INSTRUCTION

Manufacturing Audit Guideline Manual

MAGM

First Issue	Revision	Prepared	Approved
April 1996	Revision # C Date: March 1999	Gary Rechtin	Lutz Schulte

Extra copies can be obtained via a GKN Driveline Line Company

Contents:

Purpose: To verify that key manufacturing processes and components meet GKN Driveline and/or customer requirements.

Field of Validity: This manual provides guidelines for auditing current and/or new processes and products at GKN Driveline manufacturing plants, Joint Venture companies, and suppliers.

Procedure: The MAGM contains three audits – Process, Work Place and Product. They are appropriate for use on new suppliers, product launch preparation, new or existing processes, and new or existing products.

At the discretion of the auditing body, only individual sections, i.e. Section C – In-Process Control or portions thereof, may be utilised for evaluation purposes, or to aid in problem resolution.

Process audits are conducted utilising Sections A – H; Workplace audits – a subset of sections B – E, G, and H as indicated on the bottom of each page of questions; Product audits – Section I; Special audits – selected sections/questions from Sections A – H.

Related GKN Driveline Standards:

300001 Data Interpretation for Normal Distribution
300002 Process Control Charts for Variable Data
300004 Individual Moving Range: Control Charts
300005 Stability Control
300006 Capability Studies
300007 Measurement System Variation
300500 Traceability
320011 Symbols for Critical and Significant Characteristics
300100 FMEA in Driveline
300200 Process Flow and Control Plan
400000 Product Test Standards
600466 Record Retention
003000 Manage Suppliers
003052 Reasons for Rejection

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Guidelines and suggested areas to be addressed

A. PROCESS QUALITY PLANNING

1,2,3. Documentation which defines the process and product being audited should be available in a central location, and should contain the following:

- Customer drawing or Contract
- Process F.M.E.A*
- Initial sample documentation
- Control Plan*
- Process flowchart*
- Engineering change records

Where these documents specify or refer to any additional information, this should also be made available. On this documentation, the part number and engineering level must be specified. The auditor will review this documentation and decide about its adequacy. NOTE: The entire planning documentation must be related to the same engineering level.

4. The critical and significant characteristics* should be identified on these documents according to the GKN Driveline Standard or customer requirement. All critical and significant characteristics should be monitored by SPC and also identified on these documents. When SPC is not used, the auditor will evaluate the adequacy of the quality assurance practices.

5,6 The documentation should reflect any process changes. There should also be evidence of customer approval for these changes.

7. Documentation supporting the initial sample approval should be available. It should contain the initial sample certification, test and measurement results, gauge R & R studies for new gauges, and Ppk\Cpk studies. This data should demonstrate the conformity of the product. A corrective action plan (CAP) should be available for all non-conformities. The Initial Sample Inspection Report (ISIR) should also reflect any engineering level change.

Related GKN Driveline Standards:*
320011 Symbols for Critical and Significant characteristics.
300200 Process Flow and Control Plan
300100 FMEA in Driveline

Question	Notes	Result
A. PROCESS QUALITY PLANNING 1. Are FMEA's, Control Plans, and Instruction sheets available, linked, and complete (via cross-functional teams) with proper approval. 2. Are all other documents available for Quality Planning purposes? 3. Are all QP documents to the latest engineering level? 4. Are Critical and Significant characteristics identified on the control plans and instruction sheets and appropriately monitored? 5. Are process changes incorporated in this documentation? 6. Is there evidence of customer approval for process changes? 7. Is the Initial Sample file available, complete, and approved by the customer?		

Guidelines and suggested areas to be addressed

B. INCOMING MATERIAL

1. The supplier should have a documented system for assuring the quality of incoming products, consumables and services. The responsibilities for auditing or inspection of incoming goods must be clearly defined by the work instructions.

2. There should be a list of approved suppliers available from which products, consumables and services can be procured. This should be available for reference.

3. Incoming materials should be approved for production by initial sample pass-off. Records of the inspections and subsequent approval should be available for inspection. This should include multiple raw material sources (i.e. two different steel suppliers for one forging.)

