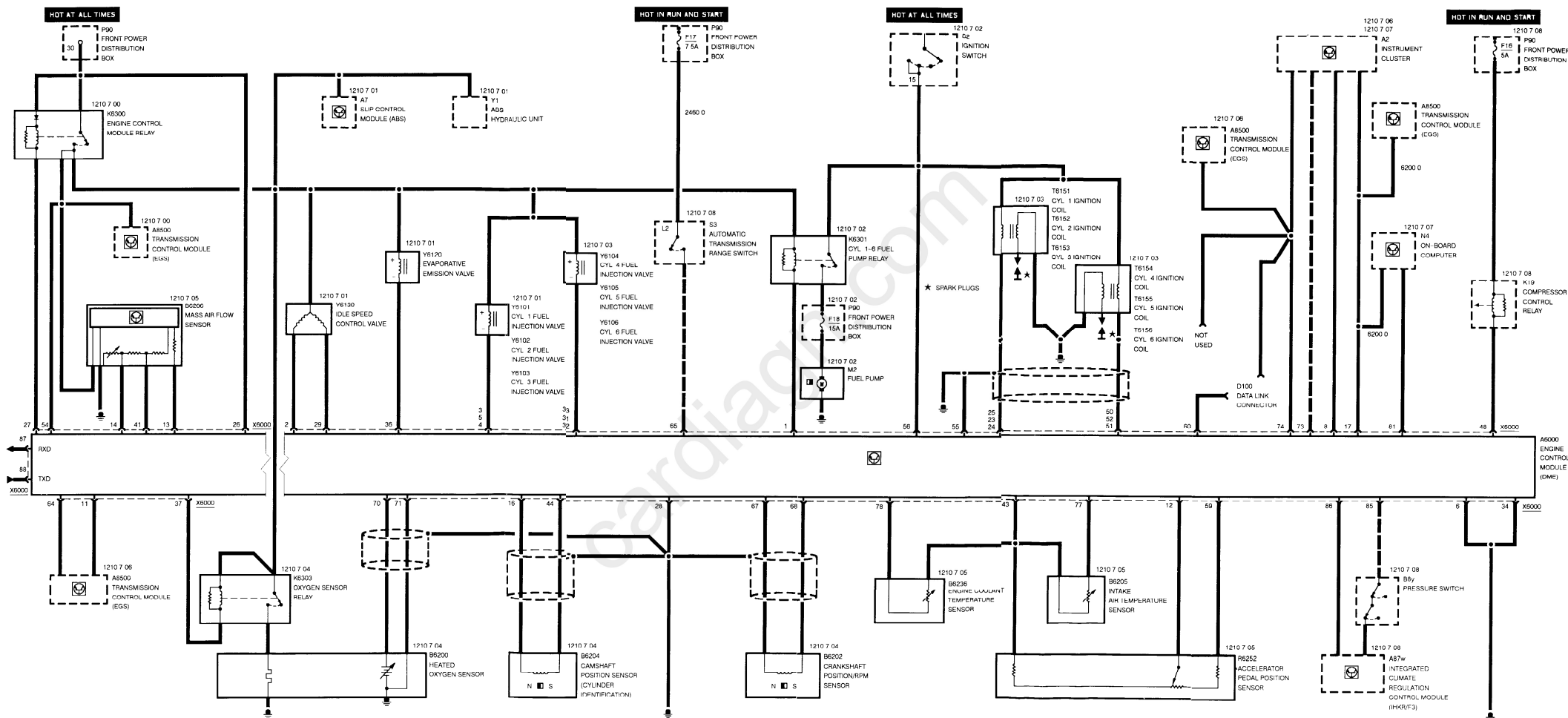
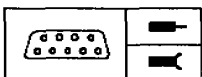






DIGITAL ENGINE ELECTRONICS (DME M3.1, 6-CYLINDER M50)



Pin Assignments

X6000

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
1	A	EKP relay and TR signal (crankshaft reference)	EKP relay and EGS control unit torque converter clutch	Ground with su- per imposed en- gine speed signal	ON	Can only be measured with crankshaft rotating (the EKP relay does not switch if the TR signal is not applied)
2	A	Idle speed actuator	Idle speed actuator	Pulsed ground		See status monitoring
3	A	Injection valve cyl. 1	Injection valve (EV) 1	Pulsed ground	Injection time ti	Ground => injector valve open, see component acti- vation
4	A	Injection valve cyl. 3	Injection valve (EV) 3	Pulsed ground	Injection time ti	Ground => injector valve open, see component acti- vation
5	A	Injection valve cyl. 2	Injection valve (EV) 2	Pulsed ground	Injection time ti	Ground => injector valve open, see component acti- vation
6	M	Ground, EV output stages	Ground point	Ground		
7		Not used				
8	A	Defect lamp (US only)	Instrument cluster	Ground		Comes on if emission related error code is stored, and comes on during starting
9		Not used				



DIGITAL ENGINE ELECTRONICS (DME M3.1, 6-CYLINDER M50)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
10		Not used				
11	A	Throttle valve position	EGS control unit	Pulsewidth modulated	Voltage value	Depends on throttle valve position, oscilloscope
12	E	Throttle valve potentiometer	Throttle valve potentiometer	0.4–4.2V	Voltage value	Depends on throttle valve position
13	A	Preheating	Air mass meter	Voltage increase for approx. 0.5 sec		Signal stops 4 sec after engine stop
14	M	Ground, air mass meter	Air mass meter	Ground		
15		Not used				
16	E	Cylinder reference signal (ignition)	Cylinder reference sensor (connection B)	A/C voltage	Oscilloscope	One signal per camshaft revolution
17	A	ti measuring signal (KVA signal, fuel consumption signal)	Instrument cluster	Square wave signal	Multimeter function Pulse duration	Oscilloscope
18		Not used				
19		Not used				
20		Not used				
21		Not used				
22		Not used				
25	A	Ignition terminal 1	Ignition coil 2	Primary signal	Oscilloscope	Engine test, test step 05
25	A	Ignition terminal 1	Ignition coil 3	Primary signal	Oscilloscope	Engine test, test step 05
25	A	Ignition terminal 1	Ignition coil 1	Primary signal	Oscilloscope	Engine test, test step 05
26	E	Steady voltage, terminal 30	B + terminal point	> 10 V		Diagnosis not possible if not fitted



