EVALUATION AND ACCREDITATION OF SUPPLIER TEST FACILITIES
GP 10

EVALUATION AND ACCREDITATION OF TESTING FACILITIES USED BY SUPPLIER OF MATERIALS TO GENERAL MOTORS

PREFACE TO GP-10

General Motors expects suppliers to have the material and performance characteristics of its products validated by an accredited materials test facility.

An accredited materials test facility is one which has been accredited to do the materials and performance evaluations specified by the purchaser on part drawings and other contractual documents, using approved test methods and procedures on properly calibrated equipment by qualified personnel. The materials test facility may be part of the supplier's in-house operations, an independent laboratory or both. General Motors maintains a list of approved independent commercial laboratories which is available upon request.

Accreditation is granted through an on-site evaluation of the materials test facility and its operation, by qualified General Motors personnel or a third party accreditation group recognized by General Motors procuring divisions.

The accompanying GP-10 General Procedure, GM 1796, General Motors procedure for "Evaluation and Accreditation of Supplier Test Facilities", provides uniform requirements for a supplier to obtain materials test facility accreditation as required in paragraph 3.2.2 "Laboratory and Test Requirements" of General Motors Supplier Development General Procedure GP-3, GM 1390, "Supplier Submission of Material for Production Approval."

Each General Motors supplier is requested to complete the Test Facility Questionnaire shown in Attachment 1 of the GP-10 procedure and have it available for review by General Motors when requested.

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1.0 SCOPE: This procedure applies to suppliers producing materials purchased by General Motors Divisions. The term "supplier" shall be used to indicate the prim contractor for a General Motors Division. The term "Supplier Test Facility" shall be used to indicate the department, activity, and organization within the company which is responsible for in-house testing of materials. For example, the facility could have the capability to perform mechanical, physical, metallographic, environmental, non-destructive, electrical and performance testing as required.

This procedure presents uniform requirements for the supplier to obtain rest facility accreditation in accordance with paragraph 3.2.2 "Laboratory and Test Requirements" of General Motors Supplier Development General Procedure 3, "Supplier Submission of Material and Production Approval".

Criteria for accreditation are based on ISO/IEC Guide 25 "General Requirements for the Technical Competence of Testing Laboratories" and ASTM E994 "Standard Guide for Laboratory Accreditation Systems".

Accreditation may be granted upon satisfactory completion of the following process:

2.0 ACCREDITATION PROCESS:

2.1 NOTIFICATION OF ACCREDITATION PROGRAM: Suppliers to General Motors will be notified of the test facility accreditation program and are requested to complete the Test Facility Questionnaire included in attachment 1 of this procedure.

2.2 TEST FACILITY QUESTIONNAIRE: The completed test facility questionnaire is to be available for review by General Motors upon request.

2.3 INTERIM TEST FACILITY ACCREDITATION: Responses to the questionnaire covering all aspects of the supplier's materials testing facility will be reviewed by the assessing General Motors Division and if acceptable, an interim test facility accreditation may be issued for specific testing. Interim accreditation is not to exceed on e year.

2.4 SUPPLIERS TEST FACILITY MANUAL: Each test facility is required to have an operations manual which details the systems and procedures in use at that facility. The basic requirements of a test facility manual are included in attachment 2 of this procedure. It is expected that the manual will be updated as required and reviewed on a yearly basis.

An up-to-date Test Facility Manual is submitted to the accessing General Motors Division for review prior to an on - site assessment.

2.5 ON-SITE ASSESSMENT: The assessment process is to assure that a supplier's test facility is capable of providing complete, accurate and timely test data and is initiated by a General Motors Division or at the request of the supplier.

The on-site assessment is conducted to verify test facility competency. The supplier's quality system is reviewed and the equipment and related documents are examined. The assessor will verify that the test facility quality system is being operated in accordance with the manual. An assessment guide and check list will be followed by the assessor while performing the survey to ensure uniformity of assessments among test facilities. Assessors are qualified through special training to provide assistance to suppliers to improve the test facilities. performance and to provide guidance for continual improvement of the rest facilities systems.

2.6 REPORT OF ASSESSMENT: The results of the on-site assessment are reviewed with the supplier and are documented. If deficiencies are observed, a corrective action plan is expected and a schedule for its completion established.

3.0 ACCREDITATION: The accessor will issue formal accreditation of the test facility when all criteria have been satisfied.

