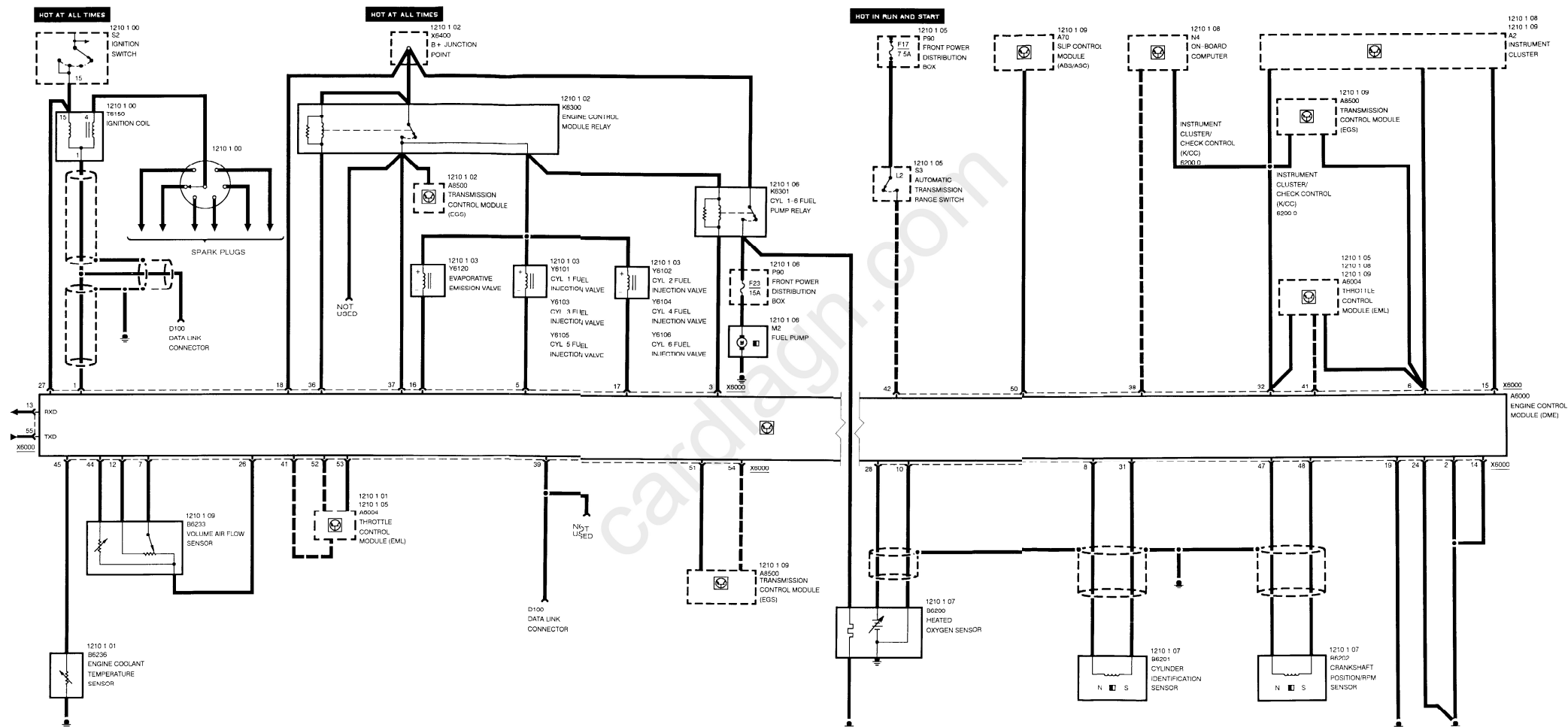
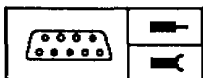






DIGITAL ENGINE ELECTRONICS (DME 1.3, 6-CYLINDER M30 WITH EML)



Pin Assignments

X6000

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
1	A	Ignition terminal	Ignition coil	Primary signal	Oscilloscope	Engine test, test step 05
2	M	Ground	Ground point	Ground		
3	A	EKP relay and TR signal (crankshaft reference)	EKP relay and electronic transmission control unit	Ground with superimposed signal	ON	Can only be measured when crankshaft rotating
4		Not used				
5	A	Evaporative valve	Evaporative valve	Pulsed ground	CLOSED/OPEN	Perform component activation, ground = > closed
6	A	Engine speed signal	Instrument cluster	Square wave signal		One signal per ignition
7	E	Air flow meter signal	Air flow meter	0...5 V	Load signal ms	See status monitoring
8	E	Cylinder identification sensor (ignition)	Cylinder identification sensor (connection B)		ON/OFF	See status monitoring
9		Not used				
10	M	Ground, oxygen sensor	Oxygen sensor	Ground		
11		Not used				
12	A	Voltage supply, air flow meter	Air flow meter	- 5 V		
13	E	RxD diagnostic data line	Diagnostic connector	> 10 V		When cover of diagnostic connector closed



DIGITAL ENGINE ELECTRONICS (DME 1.3, 6-CYLINDER M30 WITH EML)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
14	M	Ground injection valves	Ground point	Ground		
15	A	Indicator "Check engine"	Instrument cluster	Ground		Comes on if emission related error code is stored, and comes on during starting
16	A	Injection valves cyl. (1 + 3 + 5)	Injection valve	Pulsed ground	Injection time ti	Ground = > injector valves open, see component activation
17	A	Injection valves cyl. (2 + 4 + 6)	Injection valve	Pulsed ground	Injection time ti	Ground = > injector valves open, see component activation
18	E	Hot at all times	Terminal 30	> 10 V		
19	M	Ground for electronics and sensor shields	Ground point	Ground		
20		Not used				
21		Not used				
22		Not used				
23		Not used				
24	M	Ground, remaining output stages (except for ignition and injection valves)	Ground point	Ground		
25		Not used				
26	M	Ground, air flow meter	Air flow meter	Ground		
27	E	Ignition terminal 15	Ignition switch	> 10 V		
28	E	Oxygen sensor signal	Oxygen sensor	Pulsating voltage up to approx. 1 V	Voltage value	Can only be measured with the engine running at operating temperature



DIGITAL ENGINE ELECTRONICS (DME 1.3, 6-CYLINDER M30 WITH EML)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
29		Not used				
30		Not used				
31	E	Cylinder identification sensor (ignition)	Cylinder identification sensor (connection A)		ON/OFF	See status monitoring
32	A	tl Measuring signal (KVA signal)	Instrument cluster	Square wave signal	Multimeter function pulse duration	Oscilloscope
33		Not used				
34		Not used				
35		Not used				
36	A	DME main relay	DME main relay terminal 85	Ground	ON	Diagnosis not possible if not fitted, connect jumper at relay terminal 30 and 87
37	E	U-Batt from DME main relay	Main relay terminal 87	U-Batt	Voltage value	Perform status monitoring. Diagnosis not possible if signal not applied. Connect jumper terminal 30 and 87 on relay
38	E	Drive away protection	On-board computer	> 10 V		
39	E	Programming voltage	Diagnostic connector			Only activated for control unit programming
40		Not used				
41	E	Auxiliary fan signal	EML control unit	12 V	ON/OFF	
42	E	Drive range P/N	Transmission selector lever switch	Ground	ON	When position P/N
43		Not used				
44	E	Intake air temperature	Air quantity meter	0...5 V	°C	Temperature dependent

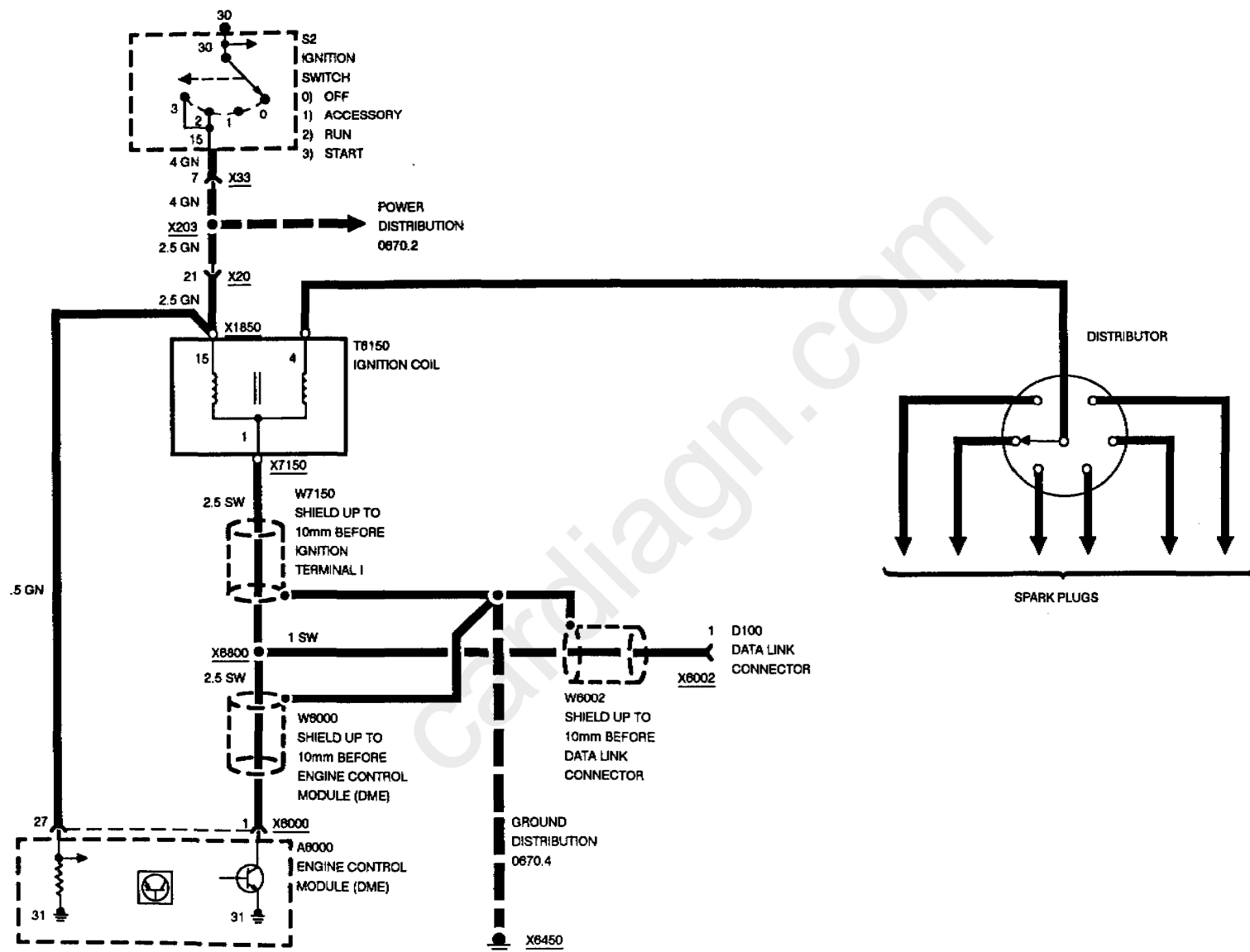


DIGITAL ENGINE ELECTRONICS (DME 1.3, 6-CYLINDER M30 WITH EML)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
45	E	Engine coolant temp.	Engine coolant temp. sensor	0...5 V	°C	Temperature dependent
46		Not used				
47	E	Inductive pulse generator (connection A)	Pulse generator engine speed, crankshaft position	A/C voltage	Engine speed	Between Pins 47 and 48 (can only be measured with crankshaft rotating)
48	E	Inductive pulse generator (connection B)	Pulse generator engine speed, crankshaft position	A/C voltage	Engine speed	Status monitoring at or above starting rpm
49		Not used				
50	E	Torque cutout signal	ABS/ASC control unit			
51	E	Ignition timing intervention	Electronic transmission control unit	Ground	ON	Only active during gear shift
52	E	Idle signal	EML control unit	Ground	ON	See status monitoring on set idle speed
53	E	Full load signal VL	EML control unit	Ground	ON	At full load (kick-down)
54	E	Torque converter clutch WK	Electronic transmission control unit EGS	Ground	ON (with engine running)	When WK engaged, see status monitoring
55	E/A	TxD diagnostic data line	Diagnostic connector	Ground		When cover of diagnostic connector closed

