

2002 STARTING & CHARGING SYSTEMS

Generators & Regulators - MDX

DESCRIPTION & OPERATION

Generator uses 6 positive diodes and 6 negative diodes to rectify current. An internal Integrated Circuit (IC) voltage regulator controls charging system voltage. Amperage rating for generator is 130 amps.

CAUTION: Before disconnecting battery, obtain anti-theft code for radio. After battery is reconnected, the word **CODE** will appear on radio display. Enter 5-digit anti-theft code using select buttons and radio will begin working. If code is entered wrong too many times, leave radio on at least one hour and enter code correctly. Any time radio power is lost, pre-selected radio stations will have to be set.

ADJUSTMENTS

Automatic belt tensioner is used to maintain proper drive belt adjustment. Ensure pointer on automatic belt tensioner housing is not beyond edge of indicator rib on tensioner base. See **Fig. 1** . Replace belt if stretched beyond its limit.

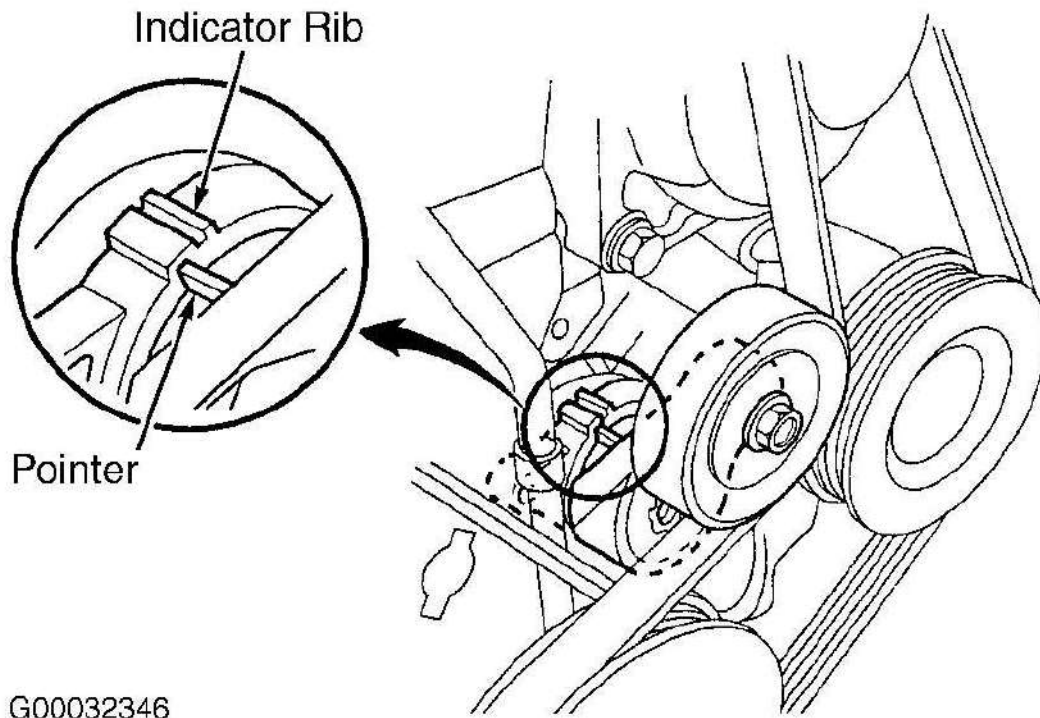


Fig. 1: Checking Belt Tension On Automatic Tensioner
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TROUBLE SHOOTING

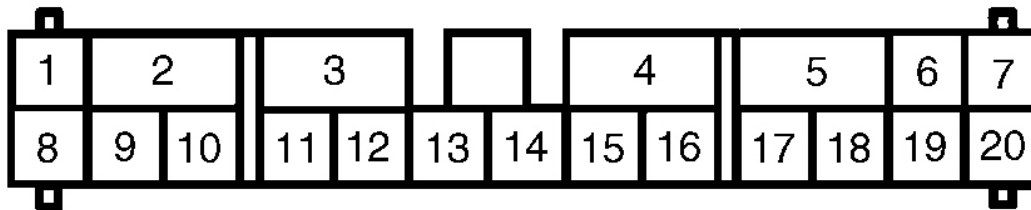
NOTE: Before performing any testing, perform a visual inspection. Check battery charge level and condition. Check fuse No. 6 (15-amp) in underdash fuse/relay block. Check connectors for loose, damaged or corroded terminals. Check for damaged wiring harness.