DIGITAL ENGINE ELECTRONICS (DME M3.1, 6-CYLINDER M50)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
27	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
28	M	Ground for electronics and shielding the sensors	Ground point	Ground		
29	A	Idle speed actuator	Idle speed actuator	Pulsed ground		Component activation
30		Not used				
31	A	Injection valve cyl. 5	Injection valve	Pulsed ground	Injection time ti	Ground => Injector valves open, see component activation
32	A	Injection valve cyl. 6	Injection valve	Pulsed ground	Injection time ti	Ground => Injector valves open, see component activation
33	A	Injection valve cyl. 4	Injection valve	Pulsed ground	Injection time ti	Ground => Injector valves open, see component activation
34	M	Ground, remaining output stages (except for ignition and EV)	Ground point	Ground		
35		Not used				
36	A	Fuel evaporation control valve	TE valve	Pulsed ground	CLOSED/OPEN	Perform component activation, ground => closed
37	A	Oxygen sensor heating	Oxygen sensor relay	Ground	ON	Ground => Heating activated
38		Not used				
39		Not used				
40		Not used				
41	E	Signal air mass meter	Hot wire air mass meter	0...5 V	Load signal in ms	See status monitoring



DIGITAL ENGINE ELECTRONICS (DME M3.1, 6-CYLINDER M50)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
42		Not used				
43	M	Ground for sensors	Temperature sensor	Ground		
44	E	Cylinder reference signal (ignition)	Cylinder reference sensor (connection A)	A/C voltage	Oscilloscope	One signal per camshaft revolution
45		Not used				
46		Not used				
47		Not used				
48	A	A/C compressor control	Compressor control relay	Ground		Ground => Compressor OFF
49		Not used				
50	A	Ignition terminal 1	Ignition coil 4	Primary signal	Oscilloscope	Engine test, test step 05
51	A	Ignition terminal 1	Ignition coil 6	Primary signal	Oscilloscope	Engine test, test step 05
52	A	Ignition terminal 1	Ignition coil 5	Primary signal	Oscilloscope	Engine test, test step 05
53		Not used				
54	E	> 10 V from DME main relay	Main relay terminal 87	> 10 V	Voltage value	Perform status monitoring. Diagnosis not possible if signal not applied – connect jumper terminal 30 and 87 on relay
55	M	Ground, ignition	Ground point	Ground		
56	E	Ignition terminal 15	Ignition switch	> 10 V		
57		Not used				
58		Not used				
59	A	Component voltage	Throttle potentiometer	5 V		
60	E	Programming voltage	Diagnostic connector			Only activated for control unit programming



DIGITAL ENGINE ELECTRONICS (DME M3.1, 6-CYLINDER M50)

Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
61		Not used				
62		Not used				
63		Not used				
64	E	Ignition timing intervention	EGS control unit	Ground	ON	Only active during gearshift
65	E	Drive range P/N switch	Transmission selector lever	Ground	ON	When position P/N
66		Not used				
67	E	Inductive pulse generator (connection B)	Pulse generator Engine speed/position	A/C voltage	Engine speed	Between Pins 67 and 68 (can only be measured with crankshaft rotating)
68	E	Inductive pulse generator (connection A)	Pulse generator Engine speed/position	A/C voltage	Engine speed	Between Pins 67 and 68 (can only be measured with crankshaft rotating)
69		Not used				
70	E	Oxygen sensor signal	Oxygen sensor	Pulsating voltage up to approx. 1 V	Voltage value	Can only be measured with engine running at operating temperature
71	M	Ground oxygen sensor	Oxygen sensor	Ground		
72		Not used				
73	E	Road speed signal	Instrument cluster	Square wave signal	km/h	Status monitoring
74		Engine speed signal TD	Instrument cluster	Square wave signal		One signal per ignition
75		Not used				
76		Not used				
77	E	Intake air temperature	Intake air temperature sensor	0...5 V	°C	Temperature-dependent

