

Electrical

Section 2A - Ignition

Table of Contents



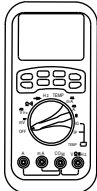

**2
A**


Ignition Specifications.....	2A-2	Flywheel Installation.....	2A-19
Electrical Components.....	2A-4	Ignition Charge Coil Removal and Installation	
Ignition Components.....	2A-8	2A-20
Ignition Description.....	2A-12	Non-Electric Start Model.....	2A-20
Crank Position Sensor.....	2A-12	Electric Start Models.....	2A-21
Electronic Control Module (ECM).....	2A-12	Timing Belt Removal and Installation.....	2A-23
Ignition Charge and Alternator Coils.....	2A-12	Timing Belt Removal.....	2A-23
Ignition Coil.....	2A-12	Timing Belt Installation.....	2A-24
Ignition Test Procedures.....	2A-13	Crank Position Sensor Removal and Installation	
Ignition Troubleshooting.....	2A-13	2A-24
Ignition Diagnostic Procedures.....	2A-13	Electric Start Models.....	2A-24
Recommended Tests.....	2A-13	Non-Electric Start Models.....	2A-26
Testing Ignition Components.....	2A-15	Ignition Coil Removal And Installation	2A-27
Flywheel Removal and Installation.....	2A-17	Ignition Coil Removal.....	2A-27
Flywheel Removal.....	2A-18	Ignition Coil Installation.....	2A-27

Ignition Specifications

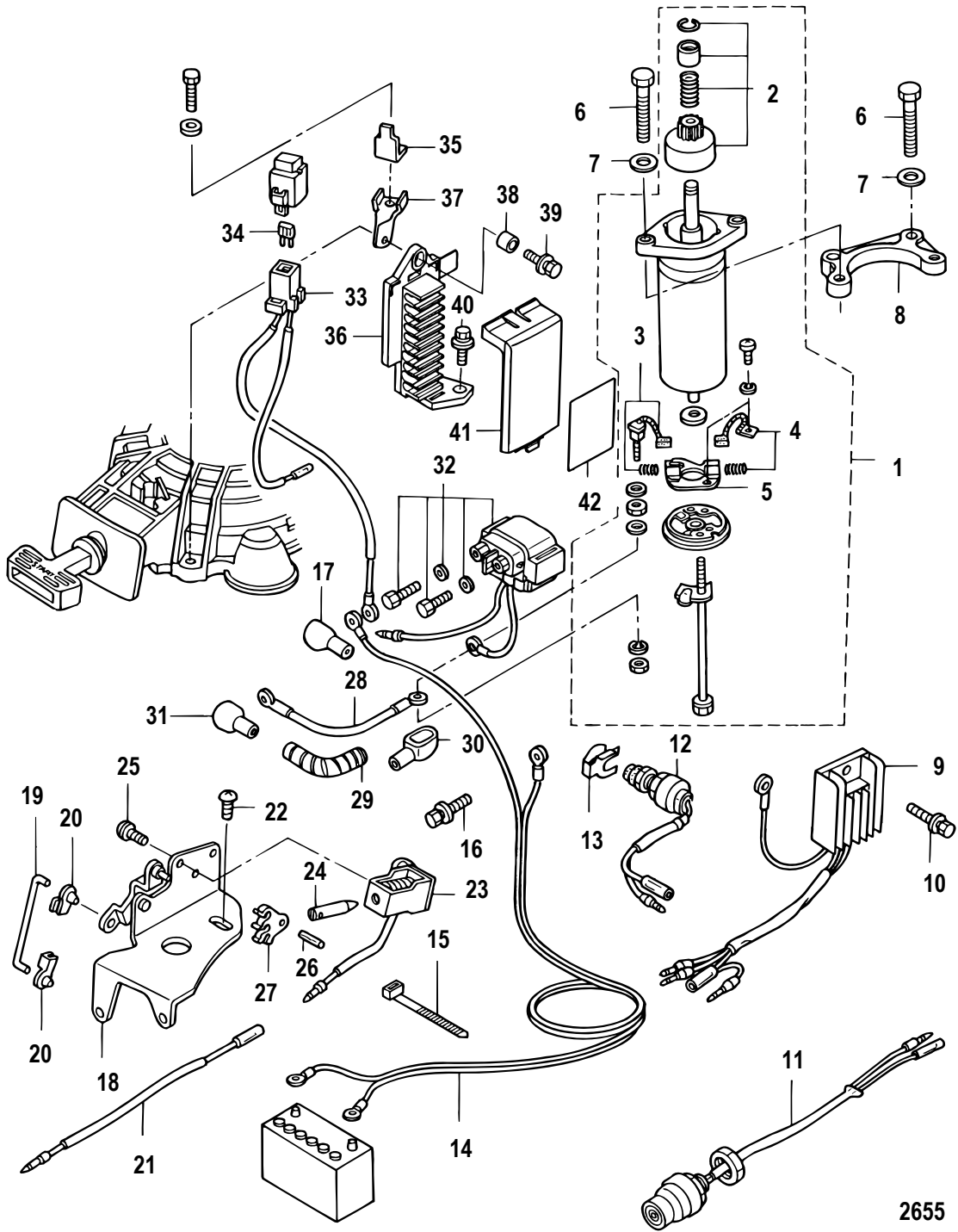
Ignition Specifications @ 20° C (68° F)	
Ignition Type	Capacitor Discharge Ignition
Spark Plug Type	NGK DCPR6E
Spark Plug Gap	0.8 - 0.9 mm (0.031 - 0.035 in.)
Firing Order	1 - 2 (Lost Spark)
Ignition Timing @ Idle	0° - 10° B.T.D.C.
Ignition Timing @ WOT	30° B.T.D.C
ECM RPM Limiter	
RPM Over Speed	6250 RPM
Low Oil	3000 RPM
Ignition Charge Coil	295 Ohms ± 20%
Crank Position Sensor	185 Ohms ± 20%
Ignition Coil	
Primary	0.30 Ohms ± 15%
Secondary	8.50 Ohms ± 15%

Special Tools

Timing Light	91-99379
 <p>11561</p>	Allows a technician to check ignition timing.
DVA/Multimeter Kit	91-99750A 1
 <p>3460</p>	Tests the electrical and ignition systems; consists of a VOA meter with built-in direct voltage adapter.
DMT 2004 Digital Multimeter	91-892647A01
 <p>4516</p>	Measures RPM, ohms, amperes, AC and DC voltages; records maximums and minimums simultaneously, and accurately reads in high RFI environments.
Flywheel Remover	91-895190
 <p>3458</p>	Aids in the removal of the flywheel.

Crankshaft Holding Tool	91-895191
 <p>3455</p>	Holds crankshaft while servicing the powerhead.

