SUPPLIER QUALITY ASSURANCE HANDBOOK

Revision History

Rev	Date	Description of Change	Section(s)	Comments
DRAFT	9/17/2015	Initial draft release	All	
1	9/18/2015	Rev 1 release	All	

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Section 1.0 Introduction and General Information

Alta Motors recognizes and appreciates the significant role our Suppliers play in enabling us to provide superior product value to our customers. We rely on effective partnering with our Suppliers to provide the materials, products, and services consistent with our contractual specifications and quality management requirements. This handbook defines the quality requirements expected of all Alta Motors Suppliers, but is primarily aimed at those Suppliers providing custom Alta Motors specified parts, assemblies, and services.

The requirements contained in this manual are included in Alta Motors Terms and Conditions, and acceptance of an Alta Motors Purchase Order constitutes acceptance of these requirements. The Supplier must also adequately manage their sub-tier sources to ensure all Alta Motors quality requirements are continually met, and ensure Alta Motors is notified prior to any sub-supplier changes that may impact product quality.

The Supplier is expected to conduct business per industry standards and best practices in all aspects of their business including business ethics, compliance with all applicable environmental, health, and safety regulations, intellectual property protection, and quality management.

It is imperative the Supplier maintain an effective Quality Management System appropriate for the materials, products, and services provided to Alta Motors. All Suppliers must be able to:

- demonstrate the ability to mass produce product that conforms to all documented Alta Motors requirements, including the production drawing
- demonstrate the capability to confirm conformance of all characteristics with appropriate metrology

Any parts found to be noncompliant to the released drawing or a Component Inspection Standard shall be treated as Supplier responsible.

We strive to incorporate the best practices of lean manufacturing to achieve the highest quality at the lowest cost. As such, this manual is based on globally recognized methods such as the Automotive Industry Action Group's (AIAG) Advanced Product Quality Planning (APQP) and Production Part Approval Process (PPAP), globally recognized processes for assuring product quality. The Supplier is encouraged to consult AIAG for additional literature, as required, and to work closely with the appropriate Alta Motors representatives to clarify required activities and associated expectations, as this handbook only provides the basic framework and overview of the qualification process and related activities to sustain quality levels for the life of the

product. Alta Motors expects the Supplier to maintain open channels of communication at all times and at all phases of the project to ensure mutual success.

Section 2.0 Supplier Qualification

Purpose:
To provide a basic overview of key activities leading to Supplier and part qualification.

Scope:
Primarily applies to Suppliers providing custom parts for Alta Motors. This section outlines the basic steps typical of a project launch, but does not include all requirements and activities.

Overview:
The goal of the qualification process is to ensure parts and assemblies meet design intent and quality levels are maintained throughout the life of the project by assuring quality is built into the process.

Supplier Qualification and Part Approval involves several stages. The Supplier will need to work closely with various Alta Motors representatives from applicable departments to successfully complete the qualification process. The following SQAH sections will describe these functions in greater detail, as well as address other requirements not listed in this section.

Note: some listed activities may not apply to all suppliers and/or commodities, and may be dependent upon project scope and timing. Also note this is a partial list for reference only and may not include all required project activities. Additionally, Alta Motors may waive some requirements, at our discretion, based on the scope of the project.

Section 3.0 Designating Quality Contacts

Purpose:
To provide requirements for the Supplier to identify the appropriate Supplier contact information for all quality-related matters

Scope:
Applies to all Suppliers of custom components to Alta Motors and at all phases of the project, from pre-production through mass production. It may also apply to Suppliers of "stock" or "off the shelf" parts, depending on commodity and Alta Motors business needs. The Supplier's quality contact form must be submitted early in the project.

Explanation:
A successful project starts with good communication. Appropriate contact points must be established at the onset of a project to foster good communication between Alta Motors and the Supplier.

The Supplier shall designate a representative as primary Quality department point of contact for the project, as well as secondary support members to cover should the primary contact be unavailable. Note the designated contacts must have suitable experience as it pertains to all product conformance to specifications and SQAH requirements and have authority to support the project, take appropriate actions, and provide accurate and timely correspondence.

Additionally, the Supplier must provide contact information for at least one member of the Supplier's Quality management team and include contacts that can respond outside of normal business hours, as necessary.

The Supplier must complete the Supplier Quality Contact form and submit to the Alta Motors QE and SCM groups.

The Supplier must re-submit the Quality Contact form whenever there is a change of contact and/or related contact information. A reason for change may include transition from pre-production to mass production stages, where a change in primary contact personnel may be warranted. Please note, however, that changes of contact personnel, especially in the pre-production phases, are often disruptive and should be carefully scrutinized by both parties.

An example is provided on the next page.

Sample Supplier Quality Contact Form:

SUPPLIER QUALITY CONTACT FORM

To: David Bailey (Alta Motors Quality Engineer) Date: 8/17/2015

Copy to: Dick Mann (Alta Motors SCM) Submitted by: Bob Hannah

Supplier Name ABC Metal Works Inc.
Address 1098 Hope St
San Francisco, CA 94101

Parts covered by this form:

Part Name(s)	Part Number(s)
Boot Guard	1001010
Front Tri-Link	1020356

Supplier Contact information **Note: Re-submit if contact information is revised**

PRIMARY CONTACT

Name:	Bob Hannah
Title:	Client Relations
Email:	bhannah@abcmetal.com
Phone:	(628) 798 - 0104
Cell:	(628) 472 - 9863
Fax:	(628) 852 - 9632

SUPPORT

Name:	David Aldana
Title:	Project Manager
Email:	daldana@abcmetal.com
Phone:	(628) 956 - 8624
Cell:	(628) 456 - 9876
Fax:	

QUALITY MANAGEMENT CONTACT

Name:	Mert Lawwill
Title:	Quality Manager
Email:	mlawwill@abcmetal.com
Phone:	(628) 486 - 4268
Cell:	(628) 546 - 8765
Fax:	

"OFF HOURS" ALTERNATE CONTACT

Name:	William Davidson
Title:	Quality Engineer
Email:	wdavidson@abcmetal.com
Phone:	(628) 956 - 8967
Cell:	(628) 951 - 7536
Fax:	

PRINCIPAL BUSINESS OFFICER (principal business leader for the operation producing parts)

Name:	Danny LaPorte
Title:	Business Relations Manager
Email:	dlaporte@abcmetal.com
Mailing address:	1098 Hope St San Francisco, CA 94101

Section 4.0 Drawing Reviews for DFM

Purpose:
Outline the Supplier's role in the evaluation of Alta Motors' drawings and specifications, to understand requirements for design, and provide input for manufacturing.

Scope:
This applies to all Suppliers of custom Alta Motors parts or assemblies. The activity usually begins soon after the Supplier receives the Alta Motors drawing, and may continue throughout pre-production. The practice for actions required during mass production are also discussed below.

Explanation:
Drawing reviews offer the opportunity for the Supplier to review part design, obtain clarification for any unclear requirements, provide input on opportunities to improve the design, and recognize those requirements that potentially cannot be measured or met.

Upon reception of the Alta Motors drawing, the Supplier must comprehensively review all requirements, including those referenced in other documents or standards, and identify any items that require clarification. Drawing reviews typically begin upon receipt of the Request for Quotation (RFQ) from Alta Motors Supply Chain Management (SCM).

The Supplier must also determine if they have the capability to manufacture and validate all required specifications, including dimensional, functional, regulation, material, appearance, and durability. This includes the Supplier's assessment of their present measurement capability to ensure required measurements can be taken on a continuing basis. The Supplier must bring forward any concern items to Alta Motors Engineering and SCM at the earliest opportunity, identifying any requirements they are not sufficiently capable of meeting or measuring, before initiating any associated tooling.

Furthermore, the Supplier should recognize potential difficulties or opportunities to improve the design of the parts or assemblies, whether for improved quality, durability, yield, cost, safety, manufacturability, and/or measurability. This may include relaxing of non-significant tolerances, allowing alternative materials, slight shape changes, use of "stock" parts, alternate heat-treating or coating, or other prospective changes that encourage the mass production of wholly compliant parts.

Alta Motors may organize a Supplier-Alta Motors Review Meeting to review the drawings. This activity is usually coordinated by Alta Motors Engineering and/or SCM. For some significant components that have mating interfaces with other components, Alta Motors may organize a joint review with all the affected parties to guarantee the integrity of the design and solicit feedback.

In the case that the Supplier desires a design change after receiving Alta Motors Part Approval, the Supplier must submit a Process Change Request. See the "Process Change Request" section of the SQAH for additional details. For an Alta Motors initiated design change, such as a new part revision level, the Supplier should deliver immediate feedback, if applicable, so Alta Motors may take appropriate actions in a timely manner. In this case, the Supplier may also use the Process Change Request form.

Moreover, the Supplier is strongly encouraged to continue to deliver drawing feedback as the project advances should the Supplier recognize opportunities to improve the design with respect to quality, cost, and/or productivity.

Section 5.0 Significant Characteristics

Purpose:
To clarify the importance of Significant Characteristics and the accompanying expectations of the Supplier.

Scope:
This applies to all Suppliers of custom Alta parts when called out on released drawings and/or Component Inspection Standards. It may also apply to "stock" parts, if so specified.

Explanation:
Significant Characteristics (SC) are features, functions, or processes that Alta Motors Engineering has recognized as having a significant impact on the product's performance, function, and/or manufacturability, and, as such, require special activities to assure conformance to specifications. SC's are typically identified during initial design development, but additional SC's may be identified together with the Supplier at any stage of the project, including mass production. SC's may also be added in reaction to a quality problem.

All SC's must be clearly identified on the Component Inspection Standard, PFMEA, and Control Plan, together with those SC's designated on the Alta Motors drawing, as well as any others identified by Alta Motors SCM, Engineering, or QE. Regulation items, such as UL labeling, must always be considered SC's.

The Supplier may ensure part conformance for SC's through the use of Statistical Process Control (SPC), or through robust inspection processes, including use of attribute gauges, or in-process monitoring devices. Characteristics that cannot be guaranteed through statistical process control may require 100% inspection, and are considered at risk.

Minimum SPC requirements, unless otherwise specified:

Short term capability: CpK > 1.67
Long term capability: CpK or PpK > 1.33

Any process that is not able to meet these requirements will require corrective actions, which may include 100% inspection or other activities to make sure there is no potential flow-out of non-conforming material.

The Supplier, along with Alta Motors Engineering and QE, must work together to determine appropriate sample sizes for capability studies as well as clarify submission requirements based on the current stage of production. The timing for carrying out capability studies rests on many factors, including the part complexity, the commodity, Supplier preparedness, and project timing. These studies may be started as early as First Article submissions or as late as the production trials following production approval.

The Supplier must clearly identify SC's in their Control Plan, PFMEA, Component Inspection Standard, Manufacturing Work Instructions, and any submitted data sheets.

Characteristic	Terminology	Description	Symbol
Non-Significant Characteristic	Standard	A characteristic of a part for which reasonably expected variation is not likely to cause nonconformity with safety compliance, government regulations or part fit and function.	None
Significant Characteristic	Fit/Function Critical Characteristic	A characteristic of a part for which reasonably expected variation could significantly affect the safety of the part/vehicle with or without warning. These identified characteristics must be included in the Control Plan.	SC

Section 6.0 First Article Submission and Approval

Purpose:
Explain the procedure to complete the First Article requirements.

Scope:
This applies to all Suppliers of custom Alta Motors parts. First Article (FA) sample submissions are required for new part numbers or new part revisions, as directed by Alta Motors. As described below, this activity usually occurs in the early stages of new product development and during design changes, but may apply to mature products.

Explanation:
The intent of the First Article process is to evaluate the Supplier's capability to produce parts that meet Alta Motors' requirements, assess Supplier measurement capability and correlation to Alta Motors' measurements, and offer an opportunity to classify desirable change points in the part's design and/or process before the start of the Part Approval process. The Part Approval process is discussed in a later section of the SQAH. Note, for any Alta drawing changes after the Supplier has received approval to begin production, following Part Approval, the Supplier must follow the Process Change Request process, as described in the "Process Change Request" section of the SQAH. If in doubt, the Supplier is advised to contact their respective Alta Motors SCM or QE representative for clarification.

The First Article process starts with the issue of the first Purchase Order from Alta Motors Engineering or SCM. The Supplier must provide samples and required documentation in a timely manner, as indicated in the PO, and any project related plans developed with the Supplier. The Supplier must receive written approval from Alta Motors Engineering if they are unable to meet the specified timing.

The Supplier must identify all First Article sample parts submissions to prevent unintended use in production upon receipt at Alta Motors. The Supplier must check with Alta Motors SCM or Engineering for directions on current shipping, labeling, and marking requirements. A sample of the shipping label is provided in this section for reference and is included with the SQAH blank forms.

Submission requirements are detailed on the following page. The Supplier must send an electronic copy of the datasheets, test reports, material certifications, and other required materials to Alta Motors Engineering & QE, and include a hard copy with the parts shipment.

The Supplier is encouraged to use Alta Motors' form templates, but may use their own company's forms should they provide all required information.