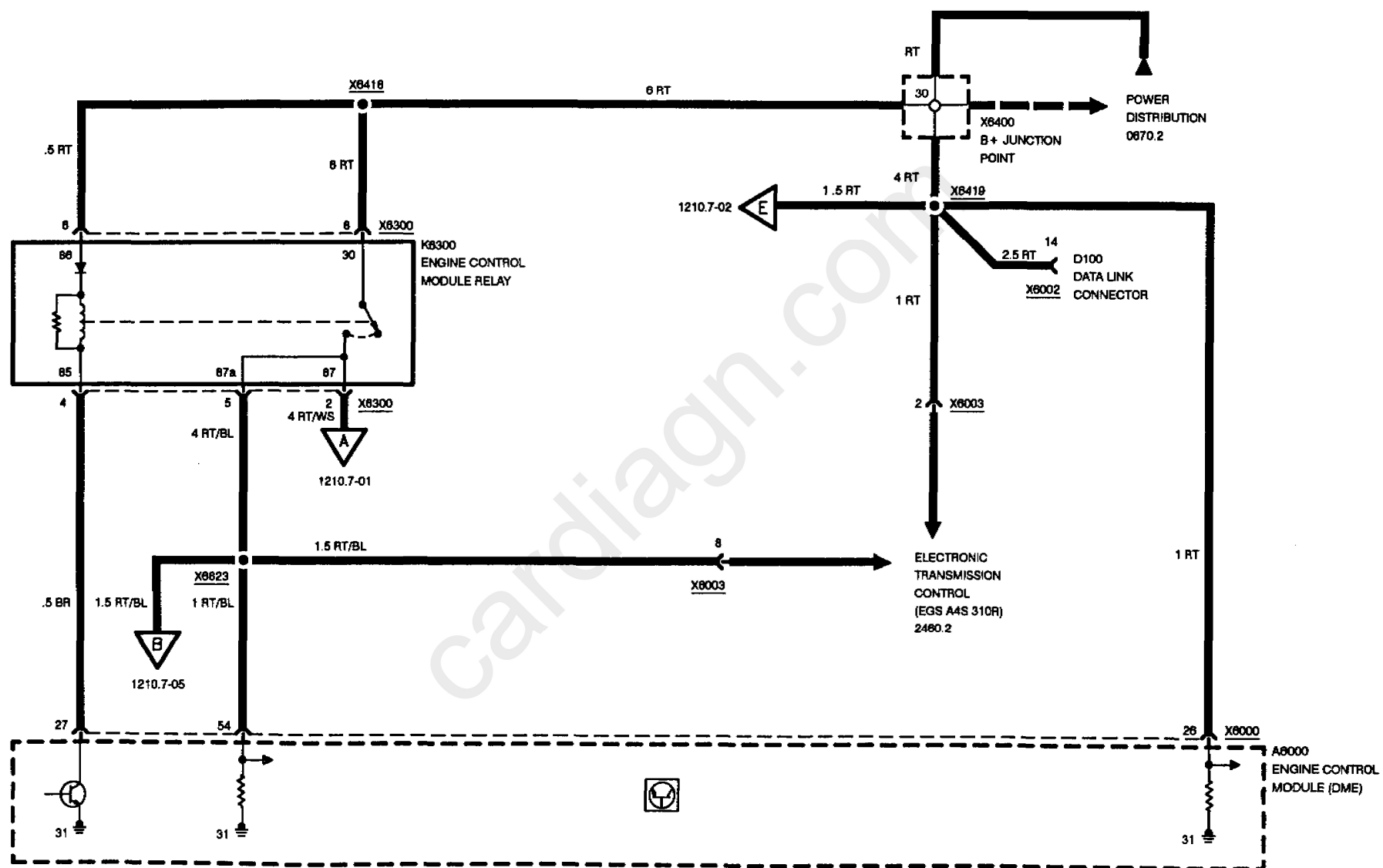


DIGITAL ENGINE ELECTRONICS (DME M3.1, 6-CYLINDER M50)

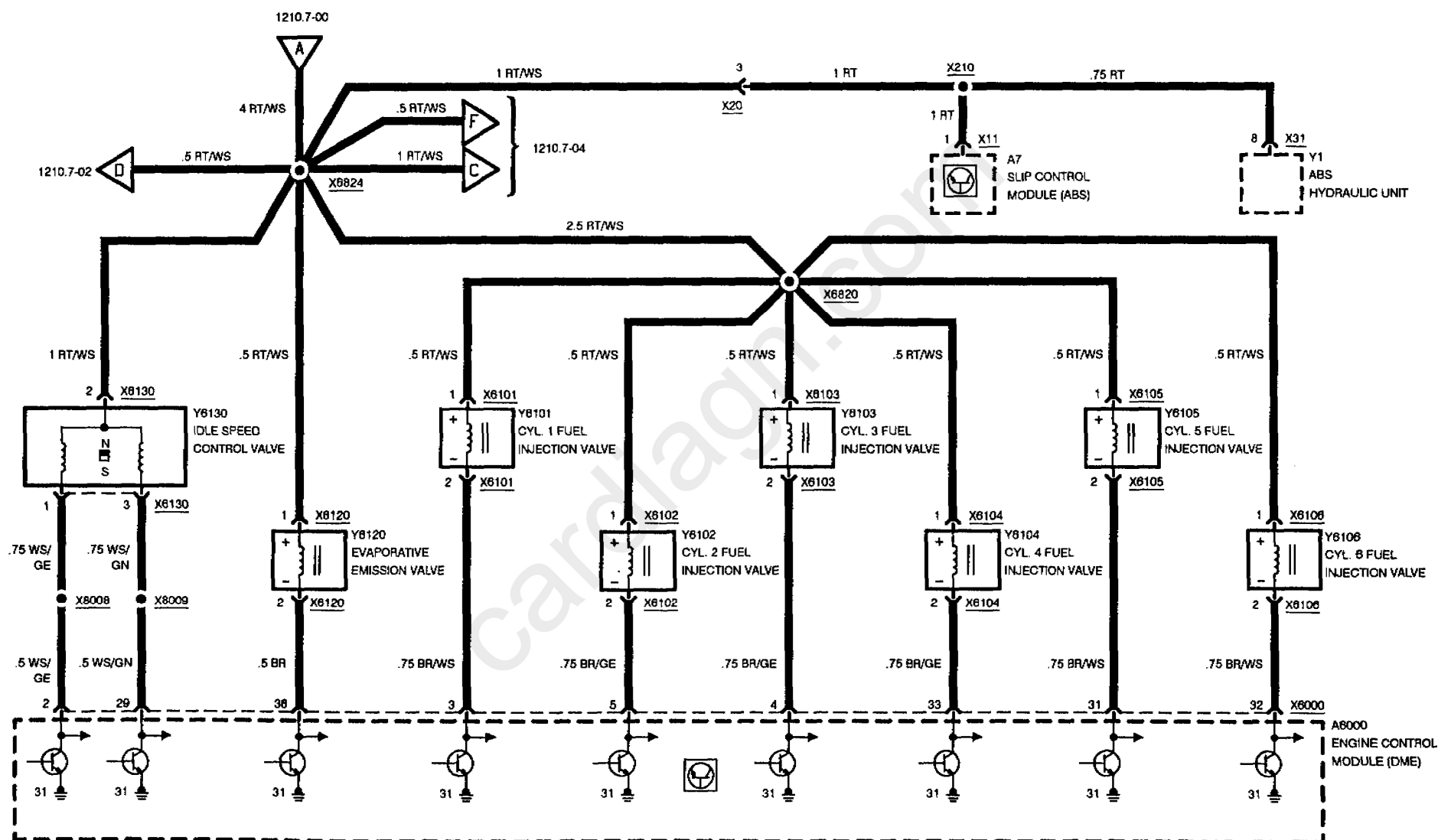
Pin	Type	Description/Function	Connection	Type of Signal	Tester Display	Measurement Notes
78	E	Engine temperature	Engine temperature sensor	0...5 V	°C	Temperature-dependent
79		Not used				
80		Not used				
81	E	Drive-away protection	On-board computer	> 10 V		
82		Not used				
83		Not used				
84		Not used				
85	E	Pressure signal	Pressure switch			
86	E	Compressor signal	IHKR control unit			
87	E	RxD diagnostic data line	Diagnostic connector	> 10 V		When cover of diagnostic connector closed
88	E/A	TxD diagnostic data line	Diagnostic connector	Ground		When cover of diagnostic connector closed