Note: *Accreditation may be revoked should the test facility be found in non-conformance to the accreditation criteria.*

4.0 REASSESSMENT: A successful on-site reassessment by a General Motors Division or an acceptable third party may be required before accreditation is extended. A reassessment survey will be conducted at the option of a General Motors Division. The frequency is determined by the assessing General Motors Division, usually at two year intervals. The supplier may choose to be accredited by a third party accrediting body providing that body is acceptable to the General Motors assessing division and follows the guidelines and criteria set forth in ISO/TEC Guide 25 and ASTM E994.

5.0 LIMITED ACCREDITATION: The assessing General Motors Division may choose to waive the on-site assessment in limited situations and issue a "limited accreditation" for a one year period. Each year the assessing General Motors Division must review the "limited accreditation" to determine if a one year extension is appropriate. The requirements for a "limited accreditation: are the same as for accreditation except for the on-site assessment waiver. An "accredited" status will not be issued without an on-site assessment.

6.0 GENERAL: This procedure first published February, 1990.

EVALUATION AND ACCREDITATION OF SUPPLIER TEST FACILITIES

GP-10

ATTACHMENT 1

- *Test Facility Questionnaire*
- *Example Test Facility Questionnaire Response*

Please Provide the Following Information: **This form is printable**

- **Name and address of location seeking accreditation.**

Name _____

Address _____

City _____ State/Prov. _____ Postal Code _____

Duns No. _____ Z No. _____

- **Name, title and phone number of <u>primary</u> contact for test facility.**

Name _____

Title _____

Phone _____

- **Name, title and phone number of <u>alternate</u> contact for test facility.**

Name _____

Title _____

Phone _____

(This is a printable form for your use)

Please answer the following questions for each test location: (If you do not have test equipment, please complete items 3,5, and 8). This form is printable

1. Do you have a test facility manual? Yes_____ No _____

a) If no, when do you plan to have one? Date _____

2. Have you received accreditation of your test facility from a GM unit or another organization:

Yes _____ No _____

a) If yes, please identify and state when received.

Organization Date Accredited

Organization Date Accredited

3. Do you have the applicable GM Engineering Materials and Processes Standards manuals and subscribe to the update service?

Yes _____ No _____

a) If no, do you plan to obtain copies of these manuals?

Yes _____ No _____

b) If yes, when will you have them available? Date _____

Note: Manuals may be purchased from:

Current Product Engineering, General Motors Corporation
Engineering Standards N-2, Engineering Building
General Motors Technical Center
30200 Mound Road, Warren, Michigan 48090-9010

4. Please provide a list describing your mechanical, physical, chemical, metallographic, environmental, non-destructive, electrical and performance test equipment. Describe your calibration and verification requirements for the test equipment listed. Indicate:

a) The calibration and verification information recorded for each piece of equipment.

b) The frequency of calibration and verification.

c) The specific procedure used. List and describe all internal procedures and identify all others with appropriate ASTM or other established standards number.

d) Your procedure for identifying and preventing the use of equipment that does not calibrate.

Note: Answer per example on page 8 of the attached "Example Response to Supplier Test Facility Questionnaire".

(This is a printable form for your use)

5. Do you use an outside independent commercial lab or your corporate test facility for any of your testing?

Yes _____ No _____

a) If yes, please provide their name(s) and address (es).

Name _____

Address _____

City _____ State/Prov. _____ Postal Code _____

Name _____

Address _____

City _____ State/Prov. _____ Postal Code _____

b) List by test method, the tests which you have conducted by the outside test facility (s).

_____ _____ _____ _____

_____ _____ _____ _____

c) Is this laboratory accredited by any accrediting body?

Yes _____ No _____

If yes, please identify the accrediting body and indicate date accredited.

Organization _____ Date Accredited _____

Organization _____ Date Accredited _____

Attach additional list if necessary.

6. Do you have a program to qualify your materials and performance test equipment and/or test data?

Yes _____ No _____

a) If yes, please provide a brief description of the methods used (i.e. precision, accuracy, repeatability, etc.).

_____

_____

_____

_____

(This is a printable form for your use)

b) If no, do you plan to implement such a program?

Yes _____No _____ If yes, when? _____

7. Please list all test methods (ASTM, GM, and others) to which you conduct tests

MATERIAL SPEC.	TEST CONDUCTED	TEST METHOD
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

8. Describe your procedure to assure that subcontractors have adequate control of their test facilities.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

9. Please provide a brief description of your manufacturing process (process routing/flow chart etc.) Include the names of subcontractors and where in the process their services are used.

a) Indicate at all applicable steps in the process, the material test methods associated with controlling that process/operation.