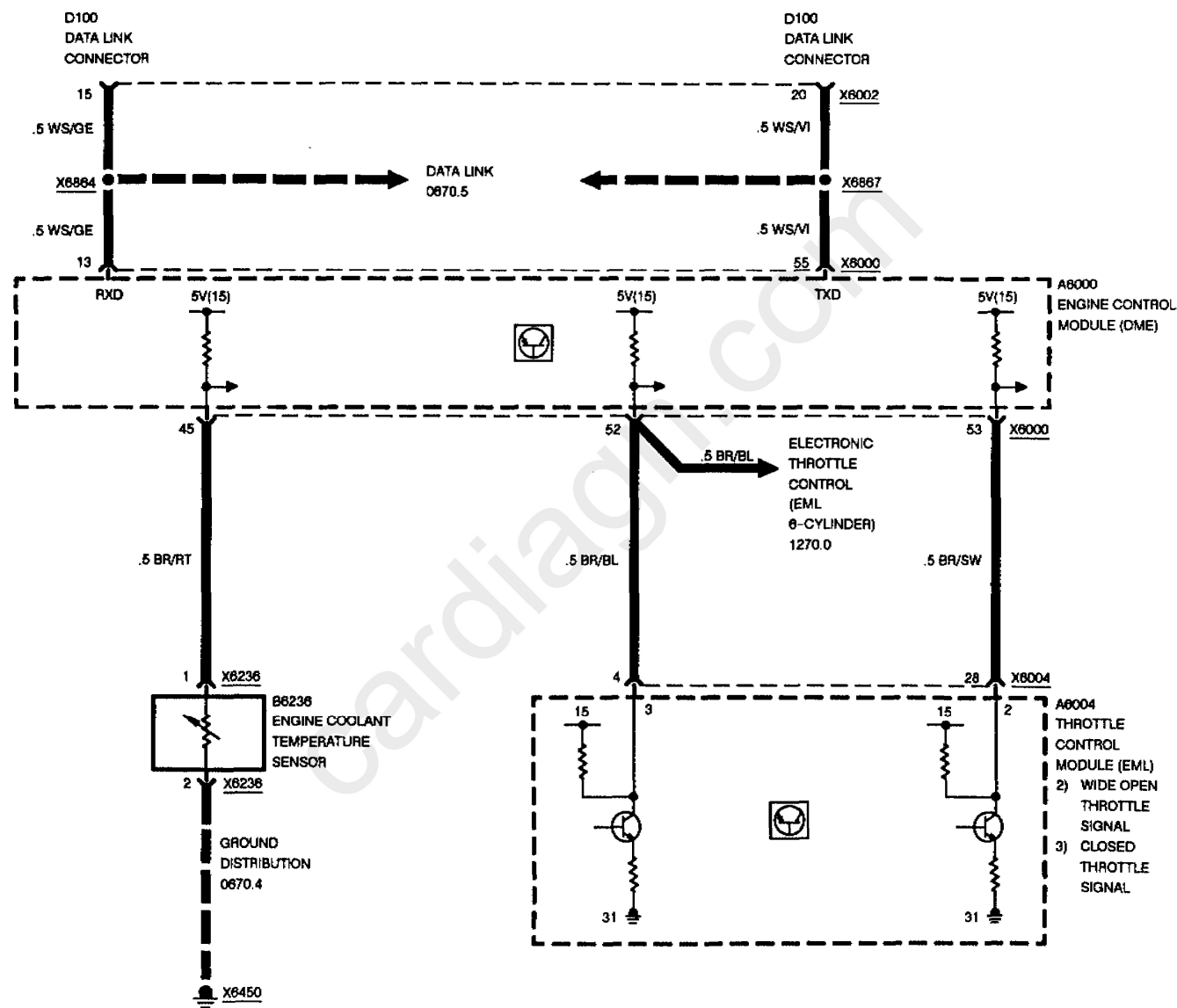


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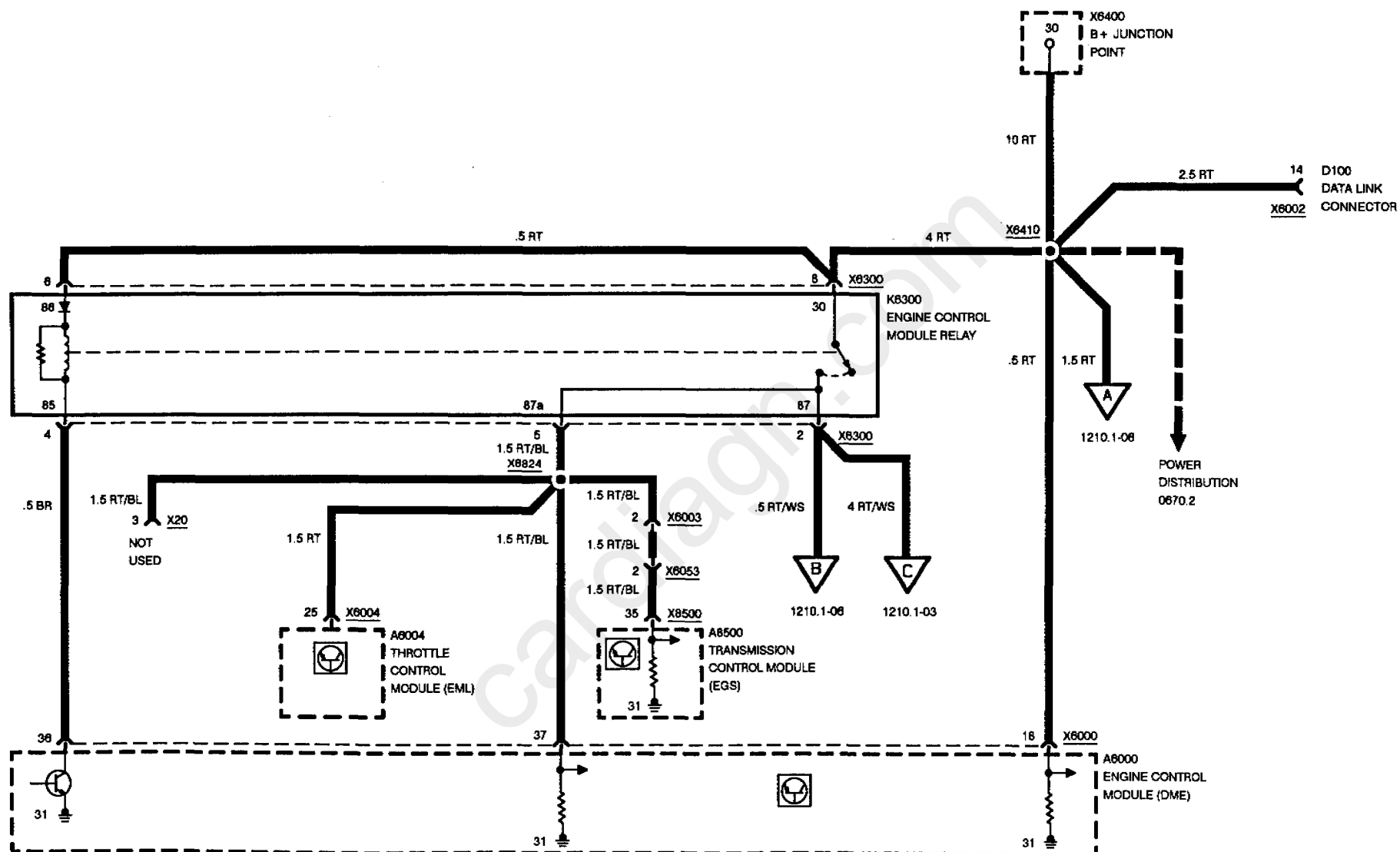




ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)



