



To: **Potential Limousine Vehicle - QVM Program Applicant**

Subject: **QVM Program Qualification Requirements: 2013/14 Model Year Update**

Background

The Qualified Vehicle Modifier (QVM) program focuses on the manufacturing of safe limousines, in conjunction with compliance with Federal Motor Vehicle Safety Standards (FMVSS), process and quality control, and a commitment to continuous improvement. This document is a review of the policies that are currently in place to coincide with the on-going changes of the QVM program and of the conversion industry.

The following provides a general overview of the QVM program requirements for new applicants and related conversion information for the MKT Town Car & Lincoln Navigator. Complete conversion information is contained in the latest QVM Limousine / Hearse Builders Guide, & Navigator Builders Guide. **The information that follows pertains to the QVM Program for the 2013 model year and beyond until updated.** Builders Guides can be viewed at our website: www.fleet.ford.com/limo

QVM Program - New Builder Approvals

The following outlines the general process and highlights some of the major requirements for prospective QVM program applicants to qualify for the QVM Limousine Vehicles conversion program. The information provided is not meant to be complete, but is intended to provide a general overview of the QVM qualification process. Complete information regarding the qualification process can be obtained by contacting the QVM Engineering Office @ 313 / 322 - 7926.

Note: *Neither Ford Motor Company or QVM Engineering makes any determination as to the safety of any specific QVM built vehicle. The information reviewed by QVM Engineering is for the purpose of auditing QVM manufacturers to determine if they comply with our recommendations. All QVM manufacturers are solely responsible for the certification and safety performance of their products.*

PHASE 1 - A prospective applicant will be required to comply with the following as well as all other QVM program requirements to receive QVM Program approval:

- **Written Request for Consideration** - A prospective QVM applicant must first submit a written request stating their desire to be considered for QVM program approval. The request must contain the following:

- √ Detailed Company / Corporation information - including parent company names or other substantial holding interests. Also, the names of all chief operating officers and key management.
- √ Offices and manufacturing facility information - including location and facility size. Also, include any intended affiliation with other manufacturing organizations if the entire conversion process will not be performed at the main facility.

NOTE: *A prospective QVM applicant or current QVM builder may not be involved in any way with another manufacturing facility that manufactures vehicles and is NOT intending to be, or, is not a member of the QVM program. This includes facilities / companies which build non-QVM compliant Ford Motor Company vehicles.*

- √ Demonstrate the ability to secure a minimum of \$5 Million of General Liability Insurance.
- √ Projected start-up date.

QVM Program - New Builder Approvals (con't)

- **Design / Model Information** - A prospective QVM applicant must provide the following information for each model or group of converted vehicles intended for production:
 - √ Vehicle model or type (Limousine, funeral coach, 6-door, 24 hour car)
 - √ Wheelbase extension lengths to be offered for each vehicle type
 - √ Seating configurations available for each wheelbase extension and vehicle type, showing the designated seating positions **and seating area dimensions for each seating position.**
 - √ Number of doors (if not the standard; 4), for each wheelbase extension and vehicle type (i.e.; 5, or 6)
 - √ Total rated passenger capacity **INCLUDING DRIVER** for each wheelbase extension and vehicle type.
- **Weight Analysis** - In addition to a design report each QVM must submit a weight study detailing the actual or estimated weight of all added structure, including wiring, carpet, trim materials and included options (i.e.- sunroof, auxiliary A/C unit and hardware, electrical accessories,...). The weight analysis should start with the curb weight of a MKT Town Car 400A or 401A Package (as received from the factory) or Navigator, and provide detail demonstrating that the added weight of the structure, passengers and luggage meets the QVM Gross Vehicle Weight (GVW) guideline of 7450 (hearse), 7650 (70-80") or 7950 (120") pounds for MKT Town Car and 9900 (140 inch) for Navigator. For analysis purposes, assume that the curb weight of a 400A(limo)/401A(hearse) Package MKT Town Car is 4800/4700 pounds, and the Navigator is 5564 pounds. (see page 5 - section titled 'Vehicle Platform Requirements' for GVW information for hearse applications).
- **Product Design Assumptions** - The following design assumption or standards are to be used during the conversion design and development process. These standards are only guidelines and not intended to cover all situations.
 - √ Weight / Passenger = 150 pounds
 - √ Casket & Contents = 350 pounds
 - √ Standard Luggage Load = 200 pounds
 - √ *Minimum Luggage Load = 100 pounds (***requires a restriction label***) * [luggage load restriction does NOT apply to hearse conversions.]
- ****FMVSS / CMVSS Analysis-** Each prospective QVM applicant must provide documentation demonstrating compliance with all applicable FMVSS (CMVSS if exporting to Canada) for their proposed conversion design(s). Compliance statements must be provided for all applicable standards - including standards deemed to not be affected during the conversion process. For standards not affected during the conversion process, the statement should justify the conclusion as to why the standard was not affected. When providing FMVSS compliance statements for standards affected during the limousine conversion process, each coach builder should include a statement that answers the following fundamental questions:
 1. **What is the standard;** not just the title, but a short statement that describes the purpose and intent of the standard.
 2. **What does it take to pass the standard;** provide detail or a summary of how the standard is satisfied or what must occur to comply - this could include numeric and/or qualitative measures.
 3. **Why does your vehicle pass the standard;** indicate the actual or projected performance of your vehicle design with respect to the standard under review. Make comparisons and reference the standards acceptance criteria. Also, what supports your conclusions that your vehicle meets the standard ? This data must be accessible for inspection and review. Always **reference** testing data used for proof of compliance by test number, VIN, etc...