Alta Motors Engineering and QE will work closely with the Supplier. Ultimately, Alta Motors Engineering will give First Article approval in writing once the Supplier has demonstrated the ability to produce the specified quantity of parts that are 100% compliant with Alta Motors Engineering drawings and other applicable standards, and has provided the required documentation, as described in this section.

First Article Submission Requirements:
The Supplier must provide the following items with their First Article shipment:

1. Parts - per quantity and part revision level ordered on the PO or specified by Alta Motors Engineering or SCM.
2. Marked-Up Drawing - The Supplier shall mark up the Alta Motors drawing, assigning sequential numbers for all dimensions (excluding reference and basic dimensions), applicable performance requirements, etc. Subsequently, the Supplier shall list each numbered feature on the data sheet, described below.
3. Datasheet - completely populated datasheet, for all sections including:
    a. Part and Submission information - part name, number, revision level, submission date, Supplier approvals, and other relevant information.
    b. Part process level - indicate if the parts provided are production intent (production tooling, production process, production materials, etc.). For parts not production intent, the Supplier must briefly describe non-production intent elements.
    c. Dimensional analysis - a list of all dimensional features with numbers corresponding to the marked up drawing, measurement method, and the corresponding measurement results for each. The Supplier must also provide a judgment for each item as shown on the following page.

Dimensional Analysis Judgement

Designation	Description
OK	Okay.
M	Marginal. Conforming, but improvements needed as the process is not adequately centered or exhibits excessive variability with respect to the specification limits.
NG	Nonconforming. One or more pieces do not meet the specification.

Significant Characteristics must be clearly identified on the datasheet.
Note: For multiple cavity tools, the Supplier is required to provide First Article samples and associated data for each cavity, unless otherwise specified. Similarly, the Supplier must provide applicable data for multiple production tools, multiple production lines, etc. The Supplier must work closely with Alta Motors Engineering to clarify submission requirements.

Note: Parts may not be reworked to meet requirements. The Supplier must contact Alta Motors Engineering and QE for further instructions if unable to produce conforming materials.

Note: The Supplier must send conforming material for all Purchase Orders. If the Supplier is unable to meet all specifications, they must contact Alta Motors Engineering or QE immediately to review any nonconformances prior to shipment. Alta Motors may not accept the nonconforming material and may return it to the Supplier at the Supplier's expense, unless otherwise agreed upon in advance.

The Supplier shall provide full measurement data for no fewer than 5 parts, unless otherwise specified. The Supplier must tag or conspicuously mark these samples such that each piece is directly traceable to its corresponding measurement results on the datasheet. Note any markings must not be harmful to the part function and usability, and the Supplier must check with Alta Motors Engineering or QE, as required, to avoid damaging the part.

d. Process capability - the process capability for Significant Characteristics, as required. Check with the appropriate Alta Motors representative (Engineering or

QE) for clarification, including required sample size. This requirement may be waived, especially if the order quantity is less than 30 pieces.

e. Performance Data - any functional or test data results. The Supplier must also add lab reports, test reports, attachments, etc., as required, and list these items on the datasheet with corresponding judgments (OK,M,NG), as described above. Contact Alta Motors Engineering for the appropriate sample size, as required.

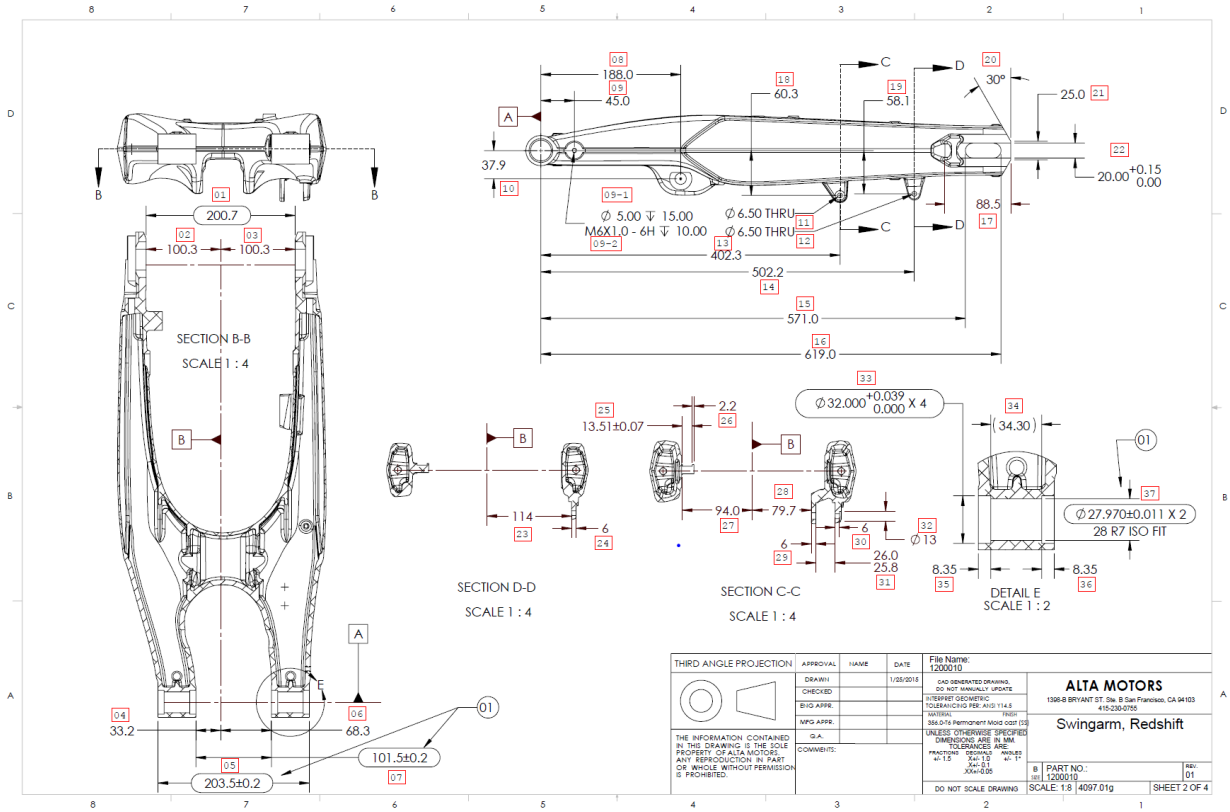
4. Raw Material Certification – if applicable

Note Regarding Revision Levels

The Supplier must confirm the Part Number and Revision Level indicated on the Purchase Order match the latest drawings the Supplier has received. If there is a discrepancy, the Supplier must contact Alta Motors SCM for direction. The Supplier must maintain sound documentation control to ensure only current drawings are active and any obsolete drawings are removed from use, as applicable.

The general process flow for Suppliers and sample forms are included on the following pages.

Marked-Up Drawing



Sample Data Sheet

ALTA MOTORS

Date: 9/14/2015
Page 1 of 1

SUPPLIER NAME: ABC Metal Works Inc.
PART NUMBER: 1200010
REV #: 01
PART NAME: Swingarm, Redshift
PROGRAM:

SAMPLE FOR:
X FIRST ARTICLE — X ECO # 100210
PARTS FITTING TRIAL
PRODUCTION SAMPLE
OTHER:

The following items are **not** production-intent:

COMPONENT DATA SHEET

Judgment Key	
OK	Meets requirements
NG	Does Not Meet requirements
M	Marginal - Needs Improvement
*	Denotes Significant Characteristics (SC)

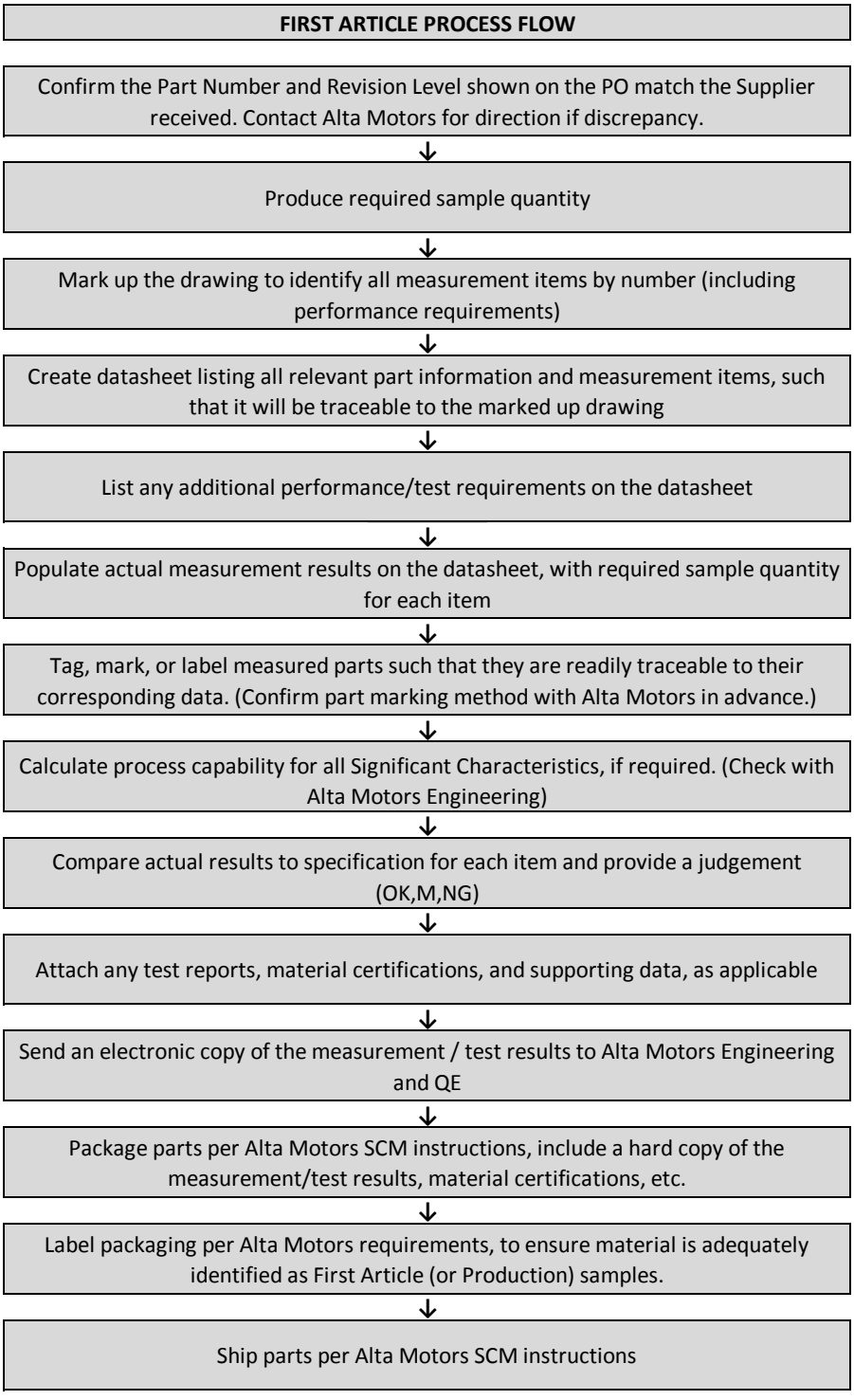
APPROVALS	SUPPLIER	ALTA MOTORS
NAME (Print)	Bob Hannah	David Bailey
TITLE	Quality Manager	Quality Engineer
DATE	8/17/2015	8/17/2015
SIGNATURE	Bob Hannah	David Bailey

DATA TYPE: V= VARIABLE A= ATTRIBUTE

ITEM	REQUIREMENT	DATA TYPE Mass Prod.	DATA TYPE Proto	Measurement Method	Sample Data No. 1	2	3	4	5	6	7	8	9	10	N=?	X	R	Cp Pp	Cpk Ppk	JUDGMENT SUPLR	JUDGMENT AM	COMMENTS
1	200.7 ± 0.3		V	CMM	200.70	200.60	200.40	200.70	200.50						5					OK	OK	
2	100.3 ± 0.1		V	Vernier Cal.	100.38	100.39	100.38	100.39	100.37						5					M	M	Need to adjust tooling
3	100.3 ± 0.1		V	Micrometer	100.39	100.25	100.27	100.29	100.31						5					OK	OK	
4	33.2 ± 0.1		V	Bore Gauge	33.25	33.27	33.24	33.15	33.17						5					OK	OK	
5	Material - 6061 T6 Aluminum		A	Spectrometer	OK	OK	OK	OK	OK						5					OK	OK	

The Supplier identifies the measurement points on the drawing, and lists these features on the datasheet with the corresponding data. The number referenced on the drawing must match the feature and data input on the datasheet and Significant Characteristics must be identified.

Also, the submitted sample parts shall be identified (labeled, tagged, marked, or other suitable method) such that Alta Motors can trace each measured sample to the Supplier's actual measurement for that specific sample. The typical quantity of traceable parts is no fewer than 5 pieces, but the Supplier must work closely with the appropriate Alta Motors representative to determine the total number of samples to provide, which data to provide, how to identify samples, etc.



Alta Motors Engineering & QE will review the Supplier data and sample parts, and provide formal feedback to the Supplier.