ON-VEHICLE TESTING

CHARGING SYSTEM LIGHT TEST

1. Ensure that generator wire terminal "B", 4-pin connector and underhood fuse/relay block terminals are securely tightened. Turn ignition switch to ON position. Charging system light should illuminate. If charging system light illuminates, go to next step. If charging system light does not illuminate, go to step 4.
2. Start engine. Charging system light should turn off. If charging system light remains on, go to next step. If charging system light turns off, charging system light circuit is functioning properly.

3. Turn ignition switch to OFF position. Disconnect generator 4-pin harness connector. Turn ignition switch to ON position. If charging system light does not illuminate, go step 5 . If charging system light illuminates, turn ignition off. Repair short in White/Blue wire between generator and driver's underdash fuse/relay block. See **WIRING DIAGRAMS** .
4. Turn ignition off. Disconnect generator 4-pin connector. Connect a fused jumper wire between ground and generator 4-pin connector terminal No. 3 (White/Blue wire). Turn ignition switch to ON position. If charging system light illuminates, go to next step. If charging system light does not illuminate, turn ignition off. Check for blown fuse No. 6 (15-amp) and charging system light bulb. Fuse No. 6 is located in driver's underdash fuse/relay block. If fuse and bulb are okay, repair open in Black/Yellow or White/Blue wires between generator and driver's underdash fuse/relay block. See **WIRING DIAGRAMS** .
5. Turn ignition switch to ON position. Using DVOM, measure voltage between ground and generator 4-pin harness connector terminal No. 1 (Black/Yellow wire). If battery voltage exists, go to **GENERATOR/REGULATOR OUTPUT TEST** . If battery voltage does not exist, repair open in Black/Yellow wire between generator and underdash fuse/relay block 20-pin connector "D" terminal No. 13. See **Fig. 2** .



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Fig. 2: Identifying Underdash Fuse/Relay Block Light Green 20-Pin Connector "D"
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

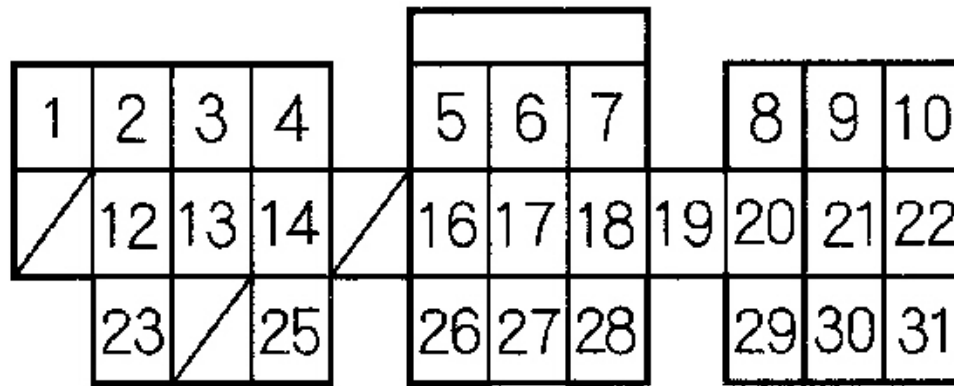
GENERATOR/REGULATOR OUTPUT TEST

1. Ensure battery is fully charged. Hook up charging system tester according to manufacturer's instructions. Place transmission in Park or Neutral. Start engine and operate at 3000 RPM until radiator fan comes on. Let engine idle. Increase engine speed to 2000 RPM and hold. Observe charging system tester. If 15.1 volts or less exist, go to next step. If more than 15.1 volts exist, replace generator.
2. Return engine to idle. Ensure all accessories are off. Connect inductive pick-up over generator terminal "B" (battery terminal wire). Increase engine speed to 2000 RPM and hold. Observe voltmeter. If 13.5 volts or more exist, go to next step. If less than 13.5 volts exist, go to **GENERATOR CONTROL SYSTEM TEST** .
3. While observing ammeter, apply load with charging system tester carbon pile until battery voltage drops to 12-13.5 volts. If less than 87.5 amps exist, repair generator components. See **BENCH TESTING** . If 87.5 amps or more exist, charging system is functioning properly.

