

Department of the Army
Pamphlet 621-99

EDUCATION

**THE US ARMY
SIGNAL SCHOOL
APPRENTICESHIP
PROGRAM FOR
THE TRADE OF
ELECTRICIAN,
RADIO**

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SUMMARY of CHANGE

DA PAM 621-99

THE US ARMY SIGNAL SCHOOL APPRENTICESHIP PROGRAM FOR THE TRADE OF ELECTRICIAN,
RADIO

Not applicable

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EDUCATION

THE US ARMY SIGNAL SCHOOL APPRENTICESHIP PROGRAM FOR THE TRADE OF
ELECTRICIAN, RADIO

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

Summary. Not applicable.

Applicability. This pamphlet applies to all elements of the Active Army. This pamphlet does not apply to Army National Guard and Army Reserve.

Proponent and exception authority. The proponent agency of this pamphlet is The Adjutant General's Office.

Interim changes. Interim changes are not official unless they are authenticated by The Adjutant General. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested Improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander, US

Army Signal Center and Fort Gordon, ATTN: ATZHPA-E, Fort Gordon, GA 30905.

Distribution. To be distributed in accordance with DA Form 12-9A requirements for DA Pamphlets, Education plus 5 copies each to All Education Centers and Sub-centers.

Active Army:—B
ARNG:—None
USAR:—None

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*This pamphlet supersedes DA Pam 621-99, 1 May 1979.

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1. Purpose.

The purpose of this pamphlet is to announce the US Army Signal School Apprenticeship Program for the Trade of Electrician, Radio (DOT Code 823.281-014).

2. Applicability.

This pamphlet applies to all elements of the active Army. This pamphlet does not apply to Army National Guard and Army Reserve.

3. General.

Policies and procedures for participation in the program are contained in AR 621-5. This pamphlet is designed to be used in conjunction with that regulation.

4. Apprenticeship Program Number and Occupational skill Code.

a. The following apprenticeship program number and occupational skill code are used to identify the US Army Signal School Apprenticeship Program for the Trade of Electrician, Radio.

(1) Apprenticeship Program Number: 99904.

(2) Occupational Skill Code: 10.

b. The apprenticeship program number and occupational skill code must be entered on DA Form 4409-R (Apprenticeship Application) to identify the program for which the soldier is making application.

5. Eligibility for Participation in the Program.

Soldiers holding as primary or secondary one of the MOSs indicated below and serving in that MOS may participate in the program.

a. MOS 32H. Fixed Station Radio Repairer

b. MOS 35L. Avionic Communications Equipment Repairer

6. The Electrician, Radio Apprenticeship Program.

This is an 8,000 hour program which leads to certification as journeyworker in the trade of electrician, radio. Participation in the program is voluntary, and no membership in labor unions or professional associations is required. The work process schedule and schedule of related instruction for the trade are attached (app B and C). The purposes of the work process schedule and the schedule of related instruction are as indicated below:

a. The work process schedule reflects categories of work experience required by soldier-apprentices to qualify as journeyworker and hours of work experience required in each category.

b. The schedule of related instruction identifies courses which may be taken by soldier-apprentices to satisfy the 576 hours of related instruction required for completion of the program.

7. Enrollment in the Program.

Soldiers may enroll in the program by contacting their installation education services officers (ESOs) who will explain requirements of the program and assist in the preparation of the apprenticeship application form (DA Form 4409-R).

8. Apprentice Log Forms.

Apprenticeship log forms and instructions on use of forms will be issued to soldiers by installation ESOs at the time of registration in the program. Log instruction sheets will be maintained by soldiers in a three ring binder. Soldier-apprentices will be required to annotate their work experience on log sheets on a daily basis. The standard for the amount of work experience logged will be 132 hours per month. Hours logged above this standard amount must be justified in the remarks section of the daily work experience record and attested to by the signature and rank of the shop craft supervisor or an individual holding a comparable position. Log entries must be verified by the soldier-apprentice's immediate supervisor on a weekly basis.

9. Credit for Previous Experience.

a. Newly enrolled soldier-apprentices who have partially completed an approved Federal or State registered civilian apprenticeship in the trade of Electrician, Radio or a related trade will, upon presentation of documentation, be awarded credit for all experience related to categories of work contained in the work process schedule at appendix B.

b. Up to 4,000 hours of credit for previous military work experience may be awarded upon presentation of authenticated documentation of satisfactory performance. Such experience must be directly related to the occupation in which the apprenticeship is being performed. Statements from previous supervisors or other such documentation which certify category of work, number of hours by category, and quality of performance will be submitted by soldier-apprentices to their installation ESOs for consideration. ESOs will forward these documents to the Commander, US Army Signal Center and Fort Gordon, ATTN: ATZHPA-E, Fort Gordon, GA 30905 for final determination.

