ENGINE TUNE–UP (4A–GE) INSPECTION OF ENGINE COOLANT

(See page CO-5)

INSPECTION OF ENGINE OIL

(See page LU-5)

INSPECTION OF AIR FILTER

(See page MA-17)

INSPECTION OF BATTERY

(See page CH-3)

Standard specific gravity:

1.25 – 1.27 when fully charged at 20°C (68°F) (Delco) Green Dot visible

INSPECTION OF HIGH-TENSION CORDS

(See page IG-9)

NOTICE: DO NOT pull on the cords or bend the wires. The conductor inside may be damaged. Maximum resistance: 25 k Ω per cord

INSPECTION OF SPARK PLUGS

Using plug wrench (16 mm), remove the spark plugs. **Platinum Tipped Type**

(See page IG-10)

NOTICE:

- Never use a wire brush for cleaning
- Never attempt to adjust gap on used plug
- Spark plugs should be replaced every 60,000 miles (100,000 km)

Maximum electrode gap: 1.0 mm (0.039 in.)

Correct electrode gap of new plug:

0.8 mm (0.031 in.)

Recommended spark plugs:

ND PK20R8

NGK BKR6EP8 INSPECTION OF ALTERNATOR DRIVE

BELT

(See page CH-3)

Belt tension gauge: Nippondenso BTG-20 (95506-00020) or Borroughs No. BT-33-73F Drive belt tension: New belt 175 \pm 5 lb Used belt 115 \pm 20 lb

INSPECTION AND ADJUSTMENT OF VALVE CLEARANCE

HINT: Inspect and adjust the valve clearance when the engine is cold.

- 1. REMOVE PLUG CORD COVER
- 2. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS
- 3. REMOVE CYLINDER HEAD COVERS (See page EM-45)
- 4. SET NO.1 CYLINDER TO TDC/COMPRESSION
 - (a) Turn the crankshaft pulley and align its groove with the timing mark "0" of the No. 1 timing belt cover.
 - (b) Check that the valve lifters on the No. 1 cylinder are loose and valve lifters on the No. 4 cylinder are tight.

If not, turn the crankshaft one revolution (360°) and align the mark as above.









5. INSPECT VALVE CLEARANCE

(a) Check only the valves indicated as shown.

- Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
- Record the valve clearance measurements which are out of specification. They will be used later to determine the required replacement adjusting shim.

Valve clearance (Cold):

Intake 0.15 – 0.25 mm (0.006 – 0.010 in.) Exhaust 0.20 – 0.30 mm (0.008 – 0.012 in.)

- (b) Turn the crankshaft one revolution (360°) and align the mark as above. (See procedure in step 4)
- (c) Check only the valves indicated as shown.Measure the valve clearance.(See procedure in step (a)).

(d) Remove the adjusting shim.

- Turn the crankshaft to position the cam lobe of the camshaft on the adjusting valve upward.
- Using SST (A), press down the valve lifter and place SST (B), between the camshaft and valve lifter. Remove SST (A).

SST 09248-55010

HINT: Before pressing down the valve lifter, position the notch toward the spark plug.



• Remove the adjusting shim with a small screwdriver and magnetic finger.



- (e) Determine the replacement adjusting shim size by using the following Formula or Charts:
- Using a micrometer, measure the thickness of the shim which was removed.
- Calculate the thickness of the new shim so the valve clearance comes within specified value.
 - T Thickness of used shim
 - A Measured valve clearance
 - N Thickness of new shim

Intake side N = T + (A - 0.20 mm (0.008 in.)) Exhaust side N = T + (A - 0.25 mm (0.010 in.))

• Select a new shim with a thickness as close as possible to the calculated values.

HINT: Shims are available in seventeen sizes in increments of 0.050 mm (0.0020 in.), from 2.500 mm (0.0984 in.) to 3.300 mm (0.1299 in.).



(f) Install a new adjusting shim.

- Place a new adjusting shim on the valve lifter.
- Using SST (A), press down the valve lifter and remove SST (B).

