



**MAZDA**

**Engine Assembly 543 Chart**  
**C1S7G-543-AC**

**Revision BP**

**EN00 E 11290169 002 020110**

**Issue Date: 10 January, 2002**

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
980116	AA-A	ALL	INITIAL RELEASE	EN00F10663108056	Y.TANAKA
981026	AB-A	ALL	UPDATED	EN00F10663108085	Y.TANAKA
981202	AB-B	3	CORRECTED TYPOGRAPHICAL ERROR	EN00I10819645029	Y.TANAKA
	AB-B	5	REVISED PISTON CLEARANCE DUE TO ADDITIONAL COATING		
	AB-B	6	ADDED 2ND RING SERVICE PROCEDURE		
	AB-B	10	CORRECTED MODEL NAME		
	AB-B	17	INCREASED MAIN BEARING GRADE NUMBER		
	AB-B	23	CORRECTED MODEL NAME		
	AB-B	24-A	CORRECTED MODEL NAME		
	AB-B	28	ADDED NOTE OF REF DIMENSION		
	AB-B	29-B	REVISED OIL FILL QUANTITIES		
	AB-B	30	ADDED MISSING SHEET		
	AB-B	31	ADDED MISSING SHEET		
	AB-B	32	ADDED MISSING SHEET		
	AB-B		ADDED NOTE OF REF DIMENSION		
	AB-B	33	ADDED MISSING SHEET		
	AB-B	48-A	ADDED NOTE OF REF DIMENSION		
	AB-B	48-B	ADDED NOTE OF REF DIMENSION		
	AB-B	58	ADDED NOTE OF REF DIMENSION		
	AB-B	72-A	ADDED NOTE OF OILING		
	AB-B	72-B	ADDED NOTE OF OILING		
AB-B	77-A	UPDATED OIL COOLER			
AB-B	79	CORRECTED NOTE			
981202	AB-B	83	CORRECTED NOTE	EN00I10819645029	Y.TANAKA
990225	AC-C	3	ADDED FACTORY FILL OIL SPEC	EN00I10819645017	Y.TANAKA
	AC-C	5	ADDED (REF) TO DIMENSION		
	AC-C	12	REVISED NOTE		
	AC-C	21-B	ADDED SELECTION OF CONROD BEARING COLOUR		
	AC-C	22	REVISED NOTE		
	AC-C	26	REVISED FASTENING PROCEDURE		
	AC-C	27	CHANGED DOWEL INSERTION HEIGHT		
	AC-C	30-A	UPDATED FASTENER AND REVISED FATENEING PROCEDURE		
	AC-C	30-B	UPDATED FASTENER AND REVISED FATENEING PROCEDURE		
	AC-C	34	ADDED COMBINATION CHART OF I.D. TAB		
	AC-C	36	ADDED NOTICE OF AVDEL PLUG INSERTION		
	AC-C	37	DELETED NOTE		
	AC-C	38	ADDED (REF) TO DIMENSION		
	AC-C	42	REVISED CYL.HEAD BOLD FASTENING PROCEDURE		
	AC-C	44	REVISED NOTE OF CAM CAP BOLT FASTENING PROCEDUR		
	AC-C	45	REVISED CAM CAP BOLT FASTENING PROCEDURE		
	AC-C	50	ADDED PARTS NUMBER OF ENGINE MOUNT STUD		
	AC-C	52-A	DELETED NOTE AND REVISED FASTENING PROCEDURE		
	AC-C	52-B	REVISED FASTENING PROCEDURE		
AC-C	54	ADDED MZADA PARTS NUMBER			
AC-C	55	ADDED NOTE OF TIMING PIN			
AC-C	56	ADDED NOTE OF TIMING PIN			
990225	AC-C	57	ADDED MZADA PARTS NUMBER	EN00I10819645017	Y.TANAKA
RESTRICTIONS			PART NAME/TITLE REVISION		
SPECIFICATION NO. C1S7G-543-AC	REV D	RELEASE NO. EN00E10967761000	DATE 99-04-28	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1 CONTD. 1A



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990225	AC-C	58	REVISED NOTE	EN00110819645017	Y.TANAKA
	AC-C	60-A	ADDED STUD END FASTENER AND REVISED FASTENING PROCEDURE		
	AC-C	60-B	ADDED STUD END FASTENER AND REVISED FASTENING PROCEDURE		
	AC-C	61-A	ADDED MAZDA PARTS NUMBER		
	AC-C	61-B	ADDED MAZDA PARTS NUMBER		
	AC-C	62-B	ADDED MAZDA PARTS NUMBER		
	AC-C	63	CHANGED ASSEMBLY ORDER		
	AC-C	64-A	ADDED MAZDA PARTS NUMBER AND ASSEMBLY ANGLE		
	AC-C	64-B	ADDED MAZDA PARTS NUMBER AND NOTE TO ANGLE		
	AC-C	66-A	CHANGED ASSEMBLY ORDER		
	AC-C	66-B	ADDED SHEET OF EGR BLANKING PLATE ASSEMBLE PROCEDURE		
	AC-C	69-A	REMOVED WATER TEMP SENDER AND ADDED MAZDA PARTS NUMBER		
	AC-C	69-B	REMOVED ENG.COOLING TEMP SENDER AND ADDED MAZDA PARTS NO.		
	AC-C	71-A	ADDED NOTE OF HOSE CLAMP TAB		
	AC-C	71-B	ADDED NOTE OF HOSE CLAMP TAB		
	AC-C	72	CHANGED ASSEMBLY ORDER AND DELETED NOTE		
	AC-C	73-A	ADDED NOTE AND UPDATED PILSE DAMPER LOCATION		
	AC-C	73-B	ADDED NOTE AND UPDATED PILSE DAMPER LOCATION		
	AC-C	74-B	REVISED FASTENER NUMBER		
	AC-C	75	REVISED M8 FASTENER TORQUE		
	AC-C	76-A	CHANGED ASSEMBLY ORDER AND ADDED NOTE		
	AC-C	76-B	CHANGED ASSEMBLY ORDER AND ADDED HOSE CLAMP		
	AC-C	77-A	CHANGED ASSEMBLE PARTS		
	AC-C	77-B	CHANGED ASSEMBLE PARTS AND LOCATION		
	AC-C	78-A	ADDED NOTE		
	AC-C	82-A	CHANGED ASEMBLE PARTES SHAPE		
	AC-C	82-B	CHANGED ASSEMBLE PARTS SHAPE		
	AC-C	84-A	ADDED MAZDA PARTS NUMBER		
	AC-C	84-B	ADDED MAZDA PARTS NUMBER		
	AC-C	83	REVISED NOTE		
	AC-C	85	ADDED MAZDA PARTS NUMBER		
990225	AC-C	88	ADDED SHEET OF IDLER ASSEMBLY PROCEDURE	EN00110819645017	Y.TANAKA
990428	D	2	ADDED ADAPTATION MATRIX	EN00E10967761000	R.OKITA
	D	7	ADDED NOTE		I.HIROSE
	D	9	REVISED PARTS NO. AND FRONT INDICATE MARK		
	D	10	REVISED FRONT INDICATE MARK OF PISTON		
	D	11-D	ADDED SHEET FOR I5		I.HIROSE
	D	14	CHANGED PIPE ASSEMBLE ANGLE AND SEALANT PART NO.		R.OKITA
	D	15-A	ADDED NOET		I.HIROSE
	D	15-D	ADDED SHEET FOR I5		
	D	16	ADDED NOET		
	D	17	CHANGED TOTAL CLEARANCE RANGE		
	D	18	CHANGED MAIN BEARING COLOUR CODING		
	D	19	ADDED NOTE FOR I5 AND DIMENSION CHANGED		
	D	20	REVICED ASSEMBLY PROCEDURE		
	D	21-A	ADDED NOTE		
990428	D	21-B	ADDED NOTE	EN00E10967761000	I.HIROSE
RESTRICTIONS			PART NAME/TITLE REVISION		
SPECIFICATION NO. C1S7G-543-AC	REV D	RELEASE NO. EN00E10967761000	DATE 99-04-28	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1A CONTD. 1B

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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990428	D	22	ADDED NOTE FOR I5 AND CHANGED DIMENSION	EN00E10967761000	I.HIROSE
	D	23-D	ADDED SHEET FOR I5		
	D	24	UPDATED DRAWING		
	D	25-A	UPDATED DRAWING		
	D	25-B	REMOVED BAFFLE-CRANKSHAFT WINDAGE OIL		I.HIROSE
	D	26	REVISED NOTE AND ADDED FIGURE		R.OKITA
	D	28	REVISED DRAWING		I.HIROSE
	D	29	REVISED RTV MATERIAL		R.OKITA
	D	29-D	ADDED SHEET FOR I5		
	D	30-D	ADDED SHEET FOR I5		
	D	31-D	ADDED SHEET FOR I5		R.OKITA
	D	32-D	ADDED SHEET FOR I5		I.HIROSE
	D	33	REVISED RTV MATERIAL		R.OKITA
	D	35	ADDED NOTE FOR I5		N.TANAKA
	D	37	ADDED NOTE FOR I5		
	D	38	ADDED NOTE FOR I5		
	D	39	ADDED NOTE FOR I5		
	D	40	ADDED NOTE FOR DI AND I5		
	D	41	ADDED NOTE FOR I5		
	D	42	REVISED NOTE FOR SINGLE WRENCH METHOD		
	D	42-D	ADDED SHEET FOR I5		
	D	43	ADDED NOTE FOR I5		
	D	44	ADDED NOTE FOR I5		
	D	44-C	ADDED SHEET FOR DI		
	D	45	ADDED NOTE FOR DI		
	D	45-D	ADDED SHEET FOR I5		N.TANAKA
	D	49-A	REVISED RTV MATERIAL		R.OKITA
	D	49-B	REVISED RTV MATERIAL		
	D	51	ADDED DRAWING FOR DI		
	D	52-A	REVISED DRAWING		
	D	53-B	REVISED DRAWING		R.OKITA
	D	54	ADDED NOTE		T.KADOWAKI
	D	56-C	ADDED SHEET FOR DI		
	D	58	ADDED NOTE		
	D	58-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	59	REVISED NOTE		R.OKITA
	D	60	REVISED RTV MATERIAL		
	D	61-C	ADDED SHEET FOR DI		
	D	61-D	ADDED SHEET FOR I5		R.OKITA
	D	62-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	64	ADDED MATRIX CHART		T.TANAKA
	D	65-A	CHANGED ASSEMBLE ANGLE		T.KADOWAKI
	D	65-B	CHANGED ASSEMBLE ANGLE		
	D	65-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	66-D	ADDED SHEET FOR I5		N.TANAKA
	D	69-C	ADDED SHEET FOR DI		R.OKITA
990428	D	70-C	ADDED SHEET FOR DI	EN00E10967761000	T.KADOWAKI

RESTRICTIONS				PART NAME/TITLE REVISION			
SPECIFICATION NO. C1S7G-543-AC	REV D	RELEASE NO. EN00E10967761000	DATE 99-04-28	MODEL CD132	SHEET 1B	CONTD. 1C	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990428	D	71-C	ADDED SHEET FOR DI	EN00E10967761000	R.OKITA
	D	72-C	ADDED SHEET FOR DI		T.TANAKA
	D	73-A	CHANGED ECT LOCATION		T.KADOWAKI
	D	73-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	76-A	REVISED NOTE		R.OKITA
	D	76-B	REVISED NOTE		
	D	76-C	ADDED SHEET FOR DI		
	D	76-D	ADDED SHEET FOR I5		R.OKITA
	D	78-A	ADDED MATRIX FOR DISCRIMINATION AND REVISED NOTE		T.KADOWAKI
	D	78-B	REVISED NOTE		
	D	78-C	ADDED SHEET FOR DI		
	D	79-C	ADDED SHEET FOR DI		
	D	80-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	81-C	ADDED SHEET FOR DI		T.TANAKA
	D	82-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	83-C	ADDED SHEET FOR DI		T.TANAKA
	D	84-C	ADDED SHEET FOR DI		
	D	85-C	ADDED SHEET FOR DI		
	D	85-D	ADDED SHEET FOR I5		
	D	86-D	ADDED SHEET FOR I5		
	D	87-B	ADDED TIGHETNING ORDER		
	D	87-C	ADDED SHEET FOR DI		
	D	87-D	ADDED SHEET FOR I5		
	D	88-A	REVISED NOTE		
	D	88-C	ADDED SHEET FOR DI		
	D	88-D	ADDED SHEET FOR I5		T.TANAKA
	D	89-B	ADDED NOTE		T.TANAKA
	D	89-D	ADDED SHEET FOR I5		T.KADOWAKI
	D	90-C	ADDED SHEET FOR DI		
	D	91-C	ADDED SHEET FOR DI		
	D	92-B	REVISED DRAWING		
	D	92-C	ADDED SHEET FOR DI		T.KADOWAKI
	D	93-A	DRAWING UPDATE		I.HIROSE
	D	93-B	DRAWING UPDATE		
	D	94	CHANGED FASTENER		I.HIROSE
	D	95-A	ADDED NOTE		T.TANAKA
	D	95-B	ADDED NOTE		
	D	95-D	ADDED SHEET FOR I5		
	D	96-B	ADDED SHEET FOR RANGER I4		
	D	96-D	ADDED SHEET FOR I5		T.TANAKA
D	97-A	REVISED MODEL DESCRIPTION AND NOTE	R.OKITA		
D	99	ADDED NOTE	T.KADOWAKI		
D	100-C	ADDED SHEET FOR DI			
D	101-C	ADDED SHEET FOR DI			
D	102-C	ADDED SHEET FOR DI	T.KADOWAKI		
D	103-C	ADDED SHEET FOR DI	R.OKITA		
D	107-B	REVISED NOTE			
990428	D	OTHER	REVISED SHEET NO.	EN00E10967761000	R.OKITA

RESTRICTIONS

PART NAME/TITLE  
REVISION

SPECIFICATION NO. C1S7G-543-AC	REV D	RELEASE NO. 0	DATE 99-04-28	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1C	CONTD. 2
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990630	E	42	REVISED TIGHTENING PROCEDURE	EN00E10986253000	Y.TANAKA
		44	ADDED CAMSHAFT THRUST CLEARANCE		
		44-C	ADDED CAMSHAFT THRUST CLEARANCE		
		47	CHANGED FASTENER		
990630	E	48	CHANGED TIGHTENING TORQUE	EN00E10986253000	Y.TANAKA
990806	F	27	ADDED DOWEL ATTACHING INSTRUCTION	EN00E10994808000	I.HIROSE
		32	ADDED DOWEL ATTACHING INSTRUCTION		
990806	F	75	REVISED TIGHTENING TORQUE	EN00E10994808000	I.HIROSE
990901	G	23-A	ADDED THE NUMBER OF REUSE OF BEARING CAP BOLT	EN00E10998905000	I.HIROSE
		23-D	ADDED THE NUMBER OF REUSE OF BEARING CAP BOLT		
		30-E	ADDED SHEET		
990901	G	30-D	CHANGED SHEET NUMBER	EN00E10998905000	I.HIROSE
990906	H	4-A	ADDED NOTE FOR ELECTRIACL CONNECTIONS	EN00E11007392000	T.KADOWAKI
		6	REVISED NOTE		I.HIROSE
		7	REVISED NOTE		
		8	REVISED NOTE		
		9	REVISED NOTE		
		10	ADDED NOTE FOR CYL.BORE LUBRICATING		
		11	REVISED TIGHTENING TORQUE DESCRIPTION		
		12	REVISED TIGHTENING TORQUE DESCRIPTION		I.HIROSE
		14	REVISED NOTE		R.OKITA
		14-D	ADDED SHEET FOR I5		R.OKITA
		15-A	ADDED NOTE FOR BEARING LUBRICATING		I.HIROSE
		15-D	ADDED NOTE FOR BEARING LUBRICATING		
		16	REVISED NOTE		
		17	REVISED NOTE		
		18	REVISED BEARING COLOR		
		19	ADDED NOTE		
		20	REVISED NOTE		
		21-A	REVISED NOTE		
		21-B	REVISED NOTE		
		22	REVISED NOTE		
		23-A	REVISED NOTE		
		23-D	REVISED NOTE		
		24	REVISED TIGHTENING TORQUE DESCRIPTION		
		25-A	REVISED TIGHTENING TORQUE DESCRIPTION		
		25-B	REVISED TIGHTENING TORQUE DESCRIPTION		
		25-E	ADDED SHEET FOR BALANCE SHAFT		
		25-F	ADDED SHEET FOR BALANCE SHAFT		
		25-G	ADDED SHEET FOR BALANCE SHAFT		
		25-H	ADDED SHEET FOR BALANCE SHAFT		I.HIROSE
		26	REVISED NOTE		R.OKITA
		28	ADDED TORQUE STEPS		I.HIROSE
29	REVISED NOTE AND ADDED RTV MATERIAL	R.OKITA			
29-D	REVISED NOTE AND ADDED RTV MATERIAL				
30-A	REVISED NOTE				
30-B	REVISED NOTE				
30-D	REVISED NOTE				
990906	H	31	DELETED SERVICE INFORMATION	EN00E11007392000	R.OLITA
RESTRICTIONS			PART NAME/TITLE REVISION		
SPECIFICATION NO. C1S7G-543-AC	REV H	RELEASE NO. EN00E117392000	DATE 99-09-06	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1D CONTD. 1E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990906	H	31-D	DELETED SERVICE INFORMATION	EN00E11007392000	R.OKITA
		33	REVISED NOTE AND ADDED RTV MATERIAL		R.OKITA
		35	REVISED TIGHTENING TORQUE DESCRIPTION		N.TANAKA
		37	REVISED TIGHTENING TORQUE DESCRIPTION		
		38	REVISED TIGHTENING TORQUE DESCRIPTION AND REVISED NOTE		
		39	REVISED TIGHTENING TORQUE DESCRIPTION		
		40	REVISED TIGHTENING TORQUE DESCRIPTION		
		44	REVISED NOTE		
		44-C	REVISED NOTE		
		45	REVISED TIGHTENING TORQUE DESCRIPTION		
		45-D	REVISED TIGHTENING TORQUE DESCRIPTION		
		46	REVISED TIGHTENING TORQUE DESCRIPTION		
		47	COORECT PARTS NUMBER		
		48	REVISED TIGHTENING TORQUE DESCRIPTION		N.TANAKA
		49-A	REVISED NOTE, ADDED RTV MATERIAL AND CORRECT DIMENSION		R.OKITA
		49-B	REVISED NOTE, ADDED RTV MATERIAL AND CORRECT DIMENSION		
		49-E	ADDS SHEET FOE 2.3L E/W		
		50	REVISED TIGHTENING TORQUE DESCRIPTION		
		51	REVISED NOTE		
		52-A	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		52-B	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		52-E	MOVED FROM 107-A AND ADDED NOTE		
		53-A	DELETED SERVICE INFORMATION		
		53-B	DELETED SERVICE INFORMATION		R.OKITA
		54	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		T.KADOWAKI
		55	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		I.HIROSE
		56-C	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		T.KADOWAKI
		57	REVISED NOTE		I.HIROSE
		58	CHANGED TIGHTENING TORQUE		T.KADOWAKI
		58-C	CHANGED TIGHTENING TORQUE		
		58-D	ADDED SHEET FOR I5		T.KADOWAKI
		59	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		R.OKITA
		60	REVISED NOTE AND ADDED RTV MATERIAL		
		61-A	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		61-B	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		61-C	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		61-D	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		R.OKITA
		62-A	CHANGED PARTS NUMBER ABD ADDED MATRIX		T.KADOWAKI
		62-B	COMBINED TO 62-A		
		62-C	REVISED TIGHTENING TORQUE DESCRIPTION		
		63-B	CHANGED TIGHTENING TORQUE TORELANCE		
		63-D	ADDED SHEET FOR I5		T.KADOWAKI
		64	REVISED TIGHTENING TORQUE DESCRIPTION		T.TANAKA
		65-A	CHANGED TIGHTENING TORQUE TORELANCE		T.KADOWAKI
		65-B	CHANGED TIGHTENING TORQUE TORELANCE		
		65-C	CHANGED TIGHTENING TORQUE TORELANCE		T.KADOWAKI
		66-A	CHANGED TIGHTENING TORQUE TORELANCE		N.TANAKA
		66-B	CHANGED TIGHTENING TORQUE TORELANCE		
990906	H	66-D	CHANGED TIGHTENING TORQUE TORELANCE	EN00E11007392000	N.TANAKA
RESTRICTIONS			PART NAME/TITLE REVISION		
SPECIFICATION NO. C1S7G-543-AC	REV H	RELEASE NO. 0	DATE 99-09-06	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1E CONTD. 1F

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990906	H	67-A	ADDED DRAWING AND CHANGED TIGHTENING TORQUE TORELANCE	EN00E11007392000	T.KADOWAKI
		67-B	ADDED DRAWING AND CHANGED TIGHTENING TORQUE TORELANCE		
		67-D	ADDED SHEET FOR N/S EGR VALVE		T.KADOWAKI
		68	ADDED NOTE AND CHANGED TIGHTENING TORQUE TORELANCE		R.OKITA
		69-C	REVISED NOTE AND ADDED RTV MATERIAL		
		71-A	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		71-B	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		
		71-C	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		R.OKITA
		72-C	REVISED TIGHTENING TORQUE DESCRIPTION		T.KADOWAKI
		73-A	REVISED TIGHTENING TORQUE DESCRIPTION		
		73-B	REVISED TIGHTENING TORQUE DESCRIPTION		
		73-C	REVISED TIGHTENING TORQUE DESCRIPTION		
		73-D	REVISED TIGHTENING TORQUE DESCRIPTION		
		74-D	REVISED TIGHTENING TORQUE DESCRIPTION		T.KADOWAKI
		75	REVISED TIGHTENING TORQUE DESCRIPTION		I.HIROSE
		76-A	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		R.OKITA
		76-B	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		
		76-C	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		
		76-D	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		R.OKITA
		77	REVISED TIGHTENING TORQUE DESCRIPTION		T.TANAKA
		78-A	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		T.GOTO
		78-B	REVISED NOTE AND TIGHTENING TORQUE DESCRIPTION		T.GOTO
		85-A	REVISED TIGHTENING TORQUE DESCRIPTION		T.TANAKA
		85-B	REVISED TIGHTENING TORQUE DESCRIPTION		
		87-B	ADDED NOTE AND REVISED TIGHTENING TORQUE DESCRIPTION		
		88-A	UPDATED DRAWING		T.TANAKA
		89-A	ADDED DRAWING AND CHANGED TIGHTENING TORQUE TORELANCE		T.KADOWAKI
		89-B	ADDED DRAWING AND CHANGED TIGHTENING TORQUE TORELANCE		
		89-D	ADDED DRAWING AND CHANGED TIGHTENING TORQUE TORELANCE		
		89-F	ADDED SHEET FOR SOLENOID VALVA ASSEMBLING		
		89-G	ADDED SHEET FOR SOLENOID VALVA ASSEMBLING		
		90-A	ADDED SHEET FOR E/W ABSOLUTE PRESS SENSOR		
		90-B	ADDED SHEET FOR N/S ABSOLUTE PRESS SENSOR		
		90-C	REVISED TIGHTENING TORQUE DESCRIPTION		
		91-A	ADDED FASTENING SEQUENCE AND MATRIX		
		91-B	ADDED FASTENING SEQUENCE		
		91-C	ADDED FASTENING SEQUENCE		
		92-A	ADDED NOTE		
		92-B	ADDED NOTE		T.KADOWAKI
		93-A	REVISED TIGHTENING TORQUE DESCRIPTION		I.HOROSE
		93-B	REVISED TIGHTENING TORQUE DESCRIPTION		
		94	REVISED TIGHTENING TORQUE DESCRIPTION		I.HOROSE
		95-A	UPDATED DRAWING		T.TANAKA
		95-B	UPDATED DRAWING		
		96-B	REVISED TIGHTENING TORQUE DESCRIPTION		T.TANAKA
		97-A	ADDED DRAING AND REVISED NOTE		R.OKITA
		98-A	ADDED NOTE		T.KADOWAKI
98-B	ADDED NOTE				
990906	H	99	REVISED NOTE	EN00E11007392000	T.KADOWAKI

RESTRICTIONS				PART NAME/TITLE REVISION			
SPECIFICATION NO. C1S7G-543-AC	REV H	RELEASE NO. 0	DATE 99-09-06	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1F	CONTD. 1G	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
990906	H	103-C	ADDED NOTE	EN00E11007392000	R.OKITA
		104-A	ADDED NOTE		
		104-B	DELETED		R.OKITA
		105	CHANGED TIGHTENING TORQUE		N.TANAKA
		106-A	MOVED TO 52-E		R.OKITA
		107-A	ADDED NOTE		
		107-B	ADDED NOTE		
990906	H	OTHER	SHEET NUMBER CHANGE	EN00E11007392000	R.OKITA
991005	J	107-B	SHEET NUMBER CHANGE	EN01E10877065001	R.OKITA
		108	ADDED SHEET FOR HOSE - EVAP		
991005	J	109	ADDED SHEET FOR VACUUM HARNESS	EN01E10877065001	R.OKITA
991213	K	24	CHANGED TIGHTENING PROCEDURE	EN00E11026968000	T.MITSUHARA
991214	L	93-A	CHANGED BOLT TYPE	EN00E11035651 000	T.MITSUHARA
991214	L	93-B	CHANGED BOLT TYPE	EN00E11035651 000	T.MITSUHARA
000126	M	66-B	CHANGED FRONT LIFTING EYE	EN00E11054241 000	N.TANAKA
000126	M	105	CHANGED OIL GALLERY PLUG	EN00E11054241 000	N.TANAKA
000210	N	2	UPDATED	EN00E11030674 000	R.OKITA
		3	UPDATED		R.OKITA
		7	REVISED INCORRECT DRAWING		S.HASETOH
		14	REVISED ANAEROBIC SEALER MATERIAL		R.OKITA
		20	REVISED INDICATION CONROD CRANK END DIAMETER		S.HASETOH
		25-F	REVISED DRAWING		
		25-G	REVISED DRAWING AND BALANCER ROTATION TORQUE		S.HASETOH
		28-A	ADDED SHEET FOR FLEXPLATE		R.OKITA
		28-B	ADDED SHEET FOR DUAL MASS FLYWHEEL		
		29	REVISED RTV SPECIFICATION		R.OKITA
		30-E	REVISED DRAWING		T.MITSUHARA
		33	REVISED RTV SPECIFICATION		R.OKITA
		35	REVISED ANAEROBIC SEALER MATERIAL		N.TANAKA
		46-E	ADDED SHEET FOR VVT/BALANCE SHAFT OIL PUMP CHAIN		
		47-E	ADDED SHEET FOR VVT ACTUATOR AND SPROCKET		
		48-E	ADDED SHEET FOR VVT TIMING CHAIN AND GUIDE		N.TANAKA
		49-A	REVISED RTV SPECIFICATION		R.OKITA
		49-B	REVISED RTV SPECIFICATION		
		49-E	REVISED RTV SPECIFICATION		R.OKITA
		61-E	ADDED SHEET FOR VVT OCV		N.TANAKA
		61-F	ADDED SHEET FOR VVT OCV		
		61-G	ADDED SHEET FOR VVT OIL PIPE		N.TANAKA
		64	ADDED NOTE		T.TANAKA
		67-B	ADDED NOTE		T.TANAKA
		69-C	REVISED RTV SPECIFICATION		R.OKITA
		85-A	ADDED NOTE		T.TANAKA
		85-B	ADDED NOTE		
		87-E	ADDED SHEET FOR GASHOL AND LEADED ENGINE		
		87-F	ADDED SHEET FOR AUDIO GROUND STRAP		
		88-A	REVISED NOTE		
		88-B	MODIFIED DRAWING		T.TANAKA
		90-A	MODIFIED NOTE		K.KADOWAKI
		000210	N		90-B

RESTRICTIONS

PART NAME/TITLE  
REVISIONSPECIFICATION NO.  
C1S7G-543-ACREV  
NRELEASE NO.  
EN00 E 11030674 000DATE  
00-02-10MODEL  
2001 2.0L-4V NON DI CD132SHEET  
10CONT.  
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
000210	N	90-C	MODIFIED NOTE	EN00E11030674 000	T.TANAKA
		95-A	REVISED DRAWING		T.TANAKA
		95-B	REVISED DRAWING		T.TANAKA
		107-A	CHANGED FASTENER		R.OKITA
		107-B	CHANGED FASTENER		
		110	ADDED SHEET FOR CLUTCH ASSEMBLY		
000210	N	OTHER	REVISED SHEET NUMBER	EN00E11030674 000	R.OKITA
000331	P	4-A	ADDED NOTE FOR CC, A/AR RANK	EN00E11045491000	R.OKITA
		14	REVISED NOTE FOR SEALANT		R.OKITA
		28	ADDED CC, A RANK MARK		S.HASETO
		30-E	ADDED AR RANK MARK AND NOTE FOR LEGAL CODE		MITSUHARA
		48	ADDED CC, A RANK MARK		N.TANAKA
		48-E	ADDED CC, A RANK MARK		N.TANAKA
000331	P	55	ADDED CC, A RANK MARK	EN00E11045491000	S.HASETO
		59	REVISED NOTE FOR ASSISTANT MATERIAL		R.OKITA
000420	R	9	CHANGED PISTON PIN ASSEMBLE DIMENSION	EN00E11069681001	S.HASETO
		20	CHANGED CONROD BOLT TIGHTENING PROCEDURE		
		22	CHANGED NOTE		
		25-E	CHANGED TO ONE TURLET DESIGN		
		25-F	CHANGED TO ONE TURLET DESIGN		
		25-G	CHANGED TO ONE TURLET DESIGN		
		25-H	CHANGED TO ONE TURLET DESIGN		S.HASETO
		44	CHANGED CAM CAP FASTENER		N.TANAKA
		44-C	CHANGED CAM CAP FASTENER		N.TANAKA
		52-A	CHANGED FASTENER TIGHTENING ORDER FOR SINGLE SPINDLE		R.OKITA
		52-B	CHANGED FASTENER TIGHTENING ORDER FOR SINGLE SPINDLE		R.OKITA
		56-C	ADDED ASSEMBLY PROCEDURE		T.KADOWAKI
		61-C	CHANGED STUD END FASTENER LOCATION		R.OKITA
		62-C	ADDED NOTE		T.KADOWAKI
		65-A	ADDED SIDE VIEW		
		65-B	ADDED SIDE VIEW		
		65-C	ADDED SIDE VIEW		T.KADOWAKI
		69-C	UPDATED DRAWING		R.OKITA
		71-C	UPDATED DRAWING		R.OKITA
		73-C	UPDATED DRAWING		T.KADOWAKI
		74-C	UPDATED DRAWING		T.KADOWAKI
		76-C	UPDATED DRAWING		R.OKITA
		78-A	ADDED CC, A RANK MARK FOR FUEL RAIL TIGHTENING TORQUE		T.GOTO
		78-B	ADDED CC, A RANK MARK FOR FUEL RAIL TIGHTENING TORQUE		T.GOTO
		80-C	ADDED NOTE		T.KADOWAKI
		89-D	REVISED SHEET NUMBER		T.TANAKA
		89-E	ADDED SHEET FOR SOLENOID VALVE FOR VIS INT.MANIFOLD		T.TANAKA
90-C	UPDATED DRAWING	T.KADOWAKI			
91-A	REVISED PARTS REVISION				
91-B	REVISED PARTS REVISION				
91-C	REVISED PARTS REVISION				
92-C	UPDATED DRAWING				
98-A	REVISED NOTE				
000420	R	98-B	REVISED NOTE	EN00E11069681001	T.KADOWAKI
RESTRICTIONS				PART NAME/TITLE REVISION	
SPECIFICATION NO. C1S7G-543-AC	REV R	RELEASE NO. EN00 E 11069681 001	DATE 00-04-20	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1H CONTD. 1J



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
000420	R	100-C	UPDATED DRAWING	EN00E11069681001	T.KADOWAKI
000420	R	103-C	UPDATED DRAWING	EN00E11069681001	R.OKITA
000428	S	99	REVISED SHEET NUMBER	EN00E11081197000	T.KADOWAKI
		99-B	ADDED SHEET FOR MEGA HARNESS		
		100-D	ADDED SHEET FOR MEGA HARNESS		
		100-E	ADDED SHEET FOR MEGA HARNESS		
		100-G	ADDED SHEET FOR MEGA HARNESS		
		100-H	ADDED SHEET FOR MEGA HARNESS		
		100-J	ADDED SHEET FOR MEGA HARNESS		
		100-K	ADDED SHEET FOR MEGA HARNESS		
		100-L	ADDED SHEET FOR MEGA HARNESS		
		100-M	ADDED SHEET FOR MEGA HARNESS		
000428	S	100-N	ADDED SHEET FOR MEGA HARNESS	EN00E11081197000	T.KADOWAKI
000630	T	2	REVISED MATRIX	EN00E11095813000	R.OKITA
		3	REVISED PAGE NUMBER		R.OKITA
		39	REVISED VALVE SPRING DIRECTION AND ADDED NOTE		N.TANAKA
		48-E	ADDED CC, A RANK MARK FOR EXH. CAM PULLEY		N.TANAKA
		59	REVISED NOTE FOR ASSISTANT MATERIAL		R.OKITA
		62-A	CHANGED FASTENING TORQUE FOR SPARK PLUG		T.KADOWAKI
		62-C	REMOVED DUE TO INCORPORATION INTO 62-A		T.KADOWAKI
		64	ADDED MATRIX FOR PCV VALVE CAP COLOR		T.TANAKA
		70-C	REVISED DRAWING TO 1.8L DI CP DESIGN		T.GOTO
		78-C	REVISED DRAWING TO 1.8L DI CP DESIGN		
		79-C	REVISED DRAWING TO 1.8L DI CP DESIGN		
		82-C	REVISED DRAWING TO 1.8L DI CP DESIGN		
		83-C	REVISED SHEET AS REMOVAL PROCEDURE		T.GOTO
		84-C	CHANGED SHEET NUMBER		R.OKITA
		84-D	ADDED AND REVISED SHEET TO 1.8L DI CP DESIGN		T.TANAKA
		87-C	REVISED DRAWING TO 1.8L DI CP DESIGN		
		88-C	REVISED DRAWING TO 1.8L DI CP DESIGN		
		96-B	ADDED FASTENING PROCEDURE FOR SINGLE SPINDLE		T.TANAKA
		110	CHANGED SHEET NUMBER		R.OKITA
000630	T	111	ADDED SHEET FOR ENGINE LABEL ON CAM COVER	EN00E11095813000	R.OKITA
000711	U	2	REVISED MATRIX	EN00E11085584000	R.OKITA
		60	CHANGED SHEET NUMBER		N.TANAKA
		60-C	ADDED SHEET FOR DI CAM CAP RTV		N.TANAKA
		62-A	ADDED SPEC FOR 2.3L E/W		T.KADOWAKI
000711	U	98-B	REVISED NOTE	EN00E11085584000	T.KADOWAKI
000908	V	1-E	REVISED REVISION NOTE OF SHEET 37, 38, 39	EN00E11124480001	R.OKITA
		2	ADDED MATRIX FOR SHEET 12-A		R.OKITA
		8	REVISED NOTE		S.HASETO
		12	CHANGED SHEET NUMBER		T.MITSUHARA
		12-A	ADDED SHEET FOR NON VVT BLOCK (2003MY)		T.MITSUHARA
000908	V	26	ADDED NOTE OF FASTENER TIGHTENING PROCEDURE	EN00E11124480001	N.TANAKA
001001	W	2	DELETED I5 ADAPTATION	EN00E11140144000	R.OKITA
		11-D	DELETED I5 SHEET		
		14-D	ADDED SHEET FOR 2.3L E/W INSTEAD OF I5		R.OKITA
		15-A	CORRECTED PARTS NUMBER		S.HASETO
001001	W	15-D	DELETED I5 SHEET	EN00E11140144000	R.OKITA

RESTRICTIONS

PART NAME/TITLE  
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C1S7G-543-ACREV  
WRELEASE NO.  
EN00E11140144000DATE  
00-10-01MODEL  
2001 2.0L-4V NON DI CD132SHEET  
1JCONTD.  
1K

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
001001	W	17	CORRECTED NOTE FOR BEARING CLEARANCE CALCULATION	EN00E11140144000	S.HASETO
		20	CORRECTED NOTE FOR BEARING CLEARANCE CALCULATION		
		23-A	CORRECTED MAZDA PARTS NUMBER		S.HASETO
		23-D	DELETED I5 SHEET		R.OKITA
		25-E	UPDATED BALANCE SHAFT ASSEMBLY PROCEDURE		S.HASETO
		25-F	UPDATED BALANCE SHAFT ASSEMBLY PROCEDURE		
		25-G	UPDATED BALANCE SHAFT ASSEMBLY PROCEDURE		
		25-H	UPDATED BALANCE SHAFT ASSEMBLY PROCEDURE		S.HASETO
		29-D	DELETED I5 SHEET		R.OKITA
		30-D	DELETED I5 SHEET		
		32-D	DELETED I5 SHEET		R.OKITA
		39	CORRECTED MAZDA PARTS NUMBER		M.NISHIDA
		42-D	DELETED I5 SHEET		R.OKITA
		45-D	DELETED I5 SHEET		
		58-D	DELETED I5 SHEET		
		61-D	DELETED I5 SHEET		
		63-D	DELETED I5 SHEET		
		66-D	DELETED I5 SHEET		
		71-C	DRAWING UPDATE FOR DI DEGAS PIPE SHAPE CHANGE		R.OKITA
		72-C	DRAWING UPDATE FOR DI EGR VALVE STUD		T.TANAKA
		76-C	DRAWING UPDATE FOR DI DEGAS PIPE SHAPE CHANGE		R.OKITA
		76-D	ADDED SHEET FOR 2.3L E/W INSTEAD OF I5		
		81-C	DELETED DUPLICATE SHEET		
		85-D	DELETED I5 SHEET		
		86-D	DELETED I5 SHEET		
		87-D	DELETED I5 SHEET		
		88-D	DELETED I5 SHEET		
		89-D	DELETED I5 SHEET		
		89-G	DELETED I5 SHEET		R.OKITA
		93-B	CORRECTED MAZDA PARTS NUMBER		S.HASETO
		95-D	DELETED I5 SHEET		R.OKITA
		96-B	ADDED COMMENT FOR EXH.MANI GASKET		T.TANAKA
		96-D	DELETED I5 SHEET		R.OKITA
		101-C	DELETED DUPLICATE SHEET		
		102-C	DELETED DUPLICATE SHEET		
001001	W	103-C	DRAWING UPDATE FOR DI DEGAS PIPE SHAPE CHANGE	EN00E11140144000	R.OKITA
001013	X	1K	CORRECTED SHT. NO. ON REV."W" FROM 15-E/F/G/H TO 25-E/F/G/H	EN00E11099311000	T.TANAKA
		2	MODIFIED ADAPTATION MATRIX		
		4	ADDED NOTE FOR ASSISTANT MATERIAL		
		28-C	ADDED SHEET FOR RANGER PILOT BEARING INSTALLATION		T.TANAKA
		76-A	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		R.OKITA
		76-B	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		
		76-C	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		
		76-D	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		R.OKITA
		88-A	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		T.TANAKA
		88-B	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		
		88-C	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		
		95-A	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION		T.TANAKA
001013	X	95-B	MODIFIED NOTE FOR ASSISTANT MATERIAL SPECIFICATION	EN00E11099311000	N.TANAKA
RESTRICTIONS			PART NAME/TITLE REVISION		
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
001013	X	Other	CHANGED SHEET NUMBER	EN00E11099311000	N.TANAKA
001103	Y	22	ADDED NOTE FOR PREVENTION OF HAMMERED MARKS/FLAWS ON BS GEAR	EN00E11145063001	S.HASETO
		23-A	ADDED NOTE FOR PREVENTION OF HAMMERED MARKS/FLAWS ON BS GEAR		
		25-E	ADDED NOTE FOR PREVENTION OF HAMMERED MARKS/FLAWS ON BS GEAR		
		25-F	ADDED NOTE FOR PREVENTION OF HAMMERED MARKS/FLAWS ON BS GEAR		
		25-G	ADDED NOTE FOR PREVENTION OF HAMMERED MARKS/FLAWS ON BS GEAR		
001103	Y	25-H	ADDED NOTE FOR PREVENTION OF HAMMERED MARKS/FLAWS ON BS GEAR	EN00E11145063001	S.HASETO
001108	Z	44-C	CHANGE THE SEALER MATERIAL AND THE APPLICATION PASS FOR DI REAR CAM CAP	EN00E11072453000	N.TANAKA
001117	AA	2	REVISED ADAPTATION MATRIX FOR ADDITIONAL SHEET	EN00E11087761000	N.TANAKA
		3	REVISED INDEX FOR ADDITIONAL SHEET		N.TANAKA
		5	REMOVED REF DIMENSION OF BARCODE LOCATION		MITSUHARA
		14	REMOVED "REF" FROM W. BYPATSS PIPE ASSEMBLE ANGLE		Y.HAYAMIZU
		16	REMOVED "REF" FROM BEARING BEAM ALIGNMENT DIMENSION AND REVISED "REF" TO "INFORMATION ONLY" REGARDING CRANKSHAFT AXIAL		MITSUHARA
		23A	REMOVED "REF" FROM BEARING BEAM ALIGNMENT DIMENSION AND REVISED NOTE		MITSUHARA
		30-D	ADDED SHEET FOR OIL PAN ASSEMBLY WITH BALANCE SHAFT		N.TANAKA
		44	CHANGED "REF" TO "INFORMATION ONLY" REGARDING CAM SHAFT THRUST CLEARANCE AND REMOVED I5 DESCRIPTION		
		44-C	CHANGED "REF" TO "INFORMATION ONLY" REGARDING CAM SHAFT THRUST CLEARANCE		
		44-D	ADDED SHEET FOR CAM CAP ASSEMBLE PROCEDURE OF DUAL VVT HEAD		
		44-E	ADDED SHEET FOR CAM CAP ASSEMBLE PROCEDURE OF DUAL VVT HEAD		
		44-F	ADDED SHEET FOR CAM CAP ASSEMBLE PROCEDURE OF DI DUAL VVT HEAD		
		50	CHANGED SHEET NUMBER		
		50-A	ADDED SHEET FOR RTV APPLYING PROCEDURE OF DUAL VVT FRONT COVER HALF MOON SEAL		N.TANAKA
		57	REMOVED "REF" FROM TIMING PIN TOOL DIMENSION AND REVISED "REF" TO "INFORMATION ONLY" REGARDING PISTON TOPPING		S.HASETO
		60	CHANGED SHEET NUMBER		N.TANAKA
		60-A	ADDED SHEET OF RTV APPLYING PROCEDURE FOR DUAL VVT		
		61-D	ADDED SHEET FOR INT.VVT CAM COVER AEEMBLE PROCEDURE		N.TANAKA
		61-G	CHANGED SHEET NUMBER		M.NISHIDA
		61-J	ADDED SHEET FOR DUAL VVT CAM COVER AEEMBLE PROCEDURE		N.TANAKA
		70-C	REVISED NOTE		T.GOTO
		79-C	REVISED NOTE		T.GOTO
		89-G	ADDED SHEET FOR DI SOLENOID VALVE ASSEMBLE PROCEDURE		T.KADOWAKI
		90-C	CHANGED SHEET NUMBER		T.KADOWAKI
		90-D	ADDED SHEET FOR INT.MANI BLIND PLUG ASSY PROCEDURE OF S.A. RANGE		N.TANAKA
		91-A	REVISED NOTE		T.KADOWAKI
001117	AA	95-D	ADDED SHEET FOR 2.3L E/W VACUME HOSE ASSEMBLE PROCEDURE	EN00E11087761000	T.TANAKA
001204	AB	2	REVISED ADAPTATION MATRIX FOR ADDITIONAL SHEET	EN00E11136863000	S.HASETO
		16	REVISED NOTE FOR POSITIONING MAIN BEARING		
		23-A	REVISED SHEET NUMBER		
		23-B	ADDED SHEET FOR POSITIONING MAIN BEARING UPPER		
001204	AB	23-C	ADDED SHEET FOR POSITIONING MAIN BEARING LOWER	EN00E11136863000	S.HASETO
001222	AC	93-A	REVISED FILTER CAP TIGHTENING TORQUE	EN00E11174039000	S.HASETO
010129	AD	78-C	REVISED SHEET NUMBER	EN00E11177532000	T.GOTO
		78-D	ADDED SHEET FOR FUEL RAIL ASSYEMBL Y		
		78-E	ADDED SHEET FOR FUEL RAIL ASSYEMBL Y		
		95-D	REVISED SHEET NUMBER		
		95-E	ADDED SHEET FOR HOSES-VACUUM		
010129	AD	95-F	ADDED SHEET FOR HOSES-VACUUM	EN00E11177532000	T.GOTO
RESTRICTIONS			PART NAME/TITLE REVISION		
SPECIFICATION NO. C1S7G-543-AC	REV AE	RELEASE NO. EN00E11157486001	DATE 01-01-31	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1L CONTD. 1M

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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
010131	AE	16	REVISE CLEARANCE VALUE	EN00E11157486001	M.SATOH
		17	REVISE CLEARANCE EQUATION		
		20	REVISE CLEARANCE EQUATION		
010131	AE	57	ADD DIMENSION OF TIMING PIN TOOL	EN00E11157486001	M.SATOH
010209	AF	107-B	CHANGE ASSEMBLY POSITIONAL TOLERANCE OF FAN PULLEY	EN00E11151946000	Y.HAYAMIZU
010228	AG	70-C	CHANGED THE LOW PRESSURE PIPE LOCATION AND LENGTH	EN00E11134807003	T.GOTO
010228	AG	79-C	CHANGED THE FUEL HOSE ROUTING AND THE SHAPE OF FUEL HOSE CLIP	EN00E11134807003	T.GOTO
010328	AH	044-F	CHANGED SHEET NUMBER	EN00E11190272000	M.YAMAYA
		044-G	ADDED SHEET FOR SINGLE VVT ENG VAR TM SOL		N.NISHIDA
		044-H	ADDED SHEET FOR DUAL VVT SOL-ENG VER TM SOL		
		046-E	DELETED SHEET FOR VVT/BALANCE SHAFT OIL PUMP CHAIN		
		047-E	CHANGED ASSEMBLY PROCEDURE		
		047-F	ADDED SHEET FOR DUAL VVT ACTUATOR		
		048-E	CORRECTED MAZDA PART NUMBER		
		048-F	ADDED SHEET FOR DUAL VVT TIMING CHAIN AND GUIDE		M.NISHIDA
		058-D	CHANGED SHEET NUMBER		R.OKITA
		058-E	ADDED SHEET FOR CAMSHAFT POSITION SENSOR		N.TABATA
		061-E	DELETED SHEET FOR VVT OCV		M.NISHIDA
		061-F	DELETED SHEET FOR VVT OCV		
		061-G	DELETED SHEET FOR VVT OIL PIPE		M.NISHIDA
		062-A	ADDED SPEC FOR PZEV		N.TABATA
		073-D	DELETED I5 SHEET		
		073-E	ADDED SHEET FOR IGNITION COIL		
		081-C	ADDED SHEET FOR ENGINE WIRE HARNESS ASSEMBLY PROCEDURE		
		091-A	ADDED SPEC FOR 2.3L EW		
		091-B	ADDED SPEC FOR 2.3L NS		
		092-C	CHANGED SHEET NUMBER		
		092-D	ADDED SHEET FOR KNOCK SENSOR ASSEMBLY PROCEDURE		N.TABATA
		093-A	CHANGED MODEL NAME		Y.YAMAMOTO
010328	AH	101-C	ADDED SHEET FOR ENGINE WIRE HARNESS ASSEMBLY PROCEDURE	EN00E11190272000	N.TABATA
010417	AJ	16	APPLIED ON SIDE FIT SURFACE OF THE MAIN BEARING BEAM	EN00E11131462001	Y.INOUE
010417	AJ	23-A	APPLIED ON SIDE FIT SURFACE OF THE MAIN BEARING BEAM	EN00E11131462001	Y.INOUE
010507	AK	48	CHANGED TIGHTENING TORQUE	EN00E11102086000	M.NISHIDA
		48-E	CHANGED TIGHTENING TORQUE		
010507	AK	48-F	CHANGED TIGHTENING TORQUE	EN00E11102086000	M.NISHIDA
010508	AL	30-E	CHANGE POSITION OF ENGINE TYPE AND ENGINE NO. STAMP	EN00E11204632000	Y.INOUE
010528	AM	89-E	CHANGED SOLENOID FIXING BOLT	EN00E11210521001	F.TANAKA
010608	AN	3	CHANGED INDEX SHEET	EN00E11208966001	C.MORISHIGE
		25-F	ADAPTED 19N(THRUST AT B/L MEASUREMENT)		M.SATOH
		28-C	CHANGED SHEET NUMBER		
		28-D	ADDED SHEET FOR PILOT BEARING ASSEMBLY		
		46	ADDED DIAMOND WASHER ASSEMBLY		
		46-A	ADDED SHEET FOR PILOT BEARING ASSEMBLY		
010608	AN	55	CHANGED TIGHTENING TORQUE	EN00E11208966001	M.SATOH
010622	AP	35	ADD SEALANT FOR CORE PLUG AS OPTION	EN00E11189361000	M.YAMAYA
010626	AR	44-C	CHANGED PART NUMBER AND NAME	EN00E11229554000	N.KOSHIMOTO
010626	AR	44-D	CHANGED PART NUMBER AND NAME	EN00E11229554000	N.KOSHIMOTO
RESTRICTIONS				PART NAME/TITLE REVISION	
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>AR</b>	RELEASE NO. EN00E11229554000	DATE <b>01-06-26</b>	MODEL 2001 2.0L-4V NON DI CD132	SHEET <b>1M</b> CONTD. <b>1N</b>

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
010626	AR	44-E	CHANGED PART NUMBER AND NAME	EN00E11229554000	N.KOSHIMOTO
010626	AR	44-F	CHANGED PART NUMBER AND NAME	EN00E11229554000	N.KOSHIMOTO
010626	AR	48-E	CHANGED TIGHTENING TORQUE (CORRECTED ERROR)	EN00E11229554000	N.KOSHIMOTO
010702	AS	13	CHANGED SPECIFICATION FOR AVDEL PLUG TO BLOCK DEPTH	EN00E11200123000	A.MATSUE
010713	AT	70-C	CHANGED SKETCH AND TIGHTENING TORQUE	EN00E11231785007	T.GOTO
		71-C	ADDED HIGH PRESSURE FUEL PIPE FIXING		
		78-C	CHANGED SKETCH AND TIGHTENING TORQUE OF FUEL RAIL AND PLATE		
		79-C	CHANGED SKETCH		
		82-C	CHANGED SKETCH AND HIGH PRESSURE PIPE FIXING		
010713	AT	83-C	CHANGED SKETCH AND NOTE AND PROCEDURE	EN00E11231785007	T.GOTO
010807	AU	6	CHANGED NOTE ("REF ONLY" TO "INFORMATION")	EN00E11212646000	Y.YAMAMOTO
		14	DELETED NOTE "BREAKAWAY TORQUE"		Y.HAYAMIZU
		14-D	DELETED NOTE "BREAKAWAY TORQUE"		Y.HAYAMIZU
		17	CHANGED NOTE ("REF ONLY" TO "INFORMATION")		Y.YAMAMOTO
		20	CHANGED NOTE ("REFERENCE" TO "INFORMATION")		Y.YAMAMOTO
		40	ADDED NOTE		M.YAMAYA
		44	CHANGED NOTE FOR HIPOID OIL SPEC		
		44-C	CHANGED NOTE FOR HIPOID OIL SPEC		
		44-D	CHANGED NOTE FOR HIPOID OIL SPEC		
		44-E	CHANGED NOTE FOR HIPOID OIL SPEC		
		44-F	CHANGED NOTE FOR HIPOID OIL SPEC		M.YAMAYA
		65-C	CHANGED SHEET NUMBER		N.TABATA
		65-D	ADDED SHEET FOR KNOCK SENCOR ASSEMBLY PROCEDURE		
		92-D	CHANGED SHEET NUMBER		
		92-E	ADDED SHEET FOR KNOCK SENCOR ASSEMBLY PROCEDURE		
		98-B	CHANGED PART NUMBER		N.TABATA
010807	AU	100-H	CHANGED TIGHTENING TORQUE (CORRECTED ERROR)	EN00E11212646000	C.MORISHIGE
010811	AV	78-E	DELETED SHEET	EN00E11252991000	T.GOTO
		78-F	ADDED SHEET FOR FUEL RAIL ASSEMBLY PROCEDURE		
		95-F	DELETED SHEET		
		95-G	ADDED SHEET FOR VACUUM HOSE ASSEMBLY PROCEDURE		
010811	AV	95-H	ADDED SHEET FOR VACUUM HOSE ASSEMBLY PROCEDURE	EN00E11252991000	T.GOTO
010911	AW	3	CHANGED NOTE	EN00E11114191001	C.MORISHIGE
		3A	ADDED INDEX SHEET		C.MORISHIGE
		47	CHANGED PART NUMBER AND NAME		N.KOSHIMOTO
		47-E	CHANGED PART NUMBER AND NAME		
		47-F	CHANGED PART NUMBER AND NAME		
		48	CHANGED PART NUMBER AND NAME		
		48-E	CHANGED PART NUMBER AND NAME		
010911	AW	48-F	CHANGED PART NUMBER AND NAME	EN00E11114191001	N.KOSHIMOTO
010927	AX	46	CHANGED PART NUMBER AND NAME	EN00E11183682001	N.KOSHIMOTO
		46-A	CHANGED PART NUMBER AND NAME		
		48	CHANGED PART NUMBER AND NAME		
		48-E	CHANGED PART NUMBER AND NAME		
010927	AX	48-F	CHANGED PART NUMBER AND NAME	EN00E11183682001	N.KOSHIMOTO
010929	AY	14	CHANGED NOTE	EN00E11255546001	Y.HAYAMIZU
010929	AY	14-A	ADDED INDEX SHEET FOR BYPASS PIPE PRESS-IN ANGLE.	EN00E11255546001	Y.HAYAMIZU
RESTRICTIONS			PART NAME/TITLE REVISION		
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>AZ</b>	RELEASE NO. EN00 E11184847 002	DATE <b>01-10-12</b>	MODEL 2001 2.0L-4V NON DI CD132	SHEET <b>1N</b>
				CONTD. <b>1P</b>	

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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ISSUE DATE	ISS REF	SHT No.	REVISION	WERS RELEASE NO	DRAWN
011012	AZ	61-B	CORRECTED SPECIFICATION	EN00E11184847002	K.ISHIDA
		61-C	DELETED SHEET		
		61-E	ADDED SHEET FOR PLASTIC CAM COVER		
011012	AZ	104-B	ADDED SHEET FOR PLASTIC CAM COVER	EN00E11184847002	K.ISHIDA
011017	BA	6	ADDED NOTE	EN00E11255548001	Y.YAMAMOTO
		7	ADDED NOTE & CHANGED FROM CONDUCT TO INFORMATON		
		8	CHANGED FROM REFERENCE TO CONDUCT		
011017	BA	10	ADDED NOTE	EN00E11255548001	Y.YAMAMOTO
011026	BB	103-C	ADDED NOTE	EN00E11273745001	Y.HAYAMIZU
		103-D	ADDED SHEET FOR C214		
011026	BB	103-E	ADDED SHEET FOR J56J AND J48C	EN00E11273745001	Y.HAYAMIZU
011030	BC	39	ADDED TOLERABLE LEAKAGE FOR THE ENGINE OF CD132 AND RANGER	EN00E11185527000	M. YAMAYA
011102	BD	12	CORRECTED PART NUMBER	EN00E11271059000	Y.INOUE
		12-A	CORRECTED PART NUMBER		
		27	CHANGED NOTE		
		32	CORRECTED PART NUMBER		
		75	CORRECTED PART NUMBER		Y.INOUE
		78-B	CHANGED NOTE		I.SHIMIZU
		91-B	CHANGED NOTE		I.SHIMIZU
011102	BD	95-F	ADDED SHEET FOR 04MY P150	EN00E11271059000	F.TANAKA
011105	BE	23-A	CHANGE THE "SNUG" TORQUE ALLOWANCE OF THE CRANK SHAFT BOLT.	EN00E11218821000	Y.INOUE
011108	BF	66-A	ADDED NOTICE OF RECYCLE LIFTING EYE ONLY FOR THE FORD VEHICLE	EN00E11157003000	M. YAMAYA
011109	BG	33	CORRECTED DIMENSION	EN00E11282537000	K.ISHIDA
		34	CHANGED SHEET NUMBER		
		34-A	ADDED SHEET		
		49-A	CORRECTED NOTE		
		49-B	CORRECTED NOTE		
		49-E	CORRECTED NOTE		
		50	CORRECTED PART NUMBER		
		50-A	DELETED SHEET		
		61-B	CORRECTED PART NUMBER		
		97-A	CHANGED SHEET NUMBER		
011109	BG	97-B	ADDED SHEET FOR C1 AND 2.3L EW PFI	EN00E11282537000	K.ISHIDA
011112	BH	110	CHANGED SHEET NUMBER	EN00E11266219000	Y.HAYAMIZU
011112	BH	110-A	ADDED SHEET FOR J16 2.3L	EN00E11266219000	Y.INOUE
011113	BJ	3	CHANGED NOTE	EN00E11284707000	Y.HAYAMIZU
		3-A	CHANGED NOTE		Y.HAYAMIZU
		30-E	ADDED SHEET FOR J56A J56F J16 2.3L		K.ISHIDA
011113	BJ	31	CHANGED SHEET NUMBER	EN00E11284707000	Y.INOUE
011114	BK	71-C	CHANGED NOTE	EN00E11281359001	Y.HAYAMIZU
011115	BL	3	CHANGED NOTE	EN00E11271652000	N.TABATA
		3A	CHANGED NOTE		N.TABATA
		62-A	CHANGED NOTE		N.TABATA
		64	CHANGED NOTE		F.TANAKA
		73-A	DELETE THE ASSEMBLING PROCEDURE OF ECT		N.TABATA
		73-C	CHANGED SHEET NUMBER		N.TABATA
011115	BL	73-D	ADDED SHEET FOR SOLENOID VALVE ASSEMBLY PROCEDURE	EN00E11271652000	N.TABATA
RESTRICTIONS				PART NAME/TITLE REVISION	
SPECIFICATION NO. C1S7G-543-AC	REV BL	RELEASE NO. EN00E11271652000	DATE 01-11-15	MODEL 2001 2.0L-4V NON DI CD132	SHEET 1P CONTD. 1R



**Sheet adaptation Matrix** X : to be adapted

Sheet No.	1.8L / 2.0L non-DI E/W	2.3L non-DI E/W	1.8L/2.0L DI E/W	2.3L N/S
4	X	X	X	X
4-A	X	X	X	X
5	X	X	X	X
6	X	X	X	X
7	X	X	X	X
8	X	X	X	X
9	X	X	X	X
10	X	X	X	X
11	X	X	X	X
11-D				
12	X		X	X
12-A		X		
13	X	X	X	X
14	X		X	X
14-D		X		
15-A	X	X	X	X
15-D				
16	X	X	X	X
17	X	X	X	X
18	X	X	X	X
19	X	X	X	X
20	X	X	X	X
21-A	X		X	
21-B		X		X
22	X	X	X	X
23-A	X	X	X	X
23-B	X	X	X	X
23-C	X	X	X	X
23-D				
24	X	X	X	X
25-A	X	X	X	
25-B				X
25-E		X		
25-F		X		
25-G		X		
25-H		X		
26	X	X	X	X
27	X	X	X	X
28	X	X	X	X
28-A	X	X	X	X
28-B	X	X	X	
28-C				X
28-D	X	X	X	
29	X	X	X	X
29-D				
30-A	X	X	X	
30-B				X
30-D		X	X	
30-E	X	X	X	X
31				
31-D				
32	X	X	X	X
32-D				
33	X	X	X	X
34	X	X	X	X
35	X	X	X	X
36	X	X	X	X
37	X	X	X	X
38	X	X	X	X
39	X	X	X	X
40	X	X	X	X
41	X	X	X	X
42	X	X	X	X
42-D				
43	X	X	X	X
44	X	X		X
44-C			X	
44-D		X		
44-E		X		X
44-F			X	
45	X	X	X	X
45-D				
46	X	X	X	X

Sheet No.	1.8L / 2.0L non-DI E/W	2.3L non-DI E/W	1.8L/2.0L DI E/W	2.3L N/S
46-A	X	X	X	
46-E		X		
47	X	X	X	X
47-E		X		
48	X	X	X	X
48-E		X		
49-A	X		X	
49-B		X		X
49-E		X		
50	X	X	X	
50-A		X	X	
51	X	X	X	X
52-A	X	X	X	
52-B				X
52-E	X	X	X	
53-A				
53-B				
54	X	X		X
55	X	X	X	X
56-C			X	
57	X	X	X	X
58	X	X	X	X
58-C			X	
58-D				
59	X	X	X	X
60	X	X	X	X
60-A		X	X	X
60-C			X	
61-A	X	X		
61-B				X
61-C			X	
61-D		X		
61-E		X		
61-F		X		
61-G		X		
61-J		X	X	
62-A	X	X		X
62-B				
62-C				
63-B				X
63-D				
64	X	X	X	X
65-A	X	X		
65-B				X
65-C			X	
66-A	X	X	X	
66-B				X
66-D				
67-A	X	X		
67-B	X	X		X
67-D				X
68	X	X	X	X
69-C			X	
70-C			X	
71-A	X	X		
71-B				X
71-C			X	
72-C			X	
73-A	X	X		
73-B				X
73-C			X	
74-C			X	
75	X	X	X	X
76-A	X	X		
76-B				X
76-C			X	
76-D		X		
77	X	X		
78-A	X	X		
78-B				X
78-C			X	
79-C			X	
80-C			X	

Sheet No.	1.8L / 2.0L non-DI E/W	2.3L non-DI E/W	1.8L/2.0L DI E/W	2.3L N/S
81-C				
82-C			X	
83-C			X	
84-C			X	
84-D			X	
85-A	X	X		
85-B				X
85-C			X	
85-D				
86-D				
87-B				X
87-C			X	
87-D				
87-E				X
87-F				X
88-A	X	X		
88-B				X
88-C			X	
88-D				
89-A	X	X		
89-B				X
89-D				
89-E		X		
89-F				X
89-G			X	
90-A	X	X		
90-B				X
90-C			X	
90-D				X
91-A	X	X		
91-B				X
91-C			X	
92-A	X	X		
92-B				X
92-C			X	
93-A	X	X	X	
93-B				X
94	X	X	X	
95-A	X	X		
95-B				X
95-D		X		
96-B				X
96-D				
97-A	X	X	X	
98-A	X	X		
98-B				X
99	X	X		
99-B				X
100-C			X	
100-D				X
100-E				X
100-F				X
100-G				X
100-H				X
100-J				X
100-K				X
100-L				X
100-M				X
100-N				X
101-C				
102-C				
103-C			X	
104-A	X	X	X	X
104-B				
105	X	X	X	X
106-A				
107-A	X	X	X	
107-B				X
108				X
109				X
110	X	X	X	X
111	X	X	X	X

RESTRICTIONS				PART NAME/TITLE GENERAL INFORMATION			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AN	EN00E11208966001	01-06-08	2001 2.0L-4V NON DI CD132	2	3	



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

PART NAME/TITLE		SHEET NUMBER			
A	ABSOLUTE PRESS SENSOR AIR BYPASS VALVE AIR BYPASS VALVE & SOLENOID VALVE AUDIO GROUND STRAP	90A-C 89B / 89H 89A / 89E 87F			
B	BACKLASH MEASURING METHOD BALANCER AND SELECTED SHIM TO BLOCK BALANCER AND SHIM TO BLOCK BARCODE	25F 25H 25E 5 / 111			
C	CAM SHAFT & CAM CAP CAM COVER & GASKET ASSEMBLY CAP-BLIND PLUG CHAIN-AUX OIL PUMP/SPROCKET-AUX OIL PUMP DRV CHAIN-TIMING/GUIDE-TIMING CHAIN CHT SENSOR CONROD BEARING COLOUR CODING CONROD BEARING LINERS CONROD BEARING,CAPS & BOLTS CONROD WEIGHT TOLERANCE COOLER ASY-OIL & FASTENER COVER ASY-CYL FRONT CRANKCASE VENTILATION CRANKCASE VENTILATION COVER CYLINDER HEAD & BOLTS	44 / 44C-F 60C / 61A-E / 61J 90D 46 / 46A 48 / 48E-F 63-B 21A-B 19 22 8 94 52A-B 88A-C 64 41			
D	DIPSTICK & DIPSTICK TUBE DIS COIL DIS COIL & SENSOR-WATER TEMP DOWEL ASY-CYLINDER BLOCK	97A / 97B 73A 73B 27 / 32			
E	EGR BLANKING PLATE EGR OUTLET EGR TUBE EGR VALVE ENGINE NUMBER STAMPING POSITION ENGINE WIRE HARNESS EXCESS RTV REMOVING EXHAUST MANIFOLD	67B / 87E 87C 77 / 87B 67A / 67D / 72C 31 80C / 81C / 99 / 100C / 101C / 102C-D 51 96B			
F	FLYWHEEL ASY FILTER ASY-OIL/ADAPTER/OIL PRESSURE SWITCH FUEL PUMP ASSEMBLY FUEL PUMP COVER ASSEMBLY FUEL RAIL ASSEMBLY FUEL RAIL COVER FUEL RETURN HOSE	28 93A-B 70C 69C 78A-D / 78F 84D 79C			
G	GENERAL INFOMAITION GASKET-CYLINDER HEAD	4 / 4A 34			
H	HIGH PRESSURE FUEL PIPE HIGH PRESSURE FUEL PIPE/MARKET SERVICE HOSE ASSY E/G/R COOL OUTLET HOSE&CLAMP ASSY-WATER BYPASS HOSE-EVAP HOSES-VACUUM	82C 83C 103C-E 76A-D 108 95A-B / 95D-H			
I	IABV BLANKING PLATE AND SOLENOID VALVE IDLER ASY-ACC DR BELT IGNITION COIL INSTALLATION DUAL MASS FLYWHEEL INSTALLATION FLEXPLATE(AUTO) INTAKE & EXHAUST VALVES INTAKE MANIFOLD	89-D 52E 73C / 73E 28B / 110 28A 38 85A-D			
L	LIFTING EYE FRONT & REAR	66A-B			
RESTRICTIONS		PART NAME/TITLE INDEX			
SPECIFICATION NO. C1S7G-543-AC	REV BL	RELEASE NO. EN00E11271652 000	DATE 01-11-15	MODEL 2001 2.0L-4V NON DI CD132	SHEET CONTD. 3 3A

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS						
PART NAME/TITLE					SHEET NUMBER	
M	MAIN BEARING & THRUST LINERS				15A	
	MAIN BEARING CLEARANCES				17	
	MAIN BEARING COLOUR CODING				18	
	MAIN BEARING LADDER BEAM & BOLTS				23A	
	MAIN BEARING UPPER				23B	
	MAIN BEARING LOWER				23C	
O	OIL FILLER CAP				104A-B	
	OIL PAN & OIL FILL QUANTITIES				30A-D / 30E	
P	PILOT BEARING				28C / 28D	
	PIPE CONNECTOR-BYPASS				14 / 14A / 14D	
	PISTON & CONROD ASSEMBLY				10	
	PISTON AND CONROD ASY				9	
	PISTON GRADE CHART				6	
	PISTON RING				7	
	PLUG-AVDEL				36	
	PLUG-CYLINDER HEAD				35	
	PLATE END				110A	
	PLUG-OIL GALLERY				12 / 12A / 13 / 105	
	PLUG-TIMING PIN HOLE				75	
	PROCEDURE-CAMCAP BOLT				45	
	PROCEDURE-CONROD BEARING LINER				20	
	PROCEDURE-CYLINDER HEAD BOLTS				42	
	PROCEDURE-MAIN BEARING LINER				16	
	PULLEY / DAMPER-CRANKSHAFT				55	
PUMP ASY-OIL & GASKET-OIL PUMP TO BLOCK				24		
R	REPLACEMENT OF SHIM SELECTION				25G	
	REAR OIL SEAL-CRANKSHAFT				26	
	RTV SEALER-CAM COVER				60 / 60A	
	RTV SEALER-CYL HEAD GASKET				33 / 34A	
	RTV SEALER-FRONT COVER				49A / 49B / 49E	
	RTV SEALER-OIL PAN				29	
S	SCREEN AND COVER ASY-OIL PUMP				25A / 25B	
	SENSOR ECT				74C-D	
	SENSOR-CAM ANGLE				58C	
	SENSOR-CAMSHAFT POSITION				58 / 58E	
	SENSOR-CRANKSHAFT POSITION				54 / 56C	
	SENSOR-KNOCK				65A-C / 92A-E	
	SOL-ENG VAR TM				44-G / 44-H	
	SOLENOID VALVE				73D / 89F / 89G	
	SPARK PLUG				62-A	
	SPARK PLUG LEADS				98A / 98B	
	SPROCKET-CAMSHAFT				47 / 47E / 47F	
	SPROCKET-CRANKSHAFT & TIMING PLATE				57	
	STUD-ENGINE MOUNT				50	
STUDS-EXHAUST MANIFOLD				40		
SUPT-INTK MANF				84C		
T	THERMOSTAT				68	
	THROTTLE BODY				91A-C	
V	VACUUM HARNESS				109	
	VALVE ASY-ENG PISTON OIL COOL				11	
	VALVE LIFTERS				43	
	VALVE SPRINGS & RETAINERS				39	
	VALVE STEM OIL SEALS				37	
W	WATER PUMP & GASKET				59	
	WATER OUTLET CONNECTOR & GASKET				71A-C	
	WATER PUMP PULLEY				107A	
	WATER PUMP PULLEY & FAN PULLEY				107B	
	WIRING ASY				99B / 100D-H / 100J-N	
RESTRICTIONS					PART NAME/TITLE INDEX	
SPECIFICATION NO. C1S7G-543-AC	REV BL	RELEASE NO. EN00E11271652 000	DATE 01-11-15	MODEL 2001 2.0L-4V NON DI CD132	SHEET 3A	CONTD. 4

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

<b>HOT TEST SPECIFICATION</b>	ALL ENGINES TO BE HOT TESTED TO SPECIFICATION S88WF-6L084-AA
<b>OIL LEAK TEST</b>	THERE SHALL BE NO VISIBLE OIL LEAKS UNDER STATIC AND OPERATING CONDITIONS.
<b>TORQUE DEFINITION</b>	ASSEMBLY TORQUE - THE TORQUE IMPARTED BY A TOOL DURING ASSEMBLY AND MEASURED AT TOOL STALL POINT. STABILIZED TORQUE - WILL BE CHECKED AFTER HOT TEST AT THE FIRST ROTARY MOVEMENT OF THE FASTENER IN THE DIRECTION TO INCREASE ITS CLAMPING LOAD.
<b>TORQUE CHECK</b>	THE SPECIFIED STABILIZED TORQUE MUST BE ACHIEVED AT THE BUY-OFF STAGE AND MAINTAINED WITHIN THE RANGE SPECIFIED ON ENGINE TEARDOWN
<b>QUALITY CONTROL</b>	A PERCENTAGE OF ENGINE MUST BE CHECKED AFTER HOT TEST FOR LEAKAGE AND ASSEMBLY TORQUE.
<b>TORQUE TO TURN CRANKSHAFT</b>	AT-6011-(CYLINDER ASSEMBLY) STAGE OF ASSEMBLY, TORQUE MUST NOT EXCEED TBE...Nm. REF ONLY.  AT-6011-(CYLINDER ASSEMBLY) STAGE OF ASSEMBLY, BUT WITH CYLINDER HEAD FITTED LESS SPARK PLUGS AND CYLINDER HEAD BOLTS TIGHTENED TO SPECIFICATION, TORQUE TO ROTATE CRANKSHAFT MUST NOT EXCEED TBE...Nm. REF ONLY  CRANKSHAFT TO BE ROTATED AT LEAST ONE COMPLETE REVOLUTION TO OBTAIN MAXIMUM READING.
<b>RE-USE OF FASTENERS</b>	FASTENERS WHICH CAN BE RE-USED MUST BE BROUGHT BACK TO ORIGINAL FINISH SPECIFICATION BEFORE RE-ASSEMBLY OR REPLACED BY UNUSED FASTENERS. i.e. LUBRICATED FINISHES MUST BE RE-LUBRICATED AND DRY FINISHES DEGREASED.  FASTENERS WHICH HAVE STABILIZED AT A HIGHER TORQUE THAN THE MAXIMUM SPECIFIED MUST BE REPLACED,  ASSOCIATED COMPONENTS MUST BE CHECKED FOR POSSIBLE DAMAGE AND IF NECESSARY BE REPAIRED OR REPLACED BEFORE RE-ASSEMBLY.  BOLTS WHICH WERE PREPARED AND USED FOR THE CHECK OF ELONGATION, (CENTERING MARKS ON TOP AND BOTTOM SIDE) CAN BE REUSED, IF RE-USAGE OF THE BOLT IS GENERALLY PERMITTED.
<b>FOREIGN MATTER SPECIFICATION</b>	FOR THE ACCEPTABLE MAXIMUM AMOUNT OF FOREIGN MATTER REFER TO ENGINEERING SPECIFICATION S72HM-6B616-AA.
<b>FACTORY FILL OIL SPEC</b>	WSS-M2C914-A
<b>HYPOID OIL SPEC</b>	SQ-M2C9003-AA
<b>(REF) Dimension</b>	MANUFACTURING DEPT. SHALL DETERMINE INSPECTION PERIOD AFTER CHECKING PROCESS CAPABILITY.

