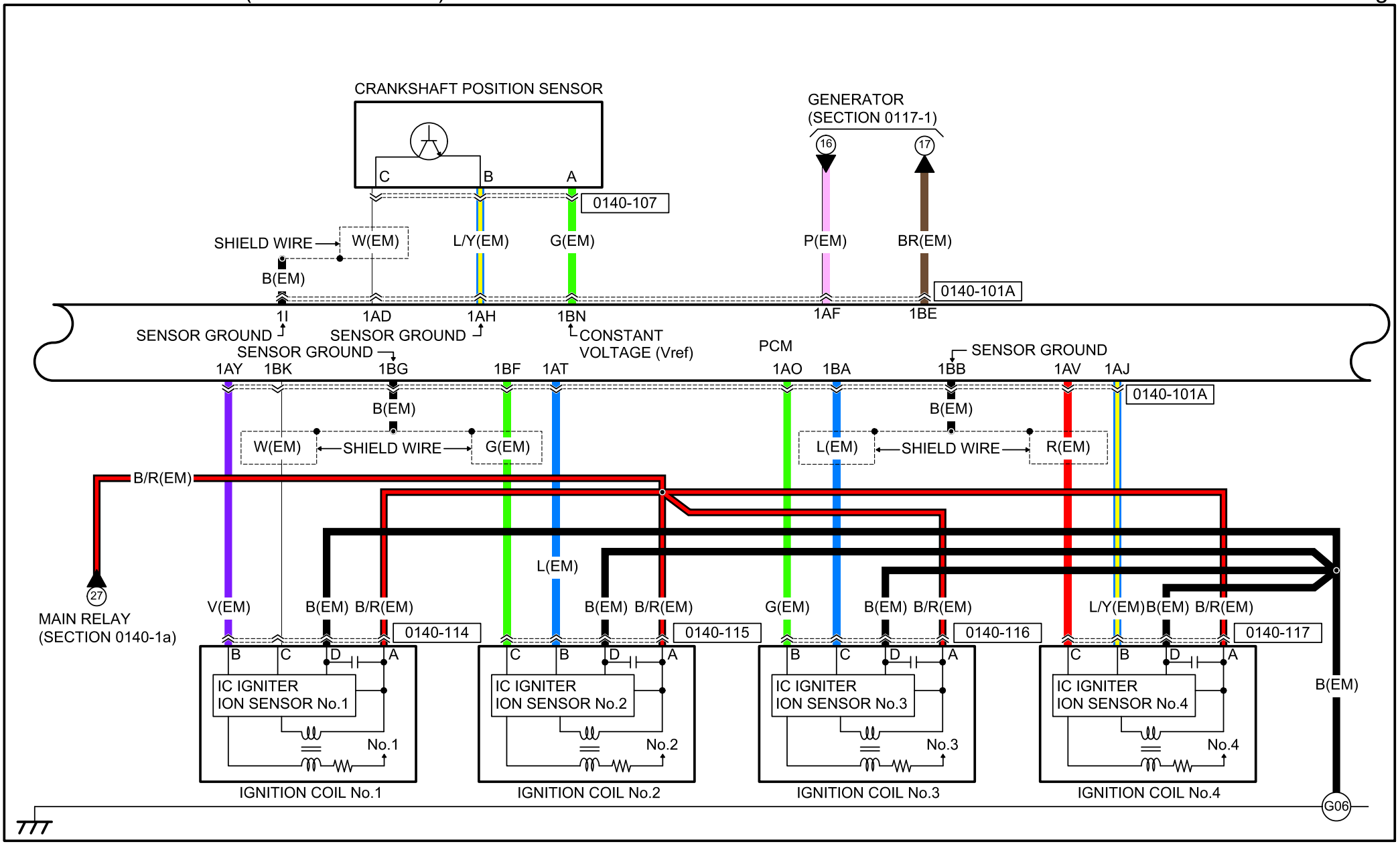
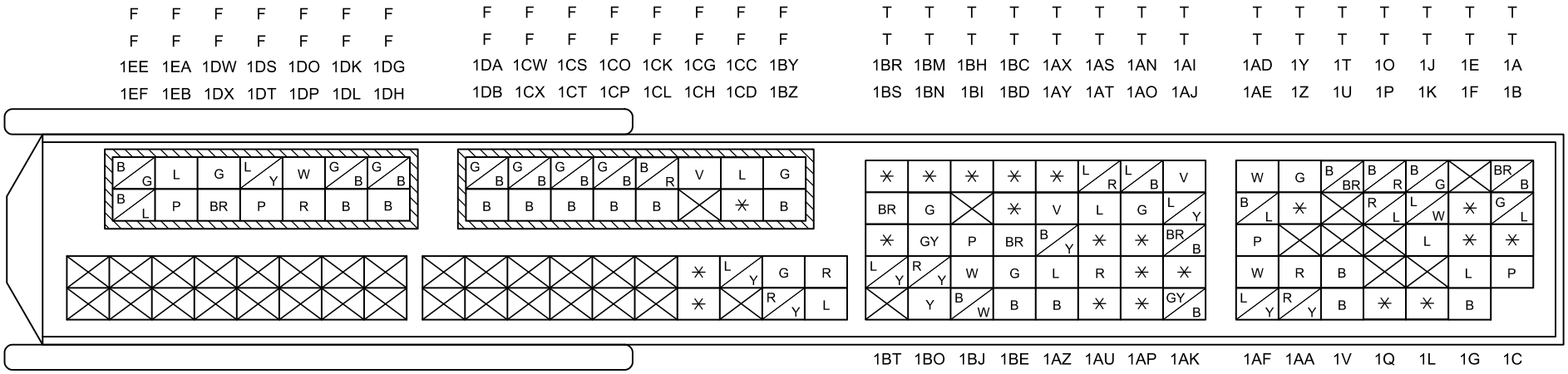
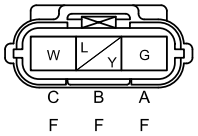
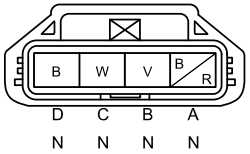
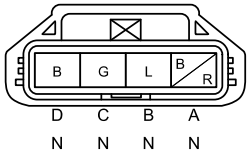
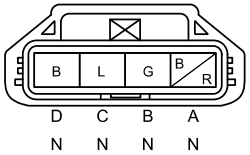
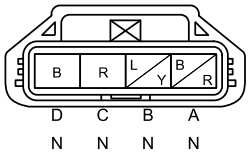