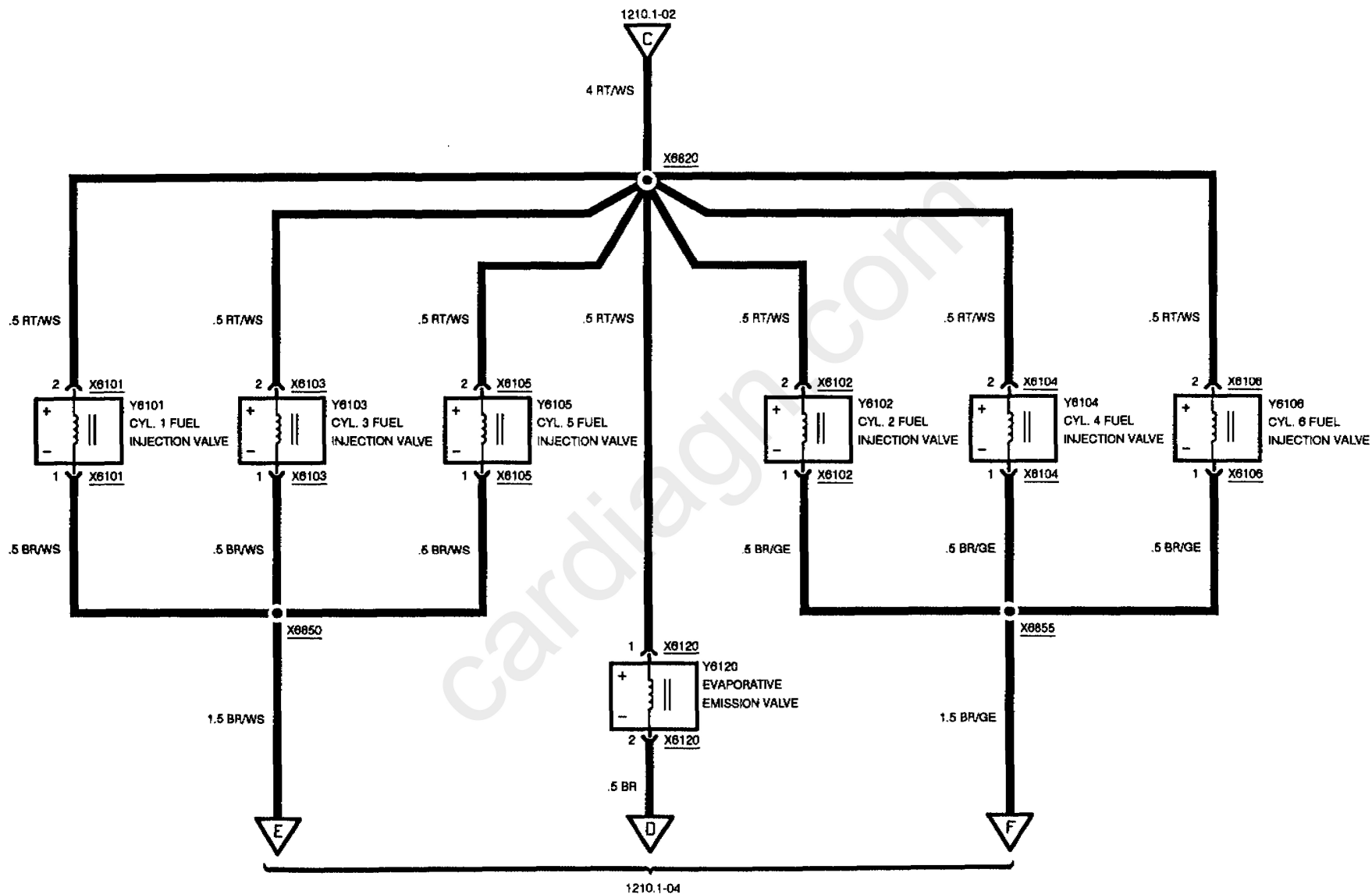
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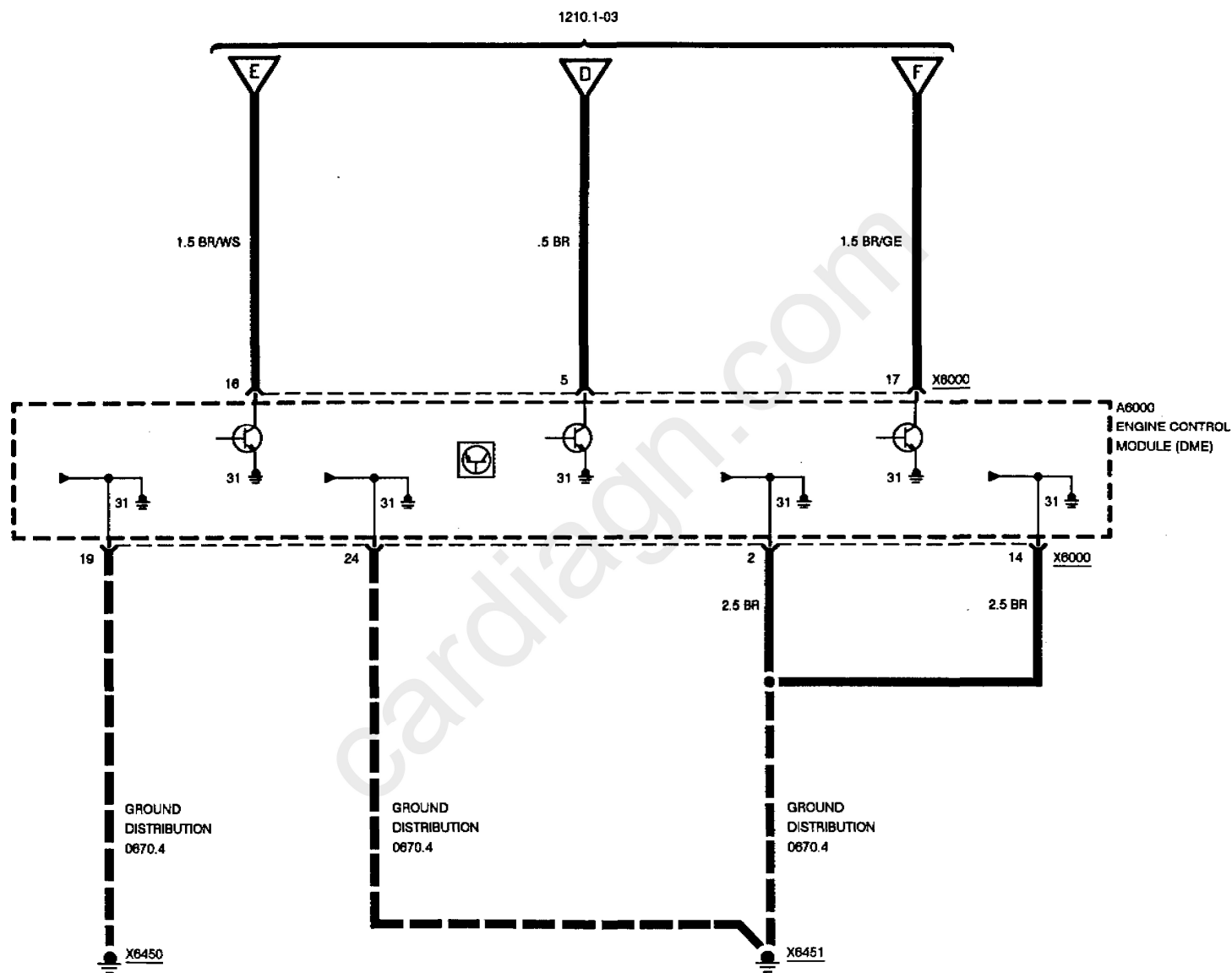
ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)

FUEL INJECTION VALVES



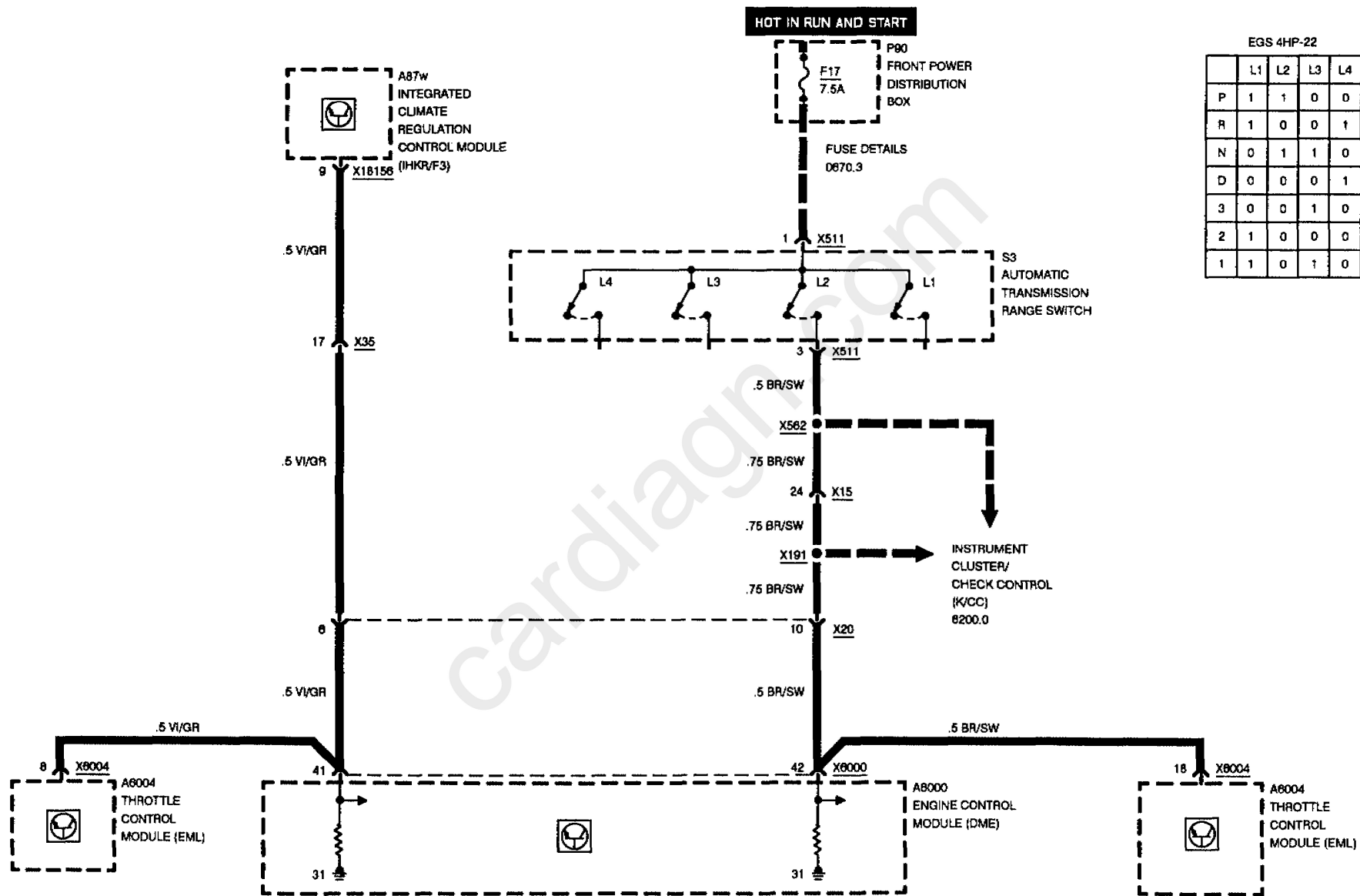


ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)