RESTRICTI				PART NAME/TITLE GENERAL INFORMATION			
SPECIFICATION NO. C1S7G-543-AC	REV H	RELEASE NO. EN00E11007392000	DATE 99-09-06	MODEL 2001 2.0L-4V NON DI CD132	SHEET 4	CONTD. 4-A	

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

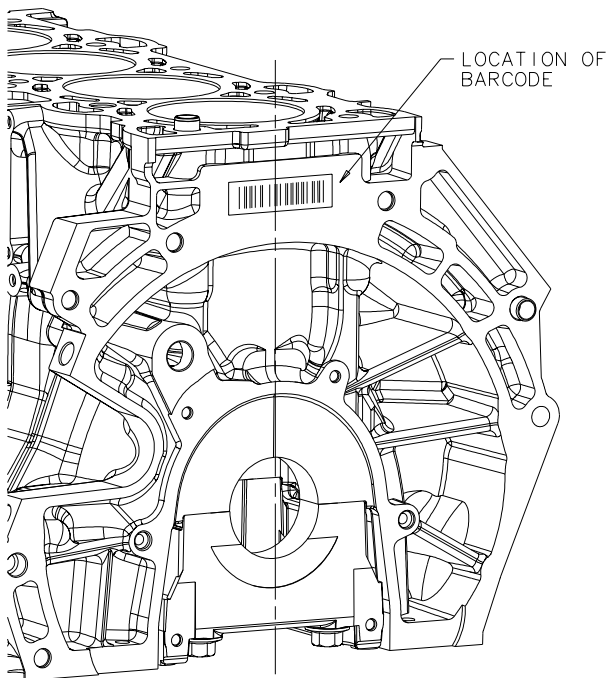
**ELECTRICAL CONNECTION** ALL ELECTRICAL CONNECTIONS MUST BE POSITIVELY SECURED,  
[TO ENSURE GOOD CONTACT] BEFORE ENGINE SHIPMENT.

**Characteristic**      ▽ Critical Characteristics (CC) rank is defined in Ford FAO Product Engineering Procedure FAP03-111.  
                                  ▽A : A rank is defined in the Mazda Engineering Standards in MES-K01-002  
                                  ▽AR : AR rank is defined in the Mazda Engineering Standards in MES-K01-002  
 To meet to one of them in the case of      ▽ ▽A parallel marking.

**Assistant material**      If another material, which is not shown in each sheet, is used, negotiation with Mazda design engineering and approval from them is required.

RESTRICTIONS				PART NAME/TITLE GENERAL INFORMATION		
SPECIFICATION NO. C1S7G-543-AC	REV X	RELEASE NO. EN00E11099311000	DATE 00-10-13	MODEL 2001 2.0L-4V NON DI CD132	SHEET 4-A	CONTD. 5

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE

BARCODE

SPECIFICATION NO.  
C1S7G-543-AC

REV  
AA

RELEASE NO.  
EN00 E 11087761 000

DATE  
00-11-17

MODEL  
2001 2.0L-4V NON DI CD132

SHEET  
5

CONTD.  
6

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

## INFORMATION

UNIT : mm

	MARK	CYLINDER BORE DIA.	BARE PISTON STANDARD DIA.	CLEARANCE
2.0L / 2.3L	1	$\phi 87.5$ +0.01 MAX. 0 MIN	$\phi 87.465$ +0.01 MAX. 0 MIN	0.025 ~ 0.045
	2	$\phi 87.5$ +0.02 MAX. +0.01 MORE THAN	$\phi 87.475$ +0.01 MAX. 0 MORE THAN	0.025 ~ 0.045
	3	$\phi 87.5$ +0.03 MAX. +0.02 MORE THAN	$\phi 87.485$ +0.01 MAX. 0 MORE THAN	0.025 ~ 0.045

1.8L	1	$\phi 83$ +0.01 MAX. 0 MIN	$\phi 82.965$ +0.01 MAX. 0 MIN	0.025 ~ 0.045
	2	$\phi 83$ +0.02 MAX. +0.01 MORE THAN	$\phi 82.975$ +0.01 MAX. 0 MIN	0.025 ~ 0.045
	3	$\phi 83$ +0.03 MAX. +0.02 MORE THAN	$\phi 82.985$ +0.01 MAX. 0 MIN	0.025 ~ 0.045

## PISTON ADD SKIRT COATING

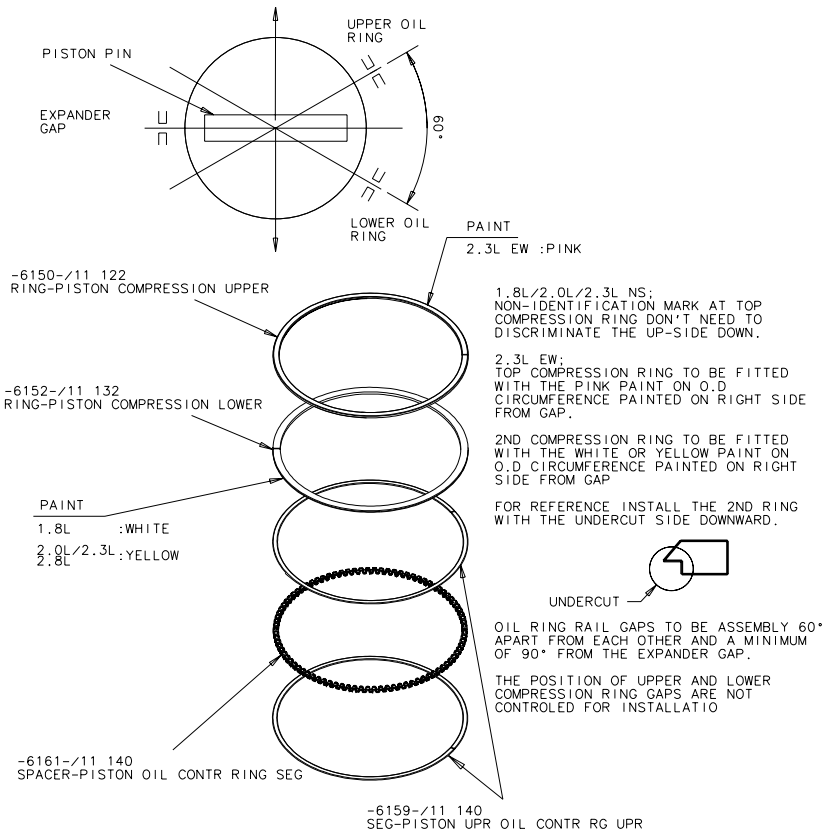
( THICKNESS    0.008 - 0.016    1.8L/2.0L/2.3L EW )  
                      0.008 - 0.020    2.3L NS

RESTRICTIONS				PART NAME/TITLE PISTON GRADE CHART			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	BA	EN00 E 11255548 001	01-10-17	2001 2.0L-4V NON DI CD132	6	7	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

**INFORMATION**

NOTE: PISTON ARE RECEIVED WITH PISTON RINGS PRE-ASSEMBLED.



RESTRICTIONS

PART NAME/TITLE

PISTON RING

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BA	EN00 E 11255548 001	01-10-17	2001 2.0L-4V NON DI CD132	7	8

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

	WEIGHT TOLERANCE OF ONE SET
SMALL END	2.0g MAX
BIG END	1.5g MAX

CONNECTING RODS TO BE FITTED TO PISTONS IN SETS OF ONE WEIGHT GRADE.

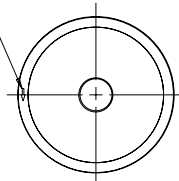
RESTRICTIONS				PART NAME/TITLE CONROD WEIGHT TOLERANCE			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	BA	EN00 E 11255548 001	01-10-17	2001 2.0L-4V NON DI CD132	8	9	



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

SKETCH SHOWS ONLY ORIENTATION  
OF ASSEMBLED PARTS.

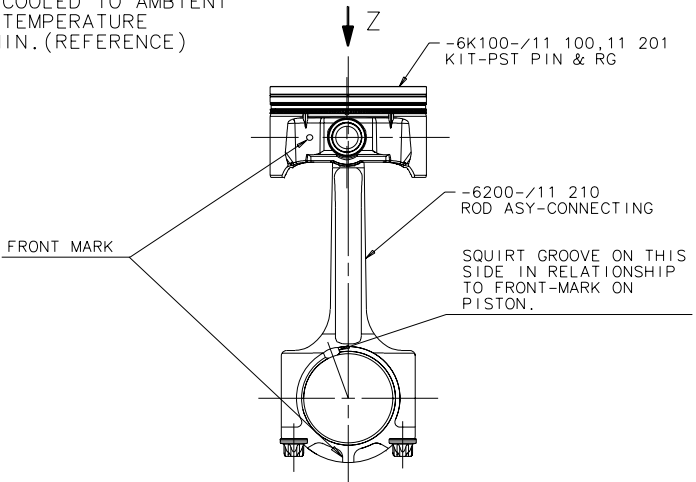
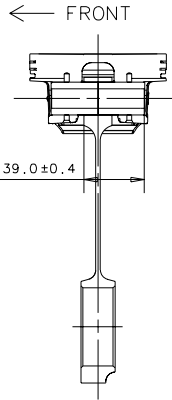
PISTON TO BE ASSEMBLED  
WITH ARROW POINTING TO  
FRONT OF ENGINE.



DETAIL Z

HEAT PISTON PIN END OF  
CONROD TO 250-300°C MAX  
IMMEDIATELY THEREAFTER  
ASSEMBLE PIN TO ROD AND  
PISTON AS SHOWN.

LOAD TO MOVE PIN AFTER  
ASY HAS COOLED TO AMBIENT  
(PLANT) TEMPERATURE  
3600 N MIN. (REFERENCE)

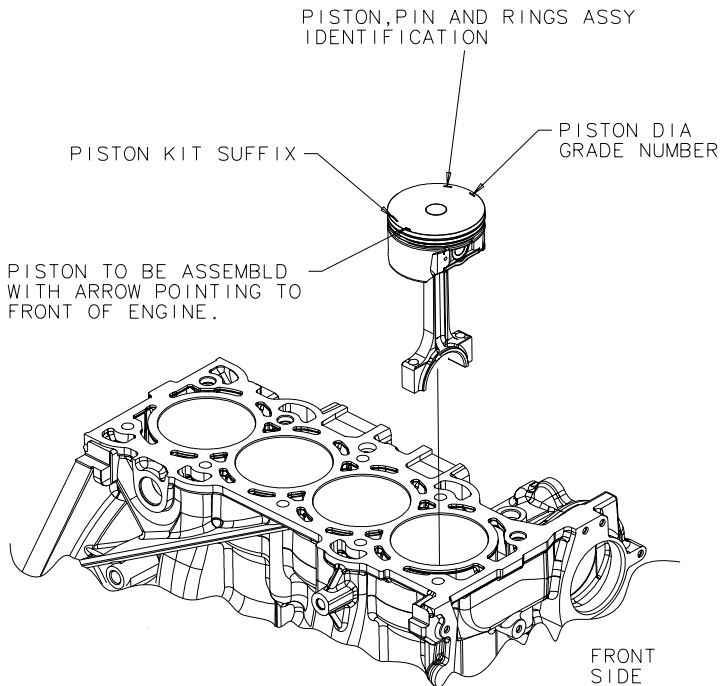


RESTRICTIONS

PART NAME/TITLE  
PISTON AND CONROD ASY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00 E 11069681 001	00-04-20	2001 2.0L-4V NON DI CD132	9	10

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



CYLINDER BORE TO BE  
LUBRICATED USING  
FACTORY FILL ENGINE  
OIL PRIOR TO ASSEMBLING  
PISTON TO CYLINDER.

## RESTRICTIONS

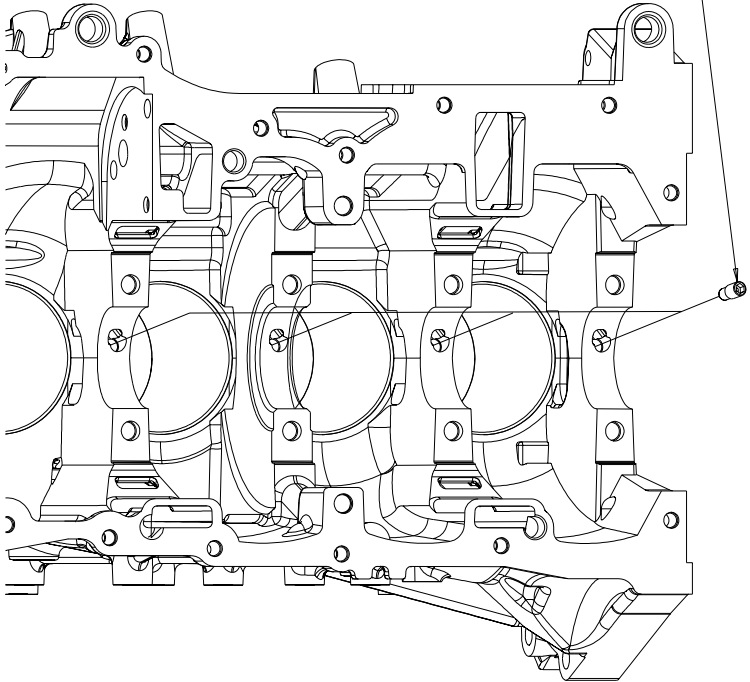
## PART NAME/TITLE

## PISTON &amp; CONROD ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BA	EN00 E 11255548 001	01-10-17	2001 2.0L-4V NON DI CD132	10	11

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

-6K868- / 10 590  
VALVE ASY-ENG PISTON OIL COOL  
TORQUE 3.95±0.95 N·m  
4 PLACES



RESTRICTIONS

PART NAME/TITLE

VALVE ASY-ENG PISTON OIL COOL

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2001 2.0L-4V NON DI CD132	11	11-D

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

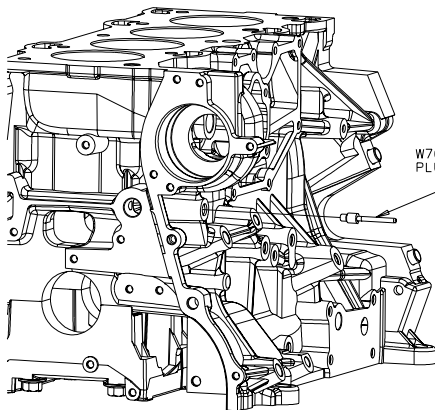
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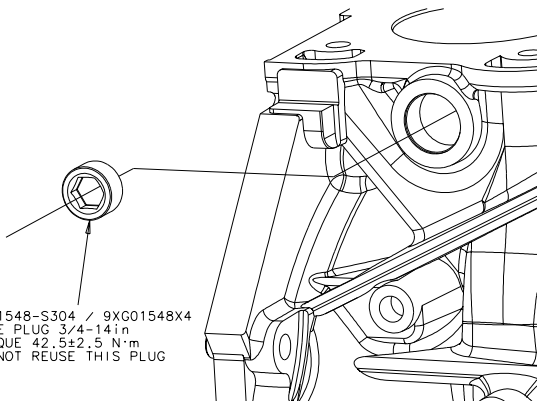
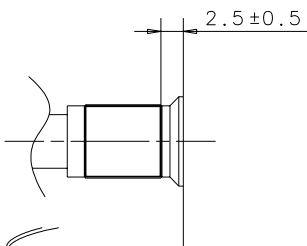
PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL <b>2003 2.8L-4V NON DI RANGER</b>	SHEET <b>11-D</b>	CONTD. <b>12</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



W702287-S300 / 9XG02287X0  
PLUG AVDEL



W701548-S304 / 9XG01548X4  
PIPE PLUG 3/4-14in  
TORQUE 42.5±2.5 N·m  
DO NOT REUSE THIS PLUG

## RESTRICTIONS

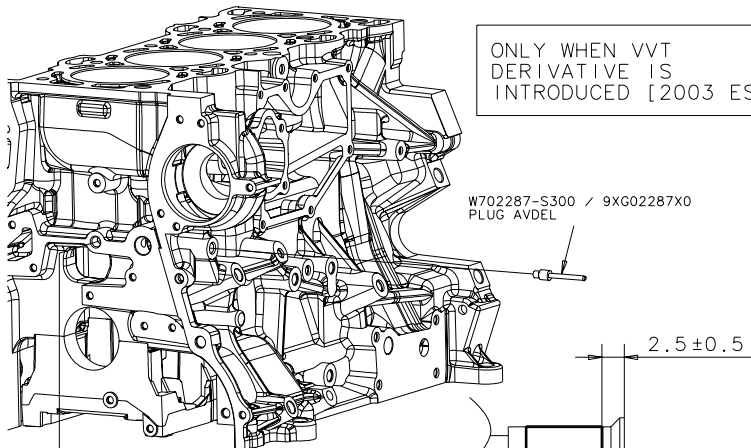
## PART NAME/TITLE

## PLUG-OIL GALLERY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BD	EN00 E 11271059 000	01-11-02	2001 2.0L-4V NON DI CD132	12	12-A

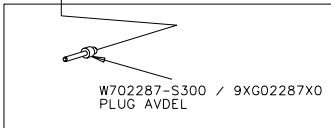
ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

ONLY WHEN VVT  
DERIVATIVE IS  
INTRODUCED [2003 EST]



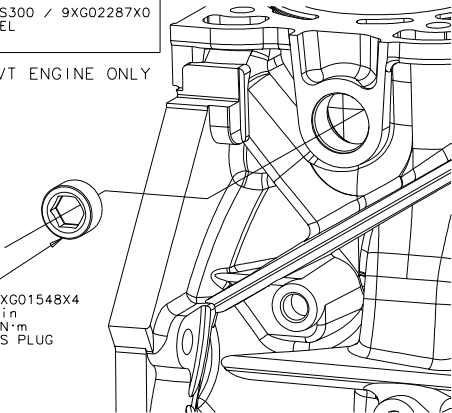
W702287-S300 / 9XG02287X0  
PLUG AVDEL

2.5 ± 0.5



W702287-S300 / 9XG02287X0  
PLUG AVDEL

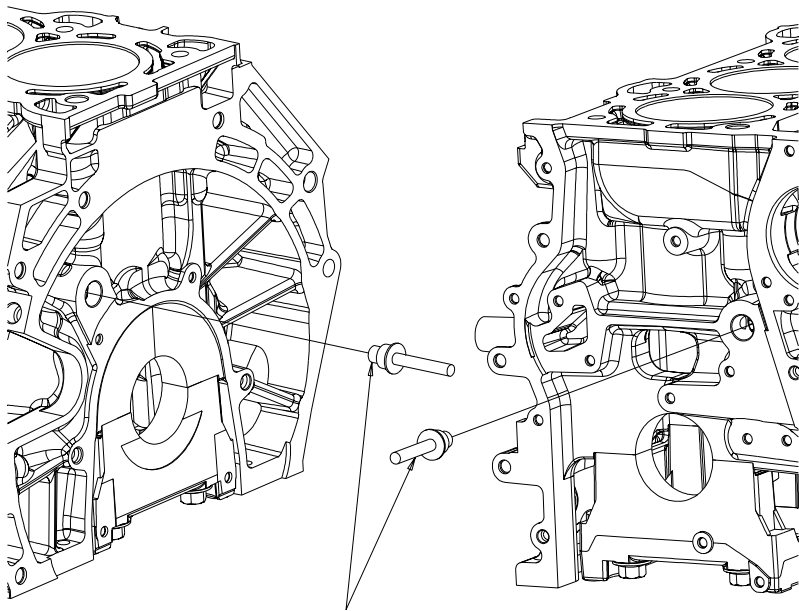
NOTE: FOR NON VVT ENGINE ONLY



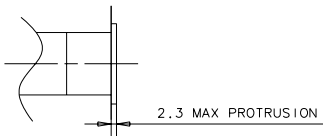
W701548-S304 / 9XG01548X4  
PIPE PLUG 3/4-14 in  
TORQUE 42.5 ± 2.5 N·m  
DO NOT REUSE THIS PLUG

RESTRICTIONS				PART NAME/TITLE			
				PLUG-OIL GALLERY			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	BD	EN00 E 11271059 000	01-11-02	2001 2.0L-4V NON DI CD132	12-A	13	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



W704456-S1300 / 9XG04456X0  
PLUG AVDEL  
2 PLACES



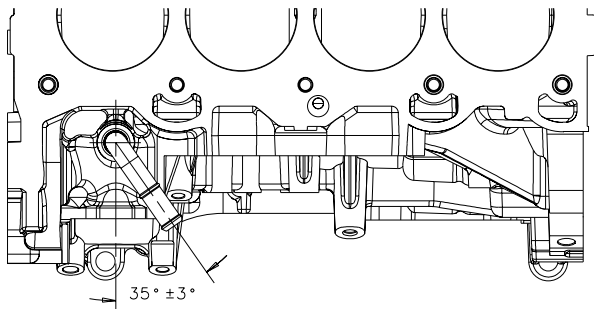
RESTRICTIONS

PART NAME/TITLE

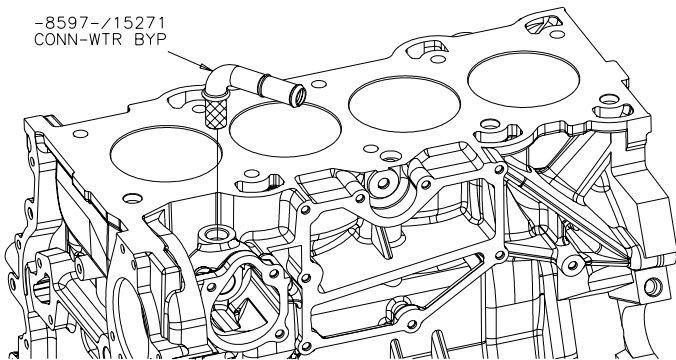
**PLUGS-OIL GALLERY**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AS	EN00 E 11200123 000	01-07-02	2001 2.0L-4V NON DI CD132	13	14

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



-8597-/15271  
CONN-WTR BYP



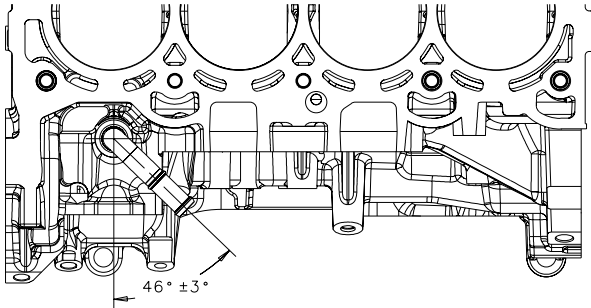
### NOTES

1. PRESS IN PIPE TO BLOCK FULLY UNTIL IT MEETS THE PIPE COLLAR.
2. USE THE COLLAR TO PRESS IN THE PIPE. NOT THE PIPE ITSELF.
3. SEALANT [WSK-M2G349-A7 (LOCTITE 243) OR WSS-M2G349-A13 (LOCTITE 962T) OR \*THREE BOND 1386D\*] TO BE APPLIED TO THE PIPE IN THE AREA HATCHD.
4. PARTS THAT HAVE BEEN DAMAGED OR HAVE SCRATCHES ON SEALING AREAS MUST NO BE ASSEMBLED.
- ~~5. (REF) BREAKAWAY TORQUE AFTER ASSEMBLY SHOULD BE GREATER THAN 2 N·m AT ROOM TEMPERATURE.~~

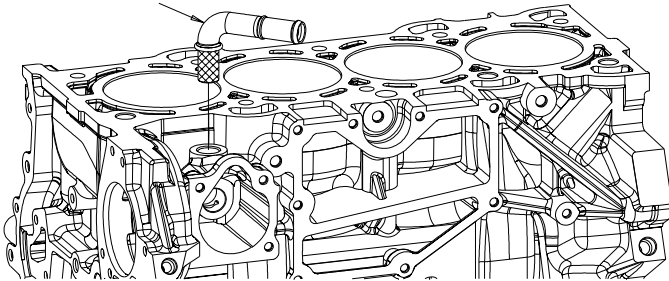
RESTRICTIONS					PART NAME/TITLE		
					PIPE CONNECTOR-BYPASS		
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET		
C1S7G-543-AC	AY	EN00 E 11255546 001	01-09-29	2001 2.0L-4V NON DI CD132	14	14-A	



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



-8597-/15271  
CONN-WTR BYP



### NOTES

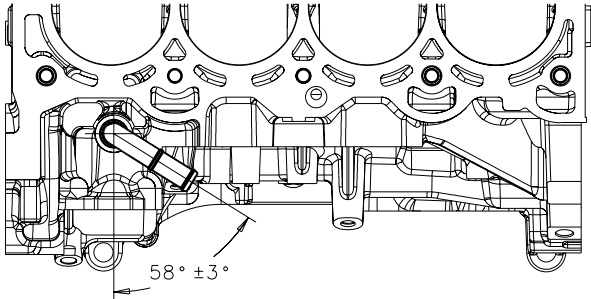
1. PRESS IN PIPE TO BLOCK FULLY UNTIL IT MEETS THE PIPE COLLAR.
2. USE THE COLLAR TO PRESS IN THE PIPE. NOT THE PIPE ITSELF.
3. SEALANT [WSK-M2G349-A7 (LOCTITE 243) OR WSS-M2G349-A13 (LOCTITE 962T) OR \*THREE BOND 1386D\*] TO BE APPLIED TO THE PIPE IN THE AREA HATCHD.
4. PARTS THAT HAVE BEEN DAMAGED OR HAVE SCRATCHES ON SEALING AREAS MUST NOT BE ASSEMBLED.
- ~~5. (REF) BREAKAWAY TORQUE AFTER ASSEMBLY SHOULD BE GREATER THAN 2 N·m AT ROOM TEMPERATURE.~~

### RESTRICTIONS

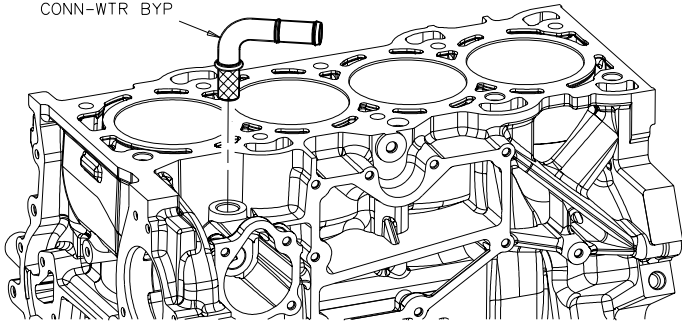
### PART NAME/TITLE PIPE CONNECTOR-BYPASS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	
C1S7G-543-AC	AY	EN00 E 11255546 001	01-09-29	2003 1.8/2.0L C1, 2004 RANGER	14-A	14-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



-8597-/15271  
CONN-WTR BYP



NOTES

1. PRESS IN PIPE TO BLOCK FULLY UNTIL IT MEETS THE PIPE COLLAR.
2. USE THE COLLAR TO PRESS IN THE PIPE. NOT THE PIPE ITSELF.
3. SEALANT [WSK-M2G349-A7 (LOCTITE 243) OR WSS-M2G349-A13 (LOCTITE 962T) OR \*THREE BOND 1386D\*] TO BE APPLIED TO THE PIPE IN THE AREA HATCHD.
4. PARTS THAT HAVE BEEN DAMAGED OR HAVE SCRATCHES ON SEALING AREAS MUST NO BE ASSEMBLED.
- ~~5. (REF) BREAKAWAY TORQUE AFTER ASSEMBLY SHOULD BE GREATER THAN 2 N·m AT ROOM TEMPERATURE.~~

RESTRICTIONS

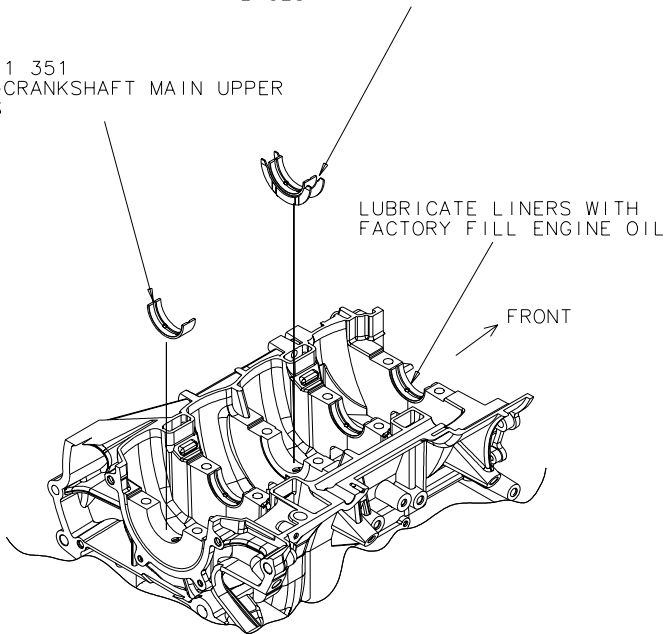
PART NAME/TITLE  
PIPE CONNECTOR-BYPASS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2003 2.3L-4V NON-DI	14-D 15-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-6337-/11 361  
BEARING-CRANKSHAFT MAIN THRUST UPPER  
1 PLACES

-6333-/11 351  
BEARING-CRANKSHAFT MAIN UPPER  
4 PLACES



NOTE: FOR MAIN BEARING SELECTION AND ASSEMBLY PROCEDURE  
SEE SHEET: 16 & 17

RESTRICTIONS				PART NAME/TITLE				
				MAIN BEARING & THRUST LINERS				
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
C1S7G-543-AC	W	EN00 E 11140144 000	00-10-01	2001 2.0L-4V NON DI CD132	15-A	15-D		

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**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL <b>2003 2.8L-4V NON DI RANGER</b>	SHEET <b>15-D</b>	CONTD. <b>16</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

SELECT UPPER LINERS FOR MAIN BEARING HOUSINGS AND ASSEMBLE, PRESSING LINERS TO DEPTH, POSITIONING LINERS IN RESPECTIVE CYLINDER BLOCK REAR MACHINING FACE. (SEE SHEET 23-B)

SELECT LOWER LINERS FOR MAIN BEARING BEAM AND ASSEMBLE TO BEAM, PRESSING LINERS TO DEPTH, POSITIONING LINERS IN RESPECTIVE BEARING BEAM REAR MACHINING FACE. (SEE SHEET 23-C)

PUT ON THRUST BEARING FOR MAIN BEARING HOUSING.

LUBRICATE BEARINGS IN CYLINDER BLOCK WITH RELEASED FACTORY FILL ENGINE OIL.

INSTALL CRANKSHAFT INTO CYLINDER BLOCK.

LUBRICATE JOURNALS ON CRANKSHAFT WITH RELEASED FACTORY FILL ENGINE OIL.

REFIT MAIN BEARING BEAM TO CYLINDER BLOCK ENSURING THAT THE BEARING BEAM IS IN THE CORRECT ORIENTATION.

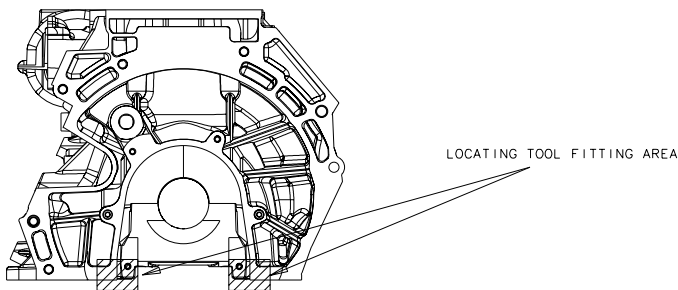
OIL "MOBIL 1409" TO BE APPLIED ON SIDE FIT SURFACE OF THE MAIN BEARING BEAM WHEN THE MAIN BEARING BEAM IS ASSEMBLED.

RUN DOWN TO TORQUE THE 10 MAIN BEARING BOLTS WHILE MAINTAINING AN AXIAL FORCE OF 500N MAX ON BEARING BEAM TOWARDS THE REAR OF THE ENGINE WITH BEARING BEAM LOCATING TOOL. (SEE SHEET 23-A)

QC CHECK : (ONCE PER WEEK).

AXIAL CLEARANCE OF CRANKSHAFT TO BE  $0.335 \pm 0.115$ mm. (INFORMATION)

IN CASE OF REUSE THE BEARINGS, BEARING POSITION AND DIRECTION MUST BE SAME AS BEFORE REMOVAL. PART NUMBER MARKING SHOWS BEARING DIRECTION.



RESTRICTIONS				PART NAME/TITLE			
				PROCEDURE-MAIN BEARING LINER			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AJ	EN00 E 11131462 001	01-04-17	2001 2.0L-4V NON DI CD132	16	17	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

MAIN BEARING LINERS ARE GRADED AND ARE TO BE SELECTED TO GIVE A TOTAL CLEARANCE OF 0.019mm TO 0.035mm.

CLEARANCE IS CALCULATED AS :

(MAIN BEARING BORE DIA + HOUSING SWELL)

- (UPPER LINER THICKNESS + LOWER LINER THICKNESS + JOURNAL DIAMETER)  
BEARING SHELL THICKNESS) - (JOURNAL DIAMETER).

HOUSING SWELL IS DETERMINED TO BE : (INFORMATION)

HOUSING DIAMETER (mm)	SWELL ( $\mu\text{m}$ )
X =< 57.018	21 - 28
57.019 >=< 57.021	20 - 27
57.022 >=< 57.025	19 - 26
57.026 >=< 57.028	18 - 25
57.029 >=< 57.032	17 - 25
57.033 >=< 57.036	16 - 23
57.037 >=< 57.039	15 - 22
57.040 <	14 - 21

EACH BEARING BORE IN THE CYLINDER BLOCK TO BE MEASURED IN THE MIDDLE OF THE BEARING BORE ON AXIS PARALLEL TO THE TOP DEAD CENTRE POSITION.

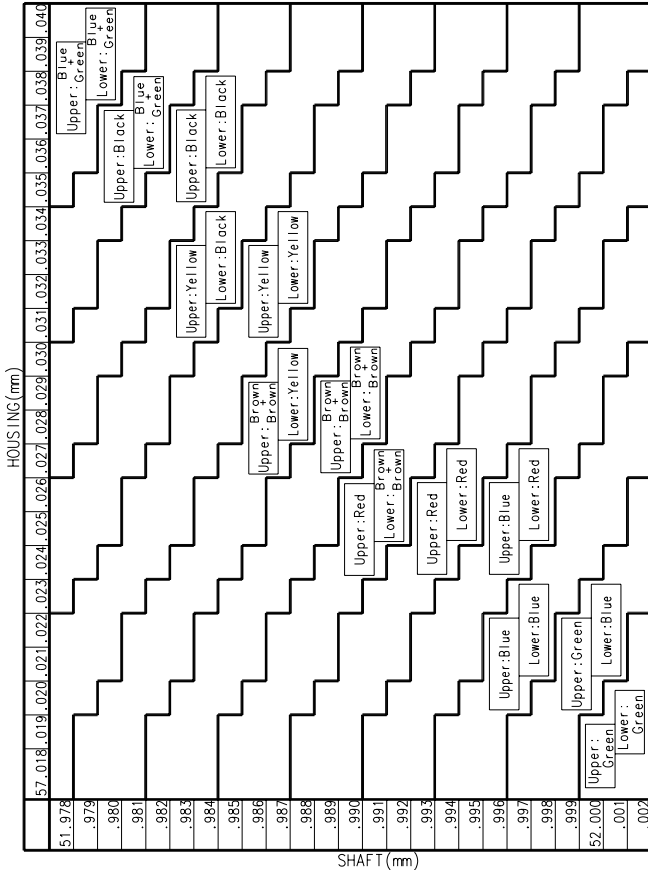
EACH CRANKSHAFT MAIN BEARING JOURNAL TO BE MEASURED IN THE CENTRE OF THE JOURNAL ON AN AXIS PARALLEL TO THE TOP DEAD CENTRE POSITION.

LINER THICKNESS TO BE SELECTED FROM THE GRADING TABLE.

RESTRICTIONS				PART NAME/TITLE			
				MAIN BEARING CLEARANCES			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AU	EN00 E 11212646 000	01-08-07	2001 2.0L-4V NON DI CD132	17	18	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

### SELECTION OF MAIN BEARING LINERS (NORMALIZED AT 20 deg C) FOR STANDARD CRANKSHAFTS



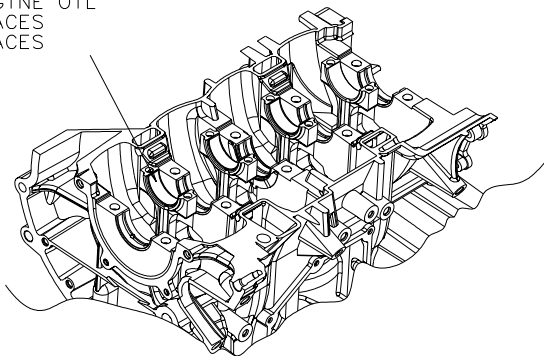
RESTRICTIONS				PART NAME/TITLE			
MAIN BEARING COLOUR CODING							
SPECIFICATION NO. C1S7G-543-AC	REV H	RELEASE NO. EN00 E 11007392 000	DATE 99-09-06	MODEL 2001 2.0L-4V NON DI CD132	SHEET 18	CONTD. 19	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

-6211-/11 225  
BEARING-CONNECTING ROD  
14:4 PLACES  
15:5 PLACES



LUBRICATE WITH FACTORY  
FILL ENGINE OIL  
14:4 PLACES  
15:5 PLACES



TOLERANCE OF POSITION  
BETWEEN LINER AND ROD.  
(ALIGNMENT)



$2.5 \pm 0.2$  (REF)  
FROM THE SAME FACE  
OF ROD AND CAP.

RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONROD BEARING LINERS	
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2001 2.0L-4V NON DI CD132	19	CONTD. 20	



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS

#### BEARING CLEARANCES

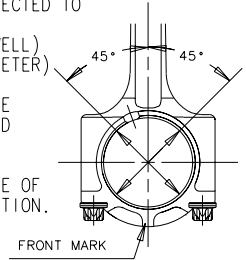
CONNECTING ROD/CRANKPIN LINERS ARE GRADED AND ARE TO BE SELECTED TO GIVE A TOTAL CLEARANCE OF 0.026mm TO 0.052mm.

CLEARANCE IS CALCULATED AS: (CONROD BIG END DIA + HOUSING SWELL)  
- (UPPER LINER THICKNESS + LOWER LINER THICKNESS + PIN DIAMETER)

EACH CONROD BIG END BORE TO BE MEASURED IN THE CENTRE OF THE JOURNAL ON 45° CLOCKWISE OR ANTI-CLOCKWISE FROM THE TOP DEAD CENTRE POSITION. (SEE SKETCH)

EACH CRANKSHAFT PIN BEARING JOURNAL TO BE MEASURED IN CENTRE OF THE JOURNAL ON AN AXIS PARALLEL TO THE TOP DEAD CENTRE POSITION.

LINER THICKNESS TO BE SELECTED FROM THE GRADING TABLE.



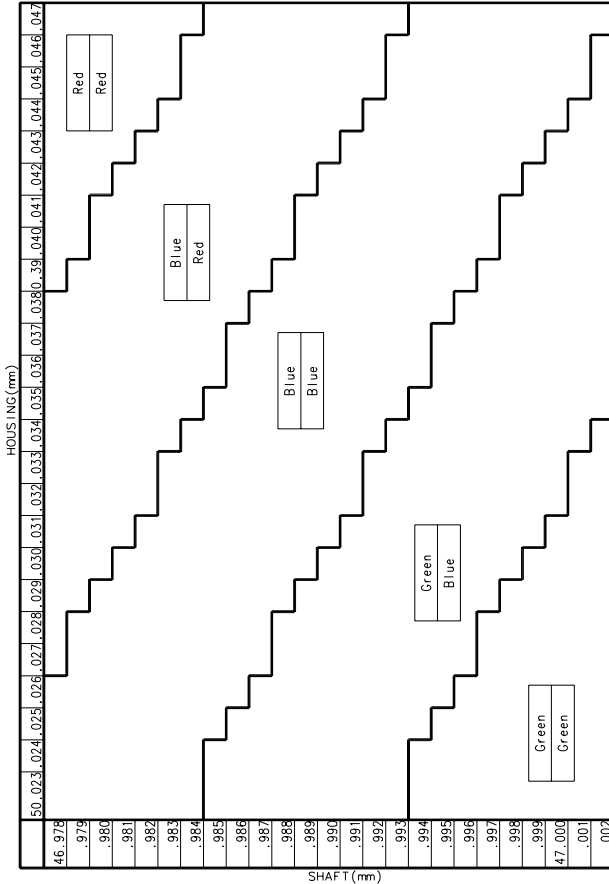
#### ASSEMBLY PROCEDURE PRODUCTION PROCESS

1. REMOVE CAPS FROM CONNECTING RODS
2. SELECT LINERS AND ASSEMBLE, PRESSING LINERS TO DEPTH, SEE NOTE ON SHEET 19 LINERS IN RESPECTIVE HOUSINGS.
3. LUBRICATE UPPER BEARINGS IN CONNECTING RODS WITH RELEASED FACTORY FILL ENGINE OIL.
4. LUBRICATE JOURNALS ON CRANKSHAFT WITH RELEASED FACTORY FILL ENGINE OIL.
5. FIT CAPS TO CONNECTING RODS ENSURING THAT THE CAPS ARE FITTED TO CORRECTLY MATCH THE ROD JOINT.
6. ENGAGE 8(14), 10(15) BOLTS IN THREAD.
7. OIL UNDERNEATH BOLT HEAD. (FACTORY FILL ENGINE OIL)
8. TIGHTEN BOLTS TO A SNUG TORQUE  $29 \pm 3 \text{ N}\cdot\text{m}$ .
9. TIGHTEN BOLTS BY  $90^\circ \pm 10^\circ$ .
10. DURING THE ABOVE TIGHTENING PROCEDURE, THE TWO BOLTS IN EACH CONNECTING ROD ARE TO BE RUN DOWN SIMULTANEOUSLY.
11. CONROD AXIAL CLEARANCE OF 0.14mm TO 0.36mm. (INFORMATION)
12. IN CASE OF REUSE THE BEARINGS AT SERVICE, BEARING POSITION AND DIRECTION MUST BE SAME AS BEFORE REMOVAL. PART NUMBER MARKING SHOWS BEARING DIRECTION.

RESTRICTIONS				PART NAME/TITLE			
				PROCEDURE—CONROD BEARIG LINER			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AU	EN00 E 11212646 000	01-08-07	2001 2.0L-4V NON DI CD132	20	21-A	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

SELECTION OF CONROD BEARING LINERS (NORMALIZED AT 20 deg C)  
FOR STANDARD CRANKSHAFTS (1.8L & 2.0L)



THE POSITION (UPPER OR LOWER) OF CONROD BEARINGS DO NOT CONTROL FOR INSTALLATION.

RESTRICTIONS

PART NAME/TITLE

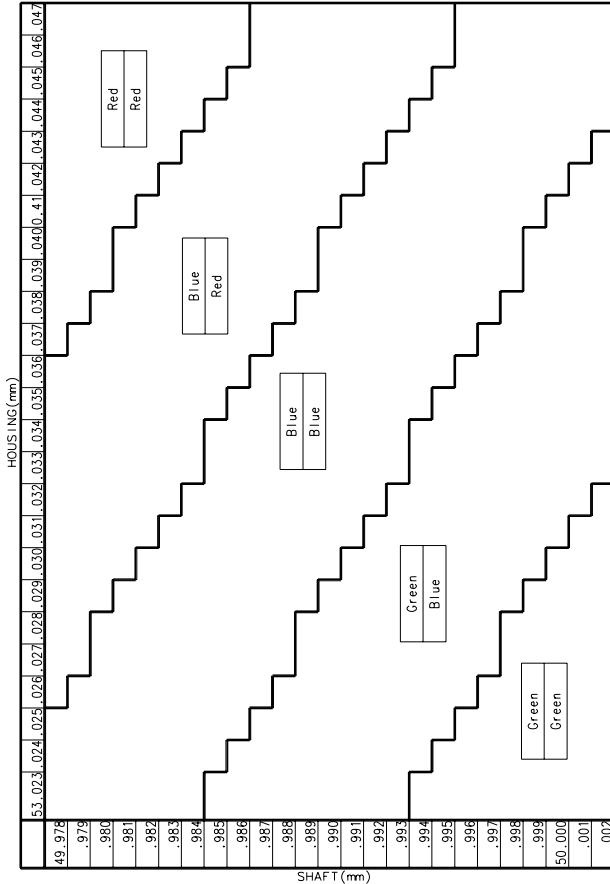
CONROD BEARING COLOUR CODING

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2001 2.0L-4V NON DI CD132	21-A	21-B



ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

SELECTION OF CONROD BEARING LINERS (NORMALIZED AT 20 deg C)  
FOR STANDARD CRANKSHAFTS (2.3L)



THE POSITION (UPPER OR LOWER) OF CONROD BEARINGS DO NOT CONTROL FOR INSTALLATION.

RESTRICTIONS

PART NAME/TITLE

CONROD BEARING COLOUR CODING

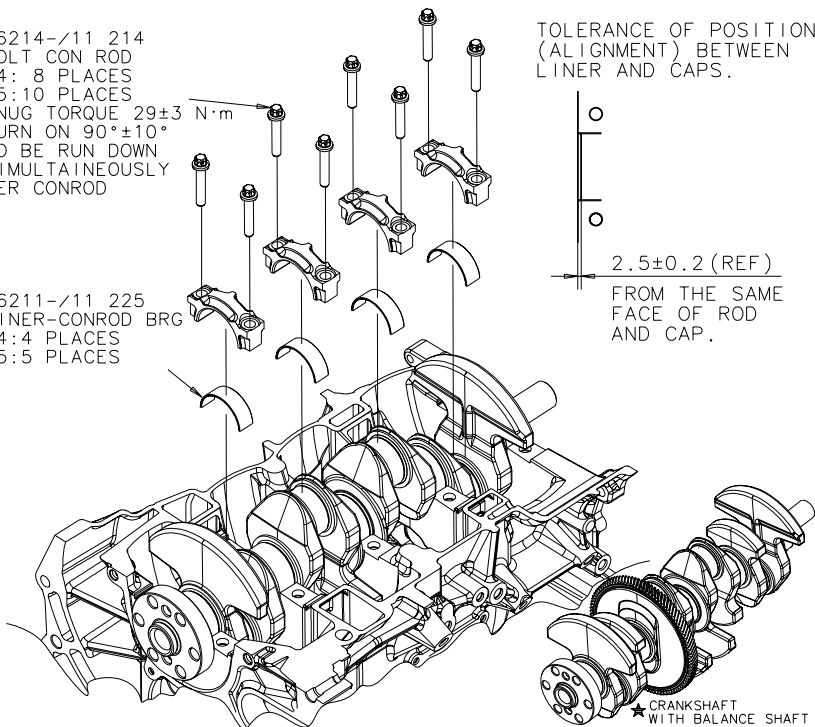
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2003 2.8L-4V NON DI RANGER	21-B	22

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-6214-/11 214  
BOLT CON ROD  
14: 8 PLACES  
15: 10 PLACES  
SNUG TORQUE  $29 \pm 3$  N·m  
TURN ON  $90^\circ \pm 10^\circ$   
TO BE RUN DOWN  
SIMULTAINEOUSLY  
PER CONROD

-6211-/11 225  
LINER-CONROD BRG  
14: 4 PLACES  
15: 5 PLACES

TOLERANCE OF POSITION  
(ALIGNMENT) BETWEEN  
LINER AND CAPS.



LUBRICATE ALL JOURNALS BEFORE FITTING BIG END LOWER BEARINGS WITH FACTORY FILL ENGINE OIL AND BEFORE FITTING MAIN LADDER. FOR BEARING SELECTION AND ASSEMBLY PROCEDURE SEE SHEET 21

Q.C,CHECK:  
DO NOT REUSE CONROD BOLT, IN CASE BOLT LENGTH IS OVER 46 mm.(REF)

★ NO HAMMERED MARKS/FLAWS ON GEAR TEETH OF CRANKSHAFT WHICH END UP WITH UNEXPECTED NOISE.(GEAR ACCURACY SPECIFIED ON THE DRAWING TO BE SATISFIED BUT THE GEAR ACCURACY IS NOT REQUIRED TO BE MEASURED IN THE ENGINE PLANT)

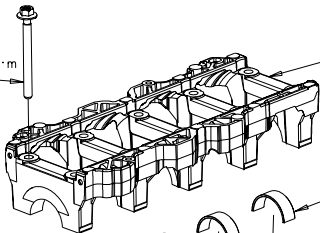
★ -IT ONLY APPLYS TO BALANCE SHAFT ENGINE.

RESTRICTIONS				PART NAME/TITLE			
				CONROD BEARING,CAPS & BOLTS			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	Y	EN00 E 11145063 001	00-11-03	2001 2.0L-4V NON DI CD132	22	23-A	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-6345-/10 352  
10 PLACES  
SIMULTANEOUSLY  
SNUG TORQUE  $45 \pm 2$  N·m  
TURN ON  $180^\circ \pm 5^\circ$

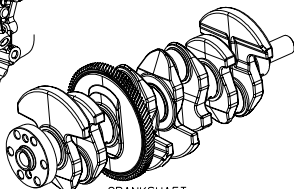
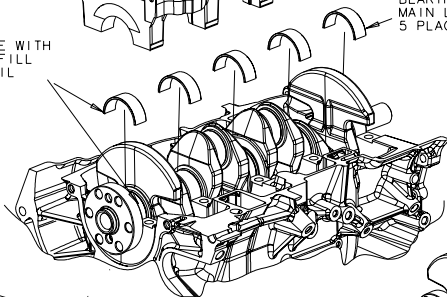
-6F098-/10 351  
SUPT-ENG BLKHD BRG



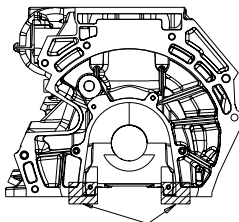
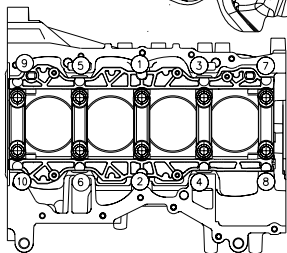
-6A338-/11 851  
BEARING-CRANKSHAFT  
MAIN LOWER  
5 PLACES

LUBRICATE WITH  
FACTORY FILL  
ENGINE OIL

FOR MAIN BEARING SELECTION  
AND ASSEMBLY PROCEDURE SEE  
SHEET 16 & 17



★ CRANKSHAFT  
WITH BALANCE SHAFT



LOCATING TOOL FITTING AREA

OIL "MOBIL 1409" TO BE  
APPLIED ON SIDE FIT SURFACE  
OF THE MAIN BEARING BEAM  
WHEN THE MAIN BEARING CAP  
IS ASSEMBLED.  
BEARING BEAM AND CYLINDER  
BLOCK TO BE ALIGNED  
AGAINST PLANE JIG FOR  
MATCHING RETAINER MATCHING  
SURFACE.  
POSITIONAL TOLERANCE  
 $\pm 0.1$

BEARING CAP BOLTS MAY BE  
REUSED A MAXIMUM OF 3  
TIMES ONLY.

WHEN THE MAIN BEARING CAP IS ASSEMBLED MANUALLY,  
TO BE TIGHTENED FOLLOWING PROCEDURE.

- (1) ALL BOLT-CRANK SHAFT TO BE TIGHTENED ONLY "SNUG" TORQUE ( $45 \pm 2$  N·m) ACCORDING TO THE ORDER WHICH IS SHOWN ABOVE DRAWING.
- (2) ALL BOLT-CRANK SHAFT TO BE TIGHTENED WITH TIGHTENING ANGLE ( $90 \pm 2.5 \text{ deg} \times 2 \text{ times} = 180 \pm 5 \text{ deg}$ ) ACCORDING TO ORDER WHICH IS SHOWN ABOVE DRAWING.

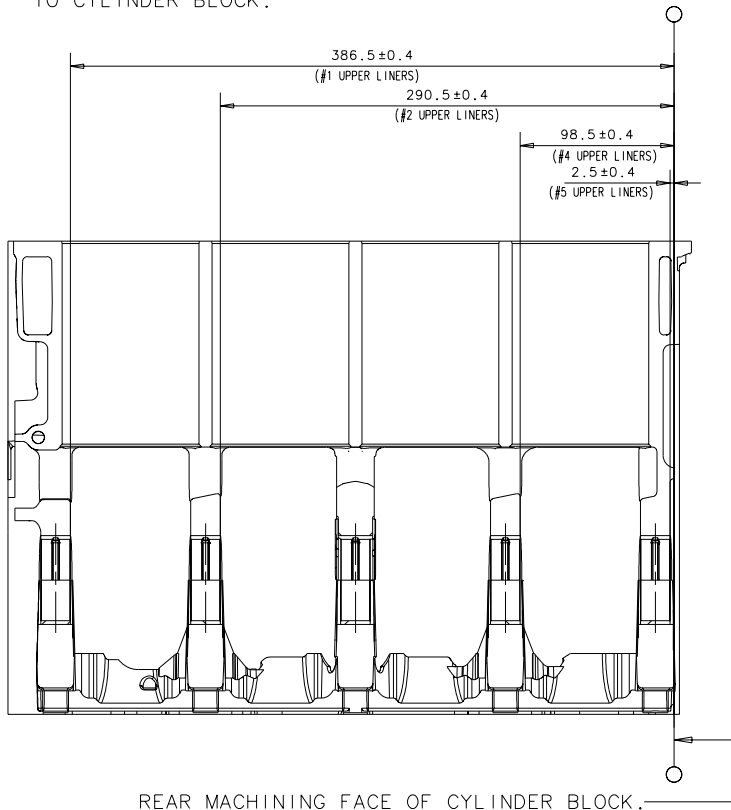
★ NO HAMMERED MARKS/FLAWS ON GEAR TEETH OF CRANKSHAFT WHICH END UP WITH UNEXPECTED NOISE. (GEAR ACCURACY SPECIFIED ON THE DRAWING TO BE SATISFIED BUT THE GEAR ACCURACY IS NOT REQUIRED TO BE MEASURED IN THE ENGINE PLANT)

★ -IT ONLY APPLYS TO BALANCE SHAFT ENGINE.

RESTRICTIONS					PART NAME/TITLE			
					MAIN BEARING LADDER BEAM & BOLTS			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CNTD.		
C1S7G-543-AC	BE	EN00 E 11218821 000	01-11-05	2001 2.0L-4V NON DI CD132	23-A	23-B		

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

UPPER LINERS FOR MAIN BEARING EXCEPT #3 UPPER LINERS IS POSITIONED SO THAT THE DISTANCES OF LINERS REAR EDGE FROM REAR MACHINING FACE MUST BE KEPT FOLLOWING AFTER BEARING BEAM IS ASSEMBLED TO CYLINDER BLOCK.



RESTRICTIONS

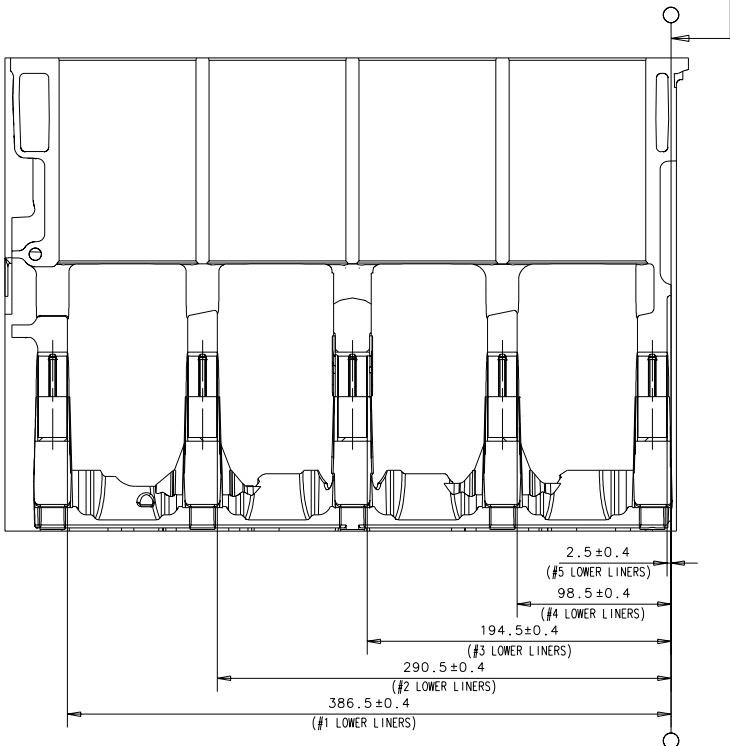
PART NAME/TITLE  
MAIN BEARING UPPER

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AB	EN00 E 11136863 000	00-12-04	2001 2.0L-4V NON DI CD132	23-B	23-C

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

LOWER LINERS FOR MAIN BEARING IS POSITIONED SO THAT THE DISTANCES OF LINERS REAR EDGE FROM REAR MACHINING FACE MUST BE KEPT FOLLOWING AFTER BEARING BEAM IS ASSEMBLED TO CYLINDER BLOCK.

REAR MACHINING FACE OF BEARING BEAM. 



RESTRICTIONS				PART NAME/TITLE MAIN BEARING LOWER			
SPECIFICATION NO. C1S7G-543-AC	REV AB	RELEASE NO. EN00 E 11136863 000	DATE 00-12-04	MODEL 2001 2.0L-4V NON DI CD132	SHEET 23-C	CONTD. 23-D	



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

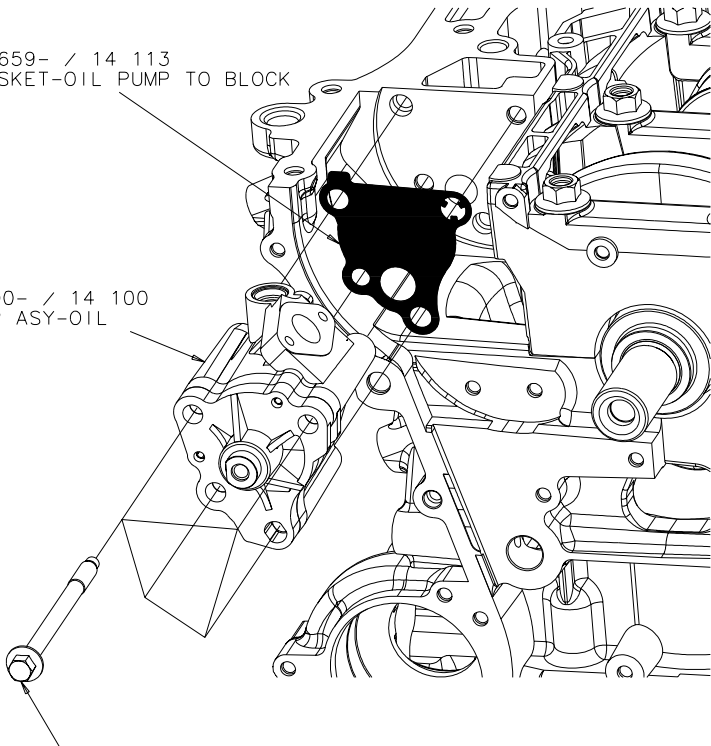
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL <b>2003 2.8L-4V NON DI RANGER</b>	SHEET <b>23-D</b>	CONTD. <b>24</b>
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ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

-6659- / 14 113  
GASKET-OIL PUMP TO BLOCK

-6600- / 14 100  
PUMP ASY-OIL



W703647-S309 / 9XG03647X9  
FASTNER M8 X 103  
4PLACES

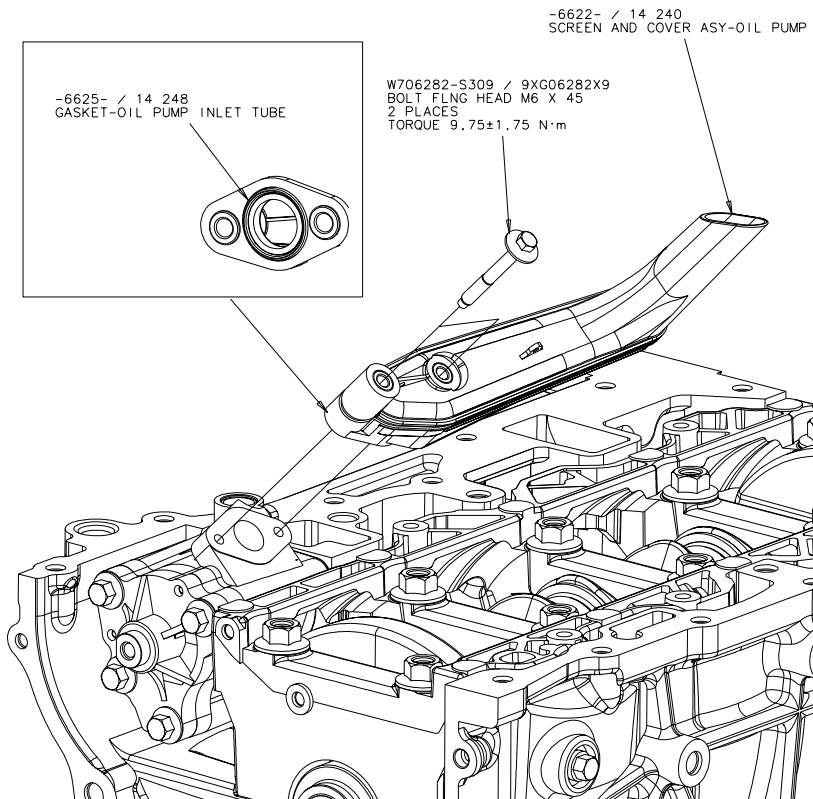
BOLT TIGHTENING PROCEDURE :

- ① TIGHTEN THE BOLTS AT SIMULTANEOUSLY OR CROSSWISE WITH THE PRE-TORQUE OF  $10 \pm 2$  N·m
- ② TIGHTEN THE BOLTS AT SIMULTANEOUSLY OR CROSSWISE WITH THE TORQUE OF  $22.5 \pm 2.5$  N·m

RESTRICTIONS				PART NAME/TITLE			
				PUMP ASY-OIL & GASKET-OIL PUMP TO BLOCK			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	K	EN00 E 11026968 000	99-12-13	2001 2.0L-4V NON DI CD132	24	25-A	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



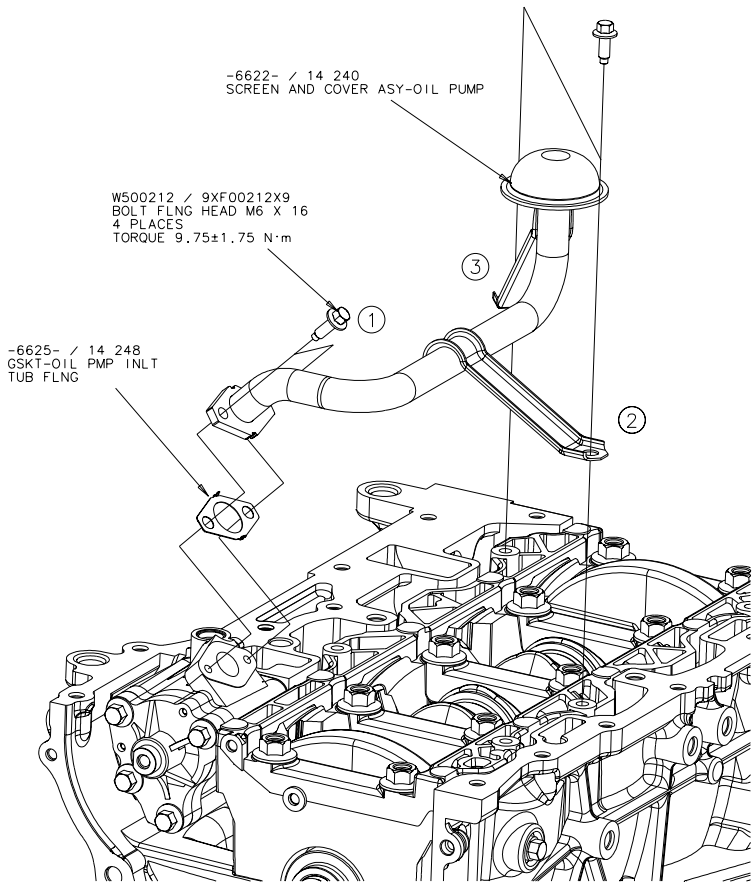
RESTRICTIONS

PART NAME/TITLE

SCREEN AND COVER ASY-OIL PUMP

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2001 2.0L-4V NON DI CD132	25-A	25-B

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



TIGHTENING ORDER: ① - ③ .

RESTRICTIONS

PART NAME/TITLE

SCREEN AND COVER ASY-OIL PUMP

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2001 2.0L-4V NON DI RANGER	25-B	25-E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

### BALANCER ASSY ASSEMBLY TO BLOCK

**NOTE) MANUAL PROTOTYPE PROCESS ONLY-  
MASS PRODUCTION MAY DIFFER,  
BUT WILL FOLLOW EQUIVALENT STEPS.**

**(4) BOLT(M10) 4PLACES**

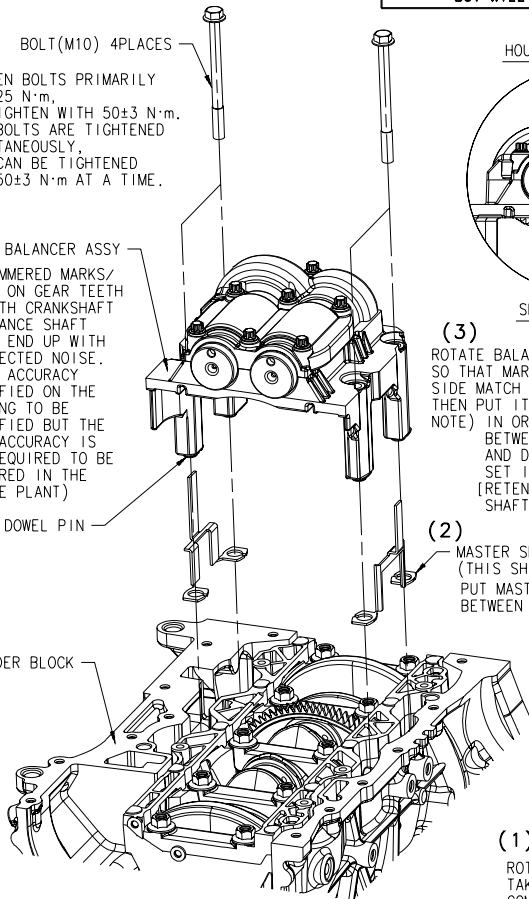
TIGHTEN BOLTS PRIMARILY WITH 25 N·m, AND TIGHTEN WITH 50±3 N·m. WHEN BOLTS ARE TIGHTENED SIMULTANEOUSLY, THEY CAN BE TIGHTENED WITH 50±3 N·m AT A TIME.

**BALANCER ASSY**

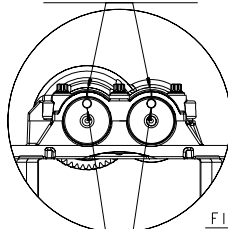
NO HAMMERED MARKS/FLAWS ON GEAR TEETH OF BOTH CRANKSHAFT & BALANCE SHAFT WHICH END UP WITH UNEXPECTED NOISE. (GEAR ACCURACY SPECIFIED ON THE DRAWING TO BE SATISFIED BUT THE GEAR ACCURACY IS NOT REQUIRED TO BE MEASURED IN THE ENGINE PLANT)

**DOWEL PIN**

**CYLINDER BLOCK**



**HOUSING SIDE MARK**



**FIG. 1**

**SHAFT SIDE MARK**

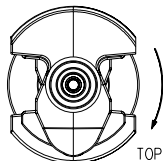
**(3)**

ROTATE BALANCE SHAFT OF BALANCER ASSY, SO THAT MARKS ON BOTH HOUSING & SHAFT SIDE MATCH AS SHOWN ON FIG.1, THEN PUT IT ON BLOCK SET IT.  
**NOTE) IN ORDER TO AVOID INTERFERENCE BETWEEN DRIVE GEAR AT CRANK SIDE AND DRIVEN GEAR AT BALANCER SIDE, SET IT SLOWLY. [RETENTION FEATURE FOR SETTING SHAFT POSITION UNDER STUDY.]**

**(2)**

**MASTER SHIM**  
(THIS SHEET SHOWS A CONCEPT SAMPLE.)  
PUT MASTER SHIM (THICKNESS 1.42mm) BETWEEN BLOCK AND BALANCER ASSY.

**(1)**



ROTATE CRANKSHAFT CLOCKWISE, TAKE 1ST CYLINDER TO COMPRESSION TOP DEAD CENTER.

**RESTRICTIONS**

**PART NAME/TITLE  
BALANCER AND SHIM TO BLOCK**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	Y	EN00 E 11145063 001	00-11-03	2003 2.3L-4V NON-D1 J71	25-E	25-F

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

NOTE) MANUAL PROTOTYPE PROCESS ONLY-  
MASS PRODUCTION MAY DIFFER,  
BUT WILL FOLLOW EQUIVALENT STEPS.

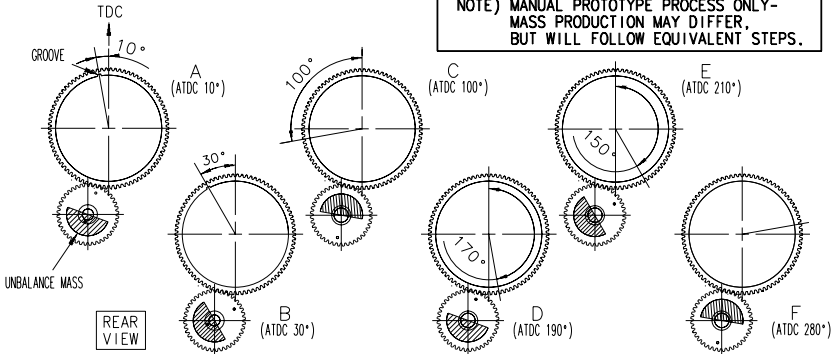


FIG. 2 BACKLASH MEASUREMENT LOCATION

NO HAMMERED MARKS/FLAWS ON GEAR TEETH OF BOTH CRANKSHAFT & BALANCE SHAFT WHICH END UP WITH UNEXPECTED NOISE. (GEAR ACCURACY SPECIFIED ON THE DRAWING TO BE SATISFIED BUT THE GEAR ACCURACY IS NOT REQUIRED TO BE MEASURED IN THE ENGINE PLANT)

### BACKLASH MEASUREMENT

1. ROTATE CRANKSHAFT FEW TIMES IN ORDER TO ADJUST GEAR.
2. ROTATE CRANKSHAFT AND TAKE IT TO THE POINT  $10^\circ$  AFTER TDC (FIG. 2 A). THEN FIX CRANKSHAFT.
3. AS SHOWN ON FIG. 3, SET A MEASURING NEEDLE OF DIAL GAUGE ON THE CERTAIN LOCATION OF MEASURING LEVER PERPENDICULARLY (RADIUS OF DRIVEN GEAR PITCH CIRCLE IS 41.4).
4. PUSH THE FLANGE OF BALANCER NO.1 SHAFT IN THE AXIAL DIRECTION WITH APPROXIMATELY 49N.
5. a) ROTATE BALANCER NO.1 SHAFT CLOCKWISE WITH 0.5 N·m AND READ DIAL GAUGE VALUE.  
b) ROTATE BALANCER NO.1 SHAFT COUNTERCLOCKWISE WITH 0.5 N·m AND READ DIAL GAUGE VALUE.  
c) THE AMPLITUDE OF READINGS SHALL BE A BACKLASH.
6. REPEAT THE PROCEDURES 1. THROUGH 5. FOR B-F.
7. SELECT A SHIM IN ORDER THAT THE MINIMUM VALUE OF BACKLASH BECOMES  $15 \mu\text{m}$  AS TO MEASURING VALUES OF A-F IN ACCORDANCE WITH \*SHIM SELECTION CHART\* ON NEXT PAGE.

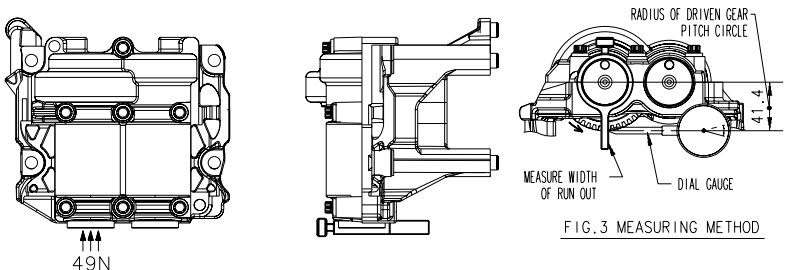


FIG. 3 MEASURING METHOD

RESTRICTIONS

PART NAME/TITLE  
BACKLASH MEASURING METHOD

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AN	EN00 E 11208966 001	01-06-08	2003 2.3L-4V NON-DI J71	25-F	25-G



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS

**(NOTE) MANUAL PROTOTYPE PROCESS ONLY-  
MASS PRODUCTION MAY DIFFER,  
BUT WILL FOLLOW EQUIVALENT STEPS.**

NO HAMMERED MARKS/FLAWS ON GEAR TEETH OF BOTH CRANKSHAFT & BALANCE SHAFT WHICH END UP WITH UNEXPECTED NOISE. (GEAR ACCURACY SPECIFIED ON THE DRAWING TO BE SATISFIED BUT THE GEAR ACCURACY IS NOT REQUIRED TO BE MEASURED IN THE ENGINE PLANT)

#### REPLACEMENT OF SELECTED SHIM

- (1) LOOSEN 4 BOLTS BETWEEN BALANCER ASSY AND BLOCK, AND TAKE OFF MASTER SHIM.
- (2) SET SHIM, SELECTED BY THE PRECEDING PAGE (\*BACKLASH MEASUREMENT\*), ONTO THE BOTTOM OF BALANCER ASSY SECURELY (RIGHT AND LEFT SHIMS SHOULD BE SAME THICKNESS.). SET BALANCER ASSY WITH SHIMS. SEE NEXT PAGE.
- (3) RE-TIGHTEN 4 BOLTS. SEE NEXT PAGE.

#### RE-MEASUREMENT OF BACKLASH AFTER REPLACEMENT

- (1) RE-MEASURE BACKLASH BY MEANS OF THE PRECEDING PAGE (\*BACKLASH MEASUREMENT\*), AND CHECK IF IT IS WITHIN RANGE OF TOLERANCE.  
[BACKLASH TOLERANCE AFTER REPLACEMENT]  
TARGET (MINIMUM) POINT; 5-42  $\mu\text{m}$   
OTHER POINTS; 5-101  $\mu\text{m}$
- (2) WHEN BACKLASH IS UNDER LOWER LIMIT (LESS THAN 5  $\mu\text{m}$ ), REPLACE SHIM TO BIGGER ONE (THICK ONE) AND RE-MEASURE BACKLASH.
- (3) WHEN BACKLASH IS OVER UPPER LIMIT (MORE THAN 101  $\mu\text{m}$ ), REPLACE SHIM TO SMALLER ONE (THIN ONE) AND RE-MEASURE BACKLASH.  
[REF.] REGARDING SHIM SELECTION, REFER THAT BACKLASH CHANGES APPROX. 7  $\mu\text{m}$  IF SPACER CHANGES 1 RANK.
- (4) IF IT IS NOT WITHIN RANGE OF TOLERANCE AFTER RE-MEASUREMENT, CHANGE BALANCER ASSY.

