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## 2015 CALENDAR OF SUBARU HOLIDAYS

### Memorial Day

Monday, May 25, 2015

### Independence Day

Friday, July 3, 2015

### Labor Day

Monday, September 7, 2015

Be a part of the solution  
on April 22, 2015 and  
**Help Out This  
Earth Day!**



## 01 QMR OF THE MONTH

We are pleased to announce this month's winner of QMR of the Month.

### Mark Davis from Liberty Subaru in Libertyville, IL

Mark submitted a very detailed QMR on his diagnosis and repair of a 2015 Outback with multiple VDC codes. In this case, the vehicle presented with the following codes: B2809 (EyeSight) VDC Abnormal, C2548 (Power Steering) VDCCM Abnormal, C2541 (Power Steering) Vehicle Speed (Sensor Failure), and a C1242 VDC RL Wheel Speed Sensor System. Symptoms reported by the customer included the EyeSight, ABS, and Brake warning lamps were all illuminated and that the power steering seemed to lack assist when stopped. After reviewing the codes, Mark followed the diagnostics for C1242 as the likely cause. Following the Service Manual troubleshooting, he found the RL speed sensor signal to be erratic. Continuing on the troubleshooting, he inspected the sensor and wiring. Upon removing the sensor, he found scratches on it and metallic debris in the mounting hole. This led him to replace the bearing assembly which was found to have significant metal contamination. An inspection of the RR sensor for comparison found no similar concern.

In appreciation for going the extra mile and sharing his experience with us in hopes of improving product quality, Robert has received **An Apple iPad Mini tablet with a custom Subaru Confidence in Motion case** from his FSE.

Any Subaru Service Technician can participate in QMR of the Month program. See the February, 2013 Tech Tips for full details. You may see your name here in a future Tech Tips!

If you have never entered a QMR before, have an idea for one, or are not sure what should be reported, please discuss with your Field Service Engineer (FSE) or District Parts and Service Manager (DPSM) when they visit your store.

Have an idea for how we can improve QMR of the Month? Feel free to add your ideas to your next QMR submission for a vehicle concern you want to share with us. This way, you can be sure we'll see it. We read every QMR every day and we really appreciate all your submissions. Keep 'em coming!

**CAUTION: VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS  
COULD RESULT IN SERIOUS INJURY TO THOSE PERSONS OR TO OTHERS.**

The Subaru TechTIPS newsletter is intended for use by professional technicians ONLY. Articles are written to inform those technicians of conditions that may occur in some vehicles, or to provide information that could assist in the proper servicing of the vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do the job correctly and safely. If a condition is described, DO NOT assume that your vehicle has or will have that condition. Impreza, Legacy, Justy, Loyale, Outback, Forester, Subaru SVX, WRX, WRX STI, L.L. Bean, Baja, Tribeca, BRZ, XV Crosstrek and "Quality Driven" are Registered Trademarks.

**SUBARU OF AMERICA, INC. IS  
ISO 14001 COMPLIANT**

ISO 14001 is the international standard for excellence in Environmental Management Systems. Please recycle or dispose of automotive products in a manner that is friendly to our environment and in accordance with all local, state and federal laws and regulations.



QUALITY DRIVEN® SERVICE



## 01 QMR OF THE MONTH AWARD PRESENTATIONS

As part of our “enhanced” QMR of the Month recognition program, we will be including a photo (whenever available) of the recipient’s award presentation in TIPS.

In last month’s TIPS, we announced our first iPad mini tablet computer recipient, Robert Austin of Prestige Subaru in Asheville, NC. Robert is shown below receiving his award and is flanked by: (l to r) Prestige Subaru Service Director Jack Kisner, Service Manager Jerry Hagen, January’s Winner Robert Austin, SOA Field Service Engineer Dan Page and Prestige Subaru Dealer Principal Tony Pelle.



The award winner selected from QMR of the Month submissions received during February is Mark Davis from Liberty Subaru in Libertyville, IL. Mark is shown below after receiving his new iPad mini from: (l to r) Liberty Subaru Dealer Principal Joe Massarelli, February’s Winner Mark Davis, Service Manager Wayne Winkelman, and SOA Field Service Engineer Bill Sanders.



