 40451

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## PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Aerospace Photographic Systems Specialist, AFSC 40451.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Captain Elena J. Weber. 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 Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78243.

This report has been reviewed and is approved.

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

WALTER E. DRISKILL, Ph.D.  
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USAF Occupational Measurement Center



ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT  
AEROSPACE PHOTOGRAPHIC SYSTEMS SPECIALIST  
AFSC 40451

INTRODUCTION

↓ This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Aerospace Photographic Systems Specialist (AFSC 40451). The data for this report were collected during the period July through September 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 40451 airmen worldwide. Responses from 69 individuals represented 50 percent of the total of all AFSC 40451 personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

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TABLE 1  
EPI SUBJECT AREAS

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

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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



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TABLE 2

COMMAND REPRESENTATION OF SURVEY SAMPLE

COMMAND	40451	
	PERCENT ASSIGNED	PERCENT OF SAMPLE
ADCOM	7	4
ATC	3	9
SAC	22	17
AFSC	2	1
TAC	42	51
USAFE	14	9
MAC	2	1
PACAF	7	4
OTHER	1	4
TOTAL	100	100

Total Assigned - 137  
 Total Sampled - 69  
 Percent Sampled - 50

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 six 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 Relays (p. 12) to low in areas such as Transistor Amplifiers (pp. 16-19) and Electron Tubes (pp. 21-22). Additional AFSC 404X1 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).



APPENDIX

PCT MBRs RESPONDING 'YES' BY SELECTED GRPS

GPSUM2 PAGE 1

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS  
IN THE 404X1 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY =	SPC026	ALL	AIRMEN	DAFSC	40451				CONTAINING	69	MEMBERS.
GROUP IDENTITY =	SPC027	ALL	AIRMEN	DAFSC	40451	STATIONED IN CONUS			CONTAINING	58	MEMBERS.
GROUP IDENTITY =	SPC028	ALL	AIRMEN	DAFSC	40451	STATIONED OVERSEAS			CONTAINING	11	MEMBERS.
GROUP IDENTITY =	SPC029	ALL	AIRMEN	DAFSC	40451	ASSIGNED TO SAC			CONTAINING	12	MEMBERS.
GROUP IDENTITY =	SPC030	ALL	AIRMEN	DAFSC	40451	ASSIGNED TO TAC			CONTAINING	35	MEMBERS.
GROUP IDENTITY =	SPC031	ALL	AIRMEN	DAFSC	40451	ASSIGNED TO USAF			CONTAINING	6	MEMBERS.

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	026	027	028	029	030	031
A 1	A1-01 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10.	32	31	36	25	31	0
A 2	A1-02 DO YOU USE PUBLICATIONS, SUCH AS A TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB.	10	7	27	17	6	0
A 3	A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	20	17	36	17	11	0
A 4	A1-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	1	2	0	0	0	0
A 5	A1-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	16	14	27	8	9	0
A 6	A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	1	2	0	0	0	0
A 7	A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	1	2	0	0	0	0
A 8	A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.	1	2	0	0	0	0
A 9	A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	1	2	0	0	0	0
A 10	A1-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	1	2	0	0	0	0
A 11	A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	1	2	0	0	0	0
A 12	A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	10	7	27	0	0	0
A 13	A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	4	3	9	0	3	0
A 14	A1-14 DO YOU SOLVE OR USE PROPORTIONS.	10	10	9	0	6	0
A 15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).	87	88	82	92	91	83
A 16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	30	28	45	17	29	33
A 17	A2-03 DO YOU USE THE TERM OHM.	90	88	100	92	91	100
A 18	A2-04 DO YOU USE THE TERM ION.	3	3	0	0	3	0
A 19	A2-05 DO YOU USE THE TERM DYNE.	3	3	0	0	3	0
A 20	A2-06 DO YOU USE THE TERM AMPERE.	83	83	82	75	89	83
A 21	A2-07 DO YOU USE THE TERM NEUTRON.	4	3	9	0	3	0
A 22	A2-08 DO YOU USE THE TERM COULOMB.	4	5	0	0	6	0
A 23	A2-09 DO YOU USE THE TERM PROTON.	7	5	18	0	6	0
A 24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	77	72	100	67	74	100
A 25	A3-02 DO YOU INSPECT RESISTORS.	84	81	100	83	80	100
A 26	A3-03 DO YOU CLEAN RESISTORS.	49	48	55	58	37	33
A 27	A3-04 DO YOU ADJUST RESISTORS.	80	78	91	92	74	100
A 28	A3-05 DO YOU CHECK OHMIC VALUE OR RESISTORS.	87	84	100	92	80	100
A 29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	81	79	91	92	71	83
A 30	A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	19	21	9	17	11	0
A 31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	62	60	73	67	54	50
A 32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	65	66	64	83	57	50
A 33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	80	78	91	75	80	83

DIRECT CURRENT  
AND VOLTAGE

RESISTANCE



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
A 34	A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	68	66	82	75	60	83
A 35	A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	22	17	45	17	17	33
A 36	A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	25	24	27	17	23	33
A 37	A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	84	81	100	83	77	100
A 38	A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	38	34	55	42	26	50
A 39	A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	35	33	45	42	23	33
A 40	A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	36	33	55	42	23	50
A 41	A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	26	24	36	33	11	17
A 42	A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	33	29	55	42	17	50
A 43	A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	35	33	45	42	23	33
A 44	A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	33	29	55	33	20	50
A 45	A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	29	26	45	33	17	33
A 46	A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	28	26	36	25	17	17
A 47	A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	28	24	45	50	9	33
A 48	A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	26	24	36	33	14	17
A 49	A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	26	22	45	33	11	33
A 50	A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	25	22	36	33	11	17
A 51	A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	22	21	27	25	11	0
B 52	B1-01 DO YOU MEASURE RESISTANCE.	87	86	91	92	86	100
B 53	B1-02 DO YOU REPAIR OHMMETERS.	1	2	0	0	0	0
B 54	B1-03 DO YOU MEASURE VOLTAGE.	88	90	82	100	89	83
B 55	B1-04 DO YOU REPAIR VOLTMETERS.	1	2	0	0	0	0
B 56	B1-05 DO YOU REPAIR AMMETERS.	0	0	0	0	0	0
B 57	B1-06 DO YOU MEASURE CURRENT.	70	71	64	75	66	50
B 58	B1-07 DO YOU USE MULTIMETERS.	91	91	91	92	91	100
B 59	B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	0	0	0	0	0	0
B 60	B1-09 DO YOU READ SCHEMATICS.	91	90	100	100	86	100

MULTIMETER USES



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	
B 61 B2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	30	29	36	17	29	17	ALTERNATING CURRENT
B 62 B2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	33	34	27	17	34	17	
B 63 B2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	25	22	36	17	14	17	
B 64 B2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	26	29	9	0	34	0	
B 65 B2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY.	35	36	27	8	43	17	
B 66 B2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	6	3	18	0	6	0	
B 67 B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	12	14	0	0	14	0	
B 68 B3-02 DO YOU INSPECT INDUCTORS.	13	16	0	0	17	0	INDUCTORS AND
B 69 B3-03 DO YOU CLEAN INDUCTORS.	7	9	0	0	6	0	INDUCTIVE REACTANCE
B 70 B3-04 DO YOU ADJUST INDUCTORS.	6	7	0	0	3	0	
B 71 B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	13	16	0	0	17	0	
B 72 B3-06 DO YOU USE OR REFER TO INDUCTANCE.	9	10	0	8	6	0	
B 73 B3-07 DO YOU USE OR REFER TO HENRIES.	7	9	0	0	6	0	
B 74 B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	9	10	0	0	9	0	
B 75 B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	0	0	0	0	0	0	
B 76 B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	0	0	0	0	0	0	
B 77 B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS.	0	0	0	0	0	0	
B 78 B3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL.	4	5	0	0	0	0	
B 79 B3-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE.	0	0	0	0	0	0	
B 80 B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	6	7	0	8	0	0	
B 81 B3-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL.	0	0	0	0	0	0	
B 82 B3-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	4	5	0	0	0	0	
B 83 B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	9	10	0	8	6	0	
B 84 B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	9	10	0	8	6	0	
B 85 B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	9	10	0	8	6	0	
B 86 B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC IMPEDANCE CIRCUITS.	7	9	0	0	6	0	
B 87 B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	7	9	0	0	6	0	
B 88 B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	6	7	0	0	3	0	
B 89 B3-23 DO YOU WORK WITH POWER INDUCTORS.	12	12	9	8	9	0	
B 90 B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	0	0	0	0	0	0	
B 91 B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	0	0	0	0	0	0	



