

How to Convert 03/04 Cobra Engine & Transmission Harnesses to Work in a 96-98 Mustang GT/Cobra

Mark Olson

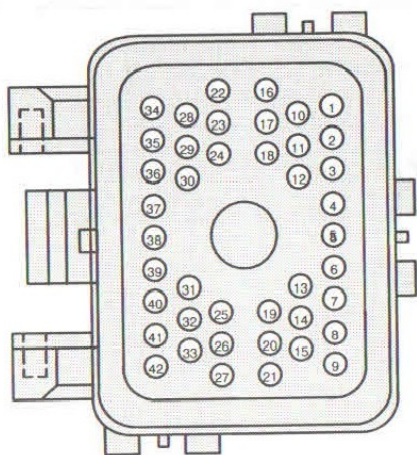
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R1.4

I was asked to look at what it would take to adapt engine & transmission harnesses from a 2003/2004 Mustang Cobra to work with the body harness of a 96-98 Mustang Cobra or GT.

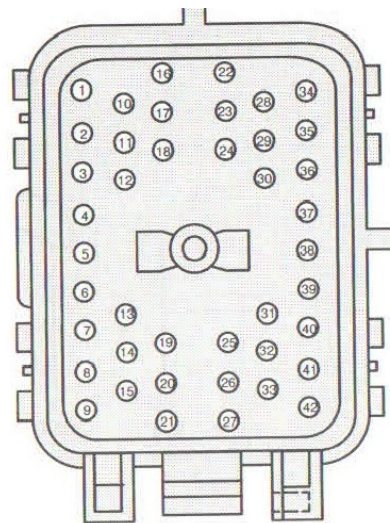
This analysis was done using my 96 Mustang EVTm and my 03 Mustang EVTm. I am not responsible for any errors or omissions so please check my work if you use this document to do a Terminator engine swap. Feel free to contact me at molson (like the beer) at accutach dot com with any corrections and suggestions.

Here is the engine harness connector C104 pinout for the 96 Mustang, followed by the engine harness connector C133 for the 03 Mustang.



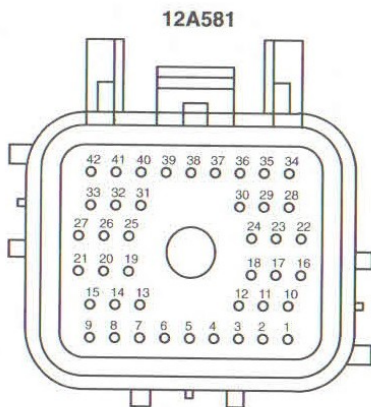
C104F (BLACK)
12A581

1996 Mustang
Engine Harness
Connector



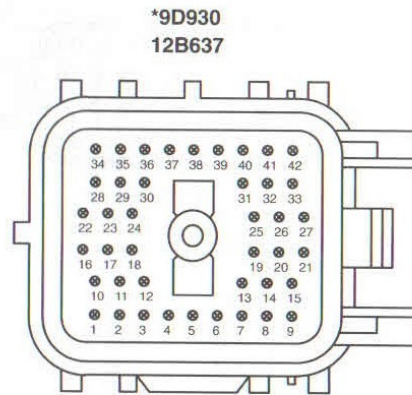
C104M (BLACK)
12A522

Note that Ford rotated the connector diagrams in the manuals between 1996 and 2003.



F42002

2003 Mustang
Engine Harness
Connector



F42001

The connectors are mechanically compatible with each other. The next page describes the differences in the pin functions between the generations. The following two pages describe the wiring changes required to adapt an 03/04 Cobra engine harness to mate with a 96-98 Cobra or GT harness.

The following table shows the comparison of the pins in the 96 and 03 engine harness connectors. The pins who's functions are identical are highlighted in green. No changes need to be made to those pins.