GENERATOR CONTROL SYSTEM TEST

NOTE: **Ensure Electronic Load Detector (ELD) is operating properly. See DTC 1297-98 in DIAGNOSTIC TESTS under SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.**

1. Disconnect generator 4-pin connector. Start engine. Turn on headlights (high beam). Using DVOM, measure voltage between generator 4-pin harness connector terminal No. 2 (White/Green wire) and battery positive terminal. If one volt or less exists, go to step 3 . If more than one volt exists, go to next step.
2. Turn headlight and ignition switch to OFF position. Disconnect Powertrain Control Module (PCM) 31-pin connector "C". PCM is located under front of center console, behind right side console trim panel. Check for continuity in White/Green wire between PCM 31-pin harness connector "C" terminal No. 2 and ground. See **Fig. 3** . If continuity exists, repair short in White/Green wire between PCM and generator 4-pin connector terminal No. 2. If continuity does not exist, substitute a known-good PCM, then recheck. See **POWERTRAIN CONTROL MODULE** under COMPUTERIZED ENGINE CONTROLS in REMOVAL, OVERHAUL & INSTALLATION article in ENGINE PERFORMANCE. If symptom or indication goes away, replace original PCM.
3. Turn headlight and ignition switch to OFF positions. Disconnect Powertrain Control Module (PCM) 31-pin connector "C". PCM is located under front of center console. Using DVOM, check for continuity of White/Green wire between PCM 31-pin harness connector "C" terminal No. 2 and generator 4-pin harness connector terminal No. 2. See **Fig. 3** . If continuity exists, replace generator. See **GENERATOR** under REMOVAL & INSTALLATION. If continuity does not exist, repair open in White/Green wire between PCM and generator.



WIRE SIDE OF FEMALE TERMINALS

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Fig. 3: Identifying PCM 31-Pin Connector "C" Terminals

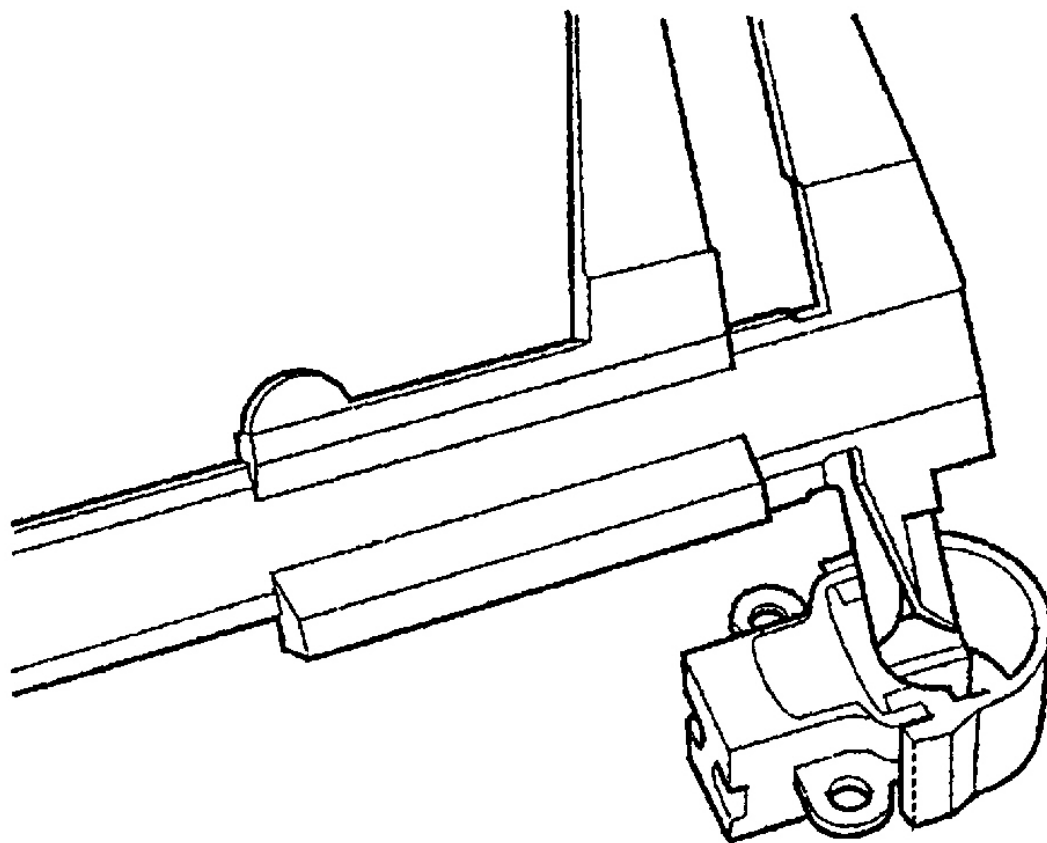
Courtesy of AMERICAN HONDA MOTOR CO., INC.