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

C 121	C1-30	DO YOU WORK WITH ROTOR-STATOR (VARIABLE) CAPACITORS	7	9	0	0	0	14	0
C 122	C1-31	DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	3	2	9	0	0	3	17
C 123	C1-32	DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	36	40	18	25	46	0	0
C 124	C1-33	DO YOU WORK WITH PAPER (FIXED) CAPACITORS	23	26	9	17	23	0	0
C 125	C1-34	DO YOU WORK WITH MICA (FIXED) CAPACITORS	32	38	0	25	43	0	0
C 126	C1-35	DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	41	45	19	50	43	17	0
C 127	C1-36	DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	12	9	27	8	6	33	0
C 128	C2-01	DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	14	14	18	0	14	17	0
C 129	C2-02	DO YOU INSPECT TRANSFORMERS	19	19	18	17	17	17	0
C 130	C2-03	DO YOU CLEAN TRANSFORMERS	14	17	0	17	14	0	0
C 131	C2-04	DO YOU ADJUST TRANSFORMERS	3	3	0	0	3	0	0
C 132	C2-05	DO YOU TROUBLESHOOT TRANSFORMERS	17	21	0	17	17	0	0
C 133	C2-06	DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	19	19	18	8	17	17	0
C 134	C2-07	DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	1	2	0	0	0	0	0
C 135	C2-08	DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)	0	0	0	0	0	0	0
C 136	C2-09	DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	0	0	0	0	0	0	0
C 137	C2-10	DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	0	0	0	0	0	0	0
C 138	C2-11	DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	3	3	0	0	6	0	0
C 139	C2-12	DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	0	0	0	0	0	0	0
C 140	C2-13	DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	0	0	0	0	0	0	0
C 141	C2-14	DO YOU WORK WITH AUTOTRANSFORMERS	3	3	0	0	6	0	0
C 142	C2-15	DO YOU WORK WITH POWER TRANSFORMERS	14	14	18	8	14	17	0
C 143	C2-16	DO YOU WORK WITH AUDIO TRANSFORMERS	1	2	0	0	3	0	0
C 144	C2-17	DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	0	0	0	0	0	0	0
C 145	C2-18	DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	9	10	0	8	6	6	0
C 146	C2-19	DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	13	14	9	8	14	17	0
C 147	C2-20	DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	12	12	9	8	14	17	0
C 148	C2-21	DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	12	12	9	8	9	17	0
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	3	3	0	0	3	0	0
C 150	C2-23	DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	7	9	0	0	9	0	0
C 151	C2-24	DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	17	17	18	8	17	17	0

TRANSFORMERS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

DY-TSK

C 152	C2-25	DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	9	9	9	8	11	17
C 153	C2-26	DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	9	10	0	17	11	0
C 154	C2-27	DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	10	12	0	17	14	0
C 155	C2-28	DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	6	7	0	0	11	0
C 156	C2-29	DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	7	9	0	8	11	0
C 157	C2-30	DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	10	12	0	17	11	0
C 158	C2-31	DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	4	5	0	0	9	0
C 159	C2-32	DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	4	5	0	8	6	0
C 160	C2-33	DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	6	7	0	0	9	0
C 161	C2-34	DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	9	10	0	0	11	0
C 162	C2-35	DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	3	3	0	0	6	0
C 163	C2-36	DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	1	2	0	0	3	0
C 164	C2-37	DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	1	2	0	0	3	0
C 165	C2-38	DO YOU INSPECT THREE PHASE TRANSFORMERS	1	2	0	0	3	0
C 166	C2-39	DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	0	0	0	0	0	0
C 167	C2-40	DO YOU ADJUST THREE PHASE TRANSFORMERS	0	0	0	0	0	0
C 168	C2-41	DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	1	2	0	0	3	0
C 169	C2-42	DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	1	2	0	0	3	0
C 170	C2-43	DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	0	0	0	0	0	0
C 171	C3-01	DO YOU USE OR REFER TO PERMANENT MAGNETS	4	3	9	0	3	0
C 172	C3-02	DO YOU USE OR REFER TO TEMPORARY MAGNETS	3	2	9	0	0	0
C 173	C3-03	DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	1	2	0	0	0	0
C 174	C3-04	DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	0	0	0	0	0	0
C 175	C3-05	DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	1	2	0	0	0	0
C 176	C3-06	DO YOU USE OR REFER TO RESIDUAL MAGNETISM	0	0	0	0	0	0
C 177	C3-07	DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	0	0	0	0	0	0
C 178	C3-08	DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	0	0	0	0	0	0

MAGNETISM



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
C 179	C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM	0	0	0	0	0	0
C 180	C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION	1	0	9	0	0	0
C 181	C3-11 DO YOU USE OR REFER TO FLUX DENSITY	0	0	0	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	17	19	9	0	14	0
C 183	C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES	7	7	9	0	9	0
C 184	C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL	7	7	9	0	9	0
D 185	D1-01 DO YOU WORK WITH RC, LR, RCL CIRCUITS IN YOUR PRESENT JOB	3	3	0	0	6	0
D 186	D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 187	D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 188	D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 189	D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 190	D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 191	D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS	3	3	0	0	6	0
D 192	D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 193	D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 194	D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS	1	2	0	0	3	0
D 195	D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 196	D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 197	D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 198	D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 199	D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 200	D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 201	D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 202	D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 203	D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
D 204	DI-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	0	0	0	0	0	0
D 205	DI-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	0	0	0	0	0	0
D 206	DI-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	0	0	0	0	0	0
D 207	DI-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	1	2	0	0	3	0
D 208	DI-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	0	0	0	0	0	0
D 209	DI-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	1	2	0	0	3	0
D 210	DI-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	0	0	0	0	0	0
D 211	DI-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	0	0	0	0	0	0
D 212	DI-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	0	0	0	0	0	0
D 213	DI-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	0	0	0	0	0	0
D 214	DI-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	0	0	0	0	0	0
D 215	DI-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	0	0	0	0	0	0
D 216	DI-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	0	0	0	0	0	0
D 217	DI-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	1	2	0	0	3	0
D 218	DI-34 DO YOU CHECK CAPACITORS USING OHMMETERS	6	7	0	0	9	0
D 219	DI-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	4	5	0	0	6	0
D 220	DI-36 DO YOU CHECK INDUCTORS USING OHMMETERS	6	7	0	0	9	0
D 221	DI-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	3	3	0	0	6	0
D 222	DI-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT THETA = 0, PF = 1, AND PA = PT FOR RESONANT CIRCUITS	0	0	0	0	0	0
D 223	DI-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	0	0	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	0	0	0	0	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	0	0	0	0	0	0
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	0	0	0	0	0	0
D 227	DI-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	0	0	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	0	0	0	0	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031	
0 229 02-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	3	2	9	0	3	17	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
0 230 02-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	1	2	0	0	3	0	
0 231 02-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	3	2	9	0	3	17	
0 232 03-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	1	2	0	0	3	0	
0 233 02-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)	3	3	0	0	6	0	
0 234 02-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	0	0	0	0	0	0	
0 235 02-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS	3	3	0	0	6	0	
0 236 02-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS	1	2	0	0	3	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	1	2	0	0	3	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	1	2	0	0	3	0	
0 239 03-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	22	22	18	0	31	17	
0 240 03-02 DO YOU INSPECT FILTER CIRCUITS	23	24	18	8	31	17	FILTERS
0 241 03-03 DO YOU CLEAN FILTER CIRCUITS	9	10	0	8	9	0	
0 242 03-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	6	5	9	8	3	0	
0 243 03-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	19	19	18	8	23	17	
0 244 03-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	13	14	9	8	14	0	
0 245 03-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	25	26	18	8	34	17	
0 246 03-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	10	12	0	8	11	0	
0 247 03-09 DO YOU WORK WITH LOW PASS FILTERS	1	2	0	0	3	0	
0 248 03-10 DO YOU WORK WITH HIGH PASS FILTERS	3	3	0	8	3	0	
0 249 03-11 DO YOU WORK WITH BANDPASS FILTERS	1	2	0	0	0	0	
0 250 03-12 DO YOU WORK WITH BAND-REJECT FILTERS	0	0	0	0	0	0	
0 251 03-13 DO YOU REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	17	17	18	0	23	17	
0 252 03-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	1	2	0	0	3	0	
0 253 03-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	1	2	0	0	3	0	
0 254 03-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	1	2	0	0	3	0	
0 255 03-17 DO YOU REMEMBER WHICH TYPE FILTER CONFIGURATION YOU WORK WITH	16	16	18	0	20	17	
0 256 03-18 DO YOU REMEMBER WHICH TYPE FILTER CONFIGURATION YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	4	5	0	0	6	0	
0 257 03-19 DO YOU REMEMBER WHICH TYPE FILTER CONFIGURATION YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	6	7	0	0	9	0	
0 258 03-20 DO YOU REMEMBER WHICH TYPE FILTER CONFIGURATION YOU WORK WITH USE SERIES RESONANT CIRCUITS	7	7	9	8	6	17	



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

D 259 D3-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT 7 7 9 0 9 0  
D 260 D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE 1 2 0 0 0 0  
CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC  
FILTERS

E 261 E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB 6 3 18 0 6 17  
E 262 E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO 4 3 9 0 6 0  
THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC  
COUPLING

E 263 E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO 3 2 9 0 3 0  
THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH  
IMPEDANCE COUPLING

E 264 E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO 4 2 18 0 3 17  
THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH  
TRANSFORMER COUPLING

E 265 E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS 4 3 9 0 6 0  
WHICH PERFORM RC COUPLING

E 266 E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS 3 2 9 0 3 0  
WHICH PERFORM IMPEDANCE COUPLING

E 267 E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS 4 2 18 0 3 17  
WHICH PERFORM TRANSFORMER COUPLING

E 268 E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS 4 3 9 0 6 0  
E 269 E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED 4 3 9 0 6 0  
CIRCUITS

E 270 E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED 3 2 9 0 3 0  
CIRCUITS

E 271 E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS 3 0 18 0 0 17  
E 272 E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS 0 0 0 0 0 0  
E 273 E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING 88 86 100 92 86 100  
TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS

E 274 E2-02 DO YOU SELECT TYPE OF SOLDER TO USE 81 84 64 92 83 50  
E 275 E2-03 DO YOU ADD FLUX TO CONNECTIONS 80 78 91 92 71 P3  
E 276 E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS 71 67 91 92 60 83  
E 277 E2-05 DO YOU STRIP INSULATION FROM WIRES 93 91 100 100 89 100  
E 278 E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS 84 81 100 83 80 100  
E 279 E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS 88 86 100 100 80 100  
E 280 E2-08 DO YOU CUT WIRES 91 90 100 100 86 100  
E 281 E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS 72 74 64 83 71 50  
E 282 E2-10 DO YOU TIN SOLDERING IRON TIPS 88 86 100 100 80 100  
E 283 E2-11 DO YOU CLEAN SOLDERING IRON TIPS 90 88 100 100 83 100  
E 284 E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS 55 57 45 75 51 33  
E 285 E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS 75 74 82 100 71 67  
E 286 E2-14 DO YOU INSPECT SOLDERED CONNECTIONS 91 90 100 100 86 100  
E 287 E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING 68 69 64 83 57 50  
E 288 E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING 75 74 82 92 80 100  
TOOLS

E 289 E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS 61 59 73 58 57 67  
E 290 E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL 14 17 0 17 20 C

SOLDERING

COUPLING





TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

DY-TSK

Task ID	Description	026	027	028	029	030	031
F 327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	0	0	0	0	0	0
F 328	F2-02 DO YOU INSPECT SPEAKERS	0	0	0	0	0	0
F 329	F2-03 DO YOU CLEAN SPEAKERS	0	0	0	0	0	0
F 330	F2-04 DO YOU OPERATE SPEAKERS	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
F 332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	0	0	0	0	0	0
F 333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	0	0	0	0	0	0
F 334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	0	0	0	0	0	0
F 335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	0	0	0	0	0	0
F 336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	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
F 338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	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
F 340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	0	0	0	0	0	0
F 341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	0	0	0	0	0	0
F 342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	20	19	27	0	23	17
F 343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	23	22	27	0	29	17
F 344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	22	21	27	0	26	17
F 345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	22	21	27	0	26	17
F 346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	20	19	27	0	23	17
F 347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	16	14	27	0	14	17
F 348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	6	5	9	0	9	0
F 349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	7	7	9	0	11	0
F 350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	4	2	18	0	3	0
F 351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	19	17	27	0	20	17
F 352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	9	9	9	0	6	0
F 353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	19	17	27	0	20	17
G 354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	68	66	82	58	63	83
G 355	G1-02 DO YOU INSPECT DIODES	68	66	82	58	66	83
G 356	G1-03 DO YOU REMOVE OR REPLACE DIODES	67	64	82	58	60	83
G 357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	72	69	91	58	69	100
G 358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	3	3	0	8	3	0
G 359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE LIAS RESISTANCE	7	5	18	0	6	17
G 360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	14	14	18	17	17	33

SPEAKERS

OSCILLOSCOPES

SEMICONDUCTOR DIODES

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
G 361 G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	41	40	45	42	34	17
G 362 G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	54	50	73	42	49	67
G 363 G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	3	3	0	0	6	0
G 364 G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	29	29	27	17	26	33
G 365 G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	19	19	18	8	17	0
G 366 G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	0	0	0	0	0	0
G 367 G1-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	0	0	0	0	0	0
G 368 G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	42	38	64	33	40	83
G 369 G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	0	0	0	0	0	0
G 370 G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	0	0	0	0	0	0
G 371 G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	28	28	27	17	26	50
G 372 G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	0	0	0	0	0	0
G 373 G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	0	0	0	0	0	0
G 374 G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	0	0	0	0	0	0
G 375 G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	0	0	0	0	0	0
G 376 G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	0	0	0	0	0	0
G 377 G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	48	43	73	42	37	67
G 378 G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	17	19	9	8	11	0
G 379 G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	12	14	0	0	9	0
G 380 G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)	1	2	0	0	0	0
G 381 G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OF REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	28	31	9	33	26	0
G 382 G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	0	0	0	0	0	0



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

6 383	61-30	DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	0	0	0	0	0	0	0	0
6 384	61-31	DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	1	2	0	0	0	3	0	0
6 385	61-32	DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	0	0	0	0	0	0	0	0
6 386	61-33	DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	1	2	0	0	0	3	0	0
6 387	61-34	DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	4	3	9	0	0	6	0	0
6 388	61-35	DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	0	0	0	0	0	0	0	0
6 389	61-36	DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	0	0	0	0	0	0	0	0
6 390	61-37	DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	10	10	9	0	0	3	0	0
6 391	61-38	DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	10	10	9	0	0	3	0	0
6 392	61-39	DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	0	0	0	0	0	0	0	0
6 393	61-40	DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	0	0	0	0	0	0	0	0
6 394	61-41	DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	0	0	0	0	0	0	0	0
6 395	61-42	DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	0	0	0	0	0	0	0	0
6 396	61-43	DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	1	2	0	0	0	3	0	0
6 397	61-44	DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	20	22	9	25	17	17	17	17
6 398	61-45	DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	1	2	0	0	0	0	0	0
6 399	61-46	DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	23	24	18	17	23	0	0	0
6 400	61-47	DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	4	3	9	0	6	17	17	17
6 401	61-48	DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	3	2	9	0	3	17	17	17
6 402	61-49	DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	6	5	9	8	6	17	17	17
6 403	61-50	DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	7	7	9	0	11	17	17	17
6 404	62-01	DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	48	41	82	25	40	67	67	67
6 405	62-02	DO YOU INSPECT TRANSISTORS	46	40	82	25	37	83	83	83
6 406	62-03	DO YOU REMOVE OR REPLACE TRANSISTORS	46	40	82	25	37	67	67	67
6 407	62-04	DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	45	36	91	25	31	83	83	83
6 408	62-05	DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	38	31	73	25	29	50	50	50
6 409	62-06	DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	35	29	64	17	29	50	50	50

TRANSISTORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
6 410 62-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	33	28	64	17	26	50
6 411 62-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	4	3	9	0	3	0
6 412 62-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	4	3	9	0	3	0
6 413 62-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	14	10	36	8	9	33
6 414 62-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	6	7	0	0	6	0
6 415 62-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	46	38	91	25	37	83
6 416 62-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	43	34	91	17	34	83
6 417 62-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	23	21	36	8	17	17
6 418 62-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT (E USUALLY BEING 2 TO 8 PERCENT OF IE)	10	10	9	0	6	0
6 419 62-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	16	16	18	0	17	0
6 420 62-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	3	3	0	0	0	0
6 421 62-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	1	2	0	0	0	0
6 422 62-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	1	0	9	0	0	0
6 423 62-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	1	0	9	0	0	0
6 424 62-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	1	0	9	0	0	0
6 425 62-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	0	0	0	0	0	0
6 426 62-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	0	0	0	0	0	0
6 427 62-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	0	0	0	0	0	0
6 428 63-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	4	5	0	0	6	0
6 429 63-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	3	3	0	0	3	0
6 430 63-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	3	3	0	0	3	0
6 431 63-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	4	5	0	0	6	0
6 432 63-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	4	5	0	0	6	0
6 433 63-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	4	5	0	0	6	0
6 434 63-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	4	5	0	0	6	0
6 435 63-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	0	0	0	0	0	0
6 436 63-09 DO YOU USE OR REFER TO COMMON EMITTER THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	0	0	0	0	0	0

TRANSISTOR AMPLIFIERS





TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
6 454	G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	0	0	0	0	0	0
6 455	G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	0	0	0	0	0	0
6 456	G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	0	0	0	0	0	0
6 457	G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	0	0	0	0	0	0
6 458	G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	0	0	0	0	0	0
6 459	G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	0	0	0	0	0	0
6 460	G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	0	0	0	0	0	0
6 461	G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	0	0	0	0	0	0
6 462	G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	0	0	0	0	0	0
6 463	G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	0	0	0	0	0	0
6 464	G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	0	0	0	0	0	0
6 465	G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	0	0	0	0	0	0
6 466	G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	0	0	0	0	0	0
6 467	G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	0	0	0	0	0	0
6 468	G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	0	0	0	0	0	0
6 469	G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	0	0	0	0	0	0
6 470	G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS IN THE COMMON COLLECTOR CONFIGURATION	1	2	0	0	0	3
6 471	G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	1	2	0	0	0	3
6 472	G3-45 DO YOU TROUBLESHOOT OR REPAIR PARALLEL AMPLIFIERS	0	0	0	0	0	0
6 473	G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	1	2	0	0	0	3
6 474	G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	0	0	0	0	0	0
6 475	G3-48 DO YOU TROUBLESHOOT OR REPAIR AIR-COOLING-CONNECTED AMPLIFIERS	0	0	0	0	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

