LUBRICATING PRODUCTS MGS-92-12J

1.0 DESCRIPTION. This specification covers motor vehicle lubricating products for delivery in prepackaged containers such as drums, pails, etc., or for delivery into bulk storage tanks at department-owned facilities.

1.1 Unless otherwise stated, the specification references and test methods are from the latest version in effect at the time of this contract.

1.2 Bidders that are repackaging another manufacturer's product shall include that manufacturer's name in the proposal.

1.3 Bidders furnishing Multi-Grade Lubricating Oil under the American Petroleum Institute (API) Classification System shall include the API license number in the proposal. Repackagers using a private label are required to obtain their own license.

2.0 MATERIALS.

2.1 Multi-Grade Lubricating Oil, SAE Grade 15W-40.

2.1.1 General. The oil shall meet and be licensed by the most recent API service classification, as available from most suppliers, and shall be intended for crankcase lubrication of gasoline and diesel engines. It shall be manufactured from the same base stocks and with the same types and amounts of additives as were used to secure API qualification.

2.1.1.1 The engine lubricating oils shall be derived from petroleum fractions, synthetically prepared compounds or a combination of the two types of products. The stocks shall be compounded with such functional additives (detergents, dispersants, oxidation inhibitors, corrosion inhibitors, etc.) as are necessary to meet the specified requirements. No carcinogenic or potentially carcinogenic constituents, as defined under the Hazard Communication Standard (29 CFR 1910.1200) shall be present.

2.1.2 Documentation. The following information shall be furnished with the bid.

2.1.2.1 The bidder shall furnish documentation showing the API license number, brand name and manufacturer under which the oil was qualified and that the oil meets the most recent API service classification as available from most suppliers. .

2.1.2.2 The documentation shall include typical test results for the following physical and chemical properties when tested in accordance with the applicable ASTM test method.

	Test Method
Viscosity, 40 & 100 °C, centistokes	ASTM D 445
Viscosity Index	ASTM D 2270
Pour Point	ASTM D 97
Flash Point	ASTM D 92
Gravity, API	ASTM D 287
Foaming	ASTM D 892

2.1.3 Basis of Payment. Payment for oil received shall be based on the volume at 15.6 °C and quantities packaged at higher temperatures will be corrected to that volume.

2.2 Universal Hydraulic/Transmission Fluid.

2.2.1 General. Universal Hydraulic/Transmission Fluid shall be for use in tractors and equipment where one fluid is desirable and can be used in combination hydraulic-transmission-wet brake systems of equipment used in off-highway service.

2.2.1.1 Universal Hydraulic/Transmission Fluid

2.2.1.2 The fluid shall contain such functional additives as oxidation inhibitors, rust inhibitors, pour point depressants, anti-wear additives, foam suppressers, water tolerance additives, etc. as are necessary to meet the following requirements when tested in accordance with the applicable ASTM tests shown in this specification. Paraffinic base stock shall be used in the manufacture of universal hydraulic transmission oil.

	Requirement	Test Method
API Gravity at 15.6 °C	27 - 32	ASTM D 287
Viscosity, 100 °C, centistokes	7.0 - 11.0	ASTM D 445
Viscosity Index, min.	125	ASTM D 2270
Flash Point, °C, COC, min.	177	ASTM D 92
Pour Point, °C, max.	-40	ASTM D 97
Corrosion, Copper strip, 3 hrs. @ 100 °C	Negative	

2.2.2 Documentation. The following information shall be furnished with the bid.

2.2.2.1 The bidder shall furnish documentation showing that the brand of fluid that is being furnished has been approved and is listed by the Allison Transmission Division, General Motors Corporation, as Allison C-4, Intermediate Viscosity Fluids for off-highway transmissions.

2.2.2.2 If the fluid is not shown in the latest list then a copy of the letter granting approval shall be submitted.

2.2.2.3 The documentation shall include the brand name, manufacturer and a typical analysis of the properties shown in 2.2.1.2.

2.2.3 Basis of Payment. Payment for fluid received shall be based on the volume at 15.6 °C and quantities packaged at higher temperatures will be corrected to that volume.

2.3 Gear Oil - SAE Grade 80W-90.

2.3.1 General. Multi-Purpose Gear Oil shall be one grade of Gear Lubricant intended for the lubrication of automotive gear units and all heavy-duty industrial-type enclosed gear units, when the sustained operating temperatures of the lubricant are below 121 °C.