Sample Parts Label:

PARTS FOR REVIEW
DO NOT RELEASE TO PRODUCTION

SUBMISSION TYPE:

[X] FIRST ARTICLE SAMPLE
[ ] PRODUCTION SAMPLE
[ ] OTHER: _____

PART NUMBER: 1200010 REV: 01
PART NAME: Swingarm, Redshift
SUPPLIER: ABC Metal Works, Inc.
LOT / SERIAL #: 4863 / 1 PO #: 21383
QUANTITY: 5 CONTAINER: 1 OF 2

ATTENTION: Doug Henry
ALTA DEPARTMENT: Alta Motors Supply Chain Management

[X] All required documentation, including data sheets and test reports, are enclosed.

Place this tag on the outside of each container next to the shipping label in a highly visible location.

The Supplier is responsible for ensuring components are adequately identified as First Article or Production Sample submission to avoid unintended release to production. Labels or tags should be securely affixed to the outside of the shipping container, near the shipping label, as well as inside the container.

Section 7.0 Component Inspection Standard

Purpose:
The Component Inspection Standard (CIS) is a document that consists of a part's Significant Characteristics (SC), their acceptance criteria and the method and frequency by which the part must be monitored and controlled by the Supplier. It is a signed agreement between the two companies on the finished part quality requirements.

Scope:
A CIS is required for all custom parts and assemblies supplied to Alta Motors. A CIS may also be required for "off the shelf" or "stock" parts, if so directed by Alta Motors. The CIS begins at the initial request by Alta Motors QE, continues throughout the life of the part, and is updated when warranted.

Requirements:
The CIS is a key document that facilitates a thorough understanding of the technical and quality expectations of a product. It is a collaborative process and defines minimum inspection items to be carried out on a regular basis to assure the quality of finished products. This document must ultimately be approved by both the Supplier and Alta Motors QE prior to the start of production, and upon any changes.

To receive initial approval for the CIS, both the Supplier and Alta Motors QE must sign the Component Inspection Standard Approval Form. After approval, subsequent changes are documented and approved with the Component Inspection Revision Request sheet. Note, revision requests must be reviewed with Alta Motors QE before any changes are made to the previously approved CIS.

The draft CIS should be developed early in a project, often during or immediately following First Article activities. The CIS will likely undergo revisions as the Supplier approaches mass production. Throughout mass production, the CIS must be treated as a living document and requires updating, and subsequent Alta Motors QE approval, when process, part, or inspection changes warrant revision. This may include released Alta Motors engineering changes that impact form/fit/function, changes in Supplier metrology, or added on-going quality checks items in response to a problem flow-out.

Once the CIS has been approved, the Supplier must ship parts that are 100% compliant with the CIS. The Supplier may not ship any non-conforming material to Alta unless the Supplier receives

Alta Motors QE approval in advance, as described in the “Nonconforming Materials” section of the SQAH.

The Supplier must develop and submit the CIS as directed by Alta Motors. The Supplier is encouraged to work closely with Alta Motors QE & Engineering when initially constructing the CIS to better understand Alta Motors’ expectations for their respective component. In some cases, Alta Motors QE may provide the original draft, if agreed upon by both parties.

The CIS represents the final shipping quality requirements and measurement methods, and as such, must parallel the Supplier's Control Plan. Additionally, the CIS must include quality check items that are performed on a regular or semi-regular basis, such as destructive reliability testing. The CIS is intended to specify the requirements associated with completed product characteristics. Under certain conditions, product characteristics may be specified at intermediate steps in the Supplier's manufacturing process as necessary to assure the product is compliant to Alta Motors requirements. However, the CIS is not intended to specify the Supplier's process parameters, otherwise known as Key Process Input Values, such as temperatures, speeds, feeds, press settings, etc.

The Component Inspection Standard, at a minimum, must define the following items:

1. Inspection Item Drawing
2. Dimensional Requirements
3. Material & Physical Properties
4. Appearance Standard
5. Performance & Function
6. Reliability & Durability
7. Packaging & Shipping
8. Regulatory Compliance
9. Component Data Sheet

The CIS must list the characteristic, the associated specification/requirement, inspection method, and inspection frequency.

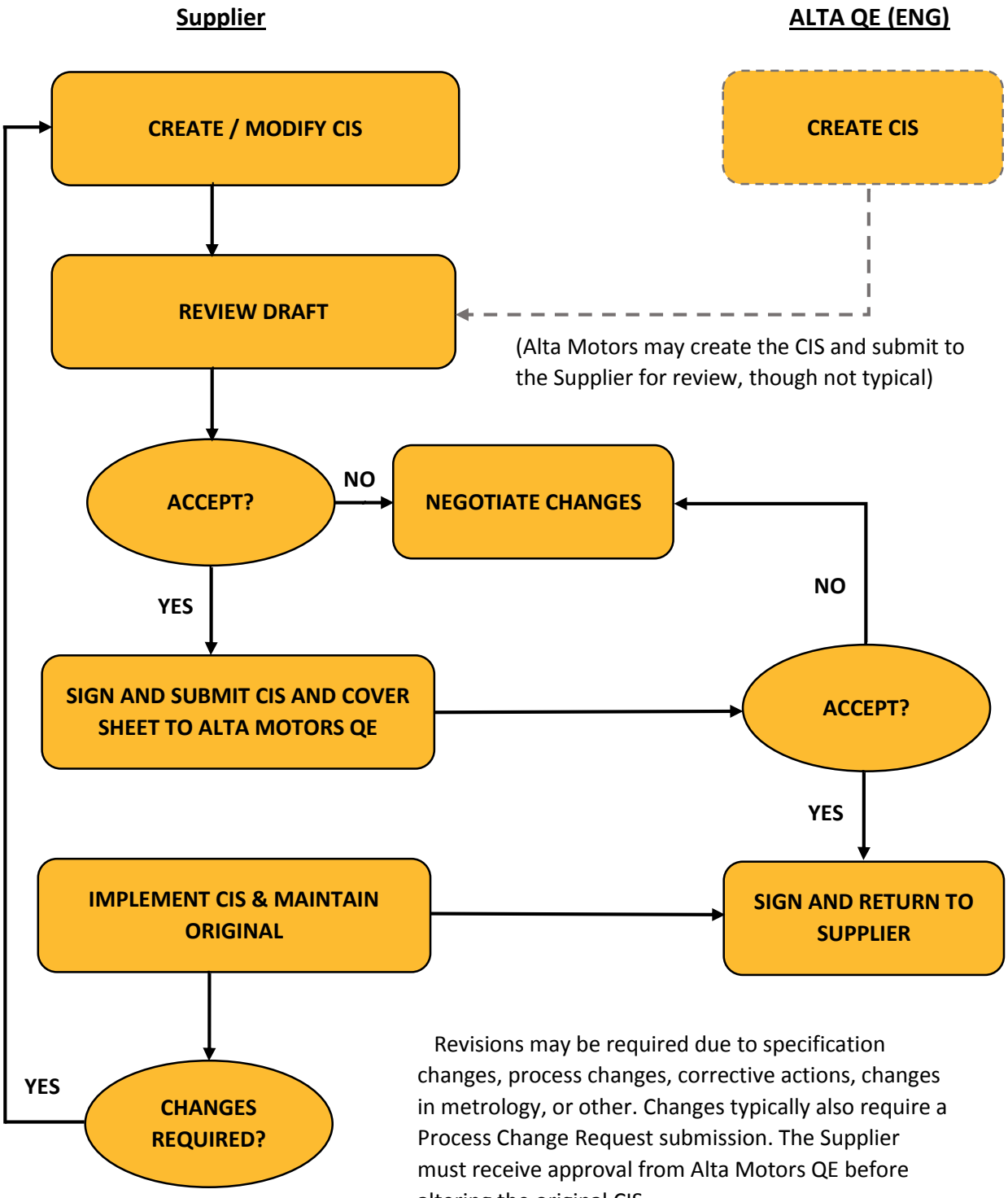
In some cases, the CIS may include items not covered in the Alta Motors released drawing, or may even require more stringent controls. As a general rule, in the case of conflicting requirements, the tighter, more stringent, requirement prevails, and the Supplier is advised to work closely with the appropriate Alta Motors representative, as required, to clarify requirements and resolve any related issues.

Drawing requirements not specifically stated on the part CIS are still important. Alta Motors may request the supplier to revalidate all drawing requirements periodically.

Record and Material Retention:
The Supplier must maintain fully traceable quality records for each lot of parts or materials produced for Alta Motors. These records must be readily retrievable and available to Alta Motors upon request. Quality records must include data for all Significant Characteristics (SC) identified on the CIS and drawings. SC records must be maintained for at least 3 years, unless otherwise specified by regulatory requirements and/or agreement with Alta Motors QE. Data for other characteristics on the CIS must be retained for a minimum of 12 months, or as indicated on the part drawing or related documentation.

Similarly, Alta Motors may require the Supplier to retain product or material samples for a specified period of time. These requirements may be cited in the CIS and/or drawing. This may include weld cut samples, appearance samples, and dimensional masters. The Supplier must work closely with Alta Motors QE & Engineering to clarify quantities, length of retention, and other requirements, if applicable.

GENERAL COMPONENT INSPECTION STANDARD FLOW



Revisions may be required due to specification changes, process changes, corrective actions, changes in metrology, or other. Changes typically also require a Process Change Request submission. The Supplier must receive approval from Alta Motors QE before altering the original CIS.

COMPONENT INSPECTION STANDARD SECTION OVERVIEW

Sec.	Category	Definition / Explanation	Characteristic Examples
A	Inspection Item Drawing	Include the latest level drawing in CIS with applicable features numbered, corresponding to the inspection points on subsequent pages.	
B	Dimensional Requirements	Measurements for feature size and shape of a part or assembly	Length, width, height, hole diameter, flatness, pitch between holes, parallelism, roundness, etc.
C	Material & Physical Properties	Identification of the material and physical properties of the part or assembly.	Chemical composition, morphology, foreign matter, material strength, coefficient of expansion, weld integrity, (penetration, strength, leg length, etc.), inspection torque, electrical resistance
D	Appearance Standards	Requirements that typically are visual in nature or requirements that may be confirmed visually.	Color, gloss level, surface finish, dents, dings, scratches, cleanliness, voids, gaps, items properly seated, presence of component parts, part number legibility, labeling, barcoding, paint marks, serial number traceability, color-coding
E	Performance & Function	The verification a part or assembly can met required performance requirements, including outputs throughout the specified input range. Other: Also use this section for attributes that don't fall under other listed sections.	Pressure range, input/output voltage, fuel composition, flow rats, leakage, force, adhesion strength, creep resistance, efficiency, electrical insulation integrity
F	Reliability & Durability	The ability of a part to perform to specifications under routine and hostile circumstances, and for an extended period of time.	Variability, corrosion resistance, temperature and humidity cycling, life testing.
G	Packaging & Shipping	How a part should be handled, packaged, and shipped	Packaging requirements (container type, quantity, protective materials, orientation, etc.), shipping documents, external labels, etc.
H	Regulatory Compliance	Any applicable government or industrial regulatory requirements that the product must satisfy.	National Highway Traffic Safety Administration (NHTSA), California Air Resource Board (CARB), etc. mandated requirements

Example CIS Approval Sheet:

COMPONENT INSPECTION STANDARD APPROVAL SHEET

Supplier to complete this section

SUPPLIER: Use this sheet for **initial** CIS approval only. For revisions after initial CIS approval, use CIS Revision Request sheet.

Part Name: Lever, Brake, Rear
Part Number: 7000587-00
Part Rev Level: 01
CIS Rev Level: 1 ECO # (if applicable)
To Alta Motors QE: David Bailey

Supplier Name: ABC Metal Works, Inc.
Supplier Address: 1156 Industrial Pkwy
Brisbane, CA 94005
Originator: Bob Hannah
Date: 8/17/2015

Comments:

SUPPLIER APPROVALS:

Name	David Aldana	Bob Hannah	Dick Mann
Date	8/17/2015	8/17/2015	8/17/2015
Title	Project Manager	Quality Engineer	Quality Manager
Signature	David Aldana	Bob Hannah	Dick Mann

Alta Motors to complete this section

ALTA MOTORS REVIEW

[X] The CIS is approved.

