

# NISSAN

# PULSAR NX MAXIMA 3002X TRUCK/ PATHFINDER

1988 Models Introduction

NRD-AZ

### RVICE INFORMATION

### **GENERAL** Adjustment of valve clearance Full throttle opening FORMATION 2) Simplifica

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WALLU

a conditions.

Mr. Sur Jan J. B.

.S.D.) gear has been added on models Z31 a

### PDI SERVICE INFORMATION

In order to reduce inspection time, the following changes have been made.

- 1) Elimination of inspection items
- Adjustment of valve clearances
- Full throttle opening
- 2) Simplification of inspection method
- "Tension" of engine drive belts has been altered to "Slip noise" so that you will be able to inspect it easily.
- "Idle speed" inspection method has been changed to a feeling measure so that you will be able to readily check if the engine running is smooth and not excessive.

# MAINTENANCE SERVICE INFORMATION

ON CONTROL SYSTEM

OUTLINE .....2-1

### ENGINE MAINTENANCE

- 1) Exhaust gas sensor inspection has been eliminated on all gasoline engine models.

  According to this change, the exhaust gas sensor warning light has been deleted.
- 2) On model K10, the following changes have been made in accordance with the adoption of the catalytic converter:
- The maintenance interval has been extended twice on inspection of choke mechanism and automatic temperature control air cleaner, and also on spark plug replacement.
- Maintenance of ignition timing and mixture ratio has been eliminated.

### CHASSIS & BODY

 Oil replacement of limited-slip differential (L.S.D.) gear has been added on models Z31 and D21 at every 48,000 km (30,000 miles) or 24 months, and also at half intervals when vehicle is driven under severe conditions.

# 1988 FEDERAL ECCS SELF DIAGNOSIS (MODE 3)

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VAN		PATHFINDER		TRUCK		XZOCE	MAXIMA		2008X	WAGON	SIANZA		PAICSAR	SENTRA	MODE & ENGINE	DETE	MALFUNCTION CODE
2241	VG3(I)	Z24.	VG30	224:	VG30ET	VG30E	VG30 <b>t</b>	VG30F	CA20E	CA2UE	CA20E	CAIRCE	E le:	E161	GINE	DETECTED HEMS	ON CODE
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	0	$\subseteq$			1			1		1		1	1		7∀N:	INJECTION SIG	51
<u> </u>																ОК	55
	€QUIPPI	200										I		0			
	EQUIPPED WITH A/7						•					NOT APPLICABLE TO THIS MODEL		DIAGNOSED CIRCUIT	RENUMBERED TROUBLE CODES	NEW TROUBLE CODES	NOTE

# NISSAN 300ZX

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### **OUTLINE**

### OVED MODEL OF VG ENGINE/hereafter Manipul

Improved VG30E/VG30ET engine has been adopted.

DELETION OF VARIABLE RESISTOR

Self-diagnostic system has been modified in order to respond to legal requirements.

## TRANSMISSION MANUAL TRANSMISSION

 The double baulk ring type synchronizer system has been applied to the 2nd synchronizer assembly in FS5W71C manual transmissions. — For details, refer to the PRODUCT BULLETIN for 200SX.

MAIN ALTERATIONS AND

CRANKSHAFT, PULLEY, BOLT, WASHER

Increase in forward length of crankshaft

Increase in bolt diameter (M14 ← M12)

Liquid gasket method ← Rubber gasket

e lidestor

OIL PAN, GASKET, OIL PAN BOLTO II MINIMA MIGHT

### **AUTOMATIC TRANSMISSION**

Shift lock solenoid has been integrated into automatic transmission. This automatic transmission
is designed so that the foot brake pedal must be depressed before shifting from "P" to any
drive position while ignition switch is "ON".

### DIFFERENTIAL GEAR

 Limited slip differential gear has been added to the Canada turbo model. (It was previously added to the U.S.A. model.)

### **ELECTRICAL EQUIPMENT**

• Ignition key lamp and ashtray lamp have been discontinued.

If the engine istassambled with parts listed in the parts catalog

 Bulb check function (fuel level warning lamp, washer fluid level warning lamp, door warning lamp) has been discontinued.

NOTICE: Broken lines refer to service procedures which have been modified due to elimination of the variable resistor.

