

SECTION STR

STARTING SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

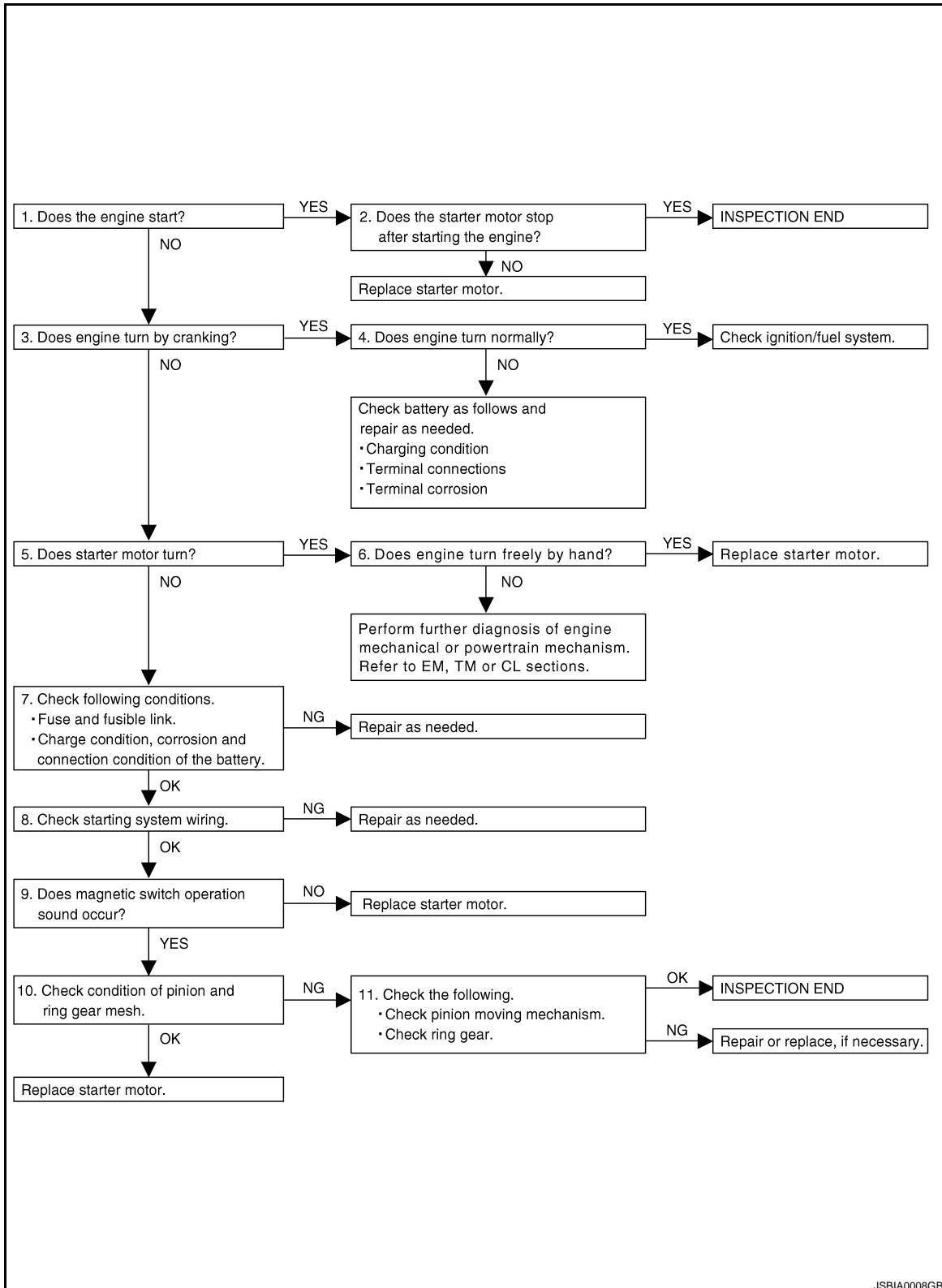
DIAGNOSIS AND REPAIR WORKFLOW

K9K MODELS

K9K MODELS : Work Flow

INFOID:000000001179326

OVERALL SEQUENCE



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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

DETAILED FLOW

NOTE:

If any malfunction is found, immediately disconnect the battery cable from the negative terminal.

1. CHECK ENGINE START

Crank the engine and check that the engine starts.

Does the engine start?

YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK THAT THE STARTER MOTOR STOPS

Check that the starter motor stops after starting the engine.

Does the starter motor stop?

YES >> INSPECTION END

NO >> Replace starter motor.

3. CHECK THE ENGINE SPEED WITH CRANKING

Check that the engine runs at cranking.

Does engine turn by cranking?

YES >> GO TO 4.

NO >> GO TO 5.

4. CHECK THE ENGINE SPEED WITH CRANKING

Check that the engine speed is not low at cranking.

Does engine turn normally?

YES >> Check ignition/fuel system.

NO >> Check charge condition, corrosion and connection condition of the battery. Refer to [PG-3, "Work Flow"](#).

5. CHECK STARTER MOTOR ACTIVATION

Check that the starter motor runs at cranking.

Does starter motor turn?

YES >> GO TO 6.

NO >> GO TO 7.

6. ENGINE ROTATION STATUS

Check that the engine can be rotated by hand.

Does engine turn freely by hand?

YES >> Replace starter motor.

NO >> Perform further diagnosis of engine mechanical or powertrain mechanism. Refer to EM, TM or CL sections.

7. CHECK POWER SUPPLY CIRCUIT

Check the following conditions.

- Fuse and fusible link
- Charge condition, corrosion and connection condition of the battery. Refer to [PG-3, "Work Flow"](#).

Are these inspection results normal?

YES >> GO TO 8.

NO >> Repair as needed.

8. CHECK STARTING SYSTEM WIRING

Check the following.

- "B" terminal circuit. Refer to [STR-10, "Diagnosis Procedure"](#).
- "S" terminal circuit. Refer to [STR-11, "Diagnosis Procedure"](#).

Are these inspection results normal?

YES >> GO TO 9.

NO >> Repair as needed.

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

9. CHECK MAGNETIC SWITCH OPERATION SOUND

Check that a magnetic switch operation sound can be heard when the ignition switch is set at the starting position.

Does magnetic switch operation sound occur?

YES >> GO TO 10.

NO >> Replace starter motor.

10. PINION AND RING GEAR ENGAGEMENT CHECK

Check condition of pinion and ring gear mesh.

Is the inspection result normal?

YES >> Replace starter motor.

NO >> GO TO 11.

11. CHECK STARTER MOTOR UNIT

Check the following.

- Check pinion moving mechanism.
- Check ring gear.

Are these inspection results normal?

YES >> INSPECTION END

NO >> Repair or replace, if necessary.

M9R/HR16DE/MR20DE MODELS

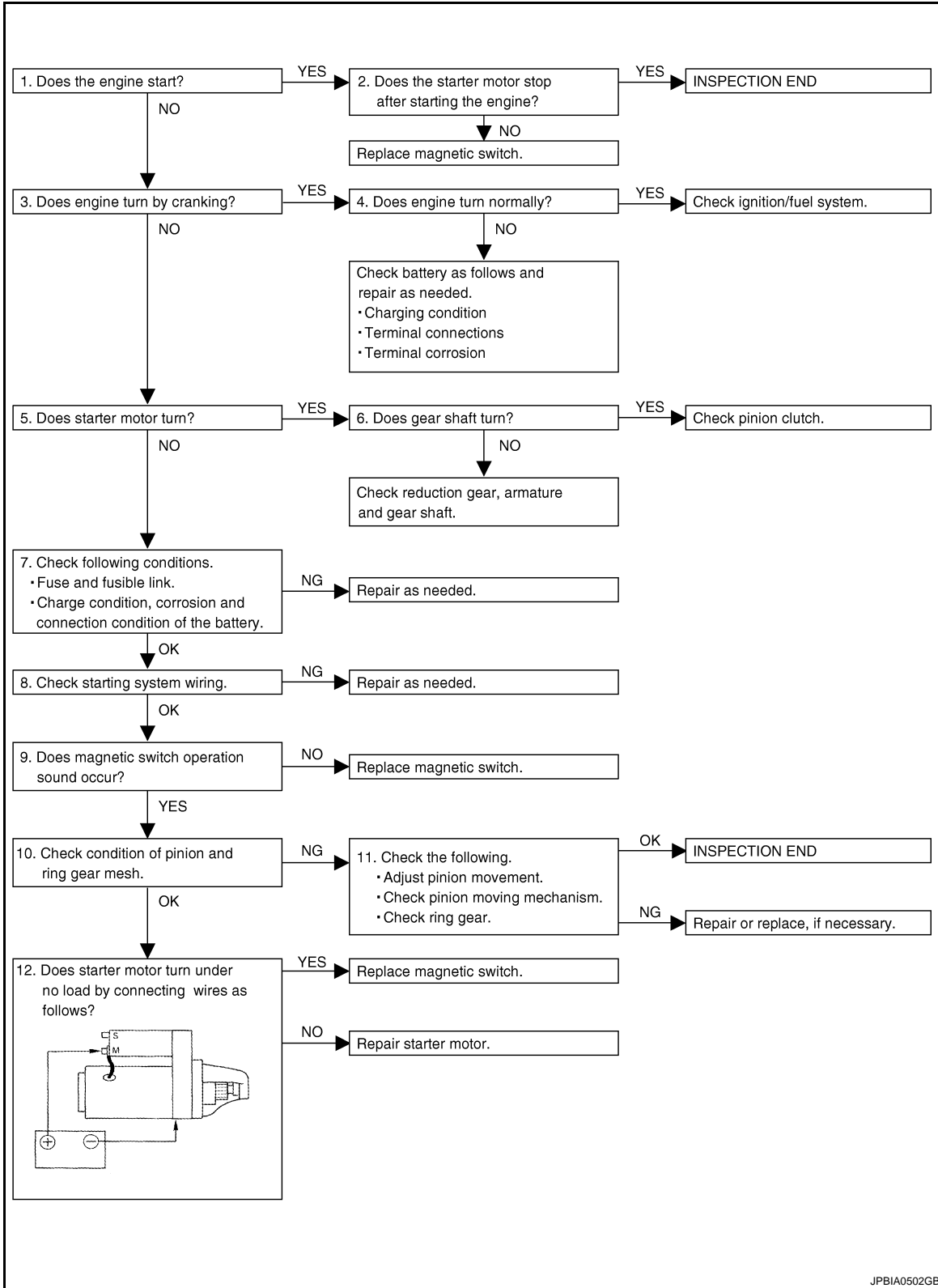
DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

M9R/HR16DE/MR20DE MODELS : Work Flow

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OVERALL SEQUENCE



DETAILED FLOW

NOTE:

If any malfunction is found, immediately disconnect the battery cable from the negative terminal.

1. CHECK ENGINE START

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Crank the engine and check that the engine starts.

Does the engine start?

- YES >> GO TO 2.
- NO >> GO TO 3.

2.CHECK THAT THE STARTER MOTOR STOPS

Check that the starter motor stops after starting the engine.

Does the starter motor stop?

- YES >> INSPECTION END
- NO >> Replace magnetic switch.

3.CHECK THE ENGINE SPEED WITH CRANKING

Check that the engine runs at cranking.

Does engine turn by cranking?

- YES >> GO TO 4.
- NO >> GO TO 5.

4.CHECK THE ENGINE SPEED WITH CRANKING

Check that the engine speed is not low at cranking.

Does engine turn normally?

- YES >> Check ignition/fuel system.
- NO >> Check charge condition, corrosion and connection condition of the battery. Refer to [PG-3, "Work Flow"](#).

5.CHECK STARTER MOTOR ACTIVATION

Check that the starter motor runs at cranking.

Does starter motor turn?

- YES >> GO TO 6.
- NO >> GO TO 7.

6.CHECK STARTER MOTOR UNIT

1. Remove starter motor.
2. Check that the gear shaft of starter motor rotates.

Does gear shaft turn?

- YES >> • Check pinion clutch. Refer to the following.
 - M9R models: [STR-25, "M9R MODELS : Inspection"](#)
 - HR16DE models: [STR-30, "HR16DE MODELS : Inspection"](#)
 - MR20DE models: [STR-35, "MR20DE MODELS : Inspection"](#)
- NO >> Check reduction gear, armature and gear shaft.

7.CHECK POWER SUPPLY CIRCUIT

Check the following conditions.

- Fuse and fusible link
- Charge condition, corrosion and connection condition of the battery. Refer to [PG-3, "Work Flow"](#).

Are these inspection results normal?

- YES >> GO TO 8.
- NO >> Repair as needed.

8.CHECK STARTING SYSTEM WIRING

Check the following.

- "B" terminal circuit. Refer to [STR-10, "Diagnosis Procedure"](#).
- "S" terminal circuit. Refer to [STR-11, "Diagnosis Procedure"](#).

Are these inspection results normal?

- YES >> GO TO 9.
- NO >> Repair as needed.

9.CHECK MAGNETIC SWITCH OPERATION SOUND

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Check that a magnetic switch operation sound can be heard when the ignition switch is set at the starting position.

Does magnetic switch operation sound occur?

YES >> GO TO 10.

NO >> Replace magnetic switch.

10. PINION AND RING GEAR ENGAGEMENT CHECK

Check condition of pinion and ring gear mesh.

Is the inspection result normal?

YES >> GO TO 12.

NO >> GO TO 11.

11. CHECK STARTER MOTOR UNIT

Check the following.

- Adjust pinion movement. Refer to the following.

NOTE:

Regarding starter motor for M9R models, adjustment is not required for pinion movement.

- HR16DE models: [STR-30. "HR16DE MODELS : Inspection"](#)

- MR20DE models: [STR-35. "MR20DE MODELS : Inspection"](#)

- Check pinion moving mechanism.

- Check ring gear.

Are these inspection results normal?

YES >> INSPECTION END

NO >> Repair or replace, if necessary.