DY-TSK

6	476	G3-49	DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	0	0	0	0	0	0	0	0	0
H	477	H1-01	DO YOU USE OR REFER TO VARACTORS	0	0	0	0	0	0	0	0	0
H	478	H1-02	DO YOU USE OR REFER TO TUNNEL DIODES	3	3	0	0	6	0	0	0	0
H	479	H1-03	DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	0	0	0	0	0	0	0	0	0
H	480	H1-04	DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	14	16	9	0	17	17	17	17	17
H	481	H1-05	DO YOU USE OR REFER TO ZENER DIODES	43	41	55	33	43	50	50	50	50
H	482	H1-06	DO YOU USE OR REFER TO INTEGRATED CIRCUITS	35	34	36	8	43	17	17	17	17
H	483	H2-01	IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	12	7	36	8	6	33	33	33	33
H	484	H2-02	DO YOU INSPECT POWER SUPPLIES	13	9	36	8	6	33	33	33	33
H	485	H2-03	DO YOU CLEAN POWER SUPPLIES	9	9	9	8	6	17	17	17	17
H	486	H2-04	DO YOU ALIGN OR ADJUST POWER SUPPLIES	3	2	9	0	3	0	0	0	0
H	487	H2-05	DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	10	7	27	8	9	33	33	33	33
H	488	H2-06	DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	12	7	36	8	9	33	33	33	33
H	489	H2-07	DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	12	9	27	8	6	17	17	17	17
H	490	H2-08	DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	9	7	18	8	6	0	0	0	0
H	491	H2-09	DO YOU WORK WITH HALF-WAVE RECTIFIERS	1	2	0	0	3	0	0	0	0
H	492	H2-10	DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	3	2	9	0	3	17	17	17	17
H	493	H2-11	DO YOU WORK WITH BRIDGE RECTIFIERS	6	5	9	0	6	17	17	17	17
H	494	H2-12	DO YOU WORK WITH THREE-PHASE RECTIFIERS	1	2	0	0	3	0	0	0	0
H	495	H2-13	DO YOU USE OR REFER TO INPUT VOLTAGE	6	3	18	0	6	17	17	17	17
H	496	H2-14	DO YOU USE OR REFER TO INPUT FREQUENCY	1	2	0	0	3	0	0	0	0
H	497	H2-15	DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	6	3	18	0	6	33	33	33	33
H	498	H2-16	DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	3	2	9	0	3	17	17	17	17
H	499	H2-17	DO YOU USE OR REFER TO RIPPLE AMPLITUDE	1	2	0	0	3	0	0	0	0
H	500	H2-18	DO YOU USE OR REFER TO RIPPLE FREQUENCY	1	2	0	0	3	0	0	0	0
H	501	H2-19	DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	0	0	0	0	0	0	0	0	0
H	502	H2-20	DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	4	3	9	0	6	17	17	17	17
H	503	H2-21	DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	6	3	18	0	6	17	17	17	17
H	504	H2-22	DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	1	2	0	0	3	0	0	0	0
H	505	H2-23	DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	1	2	0	0	3	0	0	0	0
H	506	H2-24	DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	1	2	0	0	3	0	0	0	0
H	507	H2-25	DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	1	2	0	0	3	0	0	0	0
H	508	H2-26	DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	1	2	0	0	3	0	0	0	0
H	509	H2-27	DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	1	2	0	0	3	0	0	0	0
H	510	H2-28	DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	3	2	9	0	3	0	0	0	0
H	511	H2-29	DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	0	0	0	0	0	0	0	0	0
H	512	H3-01	DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	4	5	0	0	9	0	0	0	0

OSCILLATORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

OY-TSK

SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC		
026	027	028	029	030	031						
H 513	H3-02	00	YOU	INSPECT	OSCILLATORS	1	2	0	0	3	0
H 514	H3-03	00	YOU	ALIGN	OR ADJUST	1	2	0	0	3	0
H 515	H3-04	00	YOU	REMOVE	OR REPLACE	0	0	0	0	0	0
H 516	H3-05	00	YOU	REMOVE	OR REPLACE	1	2	0	0	3	0
H 517	H3-06	00	YOU	TROUBLESHOOT	TO OSCILLATOR	1	2	0	0	3	0
H 518	H3-07	00	YOU	TROUBLESHOOT	TO OSCILLATOR	1	2	0	0	3	0
H 519	H3-08	00	YOU	USE	OR REFER	1	2	0	0	3	0
H 520	H3-09	00	YOU	USE	OR REFER	1	2	0	0	3	0
					(FDD)						
H 521	H3-10	00	YOU	USE	OR REFER	3	3	0	0	6	0
H 522	H3-11	00	YOU	USE	OR REFER	3	3	0	0	6	0
H 523	H3-12	00	YOU	USE	OR REFER	1	2	0	0	3	0
H 524	H3-13	00	YOU	USE	OR REFER	1	2	0	0	3	0
H 525	H3-14	00	YOU	USE	OR REFER	0	0	0	0	0	0
H 526	H3-15	00	YOU	USE	OR REFER	0	0	0	0	0	0
H 527	H3-16	00	YOU	USE	OR REFER	1	2	0	0	3	0
H 528	H3-17	00	YOU	USE	OR REFER	1	2	0	0	3	0
H 529	H3-18	00	YOU	WORK	WITH	1	2	0	0	3	0
					OSCILLATORS WHICH USE LC TANK						
					CIRCUITS AS FDD						
H 530	H3-19	00	YOU	WORK	WITH	1	2	0	0	3	0
					OSCILLATORS WHICH USE RC NETWORKS AS						
H 531	H3-20	00	YOU	WORK	WITH	0	0	0	0	0	0
					OSCILLATORS WHICH USE CRYSTALS AS						
H 532	H3-21	00	YOU	WORK	WITH	0	0	0	0	0	0
					OSCILLATORS WHICH USE DON'T REMEMBER						
					WHICH TYPE OF FDD						
H 533	H3-22	00	YOU	WORK	WITH	0	0	0	0	0	0
					SERIES HARTLEY SINUSOIDAL						
					OSCILLATORS						
H 534	H3-23	00	YOU	WORK	WITH	0	0	0	0	0	0
					SHUNT HARTLEY SINUSOIDAL OSCILLATORS						
H 535	H3-24	00	YOU	WORK	WITH	0	0	0	0	0	0
					COLPITTS SINUSOIDAL OSCILLATORS						
H 536	H3-25	00	YOU	WORK	WITH	0	0	0	0	0	0
					CLAPP SINUSOIDAL OSCILLATORS						
H 537	H3-26	00	YOU	WORK	WITH	0	0	0	0	0	0
					BUTLER SINUSOIDAL OSCILLATORS						
H 538	H3-27	00	YOU	WORK	WITH	0	0	0	0	0	0
					DON'T REMEMBER WHICH TYPE OF						
					OSCILLATORS						
I 539	I1-01	00	YOU	WORK	WITH	1	2	0	0	3	0
					MULTIVIBRATORS IN YOUR PRESENT JOB						
I 540	I1-02	00	YOU	INSPECT	WAVE	1	2	0	0	3	0
					GENERATING OR SHAPING CIRCUITS						
I 541	I1-03	00	YOU	ALIGN	OR	1	2	0	0	3	0
					ADJUST WAVE GENERATING OR SHAPING						
					CIRCUITS						
I 542	I1-04	00	YOU	CALIBRATE	WAVE	1	2	0	0	3	0
					GENERATING OR SHAPING CIRCUITS						
I 543	I1-05	00	YOU	TROUBLESHOOT	TO	1	2	0	0	3	0
					HAVE GENERATING OR SHAPING						
					CIRCUITS						
I 544	I1-06	00	YOU	TROUBLESHOOT	TO	1	2	0	0	3	0
					HAVE GENERATING OR SHAPING						
					CIRCUIT COMPONENTS						
I 545	I1-07	00	YOU	REMOVE	OR	0	0	0	0	0	0
					REPLACE COMPLETE WAVE GENERATING OR						
					SHAPING CIRCUITS						
I 546	I1-08	00	YOU	REMOVE	OR	1	2	0	0	3	0
					REPLACE WAVE GENERATING OR SHAPING						
					COMPONENTS						
I 547	I1-09	00	YOU	WORK	WITH	1	2	0	0	3	0
					MULTIVIBRATORS WHICH CONTAIN LC TANK						
					CIRCUITS						

MULTIVIBRATORS





TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
I 586	13-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	0	0	0	0	0	0
I 587	13-23 DO YOU USE OR REFER TO MULTI GRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	0	0	0	0	0	0
I 588	13-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	0	0	0	0	0	0
I 589	13-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	0	0	0	0	0	0
I 590	13-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	0	0	0	0	0	0
I 591	13-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	0	0	0	0	0	0
I 592	13-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	0	0	0	0	0	0
I 593	13-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	0	0	0	0	0	0
I 594	13-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	0	0	0	0	0	0
I 595	13-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	0	0	0	0	0	0
I 596	13-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	0	0	0	0	0	0
I 597	13-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	0	0	0	0	0	0
I 598	13-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN EFFICIENCY	0	0	0	0	0	0
I 599	13-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	0	0	0	0	0	0
I 600	13-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	1	2	0	0	0	0
I 601	13-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	1	2	0	0	0	0
I 602	13-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0	0	0
I 603	13-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	0	0	0	0	0	0
I 604	13-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	0	0	0	0	0	0
I 605	13-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	0	0	0	0	0	0
I 606	13-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	0	0	0	0	0	0
I 607	13-43 DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE HEATING SURFACE IN THE ELECTRON TUBES YOU WORK ON	0	0	0	0	0	0
I 608	13-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS 6X4 FOR 6X5 OR 6AR5	0	0	0	0	0	0
J 609	13-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	0	0	0	0	0	0
J 610	13-01 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	0	0	0	0	0	0

