GM	WORLDWIDE ENGINEERING STANDARDS	General Specification	GMW15010

Global Supplier Serviceability Requirements

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This document describes the deliverables that shall be provided by suppliers, for the product to be supplied, to support service part releases, service and parts information development, service diagnostics development, and owner information development. A description of the required form and format of the deliverables is provided in 3.4 through 3.13 of this document. This document takes effect at the time of supplier selection and continues as described in 1.1.1.

The supplier must provide service parts, in a form directed by buyer's service part release personnel, which allow the economical service and repair of customer's vehicles in terms of costs of replacement parts and labor time.

In accordance with GM's General Terms and Conditions, the Seller understands and agrees that the Seller's written acceptance or commencement of any work or services under the contract shall constitute Seller's acceptance of these terms and conditions only.

1.1.1 Life of Service and Service Part Support. The supplier shall continue to provide Service and Service part support following completion of GM vehicle production which utilizes the product to be supplied as specified in the General Motors contract "General Terms and Conditions" unless otherwise specified in the Request for Quote (RFQ).

1.2 Applicability. For all parts and software used to service GM Vehicles and Powertrain.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3059	GMW15862	GMW16592
GMW14375	GMW16331	

2.3 Additional References.

- CG1190 SOR Appendix J2- Supplier Serviceability Requirements Addendum, Infotainment/Cluster (available at https://gmsupplypower.covisint.com)
- Component Technical Specification (CTS)
- Customer Care and Aftersales (CCA) Service Packaging Standards and Guidelines (available at https://gmsupplypower.covisint.com)
- Global Design InfoBOOK
- GM Common Circuit Query and Request Application Process, located at: http://ived.gm.com/cgi-bin/CircuitRequest/CircuitRequest.cgi
- GM1730 - General Procedure GP-7 Level 2 (available at https://gmsupplypower.covisint.com)
- GM1804 - Supplier Cost Eng. Piece Cost Breakdown Worksheet (available at https://gmsupplypower.covisint.com)

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- GM1825 - Supplier Technology Information (available at https://gmsupplypower.covisint.com)
- Ship Direct Statement of Requirements (SOR)
- Statement of Requirements (SOR) Appendix J2 - Supplier Serviceability Requirements - Exceptions (Commodity Specific)
- Subsystem Technical Specification (SSTS)

3 Requirements

3.1 Order of Precedence. The respective terms and conditions of buyer's RFQ and Contract or Purchase Order are intended to be cumulative to and consistent with the provisions of the Statement of Requirements (SOR). However, if there is any conflict among such terms and conditions, the following order of precedence applies:

First: RFQ and Contract or Purchase Order terms and conditions.

Second: SOR and Appendices/Attachments/GM Standards.

Third: Other Provisions, Specifications, or Documents (if any).

3.2 Service Deliverable Support. The supplier shall provide support and information, as detailed in subsequent sections, to aid in the development of the GM service deliverables including but not limited to:

- Service Parts Determination and Release
- Service Manual (including electrical/mechanical diagnostics)
- Diagnostic Scan Tool
- Service Programming System (SPS)
- Vehicle Owner's Manual
- Service Parts Catalog
- Training
- Bulletins
- Campaigns

The supplier shall provide one primary contact, which can support serviceability activities and service and parts deliverables immediately after the Original Equipment (OE) contract has been signed.

3.2.1 Service Deliverables Timing. New product information is required at the time described in Table 1 in 7.5 of this document. There may be other specific requirements for Service Deliverables included in Appendix J2 of the SOR.

3.2.2 Standard of Service for Revised Product Information. Interim changes are required 16 weeks prior to production build date. **Note:** The supplier shall provide the specified deliverables, according to timing provided by buyer's service and parts personnel, without a request from buyer's service and parts personnel.

3.3 Compliance with Technical Specifications. The supplier shall assure that the product to be supplied is in compliance with GM Serviceability requirements, which include, but are not limited to those specified in the Subsystem Technical Specifications (SSTS), Component Technical Specifications (CTS), and Appendix J2.