Congratulations and THANK YOU to both of these QMR of the Month Award recipients!

In order for Subaru Techline to best serve our retailers, it is necessary for Technicians to meet the following criteria before calling for assistance. Following these guidelines can help reduce call wait times, decrease come backs, and increase customer satisfaction.

- The vehicle must be at the retailer prior to calling Subaru Techline. A review of the Vehicle History should be performed. Basic checks along with attempting to duplicate the condition should be completed.

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- All associated **Techline Pre-Call Worksheets** should be completed. The worksheets are located on Subarunet under the Service tab.

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- If there are DTCs stored, the Technician should have a documented diagnostic path with exact answers. Stating “good” or “within specification” is not acceptable when a numerical value is requested.

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- Always save Freeze Frame Data (FFD) electronically before clearing any of the vehicle’s memory. Printing out the FFD to attach to the repair documents is good practice but it will not help us in helping you repair the vehicle.

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- Always try to capture a data stream (SSMIII File) whenever attempting to duplicate a condition. This is especially important when diagnosing intermittent issues.

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- Always search STIS for common or known issues via TechTIPS, Service Bulletins, and Campaign Bulletins.

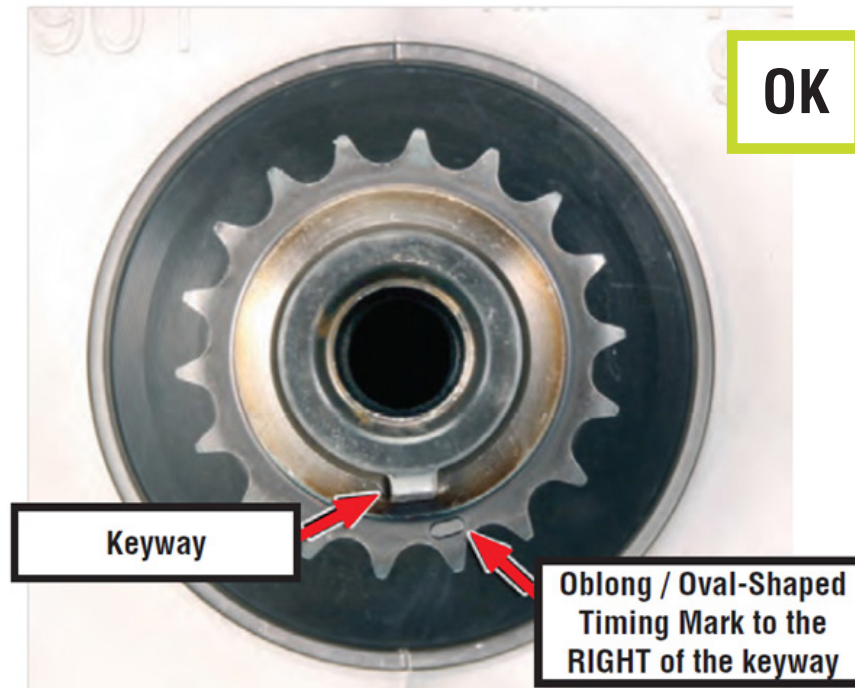
The Technical Support Line (Techline) is here to provide assistance to our retailers only.

In the event a customer has a technical question and they wish to ask Subaru of America, they must contact the Customer Retailer Services department.

