

# ENGINE

## Engine Control System - 5.2L

### TABLE OF CONTENTS

Specifications . . . . .	6E-3	DTC P0299 . . . . .	6E-196
Temperature vs Resistance . . . . .	6E-3	DTC P0300 . . . . .	6E-199
Altitude vs Barometric Pressure . . . . .	6E-3	DTC P0301 - P0304 . . . . .	6E-200
Diagnostic Trouble Code (DTC) Type Definitions	6E-4	DTC P0335 . . . . .	6E-203
Schematic and Routing Diagrams . . . . .	6E-8	DTC P0336 . . . . .	6E-207
Engine Controls Schematics . . . . .	6E-8	DTC P0340 . . . . .	6E-210
Component Locator . . . . .	6E-28	DTC P0341 . . . . .	6E-214
Engine Controls Component Views . . . . .	6E-28	DTC P0381 . . . . .	6E-217
Engine Control Module (ECM) Connector End Views	6E-37	DTC P0382 . . . . .	6E-221
Engine Controls Connector End Views . . . . .	6E-41	DTC P0401 . . . . .	6E-224
Diagnostic Information and Procedures . . . . .	6E-64	DTC P0403 . . . . .	6E-226
Diagnostic Starting Point - Engine Controls . . . . .	6E-64	DTC P0404 . . . . .	6E-229
Diagnostic System Check – Engine Controls . . . . .	6E-64	DTC P0405 . . . . .	6E-232
Scan Tool Data List . . . . .	6E-67	DTC P0406 . . . . .	6E-235
Scan Tool Data Definitions . . . . .	6E-69	DTC P0477 . . . . .	6E-239
Scan Tool Output Controls . . . . .	6E-75	DTC P0478 . . . . .	6E-243
Scan Tool Does Not Power Up . . . . .	6E-77	DTC P0500 . . . . .	6E-246
Scan Tool Does Not Communicate with Class 2	6E-78	DTC P0506 . . . . .	6E-251
Device . . . . .	6E-78	DTC P0507 . . . . .	6E-254
Lost Communications With The Engine Control	6E-81	DTC P0512 . . . . .	6E-257
Module (ECM) . . . . .	6E-81	DTC P0562 . . . . .	6E-260
Engine Cranks but Does Not Run . . . . .	6E-84	DTC P0563 . . . . .	6E-262
Engine Starts and Stalls . . . . .	6E-87	DTC P0567 . . . . .	6E-264
DTC P0016 . . . . .	6E-90	DTC P0568 . . . . .	6E-267
DTC P0087 . . . . .	6E-92	DTC P0571 . . . . .	6E-270
DTC P0088 . . . . .	6E-99	DTC P0602 . . . . .	6E-275
DTC P0089 . . . . .	6E-106	DTC P0606 . . . . .	6E-277
DTC P0091 . . . . .	6E-109	DTC P0642 . . . . .	6E-279
DTC P0092 . . . . .	6E-113	DTC P0643 . . . . .	6E-283
DTC P0093 . . . . .	6E-116	DTC P0650 . . . . .	6E-287
DTC P0101 . . . . .	6E-124	DTC P0652 . . . . .	6E-291
DTC P0102 . . . . .	6E-128	DTC P0653 . . . . .	6E-293
DTC P0103 . . . . .	6E-131	DTC P0670 . . . . .	6E-295
DTC P0112 . . . . .	6E-134	DTC P0671 - P0674 . . . . .	6E-299
DTC P0113 . . . . .	6E-137	DTC P0687 . . . . .	6E-302
DTC P0116 . . . . .	6E-141	DTC P0698 . . . . .	6E-304
DTC P0117 . . . . .	6E-144	DTC P0699 . . . . .	6E-306
DTC P0118 . . . . .	6E-147	DTC P0700 . . . . .	6E-308
DTC P0126 . . . . .	6E-151	DTC P0802 . . . . .	6E-311
DTC P0128 . . . . .	6E-154	DTC P1093 . . . . .	6E-314
DTC P0181 . . . . .	6E-157	DTC P1125 . . . . .	6E-321
DTC P0182 . . . . .	6E-160	DTC P1293 . . . . .	6E-324
DTC P0183 . . . . .	6E-163	DTC P1404 . . . . .	6E-325
DTC P0192 . . . . .	6E-167	DTC P1593 . . . . .	6E-328
DTC P0193 . . . . .	6E-170	DTC P1594 . . . . .	6E-332
DTC P0201 – P0204 . . . . .	6E-174	DTC P1597 . . . . .	6E-335
DTC P0219 . . . . .	6E-178	DTC P1621 . . . . .	6E-338
DTC P0234 . . . . .	6E-182	DTC P2122 . . . . .	6E-339
DTC P0237 . . . . .	6E-185	DTC P2123 . . . . .	6E-343
DTC P0238 . . . . .	6E-189	DTC P2127 . . . . .	6E-347
DTC P0261, P0264, P0267 & P0270 . . . . .	6E-192	DTC P2128 . . . . .	6E-350
		DTC P2132 . . . . .	6E-354

## 6E-2 Engine Control System - 5.2L

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DTC P2133	6E-357	Fuel Supply Pump Replacement / Fuel Supply Pump	
DTC P2138	6E-361	Relearn Procedure	6E-487
DTC P2139	6E-365	Glow Plug Controller Replacement	6E-491
DTC P2140	6E-369	Fuel System Air Bleeding	6E-492
DTC P2146	6E-373	Idle Up Sensor Replacement	6E-492
DTC P2147	6E-376	Mass Air Flow (MAF)/Intake Air Temperature (IAT)	
DTC P2148	6E-379	Sensor Replacement	6E-492
DTC P2149	6E-382	Vehicle Speed Sensor (VSS) 2 Replacement	6E-493
DTC P2150	6E-385	Power Take Off (PTO) System	6E-494
DTC P2151	6E-388	PTO Control System Description	6E-494
DTC P2227	6E-391	Stationary Preset PTO Mode	6E-494
DTC P2228	6E-394	Stationary Variable PTO Mode	6E-496
DTC P2229	6E-396	Mobile Variable PTO Mode	6E-498
DTC P2293	6E-398	PTO Option Programming	6E-500
DTC U0073, U0101 & U0106	6E-406	Description and Operation	6E-502
Malfunction Indicator Lamp (MIL) Inoperative	6E-420	Engine Control Module (ECM) Description	6E-502
Malfunction Indicator Lamp (MIL) Always On	6E-423	Engine Control Component Description	6E-504
Service Vehicle Soon (SVS) Lamp Inoperative [12,000 lbs GVW]	6E-425	Fuel System Description	6E-510
Service Vehicle Soon (SVS) Lamp Always On [12,000 lbs GVW]	6E-428	Fuel System Component Description	6E-511
EGR Control System Check	6E-430	Fuel Injection Quantity Control Description	6E-516
Glow Control System Check [Except 12,000 lbs GVW]	6E-432	Fuel Injection Timing Control Description	6E-517
Cruise Control System Check	6E-438	Exhaust Gas Recirculation (EGR) System Description	6E-517
Symptoms - Engine Controls	6E-447	Glow Plug Controller Description (12,000lbs GVW)	6E-518
Symptoms - Engine Controls	6E-447	Turbocharger Description	6E-518
Intermittent Conditions	6E-448	Special Tools and Equipment	6E-520
Hard Start	6E-451	Special Tools and Equipment	6E-520
Rough, Unstable, or Incorrect Idle and Stalling	6E-453		
High Idle	6E-455		
Cuts Out, Misses	6E-456		
Surges/Chuggles	6E-458		
Lack of Power, Sluggishness, or Sponginess	6E-459		
Hesitation, Sag, Stumble	6E-462		
Fuel Knock/Combustion Noise	6E-463		
Poor Fuel Economy	6E-465		
Excessive Smoke (Black Smoke)	6E-466		
Excessive Smoke (Blue or Gray Smoke)	6E-468		
Excessive Smoke (White Smoke)	6E-469		
Repair Instructions	6E-472		
Engine Control Module (ECM) Replacement/Fuel Injector Flow Rate Programming & Option Programming	6E-472		
Accelerator Pedal Position (APP) Sensor Replacement	6E-475		
Boost Pressure Sensor Replacement	6E-476		
Brake Switch Replacement	6E-476		
Camshaft Position (CMP) Sensor Replacement	6E-477		
Crankshaft Position (CKP) Sensor Replacement	6E-477		
EGR Valve Replacement	6E-478		
Engine Coolant Temperature (ECT) Sensor Replacement	6E-479		
Fuel Injector Replacement/ Fuel Injector Flow Rate Programming	6E-479		
Fuel Rail Replacement	6E-484		

