

Article No.
00-21-8

**SPARK KNOCK—SPARK KNOCK ON
ACCELERATION—VEHICLES EQUIPPED WITH 3.8L
ENGINE ONLY**

FORD: 1999-2000 WINDSTAR

ISSUE

Some vehicles equipped with 3.8L engine may exhibit a spark knock condition on heavy acceleration with 87 octane gasoline. Hot weather and lower octane gasoline may contribute to the concern. This may also be caused by excessive carbon deposits in the combustion chamber due to oil migration into the upper intake manifold.

ACTION

If the spark knock condition is still present after performing normal diagnostics, reprogram Powertrain Control Module (PCM), perform engine octane adjustment, decarbonize engine, clean upper intake manifold and install new design left side valve cover. Refer to the following Service Procedure for details.

SERVICE PROCEDURE

1. Verify customer concern and follow normal diagnostics found in the Powertrain Control/Emissions Diagnosis (PC/ED) Service Manual.
2. If a spark knock condition is still present after normal diagnostics, perform the following steps.
3. Reprogram the Powertrain Control Module (PCM) with the latest calibration. Refer to the PCM Calibration Table in the article.
4. Use the New Generation Star Tester (NGS) to perform an Engine Octane Adjustment using the following procedure:
 - a. Using the NGS Flash Card (4.2 level or higher) and Flash Cable, select "Service Bay Functions".
 - b. Select "Powertrain Control Module".
 - c. Select "EEC-V Configure".
 - d. Press trigger to continue on emission compliance authorization screens.

- e. Highlight the Octane Adjust column and press trigger, then rotate the dial to change the ignition timing from "No Retard" to "Retard". Press trigger again.
- f. Highlight the Fuel Octane and press trigger, then rotate the dial to set the octane to 87 octane and press trigger again.
- g. Press the Start button and you should receive a message saying that the change has been successful.

NOTE

FAILURE TO PRESS THE START BUTTON WILL RESULT IN THE CHANGES IN OCTANE ADJUST NOT BEING ACCEPTED.


- h. Exit out of Service Bay Functions.
5. Run 1 to 2 cans of Combustion Chamber Cleaner (D9AZ-19579-AA - Spray Can or D9AZ-19579-BA - Liquid) through the engine. This will remove any oil deposits and subsequent carbon from the combustion chambers.
6. Remove the upper half of the upper intake manifold. Clean the engine oil from the manifold tray. Refer to the appropriate Windstar Workshop Manual, Section 303-01B.
7. Install new left hand Valve Cover (XF2Z-6582-CA). Redesigned valve cover is equipped with baffling to prevent engine oil from reaching the upper intake manifold. Refer to Workshop Manual, Section 303-01B.
8. Carefully peel the engine build sticker from the top of the old valve cover and apply it to the top of the new valve cover.
9. Install a new Fuel Pressure Regulator Vacuum Connector (XF2Z-9E498-DA).