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SST 09248-55010

(g) Recheck the valve clearance.

6. REINSTALL CYLINDER HEAD COVERS (See page EM-48)

- 7. CONNECT HIGH-TENSION CORDS TO SPARK PLUGS
- 8. REINSTALL PLUG CORD COVER

Adjusting Shim Selection Chart

mm (in.)

Thickness 2.950 (0.1161) 3.000 (0.1181) 3.050 (0.1201) 3.100 (0.1220) 3.150 (0.1240) 3.200 (0.1260) 3.250 (0.1280) 3.300 (0.1299)

Intake

Installed Shim Thickness Immi																																				
Measured Clearance Inved	2 500	2 5 2 5	2 650	2575	2 600	2 620	2 640	2 660	2 680-	2 700	2 740	2 750	2 760	2 800	2 820	2 850	2 860	2 680	2 900	2 940	2 950	2 960	3 000	3 020	1040	3060	0801	3120	3 140	3 150	3180	3 200	3229	3275	3 300	
000 - 0009		F	T		Ľ	Ħ	T	t	02	026	404	04	040	506	oak		io:	10	101	212	12	21	4 14	161	61	6 18	181	8 20	20	202	022	222	424	24	26	
0010 - 0025								02	07	020	404	04	080	506	080	000	10	10	101	21	12	4	4 14	161	61	618	101	820	20	202	2 22	222	424	26	26	
0026 - 0029		-	L	H	-	++	0	202	202	046	404	06	OBD	508	080	16 10	10	10	121	212	1.1	4	416	161	61	818	18,	0000	20	122	222		426	100	28	
0030 - 0040	-	-	-	H	-	1	20	107	07	040	404	06	050	100	080	010	10	10	12	41.		-	4 14			8 18	18	000	20	222	2 2 2 2	245	4 24	24	20	
0051 - 0070	-	t	+	t	+	026	120	202	204	6AF	100	00	Den	non	101	0 10	10	12	121	414	14	4	616	hah	81	818	202	022	22	222	224	240	1626	28	28	
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0076 - 0090			T	T	02	020	20	404	04	060	000	08	080	010	10	012	12	12	141	41	16	6	618	18	82	020	20	2 2 2	22	24 2	4 24	262	624	28	30	
001 - 0100					02	02	040	404	104	bek	606	108	080	810	10	212	12	12	141	4 14	10	16	618	18	202	020	20	2 22	224	24 2	424	26	26 28	26	30	
0101 - 0120				02	02	04	040	404	106	Dec	808	108	081	010	121	1212	112	14	141	81	18	161	818	205	202	020	22	224	24	242	476	262	18 28	100	30	
0121 - 0125			07	202	02	04	040	401	506	050	100	108	101	010	121	212	1 4	14	141	61	516	18	010	202	202	022	222	224	24	242	626	262	828	300	30	
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shim No. 24 (3.050 mm).