BENCH TESTING

NOTE: Rectifier diode assembly and armature are integrated into rear generator housing assembly. Diagnosis and testing procedures are not available from manufacturer.

BRUSHES

Check brush holder and brushes for cracks or other damage. Minimum brush length should be .06" (1.5 mm). See **Fig. 4** . If brushes are damaged or worn, replace brush holder assembly.



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Fig. 4: Measuring Brush Length

Courtesy of HONDA MOTORS CO., INC.

ROTOR

Ensure rotor bearings rotate smoothly. Using ohmmeter, check continuity between slip rings and rotor. Check continuity between slip rings and rotor shaft. See **Fig. 5** . If continuity exists, replace rotor. Check for continuity between slip rings. Replace rotor if continuity does not exist.

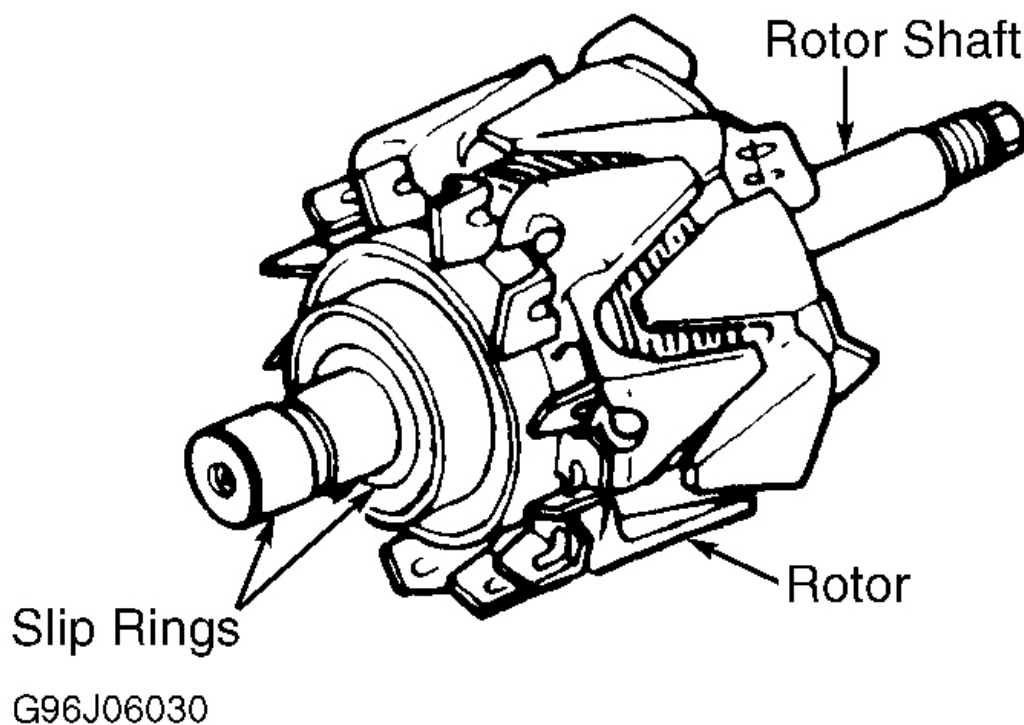