To assist the QVM Program members with determining compliance with government safety standards, Ford Motor Company has conducted analytical analysis and physical testing for several FMVSS standards typically affected during the vehicle conversion process. This data (commonly referred to as "group test data") is available to all members of the QVM program. This data is only applicable if all associated conversion guidelines and assumptions presented in this document and the QVM Limousine Builders Guides are followed. Any deviation or departure from these guidelines requires approval and written authorization from the QVM Engineering office. After successfully completing the requirements for 'Written Request for Consideration', 'Model/Design Information' and 'Weight Analysis' the QVM Engineering Office will loan the prospective QVM applicant this data for use in determining FMVSS compliance. This information is confidential and the property of Ford Motor Company. The documentation must be returned to the QVM Engineering Office if the prospective applicant does not successfully qualify for QVM approval.

If a prospective applicant does not have adequate experience interpreting FMVSS regulations, the QVM Engineering Office strongly encourages that assistance from an experienced professional engineer be considered to assist in the interpretation of these standards. If this method is chosen, a full time employee of the company must be trained and dedicated as the FMVSS liaison to insure that the stated compliance is not affected during daily manufacturing operations.

***Crash test data will be provided to the perspective QVM upon request. This process starts in PHASE 1, and is an ongoing process until statements of compliance are reviewed during the final 'on-site' inspection audit.**

PHASE 2 - Once the steps in Phase 1 have been completed and reviewed by the QVM Engineering Office, the prospective builder will be authorized to begin manufacture of their first two QVM approved builds for the vehicle inspection process (see below). All conversions manufactured before completing these reviews are not eligible for QVM program consideration.

- **'Good Faith' Agreement** - Once a prospective applicant enters into the QVM qualification process they agree to follow the program guidelines as presented in this document and the MKT Town Car Limousine / Hearse or Navigator Builders Guide. This 'good faith' agreement applies with the onset of the Phase 2 criteria until such time that the prospective applicant is either approved or disqualified from QVM consideration.
- **Facility & Converted Vehicle Inspection Audit** - After the above paper work has been received, reviewed, and approved by the QVM Engineering Office, an on-sight facility and vehicle inspection audit will be scheduled. At this time the prospective QVM will be authorized to convert two trial vehicles which will be reviewed at the audit. The vehicle inspection review will be conducted on one completed unit that represents the highest content / weight and longest extension length authorized during the Phase 1 review process. The second vehicle must be in a partial completion stage to allow for review of the interior structure and chassis modifications. This on-site inspection will focus on the following criteria:

√ Facility and manufacturing process readiness (**see attachment 1: The QVM principals and rating system brochure**)

√ Converted vehicle construction and verification to submitted design analysis and QVM guidelines. See the Builders Guide for details. www.fleet.ford.com/limo

PHASE 3 - Once the above stages are completed successfully, the newly approved builder will be required / restricted to the following:

- **Sign a QVM Agreement** - The newly approved builder must sign a QVM contract and meet all the stipulations contained within the agreement.
- **Mandatory Probation Period** - The newly approved builder will be under a one-year probation period to assess their capability to meet program guidelines.
- √ **Vehicle Weights / Requirements** - For approval, a QVM manufacturer must acquire the use of and/or purchase scales in order to weigh vehicles at the appropriate GVW that applies. The weight information is documented on a QVM Weight Ticket. Each vehicle produced will require a weight ticket until written instruction from the QVM Engineering Office states otherwise. **(See Attachment 3 below.)**
 - **Calibration information for your purchased scales must be available and scales must be recalibrated every calendar year.**
- **Wheelbase Extension Length Limit** – *Each new potential QVM will be able to produce any length vehicle that best suits their business case. The maximum length allowed by the QVM program is as follows. **MKT Town Car = 120 & Navigator = 140 inches.** In order to ensure that quality and safety are maintained, the following criteria has been established as a requirement for building vehicles at their maximum limit for new QVMs.*
 - *The first 25 vehicles produced will be required to have the following documentation*
 - *A QVM weight ticket showing **all** weights required (see attached QVM weight ticket)*
 - *Owner information for the vehicle including; Company name, address, phone number, email address, and contact name if different from the company name.*
 - *A written approval (email or otherwise) from this office for the release/sale of each vehicle is required before they can be released to the end customer.*

**** The QVM Office reserves the right to review the above information and conduct surveys of vehicle customers to assess the newly approved builder's capability to meet QVM requirements for quality, customer satisfaction, and conversion design and durability considerations.**

- **6 - Month Interim Status Review** - The QVM Engineering Office will conduct an interim status review to confirm the newly approved QVM builders performance to program objectives. This review will examine the following:
 - √ Feedback on Conversion Quality and Customer Satisfaction from the FCSD Hotline (800/ 34-FLEET)
 - √ Customer Satisfaction Mail / Phone Survey Results (If deemed necessary)
 - √ Certificate of Completion Reports / Incentive Program Compliance
 - √ Compliance to Conversion Restrictions / Guidelines

See Attachment 2 - Flow Chart / New Builder Approvals - for a summary of the qualification process.

Vehicle Platform Requirements

QVM approved conversions are to be constructed on the indicated heavy-duty option packages and are required to meet the following GVW guidelines. Contact the QVM Engineering Office for more information or questions concerning vehicle platform capabilities.

- All conversions must be completed on the specified heavy duty package:
 - ✓ MKT Town Car Limousine – 400A option package
 - ✓ MKT Town Car Hearse – 401A option package
 - ✓ Lincoln Navigator – 17 L Limousine Builders Package

Note: Any **other** Ford Motor Company vehicles than the ones mentioned above are restricted from conversions and will lead to immediate dismissal from the QVM program. All following vehicle brands are restricted from conversion:

- Ford
- Lincoln

The QVM Spirit

QVM certification is not just a program for vehicle modification. QVM envisions complying with the spirit of the program and is intended to create trust between the customer, coachbuilder, and chassis manufacturer with a goal of producing vehicles that meet approved crash and durability standards. QVM is not intended to simply provide a mask (certification) to hide behind, or solely a method for receiving conversion incentives to increase QVM profitability. QVM is about doing the right thing with all partners involved in the business, even if QVM is not the most convenient or aggressive path available.

Therefore, a QVM builder may **not** be involved in any way (including ownership, partial ownership, or receiving profits) with another manufacturing facility that manufactures vehicles outside of the QVM program guidelines, and is **not**, or not intending to be a member of the QVM program. This specifically includes facilities / companies which build non-QVM compliant Ford Motor Company vehicles including all Ford Motor Company affiliated vehicles such as: Ford trucks, Lincoln, and Lincoln trucks. Affiliation with such a company is grounds for immediate dismissal from, and loss of all benefits associated with the QVM program.

If you need further clarification of this policy, please call the QVM Engineering Office: 313 / 322 - 7926

Platform Maximum Weights

- GVW limits for QVM approved conversions are as follows:
 - ✓ MKT Town Car Limousine (120") = 7,950 pounds
 - ✓ MKT Town Car Limousine (70-80") = 7,650 pounds
 - ✓ MKT Town Car Hearse (44") = 7,450 pounds
 - ✓ Lincoln Navigator = 9,900 pounds

QVM Program - Vehicle Conversion Highlights

The following information provides a general overview of some of the new or revised conversion requirements associated with the QVM program. These requirements are applicable to all QVM conversions unless indicated otherwise. The information provided is not meant to be complete, but is intended to provide an overview for product design and development purposes.

- **B-Pillar Body Reinforcement - Full OEM B-pillars are required at all locations in the conversion.** B-pillars must be purchased from the approved OEM source. QVM Engineering must approve any modifications to the OEM B-pillar.

