

MPI

Supplier Quality Manual

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MPI Supplier Quality Manual

Introduction

1. **Purpose:** This manual has been created for MPI Production, Prototype and Service Suppliers. The manual is for all product lines. The manual is provided to communicate quality, delivery and purchasing requirements. This Supplier Quality Manual outlines business rules and supplier requirements necessary to standardize supplier processes, rejections and supplier performance.
2. **Scope:** The intent of this manual is to extend the scope of latest IATF 16949 and ISO 9001 requirements and to include the additional requirements of MPI and MPP's customers. This document defines the basic quality systems and procedures required for suppliers of Production, Prototype and Service parts to MPI and are intended to orient suppliers to these requirements. The supplier's quality system is subject to review and evaluation by MPI personnel and this document will serve as the basis for such a review. The MPI divisions or plants initiating the purchase orders may provide supplemental requirements.
3. **Approach:** MPI is committed to selecting suppliers that are willing to work with MPI to achieve: zero defects, continuous improvement, on-time delivery and increased value. MPI quality systems focus on Advanced Product Quality Planning (APQP). Suppliers are expected to employ effective APQP process. Refer to AIAG APQP manual.
4. **Audit:** MPI personnel and/or customers or the customer's representative has the right to verify at the supplier's premises and at MPP's premises that subcontracted product conforms to specified requirements. A "Supplier Audit" is mandatory for all new Suppliers, meaning any supplier who has never before supplied material to any MPI facility and who is a supplier of high risk or new/key material used. The first phase of the "Supplier Audit" requires the supplier to complete the Supplier Profile form. Based on the information provided, the MPI Purchasing and / or Quality Department will then decide whether or not a facility review will also be required using the Supplier Audit form.
 - a. MPI has the right to conduct periodic visits at any supplier location that currently does direct and indirect business with MPI. These visits will be performed by Supplier Quality, Supplier Development, or Plant/Corporate staff. They will conduct problem visit resolution reviews, APQP/ launch readiness reviews, supplier capacity and over-all supplier performance reviews.
5. As required by OEM Customer Specific Requirements or IATF 16949, sub-tier suppliers to MPI are to have CQI-9/ 11/ 12 Assessments for heat treated/ plated/ coated/ components. Suppliers will be responsible to update and submit their annual copies of assessments to MPI. Should Metal Powder Products need to contact you directly regarding a document, it is expected that the newest version document will be provided to the Requestor within 5 business days. Failure to provide the requested documentation within the allotted timeframe will result in escalation which may include: SCAR issuance, New Business Hold, Removal from ASL, etc.
6. **Distribution:** This document is maintained by MPI and will be available on our website. Compliance to the requirements of this SQM is mandated on the purchase orders. The supplier is responsible for compliance to the most recent version of the SQM.
7. **Confidentiality:** All information concerning the relationship between MPI and its suppliers will be respected as confidential. This includes, but is not limited to, purchase specifications, pricing and customer information.
8. **Code of Conduct:** Contractors and Suppliers and Contractors are expected to comply with the latest version of MPI Supplier Code of Conduct located at chinapowdermetalparts.com on the Supplier tab.