THIS CHART APPLIES TO SHIM SELECTION WHEN THE ENGINE IS INVERTED.

#### SHIM SELECTION CHART

(MASTER SHIM THICKNESS 1.42 mm)

BACKLASH AT STANDARD SHIM	SHIM NO.	SHIM THICKNESS	BACKLASH AT STANDARD SHIM	SHIM NO.	SHIM THICKNESS	BACKLASH AT STANDARD SHIM	SHIM NO.	SHIM THICKNESS
270-276 $\mu\text{m}$	05	1.05 mm	165-171 $\mu\text{m}$	20	1.20 mm	61-67 $\mu\text{m}$	35	1.35 mm
263-269	06	1.06	158-164	21	1.21	54-60	36	1.36
256-262	07	1.07	151-157	22	1.22	47-53	37	1.37
249-255	08	1.08	144-150	23	1.23	40-46	38	1.38
242-248	09	1.09	137-143	24	1.24	33-39	39	1.39
235-241	10	1.10	130-136	25	1.25	26-32	40	1.40
228-234	11	1.11	123-129	26	1.26	19-25	41	1.41
221-227	12	1.12	116-122	27	1.27	12-18	42	1.42
214-220	13	1.13	109-115	28	1.28	5-11	43	1.43
207-213	14	1.14	102-108	29	1.29	0-4	44	1.44
200-206	15	1.15	96-101	30	1.30	—	—	—
193-199	16	1.16	89-95	31	1.31	—	—	—
186-192	17	1.17	82-88	32	1.32	—	—	—
179-185	18	1.18	75-81	33	1.33	—	—	—
172-178	19	1.19	68-74	34	1.34	—	—	—

AS SHIM CHANGES 1 RANK, BACKLASH CHANGES APPROXIMATELY 7  $\mu\text{m}$ .

RESTRICTIONS

PART NAME/TITLE

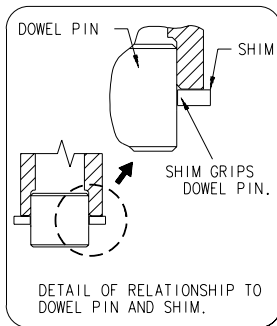
REPLACEMENT OF SHIM SELECTION

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	Y	EN00 E 11145063 001	00-11-03	2003 2.3L-4V NON-D1 J71	25-G	25-H

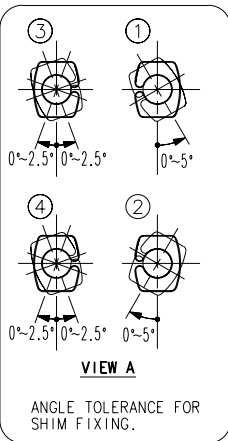
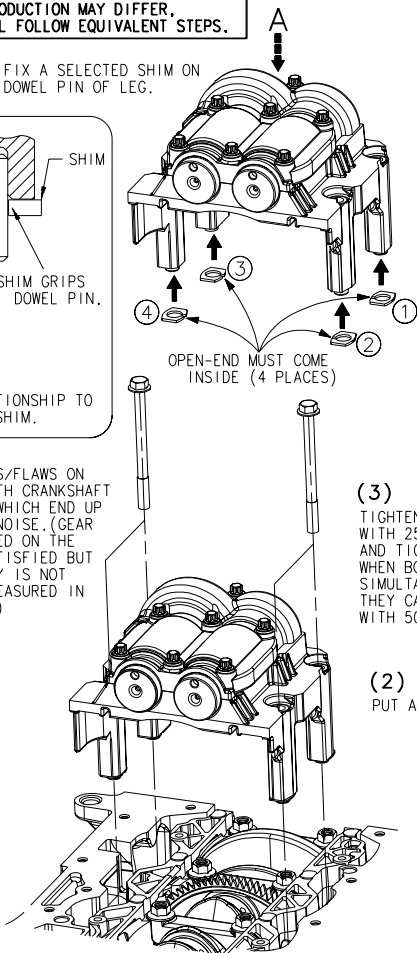
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

**NOTE) MANUAL PROTOTYPE PROCESS ONLY-  
MASS PRODUCTION MAY DIFFER,  
BUT WILL FOLLOW EQUIVALENT STEPS.**

- (1) FIX A SELECTED SHIM ON  
DOWEL PIN OF LEG.



NO HAMMERED MARKS/FLAWS ON  
GEAR TEETH OF BOTH CRANKSHAFT  
& BALANCE SHAFT WHICH END UP  
WITH UNEXPECTED NOISE. (GEAR  
ACCURACY SPECIFIED ON THE  
DRAWING TO BE SATISFIED BUT  
THE GEAR ACCURACY IS NOT  
REQUIRED TO BE MEASURED IN  
THE ENGINE PLANT)



- (3)  
TIGHTEN BOLTS PRIMARILY  
WITH 25 N·m,  
AND TIGHTEN WITH 50±3 N·m.  
WHEN BOLTS ARE TIGHTENED  
SIMULTANEOUSLY,  
THEY CAN BE TIGHTENED  
WITH 50±3 N·m AT A TIME.

## RESTRICTIONS

SPECIFICATION NO.  
C1S7G-543-AC

REV  
Y

RELEASE NO.  
EN00 E 11145063 001

DATE  
00-11-03

MODEL  
2003 2.3L-4V NON-DI J71

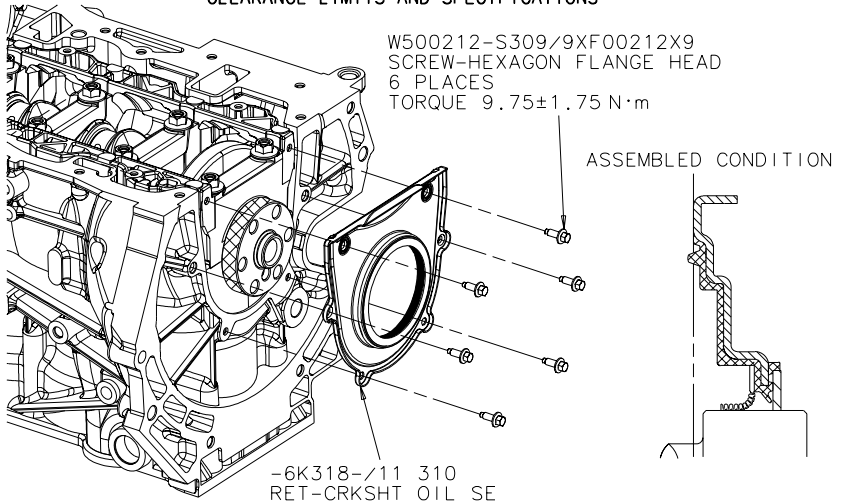
SHEET  
25-H

CONTD.  
26

PART NAME/TITLE  
**BALANCER AND SELECTED SHIM TO BLOCK**

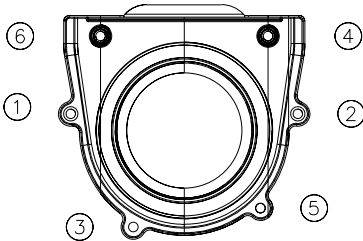
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W500212-S309/9XF00212X9  
SCREW-HEXAGON FLANGE HEAD  
6 PLACES  
TORQUE  $9.75 \pm 1.75 \text{ N}\cdot\text{m}$



### FASTENING PROCEDURE

(AUTOMATIC MACHINE)



1. Snag torque:  $3 \frac{3}{8} \text{ Nm}$ , then  
Final torque:  $9.75 \pm 1.75 \text{ Nm}$
2. Tightening speed: 10rpm
3. Tightening order: Begin to tighten  
① & ② then wait 0.5-1.0 second and  
start to tighten ③, ④, ⑤ & ⑥.

(SINGLE SPINDLE)

ALL BOLT TO BE TIGHTENED ACCORDING  
TO THE ORDER WHICH IS SHOWN IN  
LEFT HAND DRAWING,  
TIGHTENING ORDER ; ① - ⑥

### NOTES

1. No sticking of stain, dust, etc is allowed on oil seal sliding surface (hatched area) of crank shaft.
2. Attach oil seal exactly perpendicular to crankshaft to prevent oil seal lip from peeling and cutting.
3. Oil seal lip with flaw, deformation or dent that harm its sealability shall be replaced.
4. Oil seal shall be assembled in specified direction drawing.

### RESTRICTIONS

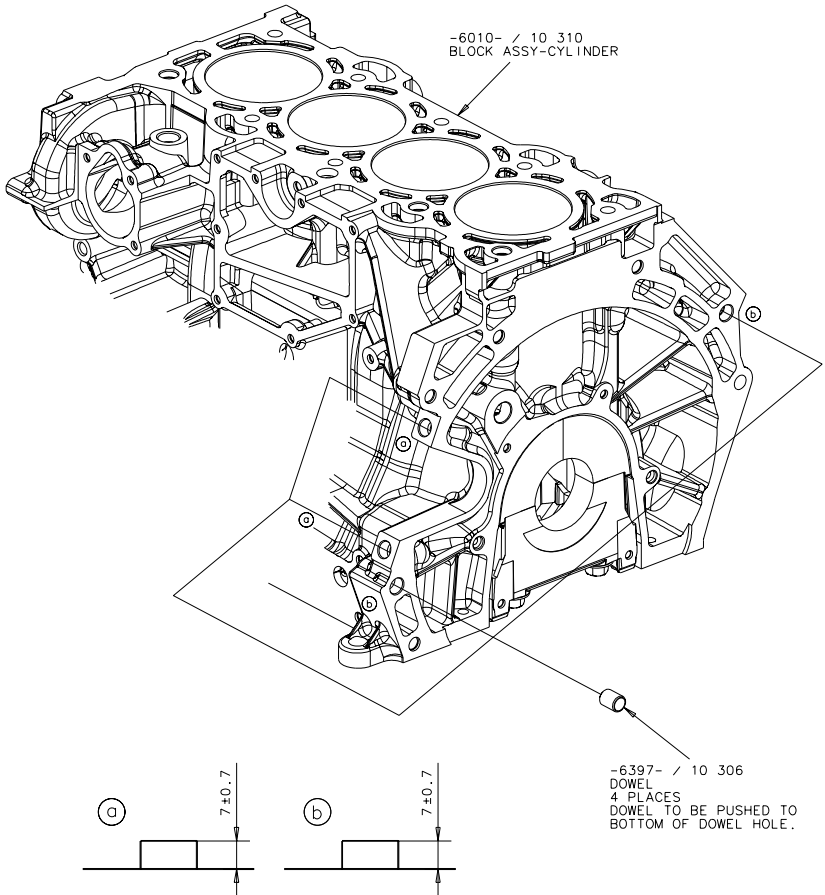
PART NAME/TITLE

REAR OIL SEAL - CRANKSHAFT

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	V	EN00E11124480001	00-09-08	2001 2.0L-4V NON DI CD132	26	27



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

PART NAME/TITLE

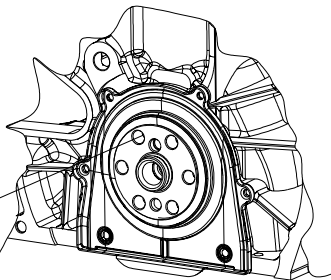
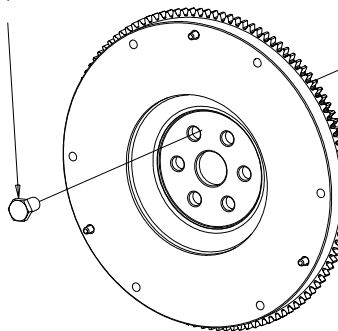
**DOWEL ASY-CYLINDER BLOCK**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BD	EN00 E 11271059 000	01-11-02	2001 2.0L-4V NON DI CD132	27	28

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

-6379-/11 511  
BOLT FLYWHEEL  
6 PLACES  
SIMULTANEOUSLY

▽ TORQUE 112±4 N·m



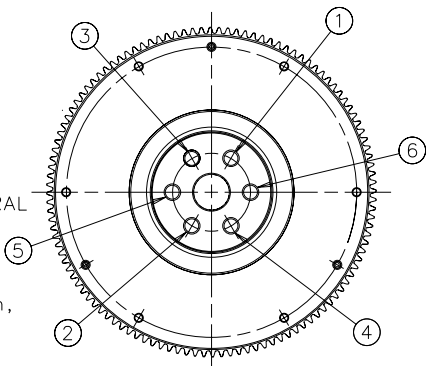
-6K390-/11 500  
FLYWHEEL ASY

SINGLE SPINDLE METHOD  
INSTALL AND UNIFORMLY  
TIGHTEN 6 BOLTS, IN SEVERAL  
PASSES, IN THE SEQUENCE  
SHOWN.

TORQUE STEPS

1ST 50±4 N·m, 2ND 80±4 N·m,

▽ TORQUE 3RD 112±4 N·m



RESTRICTIONS

PART NAME/TITLE  
FLYWHEEL ASY

SPECIFICATION NO.  
C1S7G-543-AC

REV  
P

RELEASE NO.  
EN00 E 11045491 000

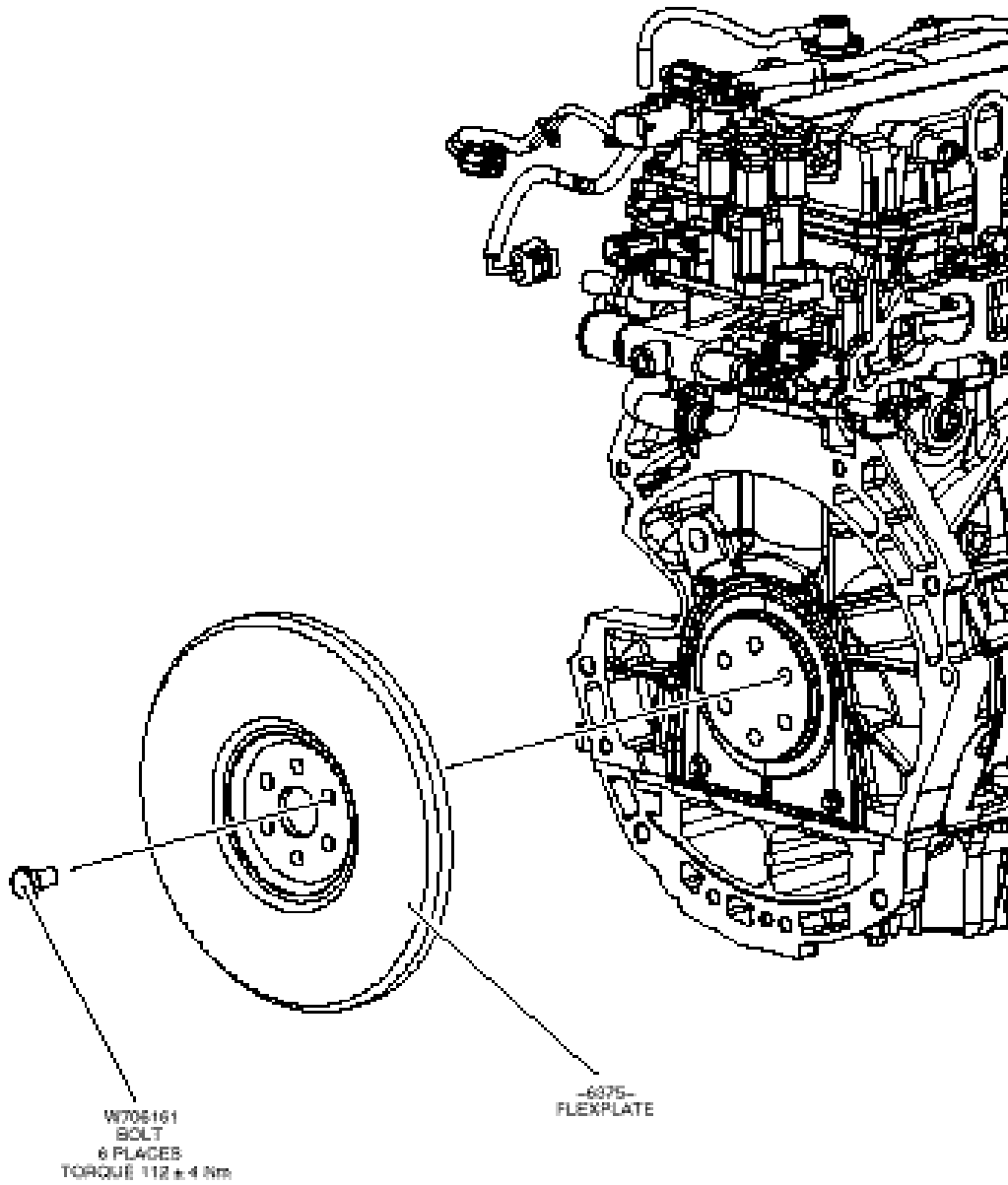
DATE  
00-03-31

MODEL  
2001 2.3L-4V NON DI RANGER

SHEET  
28

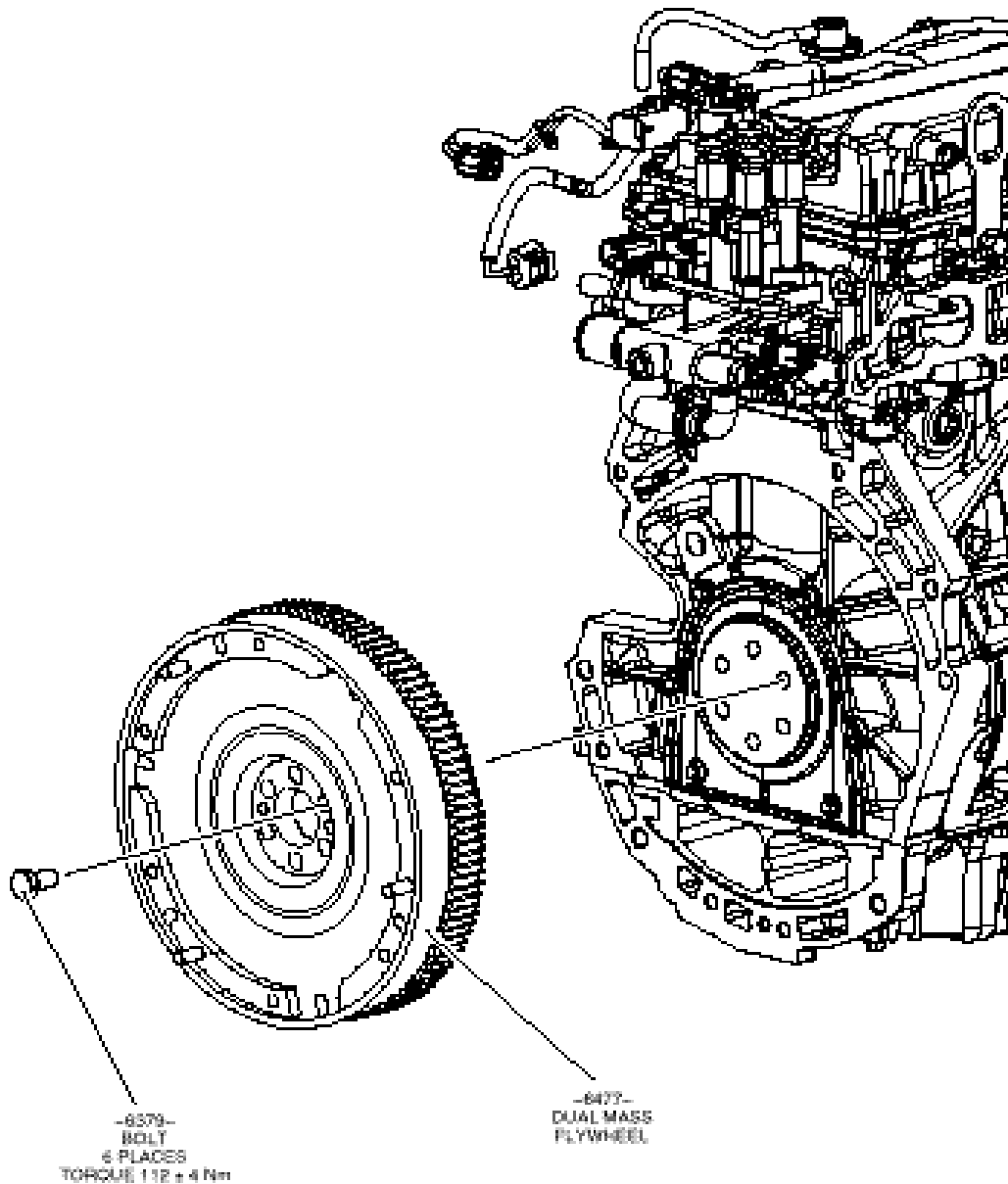
CONTD.  
28-A

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**



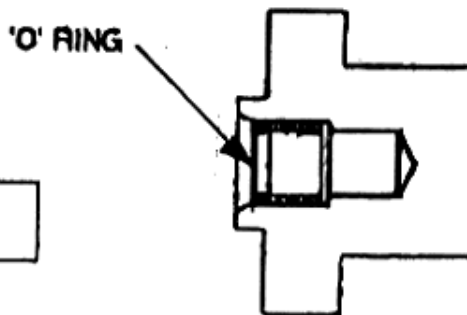
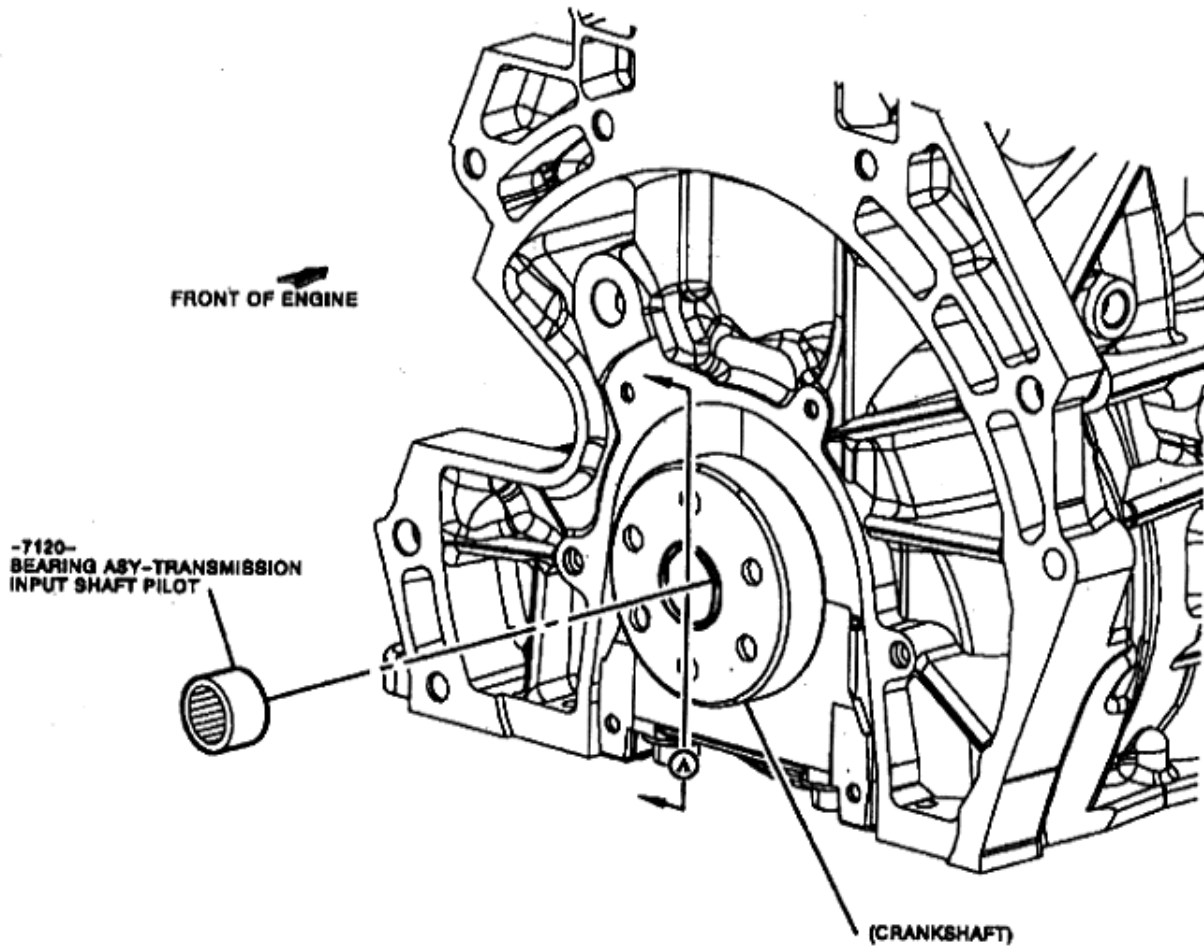
RESTRICTI				PART NAME/TITLE			
SPECIFICATION NO. C1S7G-543-AC	REV N	RELEASE NO. EN00 E 11030674 000	DATE 00-02-10	MODEL 2001 2.0L-4V NON DI	SHEET 28-A	CONTD. 28-B	

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**



RESTRICTI				PART NAME/TITLE			
SPECIFICATION NO. C1S7G-543-AC	REV X	RELEASE NO. EN00E11099311 000	DATE 00-10-13	MODEL 2001 2.0L-4V NON DI CD132	SHEET 28-B	CONTD. 28-C	

**PILOT BEARING  
(MANUAL TRANSMISSION)**



**NOTE:**  
INSTALL BEARING WITH SEAL END TOWARD  
TRANSMISSION.

SECTION A

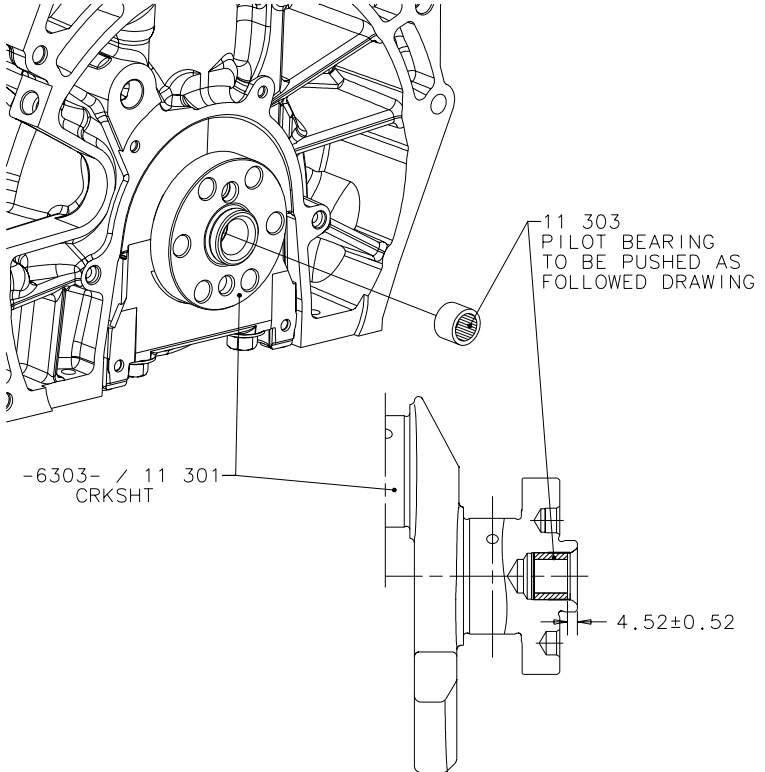
031101

RESTRICTIONS

PART NAME/TITLE  
**PILOT BEARING**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AN	EN00 E11208966 001	01-06-08	2001 2.3L-4V NON DI RANGER	28-C	28-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE

PILOT BEARING

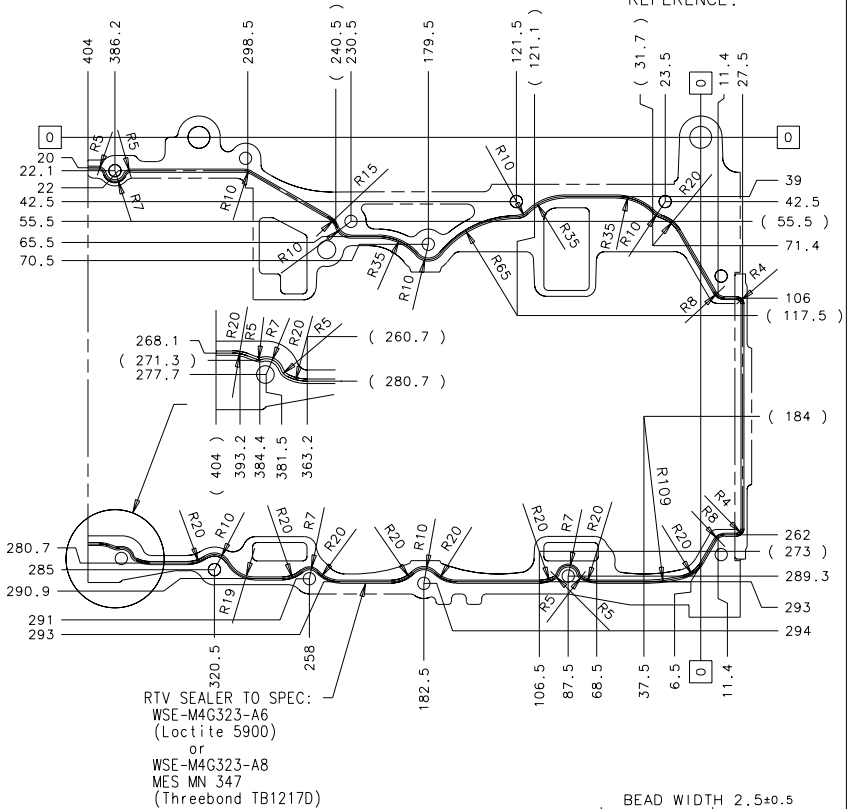
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AN	EN00 E 11208966 001	01-06-08	2003 2.3L-4V NON DI J56A/F/J	28-D	29



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS**

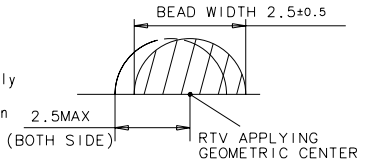
**CLEARANCE LIMITS AND SPECIFICATIONS**

ALL DIMENSION ARE REFERENCE.



NOTES

- 1.No sticking of stain, dust, etc is allowed on RTV apply surface of cylinder block.
- 2.After applying RTV, complete assembling oil pan within 10 min, and then complete tightening all bolts within further 5 min.(within 15 min in total.)



RESTRICTIONS				PART NAME/TITLE RTV SEALER - OIL PAN			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONFID.	
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.0L-4V NON DI CD132	29	29-D	

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

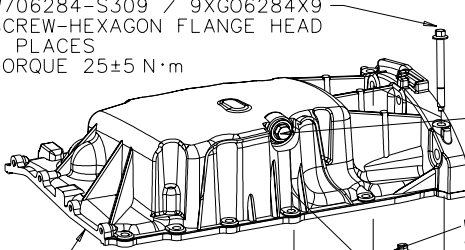
PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL <b>2003 2.8L-4V NON DI RANGER</b>	SHEET <b>29-D</b>	CONTD. <b>30-A</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

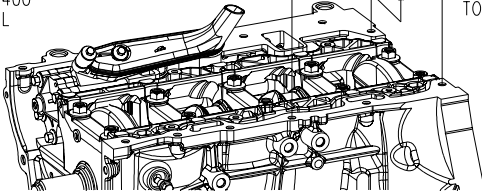
W706284-S309 / 9XG06284X9  
SCREW-HEXAGON FLANGE HEAD  
2 PLACES  
TORQUE 25±5 N·m



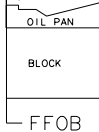
REF: ONLY  
-6730- / 10 404  
PLG-OIL PAN DRN  
TORQUE 27.5±2.5 N·m

W500224-S309 / 9XF00224X9  
SCREW-HEXAGON FLANGE HEAD  
11 PLACES  
TORQUE 25±5 N·m

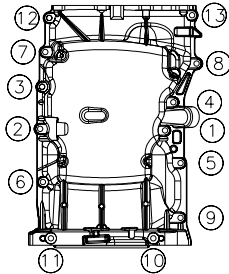
-6675-/10 400  
PAN ASY-OIL



OIL PAN TO FLUSH ±0.05mm



FASTENING PROCEDURE (SINGLE SPINDLE METHOD).



### OIL FILL QUANTITIES

TOTAL FACTORY OIL FILL (DRY ENGINE) = 4.6 ± 0.05 L  
(WITHOUT OIL COOLER)  
SERVICE FILL (INCLUDING FILTER CHANGE) = 4.3L (4.5qt)  
SERVICE FILL (EXCLUDING FILTER CHANGE) = 3.9L (4.1qt)

NOTE: DIFFERENCE BETWEEN 'MIN' & 'MAX' MARKS ON OIL  
LEVEL INDICATOR IS EQUIVALENT TO 0.75L (0.8qt)

#### NOTES

- 1.No sticking of stain, dust, etc is allowed on oil pan sealing surface of cylinder block and oil pan.
- 2.If parts have scratch on seal face of oil pan assembly, which might give negative effect on sealability, those have to be replaced with good part.

RESTRICTIONS

PART NAME/TITLE

OIL PAN & OIL FILL QUANTITIES

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD 132	30-A	30-B

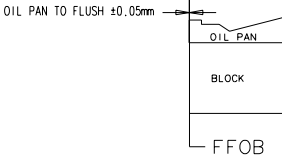
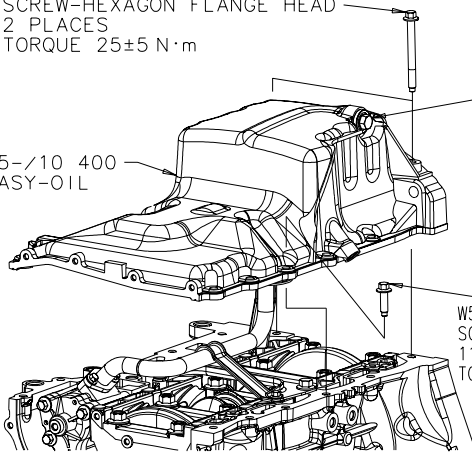
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W706284-S309 / 9XG06284X9  
SCREW-HEXAGON FLANGE HEAD  
2 PLACES  
TORQUE 25±5 N·m

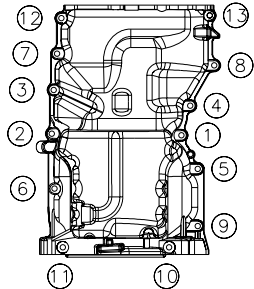
-6675-/10 400  
PAN ASY-OIL

REF: ONLY  
-6730- / 10 404  
PLG-OIL PAN DRN  
TORQUE 27.5±2.5 N·m

W500224-S309 / 9XF00224X9  
SCREW-HEXAGON FLANGE HEAD  
11 PLACES  
TORQUE 25±5 N·m



FASTENING PROCEDURE (SINGLE SPINDLE METHOD).



### OIL FILL QUANTITIES

TOTAL FACTORY OIL FILL (DRY ENGINE) = 4.1 ± 0.05 L  
(WITHOUT OIL COOLER)  
SERVICE FILL (INCLUDING FILTER CHANGE) = 3.8L (4qt)  
SERVICE FILL (EXCLUDING FILTER CHANGE) = 3.3L (3.5qt)

NOTE: DIFFERENCE BETWEEN 'MIN' & 'MAX' MARKS ON OIL LEVEL INDICATOR IS EQUIVALENT TO 1.4L (1.5qt)

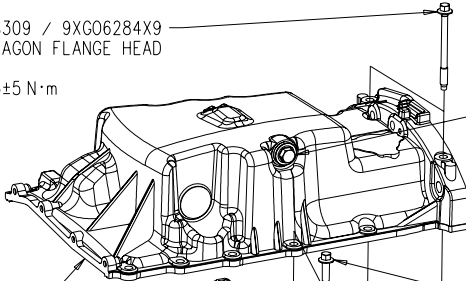
#### NOTES

- 1.No sticking of stain, dust, etc is allowed on oil pan sealing surface of cylinder block and oil pan.
- 2.If parts have scratch on seal face of oil pan assembly, which might give negative effect on sealability, those have to be replaced with good part.

RESTRICTIONS					PART NAME/TITLE			
					OIL PAN & OIL FILL QUANTITIES			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.3L-4V NON DI RANGER	30-B	30-D		

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

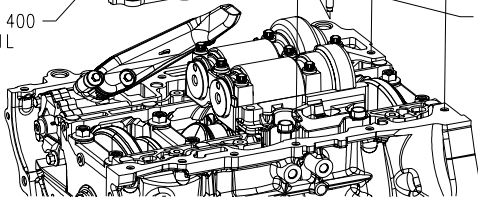
W706284-S309 / 9XG06284X9  
SCREW-HEXAGON FLANGE HEAD  
2 PLACES  
TORQUE 25±5 N·m



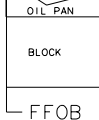
REF: ONLY  
-6730- / 10 404  
PLG-OIL PAN DRN  
TORQUE 27.5±2.5 N·m

-6675-/10 400  
PAN ASY-OIL

W500224-S309 / 9XF00224X9  
SCREW-HEXAGON FLANGE HEAD  
11 PLACES  
TORQUE 25±5 N·m



OIL PAN TO FLUSH ±0.05mm



FASTENING PROCEDURE (SINGLE SPINDLE METHOD).

### OIL FILL QUANTITIES

TOTAL FACTORY OIL FILL (DRY ENGINE) = 4.6 ± 0.05 L  
(WITHOUT OIL COOLER)

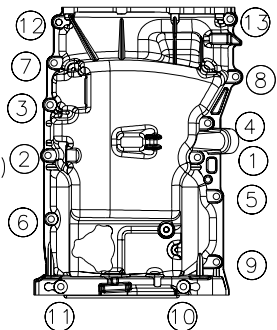
SERVICE FILL (INCLUDING FILTER CHANGE) = 4.3L (4.5qt)

SERVICE FILL (EXCLUDING FILTER CHANGE) = 3.9L (4.1qt)

NOTE: DIFFERENCE BETWEEN 'MIN' & 'MAX' MARKS ON OIL LEVEL INDICATOR IS EQUIVALENT TO 0.75L (0.8qt)

#### NOTES

- 1.No sticking of stain, dust, etc is allowed on oil pan sealing surface of cylinder block and oil pan.
- 2.If parts have scratch on seal face of oil pan assembly, which might give negative effect on sealability, those have to be replaced with good part.



RESTRICTIONS


PART NAME/TITLE



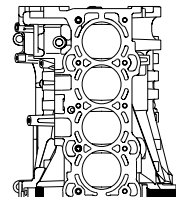
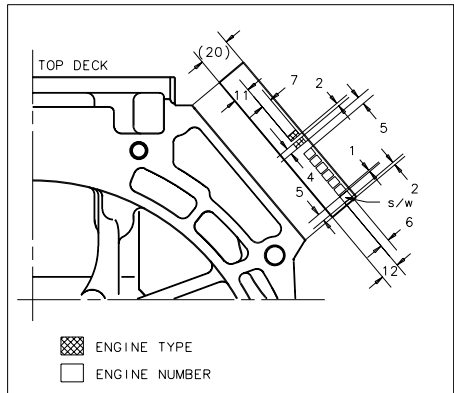

OIL PAN & OIL FILL QUANTITIES

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AA	EN00E11087761000	00-11-17	2003 2.3L-4V NON DI U204	30-D	30-E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

### ENGINE NUMBER STAMPING POSITION

 REGARDING THE STAMPING PROCEDURE, PLEASE REFER TO THE \*STAMP CONTROL MANUAL  
 : MBSMB-M750050\* AND THE \*NUMBERING OPERATION MANUAL  
 : MBSMB-M750030\*

	ENGINE TYPE MARKING	L8 TYPE (0.0018 m3) LF TYPE (0.002 m3) L3 TYPE (0.0023 m3)
	SPEC OF ENGRAVING	CONFORM TO MES W7102-1003.
	LOCATION OF MARKING	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>FRONT</p>  <p>REAR</p> </div> <div style="text-align: center;"> <p>DETAIL</p>  </div> </div> <p>  ENGINE TYPE &amp; NUMBER STAMPING POSITION         </p>
<p>UNIQUE TO MAZDA ONLY. ENGINE SHALL BE MARKED ENGINE TYPE &amp; NUMBER BEFORE SHIPPING. (ONE EXAMPLE.)</p>		



RESTRICTIONS

 PART NAME/TITLE  
**ENGINE NUMBER STAMPING POSITION**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AL	EN00 E 11204632 000	01-05-08	2001 2.0L-4V NON DI CD132	30-E	31

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>H</b>	RELEASE NO. <b>EN00E11007392000</b>	DATE <b>99-09-06</b>	MODEL <b>2001 2.0L-4V NON DI</b>	SHEET <b>31</b>	CONTD. <b>31-D</b>
--	-----------------	--	-------------------------	-------------------------------------	--------------------	-----------------------

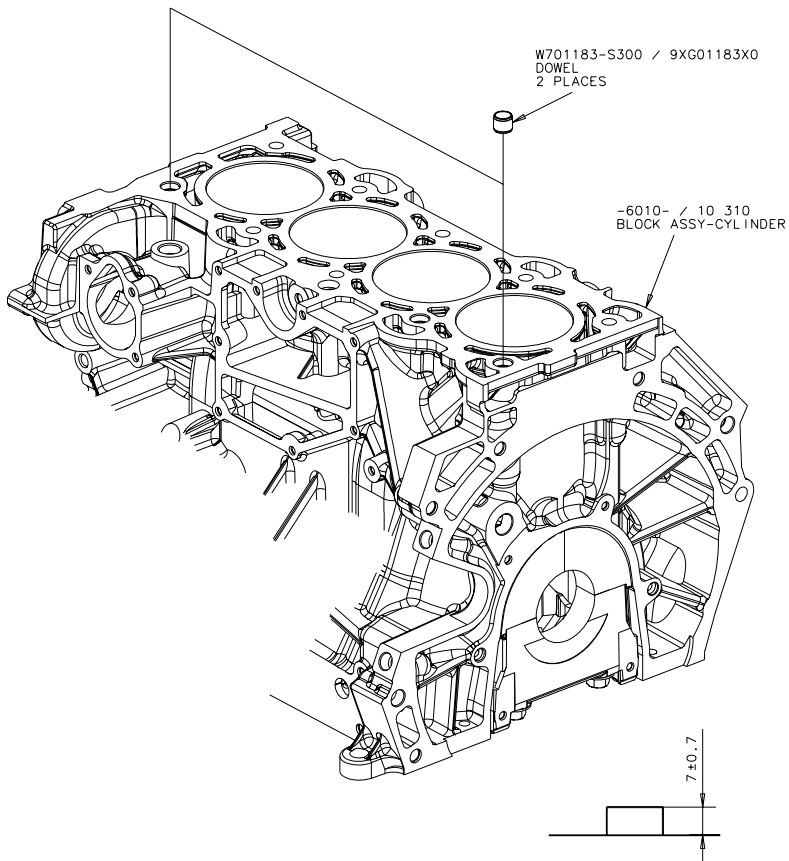


**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI			PART NAME/TITLE			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>H</b>	RELEASE NO. <b>EN00E11007392000</b>	DATE <b>99-09-06</b>	MODEL <b>2003 2.8L-4V NON DI RANGER</b>	SHEET <b>31-D</b>	CONTD. <b>32</b>

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

## PART NAME/TITLE

**DOWEL ASY-CYLINDER BLOCK**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BD	EN00 E 11271059 000	01-11-02	2001 2.0L-4V NON DI CD132	32	32-D

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

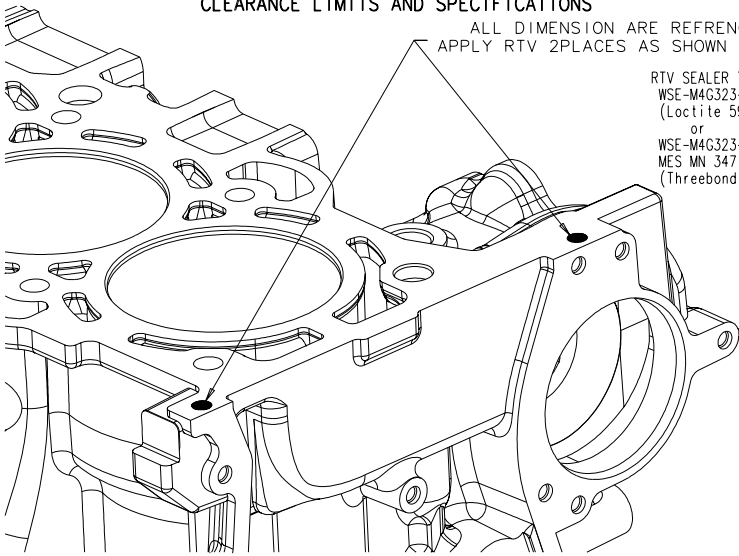
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL 2003 2.8L-4V NON DI RANGER	SHEET <b>32-D</b>	CONTD. <b>33</b>
--	-----------------	--	-------------------------	-------------------------------------	----------------------	---------------------



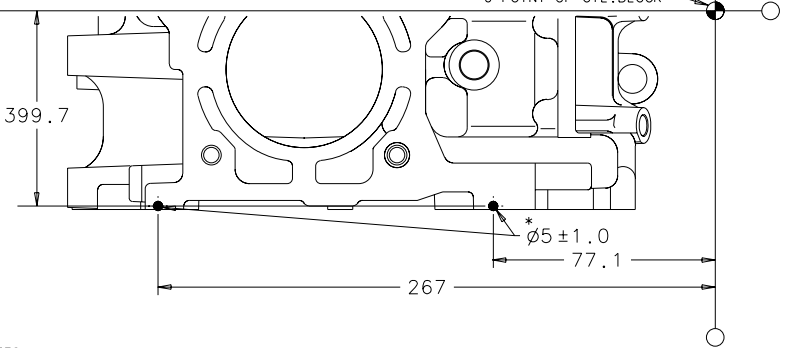
ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
 CLEARANCE LIMITS AND SPECIFICATIONS

ALL DIMENSION ARE REFERENCE.  
 APPLY RTV 2PLACES AS SHOWN BELOW.

RTV SEALER TO SPEC:  
 WSE-M4G323-A6  
 (Loctite 5900)  
 or  
 WSE-M4G323-A8  
 MES MN 347  
 (Threebond TB1217D)



0 POINT OF CYL. BLOCK



NOTES

1. After applying RTV, complete assembling front cover and cylinder head within 10 min and then complete tightening all bolts within further 5 min. (within 15 min in total.)

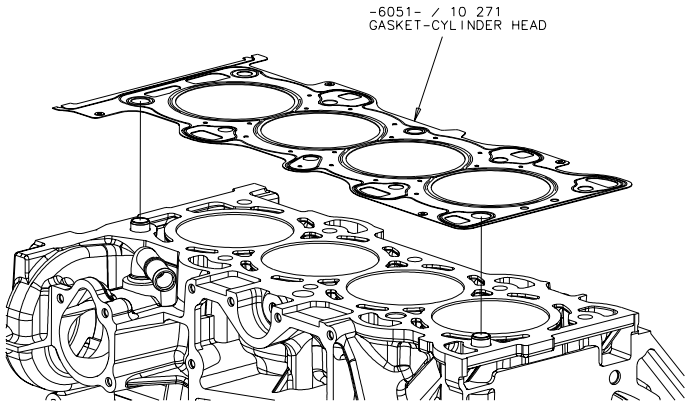
RESTRICTIONS

PART NAME/TITLE

RTV SEALER - CYL HEAD GASKET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2001 2.0L-4V NON D1 CD132	33	34

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1.8L Non-DI			○
1.8L DI		○	○
2.0L+2.3L		○	
2.4L	○	○	
2.8L	○		

CAUTION: DO NOT RE-USE GASKET

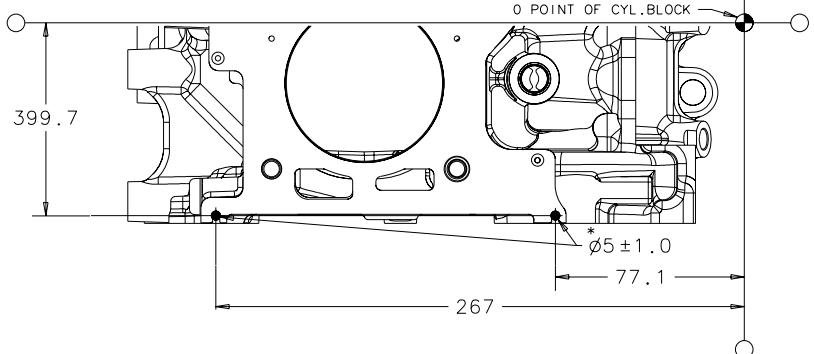
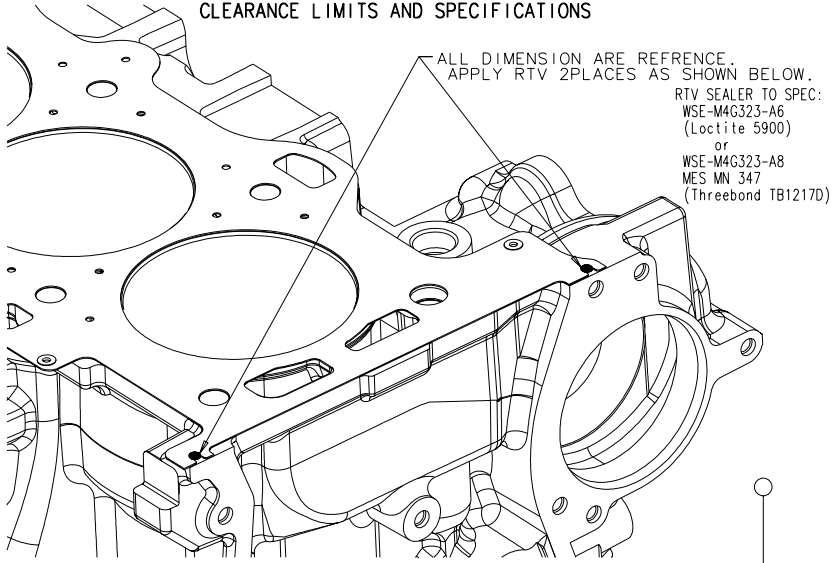
RESTRICTIONS

PART NAME/TITLE

**GASKET-CYLINDER HEAD**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
<b>C1S7G-543-AC</b>	<b>BG</b>	<b>EN0011282537000</b>	<b>01-11-09</b>	<b>2001 2.0L-4V NON DI CD132</b>	<b>34</b>	<b>34-A</b>

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



NOTES

1. After applying RTV, complete assembling front cover and cylinder head within 10 min and then complete tightening all bolts within further 5 min. (within 15 min in total.)

RESTRICTIONS

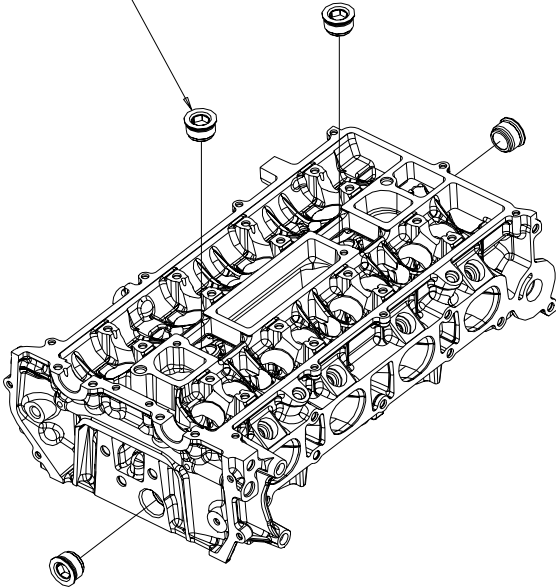
PART NAME/TITLE

RTV SEALER - CYL HEAD GASKET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2001 2.0L-4V NON D1 CD132	34-A	35

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-W701441- / 9XG01441X0  
 PLUG INT HEX  
 4 PLACES FOR ALL 14  
 5 PLACES FOR 15  
 TORQUE 75±5 Nm  
 USING WSK-M2G349-A7  
 SEALER(LOCTITE 243 OR 962T)



## RESTRICTIONS

 PART NAME/TITLE  
**PLUG-CYLINDER HEAD**

 SPECIFICATION NO.  
**C157G-543-AC**

 REV  
**AP**

 RELEASE NO.  
**EN00E11189361000**

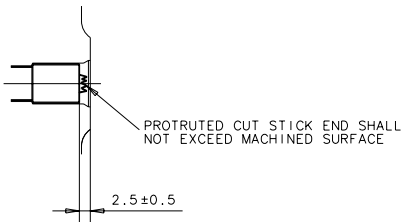
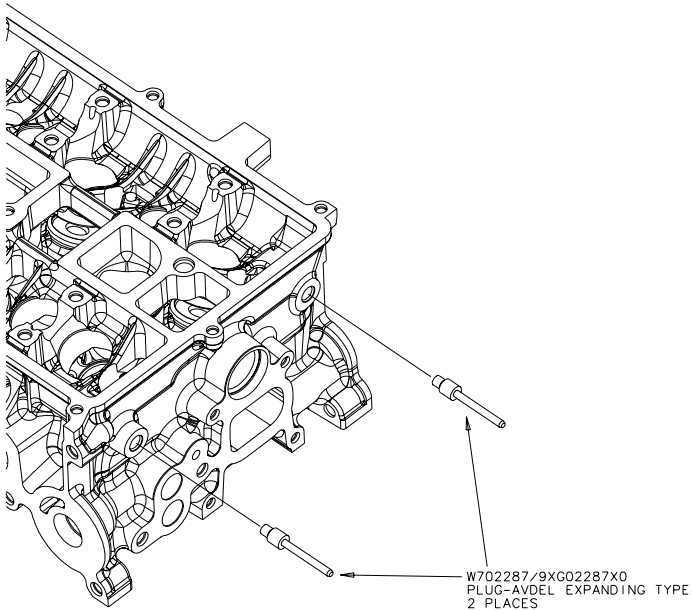
 DATE  
**01-06-22**

 MODEL  
**2001 2.0L-4V NON D1 CD132**

 SHEET  
**35**

 CONTD.  
**36**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

PART NAME/TITLE  
**PLUG-AVDEL**

SPECIFICATION NO.  
**C157G-543-AC**

REV  
**C**

RELEASE NO.  
**EN00110819645017**

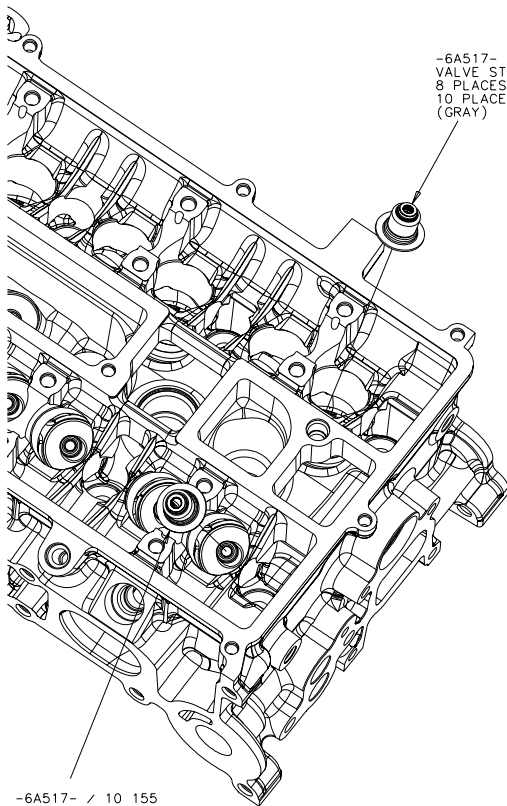
DATE  
**99-02-25**

MODEL  
**2001 2.0L-4V NON DI CD132**

SHEET  
**36**

CONTD.  
**37**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



-6A517- / 10 1F5  
VALVE STEM SEAL-EXHAUST  
8 PLACES FOR ALL 14  
10 PLACES FOR 15  
(GRAY)

-6A517- / 10 155  
VALVE STEM SEAL-INTAKE  
8 PLACES FOR ALL 14  
10 PLACES FOR 15  
(GREEN)

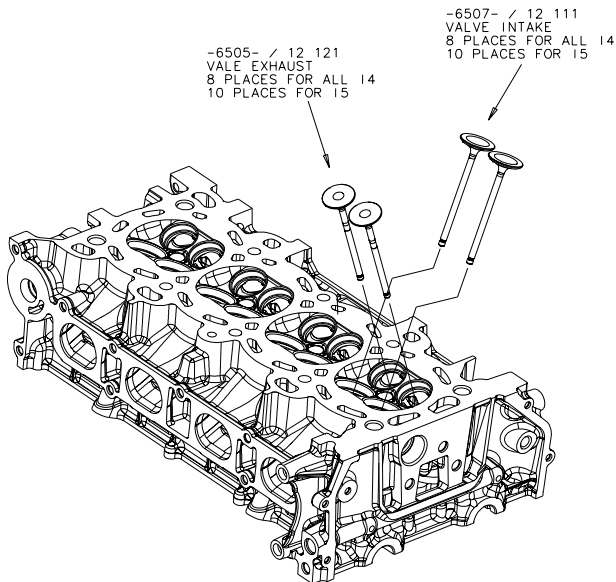
## RESTRICTIONS

PART NAME/TITLE

## VALVE STEM OIL SEALS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C157G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD 132	37	38

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



BEFORE ATTACHING VALVE, APPLY EQUIVALENT OF FACTORY FILL ENGINE OIL TO THE STEM 40mm MAX FROM THE STEM-END.  
OIL MUST BE APPLIED ON KEY GROOVE.

RESTRICTIONS				PART NAME/TITLE				
SPECIFICATION NO.	REV	RELEASE NO.	DATE	<b>INTAKE &amp; EXHAUST VALVES</b>		MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132		38	39	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

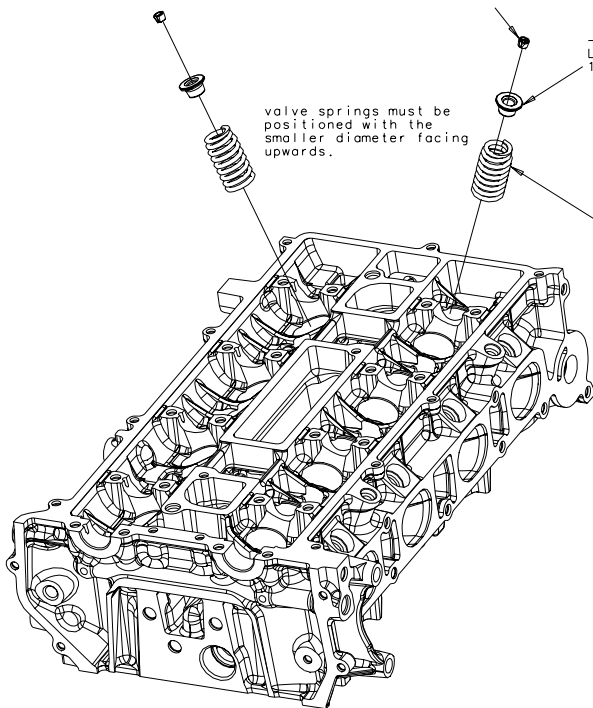
### CLEARANCE LIMITS AND SPECIFICATIONS

-6518- / 12 114  
LOCK VALVE SPRING RETAINER  
32 PLACES

-6514- / 12 113  
LOCK VALVE SPRING  
16 PLACES

valve springs must be  
positioned with the  
smaller diameter facing  
upwards.

-6513- / 12 125  
VALVE SPRING  
16 PLACES



#### AIR LEAKAGE TEST (DRY CONDITION)

AIR PRESSURE TO BE LOADED ON INTAKE AND EXHAUST PORT IN AIR-TIGHT TEST: 14.7 KPa

TOLERABLE LEAKAGE FOR THE ENGINE OF CD132 AND RANGER

INTAKE PORT : WITHIN 50 cm<sup>3</sup> [normal]/min (PER ONE PORT)

EXHAUST PORT : WITHIN 100 cm<sup>3</sup> [normal]/min (PER ONE PORT)

TOLERABLE LEAKAGE FOR THE OTHER ENGINE

INTAKE & EXHAUST PORT : WITHIN 15 cm<sup>3</sup> [normal]/min (PER ONE PORT)

#### RESTRICTIONS

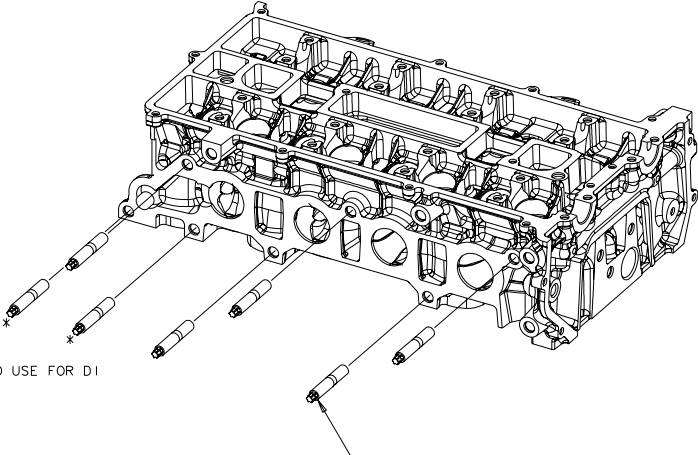
PART NAME/TITLE

#### VALVE SPRINGS & RETAINERS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BC	EN00E11185527000	01-10-30	2001 2.0L-4V NON DI CD132	39	40



ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



\* NO USE FOR DI

-W704474- / 9XG044474  
STUD M10  
5 PLACES FOR DI  
7 PLACES FOR OTHER I4  
TORQUE 17±2 Nm

NOTE :

STUDS MAY BE ASSEMBLED ON MAIN ENGINE LINE

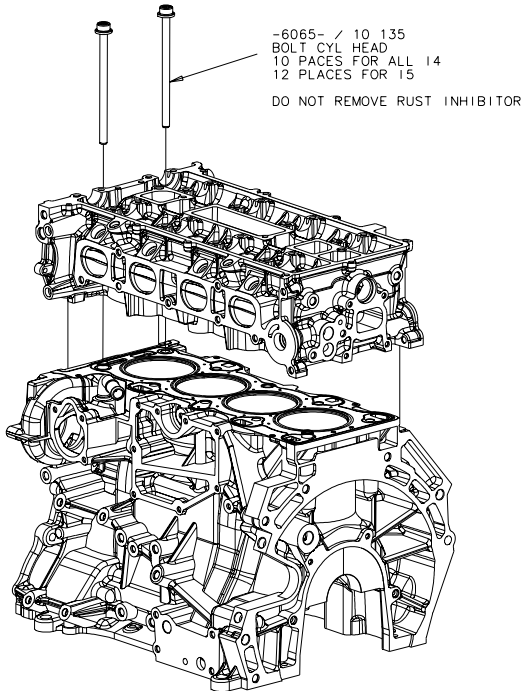
RESTRICTIONS

PART NAME/TITLE

**STUDS-EXHAUST MANIFOLD**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2001 2.0L-4V NON DI CD132	40	41

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



FOR CYLINDER HEAD  
 BOLT ASSEMBLY PROCEDURE  
 SEE PROCEDURE - CYLINDER HEAD BOLTS

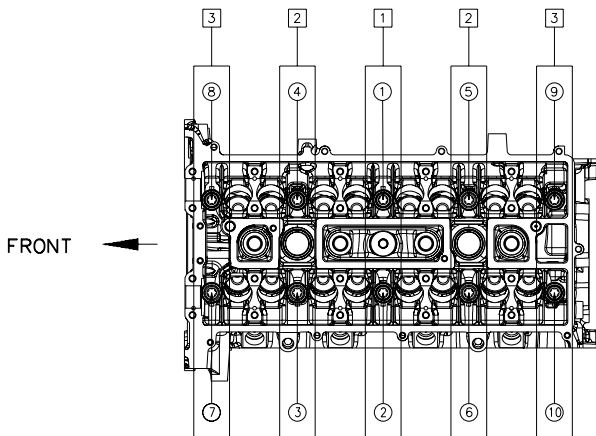
## RESTRICTIONS

PART NAME/TITLE

## CYLINDER HEAD &amp; BOLTS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	D	EN00E10967761000	'99-04-28	2001 2.0L-4V NON D1 CD132	41	42

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



**MULTI-SPINDLE METHOD.**

1. RUNDOWN ALL BOLTS SIMULTANEOUSLY TO 5 Nm.
2. RUNDOWN ALL BOLTS SIMULTANEOUSLY 15±2 Nm.
3. RUNDOWN ALL BOLTS TO 45±1 Nm.
- TIGHTNING SEQUENCE AS SHOWN IN THE SKETCH ABOVE. ①~③
4. TURN ALL BOLTS SIMULTANEOUSLY 180°±4°.

**SINGLE WRENCH METHOD.**

1. RUNDOWN ALL BOLTS TO 5 Nm.
2. RUNDOWN ALL BOLTS TO 15±2 Nm.
3. RUNDOWN ALL BOLTS TO 45±1 Nm.
4. TURN ALL BOLTS 90°±2°.
5. TURN ALL BOLTS 90°±2°.
- TIGHTNING SEQUENCE AS SHOWN IN THE SKETCH ABOVE. ①~⑩

RESTRICTIONS				PART NAME/TITLE <b>PROSEDURE - CYLINDER HEAD BOLTS</b>			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>E</b>	RELEASE NO. <b>EN00E10986253000</b>	DATE <b>*99-06-30</b>	MODEL <b>2001 2.0L-4V NON DI CD132</b>	SHEET <b>42</b>	CONTD. <b>42-D</b>	

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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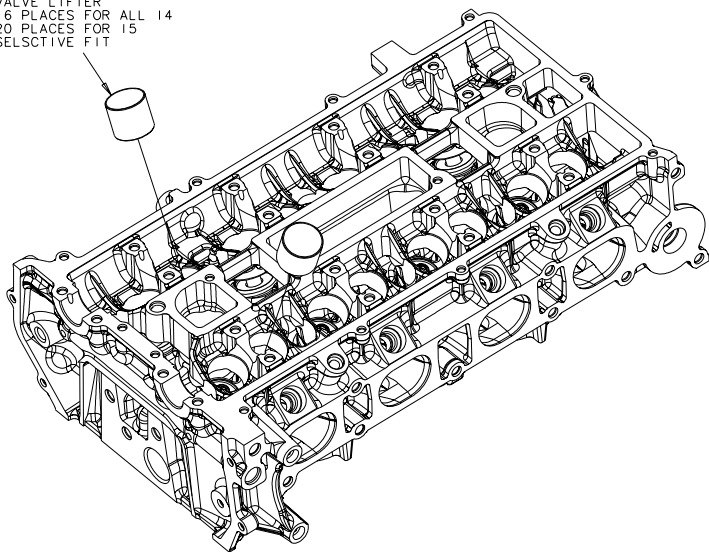
RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL <b>2003 2.8L-4V NON DI RANGER</b>	SHEET <b>42-D</b>	CONTD. <b>43</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-6500- / 12 551  
VALVE LIFTER  
16 PLACES FOR ALL 14  
20 PLACES FOR 15  
SELECTIVE FIT



NOTE: LUBRICATE VALVE LIFTER BORE WITH FACTORY FILL ENGINE OIL  
BEFORE ASSEMBLY OF VALVE LIFTER

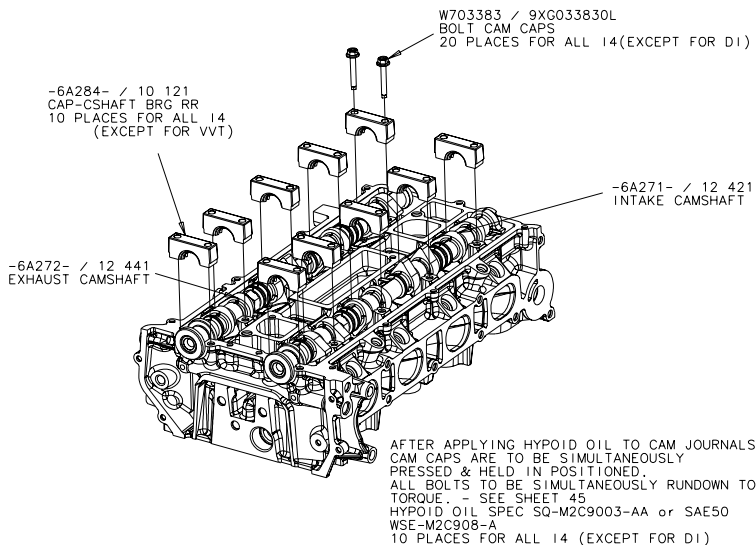
VALVE LIFTERS ARE SELECTED TO GIVE VALVE CLEARANCE OF  
0.25±0.03 INTAKE  
0.30±0.03 EXHAUST  
(AFTER TIGHTENING HEAD BOLT)

## RESTRICTIONS

 PART NAME/TITLE  
**VALVE LIFTERS**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	D	EN00E10967761000	'99-04-28	2001 2.0L-4V NON D1 CD132	43	44

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE "INTAKE CAMSHAFT" AND  
"EXHAUST CAMSHAFT" WITH #1 CYLINDER COMPRESSION TOP DEAD CENTER.

CAMSHAFT THRUST CLEARANCE 0.09-0.24 (INFORMATION ONLY)

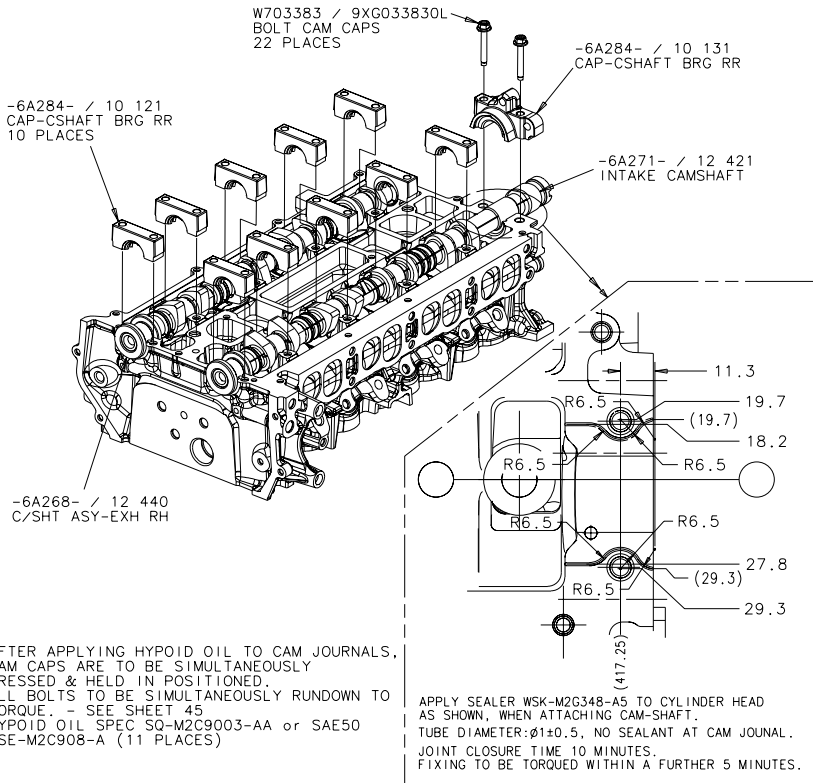
**CAUTION:**

SET PISTON ON #1 CYLINDER COMPRESSION TOP DEAD CENTER  
TO AVOID ANY POSSIBILITY OF PISTON INTERFERING WITH VALVES.

RESTRICTIONS				PART NAME/TITLE			
				<b>CAM SHAFT &amp; CAM CAP</b>			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2001 2.0L-4V NON D1 CD132	44	44-C	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE \*INTAKE CAMSHAFT\* AND \*EXHAUST CAMSHAFT\* WITH #1 CYLINDER COMPRESSION TOP DEAD CENTER.

CAMSHAFT THRUST CLEARANCE 0.09-0.24 (INFORMATION ONLY)

#### CAUTION:

SET PISTON ON #1 CYLINDER COMPRESSION TOP DEAD CENTER TO AVOID ANY POSSIBILITY OF PISTON INTERFERING WITH VALVES.

#### RESTRICTIONS

PART NAME/TITLE

**CAM SHAFT & CAM CAP**

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**AU**

RELEASE NO.  
**EN00E11212646000**

DATE  
**01-08-07**

MODEL  
**2003,5 1.8L-4V DI CD132**

SHEET  
**44-C**

CONTD.  
**44-D**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W703383 / 9XG033830L  
BOLT CAM CAPS  
20 PLACES

-6A267- / 12 420  
C/SHT ASY-INTK LH

(1S7G)  
-6A284- / 10 121  
CAP-CSHAFT BRG RR  
9 PLACES FOR INTAKE VVT

(3M4G)  
-6A284- / 10 140  
CAP-CSHAFT BRG RR

-6A272- / 12 441  
EXHAUST CAMSHAFT

AFTER APPLYING HYPOID OIL TO CAM JOURNALS,  
CAM CAPS ARE TO BE SIMULTANEOUSLY  
PRESSED & HELD IN POSITIONED.  
ALL BOLTS TO BE SIMULTANEOUSLY RUNDOWN TO  
TORQUE. - SEE SHEET 45  
HYPOID OIL SPEC SQ-M2C9003-AA or SAE50  
WSE-M2C908-A (10 PLACES)

ASSEMBLE THE \*INTAKE CAMSHAFT\* AND  
\*EXHAUST CAMSHAFT\* WITH #1 CYLINDER COMPRESSION TOP DEAD CENTER.

CAMSHAFT THRUST CLEARANCE 0.09-0.24 (INFORMATION ONLY)

### CAUTION:

SET PISTON ON #1 CYLINDER COMPRESSION TOP DEAD CENTER  
TO AVOID ANY POSSIBILITY OF PISTON INTERFERING WITH VALVES.