Electrical Components



2655

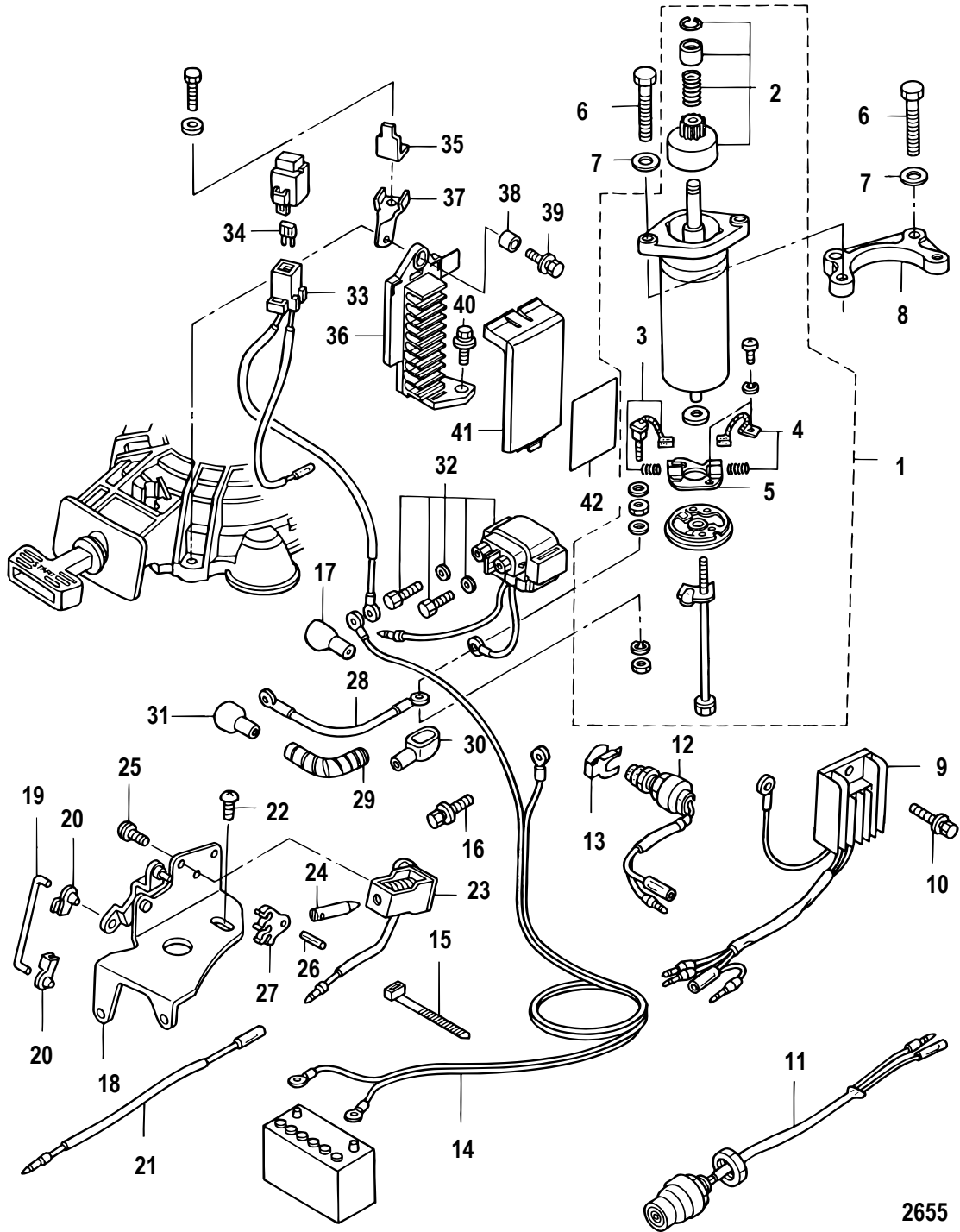
Electrical Components

Ref. No.	Qty.	Description	Torque		
			Nm	lb. in.	lb. ft.
1	1	Starter			
2	1	Pinion			
3	1	Positive brush kit			
4	1	Negative brush kit			
5	1	Brush holder			
6	4	Bolt	11.8	104	
7	4	Washer			
8	1	Bracket			
9	1	Rectifier			
10	1	Bolt	6	53	
11	1	Switch			
12	1	Neutral switch			
13	1	Actuator			
14	1	Battery cable			
15	1	Cable tie			
16	1	Bolt	6	53	
17	1	Boot			
18	1	Bracket			
19	1	Link rod			
20	2	Rod snap			
21	1	Cable			
22	1	Screw	4	35	
23	1	Choke solenoid			
24	1	Plunger			
25	3	Screw	4	35	
26	1	Dowel pin			
27	1	Hook			
28	1	Starter cable			
29	1	Sleeve			
30	1	Boot			
31	1	Boot			
32	1	Starter solenoid			
33	1	Fuse cable			
34	2	Fuse			
35	1	Bracket			
36	1	Wire bracket			
37	1	Bracket			
38	1	Collar			
39	1	Bolt	6	53	
40	1	Bolt	6	53	

Ignition

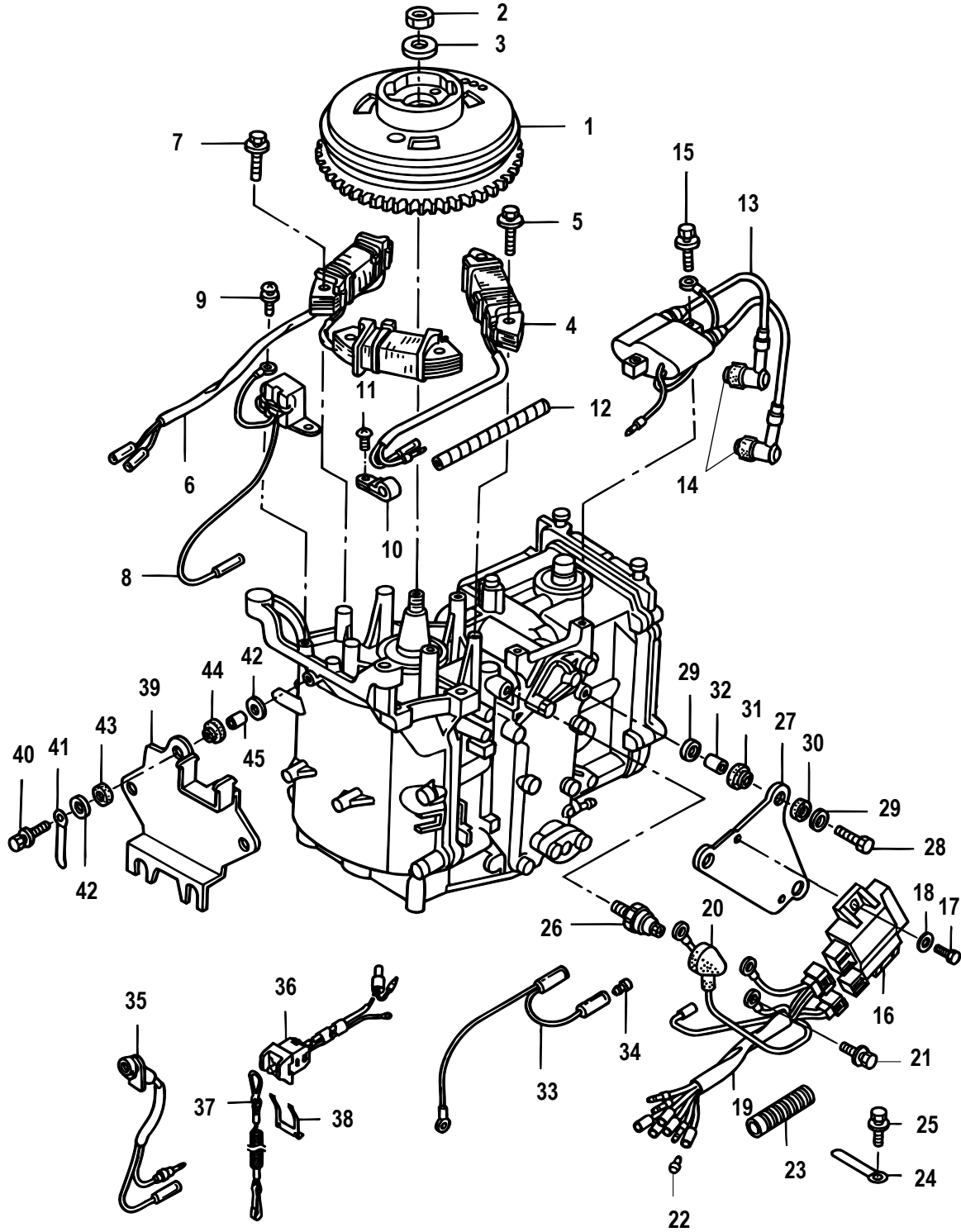
Ref. No.	Qty.	Description	Torque		
			Nm	lb. in.	lb. ft.
41	1	Cover			
42	1	Wire diagram decal			

