

• APTIV •	Document #:	HOGP_4-3_SE_01-A02_EN	Effective Date:	On or before Dec 31, 2018
CORP, DIVs, or PBUs:		All	Revision Date:	September 28, 2018

(Remove this title page when developing your SOW)



(Insert Business Unit Name)

STATEMENT OF WORK TEMPLATE

FOR

MANUFACTURING MACHINERY

• APTIV •	Document #:	HOGP_4-3_SE_01-A02_EN	Effective Date:	On or before Dec 31, 2018
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PLEASE READ THIS PAGE

This template is meant to serve as a tool to help in the generation of complete, useful statements of work for both custom and standard manufacturing machinery. Considering the investment required for most manufacturing machinery, it is important that the statement of work be clear and complete.

The format for this template is an outline designed to appear similar to an actual statement of work. Each section of the template contains a general explanation of key information that should be included in that section. Sample text as it might appear may also be included. Text included as examples or for informational purposes is in *italics*. **IF you are going to use this in your document convert the italics to regular text.**

To use this template, start with the generic outline of sections. Use the references for more specific information and ideas to include as it relates to your particular piece(s) of machinery.

Numbered paragraphs are important because they aid in communications between Purchasing and the supplier about the machinery. Each section is numbered. The numbers for unused sections should remain in your document and "N/A" or some other "not applicable" designation used. Paragraphs within major sections of the template are examples. Your statement of work may include some or all of the topics in these paragraphs. You may need to add paragraphs to sections if the examples given do not cover all your application's needs. **Paragraphs within sections can be renumbered as desired, but the main section numbers (i.e. Sections 1-13, first thirteen entries in the Table of Contents) should remain common for all statements of work. This will aid in Global Supply Management dealings with suppliers.**

When sending a statement of work to Global Supply Management as part of a request for quotation, remember that Global Supply Management generally requires a cover note indicating the requester's name, mail station, phone number, the project line and item number from which funding is to come, the budgeted amount for the machinery and suggested suppliers.

This template was generated using Microsoft Word. Electronic copies of the guideline can be obtained for direct editing to create a new statement of work. Comments and suggestions concerning this guideline are welcome. Submit suggestions and requests for additional assistance or copies of this guideline to:

Machinery Safety Specifications and Standards	
rute.teixeira@aptiv.com	Phone: +353 873956553

Pages for Editing Actual Document Start Below!

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MACHINERY STATEMENT OF WORK
FOR
YOUR PIECE OF MANUFACTURING MACHINERY

Aptiv (Your Business Unit)

(Your Name)

(Your Title)

(Your Company Address)

REFERENCE: (Place the RFS # Here example 4W-001234-KEL)

Statement of work Version or Revision Number

(Provide numbers for major. minor revision levels DO NOT USE LETTERS)

If it's the Original use 1.0

Most Recent Revision Date

The title page contains the information shown above. Include your mail station in your company address. Particular attention should be paid to the Statement of work Version Number and Date. If the statement of work is revised, the version number and date will help eliminate confusion about conflicting information. If you are using a word processor with footer capability, put the date and version number there as well.

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1. INTRODUCTION

This section should contain a brief description of the machinery. This description is not all encompassing, but should give a basic understanding of what is intended. Sketches can be helpful in conveying concepts.

EXAMPLE:

The following statement of work is for an Automated Screw Driving System to be installed in Plant #7, at Aptiv Advanced Safety and User Experience, Kokomo, IN. The "System" shall consist of at least two (2) screwdrivers that are capable of driving up to four (4) screws to secure the bottom cover to a die cast aluminum case. The screws must be driven to a predetermined depth and then to a specified torque. The "System" shall include a material handling system that will transport assemblies from one machine station to another; assembly nests that must be interchangeable for the different models; fixtures that precisely locate the cases into the assembly nests; and system software integration. The software must be capable of repositioning the screwdrivers for different models, reading the final driving torque of each screw, recording and ejecting rejects, saving and incorporating information for SPC control charting (detailed within the body of this statement of work), and printing out results. The supplier shall act as system integrator and shall supply all hardware, software, and controls logic. The supplier shall ensure that all components of the proposed machinery comply with this statement of work and all referenced standards.