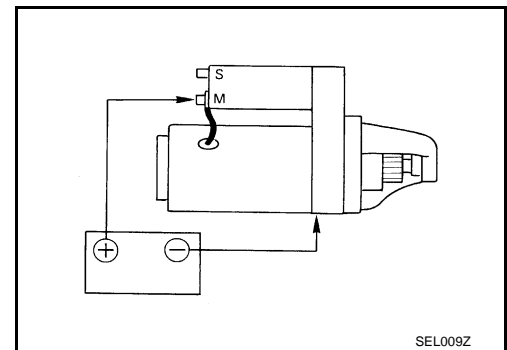
12. CHECK STARTER MOTOR UNIT

Check that the starter motor runs when connecting the positive terminal (12 V) to starter motor terminal M and the negative terminal (ground) to starter motor body.

Does the starter motor run?

YES >> Replace magnetic switch.

NO >> Repair starter motor.



STARTING SYSTEM

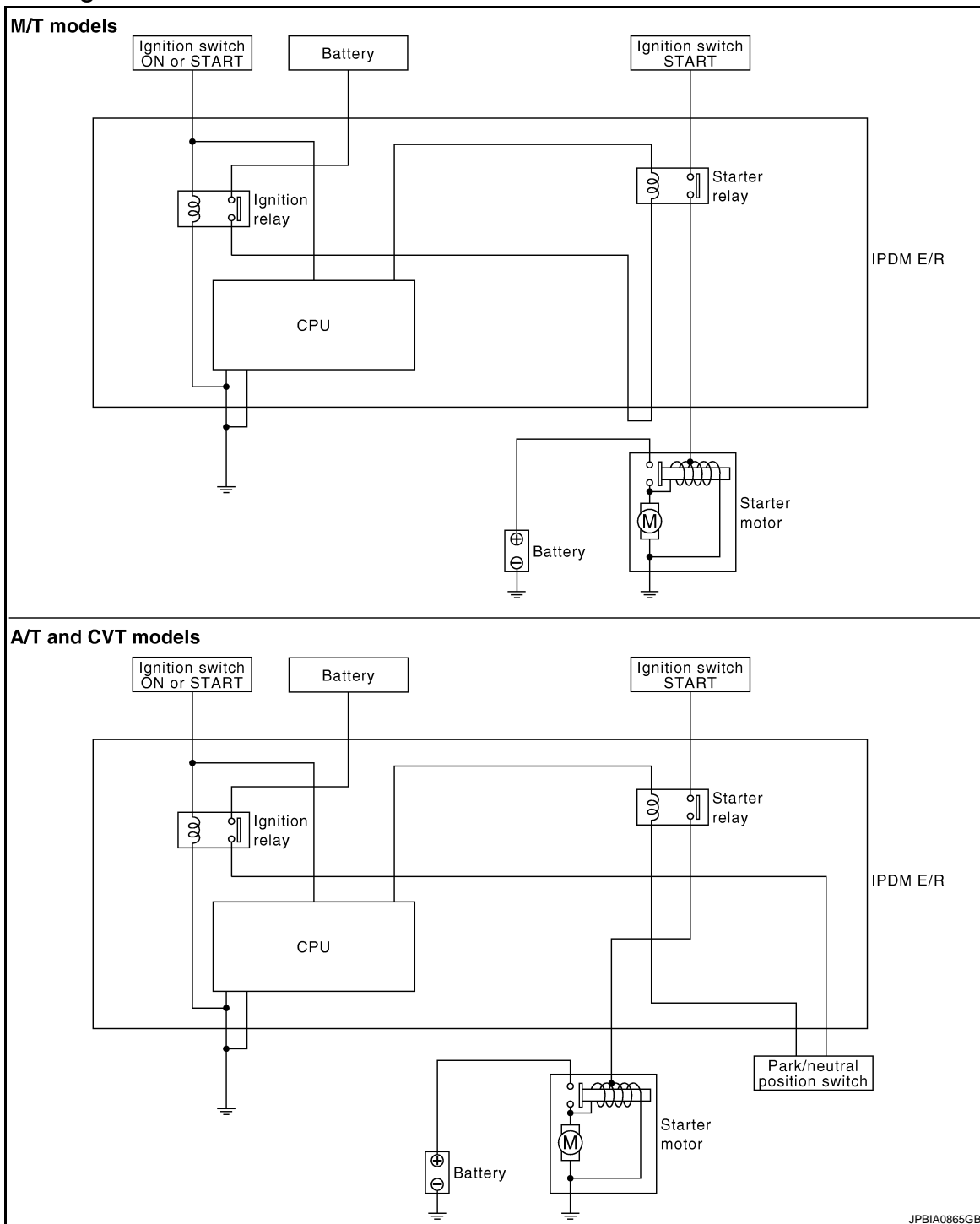
< FUNCTION DIAGNOSIS >

FUNCTION DIAGNOSIS

STARTING SYSTEM

System Diagram

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System Description

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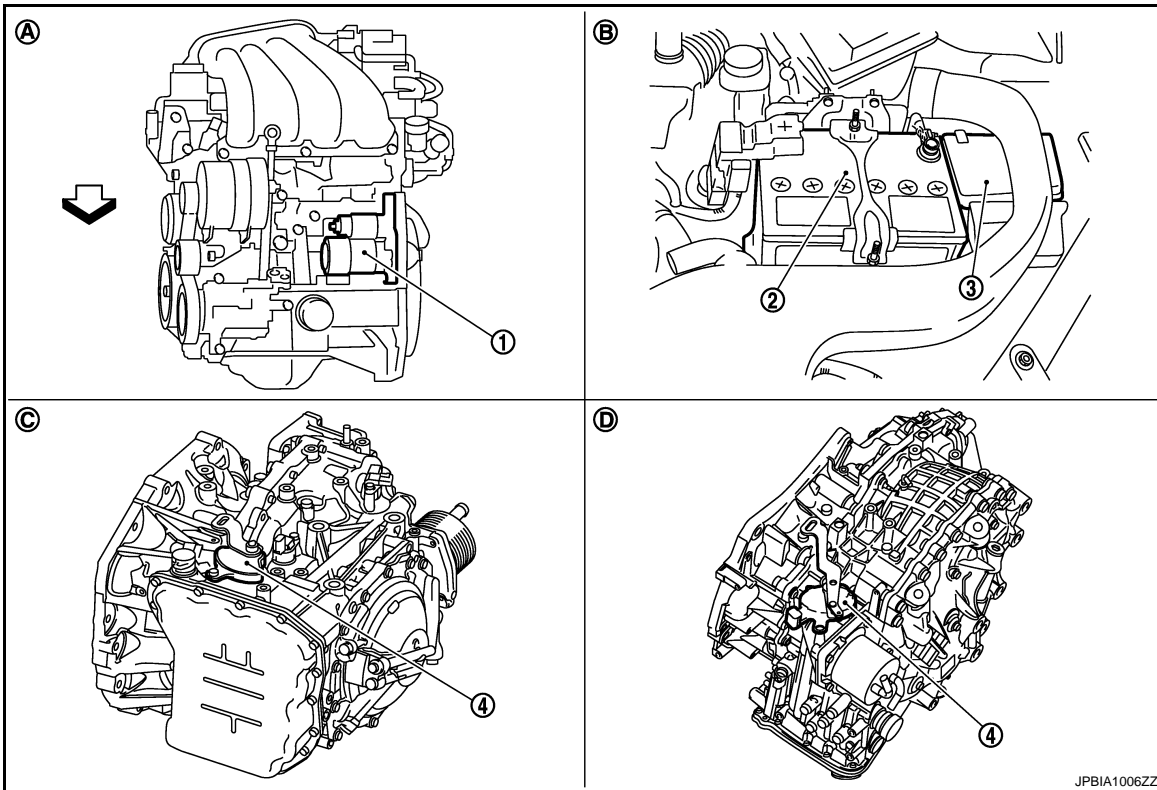
The starter motor plunger closes and provides a closed circuit between the battery and starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

STARTING SYSTEM

< FUNCTION DIAGNOSIS >

Component Parts Location

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- 1. Starter motor
 - 2. Battery
 - 3. IPDM E/R
 - 4. Park/neutral position switch
 - A. Engine
 - B. Engine room (left side)
 - C. A/T assembly
 - D. CVT assembly
- ↙ : Vehicle front

Component Description

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| Component part | Description |
|---|--|
| Park/neutral position switch (A/T and CVT models) | Park/neutral position switch supplies power to the starter relay inside IPDM E/R when the selector lever is shifted to the P or N position. |
| IPDM E/R | CPU inside IPDM E/R controls the starter relay. Ignition relay inside IPDM E/R supplies power to the Park/neutral position switch when ignition switch is ON or START. |
| Starter motor | The starter motor plunger closes and the motor is supplied with battery power, which in turn cranks the engine, when the "S" terminal is supplied with electric power. |

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B TERMINAL CIRCUIT

< COMPONENT DIAGNOSIS >

COMPONENT DIAGNOSIS

B TERMINAL CIRCUIT

Description

INFOID:000000001179332

The "B" terminal is constantly supplied with battery power.

Diagnosis Procedure

INFOID:000000001179333

CAUTION:

Perform diagnosis under the condition that engine cannot start by the following procedure.

1. Remove fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.

1. CHECK "B" TERMINAL CIRCUIT

1. Turn ignition switch OFF.
2. Check that starter motor "B" terminal connection is clean and tight.
3. Check voltage between starter motor "B" terminal and ground.

| Terminals | | Voltage (Approx.) |
|---|----------|-------------------|
| (+) | (-) | |
| Starter motor "B" terminal | Terminal | Battery voltage |
| F49 (K9K/M9R) F52 (HR16DE) F10 (MR20DE) | 2 | |
| | Ground | |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check harness between battery and starter motor for open circuit.

2. CHECK BATTERY CABLE CONNECTION STATUS (VOLTAGE DROP TEST)

1. Shift A/T or CVT selector lever to "P" or "N" position. (A/T or CVT models)
2. Check voltage between battery positive terminal and starter motor "B" terminal.

| Terminals | | Condition | Voltage (Approx.) |
|---------------------------|---|---|-------------------|
| (+) | (-) | | |
| Battery positive terminal | Starter motor "B" terminal | When the ignition switch is in START position | Less than 0.5 V |
| | F49 (K9K/M9R) F52 (HR16DE) F10 (MR20DE) | | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between the battery and the starter motor for poor continuity.

3. CHECK GROUND CIRCUIT STATUS (VOLTAGE DROP TEST)

1. Shift A/T or CVT selector lever to "P" or "N" position. (A/T or CVT models)
2. Check voltage between starter motor case and battery negative terminal.

| Terminals | | Condition | Voltage (Approx.) |
|--------------------|---------------------------|---|-------------------|
| (+) | (-) | | |
| Starter motor case | Battery negative terminal | When the ignition switch is in START position | Less than 0.2 V |

Is the inspection result normal?

YES >> "B" terminal circuit is OK. Further inspection is necessary. Refer to [STR-5. "M9R/HR16DE/MR20DE MODELS : Work Flow"](#).

NO >> Check the starter motor case and ground for poor continuity.

S TERMINAL CIRCUIT

< COMPONENT DIAGNOSIS >

S TERMINAL CIRCUIT

Description

INFOID:000000001179334

The starter motor magnetic switch is supplied with power when the ignition switch is turned to START with the selector lever P or N for A/T and CVT models.

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Diagnosis Procedure

INFOID:000000001179335

CAUTION:

Perform diagnosis under the condition that engine cannot start by the following procedure.

1. Remove fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.

1. CHECK "S" CONNECTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect "S" terminal.
3. Shift A/T or CVT selector lever to "P" or "N" position. (A/T or CVT models)
4. Check voltage between starter motor harness connector and ground.

| Terminals | | Condition | Voltage (Approx.) |
|---|----------|-----------|-------------------|
| (+) | (-) | | |
| Starter motor harness connector | Terminal | | |
| F50 (K9K/M9R) F53 (HR16DE) F11 (MR20DE) | 1 | Ground | Battery voltage |

Is the inspection result normal?

YES >> "S" terminal circuit is OK. Further inspection is necessary. Refer to [STR-2. "K9K MODELS : Work Flow"](#) (K9K models) or [STR-5. "M9R/HR16DE/MR20DE MODELS : Work Flow"](#) (M9R/HR16DE/MR20DE models).

NO >> GO TO 2.

2. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check the following terminals and connectors for damage, bend and loose connection.
 - Harness connector E8
 - Harness connector F122

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the terminal and connector.

3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect IPDM E/R connector.
2. Check continuity between starter motor "S" terminal and IPDM E/R harness connector.

| Starter motor "S" terminal | | IPDM E/R harness connector | | Continuity |
|---|--------------|----------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F50 (K9K/M9R) F53 (HR16DE) F11 (MR20DE) | 1 | E14 | 50 | Existed |

Is the inspection result normal?

YES >> Inspect IPDM E/R and power supply circuit. Refer to [SEC-6. "Work Flow"](#).

NO >> Repair the harness.