### RESTRICTIONS

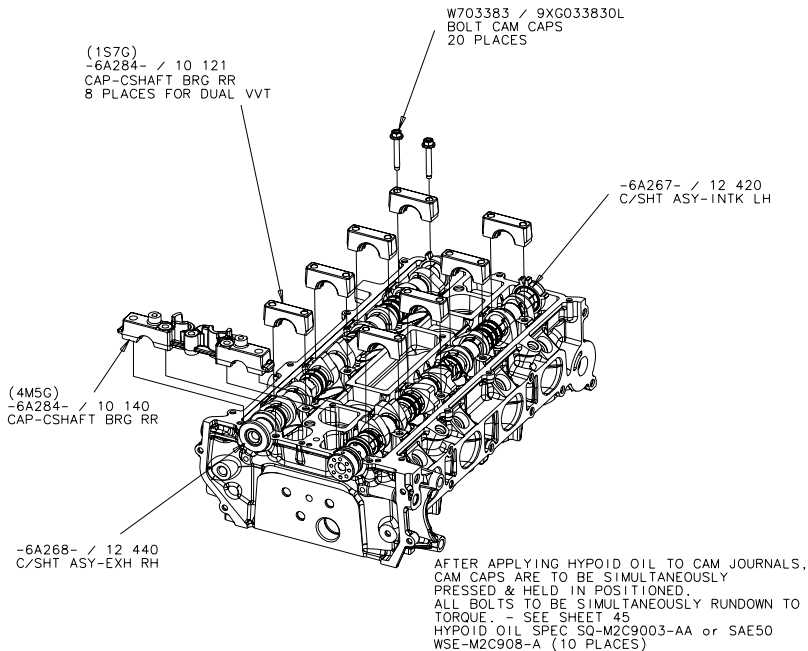
PART NAME/TITLE

**CAM SHAFT & CAM CAP**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2003 2.3L 4V NON DI S-VVT	44-D	44-E



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE \*INTAKE CAMSHAFT\* AND  
\*EXHAUST CAMSHAFT\* WITH #1 CYLINDER COMPRESSION TOP DEAD CENTER.

CAMSHAFT THRUST CLEARANCE 0.09-0.24 (INFORMATION ONLY)

**CAUTION:**

SET PISTON ON #1 CYLINDER COMPRESSION TOP DEAD CENTER  
TO AVOID ANY POSSIBILITY OF PISTON INTERFERING WITH VALVES.

RESTRICTIONS				PART NAME/TITLE			
				CAM SHAFT & CAM CAP			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2003 2.3L-4V NON DI D-VVT	44-E	44-F	

CONFIDENTIAL



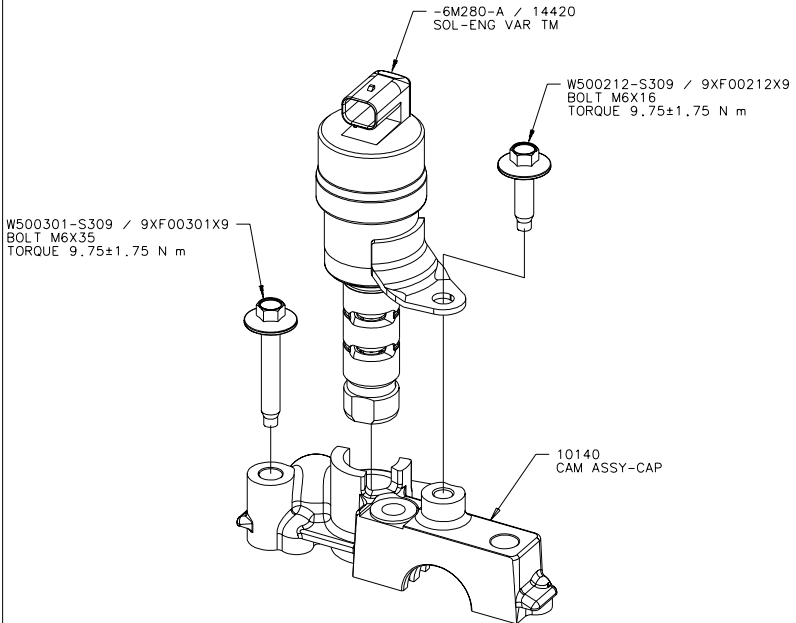
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**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO. C1S7G-543-AC	REV BN	RELEASE NO. EN00E11293320000	DATE 01-12-24	MODEL 2004 2.0L-4V DI D-VVT	SHEET 44-F	CONTD. 44-G	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

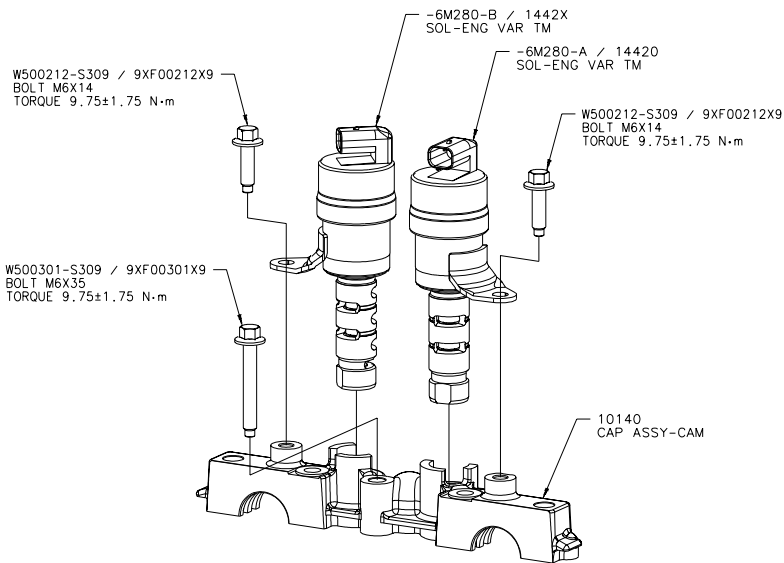


1. TIGHTEN THE "BOLT M6X35".
2. ASSEMBLE THE "SOL-ENG VAR TM".
3. TIGHTEN THE "BOLT M6X14".

RESTRICTIONS

PART NAME/TITLE  
SOL-ENG VAR TMSPECIFICATION NO.  
C1S7G-543-ACREV  
AHRELEASE NO.  
EN00E11190272000DATE  
01-03-28MODEL  
2003 2.3L-4V NON DISHEET  
44-GCONTD.  
44-H

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1. TIGHTEN THE "BOLT M6X35".
2. ASSEMBLE THE "SOL-ENG VAR TM".
3. TIGHTEN THE "BOLT M6X14".

RESTRICTIONS

PART NAME/TITLE

**SOL-ENG VAR TM**

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**AH**

RELEASE NO.  
**EN00E11190272000**

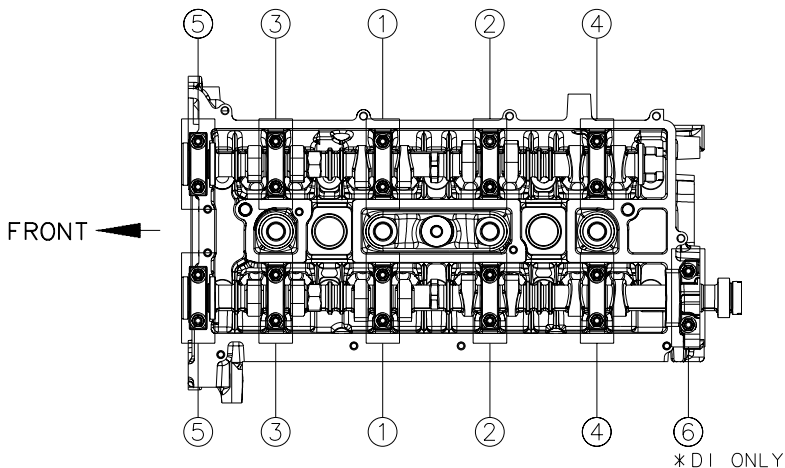
DATE  
**01-03-28**

MODEL  
**2003 2.3L-4V NON DI**

SHEET  
**44-H**

CONTD.  
**45**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### MULTI-SPINDLE METHOD.

1. RUNDOWN ALL BOLTS SIMULTANEOUSLY TO  $7 \pm 2$  Nm.
2. RUNDOWN ALL BOLTS SIMULTANEOUSLY TO  $15.5 \pm 1.5$  Nm.

### SINGLE WRENCH METHOD.

FOLLOW THE SAME RUNDOWN STEPS AS MULTI-SPINDLE METHOD,  
BUT FOLLOW THE CAP SEQUENCE INDICATED IN THE SKETCH ABOVE.

RESTRICTIONS				PART NAME/TITLE			
				<b>PROCEDURE - CAMCAP BOLT</b>			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	45	45-D	

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

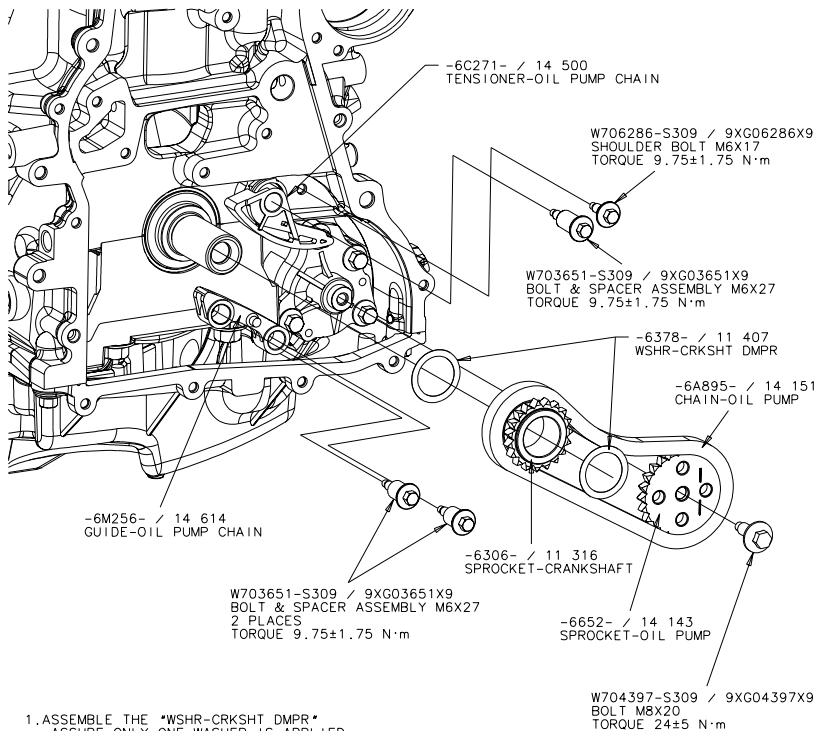
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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL 2003 2.8L-4V NON DI RANGER	SHEET <b>45-D</b>	CONTD. <b>46</b>
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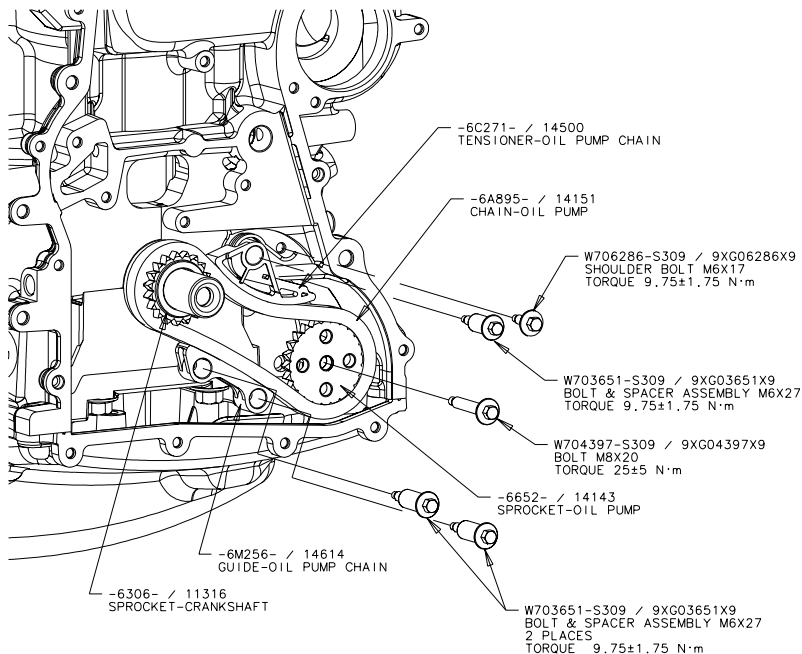
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1. ASSEMBLE THE \*WSHR-CRKSHT DMPR\*  
-ASSURE ONLY ONE WASHER IS APPLIED.  
-DO NOT USE BENDED WASHER.  
-DO NOT REUSE WASHER.  
-WASHER CAN BE USED IN BOTH SIDES.
2. ASSEMBLE THE \*CHAIN-OIL PUMP\*, \*SPROCKET-CRANKSHAFT\* AND \*SPROCKET-OIL PUMP\* AT THE SAME TIME.
3. TIGHTEN THE BOLT-OIL PUMP SPROCKET(W704397-S309)
4. ASSEMBLE THE \*GUIDE-OIL PUMP CHAIN\* AND TIGHTEN THE BOLT
5. TIGHTEN THE \*SHOULDER BOLT M6X17\*.
6. ASSEMBLE THE \*TENSIONER-OIL PUMP CHAIN\* AND TIGHTEN THE BOLT.
7. ASSEMBLE THE \*WSHR-CRKSHT DMPR\*  
-ASSURE ONLY ONE WASHER IS APPLIED.  
-DO NOT USE BENDED WASHER.  
-DO NOT REUSE WASHER.  
-WASHER CAN BE USED IN BOTH SIDES.

RESTRICTIONS					PART NAME/TITLE				
					CHAIN-AUX OIL PUMP / SPROCKET-AUX OIL PUMP DRV				
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.			
C1S7G-543-AC	AX	EN00 E 11183682 001	01-09-27	2001 2.0L-4V NON DI CD132	46	46-A			

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1. ASSEMBLE THE "CHAIN-OIL PUMP", "SPROCKET-CRANKSHAFT" AND "SPROCKET-OIL PUMP" AT THE SAME TIME.
2. TIGHTEN THE BOLT-OIL PUMP SPROCKET(W704397-S309)
3. ASSEMBLE THE "GUIDE-OIL PUMP CHAIN" AND TIGHTEN THE BOLT
4. TIGHTEN THE "SHOULDER BOLT M6X17".
5. ASSEMBLE THE "TENSIONER-OIL PUMP CHAIN" AND TIGHTEN THE BOLT.

## RESTRICTIONS

PART NAME/TITLE

CHAIN-AUX OIL PUMP / SPROCKET-AUX OIL PUMP DRV

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AX	EN00 E11183682 001	01-09-27	2003 2.3L-4V NON DI J56A/F	46-A	47



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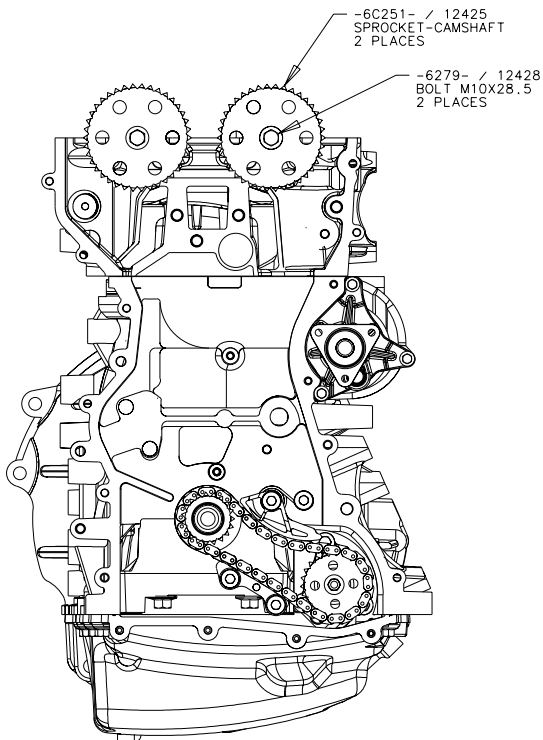
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**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
<b>C1S7G-543-AC</b>	<b>AH</b>	<b>EN00E11190272000</b>	<b>01-03-28</b>	<b>2003 2.3L-4V VVT / BS</b>	<b>46-E</b>	<b>47</b>	

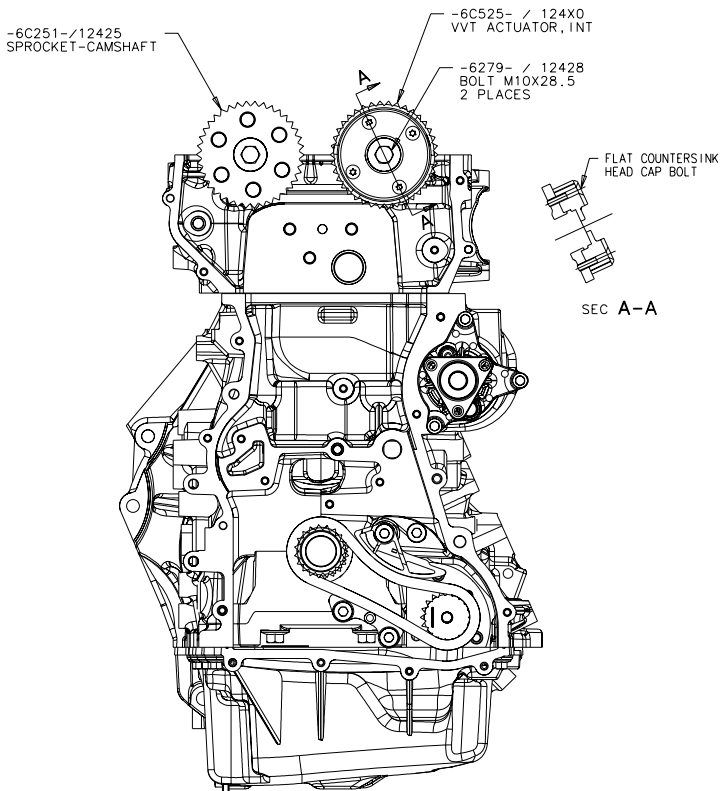
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



PUT \*SPROCKET-CAMSHAFT\* ON THE CAMSHAFTS.  
ASSEMBLE CAMSHAFT BOLT.

RESTRICTIONS				PART NAME/TITLE			
				SPROCKET-CAMSHAFT			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AW	EN00E11114191001	01-09-11	2001 2.0L-4V NON DI CD132	47	47-E	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



PUT \*SPROCKET-CAMSHAFT\* AND \*VVT ACTUATOR\* ON THE CAMSHAFTS.  
ASSEMBLE CAMSHAFT BOLT AND VVT BOLT.

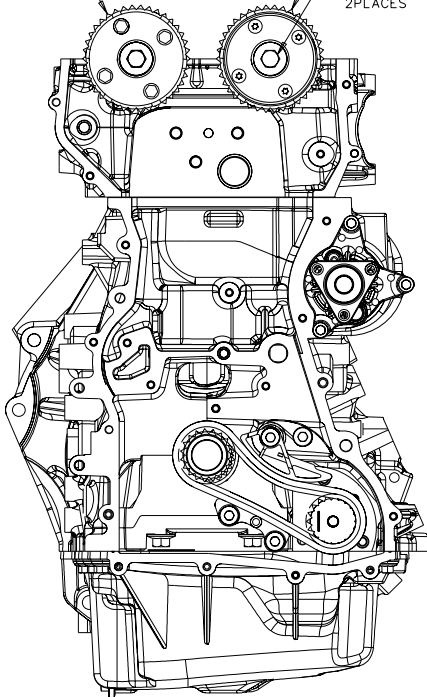
RESTRICTIONS				PART NAME/TITLE <b>SPROCKET-CAMSHAFT</b>			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>AW</b>	RELEASE NO. <b>EN00E11114191001</b>	DATE <b>01-09-11</b>	MODEL <b>2003 2.3L-4V NON D1</b>	SHEET <b>47-E</b>	CONTD. <b>47-F</b>	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-6C524- / 12350  
VVT ACTUATOR, EXH

-6C525- / 124X0  
VVT ACTUATOR, INT

-6279- / 12428  
BOLT M10X28.5  
2PLACES



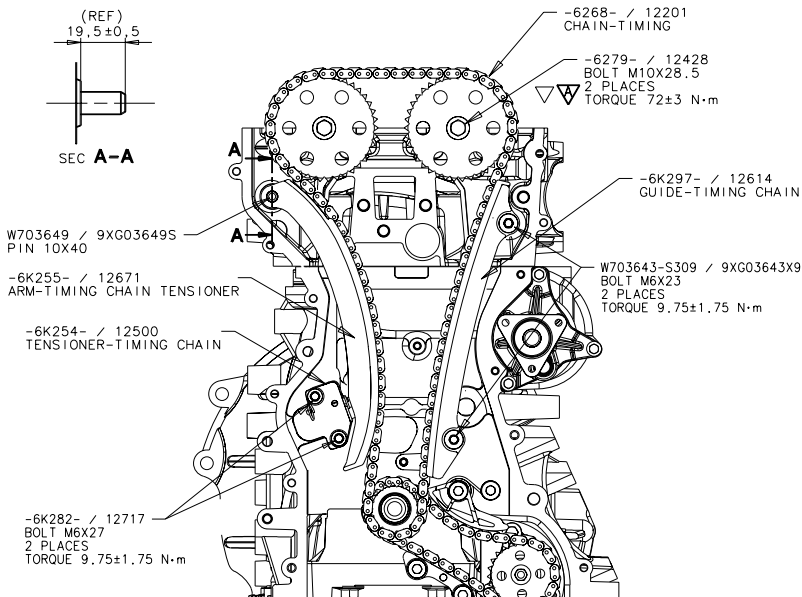
PUT \*SPROCKET-CAMSHAFT\* AND \*VVT ACTUATOR\* ON THE CAMSHAFTS.  
ASSEMBLE CAMSHAFT BOLT.

## RESTRICTIONS

PART NAME/TITLE  
**SPROCKET-CAMSHAFT**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AW	EN00E11114191001	01-09-11	2003 2.3L-4V NON DI	47-F	48

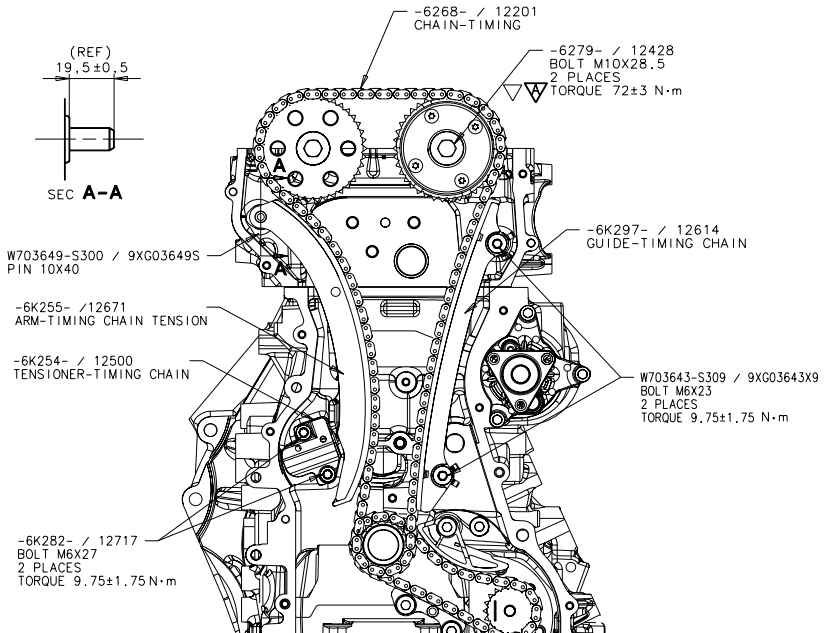
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1. ASSEMBLE THE CHAIN OVER \*SPROCKET-CAMSHAFT\* AND \*SPROCKET-CRANKSHAFT\* (NO TIMING MARK SPECIFIED).
2. ASSEMBLE THE \*GUIDE-TIMING CHAIN\* AND FASTEN TIGHTLY.
3. ASSEMBLE THE \*ARM-TIMING CHAIN TENSIONER\* IN THE PIVOT.  
ASSEMBLE \*TENSIONER-TIMING CHAIN\* AND TIGHTEN THE BOLTS.
4. PULL THE PIN OF \*TENSIONER-TIMING CHAIN\*. THE CHAIN IS NOW IN TENSION.
5. ROTATE THE CAMSHAFTS BY HOLDING AT THE FLATS BETWEEN THE LOBES OF CYLINDER #1 AND CYLINDER #2 SO THAT THE SLOTS ON THE BACK END OF THE TWO CAM SHAFTS LINE UP.
6. INSERT SPECIAL TOOL IN THE BACK END SLOTS OF CAMSHAFTS TO SET THEM IN THE RIGHT POSITION.
7. HOLD THE \*SPROCKET-CAMSHAFT\* AND TIGHTEN THE CAM SPROCKET BOLTS.  
CAUTION; DO NOT GIVE ROTATIONAL TORQUE TO THE SPECIAL TOOL THROUGH THE BACK END SLOTS OF CAMSHAFT.

RESTRICTIONS				PART NAME/TITLE			
				<b>CHAIN-TIMING / GUIDE-TIMING CHAIN</b>			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>AX</b>	RELEASE NO. <b>EN00E11183682001</b>	DATE <b>01-09-27</b>	MODEL <b>2001 2.0L-4V NON DI CD132</b>	SHEET <b>48</b>	CONTD. <b>48-E</b>	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1. ASSEMBLE THE CHAIN OVER \*SPROCKET-CAMSHAFT\*, \*VVT ACTUATOR\* AND \*SPROCKET-CRANKSHAFT\* (NO TIMING MARK SPECIFIED).
2. ASSEMBLE THE \*GUIDE-TIMING CHAIN\* AND FASTEN TIGHTLY.
3. ASSEMBLE THE \*ARM-TIMING CHAIN TENSIONER\* IN THE PIVOT.  
ASSEMBLE \*TENSIONER-TIMING CHAIN\* AND TIGHTEN THE BOLTS.
4. PULL THE PIN OF \*TENSIONER-TIMING CHAIN\*. THE CHAIN IS NOW IN TENSION.
5. ROTATE THE CAMSHAFTS BY HOLDING AT THE FLATS BETWEEN THE LOBES OF CYLINDER #1 AND CYLINDER #2 SO THAT THE SLOTS ON THE BACK END OF THE TWO CAM SHAFTS LINE UP.
6. INSERT SPECIAL TOOL IN THE BACK END SLOTS OF CAMSHAFTS TO SET THEM IN THE RIGHT POSITION.
7. HOLD THE \*SPROCKET-CAMSHAFT\* AND TIGHTEN THE CAM SPROCKET BOLTS.  
CAUTION; DO NOT GIVE ROTATIONAL TORQUE TO THE SPECIAL TOOL THROUGH THE BACK END SLOTS OF CAMSHAFT.

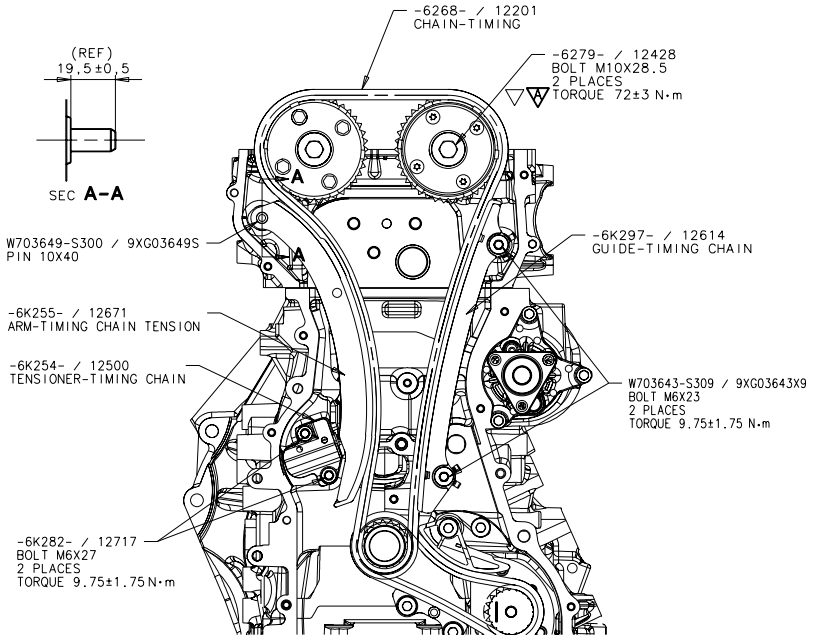
RESTRICTIONS

PART NAME/TITLE

CHAIN-TIMING / GUIDE-TIMING CHAIN

SPECIFICATION NO.  
C1S7G-543-ACREV  
AXRELEASE NO.  
EN00E11183682001DATE  
01-09-27MODEL  
2003 2.3L-4V NON DISHEET  
48-ECONTD.  
48-F

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



1. ASSEMBLE THE CHAIN OVER \*VVT ACTUATOR INT\*, \*VVT ACTUATOR EXH\* AND \*SPROCKET-CRANKSHAFT\* (NO TIMING MARK SPECIFIED).
2. ASSEMBLE THE \*GUIDE-TIMING CHAIN\* AND FASTEN TIGHTLY.
3. ASSEMBLE THE \*ARM-TIMING CHAIN TENSIONER\* IN THE PIVOT.  
ASSEMBLE \*TENSIONER-TIMING CHAIN\* AND TIGHTEN THE BOLTS.
4. PULL THE PIN OF \*TENSIONER-TIMING CHAIN\*. THE CHAIN IS NOW IN TENSION.
5. ROTATE THE CAMSHAFTS BY HOLDING AT THE FLATS BETWEEN THE LOBES OF CYLINDER #1 AND CYLINDER #2 SO THAT THE SLOTS ON THE BACK END OF THE TWO CAM SHAFTS LINE UP.
6. INSERT SPECIAL TOOL IN THE BACK END SLOTS OF CAMSHAFTS TO SET THEM IN THE RIGHT POSITION.
7. HOLD THE \*VVT ACTUATOR\* AND TIGHTEN THE VVT SPROCKET BOLTS.  
CAUTION; DO NOT GIVE ROTATIONAL TORQUE TO THE SPECIAL TOOL THROUGH THE BACK END SLOTS OF CAMSHAFT.

RESTRICTIONS

 PART NAME/TITLE  
**CHAIN-TIMING / GUIDE-TIMING CHAIN**

 SPECIFICATION NO.  
**C1S7G-543-AC**

 REV  
**AX**

 RELEASE NO.  
**EN00E11183682001**

 DATE  
**01-09-27**

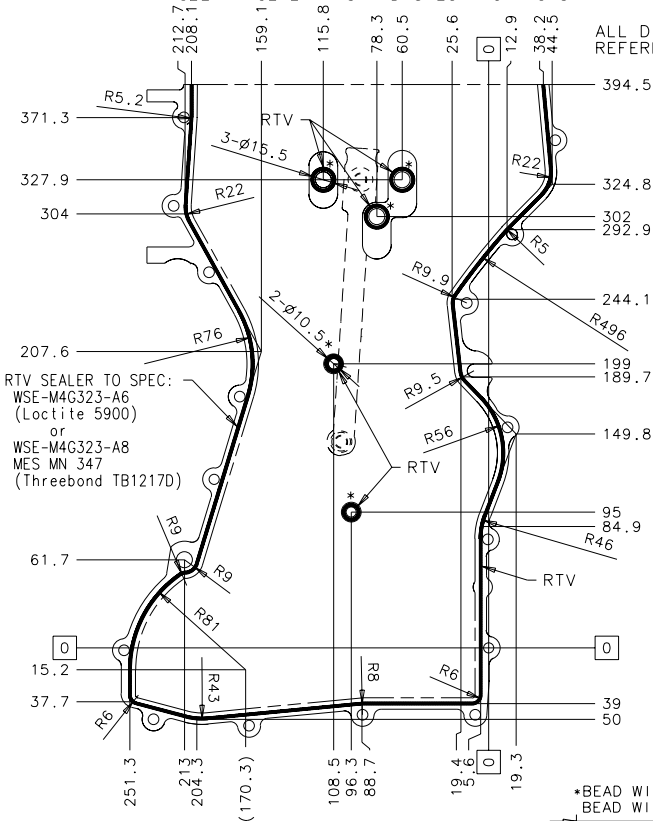
 MODEL  
**2003 2.3L-4V VVT / BS**

 SHEET  
**48-F**

 CONTD.  
**49-A**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

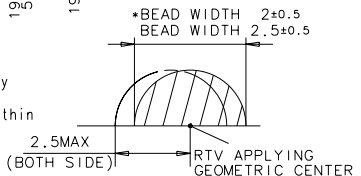
ALL DIMENSION ARE REFERENCE.



RTV SEALER TO SPEC:  
WSE-M4G323-A6  
(Loctite 5900)  
or  
WSE-M4G323-A8  
MES MN 347  
(Threebond TB1217D)

**NOTES**

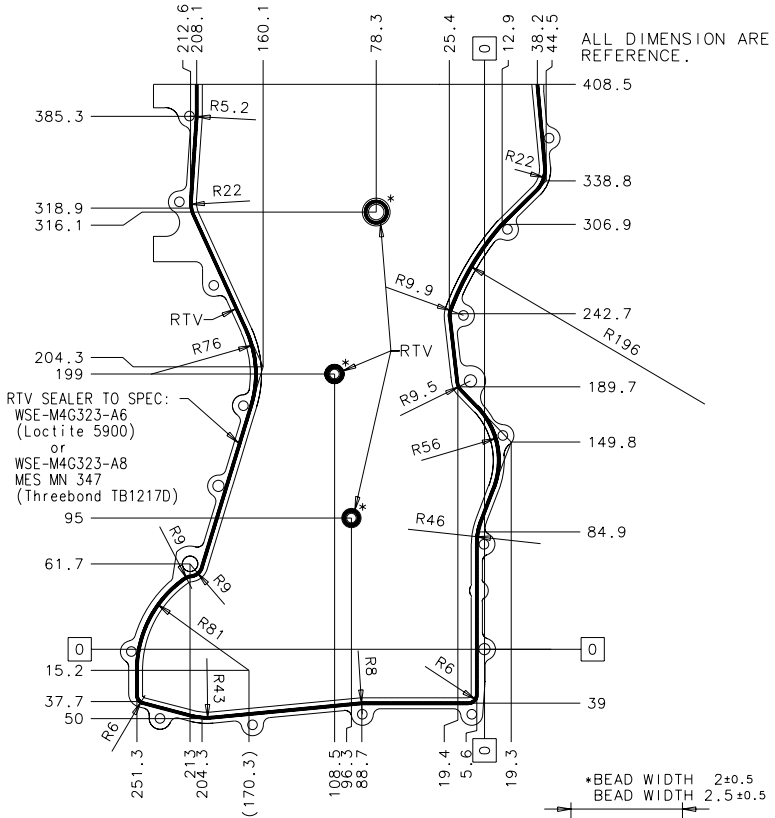
- 1.No sticking of stain, dust, etc is allowed on RTV apply surface of cylinder block.
- 2.After applying RTV, complete assembling Front cover within 10 min, and then complete tightening all bolts within further 5 min.(within 15 min in total.)



RESTRICTIONS				PART NAME/TITLE <b>RTV SEALER-FRONT COVER</b>			
SPECIFICATION NO. C1S7G-543-AC	REV BG	RELEASE NO. EN00E11282537000	DATE 01-11-09	MODEL 2001 2.0L-4V NON D1 CD132	SHEET 49-A	CONTD. 49-B	

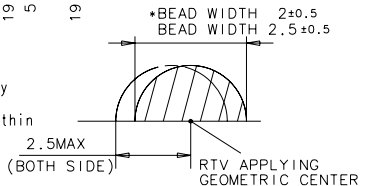


## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



**NOTES**

- 1.No sticking of stain, dust, etc is allowed on RTV apply surface of cylinder block.
- 2.After applying RTV, complete assembling Front cover within 10 min, and then complete tightening all bolts within further 5 min.(within 15 min in total.)

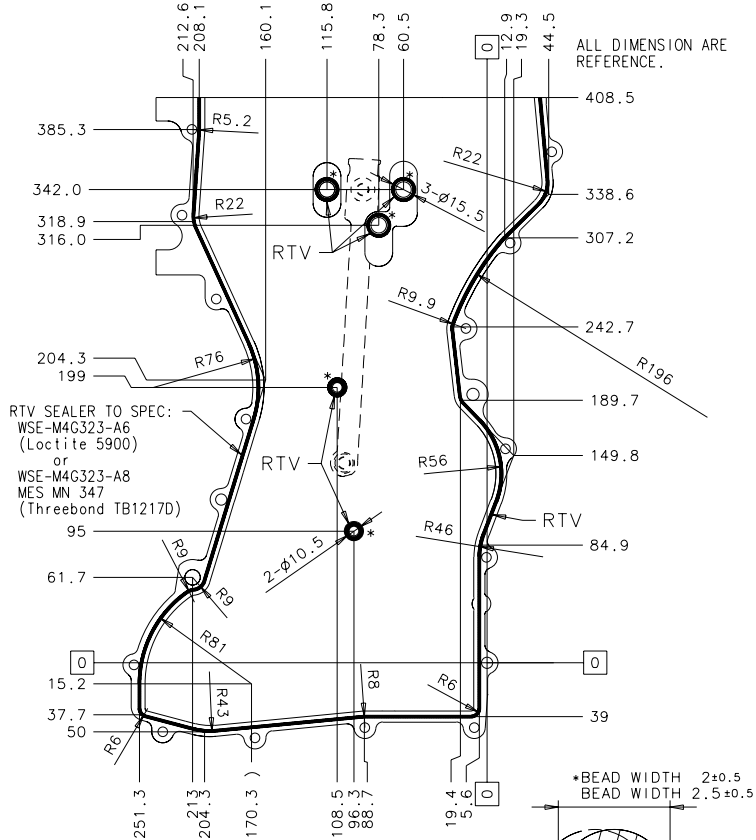


RESTRICTIONS				PART NAME/TITLE <b>RTV SEALER-FRONT COVER</b>				
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2001 2.3L-4V NON DI RANGER	49-B	49-E		



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS

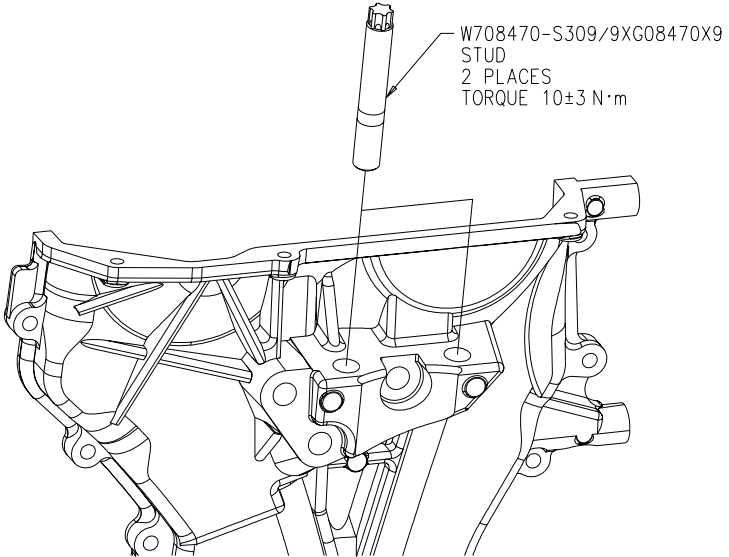


#### NOTES

- 1.No sticking of stain, dust, etc is allowed on RTV apply surface of cylinder block.
- 2.After applying RTV, complete assembling Front cover within 2.5MAX 10 min, and then complete tightening all bolts within further 5 min.(within 15 min in total.)

RESTRICTIONS					PART NAME/TITLE RTV SEALER-FRONT COVER		
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2002 2.3L-4V NON DI J56J	49-E	50	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE

STUD-ENGINE MOUNT

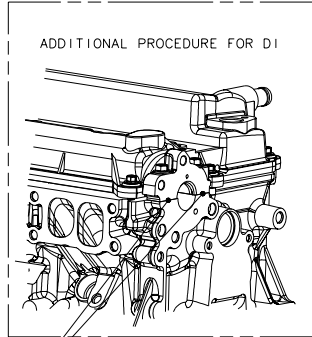
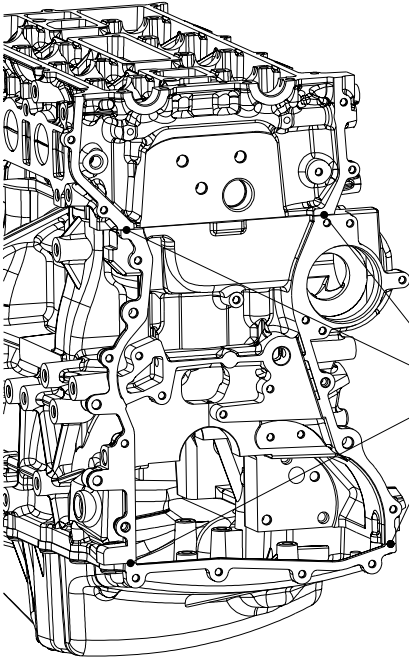
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2001 2.0L-4V NON DI CD132	50	50-A

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

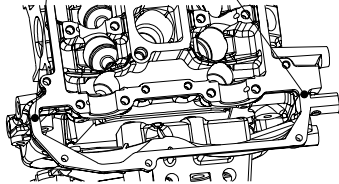
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RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO. C1S7G-543-AC	REV BG	RELEASE NO. EN00E11282537000	DATE 01-11-09	MODEL 2003 2.3L-4V Dual-VVT U204	SHEET 50-A	CONTD. 51	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



EXPOSED SURFACE :  
ENSURE THAT EXCESS RTV MATERIAL  
IS REMOVED FROM \*T-JOINT\*  
PRIOR TO SEALING THE JOINT LATER  
IN THE PROCESS.

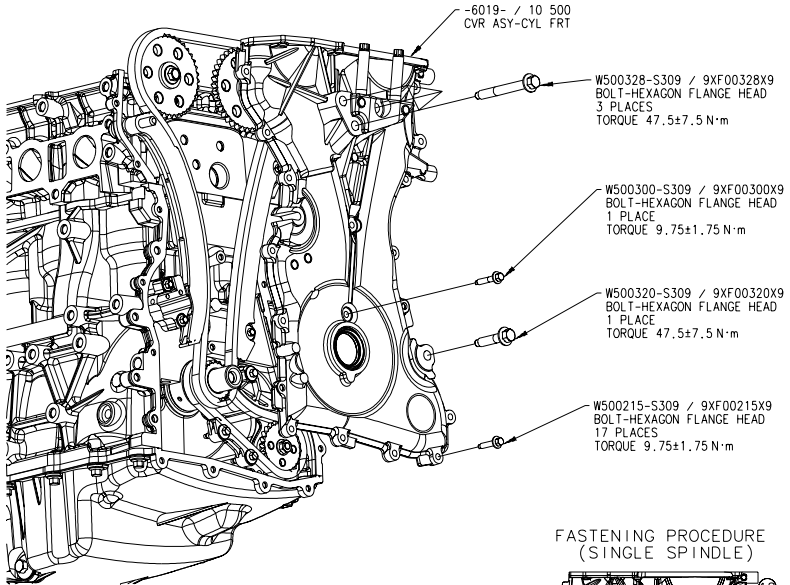


RESTRICTIONS

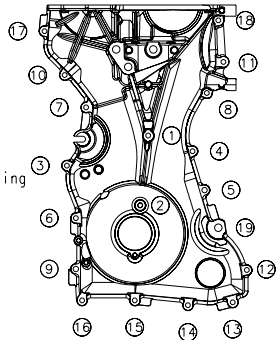
PART NAME/TITLE  
EXCESS RTV REMOVING

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON D1 CD132	51	52-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### FASTENING PROCEDURE (SINGLE SPINDLE)



#### NOTES

1. No sticking of stain, dust, etc is allowed on front cover sealing surface of cylinder block, cylinder head, front cover.
2. If parts have scratch on seal face of front cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

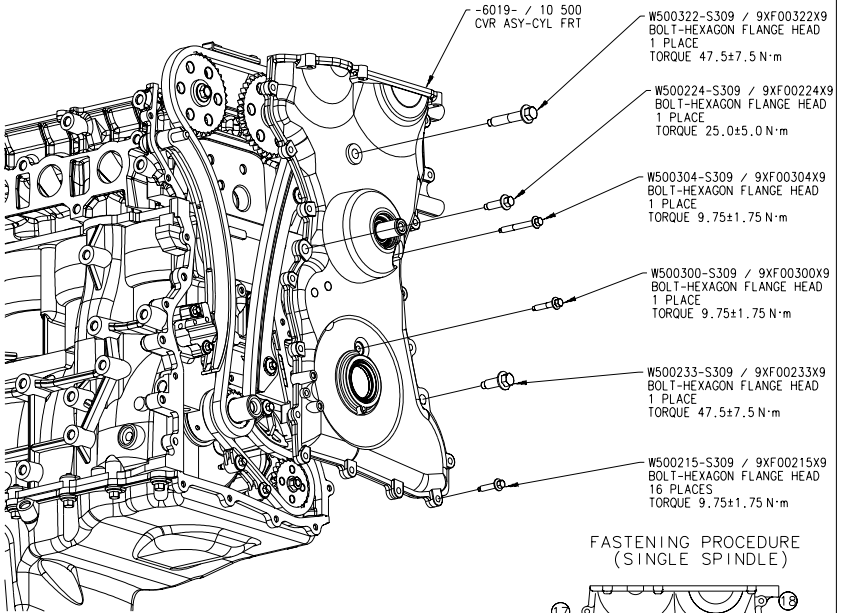
#### RESTRICTIONS

PART NAME/TITLE

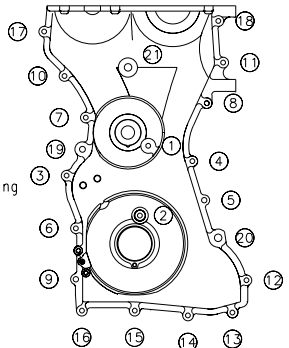
COVER ASY-CYL FRONT

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2001 2.0L-4V NON DI CD132	52-A	52-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### FASTENING PROCEDURE (SINGLE SPINDLE)



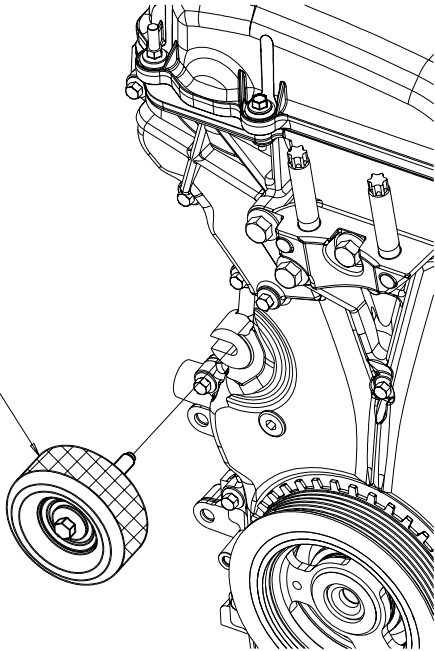
**NOTES**

1. No sticking of stain, dust, etc is allowed on front cover sealing surface of cylinder block, cylinder head, front cover.
2. If parts have scratch on seal face of front cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

RESTRICTIONS				PART NAME/TITLE <b>COVER ASY-CYL FRONT</b>			
SPECIFICATION NO. C1S7G-543-AC	REV R	RELEASE NO. EN00E11069681001	DATE 00-04-20	MODEL 2001 2.3L-4V NON DI RANGER	SHEET 52-B	CONTD. 52-E	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

-19A216- / 15 940  
IDL ASY-ACC DRV BEL  
TORQUE 25±5 N·m



## NOTES

1. ENSURE THERE IS NOT ANY GREASE, OIL OR FOREIGN MATTER ON THE HATCHED AREA BEFORE SHIPMENT.
2. DAMAGED PULLEY MUST NOT BE ASSEMBLED.
3. THE PULLEY MUST NOT CONTACT ANY OTHER PARTS OF THE ENGINE DURING ROTATION.

## RESTRICTIONS

## PART NAME/TITLE

IDLER ASY-ACC DR BELT

SPECIFICATION NO.  
C1S7G-543-AC

REV  
H

RELEASE NO.  
EN00E11007392000

DATE  
'99-09-06

MODEL  
2001 2.0L-4V NON DI CD132

SHEET  
52-E

CONTD.  
53-A



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**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>H</b>	RELEASE NO. <b>EN00E11007392000</b>	DATE <b>99-09-06</b>	MODEL <b>2001 2.3L-4V NON DI RANGER</b>	SHEET <b>53-A</b>	CONTD. <b>53-B</b>
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CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**H**

RELEASE NO.  
**EN00E11007392000**

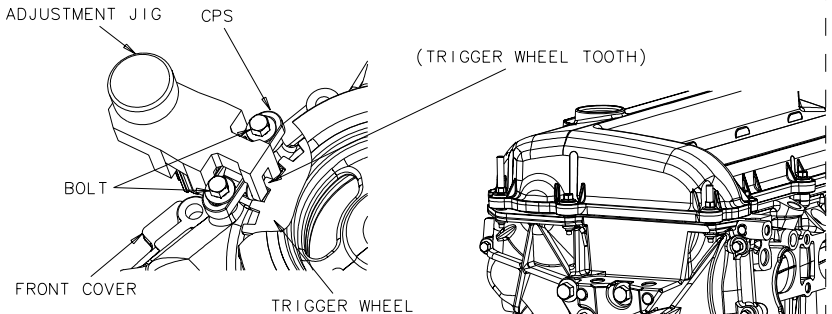
DATE  
**99-09-06**

MODEL  
**2001 2.3L-4V NON DI RANGER**

SHEET  
**53-B**

CONTD.  
**54**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### CPS ASSEMBLY PROCEDURE

1. SET THE CRANK ANGLE SO THAT CYL. #1 IS SET TO THE 'TDC' POSITION.
2. ASSEMBLE CPS INTO ADJUSTMENT JIG.
3. LOCATE JIG WITH CPS TOGETHER OVER TRIGGER WHEEL TOOTH. (AS IN PICTURE)
4. ASSEMBLE 2 BOLTS. (HAND START)  
- KEEPING THE JIG LOCATED ON THE TOOTH.
5. RUN DOWN 2 BOLTS TO FINAL TORQUE  
- KEEPING THE JIG LOCATED ON TOOTH.
6. REMOVE JIG.

W701219-S309 / 9XG01219X9  
BOLT FLNG HEAD M6X16  
2 PLACES  
TORQUE 6.5±1 N·m

-6C315- / 18 221  
SENSOR-CRANKSHAFT POSITION(CPS)

### NOTE:

INSTALLATION OF CPS : ORIENTATE THE SENSOR SO THAT THE ELECTRICAL TERMINALS ARE POINTING AT THE REAR.

### RESTRICTIONS

PART NAME/TITLE

SENSOR-CRANKSHAFT POSITION

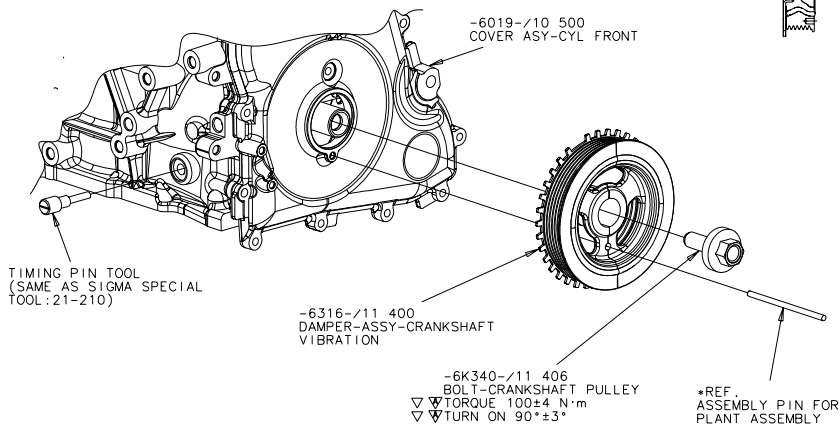
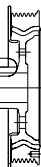
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	54	55

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

### PROCEDURE

- INSERT T.D.C. PIN INTO BLOCK(TIMING PIN DETAIL;56)
- TURN CRANKSHAFT TO T.D.C:UNTIL THE CRANKSHAFT LOCATION PAD TOUCHES THE PIN.
- TURN CRANK DAMPER PULLEY UNTIL ALIGN THE TIMING HOLE BETWEEN DAMPER PULLEY AND FRONT COVER.
- INSERT ASSEMBLY PIN INTO DAMPER PULLEY LOCATION HOLE.
- INSERT SPECIAL TOOL IN THE BACK END SLOTS OF CAMSHAFTS TO SET THEN IN THE RIGHT POSITION.
- THEN CLAMP THE DAMPER PULLEY AND RUNDOWN PULLEY LOCK BOLT TO SPECIFIED TORQUE.
- REMOVE TIMING PEG AND UN-LOCK CAMSHAFTS,CRANKSHAFT.

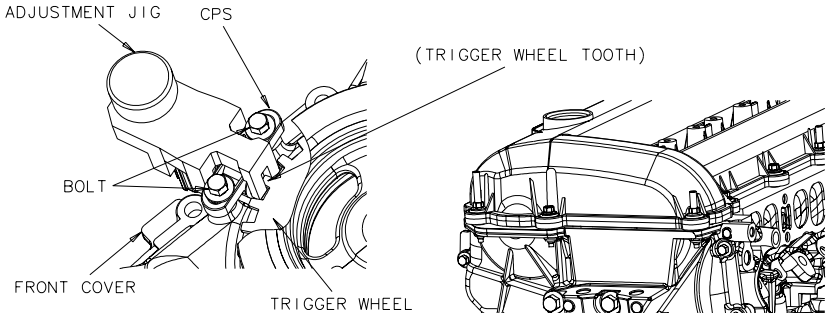
ADD FACTORY FILL  
ENGINE OIL ON PULLEY  
SEALING SURFACE,  
PRIOR TO INSTALL  
ON TO CRANKSHAFT.



NOTE :- DO NOT REUSE DAMPER BOLT.

RESTRICTIONS				PART NAME/TITLE			
				PULLEY/DAMPER-CRANKSHAFT			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AN	EN00 E 11208966 001	01-06-08	2001 2.0L-4V NON DI CD132	55	56-C	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### CPS ASSEMBLY PROCEDURE

1. SET THE CRANK ANGLE SO THAT CYL.#1 IS SET TO THE 'TDC' POSITION.
2. ASSEMBLE CPS INTO ADJUSTMENT JIG.
3. LOCATE JIG WITH CPS TOGETHER OVER TRIGGER WHEEL TOOTH. (AS IN PICTURE)
4. ASSEMBLE 2 BOLTS. (HAND START)  
- KEEPING THE JIG LOCATED ON THE TOOTH.
5. RUN DOWN 2 BOLTS TO FINAL TORQUE  
- KEEPING THE JIG LOCATED ON TOOTH.
6. REMOVE JIG.

W701219-S309 / 9XG01219X9  
BOLT FLNG HEAD M6X16  
2 PLACES  
TORQUE 6.5±1 N·m

-6C315- / 18 221  
SENSOR-CRANKSHAFT POSITION(CPS)

### NOTE :

INSTALLATION OF CPS : ORIENTATE THE SENSOR SO THAT THE ELECTRICAL TERMINALS ARE POINTING AT THE REAR.

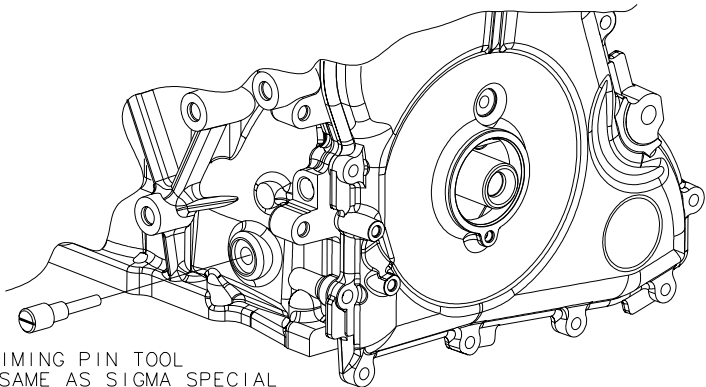
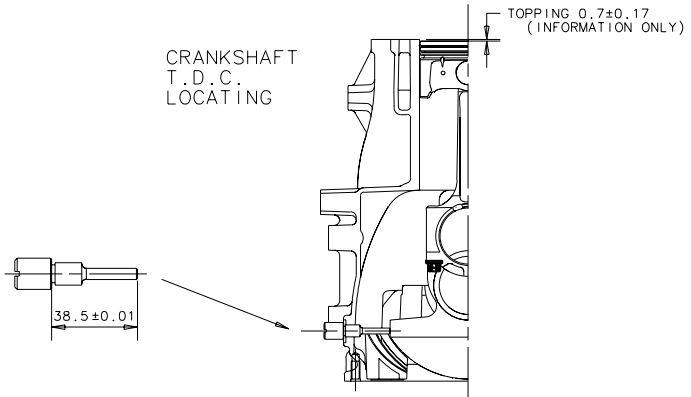
### RESTRICTIONS

### PART NAME/TITLE

### SENSOR-CRANKSHAFT POSITION

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2002 1.8L-4V DI C0132	56-C	57

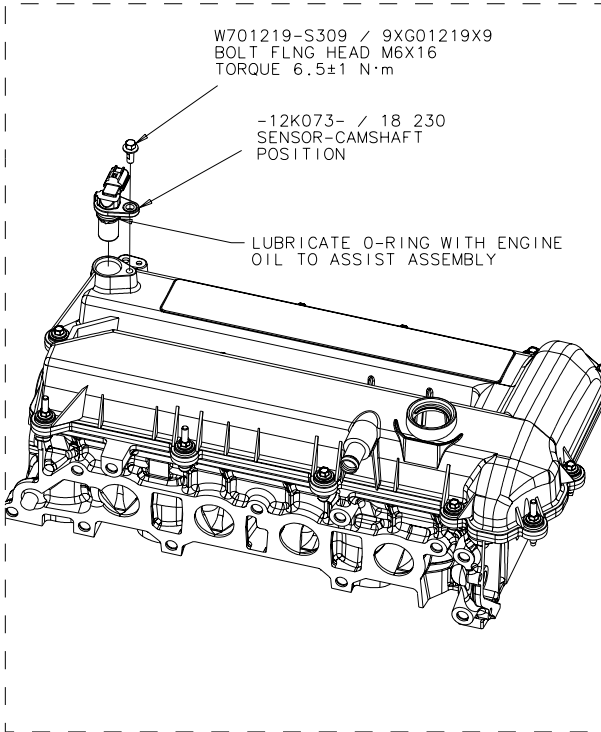
ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



TIMING PIN TOOL  
(SAME AS SIGMA SPECIAL  
TOOL: 21-210)

RESTRICTIONS					PART NAME/TITLE			
					SPROCKET-CRANKSHAFT & TIMING PLATE			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
C1S7G-543-AC	AE	EN00 E 11157486 001	01-01-31	2001 2.0L-4V NON D1 CD132	57	58		

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



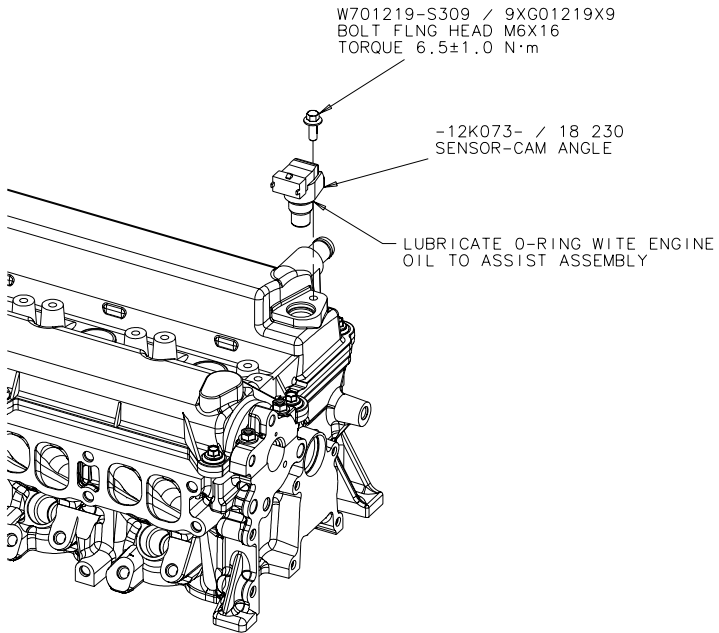
## RESTRICTIONS

## PART NAME/TITLE

## SENSOR-CAMSHAFT POSITION

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	58	58-C

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

## PART NAME/TITLE

## SENSOR-CAM ANGLE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2002 1.8L-4V DI CD132	58-C	58-D



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**mazda**

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTIONS

PART NAME/TITLE

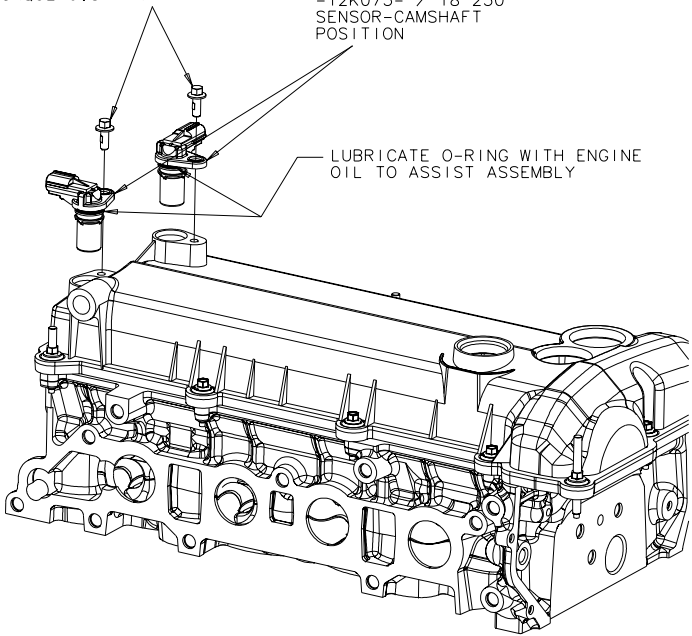
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
<b>C1S7G-543-AC</b>	<b>AH</b>	<b>EN00E11190272000</b>	<b>01-03-28</b>	<b>2003 2.8L-4V NON DI RANGER</b>	<b>58-D</b>	<b>58-E</b>

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W701219-S309 / 9XG01219X9  
BOLT FLNG HEAD M6X16  
TORQUE  $6.5 \pm 1$  N·m

-12K073- / 18 230  
SENSOR-CAMSHAFT  
POSITION

LUBRICATE O-RING WITH ENGINE  
OIL TO ASSIST ASSEMBLY



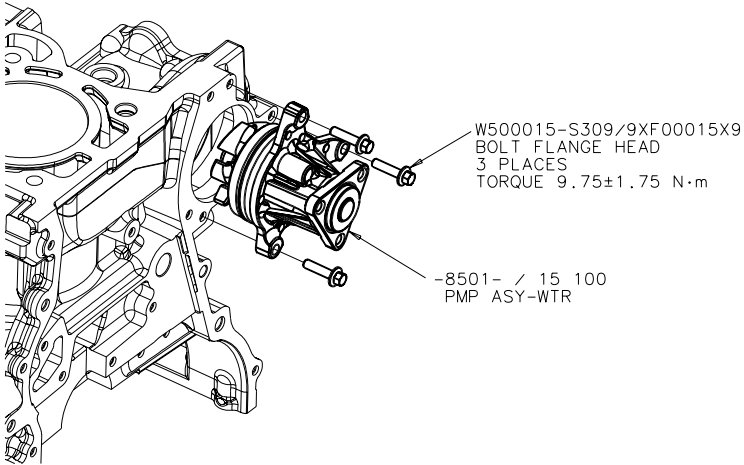
RESTRICTIONS

PART NAME/TITLE

SENSOR-CAMSHAFT POSITION

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AH	EN00E11190272000	01-03-28	2003 2.3L-4V NON DI & DI	58-E	59

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

1. COMPATIBLE WITH "SEALUB S-4"-NOK OR "ESE-M99B144-A" "ESE-M99B144-B" -Merpol TO BE APPLIED TO O\_RING BEFORE PUMP ASSEMBLY. MINERAL LUBE(ENGINE OIL,A/T FLUID,GASOLINE etc.)MUST NOT BE USED.
2. STAINS,OILS,FOREIGN MATTER etc.MUST NOT BE VISUALLY PRESENT ON SEAL AREAS OF BLOCK AND PUMP.
3. ASSEMBLE THE PUMP TO BLOCK SQUARELY TO AVOID O\_RING DISTORTION.
4. THE PUMP O\_RING MUST BE FITTED TO PUMP GROOVE BEFORE ASSEMBLY.
5. DO NOT ASSEMBLE PARTS THAT HAVE DAMAGE.

## RESTRICTIONS

## PART NAME/TITLE

## WATER PUMP &amp; GASKET

SPECIFICATION NO.  
C1S7G-543-AC

REV  
T

RELEASE NO.  
EN00E11095813000

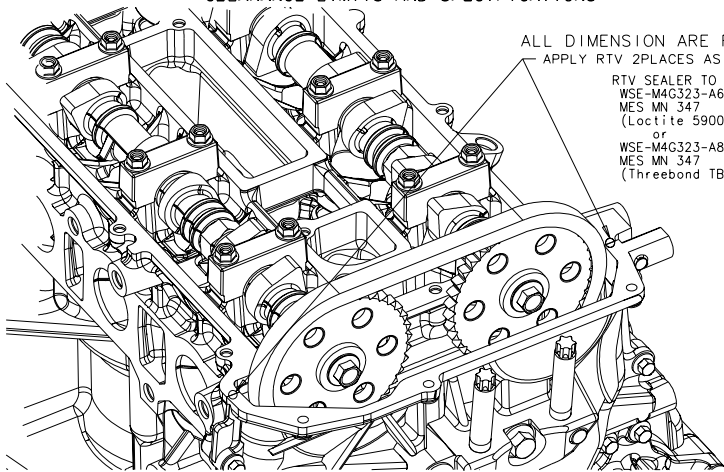
DATE  
'00-06-30

MODEL  
2001 2.0L-4V NON DI CD132  
2001 2.3L-4V NON DI RANGER

SHEET  
59

CONTD.  
60

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ALL DIMENSION ARE REFERENCE.  
APPLY RTV 2PLACES AS SHOWN BELOW.

RTV SEALER TO SPEC:

WSE-M4G323-A6

MES MN 347

(Loctite 5900)

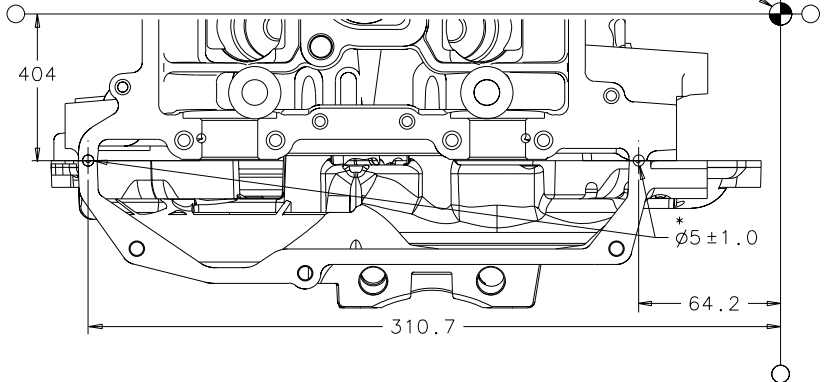
or

WSE-M4G323-A8

MES MN 347

(Threebond TB1217D)

0 POINT OF CYL. BLOCK



### NOTES

1. After applying RTV, complete assembling camshaft cover and cylinder head within 10 min and then complete tightening all bolts within further 5 min. (within 15 min in total.)

### RESTRICTIONS

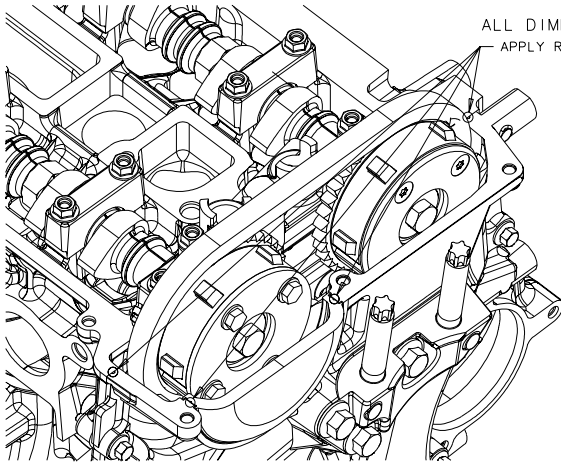
### PART NAME/TITLE

RTV SEALER - CAM COVER

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AA	EN00E11087761000	00-11-17	2001 2.0L-4V NON D1 CD132	60	60-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



ALL DIMENSION ARE REFERENCE.

APPLY RTV 4PLACES AS SHOWN BELOW.

RTV SEALER TO SPEC:

WSE-M4G323-A6

MES MN 347

(Loctite 5900)

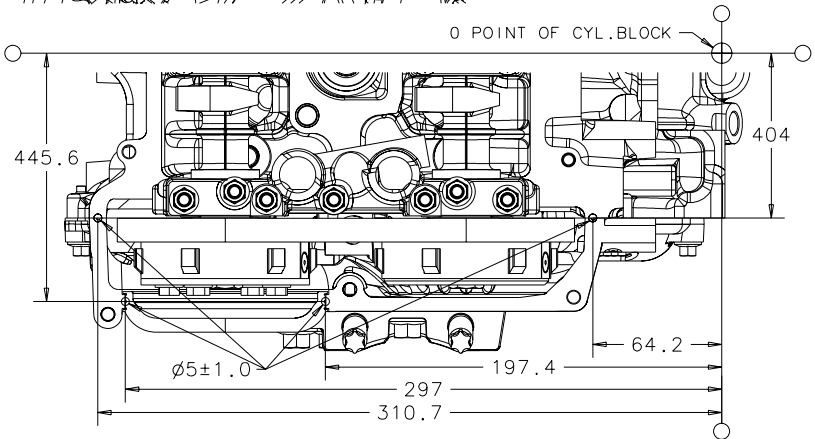
or

WSE-M4G323-A8

MES MN 347

(Threebond TB1217D)

0 POINT OF CYL.BLOCK



#### NOTES

1. After applying RTV, complete assembling camshaft cover and cylinder head within 10 min and then complete tightening all bolts within further 5 min. (within 15 min in total.)

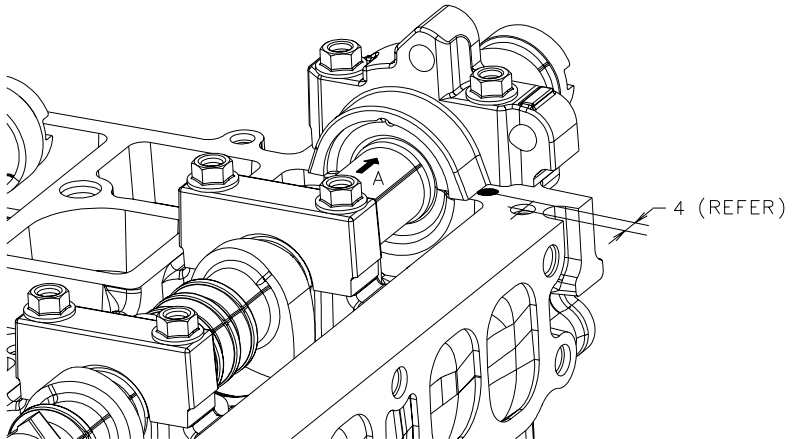
#### RESTRICTIONS

#### PART NAME/TITLE

RTV SEALER - CAM COVER

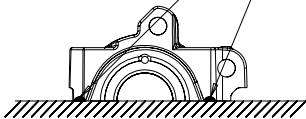
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AA	EN00E11087761000	00-11-17	2003 2.3L-4V DUAL-WT U204	60-A	60-C

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



RTV SEALER TO SPEC:  
WSE-M4G323-A6/MES MN 347  
(LOCTITE 5900) OR  
WSE-M4G323-A8/MES MN 347  
(THREEBOND TB1217D)  
2PLACES AS SHOWN BELOW

ø5 (REFER)



HEAD

VIEW A

JOINT CLOSURE TIME 10 MINUTES.  
FIXING TO BE TORQUED WITHIN A FURTHER  
5 MINUTES (within 15 min in total).

