

CHAPTER 10

ELECTRICAL

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1996 Models

Model	Headlight		Taillight	Brake Light	Handwarmer	Voltage Reg.
	Type	Watts Hi/Low	Watts	Watts	Watts Hi/Low	
Indy Lite/Deluxe	Incan	60/60	2 @ 2.7	13.3	Acc	LR9
Indy Lite GT	Incan	60/60	1 @ 8.3	23.0	15	LR9
Indy Sport	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy TranSport	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy Super Sport	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy Sport Touring	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy 440 XCR/600 XCR	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy 440 XCR SP	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy 600 XCR SP	Dual Halogen	2x60/ 2x55	2 @ 2.7	13.3	15/7.5	LR7
Indy WideTrak LX/GT	Halogen	60/55	1 @ 8.3	26.9	15/7.5	LR9
Indy Trail/Touring Indy 440 LC	Halogen	2x37.5	2 @ 2.7	13.3	15/7.5	LR9
Indy XLT Touring	Halogen	2x37.5	2 @ 2.7	13.3	15/7.5	LR7
Indy 500/SKS/RMK	Halogen	2x37.5	2 @ 2.7	13.3	15/7.5	LR9
Indy 500 EFI/SKS/RMK	Halogen	2x37.5	2 @ 2.7	13.3	15/7.5	LR9
Indy Classic/Touring	Halogen	2x37.5	2 @ 2.7	13.3	15/7.5	LR9
Indy XLT/SP/SKS/RMK	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy RXL	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy Ultra SP/SKS/RMK	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR7
Indy Storm/SKS/RMK	Dual Halogen	2x60/ 2x55	2 @ 2.7	13.3	15/7.5	LR7

ELECTRICAL

Lighting Specifications

1997 Models

Model	Headlight		Taillight	Brake Light	Handwarmer	Voltage Reg.
	Type	Watts Hi/Low	Watts	Watts	Watts Hi/Low	
Indy Lite/Deluxe	Incan	60/60	2 @ 2.7	13.3	Acc	LR9
Indy Lite GT	Incan	60/60	1 @ 8.3	23.0	15	LR9
Indy Sport	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy TranSport	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy Super Sport	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy Sport Touring	Incan	60/60	2 @ 2.7	13.3	15	LR9
Indy 440 XC/600 XC	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy XCF	Incan	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy 600 XCR/SE	Dual Halogen	2x60/ 2x55	2 @ 2.7	13.3	15/7.5	LR7
Indy WideTrak LX/GT	Halogen	60/55	1 @ 8.3	26.9	15/7.5	LR9
Indy Trail/Touring Indy 440 LC	Halogen	2x37.5/60	2 @ 2.7	13.3	15/7.5	LR9
Indy Trail RMK	Incan	2x37.5/60	2 @ 2.7	13.3	15/7.5	LR9
Indy XLT Touring	Halogen	2x37.5/60	2 @ 2.7	13.3	15/7.5	LR7
Indy 500/SKS/RMK	Halogen	2x37.5/60	2 @ 2.7	13.3	15/7.5	LR9
Indy 500 EFI	Halogen	2x37.5/60	2 @ 2.7	13.3	15/7.5	LR9
Indy Classic/Touring	Halogen	2x37.5/60	2 @ 2.7	13.3	15/7.5	LR9
Indy XLT/SP/LTD/SP LTD/SKS/RMK	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy 700 SKS/RMK	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR7
Indy RXL	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR9
Indy Ultra/SP	Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR7
Indy Ultra Touring	Dual Halogen	2x45/ 2x45	2 @ 9	2 @ 18	15/7.5	LR7
Indy Ultra SPX/SPX SE	Dual Halogen	60/55	2 @ 2.7	13.3	15/7.5	LR7
Indy Storm/SE/RMK	Dual Halogen	2x60/ 2x55	2 @ 2.7	13.3	15/7.5	LR7

