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ADJUTANT GENERAL'S OFFICE (ARMY) WASHINGTON DC  
CONSTRUCTION OF THE ELECTRONICS PICTURE TEST AND THE ELECTRONIC--ETC(U)  
JUL 61 W R GRAHAM, W H HELME

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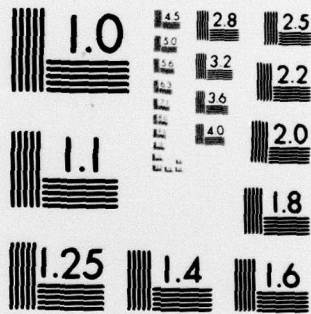
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Journal of  
Electronics Technology for  
Electronics Packaging

JULY 1991

1991

Army Project Number  
2L95-60-001

New Classif Tech a-36

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9 Research Memorandum 61-10

6 CONSTRUCTION OF THE ELECTRONICS PICTURE TEST  
AND THE ELECTRONICS KNOWLEDGE TEST

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11 July 1961

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ABSTRACT  
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## CONSTRUCTION OF THE ELECTRONICS PICTURE TEST AND THE ELECTRONICS KNOWLEDGE TEST

To maintain the Army Classification Battery at peak effectiveness for classifying enlisted input to different job areas, alternate forms of existing tests, as well as tests of additional aptitudes and abilities, must be developed and introduced so that the Army's changing job and manpower requirements may be met. To help meet this objective, research has been undertaken to improve the differential validity of cognitive measures pertinent to MOS in the electronics (200) and electrical (300) occupation areas.

This report deals with the development of two new experimental electronics tests--the Electronics Picture Test and the Electronics Knowledge Test. Three phases of test development have been completed: (1) preparation of two item pools with a total of 260 items, (2) review and revision of the items with the assistance of subject matter experts, and (3) organization of items into experimental forms suitable for field administration. The final phase (item analysis and standardization) will be reported later.

ABSTRACT

### PREPARATION OF ITEMS

The Electronics Picture Test and the Electronics Knowledge Test were constructed as replacements for the operational Electronics Information Test (ELI). All items were designed to measure degree of knowledge of specific electronic and electrical information.

### ELECTRONICS PICTURE TEST

The 120 items of the Electronics Picture Test were all newly constructed for this test. Three types of picture items were employed. The first type has a verbal lead or stem, followed by four pictured alternatives. The second type has both a picture and a verbal question or statement as a stem, followed by four pictured alternatives. The third type, like the second, has a pictorial and verbal stem, but is followed by four verbal alternatives.

The Electronics Picture Test items were classified by content into several broad categories as shown in Table 1.

Table 1

## ELECTRONICS PICTURE ITEMS CATEGORIZED BY CONTENT

Content-Category	Number of Items
Symbol recognition	26
Parts recognition	33
Association of parts with equipment	15
Identification of parts with the same function	15
Circuit functions and interpretation of diagrams	20
Miscellaneous information	11
Total	120

## ELECTRONICS KNOWLEDGE TEST

The 140 items of the Electronics Knowledge Test are all verbal. The initial sources of content were the item pools developed for the Radio Information Test, the Electrical Information Test, and the Electrical and Radio Information Test. These early experimental items had been administered to samples in radio repair school and electrical school courses, as well as to input samples. Using validity and difficulty indices computed from the obtained data, items which had low enough difficulty for input samples and which also had validity coefficients among the highest obtained were selected for current use.

In addition, new items were constructed which would be within the same difficulty range as the older items, but which would provide additional possible sources of validity by broadening the contents sampled. Thus, for example, many new items were developed that sampled ability to interpret simple schematic diagrams. A number of simple

trouble-shooting items were developed, and coverage was extended to more recent equipment, such as television and radar. All items were written to keep difficulty level low, validity high, and to obtain a maximum number of functioning alternative answers.

The contents of the Electronics Knowledge Test items were classified into the categories presented in Table 2.

Table 2

ELECTRONICS KNOWLEDGE ITEMS CATEGORIZED BY CONTENT

Content-Category	Number of Items
Trouble-shooting	30
Structure of parts	9
Association of parts with equipment	13
Identification of parts with the same functions	8
Definitions of electronics concepts	15
Measuring instruments	12
Physics of electronics	22
Functions of parts	31
Total	140