CRANKSHAFT POSITION SENSOR
C
B
A
0140-107
GENERATOR
(SECTION 0117-1)
16
17
SHIELD WIRE
W(EM)
L/Y(EM)
G(EM)
P(EM)
BR(EM)
B(EM)
0140-101A
1I
1AD
1AH
1BN
1AF
1BE
SENSOR GROUND
SENSOR GROUND
SENSOR GROUND
CONSTANT
VOLTAGE (Vref)
PCM
SENSOR GROUND
1AY
1BK
1BG
1BF
1AT
1AO
1BA
1BB
1AV
1AJ
0140-101A
B(EM)
B(EM)
W(EM)
SHIELD WIRE
G(EM)
L(EM)
SHIELD WIRE
R(EM)
B/R(EM)
L(EM)
27
MAIN RELAY
(SECTION 0140-1a)
V(EM)
B(EM)
B/R(EM)
G(EM)
L/Y(EM)
0140-114
0140-115
0140-116
0140-117
IC IGNITER
ION SENSOR No.1
IC IGNITER
ION SENSOR No.2
IC IGNITER
ION SENSOR No.3
IC IGNITER
ION SENSOR No.4
No.1
No.2
No.3
No.4
IGNITION COIL No.1
IGNITION COIL No.2
IGNITION COIL No.3
IGNITION COIL No.4
B(EM)
G06

0140-101A
PCM



0140-107 CRANKSHAFT POSITION SENSOR	0140-114 IGNITION COIL No.1	0140-115 IGNITION COIL No.2	0140-116 IGNITION COIL No.3	0140-117 IGNITION COIL No.4	
					