Fig. 5: Identifying Rotor Components

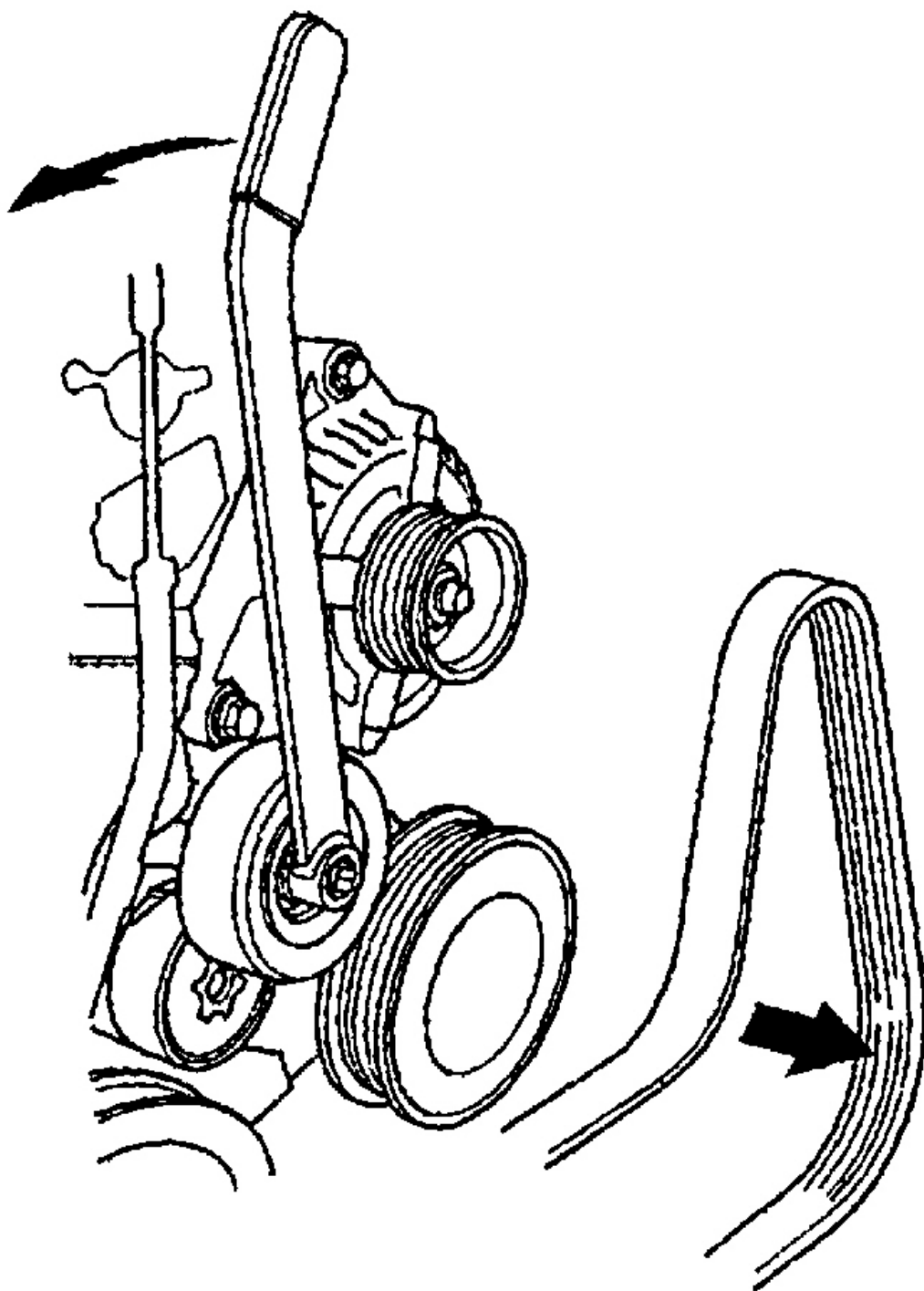
Courtesy of AMERICAN HONDA MOTOR CO., INC.

REMOVAL & INSTALLATION

GENERATOR

Removal & Installation

Disconnect negative battery cable. Release tension on serpentine belt auto-tensioner and remove generator belt. Disconnect generator 4-pin harness connector and terminal "B" (Black wire). Remove the intake manifold cover and ignition coil cover. Move the auto tensioner to relieve tension from the alternator belt and remove the belt. See **Fig. 6** . Remove generator wire harness bracket. Remove lower and upper generator mounting bolts. Remove generator. To install, reverse removal procedure. Tighten nuts and bolts to specification. See **TORQUE SPECIFICATIONS** .



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Fig. 6: Removing Alternator Belt