RESTRICTIONS

SPECIFICATION NO.  
C1S7G-543-AC

REV  
U

RELEASE NO.  
EN00E11085584000

DATE  
00-07-11

MODEL  
2002 2.0L-4V DI CD132

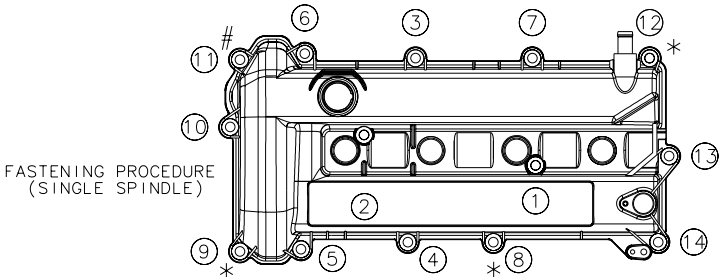
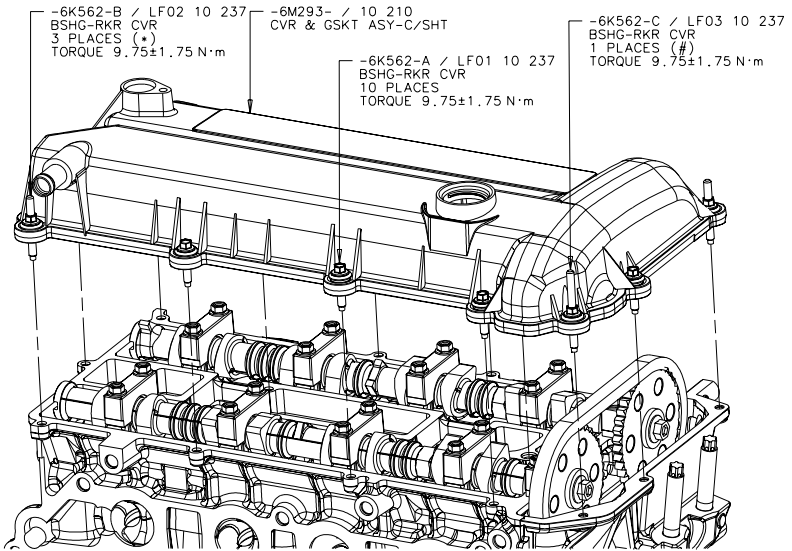
SHEET  
60-C

CONTD.  
61-A

PART NAME/TITLE  
CAM COVER & GASKET ASSEMBLY

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



#### NOTES

- 1.No sticking of stain, dust, etc is allowed on camshaft cover sealing surface of cylinder head and camshaft cover.
- 2.If parts have scratch on seal face of camshaft cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

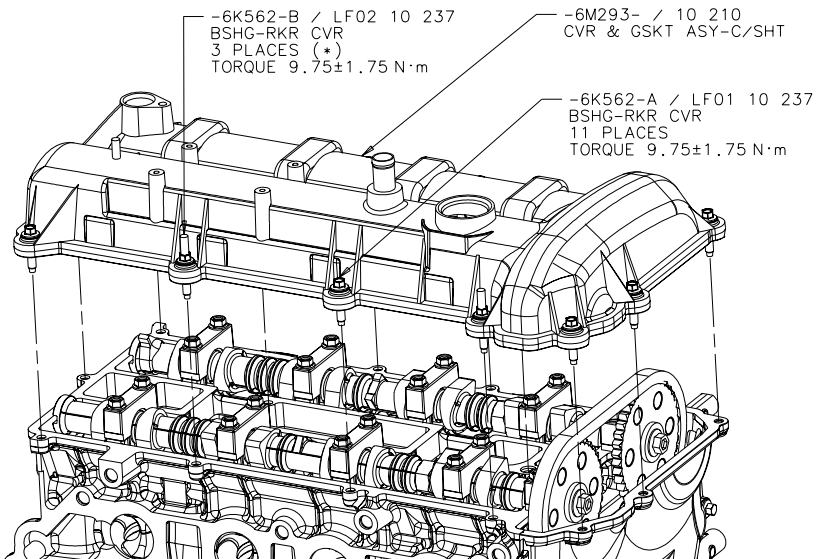
#### RESTRICTIONS

#### PART NAME/TITLE

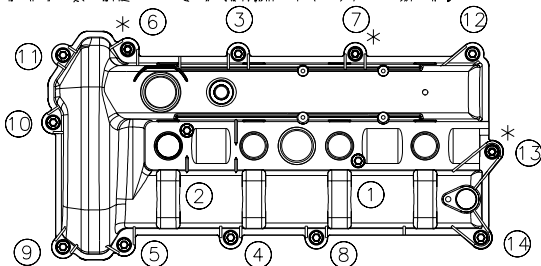
#### CAM COVER & GASKET ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	61-A	61-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



FASTENING PROCEDURE  
(SINGLE SPINDLE)



**NOTES**

- 1.No sticking of stain, dust, etc is allowed on camshaft cover sealing surface of cylinder head and camshaft cover.
- 2.If parts have scratch on seal face of camshaft cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

RESTRICTIONS				PART NAME/TITLE <b>CAM COVER &amp; GASKET ASSEMBLY</b>				
SPECIFICATION NO. C1S7G-543-AC	REV BG	RELEASE NO. EN00E11282537000	DATE 01-11-09	MODEL 2001 2.3L-4V NON DI RANGER	SHEET 61-B	CONTD. 61-C		

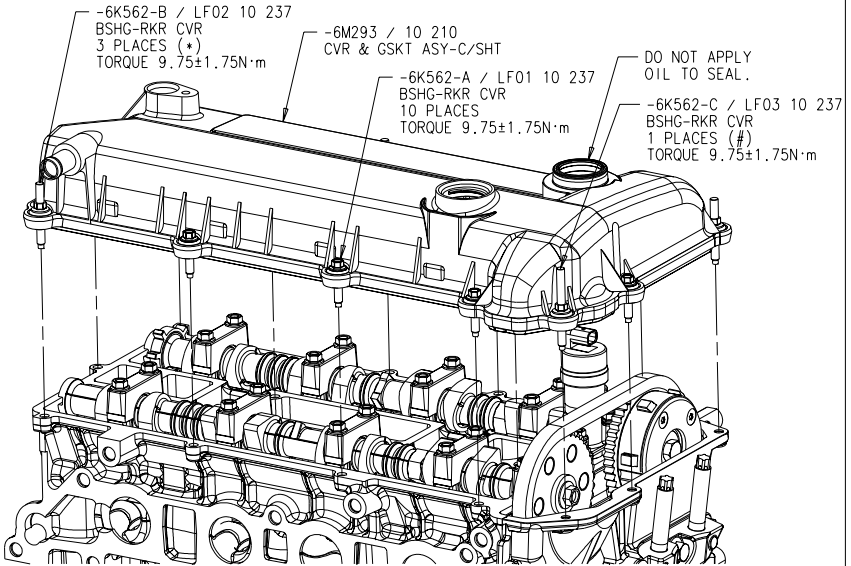


**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

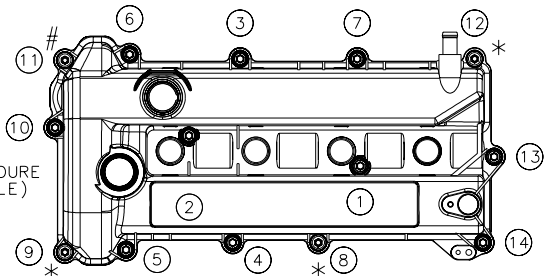
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RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO. C1S7G-543-AC	REV AZ	RELEASE NO. EN00E11184847002	DATE 01-10-12	MODEL 2002 1.8L-4V DI CD132	SHEET 61-C	CONTD. 61-D	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



FASTENING PROCEDURE  
(SINGLE SPINDLE)



### NOTES

1. No sticking of stain, dust, etc is allowed on camshaft cover sealing surface of cylinder head and camshaft cover.
2. If parts have scratch on seal face of camshaft cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

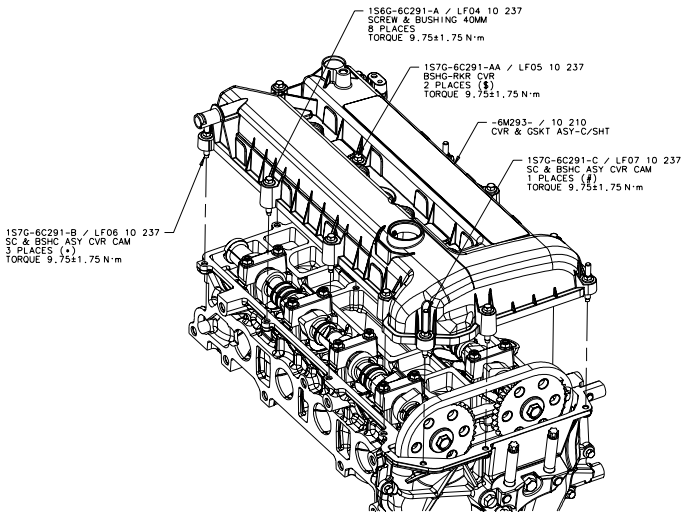
RESTRICTIONS

PART NAME/TITLE

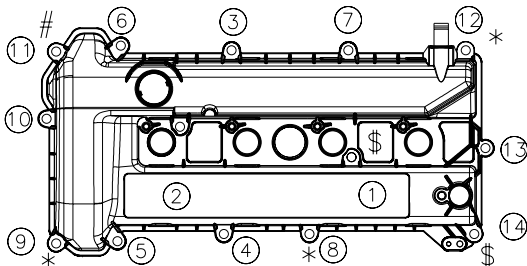
CAM COVER &amp; GASKET ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AA	EN00E11087761000	00-11-17	2003 2.3L-4V INT-WT J56	61-D	61-E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### FASTENING PROCEDURE (SINGLE SPINDLE)

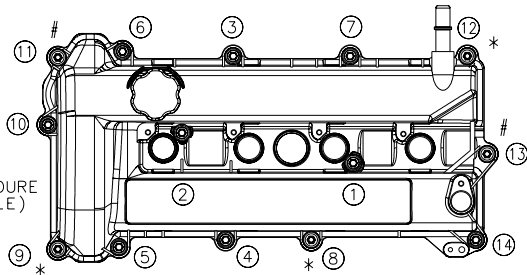
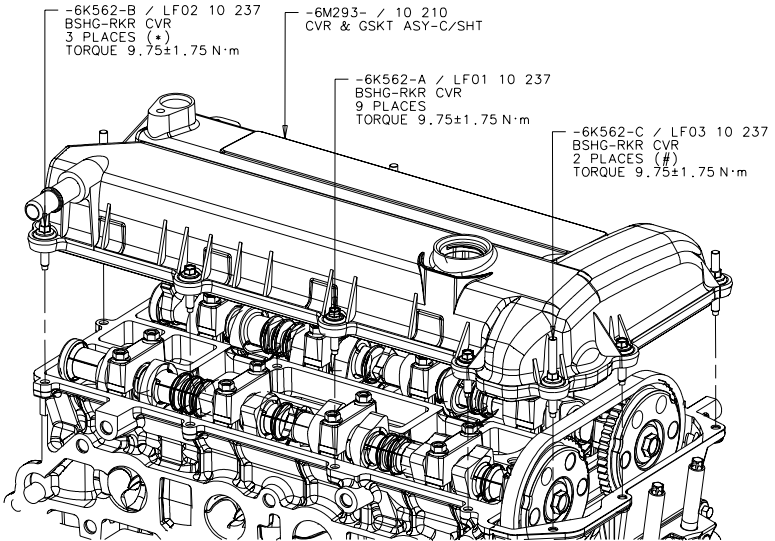


### NOTES

- 1.No sticking of stain, dust, etc is allowed on camshaft cover sealing surface of cylinder head and camshaft cover.
- 2.If parts have scratch on seal face of camshaft cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

RESTRICTIONS					PART NAME/TITLE CAM COVER & GASKET ASSEMBLY			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
C1S7G-543-AC	AZ	EN00E11184847002	01-10-12	2001 2.0L-4V NON DI CD132	61-E	61-F		

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



FASTENING PROCEDURE  
(SINGLE SPINDLE)

**NOTES**

- 1.No sticking of stain, dust, etc is allowed on camshaft cover sealing surface of cylinder head and camshaft cover.
- 2.If parts have scratch on seal face of camshaft cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

RESTRICTIONS

PART NAME/TITLE

CAM COVER & GASKET ASSEMBLY

SPECIFICATION NO. C1S7G-543-AC	REV BM	RELEASE NO. EN00E11247483004	DATE 01-12-07	MODEL 2003 2.3L-4V NON DI C170	SHEET 61-F	CONTD. 61-G
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**mazda**

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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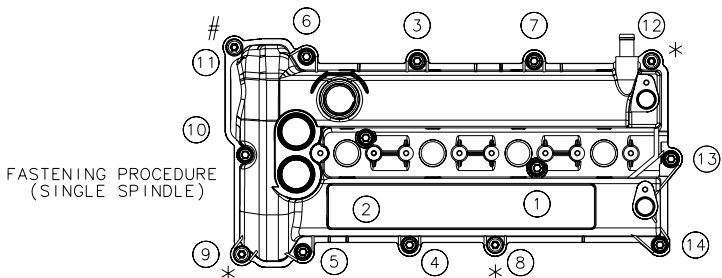
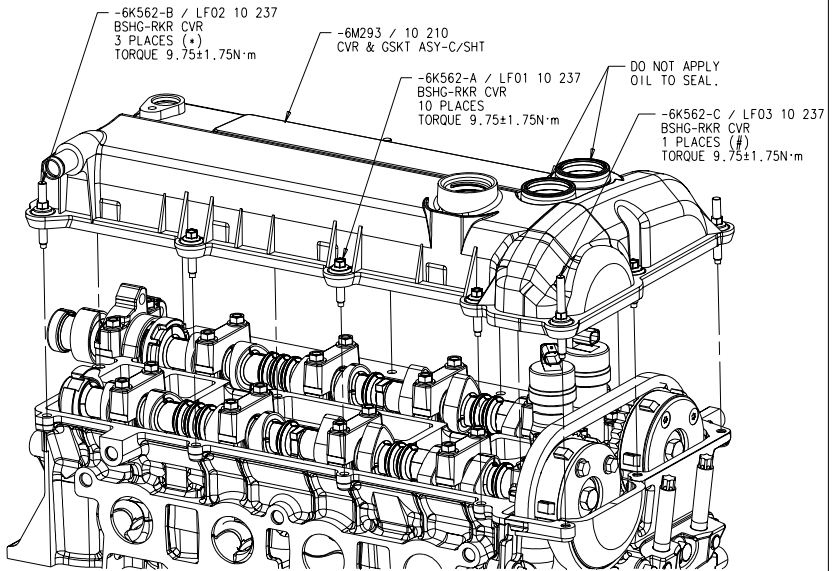
RESTRICTIONS

PART NAME/TITLE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
<b>C1S7G-543-AC</b>	<b>AH</b>	<b>EN00E11190272000</b>	<b>01-03-28</b>	<b>2003 2.3L-4V NON DI J56</b>	<b>61-G</b>	<b>61-J</b>

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

1. No sticking of stain, dust, etc is allowed on camshaft cover sealing surface of cylinder head and camshaft cover.
2. If parts have scratch on seal face of camshaft cover assembly, which might give negative effect on sealability, those have to be replaced with good part.

## RESTRICTIONS

## PART NAME/TITLE

## CAM COVER &amp; GASKET ASSEMBLY

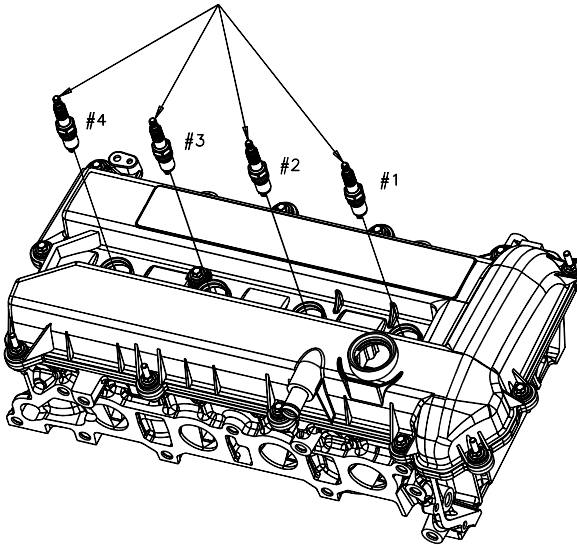
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AA	EN00E11087761000	00-11-17	2003 2.3L-4V DUAL-WT U204	61-J	62-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

(\*) EXCEPT J56A/F/J, J16L, C1

ENG.	PLUG TYPE	ID. COLOR	QUANTITY
1.8/2.0L EW (*)	PTR6F-13	GREEN	4
2.3L NS	PTR5F-11	WHITE	4
2.3L EW (*)	PTR6F-11	YELLOW	4
1.8L DI EW	HGR 7 HQPE0	BLUE	4
PZEV, J56A/F/J, J16L, C1	ITR 6F-13	PINK	4

-12405- / 18 110  
SPARK PLUG  
TORQUE 12±2 N·m



RESTRICTIONS

 PART NAME/TITLE  
 SPARK PLUG

 SPECIFICATION NO.  
 C1S7G-543-AC

 REV  
 BL

 RELEASE NO.  
 EN00E11271652000

 DATE  
 01-11-15

 MODEL  
 2001 2.0L-4V NON DI

 SHEET  
 62-A

 CONTD.  
 62-B

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>H</b>	RELEASE NO. <b>EN00E11007392000</b>	DATE <b>99-09-06</b>	MODEL <b>2001 2.3L-4V NON DI RANGER</b>	SHEET <b>62-B</b>	CONTD. <b>62-C</b>
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**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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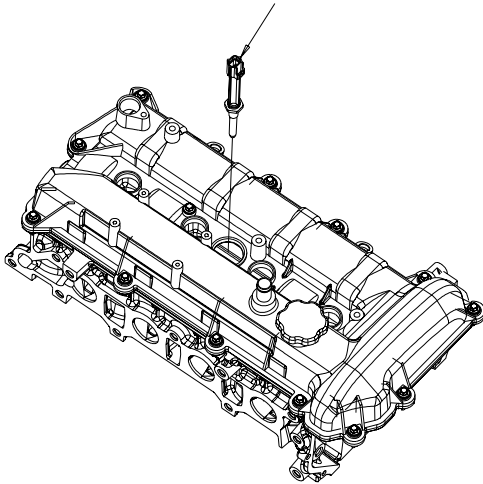
RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>T</b>	RELEASE NO. <b>EN00E11095813000</b>	DATE <b>00-06-30</b>	MODEL <b>2001 2.3L-4V NON DI RANGER</b>	SHEET <b>62-C</b>	CONTD. <b>63-B</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-6G004- / 18 840  
SENSOR-CHT  
TORQUE 12±2 N·m



RESTRICTIONS

 PART NAME/TITLE  
**CHT SENSOR**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.3L-4V NON DI RANGER	63-B	63-D

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**W**

RELEASE NO.  
**EN00E11140144000**

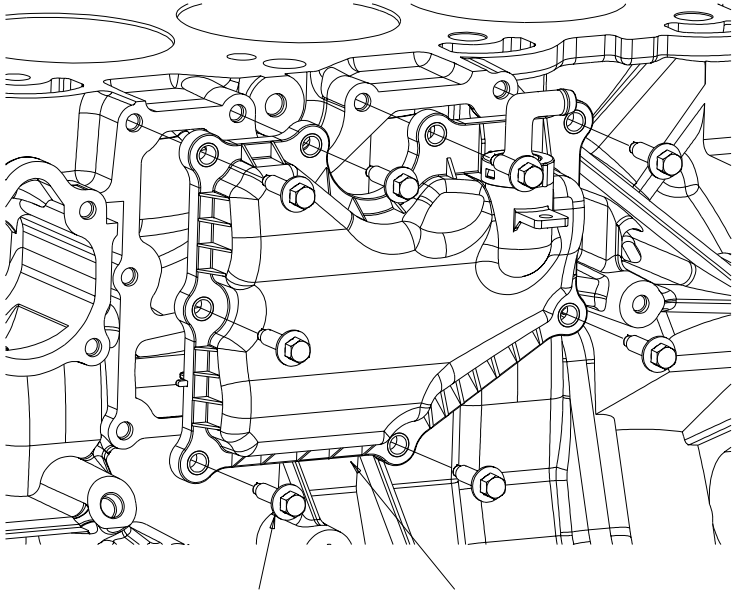
DATE  
**00-10-01**

MODEL  
2003 2.8L-4V NON DI RANGER

SHEET  
**63-D**

CONTD.  
**64**

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



W500214/9XF00214

BOLT M6

8 PLACES

TORQUE  $9.75 \pm 1.75 \text{ N}\cdot\text{m}$ 

-6A785-/13 570

CRANKCASE VENTILATION COVER ASY

## NOTES

1. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER BLOCK)
2. THE GASKET MUST BE FITTED TO SEAL GROOVE BEFORE ASSEMBLY.
3. DO NOT ASSEMBLE PARTS THAT HAVE DAMAGE.

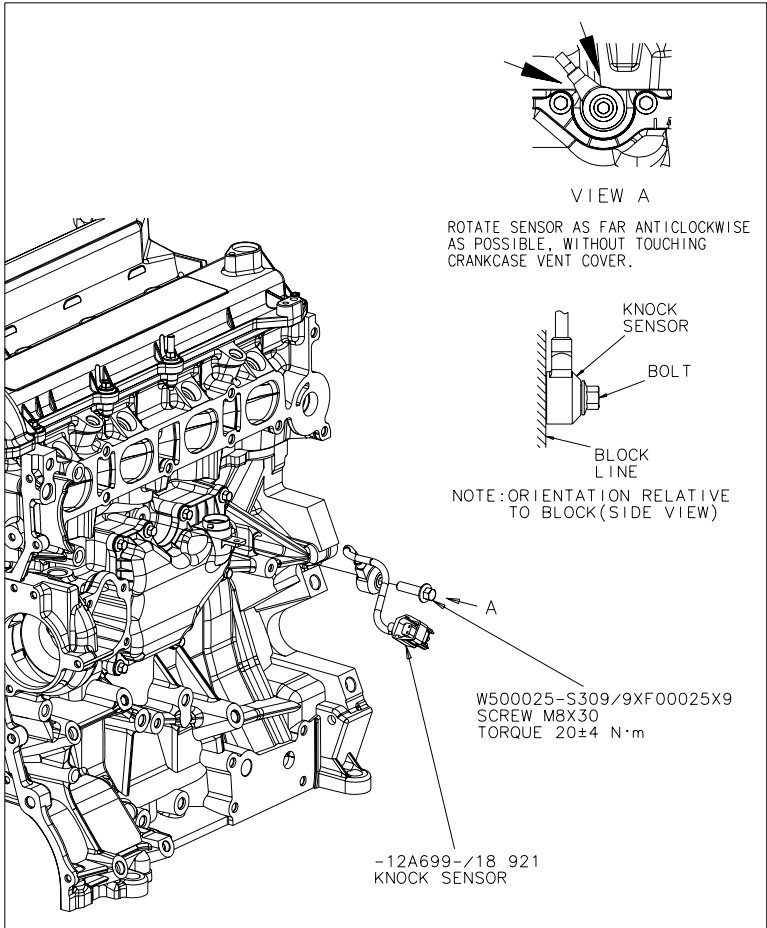
RESTRICTIONS

PART NAME/TITLE

CRANKCASE VENTILATION COVER

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
CIS7G-543-AC	BL	EN00E11271652000	01-11-15	2001 2.0L-4V NON DI CD132	64	65-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

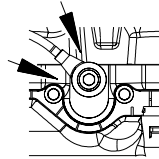
## PART NAME/TITLE

## SENSOR-KNOCK

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2001 2.0L-4V NON DI CD132	65-A	65-B

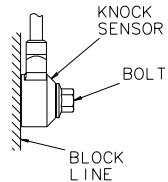
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS

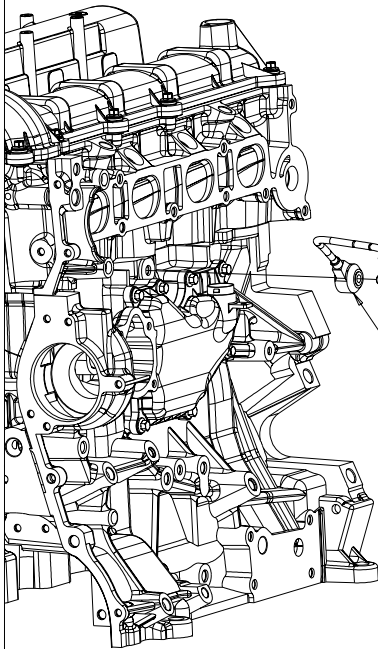


VIEW A

ROTATE SENSOR AS FAR ANTICLOCKWISE AS POSSIBLE, WITHOUT TOUCHING CRANKCASE VENT COVER.



NOTE: ORIENTATION RELATIVE TO BLOCK (SIDE VIEW)



W500025-S309/9XF00025X9  
SCREW M8X30  
TORQUE 20±4 N·m

-12A699-/18 921  
KNOCK SENSOR

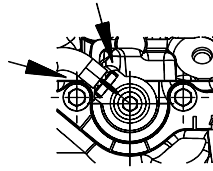
## RESTRICTIONS

PART NAME/TITLE

SENSOR-KNOCK

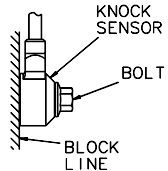
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2001 2.3L-4V NON DI RANGER	65-B	65-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



VIEW A

ROTATE SENSOR AS FAR ANTICLOCKWISE AS POSSIBLE, WITHOUT TOUCHING CRANKCASE VENT COVER.

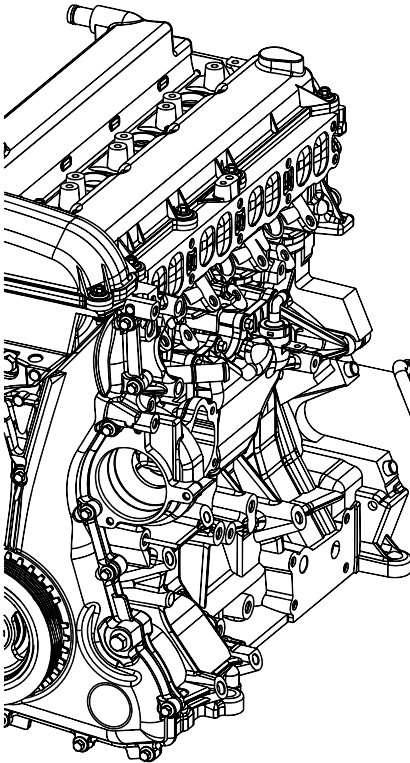


NOTE: ORIENTATION RELATIVE TO BLOCK (SIDE VIEW)

W500025-S309/9XF00025X9  
SCREW M8X30  
TORQUE 20±4 N·m

A

-12A699- / 18 921  
KNOCK SENSOR



RESTRICTIONS

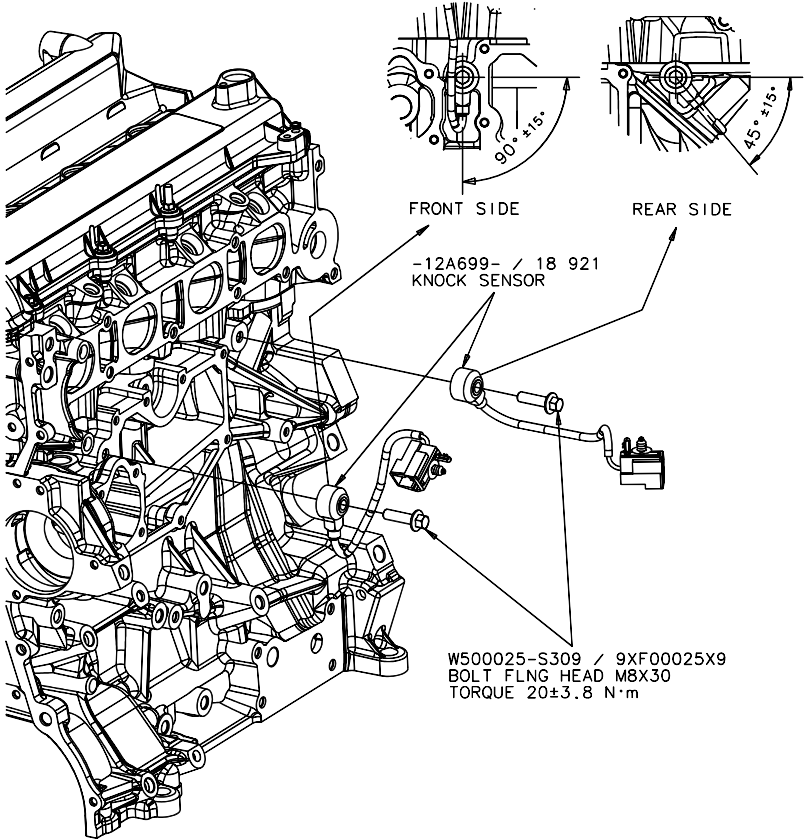
PART NAME/TITLE  
SENSOR-KNOCK

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2002 1.8L-4V DI CD132	65-C	65-D

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

### ASSEMBLED POSITION FOR KNOCK SENSOR

NOTE. SENSOR MUST NOT TOUCH CYL HEAD OR COVER ASY-C/C VENT



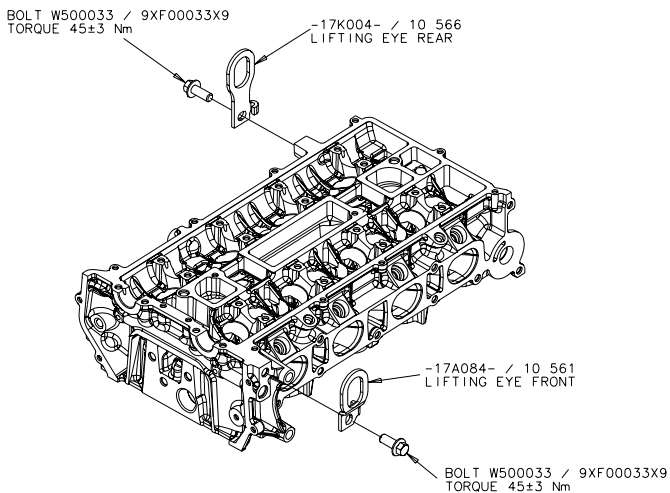
RESTRICTIONS

PART NAME/TITLE  
SENSOR-KNOCK

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2003 2.3L-4V NON DI C1	65-D	66-A



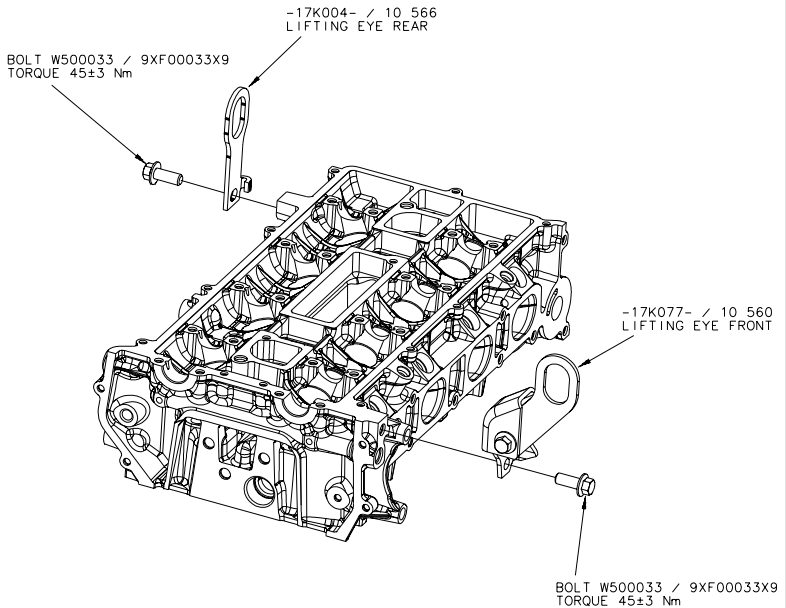
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



THE LIFTING EYE ARE RECYCLED PARTS ONE TO FIVE TIMES,  
AND THEY ARE APPLICABLE FOR THE FORD VEHICLE ONLY.

RESTRICTIONS				PART NAME/TITLE			
				LIFTING EYE FRONT & REAR			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	BF	EN00E11157003000	01-11-08	2001 2.0L-4V NON DI CD132	66-A	66-B	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

PART NAME/TITLE

## LIFTING EYE FRONT &amp; REAR

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	M	EN00E11054241000	*00-01-26	2001 2.3L-4V NON DI RANGER	66-B	66-D

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**W**

RELEASE NO.  
**EN00E11140144000**

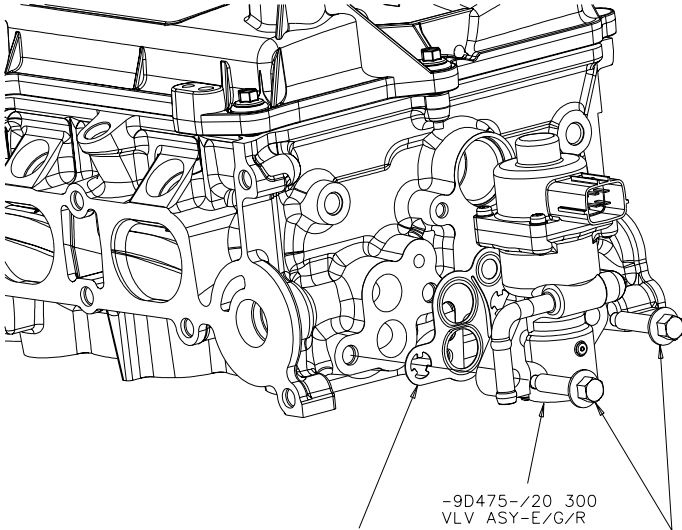
DATE  
**00-10-01**

MODEL  
2003 2.8L-4V NON DI RANGER

SHEET  
**66-D**

CONTD.  
**67-A**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

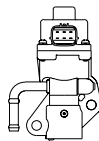


-9D476-/20 305  
GSKT-E/G/R VLV

-9D475-/20 300  
VLV ASY-E/G/R

W500225/9XF00225  
BOLT M8  
2 PLACES  
TORQUE 25±5 N·m

DIRECTION



UPWARD



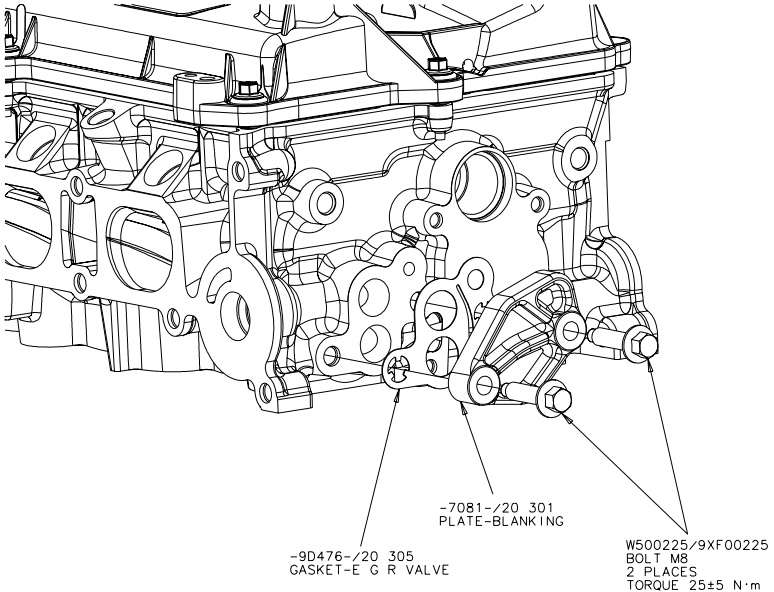
RESTRICTIONS

PART NAME/TITLE

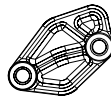
EGR VALVE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	67-A	67-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



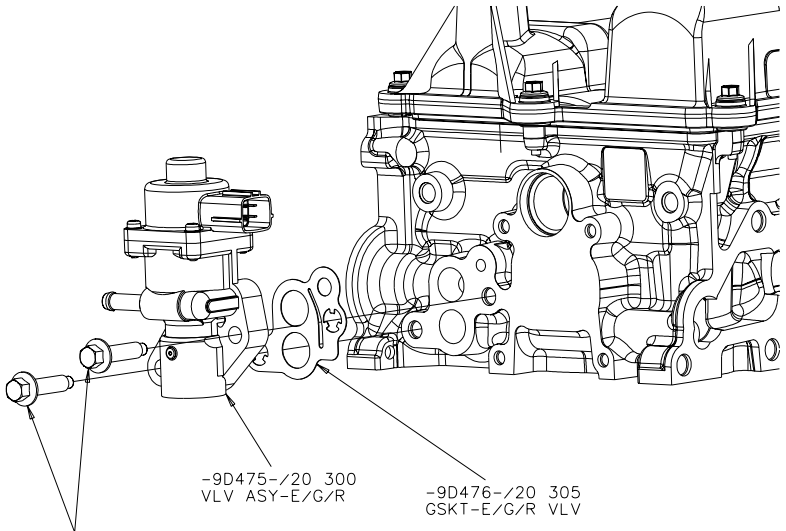
DIRECTION      UPWARD



FOR GASHOL/LEADED, ONLY

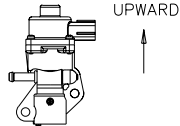
RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.0L-4V NON DI CD132	67-B	67-D	EGR BLANKING PLATE

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



W500225/9XF00225  
BOLT M8  
2 PLACES  
TORQUE 25±5 N·m

DIRECTION

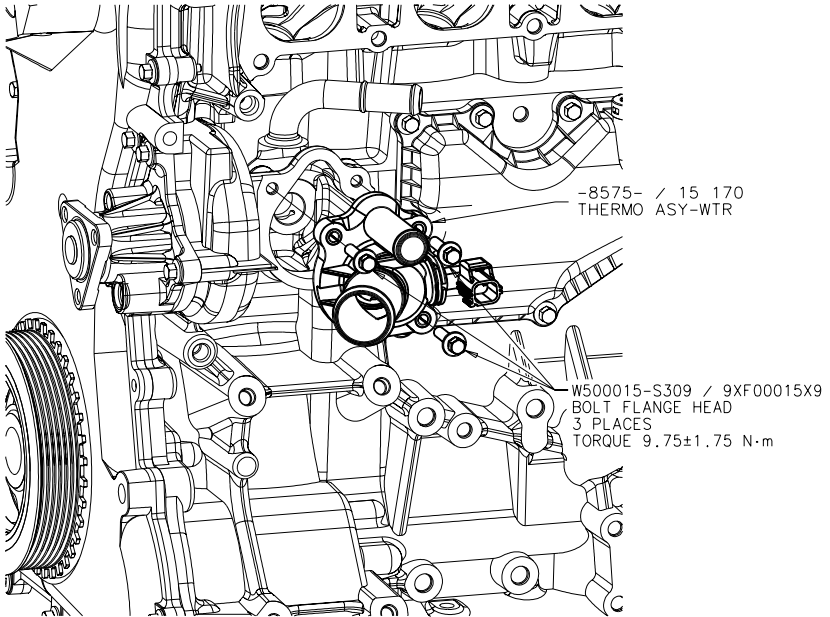


RESTRICTIONS

PART NAME/TITLE  
EGR VALVE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.3L-4V NON DI RANGER	67-D	68

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

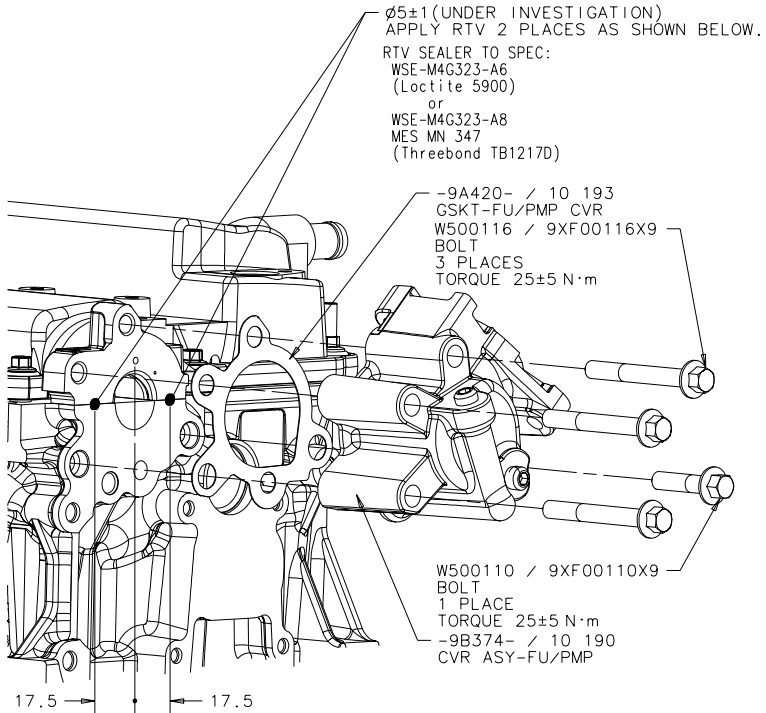
1. DO NOT ASSEMBLE PARTS WHERE THERE IS GREASE/OIL/FOREIGN MATTER ON THE SEAL SURFACES OF THERMOSTAT OR BLOCK.
2. A THERMOSTAT THAT HAS BEEN DROPPED OR MIS HANDLED MUST NOT BE ASSEMBLED IRRESPECTIVE OF ITS VISUAL APPEARANCE.
3. THE O-RING MUST BE CORRECTLY SEALED IN THE THERMOSTAT BEFORE ASSEMBLY.

## RESTRICTIONS

PART NAME/TITLE  
THERMOSTAT

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	'99-09-06	2001 2.0L-4V NON D1 CD132 2001 2.3L-4V NON D1 RANGER	68	69-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. No sticking of stain, dust, etc is allowed on fuel pump cover sealing surface of cylinder head and fuel pump cover.
2. If part have scratch on seal face of fuel pump cover, which might give negative effect on sealability, those have to be replaced with good parts.
3. After applying RTV, complete assembling fuel pump cover within 10 min, and then complete tightening all bolts within further 5 min. (within 15 min in total.)

### RESTRICTIONS

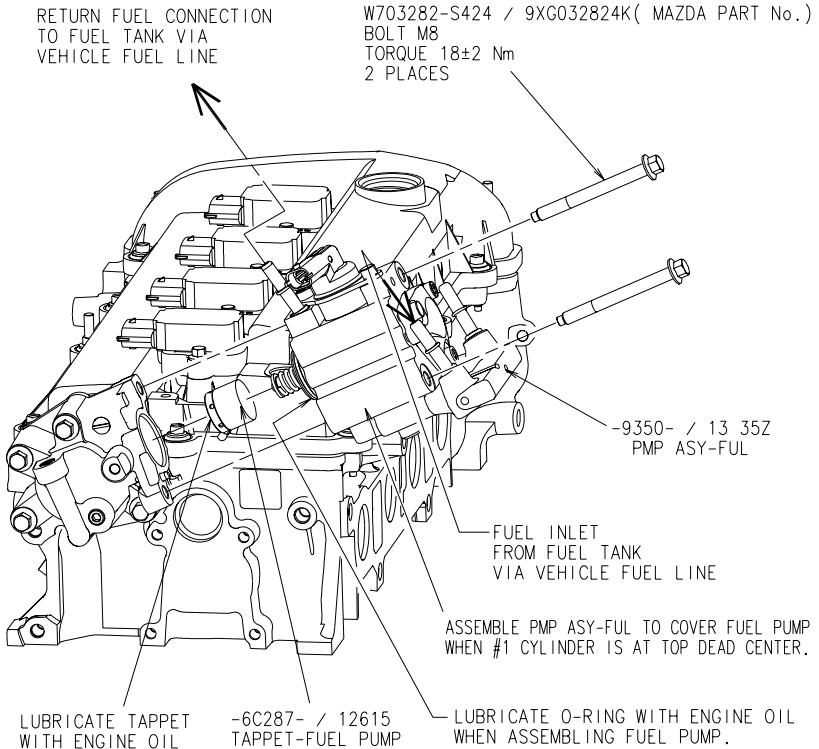
### PART NAME/TITLE

### FUEL PUMP COVER ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2002 1.8L-4V DI CD132	69-C	70-C



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

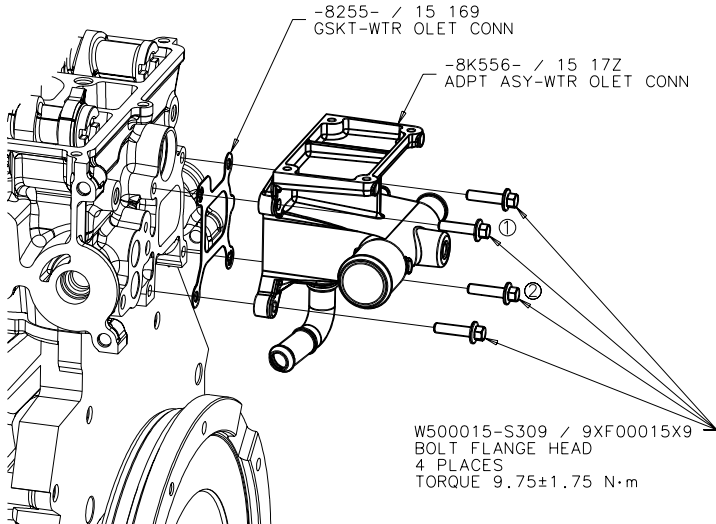


## RESTRICTIONS

 PART NAME/TITLE  
**FUEL PUMP ASSEMBLY**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AT	EN00 E 11231785 007	'01-07-13	2001 1.8L-4V DI CD132	70-C	71-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. BOLTS ① AND ② WILL HELP TO RETAIN THE GASKET TO WATER OUTLET DURING ASSEMBLY.
2. ENSURE GASKET TAB IS AT EXHAUST SIDE. (SEE SKETCH)
3. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR GREASE/OIL/FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER HEAD)

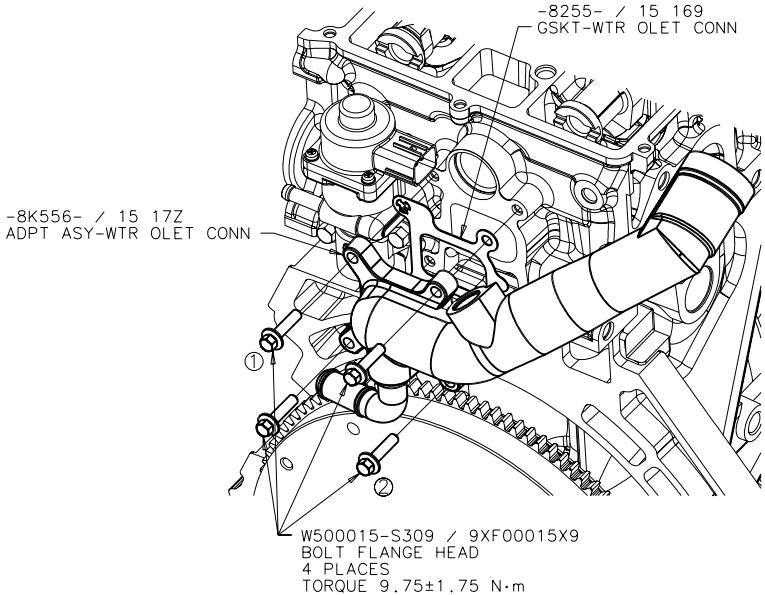
### RESTRICTIONS

### PART NAME/TITLE

WATER OUTLET CONNECTOR & GASKET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	'99-09-06	2001 2.0L-4V NON DI CD132	71-A	71-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. BOLTS ① AND ② WILL HELP TO RETAIN THE GASKET TO WATER OUTLET DURING ASSEMBLY.
2. ENSURE GASKET TAB IS AT EXHAUST SIDE. (SEE SKETCH)
3. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR GREASE/OIL/FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER HEAD)

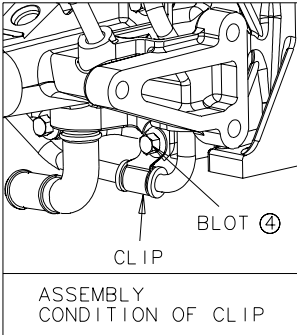
### RESTRICTIONS

### PART NAME/TITLE

WATER OUTLET CONNECTOR & GASKET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	'99-09-06	2001 2.3L-4V NON DI RANGER	71-B	71-C

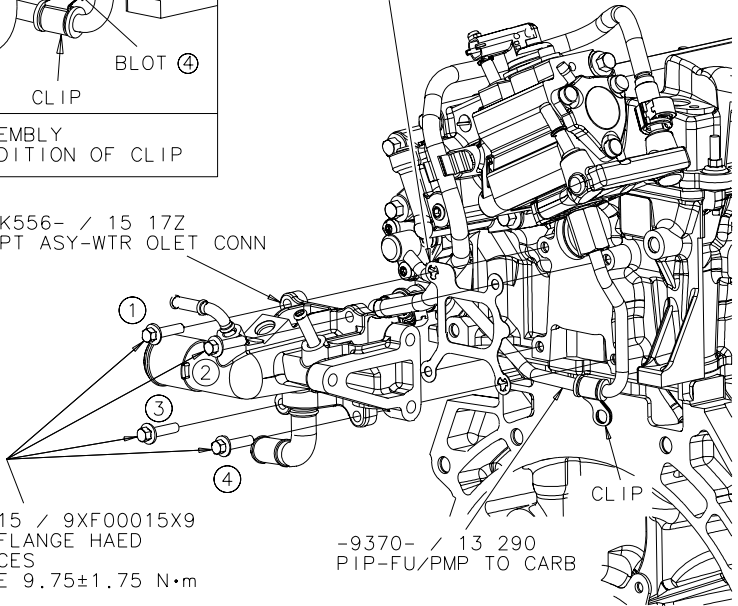
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLY  
CONDITION OF CLIP

-8255- / 15 169  
GSKT-WTR OLET CONN

-8K556- / 15 17Z  
ADPT ASY-WTR OLET CONN



W500015 / 9XF00015X9  
BOLT FLANGE HAED  
4 PLACES  
TORQUE  $9.75 \pm 1.75 \text{ N}\cdot\text{m}$

-9370- / 13 290  
PIP-FU/PMP TO CARB

### NOTES

1. INSERT BOLT ① & ② TO WATER OUTLET AND GASKET AND ASSEMBLE TO CYLINDER HEAD.  
BOLT ② IS TO RETAIN GASKET.
2. AFTER ASSEMBLING BOLT ③, ROTATE FUEL PIPE CLIP TO MEET BOLT BEARING SURFACE OF WATER OUTLET, AND ASSEMBLY BOLT ④.
3. ENSURE GASKET TAB IS AT EXHAUST SIDE. (SEE SKETCH)
4. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR GREASE/OIL/FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER HEAD)

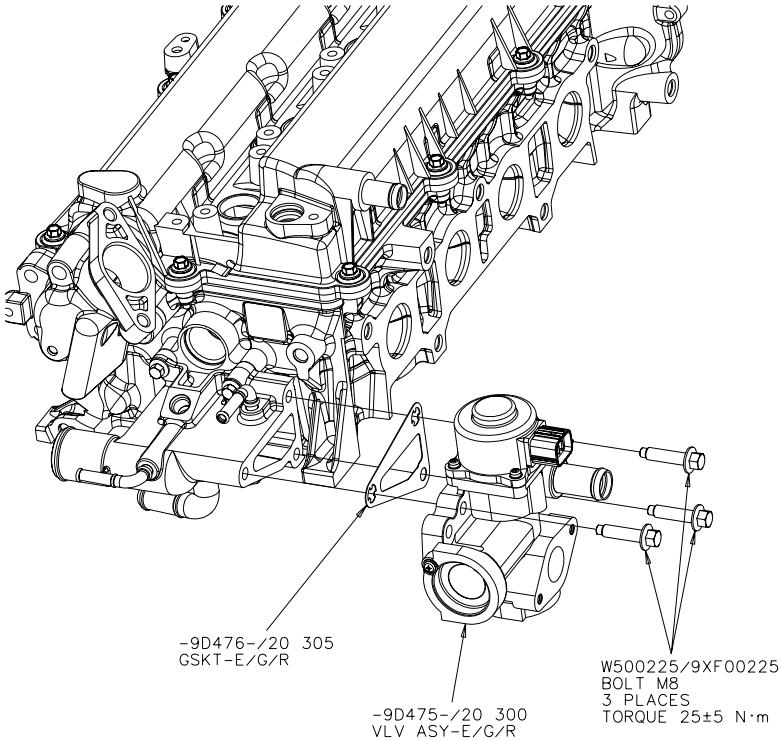
RESTRICTIONS

PART NAME/TITLE

WATER OUTLET CONNECTOR &amp; GASKET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AT	EN00 E 11231785 007	'01-07-13	2002 1.8L-4V DI CD132	71-C	72-C

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



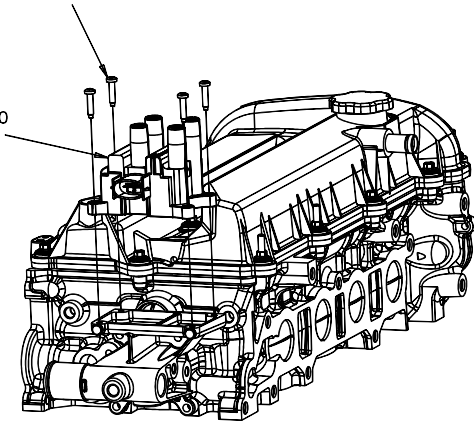
RESTRICTIONS

PART NAME/TITLE  
EGR VALVESPECIFICATION NO.  
C1S7G-543-ACREV  
WRELEASE NO.  
EN00E11140144000DATE  
00-10-01MODEL  
2002 1.8L-4V DI CD132SHEET  
72-CCONTD.  
73-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W505575-S309 / 9XF05575X9  
BOLT M5X20  
4 PLACES  
TORQUE  $6 \pm 1$  N·m

-12029- / 18 100  
DIS COIL



NOTE:

INSTALLATION OF DIS COIL : ORIENTATE THE DIS COIL SO THAT THE ELECTRICAL TERMINALS ARE POINTING AT THE REAR.

RESTRICTIONS

PART NAME/TITLE

DIS COIL

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2001 2.0L-4V NON DI	73-A	73-B


## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

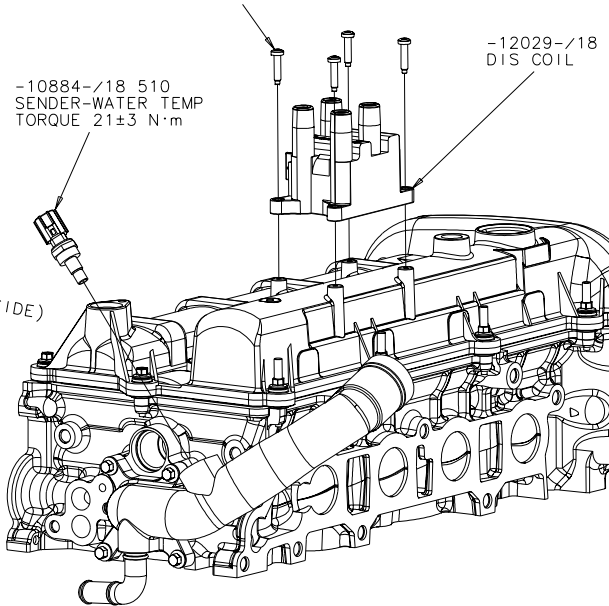
### CLEARANCE LIMITS AND SPECIFICATIONS

W505575-S309/9XF05575X9  
 BOLT M5X20  
 4 PLACES  
 TORQUE  $6 \pm 1$  N·m

-10884-/18 510  
 SENDER-WATER TEMP  
 TORQUE  $21 \pm 3$  N·m

-12029-/18 100  
 DIS COIL

(INTAKE SIDE)  




NOTE :

INSTALLATION OF DIS COIL : ORIENTATE THE DIS COIL SO THAT THE ELECTRICAL TERMINALS ARE POINTING AT THE INTAKE.

RESTRICTIONS

PART NAME/TITLE

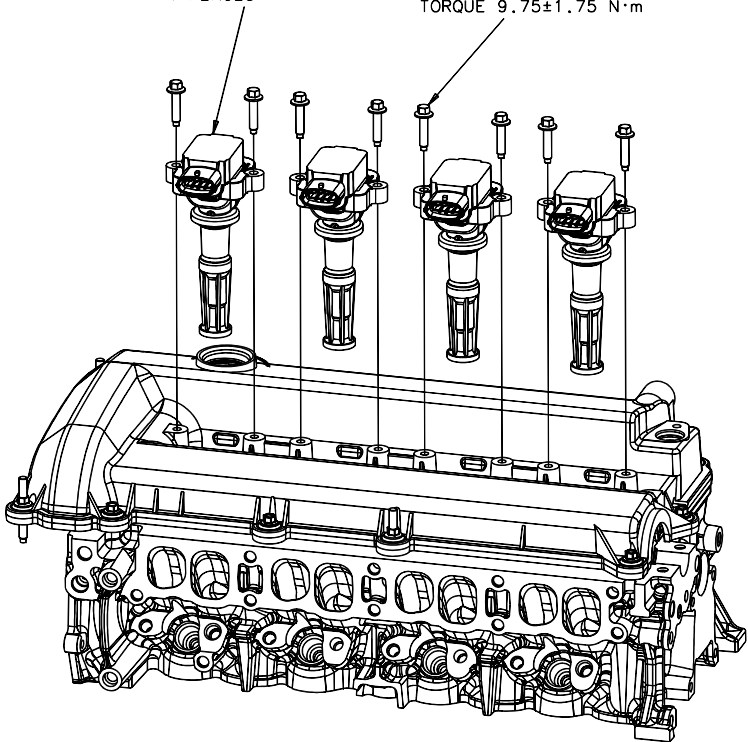
DIS COIL & SENDER-WATER TEMP

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-06-06	2001 2.3L-4V NON DI RANGER	73-B	73-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-12029- / 18 100  
IGNITION COIL  
4 PLACES

W500215-S309 / 9XF00215X9  
BOLT FLNG HEAD M6X25  
8 PLACES  
TORQUE  $9.75 \pm 1.75$  N·m



RESTRICTIONS

PART NAME/TITLE

IGNITION COIL

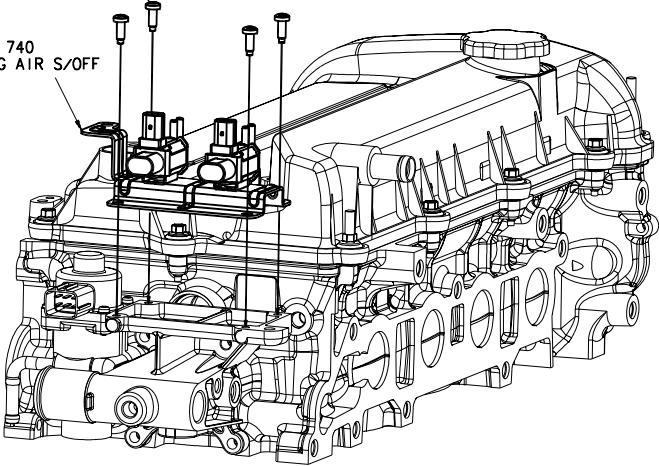
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2002 1.8L-4V DI CD132	73-C	73-D



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W505572-S303 / 9XF05572X3  
BOLT M5X12  
4 PLACES  
TORQUE  $6 \pm 1$  N·m

-9J559- / 18 740  
CONTR ASY-ENG AIR S/OFF



RESTRICTIONS

PART NAME/TITLE

SOLENOID VALVE

SPECIFICATION NO.  
C1S7G-543-AC

REV  
BL

RELEASE NO.  
EN00E11271652000

DATE  
01-11-15

MODEL  
2004 2.0L-4V NON-DI J48C

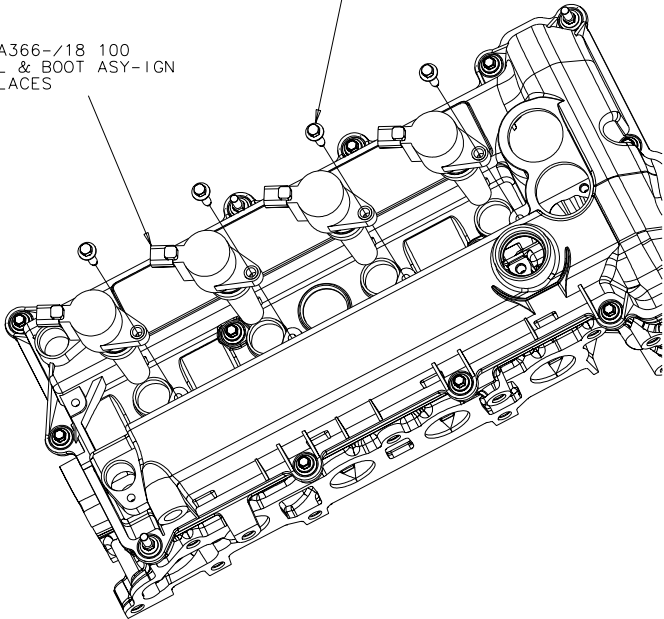
SHEET  
73-D

CONTD.  
73-E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W500215-S309/9XF00215X9  
BOLT M6X25  
4 PLACES  
TORQUE 9.75±1.75 N·m

-12A366-/18 100  
COIL & BOOT ASY-IGN  
4 PLACES



RESTRICTIONS

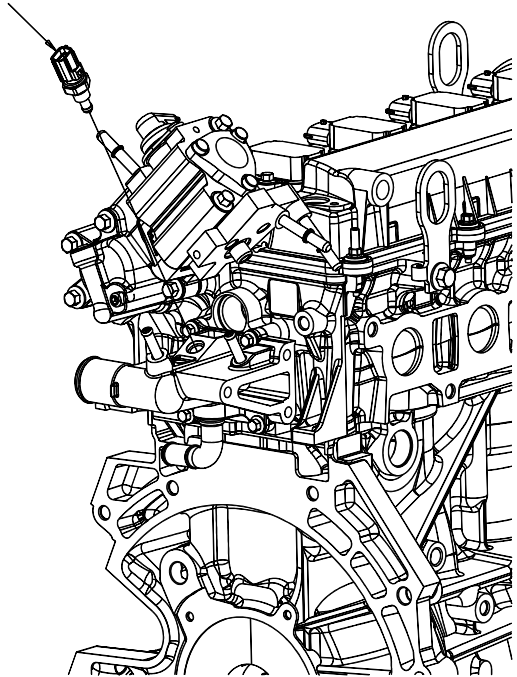
PART NAME/TITLE

IGNITION COIL

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AH	EN00E11190272000	01-03-28	2003 2.3L-4V NON DI	73-E	74-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-12A648- / 18 840  
SENSOR ENGINE COOLING TEMP  
TORQUE  $12 \pm 2$  N·m

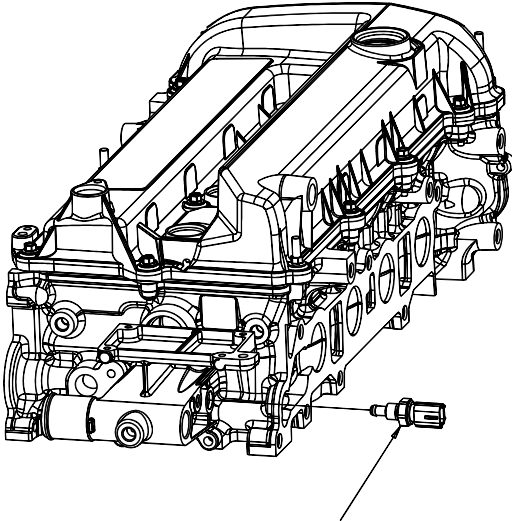


RESTRICTIONS

 PART NAME/TITLE  
 SENSOR ECT

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2002 1.8L-4V DI CD132	74-C	74-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



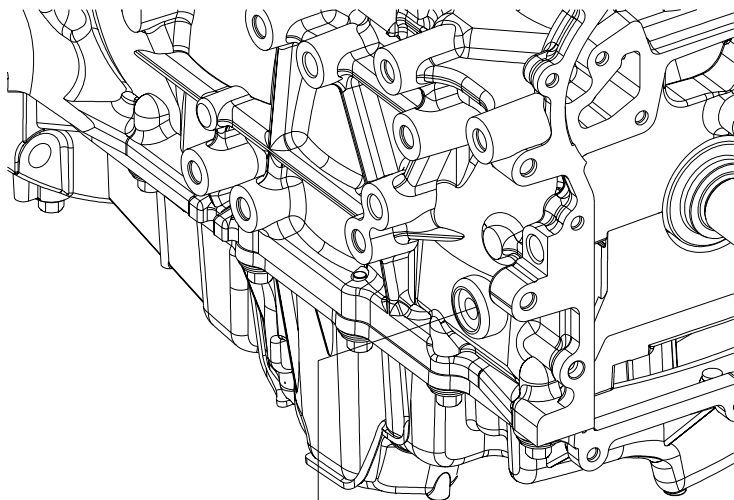
-12A648- / 18 840  
SENSOR ENGINE COOLING TEMP  
TORQUE 12±2 N·m

## RESTRICTIONS

 PART NAME/TITLE  
SENSOR-ECT

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2001 2.0L-4V NON DI CD132	74-D	75

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



W700115-S309 / 9XG00115X9  
 PLUG AND WASHER ASY  
 TORQUE  $20 \pm 2$  N·m  
 TIMING PIN HOLE  
 FIT PLUG AFTER COMPLETING  
 CRANKSHAFT TIMING PROCEDURE

## RESTRICTIONS

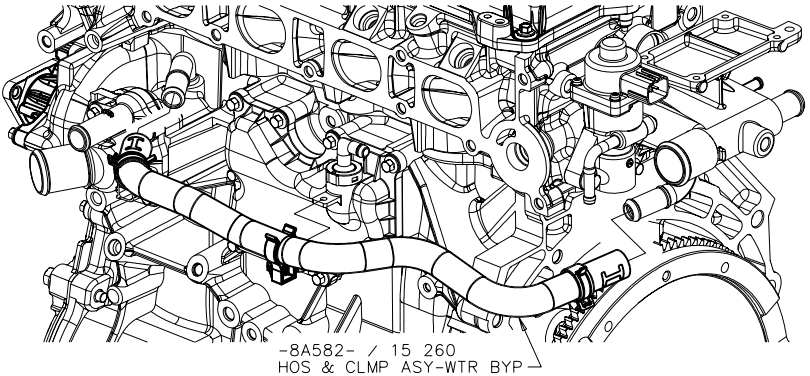
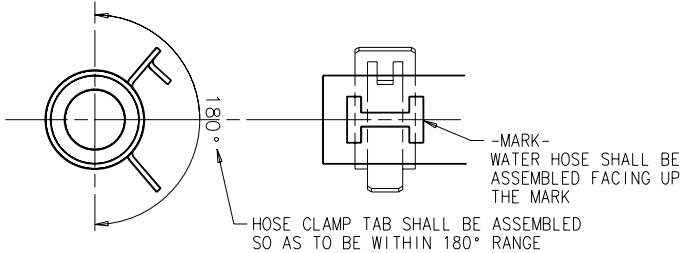
## PART NAME/TITLE

## PLUG-TIMING PIN HOLE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BD	EN00 E 11271059 000	01-11-02	2001 2.0L-4V NON DI CD132	75	76-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



#### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR "ESE-M99B144-A" "ESE-M99B144-B" -Merpol CAN BE USED. ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

#### RESTRICTIONS

#### PART NAME/TITLE

HOSE & CLAMP ASSY-WATER BYPASS

SPECIFICATION NO.  
C1S7G-543-AC

REV  
X

RELEASE NO.  
EN00E11099311000

DATE  
00-10-13

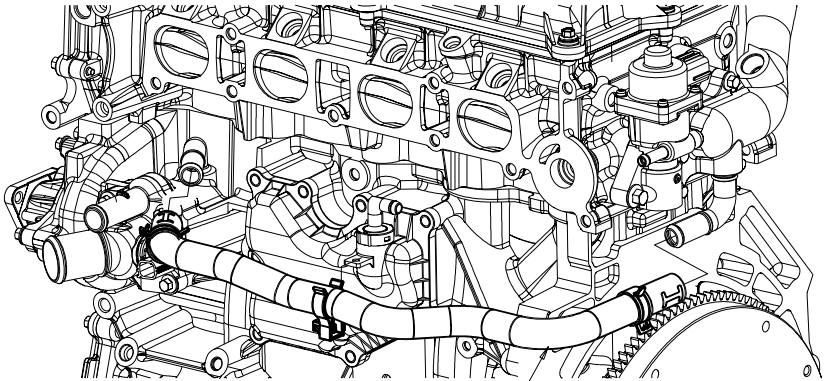
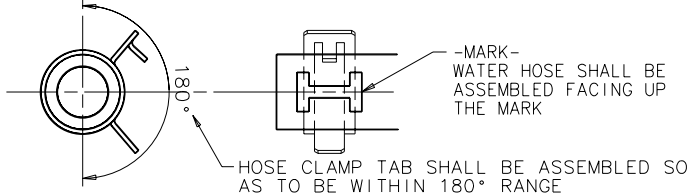
MODEL  
2001 2.0L-4V NON DI CD132

SHEET  
76-A

CONTD.  
76-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



-8A582- / 15 260  
HOS & CLMP ASY-WTR BYP

#### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR "ESE-M99B144-A" "ESE-M99B144-B" -Merpol CAN BE USED. ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

#### RESTRICTIONS

PART NAME/TITLE

HOSE & CLAMP ASY-WATER BYPASS

SPECIFICATION NO.  
C1S7G-543-AC

REV  
X

RELEASE NO.  
EN00E11099311000

DATE  
00-10-13

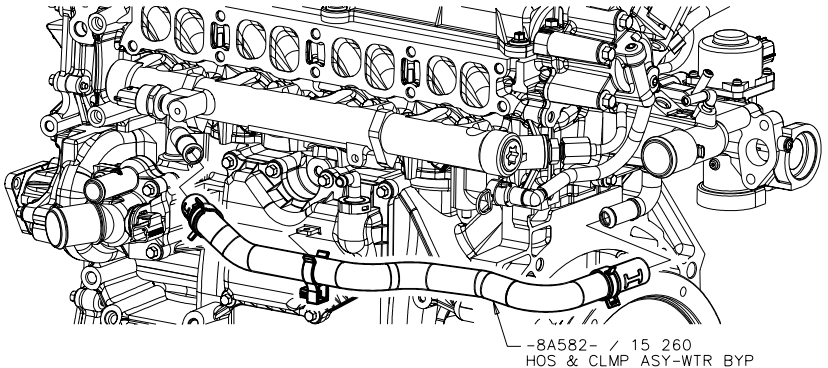
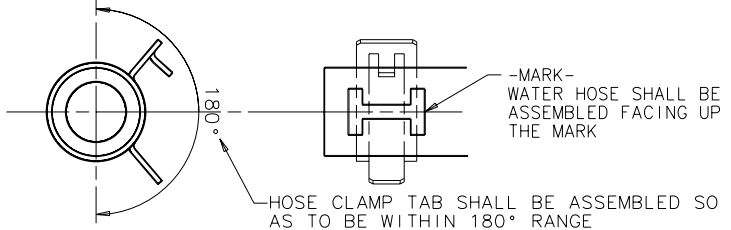
MODEL  
2001 2.3L-4V NON DI RANGER

SHEET  
76-B

CONTD.  
76-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



#### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR "ESE-M99B144-A" "ESE-M99B144-B" -Mepol CAN BE USED. ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

#### RESTRICTIONS

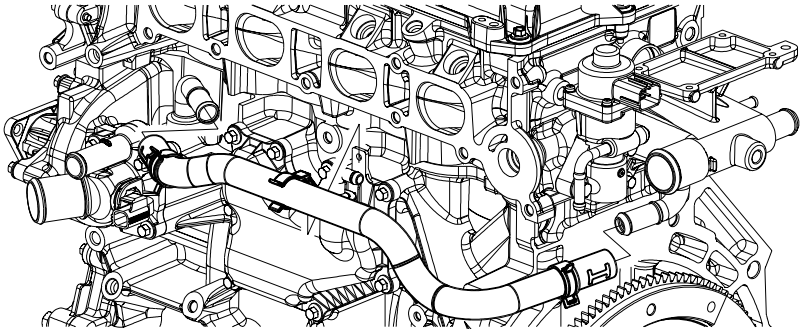
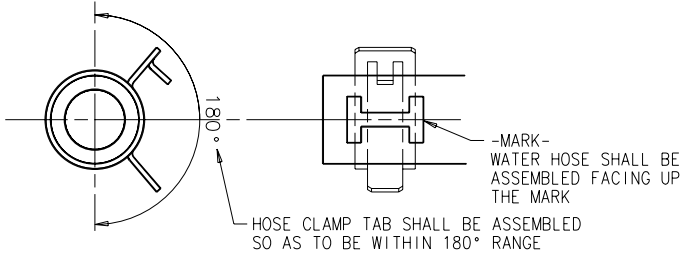
PART NAME/TITLE

HOSE &amp; CLAMP ASSY-WATER BYPASS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	X	EN00E11099311000	00-10-13	2002 1.8L-4V DI CD132	76-C	76-D



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



-8A582- / 15 260  
HOS & CLMP ASY-WTR BYP

### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR "ESE-M99B144-A" "ESE-M99B144-B" -Merpol CAN BE USED. ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

### RESTRICTIONS

PART NAME/TITLE

HOSE & CLAMP ASSY-WATER BYPASS

SPECIFICATION NO.  
C1S7G-543-AC

REV  
X

RELEASE NO.  
EN00E11099311000

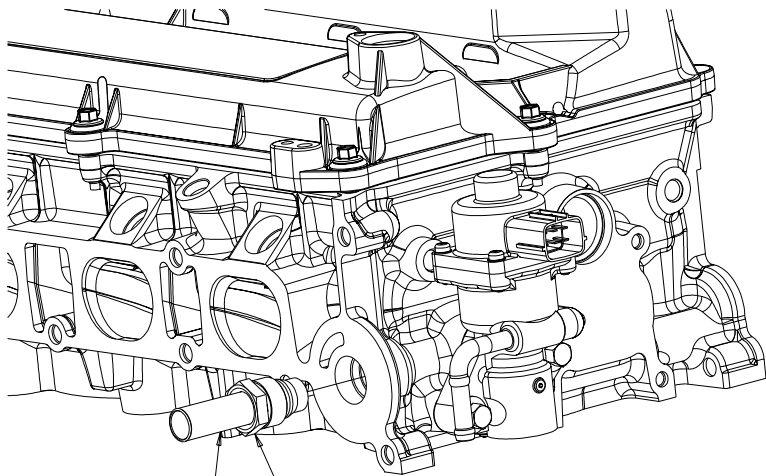
DATE  
00-10-13

MODEL  
2003 2.3L-4V NON-DI J56J

SHEET  
76-D

CONTD.  
77

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



NUT  
TORQUE 55±5 N·m

-9E470-/20 310  
TUBE ASY-E G R OUTLET

RESTRICTIONS				PART NAME/TITLE			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON D1 CD132	77	78-A	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-9U550-/13 158  
SPACER  
2 PLACES

SPACER

INSTALLED CONDITION  
OF SPACER.

-9H487-/13 15X  
FUEL RAIL ASY

W500224/9XF00224  
BOLT M8  
2 PLACES  
▽▽ TORQUE 25±5 N·m

BAR CODE

FORD PART #

1S7G-CB 950505A  
LF01 13 15X

MAZDA PART #

MISASSEMBLY IS NOT ALLOWED.

BAR CODE IS AVAILABLE FOR  
CHECKING CORRECT FUEL RAIL  
TO CORRECT ENGINE.

LUBRICATE WITH  
ENGINE OIL TO  
O-RING ON INJECTOR.  
4 PLACES

### PROCEDURE

1. INSERT THE SPACERS INTO CYLINDER HEAD.
2. INSTALL THE FCA UNTIL THE BRACKETS CONTACT TO THE SPACERS.
3. ENGAGE THE BOLTS IN THREAD.
4. TIGHTEN BOLTS TO SPECIFIED TORQUE.

ENGINE	FORD PART #	MAZDA PART #
1.8L	1S7G-D*	L801 13 15X
2.0L	1S7G-C*	LF01 13 15X
2.3LE/W	2L8G-A*	L305 13 15X

\*: REVISION NUMBER

ENGINE	INJECTOR COLOR
1.8L NON-DI	LIGHT GRAY
2.0L NON-DI	BLACK
2.3L NON-DIE/W	BLACK

NOTE: INTAKE MANIFOLD  
OMMITTED FOR CLARITY.