4. Materials should be audited on a regular basis prior to use. A schedule should exist. (Ultimately, the goal is to eliminate incoming inspection – material audits are an interim measure.)

5. Sampling plans should be employed to minimise the receiving inspection. The sampling plan employed must be based on zero defect.

6. Supplier performance should be monitored using the information gathered from receiving inspection, with feedback to the purchasing function. Sampling levels should be adjusted according to the suppliers performance.

7. Conformance of the incoming materials should be monitored using statistical techniques such as SPC and/or other records. Wherever possible suppliers shall supply initial process capability data in the form of a Ppk study.

8. Records should be available so that all aspects of the part's history can be easily examined.

9. A documented procedure for reaction to non-conforming products should exist whereby the rejected materials can be bonded pending sort or returned to the supplier.

10. These procedures should also ensure that the supplier is promptly informed of any non-conformance by issue of a concern notice*. A concern report* showing the corrective action plan must then be submitted by the supplier and updated as appropriate until closure.

Related GKN Driveline Standards:*
003000 Manage Suppliers
003052 Reasons for Rejection
Concern Report

Question	Notes	Result
B. INCOMING MATERIAL		
1. Have the responsibilities for the control of incoming material been defined in procedures and instructions?		
2. Does the supplier have an approved supplier list?		
3. Are incoming materials approved for production?		
4. Are materials inspected prior to release to production per documented procedures?		
5. Is a sampling plan used? If so, is it based on a zero defect acceptance criteria?		
6. Is supplier performance monitored and sampling levels adjusted as required?		
7. Is the product conformance monitored through submission of SPC data and/or other records?		
8. Do records detail the material history?		
9. Is the reaction to non-conforming products well defined?		
10. Are suppliers informed in the event of a non-conformance and is corrective action feedback timely, appropriate, implemented and effective?		

(Work place audit: Items 3 – 10)

Guidelines and suggested areas to be addressed

C. IN-PROCESS CONTROL

1. During the manufacturing process, capability should be established for all GKN Driveline and customer designated critical and significant characteristics. Capability studies where applicable should be conducted in line with the relevant GKN Driveline Standard.

2. Critical and significant characteristics* should be identified on all documents as specified by the customer or as defined in the relevant GKN Driveline standard in all other cases.

3. It is essential that all customer Cpk criteria (where applicable) are met. In the absence of any documented standard approved by the customer, the level of control should be based on the capability of the process.

4. Documented Corrective Action Plans (CAPs) must be initiated for any process which fails to meet the minimum acceptance criteria.

5,6. Control charts or other suitable means shall be used to monitor the process. All SPC charts should be reviewed on a regular basis for proper charting techniques and then filed for reference purposes. A procedure for the reaction to special cause variation should exist.

7. The use of mistake-proofing is encouraged.

8. Where mistake-proofs are in use they should be checked at periodic intervals to ensure correct operation. These checks should be documented and be available for review at the point of use.

9,10. Instructions for process set-up inspection and routine maintenance should exist at each workstation. Each sheet should contain at least identification of the part including part number and engineering level, and characteristics to be controlled along with checking frequencies, sample size and gauging requirements (or mistake-proofing when used). Instructions in case of non-conformity and the use of SPC (interpretation of charts) should also be available. Process flow routes must be documented. Any deviation from the defined route may require internal approval in addition to customer approval. TPM (Total Productive Maintenance) schedules should be developed and evidence of adherence to these schedules available. The auditor should satisfy him/herself that all inspections and measurements are completed as required. The records available must show that the checks are consistently carried out.