10. Related Instruction Credit for Previous Military and Civilian Education.

Credit for previous military and civilian education may be awarded to satisfy related instruction requirements by presenting certificates of course completion or other such documentation from official military records or other sources. The installation ESO will determine the amount of credit to be awarded. The ESO will consult sponsor Service schools, as required, to determine the appropriate amount of credit for each course not listed in appendix C of this pamphlet.

11. Completion of the Program.

Upon successful completion of the program, a Certificate of Completion of Apprenticeship will be awarded by the US Department of Labor. While the award of a Certificate of Completion of Apprenticeship will not guarantee a job, it will certify that journeyworker status has been attained, and should enable completers of the program to be more competitive with civilians in the trade.

12. Partial Completers.

Soldiers leaving the service prior to completion of the program will receive documented credit for that portion of the program which they did complete. This documentation may be presented for satisfaction of requirements of civilian apprenticeship programs in the trade of Electrician, Radio or a related trade.(See app D)

Appendix A References

Section I Required Publications

This section contains no entries.

Section II Related Publications

This section contains no entries.

Section III Prescribed Forms

This section contains no entries.

Section IV Referenced Forms

This section contains no entries.

Appendix B Work Process Schedule for the Trade of Line Installer–repairer (Dot Code 823.281–014)

B–1. Work Process Schedule for the Trade of Line Installer–repairer

Paragraph not used.

Table B–1
Work Process Schedule for the Trade of Line Installer–repairer

	<i>Hours</i>
A. Orientation	1,200
Develop proper use of hand tools, test equipment, work benches for general appearance and personal safety.	
Assist experienced servicer in troubleshooting, repair, installation and testing of radio equipment.	
Maintain time cards and job record on work performed.	
Assist experienced servicer in troubleshooting, repair and testing of test equipment.	
Apply proper shop and trade terminology used on the job.	
Maintain inventory of replacement components.	
Develop and employ safety precautions when working with voltage.	
Develop skills of electrical and electronic circuit system repair and analysis.	
B. Troubleshooting and Fault Isolation in DC and Low Frequency Equipment	1,200
Power converters.	
Relays and switches.	
Power Supplies and distribution.	
Low frequency tone generators, filter decoders and comparators.	
C. Troubleshooting and Fault Isolation in Intermediate and High Frequency Equipment	1,200
Amplifiers.	
Demodulators.	
Automatic gain controls.	
Automatic squelch controls.	
D. Troubleshooting and Fault Isolation in Very High and Ultra High Frequency Equipment	1,200
Duplexers.	
Transmission lines.	
Antennas.	
Power Amplifiers.	
Propagation and field strength.	
Receiver amplifiers.	
E. Troubleshooting and Fault Isolation in Systems	1,200

Table B-1
Work Process Schedule for the Trade of Line Installer-repairer—Continued

		<i>Hours</i>
	Single sideband systems. Digital systems. Intermodulation. Amplitude modulated systems. Frequency modulated systems.	
F.	Installation	400
	Land-mobile installations. Airborne-mobile installations. Fixed installations. Base. Masts and antennas. Remote control. Relay.	
G.	Repairs	1,200
	Replacement and adjustment of individual electronic components. Repair, replacement and adjustment of mechanical components. Tracing and repair circuit on P. C. boards.	
H.	Final Test and Assembly	400
	Sensitivity tests. Power output tests. Field intensity tests. Modulation tests. Frequency tests.	
TOTAL		8,000

B-2. Title not used.

Paragraph not used.

Appendix C
Schedule of Related Instruction for the Trade of Electrician, Radio (Dot Code 823.281-014)

C-1. Schedule of Related Instruction for the Trade of Electrician, Radio

A total of 576 hours of related instruction is required to complete this program. Completion of any one or a combination of the below listed courses which equals 576 hours of related instruction or more may be taken to satisfy this requirement. Credit for courses not listed below may be awarded upon presentation of authenticated documentation of satisfactory completion. A synopsis of the course must be submitted with documentation. Documentation and synopsis for courses not listed below will be forwarded by ESOs to the US Army Signal Center and Fort Gordon, ATTN: ATZHPA-E, Fort Gordon, GA 30905, for final determination.