Electrical Components



2655

Ignition Components



2654

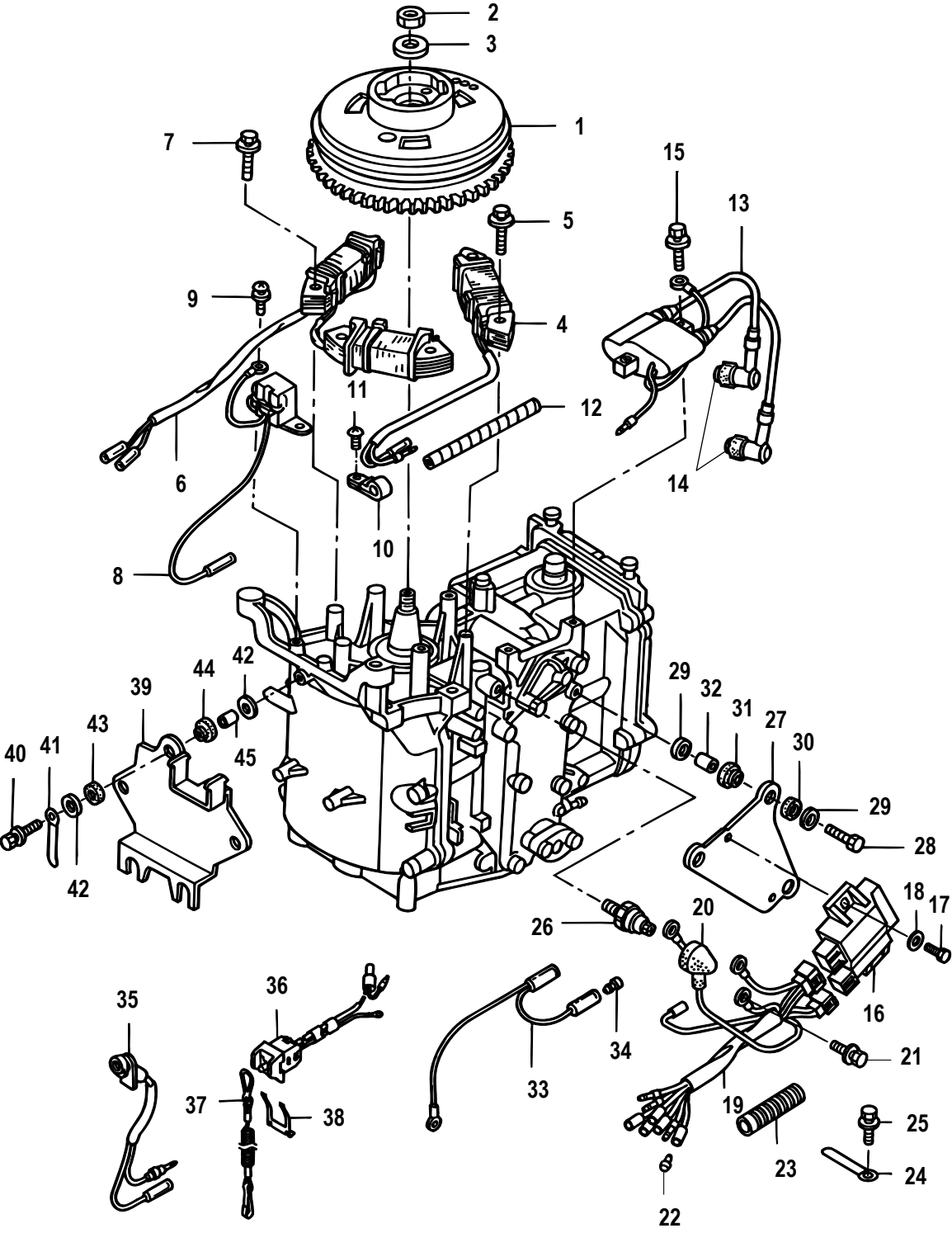
Ignition Components

Ref. No.	Qty.	Description	Torque		
			Nm	lb. in.	lb. ft.
1	1	Flywheel			
2	1	Nut	60		43
3	1	Washer			
4	1	Ignition Charge Coil			
5	2	Bolt	5.9	52	
6	1	Alternator Coil			
7	4	Bolt	5.9	52	
8	1	Crank Position Sensor			
9	2	Screw	4	35	
10	1	Clamp			
11	1	Bolt	4	35	
12	1	Sleeve			
13	1	Ignition Coil			
14	2	Cap, Plug			
15	2	Bolt	6	53	
16	1	ECM			
17	2	Bolt	6	53	
18	2	Washer			
19	1	Harness			
20	1	Grommet			
21	1	Bolt	6	53	
22	2	Plug, Terminal			
23	1	Sleeve			
24	1	Clamp			
25	1	Bolt	6	53	
26	1	Switch, Oil Pressure	10	88.5	
27	1	Bracket			
28	3	Bolt	6	53	
29	6	Washer			
30	3	Washer, Rubber			
31	3	Grommet			
32	3	Collar			
33	1	Harness			
34	1	Plug, Terminal			
35	1	Lamp, Pilot			
36	1	Stop Switch			
37	1	Lanyard			
38	1	Retainer			
39	1	Bracket			
40	3	Bolt	6	53	

Ignition

Ref. No.	Qty.	Description	Torque		
			Nm	lb. in.	lb. ft.
41	1	Clamp			
42	6	Washer			
43	3	Washer, Rubber			
44	3	Grommet			
45	3	Collar			

Ignition Components



2654

Ignition Description

The ignition system uses CDI (Capacitor Discharge Ignition). This system provides quick voltage buildup and strong spark required for high power and high performance engines.

As the flywheel rotates, electrical power (alternating current) is produced by the ignition charging coil. This power is rectified by diodes so that direct current voltage is utilized by the ignition system. When the ignition driver is off, the direct current (DC) voltage is stored by the capacitor. Once capacitor voltage is charged to its potential, a gate signal is applied on the SCR and the residual current is dissipated through the capacitor charging coils.

The Electronic Control Module (ECM) activates the ignition driver in the ECM which allows the capacitor to discharge, causing the spark to occur. Ignition timing is regulated by the ECM which receives status input from a variety of sensors. These sensors include the crank position sensor and oil pressure sender.

The voltage discharged to the primary winding of the ignition coil causes a surge of high voltage to be induced in the secondary winding of the ignition coil. This induced voltage of sufficient amplitude causes the spark plugs to fire.

Crank Position Sensor

The crank position sensor contains a permanent magnet and is positioned in front of the flywheel. The timed passing of the flywheel teeth through the sensors magnetic field enables the ECM to determine engine RPM and crankshaft angle.