1.1 CONTACT INFORMATION

Engineering	Your Name Your Phone Number Your Email Address (<i>Make this a hyperlink</i>)
Purchasing	Buyer's Name Buyer's Phone Number Buyer's Email Address (<i>Make this a hyperlink</i>)
Global EHS Specialist	Rute Teixeira +351 351 217101407 rute.teixeira@aptiv.com

2. CORPORATE SPECIFICATIONS AND LEGAL REQUIREMENTS

The supplier is responsible for providing the Export Control Classification Number (ECCN). It is your responsibility (Engineering) to make sure that this number is provided by the supplier. For more information on the ECCN click [here](#).

The supplier is responsible for obtaining all the required specifications.

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All Countries

The supplier agrees to comply with the latest revisions (unless otherwise specified) of the following basic Safety Specifications and International Safety Standards. Conformance to International Safety Standards which are applicable to specific types of custom-built machinery is required. Any deviations by the supplier from these specifications must be approved in writing by Global EHS Specialist.

Specification / Legal Requirement	Summary
1. Export Control Classification Number ECCN	The ECCN is an alpha-numeric code, e.g., 3A001, that describes the item and indicates export licensing requirements
2. Aptiv Design-In Health and Safety Specification - Requires Machinery Risk Assessment Analysis (or equivalent)	Machinery risk assessment must comply with the requirements defined in the OHSAS Standard.
3. Aptiv Electrical/Electronic Architecture ESD Engineering Specification C-9000	
4. Fundamental Statistical Process Control Reference Manual (published by Automotive Industry Action Group, phone 313-358-3570)	
5. Aptiv Electrical/Electronic Architecture 6. Equipment Buyoff Checklist Machine 7. Qualification	
8. Aptiv Sound Level Specifications SL1.0	The 8-hour time-weighted average (TWA) A-weighted sound level shall not exceed 80 dBA at ANY of the designated measurement locations on the machine measurement envelope and in the Operator's Hearing Zone, during the operating time of the machine.
9. Aptiv Design-In Ergonomics Guidelines, GEN 2.1	
10. The latest version of the following ISO standards apply:	
11. ISO 4413 Hydraulic Standard	
12. ISO 4414 Pneumatic Standard	
13. ISO 10218-1 Robots and robotic devices	
14. ISO 10218-2 Integration of Robots and robotic devices	
15. ISO/TS 15066 Robots and robotic devices – Collaborative robots	
16. ISO 1161 Safety of machinery - Integrated manufacturing systems – Basic requirements	
17. ISO 12100 Safety of machinery - General Principles for Design – Risk Assessment and risk reduction	
18. ISO 13849-1:2006 Safety of machinery – Safety-related parts of control systems – Part 1: General principles for Design	
19. ISO 13850 Safety of machinery – Emergency Stop – Principles of Design	
20. ISO 13854 Safety of Machinery – Minimum Gaps to Avoid Crushing of Parts of the Human Body	

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21. ISO 13855 Safety of Machinery – Positioning of Safeguards with Respect to the Approach Speeds of Parts of the Human Body	
22. ISO 13856 (all parts) Safety of Machinery – Pressure-sensitive Protective Devices	
23. ISO 13857 Safety of Machinery – Safety Distances to Prevent Hazard Zones being reached by Upper and Lower Limbs	
24. ISO 14118 Safety of Machinery – Prevention of unexpected Start-up	
25. ISO 14119 Safety of Machinery – Interlocking Devices Associated with Guards – Principles for design and selection	
26. ISO 14120 Safety of Machinery – Guards – General Requirements for the Design and Construction of Fixed and Movable Guards	
27. ISO 14122 (all parts) Safety of Machinery – Permanent Means of Access to Machinery	
28. IEC 60204-1 Safety of Machinery – Electrical equipment of Machines – Part 1: General requirements	
29. IEC 61496-1 Safety of Machinery – Electro-sensitive Protective Equipment – Part 1 General Requirements and Tests	
30. IEC 61800-5-2 Adjustable Speed Electrical Power Drive Systems – Part 5-2: Safety Requirements - Functional	
31. IEC/TS 62046 Safety of Machinery – Application of Protective Equipment to Detect the Presence of Persons	
32. IEC 62061:2005 Safety of Machinery – Functional Safety of Safety-related electrical, electronic and programmable electronic control systems	
33. ISO 3864-1 Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings	