96C104F	Signal#	Color	Description	04C133F	Signal #	Color	Description
1	57	BK	Ground	1	1205	BK	Ground
2	39	R/W	Temp Gauge Signal	2	965	LG/VT	Supercharger Bypass Solenoid (Cobra only)
					1040**	RD/BK	PCV Heater (GT, Mach1 only)
3	387	R/W	RF HO2 Heater Control	3	387	RD/WH	HO2S #11 Rt. Front Heater Control
4	388	Y/LB	LF HO2 Heater Control	4	74	G/LB	HO2S #11 Rt. Front Signal (3.8) Not used in GT, Cobra, Mach1)
5	74	G/LB	RF HO2 Signal	5	74	G/LB	HO2S #11 Rt. Front Signal (GT, Cobra, Mach1), Not used in 3.8
					1102*	YE/LG	Head Temperature Sensor (3.8 only)
6	94	R/BK	LF HO2 Signal	6	1291	RD/YE	IAT2 Signal
7	555	T	Fuel Injector #1	7	555	TN	Fuel Injector #1
8	556	W	Fuel Injector #2	8	556	WH	Fuel Injector #2
9	361	R	Injector Power	9	361	RD	Injector Power
10	258**	W/PK	Low Oil Level Sensor (GT, NA ii)	10	347	BK/YE	A/C Clutch Field Coil (GT); No connector in 3.8; C1045, Pin12 in Cobra; C1222, Pin4 in
	190*	W/O	IMRC Sensor (Cobra)		1022*	DB/YE	IMRC Sensor (3.8)
11	355	G/W	TPS Signal	11	355	G/WH	TPS Signal
12	351	BR/W	Vref	12	351	BN/WH	Vref
13	557	BR/Y	Fuel Injector #3	13	557	BN/YE	Fuel Injector #3
14	558	BR/LB	Fuel Injector #4	14	558	BN/LB	Fuel Injector #4
15	559	T/BK	Fuel Injector #5	15	559	TN/BK	Fuel Injector #5
16	354	LG/R	ECT Sensor	16	354	LG/RD	ECT Sensor
17	367*	BR	IMRC Control (Cobra)	17	367	BN	IMRC Control (3.8)
	794**	LB	Low Coolant Level Sensor (GT)				
18	359	G/R	Signal Return	18	359	G/RD	Signal Return
19	560	LG/O	Fuel Injector #6	19	560	LG/OG	Fuel Injector #6
20	561	T/R	Fuel Injector #7	20	561	TN/RD	Fuel Injector #7
21	562	LB	Fuel Injector #8	21	562	LB	Fuel Injector #8
22	350	G	CKP-	22	350	G	CKP-
23	282	DB/O	CMP+	23	282	DB/OG	CMP Signal
24	570	BK/W	PCV Power Ground	24	NOT USE	NOT USE	
25	31	W/R	Oil Pressure Gauge Signal	25	31	WH/RD	Oil Pressure switch signal (3.8, GT, Mach1), Cobra=C144, pin14
26	526	DB/LG	Coil Driver A	26	526*	DB/LG	Coil Pack (3.8)
					1024	LG/WH	COP1 (GT, Cobra, Mach1)
27	91	P/W	Evap Purge Flow Sensor	27	356	DB/LG	Barometric Absolute Pressure Sensor
28	349	DB	CKP+	28	349	DB	CKP+
29	359	G/R	Signal Return	29	NOT USE	NOT USE	
30	352	BR/LG	DPFE Sensor	30	352	BN/LG	DPFE Sensor
31	45	Y/R	Temp Gauge Sender Ground (f	31	141	RD/PK	Fuel Rail Pressure Signal
32	527	R/LB	Coil Driver B	32	527*	RD/LB	Coil Pack (3.8)
					1028	WH/PK	COP3 (GT, Cobra, Mach1)
33	528	PK/W	Coil Driver C	33	528*	PK/WH	Coil Pack (3.8)
					1027	PK/LB	COP7 (GT, Cobra, Mach1)
34	16	R/LG	Hot In Start or Run	34	20*	WH/LB	Hot in Start or Run (3.8)
					1118	RD	Hot in Start or Run (GT, Cobra, Mach1)
35	48	?	CKP/CMP Shield Ground (1265	35	1265	BK	CKP Shield
36	310*	Y/R	Right Knock Sensor (Cobra onl	36	NOT USE	NOT USE	
37	311*	DG/P	Left Knock Sensor (Cobra only,	37	NOT USE	NOT USE	
	57**	BK	Ground (GT)				
38	360	BR/PK	EGR Vacuum Regulator Soleno	38	360	BN/PK	EGR Vacuum Regulator Solenoid
39	264	W/LB	IACV	39	264	WH/LB	IACV
40	1022*	DB/Y	IMRC Power (175, BK/Y in 98)	40	NOT USE	NOT USE	Suggest you use this for the intercooler pump
41	529	R/Y	Coil Driver D	41	1026	PK/WH	COP2 (GT, Cobra, Mach1) Not used in 3.8
42	347	BK/Y	A/C Clutch Field Coil	42	391	RD/YE	Hot in Start and Run (3.8, GT, Mach1), not used in Cobra