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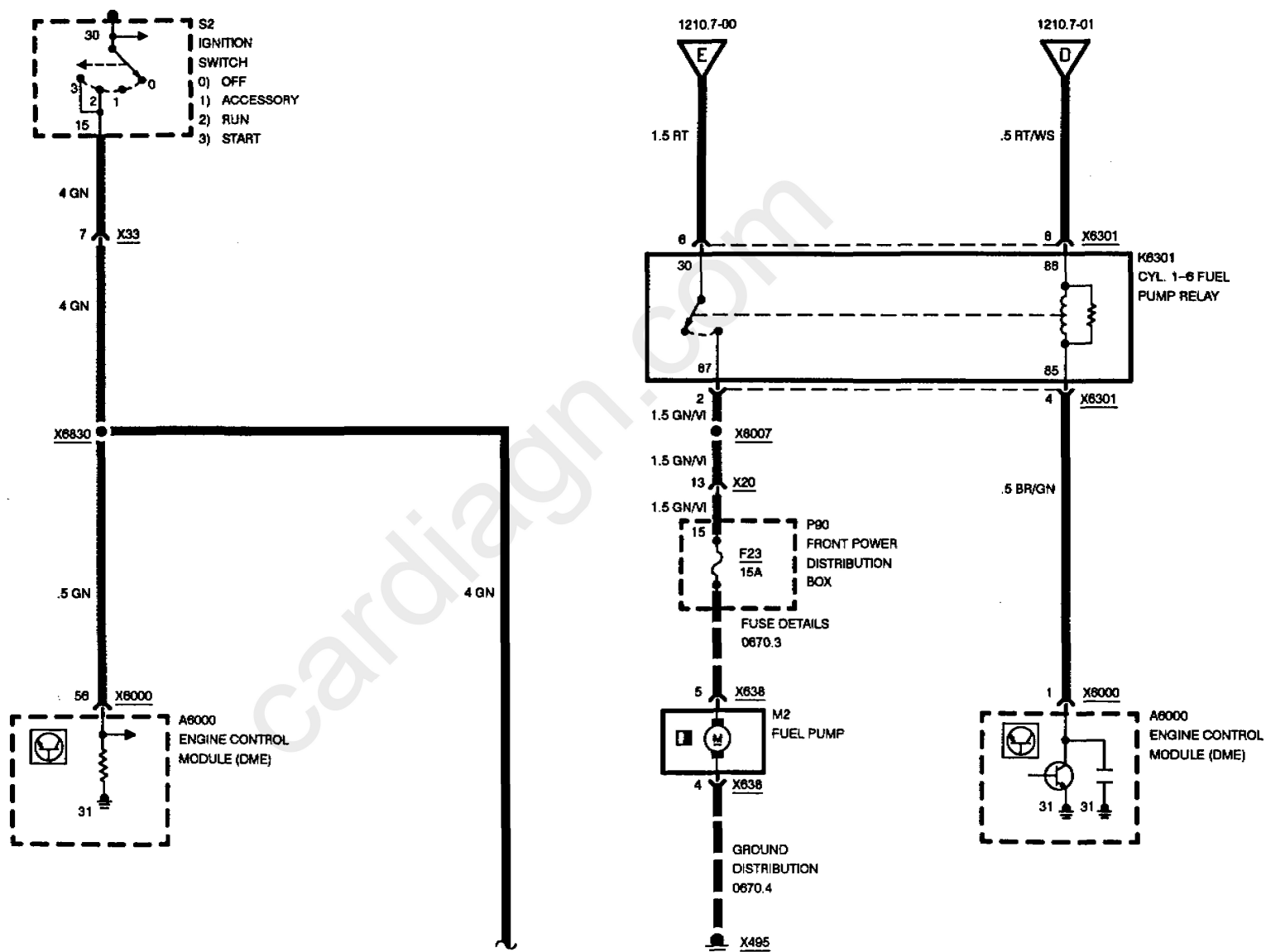