ELECTRON TUBE AMPLIFIERS AND CIRCUITS

M

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
J 611 J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	0	0	0	0	0	0
J 612 J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	0	0	0	0	0	0
J 613 J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	0	0	0	0	0	0
J 614 J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	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
J 616 J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	0	0	0	0	0	0
J 617 J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	1	2	0	0	3	0
J 618 J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	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
J 620 J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	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
J 622 J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	0	0	0	0	0	0
J 623 J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	0	0	0	0	0	0
J 624 J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	0	0	0	0	0	0
J 625 J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	0	0	0	0	0	0
J 626 J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	0	0	0	0	0	0
J 627 J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	0	0	0	0	0	0
J 628 J2-13 DO YOU USE OR REFER TO PERSISTENCE	0	0	0	0	0	0
J 629 J2-14 DO YOU USE OR REFER TO DECAY TIMES	0	0	0	0	0	0
J 630 J2-15 DO YOU USE OR REFER TO FLUORESCENCE	0	0	0	0	0	0
J 631 J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	0	0	0	0	0	0
J 632 J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	0
J 633 J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	0	0	0	0	0	0
J 634 J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	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
J 636 J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	0	0	0	0	0	0
J 637 J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	0	0	0	0	0	0
K 638 KI-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	0
K 639 KI-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
K 640 KI-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
K 641 KI-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0

HETERODYNING,  
MODULATION, AND  
DEMULATION

AM SYSTEMS

SPECIAL PURPOSE  
ELECTRON TUBES



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

0Y-TSK

K 642 K1-05 00 YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS

K 643 K1-06 00 YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE

COMPONENTS

K 644 K1-07 00 YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE

SYSTEMS

K 645 K1-08 00 YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE

COMPONENTS

K 646 K1-09 00 YOU PERFORM TASKS ON RF OSCILLATORS

K 647 K1-10 00 YOU PERFORM TASKS ON RF AMPLIFIERS

K 648 K1-11 00 YOU PERFORM TASKS ON AUDIO AMPLIFIERS

K 649 K1-12 00 YOU PERFORM TASKS ON POWER AMPLIFIERS

K 650 K1-13 00 YOU PERFORM TASKS ON LOCAL OSCILLATORS

K 651 K1-14 00 YOU PERFORM TASKS ON IF AMPLIFIERS

K 652 K1-15 00 YOU PERFORM TASKS ON DETECTORS

K 653 K1-16 00 YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE

K 654 K1-17 00 YOU USE OR REFER TO AMPLITUDE STABILIZATION IN

TRANSMITTERS

K 655 K1-18 00 YOU USE OR REFER TO FREQUENCY STABILIZATION IN

TRANSMITTERS

K 656 K1-19 00 YOU USE OR REFER TO SENSITIVITY OF RECEIVERS

K 657 K1-20 00 YOU USE OR REFER TO SELECTIVITY OF RECEIVERS

K 658 K1-21 00 YOU USE OR REFER TO 2ND HARMONIC DISTORTION

K 659 K1-22 00 YOU USE OR REFER TO BANDPASS DISTORTION

K 660 K1-23 00 YOU USE OR REFER TO SQUARE LAW DISTORTION

K 661 K1-24 00 YOU USE OR REFER TO CO-CHANNEL INTERFERENCE

K 662 K1-25 00 YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS

K 663 K1-26 00 YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR

IMAGE REJECTION RATIOS

K 664 K1-27 00 YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM

TRANSMITTER SCHEMATIC DIAGRAMS

K 665 K1-28 00 YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM

RECEIVER SCHEMATIC DIAGRAMS

K 666 K2-01 00 YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN

YOUR PRESENT JOB

K 667 K2-02 00 YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS

K 668 K2-03 00 YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS

K 669 K2-04 00 YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS

K 670 K2-05 00 YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE

SYSTEMS

K 671 K2-06 00 YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE

COMPONENTS

K 672 K2-07 00 YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE

SYSTEMS

K 673 K2-08 00 YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE

COMPONENTS

K 674 K2-09 00 YOU PERFORM TASKS ON AUDIO AMPLIFIERS

K 675 K2-10 00 YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
K 642 K1-05 00 YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
K 643 K1-06 00 YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 644 K1-07 00 YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 645 K1-08 00 YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 646 K1-09 00 YOU PERFORM TASKS ON RF OSCILLATORS	0	0	0	0	0	0
K 647 K1-10 00 YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0	0	0
K 648 K1-11 00 YOU PERFORM TASKS ON AUDIO AMPLIFIERS	0	0	0	0	0	0
K 649 K1-12 00 YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0	0	0
K 650 K1-13 00 YOU PERFORM TASKS ON LOCAL OSCILLATORS	0	0	0	0	0	0
K 651 K1-14 00 YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0	0	0	0
K 652 K1-15 00 YOU PERFORM TASKS ON DETECTORS	0	0	0	0	0	0
K 653 K1-16 00 YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	0	0	0	0	0	0
K 654 K1-17 00 YOU USE OR REFER TO AMPLITUDE STABILIZATION IN	0	0	0	0	0	0
K 655 K1-18 00 YOU USE OR REFER TO FREQUENCY STABILIZATION IN	0	0	0	0	0	0
K 656 K1-19 00 YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	0	0	0	0	0	0
K 657 K1-20 00 YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	1	2	0	0	3	0
K 658 K1-21 00 YOU USE OR REFER TO 2ND HARMONIC DISTORTION	0	0	0	0	0	0
K 659 K1-22 00 YOU USE OR REFER TO BANDPASS DISTORTION	0	0	0	0	0	0
K 660 K1-23 00 YOU USE OR REFER TO SQUARE LAW DISTORTION	0	0	0	0	0	0
K 661 K1-24 00 YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	0	0	0	0	0	0
K 662 K1-25 00 YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	0	0	0	0	0	0
K 663 K1-26 00 YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR	0	0	0	0	0	0
K 664 K1-27 00 YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM	0	0	0	0	0	0
K 665 K1-28 00 YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM	0	0	0	0	0	0
K 666 K2-01 00 YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN	0	0	0	0	0	0
K 667 K2-02 00 YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
K 668 K2-03 00 YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
K 669 K2-04 00 YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
K 670 K2-05 00 YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 671 K2-06 00 YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 672 K2-07 00 YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 673 K2-08 00 YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE	0	0	0	0	0	0
K 674 K2-09 00 YOU PERFORM TASKS ON AUDIO AMPLIFIERS	0	0	0	0	0	0
K 675 K2-10 00 YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	0	0	0	0	0	0

FM SYSTEMS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DI-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
K 676 K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	0	0	0	0	0	0
K 677 K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0	0	0
K 678 K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0	0	0
K 679 K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	0	0	0	0	0	0
K 680 K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0	0	0	0
K 681 K2-16 DO YOU PERFORM TASKS ON LIMITERS	0	0	0	0	0	0
K 682 K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	0	0	0	0	0	0
K 683 K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	0	0	0	0	0	0
K 684 K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	0	0	0	0	0	0
K 685 K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	0	0	0	0	0	0
K 686 K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	0	0	0	0	0	0
K 687 K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	0	0	0	0	0	0
K 688 K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	0	0	0	0	0	0
K 689 K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	0	0	0	0	0	0
K 690 K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	0	0	0	0	0	0
K 691 K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	0	0	0	0	0	0
K 692 K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	0	0	0	0	0	0
K 693 K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	0	0	0	0	0	0
K 694 K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	0	0	0	0	0	0
L 695 LI-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	3	3	0	0	6	0
L 696 LI-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	0	0	0	0	0	0
L 697 LI-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	0	0	0	0	0	0
L 698 LI-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR LOGIC SYMBOLS WITH STATE INDICATORS	0	0	0	0	0	0
L 699 LI-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	0	0	0	0	0	0
L 700 LI-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	0	0	0	0	0	0
L 701 LI-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	0	0	0	0	0	0
L 702 LI-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	0	0	0	0	0	0
L 703 LI-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	0	0	0	0	0	0
L 704 LI-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	0	0	0	0	0	0
L 705 LI-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	0	0	0	0	0	0
L 706 LI-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	0	0	0	0	0	0

NUMBERING SYSTEMS

LOGIC FUNCTIONS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

OY-TSK

Task Description	026	027	028	029	030	031
L 707 L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	0	0	0	0	0	0
L 708 L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	0	0	0	0	0	0
L 709 L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	0	0	0	0	0	0
L 710 L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	0	0	0	0	0	0
L 711 L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	0	0	0	0	0	0
L 712 L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	0	0	0	0	0	0
L 713 L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	0	0	0	0	0	0
L 714 L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	0	0	0	0	0	0
L 715 L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	0	0	0	0	0	0
L 716 L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	0	0	0	0	0	0
L 717 L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	0	0	0	0	0	0
L 718 L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	1	2	0	8	0	0
L 719 L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	0	0	0	0	0	0
L 720 L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	0	0	0	0	0	0
L 721 L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	0	0	0	0	0	0
L 722 L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	0	0	0	0	0	0
L 723 L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	0	0	0	0	0	0
L 724 L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	0	0	0	0	0	0
L 725 L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	0	0	0	0	0	0
L 726 L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	0	0	0	0	0	0
L 727 L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	0	0	0	0	0	0
L 728 L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	0	0	0	0	0	0
L 729 L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	0	0	0	0	0	0
L 730 L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	0	0	0	0	0	0
L 731 L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	0	0	0	0	0	0
L 732 L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	0	0	0	0	0	0

