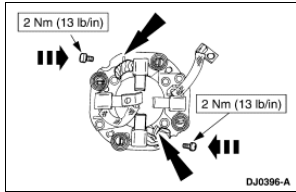
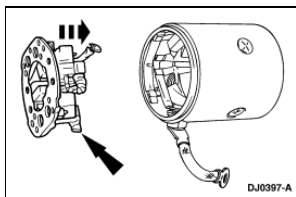


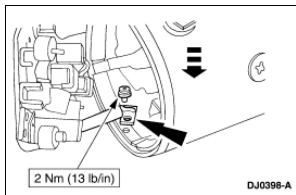
19. Connect the two grounded brush electrical leads.



20. Align and position the brush holder assembly.

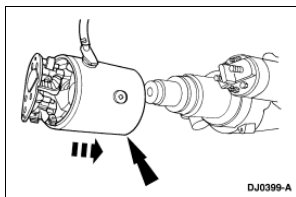


21. Connect the two insulated brush electrical leads.

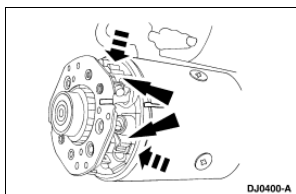


22. **NOTE:** If the locating pin installed between the starter frame and the starter drive gear assembly has been lost, install a new 2-mm x 10-mm (0.079-inch x 0.394-inch) pin.

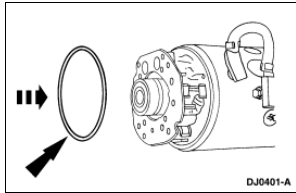
Align and install the starter frame and brush holder assembly on the armature shaft.



23. Release the four brushes.

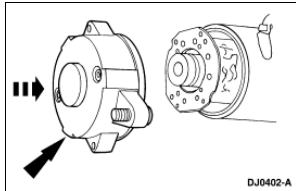


24. Install the seal.



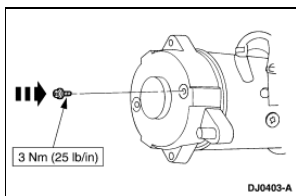
25. **⚠ CAUTION:** Use care not to damage the starter frame seal during the installation of the brush end cover.

Align and position the brush end cover.

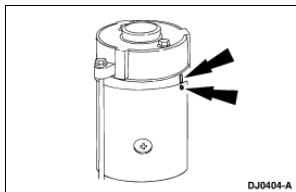


26. Install the two screws.

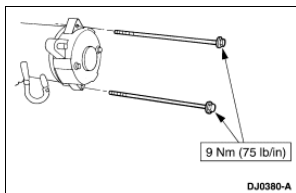
- Use a scribe to align the tapped holes in the brush holder assembly and the screws holes in the brush end cover.



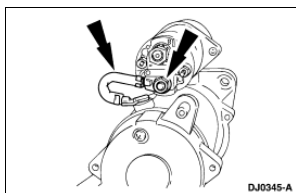
27. Align the timing spots on the brush end cover and starter frame.



28. Install the two bolts.



29. Connect the starter motor strap.



[Printable View \(9 KB\)](#)

General Specifications

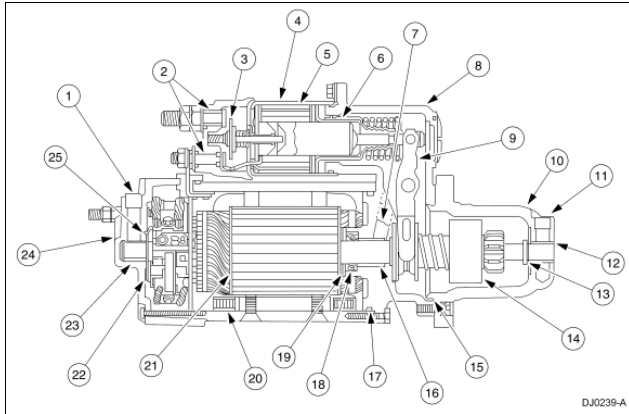
Item	Specification
Normal Engine Cranking Speed	
Starter motor no-load current draw	130-175 A @ 11 V
Starter motor normal load current draw	400-500 A
Starter motor maximum load current draw	1400 A
Starter motor minimum stall torque	21 Nm (16 lb-ft) 1.6 V 600 A
Starting circuit maximum voltage drop (engine at normal operating temperature)	0.5 V

Torque Specifications

Description	Nm	lb-ft	lb-in
Brush end cover mounting bolts	5-6		45-54
Drive end housing mounting bolts	18-29	14-22	
Drive lever housing mounting bolts	17-22	13-17	
Starter motor mounting bolts	52	38	
Starter solenoid mounting bolts	15-21	12-16	
Starter motor battery positive voltage (B+) and battery ground cable nuts	30	22	
Starter solenoid "S" terminal nut	3		27

Starting System  [Printable View \(226 KB\)](#)