STARTING SYSTEM

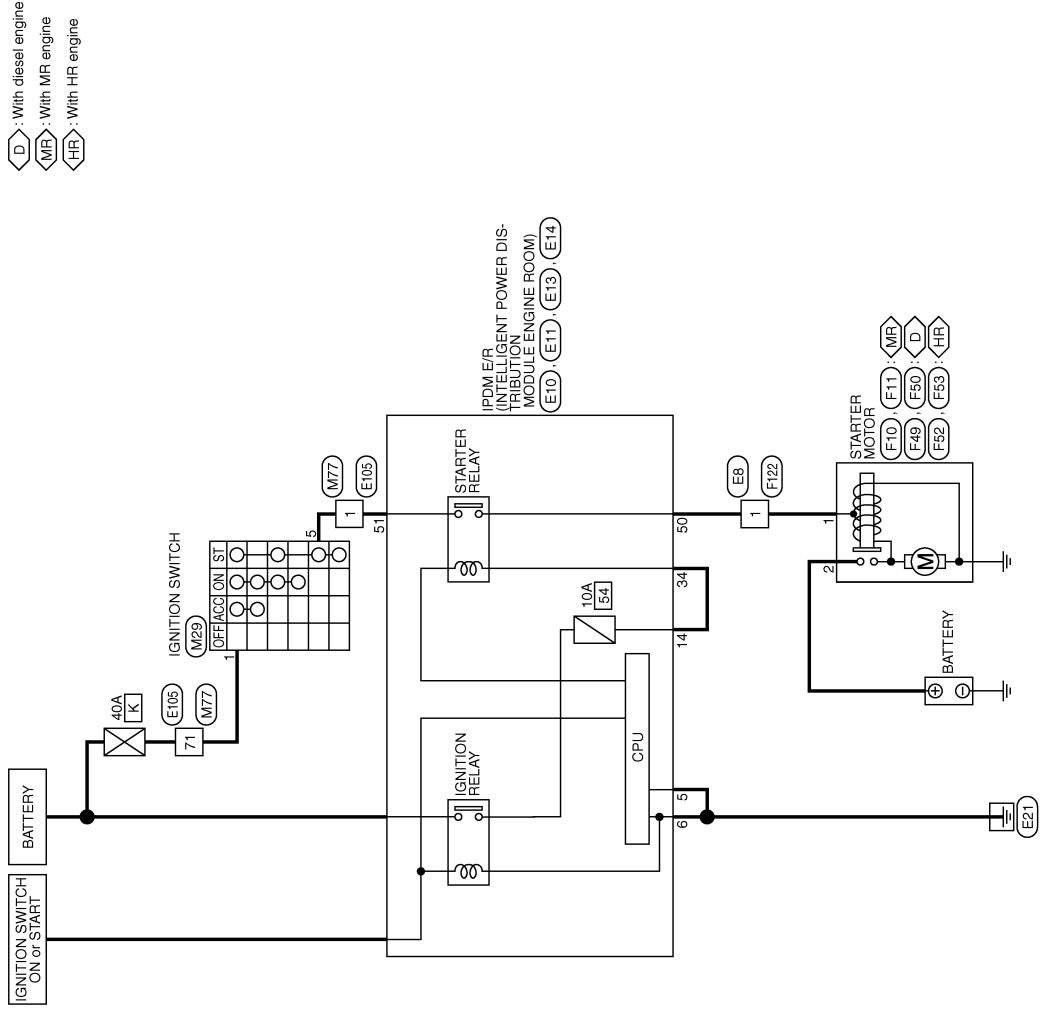
< COMPONENT DIAGNOSIS >

STARTING SYSTEM

Wiring Diagram - STARTING SYSTEM (M/T MODELS) -

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STARTING SYSTEM (WITH M/T)

















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STARTING SYSTEM

< COMPONENT DIAGNOSIS >

STARTING SYSTEM (WITH M/T)

| | | | | | | | | | | | | | |
|---|--|------|----------------|--|----------------|--------------------|---|--------------|----|---------------|-----|-----------------------------|---------------|
| <table border="1"> <tr><td>Connector No.</td><td>E13</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS16FW-CS</td></tr> </table>   | Connector No. | E13 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS16FW-CS | <table border="1"> <tr><td>Terminal No.</td><td>34</td></tr> <tr><td>Color of Wire</td><td>R/B</td></tr> <tr><td>Signal Name [Specification]</td><td>-[Except A,T]</td></tr> </table> | Terminal No. | 34 | Color of Wire | R/B | Signal Name [Specification] | -[Except A,T] |
| Connector No. | E13 | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | |
| Connector Type | NS16FW-CS | | | | | | | | | | | | |
| Terminal No. | 34 | | | | | | | | | | | | |
| Color of Wire | R/B | | | | | | | | | | | | |
| Signal Name [Specification] | -[Except A,T] | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>E11</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS12FBR-CS</td></tr> </table>   | Connector No. | E11 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS12FBR-CS | <table border="1"> <tr><td>Terminal No.</td><td>14</td></tr> <tr><td>Color of Wire</td><td>R/B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Terminal No. | 14 | Color of Wire | R/B | Signal Name [Specification] | - |
| Connector No. | E11 | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | |
| Connector Type | NS12FBR-CS | | | | | | | | | | | | |
| Terminal No. | 14 | | | | | | | | | | | | |
| Color of Wire | R/B | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>E10</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>M08FE-LC</td></tr> </table>   | Connector No. | E10 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | M08FE-LC | <table border="1"> <tr><td>Terminal No.</td><td>5</td></tr> <tr><td>Color of Wire</td><td>B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Terminal No. | 5 | Color of Wire | B | Signal Name [Specification] | - |
| Connector No. | E10 | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | |
| Connector Type | M08FE-LC | | | | | | | | | | | | |
| Terminal No. | 5 | | | | | | | | | | | | |
| Color of Wire | B | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>E14</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>YZK 7283-5391-40-F</td></tr> </table>   | Connector No. | E14 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | YZK 7283-5391-40-F | <table border="1"> <tr><td>Terminal No.</td><td>50</td></tr> <tr><td>Color of Wire</td><td>B/R</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Terminal No. | 50 | Color of Wire | B/R | Signal Name [Specification] | - |
| Connector No. | E14 | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | |
| Connector Type | YZK 7283-5391-40-F | | | | | | | | | | | | |
| Terminal No. | 50 | | | | | | | | | | | | |
| Color of Wire | B/R | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>E105</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   | Connector No. | E105 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | <table border="1"> <tr><td>Terminal No.</td><td>71</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Terminal No. | 71 | Color of Wire | P | Signal Name [Specification] | - |
| Connector No. | E105 | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | |
| Terminal No. | 71 | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>F11</td></tr> <tr><td>Connector Name</td><td>STARTER MOTOR</td></tr> <tr><td>Connector Type</td><td>-</td></tr> </table>   | Connector No. | F11 | Connector Name | STARTER MOTOR | Connector Type | - | <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>B/R</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
| Connector No. | F11 | | | | | | | | | | | | |
| Connector Name | STARTER MOTOR | | | | | | | | | | | | |
| Connector Type | - | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | |
| Color of Wire | B/R | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>F10</td></tr> <tr><td>Connector Name</td><td>STARTER MOTOR</td></tr> <tr><td>Connector Type</td><td>-</td></tr> </table>   | Connector No. | F10 | Connector Name | STARTER MOTOR | Connector Type | - | <table border="1"> <tr><td>Terminal No.</td><td>2</td></tr> <tr><td>Color of Wire</td><td>B/Y</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Terminal No. | 2 | Color of Wire | B/Y | Signal Name [Specification] | - |
| Connector No. | F10 | | | | | | | | | | | | |
| Connector Name | STARTER MOTOR | | | | | | | | | | | | |
| Connector Type | - | | | | | | | | | | | | |
| Terminal No. | 2 | | | | | | | | | | | | |
| Color of Wire | B/Y | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | |

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STARTING SYSTEM

< COMPONENT DIAGNOSIS >

STARTING SYSTEM (WITH M/T)

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| Connector No. | F48 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



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|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 2 | Color of Wire | B/Y | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|---------------|
| Connector No. | F50 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|---------------|
| Connector No. | F52 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 2 | Color of Wire | B/Y | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|---------------|
| Connector No. | F53 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|--------------|
| Connector No. | F122 |
| Connector Name | WIRE TO WIRE |
| Connector Type | M02FW-LC |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|-----------------|
| Connector No. | M29 |
| Connector Name | IGNITION SWITCH |
| Connector Type | M09FW-LC |



| | | | | | |
|--------------|---|---------------|---|-----------------------------|---|
| Terminal No. | 5 | Color of Wire | R | Signal Name [Specification] | - |
|--------------|---|---------------|---|-----------------------------|---|

| | |
|----------------|-----------------|
| Connector No. | M77 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH60FW-NS16-TM4 |



| | | | | | |
|--------------|----|---------------|---|-----------------------------|---|
| Terminal No. | 71 | Color of Wire | L | Signal Name [Specification] | - |
|--------------|----|---------------|---|-----------------------------|---|

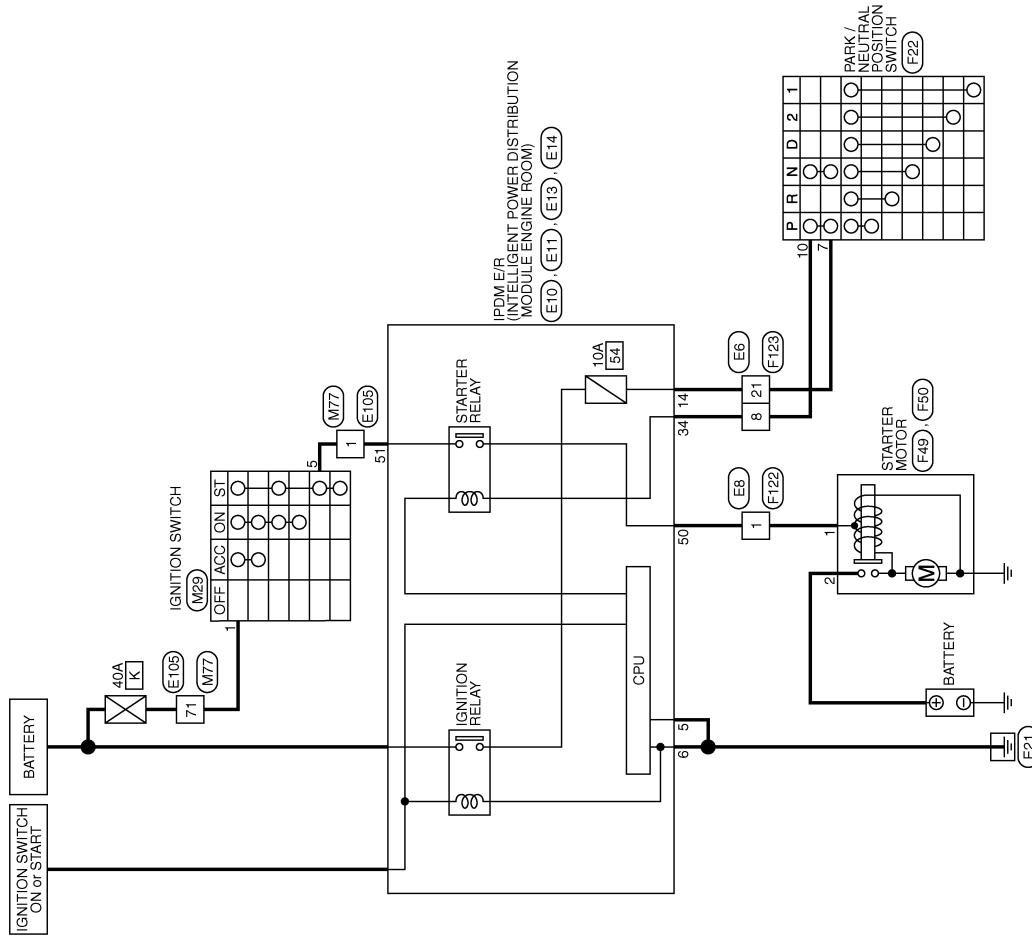
STARTING SYSTEM

< COMPONENT DIAGNOSIS >

Wiring Diagram - STARTING SYSTEM (A/T MODELS) -

INFOID:000000001375722

STARTING SYSTEM (WITH A/T)