Question	Notes	Result
C. IN-PROCESS CONTROL		
1. Has process capability been established for all critical and significant features and process parameters?		
2. Do symbols appear on process documents and equipment when critical or significant features are present?		
3. Do all these features meet GKN Driveline and/or customer requirements?		
4. Do CAPs exist for all features which do not meet GKN Driveline and/or customer requirements?		
5. Is process capability monitored, and are all process records and charts current and correctly completed?		
6. Are SPC charts analysed for trends and acted upon for continuous improvement opportunities?		
7. Where mistake-proofing devices are used, do they function correctly?		
8. Are verifications of mistake-proof device operation carried out per established schedules?		
9. Are clear, concise work, inspection and set-up instructions (including SPC and TPM guidelines) available at the workstation?		
10. Are inspections and measurements being performed according to the instructions?		

(Work place audit: Items 5, 7 – 10)

Guidelines and suggested areas to be addressed

C. IN-PROCESS CONTROL (cont.)

11. Process parameters that can have a significant impact on part quality should be identified. They include, but are not limited to machine feeds and speeds; induction hardening parameters such as power, time, quench delay; and furnace settings such as time and temperature.

12. It should be evident, from documented procedures, who identifies these parameters, and who approves them. Evidence should indicate that the process is followed.

13,14. If operators are expected to know, verify, or change any identified process parameters, then those parameters should be available in the work area, and acceptable operating ranges should be clearly stated.

15. Operators must understand which parameters they are required to set or verify, and what the acceptable operating ranges are for those parameters.

16,17. If the specified operating range, as documented in work instructions, will not yield acceptable product, the operator's reaction should be clearly defined and understood. A review of the process should indicate operator understanding and adherence to those reaction instructions.

18. If it becomes necessary to change any of the process parameter specifications, that process should be defined, understood and followed. It should be possible to review objective evidence to substantiate compliance with process change control requirements.

19. Auto feedback devices such as furnace temperature controllers must be identified and calibrated on a routine basis.

20. When defined process parameters are out of control, operator reaction instructions must be clearly defined, including how affected material will be reviewed and dispositioned.

Question	Notes	Result
11. Is there a process to identify critical process parameters, i.e., feed rates, speeds, power settings, temperature, etc. 12. Is identification and approval of critical process parameters documented? Is the process proceduralised and followed? 13. If documented, are the parameters readily available in the work area? 14. Are acceptable operating ranges (min, max) for each parameter defined and documented in the work area? 15. Are operators required to set or verify these parameters; i.e. are operators fully knowledgeable of the procedure, requirements and acceptable operating ranges? 16. Is it clearly defined what the operator's reaction must be if operating within the acceptable parameter ranges will not yield acceptable product? 17. Is there evidence that this 'reaction' is actually practiced? 18. Within the work area, is process change control defined, proceduralised, understood, followed and effective? 19. Where process controls consist of auto-feedback devices or controllers, are they audited/ calibrated/under change control as required? 20. Are reactions to out-of-control process situations clearly defined, understood, documented and practiced in the work area?		

(Work place audit: Items 11, 13 –20)

Guidelines and suggested areas to be addressed

C. IN-PROCESS CONTROL (cont.)

21. When process parameters are important for achieving product quality and meeting drawing specifications, they should be addressed in the PFMEA.

22, 23. Often, special training and/or certification is required of operators who will be operating identified special processes. Objective evidence should be available where training on these special processes is required; evidence of the training program itself, as well as certificates of completion or other documented evidence of completion. Responsibility for execution and verification of these plans should be defined.

24. Where appropriate, additional visual aids should be available to assist the operator in the decision making process. These documents or physical samples should be periodically reviewed to ensure continued validity and to check for degradation. These reviews should take place in a timely manner.

25. The authorisation for the start of production should be available. This may be by the signature of the person responsible for the first part manufactured.
NOTE: Retention of the first-off part is not mandatory.

26. Clearly identified containers should be made available for both scrap and rework. All non-conformities must be clearly identified and a decision between scrap or rework made. Quarantine area should be available to store non-conforming parts and parts awaiting inspection. These areas must be lockable.

27. Analysis to determine causes and identify trends should be carried out.

28. Where non-conforming material requires rework, instructions outlining the approved rework procedures should be available.

29. All reworked products should be audited for conformance following any rework operation. Critical and significant characteristics should be assured prior to release.