The following describes what you need to modify, pin-by-pin, in order to get your 03/04 engine harness to work in your 96-98 Mustang:

Pin 1 on the 03 Cobra harness is the BK ground wire for the harness. The BK AC clutch field coil ground wire from Pin 11 of the 03/04 engine harness connector C1045 needs to be spliced to this wire. Other than splicing the AC clutch ground wire to it, no other changes need to be made to this wire.

Pin 2 on the 03 Cobra harness is the LG/VT Supercharger Bypass Solenoid Signal. But Pin 2 on the 96-98 connector is the R/W Temperature Gauge Signal. So you need to modify your 03 harness to put a R/W wire to the gauge sender if you want your stock temperature gauge to work. Since the 03 Cobra does not have a separate temperature gauge sensor for the temperature gauge, you will need to add a bung for the temperature gauge sensor on the crossover tube (or where ever you want to). This topic has been covered many times on the internet. Do a search. There is nothing in the 96-98 PCM that uses the Supercharger Bypass solenoid, so that wire is not used in the 03/04 Cobra engine harness.

Pin 4 is not used in the 03 Cobra. However, Pin 4 on the 96 connector is used for the Y/LB Left-Front Heated O2 Sensor heater control wire. You will need to add a pin and a Y/LB wire that runs to the front O2 sensor harness connector (C1005) on your 96-98 car.

Pin 6 on the 03 Cobra harness is the RD/YE IAT2 signal, and Pin 6 on the 96-98 harness is the R/BK Left-Front Heated O2 Sensor data Signal. You will need to run the RD/YE IAT2 wire from the 03 Cobra engine harness to the 96-98 GY IAT wire near the passenger side shock tower. You will need to run a R/BK wire from Pin 6 of the 02 Cobra harness to the front O2 sensor harness connector (C1005) on your 96-98 car.

Pin 10 on the 03 Cobra harness is not used. Pin 10 in 96-98 Cobras is for the IMRC sensor signal, which is not needed, so no wire is needed for this pin. Pin 10 in 96-98 GTs is for the W/PK Low Oil Sensor Signal. If you are installing the 03/04 Cobra motor in a GT car, you will need to add a W/PK wire from Pin 10 to the Low Oil sensor if you want it to work.

Pin 17 is not used in the 03 Cobra. Pin 17 is the BR IMRC Control signal in the 96-98 Cobras. Since the 03/04 motor does not have IMRCs, no wire needs to be added. But Pin 17 is the LB Low Coolant Level sensor signal in the 96-98 GT, so you must run a LB wire from that pin to the Low Coolant Level sensor in the GTs if you want the low coolant light to work.

Pin 24 is not used in 03 cars, but is a ground wire in the 96 cars. It does not need to be used.

Pin 25 is not used in 03 cars, but it is the W/R Oil Pressure Gauge Signal in the 96-98 cars. A pin must be added and a W/R wire run to the Oil pressure sender on the 03/04Cobra motor if you want to use the oil pressure gauge.

Pin 26 is the LG/WH COP1 signal in the 03 Cobra harness. Pin 26 is the DB/LG Coil Driver A signal in the 96-98 body harness. The LG/WH wire in the 03/04 engine harness needs to be cut and run to the DB/LG wire on the correct coil pack connector if you are running 96-98 Cobra valve covers and coil packs. This wire can also be used as an input to a COP conversion setup. See Page 5 for how to turn the 03/04 Cobra engine harness into a COP conversion.

Pin 27 on the 03 Cobra engine harness is the DB/LG Barometric Absolute Pressure signal, which is not used in the 96-98 systems. Pin 27 on the 96-98 cars is the P/W Evap Purge Flow Sensor Signal. In order for your 96-98 evap system to work properly, you need to cut the DB/LG wire in the 03/04 engine harness and run it to the P/W Evap Purge Flow sensor wire at the sensor connector.

Pin 29 is not used in the 03 Cobra harness and it is a redundant signal return wire in the 96-98 harness so it is not needed in the swap.