Index * 034140

PCM CALIBRATION INFORMATION							
Application	Old Part Number (-12A650-)	Old Tear Tag	New Part Number (-12A650-)	New Tear Tag	Old Calibration	New Calibration	NGS/WDS Qualifier
Gulf Coast Countries 1999-2000	XF2F-JD	LML3	YU7Z-JA	XXA0	9LMA-GAD	0A31AS0G10	
Gulf Coast Countries 1999-2000	XF2F-JE	LML4	YU7Z-JA	XXA0	9LMA-GAE	0A31AS0G10	
Gulf Coast Countries 1999-2000	XF2F-JF	LML5	YU7Z-JA	XXA0	9LMA-GAF	0A31AS0G10	
Gulf Coast Countries 1999-2000	YF2F-EA	YUU0	YU7Z-JA	XXA0	0A31AS0G10	0A31AS0G10	
Gulf Coast Countries 1999-2000	YF2F-EB	YUU1	YU7Z-JA	XXA0	0A31AS0G10	0A31AS0G10	
Green/California 1999-2000	YF2F-AB	CSP1	YU7Z-GA	FGJ0	0A31AS0B05	0A31AS0B05	0A31AS0B Calibration
Green/California 1999-2000	YF2F-AC	CSP2	YU7Z-GA	FGJ0	0A31AS0B05	0A31AS0B05	0A31AS0B Calibration
Green/California 1999-2000	XF2F-HE	KFW4	YU7Z-FA	NQE0	9LMA-BDE	0A31CS0B10	9LMA-BD or 0A31CS0B
Green/California 1999-2000	XF2F-HF	KFW5	YU7Z-FA	NQE0	9LMA-BDF	0A31CS0B10	9LMA-BD or 0A31CS0B
Green/California 1999-2000	XF2F-HG	KFW6	YU7Z-FA	NQE0	9LMA-BDG	0A31CS0B10	9LMA-BD or 0A31CS0B
Green/California 1999-2000	XF2F-HH	KFW7	YU7Z-FA	NQE0	9LMA-BDH	0A31CS0B10	9LMA-BD or 0A31CS0B
Green/California 1999-2000	YF2F-BA	WIK0	YU7Z-FA	NQE0	0A31CS0B10	0A31CS0B10	9LMA-BD or 0A31CS0B
49-State 1999-2000	XF2F-ME	LWA4	YU7Z-EA	ZHT0	9LMA-BEE	0A31BS0B10	9LMA-BE or 0A31BS0B
49-State 1999-2000	XF2F-MF	LWA5	YU7Z-EA	ZHT0	9LMA-BEF	0A31BS0B10	9LMA-BE or 0A31BS0B
49-State 1999-2000	XF2F-MG	LWA6	YU7Z-EA	ZHT0	9LMA-BEG	0A31BS0B10	9LMA-BE or 0A31BS0B
49-State 1999-2000	XF2F-MH	LWA7	YU7Z-EA	ZHT0	9LMA-BEH	0A31BS0B10	9LMA-BE or 0A31BS0B
49-State 1999-2000	YF2F-CA	BXG0	YU7Z-EA	ZHT0	0A31BS0B10	0A31BS0B10	9LMA-BE or 0A31BS0B
49-State 1999-2000	YF2F-CB	BXG1	YU7Z-EA	ZHT0	0A31BS0B10	0A31BS0B10	9LMA-BE or 0A31BS0B

Obtain an Authorized Modifications Decal (FPS 8262 - obtainable through DOES II, 25/pkg) and list the date, dealer number, and summary of modifications performed. Select a prominent place adjacent to the Vehicle Emission Control Information Decal suitable for installing the Authorized Modifications Decal. Clean the area, install the decal, and cover it with a clear plastic decal shield.

Article No. 00-21-8 Cont'd.

 AUTHORIZED MODIFICATIONS	
THE FOLLOWING MODIFICATIONS HAVE BEEN MADE:	
<i>Reprogrammed Powertrain Control Module (PCM) per TSB 00-21-8</i>	
<p style="text-align: center;">THESE MODIFICATIONS HAVE BEEN APPROVED, AS APPROPRIATE, BY EPA AND CARB.</p>	
DEALER NUMBER:	DATE:
CHANGE AUTHORITY:	
FPS 8282 9/78 FORD MOTOR COMPANY PRINTED IN U.S.A.	

PART NUMBER	PART NAME
XF2Z-6582-CA	Valve Cover
XF2Z-9E498-DA	Vacuum Connector - Fuel Pressure Regulator
D9AZ-19579-AA	Combustion Chamber Cleaner - Spray
D9AZ-19579-BA	Combustion Chamber Cleaner - Liquid

OTHER APPLICABLE ARTICLES: NONE
WARRANTY STATUS: Eligible Under The Provisions Of Bumper To Bumper Warranty Coverage And Emissions Warranty Coverage

OPERATION	DESCRIPTION	TIME
002108A	Perform Octane Adjustment, PCM Recalibration, And Engine Cleaning Procedure As Outlined (Includes Road Test And Parts Replacement)	1.5 Hrs.

DEALER CODING

BASIC PART NO.	CONDITION CODE
12A650	55

OASIS CODES: 497000, 615000, 615500