Electronic Control Module (ECM)

Under normal operating conditions the ECM unit controls the following:

- Controls ignition spark timing by monitoring the crank position sensor and the oil pressure sensor.
- Maintains a normal idle timing of 5° BTDC.
- Advances spark timing quickly to 30° BTDC under hard acceleration conditions.
- Limits RPM of the engine in the event of a over-speed condition due to cavitation, no load on propeller, and/or under propped.
- Soft Reduction: Ignition timing is gradually retarded to keep engine RPM below 6250.
- Low Oil Pressure Protection: Limits the engine RPM to 3000 if oil pressure drops below 25 kPa (3.6 PSI). The ECM will turn on the Low Oil Pressure Warning lamp.

NOTE: *The ECM controls all timing operations. There are no timing adjustment required on this engine.*

Ignition Charge and Alternator Coils

The coils located under the flywheel contains the ignition charge coil and alternator coil.

The flywheel assembly contains six permanently charged magnet segments which are retained to the inner wall of the flywheel. Each magnet contains a north and a south pole providing a 12 pole system.

As the flywheel permanent magnets pass the respective coil windings, an AC pulse current is produced at each coil winding when magnet polarity changes (south to north, north to south, etc.).

Ignition Coil

The primary (+) side of the ignition coil receives voltage discharged from a capacitor in the ignition circuit located inside the ECM. The voltage is multiplied by the coil so it will jump the spark plug gap. The ignition coil will produce a high voltage current each crankshaft revolution, producing a spark at each cylinder at the same time. This is referred as a wasted spark ignition. Ignition coil maximum output is approximately 40,000 volts.

Ignition Test Procedures

Ignition Troubleshooting

IMPORTANT: Failure to comply with the following items may result in damage to the ignition system.

- Do not reverse battery cable connections. The battery negative (-) cable is ground.
- Do not spark battery terminals with battery cable connections to check polarity.
- Do not disconnect battery cables while engine is running.
- Do not crank engine with ECM or ignition coils not grounded.

⚠ WARNING

High voltage shock hazard! Do not touch ignition components or metal test probes while engine is running or being cranked. Stay clear of spark plug leads. To assure personal safety, each individual spark plug lead should be grounded to engine.

⚠ WARNING

When testing or servicing the ignition system, high voltage is present. Do not touch or disconnect any ignition parts while engine is running, while key switch is on or while battery cables are connected.

Ignition Diagnostic Procedures

***NOTE:** With engine running, use inductive timing light to check spark advance of each cylinder as throttle is opened and closed. If timing advances and retards on each cylinder, ignition system is most likely functioning properly.*

Timing Light	91-99379
--------------	----------

If outboard appears to have an ignition system failure, it is recommended that before beginning in depth troubleshooting:

- Ensure that the engine is mechanically sound in the fuel system, cylinder compression etc.
- Check all engine ground leads for loose or corroded connections.
- Disconnect and reconnect ignition harness connectors to verify proper continuity.

Recommended Tests

***NOTE:** The following recommended tests and probable causes are not listed in any specific order. The technician should use this table as a guide to help isolate and test the specific problem/condition. Always perform resistance tests to validate suspected component failure.*

- (1) Ohm test (resistance)
- (2) Replace component and retest
- (3) Mechanical test/repair

Ignition

Problem/Condition	Probable Cause	Test #	
No spark on both cylinders	Crank Position Sensor	1 - 2	
	Stator	1 - 2	
	ECM	2	
	Stop circuit short to ground	Stop circuit lead	1
		Lanyard stop switch	1
		Tiller handle stop button	1
		Remote control harness	1
	Ignition coil primary circuit short to ground	1	
	Open ground condition	Ignition coil	1 - 2
		Stator ground	1 - 2
ECM		2	
No spark on one cylinder	High tension lead	1 - 2	
	Spark plug	1 - 2	
Engine surges over 6250 RPM while under load	Boat under propped	3	
	Propeller hub spun	3	
Timing will not advance	Low oil pressure	1 - 2 - 3	
	ECM	2	
Engine misfires at high RPM	Low oil pressure	1 - 2 - 3	
	Ignition coil high tension leads	1 - 2	
	Spark plugs	1 - 2	
	ECM	2	
	Ground connection	ECM	1 - 2
		Ignition coil	1 - 2
Ignition charge coil		1 - 2	
Engine will not run over 3000 RPM	Low oil pressure	1 - 2 - 3	
	Ignition charge coil	1 - 2	
	Ignition coil high tension leads	1 - 2	
	ECM	2	
	Spark plugs	1 - 2	
Engine occasionally misfires	Ignition charge coil	1 - 2	
	Ignition coil high tension leads	1 - 2	
	Spark plugs	1 - 2	
	Ground connection at	Ignition coil	1 - 2
		ECM	2
		Ignition charge coil	1 - 2
	High resistance to ground at	Stop/lanyard switch (corrosion)	1 - 2
		ECM	2

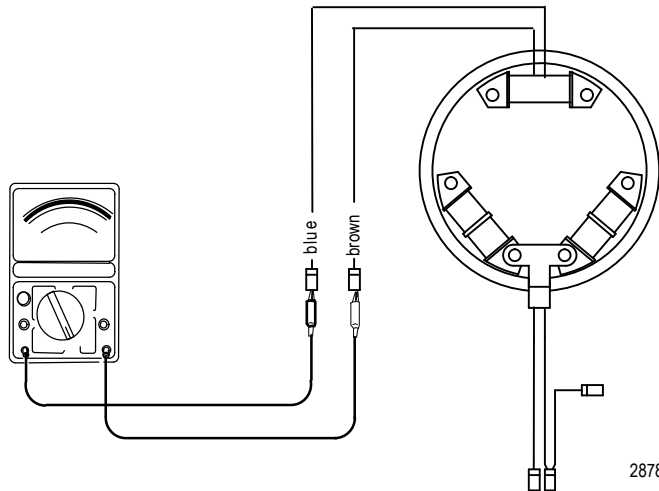
Problem/Condition	Probable Cause	Test #	
Weak spark	Ground connection at	Ignition coil primary leads	1 - 2
		Ignition charge coil	1 - 2
		ECM	2
	High resistance to ground at	Stop/lanyard switch (corrosion)	1 - 2
	Weak ignition coil		1 - 2
	Ignition coil high tension leads		1 - 2
	Spark plugs		2
	Spark plugs cap leak		1 - 2
Timing fluctuates	ECM	2	
	Low oil pressure	1 - 2 - 3	
	Flywheel key sheared	2	
	ECM	2	

Testing Ignition Components

When performing resistance tests, all component leads must be disconnected. Readings may vary slightly due to temperature differences.

NOTE: Readings listed taken at 20° C (68° F).

IGNITION CHARGE COIL



DVA/Multimeter Kit	91-99750A 1
--------------------	-------------

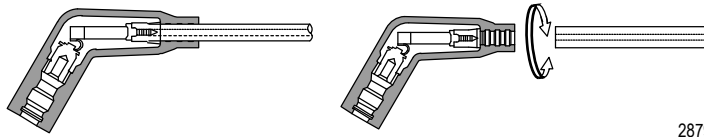
DMT 2004 Digital Multimeter	91-892647A01
-----------------------------	--------------

Meter Test Leads		Meter Scale	Reading (Ω)
Red	Black		
Brown	Blue	R x 1	295 ± 20%

SPARK PLUG CAP REMOVAL/INSTALLATION

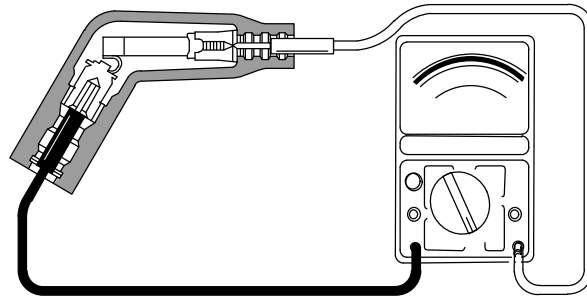
NOTE: High tension cables must have the spark plug cap removed before testing. The cap contains a 5k ohm resistor.