30. The general manufacturing environment should be clean and well organised with specially designated areas for tooling and part storage.

Question	Notes	Result
21. Does the current PFMEA identify and address key process parameters? 22. Are operators of these “special process” required to be formally trained and/or certified? If so, are they? 23. Is there a documented, up-to-date training/certification plan for these operators? Is the responsibility for executing/verifying these plans defined? 24. Are visual aids utilised to communicate acceptable/unacceptable standards in the case of visual inspections? 25. Is first piece inspection carried out and documented? 26. Are all non-conforming parts clearly identified, documented and controlled? 27. Are causes of scrap/rework analysed and CAPs formulated and implemented? 28. Are rework methods documented and approved? 29. Is rework on critical/significant characteristics assured? 30. Are the work areas clean, well lighted, organised, and ergonomic?		

(Work place audit: Items 24 – 26, 28 – 30)

Guidelines and suggested areas to be addressed

C. IN-PROCESS CONTROL (cont.)

31. Communications across shifts is important and is encouraged. While numerous techniques are available to accomplish this, some type of effective communication system is needed.

32. Well defined and operated manufacturing processes are necessary in order to meet customer requirements. This section is intended to explore that customer requirements regarding quantities quoted can be met.

Related GKN Driveline Standards:*

300001 Data Interpretation for Normal distribution
300002 Process Control Charts for Variable data
300004 Individual Moving Range: Control charts
300005 Stability Control
300006 Capability Studies
320011 Symbols for Critical and Significant characteristics
003000 Manage Suppliers
003052 Reasons for Rejection

Question	Notes	Result
31. Is there evidence of effective communication across shifts; i.e. log books, departmental meetings? 32. Does the process output meet customer schedule requirements (e.g. takt time)?		

(Work place audit: Items 31 – 32)

Guidelines and suggested areas to be addressed

D. INSPECTION AND TEST

1. Documentation must exist which describes all test procedures and frequencies.

2. The test equipment available should fulfil the test requirements defined by the relevant GKN Driveline standard* (or customer standard). Evidence of compliance to requirements in terms of size, accuracy, repeatability etc. should also be available, eg: Calibration certificate.

3. All inspection, measurement and test equipment must reside within the company calibration system and be traceable to national standards. A list of all equipment available of this type within the company should exist.

4. All test rigs must be uniquely identified and this must be referred to in the test specification. All gauges and inspection equipment should be correctly identified within the calibration system and show the next calibration due date. Correlation with physical identification has to be determined.

5. It should be clear that the test rig is free for use and that calibration has been carried out. The method of calibration should also be described and its frequency defined. Generally, most test equipment will contain gauges of some description (dial indicators for instance). These items should be treated in the same manner as any gauge on the shop floor. Equipment should not be used when out of calibration (either for overdue date or as a result of the calibration itself.

6. Repeatability and reproducibility (R & R) studies* should be carried out on inspection, test and measuring equipment per procedures or Driveline requirements.

7. All tests should be carried out under reproducible conditions in order to support stable test. Therefore conditions such as temperature, air humidity and cleanliness should be controlled where required.

8. Specially trained personnel should be available to operate complex test equipment. Test rigs should be treated as any other item of equipment and should therefore be subject to a routine maintenance (TPM) schedule.

   NOTE: Where test schedules have been mutually agreed with the customer they should be rigorously maintained, with test results submitted to the customer where required. In situations where a rig is utilised to test a specific customer's product then an instruction which identifies any critical and significant characteristics should be present.

   Action should also be taken to ensure that the test samples taken are representative of the batch from which they were selected. Once tested, all samples should be stored in such a manner that they are protected from subsequent deterioration.