ENGINES / ELECTRICAL **Lighting Specifications**

1998 Models

Model	Headlight		Taillight	Brake Light	Alternator Output (In Watts) @ 4000 RPM	Voltage Reg.
	Type	Watts Hi/Low	Watts	Watts		
Indy Lite	Incandescent	60/60	2 x 3 Watts	18	150	LR9
Indy Lite Deluxe	Incandescent	60/60	2 x 3 Watts	18	150	LR9 (LR2)
Indy Lite Touring	Incandescent	60/60	8 Watts	29	150	LR9
Indy Sport	Incandescent	60/60	2 x 3 Watts	18	200	LR9
Indy Sport Touring	Incandescent	60/60	2 x 3 Watts	18	200	LR9
Indy Transport	Incandescent	60/60	8 Watts	29	200	LR9
Indy XCF	Incandescent	60/60	2 x 3 Watts	18	200	LR9
Indy 440 L/C	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	200	LR9
Indy 440 XCR	Halogen	60/55	2 x 3 Watts	18	280	LR7
Indy Trail	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	200	LR9
Indy Trail Touring	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	200	LR9 (LR2)
Indy Trail RMK	Incandescent	60/60	2 x 3 Watts	18	200	LR9
Indy SuperSport	Incandescent	60/60	2 x 3 Watts	18	200	LR9
Indy WideTrak LX	Halogen	60/55	8 Watts	29	200	LR9 (LR2)
Indy 500	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	200	LR9
Indy 500 Classic	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	200	LR9 (LR2)
Indy 500 RMK	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	200	LR9
Indy Classic Touring	Halogen	2 x 38 / 1 x 60	2 x 9 Watts	2 x 18	200	LR9 (LR2)
Indy XLT SP	Halogen	2 x 60 / 2 x 55	2 x 9 Watts	2 x 18	280	LR7
Indy XLT LTD	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	280	LR7
Indy XLT Touring	Halogen	2 x 38 / 1 x 60	2 x 9 Watts	2 x 18	280	LR7 (LR2)
Indy XLT Classic	Halogen	2 x 38 / 1 x 60	2 x 3 Watts	18	280	LR7
Indy 600 XC	Halogen	60/55	2 x 9 Watts	2 x 18	280	LR7
Indy 600 RMK	Halogen	60/55	2 x 3 Watts	18	280	LR7
Indy 600 XCR	Halogen	2 x 60 / 2 x 55	2 x 9 Watts	2 x 18	280	LR7
Indy Ultra	Halogen	60/55	2 x 3 Watts	18	280	LR7 (LR56)
Indy Ultra Touring	Halogen	2 x 45 / 2 x 45	2 x 9 Watts	2 x 18	280	LR7 (LR2 & LR56)
Indy 700 XC	Halogen	60/55	2 x 9 Watts	2 x 18	280	LR7
Indy 700 XCR	Halogen	2 x 60 / 2 x 55	2 x 9 Watts	2 x 18	280	LR7
Indy 700 RMK	Halogen	60/55	2 x 3 Watts	18	280	LR7
Indy Storm	Halogen	2 x 60 / 2 x 55	2 x 9 Watts	2 x 18	200	LR7

LR7: Full Wave Voltage Regulator

LR9: 1/2 Wave Voltage Regulator

LR2: Rectifier Only, For Battery Charging

LR56: For Exhaust Thermal Sensing System (ETSS)

1996 Models

Machine Model	Engine Model	Alternator Wattage	Spark Plug		Plug Gap MM/Inches	CDI Box Identification Number	Fly-wheel ID #
			NGK	Champion			
Indy Lite Models	EC34-2PM02/E02	150	BR8ES	RN-3C	0.7/.028	CU6409	FP5439
Indy Sport Models	EC44-3PM01/02	200	BR8ES	RN-3C	0.7/.028	CU6416	FP5446
Indy Trail Models	EC50PM04/E04	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Indy WideTrak GT	EC50PM03	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Indy 440 LC	EC45PL06	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy 440 XCR	EC45PL07	200	BR9ES	RN-2C	0.7/.028	CU6417	FP5510
Indy 440 XCR SP	EC45PL08	200	BR9ES	RN-2C	0.7/.028	CU6418	FP5517
Indy 500/SKS/RMK/Classic	EC50PLE11/11/14/15	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy WideTrak LX	EC50PLE12	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy 500 EFI	EC50PL13	250	BR8ES	RN-3C	0.7/.028	CU6417	FP5508
Indy XLT (Except Touring)	EC58PL02/03/07	170	BR8ES	RN-3C	0.7/.028	CU2194	FP8312
Indy XLT Touring	EC58PLE05	200	BR8ES	RN-3C	0.7/.028	CU2194	FP8314
Indy XCR 600 / XLT SP	EC5802	170	BR9ES	RN-2C	0.7/.028	CU2194	FP8312
Indy 600 XCR SP	EC59PL01	200	BR9ES	RN-2C	0.7/.028	CU7303	FP9306
Indy RXL	EC65PL05	180	BR9ES	RN-2C	0.7/.028	CU2193	FP6392
Indy Ultra SP/SKS/RMK	EC68PL01/04	200	BR9ES	RN-2C	0.7/.028	CU7301	FP9304
Indy Storm/SKS/RMK	EC80PL04/05	200	BR9ES	RN-2C	0.7/.028	CU7302	FP9305