BOOLEAN EQUATIONS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031					
L 733 L3-01 00 YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	3	3	0	8	3	0					
L 734 L3-02 00 YOU USE OR REFER TO UP-COUNTERS	0	0	0	0	0	0					COUNTERS
L 735 L3-03 00 YOU USE OR REFER TO DOWN-COUNTERS	0	0	0	0	0	0					
L 736 L3-04 00 YOU USE OR REFER TO SERIAL COUNTERS	1	2	0	8	0	0					
L 737 L3-05 00 YOU USE OR REFER TO PARALLEL COUNTERS	0	0	0	0	0	0					
L 738 L3-06 00 YOU USE OR REFER TO RING COUNTERS	0	0	0	0	0	0					
L 739 L3-07 00 YOU USE OR REFER TO DECADE COUNTERS	0	0	0	0	0	0					
L 740 L3-08 00 YOU USE OR REFER TO COUNT DETECT CIRCUITS	1	2	0	0	3	0					
L 741 L3-09 00 YOU USE OR REFER TO DOWN CLOCKS	0	0	0	0	0	0					
L 742 L3-10 00 YOU USE OR REFER TO UP CLOCKS	0	0	0	0	0	0					
L 743 L3-11 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	0	0	0	0	0	0					
L 744 L3-12 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	0	0	0	0	0	0					
L 745 L3-13 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	0	0	0	0	0	0					
L 746 L3-14 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	0	0	0	0	0	0					
L 747 L3-15 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	0	0	0	0	0	0					
L 748 L3-16 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	0	0	0	0	0	0					
L 749 L3-17 00 YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	3	3	0	8	3	0					
L 750 L3-18 00 YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	0	0	0	0	0	0					
L 751 L3-19 00 YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	0	0	0	0	0	0					
L 752 L3-20 00 YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	0	0	0	0	0	0					
L 753 L3-21 00 YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	4	3	9	8	3	17					
L 754 L3-22 00 YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	0	0	0	0	0	0					
L 755 L3-23 00 YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	0	0	0	0	0	0					
L 756 L3-24 00 YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	0	0	0	0	0	0					
M 757 M1-01 00 YOU WORK WITH SAWTOOTH WAVE GENERATORS	3	3	0	0	6	0					
M 758 M1-02 00 YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	1	2	0	0	3	0					TIMING CIRCUITS
M 759 M1-03 00 YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	9	9	9	0	6	0					
M 760 M1-04 00 YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	1	2	0	0	3	0					

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

OY-TSK

	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031			
M 761 M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	1	2	0	0	3	0			
M 762 M1-06 DO YOU USE OR REFER TO RISE TIME	1	2	0	0	3	0			
M 763 M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	6	7	0	0	3	0			
M 764 M1-08 DO YOU USE OR REFER TO SNEEP TIME	6	2	27	0	3	33			
M 765 M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	3	2	9	0	3	0			
M 766 M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	1	2	0	0	3	0			
M 767 M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	1	2	0	0	3	0			
M 768 M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	1	2	0	0	3	0			
M 769 M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	1	0	9	0	0	17			
M 770 M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	1	0	9	0	0	17			USE OF SIGNAL GENERATORS
M 771 M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	1	0	9	0	0	17			
M 772 M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	1	0	9	0	0	17			
M 773 M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	1	0	9	0	0	17			
M 774 M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	0	0	0	0	0	0			
M 775 M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	0	0	0	0	0	0			
M 776 M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH	0	0	0	0	0	0			
M 777 M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	0	0	0	0	0	0			
M 778 M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	1	0	9	0	0	17			
M 779 M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	59	59	64	42	57	67			
M 780 M3-02 DO YOU INSPECT MOTORS	59	57	73	42	54	67			MOTORS AND GENERATORS
M 781 M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	46	45	55	33	40	33			
M 782 M3-04 DO YOU OPERATE MOTORS	55	53	64	25	54	50			
M 783 M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	58	55	73	42	54	67			
M 784 M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	19	19	18	8	9	0			
M 785 M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	59	57	73	33	57	67			
M 786 M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	25	24	27	25	11	0			
M 787 M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS	9	7	18	8	3	0			
M 788 M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	13	12	18	8	6	0			
M 789 M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	9	7	18	8	6	0			
M 790 M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	22	22	18	17	11	0			
M 791 M3-13 DO YOU PERFORM ANY TASKS ON SLIP RING	12	12	9	6	3	0			
M 792 M3-14 DO YOU PERFORM ANY TASKS ON COMPUTATORS	10	9	18	17	3	0			
M 793 M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	7	7	9	9	0	3			

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

OY-TSK

	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
M 794 M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	7	7	9	8	0	0
M 795 M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	14	14	18	8	0	0
M 796 M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	13	14	9	0	3	0
M 797 M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	33	34	27	17	37	0
M 798 M3-20 DO YOU WORK WITH INDUCTION MOTORS	19	19	18	17	14	17
M 799 M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	12	12	9	8	14	0
M 800 M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	38	36	45	17	34	33
M 801 M3-23 DO YOU INSPECT GENERATORS	3	3	0	0	3	0
M 802 M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	3	3	0	0	3	0
M 803 M3-25 DO YOU OPERATE GENERATORS	4	3	9	0	6	0
M 804 M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	1	2	0	0	3	0
M 805 M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	1	2	0	0	3	0
M 806 M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	3	2	9	0	3	0
M 807 M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	1	2	0	0	3	0
N 808 N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	62	62	64	75	63	67
N 809 N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	7	9	0	8	9	0
N 810 N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	12	14	0	17	14	0
N 811 N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	9	10	0	8	11	0
N 812 N1-05 DO YOU READ METER SCALES	74	74	73	83	77	67
N 813 N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	29	31	18	33	26	0
N 814 N1-07 DO YOU ZERO OHMMETERS	75	76	73	83	80	67
N 815 N1-08 DO YOU ZERO AMMETERS	42	43	36	33	43	17
N 816 N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	41	40	45	42	37	33
N 817 N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	28	24	45	8	31	17
N 818 N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	0	0	0	0	0	0
N 819 N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0	0	0
N 820 N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0	0	0
N 821 N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0	0	0
N 822 N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0	0	0
N 823 N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	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

METER MOVEMENTS

SATURABLE REACTORS  
AND MAGNETIC  
AMPLIFIERS



PCT MBRS RESPONDING \*YES\* BY SELECTED GRPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TASK

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
N 825	N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	0	0	0	0	0	0
N 826	N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	0	0	0	0	0	0
N 827	N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	0	0	0	0	0	0
N 828	N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	0	0	0	0	0	0
N 829	N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	0	0	0	0	0	0
N 830	N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	0	0	0	0	0	0
N 831	N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	0	0	0	0	0	0
N 832	N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	0	0	0	0	0	0
N 833	N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	0	0	0	0	0	0
N 834	N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	3	3	0	0	6	0
N 835	N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	3	3	0	0	6	0
N 836	N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	3	3	0	0	6	0
N 837	N3-04 DO YOU USE OR REFER TO PULSE OCCURRENCE TIME (PRT)	1	2	0	0	3	0
N 838	N3-05 DO YOU USE OR REFER TO PULSE OCCURRENCE FREQUENCY (PRF)	1	2	0	0	3	0
N 839	N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	1	2	0	0	3	0
N 840	N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	3	3	0	0	6	0
N 841	N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	1	2	0	0	3	0
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	0	0	0	0	0	0
N 843	N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	1	2	0	0	3	0
N 844	N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	0	0	0	0	0	0
N 845	O1-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	0
N 846	O1-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
N 847	O1-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
N 848	O1-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
N 849	O1-05 DO YOU TROUBLESHOOT SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
N 850	O1-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0
N 851	O1-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0
N 852	O1-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0

SINGLE SIDEBAND SYSTEMS

WAVESHAPING CIRCUITS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
0 853	01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0	0	0	0
0 854	01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0	0	0	0
0 855	01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	0	0	0	0	0	0
0 856	01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0	0	0	0
0 857	01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0	0	0	0
0 858	01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0	0	0	0
0 859	01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0	0	0	0
0 860	01-16 DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0	0	0	0
0 861	01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0	0	0	0
0 862	01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0	0	0	0
0 863	01-19 DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	0	0	0	0	0	0
0 864	01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0	0	0	0
0 865	01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0	0	0	0
0 866	01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	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
0 868	01-24 DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0	0	0	0
0 869	01-25 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	0	0
0 870	01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	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
0 872	01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	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
0 874	01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0	0
0 875	02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	0
0 876	02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	0	0	0	0	0	0
0 877	02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	0	0	0	0	0	0
0 878	02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	0	0	0	0	0	0
0 879	02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS COMPONENTS	0	0	0	0	0	0
0 880	02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	0	0	0	0	0	0
0 881	02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	0	0	0	0	0	0
0 882	02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	0	0	0	0	0	0
0 883	02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	0	0	0	0	0	0
0 884	02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	0	0	0	0	0	0
0 885	02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPH) SYSTEMS	0	0	0	0	0	0
0 886	02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	0	0	0	0	0	0
0 887	02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	0	0	0	0	0	0
0 888	02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	0	0	0	0	0	0