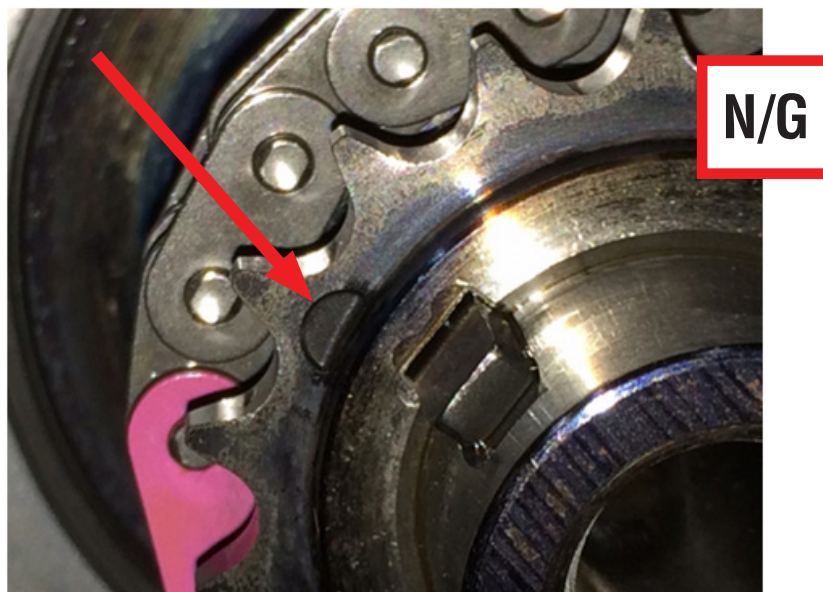
Information regarding the Customer Retailer Services department can be found at:

<http://www.subaru.com/customer-support.html> or by calling 1-800-782-2783.

As a reminder, to avoid unnecessary DTCs setting after engine reassembly, when aligning timing components on the FA and FB engines, the crankshaft timing chain sprocket **MUST** be installed with the **OVAL-SHAPED (oblong) timing mark facing front** as shown below.



Be advised, there is also a half-moon shaped mark found on the back-side of the crank sprocket. This mark can be easily mistaken for a timing mark like in the example photo below which clearly shows the crank sprocket installed backwards. Use this mark to help identify the back-side of the crank sprocket **ONLY**.



**Scenario:** When diagnosing a DTC and familiarizing yourself with the trouble tree, the connector number and terminal layout is provided but, on the actual vehicle, you discover there are multiple connectors which have the same terminal configurations and wire colors. Although this does not occur often, you still need to be able to determine which connector the Service Manual is referencing for proper diagnosis.

**Example:** DTC P0716 on a 2013 Outback with CVT transmission. The photos below show 2 very similar connectors (AT4 and AT5), both with the same wire colors and located very close to each other on the transmission. The difference is, one connector is dark gray in color while the other is light gray. In this case, doing the pin tests on the wrong connector resulted in both an incorrect repair diagnosis and unnecessary part replacement.




**Remedy:** Refer to the end of the Wiring System section of the Service Manual where you will find the handy harness connector chart shown below.

Engine Wiring Harness and Transmission Cord					
WIRING SYSTEM					
<b>• MT model</b>					
Connector				Connecting to	
No.	Pole	Color	Area	No.	Description
T1	2	★	C-1	B24	Bulkhead wiring harness
T2	2	Brown	C-1	B25	
★ : White or natural color					
<b>• CVT model</b>					
Connector				Connecting to	
No.	Pole	Color	Area	No.	Description
T3	16	Brown	D-4	B12	Bulkhead wiring harness
T4	12	Light gray	D-4	B11	
T7	9	Black	D-4		Inhibitor switch
AT1	3	Black	D-5		Primary speed sensor
AT4	3	Dark gray	D-5		Secondary speed sensor
AT5	3	Light gray	D-4		Turbine speed sensor
AT6	3	Black	D-5		Secondary pressure sensor

The diagnosis chart for the DTC references connector AT5 (light gray as shown in the chart).

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This chart can also be found by entering the specific harness connector number directly into the search box:

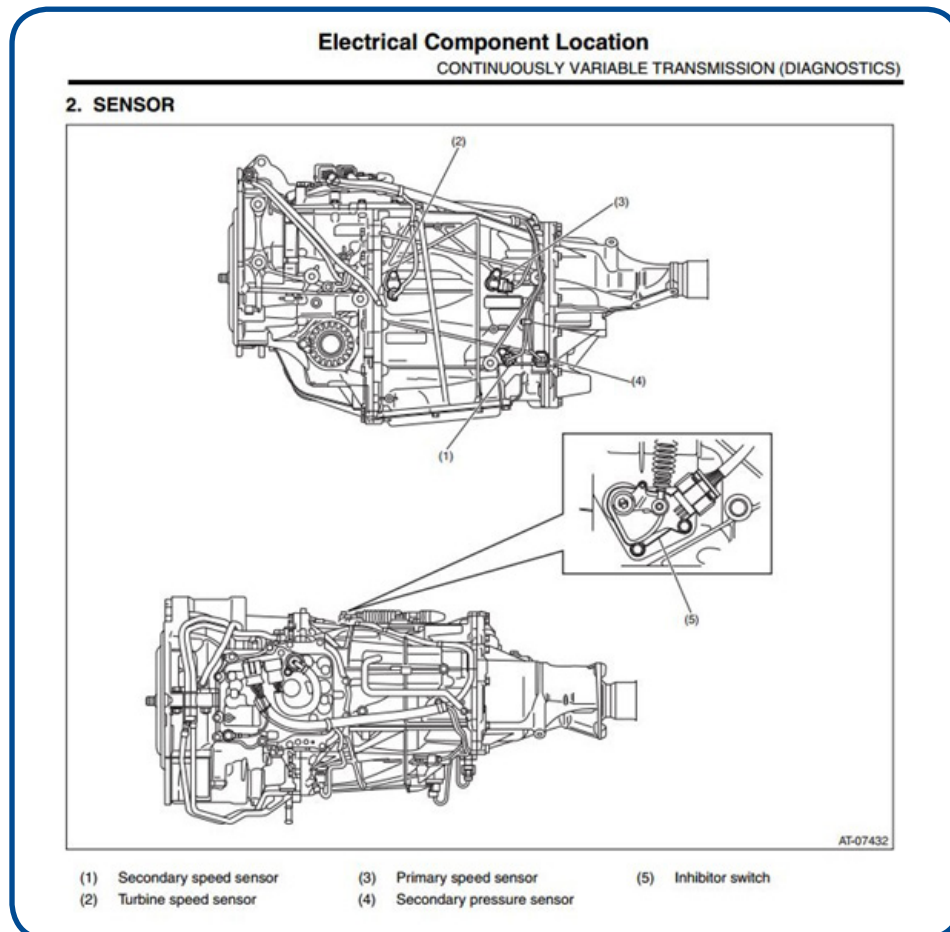

**SUBARU**
**Technical Information System**

Information ▾
Online Reference
Service Diagnostics ▾
Login / My Account ▾
Logged in as Dealer/Subaru

Current search criteria... [\[Back to Search Page\]](#)  
 Service Manual Full, 2013 Outback, 2.5 Liter, CVT, AWD using Keywords:

Item Code	Title	Actions
G2490BE	2013 Legacy and Outback Service Manual <ul style="list-style-type: none"> <li>• TRANSMISSION SECTION               <ul style="list-style-type: none"> <li>◦ CONTINUOUSLY VARIABLE TRANSMISSION DIAGNOSTICS CVTdiag                   <ul style="list-style-type: none"> <li>▪ 15. Diagnostic Procedure with Diagnostic Trouble Code DTC</li> </ul> </li> <li>◦ AUTOMATIC TRANSMISSION DIAGNOSTICS 5ATdiag                   <ul style="list-style-type: none"> <li>▪ 16. Diagnostic Procedure with Diagnostic Trouble Code DTC</li> </ul> </li> </ul> </li> <li>• WIRING SYSTEM SECTION               <ul style="list-style-type: none"> <li>◦ WIRING SYSTEM WI                   <ul style="list-style-type: none"> <li>▪ 4. Ground Circuit</li> <li>▪ 7. AT Control System</li> <li>▪ 17. CVT Control System</li> <li style="border: 1px solid red; padding: 2px;">▪ 61. Engine Wiring Harness and Transmission Cord</li> </ul> </li> </ul> </li> </ul>	

The Electrical Component Location (term is also searchable) chart also comes in handy with identifying the location of the specific component you are diagnosing. (This illustration ties in with the DTC P0716 referenced in this article's example).