### **VG30E & VG30ET ENGINES**

### IMPROVED MODEL OF VG ENGINE (hereafter VG Md.)

The VG engine has been improved to decrease noise and increase power output, but there are points to be aware of when servicing. For further details, refer to service information for the MAXI-MA model.

**TRANSMISSION** 

MANUAL TRANSMISSION

AUTOMATIC TRANSMISSION

 Ignition key lamp and ashtray lamp have been discontinued e Bulb check function (fuel level warning (Jurito; washer floid

### MAIN ALTERATIONS AND **OBJECTIVES**

BLOCK, HEAD, HEAD GASKET Deligion made and made the supplication of the supplication o Improvement of water flow ...... Increase in power output

### PISTON, PISTON PIN, CONNECTING ROD

 Full float type ← Solid piston type ...... Decrease in sound level and vibration level is designed so that the foot brake pedal must be depressed before shifting from

. Limited slip differential gear has been added to the Canada turbo model. It was previously

### CRANKSHAFT, PULLEY, BOLT, WASHER

- Increase in forward length of crankshaft
- Increase in bolt diameter (M14 ← M12) ...... To standardize parts

### OIL PAN, GASKET, OIL PAN BOLT

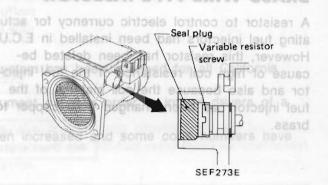
Liquid gasket method ← Rubber gasket ..... Improvement of seal

### WAYS TO AVOID PROBLEMS

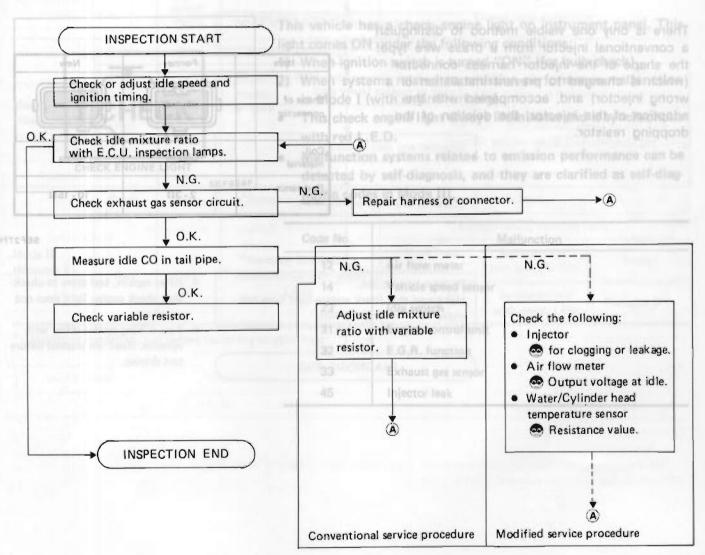
There should be no problems if the engine is assembled with parts listed in the parts catalog.

# E.C.C.S. SYSTEM DELETION OF VARIABLE RESISTOR

Due to the adoption of a mixture ratio control system with self-learning control, the variable resistor on air flow meter has been deleted. Because of this, there is no need to adjust idle mixture ratio by turning variable resistor. Service procedure for checking idle mixture ratio has been modified as follows:



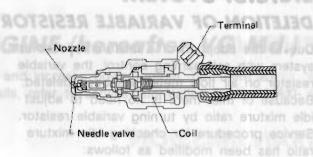
CHECK ENGINE LIGHT @ (For California only)



NOTICE: Broken lines refer to service procedures which have been modified due to elimination of the variable resistor.

### BRASS WIRE TYPE INJECTOR

A resistor to control electric currency for actuating fuel injectors had been installed in E.C.U. However, this resistor has been deleted because of high coil resistance of the fuel injector and also because the coil material of the fuel injector has been changed from copper to brass.



SEF627E

BLOCK, HEAD, HEAD GASKET

There is only one visible method to distinguish a conventional injector from a brass wire type: the shape of the injector harness connector (which is changed to prevent installation of a wrong injector) and, accompanied with the adoption of this injector, the deletion of the dropping resistor.

OIL PAN, GASKET, OIL PANPERSONO TO MERCHANT SAGERT

Itern	Former	New
Shape of connector		
Coil material	Copper	Brass
Resistance value	2 - 3Ω	10 - 15Ω

SEF277G

N.G.

N.G

NOTICE: Broken lines refer to service procedures which have been modified due to elimination of the variable resistor.