Table C-1
Schedule of Related Instruction for the Trade of Electrician, Radio

Course Number	Course Title	School	Resident	Non-resident	Credit Hours
A. 101-32H10/20	Fixed Station Radio Repair	USASC	X		1223
B. 102-35L10	Avionic Communications Equipment Repair	USASC	X		507
C. 5-13	Fixed Station Radio Repair(32H10)	USASC		X	51
1. Phase I	Fixed Station Radio Repair(32H10)	USASC		X	45
2. Phase II	Fixed Station Radio Repair(32H10)	USASC		X	6
D. 6-26	Avionic Communications Equipment Repair(35L10)	USASC		X	226
E. SSO-463	Operation of Electron Tube Test Set TV-7/U	USASC		X	2
F. SSO-771	Telegraph Terminals AN/FCC-19/25 Operation	USASC		X	6
G. SSO-651	Shop Practices and safety	USASC		X	3
H. SSO-660	Maintenance Concepts and supply Procedures	USASC		X	7
I. SS9-448	Operation of Multimeter TS-352()/U(SOJT)	USASC		X	2
J. SS9-449	Operation of multimeter ME-26/U(SOJT)	USASC		X	2
K. SS9-446	Operation of Electronic Digital Readout Counter AN/USM-207 for Frequencies above 85MHZ(SOJT)	USASC		X	2
L. SS9-447	Operation of Electronic Digital Readout Counter AN/USM-207 for frequencies above 85MHZ(SOJT)	USASC		X	2

Table C-1
Schedule of Related Instruction for the Trade of Electrician, Radio—Continued

Course Number	Course Title	School	Resident	Non-resident	Credit Hours
M. SS9-445	Operation of Signal Generator AN/URM-103	USASC		X	3
N. SS9-709	Operation of Oscilloscope AN/USM-281A(SOJT)	USASC		X	3
O. SSO-757	Single-Sideband Radio Transmission	USASC		X	6
P. SSO-308	Introduction to Electricity	USASC		X	6
Q. SSO-309	Introduction to Electronics	USASC		X	10
R. SSO-311	Electron Tubes	USASC		X	10
S. SSO-312	Electron Tube Applications	USASC		X	12
T. SSO-313	Semiconductor Devices	USASC		X	7
U. SSO-314	Semiconductor Applications	USASC		X	10
V. SSO-315	Power Transistors	USASC		X	8
W. SSO-462	Basic Test Equipment Operations	USASC		X	12
X. SSO-321	AM Radio Transmitters	USASC		X	9
Y. SSO-322	AM Radio Receivers	USASC		X	10
Z. SSO-114	Single-Sideband Transmission	USASC		X	12
AA. SSO-320	Communications Fundamentals	USASC		X	5
BB. SSO-327	Frequency Synthesis	USASC		X	5
CC. SSO-750	High Frequency Fixed-Station Radio Systems	USASC		X	16
DD. SSO-352	Multiplexing	USASC		X	5
EE. SSO-325	Radio Wave Propagation	USASC		X	10
FF. SSO-759	Single-Sideband Reception	USASC		X	3
GG. SSO-702	Radio Set AN/ARC-51BX	USASC		X	10
HH. SSO-323	FM Radio Transmitter	USASC		X	10
II. SSO-324	FM Radio Receivers	USASC		X	10
JJ. SSO-708	Radio Set AN/ARC-44	USASC		X	6
KK. SSO-650	Safety and Preventive Maintenance	USASC		X	3
LL. SS9-462	Basic Test Equipment-Operation (SOJT)	USASC		X	12
MM. SS9-443	Operation of Electronic Voltmeter ME-30/U(SOJT)	USASC		X	2
NN. SS9-444	Operation of Signal Generator AN/URM-127(SOJT)	USASC		X	2
OO. SS9-706	Operation of the Oscilloscope AN/USM-281C(SOJT)	USASC		X	3
PP. SS9-707	Operation of Oscilloscope AN/USM-140(B)(C)(SOJT)	USASC		X	3
QQ. SS9-710	Direct Support Maintenance USASC of Radio Set AN/ARC-114()(SOJT)	USASC		X	12
RR. None	Basic Electronic Training	USASC	X		299

C-2. Title not used.

Paragraph not used.

Appendix D
Example of a Partial Completion letter

D-1. Example of a Partial Completion letter

(Enter Office Symbol)

(Enter Date)

TO WHOM IT MAY CONCERN:

This is to certify that _____ was enrolled in the Army
(Name)

Apprenticeship Program for _____
(Name of Occupational Skill Area)

_____ During this period _____ to _____. During that period
(Registration Number) (Date) (Date)

he successfully completed the following hours:

<i>Work Process</i>	<i>Hours</i>
A	_____
B	_____
_____	_____
_____	_____

Army Apprentice Programs are registered with the US Department of Labor and the fact that this individual did participate can be verified with the Bureau of Apprenticeship and Training, Patrick Henry Building, Washington, DC 20213, or by contacting Headquarters, TRADOC, ATTN: ATPL-AGE, Fort Monroe, VA, 23651.

Sincerely,

ESO's SIGNATURE BLOCK

Figure D-1. Example of a Partial Completion letter

D-2. Title not used.
Paragraph not used.

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