Running Ignition Timing at 3000 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		
				MM	Inches	
EC34-2PM02/E02	3.67	.145	26.5±1.5	3.28-4.08	.129-.161	15.5° @ 7000
EC44-3PM01/02	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM04/E04	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM03	4.71	.185	29±1.5	4.25-5.20	.167-.204	19° @ 7500
EC45PL06/07	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC45PL08	5.69	.224	32±1.5	5.18-6.22	.217-.242	16° @ 7500
EC50PLE11/11/E12/14/15	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL13	4.71	.185	29±1.5	4.25-5.20	.167-.204	17° @ 7500
EC58PL02/03/E05/07	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC65PL05	3.53	.139	25±1.5	3.13-4.01	.123-.156	19° @ 7500

Running Ignition Timing at 3500 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		
				MM	Inches	
EC59PL01	4.74	.187	28±1.5	4.26-5.24	.168-.200	10° @ 8500
EC68PL01	4.10	.162	26±1.5	3.66-4.57	.144-.180	16° @ 8000
EC68PL04	4.10	.162	26±1.5	3.66-4.57	.144-.180	16° @ 8000
EC80PL04	4.10	.162	26±1.5	3.66-4.57	.144-.180	16° @ 8000
EC80PL05	4.10	.162	26±1.5	3.66-4.57	.144-.180	16° @ 8000

* Engine at room temperature

ELECTRICAL

Ignition Specifications

1997 Models

Machine Model	Engine Model	Alternator Wattage	Spark Plug		Plug Gap MM/Inches	CDI Box Identification Number	Fly-wheel ID #
			NGK	Champion			
Indy Lite Models	EC34-2PM02(-S)	150	BR8ES	RN-3C	0.7/.028	CU6409	FP5439
Indy Sport/TranSport/Sport Touring	EC44-3PM02	200	BR8ES	RN-3C	0.7/.028	CU6416	FP5446
Indy XCF	EC44-3PM02	200	BR8ES	RN-3C	0.7/.028	CU6416	FP5446
Indy WideTrak GT	EC50PM03	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Indy Trail/Trail Touring	EC50PM04(-S)	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Indy Trail RMK	EC50PM05	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Indy Super Sport	EC50PM06	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Indy 440 XC	EC45PL08	200	BR9ES	RN-2C	0.7/.028	CU6418	FP5517
Indy 440 XCR	SN44LDCDCSP-01	200	BR9ES	RN-2C	0.7/.028	4060163	4060141
Indy 440 LC	EC45PL09	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy 500 RMK	EC50PL16	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy 500/SKS	EC50PLE17	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy Classic	EC50PL11	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy 500 EFI	EC50PL18	250	BR8ES	RN-3C	0.7/.028	CU6417	FP5508
Indy Classic Touring	EC50PL19	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy WideTrak LX	EC50PL20	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Indy XLT/SKS	EC58PL03	170	BR8ES	RN-3C	0.7/.028	CU2194	FP8312
Indy XLT RMK	EC58PL07	170	BR8ES	RN-3C	0.7/.028	CU2194	FP8312
Indy 600 XC	EC58PL08	170	BR9ES	RN-2C	0.7/.028	CU2194	FP8312
Indy XLT Touring/LTD	EC58PL09	200	BR8ES	RN-3C	0.7/.028	CU2194	FP8314
Indy XLT SP	EC58PL12	170	BR9ES	RN-2C	0.7/.028	CU2194	FP8312
Indy 600 XCR/SE	EC59PL01	200	BR9ES	RN-2C	0.7/.028	CU7303	FP9306
Indy RXL	EC65PL05	180	BR9ES	RN-2C	0.7/.028	CU2193	FP6392
Indy Ultra/SP/Touring	EC68PL01	200	BR9ES	RN-2C	0.7/.028	CU7301	FP9304
Indy Ultra SPX/SPX SE	EC68PL03	200	BR9ES	RN-2C	0.7/.028	CU7307	FP9104
Indy Storm/SE	EC80PL05	200	BR9ES	RN-2C	0.7/.028	CF7302	FP9305
Indy Storm RMK	EC80PL04	200	BR9ES	RN-2C	0.7/.028	CF7302	FP9305
Indy 700 SKS	SN70LDCDCSP-01	280	BR9ES	RN-2C	0.7/.028	4060144	4060141
Indy 700 RMK	SN70LDCDCSP-02	280	BR9ES	RN-2C	0.7/.028	4060144	4060141
Indy 700 XC	SN70LDCDCSP-01	280	BR9ES	RN-2C	0.7/.028	4060144	4060141