3.3.1 Compliance with Country Specific Regulatory Requirements. In the case of specific regional requirements or regulations that apply to the service parts, the supplier shall be responsible to obtain any necessary document (certificate, approval, test and audit results, etc.,) and/or provide any marking on the product required for the importation and distribution of the service parts in the region.

Such documents shall be issued by qualified bodies accepted by the requesting regional authority or organization. In case of modifications to the product, the supplier shall ensure that the former certificates remain valid or shall take any necessary action to produce new certificates for the new product and send it to the organization designated by the GM buyer without any prior request.

Markings on the product shall be in compliance with the standard established by the requesting regional authority or organization.

Without the need for any request, such documents, first version and later updated ones, are to be sent to the buyer's service and parts personnel, in Portable Document Format (PDF). Original documents shall be kept at the supplier except otherwise mentioned by the buyer's Service and Parts personnel.

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Failure to deliver, in due time, valid certificates may generate extra costs (fines, laboratory tests, paper work, etc.,) that shall be charged to the responsible supplier.

3.4 Documentation. Including instructions, specifications and/or calibrations shall, to the extent possible, be provided in standard word processing software, such as Microsoft Word. The information, instructions, specifications and/or calibrations must be provided in the English language unless otherwise indicated in Appendix J2 of the SOR. Artwork shall, to the extent possible, be provided as a .jpg file or other similar electronic file format. The supplier shall ensure that all service deliverable content is accurate and complete, and provided in accordance with specified timing schedules.

3.4.1 Instruction Sheets, Templates, and Tags. When developed by the supplier, these items shall be approved for content by buyer's service and parts personnel. The supplier shall ensure that the approved instruction sheet, template or tag is translated into languages required for the region where the part is to be sold. The specific language requirements will be supplied by the regional buyer or the regional buyer's service and parts personnel.

EXAMPLE: The instruction sheet, template, or tag supplied with the part(s) for the North American market will consist of all language versions (English, Canadian French, and Latin American Spanish).

3.5 Service Parts Information. Production and service part numbers shall be the same if the production and service part is physically, and functionally, identical. Separate service part numbers shall not be assigned for non-part characteristics such as packaging or corrosion prevention, unless directed to do so by buyer's service and parts personnel.

3.5.1 The supplier shall provide the deliverables referenced in 3.6 through 3.13 to aid buyer's service and parts personnel. The supplier deliverables include, but are not limited to:

- Design related information
- Hardware/Software Specifications
- Math Data/Drawings, per GM standards
- Assembly Exploded View Drawings
- Service Recommendations
- Complete Bill of Materials (BOM) for all of the supplier's parts intended for vehicle service replacement
- Master Process Documents (MPD)
- Sample Parts/Systems for:
  a. Service Determination
  b. Interchangeability Studies
  c. Service Procedure Development
  d. Validation of Parts/Procedures

3.5.2 The supplier shall interact with buyer's service and parts personnel to assist in the release, cancellation, or supersession of service parts and to manage the process for introducing the supplier's parts into the GM parts release system. All parts (components, sub-assemblies, or assemblies) identified as serviceable shall be assigned GM part numbers, which shall be released consistent with requirements for production parts. The engineering and design requirements specified in the SOR for production part development shall apply to service parts.

3.6 Bill of Material. The supplier must provide an indented production Bill of Material parts list, containing all service parts, and must include a "Service Parts" column marked "Y" [yes] for all serviced parts. Less finish and color specific parts are to be identified separately on the BOM. The BOM must include:

- Program Name
- Model Year
- Body Style and Option Codes

3.6.1 Each part listed, including fasteners, sealers, and adhesives, must have the following information:

- GM Part Number
- Supplier cross reference (including Tier 1, 2, 3 suppliers, etc.)
  a. Part Number

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b. Supplier Name

- Component Quantity per Assembly
- Service Only Part Quantity per Vehicle
- Service Part Drawing Number and Drawing Date

3.6.2 GM Service and Parts Engineering Personnel may provide additional requirements.

3.6.3 The supplier shall provide Material Safety Data Sheets (MSDS) for all products requiring special handling (e.g., hazardous goods, pyrotechnical products, shelf life restricted products, products containing fluid/hazardous material) without additional or specific requests from the buyer. The supplier shall provide all documentation required by governmental or regulatory agencies for inflatable restraint products (airbags) in addition to the MSDS without additional or specific requests from the buyer.

