

NAVISTAR, INC.		
CEMS (CORPORATE ENGINEERING MATERIAL SPECIFICATION)		NUMBER: CEMS B-6
TITLE: Combination Hydraulic and Transmission Fluid		CURRENT ISSUE DATE: August 2011
WRITTEN/REVIEWED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES ISSUE OF: August 2006
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<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		
Change Notice: Replaced "International Truck and Engine Corporation" with Navistar, Inc. per corporate directive; editorial changes.		

1.0 SCOPE

This specification covers the Company's requirements for a fluid suitable for use in certain hydraulic, transmission, power steering, wet brake and other systems.

2.0 INTRODUCTION

Fluids covered by this specification are marketed by the parts marketing group as Fleetrite Universal Heavy Duty Tractor Hydraulic and Transmission Fluid (Fleetrite P/N 991054C2 – 5 gal. and Fleetrite P/N 991067C2 – 55 gal.).

2.1 Restricted Chemical Substances

Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the CEMS B-50 specification.

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4.0 REFERENCE DOCUMENTS

Unless otherwise specified, the latest issue of all referenced standards shall apply. The following standards, specifications and regulations are referenced in this specification.

Quality System Standard ISO 9001 or TS-16949	NAVISTAR CEMS BT-43	ASTM D 874
CFR Title 29, Part 1910	NAVISTAR CEMS BT-44	ASTM D 892
NAVISTAR Manufacturing Standard D-13	Federal Standard 791 B	ASTM D 1414
NAVISTAR CEMS B-50	ASTM D 92	ASTM D 1500
NAVISTAR CEMS BT-7, BT-9	ASTM D 95	ASTM D 2270
NAVISTAR CEMS BT-10	ASTM D 97	ASTM D 2273
NAVISTAR CEMS BT-20	ASTM D 445	ASTM D 4951
NAVISTAR CEMS BT-21, BT-22	ASTM D 611	ASTM D 5293
NAVISTAR CEMS BT-30		ASTM D 6443

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5.0 CLASSIFICATION

The fluid covered by this specification is a combination hydraulic and transmission fluid which is described and marketed as Fleetrite Universal Heavy Duty Tractor Hydraulic and Transmission Fluid.

6.0 PROPERTY REQUIREMENTS

Material purchased to this specification will conform to the requirements given in Table I.

6.1 Performance Tests

Some of the performance tests that the fluid will pass in order to obtain approval as part of the engineering qualification procedure are listed in Table II. Performance tests other than those shown in this table may be required before approval is granted. See "Engineering Qualification," Section 7.1.

7.0 QUALITY

Additives necessary to meet the requirements may be present. These additives will not separate under severe pumping conditions and will remain uniformly distributed throughout the fluid at all temperatures from the pour point to 135°C. The fluid will be compatible with those that have previously been approved. Material will be satisfactory for use in hydraulic, hydraulic-transmission, transmission, power steering, wet brake and other systems.

7.1 Engineering Qualification

Production material can be furnished under this specification only after formal Engineering Qualification. The appropriate purchasing department (refer to the Corporate Purchasing Delegation Manual available from Materials Engineering, Truck Development and Technology Center) to conduct the Engineering Qualification tests with the supplier furnishing all the required samples. Materials submitted for qualification will be accompanied by detailed test information and also by certification that the material meets all requirements of this specification.

7.1.1 Approval or Rejection:

After the material has been tested by the approved facility, the design engineering departments will be notified and, if appropriate, invited to conduct performance tests as deemed necessary. On completion of these tests, the purchasing departments involved and all engineering departments will be notified that the material has been either qualified or rejected.

8.0 METHODS OF TEST

8.1 Effect On Elastomers Aged In Fluid

8.1.1 Contact Materials Engineering, TDTC, for source and specification for "O" ring test specimens.

8.1.2 Volume change value will be the average of three aged specimens.

8.1.3 Tensile and elongation change values will be the average of five aged specimens as compared to five unaged specimens from the same material batch. Specimens will be aged in 1 liter tall form glass beakers containing 500 ml of test fluid. Each beaker will contain five specimens, suspended in the test fluid by means of 80 Ni 20 Cr Nichrome wire.

8.2 BT Test Methods are available from IHS Global Inc., 15 Inverness Way East, Englewood, CO 80112 (1-800-854-7179).

8.3 FSTM tests are described in detail in: "Federal Test Method Standard No. 791B - Lubricants, Liquid Fuels and Related Products: "Methods of Testing", issued by General Services Administration, Business Service Center, Region 3, Seventh and D Streets SW, Washington, D.C. 20407.

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