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Quality Systems

General Overviews

1. The supplier is responsible for providing written communication to MPI Purchasing of all manufacturing process changes that affect the material(s) being supplied to MPI. Based on the specific circumstances, MPI will then evaluate whether or not MPI can accept the supplier's specification requirements and/or if re-approval is required. This would include the supplier's inability to meet any parameters listed on the MPI specification. Examples include any changes in product form, any changes in the manufacturing process, a supplier wanting to supply the same product / material from a different manufacturing site that is not already approved, material changes, and/or related changes that may affect fit, form, or function.
2. Suppliers are required to notify MPI of any company name, or significant personnel or contact changes within their company. This will not require reapproval. If there are changes in the supplier's manufacturing location a Supplier Audit may be conducted. New MSDS sheets with the corrected manufacturer name will be required for products already on the Approved Source List.
3. Outstanding quality and delivery performance including adherence to MPI "Zero Defects" and "100% On Time Delivery" standards are required. Cost competitiveness and excellent customer service are also required. Sustained poor performance in conjunction with unacceptable corrective action could potentially result in the removal of a supplier from the Approved Source List, which entails re-sourcing that business the supplier has with MPI.
4. The Automotive Industry Action Group (AIAG) www.aiag.org has published several manuals that standardize procedures, technical classifications, and reporting formats, which are required by our customers. Suppliers are responsible to remain current with these standards.
5. Suppliers are required to maintain an accredited 3rd party certification to IATF 16949 or ISO9001. Suppliers providing goods and services for MPI automotive applications are strongly encouraged have IATF certification or be pursuing it. Exceptions for certification include pallet, box, bag and other non-production suppliers. Suppliers are likewise expected to be conforming to an environmental management system consistent with ISO 14001. Suppliers will be responsible to update and submit their valid copies of registration certificate to MPI. Suppliers who fail a surveillance audit must notify their MPI Buyer immediately. Failure to maintain your IATF 16949 or ISO9001 certification will result in the removal of a supplier from the Approved Source List, which entails re-sourcing that business the supplier has with MPI. All external labs used for gage calibration and validation testing must be ISO/IEC17025.
 - a. Should Metal Powder Products need to contact you directly regarding a document (e.g. IATF 16949 or ISO9001, Profile, CQI, etc.), it is expected that the newest version document will be provided to the Requestor within 5 business days. Failure to provide the requested documentation within the allotted timeframe will result in escalation which may include: SCAR issuance, New Business Hold, Removal from ASL, etc.
6. MPI Supplier Development, Supplier Quality, or Plant Quality will provide assistance to suppliers in the following areas:
 - a. Resolution of critical issues between the supplier and the MPI facilities
 - b. Provide direction on MPI policies pertaining to suppliers
 - c. Assist high impact suppliers with improvement activities
 - d. Work with potential new suppliers to bring them to a level to be added to the ASL
 - e. Provide resources for, and where appropriate, conduct specific training when a supplier has a need for additional knowledge

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PPAP Submission Approval Process

1. The level of PPAP submission to MPI always defaults to a Level-3 PPAP submission, unless otherwise specified. The language is English parallel translations are acceptable. The PPAP is at no cost to MPI.
2. In order to receive full payment related to the specific product being purchased by the MPI plant the supplier must obtain full PPAP approval from the MPI receiving plant.
3. Each supplier must meet all of the PPAP requirements including the promise date of submission to the MPI plant in question. PPAP promise dates are established at product launch meetings with the MPI Launch Teams or Plant Program Management Teams. It will be the responsibility of the supplier to supply an AIAG / OEM compliant PPAP package. The package will be in accordance with AIAG PPAP Manual and submitted to the receiving MPI plant. The PPAP package will be representative of the final customer format in which the receiving plant will be submitting to its customer. Each of the OEM specific requirements must be in accordance with customer specific requirements and instructions found in the AIAG PPAP Manual.
4. MPI receiving plant will inspect the PPAP samples and review the documentation. If the submission is found to comply with all requirements, the Part Submission Warrant (PSW) will be marked approved, signed and returned to the supplier. If discrepancies are found, the submission will be rejected and put on hold until those discrepancies are resolved. The PSW will be marked rejected, signed and returned to the supplier, along with a Supplier Request for Corrective Action form detailing the discrepancies.
5. With the PPAP submission, the supplier is to include the latest version of the Metal Powder Products PPAP Checklist or relevant end user checklist.