Argentina

Specification / Legal Requirement	Summary
IRAM	

Brazil

Specification / Legal Requirement	Summary
NR-12	Safety requirements for equipment and machinery

China

Specification / Legal Requirement	Summary
CCC	Safety requirements for equipment and machinery

European Union

Specification / Legal Requirement	Summary
CE	Safety requirements for equipment and machinery

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Mexico

Specification / Legal Requirement	Summary
NOM-004-STPS-1999	Safety requirements for equipment and machinery

Singapore

Specification / Legal Requirement	Summary
Workplace Safety and Health Act (Chapter 354A) Part IV, Section 16	Duties of manufacturers and suppliers of machinery, equipment or hazardous substances used at work

United States of America

Specification / Legal Requirement	Summary
National Electric Code	
Applicable ANSI Safety Standards - American National Standards Institute	
American National Standards for Safe Use of Lasers ANSI Z136.1 . (Any modification to a certified laser will require re-certification.)	
NFPA 79 Electrical Standard for Industrial Machinery 2012 edition	Spells out essential protection for operators, equipment, facilities, and work-in-progress. This edition presents the new best practices for the full spectrum of equipment -- from single-motored drill presses to complex automated manufacturing systems.

In addition to applying sound engineering, safety, and build practices, the supplier agrees to comply with the latest revisions (unless otherwise specified) of the following specifications and standards. Any deviations by the supplier from these specifications must be approved in writing.

Place any part drawing references, workmanship standards, Communications references or standards where applicable.

The following six (6) points are for information only and should be added to the SOW ONLY if it applies to your machinery. Remove the Italics when adding to the SOW.

If the proposed machinery uses chemicals or produces significant noise levels (above 80 dB) during production or maintenance, please contact the Manager of Environmental Engineering for guidance and to obtain the necessary permits. Regulations may require that a permit from the appropriate government agency be obtained prior to installation of the machinery.

1. Pollution prevention/Waste disposal: An effort should be made to limit or eliminate the production of waste from the machinery. Any liquid or solid waste generated by the machinery must be properly classified to determine the appropriate means of legal disposal.
2. Air emissions: Emissions of chemicals over certain volumes requires permits from the appropriate agency. Names of chemicals and their potential volume are necessary to obtain mandatory air permits.
3. Process waste drains: Different materials require different treatment and therefore may require segregation and separate drains. For example: solvents in most facilities cannot be placed in drains; cyanide waste and acid waste must be kept separate. Characteristics and volumes of chemicals must be determined in order to specify the correct drain or method of disposal of waste.
4. Exhausting of process or other gasses: Machinery manufacturers requirements for exhaust should be followed unless experience or other knowledge indicates otherwise.

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5. Hazardous chemicals or processes: All chemicals used in the processing or maintenance of the machinery must have complete Material Safety Data Sheets. They must be approved by the site Hazardous Materials Control Committee prior to introduction onto the site.

6. Noise levels greater than 80dB may require certain actions be taken to protect personnel or the public. Reference the Aptiv Sound Level Specifications -SL1.0 for requirements.