PULSE MODULATION SYSTEMS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

DY-ISK

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
0 889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	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
0 891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	0	0	0	0	0	0
0 892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	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
0 894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	0	0	0	0	0	0
0 895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	0	0	0	0	0	0
0 896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	0	0	0	0	0	0
0 897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	0	0	0	0	0	0
0 898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	0	0	0	0	0	0
0 899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	0	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
0 901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	0	0	0	0	0	0
0 902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	0	0	0	0	0	0
0 903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	0	0	0	0	0	0
0 904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	0	0	0	0	0	0
0 905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	0	0	0	0	0	0
0 906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	0	0	0	0	0	0
0 907	02-33 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	0	0
0 908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	0	0	0	0	0	0
0 909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	0	0	0	0	0	0
0 910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	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	0	0	0	0	0	0
0 912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	0	0
0 913	02-39 DO YOU USE SIGMA 2 OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0	0
0 914	02-40 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	0	0	0	0	0	0
0 915	02-41 DO YOU ASPECT ANTENNAS	0	0	0	0	0	0





TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC 026 SPC 027 SPC 028 SPC 029 SPC 030 SPC 031

DY-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 ROTARY 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 I<sup>2</sup>R 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 TROUBLESHOOT 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 ACQUIRE DESIRED WAVEFORMS  
P 967 P1-15 DO YOU USE COEFFICIENTS 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 RATIO (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 WITH TRANSMISSION LINES TO LOADS

TRANSMISSION  
LINES

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

DY-TSK

P 971	PI-19	DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	0	0	0	0	0	0	0	0
P 972	PI-20	DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	0	0	0	0	0	0	0	0
P 973	PI-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
P 974	PI-22	DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES	0	0	0	0	0	0	0	0
P 975	PI-23	DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES	0	0	0	0	0	0	0	0
P 976	PI-24	DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	0	0	0	0	0	0	0	0
P 977	PI-25	DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	0	0	0	0	0	0	0	0
P 978	PI-26	DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	0	0	0	0	0	0	0	0
P 979	PI-27	DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	0	0	0	0	0	0	0	0
P 980	PI-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
P 981	PI-29	DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	0	0	0	0	0	0	0	0
P 982	PI-30	DO YOU WORK WITH RESONANT TRANSMISSION LINES	0	0	0	0	0	0	0	0
P 983	PI-31	DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	0	0	0	0	0	0	0	0
P 984	P2-01	DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	0	0	0	0	0	0	0	0
P 985	P2-02	DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 986	P2-03	DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 987	P2-04	DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 988	P2-05	DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 989	P2-06	DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 990	P2-07	DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 991	P2-08	DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	0
P 992	P2-09	DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	0	0	0	0	0	0	0	0
P 993	P2-10	DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	0	0	0	0	0	0	0	0
P 994	P2-11	DO YOU REMOVE OR INSTALL DUMMY LOADS	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
P 996	P2-13	DO YOU REMOVE OR INSTALL H BENDS	0	0	0	0	0	0	0	0
P 997	P2-14	DO YOU REMOVE OR INSTALL OTHER BENDS	0	0	0	0	0	0	0	0
P 998	P2-15	DO YOU REMOVE OR INSTALL CHOKE JOINTS	0	0	0	0	0	0	0	0
P 999	P2-16	DO YOU REMOVE OR INSTALL ROTATING JOINTS	0	0	0	0	0	0	0	0
P1000	P2-17	DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	0	0	0	0	0	0	0	0
P1001	P2-18	DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	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

WAVEGUIDES AND  
CAVITY RESONATORS





TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

OY-TSK

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
P1026	P2-43	ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0	0	0	0
P1027	P2-44	ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	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	0	0	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
P1030	P2-47	DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	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
P1032	P2-49	DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	0	0	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
P1034	P3-01	IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	0	0	0	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
P1036	P3-03	DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	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
P1038	P3-05	DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	0	0	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
P1040	P3-07	DO YOU USE OR REFER TO ELECTRON BUNCHING	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
P1042	P3-09	DO YOU WORK WITH THREE-CAVITY KLYSTRONS	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
P1044	P3-11	DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	0	0	0	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
P1046	P3-13	DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	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
P1048	P3-15	DO YOU INSPECT KLYSTRONS OR TWT	0	0	0	0	0	0	0	0	0	0
P1049	P3-16	DO YOU CLEAN KLYSTRONS OR TWT	0	0	0	0	0	0	0	0	0	0
P1050	P3-17	DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	0	0	0	0	0	0	0	0	0	0
P1051	P3-18	DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	0	0	0	0	0	0	0	0	0	0
P1052	P3-19	DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	0	0	0	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
P1054	P3-21	DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	0	0	0	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
P1056	P3-23	DO YOU INSPECT PARAMETRIC AMPLIFIERS	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
P1058	P3-25	DO YOU ADJUST PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	0	0	0

MICROWAVE  
AMPLIFIERS AND  
OSCILLATORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

BY-TASK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
PI059 P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	0	0	0	0	0	0
PI060 P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	0	0	0	0	0	0
PI061 P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	0	0	0	0	0	0
PI062 P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	0	0	0	0	0	0
PI063 P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	0	0	0	0	0	0
PI064 P3-31 DO YOU INSPECT MAGNETRONS	0	0	0	0	0	0
PI065 P3-32 DO YOU CLEAN MAGNETRONS	0	0	0	0	0	0
PI066 P3-33 DO YOU ADJUST MAGNETRONS	0	0	0	0	0	0
PI067 P3-34 DO YOU TUNE MAGNETRONS	0	0	0	0	0	0
PI068 P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	0	0	0	0	0	0
PI069 P3-36 DO YOU TROUBLESHOOT MAGNETRONS	0	0	0	0	0	0
PI070 P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	0	0	0	0	0	0
PI071 P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	0	0	0	0	0	0
PI072 P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	0	0	0	0	0	0
PI073 P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	0	0	0	0	0	0
PI074 P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	0	0	0	0	0	0
PI075 P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	0	0	0	0	0	0
PI076 P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	0	0	0	0	0	0
PI077 P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	0	0	0	0	0	0
PI078 P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	0	0	0	0	0	0
PI079 P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	0	0	0	0	0	0
PI080 P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	0	0	0	0	0	0
PI081 P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	0	0	0	0	0	0
PI082 P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	0	0	0	0	0	0
PI083 P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	0	0	0	0	0	0
PI084 P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	0	0	0	0	0	0
PI085 P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	0	0	0	0	0	0
PI086 P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	0	0	0	0	0	0
PI087 P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	0	0	0	0	0	0



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DI-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
P1088 P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	0	0	0	0	0	0
P1089 P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	0	0	0	0	0	0
P1090 P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	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
P1092 P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	0	0	0	0	0	0
P1093 P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELIXES	0	0	0	0	0	0
P1094 P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	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
P1096 P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	0	0	0	0	0	0
P1097 P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	0	0	0	0	0	0
P1098 P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	0	0	0	0	0	0
P1099 P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IOLER CAVITIES	0	0	0	0	0	0
P1100 P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	0	0	0	0	0	0
P1101 P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	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
P1103 P3-70 DO YOU PERFORM TASKS ON ANODES	0	0	0	0	0	0
P1104 P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	0	0	0	0	0	0
P1105 P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	0	0	0	0	0	0
P1106 P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	0	0	0	0	0	0
P1107 P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	0	0	0	0	0	0
P1108 P3-75 DO YOU PERFORM TASKS ON CATHODES	0	0	0	0	0	0
P1109 P3-76 DO YOU PERFORM TASKS ON MAGNETS	0	0	0	0	0	0
Q1110 Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	0	0	0	0	0	0
Q1111 Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	1	2	0	8	0	0
Q1112 Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	0	0	0	0	0	0
Q1113 Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	0	0	0	0	0	0
Q1114 Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	0	0	0	0	0	0
Q1115 Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	0	0	0	0	0	0

REGISTERS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

SPC SPC SPC SPC SPC SPC SPC  
026 027 028 029 030 031

DY-TSK

Q1116	Q1-07	DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED	4	3	9	8	0	0	0	0
Q1117	Q2-01	DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	1	0	9	0	0	0	0	0
Q1118	Q2-02	DO YOU USE OR REFER TO DELAY LINES	3	2	9	0	0	0	0	0
Q1119	Q2-03	DO YOU USE OR REFER TO MAGNETIC CORES	1	2	0	0	0	0	0	0
Q1120	Q2-04	DO YOU USE OR REFER TO MAGNETIC DRUMS	1	2	0	0	0	0	0	0
Q1121	Q2-05	DO YOU USE OR REFER TO MAGNETIC TAPES	3	3	0	8	0	0	0	0
Q1122	Q2-06	DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS	0	0	0	0	0	0	0	0
Q1123	Q2-07	DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	0	0	0	0	0	0	0	0
Q1124	Q2-08	DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	0	0	0	0	0	0	0	0
Q1125	Q2-09	DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	0	0	0	0	0	0	0	0
Q1126	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 READOUT CONVERTERS	0	0	0	0	0	0	0	0
Q1127	Q3-02	DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES	0	0	0	0	0	0	0	0
Q1128	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	0	0	0	0	0	0	0	0
Q1129	Q3-04	DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	0	0	0	0	0	0	0	0
Q1130	Q3-05	DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	0	0	0	0	0	0	0	0
Q1131	Q3-06	DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	0	0	0	0	0	0	0	0
Q1132	Q3-07	DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	0	0	0	0	0	0	0	0
Q1133	Q3-08	DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	0	0	0	0	0	0	0	0
Q1134	Q3-09	DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	0	0	0	0	0	0	0	0
Q1135	Q3-10	DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	0	0	0	0	0	0	0	0
Q1136	Q3-11	DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	0	0	0	0	0	0	0	0
Q1137	Q3-12	DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	0	0	0	0	0	0	0	0
Q1138	Q3-13	DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	0	0	0	0	0	0	0	0
Q1139	Q3-14	DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	0	0	0	0	0	0	0	0