Pin 31 is the RD/PK Fuel Rail Pressure signal in the 03 Cobra harness, which is not used by the 96-98 system. Pin 31 in some (but not all) 96-97 cars is the Y/R ground wire for the temperature gauge sensor. It is not used in 98 cars. If the Y/R wire is in your 96-97 body harness, you should run the ground side of the temperature gauge sensor you added to the crossover tube to (or wherever you put it) in order for your temperature gauge to work.

Pin 32 is the WH/PK COP3 signal in the 03 engine harness. Pin 32 is the R/LB Coil Driver B signal in the 96-98 body harness. The WH/PK wire in the 03/04 harness needs to be cut and run to the R/LB wire on the correct coil pack connector if you are running 96-98 Cobra valve covers and coil packs. This wire can also be used as an input to a COP conversion setup. See Page 5 for how to turn the 03/04 Cobra engine harness into a COP conversion.

Pin 33 is the PK/LB COP7 signal in the 03 Cobra engine harness. Pin 33 is the PK/W Coil Driver C signal in the 96-98 body harness. The PK/LB wire in the 03/04 harness needs to be cut and run to the PK/W wire on the correct coil pack connector if you are running 96-98 Cobra valve covers and coil packs. This wire can also be used as an input to a COP conversion setup. See Page 5 for how to turn the 03/04 Cobra engine harness into a COP conversion.

Pin 36 is not used in the 03 Cobra. It is the Y/R Right Knock Sensor signal (W/O SAI control? in the 98s), and should not be used with this swap, and turned off in the tune. 96-98 PCMs interpret blower noise as detonation and it retards the spark.

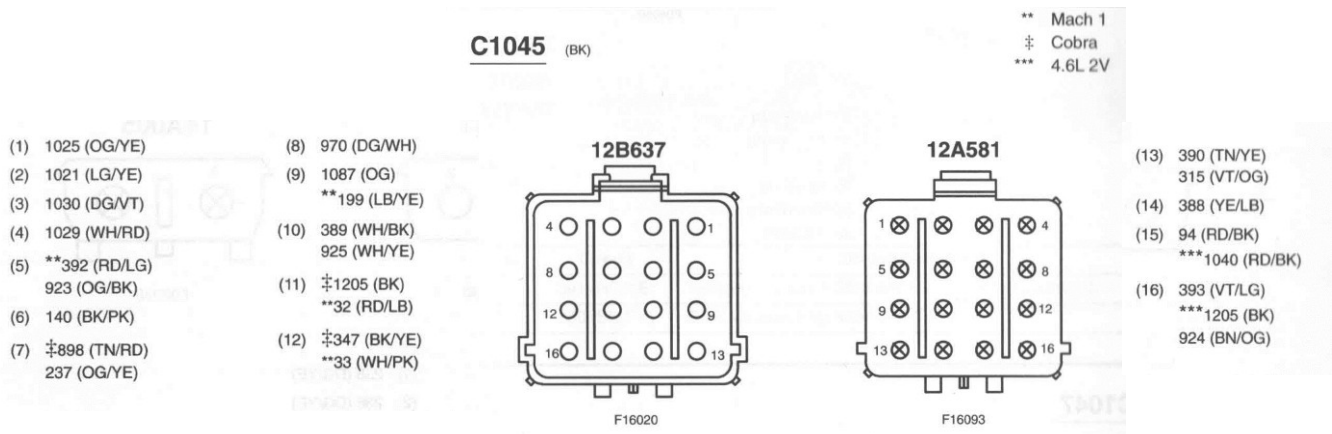
Pin 37 is not used in the 03 Cobra. It is a DG/P Left Knock Sensor Signal, and should not be used in the swap, and turned off in the tune. 96-98 PCMs interpret blower noise as detonation and it retards the spark.

Pin 40 is not used in the 03 Cobra engine harness. In the 96-98 Cobra body harness, the DB/Y (BK/Y in 98) wire carries switched power for the IMRC actuators. I suggest you run a wire from this pin to the intercooler pump on the 03/04 engine. It is switched power, it is fused properly and carries plenty of current for the pump. (I have not yet validated that this is correct for 98 Cobras. Please contact me if you know.)