Adjusting Shim Selection Chart

Exhaust

Manual	Installed Shim Thickness (mm)	2.00			
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		n n n 1		-	
0010 - 0025 020	2020404060606060608081010101012121214141414	616181	818182020222222242	6	
0026 - 0040 02020	20404040606060606080810101012121212141414161	616181	818202020222224242		
0051 - 0070 0202020	404040606080808080810101212121212141414161616	618182	02020202222222424262	6	
0071 - 0090 02020204040	40606060808080810101012121212141414161616161818	818202	02022222224242426262		
0101 - 0120 02020202020404060	505060808101010101212121414141416161618181818	820202	22222222242424262626282		
0121 - 0140 02020204040406060	50606081010101212121214141416161616181818202	020222	2 2 2 2 4 2 4 2 4 2 6 2 6 2 8 2 8 2 8 2	P	
0151 - 0170 0202040404040605060	80808101012121212141416161616161818202002	022222	42424242626262828303	2	
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0200 - 0300		2 yeyey	42624262828282830303.	9	
0 301 - 0 320 040606060606101010101212141	4 1 4 1 4 1 6 1 6 1 8 1 8 1 8 1 8 20 20 2 2 2 2 2 2 2 2 2 2 4 2 4 2 6 2 6 2 6 2	628283	030303032323434		
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0371 - 0375 060808101012121212141414161	16 16 18 18 20 20 20 22 22 22 24 24 24 24 26 26 26 28 28 28 3	030303	2 32 32 34 34 34		
0 375 - 0 390 000010101212121214141414161616	6 18 18 18 20 20 20 20 22 22 22 24 24 24 24 26 26 26 28 28 28 28 28 28 28 28 28 28 28 28 28	030323	232343434		
0401 - 0420 081010121214141414161616181	8 18 18 20 20 22 22 22 22 24 24 26 26 26 26 28 28 30 30 30 30 3	0 32 32 3	4343434		
0421 - 0425 081010121214141416161616181	182020202222222222222222222222222222222	232323	43434		
0441 - 0450 101012121414161616161618182	202020202222242424242626282828282830000232323	2 32 34 3			
0451 - 0470 10121214141616161616161818202	020/20/22/22/24/24/24/24/26/26/26/26/26/26/26/26/26/26/26/26/26/	23434			
0476 - 0490 121214141616161618181820202	22 22 22 24 24 24 26 26 26 28 28 28 30 30 30 32 32 32 34 3	4 34			
0 491 - 0 500 1212141416161618181818202022 0 501 - 0 520 12141416161618181820202222	22222222222222222222222222222222222222	434			
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0651 - 0670 182020222224242424242828282	28 28 30 30 32 32 32 32 34 34				
0671 - 0675 18202022222424242626262628282	28303030323232343434				
0 691 - 0 700 2020222224242626262626282830	30 30 30 32 32 34 34 34 34				
0 701 - 0 720 202222224242626262626262828303	3303032323234343434		Shim thi	cknoss	mm (in)
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0 741 - 0 750 22222242426262628282828283030332	3232323434	No.	Thickness	No.	Thickness
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0 776 - 0 790 242426262628282830303030323232 0 791 - 0 800 242426262628283030303030323232	2343424	04	2.550 10.0004	20	2.000 (0.1101)
0 801 - 0 820 24 28 28 28 30 30 30 30 32 32 34 34	3434	04	2.550 (0.1004)	22	3.000 (0.1181)
0826 - 0840 26262828303030323232343434		06	2.600 (0.1024)	24	3.050 (0.1201)
0841 - 0850 26262628303032323232323434		08	2.650 (0.1043)	26	3.100 (0.1220)
0871 - 0875 2628283030323232343434		10	2,700 (0,1063)	28	3,150 (0,1240)
0876 - 0890 28283030323232343434		12	2 750 (0 1092)	20	2 200 (0 1260)
0 901 - 0 925 28 30 30 32 32 34 34 34		12	2.750 (0.1083)	30	3.200 (0.1260)
0 951 - 0 975 3032 32 34 34		14	2.800 (0.1102)	32	3.250 (0.1280)
0 976 - 1 000 32323434 Exhaust	valve clearance (Cold):	16	2.850 (0.1122)	34	3.300 (0.1299)
1026 - 1050 3434	0.20–0.30mm(0.008–0.012in.)	18	2.900 (0.1142)		
Example	: A 2.800 mm shim is installed				
	and the measured clearance is				
	0.450 mm.				
	Replace the 2.800 mm shim with	n shin	า		
	No. 22 (3.000 mm).				

INSPECTION AND ADJUSTMENT OF IGNITION TIMING

(See page IG-19)

Ignition timing: 10°BTDC @ idle (w/ Terminals TE1 and E1 connected)

INSPECTION AND ADJUSTMENT OF IDLE SPEED

(See page MA-19) Idle speed (w/ Cooling fan OFF): 800 rpm

INSPECTION AND ADJUSTMENT OF DASH POT (DP) SETTING SPEED

(See page FI-150)

DP setting speed (w/ Cooling fan OFF): 1,800 rpm