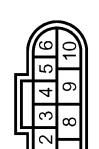




























2007/04/27

JCBWA0330GE

STARTING SYSTEM

< COMPONENT DIAGNOSIS >

STARTING SYSTEM (WITH A/T)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------|----------------|--|----------------|-----------------|--------------|----|---------------|-----|-----------------------------|--------------|--|---------------|------|----------------|--|----------------|--------------------|--------------|----|---------------|-----|-----------------------------|---|---|---------------|------|----------------|--|----------------|-----------------|--------------|---|---------------|---|-----------------------------|---|---|---------------|------|----------------|--|----------------|-----------------|--------------|----|---------------|---|-----------------------------|---|--|---------------|------|----------------|--|----------------|-----------------|--------------|----|---------------|-----|-----------------------------|---|--|---------------|-----|----------------|--|----------------|------------|--------------|----|---------------|-----|-----------------------------|---|--|---------------|-----|----------------|--|----------------|------------|--------------|----|---------------|-----|-----------------------------|---|
| <table border="1"> <tr><td>Connector No.</td><td>E13</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS18FW-CS</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>34</td></tr> <tr><td>Color of Wire</td><td>W/B</td></tr> <tr><td>Signal Name [Specification]</td><td>- [With A/T]</td></tr> </table> | Connector No. | E13 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS18FW-CS | Terminal No. | 34 | Color of Wire | W/B | Signal Name [Specification] | - [With A/T] | <table border="1"> <tr><td>Connector No.</td><td>E14</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>YZK 7283-5591-40-F</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>51</td></tr> <tr><td>Color of Wire</td><td>B/R</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E14 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | YZK 7283-5591-40-F | Terminal No. | 51 | Color of Wire | B/R | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E105</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E105 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 1 | Color of Wire | P | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E106</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>71</td></tr> <tr><td>Color of Wire</td><td>L</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E106 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 71 | Color of Wire | L | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E107</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E107 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 1 | Color of Wire | P | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E11</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS12FBR-CS</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>14</td></tr> <tr><td>Color of Wire</td><td>R/B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E11 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS12FBR-CS | Terminal No. | 14 | Color of Wire | R/B | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E11</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS12FBR-CS</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>14</td></tr> <tr><td>Color of Wire</td><td>R/B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E11 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS12FBR-CS | Terminal No. | 14 | Color of Wire | R/B | Signal Name [Specification] | - |
| Connector No. | E13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | NS18FW-CS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 34 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | W/B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - [With A/T] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | YZK 7283-5591-40-F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | B/R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E106 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E107 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | NS12FBR-CS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | R/B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | NS12FBR-CS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | R/B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>E108</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E108 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 1 | Color of Wire | P | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E109</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E109 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 1 | Color of Wire | P | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E10</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>M08FE-LC</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>5</td></tr> <tr><td>Color of Wire</td><td>B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E10 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | M08FE-LC | Terminal No. | 5 | Color of Wire | B | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E10</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>M08FE-LC</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>5</td></tr> <tr><td>Color of Wire</td><td>B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E10 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | M08FE-LC | Terminal No. | 5 | Color of Wire | B | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E10</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>M08FE-LC</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>5</td></tr> <tr><td>Color of Wire</td><td>B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E10 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | M08FE-LC | Terminal No. | 5 | Color of Wire | B | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E10</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>M08FE-LC</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>5</td></tr> <tr><td>Color of Wire</td><td>B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E10 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | M08FE-LC | Terminal No. | 5 | Color of Wire | B | Signal Name [Specification] | - | | | | | | | | | | | | | |
| Connector No. | E108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | M08FE-LC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | M08FE-LC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | M08FE-LC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | M08FE-LC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr><td>Connector No.</td><td>E13</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS18FW-CS</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>34</td></tr> <tr><td>Color of Wire</td><td>W/B</td></tr> <tr><td>Signal Name [Specification]</td><td>- [With A/T]</td></tr> </table> | Connector No. | E13 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS18FW-CS | Terminal No. | 34 | Color of Wire | W/B | Signal Name [Specification] | - [With A/T] | <table border="1"> <tr><td>Connector No.</td><td>E14</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>YZK 7283-5591-40-F</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>51</td></tr> <tr><td>Color of Wire</td><td>B/R</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E14 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | YZK 7283-5591-40-F | Terminal No. | 51 | Color of Wire | B/R | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E105</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E105 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 1 | Color of Wire | P | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E106</td></tr> <tr><td>Connector Name</td><td>WIRE TO WIRE</td></tr> <tr><td>Connector Type</td><td>TH80MW-NS16-TM4</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>1</td></tr> <tr><td>Color of Wire</td><td>P</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E106 | Connector Name | WIRE TO WIRE | Connector Type | TH80MW-NS16-TM4 | Terminal No. | 1 | Color of Wire | P | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E11</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS12FBR-CS</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>14</td></tr> <tr><td>Color of Wire</td><td>R/B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E11 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS12FBR-CS | Terminal No. | 14 | Color of Wire | R/B | Signal Name [Specification] | - | <table border="1"> <tr><td>Connector No.</td><td>E11</td></tr> <tr><td>Connector Name</td><td>IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)</td></tr> <tr><td>Connector Type</td><td>NS12FBR-CS</td></tr> </table>   <table border="1"> <tr><td>Terminal No.</td><td>14</td></tr> <tr><td>Color of Wire</td><td>R/B</td></tr> <tr><td>Signal Name [Specification]</td><td>-</td></tr> </table> | Connector No. | E11 | Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | Connector Type | NS12FBR-CS | Terminal No. | 14 | Color of Wire | R/B | Signal Name [Specification] | - | | | | | | | | | | | | | |
| Connector No. | E13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | NS18FW-CS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 34 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | W/B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - [With A/T] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | YZK 7283-5591-40-F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | B/R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E106 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80MW-NS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | NS12FBR-CS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | R/B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | NS12FBR-CS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color of Wire | R/B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signal Name [Specification] | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

JCBWA0331GE

STARTING SYSTEM

< COMPONENT DIAGNOSIS >

STARTING SYSTEM (WITH A/T)

| | |
|----------------|---------------|
| Connector No. | F48 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 2 | Color of Wire | B/Y | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|---------------|
| Connector No. | F50 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|--------------|
| Connector No. | F122 |
| Connector Name | WIRE TO WIRE |
| Connector Type | M02FW-LC |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|--------------|
| Connector No. | F123 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TK24FW-1V |



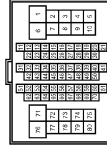
| | | | | | |
|--------------|----|---------------|-----|-----------------------------|---|
| Terminal No. | 8 | Color of Wire | W/B | Signal Name [Specification] | - |
| | 21 | | R/B | | - |

| | |
|----------------|-----------------|
| Connector No. | M28 |
| Connector Name | IGNITION SWITCH |
| Connector Type | M02FW-LC |



| | | | | | |
|--------------|---|---------------|---|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | L | Signal Name [Specification] | - |
| | 5 | | R | | - |

| | |
|----------------|-----------------|
| Connector No. | M77 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH02FW-NS16-TM4 |



| | | | | | |
|--------------|----|---------------|---|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | R | Signal Name [Specification] | - |
| | 71 | | L | | - |

A

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JCBWA0332GE

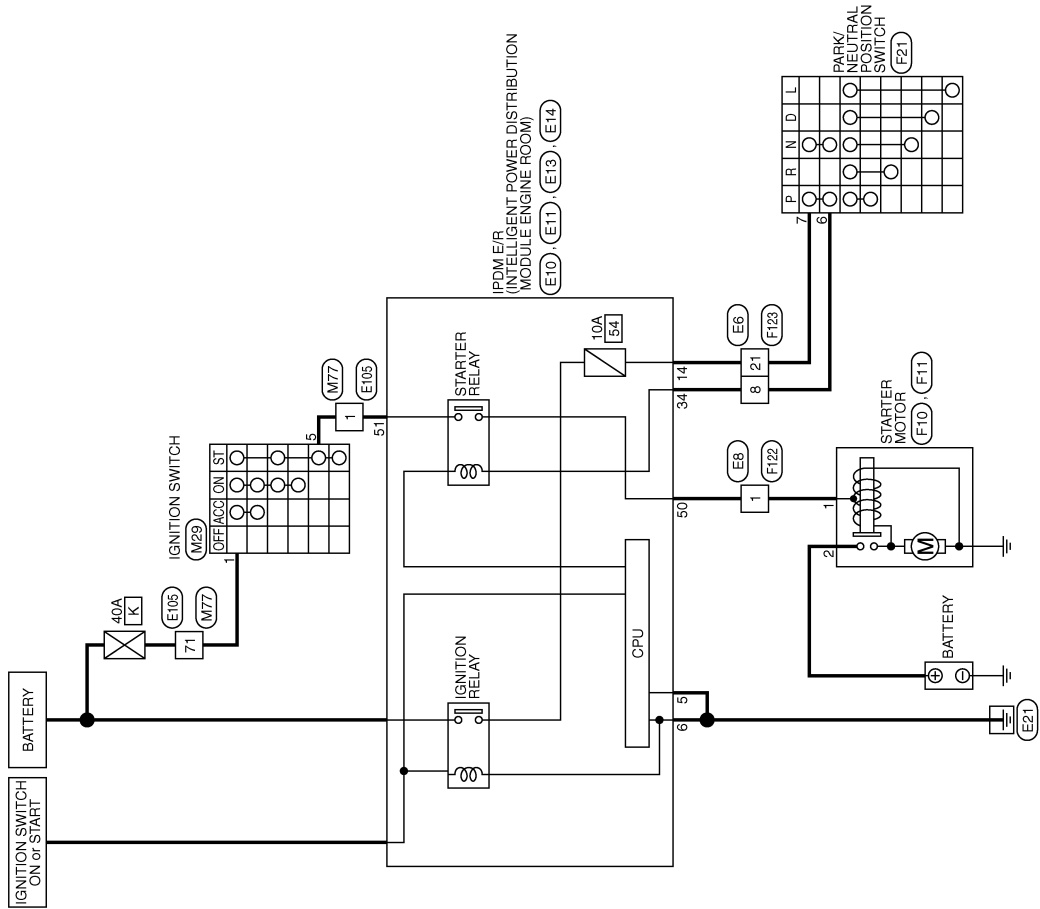
STARTING SYSTEM

< COMPONENT DIAGNOSIS >

Wiring Diagram - STARTING SYSTEM (CVT MODELS) -

INFOID:000000001179337

STARTING SYSTEM (WITH CVT)



2006/12/08


JCBWA0215GE

STARTING SYSTEM

< COMPONENT DIAGNOSIS >


STARTING SYSTEM (WITH CVT)

| | |
|----------------|--------------|
| Connector No. | E6 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TK24MW-1V |




| | | | |
|--------------|---|-----|-----------------------------|
| Terminal No. | 8 | W/B | Signal Name [Specification] |
| 21 | | R/B | - |

| | |
|----------------|--------------|
| Connector No. | E8 |
| Connector Name | WIRE TO WIRE |
| Connector Type | M02MW-LC |



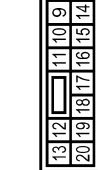
| | | | |
|--------------|---|-----|-----------------------------|
| Terminal No. | 1 | B/R | Signal Name [Specification] |
|--------------|---|-----|-----------------------------|

| | |
|----------------|--|
| Connector No. | E10 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | M08FE-LC |



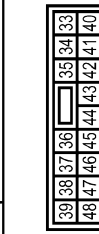
| | | | |
|--------------|---|---|-----------------------------|
| Terminal No. | 5 | B | Signal Name [Specification] |
| 6 | | B | - |

| | |
|----------------|--|
| Connector No. | E11 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | NS12FE-CS |




| | | | |
|--------------|----|-----|-----------------------------|
| Terminal No. | 14 | R/B | Signal Name [Specification] |
|--------------|----|-----|-----------------------------|

| | |
|----------------|--|
| Connector No. | E13 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | NS18FW-CS |




| | | | |
|--------------|----|-----|-----------------------------|
| Terminal No. | 34 | R/B | Signal Name [Specification] |
| | | | -(Except A,T) |

| | |
|----------------|--|
| Connector No. | E14 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | YZK 7283-5391-4G-F |




| | | | |
|--------------|----|-----|-----------------------------|
| Terminal No. | 50 | B/R | Signal Name [Specification] |
| 51 | | P | - |

| | |
|----------------|-----------------|
| Connector No. | E105 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-NS16-TM4 |



| | | | |
|--------------|---|---|-----------------------------|
| Terminal No. | 1 | P | Signal Name [Specification] |
| 71 | | L | - |

| | |
|----------------|---------------|
| Connector No. | F10 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | |
|--------------|---|-----|-----------------------------|
| Terminal No. | 2 | B/Y | Signal Name [Specification] |
|--------------|---|-----|-----------------------------|

JCBWA0328GE

STARTING SYSTEM

< COMPONENT DIAGNOSIS >

STARTING SYSTEM (WITH CVT)

| | |
|----------------|---------------|
| Connector No. | F11 |
| Connector Name | STARTER MOTOR |
| Connector Type | - |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|------------------------------|
| Connector No. | F21 |
| Connector Name | PARK/NEUTRAL POSITION SWITCH |
| Connector Type | RK08FG |



| | | | | | |
|--------------|-----|---------------|-----|-----------------------------|---|
| Terminal No. | 6 | Color of Wire | W/B | Signal Name [Specification] | - |
| 7 | R/B | - | - | - | - |

| | |
|----------------|--------------|
| Connector No. | F122 |
| Connector Name | WIRE TO WIRE |
| Connector Type | M02FW-LC |



| | | | | | |
|--------------|---|---------------|-----|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | B/R | Signal Name [Specification] | - |
|--------------|---|---------------|-----|-----------------------------|---|

| | |
|----------------|--------------|
| Connector No. | F123 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TK24FW-1V |



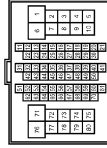
| | | | | | |
|--------------|-----|---------------|-----|-----------------------------|---|
| Terminal No. | 8 | Color of Wire | W/B | Signal Name [Specification] | - |
| 21 | R/B | - | - | - | - |

| | |
|----------------|-----------------|
| Connector No. | M28 |
| Connector Name | IGNITION SWITCH |
| Connector Type | M06FW-LC |



| | | | | | |
|--------------|---|---------------|---|-----------------------------|---|
| Terminal No. | 5 | Color of Wire | R | Signal Name [Specification] | - |
|--------------|---|---------------|---|-----------------------------|---|

| | |
|----------------|-----------------|
| Connector No. | M77 |
| Connector Name | WIRE TO WIRE |
| Connector Type | FH63FW-NS16-TM4 |



| | | | | | |
|--------------|---|---------------|---|-----------------------------|---|
| Terminal No. | 1 | Color of Wire | R | Signal Name [Specification] | - |
| 71 | L | - | - | - | - |

STARTING SYSTEM

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

STARTING SYSTEM

Symptom Table

INFOID:000000001179338

A

STR

| Symptom | Reference |
|-------------------------------|--|
| No normal cranking | Refer to STR-2. "K9K MODELS : Work Flow" (K9K models) or STR-5. "M9R/HR16DE/MR20DE MODELS : Work Flow" (M9R/HR16DE/MR20DE models). |
| Starter motor does not rotate | |

C

D

E

F

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P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000001583061

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIRBAG" and "SEAT BELT" of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

STARTER MOTOR

< ON-VEHICLE REPAIR >

ON-VEHICLE REPAIR

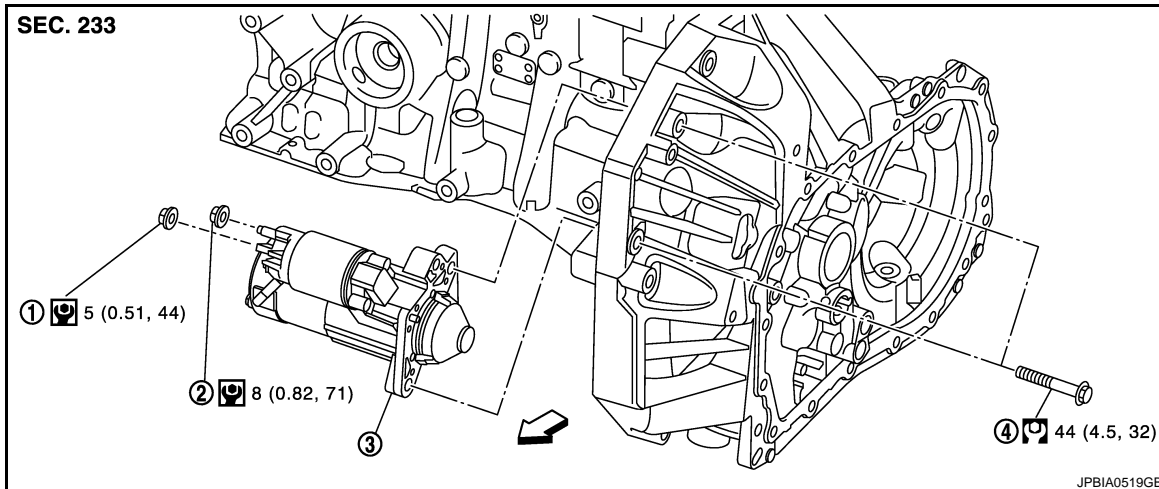
STARTER MOTOR

K9K MODELS

K9K MODELS : Exploded View

INFOID:000000001179340

REMOVAL



1. "S" terminal nut
2. "B" terminal nut
3. Starter motor
4. Starter motor mounting bolt

⇐ : Vehicle front

Refer to [GI-4. "Components"](#) for symbols in the figure.