DIGITAL TO  
ANALOG CONVERTERS

STORAGE DEVICES

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DIY-TSK	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
	026	027	028	029	030	031			
R1140 R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	0	0	0	0	0	0			PHANTASTRONS
R1141 R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	1	2	0	0	3	0			SCHMITT TRIGGERS
R1142 R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	1	2	0	0	3	0			
R1143 R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	0	0	0	0	0	0			
R1144 R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	19	17	27	8	17	0			CABLE FABRICATION
R1145 R3-02 DO YOU FABRICATE COAXIAL CABLES	10	10	9	0	14	0			
S1146 S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	10	10	9	8	3	0			
S1147 S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	1	2	0	0	0	0			INPUT/OUTPUT DEVICES
S1148 S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	0	0	0	0	0	0			
S1149 S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	9	7	18	0	11	0			PHOTO SENSITIVE DEVICES
S1150 S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	1	0	9	0	0	0			
S1151 S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	0	0	0	0	0	0			SYNCHRONOUS VIBRATIONS
S1152 S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	0	0	0	0	0	0			(CHOPPER CIRCUITS)
S1153 S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	0	0	0	0	0	0			
S1154 S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	0	0	0	0	0	0			
S1155 S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	1	0	9	0	0	0			
S1156 S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	3	0	18	0	0	0			
S1157 S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	3	0	18	0	0	0			
S1158 S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	1	0	9	0	0	0			
T1159 T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	0	0	0	0	0	0			INFRARED
T1160 T1-02 DO YOU INSPECT INFRARED SYSTEMS	0	0	0	0	0	0			
T1161 T1-03 DO YOU CLEAN INFRARED SYSTEMS	0	0	0	0	0	0			
T1162 T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	0	0	0	0	0	0			
T1163 T1-05 DO YOU OPERATE INFRARED SYSTEMS	0	0	0	0	0	0			
T1164 T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	0	0	0	0	0	0			
T1165 T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	0	0	0	0	0	0			
T1166 T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0			
T1167 T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	0	0	0	0	0	0			
T1168 T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0			



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DIAGNOSTIC	DESCRIPTION	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
11169	11-11 DO YOU USE OR REFER TO FAR REGION	0	0	0	0	0	0
11170	11-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	0	0	0	0	0	0
11171	11-13 DO YOU USE OR REFER TO NEAR REGION	0	0	0	0	0	0
11172	11-14 DO YOU USE OR REFER TO MICRON	0	0	0	0	0	0
11173	11-15 DO YOU USE OR REFER TO GRAY BODIES	0	0	0	0	0	0
11174	11-16 DO YOU USE OR REFER TO BLACK BODIES	0	0	0	0	0	0
11175	11-17 DO YOU USE OR REFER TO ABSORPTION	0	0	0	0	0	0
11176	11-18 DO YOU USE OR REFER TO SCATTERING	0	0	0	0	0	0
11177	11-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	0	0	0	0	0	0
11178	11-20 DO YOU PERFORM TASKS ON BLITZ	0	0	0	0	0	0
11179	11-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	0	0	0	0	0	0
11180	11-22 DO YOU PERFORM TASKS ON EJECTOR LENSES	0	0	0	0	0	0
11181	11-23 DO YOU PERFORM TASKS ON OCULAP LENSES	0	0	0	0	0	0
11182	11-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	0	0	0	0	0	0
11183	11-25 DO YOU PERFORM TASKS ON FILTERS	3	2	9	0	3	0
11184	11-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	1	0	0	0	0	0
11185	11-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	1	0	9	0	0	0
11186	12-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	0
11187	T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	0
11188	T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	0
11189	T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0
11190	T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0
11191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	0
11192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0
11193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0
11194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0
11195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0
11196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0	0	0	0
11197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	0
11198	T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	0
11199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	0
11200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	0
11201	T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	0
11202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	0
11203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	0
11204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0	0	0	0
11205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	0
11206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	0
11207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	0
11208	T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	0
11209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	1	2	0	0	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

TY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
T1210 T2-25 DO YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	1	2	0	0	3	0
T1211 T2-26 DO YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0	0	0
T1212 T2-27 DO YOU WORK WITH RUBY	0	0	0	0	0	0
T1213 T2-28 DO YOU WORK WITH HELIUM-NEON	0	0	0	0	0	0
T1214 T2-29 DO YOU WORK WITH HELIUM-XENON	0	0	0	0	0	0
T1215 T2-30 DO YOU WORK WITH XENON	0	0	0	0	0	0
T1216 T2-31 DO YOU WORK WITH CESIUM-HELIUM	0	0	0	0	0	0
T1217 T2-32 DO YOU WORK WITH ARGON	0	0	0	0	0	0
T1218 T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0	0	0
T1219 T2-34 DO YOU WORK WITH GALLIUM ARSENIDE	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)	0	0	0	0	0	0
T1221 T3-02 DO YOU INSPECT DVST OR MMST	0	0	0	0	0	0
T1222 T3-03 DO YOU CLEAN DVST OR MMST	0	0	0	0	0	0
T1223 T3-04 DO YOU ADJUST OR CALIBRATE DVST OR MMST	0	0	0	0	0	0
T1224 T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	0	0	0	0	0	0
T1225 T3-06 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	0	0	0	0	0	0
T1226 T3-07 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	0	0	0	0	0	0
T1227 T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	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
T1229 T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS	0	0	0	0	0	0
T1230 T3-11 DO YOU PERFORM TASKS ON WRITE GUNS	0	0	0	0	0	0
T1231 T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS	0	0	0	0	0	0
T1232 T3-13 DO YOU PERFORM TASKS ON ERASE GUNS	0	0	0	0	0	0
T1233 T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS	0	0	0	0	0	0
UI234 UI-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	0	0	0	0	0	0
UI235 UI-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS	0	0	0	0	0	0
UI236 UI-03 DO YOU USE OR REFER TO PROGRAMS	0	0	0	0	0	0
UI237 UI-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	0	0	0	0	0	0
UI238 UI-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	0	0	0	0	0	0
UI239 UI-06 DO YOU USE OR REFER TO FOUR SYSTEMS	0	0	0	0	0	0
UI240 UI-07 DO YOU USE OR REFER TO BINARY SYSTEMS	0	0	0	0	0	0
UI241 UI-08 DO YOU USE OR REFER TO TIME-SHARING	0	0	0	0	0	0
UI242 UI-09 DO YOU USE OR REFER TO DATA WORDS	0	0	0	0	0	0
UI243 UI-10 DO YOU USE OR REFER TO ADDRESS WORDS	0	0	0	0	0	0
UI244 UI-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	0	0	0	0	0	0
UI245 UI-12 DO YOU USE OR REFER TO STEERING/INFORMATION	0	0	0	0	0	0
UI246 UI-13 DO YOU USE OR REFER TO INFORMATION WORDS	0	0	0	0	0	0
UI247 UI-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	0	0	0	0	0	0
UI248 UI-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	0	0	0	0	0	0

DISPLAY TUBES

PROGRAMMING

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TASK

Task ID	Description	SPC 026	SPC 027	SPC 028	SPC 029	SPC 030	SPC 031
U1249	U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	0	0	0	0	0	0
U1250	U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	0	0	0	0	0	0
U1251	U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	0	0	0	0	0	0
U1252	U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	0	0	0	0	0	0
U1253	U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	0	0	0	0	0	0
U1254	U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	0	0	0	0	0	0
U1255	U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	0	0	0	0	0	0
U1256	U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	0	0	0	0	0	0
U1257	U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	0	0	0	0	0	0
U1258	U2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	3	3	0	0	3	0

DB AND POWER  
RATIOS



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AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9  
AEROSPACE PHOTOGRAPHIC SYSTEMS SPECIALIST AFSC 40451.(U)  
NOV 77 T J O'CONNOR, E J WEBER

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFPT 90-404-222	2. GOVT ACCESSION NO. ADA048694	3. RECIPIENT'S CATALOG NUMBER 4454
4. TITLE (and Subtitle) Aerospace Photographic Systems Specialist AFSC 40451	5. TYPE OF REPORT & PERIOD COVERED FINAL July 77 - September 77	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) Thomas J. O'Connor Elena J. Weber	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Occupational Survey Branch USAF Occupational Measurement Center Lackland AFB TX 78236	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS SAME AS ITEM 9	12. REPORT DATE 8 November 1977	
	13. NUMBER OF PAGES 4	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report)  UNCLASSIFIED	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Electronic principles                      Electronics Basic electronics                          Air Force training Avionics                                        Teaching methods Electronic equipment                      Training Electronic technicians		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Aerospace Photographic Systems Specialist (AFSC 40451). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.  <i>Final</i>		





This specialty has the following functions:

Inspects, installs, removes, troubleshoots, repairs, overhauls, calibrates, and modifies electronic, radar recording, video tape recording, and optical aerospace photographic systems and associated electronic analyzers and tests equipment.