2.3.1.1 The gear lubricant shall be a homogeneous liquid free from sediment and suspended matter at any temperature in the operating range up to 121 °C for mineral oils and 170 °C for synthetic oils.

2.3.1.2 The gear lubricant shall be a brand that has been tested and is in complete accordance with the requirements of API GL5. The lubricant shall also be in accordance with the following requirements when tested in accordance with the applicable ASTM specifications shown in this specification.

Property	Requirement	Test Method
Viscosity Index, min.	85	ASTM D 2270
Pour Point, °C, max.	-15	ASTM D 97
Corrosion, Copper Strip, 3 hrs. @ 121.1 °C	3a max	ASTM D 130
Color	The base oil used in the gear lubricant shall be a filtered stock not darker than No. 8 NPA.	

2.3.2 Documentation. The following information shall be furnished with the bid.

2.3.2.1 The bidder shall furnish documentation showing that the gear oil furnished is in accordance with all requirements of API GL 5.

2.3.2.3 The documentation shall include the brand name, manufacturer and a typical analysis of the properties shown in 2.3.1.2.

2.4 Synthetic Gear Oil 75W-90.

2.4.1 General. Synthetic Gear Oil shall be one grade of Gear Lubricant formulated with synthetic based oils intended for the lubrication of automotive gear units and all heavy-duty industrial-type enclosed gear units, when the sustained operating temperatures of the lubricant are below 170 °C.

2.4.1.1 The gear lubricant shall be a homogeneous liquid free from sediment and suspended matter at any temperature in the operating range up 170 °C .

2.4.1.2 The gear lubricant shall be a brand that has been tested and that is in complete accordance with the requirements of API GL5. The lubricant shall also comply with the following requirements when tested in accordance with the applicable ASTM test methods.

	Requirement	Test Method
Viscosity Index, min.	140	ASTM D 2270
Viscosity, 100 °C, centistokes,	15.5 - 19.5	ASTM D 445
Pour Point, °C, max,	-40	ASTM D 97

2.4.2 Documentation. The following information shall be furnished with the bid.

2.4.2.1 The bidder shall furnish documentation showing that the gear oil furnished will comply with all requirements of the API GL5.

2.4.2.3 The documentation shall include the brand name, manufacturer, identification that the material is a synthetic formulation and a typical analysis of the properties shown in 2.4.1.2.

2.5 Multi-Purpose Lithium Complex Grease, NLGI Grade 2 or Multi-Purpose Lithium Complex Grease, NLGI Grade 2 with 3.0% Molybdenum Disulfide.

2.5.1 General. The Multi-Purpose Lithium Complex Grease and Multi-Purpose Lithium Complex Grease with 3.0% molybdenum disulfide shall be suitable for the lubrication of automotive chassis and wheel bearings and shall be in accordance with the requirements of ASTM D 4950, Standard Classification and Specification for Automotive Service Greases for NLGI service classification GC-LB, Grade 2. The bid request shall state the type of grease to be supplied.

2.5.1.1 The grease shall consist of a smooth homogeneous mixture of a lithium complex soap

and a well-refined mineral oil. The grease shall be free from fillers such as rosin, rosin oils, talc, wax, powdered mica, sulfur, clay, asbestos, or other undesirable or deleterious impurities. If the grease to be supplied contains molybdenum disulfide, it shall be a homogeneous mixture of lithium complex NLGI GC-LB Grade 2 and technical fine molybdenum disulfide.

2.5.1.2 The grease shall show no separation or bleeding in use or during short-term storage and shall comply with the following requirements when tested in accordance with the applicable ASTM test methods.

	Requirement
Odor	The grease shall possess only a slight odor of mineral oil, and may be rejected if it has any other distinct odor.
NLGI Service Classification	GC-LB
NLGI Grade Number	2
Soap Type	Lithium Complex

When requested:

Molybdenum Disulfide, % by weight	3.0 minimum

2.5.2 Documentation. The following information shall be furnished with the bid.

2.5.2.1 The bidder shall furnish documentation showing that the grease furnished is in accordance with the requirements of these specifications and that it holds a current NLGI Certification Mark License for the grease to be supplied.

2.5.2.2 The documentation shall include the brand name, manufacturer and a typical analysis of the properties required in ASTM D 4950.