K9K MODELS : Removal and Installation

INFOID:000000001179341

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Remove "S" terminal nut and "S" terminal harness.
3. Remove "B" terminal nut and "B" terminal harness.
4. Remove starter motor mounting bolts.
5. Remove starter motor upward from the vehicle.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to tighten "B" terminal nut carefully.

M9R MODELS

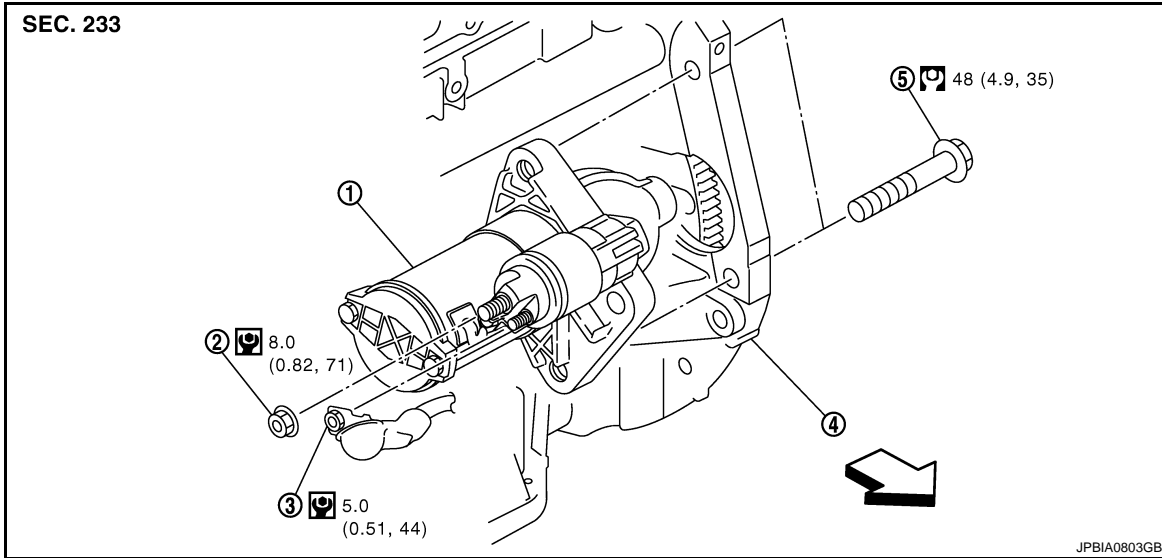
M9R MODELS : Exploded View

INFOID:0000000011349263

REMOVAL

STARTER MOTOR

< ON-VEHICLE REPAIR >



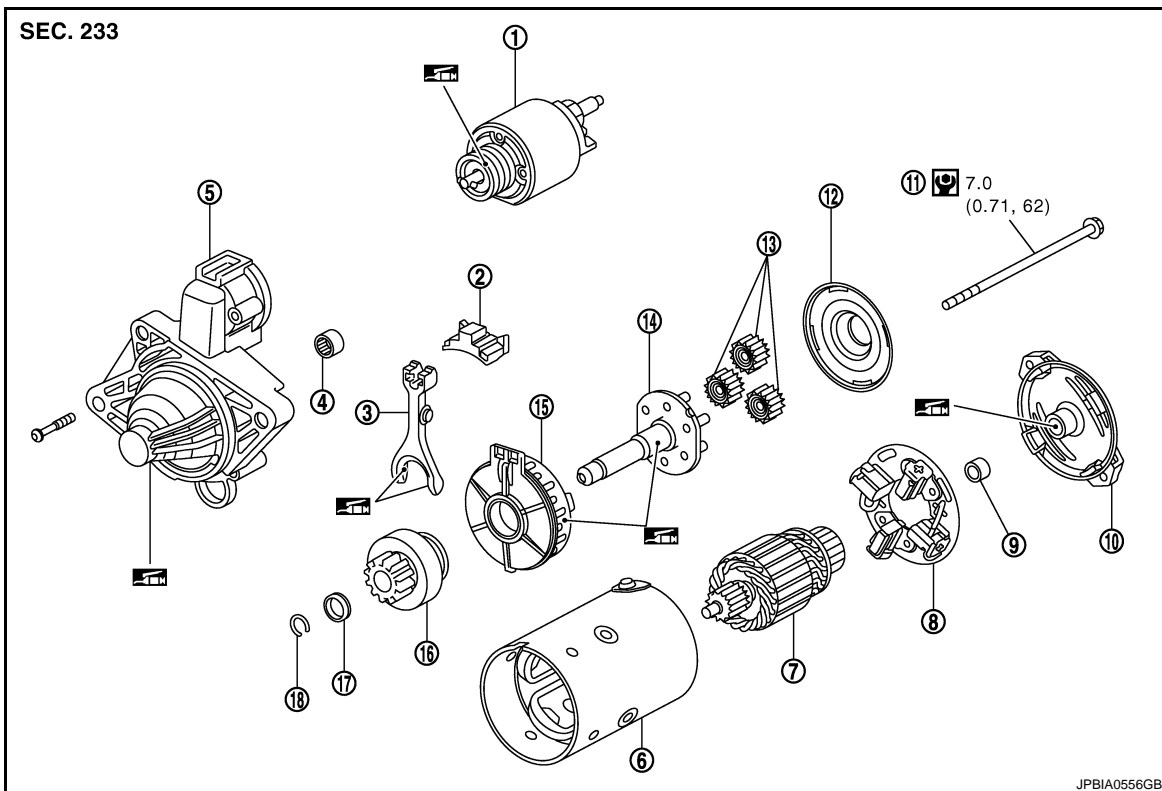
- | | | |
|-------------------|--------------------------------|---------------------|
| 1. Starter motor | 2. "B" terminal nut | 3. "S" terminal nut |
| 4. Cylinder block | 5. Starter motor mounting bolt | |

↔ : Vehicle front

Refer to [GI-4, "Components"](#) for symbols in the figure.

DISASSEMBLY

Type: 194262




- | | | |
|-----------------------------|--------------------------|-------------------|
| 1. Solenoid switch assembly | 2. Lever holder | 3. Shift lever |
| 4. Needle bearing | 5. Front bracket | 6. Yoke |
| 7. Armature | 8. Brush holder assembly | 9. Needle bearing |
| 10. Rear cover | 11. Through bolt | 12. Cover |

STARTER MOTOR

< ON-VEHICLE REPAIR >

- | | | |
|---------------------|------------------|-------------------|
| 13. Planetary gear | 14. Pinion shaft | 15. Internal gear |
| 16. Pinion assembly | 17. Stopper | 18. Stop ring |

 : High-temperature grease point

Refer to [GI-4, "Components"](#) for symbols not described on the above.


M9R MODELS : Removal and Installation

INFOID:000000001349264

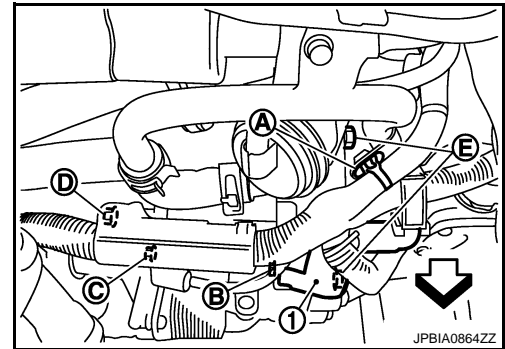
REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Remove engine cover. Refer to [EM-356, "Exploded View"](#).
3. Remove air duct (inlet). Refer to [EM-354, "Exploded View"](#).
4. Remove air inlet hose. Refer to [EM-357, "Exploded View"](#).
5. Remove cooling fan assembly. Refer to [CO-75, "Exploded View"](#).
6. Remove harness clip (A).

1 : Harness bracket

 : Vehicle front

7. Remove harness bracket bolt (B).
8. Remove "S" terminal nut (C) and "S" terminal harness.
9. Remove "B" terminal nut (D) and "B" terminal harness.
10. Remove starter motor mounting bolts (E).
11. Remove starter motor upward from the vehicle.



INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to tighten "B" terminal nut carefully.

M9R MODELS : Disassembly and Assembly

INFOID:000000001349265

ASSEMBLY

Apply high-temperature grease to lubricate the bearing, gears and frictional surface when assembling the starter.

M9R MODELS : Inspection

INFOID:000000001349266

INSPECTION

Solenoid Switch Check

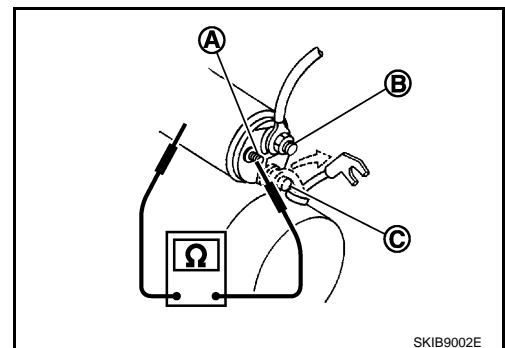
- Before starting to check, disconnect the battery cable from the negative terminal.
- Disconnect "M" terminal of starter motor.

1. Continuity test [between "S" terminal (A) and switch body]

B : "B" terminal

C : "M" terminal

- Replace solenoid switch if continuity does not exist.



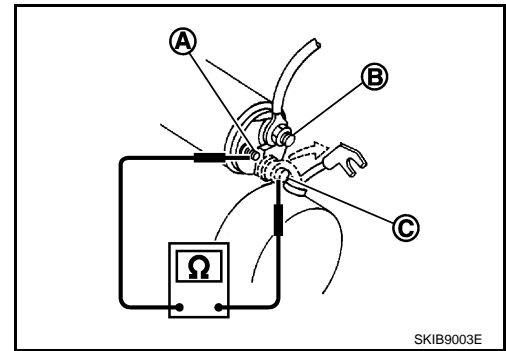
STARTER MOTOR

< ON-VEHICLE REPAIR >

2. Continuity test [between "S" terminal (A) and "M" terminal (C)]

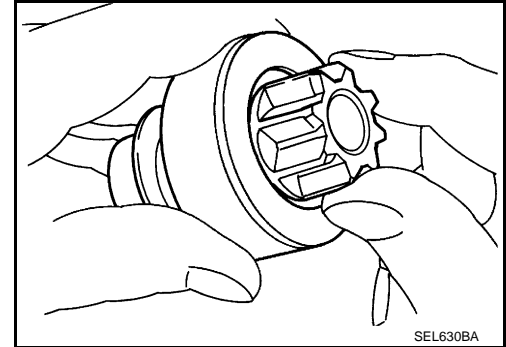
B : "B" terminal

- Replace solenoid switch if continuity does not exist.



Pinion/Clutch Check

1. Inspect pinion teeth.
 - Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth (If equipped).
 - Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
 - Replace pinion assembly if it is locked or rotated in both directions or unusual resistance is evident.

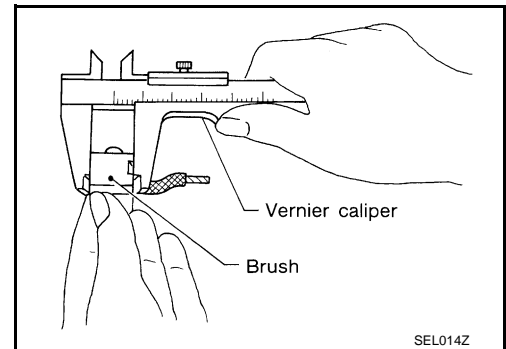


Brush Check

- Check wear of brush.

Minimum length of brush : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace brush if the measurement value is less than the specified value.

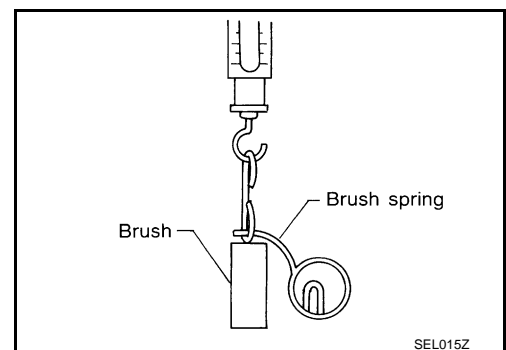


Brush Spring Check

- Check brush spring tension with brush spring detached from brush.

Spring tension (with new brush) : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace brush spring if the measurement value is less than the specified value.

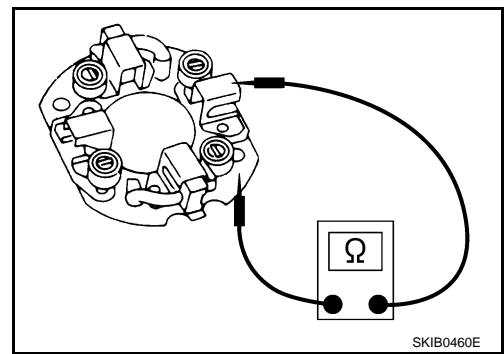


Brush Holder Check

STARTER MOTOR

< ON-VEHICLE REPAIR >

1. Perform insulation test between brush holder (positive side) and its base (negative side).
 - Replace brush holder assembly if continuity does not exist.
2. Check brush to see if it moves smoothly.
 - If brush holder is bent, replace it; if sliding surface is dirty, clean.