APQP & Safe Launch

1. All suppliers shall utilize and maintain the AIAG Advanced Product Quality Planning (APQP) methods at all stages with the goal of problem free seamless launch. Reference Manuals:
 - a. AIAG Production Part Approval Process (PPAP)
 - b. AIAG Statistical Process Control (SPC)
 - c. AIAG Measurement Systems Analysis (MSA)
 - d. AIAG Advanced Product Quality Planning and Control Plan manual (APQP)
 - e. AIAG Potential Failure Mode and Effects (FMEA)
 - f. International Automotive Task Force ISO/TS 16949
2. Pass-thru characteristics (PTC) are supplier controlled that once generated, are not further controlled or 100% functionally tested / inspected during processing at the MPI Plant. Non-conformance in these types of characteristics will be passed on to MPI customers.
 - a. Suppliers are required to conduct the following:
 - i. Ensure that PTC's are considered during their APQP activities and that relevant controls are identified and applied in the Process Failure Modes and Effects Analysis and Control Plan
 - ii. Identify each pass-thru characteristic as PTC on their control plan
 - iii. Communicate PTC's to their sub-tier suppliers and require proper control
3. All suppliers must utilize a safe launch process to include product/material certification during initial production runs. The duration of certification shall be initiated by the supplier with the MPI plant at time of PPAP. Individual part markings or box labeling shall be as instructed by the MPI plant.
4. The supplier's product quality team must assess the feasibility of the proposed design during their APQP phase of the program. Customer design ownership does not preclude the supplier's obligation to assess design feasibility. The team must be satisfied that the proposed design can be manufactured, assembled, tested, packaged and delivered in sufficient quantity on schedule at an acceptable cost to MPI. The supplier's consensus that the proposed design is feasible should be documented along with all open issues that require resolution and presented to MPI for their support.

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Run @ Rate / Capacity Analysis

1. Suppliers are required to perform a run at rate / capacity study as part of their PPAP process. The results shall be documented on the Supplier Run @ Rate Capacity form and submitted as part of the PPAP package.
2. The purpose of the run @ rate / capacity is to ensure that the supplier's process is capable of meeting PPAP requirements and quoted volumes.
 - a. Where equipment and / or processes are shared with other part numbers, the supplier is required to perform a capacity study prior to a Run @ Rate, to ensure that equipment / process capacity is not over sold.
3. During the analysis, all production tooling must be in place and running at full capacity, using all processes, personnel, gauging and procedures. The process and controls shall be reflected in the supplier's control plan.
4. The number of components to be produced during the Run @ Rate Capacity will be the same quantity required for PPAP and / or as specified by the purchase order. The results should then be projected to show the results based on an 8-hour production run.
5. Future capacity studies may be requested to the supplier based on volume increases.

Tool Acceptance Report & Math Data Submission

1. Any production tooling/gages that is the property of MPI must have a Tool Acceptance Report submitted as a part of the PPAP process. It is the supplier's responsibility to complete the Tool Acceptance Report.
2. The purpose for the Tool Acceptance Report is to have a record of the tools/gages built by the supplier or the supplier's vendor. This should assist with the approval process for payment of the tooling/gage.

Annual Validation

1. All effected product characteristics must be measured annually at a minimum to ensure continuing conformance to the drawing, material and specifications for all parts and services provided to MPI. Annual validation submissions are to be retained at the supplier location and made available upon request. Current Laboratory Certificates are also to be available upon request. Inability to provide timely annual validation documents when requested will result in the issuance of a Defective Material Notice (SCAR). This requirement applies to all drawing, specification and purchase order requirements unless otherwise waived by an approved deviation.
2. The results of dimensional inspection, material and functional testing must be documented using the sequence of the numbered blueprint from the PPAP submission. Supplier forms are acceptable but must be in English.

Note: Certifications of Compliance are not acceptable. Note:

Annual Validation is at no cost to MPI.

Note: Based on MPP's specific customer requirements, additional documentation may be required. If additional items are needed, this will be communicated to the supplier.

Product Identification and Traceability Requirements

1. MPI requires the supplier to establish and maintain procedures for identifying the production lots from receipt of raw material through shipment of final product. This system should permit the segregation of suspect material, and the reporting of quality and production data, based upon lot control for each shipment supplied to MPI.
2. All required paperwork such as material certifications, inspection reports, shall be retained by the supplier, and be available to MPI upon request.

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Record Retention

1. Records will be retained at the supplier as followed
 - a. PPAP minimum of 10 years past life of program
 - b. Material certification 3 years
 - c. Inspection reports 3 years
 - d. All other documents not specified for a minimum of 3 years
2. Suppliers with Design Responsibility Records will be retained at the supplier as followed
 - a. Control plans, material & performance test results, process studies, AAR, checking aids 15 years past life of program
 - b. Design records (ECR's, DPFMEA, PFMEA, process flow, dimensional results, laboratory documents, sample production, records of compliance and PPAP records 50 years past life of program.