3. SEQUENCE OF OPERATIONS AND OPERATOR INTERFACE

The description of the sequence of operations and the operator interface (the description may include concept sketches) is possibly the most important part of the statement of work for custom and standard machinery. It is here that most of the understanding of the system is communicated and the expectations are set. This section should outline in detail the way the machinery is envisioned to operate. In addition to what the machinery is supposed to do (material handling - including reject handling and operations on the product), the operator's function should be outlined. For custom machinery, concepts for controls design for the machinery will be developed from this section. If this paragraph does not clearly outline how the controls or operator interface is to operate, the risk of receiving high quotes or machinery that falls short of expectations is increased. Special functions that the supplier might not infer from the specification should be described in as much detail as possible. Concept sketches can be extremely helpful in conveying ideas. While it's important that the suppliers are quoting similar concepts so a fair comparison can be made, don't eliminate the possibility the supplier may have creative, cost effective solutions.

It is important that the operator's standardized work is understood completely when completing the statement of work. The standardized work information will help the supplier understand the requirements of the machinery interfaces with the operator, the material, and other machinery in the system. The standardized work is developed by the Preproduction Industrial Engineer or the Site Industrial Engineer during the MSD process. It is very important to make sure that the standardized work is developed and fully supported by the machinery and the information included in the statement of work. In addition, the Lean Equipment process requires the Manufacturing Engineer procuring the machinery or creating the statement of work and the Preproduction Industrial Engineer on the program to work together to ensure the standardized work requirements are integrated into the statement of work.

Example: If the standardized work is seeking a cycle actuation method that does not require extra motions by the operator, such as an auto-start feature utilizing light curtains rather than dual palm buttons, it is best to explain this so that the supplier can also offer alternatives that might be acceptable as well as safer and more economical. Rather than leave it too broad, it is best to state your preferred method or idea. However, you can let the supplier know that you are open to alternative methods as long as they fit your requirements. It is best to ask that they separate out other options in order that you can effectively evaluate the differences. Often this is done by adding some additional text at the end of the section such as:

The machinery concept as outlined above is to be quoted. Additional quotes for different concepts that may reduce the machinery cost or increase productivity are welcome.

4. PROCESS INFORMATION

Describe the process in as much detail as practical. Cover such topics as:

DESCRIPTION OF THE PROCESS

PROCESSING MATERIALS (adhesives, solder, coatings - including material part numbers if possible),

VISION REQUIREMENTS

TESTING REQUIREMENTS

DOES PRODUCT CHANGE OVER OCCUR? (In order to allow for reuse and redeployment, quick change over is critical—consider specifying no operator intervention required for a change, an auto-change routine in the requirements if the machinery is complicated, or an extremely simple change over capability that the operator can do in seconds with no tools)

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BAR CODING OPERATIONS? (What data is required? Any bar code equipment requirements - i.e. brand, size, raster, etc.)
 OPERATING TEMPERATURE(S).

5. MACHINERY REQUIREMENTS

Use this section to spell out the specific requirements of the machinery. Special attention should be paid to tooling requirements. Other topics generally covered include such things as cycle time (If a piece of machinery is to be integrated into a Focused Factory Information System, cycle time should include the information system communication overhead.), capability, material handling requirements, bar code reading capability, size, power consumption, noise output, etc.

This section should also address reliability and maintainability concerns. Consider maintenance strategies such as:

Accessibility: Easy removal of guarding, Unobstructed views, Tool clearance.

Diagnostics: Ability to identify failures to a component or module level.
 Ability to store and retrieve machinery performance data for reliability feedback.

Captive hardware and quick disconnect devices

Maintenance Documentation: Recommended preventative maintenance procedures.
 Troubleshooting guides "on line".

Department of Commerce Documentation: Export Control Classification Number (ECCN)

Parts: Use sensors, motors, bearings, etc. that are already in cribs.
 Get OEM part numbers from machinery supplier.
 Have appropriate spares available at machinery installation time.

For more information on reliability and maintainability, refer to Reliability and Maintainability Guideline for Manufacturing Equipment, Society of Automotive Engineers, SAE Order No. M-110.2, 1999-09-15. In addition, area maintenance personnel can be of considerable assistance with R & M issues.