## Specifications

### Temperature vs Resistance

#### Engine Coolant Temperature vs. Resistance

°C	°F	Ω
Temperature vs. Resistance Value (Approximately)		
120	248	120
110	230	160
100	212	200
90	194	260
80	176	350
70	158	470
60	140	640
50	122	880
40	104	1250
30	86	1800
20	68	2650
10	50	4000
0	32	6180
-10	14	9810
-20	-4	16000
-30	-22	27000
-40	-40	47300

#### Intake Air Temperature vs. Resistance

°C	°F	Ω
Temperature vs. Resistance Value (Approximately)		
100	212	190
90	194	240
80	176	320
70	158	430
60	140	590
50	122	810
40	104	1150
30	86	1650
25	77	2000
20	68	2430
10	50	3660
0	32	5650
-10	14	8970
-20	-4	14700

°C	°F	Ω
-30	-22	24700
-40	-40	43300

### Altitude vs Barometric Pressure

Altitude Measured in Meters (m)	Altitude Measured in Feet (ft)	Barometric Pressure Measured in Kilopascals (kPa)
Determine your altitude by contacting a local weather station or by using another reference source.		
4267	14000	56-64
3962	13000	58-66
3658	12000	61-69
3353	11000	64-72
3048	10000	66-74
2743	9000	69-77
2438	8000	71-79
2134	7000	74-82
1829	6000	77-85
1524	5000	80-88
1219	4000	83-91
914	3000	87-95
610	2000	90-98
305	1000	94-102
0	0 Sea Level	96-104
-305	-1000	101-105

## Diagnostic Trouble Code (DTC) Type Definitions

### Emissions Related DTCs

#### Action Taken When the DTC Sets - Type A

- The engine control module (ECM) illuminates the Malfunction Indicator Lamp (MIL) when the diagnostic runs and fails.

#### Action Taken When the DTC Sets - Type B

- The ECM illuminates the MIL on the second consecutive driving cycle when the diagnostic runs and fails.

#### Conditions for Clearing the MIL/DTC - Type A or Type B

- The ECM turns OFF the MIL after 3 consecutive driving cycles when the diagnostic runs and does not fail (12,000 lbs GVW).
- The ECM turns OFF the MIL when the diagnostic runs and does not fail. (Except 12,000 lbs GVW)
- A current DTC, Last Test Failed, clears when the diagnostic runs and passes.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other emission related diagnostic after the ECM turns OFF the MIL.
- Use a scan tool in order to clear the MIL and the DTC.

### Non-Emissions Related DTCs

#### Action Taken When the DTC Sets - Type C

- The ECM will not illuminate the MIL but illuminates the Service Vehicle Soon (SVS) lamp when the diagnostic runs and fails.

#### Action Taken When the DTC Sets - Type D

- The ECM will not illuminate the MIL or SVS lamp.

#### Conditions for Clearing the DTC - Type C or Type D

- A current DTC, Last Test Failed, clears when the diagnostic runs and passes.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other non-emission related diagnostic after the ECM turns OFF the SVS lamp. (Type C)
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other non-emission related diagnostic. (Type D)
- Use a scan tool in order to clear the SVS lamp and the DTC. (Type C)
- Use a scan tool in order to clear the DTC. (Type D)

### ECM Diagnostic Trouble Code (DTC)

DTC	NPR (12,000 lbs GVW)	NPR HD/NQR/NRR (Except 12,000 lbs GVW)	Note
P0016	B	-	
P0087	A	A	
P0088	D	D	First Stage
P0088	A	A	Second Stage
P0089	A	A	
P0091	A	A	
P0092	A	A	
P0093	A	A	
P0101	B	-	
P0102	A	A	
P0103	A	A	
P0112	B	B	
P0113	B	B	
P0116	A	-	
P0117	A	A	
P0118	A	A	

DTC	NPR (12,000 lbs GVW)	NPR HD/NQR/NRR (Except 12,000 lbs GVW)	Note
P0126	B	-	
P0128	B	-	
P0181	A	-	
P0182	A	A	
P0183	A	A	
P0192	A	A	
P0193	A	A	
P0201	A	A	
P0202	A	A	
P0203	A	A	
P0204	A	A	
P0219	D	D	
P0234	A	A	
P0237	A	A	
P0238	A	A	
P0261	A	D	
P0264	A	D	
P0267	A	D	
P0270	A	D	
P0299	A	A	
P0300	A	-	
P0301	B	D	
P0302	B	D	
P0303	B	D	
P0304	B	D	
P0335	A	A	
P0336	B	-	
P0340	A	A	
P0341	B	-	
P0381	B	-	
P0382	-	B	
P0401	B	-	
P0403	A	D	
P0404	A	A	Control Duty Signal Error
P0404	B	-	Open Position Error
P0405	A	A	
P0406	A	A	
P0477	B	-	

## 6E-6 Engine Control System - 5.2L

DTC	NPR (12,000 lbs GVW)	NPR HD/NQR/NRR (Except 12,000 lbs GVW)	Note
P0478	A	-	
P0500	B	B	
P0506	B	-	
P0507	B	-	
P0512	B	B	
P0562	C	B	
P0563	C	B	
P0567	C	B	
P0568	C	B	
P0571	C	B	
P0602	A	A	
P0606	A	A	
P0642	A	A	
P0643	A	A	
P0650	B	-	
P0652	B	B	
P0653	B	B	
P0670	B	-	
P0671	A	-	
P0672	A	-	
P0673	A	-	
P0674	A	-	
P0687	D	D	
P0698	B	B	
P0699	B	B	
P0700	A	-	
P0802	B	-	
P1093	B	-	
P1125	B	B	
P1293	A	A	
P1404	B	-	
P1593	C	B	
P1594	C	B	
P1597	C	B	
P1621	A	A	
P2122	C	B	
P2123	C	B	
P2127	C	B	