1997 Models

Running Ignition Timing at 3000 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		
				MM	Inches	
EC34-2PM02(-S)	3.67	.145	26.5±1.5	3.28-4.08	.129-.161	15.5° @ 7000
EC44-3PM02	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM03	4.71	.185	29±1.5	4.25-5.20	.167-.204	19° @ 7500
EC50PM04(-S)	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM05	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM06	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC45PL08	5.36	.211	31±1.5	4.87-5.86	.192-.231	13.5° @ 7500
EC45PL09	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL16	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL17	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL18	4.71	.185	29±1.5	4.25-5.20	.167-.204	17° @ 7500
EC50PL19	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL20	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC58PL03	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC58PL07	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC58PL08	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC58PL09	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC58PL12	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC65PL05	3.53	.139	25±1.5	3.13-4.01	.123-.156	19° @ 7500

Running Ignition Timing at 3500 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		
				MM	Inches	
EC59PL01	4.74	.187	28±1.5	4.26-5.24	.168-.200	13° @ 8000
EC68PL01	4.10	.162	26±1.5	3.66-4.57	.144-.180	16° @ 7500
EC68PL03	1.78	.070	17±1.5	1.49-2.11	.059-.087	18° @ 8000
EC80PL04	4.10	.162	26±1.5	3.66-4.57	.144-.180	14° @ 8000
EC80PL05	4.10	.162	26±1.5	3.66-4.57	.144-.180	14° @ 8000
SN70LCDCSP-01	.9268	.0365	12±1.5	.71-1.17	.028-.046	16° @ 8000
SN70LCDCSP-02	.9268	.0365	12±1.5	.71-1.17	.028-.046	16° @ 8000

* Engine at room temperature

FUEL SYSTEM/CARBURETION

Ignition Specifications

1998 Engine Electrical

Machine Model	Engine Model	Alternator Wattage	Spark Plug		Plug Gap MM/inches	CDI Box Identification Number	Fly-wheel ID #
			NGK	Champion			
Lite Models	EC34-2PM02A	150	BR8ES	RN-3C	0.7/.028	CU6409	FP5439
Sport/TranSport/ Sport Touring/XCF	EC44-3PM024	200	BR8ES	RN-3C	0.7/.028	CU6416	FP5446
Super Sport	EC50PM061	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Trail/Trail Touring	EC50PM043	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
Trail RMK	EC50PM051	200	BR8ES	RN-3C	0.7/.028	CU6413	FP5441
440 XCR	SN44-44LCDCSP-01	200	BR9ES	RN-2C	0.7/.028	4060190	4060141
440 LC	EC45PL091	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
500 RMK	EC50PL161	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
500	EC50PL171	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Classic	EC50PL171	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
Classic Touring	EC50PL191	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
WideTrak LX	EC50PL201	200	BR8ES	RN-3C	0.7/.028	CU6417	FP5445
XLT SP	EC58PL140	280	BR9ES	RN-2C	0.7/.028	CU2552	FP9102
XLT LTD	EC58PL130	280	BR8ES	RN-3C	0.7/.028	CU2552	FP9102
XLT Touring	EC58PL130	280	BR8ES	RN-3C	0.7/.028	CU2194	FP8314
XLT Classic	EC58PL150	280	BR9ES	RN-2C	0.7/.028	CU2552	FP9102
600 XC	SN60-70LCDCSP-01	280	BR9ES	RN-2C	0.7/.028	4060186	4060141
600 RMK	SN60-70LCDCSP-02	280	BR9ES	RN-2C	0.7/.028	4060186	4060141
600 XCR	EC59PL020	280	BR9ES	RN-2C	0.7/.028	CU7308	
Ultra/Touring	EC68PL050	280	BR9ES	RN-2C	0.7/.028	CU7306	FP9103
700 XCR	EC68PL060	280	BR9ES	RN-2C	0.7/.028	CU7307	FP9104
700 XC	SN70-70LCDCSP-02	280	BR9ES	RN-2C	0.7/.028	4060181	4060141
700 RMK	SN70-70LCDCSP-01	280	BR9ES	RN-2C	0.7/.028	4060189	4060141
Storm	EC80PL052	200	BR9ES	RN-2C	0.7/.028	CU7302	FP9305