Question	Notes	Result
D. INSPECTION AND TEST 1. Do in-process operating instructions and test schedules exist? 2. Is all required inspection and test equipment available and utilised for the relevant GKN Driveline/Customer standard? 3. Are all required inspection, test equipment, and fixtures within the calibration system? 4. Is each item of inspection, test equipment and fixtures correctly and uniquely identified (including next calibration date) within the calibration system? 5. Is there evidence that the in-process routine calibration of test rigs (and ancillary equipment) has been carried out to schedule? 6. Is there evidence of Gauge R & R having been completed, including corrective action plans where minimum acceptance standards have not been met? 7. Is the environment in which tests are performed appropriate? 8. Is there evidence of proper handling of test equipment?		

(Work place audit: Items 1 – 5, 7 – 8)

Guidelines and suggested areas to be addressed

9. All gauges and equipment defined on the process inspection sheet must be available at the workstation (except in the case of specialised equipment).

10. Every effort must be made to protect inspection, measuring and test equipment from damage and maintain it in god working order. Specialised storage facilities for gauges and set-up pieces should be provided at the workstation. TPM schedules should exist where applicable.

Related GKN Driveline Standards:*

300007 Measurement system variation study for gauges
400000 Product test standards

Question	Notes	Result
9. Are the correct gauges and inspection devices as detailed on the instructions available? 10. Is all measuring and test equipment in good working order?		

(Work place audit: Items 9 – 10)

Guidelines and suggested areas to be addressed

E. IDENTIFICATION & TRACEABILITY

1. The product should be identified throughout the entire process with its corresponding label. The label should be clearly visible throughout all operations. It is recommended that barcoded labels (eg Odette, Galia) are used for incoming and outgoing materials. Each label should be properly completed and show the part number and current engineering level for the part.

   All work arriving at and departing the workstation must be clearly identified. However this requirement is waived where automated or continuous flow handling systems are employed.

2. Some form of periodic review of the manufacturing and administrative areas should take place to identify and disposition unidentified material and containers. Application of techniques such as 5S are encouraged.

3,4. A route card should be available specifying all the operations to be carried out. This sheet must be in accordance with the process flowchart and quality planning documentation.

5,6. The operator should indicate on the route card the current inspection or processing status of the batch. All non-conformities must be clearly identified and a decision between scrap or rework made. Quarantine areas should be available to store non-conforming parts and parts awaiting inspection. These areas must be lockable.

7. All parts should be identified with a traceability* number to enable the past history of parts to be investigated if necessary.

8. Records of all tests and inspections carried out should be retained for future reference in line with the relevant GKN Driveline Standard*. Procedures should exist which describe how these records are kept and managed. A system for using these records to highlight improvement opportunities should also exist.

   The auditor should satisfy him/herself that all inspections and measurements are completed as required. The records available must show that the checks are consistently carried out.

9. Incoming parts and raw materials must be identified throughout all manufacturing processes in addition to the product itself. The use of bar code labels for incoming material is encouraged.

10. Rework processes may require special handling and identification of reworked material. That process, including identification requirements, must be documented and followed.

Related GKN Driveline Standards:*

300500 Traceability
600466 Record retention

Question	Notes	Result
E. IDENTIFICATION AND TRACEABILITY		
1. Are parts correctly identified throughout the entire processing route, including storage?		
2. Is there a technique defined (e.g. 5S, or housekeeping audits) to check for unidentified material, containers, loose parts, etc., in the facility?		
3. Does the route card show all the operations which need to be performed and is it to the proper revision level?		
4. Does this card reflect the sequence of manufacture?		
5. Where required, is the route card filled out completely?		
6. Is the current inspection and processing status of products shown via material identification tags, shop papers, or location; i.e., quarantine areas?		
7. Is traceability of critical and significant characteristics assured?		
8. Are record retention periods in accordance with the relevant GKN Driveline standard implemented and followed?		
9. Are raw materials and parts identified to allow traceability to the subcontractors process?		
10. Is the process for identification and handling of reworked material documented and followed?		

(Work place audit: Items 1, 3 – 7, 9)

Guidelines and suggested areas to be addressed

F. PREVENTIVE AND CORRECTIVE ACTION

1,2. Except when specific actions are requested by the customer, GKN Driveline requirements must be followed and concern reports* should be issued to the customer in all cases of non-conformance, following receipt and analysis of non-conforming material.