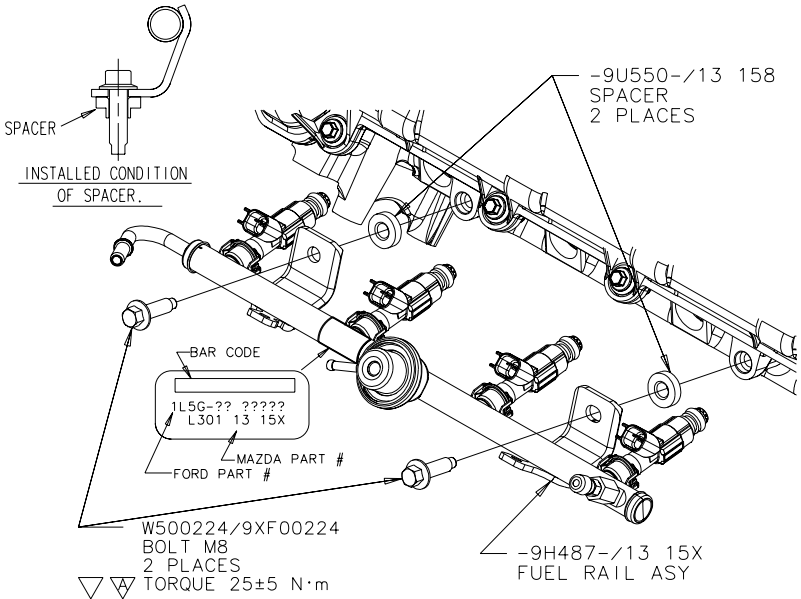
RESTRICTIONS

PART NAME/TITLE

FUEL RAIL ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2001 2.0L-4V NON DI CD132	78-A	78-B

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



PROCEDURE

1. INSERT THE SPACERS INTO CYLINDER HEAD.
2. INSTALL THE FCA UNTIL THE BRACKETS CONTACT TO THE SPACERS.
3. ENGAGE THE BOLTS IN THREAD.
4. TIGHTEN BOLTS TO SPECIFIED TORQUE.

MISASSEMBLY IS NOT ALLOWED.

BAR CODE IS AVAILABLE FOR CHECKING CORRECT FUEL RAIL TO CORRECT ENGINE.

ENGINE	FORD PART #	MAZDA PART #	INJECTOR COLOR
2.3L NS	1L5G-D*	L301 13 15X	LIGHT GRAY
2.3L NS GASOHOL/LEADED	1L5G-E*	L303 13 15X	LIGHT GRAY
2.3L NS	4L5G-A*	L356 13 15X	_____

\*:REVISION NUMBER

RESTRICTIONS					PART NAME/TITLE			
					FUEL RAIL ASSEMBLY			
SPECIFICATION NO. C1S7G-543-AC	REV BD	RELEASE NO. EN00 E 11271059 000	DATE 01-11-02	MODEL 2001 2.3L-4V NON DI RANGER	SHEET 78-B	CONTD. 78-C		

FUEL RAIL RIB

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

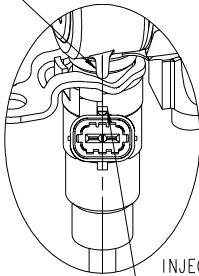
### CLEARANCE LIMITS AND SPECIFICATIONS

PRESS-FIT CONTACTS OF MANF ASY-FUL CHG

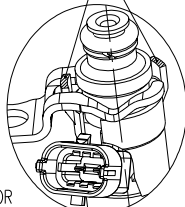
(REF. MAX 400N OF INSERTION FORCE PER INJECTOR)

**NOTE**

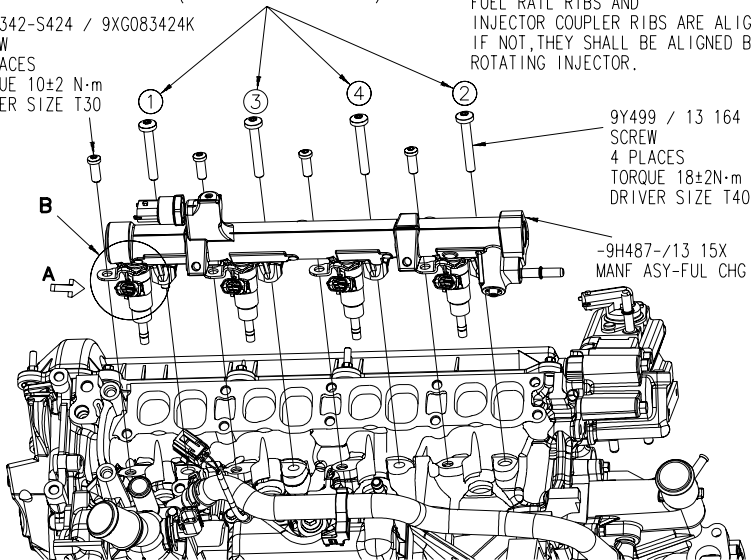
- BEFORE ASSEMBLING MANF ASY-FUL CHG TO CYLINDER HEAD MAKE SURE THAT FUEL RAIL RIB AND INJECTOR COUPLER RIB ARE ALIGNED. (REFER VIEW A)
- PRESS FIT MANF ASY-FUL CHG TO PRESS-FIT CONTACTS SPECIFIED IN DETAIL B.
- TIGHTEN FUEL RAIL FIXING BOLTS AFTER PRESS-FITTING MANF ASY-FUL CHG.
- TIGHTEN STOPPER PLATE BOLTS AFTER TIGHTENING FUEL RAIL BOLTS. BEFORE AND AFTER TIGHTENING STOPPER PLATE BOLTS, CHECK IF FUEL RAIL RIBS AND INJECTOR COUPLER RIBS ARE ALIGNED. IF NOT, THEY SHALL BE ALIGNED BY ROTATING INJECTOR.

**VIEW A**

(INSERTION DIRECTION OF HARNESS CONNECTOR)

**DETAIL B**TIGHTENING SEQUENCE  
(SINGLE WRENCH METHOD)

W708342-S424 / 9XG083424K  
SCREW  
4 PLACES  
TORQUE  $10 \pm 2$  N·m  
DRIVER SIZE T30



9Y499 / 13 164  
SCREW  
4 PLACES  
TORQUE  $18 \pm 2$  N·m  
DRIVER SIZE T40

-9H487- / 13 15X  
MANF ASY-FUL CHG

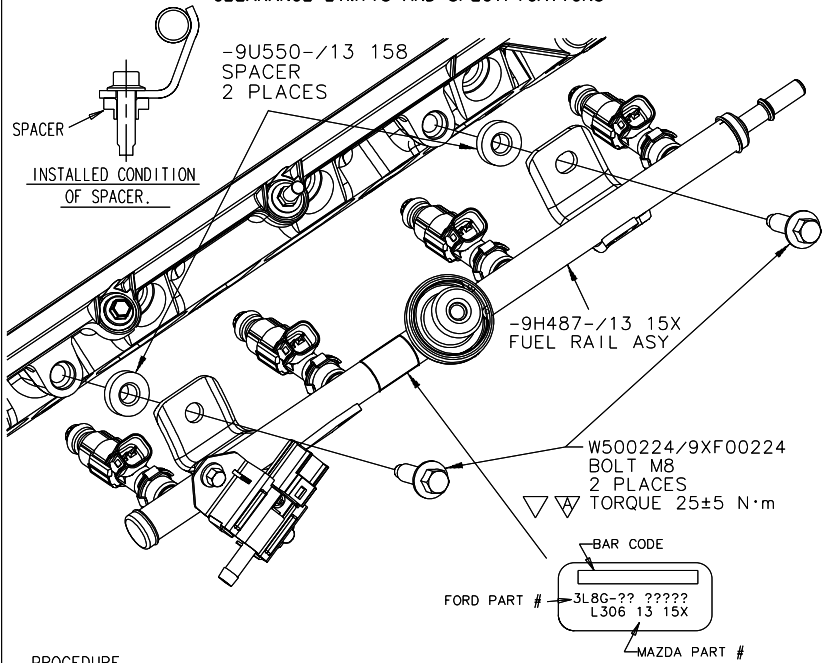
RESTRICTIONS

PART NAME/TITLE

FUEL RAIL ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AT	EN00 E 11231785 007	'01-07-13	2001 1.8L-4V DI CD132	78-C	78-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



PROCEDURE

1. INSERT THE SPACERS INTO CYLINDER HEAD.
2. INSTALL THE FCA UNTIL THE BRACKETS CONTACT TO THE SPACERS.
3. ENGAGE THE BOLTS IN THREAD.
4. TIGHTEN BOLTS TO SPECIFIED TORQUE.

MISASSEMBLY IS NOT ALLOWED.

BAR CODE IS AVAILABLE FOR CHECKING CORRECT FUEL RAIL TO CORRECT ENGINE.

NOTE: INTAKE MANIFOLD OMITTED FOR CLARITY.

ENGINE	FORD PART #	MAZDA PART #
2.3L E/W	3L8G-A*	L306 13 15X

\*: REVISION NUMBER

ENGINE	INJECTOR COLOR
2.3L NON-DIE/W	NECTARINE

RESTRICTIONS

PART NAME/TITLE  
FUEL RAIL ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AD	EN00 E 11177532 000	010129	2003 2.3L-4V NON DI U204	78-D	78-E

CONFIDENTIAL



**mazda**

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

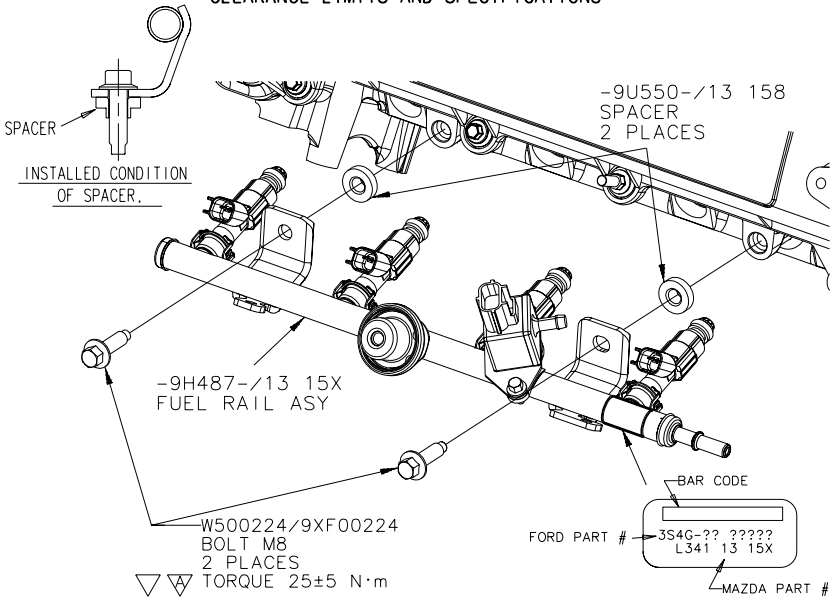
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RESTRICTIONS

PART NAME/TITLE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
<b>C1S7G-543-AC</b>	<b>AV</b>	<b>EN00E11252991000</b>	<b>01-08-11</b>	<b>2003 2.3L-4V NON DI P273</b>	<b>78-E</b>	<b>78-F</b>

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



PROCEDURE

1. INSERT THE SPACERS INTO CYLINDER HEAD.
2. INSTALL THE FCA UNTIL THE BRACKETS CONTACT TO THE SPACERS.
3. ENGAGE THE BOLTS IN THREAD.
4. TIGHTEN BOLTS TO SPECIFIED TORQUE.

MISASSEMBLY IS NOT ALLOWED.

BAR CODE IS AVAILABLE FOR CHECKING CORRECT FUEL RAIL TO CORRECT ENGINE.

NOTE: INTAKE MANIFOLD  
OMMITTED FOR CLARITY.

ENGINE	FORD PART #	MAZDA PART #
2.3L E/W	3S4G-A*	L341 13 15X

\*: REVISION NUMBER

ENGINE	INJECTOR COLOR
2.3L NON-DIE/W	FIRE RED

RESTRICTIONS

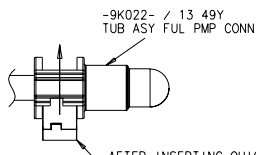
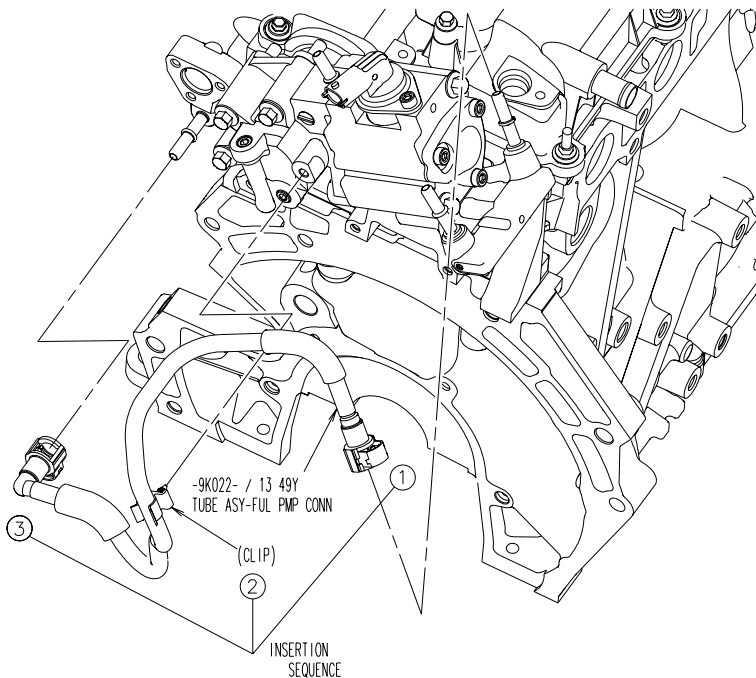
PART NAME/TITLE

FUEL RAIL ASSEMBLY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C3S4G-543-AC	AV	EN00 E 11252991 000	01-08-11	2003 2.3L-4V NON DI C170	78-F	79-C



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



TUB ASY FUL PMP CONN PROCEDURE

### DETAIL-A

#### ASSEMBLY PROCEDURE

- (1) INSERT QUICK CONNECTOR TO FUEL PIPE TO THE END.
- (2) PUSH UPWARD THE LOCKING FEATURE (RED PART) TO LOCK ON THE PIPE AS SHOWN IN DETAIL-A.
- (3) AFTER THE LOCKING FEATURE OF QUICK CONNECTOR IS LOCKED, SLIDE QUICK CONNECTORS BACK AND FORTH IN PIPE AXIAL DIRECTION ONE TIME, AND MAKE SURE THEY DO NOT COME OFF.

#### REMOVAL PROCEDURE

- (1) PINCH THE RETAINING TABS ON THE LOCKING FEATURE AND SIMULTANEOUSLY PUSH DOWN.
- (2) PULL THE QUICK CONNECTOR.

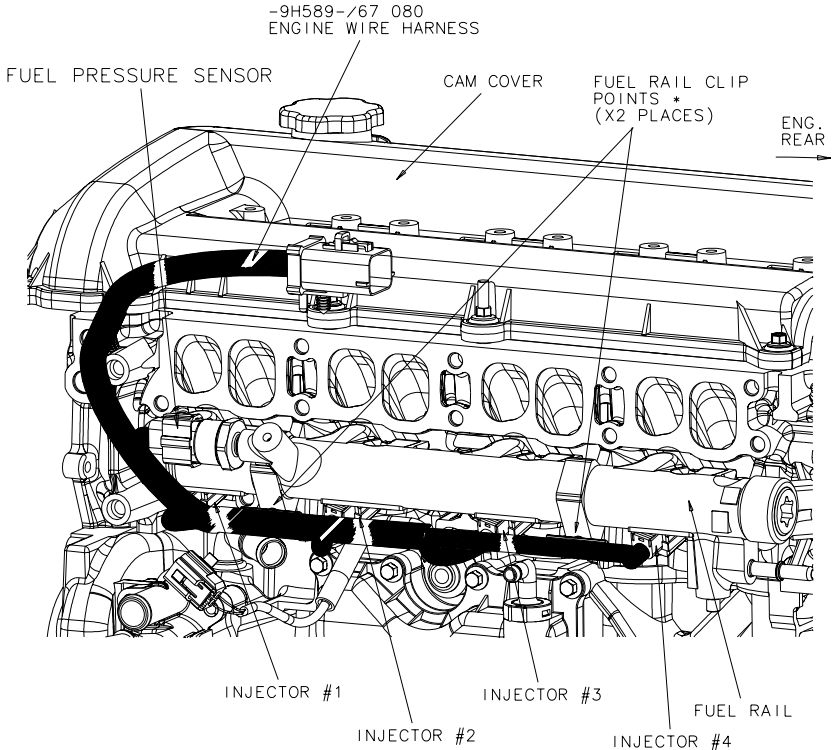
RESTRICTIONS

PART NAME/TITLE

FUEL RETURN HOSE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AT	EN00 E 11231785 007	'01-07-13	2001 1.8L-4V DI CD132	79-C	80-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.

1. CLIP HARNESS TO FUEL RAIL. (2 PLACES)
2. CONNECT INJECTOR #1-#4. (4 PLACES)
3. CONNECT FUEL PRESSURE SENSOR.

(NOTE1) ALL 2 CLIPS (\*) ARE HARNESS-INTEGRATED PLASTIC RETAINERS.

(NOTE2) THE ELECTRICAL CONNECTORS SHOULD BE INSERTED STRAIGHT AND CONFIRMED WHETHER THEY ARE IN THEIR "LOCKED" POSITION.

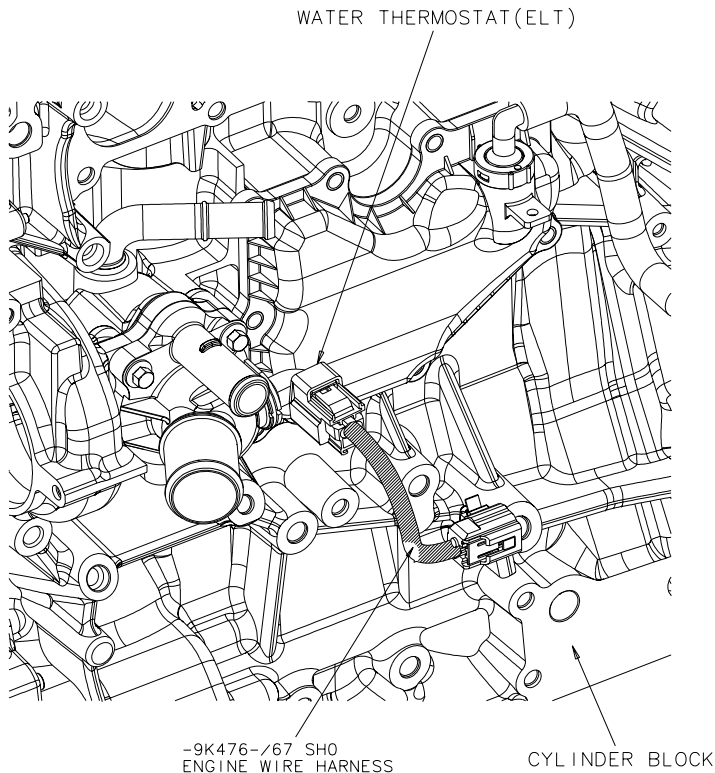
## RESTRICTIONS

## PART NAME/TITLE

## ENGINE WIRE HARNESS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2002 1.8L-4V D1 CD132	80-C	81-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.  
1. CONNECT THERMOSTAT (ELT)

(NOTE 1) THE ELECTRICAL CONNECTOR SHOULD BE INSERTED STRAIGHT AND CONFIRMED WHETHER IT IS IN ITS "LOCKED" POSITION.

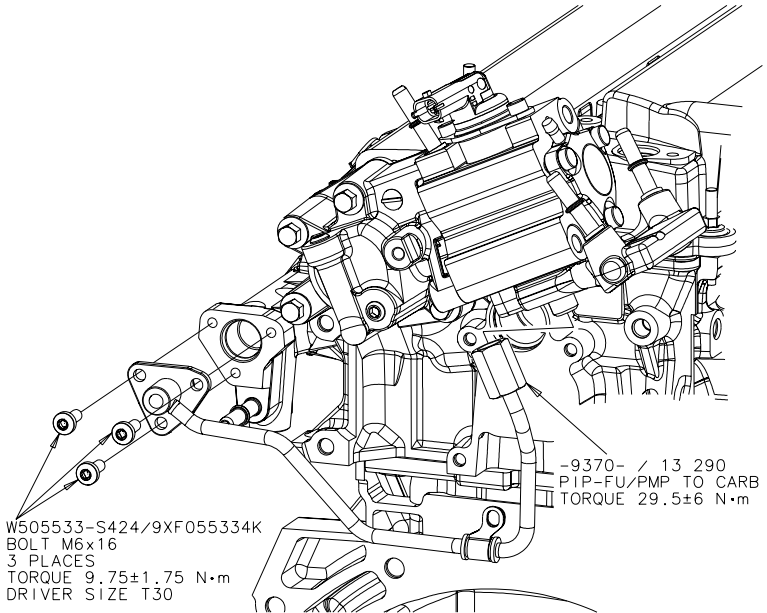
## RESTRICTIONS

## PART NAME/TITLE

## ENGINE WIRE HARNESS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AH	EN00E11190272000	01-03-28	2003 2.3L-4V NONDI	81-C	82-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### ASSEMBLY PROCEDURE

- (1) LUBRICATE O-RING WITH ENGINE OIL ON FUEL RAIL SIDE OF THE PIP-FU/PMP TO CARB.
- (2) ASSEMBLE THE CONNECTION OF FUEL RAIL SIDE SQUARELY TO AVOID O-RING DISTORTION.
- (3) LIGHTLY TIGHTEN THE THREE FIXING BOLTS ON FUEL RAIL SIDE.
- (4) LIGHTLY TIGHTEN THE COUPLING NUT ON FUEL PUMPSIDE OF THE PIP-FU/PMP TO CARB.
- (5) TIGHTEN THE COUPLING NUT ON FUEL PUMP SIDE OF THE PIP-FU/PMP TO CARB WITH SPECIFIED TORQUE.
- (6) TIGHTEN THE THREE FIXING BOLTS ON FUEL RAIL SIDE WITH SPECIFIED TORQUE.

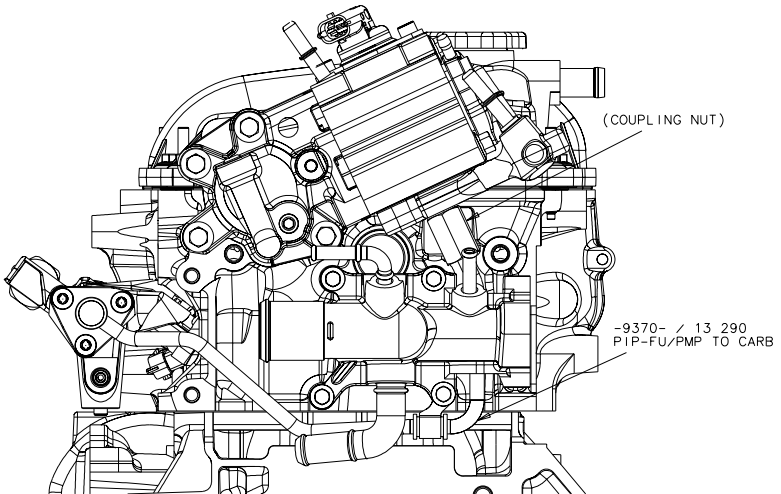
#### RESTRICTIONS

#### PART NAME/TITLE

#### HIGH PRESSURE FUEL PIPE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AT	EN00 E 11231785 007	*01-07-13	2001 1.8L-4V DI CD132	82-C	83-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



< NOTE >

BECAUSE SOME AMOUNT OF PRESSURE REMAINS IN FUEL PATH, USE ABSORBABLE PAPER TO PREVENT FUEL FROM SPLASHING WHEN TO REMOVE CONNECTORS FROM FUEL PIPE ENDS. DO NOT RE-USE PAPER.

REMOVAL PROCEDURE

- (1) LOOSEN THE COUPLING NUT (WRENCH SIZE: 19mm) ON FUEL PUMP SIDE OF THE PIP-FU/PMP TO CARB.
- (2) LOOSEN THE THREE FIXING BOLTS ON FUEL RAIL SIDE.

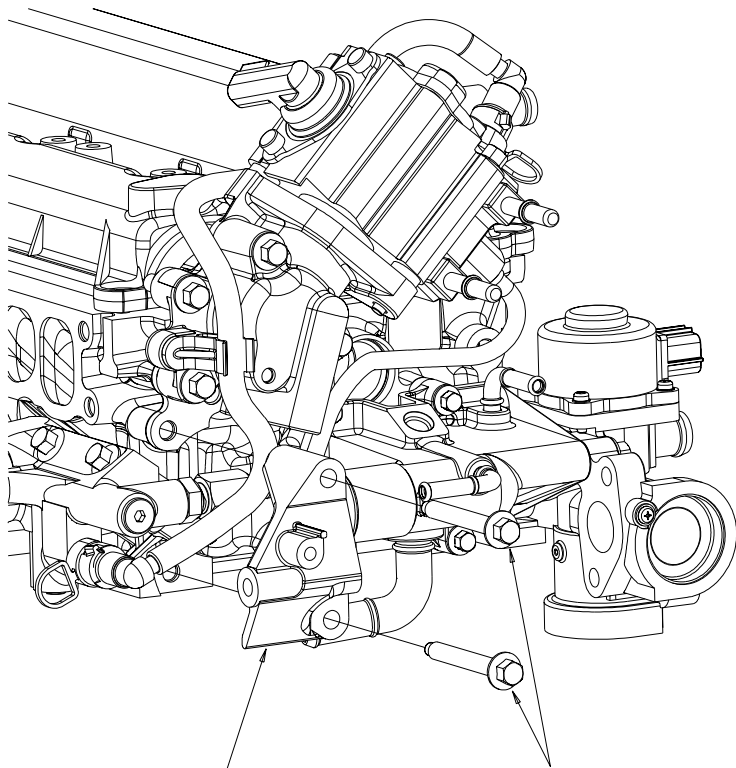
RESTRICTIONS

PART NAME/TITLE

HIGH PRESSURE FUEL PIPE / MARKET SERVICE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AT	EN00 E 11231785 007	'01-07-13	2001 1.8L-4V DI CD132	83-C	84-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



-9J444-/13 121  
SUPT-INTK MANF

W500224/9XF00224  
BOLT M8  
2 PLACES  
TORQUE 16-20 N·m

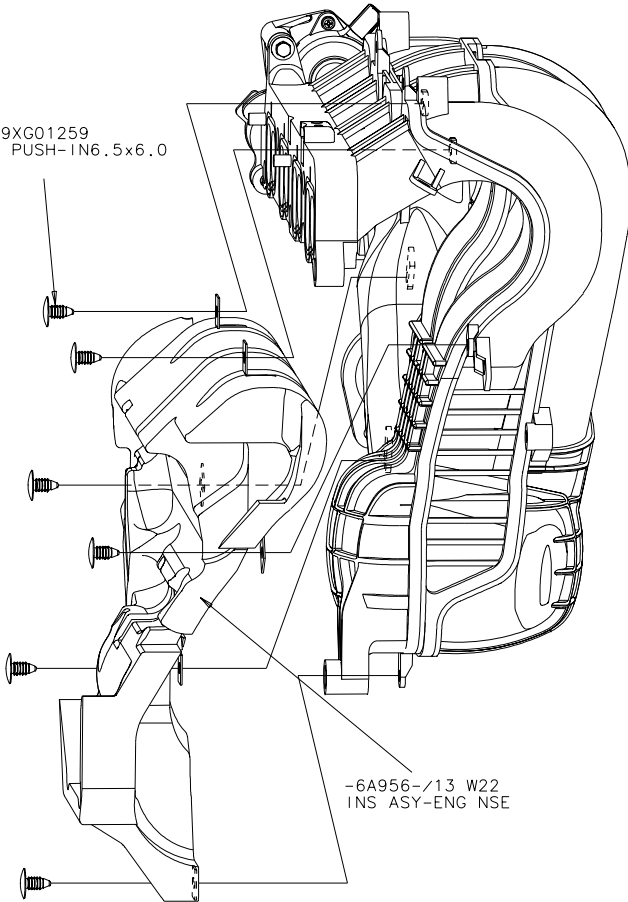
RESTRICTIONS

 PART NAME/TITLE  
 SUPT-INTK MANF

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	T	EN00E11095813000	00-06-30	2002 1.8L-4V DI CD132	84-C	84-D

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W701259/9XG01259  
FASTENER PUSH-IN 6.5x6.0  
6 PLACES



-6A956-/13 W22  
INS ASY-ENG NSE

RESTRICTIONS

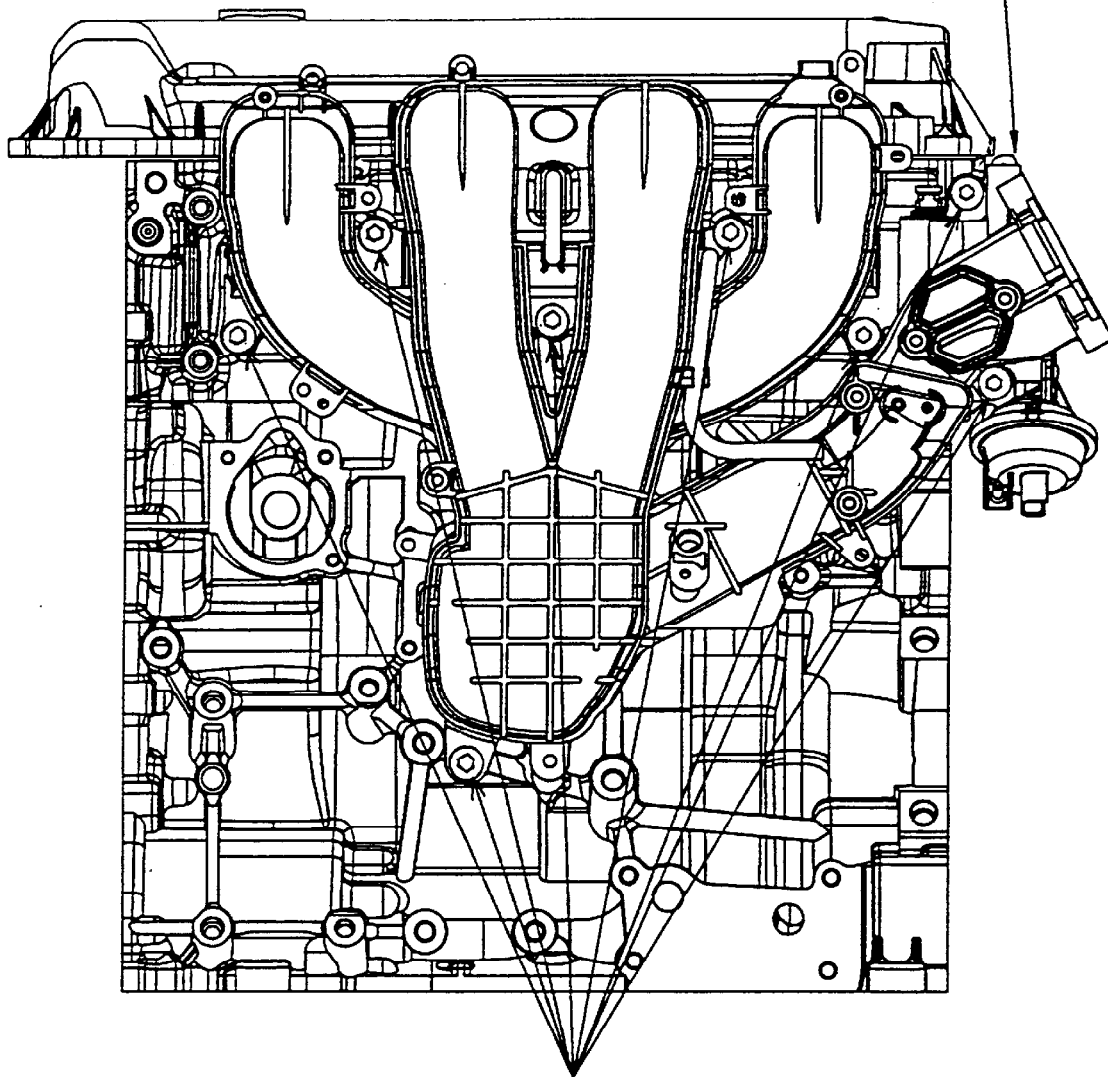
PART NAME/TITLE

FUEL RAIL COVER

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	T	EN00E11095813000	00-06-30	2002 1.8L-4V DI CD132	84-D	85-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-9424-/13 100  
INTAKE MANIFOLD



W500311/9XF00311  
BOLT M8  
8 PLACES  
TORQUE 18±2 N·m

**NOTES**

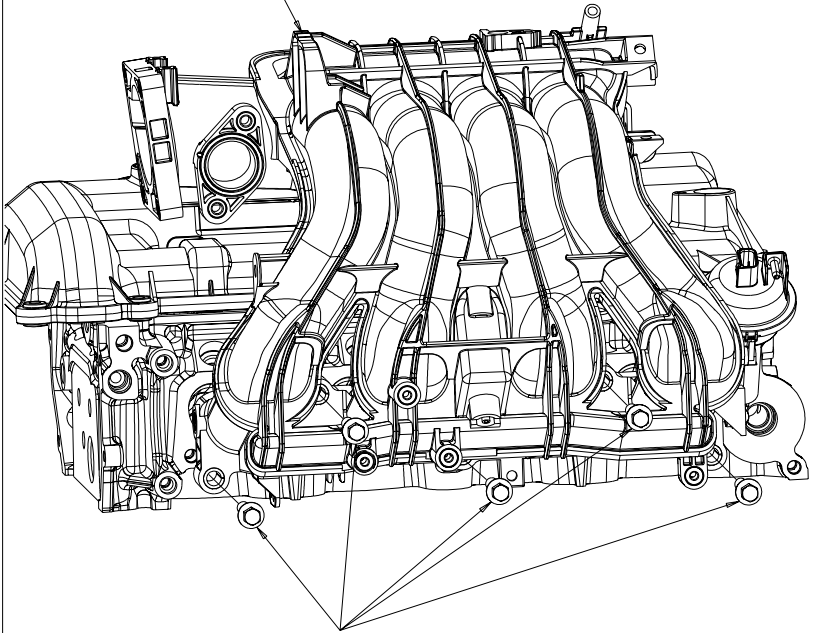
1. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER HEAD)
2. THE GASKET MUST BE FITTED TO SEAL GOOVE BEFORE ASSEMBLY.
3. DO NOT ASSEMBLE PARTS THAT HAVE DAMAGE.

RESTRICTIONS				PART NAME/TITLE			
				INTAKE MANIFOLD			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
CIS7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.0L-4V NON DI CD132	85-A	85-B	



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-9424-/13 100  
INTAKE MANIFOLD



W500311/9XF00311  
BOLT M8  
5 PLACES  
TORQUE 18±2 N·m

### NOTES

1. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER BLOCK)
2. THE GASKET MUST BE FITTED TO SEAL GROOVE BEFORE ASSEMBLY.
3. DO NOT ASSEMBLE PARTS THAT HAVE DAMAGE.

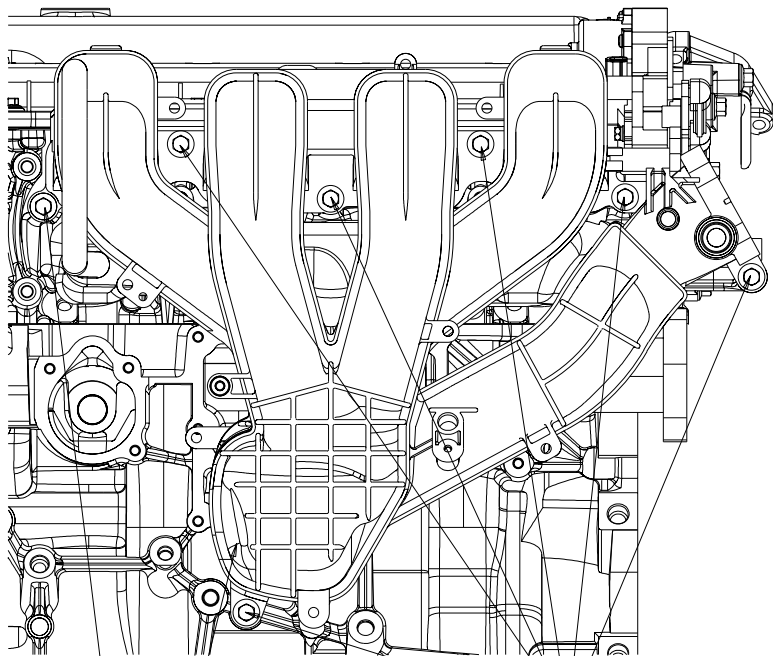
### RESTRICTIONS

PART NAME/TITLE

INTAKE MANIFOLD

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
CIS7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.3L-4V NON DI RANGER	85-B	85-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



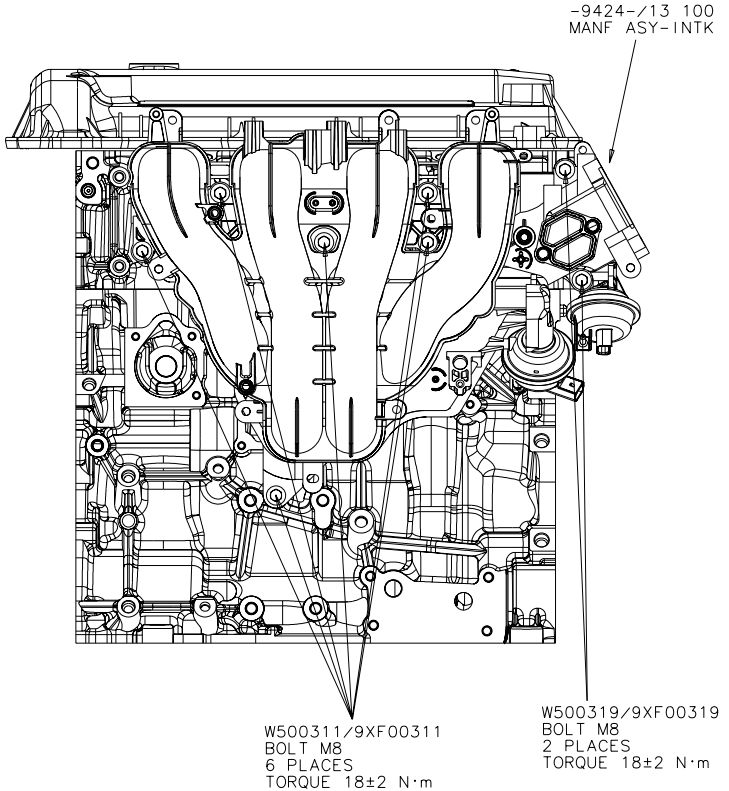
-9424-/13 100  
MANF ASY-INTK

W500224/9XF00224  
BOLT M8  
TORQUE 16-20Nm

W500311/9XF00311  
BOLT M8  
6 PLACES  
TORQUE 16-20Nm

RESTRICTIONS				PART NAME/TITLE			
				INTK MANF			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
CIS7G-543-AC	D	EN00F10933475002	99-03-31	2002 1.8L-4V DI CD132	85-C	85-D	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. DO NOT ASSEMBLE PARTS WHERE THERE ARE SCRATCHES OR FOREIGN MATTER WHICH WILL AFFECT SEALABILITY. (INCLUDING CYLINDER HEAD)
2. THE GASKET MUST BE FITTED TO SEAL GROOVE BEFORE ASSEMBLY.
3. DO NOT ASSEMBLE PARTS THAT HAVE DAMAGE.

### RESTRICTIONS

PART NAME/TITLE

INTAKE MANIFOLD

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
CIS7G-543-AC	BL	EN00E11271652000	01-11-15	2002 2.3L-4V NON DI	85-D	86-D

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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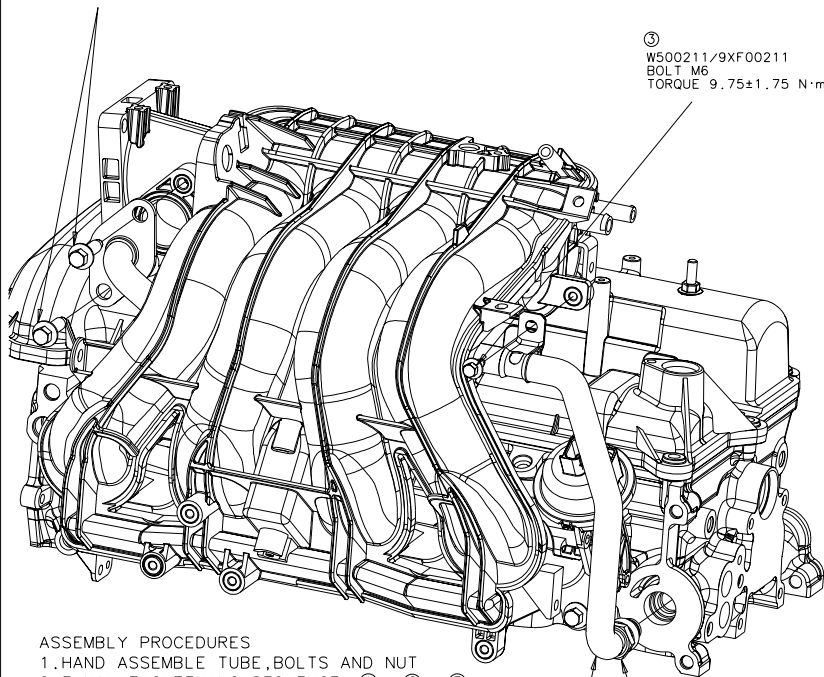
PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL 2003 2.8L-4V NON DI RANGER	SHEET <b>86-D</b>	CONTD. <b>87-B</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

②  
W500222/9XF00222  
BOLT M8  
2 PLACES  
TORQUE 18±2 N·m

③  
W500211/9XF00211  
BOLT M6  
TORQUE 9.75±1.75 N·m



### ASSEMBLY PROCEDURES

1. HAND ASSEMBLE TUBE, BOLTS AND NUT
2. FINAL TIGHTENING SEQUENCE: ① - ② - ③
3. EUSURE PROTECTIVE SOCK IS COVERING THE FULL LENGTH OF THE EGR TUBE

①  
NUT  
TORQUE 55±5 N·m  
-9E470-/20 310  
TUBE ASY-E G R OUTLET

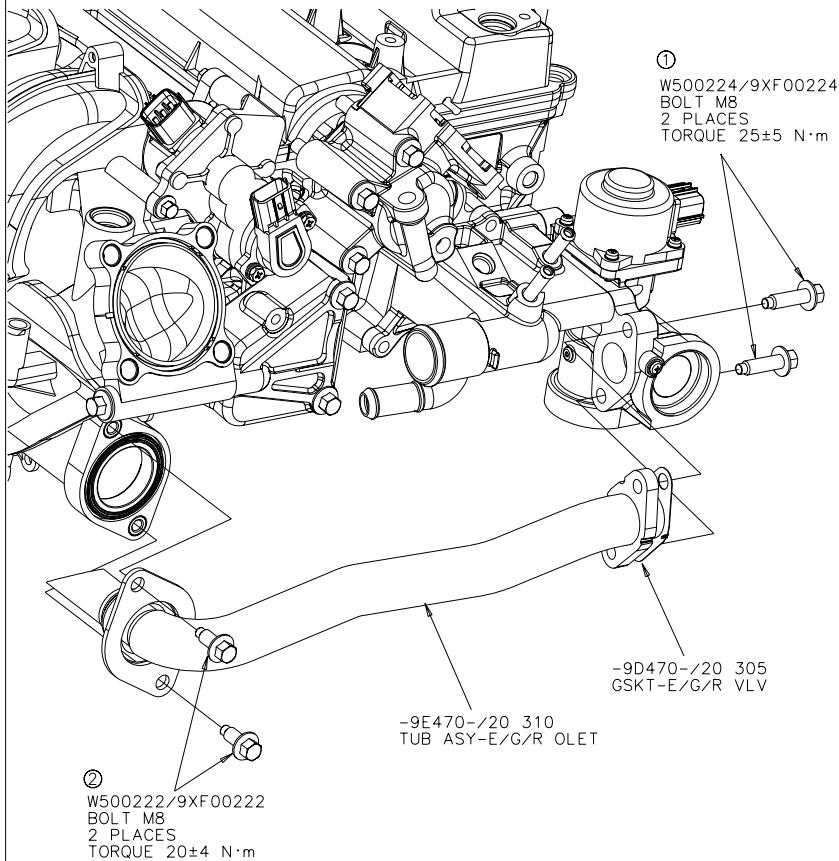
RESTRICTIONS

PART NAME/TITLE

EGR TUBE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.3L-4V NON DI RANGER	87-B	87-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



TIGHTENING ORDER: ① - ②

RESTRICTIONS				PART NAME/TITLE			
				EGR OUTLET			
SPECIFICATION NO. C1S7G-543-AC	REV T	RELEASE NO. EN00E11095813000	DATE 00-06-30	MODEL 2002 1.8L-4V DI CD132	SHEET 87C	CONTD. 87D	

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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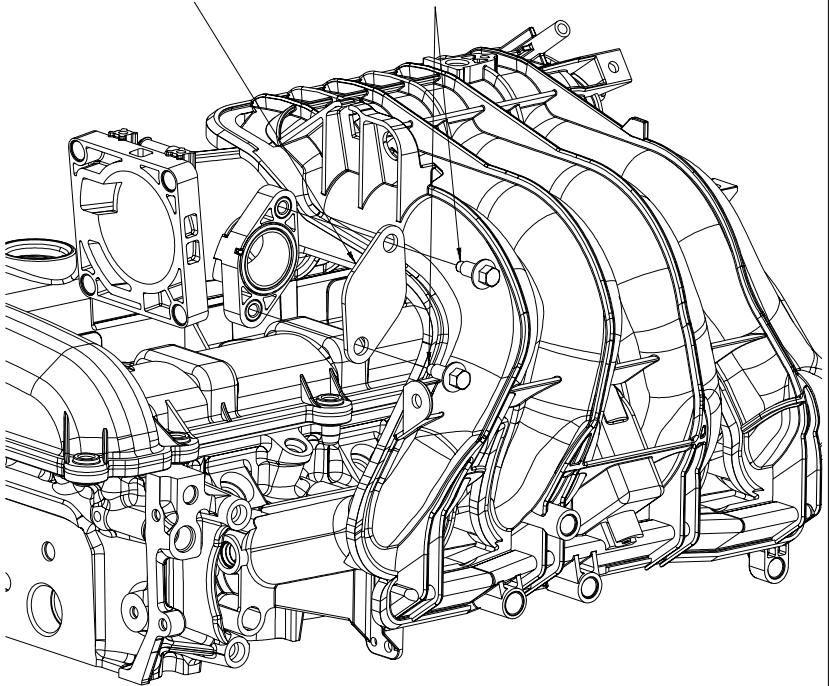
PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>W</b>	RELEASE NO. <b>EN00E11140144000</b>	DATE <b>00-10-01</b>	MODEL 2003 2.8L-4V NON DI RANGER	SHEET <b>87-D</b>	CONTD. <b>87-E</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

-7081-/20 301  
PLATE-BLANKING

W500222/9XF00222  
BOLT M8  
2 PLACES  
TORQUE 18±2 N·m



FOR GASHOL/LEADED, ONLY

RESTRICTIONS

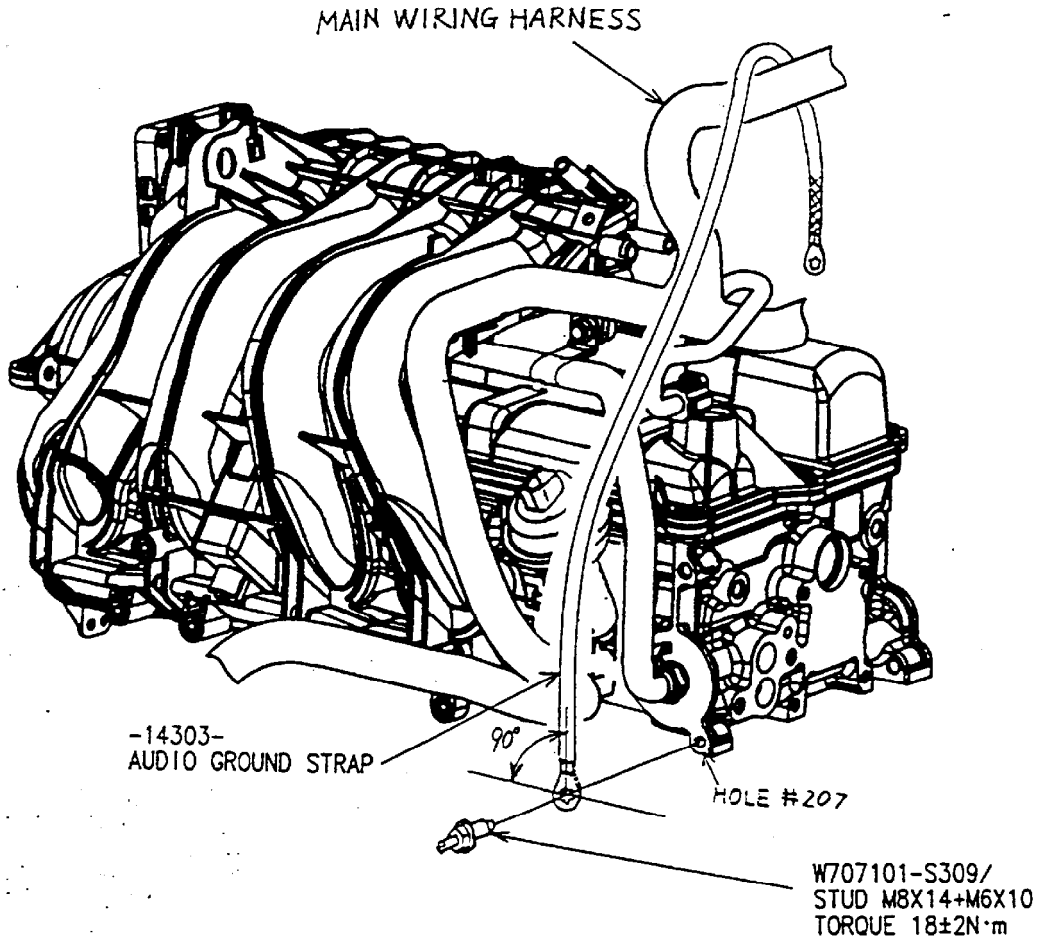
PART NAME/TITLE

EGR BLANKING PLATE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.3L-4V NON DI RANGER	87-E	87-F



ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



NOTES

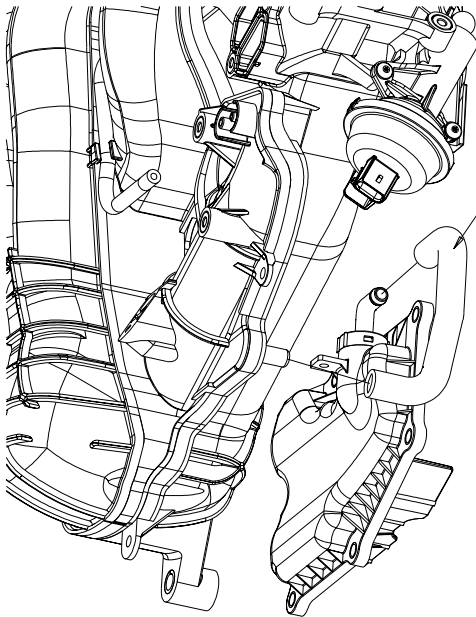
1. ASSEMBLE THE LARGE EYELET END UNDER THE STUD TO CYLINDER HEAD HOLE 207 WITH EYELET POINTING VERTICAL.
2. THE VEHICLE SIDE EYELET SHOULD BE LOOPED OVER THE MAIN WIRING HARNESS. (SEE SKETCH)

RESTRICTIONS

PART NAME/TITLE  
AUDIO GROUND STRAP

SPECIFICATION NO. C1S7G-543-AC	REV N	RELEASE NO. EN00E11030674000	DATE 00-02-10	MODEL 2001 2.3L-4V NON DI RANGER	SHEET 87-F	CONTD. 88-A
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



-6758-/13 895  
HOSE-CRANKCASE VENT

### NOTES

1. HOSE SHALL BE INSERTED TO FULL DEPTH.
2. HOSE CAN BE ASSEMBLED TO EITHER END.
3. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR \*ESE-M99B144-A\*\*ESE-M99B144-B\*-Merpol CAN BE USED.

### RESTRICTIONS

SPECIFICATION NO.  
CIS7G-543-AC

REV  
X

RELEASE NO.  
EN00E11099311000

DATE  
00-10-13

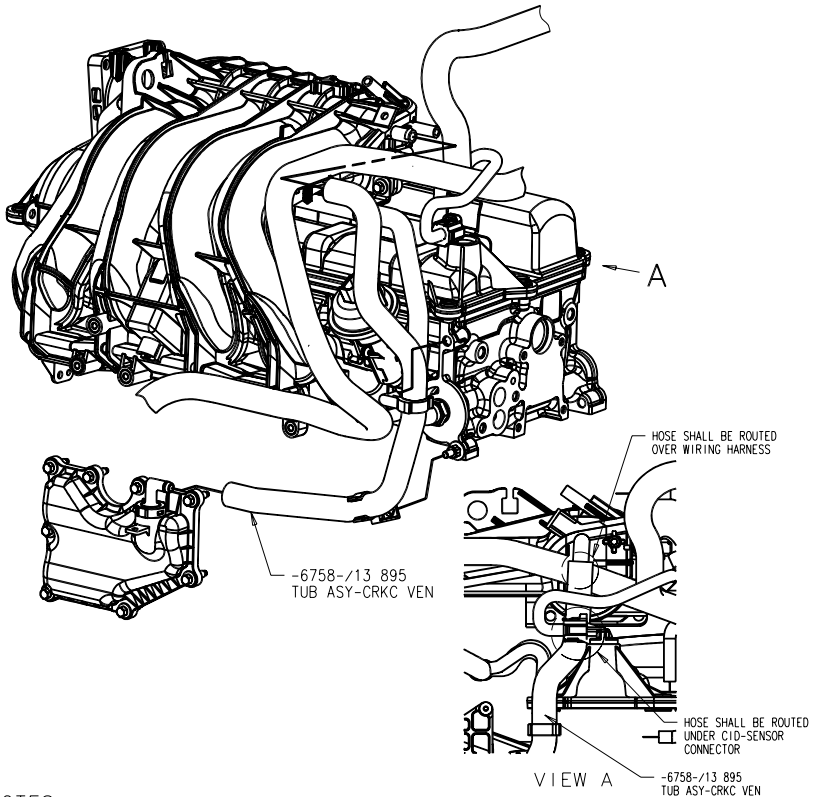
MODEL  
2001 2.0L-4V NON DI CD132

SHEET  
88-A

CONTD.  
88-B

### PART NAME/TITLE CRANKCASE VENTILATION

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

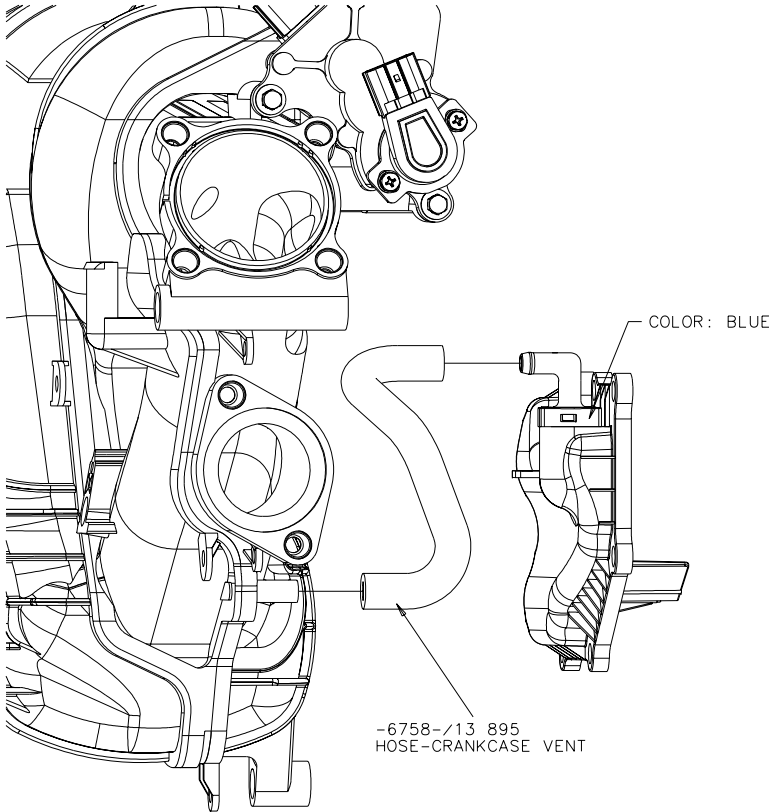
1. HOSE SHALL BE INSERTED INTO NIPPLE TO FULL DEPTH.
2. CLIP SHALL BE INSERTED INTO THREAD TO FULL DEPTH.
3. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR "ESE-M99B144-A" "ESE-M99B144-B" -Merpol CAN BE USED.

### RESTRICTIONS

### PART NAME/TITLE CRANKCASE VENTILATION

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	X	EN00E11099311000	00-10-13	2001 2.3L-4V NON DI RANGER	88-B	88-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

1. HOSE SHALL BE INSERTED TO FULL DEPTH.
2. HOSE CAN BE ASSEMBLED TO EITHER END.
3. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION OR "ESE-M99B144-A" "ESE-M99B144-B" -Merpol CAN BE USED.

RESTRICTIONS				PART NAME/TITLE			
				CRANKCASE VENTILATION			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
CIS7G-543-AC	X	EN00E11099311000	00-10-13	2002 1.8L-4V DI CD132	88-C	88-D	

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**W**

RELEASE NO.  
**EN00E11140144000**

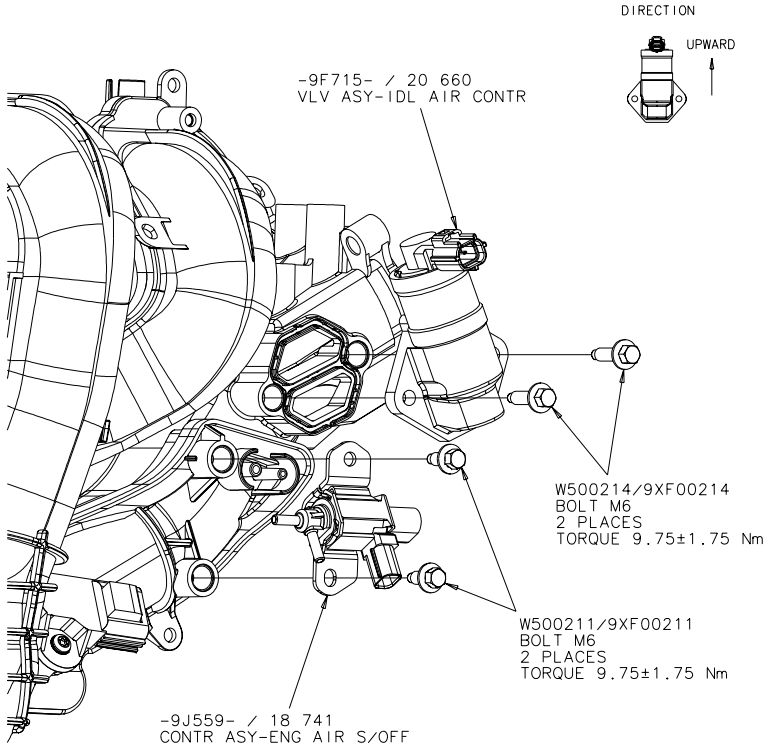
DATE  
**00-10-01**

MODEL  
**2003 2.8L-4V NON DI RANGER**

SHEET  
**88-D**

CONTD.  
**89-A**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

## PART NAME/TITLE

AIR BYPASS VALVE &amp; SOLENOID VALVE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	89-A	89-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W500214/9XF00214

BOLT M6

2 PLACES

TORQUE  $9.75 \pm 1.75$  N·m

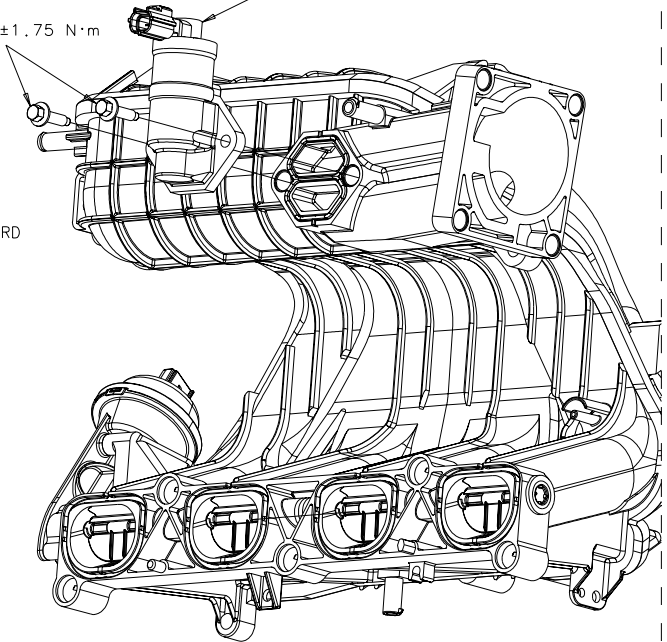
-9F715-/20 660

VLV ASY-IDL AIR CONTR

DIRECTION



UPWARD



RESTRICTIONS

PART NAME/TITLE

AIR BYPASS VALVE

 SPECIFICATION NO.  
C1S7G-543-AC

 REV  
H

 RELEASE NO.  
EN00E11007392000

 DATE  
99-09-06

 MODEL  
2001 2.3L-4V NON DI RANGER

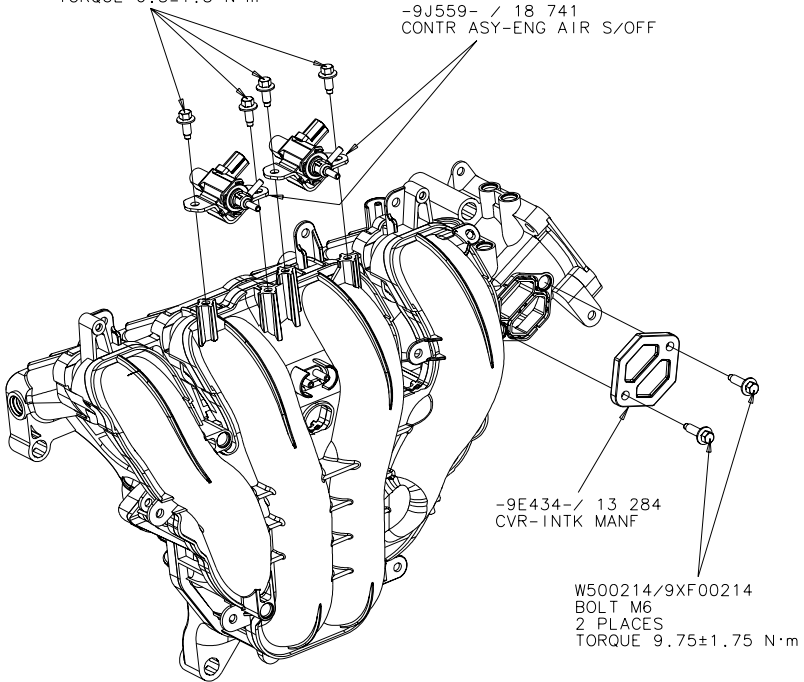
 SHEET  
89-B

 CONTD.  
89-D

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W505974/9FA0200049  
SCREW 6X16  
4 PLACES  
TORQUE 6.5±1.5 N·m

-9J559- / 18 741  
CONTR ASY-ENG AIR S/OFF



-9E434- / 13 284  
CVR-INTK MANF

W500214/9XF00214  
BOLT M6  
2 PLACES  
TORQUE 9.75±1.75 N·m

RESTRICTIONS

PART NAME/TITLE

IABV BLANKING PLATE AND SOLENOID VALVE

SPECIFICATION NO.  
CIS7G-543-AC

REV  
BL

RELEASE NO.  
EN00E11271652000

DATE  
01-11-15

MODEL  
2002 2.3L-4V NON DI

SHEET  
89-D

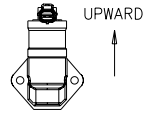
CONTD.  
89-E



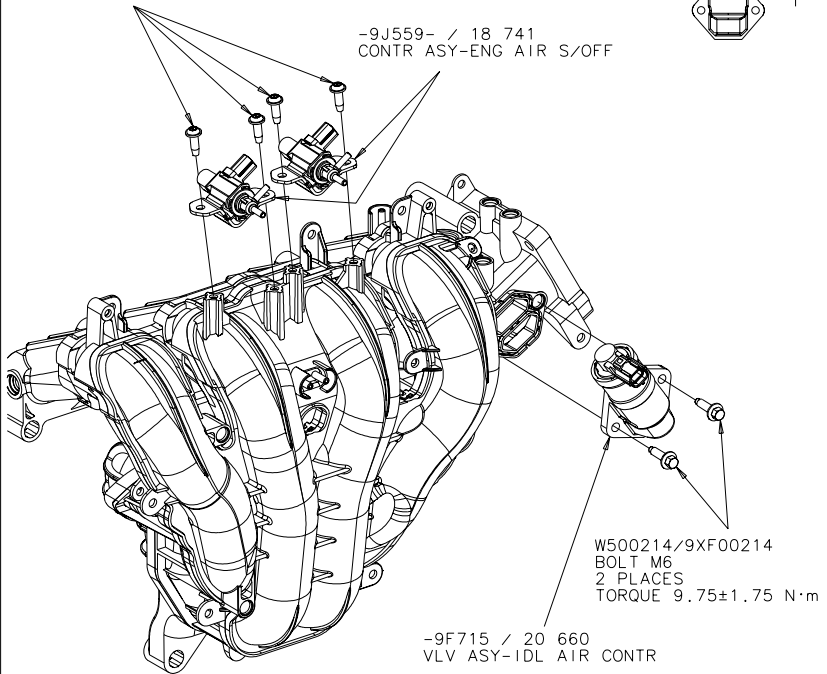
## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W505974/9FA0200049  
SCREW 6X16  
4 PLACES  
TORQUE 6.5±1.5 N·m

DIRECTION



-9J559- / 18 741  
CONTR ASY-ENG AIR S/OFF



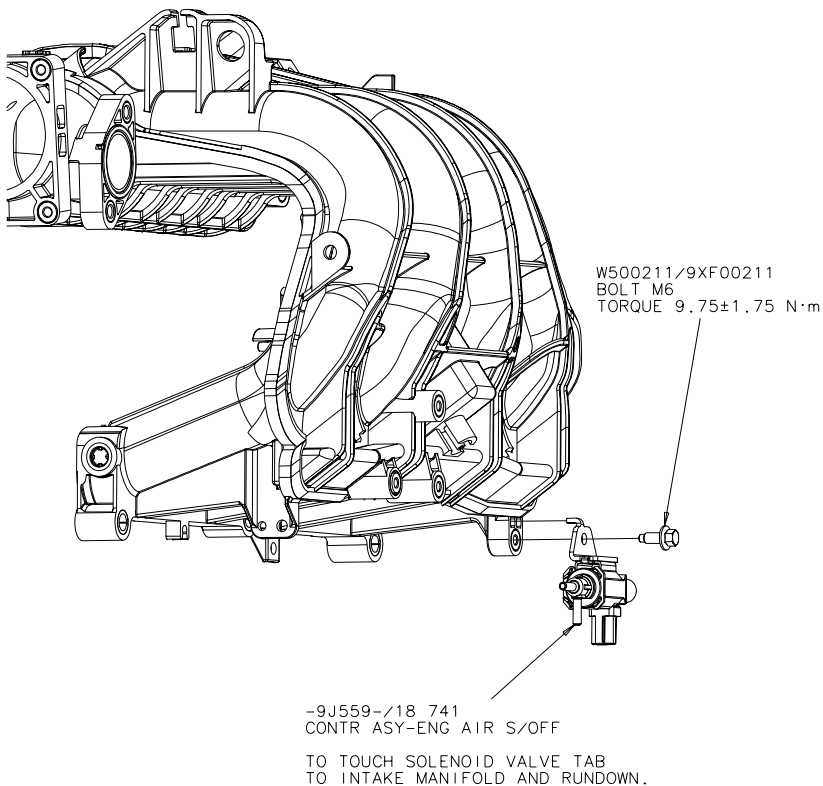
RESTRICTIONS

PART NAME/TITLE

AIR BYPASS VALVE &amp; SOLENOID VALVE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AM	EN00E11210521001	01-05-28	2003 2.3L-4V NON-DI J71	89-E	89-F

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE  
SOLENOID VALVE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.3L-4V NON DI RANGER	89-F	89-G

CONFIDENTIAL



**mazda**

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTIONS

PART NAME/TITLE

SPECIFICATION NO.  
C1S7G-543-AC

REV  
BN

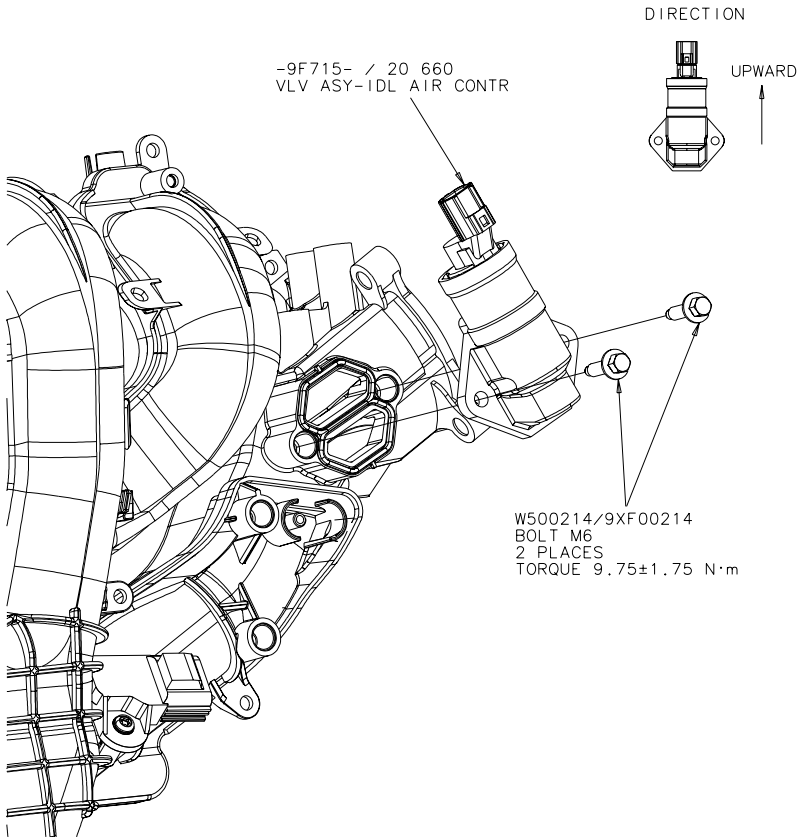
RELEASE NO.  
EN00E11293320000

DATE  
01-12-24

MODEL  
2004 2.0L DI CD132

SHEET CONTD.  
89-G 89-H

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

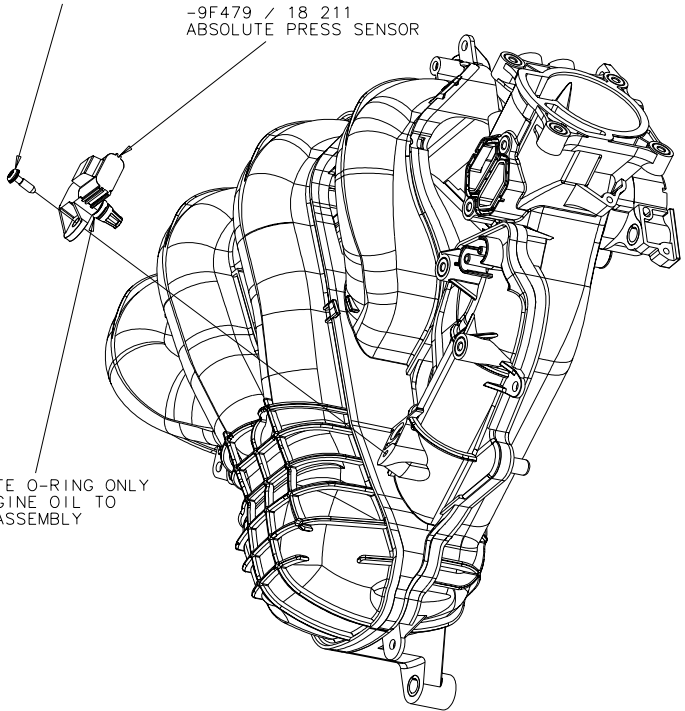
 PART NAME/TITLE  
**AIR BYPASS VALVE**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2003 2.0L-4V NON DI BV226	89-H	90-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W701459-S309M / LF01 18 1A5  
SCREW M5X16  
TORQUE 3.2±0.5 N·m

-9F479 / 18 211  
ABSOLUTE PRESS SENSOR



LUBRICATE O-RING ONLY  
WITH ENGINE OIL TO  
ASSIST ASSEMBLY

RESTRICTIONS

PART NAME/TITLE

ABSOLUTE PRESS SENSOR

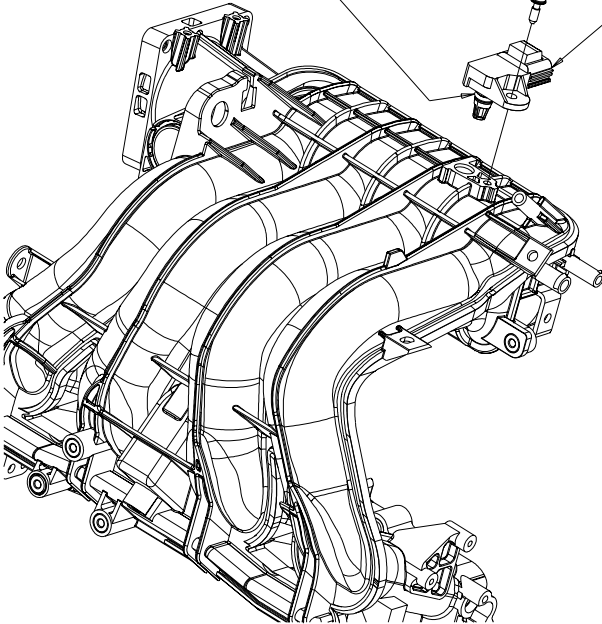
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.0L-4V NON DI CD132	90-A	90-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W701459-S309M / LF01 18 1A5  
SCREW M5X16  
TORQUE 3.2±0.5 N·m

LUBRICATE O-RING ONLY WITH ENGINE  
OIL TO ASSIST ASSEMBLY

-9F479- 18 211  
ABSOLUTE PRESS SENSOR



RESTRICTIONS

PART NAME/TITLE

ABSOLUTE PRESS SENSOR

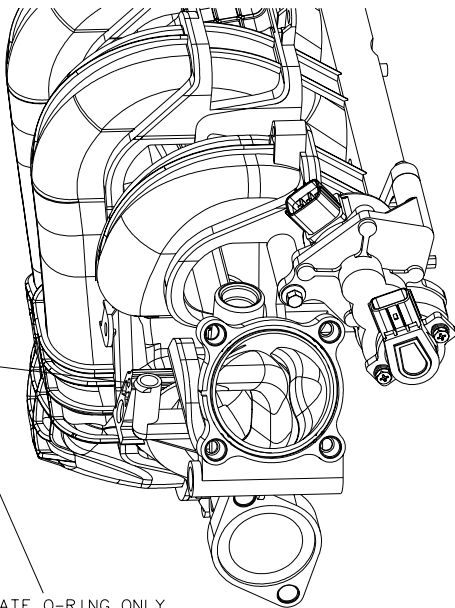
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.3L-4V NON DI RANGER	90-B	90-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

W701459-S309M / LF01 18 1A5  
SCREW M5X16  
TORQUE 3.2±0.5 N·m

-9F479- / 18 211  
ABSOLUTE PRESS SENSOR

LUBRICATE O-RING ONLY  
WITH ENGINE OIL TO  
ASSIST ASSEMBLY



RESTRICTIONS

PART NAME/TITLE

ABSOLUTE PRESS SENSOR

SPECIFICATION NO.  
C1S7G-543-AC

REV  
AA

RELEASE NO.  
EN00E11087761000

DATE  
00-11-17

MODEL  
2002 1.8L-4V DI CD132

SHEET  
90-C

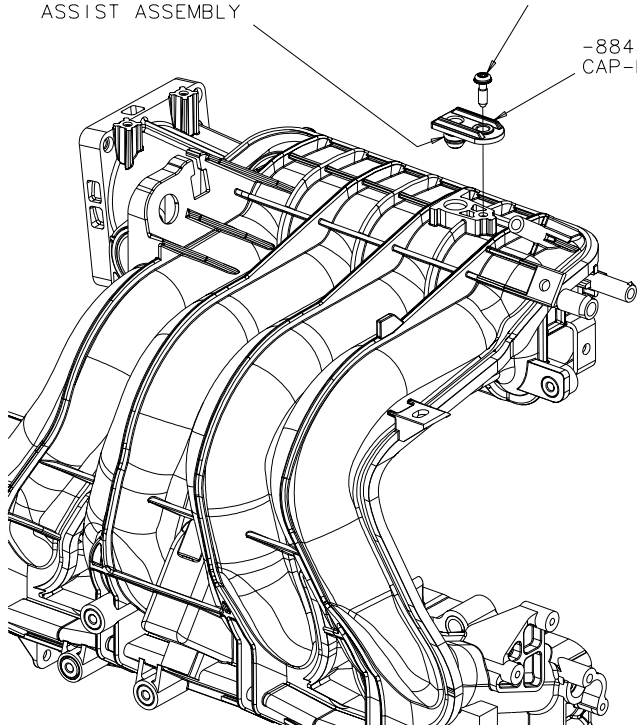
CONTD.  
90-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

LUBRICATE O-RING ONLY  
WITH ENGINE OIL TO  
ASSIST ASSEMBLY

W701459-S309M / LF01 18 1A5  
SCREW M5x16  
TORQUE  $3.2 \pm 0.5$  N·m

-8845-  
CAP-BLIND PLUG



RESTRICTIONS

PART NAME/TITLE

CAP-BLIND PLUG

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
CIS7G-543-AC	AA	EN00E11087761000	00-11-17	2001 2.3L-4V NON D1 S.A. RANGER	90-D	91-A

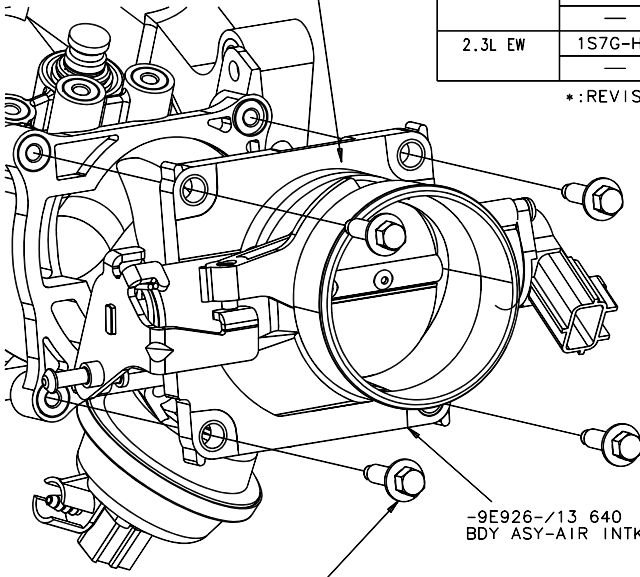


## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

BAR CODE IS AVAILABLE TO ENSURE THAT MIS-ASSEMBLY DOES NOT HAPPEN.