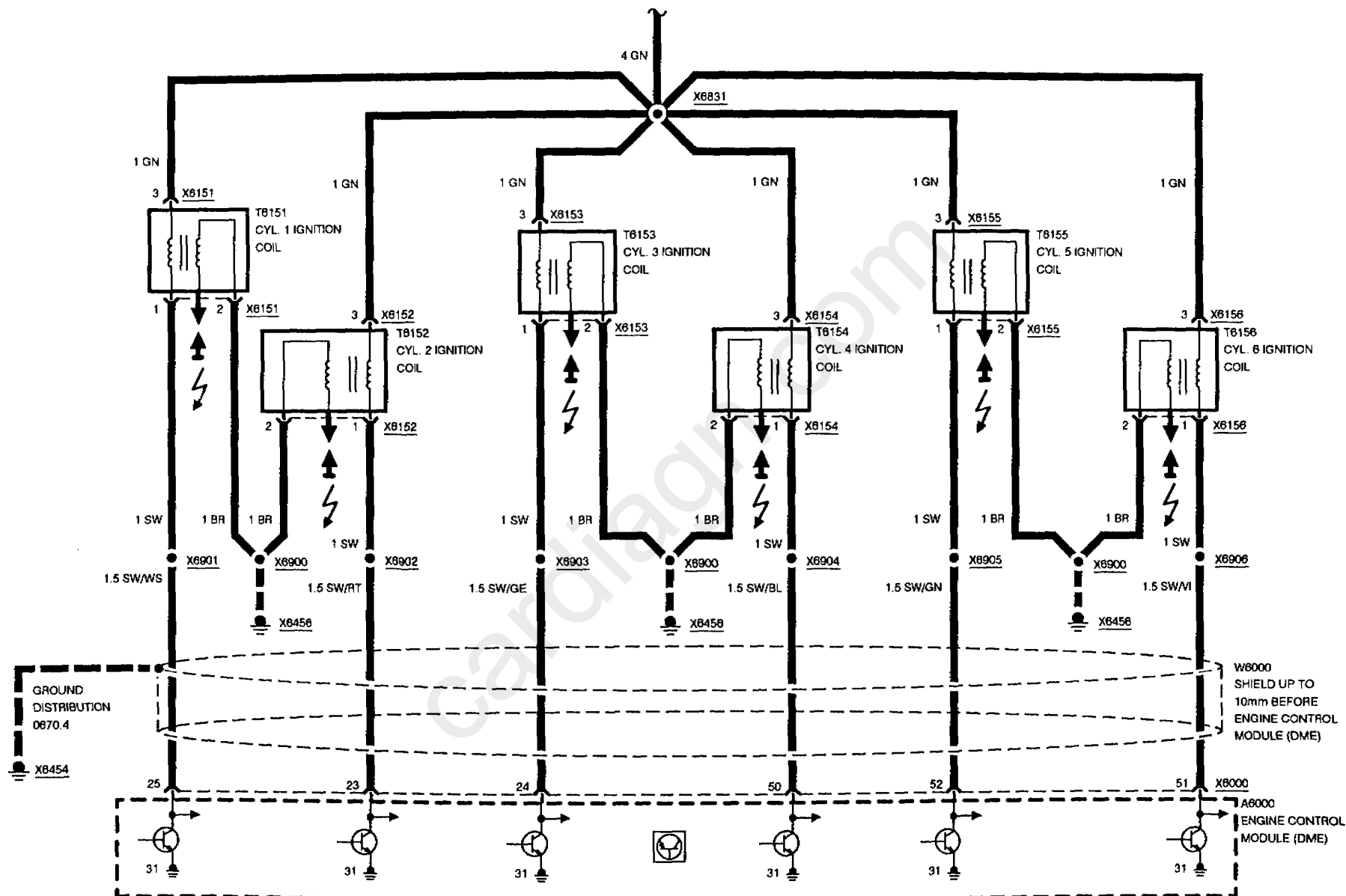
ENGINE CONTROL SYSTEM (DME M3.1, 6-CYLINDER M50)