6. SOFTWARE REQUIREMENTS

Is there a language preference (e.g. Visual Basic or a standard machine control language)? Are copies of the source code or application program to be included? If hard copy or a special screen format is needed, furnish examples. Keep in mind a particular data output format may be expensive if custom software is required. List any packaged software requirements such as word processors, anti-virus programs, etc.

If the machinery is "programmable", this section should define programming requirements. If the system is to accept CAD data, a statement from the supplier(s) regarding programming tools should be requested. This will provide a clearer picture of the suppliers' understanding of CAM and its application.

7. APPROVAL REQUIREMENTS

This section should contain a description of items for which the supplier must receive approval from the specifying Aptiv **Business Unit**; these might include major milestones (concept review, design review, buy-off). The machinery buy off or acceptance test should be described in detail. (It is important to ensure that (insert **Business Unit**) Equipment Buyoff Checklist is included along with the statement of work so that the supplier will

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understand the other buy-off related requirements and issues.) Typically, some number of hours of dry-cycling should be specified, as well as a run-off with parts. Also, you should specify what features you want to check (“loading a wrong reel should cause an operator alert to occur”). Also, anomaly sensitivity should be address (“recovery from power loss or E-stop”). This section should also include **MEASURABLE** criteria for the machinery that will test all required aspects of the machine. Any assumptions left out of this area may result in machinery performance that does not meet expectations.

7.1 MACHINERY BUYOFF OR ACCEPTANCE TEST (EXAMPLE from Soldering MTT)

- 7.1.1 *REFERENCE the Aptiv Divison’s Buyoff Checklist ESGW 4-3 ME 00-13-F01 EN Machinery Qualification. The Supplier is responsible for completing the **Supplier section in referred document** prior to the completion of the Design Review.*
- 7.1.2 *An acceptance test run is to be made at both the supplier site and Aptiv Advanced Safety and User Experience site.*
- 7.1.3 *Reference the Aptiv Segment’s Standard Equipment Acceptance Plan Selective Soldering Process (see Appendix 1) for details on machinery buyoff. Reference Aptiv Segment’s Workmanship Standard: Volume 6 for judging the quality of the solder joints.*

7.2 DESIGN APPROVAL

- 7.2.1 A Risk Assessment is **required** to be completed per the Aptiv Design In Health and Safety Specification. The requesting manufacturing engineer is responsible for ensuring the risk assessment is completed prior to completion of the Design Review.
- 7.2.2 Aptiv **Business Unit’s** employees may visit the supplier's facility for a design review. Interim design reviews can be arranged as needed throughout the design process. Design approval does not relieve the supplier of the responsibility for the proper operation of this system and conformance to this specification.
- 7.2.3 Design and build must conform to the most recent revision of the applicable specifications. The ordering engineer must approve any deviation.
- 7.2.4 Prior to machinery build, the supplier is **REQUIRED** to send all drawings for power distribution, controls, panel layouts, machine plan view, and electrical bill-of-material to the ordering engineer for written approval. Failure to do so may delay shipping.

7.3 PROJECT STATUS REPORTS

- 7.3.1 Project status must be reported via email to Aptiv **Business Unit’s** Manufacturing Engineer responsible for the project on the first day of each month until project completion.
- 7.3.2 In the event that any milestone is not achieved, notification including the action required to put the project back on schedule must be communicated immediately.

7.4 BUILD REVIEW

- 7.4.1 Aptiv **Business Unit’s** representatives may visit the supplier’s facility during the build phase to evaluate status. At a minimum the Project Status Reports must keep Aptiv **Business Unit’s** representatives informed of the build status.