IMPORTANT: To remove the spark plug cap from the high tension leads, turn the cap counterclockwise while applying slight outward pressure. Do not pull hard or the lead may be damaged. To install the cap, turn the cap clockwise, threading onto the high tension lead.



2879

SPARK PLUG CAP



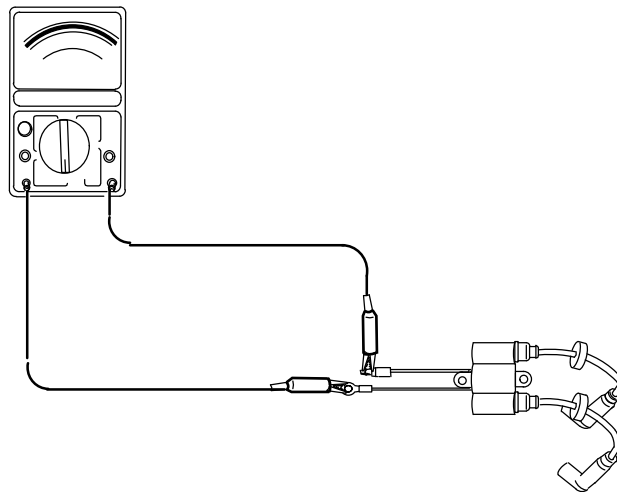
2880

DVA/Multimeter Kit	91-99750A 1
--------------------	-------------

DMT 2004 Digital Multimeter	91-892647A01
-----------------------------	--------------

Meter Test Leads		Meter Scale	Reading (Ω)
Red	Black		
Spark plug lead end	Spark plug end	R x 1K	3.5 - 5.5

IGNITION COIL PRIMARY WINDINGS



2882

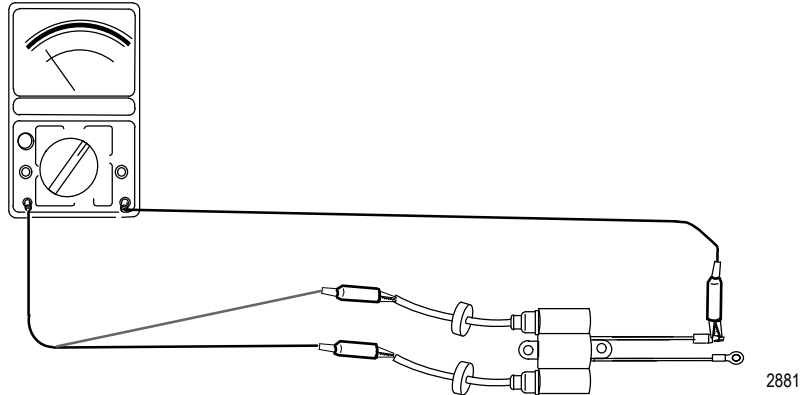
DVA/Multimeter Kit	91-99750A 1
--------------------	-------------

DMT 2004 Digital Multimeter	91-892647A01
-----------------------------	--------------

Meter Test Leads		Meter Scale	Reading (Ω)
Red	Black		
Orange	Black	R x 1	0.30 \pm 15%

IGNITION COIL SECONDARY WINDINGS

IMPORTANT: Both ignition coil secondary windings must be checked.

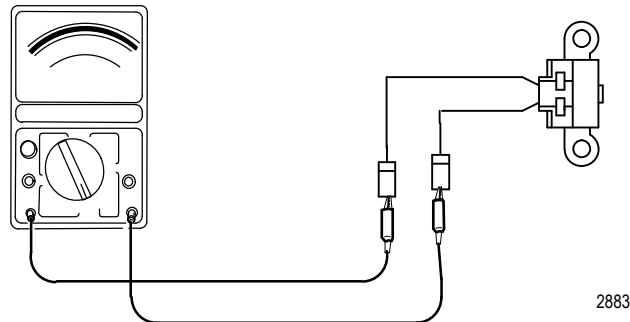


DVA/Multimeter Kit	91-99750A 1
--------------------	-------------

DMT 2004 Digital Multimeter	91-892647A01
-----------------------------	--------------

Meter Test Leads		Meter Scale	Reading (Ω)
Red	Black		
Orange	Either spark plug lead	R x 1	$8.5 \pm 20\%$

CRANK POSITION SENSOR



DVA/Multimeter Kit	91-99750A 1
--------------------	-------------

DMT 2004 Digital Multimeter	91-892647A01
-----------------------------	--------------

Meter Test Leads		Meter Scale	Reading (Ω)
Red	Black		
Red/White	Black	R x 1	$185 \pm 20\%$

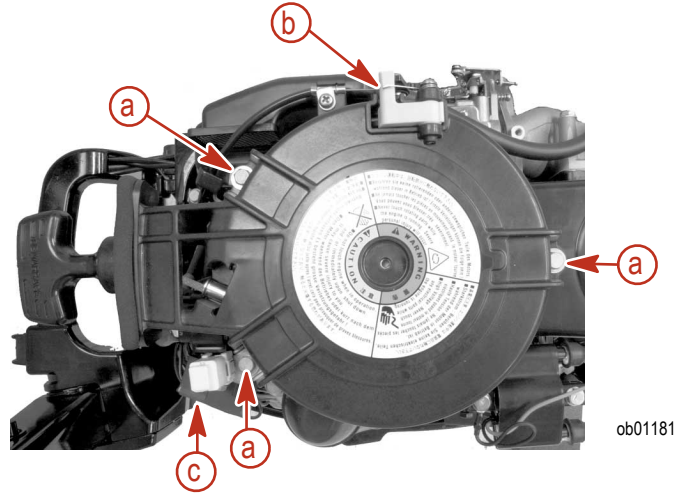
Flywheel Removal and Installation

⚠ WARNING

The engine could possibly start when turning the flywheel during removal and installation. To prevent this accidental engine starting and possible serious injury, always remove the spark plug leads and isolate the leads to engine ground.

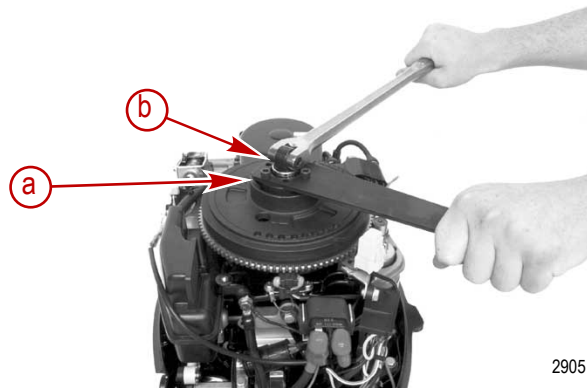
Flywheel Removal

1. Disconnect the spark plug leads from the spark plugs.
2. Remove the three screws securing the recoil starter.



a - Recoil starter mounting screws **c** - Fuse
b - Neutral interlock

3. Install the flywheel holding tool. Tighten the flywheel holding tool securely.
4. Remove the flywheel holding tool center screw.
5. Insert a 19 mm socket into the center of the flywheel holding tool.