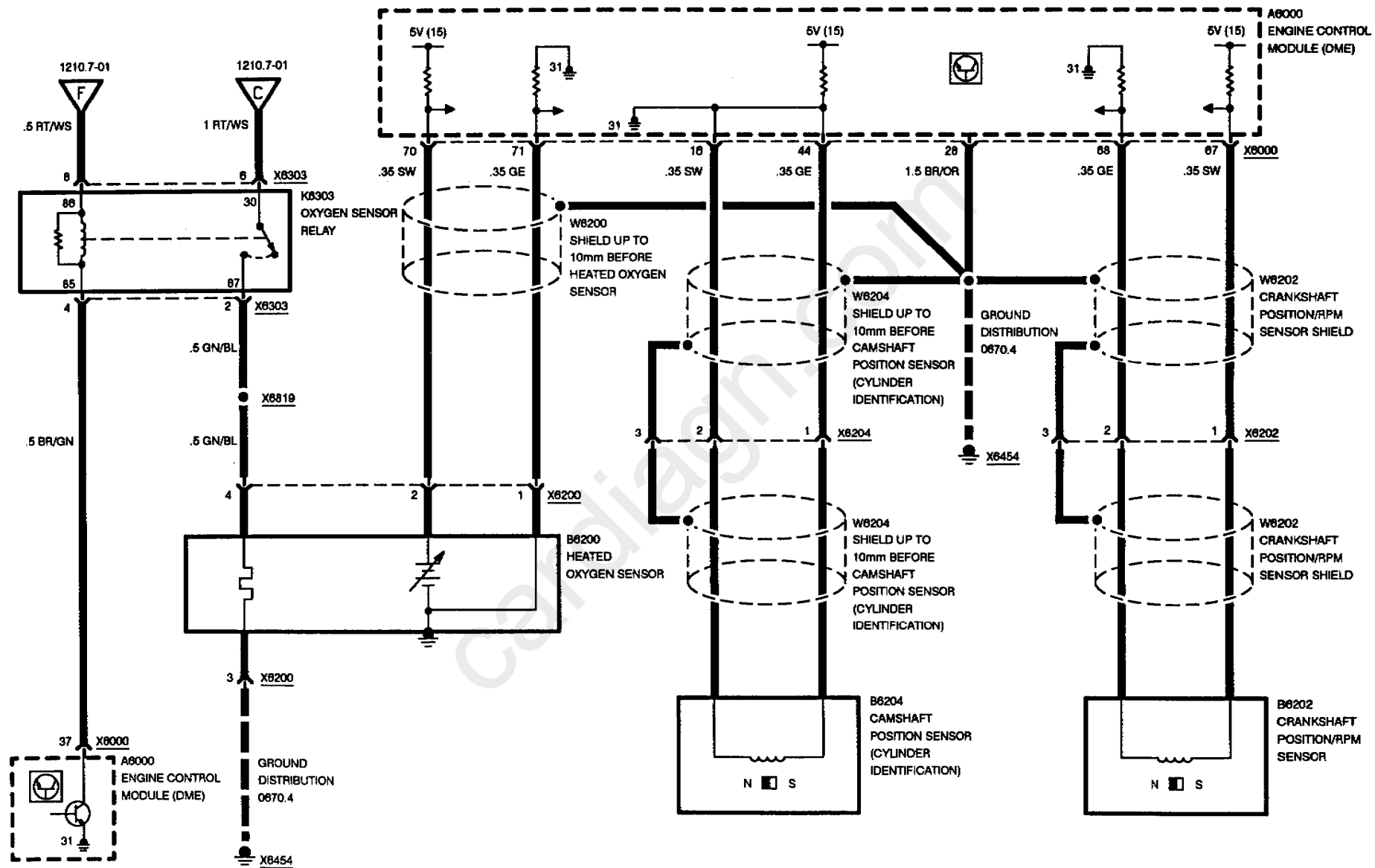




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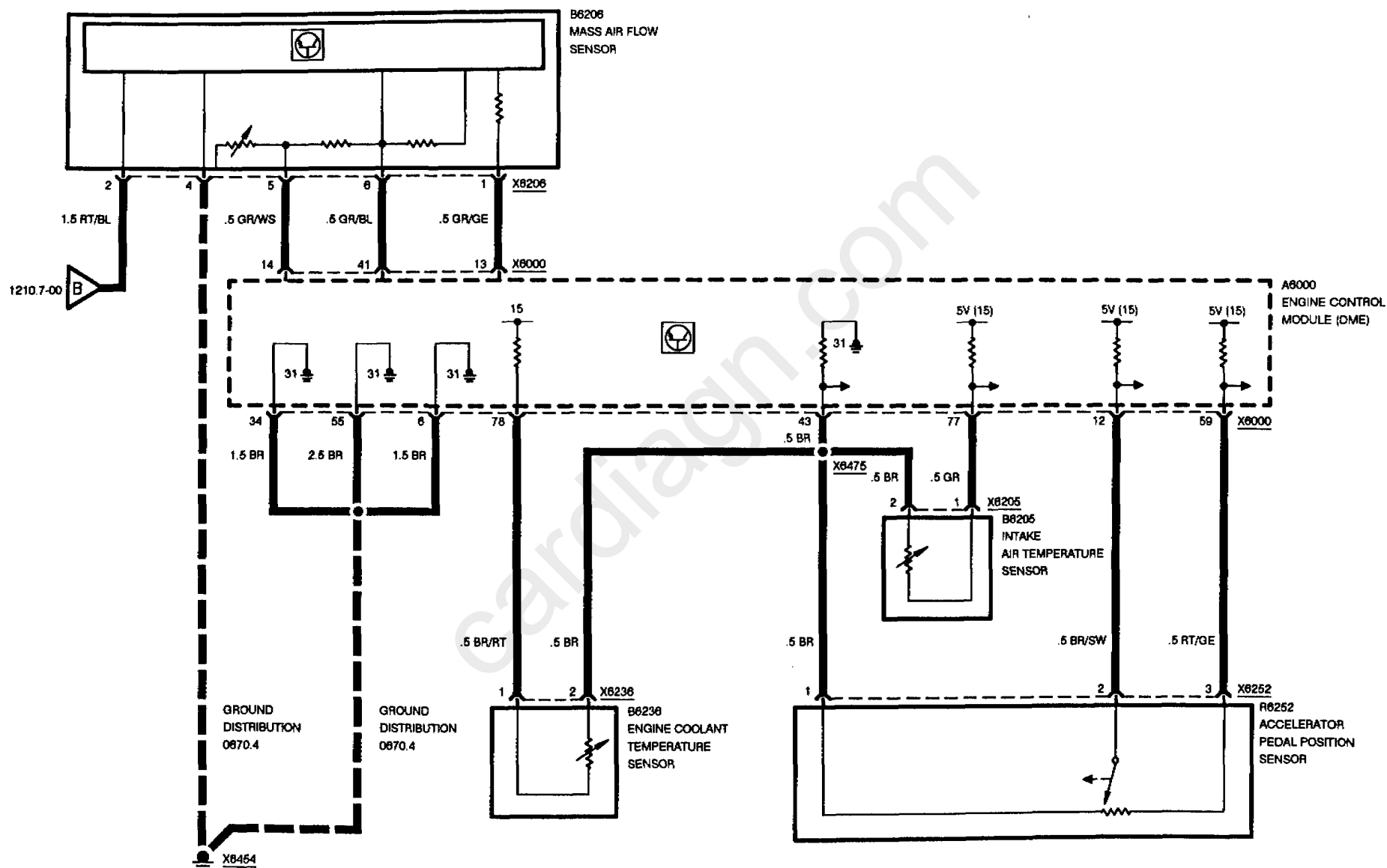