Supplier Performance Scorecard

Supplier Performance Rating System, (SPRS)

1. SPRS is used to monitor supplier performance on an annual basis at minimum. This system will put variable data in a numeric database, which will be used to provide feedback to both the supplier and MPI about on-going performance. Feedback will be provided to the suppliers on an annual basis.

Repercussions of Poor Supplier Performance

1. The supplier performance information (SPRS) will be used to determine future sourcing decisions and supplier development activities. In addition, suppliers that exhibit poor performance or Non/Poor-Responsiveness to corrective actions will be notified by MPI to provide their specific corrective action reports and their overall improvement plan. Suppliers who continue to exhibit poor performance or non-responsiveness could be subject to an on-site Supplier Quality Audit by MPI, placed on New Business Hold status, and/or could be resourced and removed from the Approved Source List, depending on the severity of the quality issues. All prior purchase commitments made with a supplier will be considered void if this supplier is removed from the Approved Source List due to unacceptable performance.

Supplier Corrective Action Request (SCAR)

SCAR's will be issued for the following

1. SCAR's will be issued when the supplier's product (bulk, raw, component, assembly, etc.) has been determined to not meet design/print/functional requirements. Reason may include dimensional, appearance, fit, form, and/or function that cannot be used within the MPI facility or is returned from an MPI customer. The origin of the reject can occur at any process step (MPI facility, MPP's customer, or customer warranty). Other examples for issuing a SCAR include not meeting the engineering specifications, foreign material present in the product, damaged material, incorrect material shipped, short shipments, mislabeling, packaging, PPAP, failure to maintain annual validation records, safety issues, launch, late corrective action responses, missing/expired required upload documents, non-responsiveness, etc.
2. Each MPI plant will issue specific instructions if material is rejected. When supplier product is rejected from either a MPI plant or one of the MPI customer locations, rejections must occur in accordance with the SQM. Suppliers to MPI will be responsible for costs incurred due to the supply of defective material. The supplier is responsible for replacing non-conforming material in a timely manner to meet MPI delivery requirements. In the event MPI detects non-conforming purchased items, and production scheduling and inventories prohibit return to the supplier, MPI reserves the right to perform the necessary separation of non-conforming product at the

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Suppliers expense. Additional associated costs as a result of the non-conformance may be charged back to the supplier.

Concerns will be issued for the following

1. Concerns are for any minor issue which does not directly affect the quality of a MPI manufacturing process but the supplier needs to be aware. Concerns do not affect the supplier's scorecard and are only for historical records or to process cost only paperwork.
2. Possible reasons for concerns could include these limited examples; sorting cost or return of product not included on previous SCARs, incorrect product labeling, missing paperwork, slightly damaged packaging, etc.
3. Should a supplier pro-actively call the MPI Plant with a potential issue that MPI is not aware of, this would also be coded as Concern.

Supplier Response

1. Should a SCAR be issued, the supplier is expected to immediately contact the MPI Plant to understand the issue and agree on the proper level of support needed to maintain production at MPI. Then, throughout the SCAR corrective action process there are time limits for timely completion.
 - a. Immediately upon SCAR issuances identify containment with the MPI SCAR Author.
 - b. Within 10 days of SCAR issuance identify root cause and corrective action.
 - c. Within 15 days of SCAR issuance implement permanent corrective action.
 - d. If more time is needed, please obtain prior agreement from the MPI SCAR author.
 - e. The first reply of the SCAR is to be within the first 24 hours.
 - f. Future replies SCAR are to be no more than every 7 days thereafter to document progress until the corrective action is approved by MPI.
2. If the above timing is not met, MPI may issue a Customer Dissatisfaction SCAR. If a SCAR continues to go unanswered or continues to receive poor response after on-going documented attempts by the MPI, then MPI Management will intervene and develop next steps (e.g. supplier meeting, placement on No New Business Hold, removal from ASL, and/or resourcing of current business).
3. As part of the evidence of the permanent corrective action, ALL Documentation (Control Plan, PFMEA, WI, etc.) shall be up-dated and be provide with the SCAR reply as evidence of change. These documents shall clearly identify the SCAR# on both the Control Plan & PFMEA. If the SCAR is a repeat issue that shall also be noted on the Control Plan & PFMEA. The new RPN # on the PFMEA shall reflect the actions taken utilizing the latest AIAG PFMEA Edition.
4. Operator Error is not an acceptable root cause and a SCAR with this reason will be Rejected.
5. The duration of certifying stock is until the Permanent Corrective Action (PCA) is implemented, plus a verification period (as defined by the MPI plant) to confirm the PCA effectiveness.