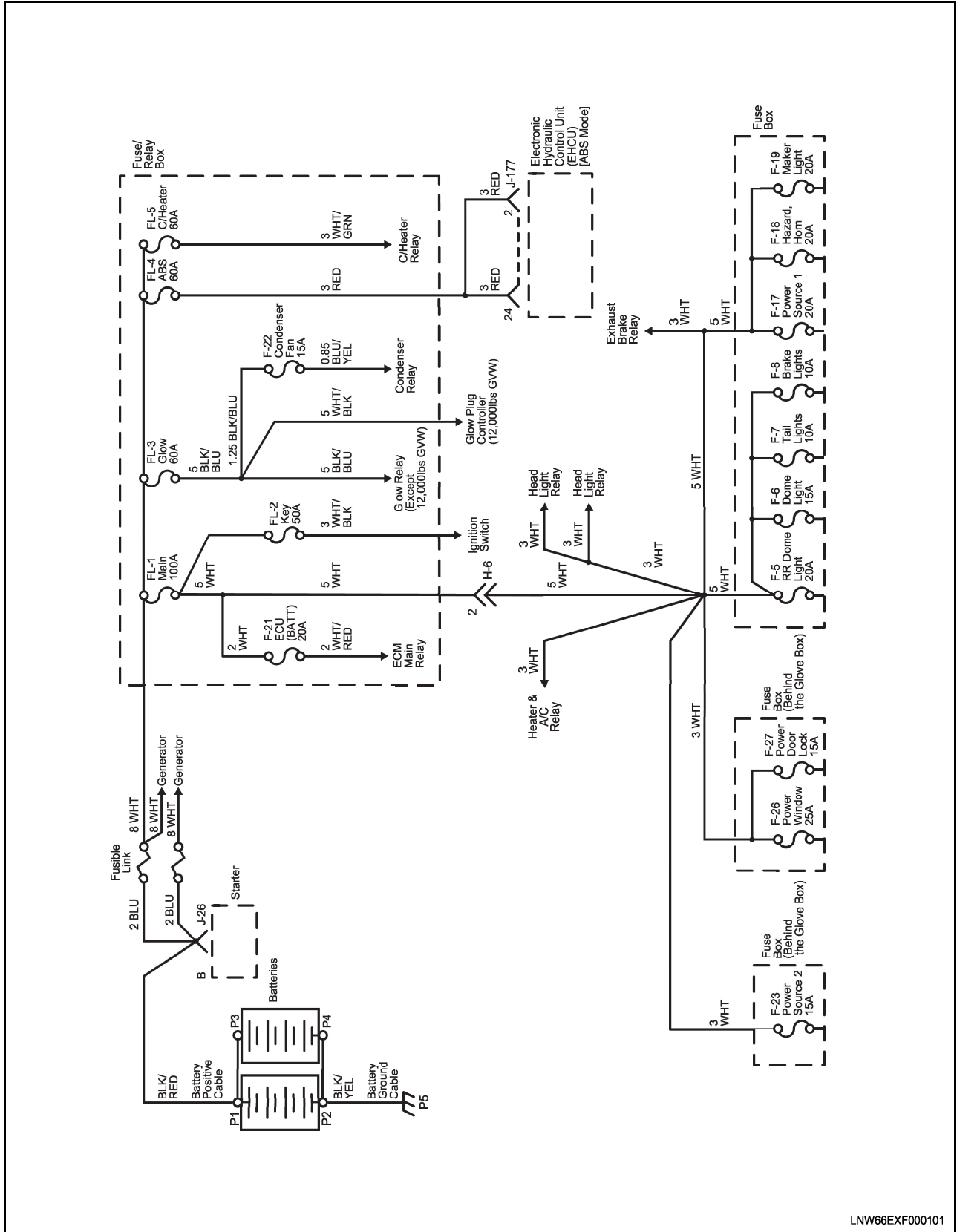
Engine Control System - 5.2L 6E-7

DTC	NPR (12,000 lbs GVW)	NPR HD/NQR/NRR (Except 12,000 lbs GVW)	Note
P2128	C	B	
P2132	C	B	
P2133	C	B	
P2138	C	B	
P2139	C	B	
P2140	C	B	
P2146	A	A	
P2147	A	A	
P2148	A	A	
P2149	A	A	
P2150	A	A	
P2151	A	A	
P2227	B	-	
P2228	A	A	
P2229	A	A	
P2293	C	D	Pressure Oscillation
P2293	D	D	High Fuel Pressure
U0073	B	B	
U0101	A	A	
U0106	B	-	