3. Maximum delays which should be experienced by the customer are by agreement between customer and supplier as follows:

- 24 hours for containment action.
- 5 days for root cause and corrective action definition, or a detailed timing plan
- 100 days – review of progress and effectiveness of the corrective action plan

NOTE: This delay may be longer depending on root cause analysis. In such cases all plans must be communicated to and agreed by the customer. This plan must include the target implementation date for the definitive countermeasure (and outline any investment required).

4. Where containment actions are implemented it is important to check if they are followed by permanent corrective actions. The containment actions taken should ensure that the customer is protected from receiving non-conforming product until suitable corrective action is implemented.

5. If the corrective actions are effective then there should be no repeat concerns for the audited process. Where concerns have occurred more than once, then the owner of the concern should understand why the complaint has recurred.

6. A check should also be made to confirm that the countermeasures are in place. Evidence should be available that the CAPs are satisfying the customer requirements. A method of monitoring customer satisfaction should be used.

7. It is also necessary to ensure that the CAP has been successful by having a monitor/survey period following implementation.

Question	Notes	Result
F. PREVENTIVE AND CORRECTIVE ACTION. 1. Is there an effective method used to process parts which have been rejected and returned by the customer such that root cause analysis and corrective actions are determined? 2. Do all instances of non-conforming material reported in the last 12 months have concern reports issued and CAPs raised against them? 3. Have the responses been made tot he customer as per GKN Driveline (or customer) requirements? 4. Are containment actions implemented and effective where necessary? 5. Have any repeat concerns been reported within the last 24 months? 6. Do all concerns issued within the last 12 months have a permanent countermeasure planned or implemented? 7. Are CAPs monitored for effectiveness?		

Guidelines and suggested areas to be addressed

F. PREVENTIVE AND CORRECTIVE ACTION

8,9,10,11.. Once it has been determined that CAPs are effective, application of the CAP methodology should be applied to similar processes. Although this is one form of preventive action, other techniques can be even more effective; such as the use of deviations, audit results, quality records, etc., to identify opportunities for application of preventive actions. This process should be defined and documented. The effectiveness of preventive actions should be determined. Management should periodically review this information.

12. Following GKN Driveline Quality Policy, the objective is to eliminate rework in all operations. However, in certain cases rework can be exceptionally authorised through management agreement with the customer. A written deviation describing the process is then issued.

Related GKN Driveline Standards:*

300030 form 2 Concern Report

Question	Notes	Result
8. Are corrective actions applied to similar processes? 9. Does a written procedure exist defining the preventive action process, including sources of information? 10. Is preventive action effectiveness determined? 11. Does management periodically review preventive actions taken? 12. Where rework has been authorised, have customer approvals been obtained as required per documented internal or customer requirements?		

Guidelines and suggested areas to be addressed

G. IN-PROCESS HANDLING

1. In-process handling methods should be adequate to maintain product quality (no damage or contamination) during all stages of manufacture from incoming material to outgoing product.

2. Documented procedures shall be established which indicate the planned process route(s) including any special handling requirements. This documentation should clearly define the responsibilities for handling at any given point of the processing route. These procedures should be verified periodically.

3. The handling procedures must be readily available to the workforce at the point of use.

4. There should be clear evidence of in-process handling having been considered during the quality planning stage. Handling should be considered in the process FMEA or other documentation. This must consider customer denoted critical/significant (and FMEA highlighted) features.

5. Employee involvement towards the development and improvement of the In-process handling should be evidenced by suggestion schemes and the use of cross-functional teams.

Question	Notes	Result
G. IN-PROCESS HANDLING 1. Are the handling methods employed adequate to maintain quality? 2. Do documented procedures reflect a commitment to good handling? 3. Are the handling procedures readily accessible? 4. Does the PFMEA consider handling where critical and significant features could be impacted? 5. Is there evidence of a proactive approach towards handling issues?		