Supplier SCAR Appeal Process

1. The supplier may appeal the issuance of a SCAR or specific information contained in the SCAR. To appeal, the supplier shall use the following process:
 - a. The supplier shall provide objective evidence to the issuing location demonstrating the rationale for the appeal.
 - b. Any request for change or appeal to a SCAR must be submitted within 10 calendar days of issuance of the SCAR. Requests after this time frame will not be reviewed.
 - c. If 10 calendar days are not enough time to determine if a SCAR appeal is needed, then the supplier shall submit a written communication to the SCAR Author requesting additional time.
2. If the supplier does not agree on the outcome of the appeal, the supplier may pursue the appeal

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further within 10 days of the MPI plant decision. The 2nd level appeal should be directed to a MPI Purchasing person for further consideration.

Controlled Shipping / Containment

1. The purpose of the containment is to ensure only conforming product is shipped uninterrupted to MPP plants. Controlled shipping is a requirement for a supplier to implement a redundant inspection process to sort for non-conforming material resulting from ineffective supplier process controls. Controlled shipping must become a corrective action process, not just an inspection process. The redundant inspection is in addition to normal controls. In addition to providing defect free product, controlled shipping results will help identify system failures and in-effective corrective actions previously taken. Suppliers required to implement either a Level 1 or 2 containment shall be notified via email or in a formal letter by the MPI plant.

Determination of the need for Contained Shipping-Level 1 or 2

1. MPI makes the determination whether the supplier can effectively correct the nonconforming material situation through the SCAR process and isolate the end customer from the problem. One or several of the following may be considered for implementation of Contained Shipping:
 - a. Excessive issuance of SCARs to the same supplier
 - b. Repeat SCARs for the same component or component family
 - c. Duration and severity of the problem
 - d. Incapable processes
 - e. Impact on MPP's Customer
 - f. Severity of quality problem
 - g. Inadequate containment and/or resolution of nonconformance via the SCAR Process.
 - h. Major Disruptions at either MPI plant or MPP's customer
 - i. APQP, Safe Launch, PPAP and / or Launching problems
2. Based on consideration of the above, MPI decides whether Level 1 or Level 2 would be appropriate. Input for this decision may be provided by the various MPI departments as appropriate.

Level 1 Controlled Shipping includes a problem-solving process as well as a one additional redundant inspection process. The supplier is required to perform a 100% certification using an additional off-line inspection process, of all products prior to shipment to MPI. This certification shall be over and above the present controls in place. The inspection process is enacted by the supplier's employees at the supplier's location to isolate MPI from receipt of nonconforming parts/material. As defined by MPI, the supplier shall clearly identify each container to identify that it has been undergone Level 1 certification. As defined by MPI, each individual part may be required to be marked to show certification.

Level 2 Controlled Shipping includes a problem-solving process as well as two redundant inspection processes. First by the supplier per level 1 above, then by a separate 3rd party company. The supplier is required to contract a certified 3rd party to certify and inspect off line all products prior to shipment to MPI. Level 2 containment is imposed on a supplier when level 1 is not successful, early production issues, or as deemed necessary by MPI. The third-party sorting company is selected by the supplier, approved by MPI and paid for by the supplier. In special cases, the Level 2 Controlled Shipping inspection may be required to be performed outside the supplier's facilities at a location defined by MPI. Suppliers are required to notify their registrar when placed on Level 2 containment. As defined by MPI, the supplier shall clearly identify each container to identify that it has been undergone Level 2 certification. As defined by MPI, each individual part may be required to be marked to show certification.

The key steps of the Controlled Shipping process

1. An agreement within MPI Quality and MPI Plant management that current controls by the supplier are not sufficient to insulate MPI from the receipt of nonconforming parts/material.
2. Determination by MPI which level of controlled shipping is required and how it is to be implemented.