(This is a printable form for your use)

GM SUPPLIER TEST FACILITY QUESTIONNAIRE

EXAMPLE PAGE

Please provide the following information:

- Name and address of location seeking accreditation.

Name Generic Inc.

Address 12 General Avenue

City Example City State/Prov. MI Postal Code 48000

- Name, title and phone number of primary contact for each test facility location.

Name I.M. Testing

Title QC

Phone (313) 222-2222

- Name, title and phone number of alternate contact for test facility.

Name Will U. Wim

Title Test Supervisor

Phone (313) 222-2222

EXAMPLE PAGE

Please answer the following questions for each test location: (If you do not have test equipment, please complete items 3,5, and 8).

1. Do you have a test facility manual? Yes __X_____ No _____

a) If no, when do you plan to have one? Date _____

2. Have you received accreditation of your test facility from a GM unit or another organization:

Yes ___X_____ No _____

a) If yes, please identify and state when received.

Organization ___Acme _____ Date Accredited __12-1-89 _____

Organization _____ Date Accredited __12-1-89 _____

3. Do you have the applicable GM Engineering Materials and Processes Standards manuals and subscribe to the update service?

Yes __X_____ No _____

a) If no, do you plan to obtain copies of these manuals?

Yes No _____

b) If yes, when will you have them available? Date _____

Note: Manuals may be purchased from:

Current Product Engineering, General Motors Corporation
Engineering Standards N-2, Engineering Building
General Motors Technical Center
30200 Mound Road, Warren, Michigan 48090-9010

4. Please provide a list describing your mechanical, physical, chemical, metallographic, environmental, non-destructive, electrical and performance test equipment. Describe your calibration and verification requirements for the test equipment listed. Indicate:

a) The calibration and verification information recorded for each piece of equipment.

b) The frequency of calibration and verification.

c) The specific procedure used. List and describe all internal procedures and identify all others with appropriate ASTM or other established standards number.

d) Your procedure for identifying and preventing the use of equipment that does not calibrate.

EXAMPLE PAGE

Equipment Calibration and Verification

	(A)	(B)	(C)
Name	***Recorded***	***Information Frequency***	***Standard***
Hardness Tester	Calibration	Annually by outside service	ASTM E18
	Verification: (Test block) HRC 45.0 = 1	Daily (when used)	
Tensile Testers	Calibratioin:	Annually	ASTM E4 OR E74
	Verification:	Quarterly - (Heavy load capacity) Daily - (Light load capacity)	
Burst Cabinet	Calibration: (Gage)	Quarterly	Standard gage traceable to NIST (formerly NBS)
Durometer (Shore A)	Verification by test block	Daily (when used).	Mfg. procedure per ASTM D2240
Aging Oven	Calibration: (chart recorder).	Quarterly.	ASTM certified thermometer.
	Verification:	After temperature setting changes	
Ozone Chamber	Verification: Ozone concentration, cabinet temp.	Daily during use.	ASTM certified thermometer and ASTM D1149.
Neutral Salt Spray Cabinet	Calibration: (Gages)	Annually.	Standard gage traceable to NIST.
	Verification: Collection rates, temp. for tower and cabinet, solution PH.	Twice daily during use.	ASTM certified thermometer. (Ref. ASTM B117)
pH Meter	Calibration:	Before use.	Standard buffer solutions, i.e. pH4 and pH 10.
	Verification	As needed.	

(D) Non-conforming equipment:

Equipment that fails to calibrate or verify is tagged with problem indicated on tag.

EXAMPLE PAGE

5. Do you use an outside independent commercial lab or your corporate test facility for any of your testing?

   Yes ___X_____ No _____

   a) If yes, please provide their name (s) and address (es).

   Name _Oxnard Testing Laboratories_____

   Address __1234 Fifth Street_____

   City _Calibration_____ State/Prov. _MI_____ Postal Code _48001_____

   Name _____

   Address _____

   City _____ State/Prov. _____ Postal Code _____

   b) List by test method, the tests which you have conducted by the outside test facility (s).

ASTM B368	ASTM E384	GM9095P	SAE J369	_____
_____	_____	_____	_____	_____

   c) Is this laboratory accredited by an accrediting body?

   Yes _X_____ No _____

   If yes, please identify the accrediting body and indicate date accredited.

   Organization _BOC Flint_____ Date Accredited __11/89_____

   Organization __Acme_____ Date Accredited __12/89_____

   Attach additional list if necessary.