(Work place audit: Items 1, 3, 5)

Guidelines and suggested areas to be addressed

H. STORAGE, PACKAGING, PRESERVATION AND SHIPMENT

1. The supplier shall provide packaging methods which will maintain product quality (and materials used) during subsequent storage and shipping and delivery. All packaging methods should be formally agreed between supplier and customer during the initial stages of the contract. Any changes to this agreement should be communicated to all affected parties.

2. Documented specifications/guidelines will be established which indicate not only the correct manner of packaging but also customer labelling and identification requirements.

3. This documentation should clearly identify the responsibility for the packaging of the product.

4. The use of visual means of communication is encouraged.

5. All packaging specifications must be regularly reviewed to ensure continued compliance to customer requirements and to identify improvement opportunities.

6. The storage conditions for packaging materials must also be controlled as these may have an adverse affect on the quality of products contained within.

7. Storage conditions should be considered particularly with regard to temperature and humidity.

8. First in first out (FIFO) methods should be used to ensure that materials/products do not spend excessive periods of time in storage, with risk of deterioration that this entails.

9. Training specific to packaging/storage methods should be given to the workforce.

10. The operatives should be encouraged to develop and continuously improve packaging methods.

11. The method of transit between supplier and customer should be agreed beforehand and documented.

12. The auditor should verify that the agreed method of transit is utilised and effective.

Question	Notes	Result
H. STORAGE, PACKAGING, PRESERVATION AND SHIPMENT 1. Has the method of packaging implemented been agreed to by the customer? 2. Are packaging specification/guidelines available to the workforce? 3. Do these specifications clearly identify the responsibility for packaging? 4. Do these specifications make use of graphics or photographs to indicate correct and incorrect packaging methods? 5. Are the specifications reviewed on a regular basis? 6. Are the packaging materials adequately protected against deterioration before use? 7. Are environmental conditions controlled to assure the quality of the stored parts? 8. Is the First in First out (FIFO) method used to ensure stock rotation? 9. Are employees trained in the methods of packaging product? 10. Is there evidence that workers have an active role in determining packaging? 11. Is the method of transit documented and agreed to by the shipping contractor? 12. Is the agreed method utilised and effective?		

(Work place audit: Items 2 – 4, 6 – 8)

Guidelines and suggested areas to be addressed

I. PRODUCT AUDIT

1. Product audits should be performed on

   - new products
   - changed processes
   - products ready for shipment
   - as a means to verify process output at GKN Driveline and/or supplier facilities
   - when specified by a customer

2. Audits are performed by reviewing product and/or process drawings and identifying key in-process characteristics, or drawing specifications. Key characteristics and/or specifications are recorded on the form in Section IV. Six components are then selected at random, measured on appropriate equipment, and the results recorded in the spaces provided. The scoring calculation is defined on the form. Scores of less than 100% should cause initiation of an investigation and corrective action process.

3. Typical areas of investigation may include the process, the design, gauging, test equipment, operator instructions, and operator knowledge and adherence to requirements.

APPENDICES

GKN Driveline	**PROCESS/WORKPLACE AUDIT REPORT Summary Sheet**	GKN Driveline Company: Page 1 of

Company/Supplier/Department **Company Certifications:**	**Audit No:** **Date:**
Contact:	**Customer**
Address: **Telephone:** **Fax No:** **Supplier**	**Product:** **Process:** **Scope:**

REASON FOR

Initial Audit of New Supplier	☐	**New Product or Process**	☐		
Modified Product	☐	**Audit of Existing Product/Process**	☐		
Modified Process	☐	**Re-Audit**	☐	**Other**	☐

Deficiencies	**YES** ☐	**NO** ☐
Assistance		
RESPONSE TO AUDIT REPORT REQUIRED BY:		
Follow-up Audit	**YES** ☐	**NO** ☐ **Date**

	Names	**Signatures**
GKN Auditor(s)		
	Name	**Signature**
Company/Supplier Representative		
	Position	

GKN Driveline	**PROCESS/WORKPLACE AUDIT REPORT Summary Sheet**	GKN Driveline Company:
		Page 1 of