### **E.C.C.S. SELF-DIAGNOSTIC SYSTEM**

### **OUTLINE**

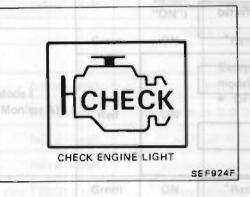
Due to legal requirements, the E.C.C.S. self-diagnostic system has been changed for all California models equipped with a three-way catalyst system.

time of vehicle delivery for service

1) A check engine light has been installed on the instrument panel in order to inform drivers of a malfunction of emission performance.

The number of diagnostic items in Mode III has been increased and some code numbers have been changed.

### CHECK ENGINE LIGHT (For California only)



After repairs, test drive to check that check engine light does not

averams. Read the manual before

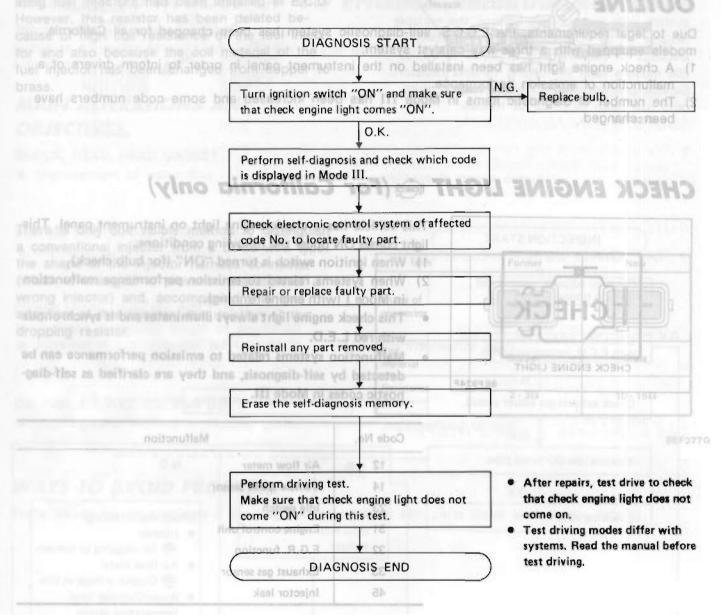
This vehicle has a check engine light on instrument panel. This light comes ON under the following conditions:

- 1) When ignition switch is turned "ON" (for bulb check).
- 2) When systems related to emission performance malfunction in Mode I (with engine running).
- This check engine light always illuminates and is synchronous with red L.E.D.
- Malfunction systems related to emission performance can be detected by self-diagnosis, and they are clarified as self-diagnostic codes in Mode III.

Code No.	Malfunction	
12	Air flow meter	
14	Vehicle speed sensor	
23	ldle switch	
31	Engine control unit	
32	E.G.R. function	
33 SON	Exhaust gas sensor	
45	Injector leak	

E.C.C.S. SELF-DIAGNOSTIC SYSTEM

Use the following diagnostic flowchart to check and repair a malfunctioning system when the check engine light is ON at the time of vehicle delivery for service.



# MODES I & II — Mixture Ratio Feedback Control Monitors A & B

changehame@xhaust TB082VI& enguera

According to the diagnostic system modifications, the illumination condition of the E.C.U. red L.E.D. has been changed as follows:

of emission performance, has been added to the conventional self-duariousles-de-

In these modes, the control unit provides the Air-fuel ratio monitor presentation and the Air-fuel ratio feedback coefficient monitor presentation.

aldslisvs ToV : -

	150	Engine stopped	n wolf tiA 15	Engir	ne running		
Mode bebbs v	WeN New	(Ignition switch "ON")	Open loop condition	194	Closed	d loop condition	14
	Green	ON	*Remains ON or OFF	and its montplies		Blinks	2
Mode I	wal/i		Except for California model	- 011		following malfur	nctions are stored
(Monitor A)	Wal/Red	ON	• OFF			neter, vehicle spe	
babbs y	New	nolta	ne E,C.R. fur		switch, full	I switch, E.C.U.	, exhaust gas
babba y	New	308998	se Exhaust go	• OFF:	except for	the above cond	ition
VG30ET only	Green	ON	*Remains ON or OFF	Dayongsion	4	Blinks	34
babba vi	re New	s temperatu	Exhaust gr		Compens	sating mixture ra	atio
Mode II (Monitor B)	Red	OFF	*Remains ON or OFF (synchronous with green	More th		Between 5% n and 5% rich	More
	[30	erature sens	LED)	OFF		ynchronized th green LED	Remains ON