6. Do you have a program to qualify your naterials and performance test equipment and/or test data?

   Yes _X_____ No _____

   a) If yes, please provide a brief description of the methods used (i.e. precision, accuracy, repeatability, etc.).

   Precision, accuracy, and repeatability sudies are conducted bi-annually for each piece of equipment if applicable.

   R-X charts are used to control colutions. All data are kept on file review. _____

   _____

   _____

   _____

EXAMPLE PAGE

Comment [BCB1]:

b) If no, do you plan to implement such a program?

Yes _X_ _____ No _____ If yes, when? _____

7. Please list all test methods (ASTM, GM , and others) to which you conduct tests.

MATERIAL SPEC.	TEST CONDUCTED	TEST METHOD
GM 6178-M _____	Wt of coating and bend test	GM 6178-M _____
bend test____	ASTM A463, A428 _____	
GM 6140-M_____	Test to spec. _____	GM 6140-M. _____
_____	ASTM D380, D2240 _____	
_____	D471, D395 _____	
_____	GM 4486-P_____	
SAE 1070_____	Hardness, Chemistry _____	ASTM E18, E30_____
_____	A370 _____	
SAE 950X _____	Yield Strength and _____	ASTM E8, A370 ____
elomation ___	_____	

8. Describe your procedure to assure that subcontractors have adequate control of their test facilities.

Each supplier/subcontractor test is surveyed annually by oour Qualiy Control department_____

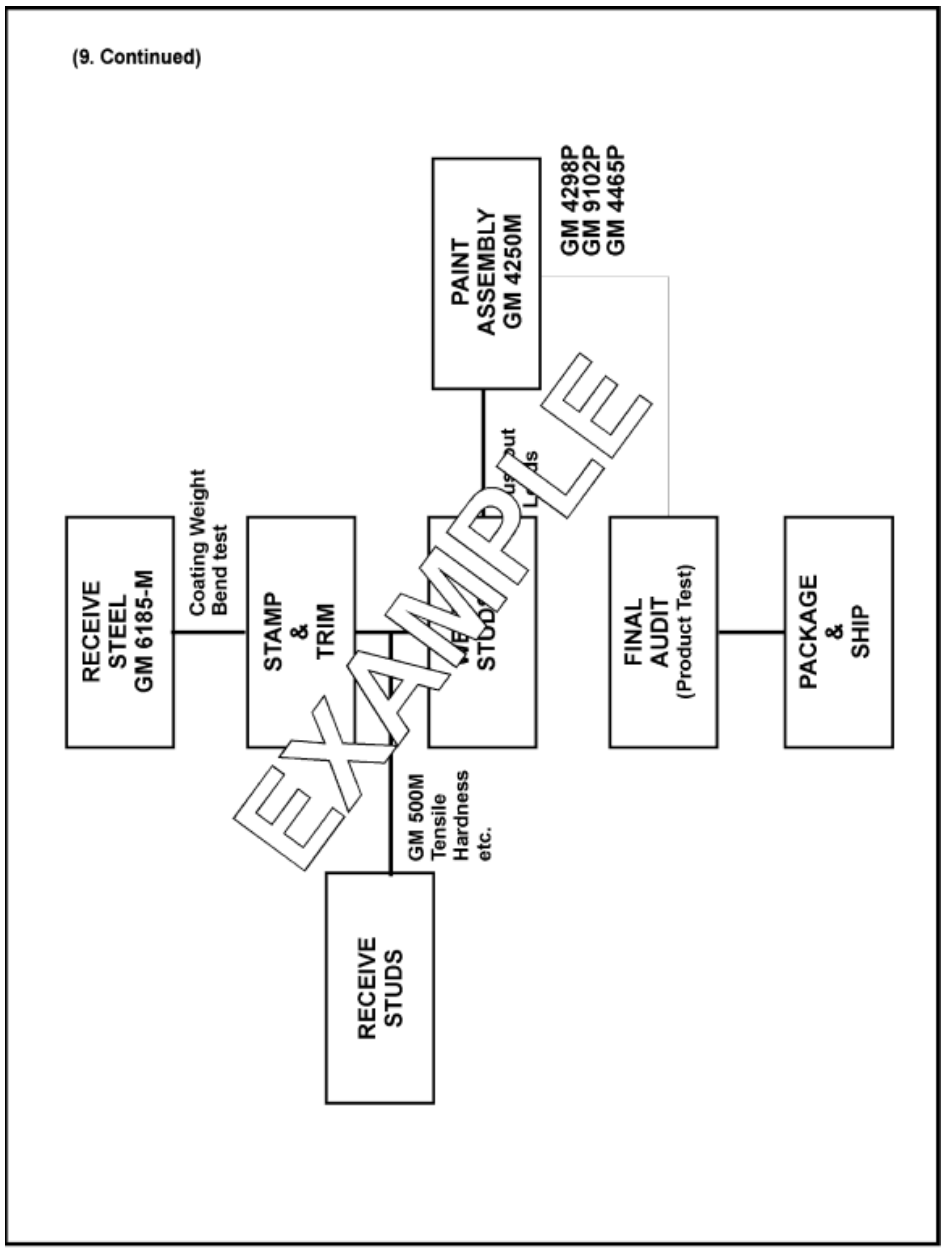
for the following: calibration/verification procedures, test methods, records, etc. (Survey_____