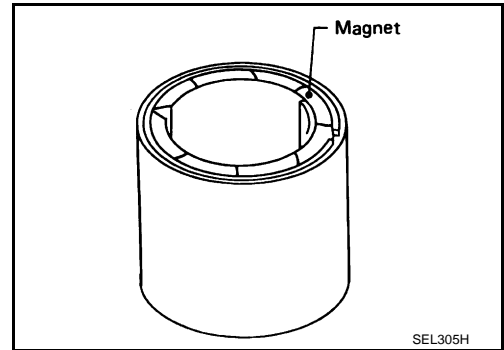


Yoke Check

Magnet is secured to yoke by bonding agent. Check magnet to see that it is secured to yoke and for any cracks. Replace malfunctioning parts as an assembly.

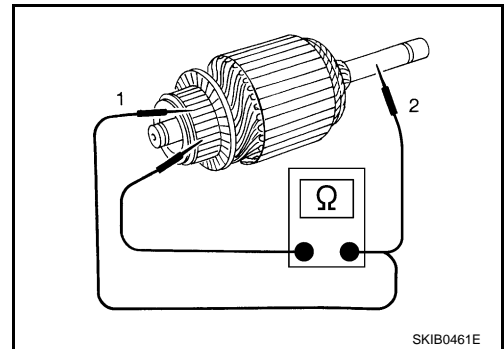
CAUTION:

Never clamp yoke in a vise or strike it with a hammer.

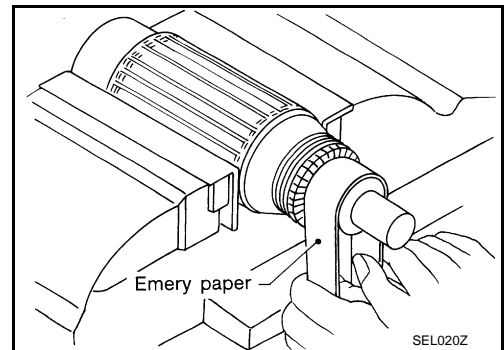


Armature Check

1. Continuity test (between two segments side by side)
 - Replace armature assembly if continuity does not exist.
2. Insulation test (between each commutator bar and shaft)
 - Replace armature assembly if continuity exists.



3. Check commutator surface.
 - Grind with No. 500 - 600 emery paper if it has a rough surface.



A

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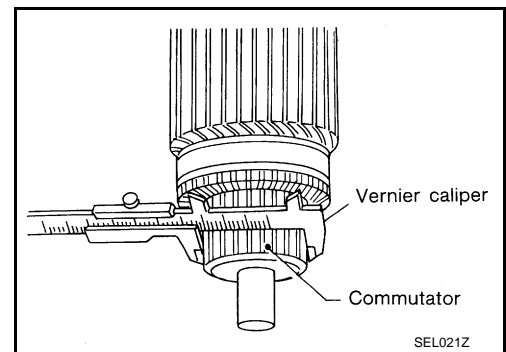
STARTER MOTOR

< ON-VEHICLE REPAIR >

4. Check diameter of commutator.

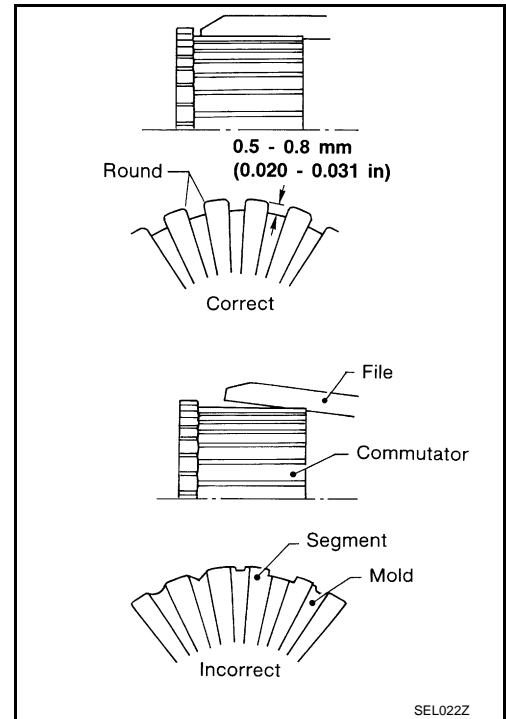
Commutator minimum diameter : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace armature assembly if the measurement value is less than the specified value.



5. Check depth of insulating mold from commutator surface.

- Undercut to 0.5 to 0.8 mm (0.020 to 0.031 in) if the depth is 0.2 mm (0.008 in) or less.

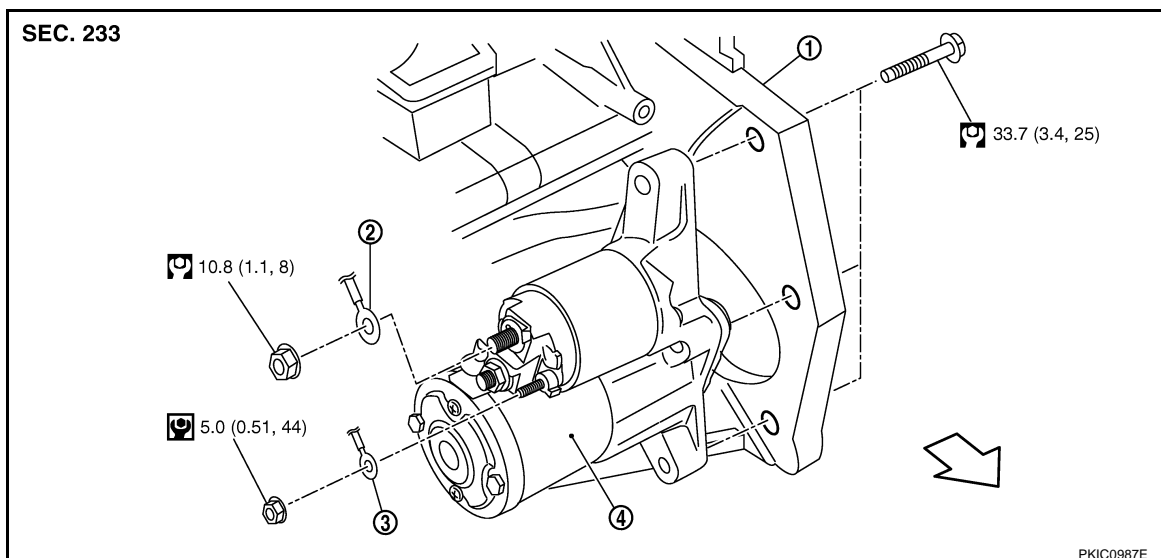


HR16DE MODELS

HR16DE MODELS : Exploded View

INFOID:000000001179342

REMOVAL



STARTER MOTOR

< ON-VEHICLE REPAIR >

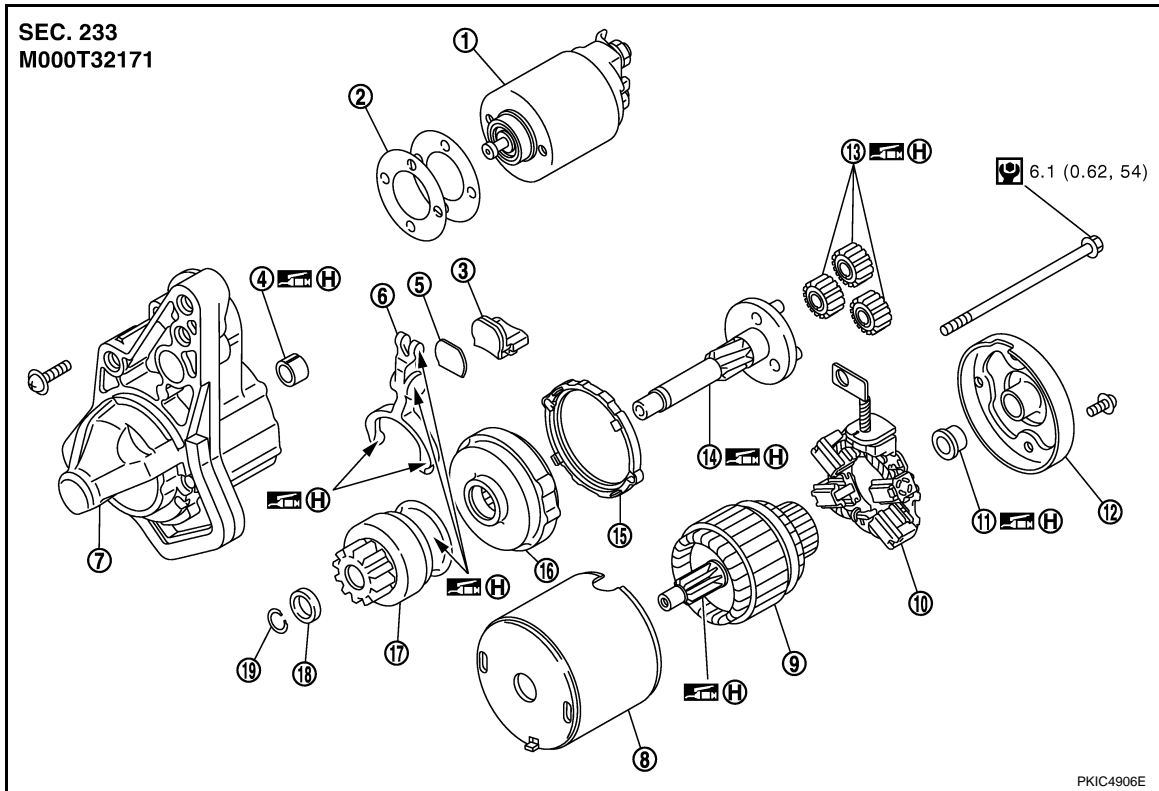
1. Cylinder block
2. "B" terminal harness
3. "S" terminal harness
4. Starter motor

↔ : Vehicle front

Refer to [GI-4, "Components"](#) for symbols in the figure.

DISASSEMBLY

Type: M000T32171



- | | | |
|-----------------------------|---------------------|----------------|
| 1. Magnetic switch assembly | 2. Adjusting plate | 3. Packing |
| 4. Metal FR | 5. Plate | 6. Shift lever |
| 7. Gear case | 8. Yoke | 9. Armature |
| 10. Brush holder assembly | 11. Metal RR | 12. Rear cover |
| 13. Planetary gear | 14. Gear shaft | 15. Packing |
| 16. Internal gear | 17. Pinion assembly | 18. Stopper |
| 19. Stopper ring | | |

(H): High-temperature grease point

Refer to [GI-4, "Components"](#) for symbols not described on the above.

HR16DE MODELS : Removal and Installation

INFOID:000000001179343

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Remove "B" terminal nut and "B" terminal harness.
3. Remove "S" terminal nut and "S" terminal harness.
4. Remove starter motor mounting bolts.
5. Remove starter motor upward from the vehicle.

INSTALLATION

Install in the reverse order of removal.

STARTER MOTOR

< ON-VEHICLE REPAIR >

CAUTION:

Be sure to tighten "B" terminal nut carefully.

HR16DE MODELS : Disassembly and Assembly

INFOID:000000001179344

ASSEMBLY

Apply high-temperature grease to lubricate the bearing, gears and frictional surface when assembling the starter.

Carefully observe the following instructions.

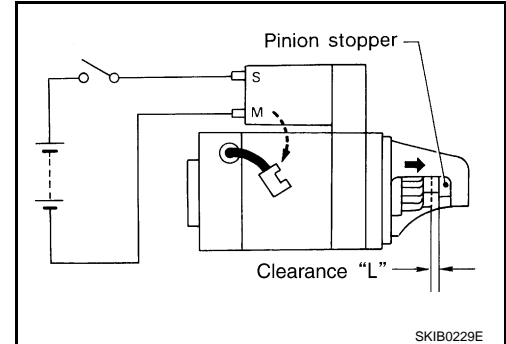
Pinion Protrusion Length Adjustment

CLEARANCE

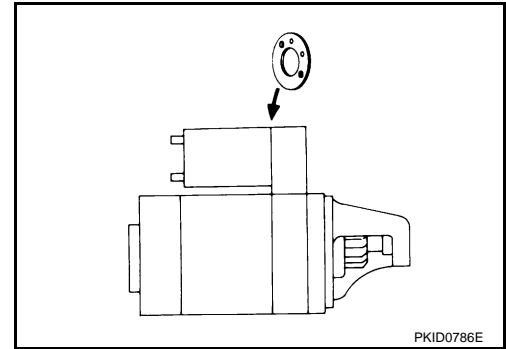
- With pinion driven out by magnetic switch, push pinion back to remove slack and measure clearance "L" between the front edge of the pinion and the pinion stopper.

Clearance "L"

: Refer to SDS [STR-39](#),
["Starter Motor"](#).



- Adjust with the adjusting plate if the measurement value is not in the specified area.



HR16DE MODELS : Inspection

INFOID:000000001179345

INSPECTION

Magnetic Switch Check

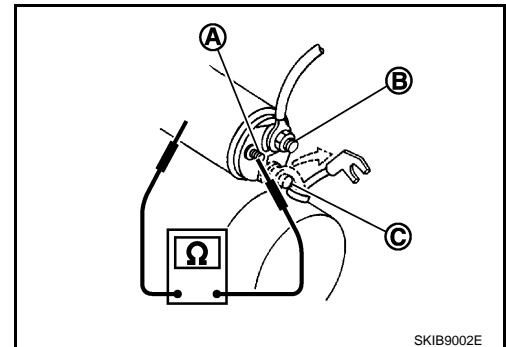
- Before starting to check, disconnect the battery cable from the negative terminal.
- Disconnect "M" terminal of starter motor.

1. Continuity test [between "S" terminal (A) and switch body]

B : "B" terminal

C : "M" terminal

- Replace magnetic switch if continuity does not exist.