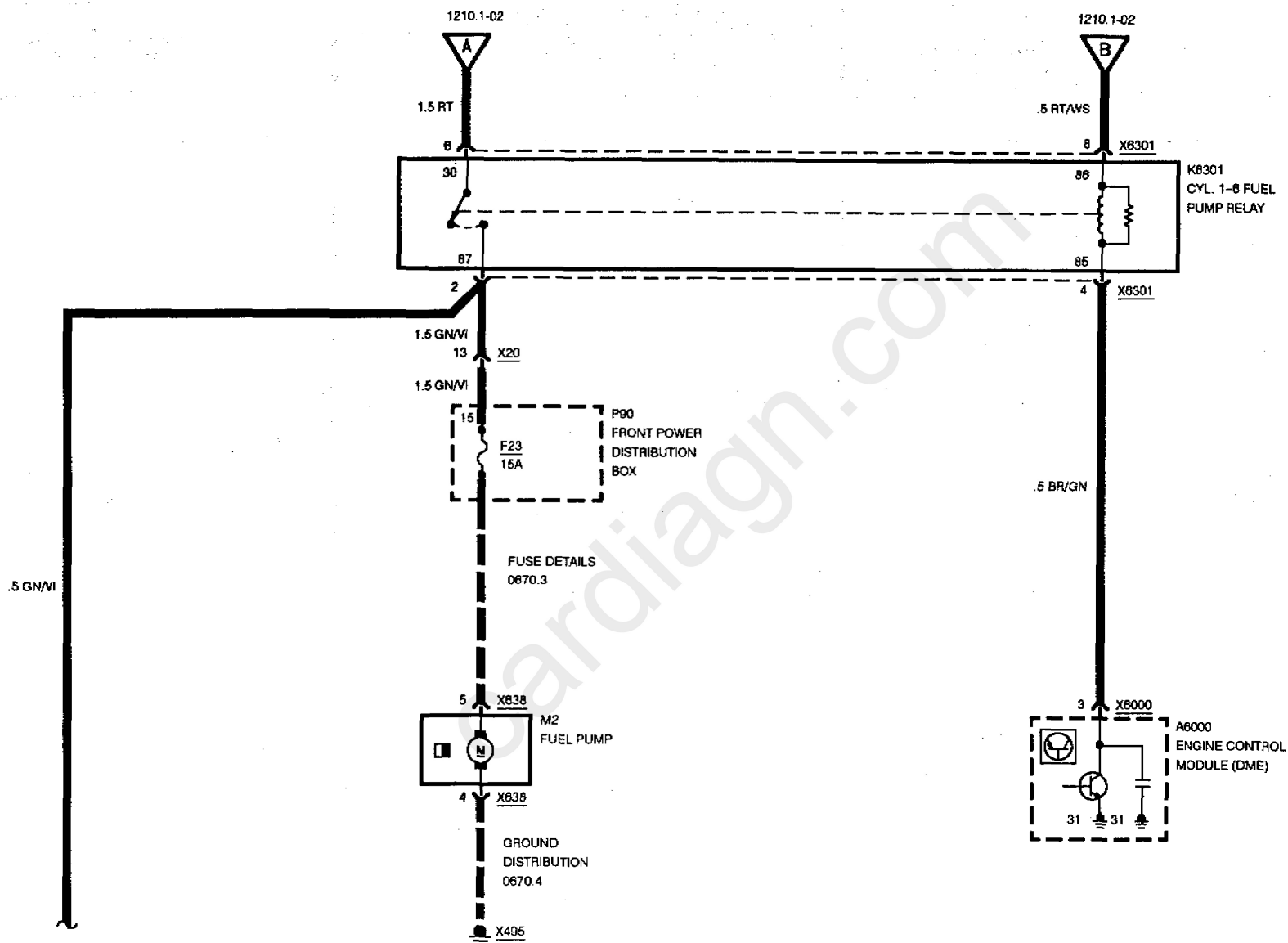


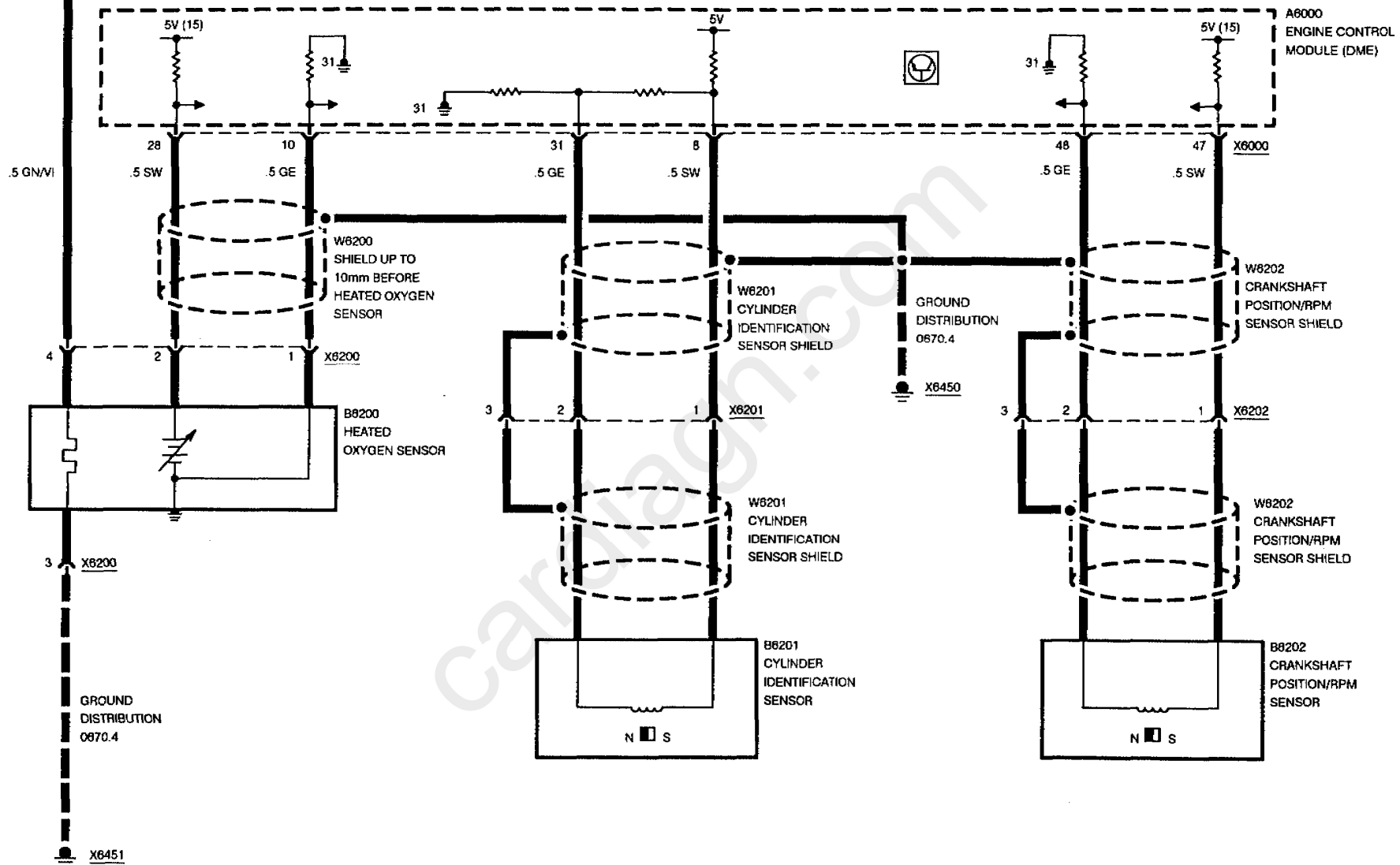
ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)





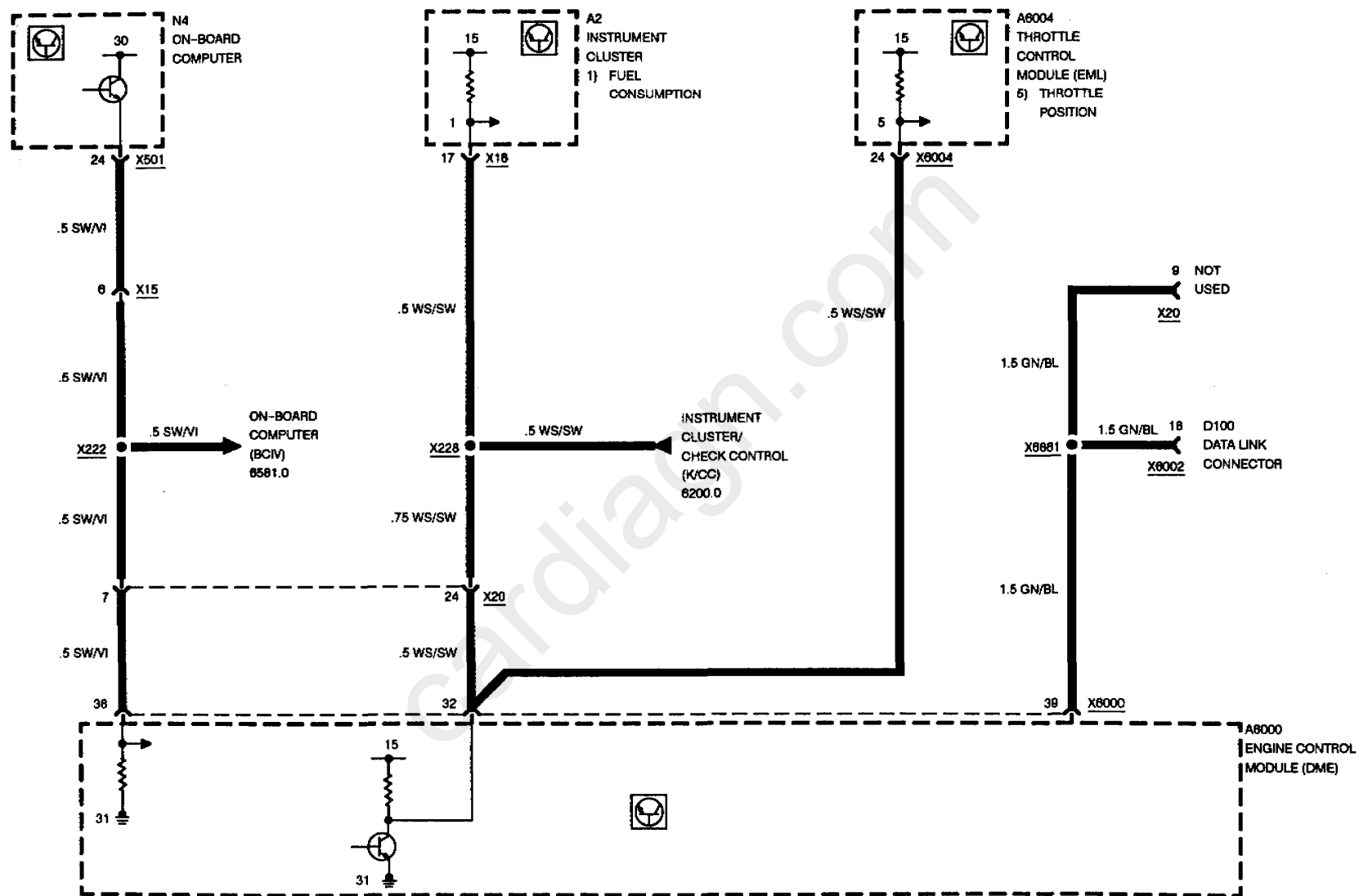
ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)