results on file for your review.) _____

9. Please provide a brief description of your manufacturing process (process routing/flow chart etc.) Include the names of subcontractors and where in the process their services are used.

   a) Indicate at all applicable steps in the process, the material test methods associated with controlling that process/operation.

(9. Continued)


PAINT
ASSEMBLY
GM 4250M
GM 4298P
GM 9102P
GM 4465P
RECEIVE
STEEL
GM 6185-M
Coating Weight
Bend test
STAMP
&
TRIM
FINAL
AUDIT
(Product Test)
PACKAGE
&
SHIP
GM 500M
Tensile
Hardness
etc.
RECEIVE
STUDS
EXAMPLE

EVALUATION AND ACCREDITATION OF SUPPLIER TEST FACILITIES

GP-10

ATTACHMENT 2

Basic Requirements for Supplier's Test Facility Manual

Basic Requirements
for Supplier's Test Facility Manual

I. Description of Organization

A. Identification

1. Name
2. Address
3. Phone No.
4. Duns Code (For test facility locations)
5. Z-Code (GM Supplier identification number)

B. Table of Contents

1. Utilize page numbers and/or section dividers for easy location of items.

C. Revision Page(s)

1. This page indicates the manual is a changing document that is revised whenever changes occur that affect the accuracy of the manual. The manual is to be reviewed and signed by a member of upper management (i.e. plant manager, general manager, etc.) on a regularly scheduled basis.
2. A distribution list of controlled manuals should be maintained on file.

D. Statement of Objectives

State the intent of the Test Facility Manual (i.e. to ensure consistency in following established policies and procedures in testing, calibration, training, etc.).

E. Organizational Structure

1. Organizational chart for test facility.
   The chart is to include all positions and names from whomever the Quality Manager reports to down to the last level of inspection. Include the company management chart to show where the quality group fits in.
2. Name the substitute for QC Mgr./Test Facility Manager when absent.
3. Provide job descriptions (key elements) for each position on the quality organizational chart and list the primary responsibilities (include responsibilities regarding test facility policies and procedures).

II. *Quality Policies*

Provide enough policy detail to ensure that test facility policies and procedures will be maintained if there is a change in personnel.

A. Calibration Policy

Include all aspects of the operations and control of the testing equipment calibration system. Some of the specific items that are to be addressed are as follows:

1. State the position responsible for the operation and follow-up of the calibration program.
2. Explain the mechanics of the program (include the physical system, the documentation methods, and the filing system). State the calibration frequency and explain the system used to assure that equipment is calibrated according to schedule. Describe the procedure followed when a piece of test equipment is found to be "out of calibration" or excessively erratic. State how such equipment is prevented from being used. Provide an example of a filled out form. Describe the procedure for reviewing data generated since the last time the equipment was determined to be in calibration.
3. Include a statement regarding the need for completely documented certifications for both external and internal calibrations including the following:
   a. Standard procedure followed
   b. Traceability of standard
   c. Acceptance tolerance limits
   d. Actual calibration data of before and after adjustment readings
4. Describe the use of calibration tags or stickers on <u>all</u> equipment. Include the following (show examples):
   a. "Date Calibrated -Date Due" tags
   b. "Calibrate Prior to Use" tags
   c. "Calibrate Weekly (Daily, Monthly, etc.)" tags
   d. "Not Calibrated - Don Not Use For Generating Data" tags
   e. Any other appropriate tag that indicates the calibration status of the equipment
5. Describe the procedure followed when calibration dates are missed.
6. Describe your written calibration and verification procedures. State the specific items included in each written procedure. (i.e. standard procedure referenced with revision date, scope, equipment used, traceable standards, etc.). Describe how your procedures are numbered or identified.
7. Describe the system (include frequency) used to verify equipment between calibration periods and the documentation system utilized.