[ ] The CIS is **not approved.** Re-submit by the following date:

[ ] The CIS is **conditionally approved**. (Provide explanation below) Valid until:

Comments:

ALTA MOTORS SIGN-OFFS:

Name	David Bailey			
Date	8/17/2015			
Title	Quality Engineer			
Signature	David Bailey			

Quality Engineer

Example Inspection Item Drawing:

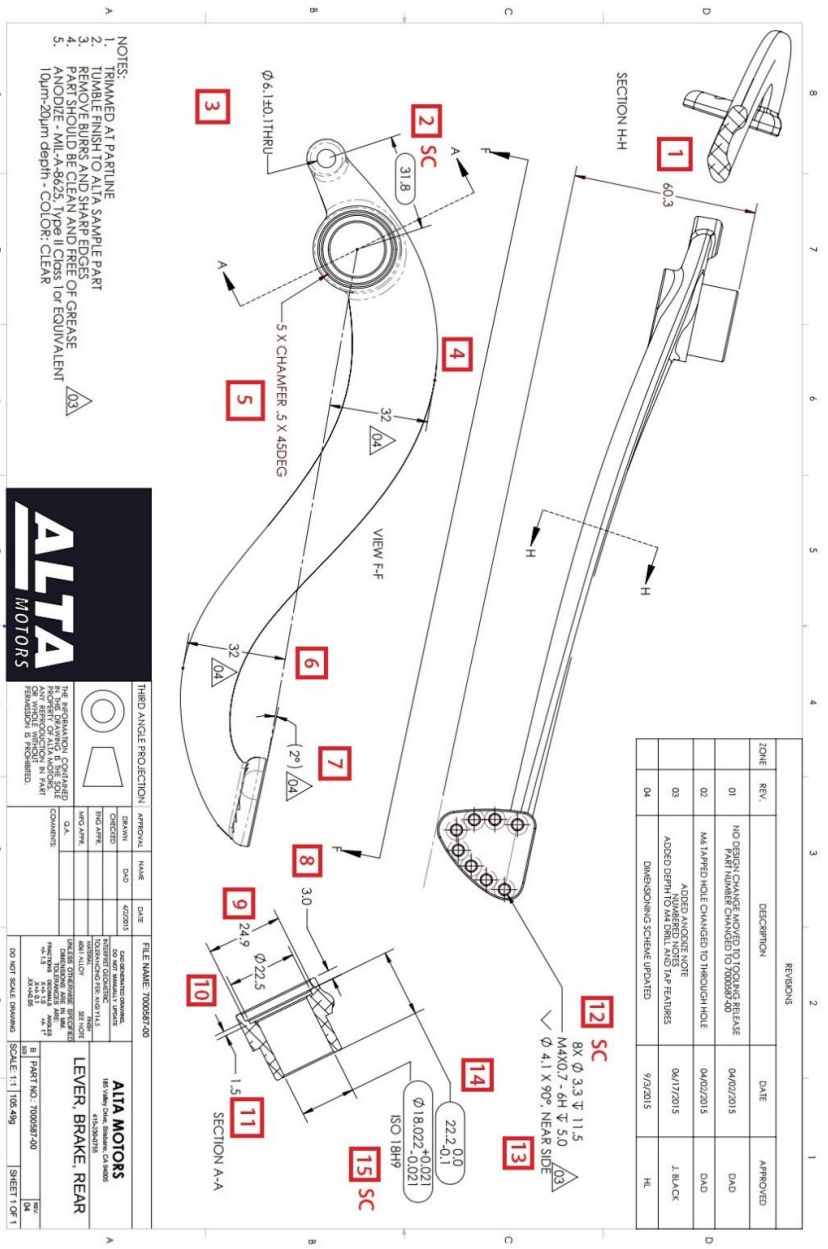
COMPONENT INSPECTION STANDARD

Section **A** Page 1 of 8

INSPECTION ITEM DRAWING

PART NUMBER:	7000587-00
PART DESCRIPTION:	Lever, Brake, Rear
SUPPLIER:	ABC Metal Works, Inc.
CIS REV LEVEL	01
UPDATED	8/17/2015

Provide marked up drawing or other visual representation of measurement points, as applicable



Example Dimensional Requirements:

COMPONENT INSPECTION STANDARD

Section **B** Page 2 of 8

DIMENSIONAL REQUIREMENTS

PART NUMBER: 7000587-00

PART DESCRIPTION: Lever, Brake, Rear

SUPPLIER: ABC Metal Works, Inc.

CIS REV LEVEL 01

UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	Pedal Width	60.3 ± 0.1 mm	CMM	Once per Batch	
2	Hole Relation	31.8 ± 0.1 mm	CMM	Once per Batch	SC
3	Bracket Hole	Ø 6.1 ± 0.1 mm THRU	Calipers	Once per Batch	
4	Midpoint to Edge	32 ± 1 mm	CMM	Once per Batch	
5	Chamfer	5 x CHAMFER 45DEG	Protractor	Once per Batch	
6	Midpoint to Edge	32 ± 1 mm	CMM	Once per Batch	
7	Foot Rest Angle	2° ± 1°	Protractor	Once per Batch	
8	Lever Inside Depth	3.0 ± 0.1 mm	Micrometer	Once per Batch	
9	Lever Inside Width	24.9 ± 0.1 mm	Calipers	Once per Batch	
10	Arm Inside Diameter	Ø 22.5 ± 0.1 mm	Calipers	Once per Batch	
11	Lever Inside Width	1.5 ± 0.1 mm	Micrometer	Once per Batch	
12	Set Screw Holes	8 x Ø 3.3 ↓ 11.5 mm	Calipers	Once per Batch	SC
13	Set Screw Holes	Ø 4.1 mm x 90°, NEAR SIDE	Calipers	Once per Batch	
14	Foot Rest Height	22.2 (+0.0, -0.1) mm	CMM	Once per Batch	
15	Foot Rest Extrude	22.2 (+0.021, -0.021) mm	CMM	Once per Batch	SC

Example Material & Physical Requirements:

COMPONENT INSPECTION STANDARD

Section **C** Page 3 of 8
MATERIAL & PHYSICAL PROPERTIES

PART NUMBER: 7000587-00
PART DESCRIPTION: Lever, Brake, Rear
SUPPLIER: ABC Metal Works, Inc.

CIS REV LEVEL 01
UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	Material Req	Anodize - Mil-A-8625, Type II Class 1 or Equivalent	Material Cert	One per Batch	

Example Appearance Standard:

COMPONENT INSPECTION STANDARD

Section **D** Page 4 of 8
APPEARANCE STANDARDS

PART NUMBER: 1200101-01
PART DESCRIPTION: Bulkhead, Redshift
SUPPLIER: ABC Metal Works, Inc.

CIS REV LEVEL 01
UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	Damage	No dents, deformation, cracks, etc.	Visual	100%	
2	Cleanliness	No Snoop, dye penetrant, oil or other contaminants	Visual	100%	
3	Metal Appearance	Bright. No Oxidation or Discoloration.	Visual	100%	
4	Welds	Polished and Descaled	Visual	100%	
5	TC and MVH Hardness	Correctly Labeled, Routed and Terminated	Visual	100%	

Example Performance & Function Standard:

COMPONENT INSPECTION STANDARD

Section **E** Page 5 of 8

PERFORMANCE & FUNCTION

PART NUMBER: 56000382-01
PART DESCRIPTION: Battery Controller
SUPPLIER: ABC Metal Works, Inc.

CIS REV LEVEL 01
UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	Welds	Performed and Inspected per Specification E-10 and FCWI-017	Visual	100%	
2	Leak Test (Fuel Out)	2.0 ± 0.5 psi Snoop. No Bubbles.	Leak Check Fixture	100%	
3	Leak Test (Coolant Port)	7.0 ± 0.5 psi. Snoop, No Bubbles.	Leak Check Fixture	100%	
4	TC Function	TC reads ± 5°C of current ambient temperature.	TC Checker	100%	
5	MVH Function	No resistance in each circuit	Continuity Tester	100%	

Example Packaging & Shipping Requirement:

COMPONENT INSPECTION STANDARD

Section **F** Page 6 of 8

RELIABILITY & DURABILITY

PART NUMBER: 56000382-01
PART DESCRIPTION: Battery Controller
SUPPLIER: ABC Metal Works, Inc.

CIS REV LEVEL 01
UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	Braze Joints	Alta Motors Acceptance Criteria	Cross-Sections	As Required	
2	Braze - Vacuum	Minimum 999µTorr above 300°C	Vacuum Furnace Data	100%	
3	Braze - Temperature	Per above TC Limits	Vacuum Furnace Data	100%	

Example Packaging & Shipping Requirement:

COMPONENT INSPECTION STANDARD

Section **G** Page 7 of 8

PACKAGING & SHIPPING

PART NUMBER: 56000387-01

PART DESCRIPTION: Brake Calipers, Front

SUPPLIER: ABC Metal Works, Inc.

CIS REV LEVEL 01

UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	General Requiremens	Parts to be packaged in a method that prevents damage and moisture during shipment	Visual	100%	

Example Regulatory Compliance Standard:

COMPONENT INSPECTION STANDARD

Section **H** Page 8 of 8

REGULATORY COMPLIANCE

PART NUMBER: 7000587-00

PART DESCRIPTION: Headlight Assembly, Redshift

SUPPLIER: Bright Lights Corp.

CIS REV LEVEL 01

UPDATED 8/17/2015

Item	Characteristic	Specification / Requirements	Method to Measure	Inspection Frequency	SC?
1	Corrosion	SAE J 575e Aug. 70	DOT Test Report	Prior to FA	
2	Vibration	SAE J 575e Aug. 70	DOT Test Report	Prior to FA	
3	Color	SAE J 578c Feb. 77	DOT Test Report	Prior to FA	
4	Photometry	FMVSS 108 Figure 32. (J 584 Oct. 93)	DOT Test Report	Prior to FA	
5	Moisture	SAE J 575e Aug. 70	DOT Test Report	Prior to FA	
6	Dust	SAE J 575e Aug. 70	DOT Test Report	Prior to FA	

Sample CIS Revision Request:

COMPONENT INSPECTION STANDARD REVISION REQUEST

Supplier to complete this section

SUPPLIER: Use this sheet for revisions to an approved Component Inspection Standard. Review proposed changes with Alta Motors QE before making any changes to process, gages, or product.

Page 1 of 2

Part Name: Hinge, Fuel Door
Part Number: 56223
Part Rev Level: 02

CIS Rev Level: 01

Supplier Name ABC Metal Works Inc.
Supplier Address 1156 Industrial Way
San Francisco, CA 94101

Originator: Bob Hannah
To Alta Motors QE: David Bailey
Date: 8/17/2015

Reason for change: Increase frequency of coating and corrosion testing in response to recent rusting issue.

Proposed changes have been reviewed with the following Alta Motors Quality Engineer: David Bailey

Change Content (Identify change points on the actual CIS, denoting this CIS rev level)

Page #	Before Change	After Change	Comments
2	No in-house coating checks.	Adding coating check for composition and thickness using XFR machine for each received coil of material.	Will continue to confirm sub-supplier's material certifications before releasing material to Inventory, as indicated in Control Plan and CIS.
2	Corrosion testing frequency = once per year.	Corrosion testing frequency = 1/lot	

[X] If marked, additional information provided on attached sheet(s).

SUPPLIER APPROVALS:

Name	Bob Hannah	David Aldana	
Date	8/17/2015	8/17/2015	
Title	Quality Engineer	Project Manager	
Signature	Bob Hannah	David Aldana	

Section 8.0 Component Evaluation Plan

Purpose:
To document the Supplier's plan to guarantee component quality at each development phase.

Scope:
This applies to Suppliers of custom Alta Motors parts. The Supplier submits after First Article submissions.

Explanation:
The Component Evaluation Plan (CEP) documents the Supplier's product test plan and related timing to validate product quality. It is initially used in product qualification and at various phases of the project, and as supporting documentation for Process Change Requests, when relevant. This includes Process Change Requests required as a result of Alta Motors-initiated drawing changes.

The CEP must identify major inspection items listed in the Component Inspection Standard, in addition to any required evaluations for items identified in drawings, referenced documents, or per review with Alta Motors QE.

It should be prepared in parallel with the initial development of the Component Inspection Standard, and may need to be re-submitted whenever there are changes in the product or process. It is suggested that the Supplier work closely with Alta Motors QE to understand requirements for submission.

The level of detail in the CEP depends on the part and activity. The CEP for the initial qualification of a complex part will typically be more comprehensive than the CEP for a previously qualified part subjected to a minor shape change. For every case, the CEP must identify features to be verified, quantity to check, and related timing. This includes dimensional, performance, and reliability items.

Please note that it is the Supplier's responsibility to confirm that a part conforms to Alta Motors' specifications. In the event that the Supplier lacks the resources to confirm any documented requirements, the Supplier must work together with Alta Motors QE to ensure appropriate actions are taken to evaluate the part.

A sample Component Evaluation Plan is shown on the next page.

Sample Component Evaluation Plan:

COMPONENT EVALUATION PLAN

Submission Date: 8/17/2015

SUPPLIER NAME: ABC Metal Works Inc.
SUPPLIER LOCATION: San Francisco, CA
PART DESCRIPTION: Controller Enclosure, Redshift
PART NUMBER: 12010110
PART REV LEVEL: 02

	SUPPLIER APPROVALS		
NAME	Bob Hannah	Dick Mann	
DATE	8/17/2015	8/17/2015	
TITLE	Quality Engineer	Program Manager	
SIGNATURE	Bob Hannah	Dick Mann	

CATEGORY	EVALUATION ITEM	SPECIFICATION / REQUIREMENT	SAMPLE SIZE	EVALUATION SCHEDULE 17-Aug	24-Aug	31-Aug	7-Sep	14-Sep	21-Sep	28-Sep	5-Oct
DIMENSIONAL	All Dimensional SC's	CIS	25								
	All other dimensions	CIS & Drawing	5								
RELIABILITY / DURABILITY	Life Cycle Test	10,000 Cycles, No Failures	25								
	Corrosion Resistance	1000 hours, no rust ASTM B117	25								
PERFORMANCE / FUNCTION	Leakage	None at 80 psi	25								

Section 9.0 Process Flow Diagram

Purpose:
Provide an explanation for the Process Flow Diagram and detail Supplier submission requirements

Scope:
Applies to all Suppliers of custom Alta Motors parts, unless waived by Alta Motors. May also apply to Suppliers of "stock" parts, if so specified. Timing for submission is usually early in the project, after the process and control points have been determined.