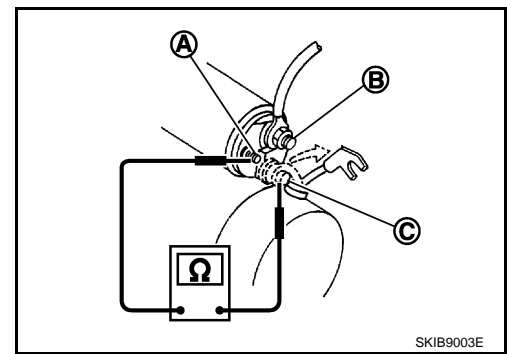
STARTER MOTOR

< ON-VEHICLE REPAIR >

2. Continuity test [between "S" terminal (A) and "M" terminal (C)]

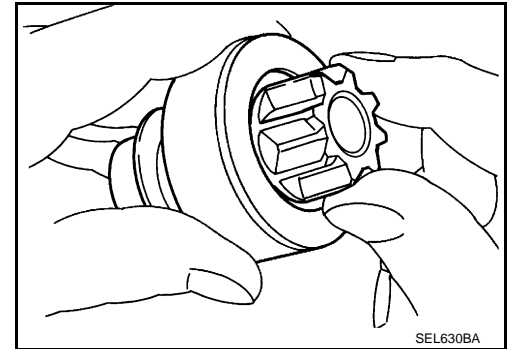
B : "B" terminal

- Replace magnetic switch if continuity does not exist.



Pinion/Clutch Check

1. Inspect pinion teeth.
 - Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth (If equipped).
 - Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
 - Replace pinion assembly if it is locked or rotated in both directions or unusual resistance is evident.

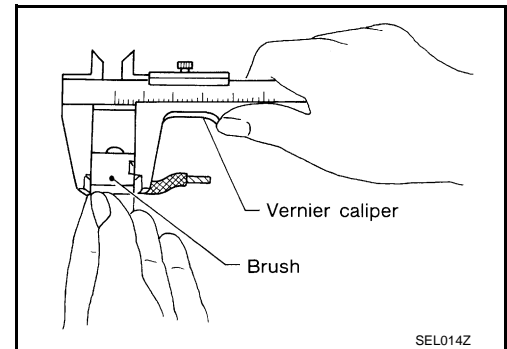


Brush Check

- Check wear of brush.

Minimum length of brush : Refer to SDS [STR-39, "Starter Motor"](#).

- Replace brush if the measurement value is less than the specified value.

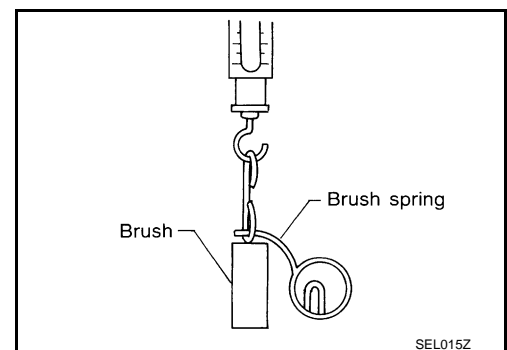


Brush Spring Check

- Check brush spring tension with brush spring detached from brush.

Spring tension (with new brush) : Refer to SDS [STR-39, "Starter Motor"](#).

- Replace brush spring if the measurement value is less than the specified value.

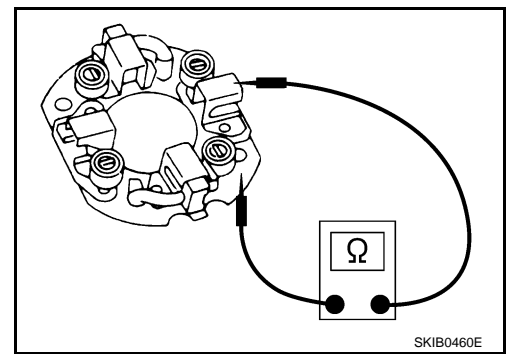


Brush Holder Check

STARTER MOTOR

< ON-VEHICLE REPAIR >

1. Perform insulation test between brush holder (positive side) and its base (negative side).
 - Replace brush holder assembly if continuity does not exist.
2. Check brush to see if it moves smoothly.
 - If brush holder is bent, replace it; if sliding surface is dirty, clean.

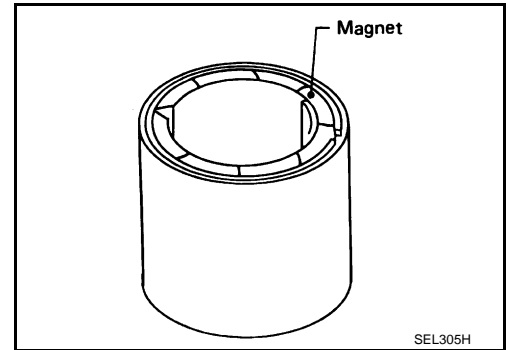


Yoke Check

Magnet is secured to yoke by bonding agent. Check magnet to see that it is secured to yoke and for any cracks. Replace malfunctioning parts as an assembly.

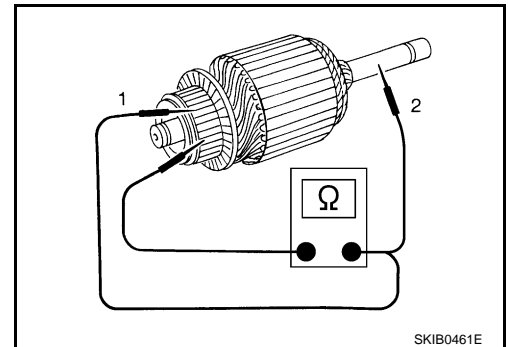
CAUTION:

Never clamp yoke in a vise or strike it with a hammer.

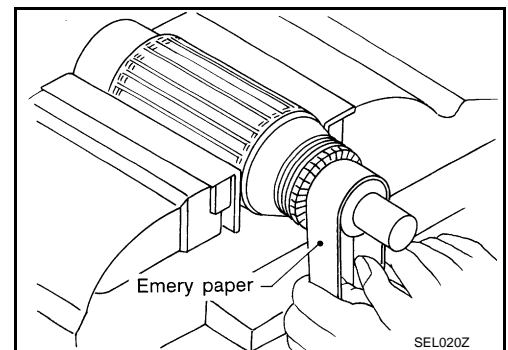


Armature Check

1. Continuity test (between two segments side by side)
 - Replace armature assembly if continuity does not exist.
2. Insulation test (between each commutator bar and shaft)
 - Replace armature assembly if continuity exists.



3. Check commutator surface.
 - Grind with No. 500 - 600 emery paper if it has a rough surface.



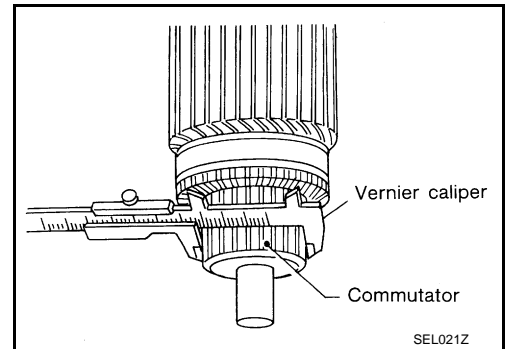
STARTER MOTOR

< ON-VEHICLE REPAIR >

4. Check diameter of commutator.

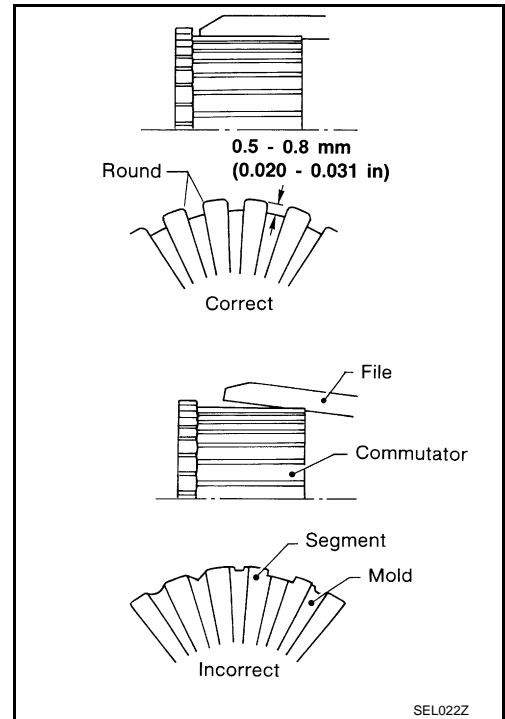
Commutator minimum diameter : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace armature assembly if the measurement value is less than the specified value.



5. Check depth of insulating mold from commutator surface.

- Undercut to 0.5 to 0.8 mm (0.020 to 0.031 in) if the depth is 0.2 mm (0.008 in) or less.

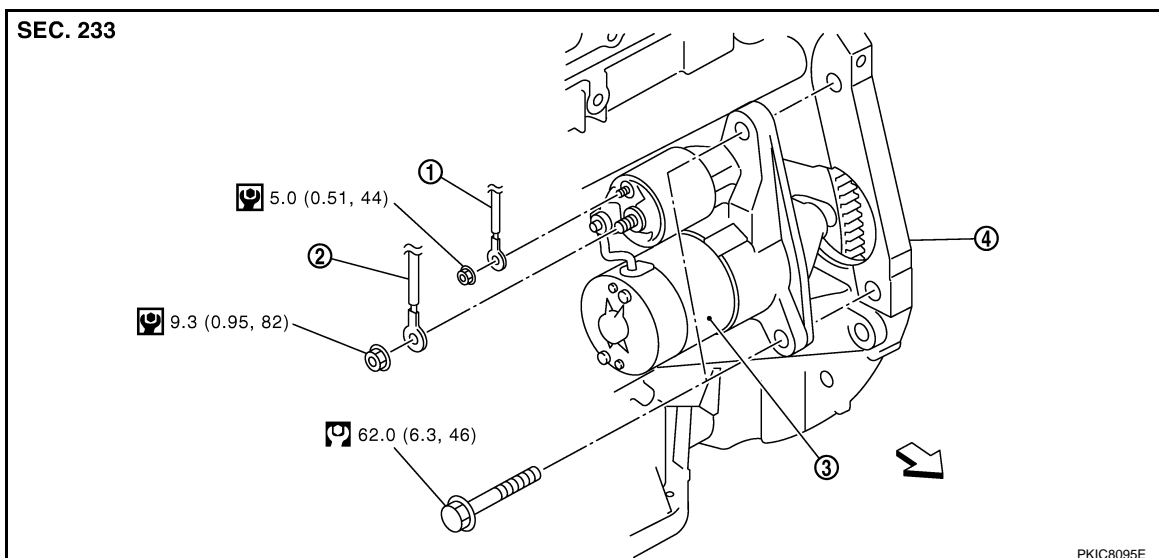


MR20DE MODELS

MR20DE MODELS : Exploded View

INFOID:000000001179346

REMOVAL



STARTER MOTOR

< ON-VEHICLE REPAIR >

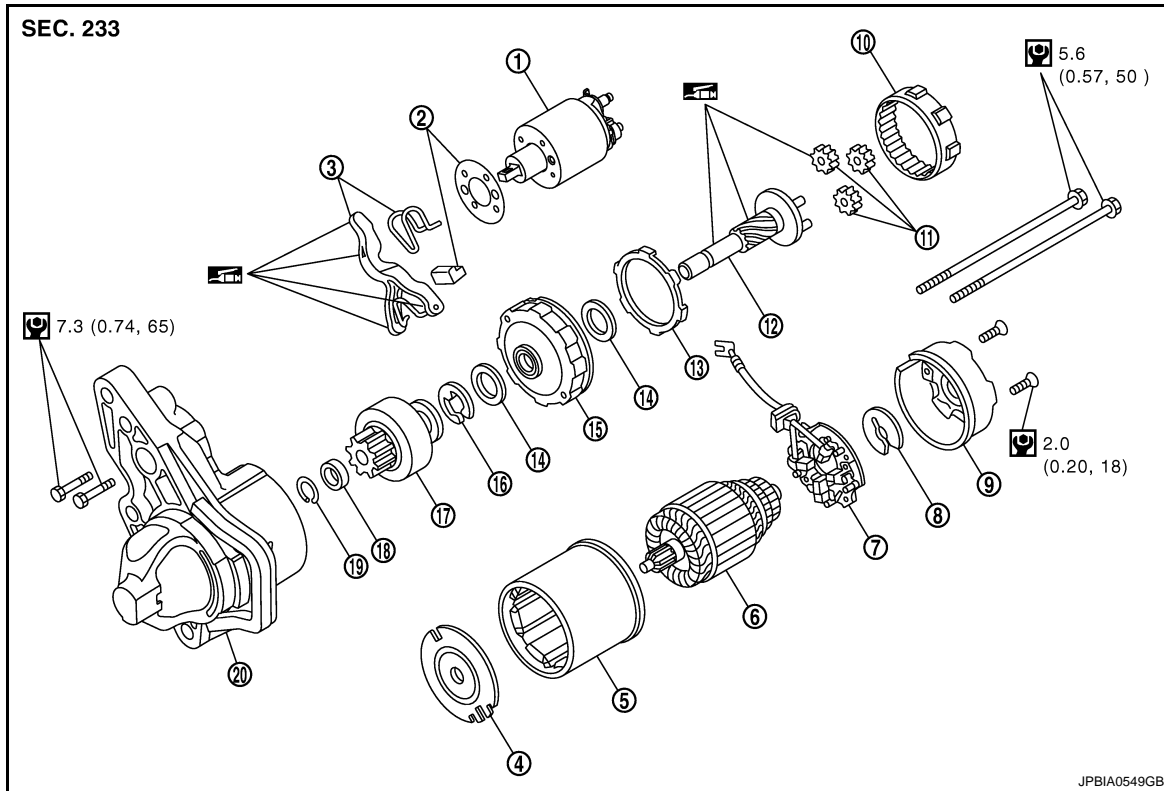
1. "S" terminal harness
2. "B" terminal harness
3. Starter motor
4. Cylinder block

↔ : Vehicle front

Refer to [GI-4, "Components"](#) for symbols in the figure.