## Schematic and Routing Diagrams

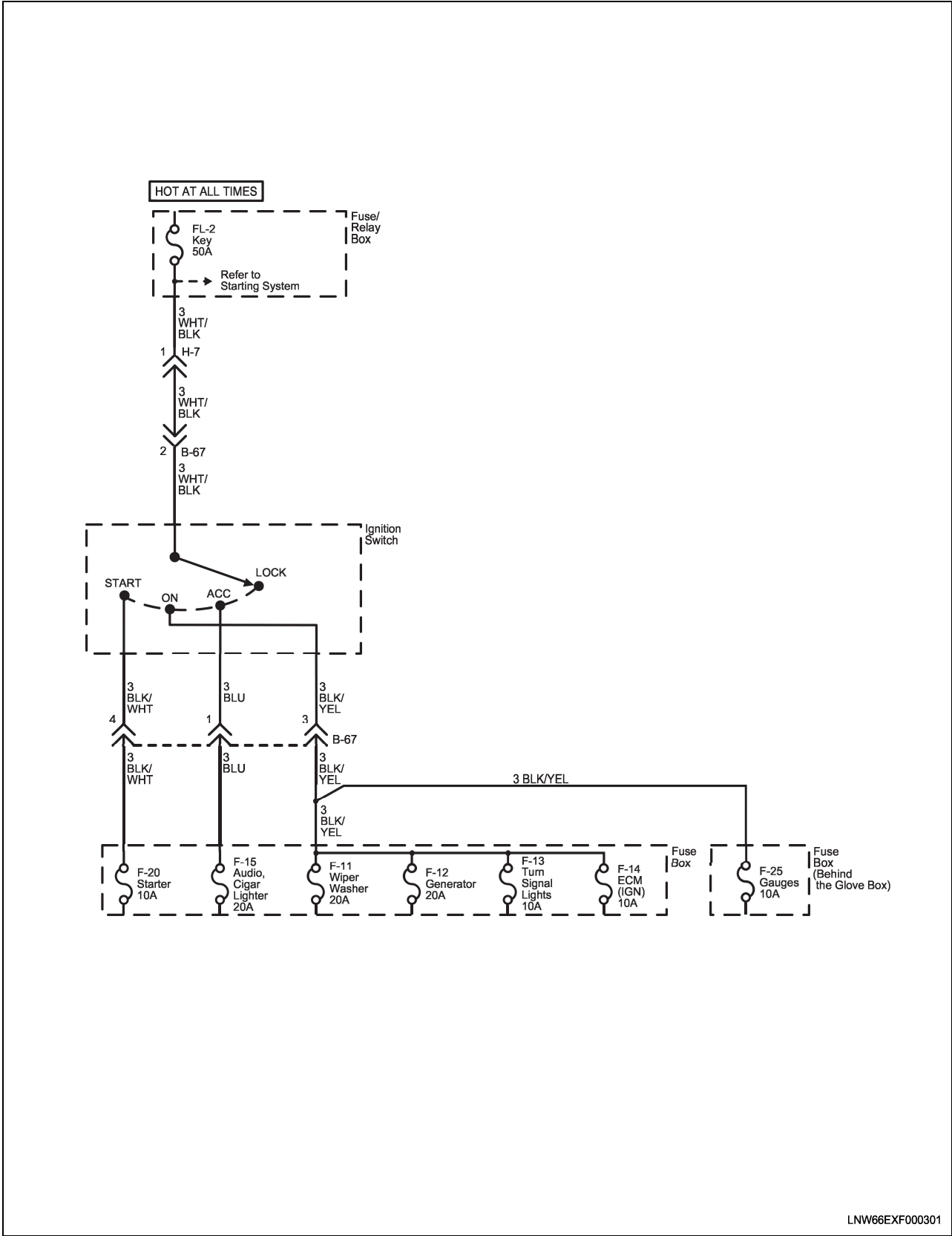
### Engine Controls Schematics

#### Power Distribution (Hot At All Times)



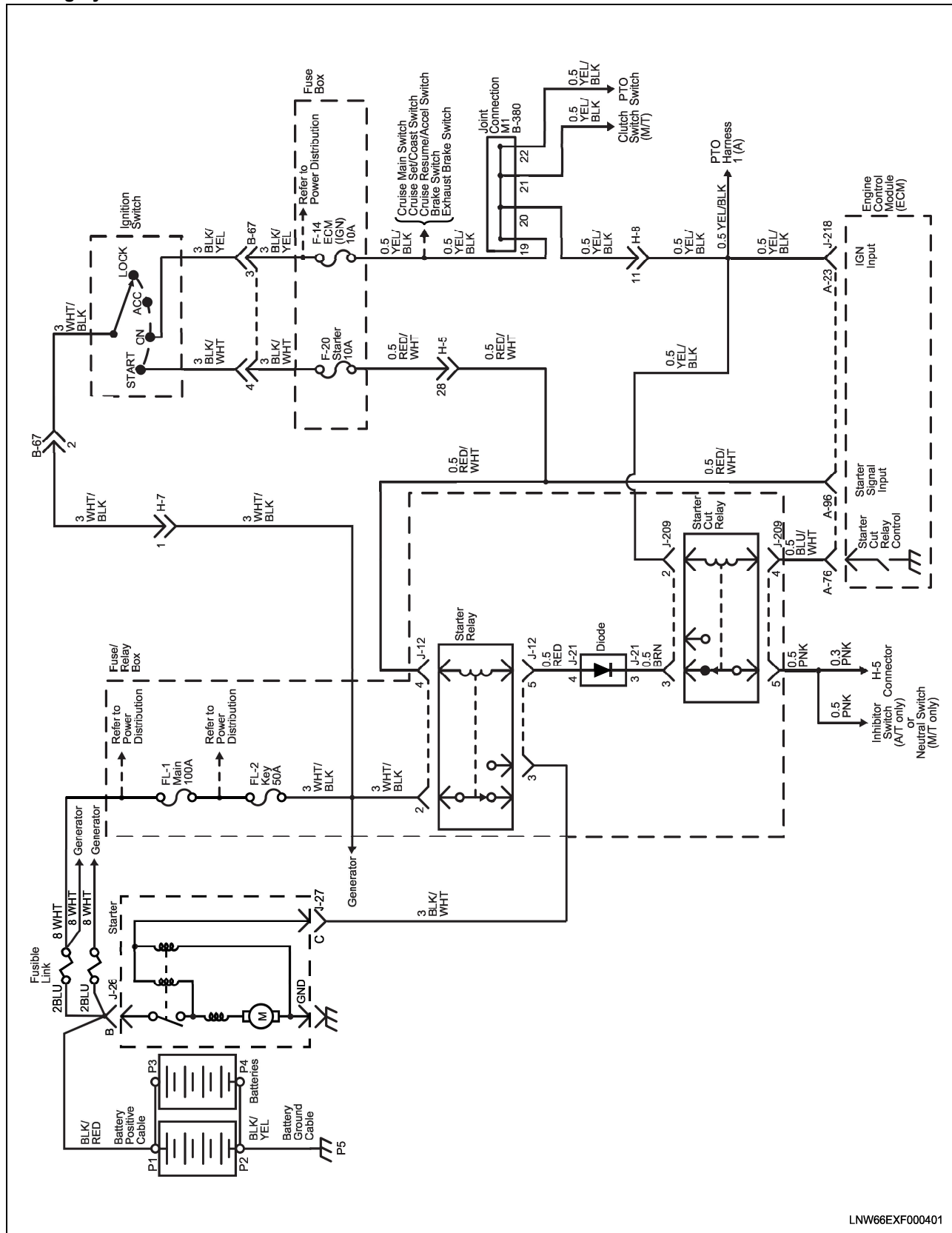


Power Distribution (Hot In Run) (1)