Overview:
The Process Flow Diagram clearly lays out all the steps in the manufacturing process such that the basic processes and procedures may be fully developed and tuned. The Process Flow Diagram gives a visual flow of the Supplier's production process, from raw material receipt through final shipping. It must show all material flow, including non-standard flow, such as materials deemed non-conforming.

The Process Flow Diagram is a tool used to develop the PFMEA and Control Plan, and all these documents must be in agreement. The Process Flow Diagram should typically be submitted shortly after First Article approval, and the document must be updated and re-submitted whenever revised.

Example Process Flow Diagram:

Changeover Key
P = Product
T = Tooling
S = Software
D = Dunnage
L = Label

Inspection
A = Automatic
M = Manual
V = Visual
Q = Quality Audit

Symbol Instructions

PROCESS FLOW DIAGRAM

Supplier: ABC Metal Works, Inc.
Part Number: 56000852-01
Part Description: Bracket, Tail Light, Rear, Redshift
Rev Date: 8/17/2015

Op - Seq.	Fab	Move	Store / Get	Inspect	Rework	Scrap / Contain		Changeover	Operation Description	Class (KPC, QCI)	Significant Process Characteristics (Outputs)	Class (KPC, QCI)	Significant Process Characteristics (Inputs)
	◇	○	△	□	⬠	⬢							
10				M					Raw Material Receiving and Verification		Material Hardness and Thickness		Material Certification
20		○							Move to Stamping Station				
30	◇								Stamp out Base Plate				Correct die, press input pressure, stroke length
40				M					Measure Base Plate		Correct length, width. No sharp edges or burrs.		

Section 10.0 Process Failure Modes and Effects Analysis

Purpose:
Provide an overview of the Process Failure Modes Effect and Analysis and required Supplier activities.

Scope:
Required for all custom Alta Motors parts unless stated by Alta Motors QE. May also apply to "stock" parts, if so specified. Activities typically commence shortly after First Article samples are produced, and continue through mass production.

Overview:
The Process Failure Modes Effect and Analysis (PFMEA) is an effective tool to help develop a robust manufacturing process and provides evidence the Supplier has reviewed their process to assess and mitigate the potential risks of producing and allowing flow-out of non-conforming product.

The Supplier is required to submit a PFMEA for all custom parts prior to the start of mass production.

The PFMEA should be completed by a cross-functional team with sufficient experience and knowledge to identify potential risk points at each step of the production process, as well as developing countermeasures for those risk points.

For each process, the team must identify potential failure modes, and assess the potential:

"severity" – the seriousness of the potential quality defect
"occurrence" – the likelihood of the defect occurring
"detection" – the ability to find the defect and prevent flow-out

Examples for calculating potential risks are provided on the next page for reference only. Alta Motors QE can help provide guidelines, additional information, and identify other resources, for those Suppliers unfamiliar with constructing PFMEAs.

For those processes identified as highest risks, the Supplier's team must create, document, and implement corrective actions to reduce the potential risks. The PFMEA must be updated to include the improvements and the revised risk assessment. Additionally, the Control Plan and other related documents may require revision to reflect the new processes.

The PFMEA is a living document, used to drive continuous improvements. Note, however, any required changes in the process must be incorporated in the Supplier's Control Plan and may require submission / Alta Motors approval of a Process Change Request, if applicable, prior to implementation.

For each process and potential failure mode, the Supplier assigns a Risk Priority Number.

Risk Priority Number (RPN) = **Severity** rating x **Occurrence** rating x **Detection** rating

Those items with the highest RPNs should be addressed first. The Supplier must determine suitable process countermeasures to drive down the RPN, then review the process again.

Ratings Examples: (For reference only: Supplier's tables should include judgement based on the commodity)

SEVERITY RATING

10	Failure could cause major safety hazard without warning.
9	Failure could cause safety issue, such as electrical or explosive hazard.
8	Failure would violate current regulatory requirements.
7	Product may become inoperable or require scrapping.
6	Product may stop functioning and require immediate servicing.
5	Product functions poorly, such as loss of efficiency, early life failure, water leaks.
4	Product may function but most customers would be dissatisfied – excess noise, etc.
3	Minor product defect that may need eventual attention.
2	Minor issue accepted by most or all customers.
1	Little or no consequence to user. May not even be discernable by most.

OCCURENCE RATING

10	Very High. Failure almost inevitable.
9	Highly likely.
8	Likely to occur.
7	Higher than normal chance of failure.
6	Moderate chance of failure.
5	Moderate to low chance of failure.
4	Infrequent failures likely.
3	Chance of failure is very low.
2	Remote chance of failure.
1	Almost no possibility to occur.

DETECTION RATING

10	No capability to detect defect.
9	Highly unlikely to detect.
8	Unlikely to detect.
7	Unlikely to detect at the point of cause but high opportunity at subsequent operation.
6	Low probability of detection at point of cause, moderate opportunity at next operation.
5	Moderate opportunity to detect at point of cause and highly likely at next operation.
4	Likely to detect in station and at subsequent operations.
3	Likely to detect – controls in place to detect defect in station. Flow-out unlikely.
2	High likelihood to detect in station and at subsequent operations.
1	Almost certain to detect through use of robust error-proofing methods.

Example PFMEA:

Process Failure Modes and Effects Analysis

Page 12 of 18

Supplier: ABC Metal Works, Inc.
Part Number: 56000389-01
Part Description: Controller Housing, Redshift
Part Revision Level: 01

				SEVERITY		OCCURENCE		DETECTION								
Step No.	Process	Requirements	Potential Effects of Failure	S	Potential Cause (s) of Failure	O	Current Process Controls	D	Risk Priority Number	Recommended Action	Responsibility (Timing)	Actions Taken	S	O	D	Risk Priority Number
4	Threaded Drain Plug installation	Tightened to 500 kgf-cm threaded hole air tight	Silicon Nitride gasket not sufficiently compressed	9	Operator, with manual ratchet, doesn't fully tighten Drain Plug	7	Operator visually inspects 100% to confirm plug is fully seated	8	504	1. Replace manual ratchet with torque wrench, with low torque alarm and line interlock	1. Mfg Engineer - David Aldana (by June 19)	1. Completed and function verified (June 12 - David Aldana)	9	2	2	36
										2. Perform torque interlock function check once / hour	2a. Mfg. Engineer - Bob Smith to add to station Work Instructions (by June 15)	2a. Instructions added to Work Instructions. Training of affected personnel complete. (June 15 - David Aldana)				
											2b. Station Lead to perform and populate checksheet (from June 18)	2b. Hourly verifications in place, confirmed by QA Dept. audit (June 25 - David Aldana)				
										3. Add 15 psi leak check station at next operation	3. Mfg. Engineer - David Aldana (by June 30)	3. Leak check station implemented and verified (July 1 - David Aldana)				

Section 11.0 Control Plan

Purpose:
Describe Alta Motors requirements for Supplier documentation of their production process and key control points to ensure consistent, high quality product.

Scope:
Applies to Suppliers of custom Alta Motors parts. May also apply to "stock" parts, if so specified. Activities begin shortly after First Article submission and continue throughout the life of the product.

Overview:
The Control Plan documents the elements of the manufacturing process such that the process is optimized and standardized and all control points and reactions to non-conformances of both process and product are formalized.

Before the start of mass production, the Supplier is required to give a Control Plan for all custom parts produced for Alta Motors. The Control Plan specifies all process steps and related control points to guarantee only high quality products are produced and shipped.

The Control Plan shall list each process step, from the receipt of raw material through final buy-off and shipment. It must include key characteristics being controlled, any relevant specifications or machine settings, inspection points and related methods and frequencies, and reaction plans for detected nonconformance.

Furthermore, alternative material flows, such as nonconforming material rework, must be documented.

The Control Plan shall tie together all the essential elements to guarantee conforming product is produced. All CIS items should normally be incorporated in the Control Plan, together with any controls cited on the PFMEA, steps identified in the Process Flow Diagram, and relevant drawing requirements. Elements of the Control Plan include:

Process name
Equipment used
Characteristics being controlled
Requirements or specifications
Control levels
Confirmation method, frequency, associated personnel
Reaction methods for non-conformances
Data collection requirements, including SCs

The Control Plan must be considered a "living document" and updated whenever there is a change to the process due to specification changes, process or quality enhancements, equipment changes, or other relevant changes. After the initial Control Plan has received Alta Motors approval, the Supplier must submit an updated Control Plan for Alta Motors approval prior to making any process changes. Additionally, once approved for mass production, the Supplier must submit a Process Change Request, as well, if applicable, before implementing changes.

The Control Plan is tied to the CIS, the PFMEA, and the Process Flow Diagram, and all must align, especially as parts or process requirements change.

An example is provided below for reference.

Sample Control Plan:

ALTA MOTORS

Page 12 of 18

CONTROL PLAN

SUPPLIER	Bay Area Castings Inc.
PART NUMBER	1201010
PART DESCR	Controller Housing, Redshift
SUPPLIER DOC #	103569846
REVISION LEVEL	1
UPDATED	8/17/2015

SUPPLIER APPROVALS

NAME	Bob Hannah	Dick Mann	Will Davidson
DATE	8/17/2015	8/17/2015	8/17/2015
TITLE	Quality Engineer	Program Manager	Quality Manager
SIGNATURE	Bob Hannah	Dick Mann	Will Davidson

Step	Process Name / Operation Description	Machine, device, jig, tools for mfg.	Characteristics		Mark applic. Box			Measurement						Who	Responding Plan
			No.	Process	Product	Process	SC	Specification / Tolerance	Control Level	Evaluation / Measurement Technique	Sample Size	Sample Freq.	Control Method		
12a	Leak check, confirm housing assembly does not leak	Leak Check Station	1	Leak Check	X		X	< 0.1 psi loss after 1 minute, at 60 psi	< 0.05 psi loss after 1 minute, at 60 psi	Leak Check Fixture	100%	100%	Populate Daily Station Checklist	Operator	Send to reject rack, contact Supervisor on 2nd occurrence within shift.
12b			2	Equipment Verification		X		Detection of non-conforming part			1	Every Hour	Populate Daily Station Checklist	Station Lead	Stop the line. Contain the product and contact maintenance.

Section 12.0 Appearance Standards / Boundary Samples

Purpose:
Procedure for defining requirements for attributes, usually visual, some of which are not readily defined or quantified by drawings or descriptions.

Scope:
May apply to any part that requires sensory judgment for aesthetics or function, typically for coatings, surface finish, minor imperfections, etc. Also applies to parts that require color-matching data. When applicable, timing is typically before mass production, but in some cases the need for standards may arise during mass production.

Overview:
Frequently a part's usability cannot be clearly defined without actual samples or images. Essentially, some requirements may be subjective in nature. This section provides guidelines for defining requirements, creating standards, the approval process, and maintenance of the standards.

Typically, the drawing and/or the CIS will identify those attributes that require an approved Boundary Sample, Color Standard, or similar requirement, though in some cases, the need for Boundary Samples arise during sample submissions or even during mass production.

Appearance standards may take the form of images, sample plaques, actual parts, etc. Each approved sample must have a tag or label affixed to it that has been signed off by both Alta Motors QE and the Supplier.

Boundary Samples typically are actual samples showing the borderline cases of either acceptable or unacceptable quality levels, and must be identified accordingly. These samples must be submitted with an "Appearance Sample Approval" form. Boundary Samples usually apply to appearance items, such as color, texture, voids, etc. but may apply to any other attributes not readily quantified by other means. Images may also be used to display boundary sample criteria, and the image may be directly incorporated into the Component Inspection Standard, if applicable.

Color Standards or Color Plaques are typically panels that the Supplier creates using specified coatings, and submits to Alta Motors Engineering & QE for review and approval. The Supplier must provide color data with each sample, as described below, and as specified on the CIS and/or drawings and submit an "Appearance Sample Approval" form for Alta review. The Supplier must also adhere to Alta sourcing requirements for raw material suppliers, such as coatings, if so specified.

Data to be provided and indicated on each color sample includes:

Color name
Color manufacturer
Sample substrate
Color measurement
Gloss value
Film thickness

Contact Alta Motors QE to clarify any other requirements before submitting the samples for review, if applicable. Requirements are subject to change based on the latest drawing requirements and applicable documents.

An example Appearance Sample Approval form is shown on the next page.

