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13. ABSTRACT The report describes a method for evaluation of paving equipment operational and functional performance characteristics; identifies supporting test facilities, and equipment required. Specifies procedures for operator training, photographic coverage, safety, initial inspection, physical characteristics, human factors, electromagnetic interference, performance, environmental effects, maintenance, reliability, transportability, durability, and value analysis.			

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14. KEY WORDS	LINK A		LINK B		LINK C	
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Aggregate Spreaders & Driers						
Asphalt Paving Equipment						
Concrete Preparation Equipment						
Crushing Plant						
Curing Machine						
Paving Equipment						
Rollers						
Sweeper (Road)						

U.S. ARMY TEST AND EVALUATION COMMAND
SYSTEM ENGINEERING TEST OPERATIONS PROCEDURES

AMSTE-RP-702-108

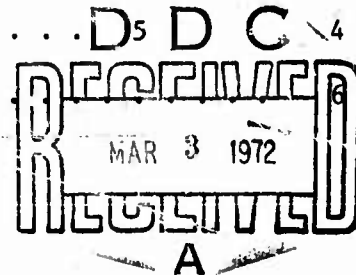
*Test Operations Procedure 9-2-111

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PAVING EQUIPMENT

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SECTION I
GENERAL

1. Purpose and Scope. This TOP describes test procedures for evaluating the operational and performance characteristics of paving equipment. Equipment covered includes: soil sampling kit; road roter, grader, roller and sweeper; batching plant; crusher; crushing, screening and washing plant; driers; mixers; asphalt melter; paving, spreader, finishing and curing machines. From the tests listed in Section II, the test director can select those that will satisfy the requirements for the particular test item and the particular test type (i.e., engineering test, initial production test, etc.). This document provides for simulated environmental testing but does not include service testing or environmental testing at climatic test sites.

2. Background. Military operations involving the movement of aircraft, vehicles and personnel increase in efficiency when paved surfaces are available for use. Therefore, when possible, construction of temporary and permanent roads, ramps and runways are normally culminated in the application of asphalt or concrete surfaces. The paving operation normally involves three steps or phases of action, namely: road bed preparation, material preparation-processing and paving. The road bed preparation phase consists of probing the area for the proposed road to determine suitability for construction of the road and the preparation of the road bed using earth moving and loading equipment including specialized equipment such as roters, graders, rollers and sweepers;

*This TOP supersedes MTPs 9-2-116 (30 Jun 70) and 9-2-124 (6 Jul 70), including all changes.

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material preparation-processing requires the use of batching plants, crushers, crushing, screening and washing plants, drier-mixers for bituminous and concrete, and asphalt melters; the paving phase uses bituminous paving machines and concrete spreaders, finishing and curing machines.

3. Equipment and Facilities. Equipment and facilities required are defined in the documents listed in Section II.

SECTION II
TEST PROCEDURES

4. Supporting Tests. Common Engineering MTPs/TOPs, Military Standards, and other published documents to be considered in formulating an engineering test plan are as follows:

<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO.</u>
a. Pre-operational Inspection	10-3-500
(1) Operator Training and Familiarization	10-2-501
(2) Photographic Coverage	7-3-519
b. Physical Characteristics	10-2-500
(1) Magnetic Particle Test	MIL-STD-271D Para 4
(2) Liquid Penetrant	Para 5
(3) Hardness Test	ASTM E18
c. Safety	10-2-508
d. Performance Tests	
(1) Road Bed Preparation Equipment	
(a) Soil Sampling Kit	MIL-S-51210 Para 4.6
(b) Road Rooter	MIL-R-587A Paras 4.2.1, 4.2.2
(c) Road Grader	MIL-G-52484 Para 4.6.2
(d) Rollers	MIL-R-52499A MIL-R-52586 Para 4.6.2 MIL-R-10550E Para 4.6.2
(e) Sweepers (Towed and Self-propelled)	MIL-S-18141D Paras 4.3.2, 4.3.3, 4.3.5, 4.3.6 MIL-S-27153D Para 4.5

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<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO.</u>
(2) Material Preparation - Processing Equipment	
(a) Batching Plant (Fixed and Wheel-Mounted)	MIL-B-22353A Para 4.3 MIL-B-3755A Para 4.3.2
(b) Crushers (Roll and Jaw)	MIL-C-52127B MIL-C-52128B Para 4.6.3
(c) Crushing, Screening and Washing Plant	MIL-C-13962B Para 4.6.2
(d) Driers - Mixers (Bituminous - Concrete)	MIL-D-3968B Para 4.6.2
(e) Asphalt Melter	MIL-M-52182C Para 4.6.2
(3) Paving Equipment	
(a) Bituminous Paving Machine	MIL-P-335E Para 4.6.2
(b) Concrete Spreader	MIL-S-16328C Para 4.6.2
(c) Concrete Finishing Machine	MIL-F-82098A Para 4.3
(d) Concrete Curing Machine	MIL-C-52617 Para 4.6.2
e. Compatibility with Related Equipment	2-3-512
f. Environmental Tests	
(1) Temperature	MIL-STD-810B Method 501, 502, AR 70-38
(2) Storage	MIL-G-52484 Method 15
(3) Sunshine	4-2-826
(4) Rain	2-2-815
(5) Humidity	4-2-820
(6) Fungus	4-2-818
(7) Salt Fog	MIL-STD-810B Method 509
(8) Dust	Method 510
(9) Vibration	4-2-804
(10) Rough Handling	4-2-602
(11) Shock	MIL-STD-810B Method 516.1
(12) Electromagnetic Interference Characteristics	MIL-STD-461A Notice 4 MIL-STD-462 Notice 3 Method RE05

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<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO.</u>
g. Surface Transportability (General Supplies and Equipment)	10-2-503
h. Human Factors Evaluation Sound Levels	10-2-505 HEL-STD-S- 1-63B
i. Reliability Confidence Intervals Sampling Size	AMCP 702-3 3-1-002
j. Durability (Endurance Testing)	10-2-502
k. Maintenance Evaluation	10-2-507
l. Value Analysis	USAMC SUPPL 1 to AR 11-26

SECTION III
SUPPLEMENTARY INSTRUCTIONS

5. Functional Test.

a. Objective. To determine the capability of the test item to perform the function for which it is intended.

b. Method. If a specification contains a test of the test item performing its intended function and providing a measurement of the test item doing so, use the test method in the specification. If there is no such test in the specification, devise a test that will demonstrate the ability of the test item performing its intended mission. Measure the product finished.

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