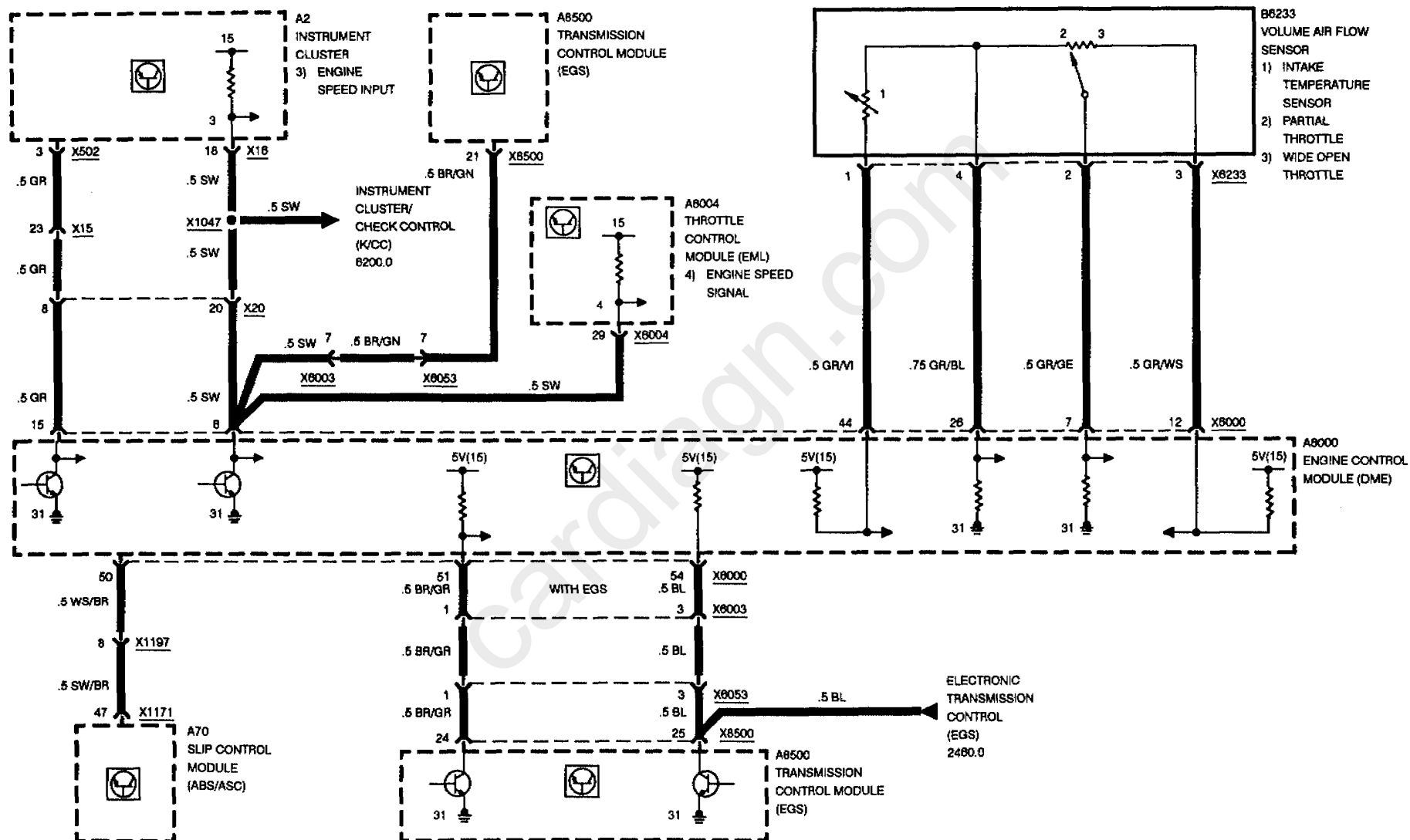




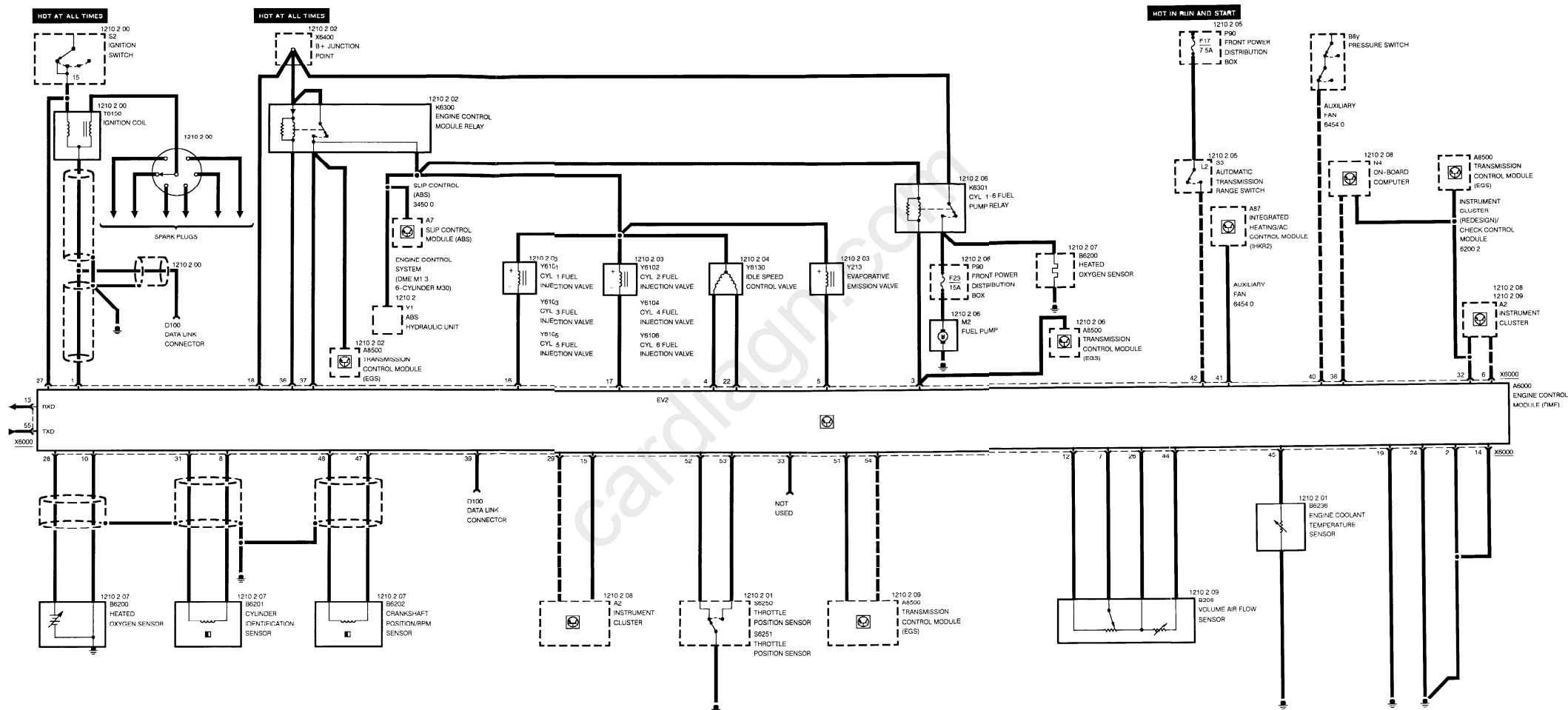
ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)



ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30 WITH EML)

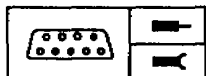








DIGITAL ENGINE ELECTRONICS (DME M1.3, 6-CYLINDER M30)



Pin Assignments

X6000

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
1	A	Ignition terminal	Ignition coil	Primary signal	Oscilloscope	Engine test, test step 05
2	M	Ground	Ground point	Ground		
3	A	EKP relay and TR signal (crankshaft reference)	EKP relay and electronic transmission control unit	Ground with superimposed signal	ON	Can only be measured when crankshaft rotating
4	A	Idle speed actuator	Idle speed actuator	Pulsed ground		Component activation
5	A	Evaporative valve	Evaporative valve	Pulsed ground	CLOSED/OPEN	Perform component activation, ground = > closed
6	A	Engine speed signal	Instrument cluster	Square wave signal		One signal per ignition
7	E	Air flow meter signal	Air flow meter	0...5 V	Load signal ms	See status monitoring
8	E	Cylinder identification sensor (ignition)	Cylinder identification sensor (connection B)		ON/OFF	See status monitoring
9		Not used				
10	M	Ground oxygen sensor	Oxygen sensor	Ground		
11		Not used				
12	A	Voltage supply, air flow meter	Air flow meter	- 5 V		
13	E	RxD diagnostic data line	Diagnostic socket	> 10 V		When cover of diagnostic connector closed



DIGITAL ENGINE ELECTRONICS (DME M1.3, 6-CYLINDER M30)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
14	M	Ground, injection valves	Ground point	Ground		
15	A	Indicator "Check engine"	Instrument cluster	Ground		Comes on if emission related error code is stored, and comes on during starting
16	A	Injection valves cyl. (1 + 3 + 5)	Injection valve	Pulsed ground	Injection time ti	Ground => injector valves open, see component activation
17	A	Injection valves cyl. (2 + 4 + 6)	Injection valve	Pulsed ground	Injection time ti	Ground => injector valves open, see component activation
18	E	Hot at all times	Terminal 30	> 10 V		
19	M	Ground for electronics and shielding the sensors	Ground point	Ground		
20		Not used				
21		Not used				
22	A	Idle speed actuator	Idle speed actuator	Pulsed ground		See component activation
23		Not used				
24	M	Ground, remaining output stages (except for ignition and injection valves)	Ground point	Ground		
25		Not used				
26	M	Ground, air flow meter	Air flow meter	Ground		
27	E	Ignition terminal 15	Ignition switch	> 10 V		
28	E	Oxygen sensor signal	Oxygen sensor	Pulsating voltage up to approx. 1 V	Voltage value	Can only be measured with the engine running at operating temperature



DIGITAL ENGINE ELECTRONICS (DME M1.3, 6-CYLINDER M30)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
29	E	Vehicle speed sensor	Instrument cluster	Square wave signal	km/h	
30		Not used				
31	E	Cylinder identification sensor (ignition)	Cylinder identification sensor (connection A)		ON/OFF	See status monitoring
32	A	tl Measuring signal (KVA signal)	Instrument cluster	Square wave signal	Multimeter function pulse duration	
33		Not used				
34		Not used				
35		Not used				
36	A	DME main relay	DME main relay terminal 85	Ground	ON	Diagnosis not possible if not fitted, connect jumper at relay terminal 30 and 87
37	E	U-Batt from DME main relay	Main relay terminal 87	U-Batt	Voltage value	Perform status monitoring. Diagnosis not possible if signal not applied. Connect jumper terminal 30 and 87 on relay
38	E	Drive away protection	On-board computer	> 10 V		
39	E	Programming voltage	Diagnostic connector			Only activated for control unit programming
40	E	A/C compressor signal	Pressure switch, compressor relay		ON/OFF	
41	E	Auxiliary fan signal	IHKR control unit	12 V	ON/OFF	
42	E	Drive range P/N	Transmission selector lever switch	Ground	ON	When position P/N
43		Not used				

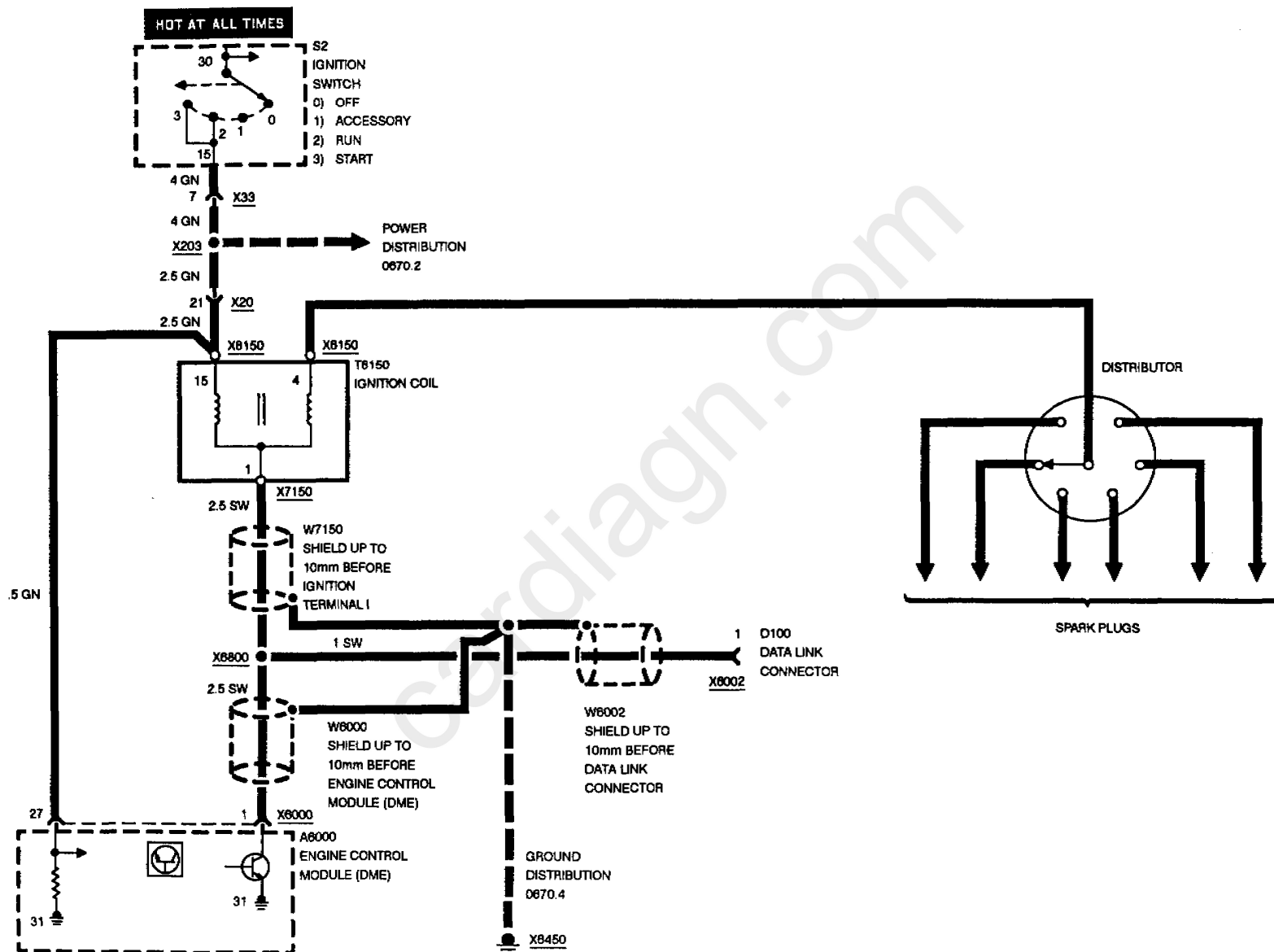


DIGITAL ENGINE ELECTRONICS (DME M1.3, 6-CYLINDER M30)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
44	E	Intake air temperature	Air flow meter	0...5 V	°C	Temperature dependent
45	E	Engine coolant temperature	Engine coolant temperature sensor	0...5 V	°C	Temperature dependent
46		Not used				
47	E	Inductive pulse generator (connection A)	Pulse generator engine speed, crankshaft position	A/C voltage	Engine speed	Between Pins 47 and 48 (can only be measured with crankshaft rotation)
48	E	Inductive pulse generator (connection A)	Pulse generator engine speed, crankshaft position	A/C voltage	Engine speed	Status monitoring at or above starting rpm
49		Not used				
50		Not used				
51	E	Ignition timing intervention	Electronic transmission control unit (EGS)	Ground	ON	Only active during gear shift
52	E	Idle signal	Throttle switch	Ground	ON	See status monitoring on set idle speed
53	E	Full load signal VL	Throttle switch	Ground	ON	At full load (kick-down)
54	E	Torque converter clutch WK	Electronic transmission control unit (EGS)	Ground	ON (with engine running)	When WK engaged, see status monitoring
55	E/A	TxD diagnostic data line	Diagnostic socket	Ground		When cover of diagnostic connector closed