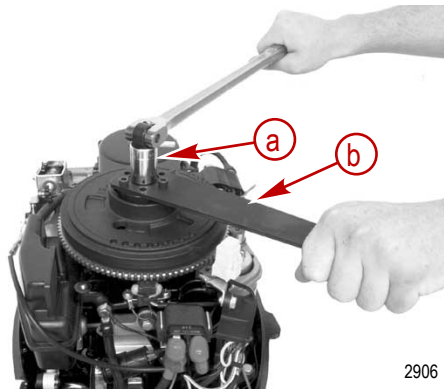


a - Flywheel holding tool **b** - 19 mm socket

Flywheel Remover	91-895190
------------------	-----------

6. Remove the flywheel nut.

7. Install the flywheel holding tool center screw and tighten until the flywheel is loose.



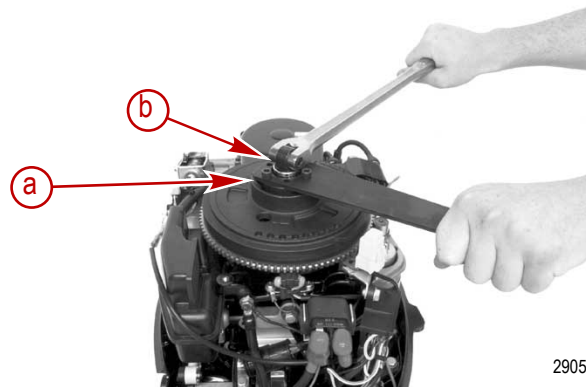
a - 19 mm socket on flywheel holding tool center screw **b** - Flywheel holding tool

Flywheel Remover	91-895190
------------------	-----------

8. Remove the flywheel.

Flywheel Installation

1. Place the flywheel key into the slot.
2. Align the flywheel key with the flywheel slot.
3. Carefully install the flywheel.
4. While pushing down on the flywheel, rock the flywheel back and forth to ensure the flywheel key has not fallen out of the slot on the crankshaft.
5. Install the flywheel washer and flywheel nut.
6. Install the flywheel holding tool.
7. Tighten the flywheel nut to the specified torque.

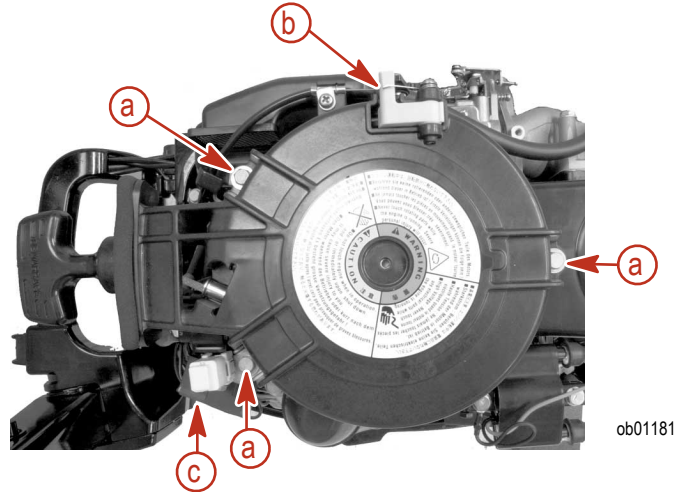


a - Flywheel holding tool **b** - 19 mm socket on torque wrench

Description	Nm	lb. in.	lb. ft.
Flywheel Nut	60		43

Flywheel Remover	91-895190
------------------	-----------

- Remove the flywheel holding tool and install the recoil starter. Tighten the recoil starter mounting screws to the specified torque.



- a** - Recoil starter mounting screws (3) **c** - Fuse
b - Neutral interlock

Description	Nm	lb. in.	lb. ft.
Recoil Starter Mounting Screw	6	53	

- Reconnect the spark plug leads to the spark plugs.

Ignition Charge Coil Removal and Installation

Non-Electric Start Model

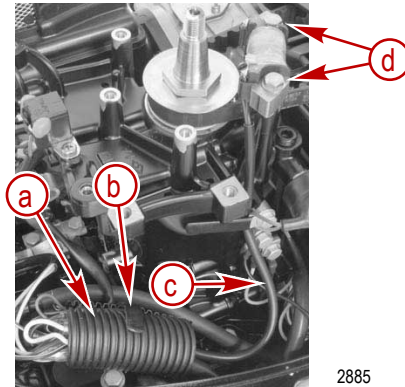
REMOVAL

- Remove the flywheel cover and flywheel. Refer to **Flywheel Removal and Installation**.
- Remove the ignition charge coil mounting screws.
- Disconnect the ignition charge coil wires from the harness connectors located inside the convoluted tube.

INSTALLATION

- Connect the ignition charge coil wires to the harness connectors.
- Place all of the wire connectors inside the convoluted tube. Secure convoluted tube to the bottom cowl.

3. Install the ignition charge coil to the cylinder block. Tighten the ignition charge coil screws to the specified torque.



2885

- a** - Convoluted tube
- b** - Convoluted tube retainer
- c** - Ignition charge coil harness
- d** - Ignition charge coil mounting screws

Description	Nm	lb. in.	lb. ft.
Ignition charge coil mounting screw	5.9	52	

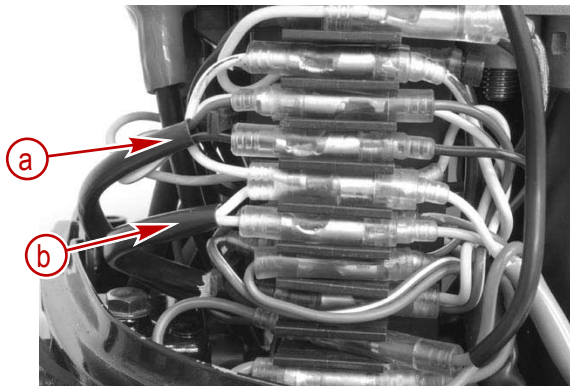
4. Install flywheel. Refer to **Flywheel Removal and Installation**.

Electric Start Models

REMOVAL

1. Disconnect the battery.
2. Remove the flywheel cover and flywheel. Refer to **Flywheel Removal and Installation**.
3. Disconnect the ignition charge coil and the alternator coil from the engine harness.

NOTE: The alternator coil has 2 wires with three connectors.

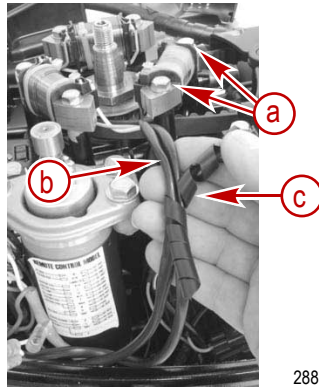


2886

- a** - Ignition charge coil wires
- b** - Alternator coil wires

4. Carefully pull the ignition charge coil and alternator coil wires from behind the starter.

- Remove the wire harness spiral conduit.

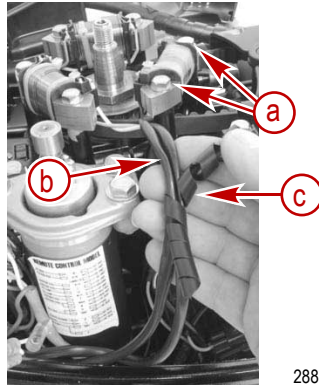


- a** - Ignition charge coil mounting screws
- b** - Alternator coil and ignition charge coil wires
- c** - Spiral conduit

- Remove the ignition charge coil mounting screws.