DISASSEMBLY

Type: S114-902A



- | | | |
|-----------------------------|------------------------|------------------------|
| 1. Magnetic switch assembly | 2. Dust cover kit | 3. Shift lever set |
| 4. Center bracket (A) | 5. Yoke assembly | 6. Armature assembly |
| 7. Brush holder assembly | 8. Thrust washer | 9. Rear cover assembly |
| 10. Internal gear | 11. Planetary gear | 12. Pinion shaft |
| 13. Packing | 14. Thrust washer | 15. Center bracket (P) |
| 16. E-ring | 17. Pinion assembly | 18. Pinion stopper |
| 19. Pinion stopper clip | 20. Gear case assembly | |

↔ : High-temperature grease point

Refer to [GI-4, "Components"](#) for symbols not described on the above.

MR20DE MODELS : Removal and Installation

INFOID:000000001179347

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Disconnect the oil pressure switch connector.
3. Remove "B" terminal nut and "B" terminal harness.
4. Remove "S" terminal nut and "S" terminal harness.
5. Remove starter motor mounting bolts.
6. Remove starter motor upward from the vehicle.

CAUTION:

Never damage oil pressure switch when removing starter motor.

STARTER MOTOR

< ON-VEHICLE REPAIR >

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to tighten "B" terminal nut carefully.

MR20DE MODELS : Disassembly and Assembly

INFOID:000000001179348

A

STR

ASSEMBLY

Apply high-temperature grease to lubricate the bearing, gears and frictional surface when assembling the starter.

Carefully observe the following instructions.

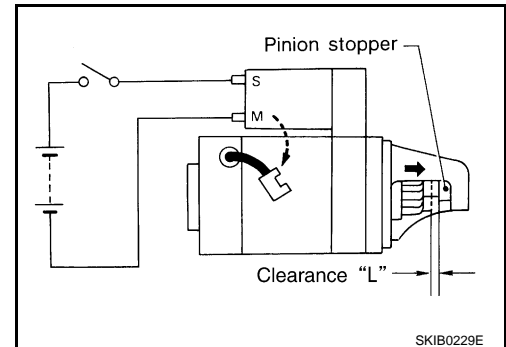
Pinion Protrusion Length Adjustment

CLEARANCE

- With pinion driven out by magnetic switch, push pinion back to remove slack and measure clearance "L" between the front edge of the pinion and the pinion stopper.

Clearance "L"

: Refer to SDS [STR-39](#),
["Starter Motor"](#).



C

D

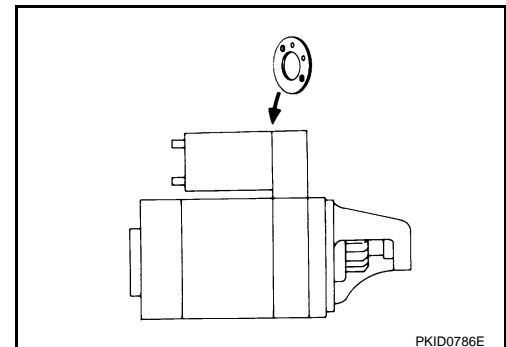
E

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H

- Adjust with the adjusting plate if the measurement value is not in the specified area.



I

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K

MR20DE MODELS : Inspection

INFOID:000000001179349

INSPECTION

Magnetic Switch Check

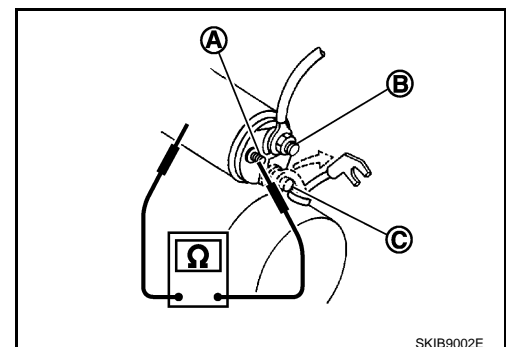
- Before starting to check, disconnect the battery cable from the negative terminal.
- Disconnect "M" terminal of starter motor.

1. Continuity test [between "S" terminal (A) and switch body]

B : "B" terminal

C : "M" terminal

- Replace magnetic switch if continuity does not exist.



L

M

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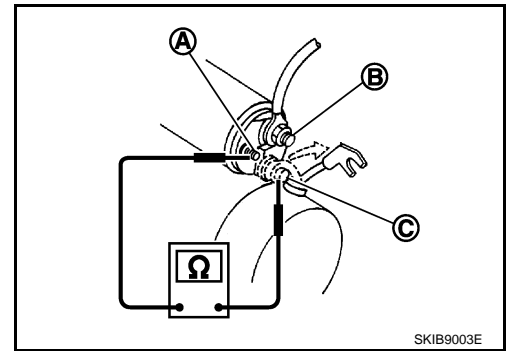
STARTER MOTOR

< ON-VEHICLE REPAIR >

2. Continuity test [between "S" terminal (A) and "M" terminal (C)]

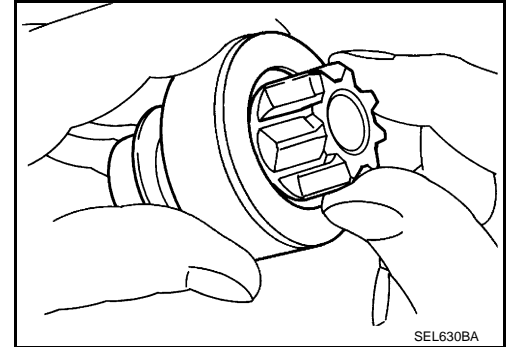
B : "B" terminal

- Replace magnetic switch if continuity does not exist.



Pinion/Clutch Check

1. Inspect pinion teeth.
 - Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth (If equipped).
 - Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
 - Replace pinion assembly if it is locked or rotated in both directions or unusual resistance is evident.

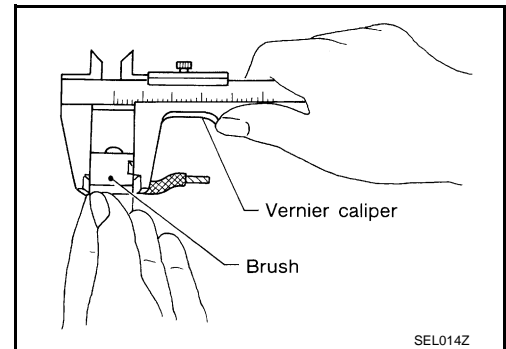


Brush Check

- Check wear of brush.

Minimum length of brush : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace brush if the measurement value is less than the specified value.

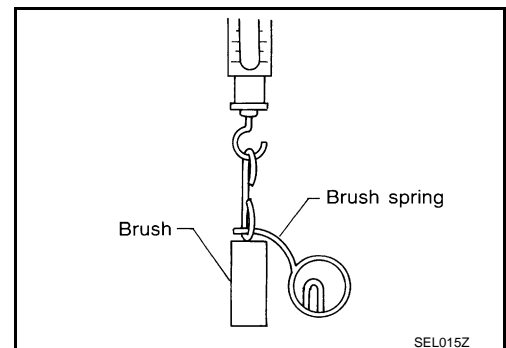


Brush Spring Check

- Check brush spring tension with brush spring detached from brush.

Spring tension (with new brush) : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace brush spring if the measurement value is less than the specified value.

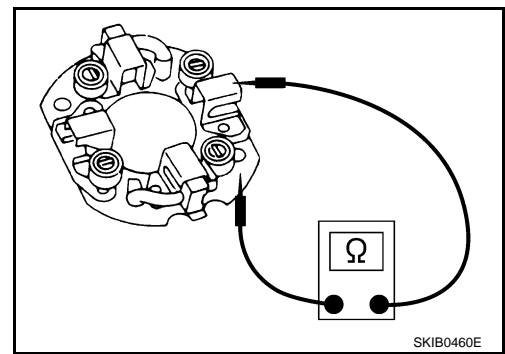


Brush Holder Check

STARTER MOTOR

< ON-VEHICLE REPAIR >

1. Perform insulation test between brush holder (positive side) and its base (negative side).
 - Replace brush holder assembly if continuity does not exist.
2. Check brush to see if it moves smoothly.
 - If brush holder is bent, replace it; if sliding surface is dirty, clean.

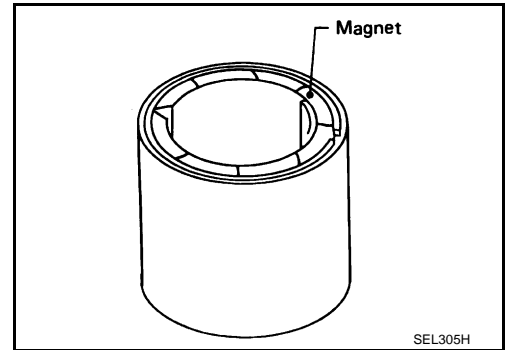


Yoke Check

Magnet is secured to yoke by bonding agent. Check magnet to see that it is secured to yoke and for any cracks. Replace malfunctioning parts as an assembly.

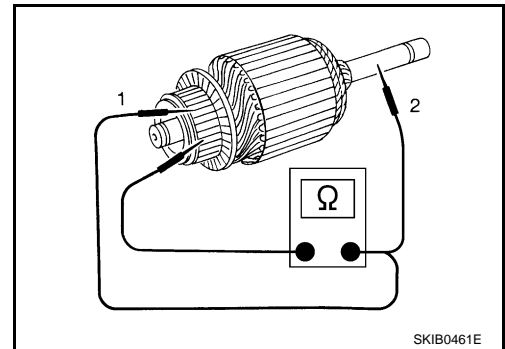
CAUTION:

Never clamp yoke in a vise or strike it with a hammer.

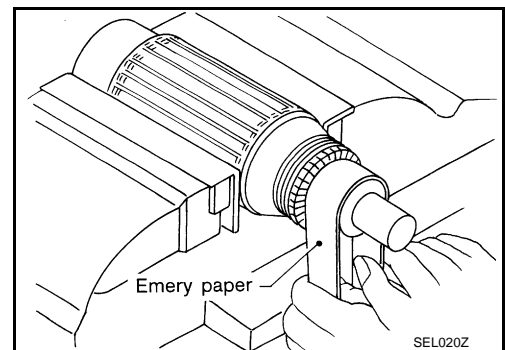


Armature Check

1. Continuity test (between two segments side by side)
 - Replace armature assembly if continuity does not exist.
2. Insulation test (between each commutator bar and shaft)
 - Replace armature assembly if continuity exists.



3. Check commutator surface.
 - Grind with No. 500 - 600 emery paper if it has a rough surface.



A

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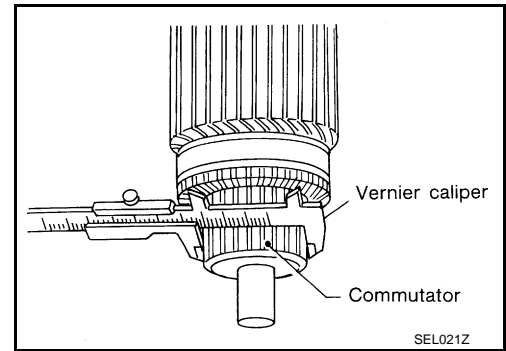
STARTER MOTOR

< ON-VEHICLE REPAIR >

4. Check diameter of commutator.

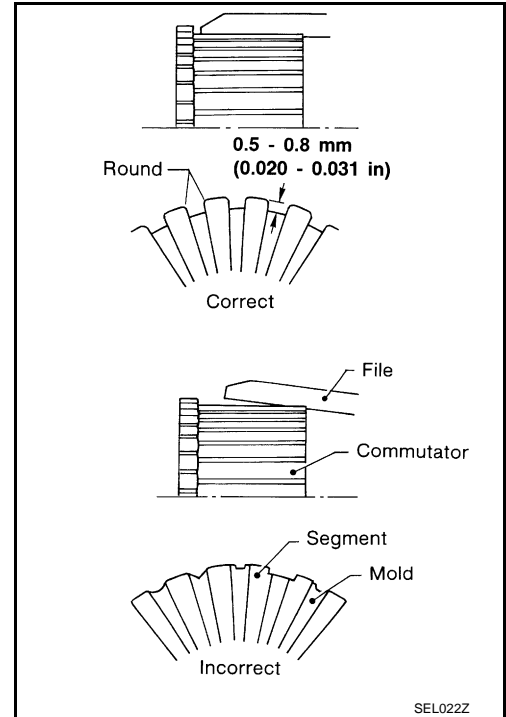
Commutator minimum diameter : Refer to SDS [STR-39](#), "[Starter Motor](#)".

- Replace armature assembly if the measurement value is less than the specified value.



5. Check depth of insulating mold from commutator surface.

- Undercut to 0.5 to 0.8 mm (0.020 to 0.031 in) if the depth is 0.2 mm (0.008 in) or less.



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Starter Motor

INFOID:000000001179350

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STR

| Applied model | | K9K | M9R | HR16DE | MR20DE |
|--|----------------------|---------------------|-----------------|---------------------------|---------------------------|
| | | M000T87881 | 194262 | M000T32171 | S114-902A |
| Type | | MITSUBISHI make | VALEO make | MITSUBISHI make | HITACHI make |
| | | Reduction gear type | | | |
| System voltage [V] | | — | 12 | | |
| No-load | Terminal voltage [V] | — | 10.8 | 11 | |
| | Current [A] | — | Less than 115 | Less than 95 | Less than 110 |
| | Revolution [rpm] | — | More than 5,704 | More than 3,000 | |
| Minimum diameter of commutator [mm (in)] | | — | 28.8 (1.134) | | 28.0 (1.102) |
| Minimum length of brush [mm (in)] | | — | 8.0 (0.315) | 5.5 (0.217) | 10.5 (0.413) |
| Brush spring tension [N (kg, lb)] | | — | 24 (2.45, 5.40) | 17.7 (1.81, 3.98) | 16.2 (1.65, 3.64) |
| Clearance between bearing metal and armature shaft [mm (in)] | | — | — | Less than 0.2 (0.008) | |
| Clearance "L" between pinion front edge and pinion stopper [mm (in)] | | — | — | 0.3 - 2.0 (0.012 - 0.079) | 0.3 - 2.5 (0.012 - 0.098) |