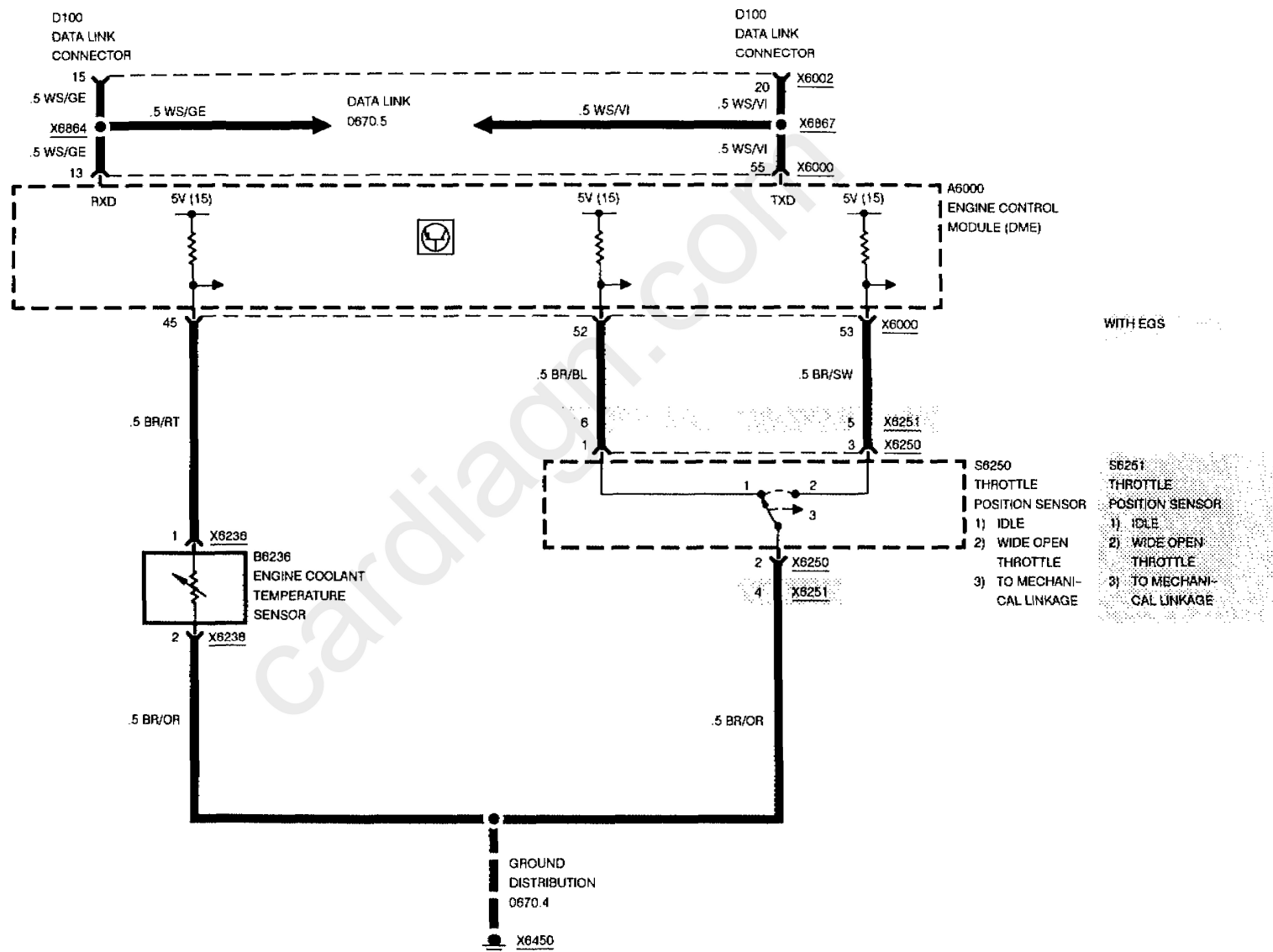


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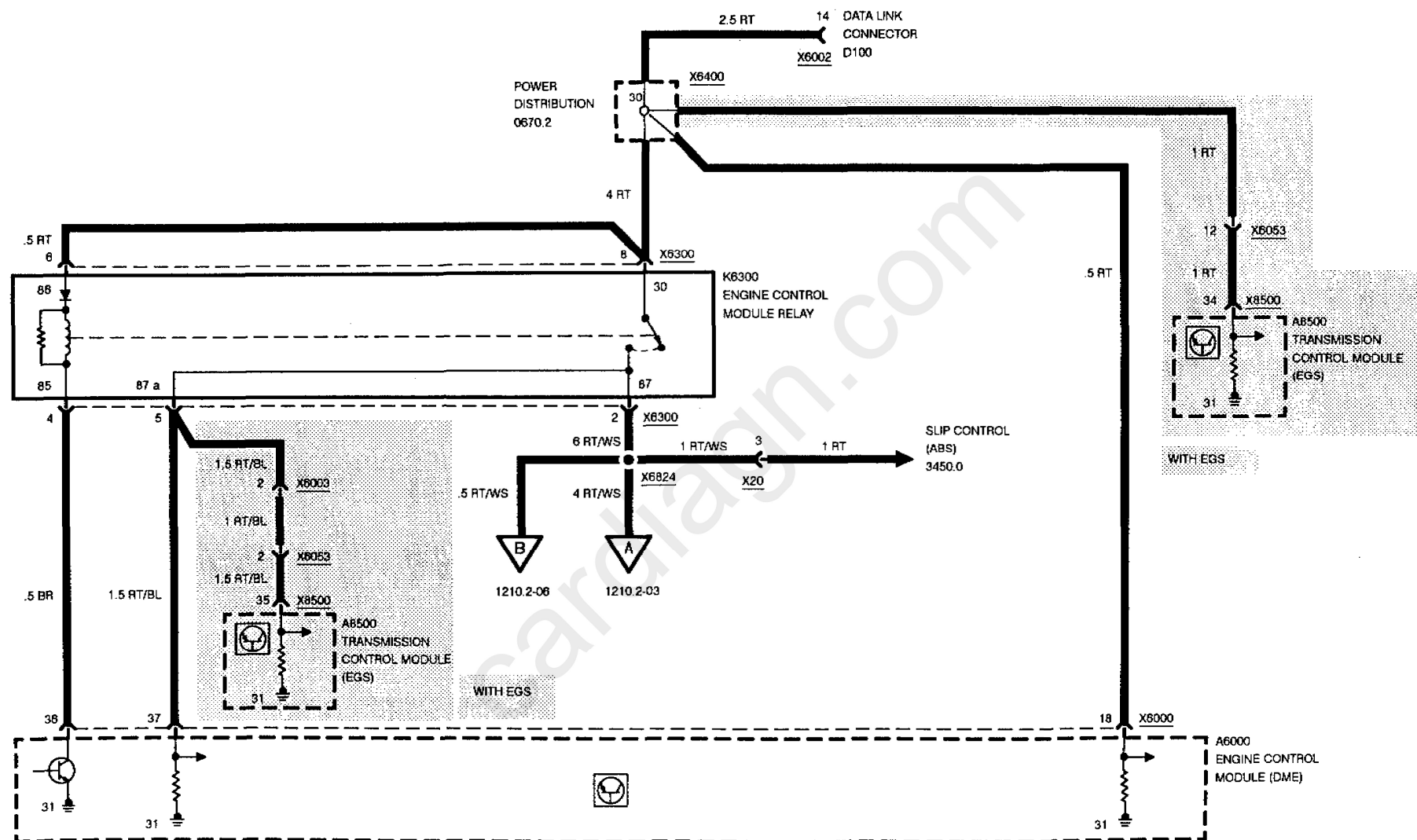


ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30)





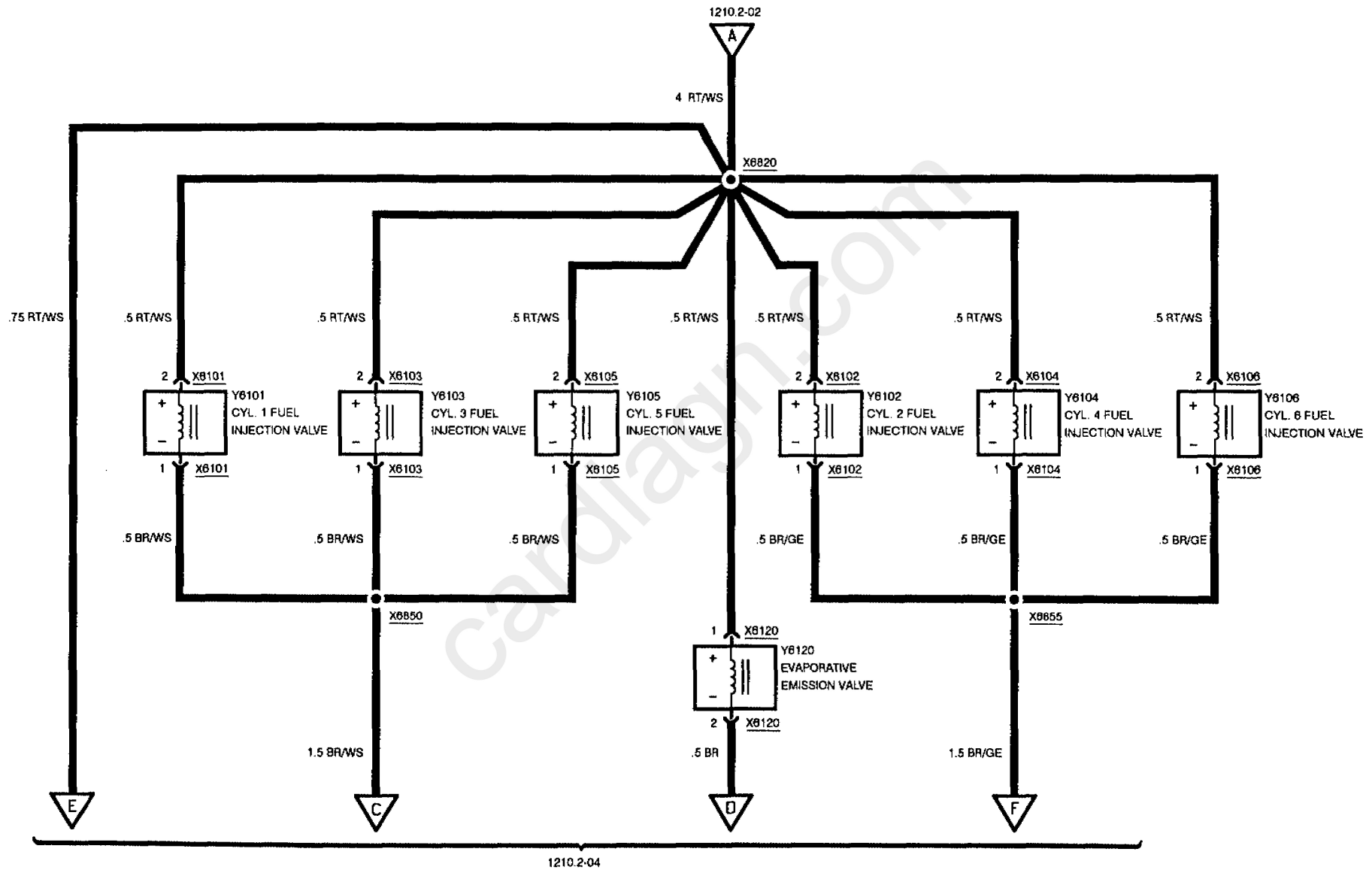
ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30)