1998 Ignition Timing Specifications

Running Ignition Timing at 3000 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		
				MM	Inches	
EC34-2PM02A	3.67	.145	26.51±.5	3.28-4.08	.129-.161	15.5° @ 7000
EC44-3PM024	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM043	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM051	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC50PM061	3.81	.150	26±1.5	3.39-4.25	.133-.167	16° @ 6500
EC45PL091	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL161	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL171	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7000
EC50PL191	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC50PL201	4.40	.173	28±1.5	3.91-4.87	.156-.191	16° @ 7500
EC58PL130	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC58PL140	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500
EC58PL150	4.40	.173	28±1.5	3.91-4.87	.156-.191	20° @ 7500

Running Ignition Timing at 3500 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		
				MM	Inches	
SN44LCDCSP-01	3.72	.146	25±1.5	3.29-4.16	.130-.164	
EC59PL020	4.74	.187	28±1.5	4.26-5.24	.168-.200	13° @ 8000
EC68PL050	4.10	.162	26±1.5	3.66-4.57	.144-.180	16° @ 7500
EC68PL060	1.78	.070	17±1.5	1.49-2.11	.059-.087	18° @ 8000
EC80PL052	4.10	.162	26±1.5	3.66-4.57	.144-.180	14° @ 8000
SN70-70LCDCSP-02	.93	.037	12±1.5	.71 - 1.17	.028-.045	16° @ 8000

Running Ignition Timing at 1500 RPM *						Operating Timing °BTDC RPM
Engine Model	MM BTDC	Inches BTDC	Degrees BTDC	Acceptable Variances		Operating Timing °BTDC RPM
SN60-70LCDCSP-01/02	.22	.009	6±1.5	.13-.34	.005-.014	11° @ 8000
SN70-70LCDCSP-01	.22	.009	6±1.5	.13-.34	.005-.014	15° @ 8000

* Engine at room temperature

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Coil Resistance Specifications

Ignition system components can be individually tested by measuring their internal resistance and insulation to ground. These checks **must** be done with a digital volt/ohm meter. Compare the readings obtained to the values listed on the chart. Actual values may vary up to $\pm 10\%$ between like components. Any readings outside the span should be considered questionable.

NOTE: The stator coils can be checked without removing them from the engine. Simply disconnect the connector, plug in the stator-to-CDI wire, and check the resistance values between the wire colors listed below. For further information, consult the wiring diagrams at the end of this chapter.

Model	Exciter Coil		Trigger Coil		Light Coil		Charge Coil		Ignition Coil	
	Wire Color	Ohms	Wire Color	Ohms	Wire Color	Ohms	Wire Color	Ohms	Primary	Secondary **
1996										
EC34PM	Brn/W to Blk/R	164	-	-	Y to Brn	0.3-0.6	-	-	-	5700*
EC44PM	Brn/W to Blk/R	164	-	-	Y to Y/R	0.2-0.5	-	-	-	5700*
EC50PM	Brn/W to Blk/R	164	-	-	Y to Y/R	0.2-0.5	-	-	-	5700*
EC45PL	Brn/W to Blk/R	164	-	-	Y to Y/R	0.2-0.5	-	-	-	5700*
EC50PL-11, 12, 14, 15	Brn/W to Blk/R	164	-	-	Y to Y/R	0.2-0.5	-	-	-	5700*
EC50PL13	Brn/W to Blk/R	164	-	-	Y to Y/R	0.2-0.5	Gry to Gry/W & Brn/W to Gry/W	0.4-0.8 & 0.2-0.4	-	5700*
EC58PL-02, 03, 07	Blk/R to R	4.6	W to W/R	100	Y to Y/R	0.2-0.5	-	-	0.4	4000
EC58PL05	Blk/R to R	4.6	W to W/R	100	Y to Y/R	0.2-0.5	-	-	0.4	4000
EC65PL05	Blk/R to Grn & R to Grn	288 & 20	W to W/R	96	Y to Brn	0.2-0.4	Gry to Gry/W & Brn/W to Gry/W	0.4-0.8 & 0.3-0.5	0.4	7500
EC68PL-01, 04	Grn to Blk/R & Grn to R	500 & 15.5	W to W/R	100	Y to Y/R	0.17	-	-	0.34	7900
EC80PL-04, 05	Grn to Blk/R & Grn to R	500 & 15.5	W to W/R	100	Y to Y/R	0.17	-	-	0.34	7900