INSTALLATION

- Install the ignition charge coil and secure with the ignition charge coil mounting screws. Tighten the screws to the specified torque.
- Wrap the ignition charge coil wires and the alternator coil wires with the spiral conduit.

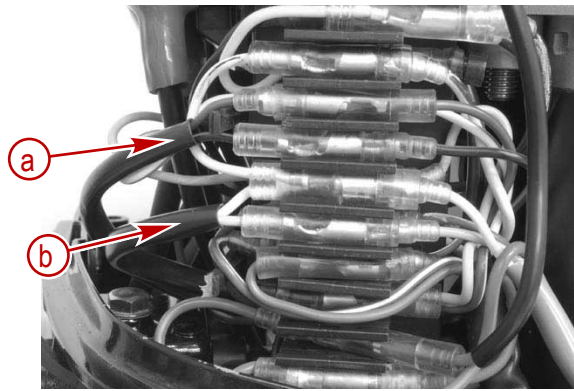


- a** - Ignition charge coil mounting screws
- b** - Alternator coil and ignition coil wires
- c** - Spiral conduit

Description	Nm	lb. in.	lb. ft.
Ignition charge coil mounting screw	6	53	

- Push the wire harnesses behind the starter and reconnect the ignition charge coil and alternator coil to the engine harness.

NOTE: The alternator coil has 2 wires with three connectors.



2886

a - Ignition charge coil wires (black/red and blue/red)

b - Alternator coil wires (yellow and white)

4. Install the flywheel and flywheel cover. Refer to **Flywheel Removal and Installation**.

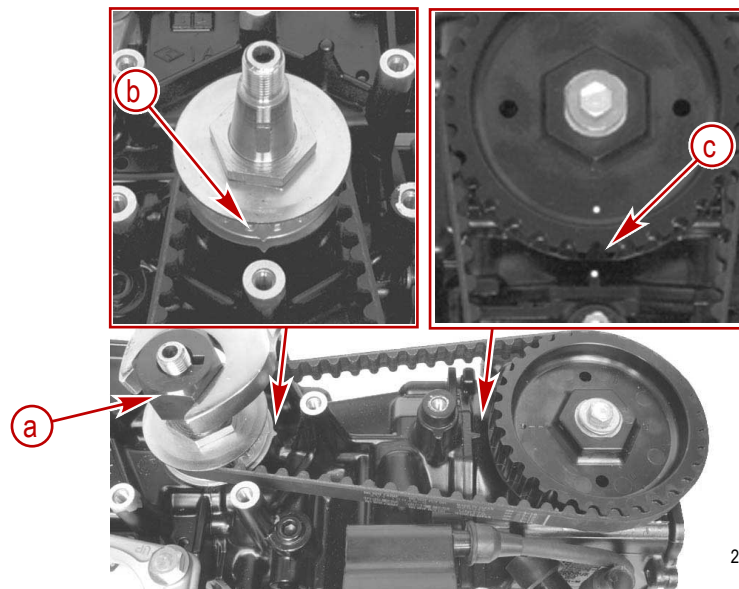
Timing Belt Removal and Installation

Timing Belt Removal

NOTE: The ignition charge coil and alternator coil must be removed before the timing belt can be removed or installed. Refer to **Section 2A, Ignition Charge Coil Removal and Installation** and **Section 2B, Alternator Coil Removal and Installation**.

IMPORTANT: Do not rotate the crankshaft or cam when the timing belt is removed unless advised to do so. Damage to valves and/or pistons may occur if the cam driven gear or crankshaft are rotated when the timing belt is removed or incorrectly installed.

1. Ensure the timing marks on the crankshaft and cam are in proper alignment before removing the timing belt. Use crankshaft holding tool to rotate the crankshaft to align timing marks.



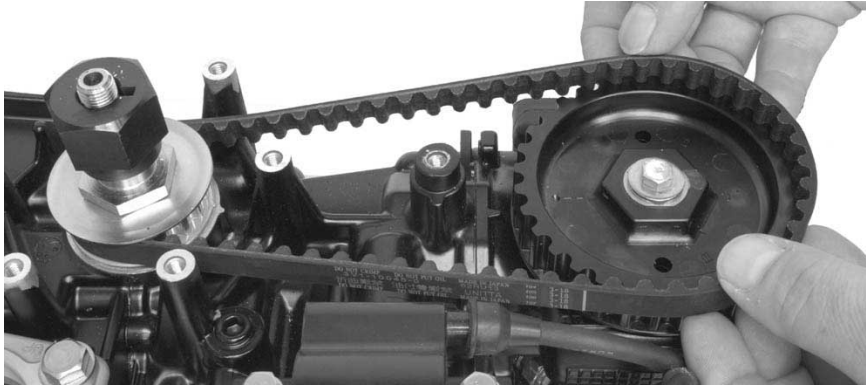
2902

a - Crankshaft holding tool

c - Camshaft driven gear timing mark

b - Crankshaft drive gear timing mark

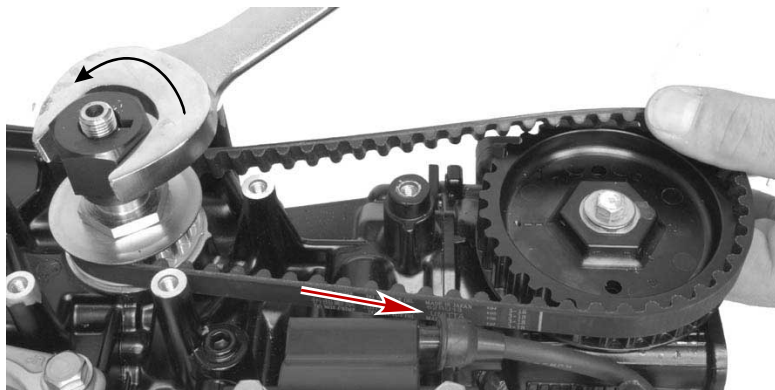
2. Pull the timing belt off the cam driven gear. Remove the timing belt from the crankshaft drive gear.



2903

Timing Belt Installation

1. Ensure the timing marks on the crankshaft drive gear and the camshaft driven gear are in proper alignment.
2. Place the timing belt onto the crankshaft drive gear.
3. Align the timing belt cog with the driven gear cog.
4. Carefully push the timing belt onto the cam driven gear
5. Rotate the crankshaft with crankshaft holding tool while pushing the timing belt onto the driven gear with your fingers.



2904

Crankshaft Holding Tool	91-895191
-------------------------	-----------

6. Check the timing marks for proper alignment.
7. Install the ignition charge coil. Refer to **Section 2A, Ignition Charge Coil Removal and Installation** .
8. Install alternator coils. Refer to **Section 2B, Alternator Coil Removal and Installation** .
9. Install flywheel and flywheel cover.

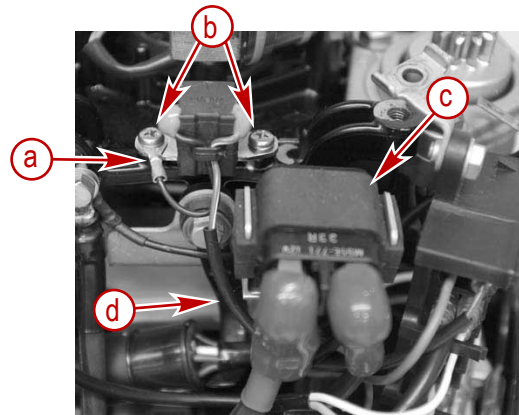
Crank Position Sensor Removal and Installation

Electric Start Models

REMOVAL

1. Remove the spark plug leads from spark plugs.
2. Disconnect battery.
3. Remove the recoil starter. Refer to **Section 8**.
4. Remove the flywheel. Refer to **Flywheel Removal and Installation**.