2.6 Heavy-Duty Aluminum Complex Grease with Molybdenum Disulfide, NLGI Grade 2.

2.6.1 General. Heavy-Duty Aluminum Complex Grease with Molybdenum Disulfide shall be in accordance with ASTM D 4950, Standard Classification and Specification for Automotive Service Greases for NLGI service classification GC-LB, Grade 2.

2.6.1.1 The grease shall consist of a smooth homogeneous mixture of an aluminum complex NLGI GC-LB Grade 2, technical fine Molybdenum Disulfide and other solid lubricants. The grease shall be free from fillers such as rosin, rosin oils, talc, wax, powdered mica, sulfur, clay, asbestos, or other undesirable or deleterious impurities.

2.6.1.2 The grease shall show no separation or bleeding in use or during short-term storage and shall comply with the following requirements when tested in accordance with the applicable ASTM test methods.

2.6.2 Documentation. The following information shall be furnished with the bid.

2.6.2.1 The bidder shall furnish documentation showing that the grease furnished is in accordance with the requirements of these specifications and that it holds a current NLGI Certification Mark License for the grease to be supplied.

2.6.2.2 The documentation shall include the brand name, manufacturer and a typical analysis of the properties required in ASTM D 4950.

2.7 Dexron III/Mercon Transmission Fluid.

2.7.1 General. Dexron III/Mercon Transmission Fluid shall be for use in on-highway transmissions.

2.7.1.1 Dexron III/Mercon shall be a formulation which has been licensed by General Motors Corporation and Ford Motor Company.

2.7.1.2 Dexron III/Mercon shall be further identified on the containers as being in accordance with Dexron III/Mercon requirements.

2.7.2 Documentation. The following information shall be furnished with the bid.

2.7.2.1 The bidder shall furnish documentation showing that the brand of Dexron III/Mercon has been approved by the General Motors Corporation and Ford Motor Company.

2.7.2.2 The documentation shall include the General Motors and Ford License Numbers and typical test results of the following physical and chemical properties when tested in accordance with the applicable ASTM test methods.

	Test Method
API Gravity @ 15.6 °C	ASTM D 287
Viscosity, 100 °C, centistokes	ASTM D 445
Viscosity Index, min.	ASTM D 2270
Flash Point, °C, COC, min.	ASTM D 92

2.7.3 Basis of Payment. Payment for oil received shall be based on the volume at 15.6 °C and quantities packaged or bulk delivered at higher temperatures will be corrected to that volume.

3.0 ASTM TEST METHODS.

ASTM D 92	Test Method for Flash and Fire Points by Cleveland Open Cup
ASTM D 97	Test Methods for Pour Point of Petroleum Oils
ASTM D 128	Test Methods for Analysis of Lubricating Grease
ASTM D 130	Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test
ASTM D 217	Test Methods for Cone Penetration of Lubricating Grease
ASTM D 287	Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)
ASTM D 445	Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)
ASTM D 566	Test Method for Dropping Point of Lubricating Grease
ASTM D 874	Test Method for Sulfated Ash from Lubricating Oils and Additives
ASTM D 892	Test Method for Foaming Characteristics of Lubricating Oils
ASTM D 1264	Test Method for Water Washout Characteristics of Lubricating greases
ASTM D 2270	Method for Calculating Viscosity Index from Kinematic Viscosity at 40 and 100 °C

4.0 PACKAGING. If products are to be delivered prepackaged in drums or other containers, each container shall have sufficient marking to identify the product contained therein.

5.0 BULK DELIVERY. Shipments of lubricating products that are to be delivered to the point of use in bulk quantities shall be accompanied by a certification statement identifying the name of the material and the specific bid request, and certifying that the material is in

accordance with the specifications for that request. The certification is to be signed by an authorized representative of the supplier. This certification statement, as well as the bill of lading, shall be provided to the department's representative at the point of delivery.

5.2 It shall be the supplier's responsibility to ensure the delivery of the correct product into the matching bulk storage tank, as identified by labeling. The supplier shall maintain sufficient safeguards to ensure that cross-contamination does not occur when lubricants are delivered to department bulk storage tanks from bulk delivery systems. If defective, contaminated or the wrong materials are delivered into the department's storage tanks, it shall be the supplier's responsibility to replace all contaminated products with products meeting the specification, including both the new delivery and the existing material amounts.

6.0 SAMPLING AND TESTING. Random samples of the delivered products may be taken by the Department and tested for compliance with these specifications.

6.1 Upon request the low bidder shall supply samples of the products to the Department for testing, one quart of each oil and two pounds of grease.