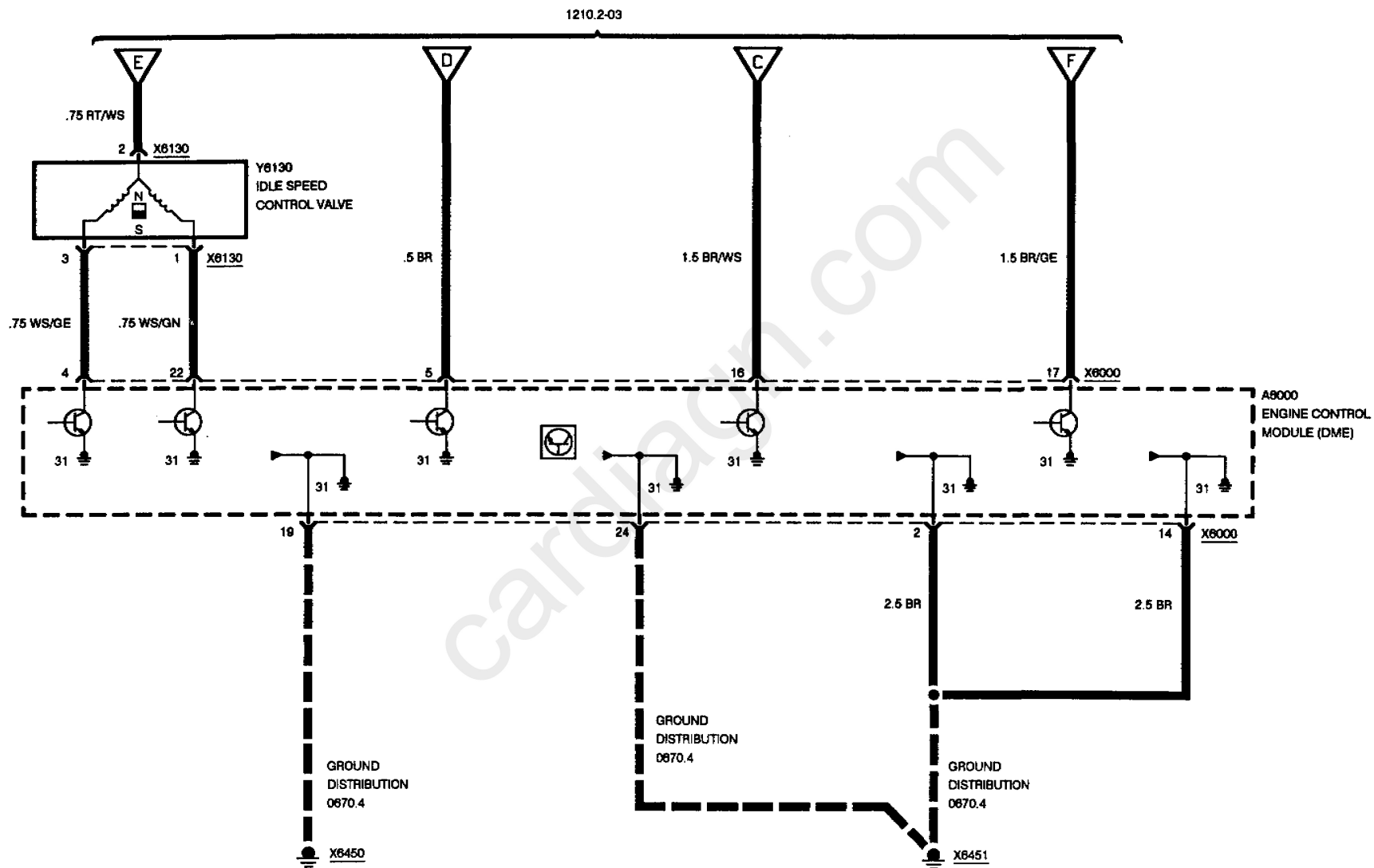
ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30)

FUEL INJECTION VALVES



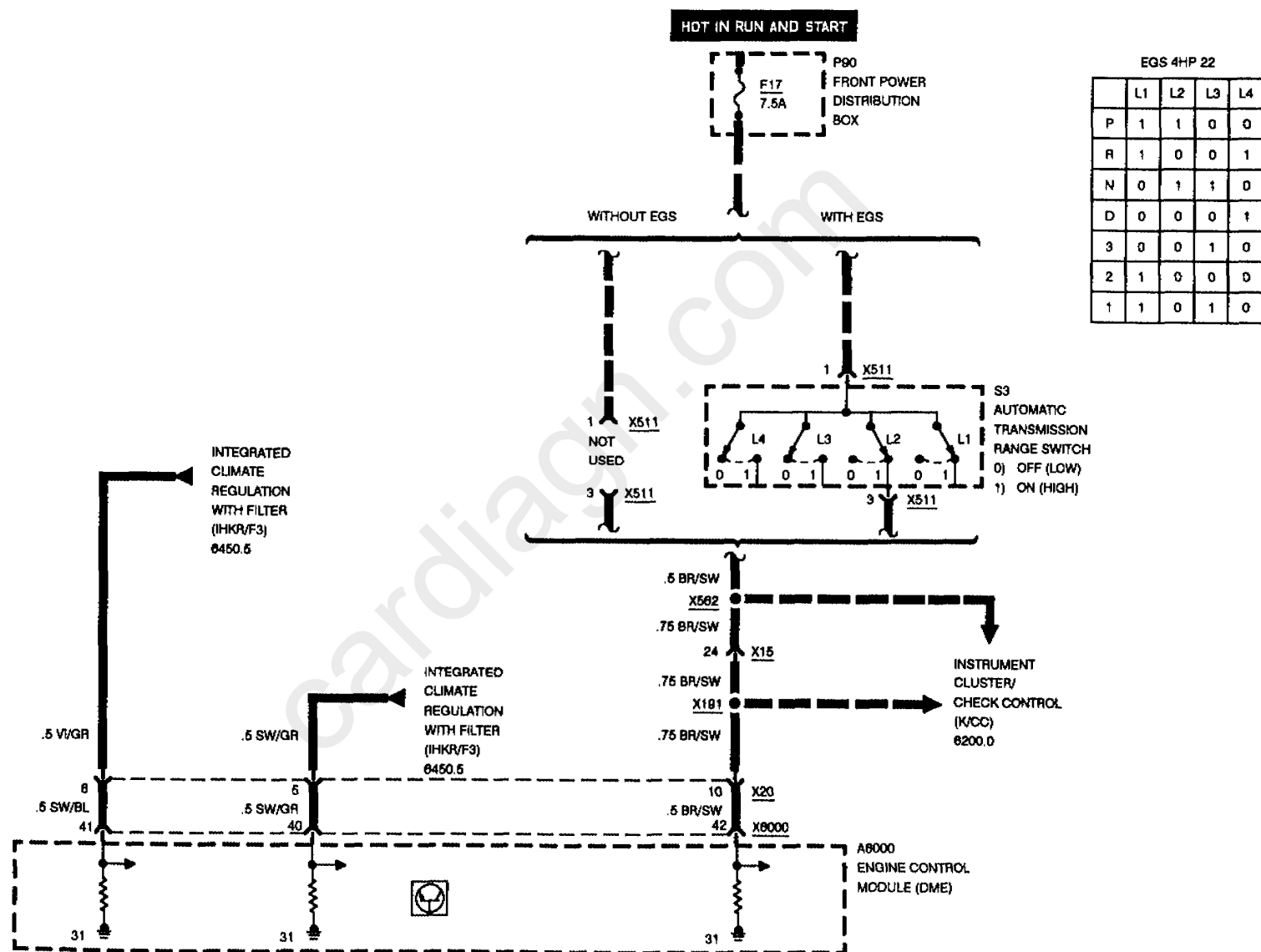


ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30)