7.5 MACHINE ACCEPTANCE

- 7.5.1 The machine acceptance will be conductive in three phases.
 - 7.5.1.1 Pre-Buyoff
 - 7.5.1.1.1 The supplier must perform a pre-buyoff and provide a written performance report to the Aptiv **Business Unit’s** Manufacturing Engineer responsible for the project.
 - 7.5.1.1.2 The supplier will follow the Aptiv **Business Unit’s** Standard Equipment Acceptance Plan for the specific Process.
 - 7.5.1.2 Buyoff
 - 7.5.1.2.1 Following the successful completion of the pre-buyoff, a Aptiv **Business Unit** representative will perform a machine buyoff at the supplier’s facility.
 - 7.5.1.2.2 The ordering engineer is responsible for completing the **Aptiv**

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Machinery EHS Checklist

- 7.5.1.2.3 The buyoff will be conducted in the same manner as the pre-buyoff.
- 7.5.1.2.4 The buyoff will review the conditions of this specification and identify any discrepancies **especially concerning issues identified in the Risk Assessment.**
- 7.5.1.3 Final Acceptance
 - 7.5.1.3.1 Machine final acceptance will be performed at the Aptiv **Business Unit** Primary Manufacturing Location (PML) following installation.
 - 7.5.1.3.2** The ordering engineer is responsible for completing the **Aptiv Machinery EHS Checklist**
 - 7.5.1.3.3 Machine final acceptance will follow the Aptiv **Business Unit's** Standard Equipment Acceptance Plan for the specified process.
 - 7.5.1.3.4 The machine final acceptance will verify that all conditions of the SOW have been satisfied.

8. DOCUMENTATION

*It is important that prints for manufacturing machinery meet Aptiv **Business Unit's** standards for machinery drawings. Maintenance cannot effectively repair machinery without good documentation. EDR-01 specifies electrical documentation requirements. Sufficient mechanical drawings to allow technicians and engineering to make repairs or improvements including assemblies and tooling should be requested.*

A list of recommended spare parts with the Original Item Manufacturer's (OIM) part name and part number cross referenced to the Original Equipment Manufacturer's (OEM) part name and number should be requested. This applies to any chemical supplies as well as mechanical and electrical parts.

Software documentation needs may vary greatly depending on the nature of the software. The original documentation set should be included with third party software. If custom software is provided, source code should be requested, especially if any future software modification is possible.

Consider in which language the documentation will be required. Are manuals for standard components and sub-systems available in that language? Is bilingual documentation required?.

If documentation can be provided in HTML format, it can be put on the WEB for easy access.

9. PRODUCT(S) AND EXISTING EQUIPMENT INVOLVED

This section should include descriptions of items such as the required interface to existing machinery and information on the products involved. Include applicable part numbers or drawing numbers. Furnish sample parts if possible. List quantity and items Aptiv **Business Unit** will furnish including artwork, prints and actual parts. Describe the condition of the part (conformal coat, expected temperature, part cleanliness, etc.). List any product defects or variability. Provide sample parts if possible. Include a description of existing machinery to which the quoted machinery must interface (with drawing numbers if appropriate). Also include a description and sketches of the desired interface. If SMEMA interface is needed, this is the place to state so. List any machinery Aptiv **Business Unit** will provide. If a nondisclosure agreement is required, a Proprietary Information Transmittal Letter should be filled out and included with the statement of work. Contact your Information Security Coordinator for instructions and forms regarding nondisclosure. Intellectual and Human Resources, Dept. 1500, can also be of assistance in obtaining information regarding nondisclosure. Consult these groups **before** using non-disclosure agreements. If existing machinery is to be incorporated into the new system, state the condition of the machinery and who is to be responsible for reconditioning and final functionality of the existing machinery.

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10. SHIPPING INFORMATION

The proper shipping address should be included. More than likely, this address is different from your business address. Contact the local Traffic Department to obtain the correct shipping address. Delicate machinery may require special containers and/or the use of an air ride van. Machinery going to locations outside the U.S. may require special permits.

11. INSTALLATION / INTEGRATION

This section should specify the installation and/or integration assistance required from the supplier. If such assistance is required, remember to obtain the proper ESS number from Purchasing so the supplier's employees will be allowed in the plant. Planning supplier travel to overseas operations may require up front effort and planning (passports, visas, etc.)

