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13. ABSTRACT  Prescribes a method for evaluation of concrete mixer operational and functional performance characteristics. Identifies supporting tests, facilities, and equipment. Provides procedures for functional tests. Limited to concrete mixers. <u>Not applicable</u> to paving machines and auxiliary equipment such as haul trucks, water trucks/trailers, batching plants, spreaders, and finishers.			

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U. S. ARMY TEST AND EVALUATION COMMAND  
SYSTEM SERVICE TEST OPERATIONS PROCEDURE

AMSTE-RP-702-108

Test Operations Procedure 9-3-108

1 May 1972

CONCRETE MIXER

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SECTION I  
GENERAL

1. Purpose and Scope. This TOP is to be used to test concrete mixers in the production of low slump, portland cement concrete. It does not include procedures for testing paving machines and auxiliary equipment such as haul trucks, water trucks/trailers, batching plants, spreaders, and finishers.

2. Background. Concrete mixers used by the US Army are identical to machines used by civilian industry. Mixers currently in the military inventory range in capacities from 3 1/2 cubic feet to 16 cubic feet. Concrete mixers are either 2- or 4-wheel mounted, designed to be towed by prime movers or manhandled, and to be used singly or as part of a central mix plant. Mixers can be equipped with either tilting or non-tilting drums and designed for either end or side delivery of concrete.

3. Equipment and Facilities. As described in the supporting tests listed in Section II below, and to include slump test equipment.

SECTION II  
TEST PROCEDURES

4. Supporting Tests. Common Service TOP's/MTP's, the test defined in Section III, and other published documents to be considered in formulating a service test plan are as follows:

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<u>TEST SUBJECT TITLE</u>	<u>PUBLICATION NO</u>
a. Operator Training and Familiarization	10-3-501
b. Safety Hazards	2-3-501
c. Preoperational Inspection and Physical Characteristics	2-3-500
d. Compatibility with Related Equipment	2-3-512
e. Functional Suitability (refer to para 5)	
f. Human Factors Engineering	2-3-516
g. Surface Transportability (vehicles)	9-3-519
h. Maintainability	2-3-502
i. Maintenance Evaluation - Tools and Test Equipment	2-3-527
j. Maintenance Evaluation - Technical Manuscripts and Manuals	2-3-528
k. Reliability	2-3-507

SECTION III  
SUPPLEMENTARY INSTRUCTIONS

5. Functional Suitability

a. Objective. To determine the capability of the test item to produce homogeneous mixes of concrete as described in the Materiel Need (MN) or other applicable requirement documents.

b. Method. The test item is assembled and operated in accordance with manufacturer's instructions and equipment specifications. A concrete mix design for an appropriate construction operation as described in TM 5-337 (ref 2, appendix) is selected. A mixing operation is performed on various ratios of mixes and the adequacy of mixing time and water metering controls from slump tests described in TM 5-530 (ref 3, appendix) are determined. Additional mixing operations are conducted to accumulate the mixture of 50 batches (total) for use in reliability evaluation. Batches mixed to determine reliability may be mixed without concrete for economy reasons. The time required to adequately clean the test item is noted.

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c. Data Required.

- (1) Nomenclature of test item.
- (2) Time and personnel required to initiate operation, operate, and clean the test item.
- (3) Deficiencies and shortcomings observed during testing.
- (4) Remarks concerning overall operation.

d. Analytical Plan. Evaluate test results to determine whether or not test item meets stated performance standards.

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APPENDIX  
REFERENCES

1. AR 70-38, Research, Development, Test, and Evaluation of Materiel for Extreme Climatic Conditions.
2. TM 5-337, Paving and Surfacing Operations.
3. TM 5-530, Materials Testing.