20.0

" Note that diagnostic items of California model are different from those of Federal model

### A MATRIX OF DIAGNOSTIC SYSTEM (Mode III)

Due to legal requirements, a new self-diagnostic system, which can detect a malfunctional condition of emission performance, has been added to the conventional self-diagnosis. In accordance with this, the code numbers of some self-diagnostic items have been modified, as follows:

NA 16	*Appli	cation	100 100 100 100 100 100 100 100 100 100		registers with Aust
Malfunction code number	California model	Federal model	'87 Z31 VG30E & VG30ET	'88 Z31 VG30E & VG30ET	Remarks
11	0	0	Crank angle sensor	Crank angle sensor	
12	0	0	Air flow meter	Air flow meter	
13	0	0	Water temperature sensor	Water temperature sensor	Mode
14	op co O ition	COsed lo	None	Vehicle speed sensor	Newly added
21	0	0	Ignition signal	Ignition signal	But
22	0	0	Fuel pump	Fuel pump	
estota 23 anoit	nullic O prilim	0	None	Idle switch	Newly added
othi 31 ense b	10 H	0	None	E.C.C.S. control unit	Newly added
32	0	yatch, full w	None	E,G,R, function	Newly added
33	bno Ovedi	0 3 2 3 3	None	Exhaust gas sensor	Newly added
34	O EMAIN	0	Detonation sensor	Detonation sensor	For VG30ET only
35	0	Compellitari	None	Exhaust gas temperature sensor	Newly added
41	rioù #d br	A nest	Fuel temperature sensor	Deleted	(Monitor B) Red
ио .42. тея	0	0	lacq qoe that check engine ligh	Fuel temperature sensor	engine light does not
43	0	0	None	Throttle sensor	Newly added
44	_	- ,-	0.K.]**	Deleted	GIAPHEPAGINIAN SHIPSAN
45	0	-/-	None	Injector leak	Newly added
55	0	0	None	• O.K.	

O: Available

Not available

\*\* Code number has been changed.

<sup>\*</sup> Note that diagnostic items of California model are different from those of Federal model,

# EXHAUST GAS TEMPERATURE SENSOR

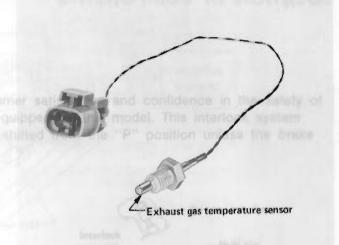
The exhaust gas temperature sensor has been newly installed on exhaust gas passage gallery. This sensor checks whether E.G.R. system is operating normally. The temperature sensing unit uses a thermistor which is sensitive to the change in exhaust gas temperature. Electric resistance of the thermistor decreases in response to a temperature rise.

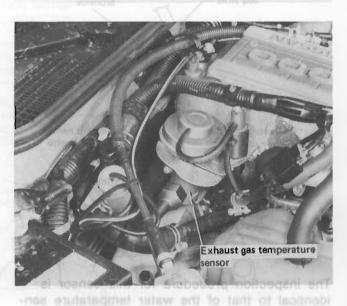
If the ignition switch is turned Off while the selector ever is in the "P" range my interlock solenoid on the A/T control to "W operate and prevent the shift pin (connected to the button ideated on the and of the sector low from moving downward. As a result, the selector lever cannot be shifted from the "P" range Whese to consider the selector lever to be moved to be moved to be moved to be moved to be moved.

200 (392)	180	100 (212)	50 (122)	
5,09	17.8 ±1.78	85.3	635 ±63.5	

SEF 278G

SERBOR





10,000 newly installed on exhibitions by This sensor checks wi 1,000 tive to the a thermistor which peu finu g change in exhaust gastlary decreases sistance of the thermisto low me 10 Vish de spee lumition sign 0 (32) 50 (122) 100 (212) 150 (302) 200 (392) Temperature °C (°F)

Operating temperature; -30 to 450°C (-22 to 842°F)

Temperature "C ("F)	0 (32)	50 (122)	100 (212)	150 (302)	200 (392)
Resistance	8,790	635	85.3	17.8	5.09
kΩ	±879	±63.5	±8.53	+1.78	±0.51

SEF278G

The inspection procedure for this sensor is identical to that of the water temperature sensor.