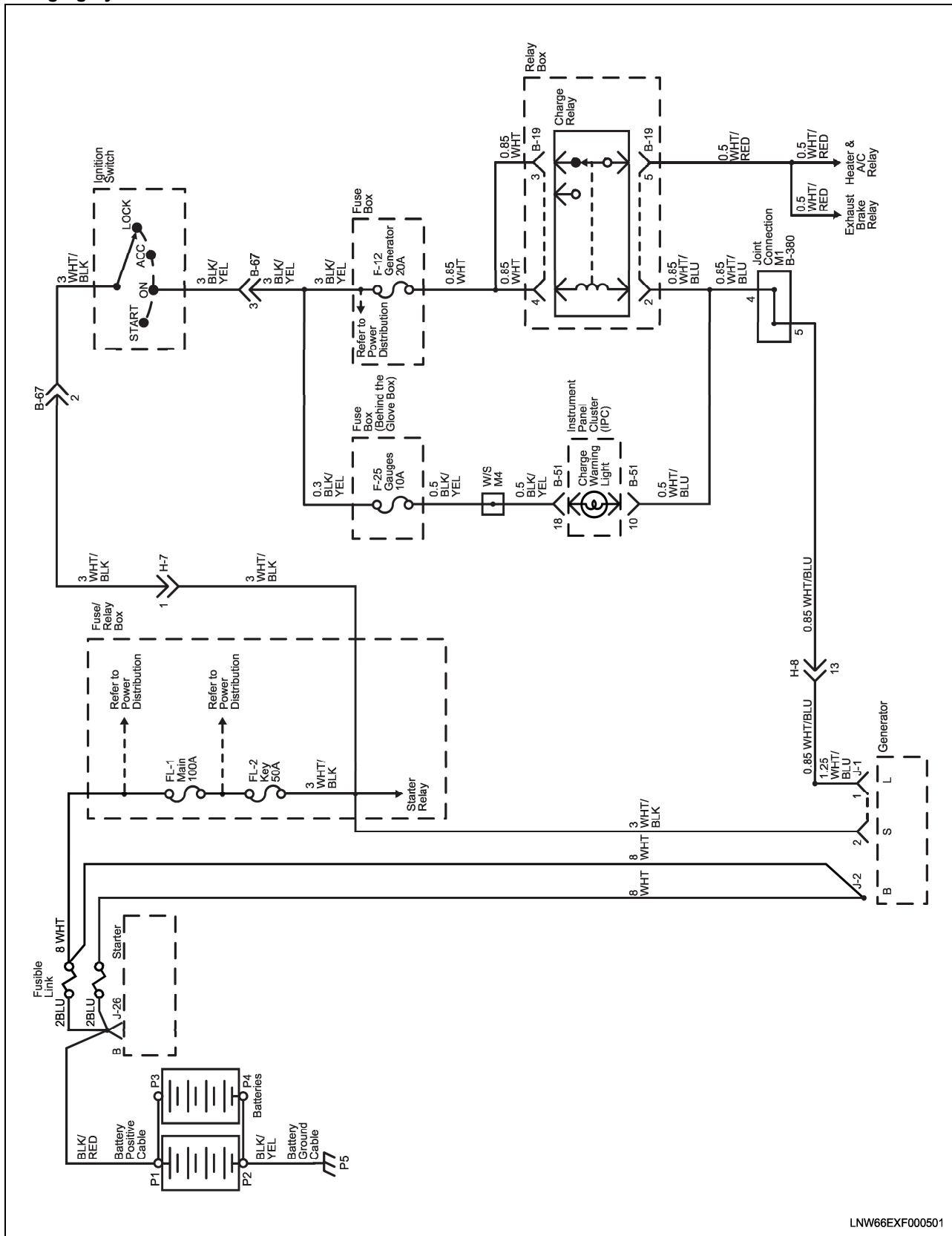




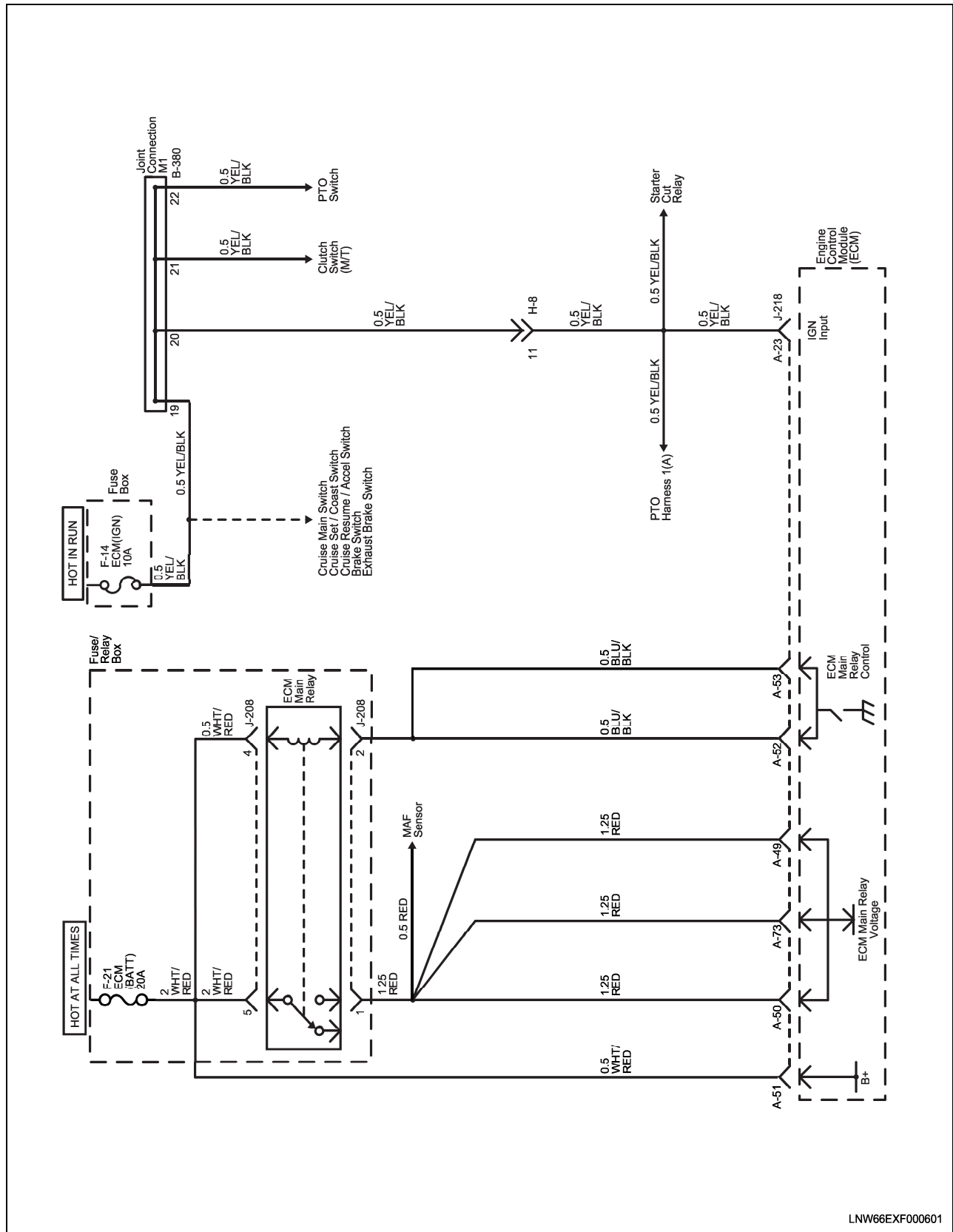
Starting System



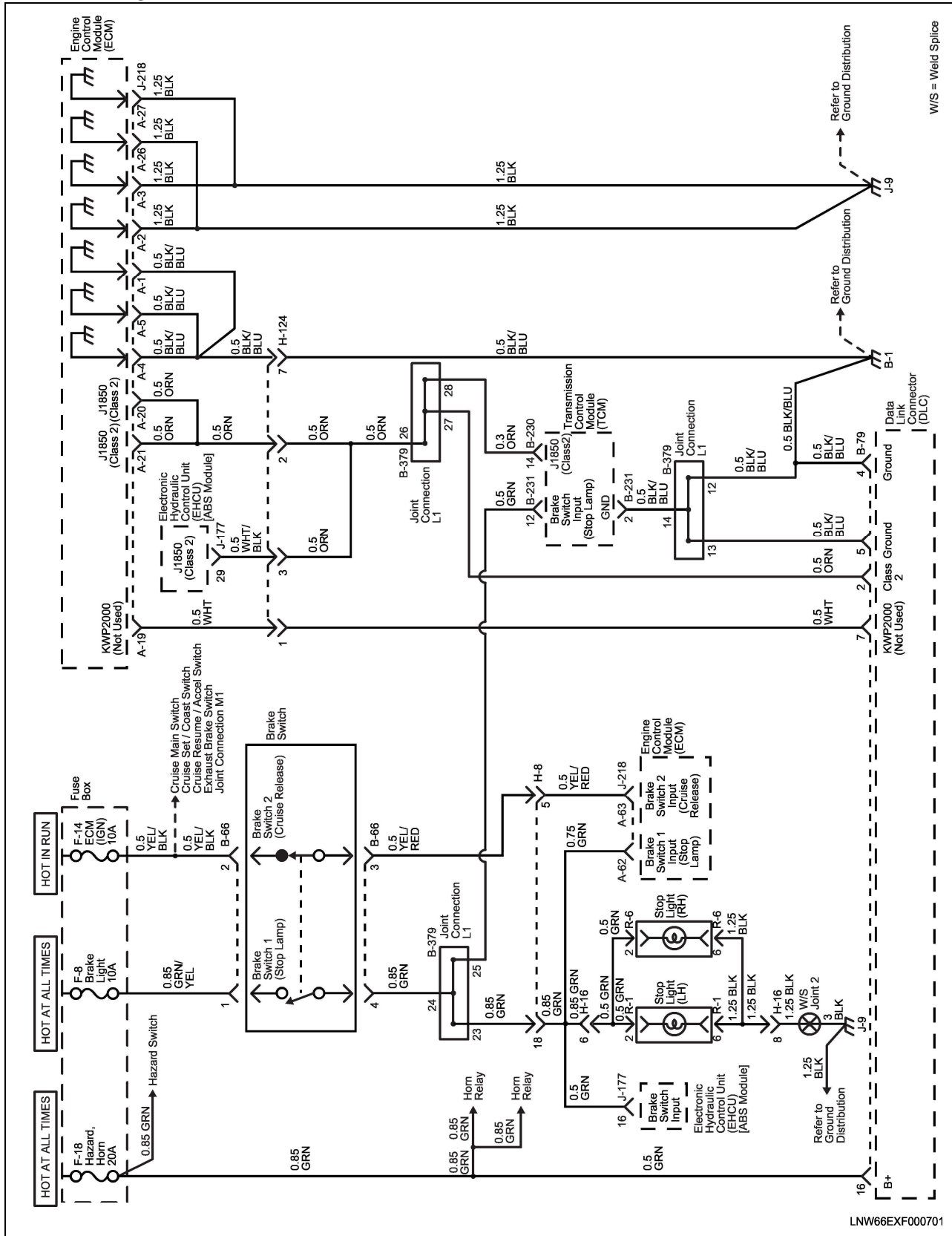
Charging System