	QUESTIONNAIRE SECTION	Questions Used # Process Audit	Max	# Work Place Audit	Max	Score %	# of Concerns
A	Process Quality Planning		7		0		
B	Incoming Material		10		8		
C	In-process Control		32		22		
D	Inspection and Test		10		9		
E	Identification and Traceability		10		7		
F	Preventive and Corrective Action		12		0		
G	In-process Handling		5		3		
H	Storage, Packaging, Preservation, Shipment		12		6		
						TOTAL # of Concerns	

AUDIT SCORE = Total Points Achieved _____ 2 (Number questions used)	SCORING: - 0 - Points for no evidence of compliance - 1 - Point for partial system or partial implementation - 2 - Points for complete compliance NOTE: Any question scoring 0 will result in no new business until a corrective action plan has been submitted and approved by GKN.

	Process Audit Score			Work Place Audit Score	

	Names	**Signature**	**Date**
GKN Driveline Auditors			

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company:
		Audit # Date

Questionnaire Section and Question Number Description of Deficiency		CAP Yes/no or N/A	SCORE
A	**Process Quality Planning**		
1			
2			
3			
4			
5			
6			
7			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION A SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

Questionnaire Section and Question Number Description of Deficiency		CAP Yes/no or N/A	SCORE
B	**Incoming Material**		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION B SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

Questionnaire Section and Question Number Description of Deficiency		CAP Yes/no or N/A	SCORE
C	**Process Quality Planning**		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

	Questionnaire Section and Question Number Description of Deficiency	CAP Yes/no or N/A	SCORE
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			

Questionnaire Section and Question Number Description of Deficiency		CAP Yes/no or N/A	SCORE
27			
28			
29			
30			
31			
32			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION C SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

	Questionnaire Section and Question Number Description of Deficiency	**CAP Yes/no or N/A**	**SCORE**
D	**Inspection and Test**		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION D SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

	Questionnaire Section and Question Number Description of Deficiency	**CAP Yes/no or N/A**	**SCORE**
E	**Identification and Traceability**		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION E SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

	Questionnaire Section and Question Number Description of Deficiency	**CAP Yes/no or N/A**	**SCORE**
F	**Preventive and Corrective Action**		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION F SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

	Questionnaire Section and Question Number Description of Deficiency	**CAP Yes/no or N/A**	**SCORE**
G	**In-Process Handling**		
1			
2			
3			
4			
5			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION G SCORE – Level of Compliance (%)		

GKN Driveline	**PROCESS/WORKPLACE AUDIT Scoring and Deficiency Report**	GKN Driveline Company: Audit # Date

	Questionnaire Section and Question Number Description of Deficiency	**CAP Yes/no or N/A**	**SCORE**
H	**Storage, Packaging, Preservation and Shipment**		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	Section Total		
	Maximum possible score (Number of Questions Used x 2)		
	SECTION H SCORE – Level of Compliance (%)		

GKN DRIVELINE PRODUCT AUDIT MEASUREMENT REPORT

Page 1 of

Drawing/Part Ref:	Report Number:	Date:
Mfg Location:	Part Name:	
Customer:	GKN Engr Level:	
Manufactured by Hand (yes/no)	Prototype Tool (yes/no)	Series Tool (yes/no)

Item No.	Inspection Feature Specification/Characteristic	Measurement (6 parts)					
		1	2	3	4	5	6

SCORE: $\frac{\text{Number of inspection results within tolerance x 100\%}}{\text{Number of inspection features x number of measured parts}} =$ %

Comments:

Study Conducted by: Signature:

Department: Tel. No.:

As a fundamental element of our philosophy of prevention and never-ending improvement, your comments and suggestions regarding this document would be valuable.

You are invited to submit any proposal for future improvements to:

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Ipsley Church Lane, Redditch, Worcestershire
B98 0WR United Kingdom
Fax: +44 (0)1527 533677

In case of any problem, please contact your local line company's Quality Director, Purchasing Department or SQA engineer.