Resistance should be checked with the coil at room temperature

Coils must be isolated from the system to check resistance

Plug cap resistance is 3700-6300 Ohms (measured separately)

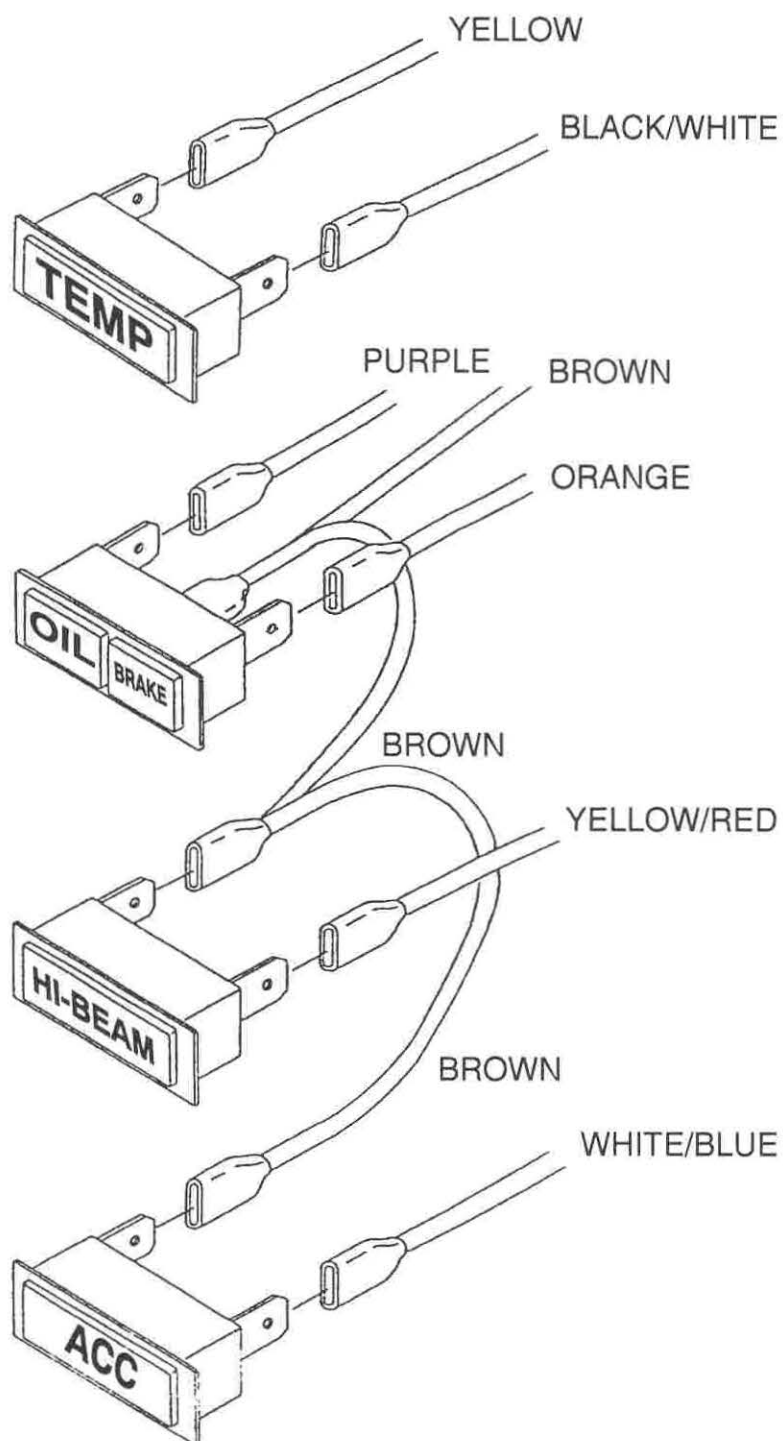
*Measure resistance from Mag plug lead to PTO plug lead