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3. Provide formal written communication to the supplier of action (Level 1 or Level 2) to be taken including an exit criterion.
4. Supplier provides containment status, sort results and effectiveness on a regular basis.
5. Review of irreversible corrective action plans.
6. Once corrective action is proven to be effective, removal of contained shipping status.

Supplier Initiated Changes / Engineering Change Request (ECR) Process

1. Prior to implementing any post PPAP or post Launch change, obtain written MPI approval to proceed. Changes needing MPI prior written approval including but not limited to material, process, manufacturing location, sub-supplier, tool modifications shall be communicated through the respective divisional purchasing department. If you have any question regarding the MPI form to be used, contact the MPI plant directly for clarification prior to the change implementation. All costs associated to non-approved changes are the responsibility of the supplier for payment.

Cost Recovery

Supplier Cost Recovery & Debits Process

1. All costs associated with supplier rejections are entered by the SCAR Author and processed through the SCAR process.
2. The Acceptance Criteria for product shipped to MPI is Accept on Zero, Reject on One. Although this appears to be very strict, it has been the acceptance criteria for companies supplying the automotive industry for a number of years.
3. The quality standards for products supplied to MPI include the criteria set forth on the approved drawings, specifications, written communications, the business rules set forth in the Supplier Manual and any other requirements specified by the MPI plant in order to produce final products which are acceptable to the end customers. Suppliers will be made aware of specific quality requirements through communications which may include any or all of the following; Launch Meetings, APQP meeting, Supplier Assessments, Process Review Meetings, SQM and actual production experience at the MPI plant. MPI will attempt to make the supplier aware of quality requirements prior to the start of production, however actual production experience and end customer feedback may necessitate changes to the originally expectations.
4. Supplier charge backs are meant to recover lost cost incurred by MPI. This may include cost associated with supplier Non-conforming product, PPAP issues, Delivery issues, Safety issues, Launch issues, Warranty issues, upload Documentation issues, and Packaging issues.
5. The supplier may appeal the issuance of a Supplier Chargeback contained in the SCAR. To appeal, the supplier shall use the following process:
 - a. The supplier shall first complete the entire corrective action for the SCAR and include all supporting documentation in the reply. Then request a meeting with the MPI plant to discuss the rationale for the appeal.
 - i. If less than \$15,000 USD, the MPI Plant Quality Manager and Plant Manager will provide the appeal outcome decision.
 - ii. If more than \$15,000 USD, the MPI plant will organize a discussion to include a MPI senior site manager or Corporate manager.
6. If the Supplier does not respond within 10 working days from when the charge was entered in the SCAR system or documented to the supplier, the Supplier will be deemed to have accepted the charge. If additional time is required for the supplier to appeal the Chargeback, the supplier shall submit a written communication requesting more time to the SCAR Author.

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Health, Safety & Environment

1. The supplier must ensure that products and services delivered comply with all relevant regulatory requirements on occupational and public health and safety as well as environmental protection in both: the country of manufacture as well as in the country of sale.
2. The supplier must provide all regulatory required documentation for the products and services delivered (e.g.: safety data sheets; marking and labeling of hazardous materials; machines safety conformity declarations associated with operation manual and technical file; etc.) in the languages needed.
3. MPI expects the supplier to perform its manufacturing and other activities in compliance with all relevant health, safety & environmental regulatory requirements.
4. MPP encourage that the supplier establishes and maintains an environmental management system in accordance with ISO 14001 or equivalent. At least, environmental procedures should be in place covering the manufacture and delivery (e.g. durable, recyclable packaging) of the products or services in question.

Contingency Plan

1. Suppliers shall develop a contingency plan for potential catastrophes disrupting product flow to MPI and advise MPI at the earliest in the event of an actual disaster. In an actual catastrophe, the supplier shall provide MPI access to the supplier's tools and/or their replacements.

Revision History

Date	Revision		Author / Dept	Approved By
Jan. 9 2017	1	Original Release	D. Smith / Quality	S. Kahn
Feb. 12, 2019	2		S. Kahn/ Purchasing	MJ Schneider
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