Example Appearance Sample Tag:

APPEARANCE SAMPLE

Sample Serial #: 0001

MARK ONE:

[X] BOUNDARY SAMPLE FOR: [X] ACCEPTABLE CONDITION [ ] REJECTABLE CONDITION

[ ] COLOR SAMPLE [ ] COLOR DATA SHEET(S) ATTACHED

ACTIVE DATES OF SAMPLES
FROM DATE: 8/17/2015
TO DATE: 8/17/2016

PART NUMBER: 231321-01
PART DESCRIPTION: Battery Housing
SUPPLIER NAME: ABC Metal Works, Inc.
SUPPLIER LOCATION: 1156 Industrial Pkwy.
San Francisco, CA 94403

COMMENTS:

SUPPLIER APPROVALS				ALTA MOTORS APPROVALS		
Bob Hannah	David Aldana	Will Davidson	NAME			
Quality Director	Project Manager	Quality Engineer	TITLE	Quality Engineer		
8/17/2015	8/17/2015	8/17/2015	DATE			
Bob Hannah	David Aldana	Will Davidson	SIGN			

ATTACH THE COMPLETED SHEET TO APPROVED SAMPLE.

NOTE: Approved Boundary Samples/Color Approvals must be referenced in the Component Inspection Standard

Sample Appearance Approval Form:

APPEARANCE SAMPLE APPROVAL

To Alta Motors QE : David Bailey DATE: 8/17/2015 Page 1 of 2

[X] BOUNDARY SAMPLES

[ ] COLOR SAMPLES

SUPPLIER: ABC Metal Works, Inc.

SUPPLIER LOCATION: 1156 Industrial Pkwy.

San Francisco, CA 94403

Part Number: 231321-01

Part Description: Battery Housing

Sample submission description:

Reason for submission / comments:

Show acceptable rust levels on case end side of crimp area

Note: All approved samples must be appropriately tagged, and signed off by both the Supplier and Alta Motors.

[X] Quantity of samples provided: **2**

[ ] Other items provided:

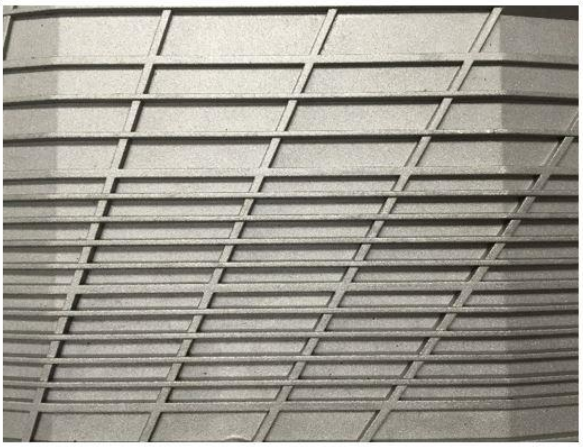
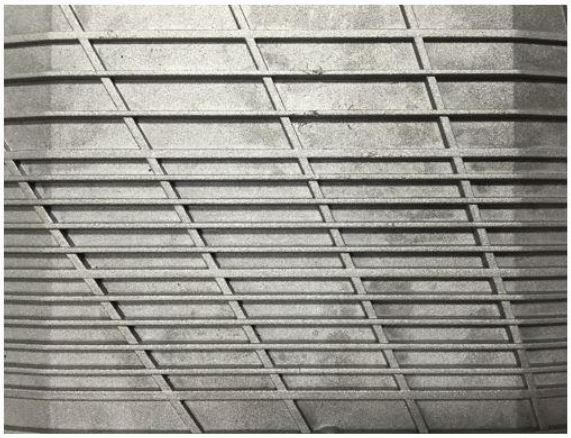
	Complete this section jointly with Alta	
APPEARANCE SAMPLE SERIAL #	WHERE STORED	
	SUPPLIER	ALTA
ALTA - 0001		**X**
ALTA - 0002		**X**

	SUPPLIER APPROVALS		
Name	Bob Hannah	David Aldana	
Title	Quality Director	Project Manager	
Date	8/17/2015	8/17/2015	
Signature	Bob Hannah	David Aldana	

Example Boundary Sample:

8/17/2015 231321-01

Component Inspection Standard: Boundary Samples

OK Sample	NG Sample
	

Criteria:

No discoloration or casting imperfections.

Section 13.0 Part Approval

Purpose:
Outline all major submission requirements for the Supplier to receive production process approval

Scope:
Applies to all Suppliers of custom Alta Motors parts and assemblies, unless waived by Alta Motors. Though many elements of the approval process may begin early in the project process, Part Approval may be granted only after the production tooling and production processes are in place and validated.

Overview:
The purpose of Part Approval is to verify the Supplier is qualified to produce production parts and provide formal approval to the Supplier by Alta Motors. It is the peak of the pre-production activities, where the Supplier has comprehensively evaluated and verified their process and product, and successfully met all Alta Motors pre-production requirements, together with document submissions. It is a key milestone leading to production orders. In order to avoid project delays, the Supplier is urged to work closely with Alta Motors QE to ensure all open issues have been addressed.

To receive Part Approval, the Supplier must first submit a Part Approval Request for each component deemed ready for mass production and then receive Alta Motors QE signed approval. The Supplier must use Alta Motors' format for the cover sheet. Furthermore it is recommended that the Supplier work together with the relevant Alta Motors personnel to achieve a better understanding of the documentation required by Alta Motors.

The component and process must be evaluated at production-intent level (including production tooling, production process, production materials, and production location) before the Supplier submits the Part Approval Request, unless otherwise authorized by Alta Motors.

The Supplier must follow the process outlined in Section 6.0, "First Article Submission and Approval", when submitting Production Samples for evaluation, but the supplied parts and data must be production intent. The Purchase Order will indicate "Production Samples" in most cases. The Supplier's submission requirements include providing relevant documentation, data sheets, tagged or marked parts, and labeled shipping containers. Alta Motors QE is the coordinating department for Production Sample submissions, and the appropriate Alta Motors QE representative should be consulted if the Supplier has any questions or concerns.

The required submissions for Part Approval are listed below. Other submissions may also be required, depending on the project or commodity, as directed by Alta Motors QE. All items must be current and based off the Supplier's intended production process. In many cases, previously submitted documents may satisfy some of the requirements if there have been no changes. Some items listed may not be applicable or required per prior Alta Motors QE agreement.

These items are to be submitted to Alta Motors QE for Part Approval:

Part Approval Request
Quality Contact Form
First Article Report
Material Certification
Component Inspection Standard
Process Flow Diagram
Process Failure Mode and Effects Analysis
Control Plan
Appearance Standards / Boundary Samples, if required
Component Evaluation Plan

Upon receipt of the Part Approval Request form and any required supporting documentation, Alta Motors QE will review the materials and provide a judgement:

- Approved: Alta Motors QE will authorize Alta Motors SCM to proceed with initial production orders. These orders may be of limited quantity, and may require additional activities to validate the Supplier's process, including capacity, yield, and process capability studies before the Supplier may begin mass production.
- Conditionally Approved: Alta Motors QE is providing temporary approval, but the Supplier must address open quality issues, and take special actions to ensure product conformance. This may include 100% inspection for all Significant Characteristics. Alta Motors QE will provide details and further instructions to the Supplier.
- Not Approved: Alta Motors QE or Engineering will identify issues requiring correction before the Supplier may proceed further. The Supplier will need to re-submit an updated Part Approval Request form when these open issues have been resolved.

An example of the Part Approval Request form is shown on the next page.

Sample Part Approval Request:

PART APPROVAL REQUEST

I. SUPPLIER AND PART INFORMATION (**Supplier** to complete this section) Date: 8/14/2015

To Alta Motors Quality Engineer: David Bailey
Copy to Alta Motors SCM: Dick Mann

Supplier Name: ABC Metal Works Inc.
Address: 1156 Industrial Pkwy
San Francisco, CA 94111

Part Name: Swingarm, Redshift
Part Number: 1200010-01 Rev Level: 01
ECO #: (if applicable)

Contact: Bob Hannah

Production parts have been evaluated in accordance to the latest production drawing and change notifications indicated above.

II. SUBMISSION HISTORY (**Supplier** shall list only the most current level documents and submissions below. For those items not required, indicate "Not Applicable" in the "Supplier Submission Date" field.)

Document	Rev Level	Supplier Submission Date	Alta Motors Approval Date	Comments
Quality Contact Form	01	6/1/2015	6/7/2015	
First Article Report	01	6/1/2015	6/7/2015	
Material Certification	01	7/14/2015	8/5/2015	
Component Inspection Standard	01	7/14/2015	8/5/2015	
Process Flow Diagram	01	7/14/2015	8/5/2015	
PFMEA	01	7/14/2015	8/5/2015	
Control Plan	01	7/14/2015	8/5/2015	
Appearance Standards / Boundary Samples	01	N/A	N/A	
Component Evaluation Plan	01	7/14/2015	8/5/2015	
Other updated items: (list below)				

(Mark applicable boxes below)

[X] Latest tooling, processes, submitted documentation and parts are at production-intent level
[ ] The following items are not production-intent level, as described below:

[X] There are no major open quality issues
[ ] There are open quality issues, as described below:

SUPPLIER APPROVALS:

	APPROVER	REVIEWER	ORIGINATOR
Name:	David Aldana	Bob Hannah	William Davidson
Title:	Quality Manager	Client Relations	Quality Engineer
Date:	7/31/2015	7/31/2015	7/31/2015
Signature:	David Aldana	Bob Hannah	Will Davidson

Section 14.0 Process Change Request

Purpose:
Define Supplier requirements for any changes to a part or process that may impact product quality.

Scope:
Applies to all Suppliers of custom Alta Motors parts and assemblies from initial Part Approval through end of production. May also apply to Suppliers of "stock" parts, if so specified.

Explanation:
The Process Change Request (PCR) is intended to guarantee that potential changes to the Supplier's process are clearly communicated, reviewed, and approved by Alta Motors QE before any actions are taken that could impact product quality.

When a Supplier submits their initial package for Part Approval, their manufacturing process is considered production intent, and must be accurately reflected in the supporting documentation. Alta Motors QE ultimately grants Part Approval based on the Supplier's submitted package. Any changes to part or process at that point are not authorized, and the Supplier may not implement them without Alta Motors QE approval.

A PCR is required for the following situations:

1. Changes in production processes, sequences, locations, tooling, etc.
2. Parts drawing or requirement changes that impact part form, fit, function, or reliability
3. Manufacturing location changes within a plant or to a new location
4. Major manpower change (Additional shift, etc.)
5. Engineering Change Order (ECO) after Part Approval
6. Change in approved process, tooling and/or layout (change in process flow, inspection & testing in sub-supplier approved production process tooling and/or layout.)
7. Re-commissioning of equipment that has been dormant greater than 90 days
8. Changes in testing or inspection methodologies and/or frequencies
9. Changes in material or source of material
10. Changes in regulations
11. Sub-supplier changes

The Supplier is urged to contact Alta Motors QE should they need clarification on whether a planned change requires formal Alta Motors QE or Engineering approval.

A PCR is not required for:

1. Relocation of small tools, jigs, fixtures that are not part of the main production line and do not affect process or part quality
2. Regular replacement of perishable tools or preventative/predictive maintenance
3. Minor day-to-day Kaizen activity

For changes that require formal approval, the Supplier must submit a Process Change Request specifying the reason and scope of the request. The Supplier must send the form to the appropriate Alta Motors representatives, as indicated on the form, depending on the type of change being requested. The Supplier must allow adequate time for the review process, which may require several months or longer, depending on the nature of the change.

The Supplier must submit a PCR any time a part drawing has changed, regardless of scope, unless waived by Alta Motors QE. For minor drawing changes, such as a minor notation change or loosening of existing tolerances, Alta Motors QE will likely waive the requirement. For other minor drawing changes, the Supplier will usually be required to submit the PCR, sample parts, and data/related documentation only for the change portions. The Supplier must work closely with Alta Motors QE to clarify submission requirements.

The Supplier may also use the PCR to formally request a change to an Alta Motors drawing or document. In that case, the Supplier submits the PCR to Alta Motors Engineering and copies Alta Motors QE.

Along with the PCR submission, the Supplier must give applicable supporting data, documentation, and sample parts, dependent on the scope of the change. The Component Inspection Standard, Control Plan, PFMEA, and Process Flow Diagram are documents that are potentially impacted by the change, and thus require revision. In most cases, the Supplier must include a Component Evaluation Plan, which details the planned evaluation items, quantities, and related timing.

Furthermore, upon approval of the PCR, the Supplier must provide implementation timing and shipping information to Alta Motors QE, and attach a Sample Parts label to the shipping container for the first shipment, or otherwise identify the material as agreed upon by Alta Motors QE.

Note: the Supplier may not use the Process Change Request form for nonconforming materials. To request permission to ship nonconforming materials, the Supplier must submit a Supplier Deviation Request, as described in the "Nonconforming Materials" section of the SQAH.