ECM Power

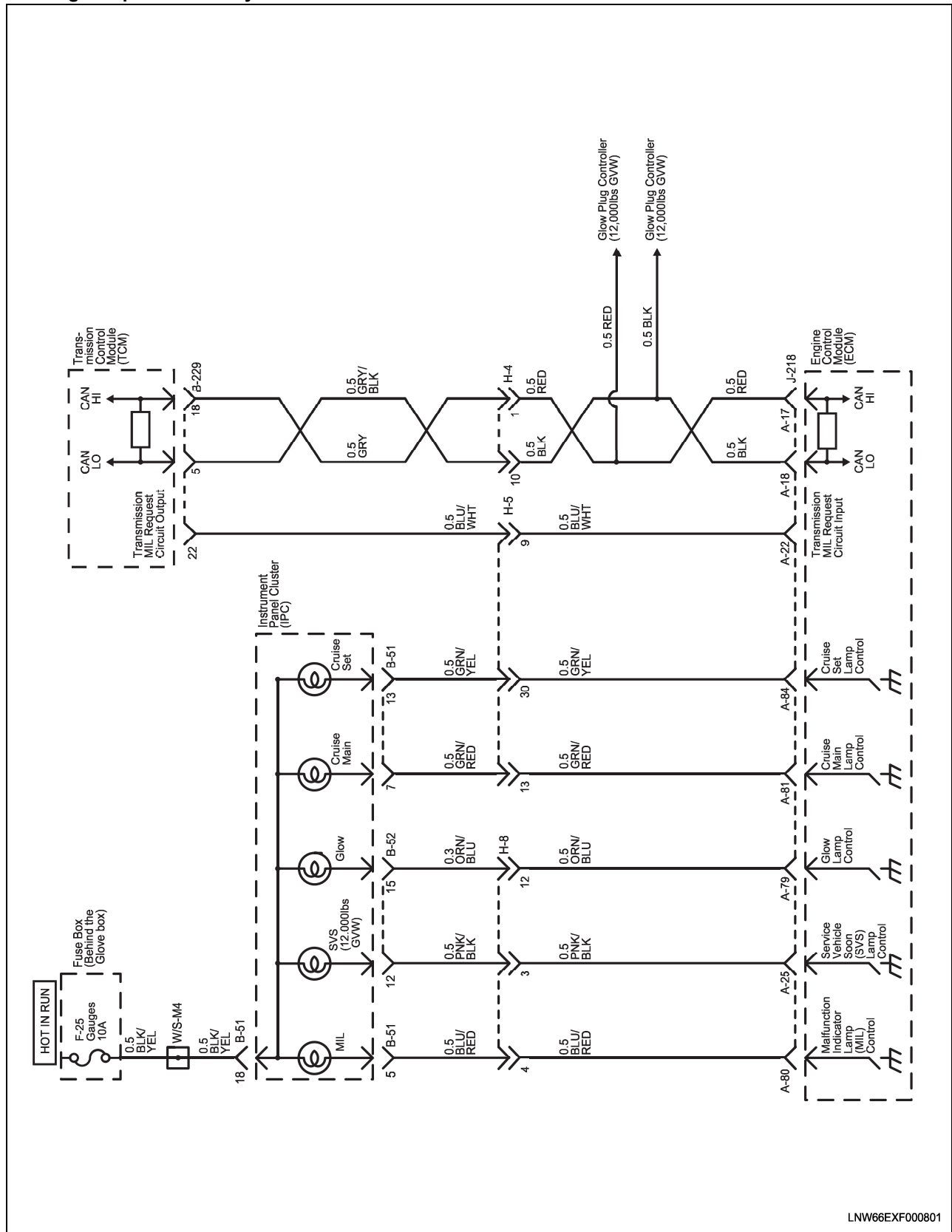


ECM Grounding, DLC and Brake Switch

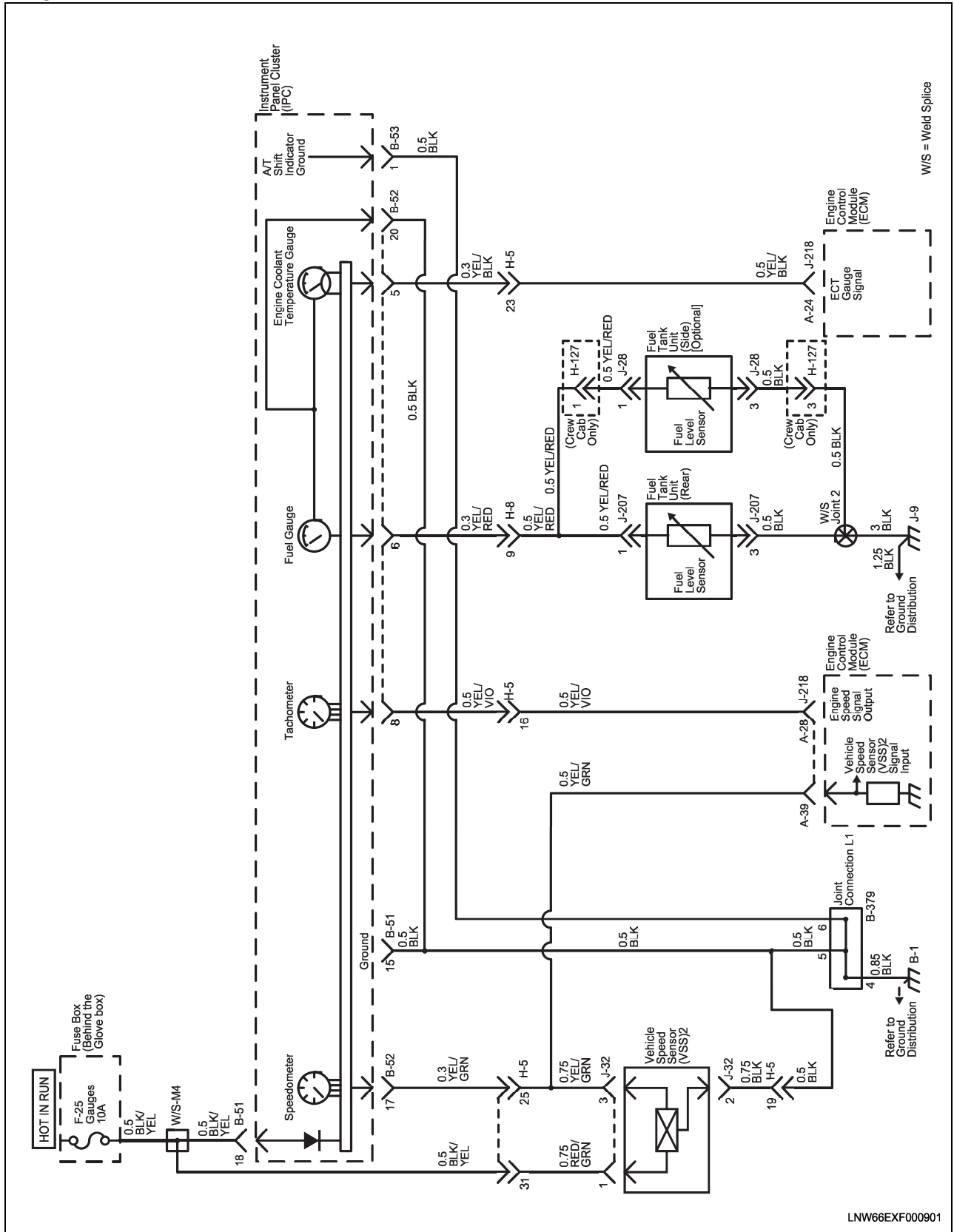


W/S = Weld Splice