**Secondary coil resistance is measured with the plug cap off

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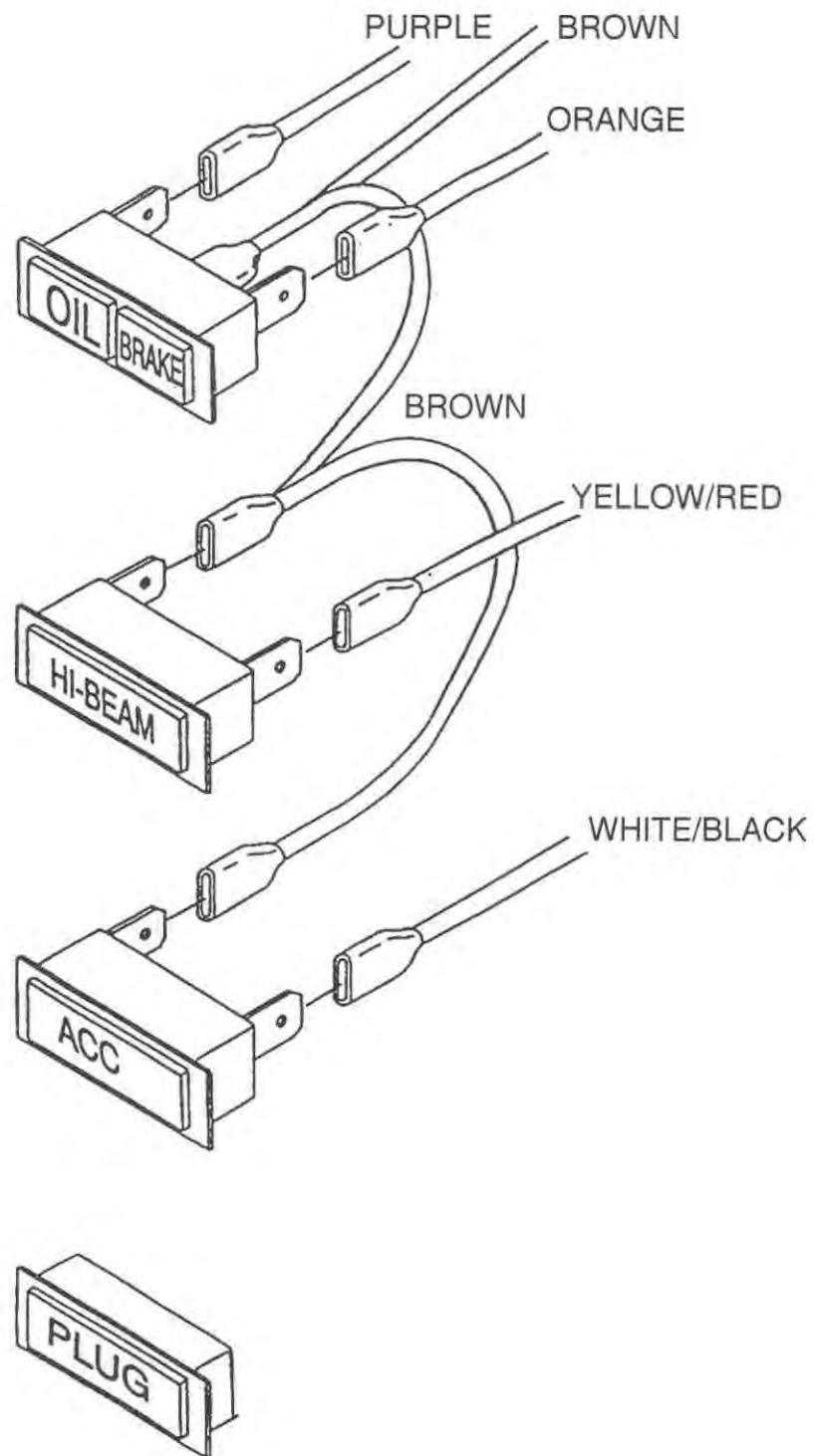
Routing Diagram - Indicator Lights