3.7 Math Data/Drawings. The supplier shall provide detail math data files for all service parts consistent with the requirements for production part drawings as defined in GMW14375. Design related information to include geometric description and material properties of components/assemblies.

Additional service math data/drawing requirements and/or clarifications are listed in Table 2, in 7.6 of this document.

3.7.1 Math Data/Drawing Format.

3.7.1.1 Carryover Vehicle Programs. Drawings for vehicle programs, which are not utilizing the Simultaneous Production and Service Parts Release process, will require hardcopy drawings or electronic files (CGM or TIFF) to be sent directly to the buyer's service and parts personnel.

3.7.1.2 Simultaneous Release Process. Math Data/Drawings, including serviceable components of production assemblies, for vehicle programs that are utilizing the Simultaneous Production and Service Parts Release process will require Unigraphics (UG) files to be data banked directly in Team Center Automotive Edition (TcAE) or sent to the GM Data Management group.

3.7.1.2.1 Component math files shall be data banked as indents to the production assembly. Component math files shall not be data banked as separate files unless specified in Appendix J2 - Supplier Serviceability Requirements (Commodity Specific) as a requirement for a specific commodity.

3.7.1.2.2 The supplier shall supply hard copy drawings for parts not designed in Unigraphics. It is expected that this will be on an exception basis only. These drawings will be processed through Responsible Engineer in Service.

3.7.2 Component Fasteners. Component fasteners of purchased assemblies, which will be used for service, shall have the following drawing requirements:

3.7.2.1 Fastener drawings shall contain the dimensions, notes, and Geometric Dimensioning and Tolerancing as found in the General Motors Engineering Standards for similar fasteners. The material and finishes shall be stated using GM, ISO, SAE, ASTM, DIN, or JASO specifications.

3.7.2.2 Fastener Drawing Format.

3.7.2.2.1 Drawing should be one page and preferred size is 21.6 cm × 27.9 cm (8.5 in × 11 in).

3.7.2.2.2 Tolerance should be shown for all dimensions.

3.7.2.2.3 Default tolerance values will be acceptable.

3.7.2.2.4 Bilateral tolerances to be used and expressed as Minimum/Maximum values.

3.7.2.2.5 Geometric Dimensioning and Tolerancing (GD&T) should be used where applicable.

3.7.2.3 Title Block.

- Designer Name
- Approvers Names
- Drawing Name
- GM Part Number

3.7.2.4 Views.

- Plan View
- Side View
- Detail View as required

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3.7.2.5 Revision History.

- Revision History
- Date of Revision(s)
- Designer Name
- Approver Name

3.7.2.6 Notes.

- Located in the lower left hand corner of the drawing.
- Follow this order for listing material, finish, and additional callout.
- Note 1: Material
- Note 2: Finish
- Note 3: Washer Hardness and Finish
- Note 4: GMW3059; there should be no environmentally unfriendly chemical in or on the part.
- No manufacturing proprietary features or names should be added to the drawing.
- The preferred form for the completed 2D drawings shall be a CGM or TIFF file; however, a clean 2D readable drawing will be acceptable as an alternative.

3.7.3 Math Data/Drawings/Component Lists for Component Wiring and Electrical Devices. The supplier shall provide information, specifications, components and validation assistance for all electrical/electronic components, wire harnesses, and connectors which are components of the product supplied including, but not limited to:

- Circuit functional names utilizing the GM Common Circuit Query and Request Application process located at http://ived.gm.com/cgi-bin/CircuitRequest/CircuitRequest.cgi.
- Internal Mechanization drawings/diagrams shall have sufficient Input/Output (I/O) detail to reflect how a given I/O is controlled. Reference Figure 1 for additional detail.
- Internal bussing drawings/diagrams shall have sufficient detail so as to identify the power and ground source for any external circuit. Reference Figure 2 for additional detail.
- Sufficient detail to ensure all circuits can be associated with the correct fuse protecting that circuit. Reference Figure 3 for additional detail.