Warning Lamps and CAN System

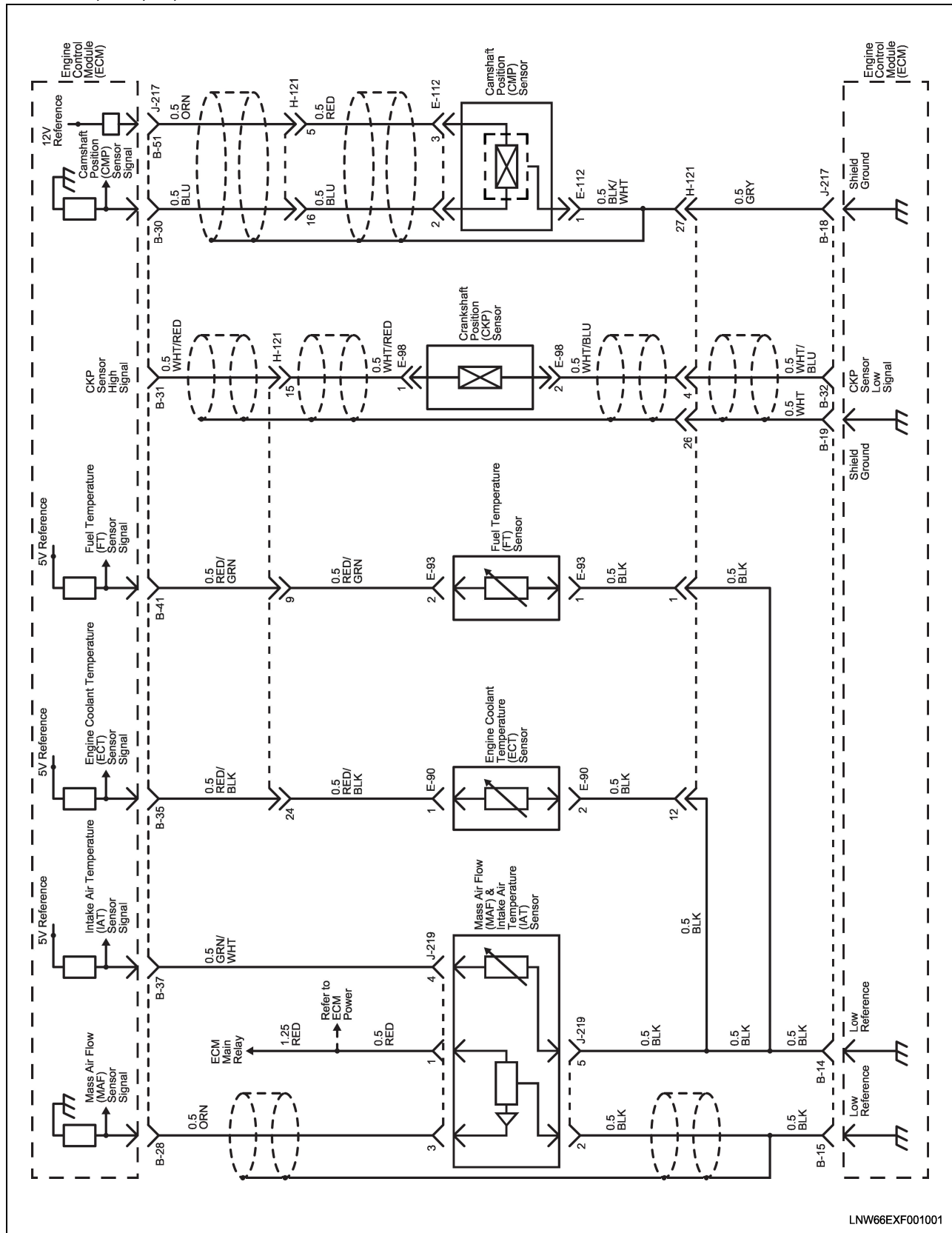


Gauges

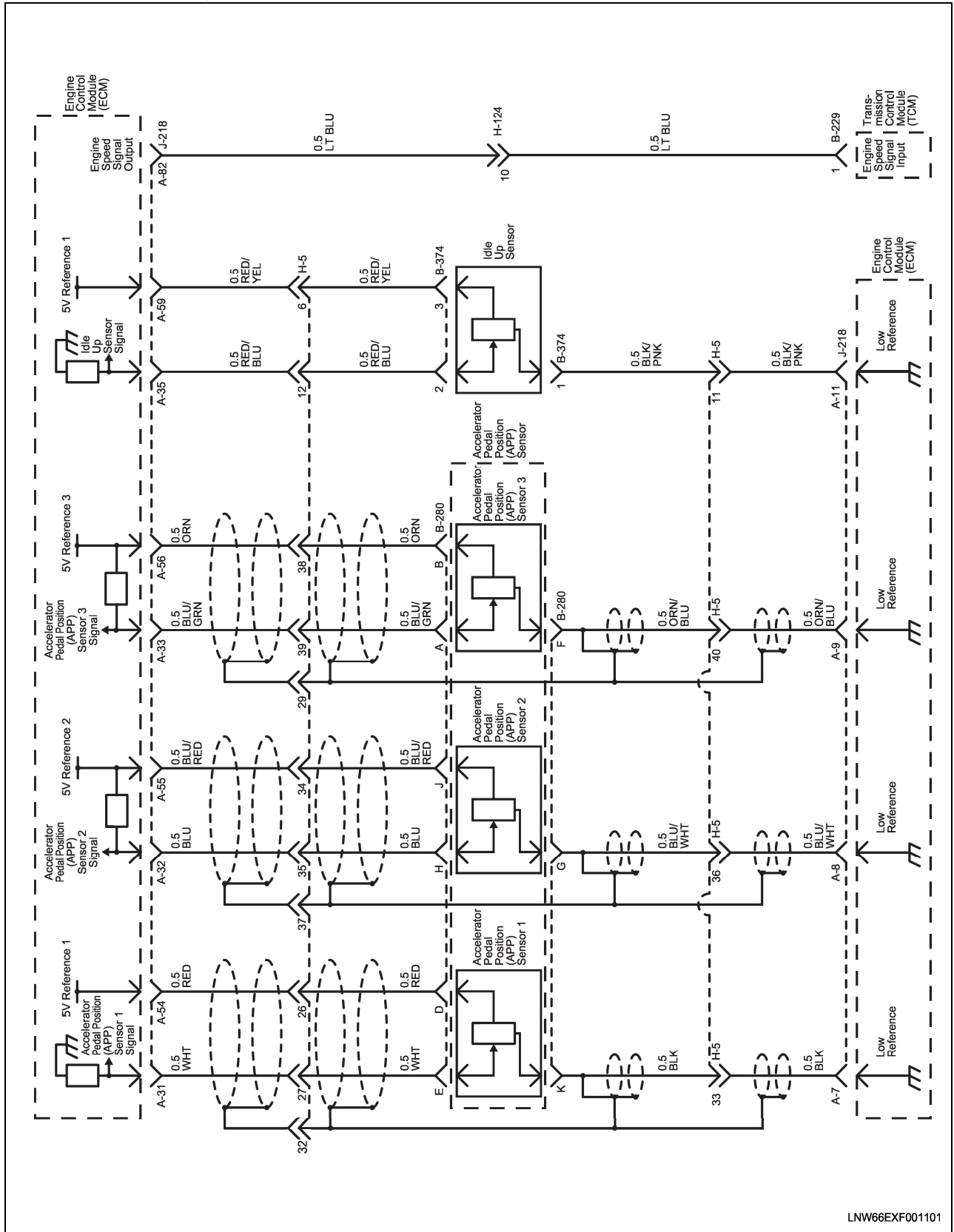




MAF & IAT, ECT, FT, CKP and CMP Sensors