Pin 41 is the PK/WH COP2 signal in the 03 Cobra engine harness. Pin 41 is the R/Y Coil Driver D signal in the 96-98 harness. The PK/WH wire in the 03/04 harness needs to be cut and run to the R/Y wire on the correct coil pack connector if you are running 96-98 Cobra valve covers and coil packs. This wire can also be used as an input to a COP conversion setup. See Page 5 for how to turn the 03/04 Cobra engine harness into a COP conversion.

Pin 42 is not used in the 03 Cobra engine harness. Pin 42 is the BK/Y A/C Clutch Field Coil signal in the 96-98 body harnesses. You will need to run the BK/YE wire from Pin 12 of the 03/04 Cobra engine harness connector C1045 to this pin, Pin 42.

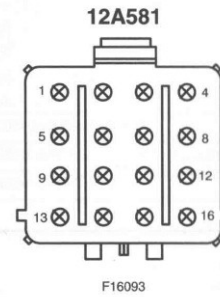
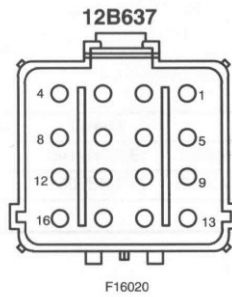
FIY, here is the pinout for the 03/04 engine harness connector C1045. By the time you are done with all of the modifications to the harness, this connector should be completely removed from the harness.



C1045 (BK)

** Mach 1
‡ Cobra
*** 4.6L 2V

- | | |
|-------------------|-------------------|
| (1) 1025 (OG/YE) | (8) 970 (DG/WH) |
| (2) 1021 (LG/YE) | (9) 1087 (OG) |
| (3) 1030 (DG/VT) | **199 (LB/YE) |
| (4) 1029 (WH/RD) | (10) 389 (WH/BK) |
| (5) **392 (RD/LG) | 925 (WH/YE) |
| 923 (OG/BK) | (11) ‡1205 (BK) |
| (6) 140 (BK/PK) | **32 (RD/LB) |
| (7) ‡898 (TN/RD) | (12) ‡347 (BK/YE) |
| 237 (OG/YE) | **33 (WH/PK) |



- | |
|------------------|
| (13) 390 (TN/YE) |
| 315 (VT/OG) |
| (14) 388 (YE/LB) |
| (15) 94 (RD/BK) |
| ***1040 (RD/BK) |
| (16) 393 (VT/LG) |
| ***1205 (BK) |
| 924 (BN/OG) |

I have been asked about the signals that are on C1045, so I have compiled the following:

Pin 1, signal 1025 (OG/YE) is the COP6 signal

Pin 2, signal 1021 (LG/YE) is the COP5 signal

Pin 3, signal 1030 (DG/VT) is the COP4 signal

Pin 4, signal 1029 (WH/RD) is the COP8 signal

Pin 5, signal 392 (RD/LG) is the HO2 sensor #12 heater power in a Mach 1 manual car

Pin 5, signal 923 (OG/BK) is the transmission temp sensor signal in an automatic car

Pin 6, signal 140 (BK/PK) is the backup light signal

Pin 7, signal 898 ((TN/RD) is the reverse lockout solenoid signal in a Cobra

Pin 7, signal 237 (OG/YE) is Solenoid 16 in an automatic car

Pin 8, signal 970 (DG/WH) is the OSS signal

Pin 9, signal 1087 (OG) is Hot in Run power for the back up lights

Pin 9, signal 199 (LB/YE) is the DTR TR3 signal in a Mach 1 automatic car

Pin 10, signal 389 (WH/BK) is the HO2 sensor #12 heater control signal in a manual car

Pin 10, signal 925 (WH/YE) is Solenoid 19 in an automatic car

Pin 11, signal 32 (RD/LB) is Hot in Start power for the starter relay in the Mach 1

Pin 11, signal 1205 (BK) is ground in a Cobra

Pin 12, signal 33 (WH/PK) is the DTR starter signal in a Mach 1 automatic car

Pin 12, signal 347 (BK/YE) is the AC Clutch field coil signal in a Cobra

Pin 13, signal 390 (TN/YE) is the HO2 sensor #22 heater control signal in a manual car

Pin 13, signal 315 (VT/OG) is Solenoid 17 in an automatic car

Pin 14, signal 388 (YE/LB) is the HO2 sensor #21 heater control signal

Pin 15, signal 95 (RD/BK) is HO2 sensor #21 heater power

Pin 15, signal 1040 (RD/BK) is the PCV heater Hot in Run power in a GT

Pin 16, signal 393 (VT/LG) is HO2 sensor #22 heater power in a manual car

Pin 16, signal 924 (BN/OG) is Solenoid 20 in an automatic car

Pin 16, signal 1205 (BK) is PCV heater ground in a GT

The next section describes one way to swap an 03/04 Cobra transmission harness into a 96-98 Cobra or GT (assuming the 98 transmission harness is pinned the same as the 96/97 harnesses).