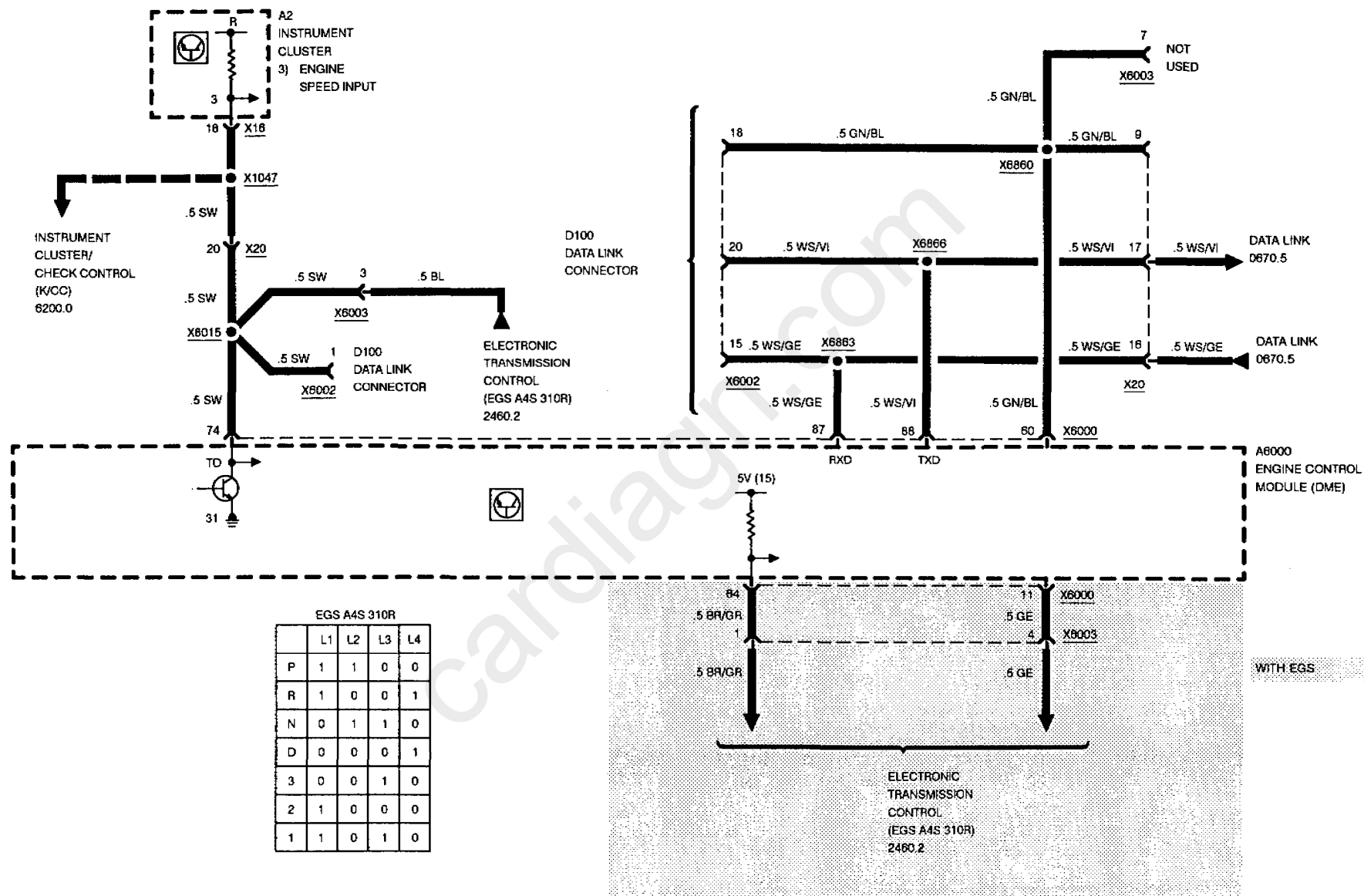






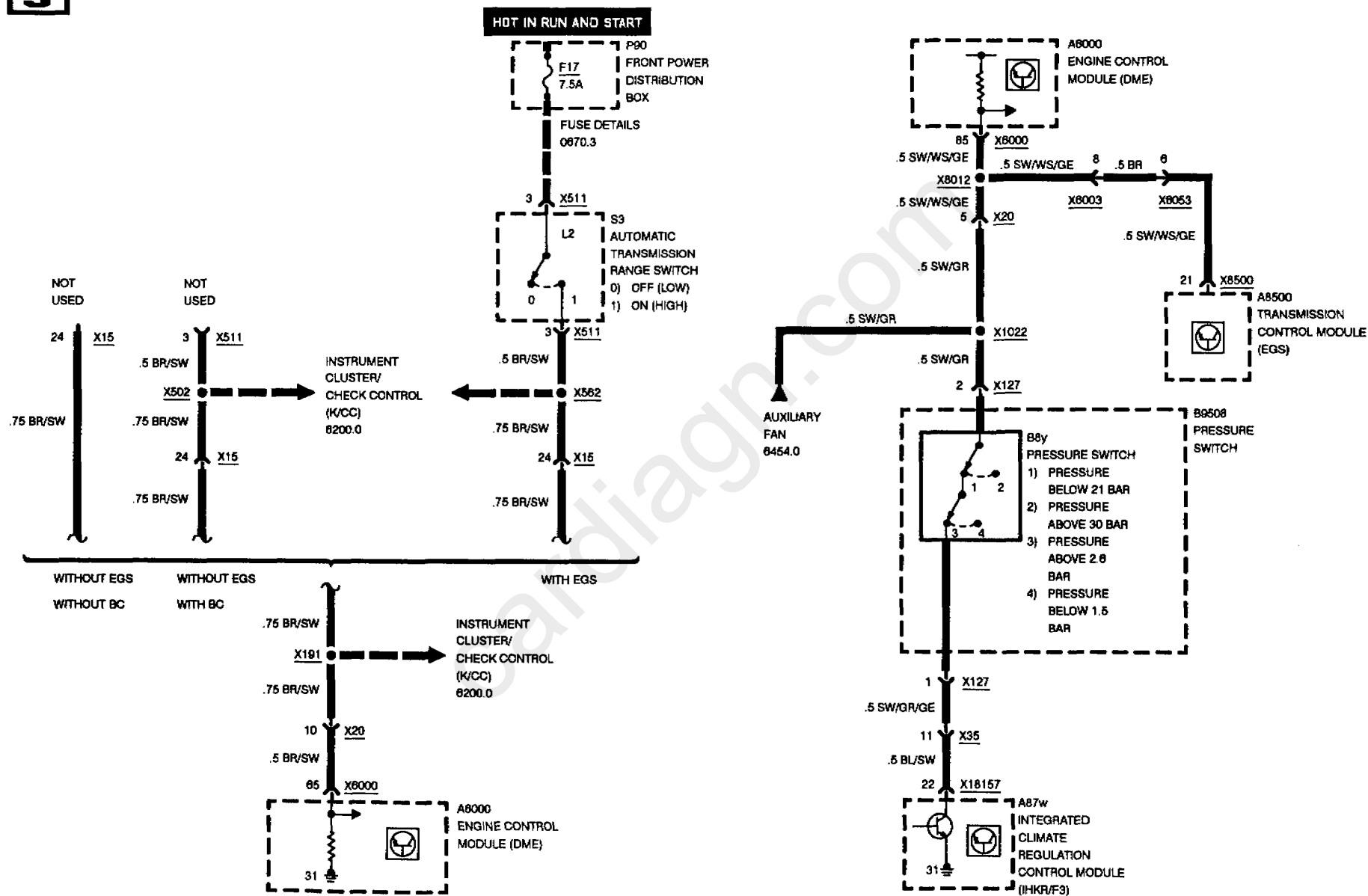
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