B-Pillars / Pillar Spacing

- ⇒ Only OEM factory approved B-Pillars may be used at door locations.
- ⇒ B-pillars can not be split or modified in any way
- ⇒ **All pillars MUST be welded with a full / continuous seam at the top, bottom, inside and outside attachment points**

*** If there are any questions regarding b-pillar usage and/or spacing, please contact the QVM Engineering office: 313-322-7926**

***** All Builders Guides may be viewed on our website at www.fleet.ford.com/limo**

- **Side Impact Intrusion Beam** - The side impact beam for the extended section of the converted vehicle must meet or exceed the following guidelines:
 - Round tubing
 - OD = 1.251 x wall = 0.0945 (inches)
 - >230 KSI , Tensile strength
 - Maximum unsupported span (distance between B-pillars) of 70 inches.
 - Rigidly attached at each B-pillar
- **Roof Supports** - OEM style (or equivalent) roof supports must be located and positively attached at each B-pillar reinforcement.
- **Driveshaft Length** - The OEM driveshaft length can not be extended. Multiple section drive shafts are required for all wheelbase extensions.
- **Center Divider Attachment** - The center divider (i.e.-partition) must be rigidly attached to the body structure.
- **Body Cut Line** - the body separation cut line must be rearward of the front door B-pillar as specified.
- **Door Configuration** - Vehicle designs with wheelbase extensions over 100 inches which incorporate more than four (4) doors **must be reviewed and approved by QVM Engineering.**
- **Framing Fixture** - All QVM manufacturers are required to incorporate a rigid vehicle cutting fixture during the extension process. This fixture must be constructed to reference the master locator holes of the OEM frame. This will insure accuracy during the extension process and prevent excessive front to rear axle thrust angle concerns. **This fixture must be in place and functioning at the time of the annual QVM audit.** *Details on the cutting fixture are in the Builders Guide. You can view the Builders Guide Online at www.fleet.ford.com/limo*

QVM Program - Key Contact List

The chart below provides the contact names / numbers for several areas that support a prospective builder during the QVM application process.

Questions Regarding	Contact-Area	Phone (p) / Fax (x) / Cell [c]
The QVM Program, The QVM application process, engineering or the conversion process	Jeff Metz - QVM Engineering Office (jmetz@ford.com)	313-322-7926 p 313-805-3157 c 313-390-3160 x
<ul style="list-style-type: none"> • Incentive program information • MKT Town Car & SUV order status • Advertising information, (clip art, brochures) 	Kim Johnston- QVM Fleet Office (kjohnst3@ford.com)	313-390-2779 p 313-390-3488 x
QVM incentive process, claim forms, payment schedule	Kim Johnston- QVM Fleet Office	Same as above

Financing, or setting up a credit line for purchasing QVM limousines	Ford Motor Credit Commercial Lending Services	800-706-0997 p
-Acquiring a Fleet Identification Number (FIN) - (required to order and purchase MKT Town Car 418/419 option Limousine/Hearse Builders Package chassis 17 L Navigator & 800A Excursion limo chassis) -Fleet Service Assistance	Ford Fleet Business Office. Commercial Vehicle Operations	800-343-5338 p For FIN info follow the menu. For Fleet Service ONLY! use: <i>Menu pick – 3</i>
Purchasing OEM approved B-pillars required for QVM approved limousine conversions round crash beam bar material.	Bud Thomas- Infinite Innovations	417-863-0300 p 417-863-0320 x

If you have any questions or need more information, please contact me or the QVM Engineering Office.