5. Disconnect the crank position sensor lead from the engine harness.
6. Remove the two crank position sensor mounting screws. Remove the crank position sensor.

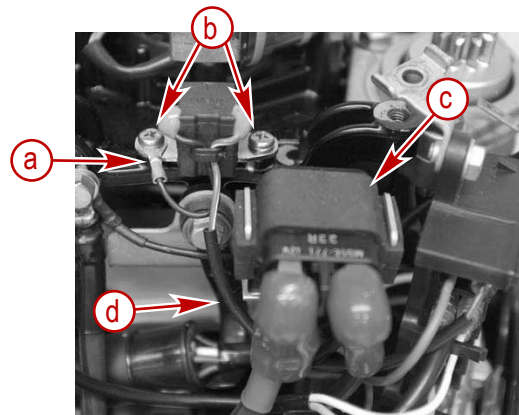


3186

- a** - Crank position sensor ground lead
- b** - Crank position sensor mounting screw
- c** - Starter solenoid
- d** - Crank position sensor harness

INSTALLATION

1. Align the crank position sensor mounting holes with the cylinder block crank position sensor mounting holes.
2. Install the crank position sensor mounting screw. Do not tighten.
3. Install the crank position sensor ground lead through the remaining crank position sensor mounting screw. Install the mounting screw.
4. Tighten the crank position sensor mounting screws to the specified torque.



3186

- a** - Crank position sensor ground lead
- b** - Crank position sensor mounting screw
- c** - Starter solenoid
- d** - Crank position sensor harness

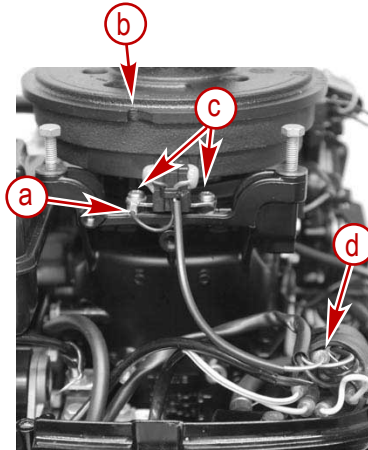
Description	Nm	lb. in.	lb. ft.
Crank Position Sensor Mounting Screw	4	35	

5. Install the flywheel. Refer to section **Flywheel Removal and Installation**.
6. Rotate the flywheel to ensure the crank position sensor does not touch the flywheel.
7. Install the recoil starter. Refer to **Section 8**.
8. Reconnect spark plug leads to spark plugs.

Non-Electric Start Models

REMOVAL

1. Remove the spark plug leads from spark plugs.
2. Remove the recoil starter. Refer to **Section 8**.
3. Disconnect the crank position sensor lead from the engine harness located in the convoluted tubing.
4. Rotate the flywheel to align a flywheel rope notch with one of the crank position sensor mounting screws. Remove the mounting screw.
5. Rotate the flywheel to align the remaining crank position sensor mounting screw. Remove the crank position sensor mounting screw.



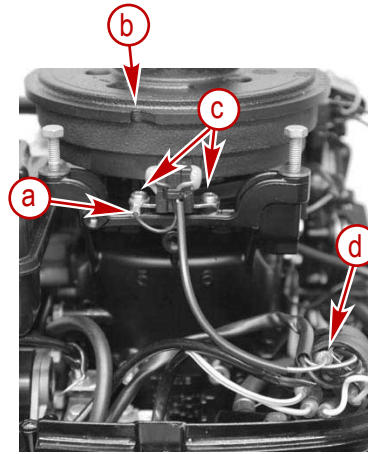
3188

- a** - Crank position sensor ground lead
- b** - Flywheel rope notch
- c** - Crank position sensor mounting screw
- d** - Crank position sensor harness in convoluted tubing

INSTALLATION

1. Rotate the flywheel to align a flywheel rope notch with one of the crank position sensor mounting holes.
2. Align the crank position sensor mounting screw holes with the cylinder block crank position sensor mounting holes.
3. Install the crank position sensor mounting screw. Do not tighten.
4. Rotate the flywheel to align the flywheel rope notch with the other crank position sensor mounting screw hole. Install the crank position sensor mounting screw.

5. Tighten the crank position sensor mounting screws to the specified torque.



3188

- a - Crank position sensor ground lead
- b - Flywheel rope notch
- c - Crank position sensor mounting screw
- d - Crank position sensor harness in convoluted tubing

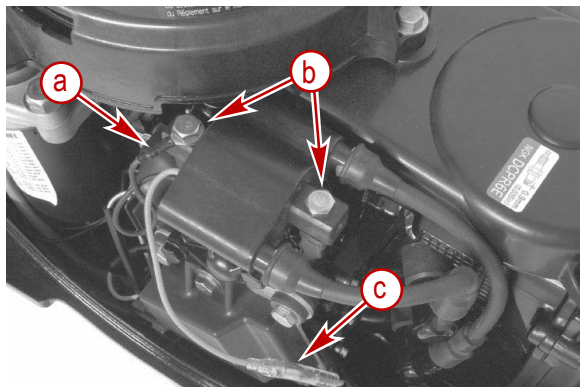
Description	Nm	lb. in.	lb. ft.
Crank Position Sensor Mounting Screw	4	35	

6. Rotate the flywheel to ensure the crank position sensor does not touch the flywheel.
7. Install the recoil starter. Refer to **Section 8**.
8. Reconnect spark plug leads to spark plugs.

Ignition Coil Removal And Installation

Ignition Coil Removal

1. Disconnect the spark plug leads from the spark plugs.
2. Disconnect the ignition coil primary wire from the engine harness.
3. Remove the ignition coil mounting screws. Remove the ignition coil.



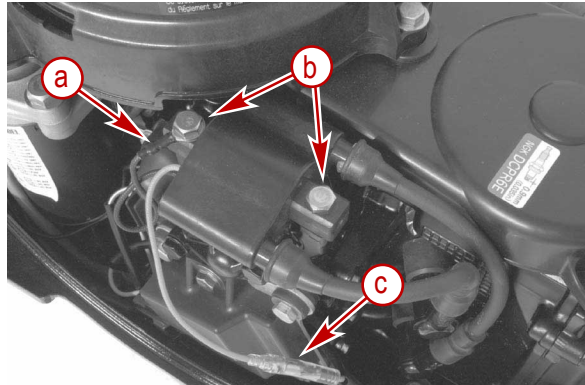
3192

- a - Ignition coil ground lead
- b - Ignition coil mounting screw
- c - Ignition coil primary wire

Ignition Coil Installation

1. Install the ignition coil ground lead onto an ignition coil mounting screw. Install the ignition mounting screw. Do not tighten.

2. Install the ignition coil to the cylinder block and secure it with the ignition coil mounting screws. Tighten the ignition mounting screws to the specified torque.
3. Connect the ignition coil primary lead to the engine harness.
4. Reconnect spark plug leads to spark plugs.



3192

a - Ignition coil ground lead
b - Ignition coil mounting screw

c - Ignition coil primary wire

Description	Nm	lb. in.	lb. ft.
Ignition Coil Mounting Screw	6	53	