Example Process Change Request Form:

PROCESS CHANGE REQUEST

Alta Motors Tracking #: 000001

Supplier to complete this section

Supplier Company Name: Bay Area Castings Inc.
Supplier Location: Daly City, CA
Supplier Contact Name: Bob Hannah
Contact e-mail address: bhannah@bayareacastings.com
Target implementation date: August 29th, 2015
Cost impact (if applicable): None

PCR Submission date: August 17, 2015
Supplier Tracking Number:
Part Description(s): Rear Swingarm, Redshift
Affected Part number(s): 1200010
Part Revision Level: 02
ECO # (if applicable):

PAGE 1 OF: 3

Change Request Type:

		Send to: (list applicable Alta representatives)	**Copy to:**
	Alta drawing change/ECO ---------->	Alta Motors QE:	Alta Motors ENG:
	Supplier request to change design ---------->	Alta Motors ENG:	Alta Motors QE:
X	Process change ---------->	Alta Motors QE: David Bailey	Alta Motors SCM: Doug Henry
	Other ---------->	Alta Motors QE:	Alta Motors SCM:

Reason for change:	**Proposed change details:**	**Potential impact / characteristics affected:**
Improve machining time and reduce variation in surface flatness.	Modify the fixture that holds the swingarm during the facing operation to meet flatness specification called out in the Alta Motors drawing. The changes are redlined in the part drawing on the following page. X Mark box if additional details/drawings are attached	Mating surface between brake assembly and swingarm.

SUPPORTING DOCUMENT / SAMPLE STATUS

(**I**= Included, **P**= Planned, **NA**= Not Applicable)

		Comments:
P	Component Datasheet	Trial run scheduled for Sept 1st
I	Component Evaluation Plan	Attached
N/A	Comp. Inspection Standard	
I	PFMEA	RPN reduced 50% (attached)
NA	Process Flow Diagram	
I	Control Plan	Target Sept 8th
P	Sample Parts Qty: 50	
I	Attached Drawing	
	Other:	
	Other:	
	Other:	

ADDITIONAL COMMENTS:

New fixtures have a 2 week lead time. This change will not impact the current production schedule. Will run 50 part capability study.

SUPPLIER APPROVALS

Name	Bob Hannah	Dick Mann	
Title	Quality Manager	Quality Engineer	
Date	August 17, 2015	August 17, 2015	
Signature	Bob Hannah	Dick Mann	
	QUALITY MANAGER	QUALITY ENGINEER	

Alta Motors Evaluation and Approvals

PLAN REVIEW (Alta Motors to complete this section)

X Supplier's plan is approved (for Implementation, see section below)

Supplier's Request is **NOT** approved

Comments / additional submission requests / additional activities:

Additional required activities, as indicated:

- Sample parts/dimensional data required
- Performance/reliability testing required
- Alta Motors Process Audit required
- Supplier-Alta meeting required
- Part Approval Request submission required
- Additional requirements, per comments below

	ALTA MOTORS REVIEW		
Name	David Bailey	Doug Henry	
Title	Quality Manager	SCM	
Date	8/24/2015	8/24/2015	
Signature	David Bailey	Doug Henry	
	QUALITY ENGINEER		

IMPLEMENTATION (Alta Motors to complete this section)

X Supplier is authorized to implement for production. Contact AM QE before first shipment and label the package per SQRM requirements.

Supplier is **NOT** authorized to implement change

Comments / additional submission requests / additional activities:

	ALTA MOTORS REVIEW			
Name	David Bailey	Doug Henry		
Title	Quality Manager	SCM		
Date	8/24/2015	8/24/2015		
Signature	David Bailey	Doug Henry		
				QUALITY ENGR

SHIPPING INFORMATION (Supplier to provide upon Alta Motors approval)

NOTE: Supplier must tag initial shipment with Sample Parts tags or other per direction from Alta Motors QE

To Alta Motors QE: David Bailey
Initial shipment date: 9/18/2015
Quantity: 100
Serial numbers: 300080-300150
Tracking number: 4USD38996097P24
Supplier contact: Bob Hannah
Title: Quality Manager
Date: 9/1/2015

Section 15.0 Nonconforming Materials

Purpose:
Communicate procedures and responsibilities for handling Deviations and non-conforming or suspect materials that have been, or are intended to be shipped to Alta Motors.

Scope:
Applies to all Suppliers of Alta Motors parts and assemblies.

Overview:
This section states the requirements for handling Supplier-responsible nonconforming materials. It addresses materials that have flowed out and are discovered by Alta Motors as well as non-conformances discovered by the Supplier.

In the event the Supplier ship non-conforming or suspect materials to Alta Motors or an Alta Motors designated Supplier or Contractor without Alta Motors approval, the Supplier is required to take appropriate actions to assist in the containment and subsequent inspection, rework, and/or replacement of the suspect materials. (Note: Alta Motors QE must approve any non-standard rework prior to implementation.) Additionally, the Supplier is required to take suitable corrective actions, both short term and long term, to prevent reoccurrence.

Should Alta Motors discover nonconforming material, Alta Motors may issue a Nonconforming Material Report (NMR) internally and quarantine suspect material. Alta Motors' Material Review Board will review the material and may request the Supplier to take immediate actions to prevent further production and/or shipment of nonconforming materials, as well as provide tools and labor to contain, inspect, sort, and/or rework materials at Alta Motors or its affiliates. The Supplier is financially responsible for all related activities to secure conforming product for production use, as per contractual agreements with Alta Motors SCM, including the use of Alta Motors or third party contracted labor. The rejected material may be sent back to the Supplier for credit or replacement at the Supplier's expense, as well.

FORMS FOR MANAGING NONCONFORMING MATERIALS
Supplier Deviation Request (SDR) - issued by the Supplier to request permission to ship non-conforming material.
Nonconforming Material Advanced Notification (NMAN) - issued by the Supplier if they discover suspect or nonconforming material may have inadvertently been shipped.
Supplier Corrective Action Request (SCAR) - issued by Alta Motors for the Supplier to document corrective actions in response to a Supplier-responsible quality issue.

The forms and activities are discussed in more detail on the following pages.

Supplier Deviation Request (SDR)

Alta Engineering may issue a Deviation to allow shipment and use of parts that deviate from current standards. Deviations may be initiated by Alta or by Supplier request. Deviations may be issued for temporary specification relief, changes to parts in development, process changes, workmanship issues, items not clearly defined in existing standards, or for other business reasons.

The Supplier may request a deviation by submitting a Supplier Deviation Request to Alta Motors for review. If Alta Motors QE approves the request in writing, the Supplier must work directly with Alta Motors QE to coordinate identification and shipment of the parts.

Alta Motors may also request a Supplier to provide parts per a released Deviation. This may be noted in the Purchase Order. Upon receipt of the Deviation, the Supplier must complete and submit a Supplier Deviation Request for Alta Motors QE approval. Upon Alta Motors QE approval, the Supplier must identify the material and/or packaging per Alta Motors' instructions before shipment.

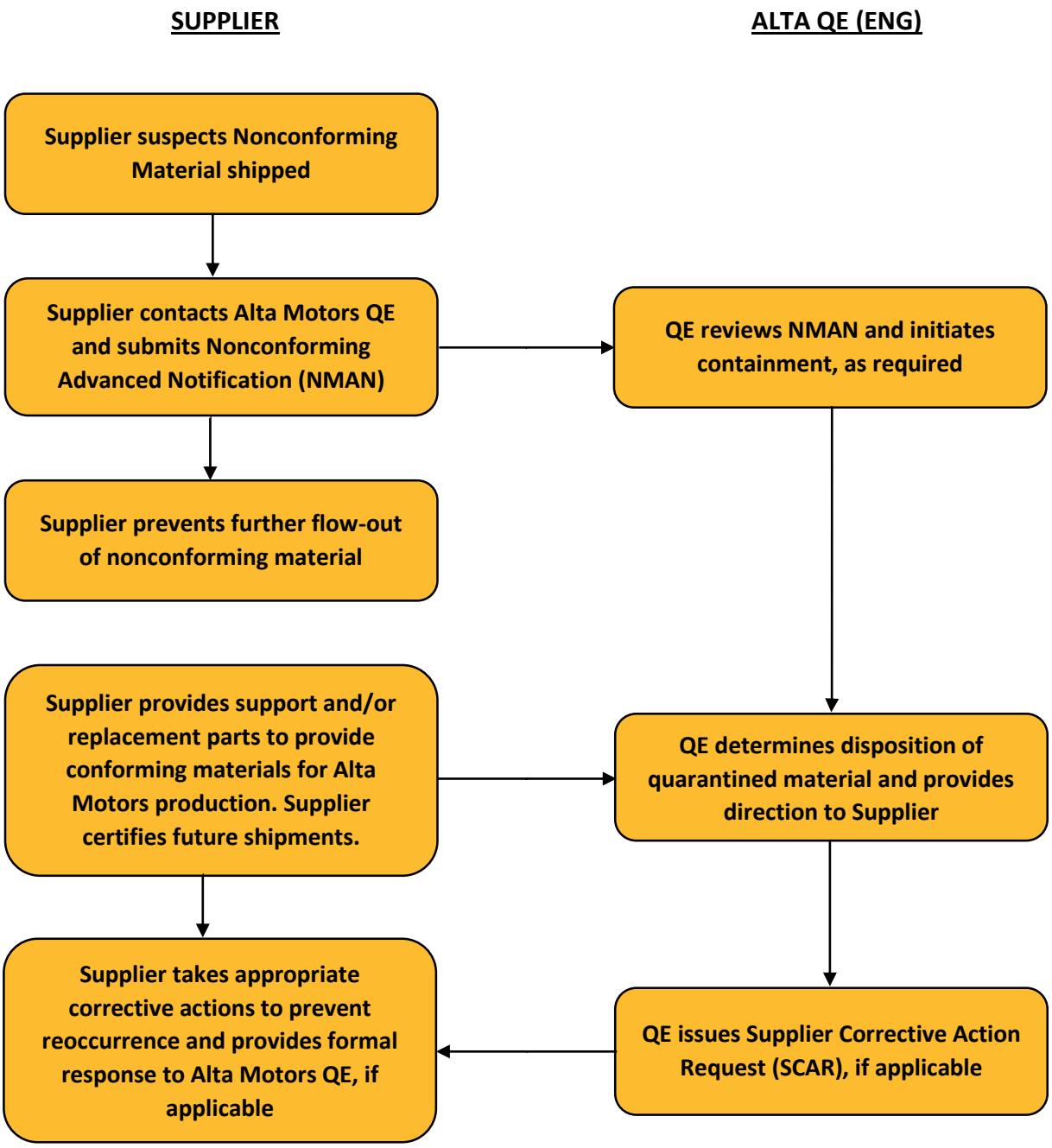
Nonconforming Material Advanced Notification

If the Supplier discovers they shipped non-conforming or suspect material without Alta Motors approval, they must contact Alta Motors QE immediately and submit a Nonconforming Material Advanced Notification (NMAN) form to Alta Motors QE and copy Alta Motors SCM. The NMAN identifies the range of suspect material, the suspected quality issues, and other pertinent information to aid in the containment and disposition of the material.