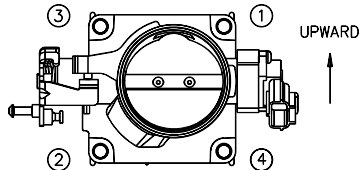
ENG.	FORD PART NO.	MAZDA PART NO.
1.8L EW	1S7G-J*	L801 13 640*
	—	L813 13 640*
2.0L EW	1S7G-H*	LF01 13 640*
	—	LF17 13 640*
2.3L EW	1S7G-H*	LF01 13 640*
	—	LF17 13 640*

\*:REVISION NO.



W500214/9XF00214  
BOLT M6  
4 PLACES  
TORQUE 9.75±1.75 N·m

FASTENING SEQUENCE(SINGLE SPINDLE)



RESTRICTIONS

PART NAME/TITLE  
THROTTLE BODY

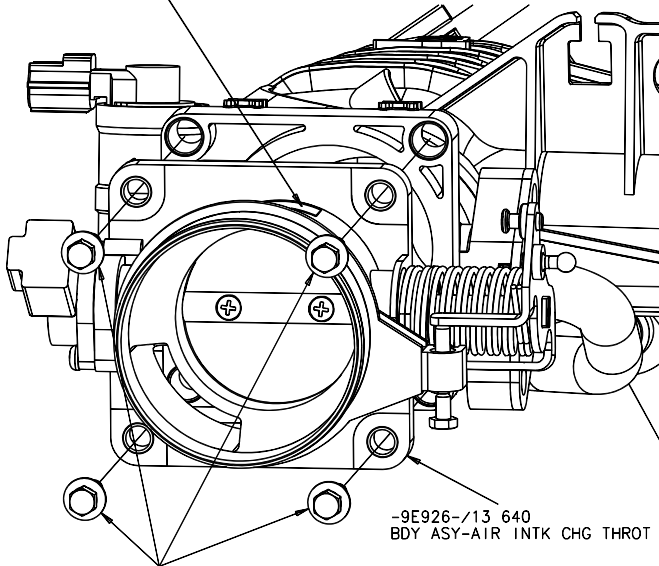
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2001 2.0L-4V NON DI	91-A	91-B

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

BAR CODE IS AVAILABLE TO ENSURE THAT MIS-ASSEMBLY DOES NOT HAPPEN.

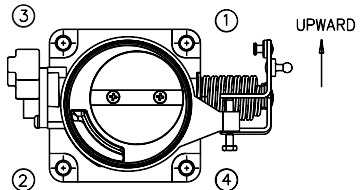
ENG.	FORD PART NO.	MAZDA PART NO.
2.3L NS	1L5G-B*	L301 13 640*
	4L5G-A*	L356 13 640*

\*:REVISION NO.



W500214/9XF00214  
BOLT M6  
4 PLACES  
TORQUE 9.75±1.75 N·m

FASTENING SEQUENCE(SINGLE SPINDLE)

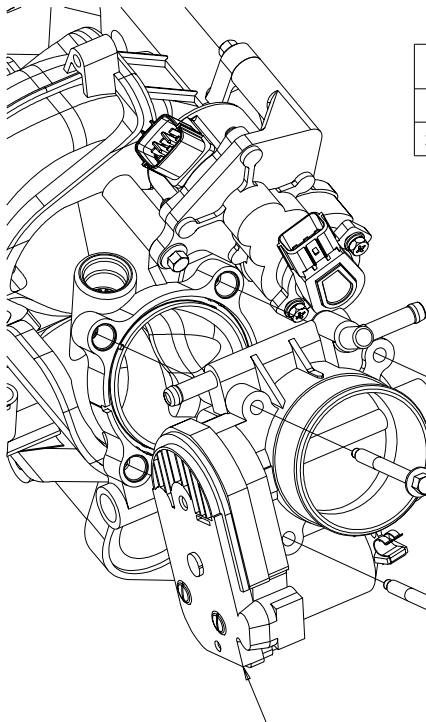


RESTRICTIONS

PART NAME/TITLE  
THROTTLE BODY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BD	EN00E11271059000	01-11-02	2001 2.3L-4V NON DI RANGER	91-B	91-C

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



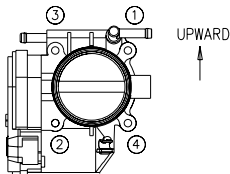
ENG.	FORD PART NO.	MAZDA PART NO.
1.8L DI	2S7G-A*	L807 13 640
2.3L EW VIS	3M4G-A*	L309 13 640

\*:REVISION NO.

W500305/9XF00305  
BOLT M6  
4 PLACES  
TORQUE 9.75±1.75 N·m

-9E926-/13 640  
BDY ASY-AIR INTK CHG THROT

OPTIONAL FASTENING SEQUENCE  
(SINGLE SPINDLE)

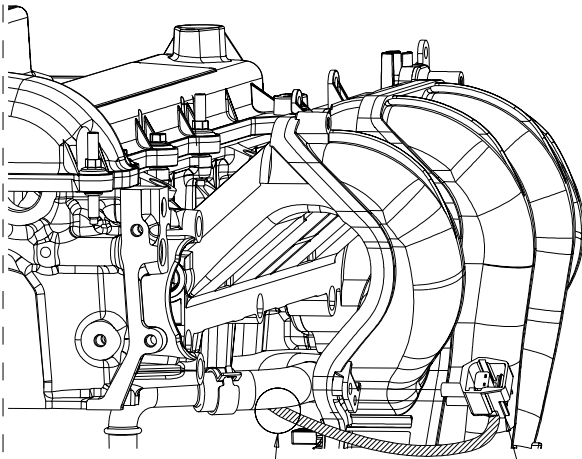


RESTRICTIONS

PART NAME/TITLE  
THROTTLE BODY

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2002 1.8L-4V DI CD132	91-C	92-A

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



ROUTE THE SENSOR LEAD  
TO COME BELOW THE  
WATER BYPASS HOSE.

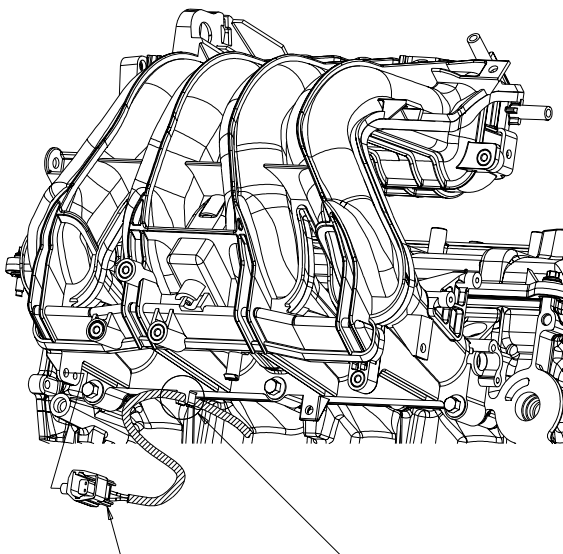
INSTALL CONNECTOR ON TO  
THE INTAKE MANIFOLD BOSS

## RESTRICTIONS

 PART NAME/TITLE  
 SENSOR-KNOCK

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON D1 CD132	92-A	92-B

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



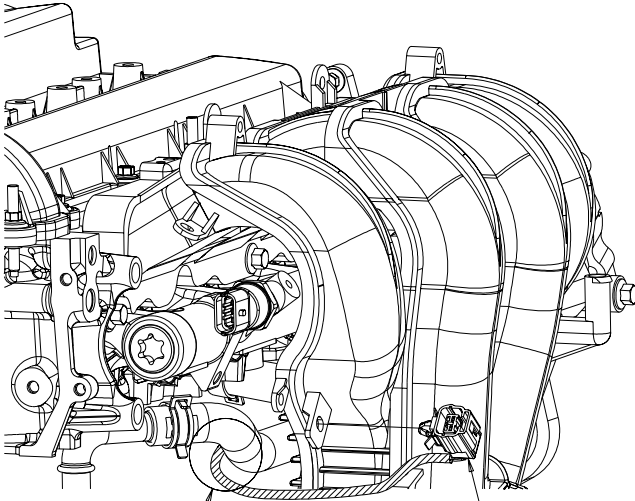
① INSTALL CONNECTOR ON TO THE INTAKE MANIFOLD BOSS

② SET THE SENSOR LEAD IN THE CLIP MOUNTED ON INTAKE MANIFOLD.

WORK SEQUENCE : ①, ②

RESTRICTIONS				PART NAME/TITLE			
				SENSOR KNOCK			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	N	EN00E11030674000	00-02-10	2001 2.3L-4V NON DI RANGER	92-B	92-C	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ROUTE THE SENSOR LEAD  
TO COME BELOW THE  
WATER BYPASS HOSE.

INSTALL CONNECTOR ON TO  
THE INTAKE MANIFOLD BOSS

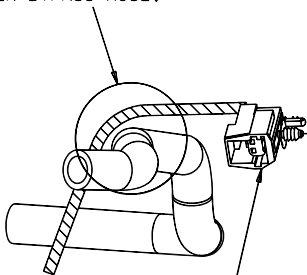
## RESTRICTIONS

 PART NAME/TITLE  
**SENSOR-KNOCK**

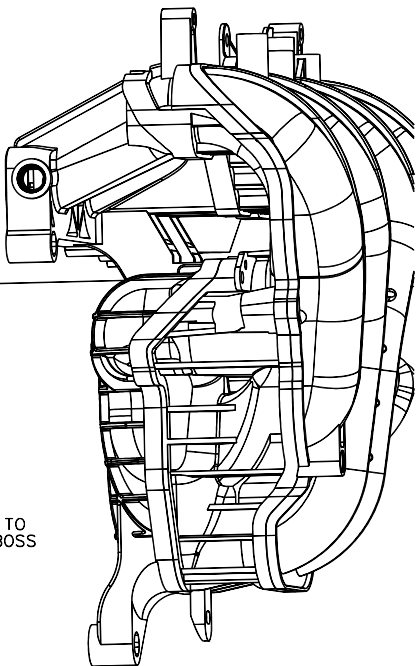
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AH	EN00E11190272000	01-03-28	2002 1.8L-4V DI CD132	92-C	92-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

ROUTE THE SENSOR LEAD  
TO COME ABOVE THE  
WATER BYPASS HOSE.



INSTALL CONNECTOR ON TO  
THE INTAKE MANIFOLD BOSS

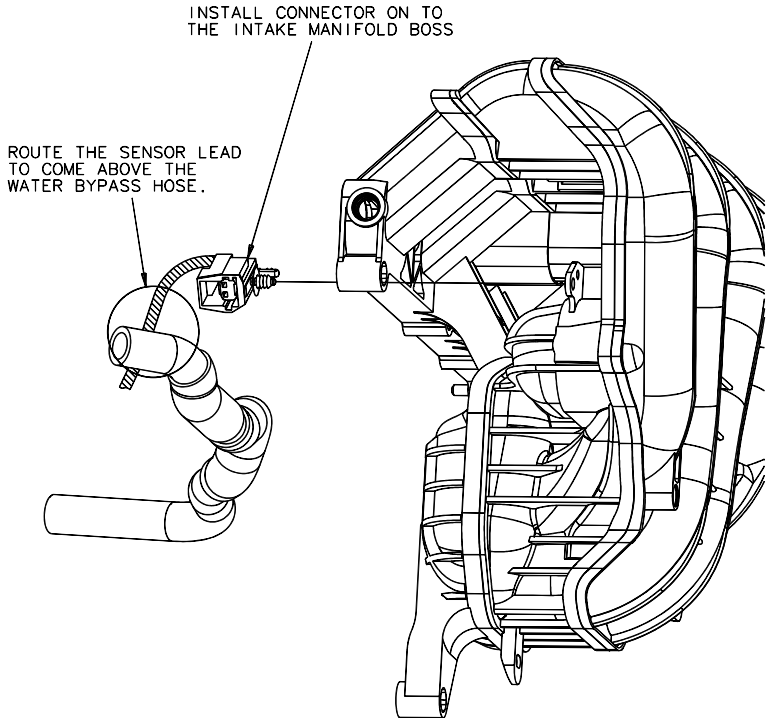


RESTRICTIONS

PART NAME/TITLE  
SENSOR-KNOCK

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AU	EN00E11212464000	01-08-07	2003 2.3L-4V NON DI	92-D	92-E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

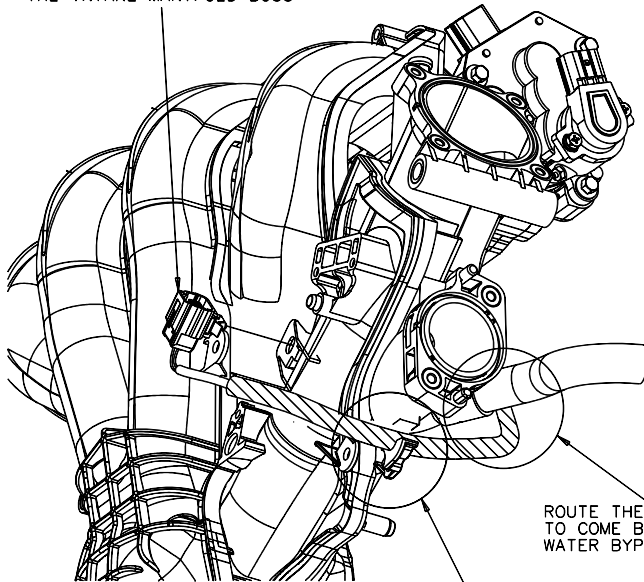
 PART NAME/TITLE  
**SENSOR-KNOCK**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BP	EN00E11290169002	02-01-10	2003 2.3L-4V NON D1 C1	92-E	92-F



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

INSTALL CONNECTOR ON TO  
THE INTAKE MANIFOLD BOSS



ROUTE THE SENSOR LEAD  
TO COME BELOW THE  
WATER BYPASS HOSE.

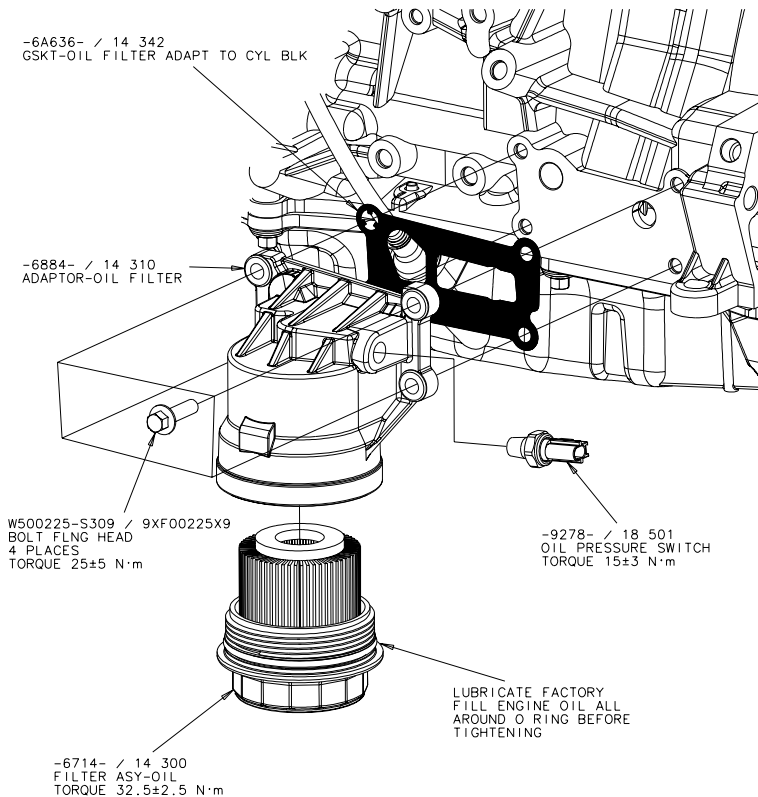
HANG THE SENSOR LEAD  
ON THE INTAKE MANIFOLD  
HOOK.

## RESTRICTIONS

PART NAME/TITLE  
SENSOR-KNOCK

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BP	EN00E11290169002	02-01-10	2002 1.8L-4V DI	92-F	93-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE

**FILTER ASY-OIL / ADAPTOR / OIL PRESSURE SWITCH**

SPECIFICATION NO.  
C1S7G-543-AC

REV  
AH

RELEASE NO.  
EN00 E 11190272 000

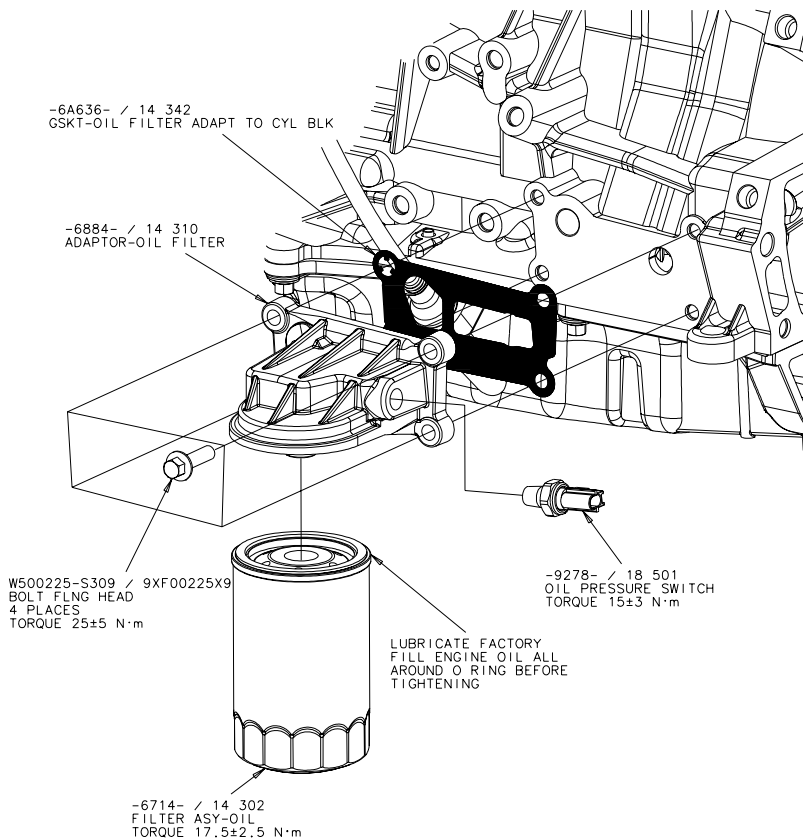
DATE  
00-03-28

MODEL  
2001 2.0L-4V NON DI CD132

SHEET  
93-A

CONTD.  
93-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## RESTRICTIONS

## PART NAME/TITLE

FILTER ASY-OIL / ADAPTOR / OIL PRESSURE SWITCH

 SPECIFICATION NO.  
C1S7G-543-AC

 REV  
W

 RELEASE NO.  
EN00 E 11140144 000

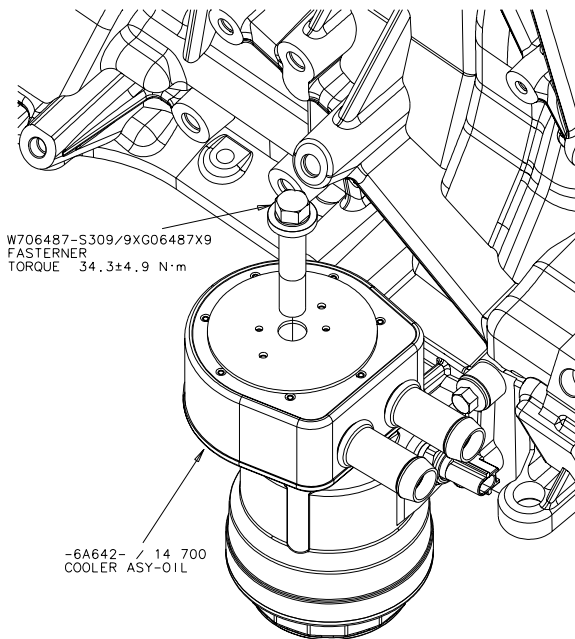
 DATE  
00-10-01

 MODEL  
2001 2.3L-4V NON DI RANGER

 SHEET  
93-B

 CONTD.  
94

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



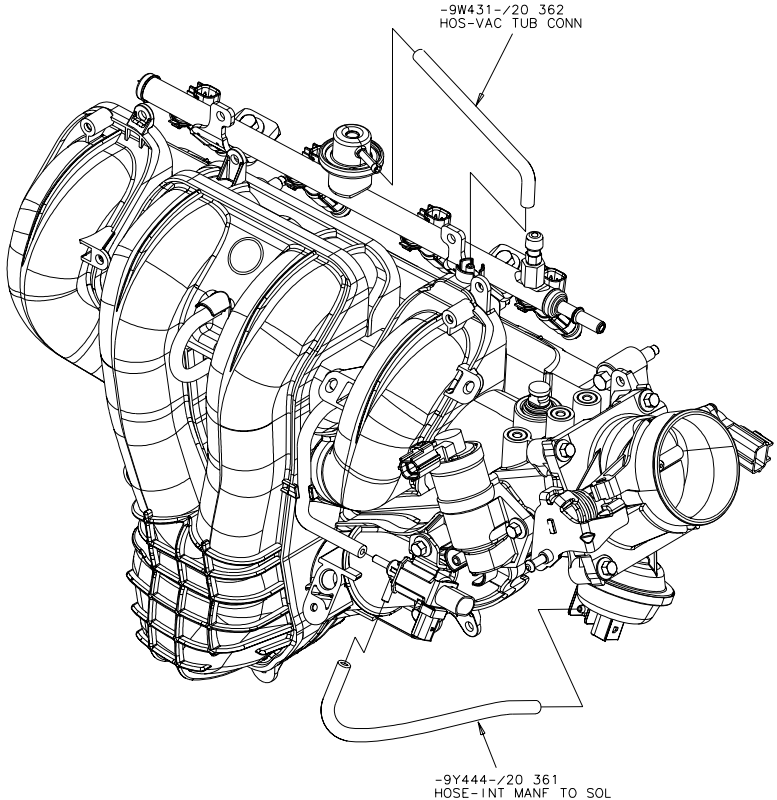
## RESTRICTIONS

PART NAME/TITLE

COOLER ASY-OIL &amp; FASTENER

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00 E 11007392 000	99-09-06	2001 2.0L-4V NON DI CD132	94	95-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

1. HOSE SHALL BE INSERTED TO FULL DEPTH.
2. INSERT ASSISTANT (MERPOL : ESE-M99B144-A & ESE-M99B144-B)  
CAN BE USED FOR INSERTING HOSE

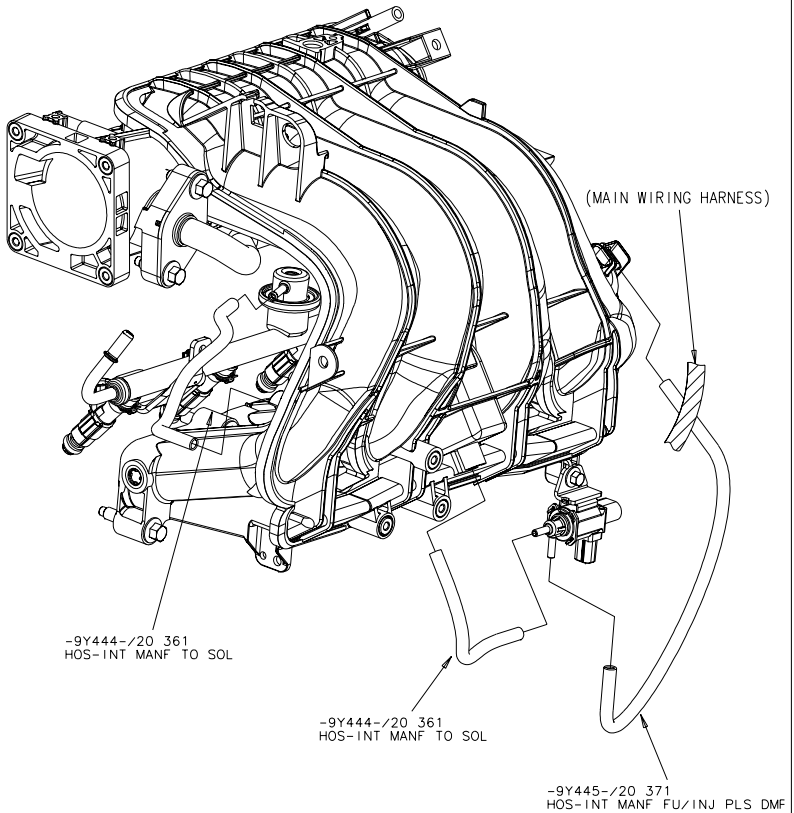
## RESTRICTIONS

## PART NAME/TITLE

## HOSES-VACUUM

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
CIS7G-543-AC	X	EN00E11099311000	00-10-13	2001 2.0L-4V NON DI CD132	95-A	95-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. HOSE SHALL BE INSERTED TO FULL DEPTH.
2. INSERT ASSISTANT (MERPOL : ESE-M99B144-A & ESE-M99B144-B)  
CAN BE USED FOR INSERTING HOSE

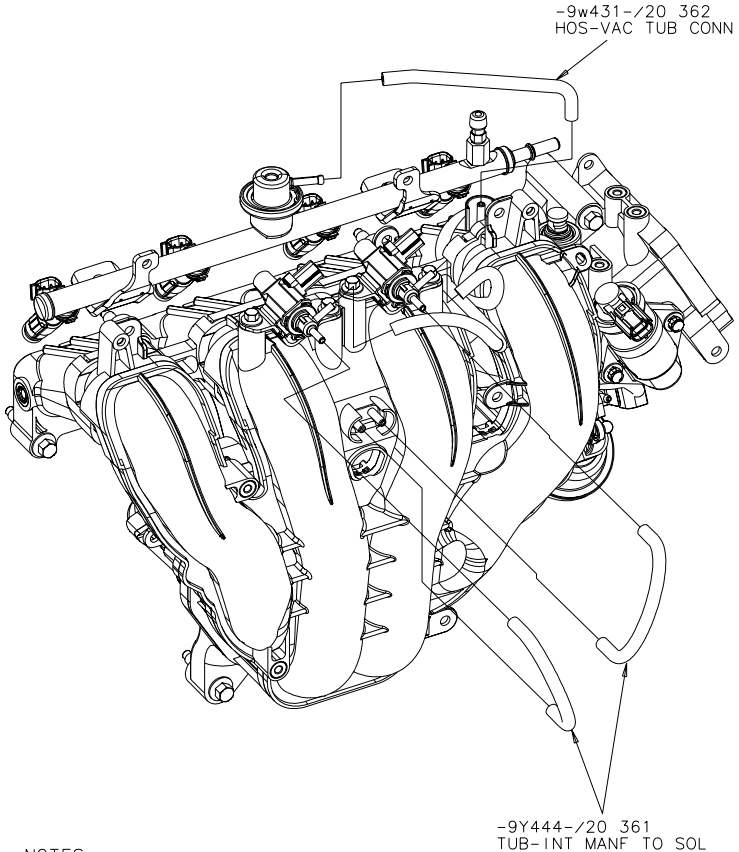
### RESTRICTIONS

### PART NAME/TITLE

HOSES-VACUUM

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
CIS7G-543-AC	X	EN00E11099311000	00-10-13	2001 2.3L-4V NON DI RANGER	95-B	95-D

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

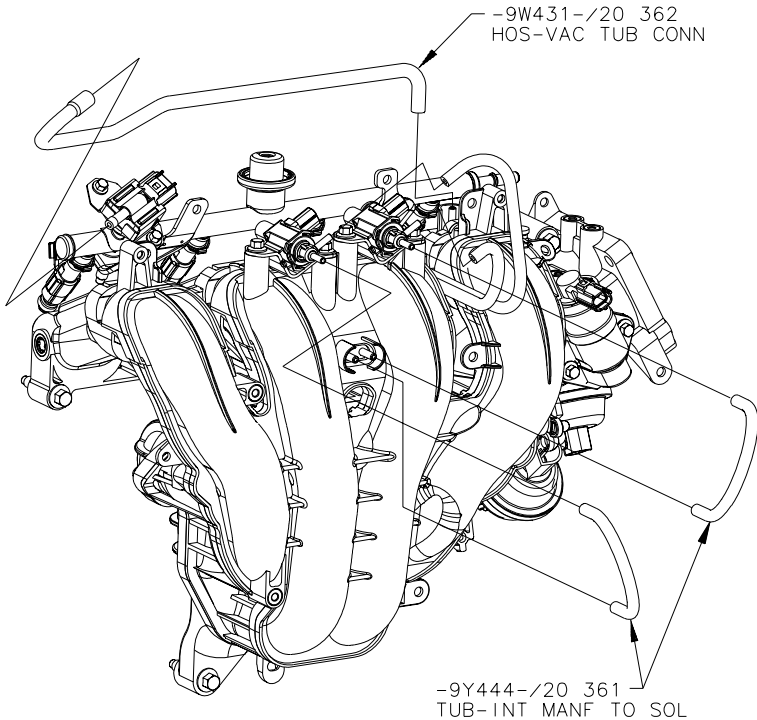


## NOTES

1. HOSE SHALL BE INSERTED TO FULL DEPTH.
2. INSERT ASSISTANT (MERPOL: ESE-M99B144-A & ESE-M99B144-B) CAN BE USED FOR INSERTING HOSE

RESTRICTIONS				PART NAME/TITLE				
				HOSES-VACUUM				
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
CIS7G-543-AC	AD	EN00 E 11177532 000	01-01-29	2003 2.3L-4V NON DI J56	95-D	95-E		

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

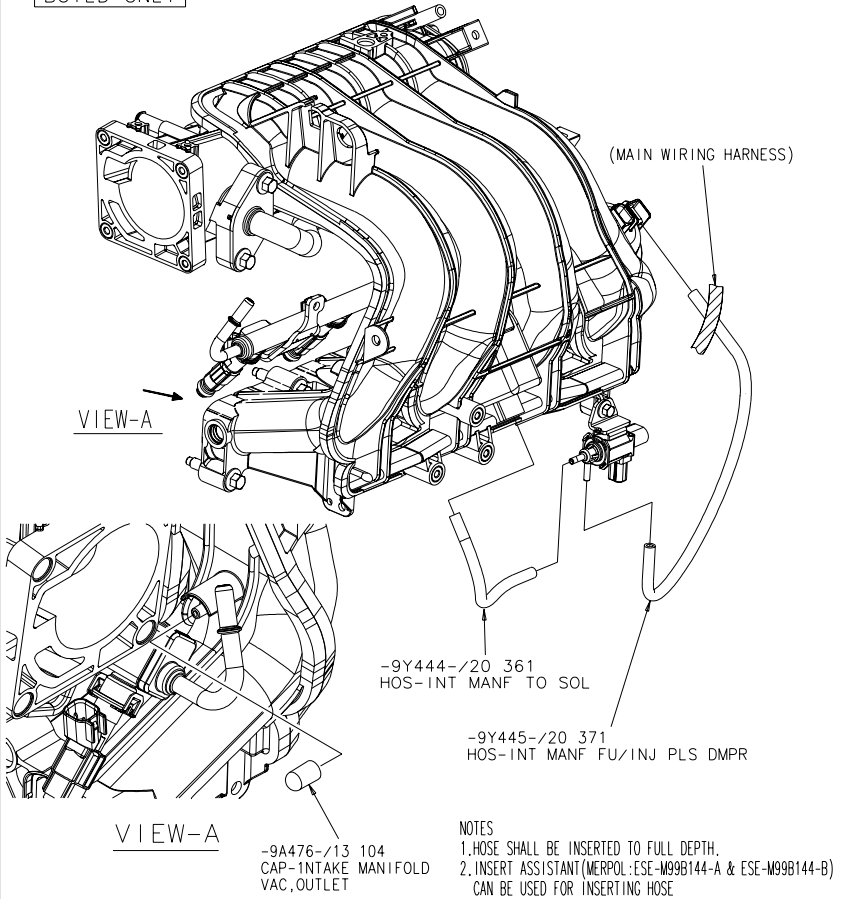
1. HOSE SHALL BE INSERTED TO FULL DEPTH.
2. INSERT (MERPOL: ESE-M99B144-A & ESE-M99B144-B) CAN BE USED FOR INSERTING HOSE. IF ANOTHER MATERIAL IS USED, NEGOTIATION WITH MAZDA DESIGN ENGINEERING AND APPROVAL FROM THEM IS REQUIRED.

RESTRICTIONS				PART NAME/TITLE				
				HOSES-VACUUM				
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
CIS7G-543-AC	AD	EN00 E 11177532 000	010129	2003 2.3L-V4 NON DI U204	95-E	95-F		



ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

FOR CP  
BUILD ONLY



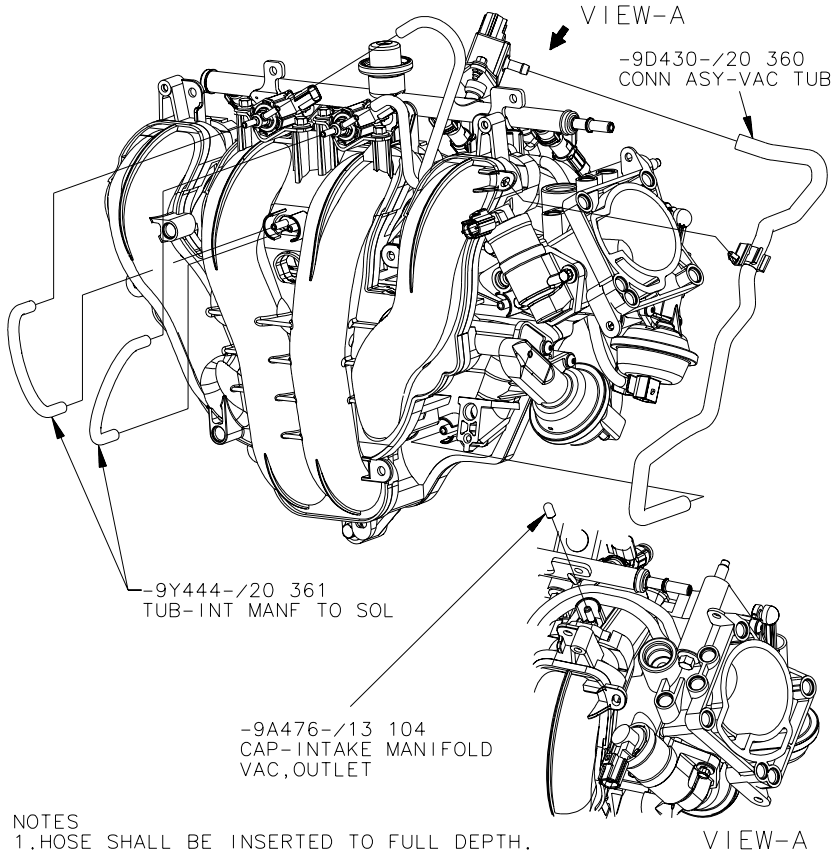
RESTRICTIONS

PART NAME/TITLE

HOSES-VACUUM

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BD	EN00 E 11271059 000	01-11-02	2004 2.3L-4V NON DI P150	95-F	95-G

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

- HOSE SHALL BE INSERTED TO FULL DEPTH.
- INSERT (MERPOL: ESE-M99B144-A&ESE-M99B144-B) CAN BE USED FOR INSERTING HOSE. IF ANOTHER MATERIAL IS USED, NEGOTIATION WITH MAZDA DESIGN ENGINEERING AND APPROVAL FROM THEM IS REQUIRED.

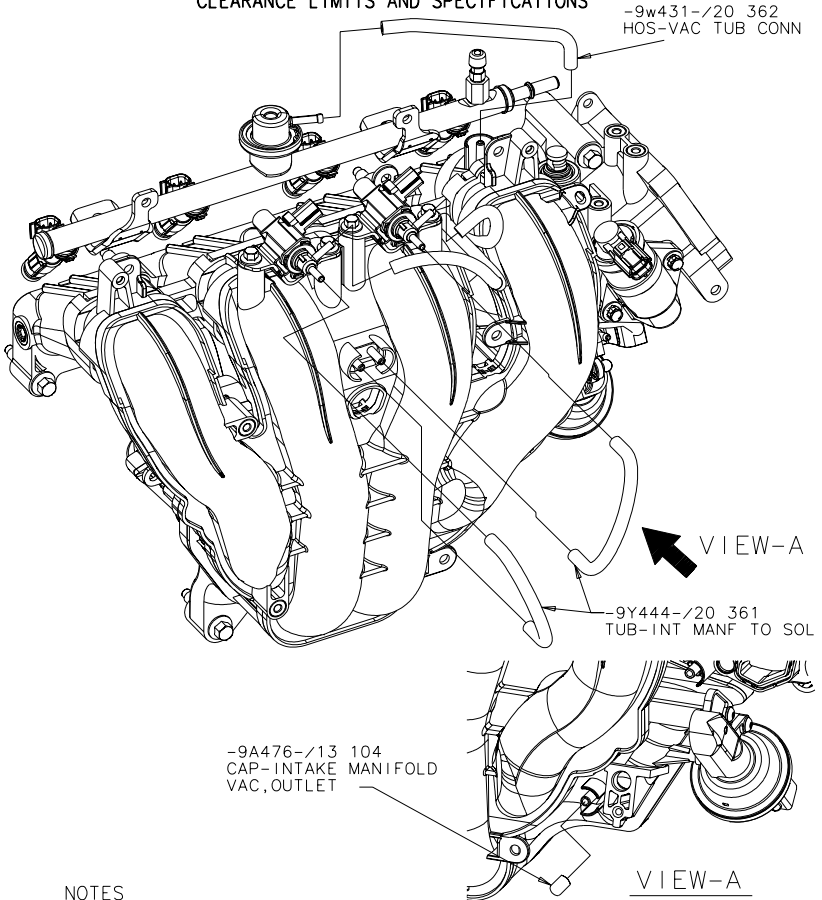
RESTRICTIONS					PART NAME/TITLE			
					HOSES-VACUUM			
SPECIFICATION NO. C3S4G-543-AC	REV AV	RELEASE NO. EN00 E 11252991 000	DATE 01-08-11	MODEL 2003 2.3L-4V NON DI C170	SHEET 95-G	CONTD. 95-H		

CONFIDENTIAL



mazda

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

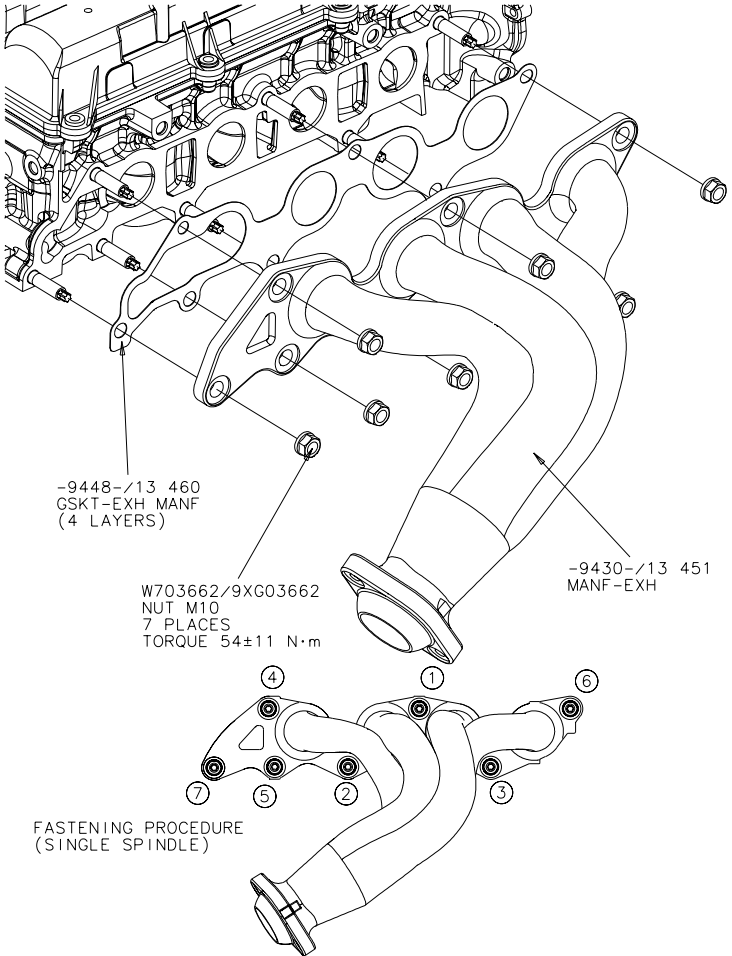


NOTES

1. HOSE AND CAP SHALL BE INSERTED TO FULL DEPTH.
2. INSERT ASSISTANT (MERPOL: ESE-M99B144-A & ESE-M99B144-B) CAN BE USED FOR INSERTING HOSE AND CAP.

RESTRICTIONS					PART NAME/TITLE			
					HOSES-VACUUM			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.		
CIS7G-543-AC	AV	EN00 E 11252991 000	01-08-11	2003 2.3L-4V NON DI J56	95-H	96-B		

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE

EXHAUST MANIFOLD

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	W	EN00E11140144000	00-10-01	2001 2.3L-4V NON DI RANGER	96-B	96-D

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**W**

RELEASE NO.  
**EN00E11140144000**

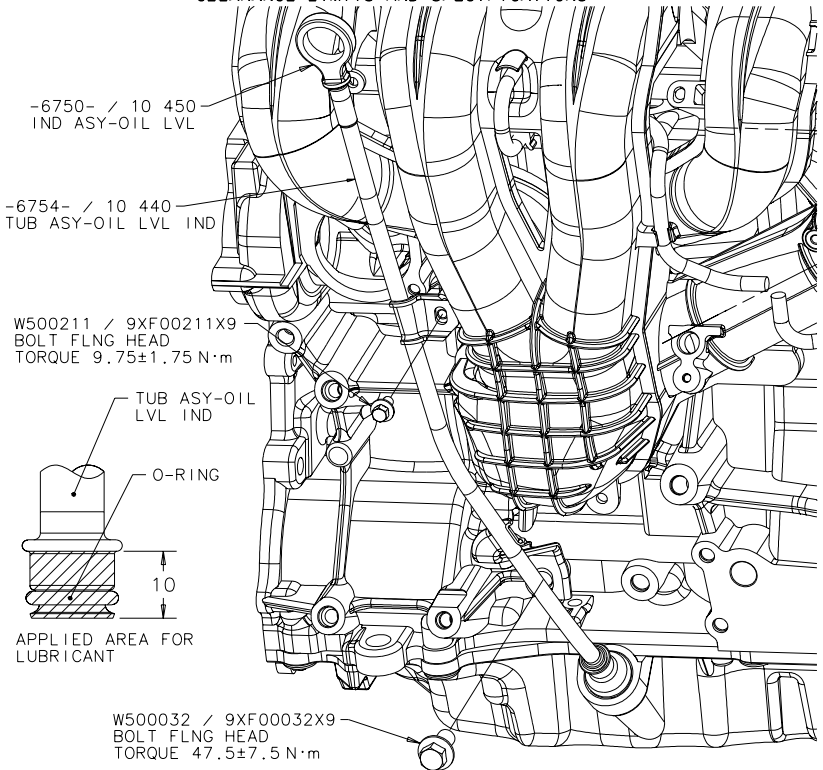
DATE  
**00-10-01**

MODEL  
2003 2.8L-4V NON DI RANGER

SHEET  
**96-D**

CONTD.  
**97-A**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

- 1.No sticking of stain, dust, etc is allowed on O-ring sealing surface of oil pan guide hole and oil level indicat tube.
- 2.During oil level indicat tube, ensure O-ring is correctly mounted on groove.(Oil level indicat tube side)
- 3.Attach oil level indicat tube exactly perpendicular to guide hole to prevent O-ring from peeling and cutting.
- 4.If part have scratch on oil level indicat tube O-ring which might give negative effect on sealability,those have to be replaced with good part.
- 5.If required apply engine oil in case of utilizing O-ring inserting assistant.  
Do not ever apply water-lube such as 10% allform dilution water,soapy water etc.
- 6.If required lubricant shall be applied in area from pipe end till 10mm away from pipe end for all-around, and should not be dropped. (No lubricant to be visible after assembly.)

## RESTRICTIONS

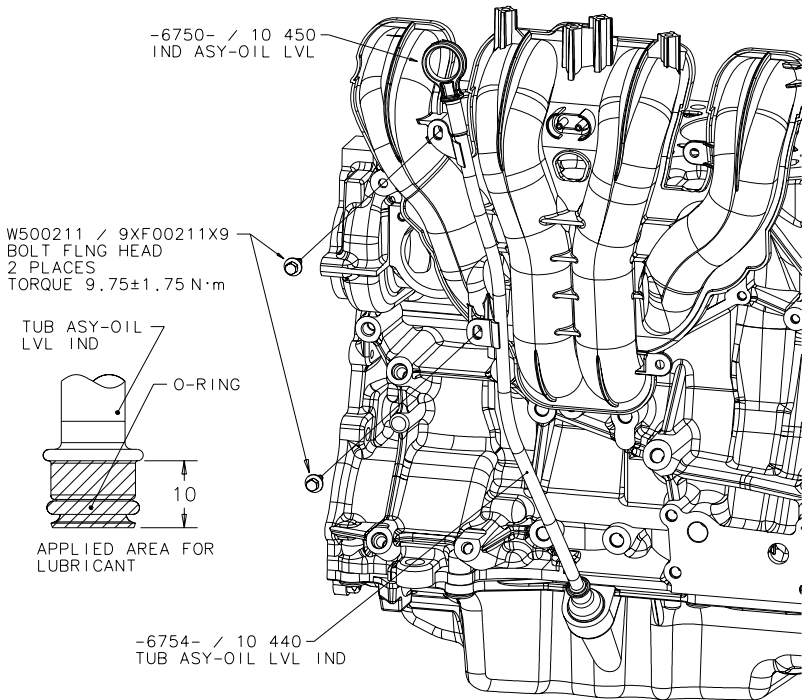
## PART NAME/TITLE

## DIPSTICK &amp; DIPSTICK TUBE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2001 2.0L-4V NON DI CD132	97-A	97-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

- 1.No sticking of stain, dust, etc is allowed on O-ring sealing surface of oil pan guide hole and oil level indicat tube.
- 2.During oil level indicat tube, ensure O-ring is correctly mounted on groove.(Oil level indicat tube side)
- 3.Attach oil level indicat tube exactly perpendicular to guide hole to prevent O-ring from peeling and cutting.
- 4.If part have scratch on oil level indicat tube O-ring which might give negative effect on sealability,those have to be replaced with good part.
- 5.If required apply engine oil in case of utilizing O-ring inserting assistant.  
Do not ever apply water-lube such as 10% allform dilution water,soapy water etc.
- 6.If required lubricant shall be applied in area from pipe end till 10mm away from pipe end for all-around, and should not be dropped. (No lubricant to be visible after assembly.)

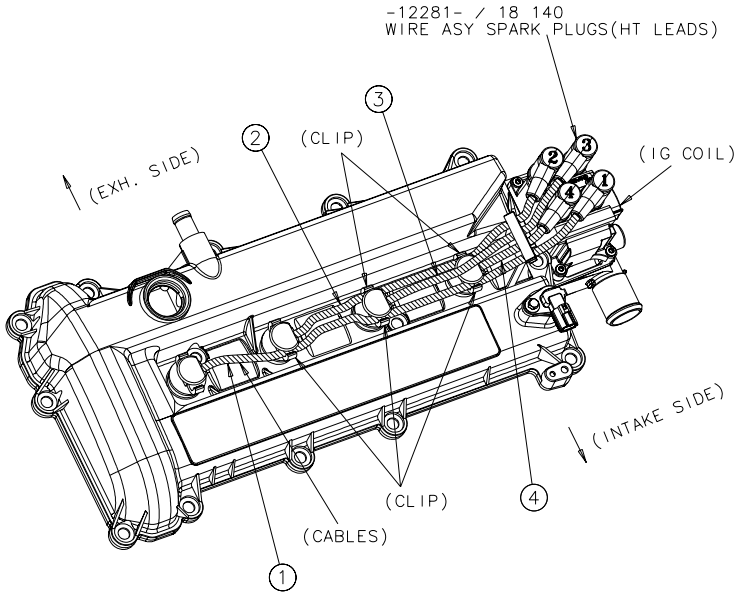
## RESTRICTIONS

## PART NAME/TITLE

## DIPSTICK &amp; DIPSTICK TUBE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BG	EN00E11282537000	01-11-09	2001 2.3L-4V NON DI	97-B	98-A

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

**NOTES:**

INSTALL EACH HT LEAD CONNECTOR STRAIGHT ON TO THE APPROPRIATE IG COIL TERMINAL.  
DO NOT APPLY ANY DYNAMIC FORCE ON TO ANY PORTION OF THE HT LEAD.  
(E.G. DO NOT STRIKE USING HAMMERS)

INSTALLATION SEQUENCE : INSTALL CABLES IN SEQUENCE FROM EXHAUST SIDE TO INTAKE SIDE. (IN THE ORDER OF #2,#3,#4,#1)

CLIP OF CABLES : SET THE CABLES(#1,#2) IN THE APPROPRIATE CLIPS MOUNTED ON THE PLUG CAPS.

FIRING ORDER : #1,#3,#4,#2

## RESTRICTIONS

PART NAME/TITLE

SPARK PLUG LEADS

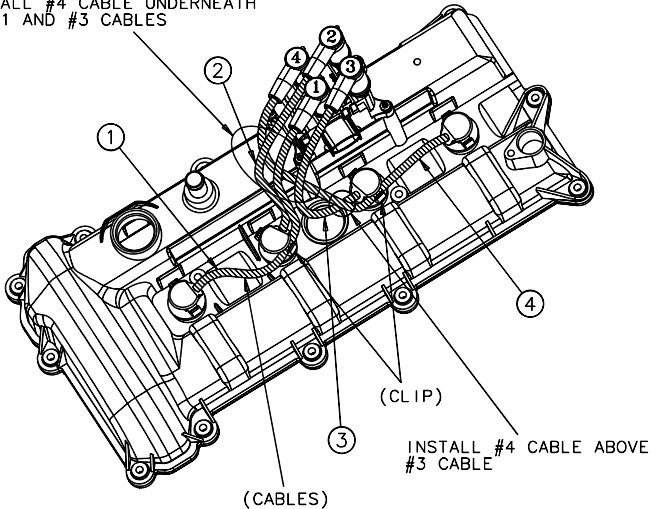
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2001 2.0L-4V NON DI CD132	98-A	98-B



ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS

-12281- /18 140  
WIRE ASY-SPARK PLUGS(HT LEADS)

INSTALL #4 CABLE UNDERNEATH  
#2, #1 AND #3 CABLES



NOTES:

REMOVE THE RUBBER BAND ATTACHED TO THE HT-LEADS BEFORE INSTALLING.

INSTALL EACH HT LEAD CONNECTOR STRAIGHT ON TO THE APPROPRIATE  
IG COIL TERMINAL.

DO NOT APPLY ANY DYNAMIC FORCE ON TO ANY PORTION OF THE HT LEAD.  
(E.G. DO NOT STRIKE USING HAMMERS)

INSTALLATION SEQUENCE : INSTALL THE 4 CABLES IN THE FOLLOWING  
SEQUENCE  
#3 → #4 → #2 → #1

CLIP OF CABLES : SET #1 AND #4 CABLES IN THE APPROPRIATE CLIPS  
MOUNTED ON THE PLUG CAPS.

FIRING ORDER : #1, #3, #4, #2

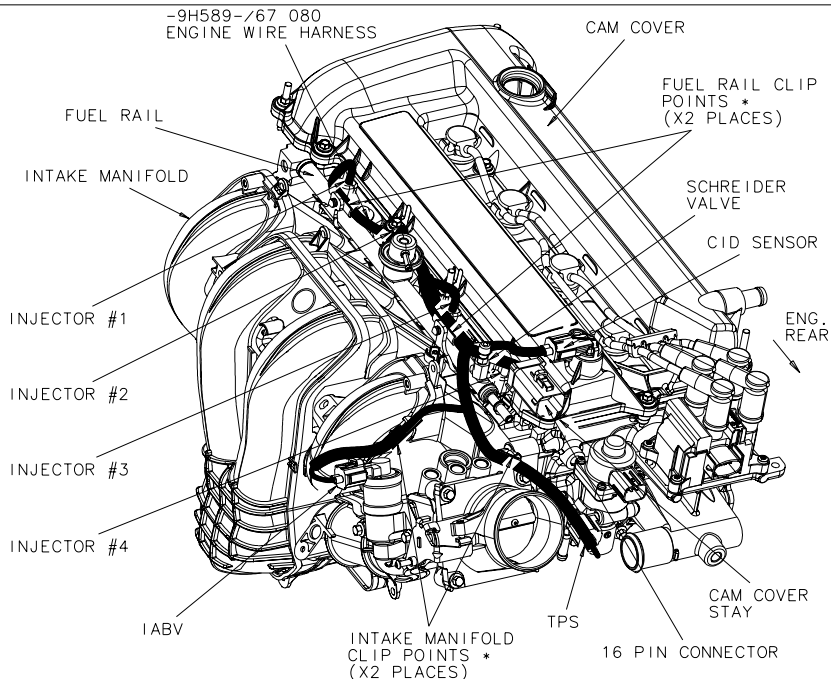
RESTRICTIONS

PART NAME/TITLE  
SPARK PLUG LEADS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2001 2.3L-4V NON DI RANGER	98-B	99

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



- ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.
1. PLACE HARNESS ALONG THE FUEL RAIL, CLOSE TO THE CAM COVER WITH 16 PIN CONNECTOR BEING NEAR THE CID SENSOR.
  2. CLIP HARNESS TO FUEL RAIL FROM CAM COVER SIDE. (2 PLACES)
  3. CONNECT INJECTOR #1-#4. (4 PLACES)
  4. CONNECT CID SENSOR.
  5. CLIP 16 PIN CONNECTOR ON TO CAM COVER STAY.
  6. ROUTE WIRES FOR TPS & IABV TO THE INTAKE MANIFOLD SIDE OF SCHREIDER VALVE.
  7. CONNECT IABV.
  8. CONNECT TPS.
  9. CLIP HARNESS TO INTAKE MANIFOLD FROM ENG. REAR SIDE. (2 PLACES)

(NOTE1) ALL 4 CLIPS (\*) ARE HARNESS-INTEGRATED PLASTIC RETAINERS.  
 (NOTE2) THE ELECTRICAL CONNECTORS SHOULD BE INSERTED STRAIGHT AND CONFIRMED WHETHER THEY ARE IN THEIR "LOCKED" POSITION.

## RESTRICTIONS

## PART NAME/TITLE

ENGINE WIRE HARNESS

 SPECIFICATION NO.  
C1S7G-543-AC

 REV  
S

 RELEASE NO.  
EN00E11081197000

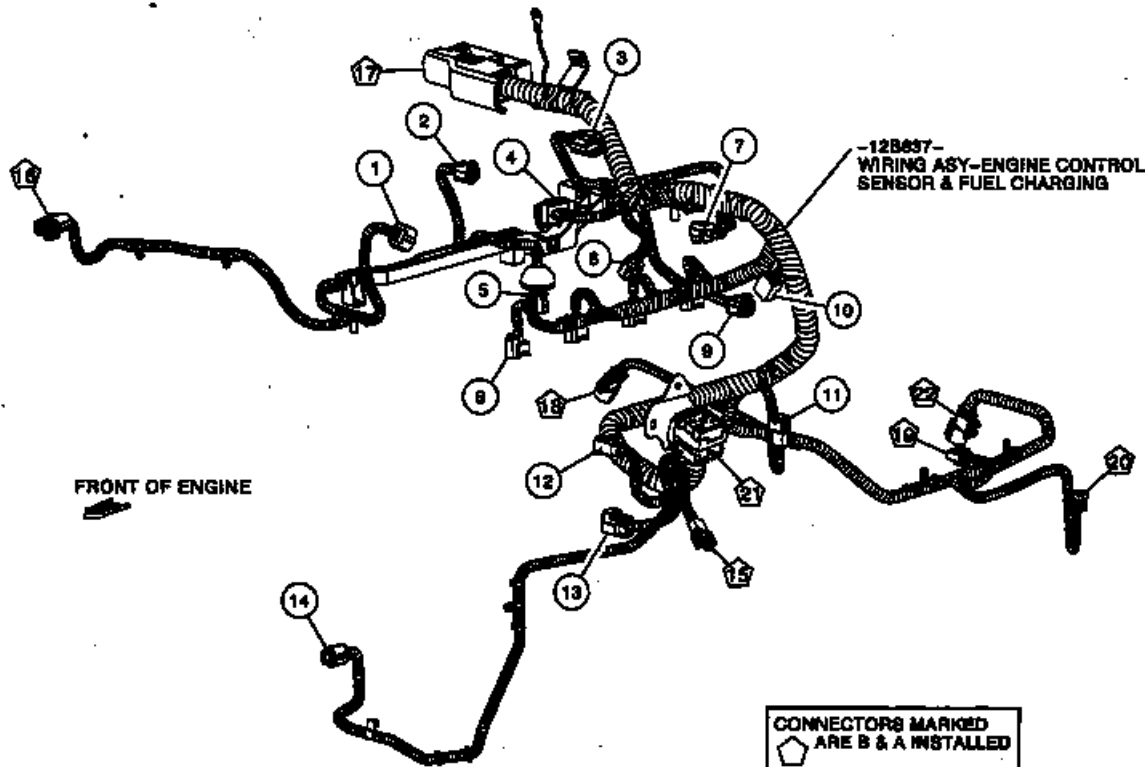
 DATE  
00-04-28

 MODEL  
2001 2.0L-4V NON DI CD132

 SHEET  
99

 CONTD.  
99-B

## -12B637- WIRING ASY ENGINE CONTROL SENSORS & FUEL CHARGING



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1. TO THROTTLE POSITION SENSOR</li> <li>4. TO IDLE AIR CONTROL VALVE SOLENOID</li> <li>3. TO TEMPERATURE MANIFOLD ABSOLUTE PRESSURE SENSOR</li> <li>4. TO IGNITION TRANSFORMER</li> <li>5. TO CYLINDER HEAD TEMPERATURE SENSOR</li> <li>6. TO ENGINE TEMPERATURE SENSOR (WATER TEMP)</li> <li>7. TO CYLINDER ID SENSOR</li> <li>8. TO INJECTOR VALVE SOLENOID (4)</li> <li>9. TO ELECTRONIC EXHAUST GAS RECIRCULATION STEPPER MOTOR</li> <li>10. TO SWIRL CONTROL VALVE MONITOR</li> <li>11. TO SWIRL CONTROL VALVE SOLENOID</li> </ul> | <ul style="list-style-type: none"> <li>12. TO KNOCK SENSOR</li> <li>13. TO ELECTRONIC THERMOSTAT HEATER</li> <li>14. TO CRANKSHAFT POSITION SENSOR</li> <li>15. TO POWER STEERING PRESSURE SWITCH</li> <li>16. TO MASS AIR FLOW SENSOR</li> <li>17. TO POWER CONTROL MODULE</li> <li>18. TO MEGO SENSOR</li> <li>19. TO TRANSMISSION SWITCH</li> <li>20. TO OUTPUT SHAFT SPEED SENSOR</li> <li>21. TO -14290-</li> <li>22. TO CMS SENSOR</li> </ul> |
|--|---|

150101

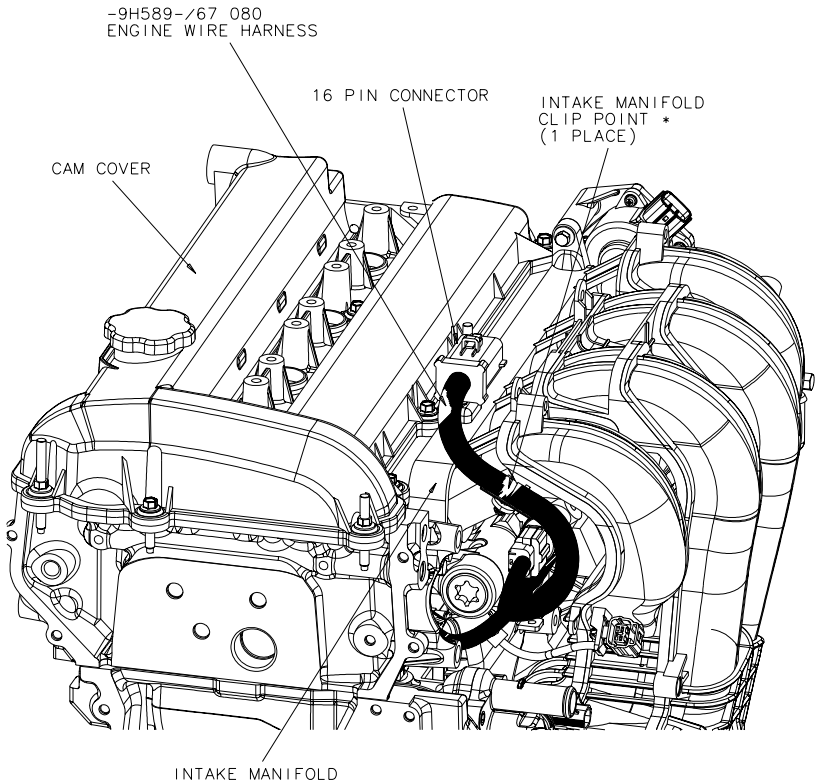
RESTRICTIONS

 PART NAME/TITLE  
**WIRING ASY**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTR.
C157G-543-AC	S	ENG00E11081197000	00-04-28	2001 2.3L-4V NON DI RANGER	99-B	100-C

SCALE = 2

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.

1. CLIP HARNESS TO INTAKE MANIFOLD. (1 PLACE)
  2. CLIP 16 PIN CONNECTOR ON TO INTAKE MANIFOLD.
- (NOTE1) 1 CLIP (\*) IS HARNESS-INTEGRATED PLASTIC RETAINERS.

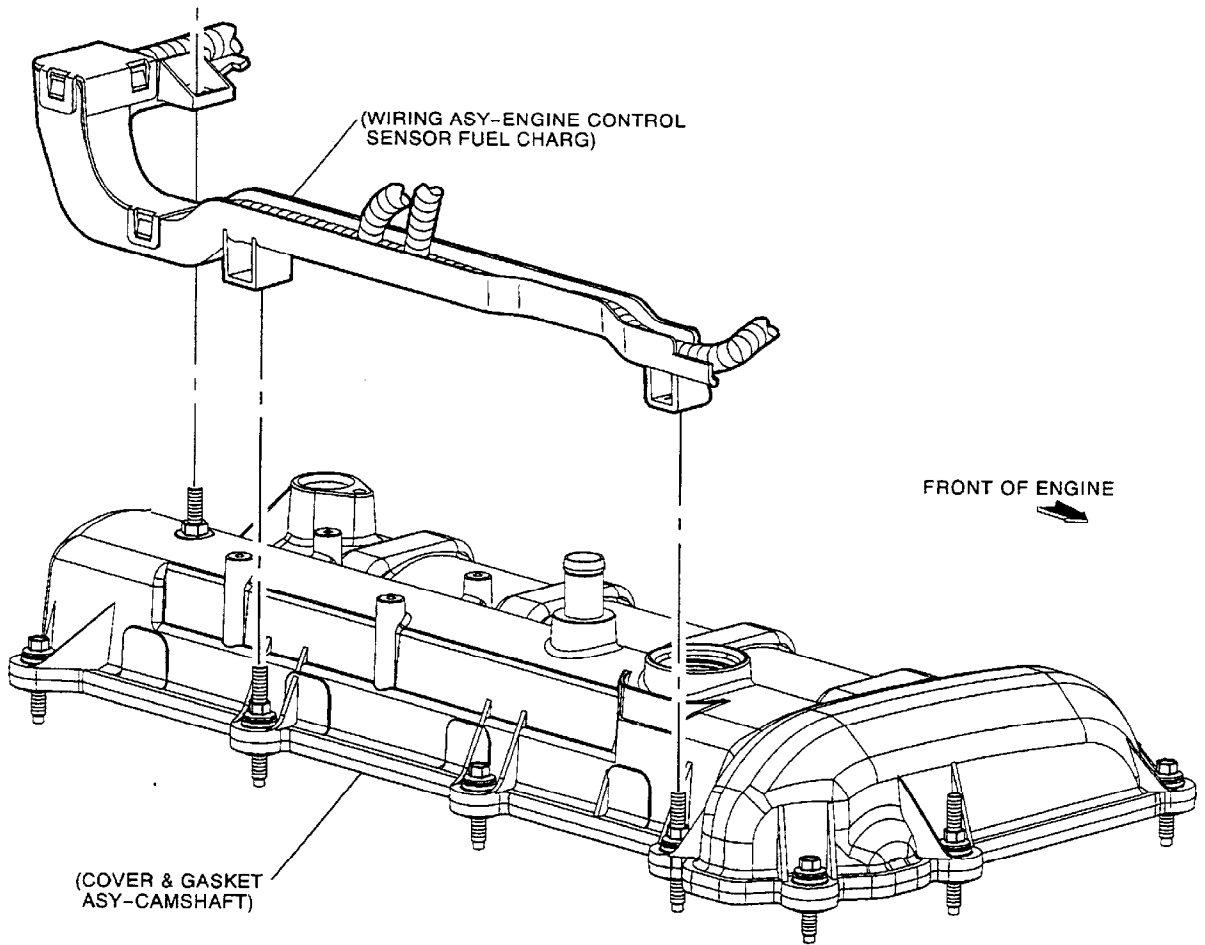
## RESTRICTIONS

## PART NAME/TITLE

## ENGINE WIRE HARNESS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	R	EN00E11069681001	00-04-20	2002 1.8L-4V D1 CD132	100-C	100-D

### WIRING HARNESS ASY CONNECTIONS



180101

RESTRICTIONS				PART NAME/TITLE <b>WIRING ASY</b>			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>S</b>	RELEASE NO. <b>EN00E11081197000</b>	DATE <b>00-04-28</b>	MODEL <b>2001 2.3L-4V NON DI RANGER</b>	SHEET <b>100-D</b>	CONTD. <b>100-E</b>	

## WIRING HARNESS ASY CONNECTIONS

FRONT OF ENGINE



(WIRING ASY-ENGINE CONTROL  
SENSOR & FUEL CHARGING)

TO INJECTOR VALVE  
SOLENOID  
(4) PLACES

(MANIFOLD ASY-  
FUEL CHARGING)

(INJECTOR VALVE  
SOLENOID)  
(4) PLACES

130101

RESTRICTIONS

PART NAME/TITLE

WIRING ASY

SPECIFICATION NO.

C157G-543-AC

REV

S

RELEASE NO.

EN00E11081197000

DATE

00-04-28

MODEL

2001 2.3L-4V NON D1 RANGER

SHEET

100-E

CONT.