B. Test Policy

1. Explain the mechanics of any testing that occurs in your total operation (i.e. incoming material testing, in-process testing, final audit testing, special testing, etc.). State the position responsible or the testing in each of those areas. Include a flow chart showing how work flows through the test facility. Describe your system for reporting test data.
2. Describe the procedure followed when test data are found to be in error.
3. Describe the format for written test procedures. State the specific items that are included in each written procedure (i.e. standard procedure referenced with scope, equipment used, etc.). Describe how your procedures are numbered or identified. Test procedures should be signed and data by the originator and the next level of supervision. Test procedures should be readily accessible to the test technicians.

4. Include examples of the test reports or data sheets. Indicate all information included on each test report. Describe the retention procedure followed for samples, how long they are retained, and how they are tied to a lot or identification number.
5. Describe how samples are identified and reports traced.
6. Describe the procedure followed when testing shows that incoming material, in-process parts, or finished components fail to meet the required specifications. Describe your follow-up procedure. State how the use of discrepant material is prevented, who is responsible for follow-up, and who is notified of the final disposition (i.e. test facility, production, etc.).

C. Test Facility Employee Training Policy

1. Describe the training program (both formal and informal). State the procedure used to ensure that new employees are properly trained. Describe the training required and how employees are trained when new test procedures are implemented or new equipment purchased.
2. Explain your documentation system for all training, both formal and informal. Describe how you handle cross-training to cover vacations, illness, change of personnel, etc.
3. Explain your follow-up plan to insure that people doing the testing have maintained their qualifications.

D. Equipment Maintenance Policy

1. Explain the test equipment preventative maintenance program, how required maintenance is established, and how frequencies are determined. Describe the method used to ensure that these maintenance items are carried out at the established frequencies.
2. State who has responsibility for maintaining the program.

E. Housekeeping Policy

This policy should describe the housekeeping procedure.

F. Environmental Controls

1. Identify any testing area that requires controlled temperature, humidity, and/or acoustical levels.
2. Explain how you control, monitor, and document these conditions.

G. Policy for Dealing With Customer Complaints

Describe the system used for any of the various formal and informal customer complaints, for example, PRR's, GP-3 rejections, or production shipment returns.

1. State who has responsibility for follow-up.
2. Provide the form used to document this procedure.

H. Record Retention Policy

1. List all records (i.e. test reports, calibration certifications, verification records, employ training records, etc.).
2. Tell where records are maintained.
3. Describe the retention periods for these documents.
4. State who has responsibility for maintaining them.

(The retention policy should not be in conflict with section 3 of "Targets for Excellence".)

I. Internal Audit Policy

Describe the procedure for monitoring quality programs and policies to ensure they are being followed. This audit should include a detailed review of the policies established in the test facility manual.

1. State who has responsibility for the administration of the procedure.
2. Include a copy of the form used.
3. State audit frequency.
4. State action taken to address deficiencies.

J. Library of Standards

Describe the system you use to assure the test facility technicians have accessibility to all pertinent reference materials.

1. List all standard procedures maintained (i.e. GM, SAE, ASTM, FBMS, AMS, ISO, ANSI, etc.) that deal with the testing you do.
2. Describe your method for ensuring that these procedures are the most current versions.
3. Explain your procedure review system and how it is documented.
4. If copies of any standards are utilized anywhere in your operation, explain how they are controlled and the system used to update them.

III. *Test and Measuring Equipment*

Provide a comprehensive and detailed list of all materials and performance test equipment utilized. Use a tabular form if possible. Describe the test equipment such that your test capabilities are readily discernible by reading the Test Facility Manual. Include:

1. Name, manufacturer, model number
2. Internal I.D. number
3. Where equipment located
4. Location of manuals, et.
5. Purpose for which equipment is used
6. Calibration frequency

The following section is for GM Divisional information only. Accreditation of the test facility is not dependent upon the completion of item IV.

IV. *GP-3 Part Approval Package Procedures*

Describe in detail your procedure for assembling a GP-3 Part Approval Package

1. Indicate who is responsible for putting together the package
2. State where the package is assembled.
3. Indicate an example of the test facility portion of the package that has been accepted by each of the GM Divisions with which you do business.
4. Maintain appropriate divisional GP-3 submission requirements on file.