### Checkpoints

- Electric resistance should change when the sensor is submerged in heated water.
- 2) Electric resistance at 100°C (212°F) should be

85.3  $\pm$  8.53k  $\Omega$ 

SEF830F

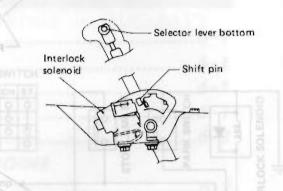
### **CHASSIS** — Automatic Transmission

# A/T INTERLOCK SYSTEM FOREWORD

In order to maintain the current high levels of customer satisfaction and confidence in the safety of the model Z31, an A/T interlock system has been equipped on this model. This interlock system prevents the transmission selector lever from being shifted from the "P" position unless the brake pedal is depressed.

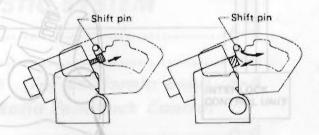
### **OPERATION**

If the ignition switch is turned ON while the selector lever is in the "P" range, the interlock solenoid on the A/T control device will operate and prevent the shift pin (connected to the button located on the end of the selector lever) from moving downward. As a result, the selector lever cannot be shifted from the "P" range. When the brake pedal is applied, the solenoid will not operate, thus allowing the selector lever to be moved.



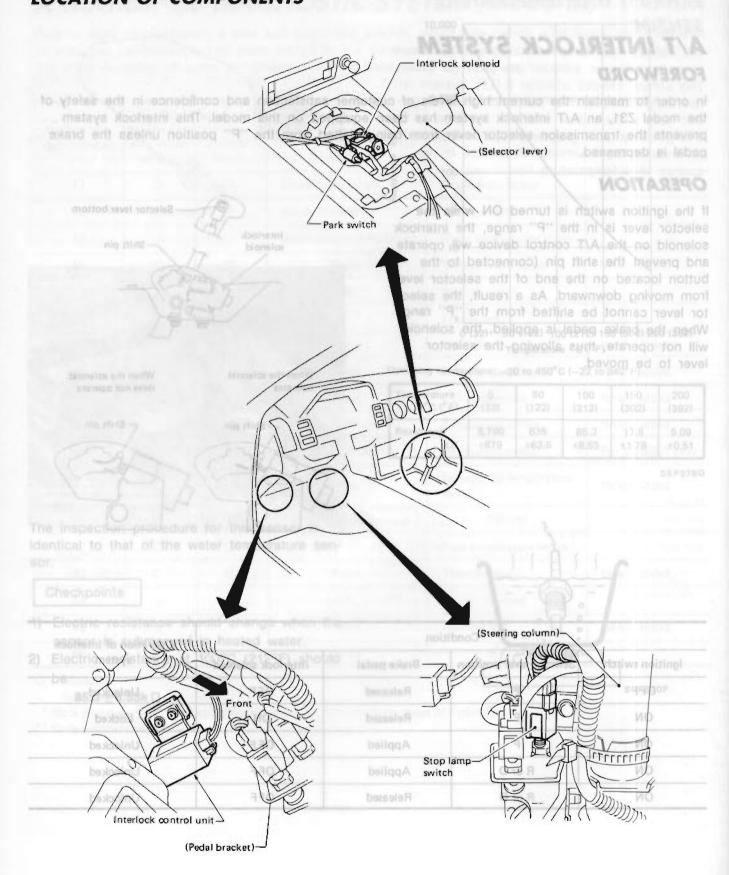
When the solenoid operates

When the solenoid does not operate

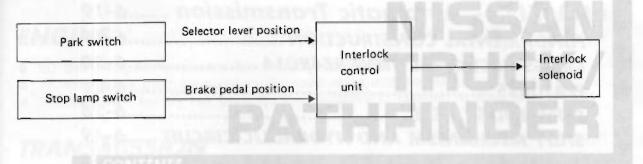


Operation of interlock	Condition									
system	Interlock solenoid	Brake pedal	Selector lever position	Ignition switch						
Unlocked	OFF	Released	EAN-EXTE	OFF						
Locked	ON	Released		ON						
Unlocked	OFF	Applied		ON						
Unlocked	OFF	Applied	R or D	ON						
Unlocked	OFF	Released	R or D	ON						

### LOCATION OF COMPONENTS



### BLOCK DIAGRAM



### SCHEMATIC