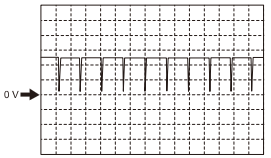
PCM terminal voltage table (reference)

Terminal	Test condition	Voltage (V)
1I	Under any condition	Below 1.0
1AD	(See CKP signal .)	
1AF	(See Generator output voltage .)	
1AH	Under any condition	Below 1.0
1AJ	(See IGT1, IGT2, IGT3, IGT4 control .)	
1AO	(See IGT1, IGT2, IGT3, IGT4 control .)	
1AT	(See IGT1, IGT2, IGT3, IGT4 control .)	
1AV	Idle (after warm up and no load)	Approx. 4.42
1AY	(See IGT1, IGT2, IGT3, IGT4 control .)	
1BA	Idle (after warm up and no load)	Approx. 4.42
1BB	Under any condition	Below 1.0
1BE	(See Generator field coil control signal .)	
1BF	Idle (after warm up and no load)	Approx. 4.43
1BG	Under any condition	Below 1.0
1BK	Idle (after warm up and no load)	Approx. 4.45
1BN	Ignition switched ON (engine off)	Approx. 5.02

Crankshaft position (CKP) sensor [SKYACTIV-G 2.0]

Wave pattern (reference)
Oscilloscope setting
- 2 V/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition
- Idle (after warm up and no load)

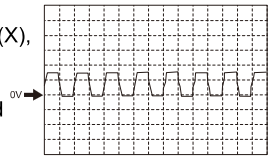


Inspection using an oscilloscope (reference)

Generator output voltage
PCM terminals
- 1AF(+)—body ground(–)

Oscilloscope setting
- 5 V/DIV (Y), 2 ms/DIV (X), DC range

Vehicle condition
- Idle (after warm up and no load)

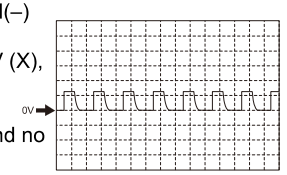


Inspection using an oscilloscope (reference)

Generator field coil control signal
PCM terminals
- 1BE(+)—body ground(–)

Oscilloscope setting
- 1 V/DIV (Y), 2 ms/DIV (X), DC range

Vehicle condition
- Idle (after warm up and no load)

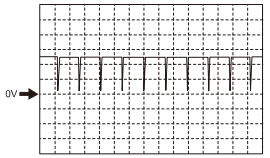


Inspection using an oscilloscope (reference)

CKP signal
PCM terminals
- 1AD(+)—body ground(–)

Oscilloscope setting
- 2 V/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition
- Idle (after warm up and no load)

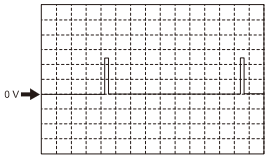


Inspection using an oscilloscope (reference)

IGT1, IGT2, IGT3, IGT4 control
PCM terminals
- IGT1 (ignition coil No.1): 1AY(+)—body ground(–)
- IGT2 (ignition coil No.2): 1AT(+)—body ground(–)
- IGT3 (ignition coil No.3): 1AO(+)—body ground(–)
- IGT4 (ignition coil No.4): 1AJ(+)—body ground(–)