12. TRAINING / SUPPORT / WARRANTY

Specify any specific training required for engineering, maintenance personnel or operators. If training is required, where should it take place? Planning supplier travel to overseas operations may require up front effort and planning (passports, visas, etc.). Will operator turnover require training in the future? It may be desirable to request training videos. Future training needs should be quoted as an option. Specify the level of training, support and documentation required. (Refer to the tables below)

12.1. TRAINING

The supplier needs to provide a written training plan for the machinery being supplied. It is in the supplier's own interest to make a good plan to ensure success of their machinery in all Aptiv facilities.

Some of the critical items in a good training plan ranked by level are shown below. The SOW should require the "Best in Class" but use the table to assist in ranking suppliers responses.

Lowest Level of Training provided	Mid Range Acceptable Level of Training	Best in Class Level of Training
Training self taught with video/manual provided.	Training "classes" provided at time of installation by supplier's technical representative.	Training classes provided at installation and refresher course offered at site

12.1. A TRAINING PLAN should consider that;

12.1.1.1. The supplier should provide Training classes on site at the time of installation and refresher courses offered periodically on site. These training courses should be geared for Manufacturing Engineering, Maintenance and Operations. Training must be comprehensive enough to allow personnel to maintain and operate machinery safely and effectively.

12.1.1.2. The supplier will specify maintenance training outlined by electrical, mechanical, and pneumatic systems.

12.1.1.3. The supplier should provide training manuals as well as any additional training materials available such as videos, performance checklist or training aids. When training materials are not available, a request should be made to allow any Aptiv

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Business Unit facility to work with supplier to develop such material

12.1.1.4. The option to bring additional equipment on-site specified for training should be researched for any Aptiv **Business Unit** facility with a training center or for floor space that can be designated for training.

12.1.1.5. Training should cover general operations of the system as well as adjusting the machinery (through software or discrete controls) for application-specific processes. If applicable, the training should include "understanding the software", and methods to apply the software to new situations. Training courses should cover:

12.1.2. Operator training

12.1.3. Maintenance training (repair & preventative)

12.1.4. Engineering training

12.1.4.1. Training objectives, course outline, timetable for training to be provided, number of training credits, number of participants per class, length of training.

12.2. SUPPORT

The supplier needs to provide a written support plan for the machinery being supplied. It is in the supplier's best interest to make a good plan to ensure success of their machinery in all Aptiv facilities. The supplier is responsible to support the whole system and is the single point of contact for all issues. If the question is beyond the supplier's knowledge about a component, they are responsible for contacting the component maker for help.

Some of the critical items in a good support plan are shown below ranked by level. The SOW should require the "Best in Class" but the responsible engineer may use this table to assist in ranking suppliers responses.

Item	Lowest Level of Support provided	Mid Range Acceptable Level of Support	Best in Class Level of Support
<i>spare part availability of items listed on recommended spare parts list</i>	<i>Available in >48 hours</i>	<i>Available in 9-24 hours</i>	<i>spares available in 1-4 hours</i>
<i>spare part availability of any purchased or manufactured part from the BOM</i>	<i>1+ week</i>	<i>49-72 hours</i>	<i>available in less than 24 hours</i>
<i>Availability of on site support</i>	<i>25-48 hours wait for on-site support</i>	<i>5-8 hours wait for on-site support</i>	<i>within 2 - 4 hours for on site support by a technical person</i>
<i>Quality of support by telephone</i>	<i>Calls taken only during normal business hours</i>	<i>Within 3-4 hours response to 24 hour monitored pager</i>	<i>Immediate telephone response available 24 hours/day by a knowledgeable person</i>

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<i>Type of Engineering / Design documentation provided</i>	<i>Limited prints and limited manuals</i>	<i>Complete manuals plus complete prints</i>	<i>Complete manuals and complete prints (electronic and paper) in multiple languages</i>
<i>Type of Maintenance and Troubleshooting documentation</i>	<i>No documentation per se.</i>	<i>Materials in paper, electronic or on-line format in English.</i>	<i>Documentation and Guides in paper, electronic and on-line in multiple languages</i>