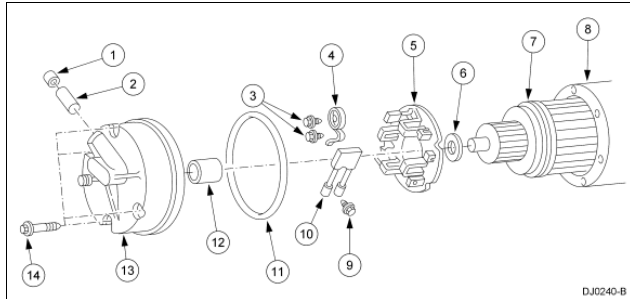
Model 37-MT Starter Cross Section



Item	Part Number	Description
1	11049	Tangent oil wick
2		Battery and motor terminals/contacts (part of 11A260)
3		Solenoid case disk (part of 11A260)
4	11A260	Solenoid
5		Pull-in and hold-in windings (part of 11A260)
6	11393	Plunger
7	11049	Tangent oil wick
8	11138	Drive lever housing
9	11077	Drive lever
10	11130	Drive end housing
11	11049	Tangent oil wick
12	11142	Bushing
13		Pinion stop (part of 11001)
14	11350	Drive gear assy
15		O-ring (part of 11130)
16	11142	Bushing
17	87086-S	O-ring
18	11A054	Seal
19	11A051	Thrust washer
20	11083	Field coils
21	11005	Armature
22	11056	Armature brushes
23	11052	Bushing

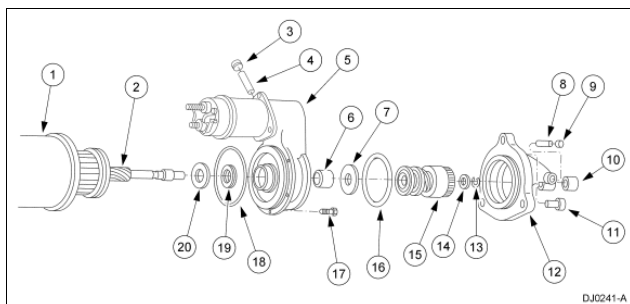
24	11049	Brush end cover
25	11036	Thrust washer

Brushes



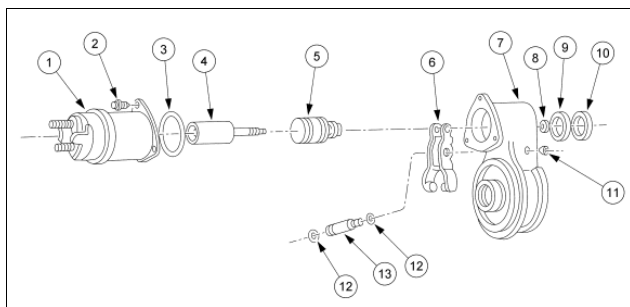
Item	Part Number	Description
1		Reservoir cup (part of 11049)
2	11049	Tangent oil wick
3		Screw (part of 11001)
4	11059	Brush spring
5	11061	Brush plate assy
6	11036	Trust washer
7	11005	Armature
8		Starter frame (part of 11001)
9		Screw (part of 11001)
10	11057	Brush
11	87086-S	O-ring
12	11052	Bushing
13	11049	Brush end cover
14	20385-S	Screw

Starter Drive Assembly



Item	Part Number	Description
1		Starter frame (part of 11001)
2	11005	Armature
3		Reservoir cup (part of 11138)
4	11049	Tangent oil wick
5	11138	Drive lever housing
6	11142	Bushing
7	11018	Brake washer
8	11049	Tangent oil wick
9		Reservoir cup (part of 11130)
10	11142	Bushing
11		Screw
12	11130	Drive end housing
13		Pinion stop retaining ring (part of 11001)
14		Pinion stop (part of 11001)
15	11350	Drive gear assy
16		O-ring (part of 11130)
17	20385-S	Screw
18	87086-S	O-ring
19	11A054	Seal
20	11A051	Thrust washer

Solenoid



Item	Part Number	Description
1	11A260	Solenoid
2		Screw (part of 11A260)
3		O-ring (part of 11A260)
4	11393	Plunger

2005 F-Super Duty 650-750 Workshop Manual

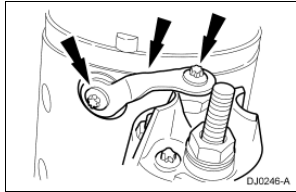
5	11410	Boot
6	11077	Drive lever
7	11130	Drive lever housing
8		Nut (part of 11A260)
9	11A052	Seal
10	11A050	Access plug
11		Retaining clip
12		O-ring (part of 11077)
13	11079	Drive lever pin

Starting System  [Printable View \(7 KB\)](#)

Refer to [Section 303-06A](#) .

Starter Drive Pinion Depth Adjustment  [Printable View \(154 KB\)](#)

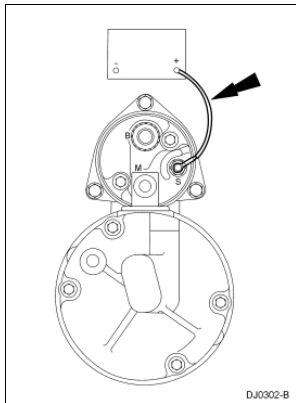
1. Remove the starter motor, if necessary.
2. Remove the starter motor strap, if necessary.



3. Remove the M-terminal nut.
4. **NOTE:** In order to correctly carry out this test, the M-terminal cannot touch the solenoid.

Carefully bend the M-terminal away from the back nut, to clear the nut and stud.

5. Place an insulating material between the M-terminal and the solenoid.
6. Connect a jumper lead between the battery positive terminal and starter solenoid S-terminal.



7. Connect a jumper lead between the battery negative terminal and a clean metal ground on the starter solenoid case.