The COP conversions I have seen run two coils in series in a similar waste-spark configuration to the coil pack wiring in 96-98 Mustangs.

Power for the COP conversion will come from the RD wire on Pin 34 of the 03/04 engine harness Connector C133. However, since you are converting to a waste-spark setup, you will need to cut the RD wires to COP1, COP3, COP7 & COP2. Make sure you leave enough wire at the COP connector to make the connection to the other coils. You will leave the RD power wire connected to COP6, COP5, COP4 & COP8.

COP1 & COP6:

The 96-98 Coil Driver A signal will appear on the LG/WH wire on Pin 26 of the 03/04 engine harness Connector C133. It goes to the negative terminal of COP1, which is where you need it to go. No change needs to be made to this wire. Since COP1 and COP6 will be used in a waste-spark arrangement, the two COPS need to be wired in series. You will need to wire the RD positive terminal wire for COP1 to the OG/YE wire that runs between COP6 and Connector C1045 on the engine harness. You should cut the OG/YE wire at Connector C1045. Since you did not cut the RD power wire to COP6, you are done with the first pair.

COP3 & COP5:

The 96-98 Coil Driver B signal will appear on the WH/PK wire on Pin 32 of the 03/04 engine harness Connector C133. It goes to the negative terminal of COP3, which is where you need it to go. No change needs to be made to this wire. Since COP3 and COP5 will be used in a waste-spark arrangement, the two COPS need to be wired in series. You will need to wire the RD positive terminal wire for COP3 to the LG/YE wire that runs between COP5 and Connector C1045 on the engine harness. You should cut the LG/YE wire at Connector C1045. Since you did not cut the RD power wire to COP5, you are done with the second pair.

COP7 & COP4:

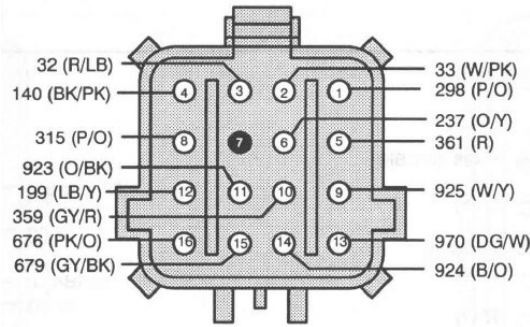
The 96-98 Coil Driver C Signal will appear on the PK/LB wire on Pin 33 of the 03/04 engine harness Connector C133. It goes to the negative terminal of COP7, which is where it needs to go. No change needs to be made to this wire. Since COP7 and COP4 will be used in a waste-spark arrangement, the two COPS need to be wired in series. You will need to wire the RD positive terminal wire for COP7 to the DG/VT wire that runs between COP4 and Connector C1045 on the engine harness. You should cut the DG/VT wire at Connector C1045. Since you did not cut the RD Power wire to COP4, you are done with the third pair.

COP2 & COP8:

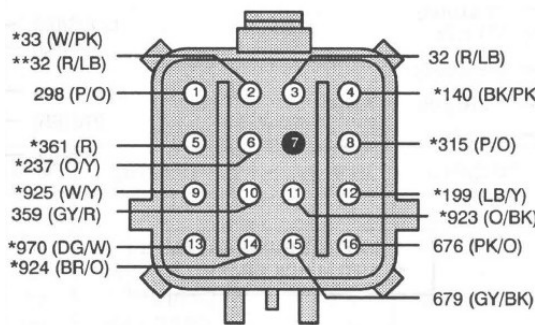
The 96-98 Coil Driver C Signal will appear on the PK/WH wire on Pin 41 of the 03/04 engine harness Connector C133. It goes to the negative terminal of COP2, which is where it needs to go. No change needs to be made to this wire. Since COP2 and COP8 will be used in a waste-spark arrangement, the two COPS need to be wired in series. You will need to wire the RD positive Terminal wire for COP2 to the WH/RD wire that runs between COP8 and Connector C1045 on the engine harness. You should cut the WH/RD wire at Connector C1045. Since you did not cut the RD Power wire to COP8, you are done with the fourth pair.