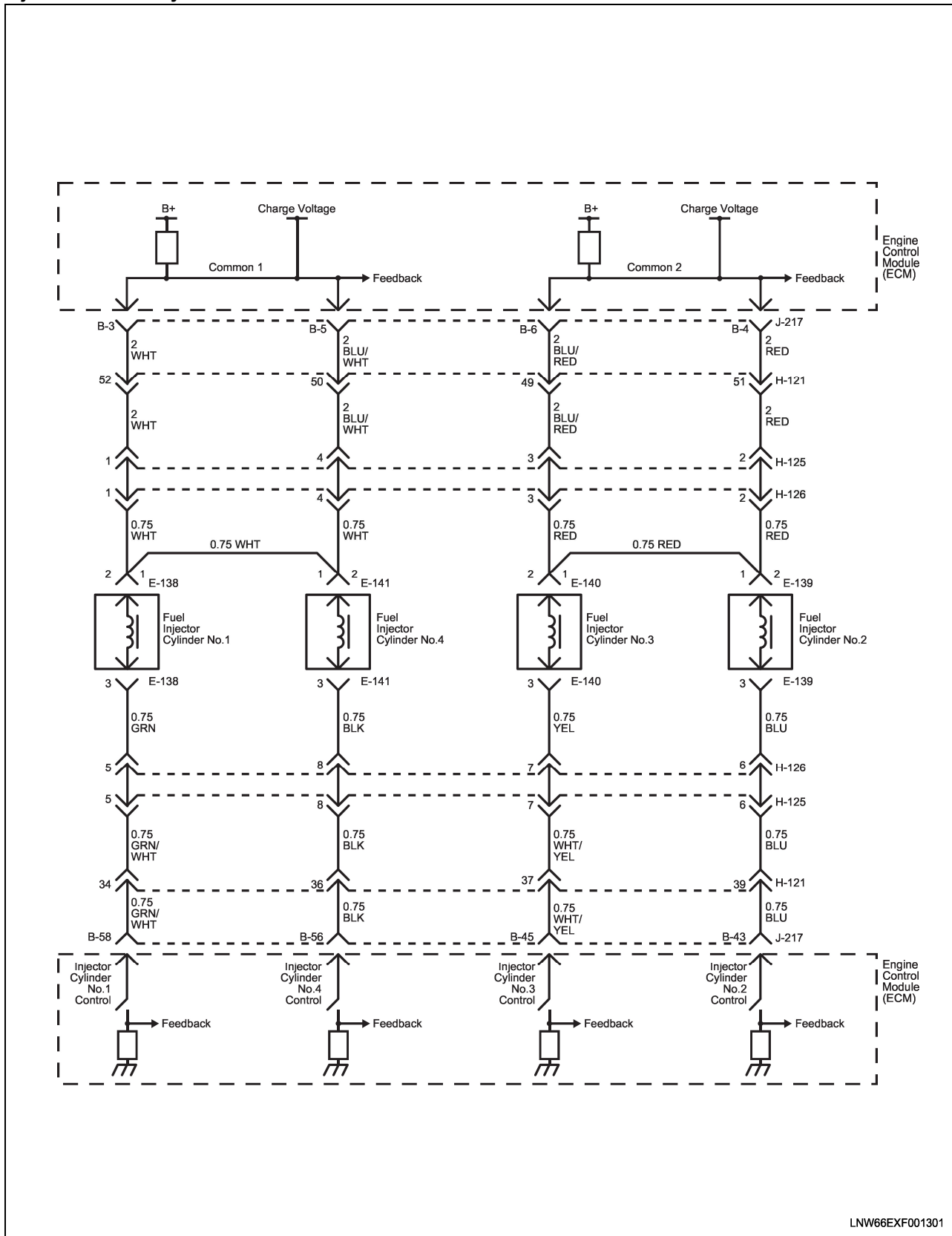
APP Sensor and Idle Up Sensor





6E-20 Engine Control System - 5.2L

Injection Control System



LNW66EXF001301