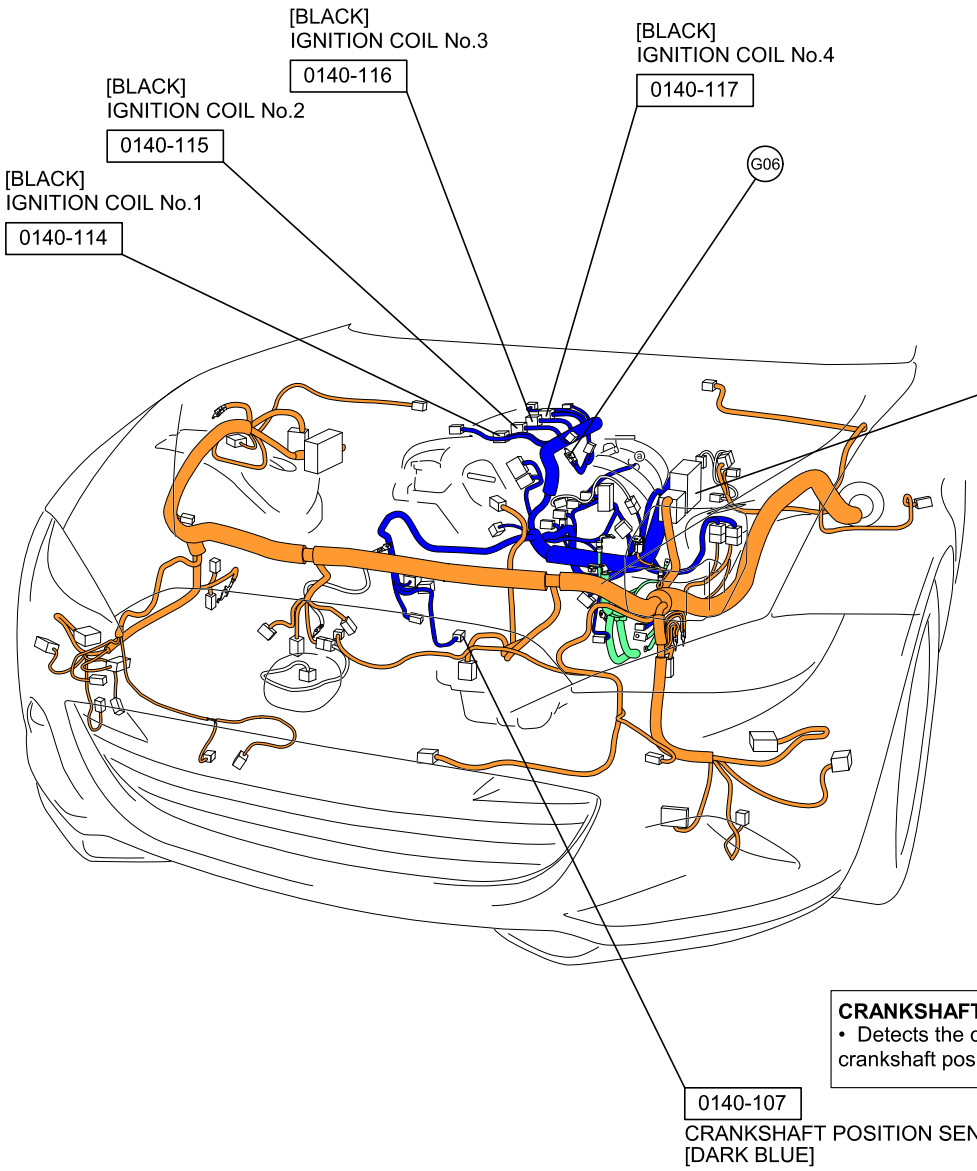
Oscilloscope setting
- 2 V/DIV (Y), 20 ms/DIV (X), DC range

Vehicle condition
- Idle (after warm up and no load)



IGNITION COIL
- The ignition coil generates high voltage required for ignition by electromagnetic induction.
- The direct ignition system stabilizes the spark plug ignition performance by transmitting the high voltage generated in the ignition coil directly to the spark plug, which suppresses the decrease in voltage.
- The ion sensor is built into the ignition coil IC igniter.

The ion sensor detects pre-ignition. For the ion sensor, refer to the CONTROL SYSTEM.



PCM
- High-level driveability and lower fuel consumption have been achieved by controlling the appropriate engine conditions (fuel injection/ignition timing) according to operation conditions.
- Controls each output part based on the signal from each input part.
- The control descriptions are as shown below.

CRANKSHAFT POSITION SENSOR
- Detects the crankshaft position and sends it to the PCM as a crankshaft position signal.

: FRONT HARNESS
: ENGINE HARNESS
ENGINE No.2 HARNESS
: EMISSION HARNESS