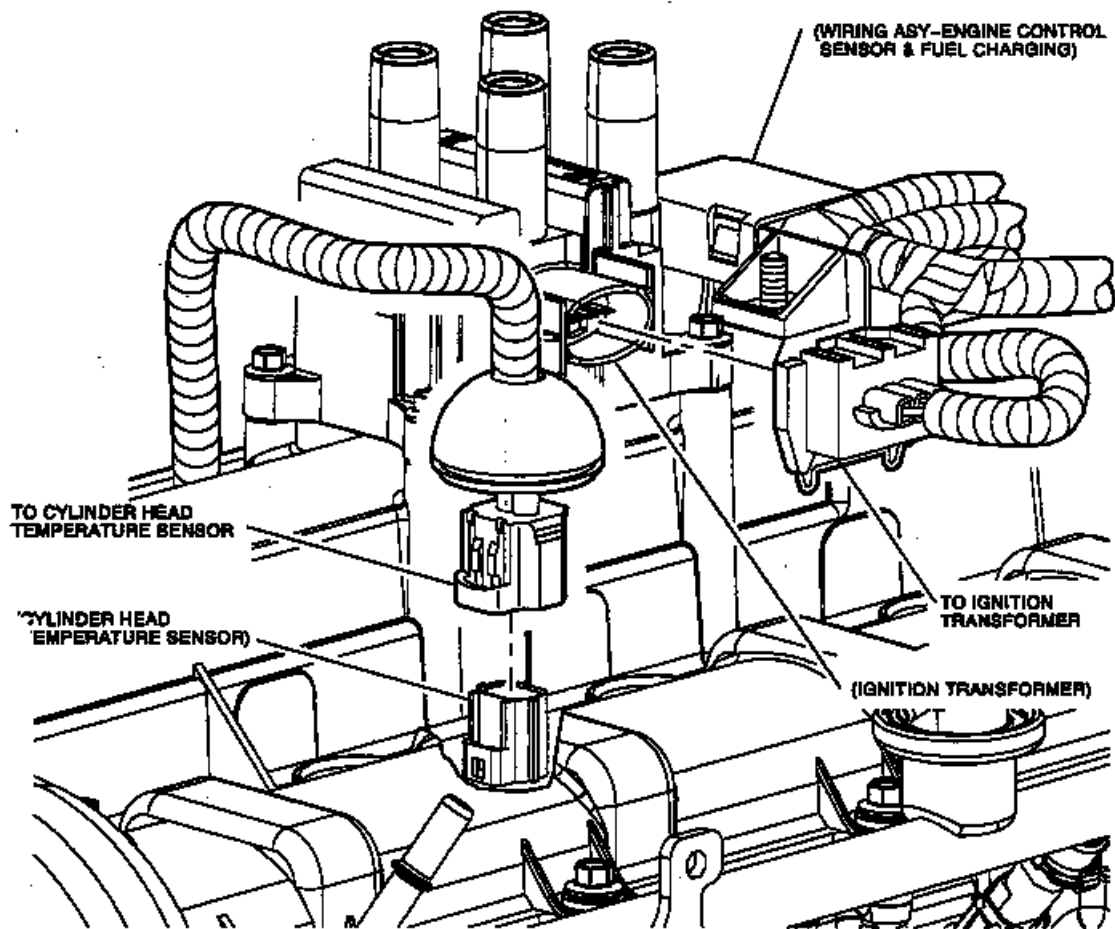
100-F

SCALE = .66



### WIRING HARNESS ASY CONNECTIONS

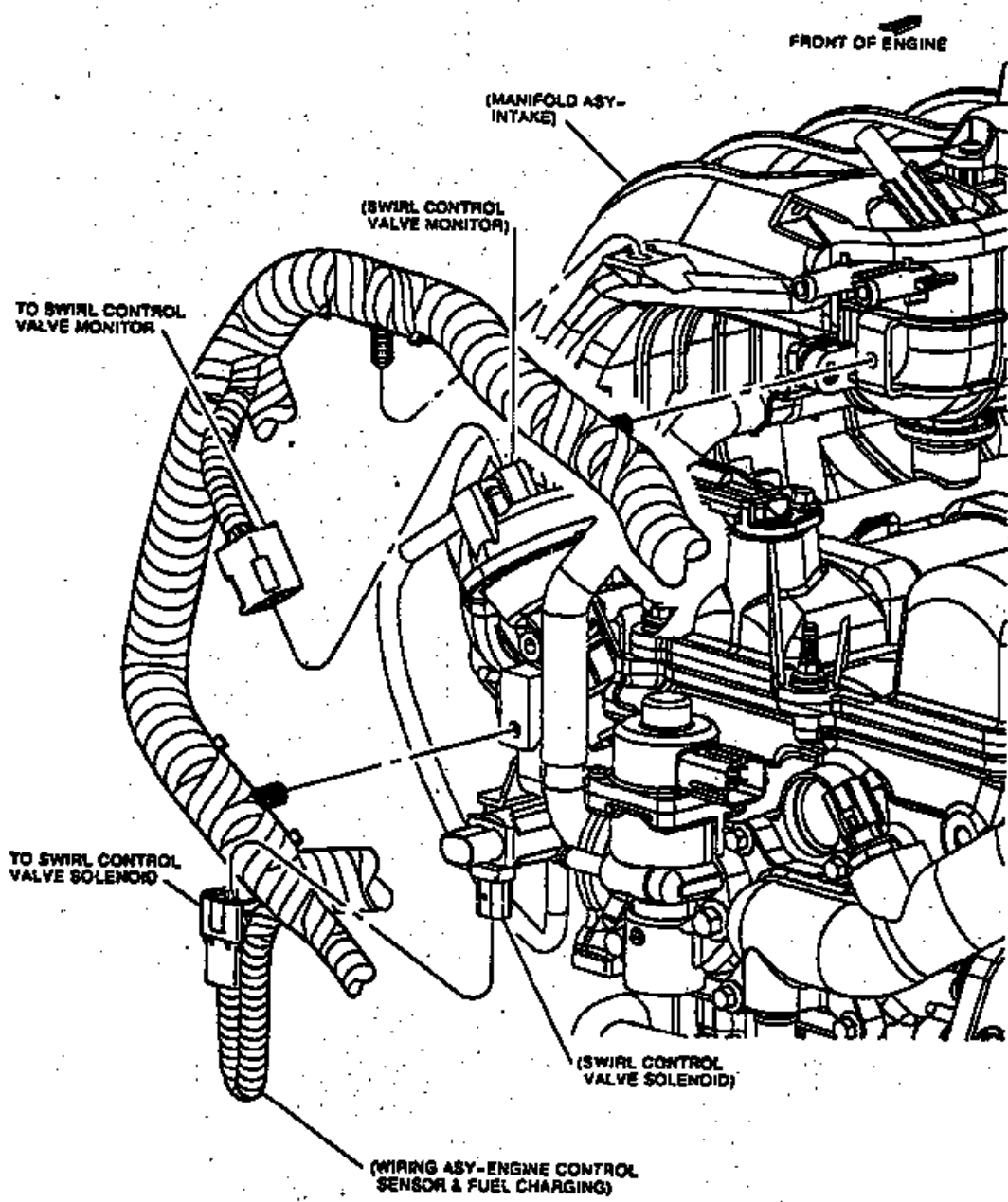
FRONT OF ENGINE



180101

RESTRICTIONS				PART NAME/TITLE <b>WIRING ASY</b>			
SPECIFICATION NO. <b>C187G-543-AC</b>	REV. <b>S</b>	RELEASE NO. <b>EN00E11081197000</b>	DATE <b>00-04-28</b>	MODEL <b>2001 2.3L-4V NON DI RANGER</b>	SHEET <b>100-F</b>	CTRL. <b>100-G</b>	

### WIRING HARNESS ASY CONNECTIONS



153101

RESTRICTIONS

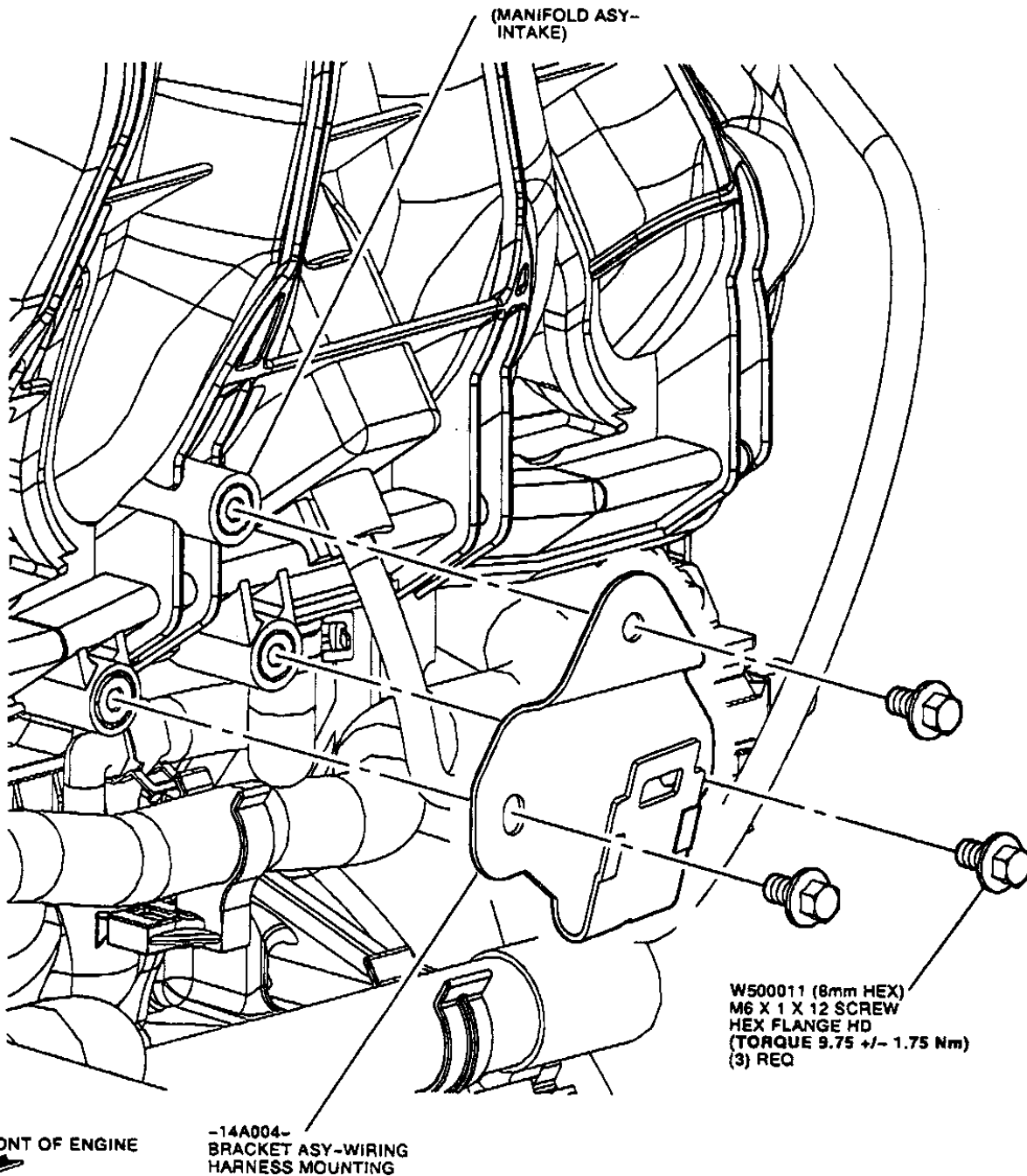
PART NAME/TITLE  
**WIRING ASY**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	TOTAL
C187G-543-AC	S	ENODE11081187000	00-04-28	2001 2.3L-4V NON DI RANGER	100-G	100-H





### WIRING HARNESS MOUNTING BRACKET ASY



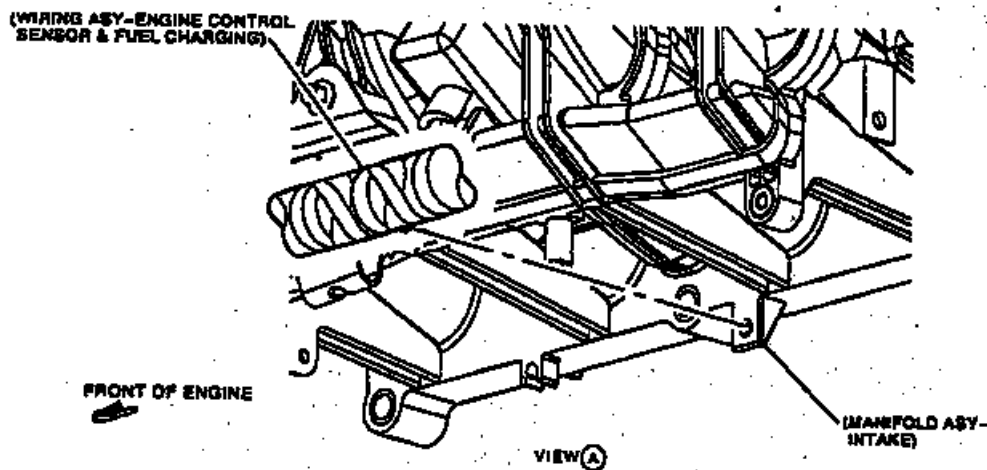
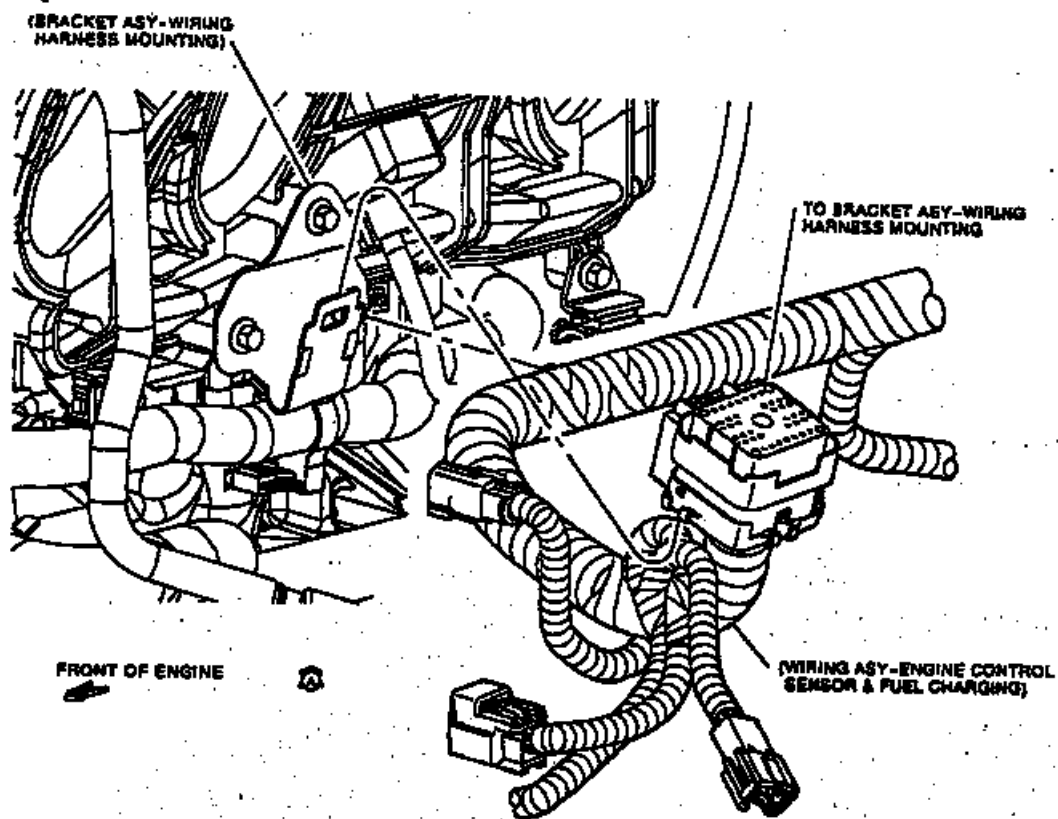
180107

RESTRICTIONS

PART NAME/TITLE  
**WIRING ASY**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONT.
C1S7G-543-AC	AU	EN00E11212646000	01-08-07	2001 2.3L-4V NON D1 RANGER	100-H	100-J

### WIRING HARNESS ASY CONNECTIONS



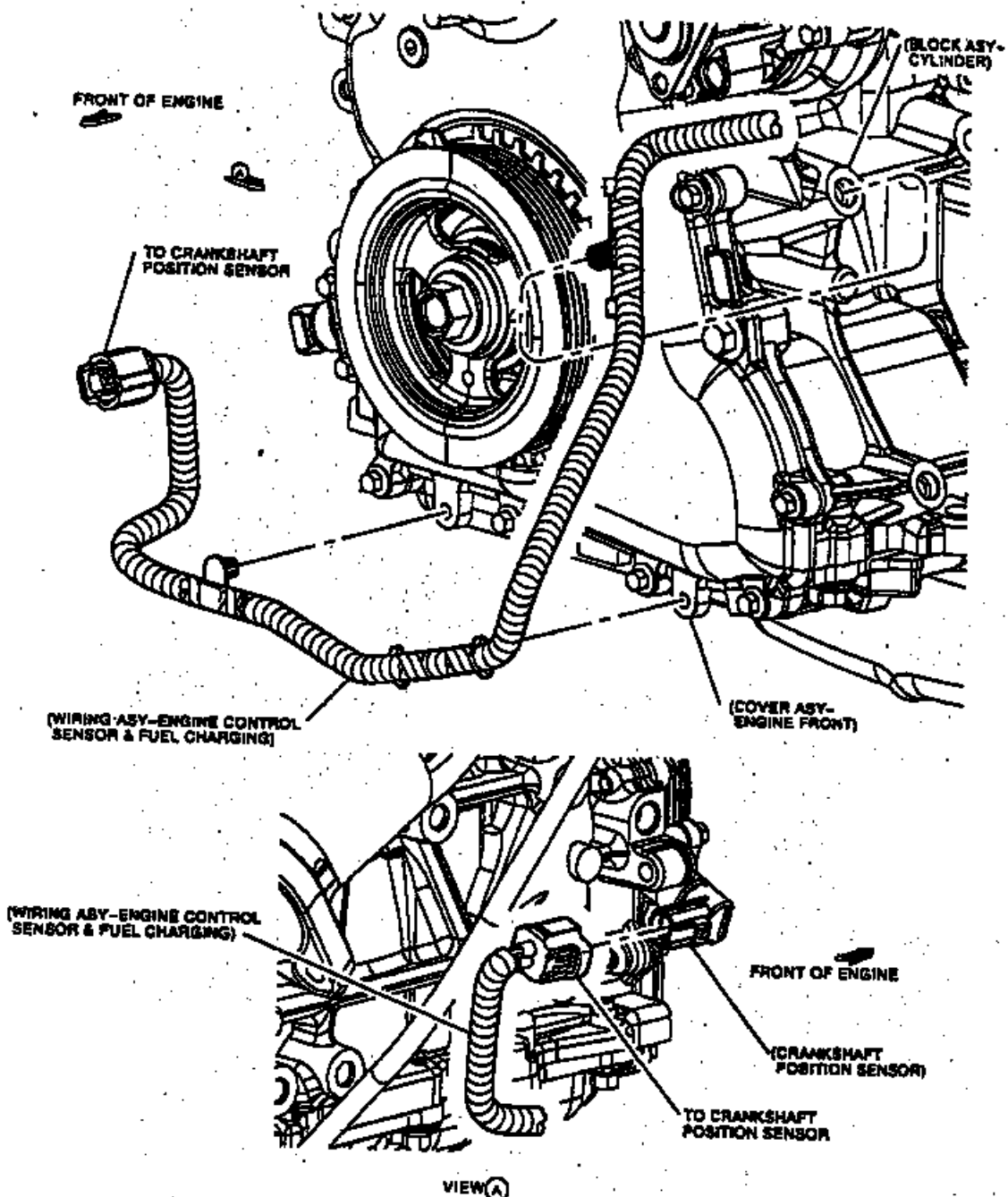
130101

RESTRICTIONS

PART NAME/TITLE  
**WIRING ASY**

SPECIFICATION NO.	REV.	RELEASE NO.	DATE	MODEL	SHEET	CONTR.
C1S7G-543-AC	S	EN00E11081197000	00-04-28	2001 2.3L-4V NON DI RANGER	100-J	100-K

### WIRING HARNESS ASY CONNECTIONS

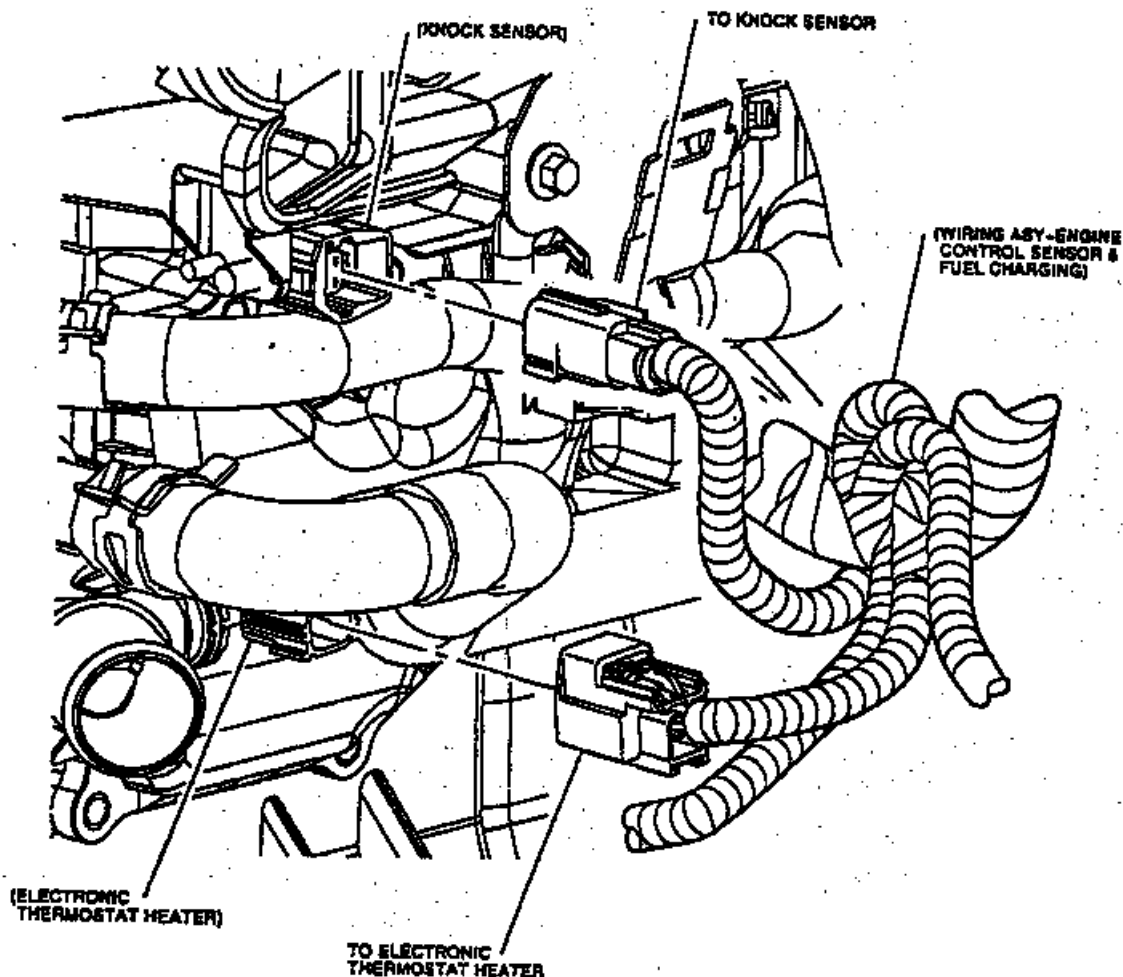


150101

RESTRICTIONS				PART NAME/TITLE <b>WIRING ASY</b>			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>S</b>	RELEASE NO. <b>EN00E11081197000</b>	DATE <b>00-04-28</b>	MODEL <b>2001 2.3L-4V NON DI RANGER</b>	SHEET <b>100-K</b>	CONTO. <b>100-L</b>	

### WIRING HARNESS ASY CONNECTIONS

FRONT OF ENGINE



150101

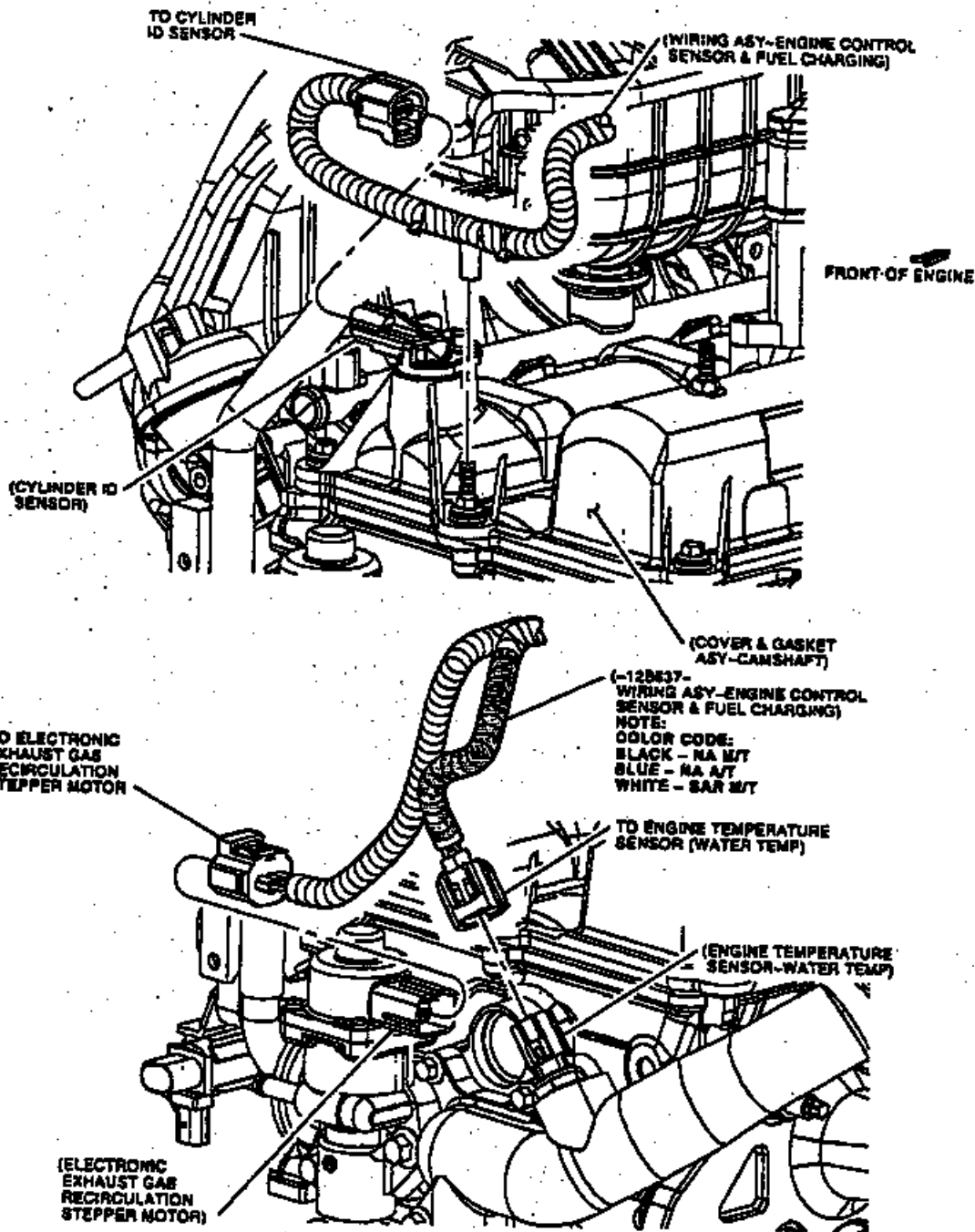
RESTRICTIONS

PART NAME/TITLE  
**WIRING ASY**

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHIFT	CONT.
C157G-543-AC	S	ENODE11081197000	00-04-28	2001 2.3L-4V NON DI RANGER	100-L	100-M



**WIRING HARNESS ASY CONNECTIONS**



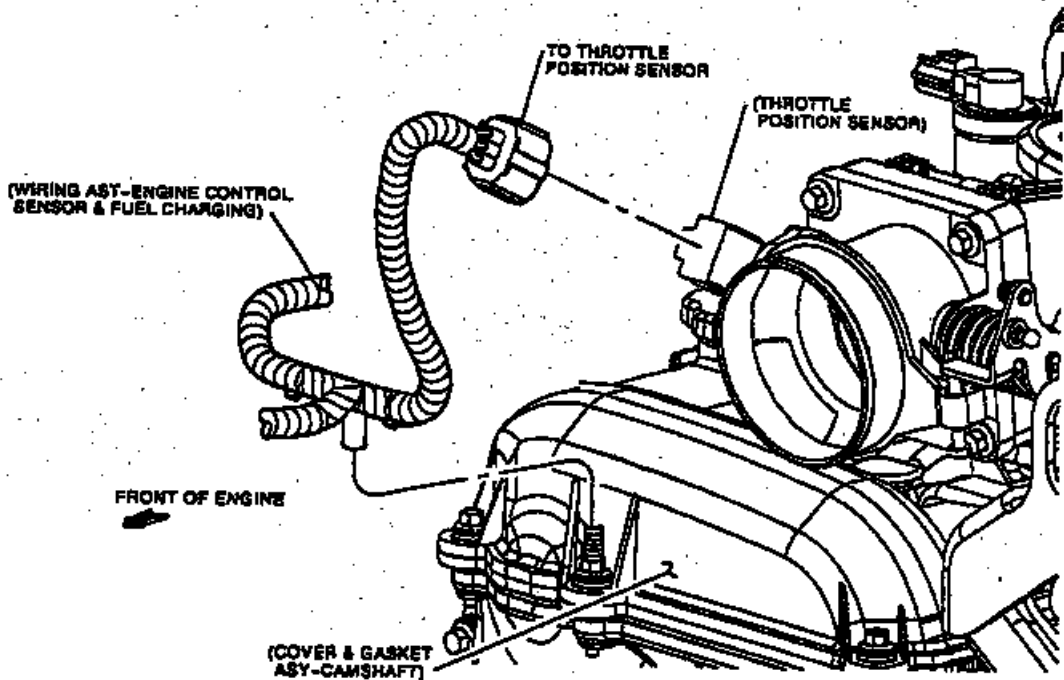
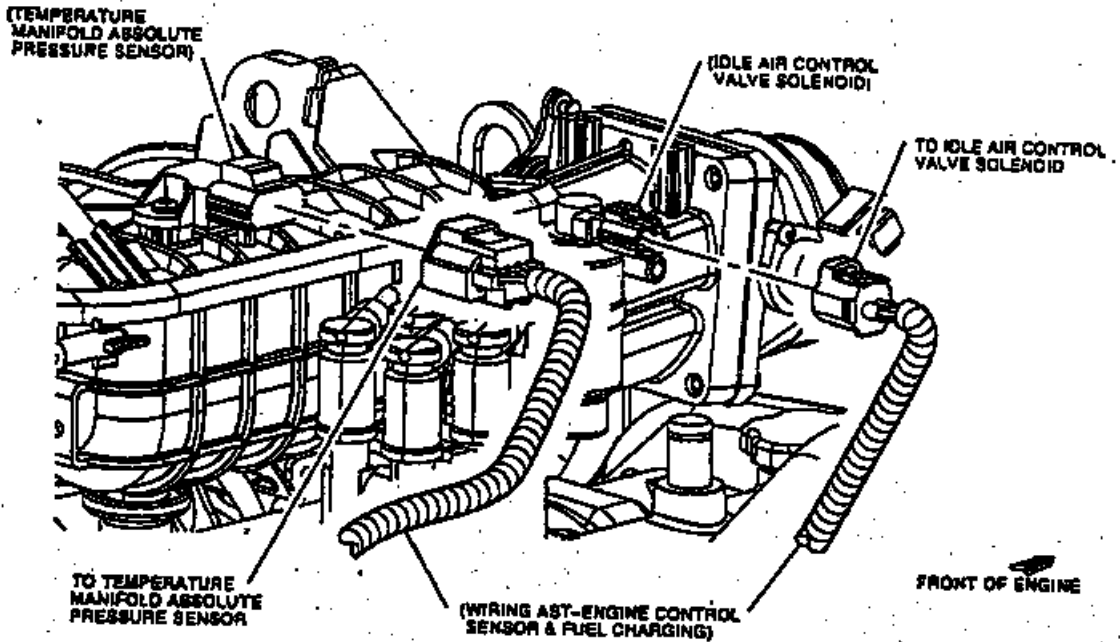
12C101

RESTRICTIONS

PART NAME/TITLE  
**WIRING ASY**

SPECIFICATION NO.	REV.	RELEASE NO.	DATE	MODEL	SHEET	TOTAL
C1S7G-543-AC	S	EN00E11081197000	00-04-28	2001 2.3L-4V NON DI RANGER	100-M	100-N

### WIRING HARNESS ASY CONNECTIONS



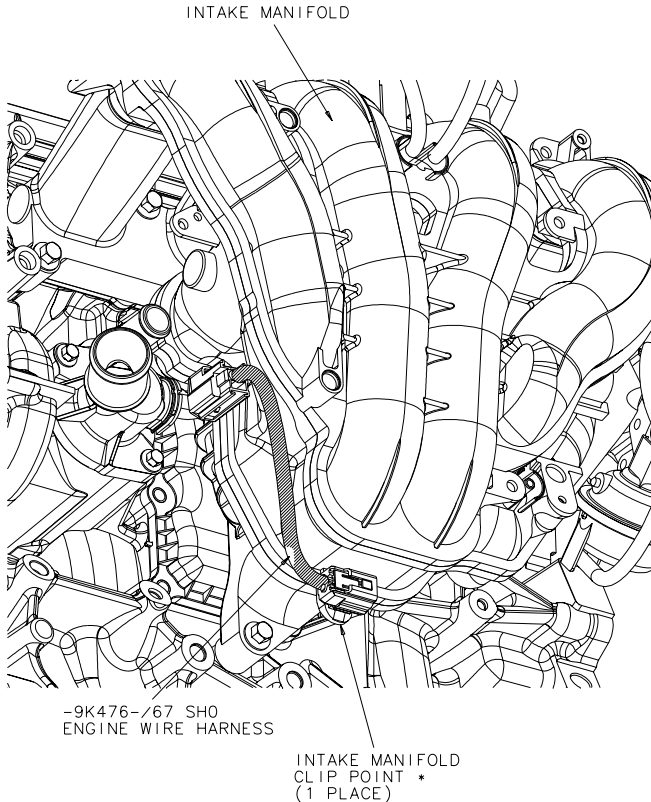
1S0101

**RESTRICTIONS**

PART NUMBER  
**WIRING ASY**

APPLICATION NO.	REV.	RELEASE NO.	DATE	MODEL	SHEET	TOTAL
C1S7G-543-AC	S	END0E11081197000	00-04-28	2001 2.3L-4V NON DI RANGER	100-N	101-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.  
1. CLIP HARNESS TO INTAKE MANIFOLD. (1 PLACE)  
(NOTE1) 1 CLIP (\*) IS HARNESS-INTEGRATED PLASTIC RETAINERS.

## RESTRICTIONS

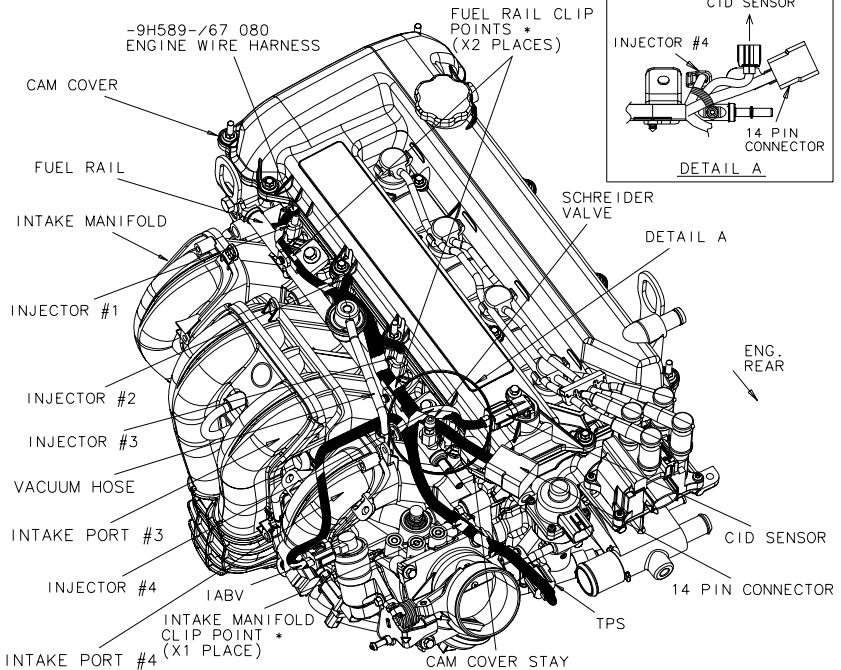
## PART NAME/TITLE

## ENGINE WIRE HARNESS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	AH	EN00E11190272000	01-03-28	2003 2.3L-4V NONDI	101-C	102-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.

1. PLACE HARNESS ALONG THE FUEL RAIL, CLOSE TO THE CAM COVER WITH 14 PIN CONNECTOR BEING NEAR THE CID SENSOR.
  2. CLIP HARNESS TO FUEL RAIL FROM CAM COVER SIDE. (2 PLACES)
  3. CONNECT INJECTOR #1-#4. (4 PLACES)
  4. CID SENSOR TAKE FROM BETWEEN INJECTOR #4 AND 14 PIN CONNECTOR. (SEE DETAIL A)
  5. CONNECT CID SENSOR.
  6. CLIP 14 PIN CONNECTOR ON TO CAM COVER STAY.
  7. ROUTE WIRES FOR TPS & IABV TO THE INTAKE MANIFOLD SIDE OF SCHREIDER VALVE.
  8. ROUTE WIRE FOR IABV UNDER THE VACUUM HOSE.
  9. ROUTE WIRE FOR IABV BETWEEN INTAKE PORT #3 AND INTAKE PORT #4.
  10. CONNECT IABV.
  11. CONNECT TPS.
  12. CLIP HARNESS TO INTAKE MANIFOLD FROM ENG. REAR SIDE. (1 PLACE)
- (NOTE1) ALL 3 CLIPS (\*) ARE HARNESS-INTEGRATED PLASTIC RETAINERS.  
 (NOTE2) THE ELECTRICAL CONNECTORS SHOULD BE INSERTED STRAIGHT AND CONFIRMED WHETHER THEY ARE IN THEIR "LOCKED" POSITION.

RESTRICTIONS

PART NAME/TITLE

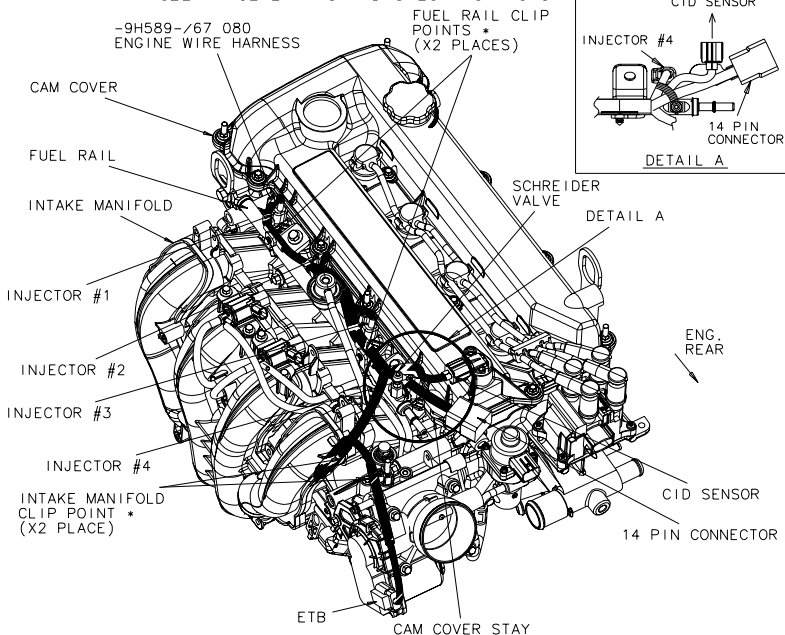
ENGINE WIRE HARNESS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2002 2.0L-4V NON DI J56	102-C	102-D



## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



ASSEMBLE THE ENGINE WIRE HARNESS IN THE FOLLOWING SEQUENCE.

1. PLACE HARNESS ALONG THE FUEL RAIL, CLOSE TO THE CAM COVER WITH 14 PIN CONNECTOR BEING NEAR THE CID SENSOR.
  2. CLIP HARNESS TO FUEL RAIL FROM CAM COVER SIDE. (2 PLACES)
  3. CONNECT INJECTOR #1-#4. (4 PLACES)
  4. CID SENSOR TAKE FROM BETWEEN INJECTOR #4 AND 14 PIN CONNECTOR. (SEE DETAIL A)
  5. CONNECT CID SENSOR.
  6. CLIP 14 PIN CONNECTOR ON TO CAM COVER STAY.
  7. CONNECT ETB.
  8. CLIP HARNESS TO INTAKE MANIFOLD FROM ENG. REAR SIDE. (2 PLACE)
- (NOTE1) ALL 4 CLIPS (\*) ARE HARNESS-INTEGRATED PLASTIC RETAINERS.  
 (NOTE2) THE ELECTRICAL CONNECTORS SHOULD BE INSERTED STRAIGHT AND CONFIRMED WHETHER THEY ARE IN THEIR "LOCKED" POSITION.

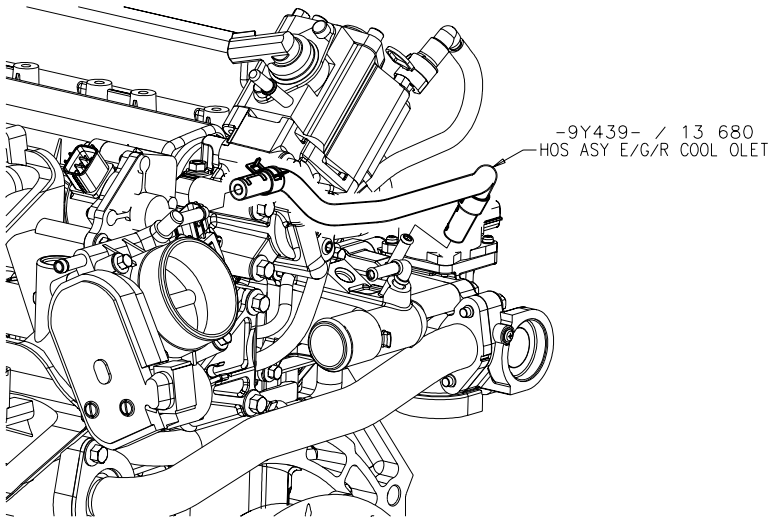
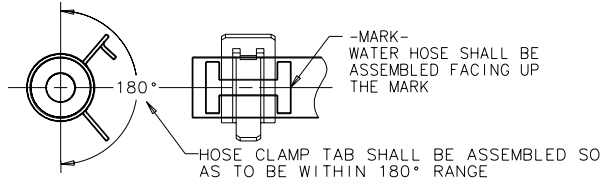
## RESTRICTIONS

PART NAME/TITLE

ENGINE WIRE HARNESS

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BL	EN00E11271652000	01-11-15	2002 2.3L-4V NON DI J56	102-D	103-C

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION ( ) CAN BE USED.  
ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

### RESTRICTIONS

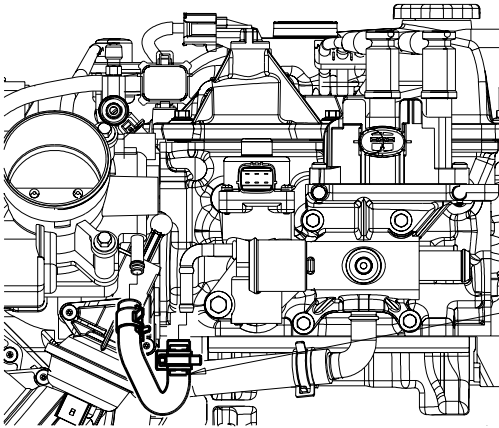
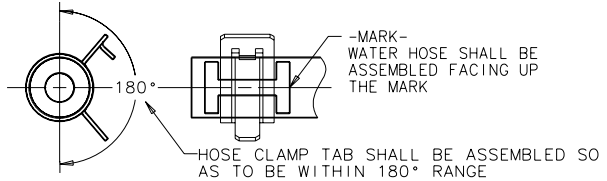
### PART NAME/TITLE

HOSE ASSY E/G/R COOL OUTLET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BB	EN00E11273745001	'01-10-26	2002 1.8L-4V DI CD132	103-C	103-D

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



-9Y439- / 13 680  
HOS ASSY E/G/R COOL OLET

#### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION ( ) CAN BE USED.  
ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

#### RESTRICTIONS

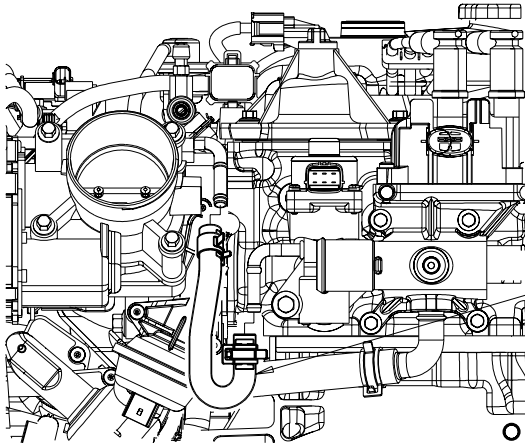
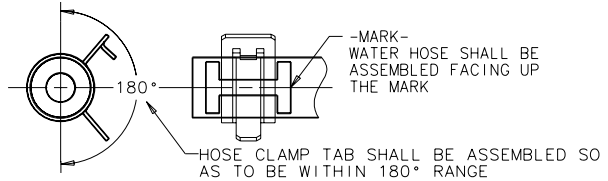
PART NAME/TITLE

HOSE ASSY E/G/R COOL OUTLET

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	BB	EN00E11273745001	'01-10-26	2003 2.3L-4V NON DI J56J	103-D	103-E

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS

### CLEARANCE LIMITS AND SPECIFICATIONS



-9Y439- / 13 680  
HOS ASY E/G/R COOL OLET

#### NOTES

1. TO ASSIST ASSEMBLY OF HOSE CONNECTIONS 10% ALFORM DILUTION ( ) CAN BE USED.  
ANY OTHER MATERIAL GREASE, OIL etc. MUST NOT BE USED.
2. THE CONNECTIONS SHOULD BE ASSEMBLED TO THE PHYSICAL STOP ON THERMOSTAT AND WATER OUTLET. (SEE SKETCH)
3. CONNECTION MARKINGS ARE VERTICAL THERMOSTAT AND HORIZONTAL FOR WATER OUTLET.
4. HOSE CLIPS MUST BE WITHIN THESE MARKINGS.

RESTRICTIONS

PART NAME/TITLE

HOSE ASSY E/G/R COOL OUTLET

SPECIFICATION NO.  
C1S7G-543-AC

REV  
BB

RELEASE NO.  
EN00E11273745001

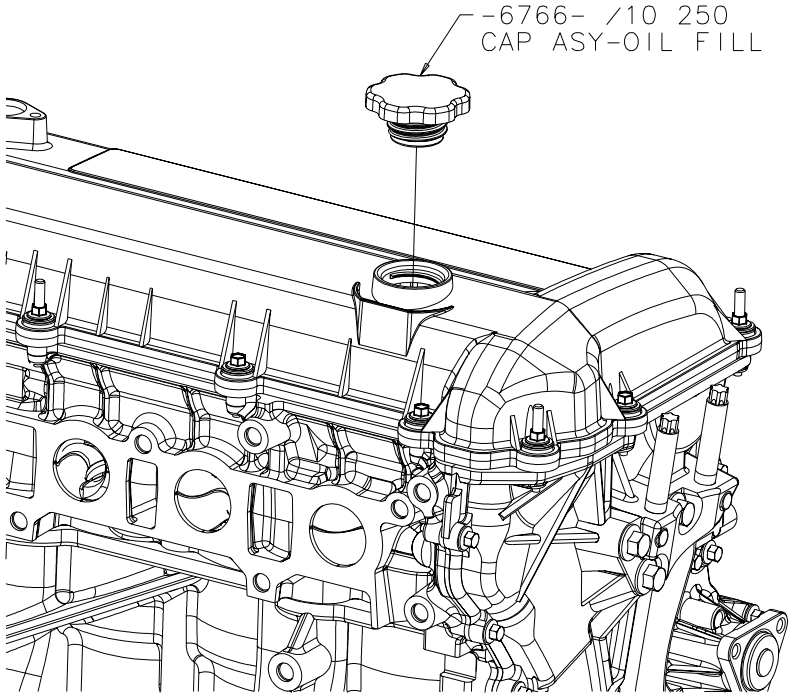
DATE  
'01-10-26

MODEL  
2004 1.8L-4V NON DI C214

SHEET  
103-E

CONTD.  
104-A

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



## NOTES

- 1.No sticking of stain, dust, etc is allowed on oil filler cap sealing surface of cam cover and oil filler cap.
- 2.Firmly tighten oil filler cap until torque limiter works.

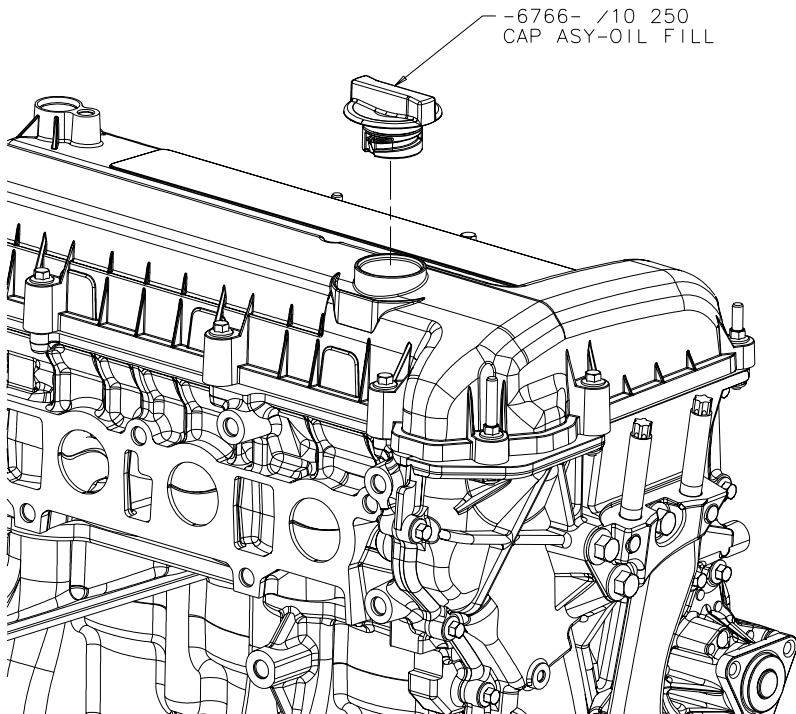
## RESTRICTIONS

## PART NAME/TITLE

## OIL FILLER CAP

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	H	EN00E11007392000	99-09-06	2001 2.0L-4V NON DI CD132	104-A	104-B

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



NOTES

- 1.No sticking of stain, dust, etc is allowed on oil filler cap sealing surface of cam cover and oil filler cap.
- 2.Firmly tighten oil filler cap until oil filler cap can not turn.

RESTRICTIONS				PART NAME/TITLE			
				OIL FILLER CAP			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	AZ	EN00E11184847002	01-10-12	2001 2.0L-4V NON DI CD132	104-B	105	

CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**H**

RELEASE NO.  
**EN00E11007392000**

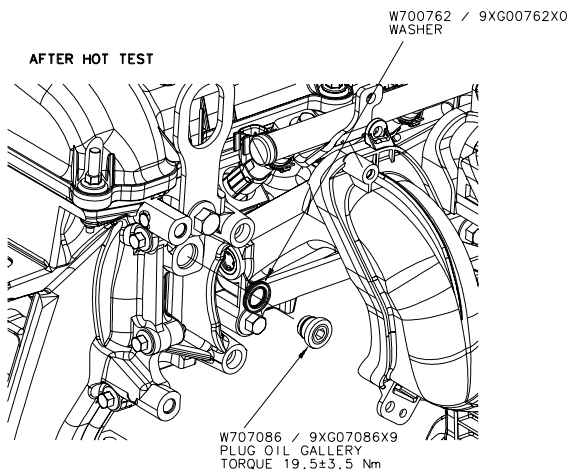
DATE  
**99-09-06**

MODEL  
2001 2.3L-4V NON DI RANGER

SHEET  
**104-B**

CONTD.  
**105**

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



RESTRICTIONS

PART NAME/TITLE  
**PLUG-OIL GALLERY**

SPECIFICATION NO.  
**C1S7G-543-AC**

REV  
**M**

RELEASE NO.  
**EN00E11054241000**

DATE  
**'00-01-26**

MODEL  
**2001 2.0L-4V NON DI CD132**

SHEET  
**105**

CONTD.  
**106-A**



CONFIDENTIAL



**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**

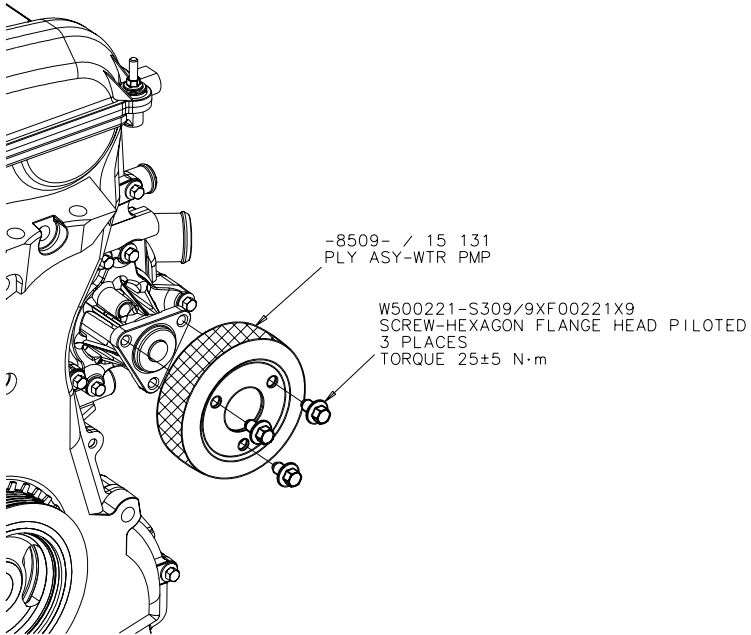
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RESTRICTI

PART NAME/TITLE

SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>H</b>	RELEASE NO. <b>EN00E11007392000</b>	DATE <b>99-09-06</b>	MODEL 2001 2.0L-4V NON DI CD132	SHEET <b>106-A</b>	CONTD. <b>107-A</b>
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## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. ENSURE THERE IS NOT ANY GREASE, OIL OR FOREIGN MATTER ON THE HATCHED AREA BEFORE SHIPMENT.
2. DAMAGED PULLEY MUST NOT BE ASSEMBLED.
3. THE PULLEY MUST NOT CONTACT ANY OTHER PARTS OF THE ENGINE DURING ROTATION.

### RESTRICTIONS

PART NAME/TITLE

WATER PUMP PULLEY

 SPECIFICATION NO.  
C1S7G-543-AC

 REV  
N

 RELEASE NO.  
EN00E11030674000

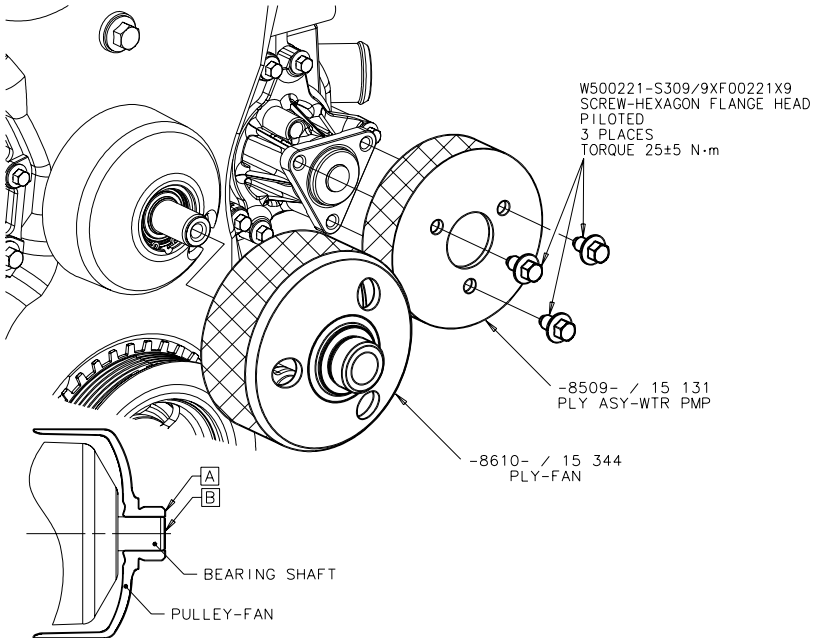
 DATE  
00-02-10

 MODEL  
2001 2.0L-4V NON DI CD132

 SHEET  
107-A

 CONTD.  
107-B

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### NOTES

1. FAN PULLEY TO BE PRESSED-IN INTO BEARING SHAFT PULLEY A AND B SHALL BE FLUSH( $\pm 0.2\text{mm}$ )
2. ENSURE THERE IS NOT ANY GREASE, OIL OR FOREIGN MATTER ON THE HATCHED AREA BEFORE SHIPMENT.
3. DAMAGED PULLEY MUST NOT BE ASSEMBLED.
4. THE PULLEY MUST NOT CONTACT ANY OTHER PARTS OF THE ENGINE DURING ROTATION.

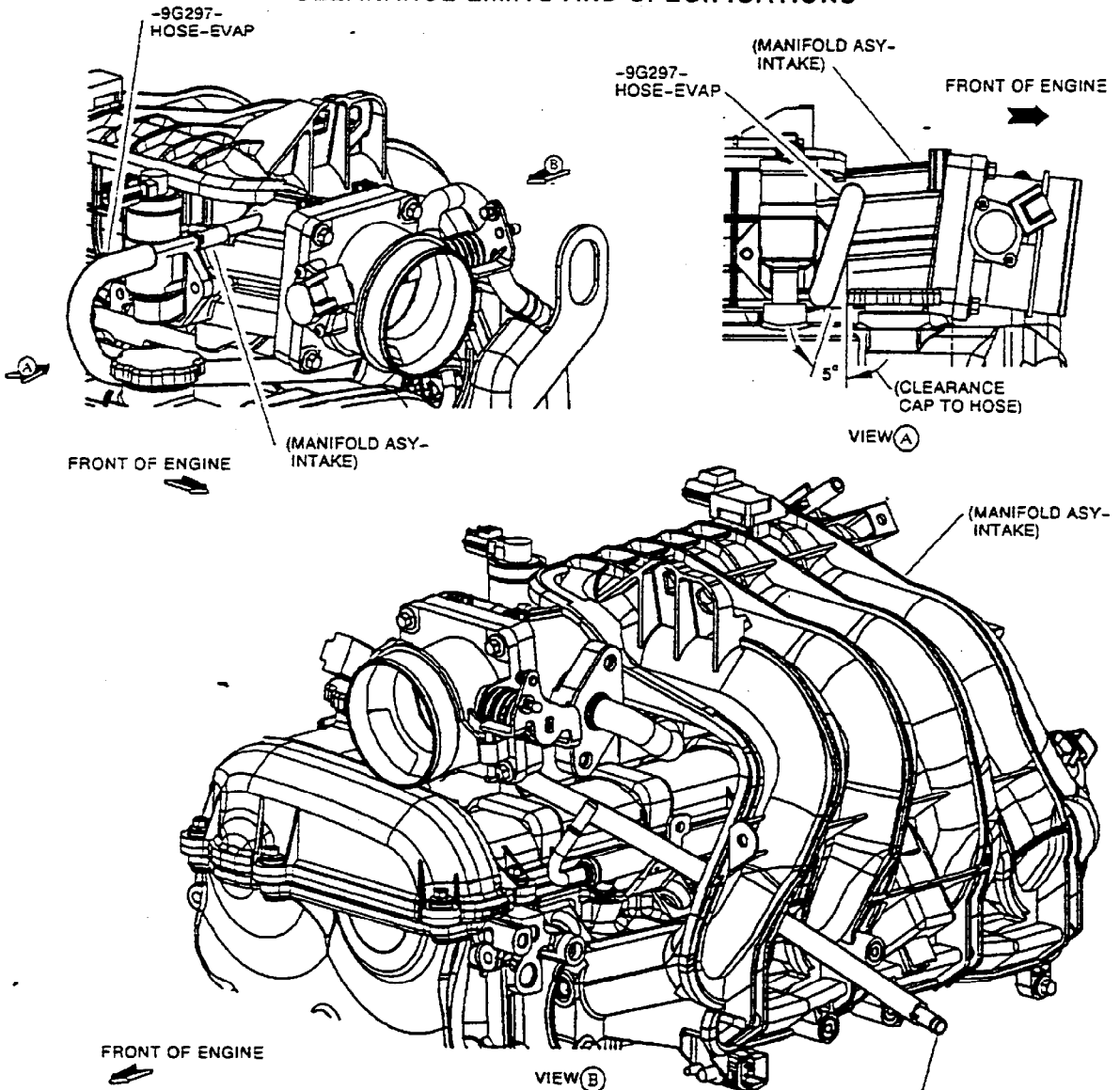
RESTRICTIONS

PART NAME/TITLE

WATER PUMP PULLEY &amp; FAN PULLEY

SPECIFICATION NO.  
C1S7G-543-ACREV  
AFRELEASE NO.  
EN00E11151946000DATE  
01-02-09MODEL  
2001 2.3L-4V NON DI RANGERSHEET  
107-BCONTD.  
108

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS



### ASSEMBLY AID AND ENGAGEMENT SPECIFICATIONS FOR VACUUM SYSTEM COMPONENTS

ESE-M99B144-B SURFACTANT (MERPOL) MAY BE USED TO FACILITATE ASSEMBLY OF ALL VACUUM CONNECTOR ASY COMPONENTS.

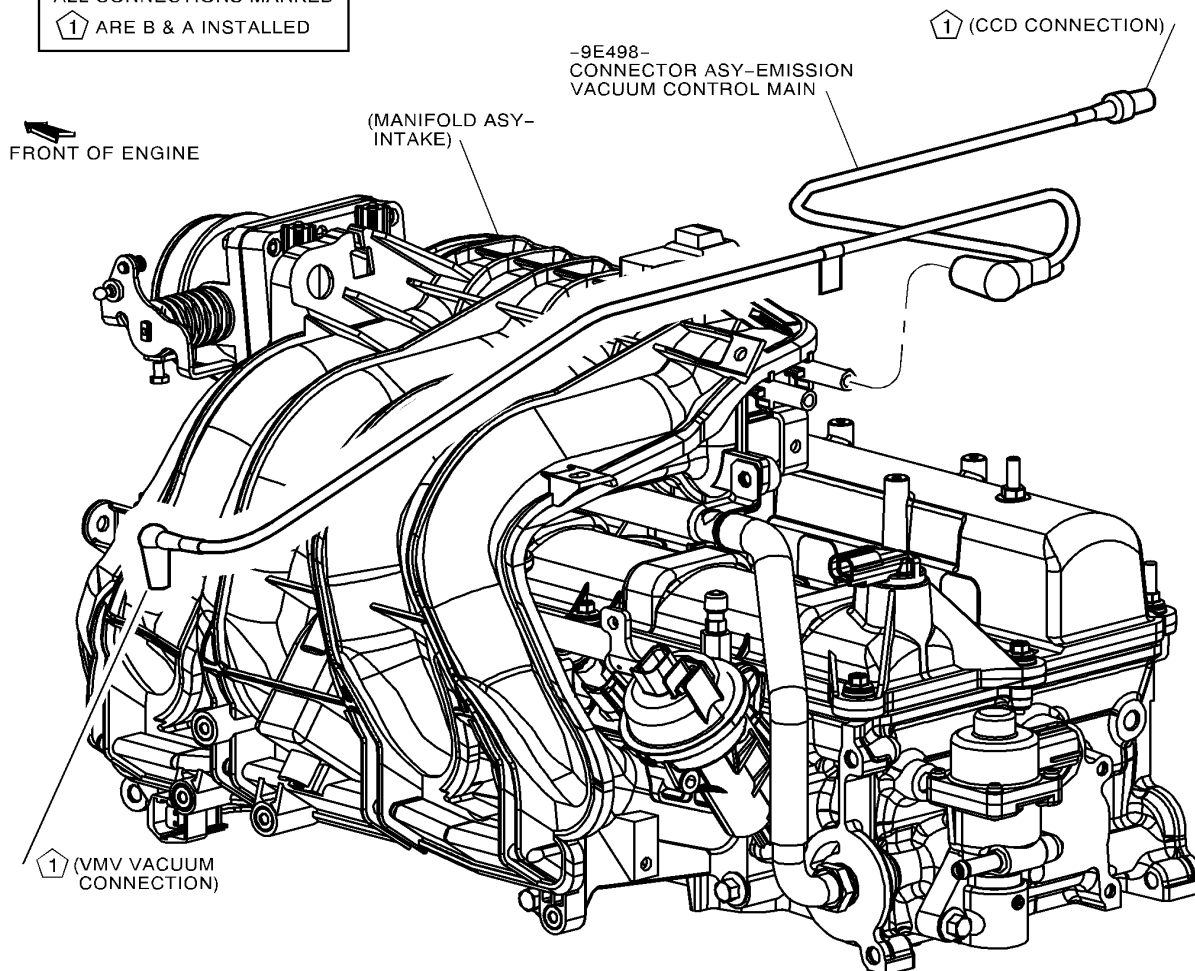
ALTERNATELY, WATER MAY BE USED BY TOUCHING COMPONENTS TO A WET SPONGE. WATER LEVEL NOT TO EXCEED 50% OF SPONGE THICKNESS.

UNLESS OTHERWISE SPECIFIED, ALL VACUUM TUBING CONNECTIONS, CONNECTOR BLOCKS AND CAPS MUST BE BOTTOMED OR WITHIN 2.5 MAX OF BEING BOTTOMED ON THE COMPONENT NIPPLE.

RESTRICTIONS				PART NAME/TITLE <b>HOSE-EVAP</b>			
SPECIFICATION NO. C1S7G-543-AC	REV J	RELEASE NO. NE01-E10807706-001	DATE 99-10-05	MODEL 2001 2.3L-4V NON DI RANGER	SHEET 108	CONTO. 109	

## ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS CLEARANCE LIMITS AND SPECIFICATIONS

ALL CONNECTIONS MARKED  
① ARE B & A INSTALLED



### ASSEMBLY AID AND ENGAGEMENT SPECIFICATIONS FOR VACUUM SYSTEM COMPONENTS

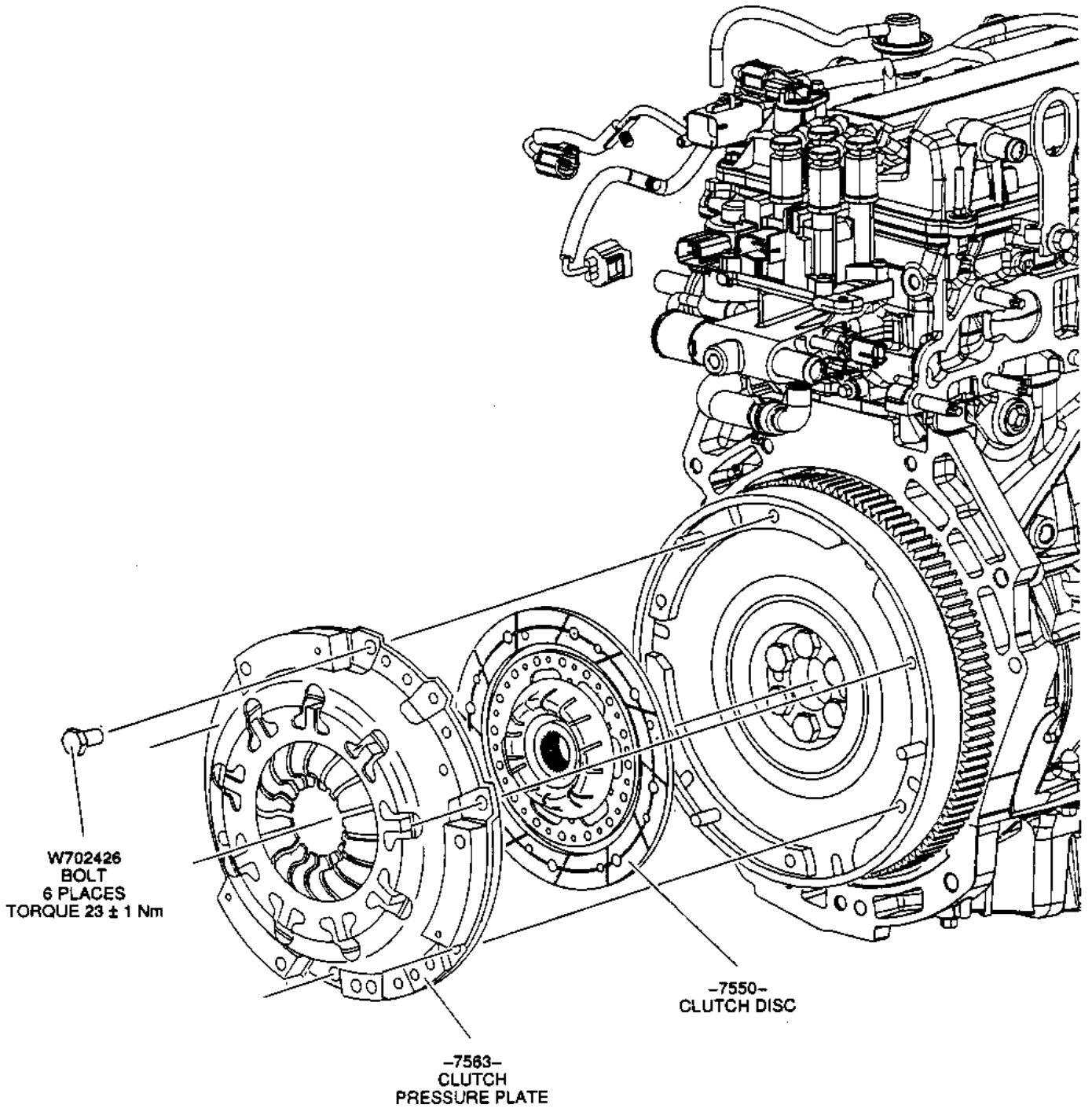
ESE-M99B144-B SURFACTANT (MERPOL) MAY BE USED TO FACILITATE ASSEMBLY OF ALL VACUUM CONNECTOR ASY COMPONENTS.

ALTERNATELY, WATER MAY BE USED BY TOUCHING COMPONENTS TO A WET SPONGE. WATER LEVEL NOT TO EXCEED 50% OF SPONGE THICKNESS.

UNLESS OTHERWISE SPECIFIED, ALL VACUUM TUBING CONNECTIONS, CONNECTOR BLOCKS AND CAPS MUST BE BOTTOMED OR WITHIN 2.5 MAX OF BEING BOTTOMED ON THE COMPONENT NIPPLE.

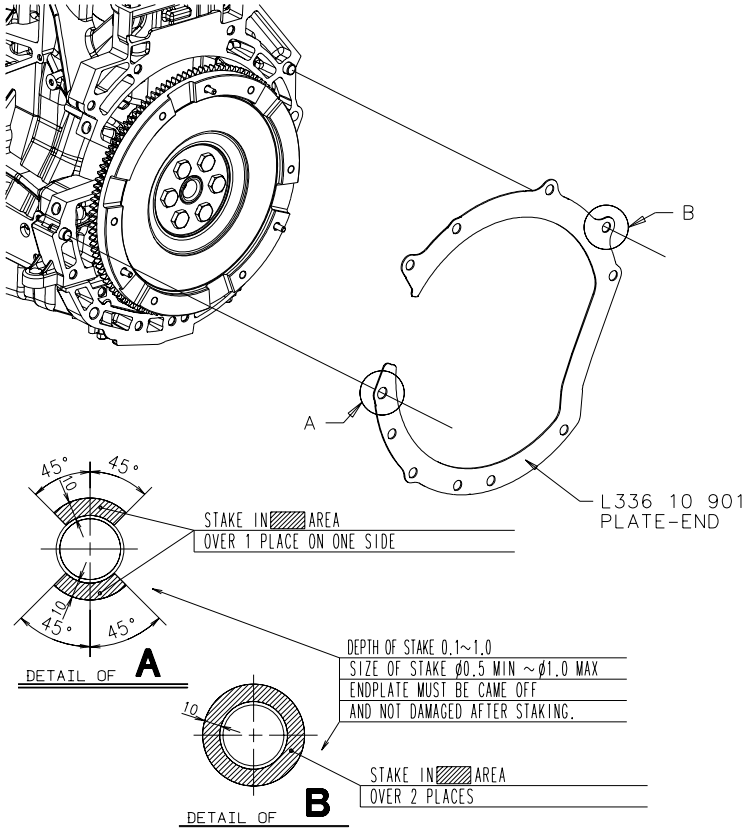
RESTRICTI				PART NAME/TITLE <b>VACUUM HARNESS</b>			
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>N</b>	RELEASE NO. <b>EN00 E 11030674 000</b>	DATE <b>00-02-10</b>	MODEL <b>RANGER</b>	SHEET <b>109</b>	CONTD. <b>110</b>	

**ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS**



RESTRICTIONS				PART NAME/TITLE <b>INSTALLATION DUAL MASS FLYWHEEL</b>		
SPECIFICATION NO. <b>C1S7G-543-AC</b>	REV <b>BH</b>	RELEASE NO. <b>EN00 E11266219 000</b>	DATE <b>01-11-12</b>	MODEL <b>2001 2.0L-4V NON DI CD132</b>	SHEET <b>110</b>	CONTD. <b>110-A</b>

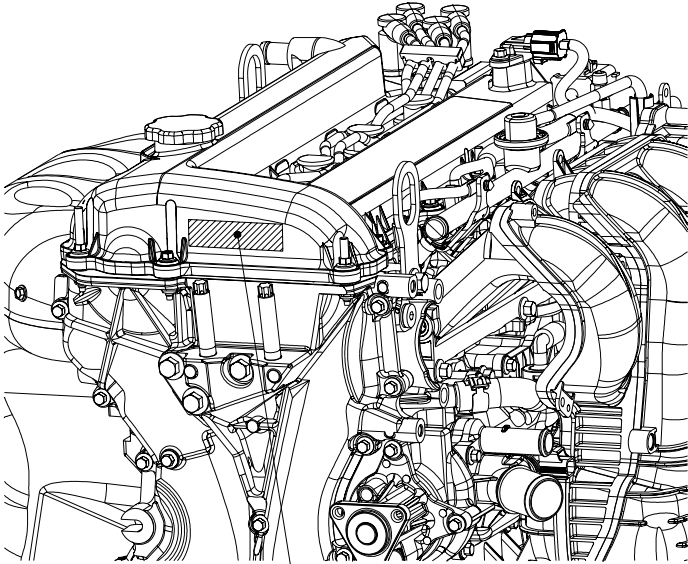
ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



UNIQUE TO MAZDA ONLY.

RESTRICTIONS				PART NAME/TITLE PLATE END			
SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.	
C1S7G-543-AC	BH	EN00 E 11266219 000	01-11-12	2002 2.3L-4V NON DI J16	110-A	111	

ENGINE ASSEMBLY PROCEDURES AND INSTRUCTIONS  
CLEARANCE LIMITS AND SPECIFICATIONS



Eng.Size/Prefix/Suffix:Eng.Parts No.

Buyoff Date Code

Barcode

1.8 1A-139-AA	C	24/05/2000
<input type="text"/>	H	019
1051900180711	P	000507

Engine Derivative Number

CHEP 5/19 2000 18:07:11  
UNIQUE ENGINE NUMBER

REFER TO CAM COVER DRAWING  
FOR LOCATION DIMENSIONS.

Sequence Number

RESTRICTIONS

PART NAME/TITLE  
BARCODE

SPECIFICATION NO.	REV	RELEASE NO.	DATE	MODEL	SHEET	CONTD.
C1S7G-543-AC	T	EN00E11095813000	00-06-30	2001 2.0L-4V NON DI CD132	1 11	END