12.2.1. The level of support should be outlined by global area and should include:

- 12.2.1.1. spare part availability of items listed on recommended spare parts list (best in class is "spares available in 1-4 hours")
- 12.2.1.2. spare part availability of any purchased or manufactured part from the BOM (best in class is "available in less than 24 hours")
- 12.2.1.3. Availability of on-site support (best in class is "within 2 - 4 hours for on-site support by a technical person")
- 12.2.1.4. Quality of support by telephone (best in class is "Immediate telephone response available 24 hours/day by a knowledgeable person")
- 12.2.1.5. Type of Engineering / Design documentation provided (best in class is "Complete manuals and complete prints (electronic and paper) in multiple languages")
- 12.2.1.6. Type of Maintenance and Troubleshooting documentation (best in class is "Documentation and Guides in paper, electronic and on-line in multiple languages")
- 12.2.1.7. Who to contact for phone support (phone number etc.).
- 12.2.1.8. Location of nearest support personnel.
- 12.2.1.9. Time line of the initial installation support and follow-up check visits.
- 12.2.1.10. Policy for determining if a support engineer needs to come on-site ("911" call).
A regional support staff is a big plus!
- 12.2.1.11. Optional on-site engineer for 30,60, or 90 days.
- 12.2.1.12. Internet email address of support service.

12.3. WARRANTY

The supplier shall warrant the machinery for a minimum of two years. The warranty period will start on the date the machinery is placed into service unless otherwise negotiated by the purchasing department.

13. QUOTE REQUIREMENTS

Work with your purchasing representative to determine the quote requirements. Areas to consider include:

- 13.1. Submission of concept sketches with the quotation,
- 13.2. Items that are to be quoted as options or separately itemized (This may include such items as quick change tooling, documentation on CD ROM, special software, etc.),
- 13.3. A Gantt chart illustrating major milestone dates,
- 13.4. Utility requirements (including anticipated electrical needs (voltage and current), air pressure (PSI and CFM), vacuum exhaust, etc.),
- 13.5. Cost of consumable supplies used by the machinery,
- 13.6. Non-compliance with the statement of work or Standards (The supplier should outline here any paragraphs from the statement of work or listed standards with which the supplier will not comply

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- and the reasons for the non-compliance. For off- the-shelf machinery, it may make sense to request the supplier state any additional costs attributable to compliance with the statement of work.),
- 13.7. Special training costs such as: on-site training for engineers, operators and maintenance (1, 2 or 3 shifts), cost to return for training sessions at a later date, bilingual manuals or training videos.
 - 13.8. Technical support available. Who (different supplier?) supports the manufacturing site? Is 24-hour telephone support available? What are the expected response times?
 - 13.9. If the statement of work is for a family of machines, consider requesting a “master quote”. Purchasing would use this master quote for subsequent buys. An MTT standard piece of machinery might fall into this category.

EXAMPLES:

The Examples section was removed from the guidelines document to conserve resources and redirect the user to the appropriate MTT websites. Each MTT should have up to date Statements of Work, which can be used as a starting point for your machinery. For a copy of THIS document or the SOW Warehouse go to <http://mtt.Aptivauto.net/controls/SOW.shtml>

An additional resource for Statements of Work not part of the MTT machinery group is the Contact: rute.teixeira@aptiv.com

Revision record

Release Date	DCR Number	Revision	Requester / Document Owner
February 09, 2018	DCR: EHSOS 17-085	Initial release on EOS, was STATEMENT OF WORK TEMPLATE FOR MANUFACTURING MACHINERY Revision 11.2, March 24, 2016, Previous revision February 12, 2015.	Joy Sun1 (AP EHS Technical Manager, Global Operations Team) / Aldo Gomez (EHS Director)
September 26, 2018	<u>EHSOS 18-073</u>	Replaced Segment by Business Unit Replaced Advanced Safety and User Experience by Business Unit Header was updated Safety requirement links updated	Rute Teixeira - Global EHS Specialist / Aldo Gomez- EHS Director