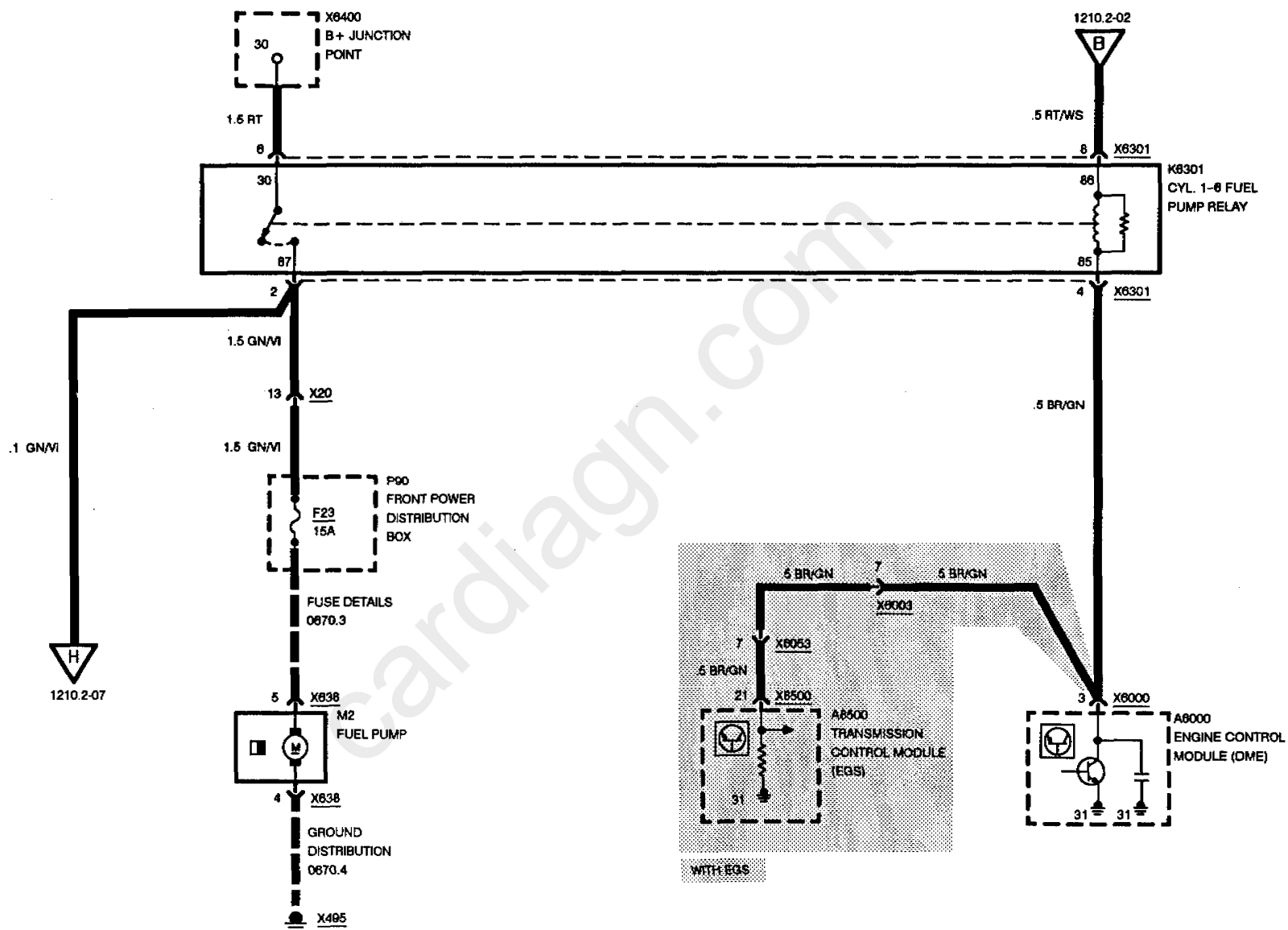


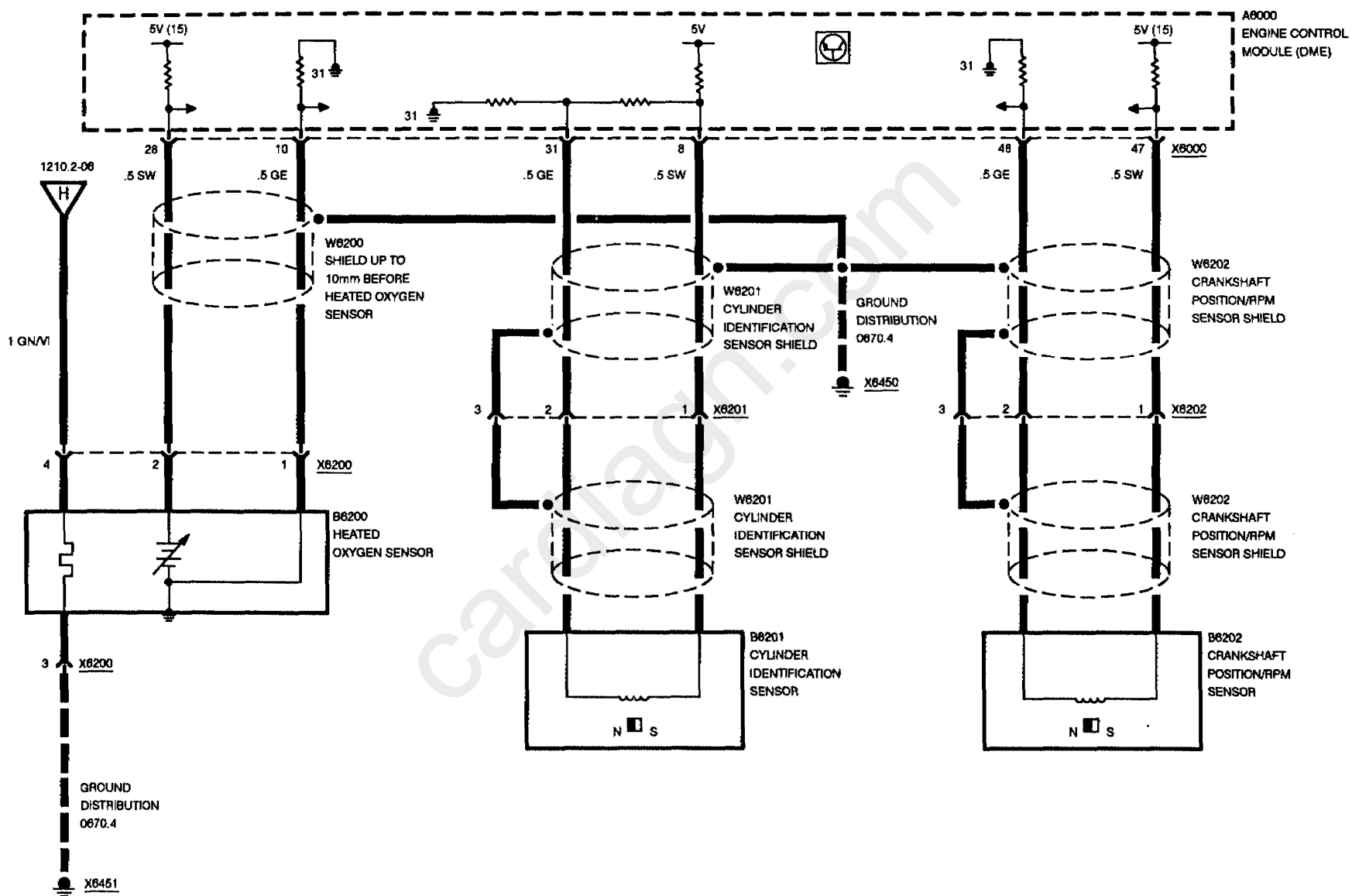
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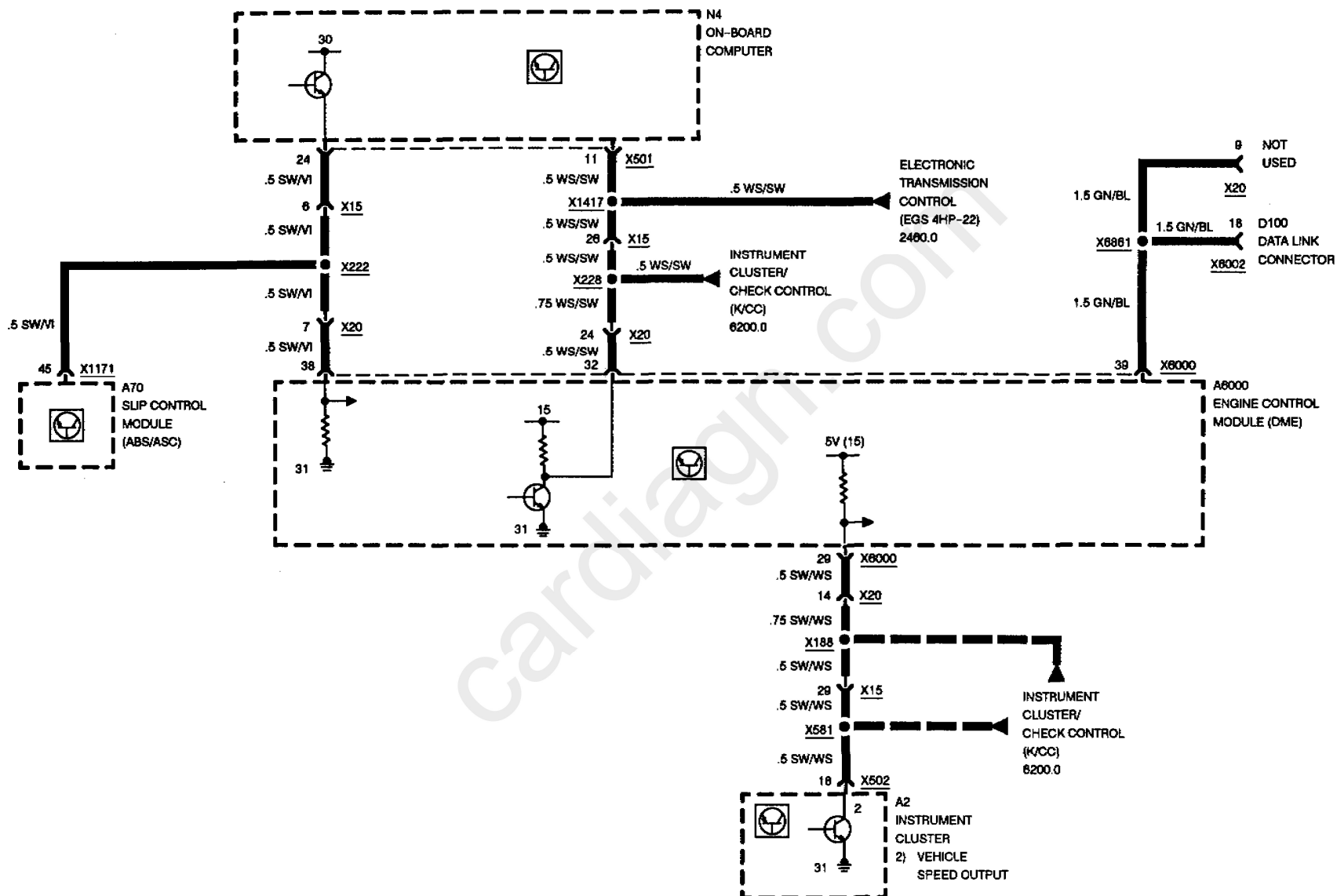




ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30)







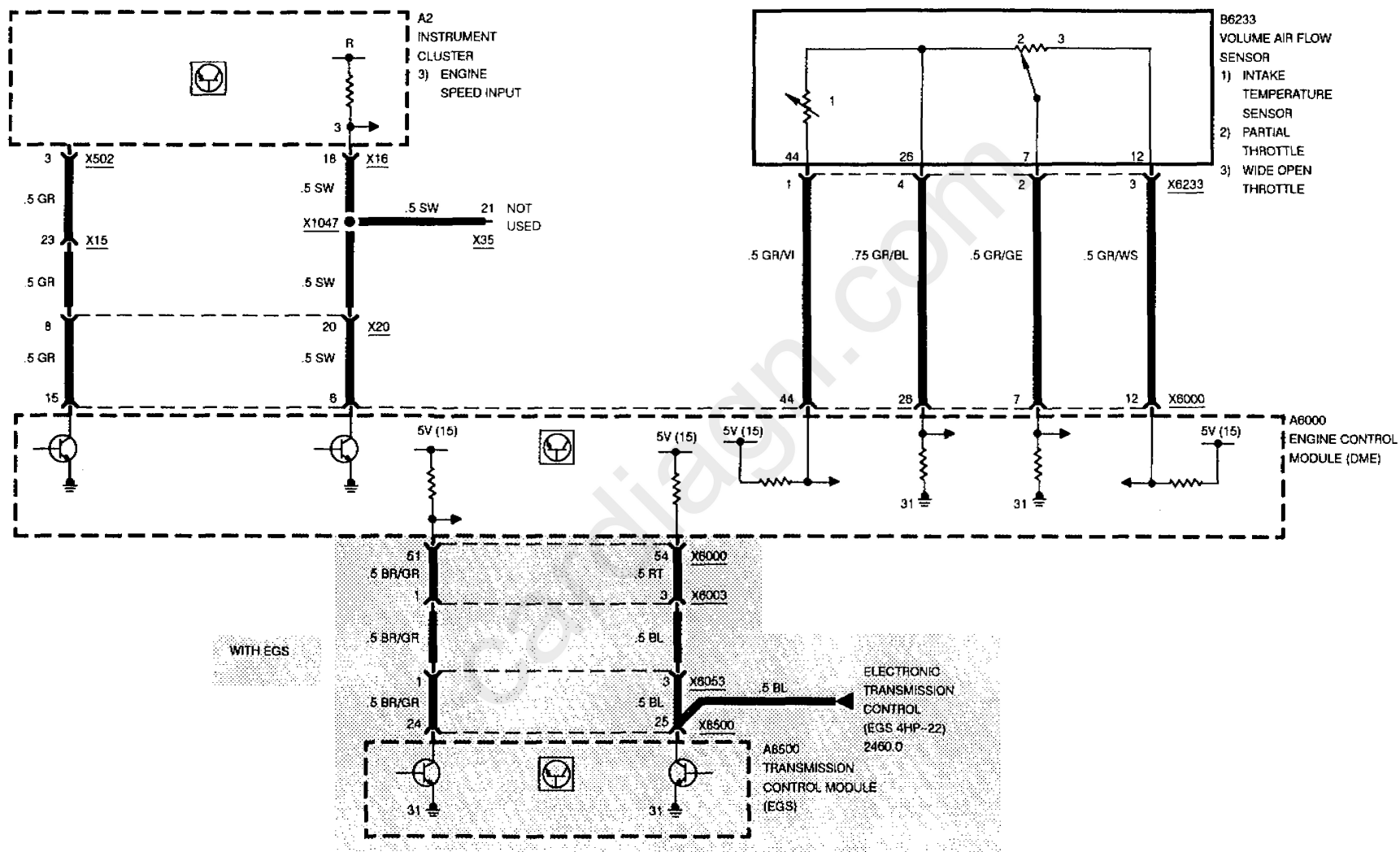


ENGINE CONTROL SYSTEM (DME M1.3, 6-CYLINDER M30)

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