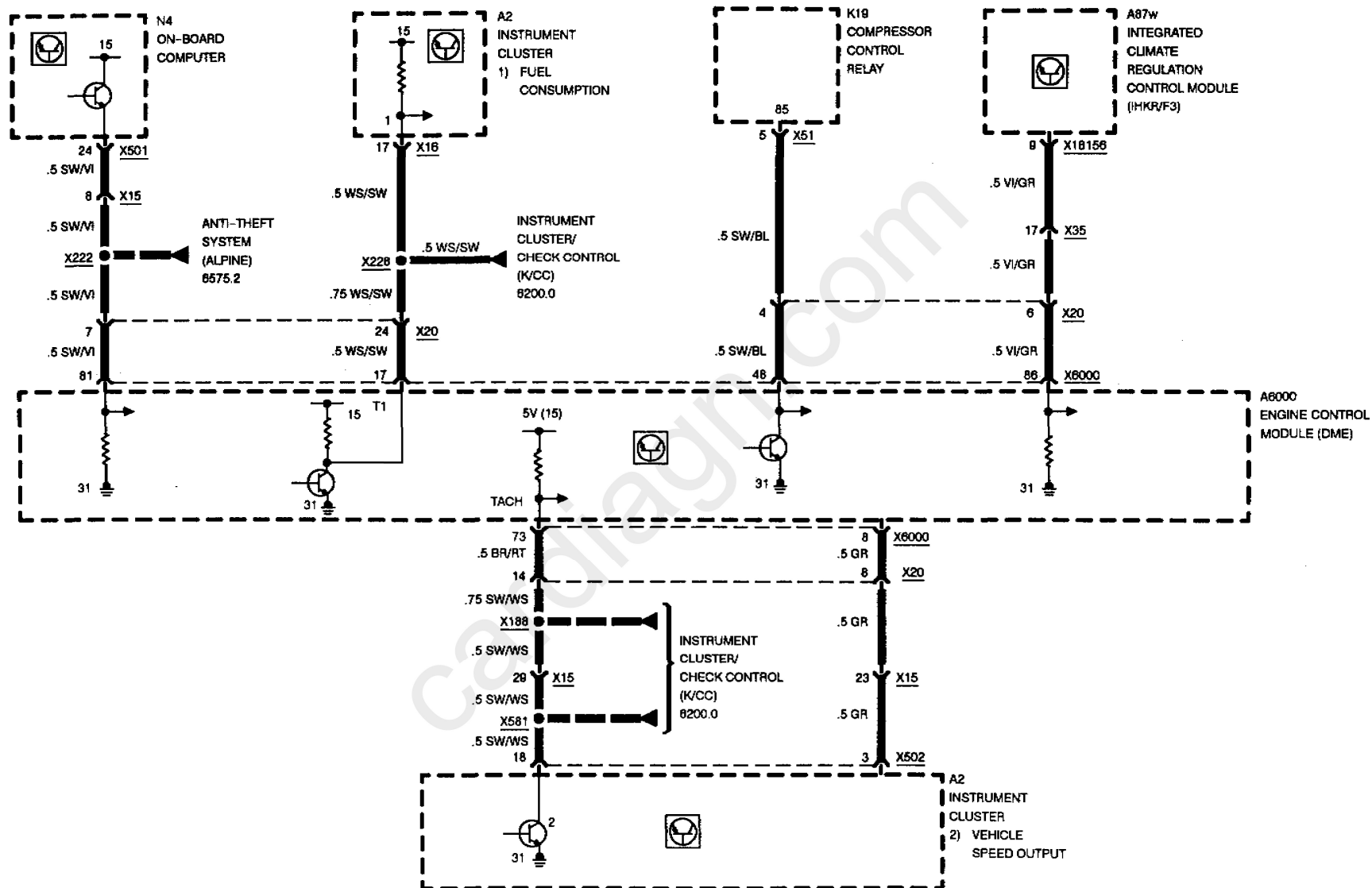






ENGINE CONTROL SYSTEM (DME M3.1, 6-CYLINDER M50)







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