Here is the transmission harness connector C106 pinout for the 96 Mustang, followed by the transmission harness connector C1148 for the 03 Mustang.

96 Mustang



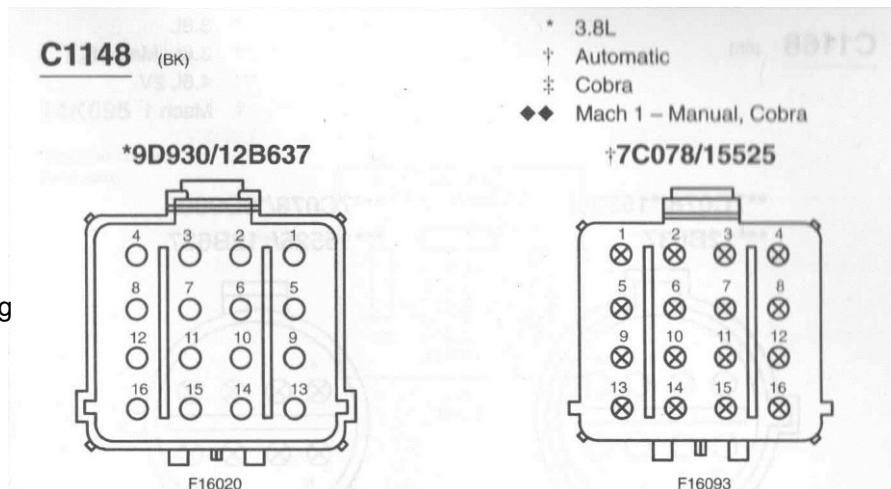
C106F (BLACK)
12A581



* AUTOMATIC TRANSMISSION ONLY
** MANUAL TRANSMISSION ONLY

C106M (BLACK)
15525**
7C078*

03 Mustang



The connectors appear to be mechanically compatible. If you have a 96-98 Cobra or GT, and an 03/04 transmission harness, please let me know if the transmission harness connector will physically plug into the 96-98 body harness. Feel free to email molson (like the beer) at accutach dot com.

The next page describes the differences in the pin functions between the generations. The following two pages describe the wiring changes required to adapt an 03/04 Cobra transmission harness to mate with a 96-98 Cobra or GT harness.

The following table shows the comparison of the pins in the 96 and 03 transmission harness connectors. The pins who's functions are identical are highlighted in green. No changes need to be made to those pins.

03/04 Cobra transmission harness swap into a 96-98 Mustang Cobra or GT							
* Loop in manual transmission harness				Same between 96 and 03 harnesses			
96/96 C106	Signal#	Color	Description	03/04 C1148	Signal #	Color	Description
1	298	P/O	Hot In Run for Backup Lamp	1	1087	OG	Hot In Run for Backup Lamp
2	32	R/LB	Starter Enable* (Auto only)	2	970	DG/WH	OSS Signal
3	32	R/LB	Starter Enable*	3	389	WH/BK	HO2S #12 Rt. Rear Heater Control
4	140	BK/PK	Backup Lamp (Auto only)	4	140	BK/PK	Backup Lamp
5	361	R	(Auto only)	5	94	RD/BK	HO2S #21 Left Front Signal
6	237	O/Y	(Auto only)	6	237	OG/YE	Shift Solenoid A Control (Not used in Cobra)
7	NA(398)	NA(W/BK)	NA(RR O2 Snsr Htr Ctrl in 98)	7	392	RD/LG	HO2S #12 Rt. Rear Signal
8	315	P/O	(Auto only)	8	388	YE/LB	HO2S #21 Left Front Heater Control, Cobra only
9	925	W/Y	(Auto only)	9	391	RD/YE	Hot in Start or Run for Reverse Lockout
10	359	GY/R	Trans Range Sensor Return	10	359	GY/RD	OSS Return
11	923	O/BK	(Auto only)	11	393	VT/LG	HO2S #22 Left Rear Heater ControlSignal
12	199	LB/Y	(Auto only)	12	199	LB/YE	TR3A (Not used in Cobra)
13	970	DG/W	(Auto only)	13	898	TN/RD	Reverse Lockout Control
14	924	BR/O	(Auto only)	14	924	BN/OG	TCC Solenoid (Not used in Cobra)
15	679	GY/BK	VSS Signal	15	390	TN/YE	HO2S #22 Left Rear Signal
16	676	PK/O	VSS Return (GND)	16	388	YE/LB	HO2S #21 Left Front Heater Control, Not Cobra