3.7.3.1 Drawings/math data for all jumper harnesses, which are part of the assembly for which the supplier was awarded business, shall include:

3.7.3.1.1 Two Dimensional (2D) connectivity drawings (TIF or PDF format) which must contain:

- Item Number
- Item Connector Part Number
- Connector Description (number of way, terminal gender, terminal series, etc.)
- Connector Original Equipment Manufacturer (OEM) Name (name of supplier's plastic being used, if not harness supplier)
- Connector OEM Part Number (part number of supplier's plastic being used if not harness supplier)
- Item Description
- Item Uniform Parts Classification (UPC)/Functional Name Address (FNA)
- Item Usage Information (Regular Production Options (RPO) for when connector is present)

3.7.3.1.2 "Wire" Excel files which must contain:

- Circuit Number
- Wire Size
- Wire Color
- Wire Cut Length
- From Item Number
- From Cavity

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- From Terminal OEM Name (name of supplier's terminal being used, if not harness supplier)
- From Terminal Part Number
- From Terminal Seal OEM Name (name of supplier's terminal seal being used, if not harness supplier)
- From Terminal Seal Part Number To Terminal OEM Name (name of supplier's terminal being used, if not harness supplier)
- To Item Number
- To Cavity
- To Terminal Part Number
- To Terminal Seal OEM Name (name of supplier's terminal seal being used, if not harness supplier)
- To Terminal Seal Part Number
- Wire Usage Information (RPO for when wire is present)

3.7.3.1.3 Timing.

- The supplier shall make available drawings of wiring harnesses and any electronic component for each revision level, including but not limited to battery cables, Bus Electrical Center (BEC) and wiring harnesses.
- Drawings and Item and Wire Chart(s) (IWC) for Customized Wire Harness shall include all possible options.
- All information shall be sent to GM by Start of Regular Production (SORP) – 22 weeks. Subsequent updates/changes shall be provided as they occur.
- All information shall be sent electronically to harnessprints@gm.com. The subject line shall include the model year, program(s) and description of contents (e.g., 2D print, IWC, etc.) It is preferred that all required information is delivered in a single e-mail.

3.7.4 Exploded View Assembly Illustrations. The supplier shall provide exploded view assembly illustrations with a parts list keyed to the illustration, per GM catalog requirements, to aid in service determination and to create catalog graphics.

3.8 Unit Overhaul Repair Procedures. The supplier shall provide a complete bench repair procedure, for the product to be supplied, that includes, but is not limited to:

- Diagnostic Procedures
- Disassembly/Assembly Procedures
- Torque Specifications
- Schematics
- Documentation in a format suitable for inclusion in the GM repair manual

3.9 Service Information, Diagnostic Scan Tool, and Service Programming. All components incorporated within the product's subsystem, which are intended to communicate via serial data, shall be compatible with the current diagnostic and programming tools. Questions as to what diagnostic and programming specifications are required for a given program or application should be directed to the GM Service Engineer.

The supplier shall provide information, specifications, components and validation assistance for the development of the diagnostic and programming tool, including, but not limited to:

- Hardware/Software Specifications, including diagnostic calibrations (Diagnostic Trouble Code (DTC) setting criteria, fail-soft actions taken)
- Calibration Listings (variables and values)
- Programming Instructions
- Development, Production and Service Components/Parts
- Supplier Design Failure Mode Effects Analysis (DFMEA) Documentation
- Diagnostic and Programming Validation Reports
- The supplier shall co-ordinate with buyer's service and parts personnel to identify all diagnostic tool requirements, including but not limited to; data parameters (Data Identification (DID), Parameter Identification (PID), and Dynamic Data Identification (DPID)), Diagnostic Trouble Codes (DTC) and output controls (Control Parameter Identification (CPID)) within the supplier's CTS or software technical specifications

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