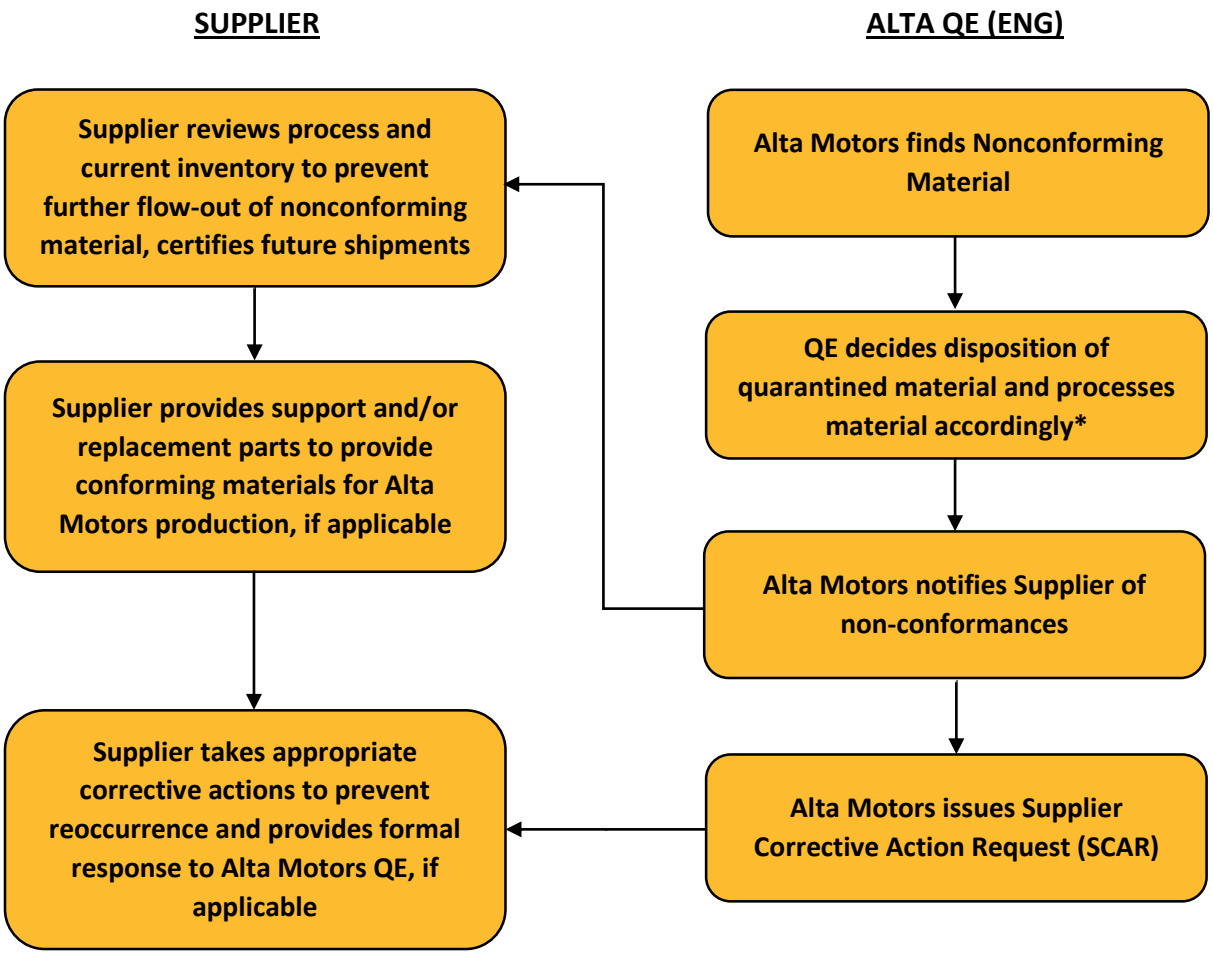
Supplier Corrective Action Requests

For any received nonconforming material, Alta Motors QE may issue a Supplier Corrective Action Request (SCAR), which requires timely and thorough Supplier responses. The SCAR sections to be populated include problem root cause analysis, short term corrective action, permanent corrective actions, and preventive actions. Required due dates for the various sections are clearly identified on the SCAR, with a preliminary response due within 48 hours of receipt. Note some Supplier corrective actions may require Alta Motors approvals prior to implementation, as outlined in the Process Change Request section. A SCAR example is provided in this section of the SQAH.

CASE 1: GENERAL FLOW FOR SUPPLIER-IDENTIFIED NONCONFORMANCE FLOW-OUT



CASE 2: GENERAL FLOW FOR ALTA MOTORS-IDENTIFIED NONCONFORMANCES



* Suspect and Discrepant material may be returned to the Supplier for credit or replacement, or require on-site sorting, or rework, at the Supplier's expense.

Example NMAN Form:

NONCONFORMING MATERIAL ADVANCED NOTIFICATION

PAGE 1 OF 2

To: David Bailey (Alta Motors Quality Engineer) Date: 8/1/2015

Copy: Doug Henry (Alta Motors Engineering) Supplier Name: ABC Metal Works, Inc.

Copy: Dick Mann (Alta Motors SCM) Supplier Location: San Francisco, CA

SUSPECT MATERIAL INFORMATION

Part Number: 56000879-01 Rev Level: 01

Part Name: Controller Housing, Redshift

Submitted by: David Aldana

Job Title: Quality Engineer

Phone: (626) 798-5648

E-mail: daldana@abcmetal.com

SUSPECT SHIPMENT INFORMATION

Initial Ship Date: 12/22/2014

Last Ship Date: 1/21/2015

Total quantity: 200

Estimated defect quantity: 10

Approved by: Will Davidson

Job Title: Quality Manager

Phone: (626) 465-7986

E-mail: wdavidson@abcmetal.com

DESCRIPTION OF SUSPECTED NONCONFORMANCE

Units may have leaking front seal. Production Line 3 leak test stand was incorrectly calibrated and could pass units with slow leaks.

Leak rate for front seal is approximately 5%, based on last 6 months data.

[X] Additional information and/or images attached

METHOD TO IDENTIFY SUSPECT MATERIAL

Date Codes:	12/22/2014, 12/23/2014, 1/14/2014, 1/21/2015
Serial Numbers:	3-000022224 through 3-000031544 (first digit indicates Production Line)
Container Label Info:	By shipment dates.
Part appearance:	No distinguishable difference from good parts.
Other:	

[X] Additional information and/or images attached

SHORT TERM CORRECTIVE ACTIONS TAKEN BY SUPPLIER

Test stand preventative maintenance frequency changed from monthly to weekly.

Added hourly equipment check with "Master" leak sample with corresponding data sheet to be posted in station.

If equipment fails hourly check, line is stopped and all materials are quarantined - added to Work Instructions, posted in station, and trained all station leads.

CERTIFIED MATERIAL INFORMATION

First Good Shipment Date:	Jan. 22, 2014
Marking of Containers:	Green dot, 22 millimeter diameter affixed near the shipping label for one month.
Marking of Parts:	A small green paint dot just before the serial number for all parts
Additional comments / info:	We will dispatch technician with test jig to Alta Motors this afternoon to inspect all materials in inventory.

[X] Additional information and/or images attached

Example Supplier Deviation Request:

SUPPLIER DEVIATION REQUEST

Alta Tracking # : 000001

SUPPLIER TO COMPLETE THIS SECTION

To: David Bailey (Alta Motors QE)
Copy to: Donny Schmidt (Alta Motors Engineering)
Copy to: Dick Mann (Alta Motors SCM)

Supplier Tracking # : 000321
Date: 8/17/2015
Supplier: ABC Metal Works, Inc.
Supplier location: San Francisco, CA
Part Number: 1200010
Revision Level: 01
Part Description: Swingarm, Redshift
PO # : 432856
BATCH # : 1

Select one:

[X] **Supplier request for Deviation**
[ ] **Alta Deviation #:** _____

Quantity of parts affected: 5

Reason for request:	**Details of change or Deviation requested:**	**Potential impact / characteristics affected**
Plater used incorrect plating material to coat the machined brackets.	**Drawing Requirements:** ASTM B633 Type 1 Fe/Zn Clear **Actual:** ASTM B633 Type II Fe/Zn Yellow Request use of the 5 swingarms as is, with Type II Fe / Zn plating. [X] Mark box if additional details/drawings attached	**Appearance:** This batch has a yellow tint as per the attached image. The corrosion resistance of this plating is superior to drawing requirements.

Additional comments:

Plating thickness and corrosion resistance have been verified per the attached lab report.

SUPPLIER APPROVALS

NAME	Bob Hannah	David Aldana	
TITLE	Quality Director	Program Manager	
DATE	8/17/2015	8/17/2015	
SIGNATURE	Bob Hannah	David Aldana	

Example Supplier Corrective Action Request:

SUPPLIER CORRECTIVE ACTION REQUEST PAGE 1

ALTA MOTORS TO COMPLETE THE SECTION BELOW

Alta Motors has identified nonconforming materials or other supplier related quality issues, as described below. Your timely response is required.

SCAR # : 000001

SUPPLIER NAME / CODE: ABC Metal Works, Inc.

ISSUE DATE: 8/17/2015

SUPPLIER LOCATION: San Francisco, CA 94403

ORIGINATOR: David Bailey

SUPPLIER CONTACT: Bob Hannah

PART NUMBER: 1200010-01 REV: 01 QUANTITY AFFECTED: 5

PART DESCRIPTION: Swingarm, Redshift

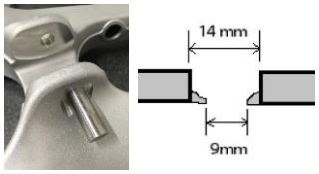
PROBLEM DESCRIPTION:

Mounting hole undersized. Would not accept mating bolt.

Requirement: 14mm ± 1mm diameter thru all.

Actual: Incomplete drilling of hole.
Top of hole accepts 14mm gage pin, bottom of hole does not accept 12.9 mm pin gauge.
Hole size at bottom is approximately 9mm diameter.

IMAGE (if applicable):



[X] Additional information attached if box is marked

SUPPLIER TO COMPLETE THE SECTION BELOW AND SUBMIT TO ALTA MOTORS WITHIN 48 HOURS

To Alta Motors Quality Engineer: David Bailey Date: 8/19/2015

IMMEDIATE CORRECTION AND CONTAINMENT ACTIONS: (Summarize immediate, short term activities to verify process, materials, and contain any suspect or nonconforming materials. Indicate planned and/or actual implementation timing, and first confirmed good shipment, where applicable.)

Quality Department inspected all material in our facility using 13mm pin "go" gage.
INSPECTION RESULT Finished Goods: Quantity checked = 220 pieces -> All conforming
Manufacturing Floor: Quantity checked = 82 pieces -> All conforming

Hole Drilling station reviewed. Equipment is set up correctly, with correct drill bit, drill press stops.

Reviewed sampling data sheets for last 30 days. All pieces checked passed (sampling frequency is 1 piece/hour).

Posted "Quality Alert" at the station and reviewed with all operators (both shifts) and shift leads. See attached.

Temporarily added 100% pin gauge inspection at next station for one week minimum, from April 21. Will review results daily, and extend inspection if any defects found.

First certified good shipment: April 21st, 2011. A 20mm dia green dot will be affixed below the shipping label for the next 5 shipments to identify certified material.

[X] Mark box if additional information attached

NOTE: Supplier must complete and submit Page 2 of the Supplier Corrective Action Request (SCAR) form within 15 days of SCAR issue date.

SUPPLIER APPROVALS

NAME	Bob Hannah	David Aldana	
DATE	8/19/2015	8/19/2015	
TITLE	Quality Director	Program Manager	
SIGNATURE	Bob Hannah	David Aldana	

SUPPLIER CORRECTIVE ACTION REQUEST

PAGE 2

SUPPLIER TO COMPLETE THE SECTION BELOW AND SUBMIT WITHIN 15 DAYS OF SCAR ISSUANCE

SUPPLIER NAME: ABC Metal Works, Inc.
SUPPLIER LOCATION: San Francisco, CA

SCAR # 1

Initial SCAR Issuance Date: 8/17/2015

To Alta Motors Quality Engineer: David Bailey DATE: 9/1/2015

ROOT CAUSE ANALYSIS: (Summary of why the problem occurred, with sufficient detail such that effective corrective actions can be taken. The analysis should identify a systemic problem that can be addressed. "Operator error" or similar is not an acceptable response.)

REVIEW / REPRODUCTION: Mounting hole was not drilled completely through in the manual drill press station. The drill bit only drilled through the bottom of the plate, leaving burrs and an undersized hole at the bottom edge. We were able to reproduce the defect by stopping the drill press stroke 5mm before it's end of travel.

HOW MADE: Based on review of maintenance records, retained shift samples, and inspection datasheets, equipment was set up correctly and drill bit was the correct size, in the correct position, and undamaged. (Set-up sheets attached.)

Mounting hole undersized at bottom of the plate

5 Why's: WHY: The hole was not fully drilled out to the required size per drawing specification
WHY: The drill bit did not fully pass through its full stroke
WHY: The operator did not pull the drill press lever through its full stroke
WHY: The operator stopped when he saw the drill bit pierce the bottom of the part
WHY: The operator failed to follow the posted Work Instructions

WHY SHIPPED: At the subsequent operation, per Work Instructions, the operator checked for the hole presence. The Points of Assurance were insufficient: no instructions to check for burrs or undersized holes.

Quality records for the last six months do not list any rejections for this condition (see attached).

[X] Mark box if additional information attached

CORRECTIVE ACTIONS: (Summary of all actions to correct the problem and prevent recurrence, including actual and/or pending implementation dates.)

The stroke of the drill press was increased by 15mm to ensure the drill bit will fully pass through the bottom of the plate. [Implemented September 1]

Poka Yoke (failsafe) added: Two light sensors were added to the station, one for "Part Presence" in the drill press, and one for "Drill Bit Presence" 10mm below the part. Once the "Part Presence" sensor is made, the "Drill Bit Presence" sensor must be made before the part is removed, or the part remains clamped and an alarm will sound. [Implemented Sept 1, following Alta Motors approval]

Operator was retrained on the proper Work Instructions, and completed re-qualification for that station [September 1]
Schematic and images of light sensors attached for reference.

[X] Mark box if additional information attached

PREVENTATIVE ACTIONS: (Summary of actions to prevent potential problems, including actual and/or pending implementation dates.)

Drill press set up instructions were modified to reflect the change in stroke, Station Work Instructions modified to include check for burrs and undersized holes, and all personell trained. [Implemented September 1]

Daily sensor checks have been added to the Preventative Maintenance schedule. Control Plan modified and submitted to Alta Motors for review. [From August 28]

Process to be audited weekly for 3 months. [From Sept 1 - Sept 21]
13mm nylon pins to be added to all Swingarm transfer carts. Parts will not fit on trays if the holes are missing or undersized. (Image attached.) [Target Implementation: Sept 3]

Will review other part transfer carts to add similar pins. [Target Implementation: Sept 7]

[X] Mark box if additional information attached.

ADDITIONAL COMMENTS:

SUPPLIER APPROVALS

NAME	Bob Hannah	David Aldana	
DATE	9/1/2015	9/1/2015	
TITLE	Quality Director	Program Manager	
SIGNATURE	Bob Hannah	David Aldana	