The following describes what you need to modify, pin-by-pin, in order to get your 03/04 transmission harness to work in your 96-98 Mustang:

Pin 2 of the 03/04 harness carries the DG/WH OSS signal. It needs to be de-pinned and moved to Pin 15 to mate with the 96-98 VSS signal. You will need an Extended Range Speedcal or FRPP Recalibrator or the equivalent to convert the OSS signal to an 8000 pulse per mile VSS signal compatible with the 96-98 electronics. That modification is typically done in the transmission harness.

Pin 3 of the 03/04 harness carries the WH/BK O2 sensor #12 Rt Rear Heater Control signal. You will not need this signal if you use the 96-98 rear O2 sensor wiring. If you want to use the rear O2 sensor wiring in the 03/04 transmission harness, you will need to run the rear O2 sensor wiring from the 96-98 body harness to the transmission connector Pin 3.

Pin 5 of the 03/04 harness carries the RD/BK O2 sensor #21 Left Front sensor signal. It needs to be run to the 96-98 engine harness connector C104 Pin 6 if the 96-98 O2 harness is not used.

Pin 6 of the 03/04 harness is not used.

Pin 7 of the 03/04 harness carries the RD/LG O2 sensor #12 Rt. Rear Sensor signal. You will not need this signal if you use the 96-98 rear O2 sensor wiring. If you want to use the rear O2 sensor wiring in the 03/04 transmission harness, you will need to run the rear O2 sensor wiring from the 96-98 body harness to the transmission connector Pin 7.

Pin 8 of the 03/04 harness carries the YE/LB O2 sensor #21 Left Front Heater Control signal. It needs to be run to the 96-98 engine harness connector C104 Pin 4 if the 96-98 O2 harness is not used.

Pin 9 of the 03/04 harness carries the RD/YE Hot in Start or Run power for the Reverse Lockout Solenoid. How you handle the reverse lockout solenoid depends on how you want to wire it. If you use an Accutach OSS/VSS Reverse Lockout Unit, you would connect this wire to the OG Hot in Run for the Backup Lamp on Pin 1 of this harness. Or you may want to connect it to a switched power source.

Pin 10 of the 03/04 harness carries the GY/RD OSS Return. This wire needs to be de-pinned and re-pinned into Pin 16 to mate with the VSS Return on the 96-98 body harness.

Pin 11 of the 03/04 harness carries the VT/LG O2 Sensor #22 Left Rear Heater Control Signal. You will not need this signal if you use the 96-98 rear O2 sensor wiring. If you want to use the rear O2 sensor wiring in the 03/04 transmission harness, you will need to run the rear O2 sensor wiring from the 96-98 body harness to the transmission connector Pin 11.

Pin 12 of the 03/04 harness is not used.

Pin 13 of the 03/04 harness carries the TN/RD Reverse Lockout Solenoid Control signal. How you handle this wire also depends on how you decide to wire the reverse lockout solenoid. If you use an Accutach OSS/VSS Reverse Lockout Unit, you would connect the White lockout unit output wire to this wire. If you are using a switched power source on Pin 9, you would ground this wire.

Pin 14 of the 03/04 harness is not used in the Cobra.

Pin 15 of the 03/04 harness carries the TN/YE O2 sensor #22 Left Rear Sensor Signal. You will not need this signal if you use the 96-98 rear O2 sensor wiring. If you want to use the rear O2 sensor wiring in the 03/04 transmission harness, you will need to run the rear O2 sensor wiring from the 96-98 body harness to an unused pin on the transmission connector, and relocate this pin to that location, since this pin location will be used for the OSS/VSS signal.

Pin 16 of the 03/04 harness is not used. This is the pin location were the OSS/VSS return wire will be run.

All of the wires that were connected to the 03/04 Cobra engine harness connector C1045 should have been run to other destinations.

Hopefully, this document will help you to simplify the swap of a Terminator motor into your 96 to 98 Mustang.