As we all know, our vehicles are becoming more and more electronically-controlled with the number of control modules continuing to increase all the time. These modules work on specific voltages and current, typically low-voltage and low-current to help protect the circuits inside them. Before diagnosis of an electronic concern is begun, it is imperative to perform a thorough inspection of the vehicle for any aftermarket electronic devices. Ideally, the Service Advisor would question the customer to gather pertinent information to help with your diagnosis like: When did this condition start happening? Did you have any aftermarket equipment installed before the concern happened?...etc. Most of the time, an erratic electronic failure of a single item can be attributed to a loose ground or poor connection but, a complete failure of a single or multiple items often ends up being attributed to a power failure. What contributes to erroneous voltages? One cause can be attributed to the ever-growing popularity of LED lighting. LEDs are low-power devices which also draw relatively low current and are designed to work on specific, current-controlled circuits. To install LED lighting on a vehicle not originally designed to utilize it, LED bulbs with internal load resistors can be used or, bulbs not having internal load resistors can also be used as long as external, in-line load resistors are installed in parallel with them.

Because LEDs operate with low-resistance, if they are installed without the proper load resistor in a circuit designed for a high-resistance (incandescent) bulb, the device could cause the related circuit to be mistaken by the applicable control unit as “open.” An example of this would be a turn signal or hazard flasher blinking rapidly similar to when a bulb is burned out or maybe a dash warning light coming on to indicate a bulb is out. Another more costly condition would be a large amount of current (surge or voltage spike) from a non-resistor LED making its way back into a control module and damaging a circuit (vehicles with CAN circuitry are the most susceptible to this type of failure).

**NOTE:** Subaru of America, Inc. does not currently offer any exterior LED bulb replacement or lighting accessories. Therefore, no testing has been performed by SOA to determine compatibility or effect of using these LED bulbs with any related Subaru electrical systems. As a result, damage to components caused by aftermarket modifications are not a matter for warranty.

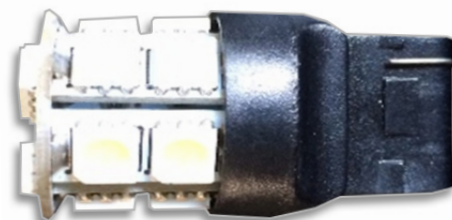


Replacement LED Bulb (7440, Red) (7440CR) by Lumen®, Bulb. 27-LEDs bulb, 360 degree light output. Increase the output of your vehicle lights for safety and style with replacement LED bulbs that are fitted to install easily in the original light sockets without modification. **CAN Bus compatibility** ensures no flickering, bulb out warnings, check engine lights or other data loop errors on modern vehicles so equipped. 1-year manufacturer warranty. Replaces the following bulb types: 992.

**“CAN BUS compatible” versions typically \$20 or more.**



Typical LED bulbs without a resistor, Non-CAN BUS compatible, sell for \$4



This replacement LED bulb which came from a 2010 Outback, had no resistor and was determined to be causing the shift lock solenoid to turn on/off randomly. In addition, the solenoid would occasionally stick “on” enabling the transmission to be taken out of Park without stepping on the brake pedal. Voltage at the BIU, ECM, TCM, and VDC control modules from the brake light circuit measured 2.83V with the brake pedal not depressed (specification is less than 1.5V). The result was a damaged BIU which caused the 2.83V output voltage to the shift lock solenoid.

## 12 FUEL DOOR FREEZE-UP

We have received a limited number of reports regarding fuel doors freezing shut and / or inoperative inside release mechanisms, especially in cold weather. The cause is water droplets accumulating at the bottom of the saucer portion and freezing to the filler door flap as shown in the photos below.



Either a CAREFUL “tap” with the side of your closed hand to break the ice or application of a spray de-icer product directly onto the indicated area of fuel door has provided good results in restoring normal operation. Spray de-icer products like those shown in the example photos below are readily available at major retail outlets and are all specifically described as being safe for application directly onto the vehicle finish.





ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
15-180-15	Technical Service Bulletin	Erroneous Time Zone Setting Affecting Clock Time Accuracy and Estimated Arrival Times	31-Mar-15
MSA5M1519A	Owner Manual	2015MY Forester EyeSight Owner's Manual	30-Mar-15
MSA5M1318A	Owner Manual	2013MY Legacy and Outback EyeSight Owner Manual	30-Mar-15
MSA5M1419A	Owner Manual	2014 Forester EyeSight Owner Manual	30-Mar-15
MSA5M1418A	Owner Manual	2014 Legacy and Outback EyeSight Owner Manual	30-Mar-15
MSA5M1525A	Owner Manual	2015MY Impreza and XV Crosstrek EyeSight Owner's Manual	30-Mar-15
MSA5M1518A	Owner Manual	2015MY Legacy and Outback EyeSight Owner's Manual	30-Mar-15
15-176-14R	Technical Service Bulletin	Audio Volume Level Drops While Driving	30-Mar-15
12-182-15	Technical Service Bulletin	New Front Door Checker Mechanism	30-Mar-15
11-150-14R	Technical Service Bulletin	Reprogramming File Availability for Oil Level	25-Mar-15
11-149-14R	Technical Service Bulletin	Reprogramming File Availability for Oil Level Detection	25-Mar-15
11-148-14R	Technical Service Bulletin	Reprogramming File Availability for Oil Level Detection	25-Mar-15

**All revised publications are highlighted in yellow.**

**CONTINUED ON THE NEXT PAGE**

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
11-145-14R	Technical Service Bulletin	Reprogramming File Availability for Oil Level Detection	25-Mar-15
L101SAL011	Accessory Installation Guide	2015MY Outback Trailer Hitch	24-Mar-15
10-82-15	Technical Service Bulletin	Break-In Procedure after Variable A/C Compressor Replacement	24-Mar-15
02-157-14R	Technical Service Bulletin	Surface Treatment Change To Oil Control Piston Rings	24-Mar-15
10-81-14R	Technical Service Bulletin	Whistling Sound from Center Console Arm Rest Vents	19-Mar-15
01-168-09R	Technical Service Bulletin	Replacement Key and Immobilizer Information for Authorized Subaru Dealers	17-Mar-15
04-14-15R	Technical Service Bulletin	Power Steering Pump Design Change	13-Mar-15
16-42-90R	Technical Service Bulletin	Transmission Cooler Flushing	12-Mar-15
02-131-12R	Technical Service Bulletin	Oil Seepage Diagnosis and Repair Procedures	10-Mar-15
02-130-12R	Technical Service Bulletin	Oil Seepage Diagnosis and Repair Procedures	10-Mar-15
SUTTIPSLOC	Other / Miscellaneous	TechTIPS Article Locator Index (Updated 03-2015)	10-Mar-15

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
TIPS0315	TechTIPS NewsLetter	2015 March TechTIPS Newsletter	6-Mar-15
18-179-15	Service Manual Correction	Service Manual Corrections	4-Mar-15
15-172-14R	Technical Service Bulletin	2015 Exchange Component Identification and Procedures	4-Mar-15
18-176-15	Service Manual Correction	Service Manual Corrections	2-Mar-15
18-177-15	Service Manual Correction	Service Manual Corrections	2-Mar-15
18-178-15	Service Manual Correction	Service Manual Corrections	2-Mar-15

**Be sure to always check the “What’s New” section on STIS for any updated or recently released information that may not be listed here.**

This is your chance to offer suggestions for use in future issues of TechTIPS! Make sure that if you e-mail us, you place in the **subject line** of your e-mail **“For TechTIPS Newsletter”**. Thank you!

MODEL: \_\_\_\_\_

YEAR: \_\_\_\_\_

VIN: \_\_\_\_\_

Description of situation encountered: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Your suggestion for repair procedure, product improvements, etc.: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please attach separate sheets, if necessary. You may also want to include Service Manual diagrams or references, or your own drawings to assist in describing your suggestion. All information submitted becomes the property of Subaru of America, Inc. Permission is granted to Subaru of America, Inc. to print your name and suggestions in TechTIPS and other Subaru of America, Inc. publications. Mail items to: PO Box 6000, Cherry Hill, NJ 08034-6000.

Your Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Dealer's Name: \_\_\_\_\_

City: \_\_\_\_\_

Date: \_\_\_\_\_

Dealer Code: \_\_\_\_\_