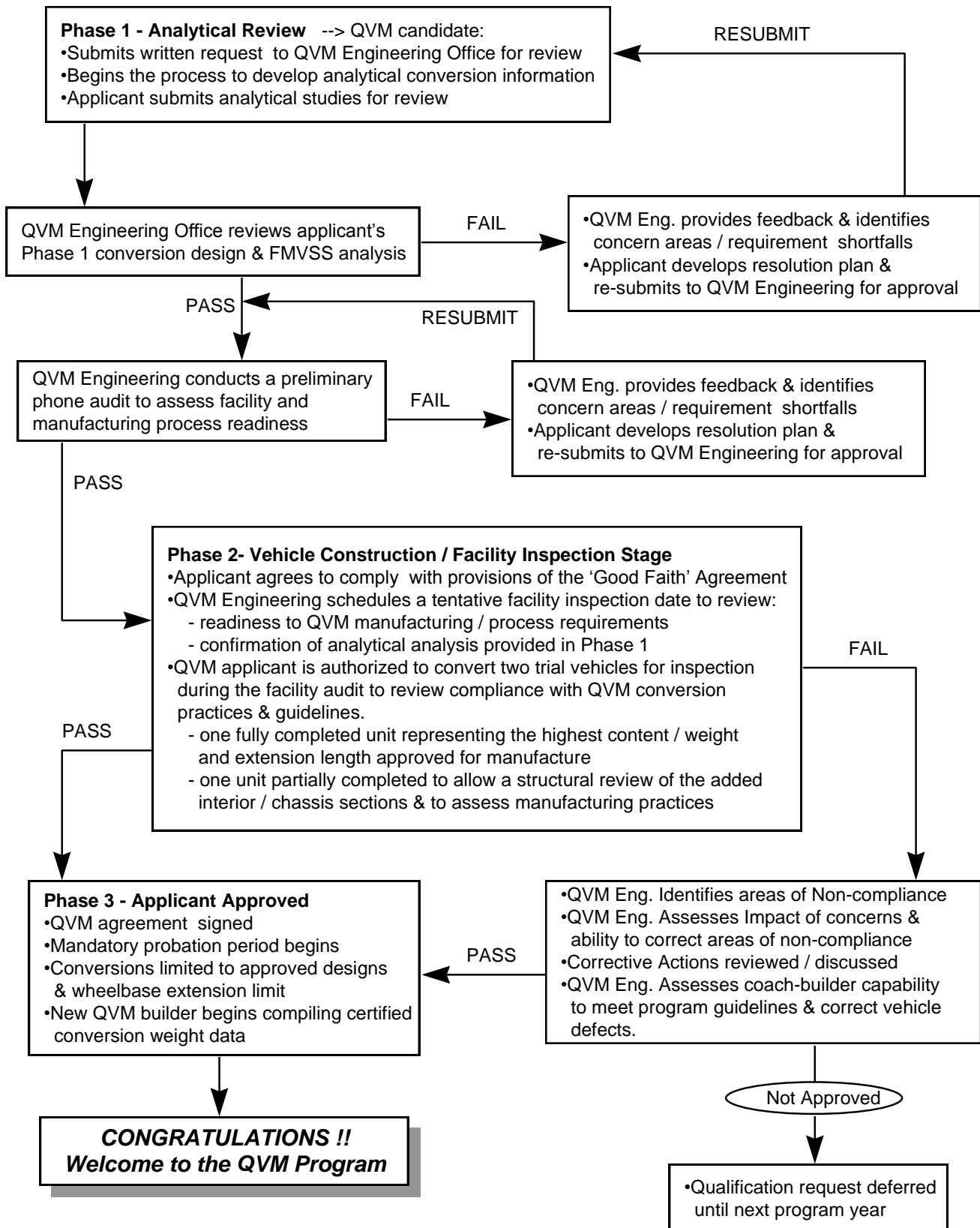
Jeff

Jeff Metz
QVM Engineering Office /Program Coordinator
313 / 322 - 7926

Dick

Dick Cupka
QVM Engineering Manager
313 / 322 - 1730

QVM New Builder Approval Process



Attachment 2

OFFICIAL QVM WEIGHT TICKET — 2013



VIN

VEHICLE TYPE: LIMO NAV
 HEARSE

TOTAL WHEELBASE EXTENSION REQUIRED FOR MKT & SUV LIMO ONLY
 HEARSE IS ALWAYS 44"

TOTAL NUMBER OF PASSENGERS INCLUDING DRIVER

RIGHT FRONT PASSENGER SEAT INSTALLED? YES NO

PCM HAS BEEN REFLASHED* YES NO

TIRE PRESSURE	LF	RF	LR	RR
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

CURB WEIGHT CORNERS	LF	RF	LR	RR
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

TOTAL CURB	FRONT	REAR	TOTAL
	<input type="text"/>	<input type="text"/>	<input type="text"/>

NORMAL LOAD CORNERS	LF	RF	LR	RR
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

TOTAL NORMAL	FRONT	REAR	TOTAL
	<input type="text"/>	<input type="text"/>	<input type="text"/>

MAX GVWR CORNERS	LF	RF	LR	RR
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

TOTAL GVWR	FRONT	REAR	TOTAL
	<input type="text"/>	<input type="text"/>	<input type="text"/>

FUEL LEVEL	EMPTY	1/4	1/2	3/4	FULL
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

HIGHLIGHT FUEL LEVEL

SCALE INFORMATION

MANUFACTURER

DATE LAST CERTIFIED MO DAY YR

*THE INFORMATION ABOVE IS CERTIFIED TO BE ACCURATE:

QVM

AUTHROIZED EMPLOYEE*

*THE SIGNING OF THIS DOCUMENT ALSO CERTIFIES THAT ALL APPLICABLE LABELS HAVE BEEN PLACED ON THE VEHICLE ABOVE PER ANY QVM AND/OR FMVSS REGULATION



SEND COMPLETED TICKETS TO JEFF METZ VIA EMAIL: JMETZ@FORD.COM