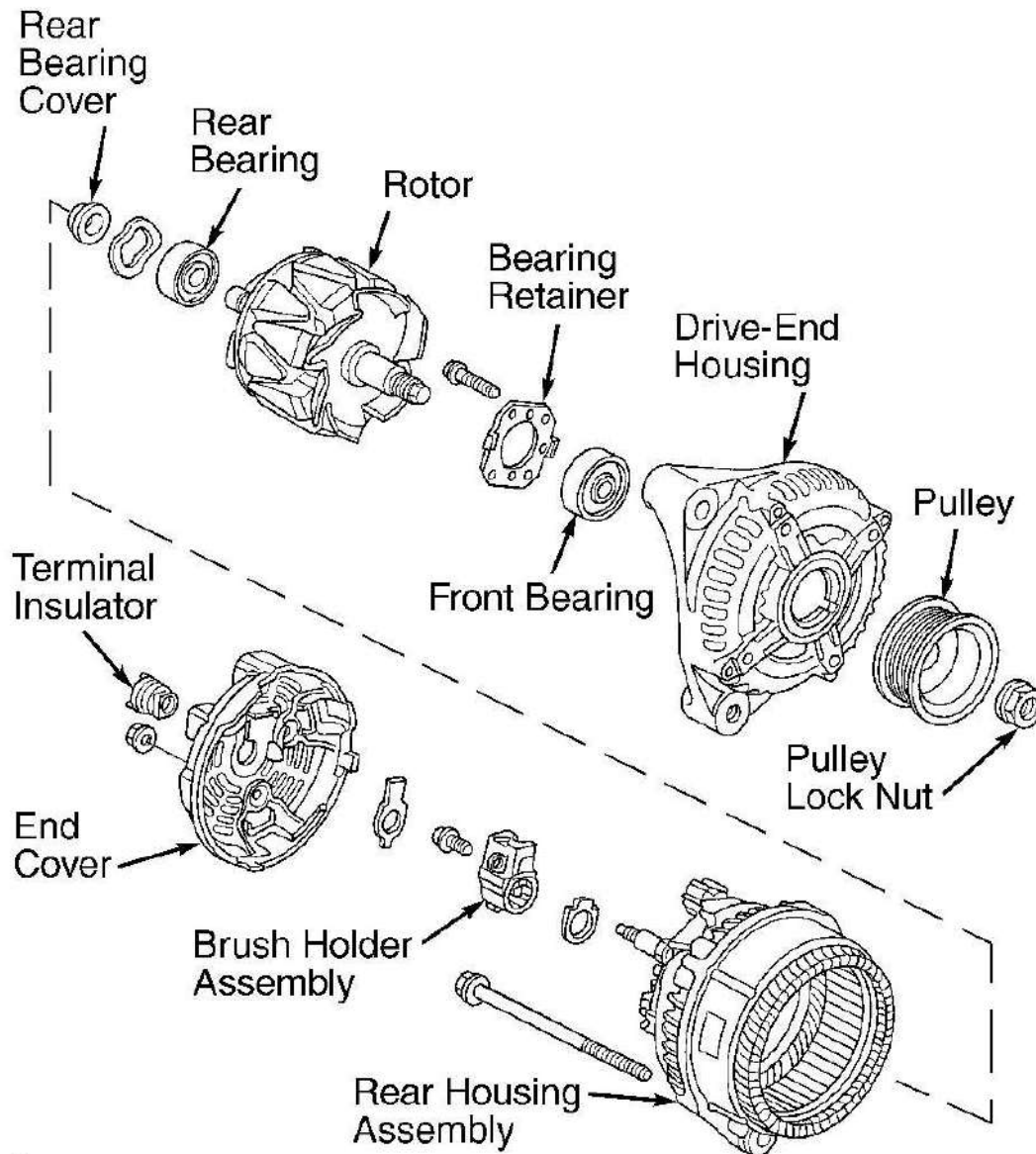
Courtesy of AMERICAN HONDA MOTOR CO. INC.

AUTO-TENSIONER PULLEY**Removal & Installation**

1. Check the position of the auto-tensioner indicator's pointer (A), start the engine, then check the position of the pointer again. If position changes go to step 3 . Check for abnormal noise coming from the tensioner pulley. For any signs of abnormality, replace tensioner pulley.
2. Turn ignition switch to OFF position, then remove alternator belt. Check if auto-tensioner moves clockwise smoothly with use of the designated tool.
3. Turn ignition off, then remove auto tensioner. Clamp the auto tensioner by using 2 mm bolts and a vice as shown. Do not clamp auto tensioner itself. Attach torque wrench to the pulley bolt. Measure the torque when the tensioner is turned counterclockwise. If the torque is less than the specified value, replace auto tensioner. See **TORQUE SPECIFICATIONS**

OVERHAUL

NOTE: Use exploded view of generator for overhaul. See **Fig. 7** .



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Fig. 7: Exploded View Of Generator

Courtesy of AMERICAN HONDA MOTOR CO., INC.

GENERATOR SPECIFICATIONS

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Application	Specification
Brush Length	

Standard	.41" (10.5 mm)
Limit (Minimum)	.06" (1.5 mm)
Rotor Resistance	2.3-2.7 ohms

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Auto Tensioner Pulley Bolt	28 (38)
Generator	
Upper Mounting Bolt	16 (22)
Lower Mounting Bolt	32 (44)
	INCH Lbs. (N.m)
Terminal "B" Nut	106 (12)

WIRING DIAGRAMS

For wiring, see **STARTING/CHARGING** in SYSTEM WIRING DIAGRAMS in ELECTRICAL.