1996 RXL/440 XCR/600 XCR/XLT/XLT SKS/XLT RMK Models



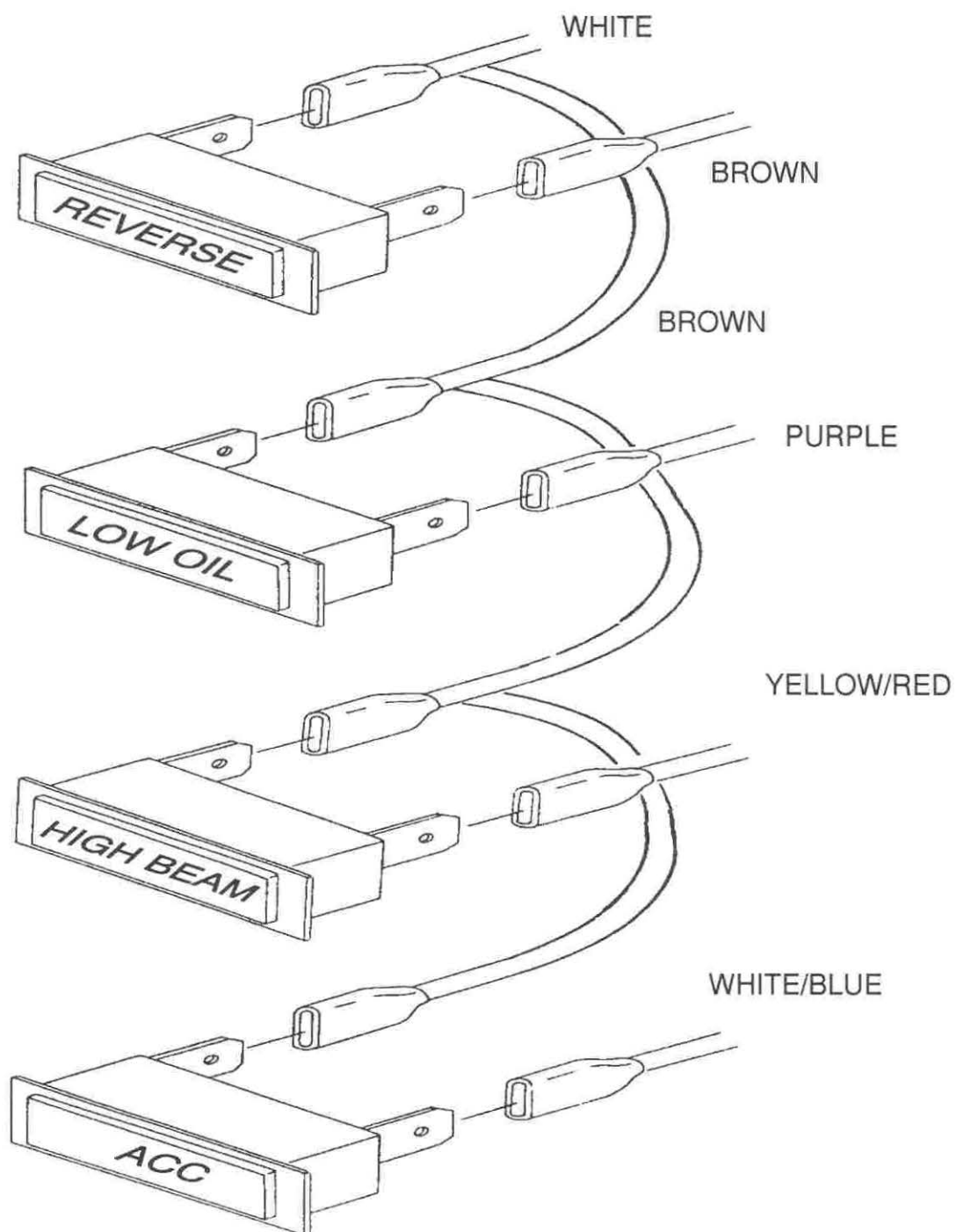
ELECTRICAL
Routing Diagram - Indicator Lights

1996 WideTrak LX/Sport/TranSport/Super Sport/Sport Touring Models

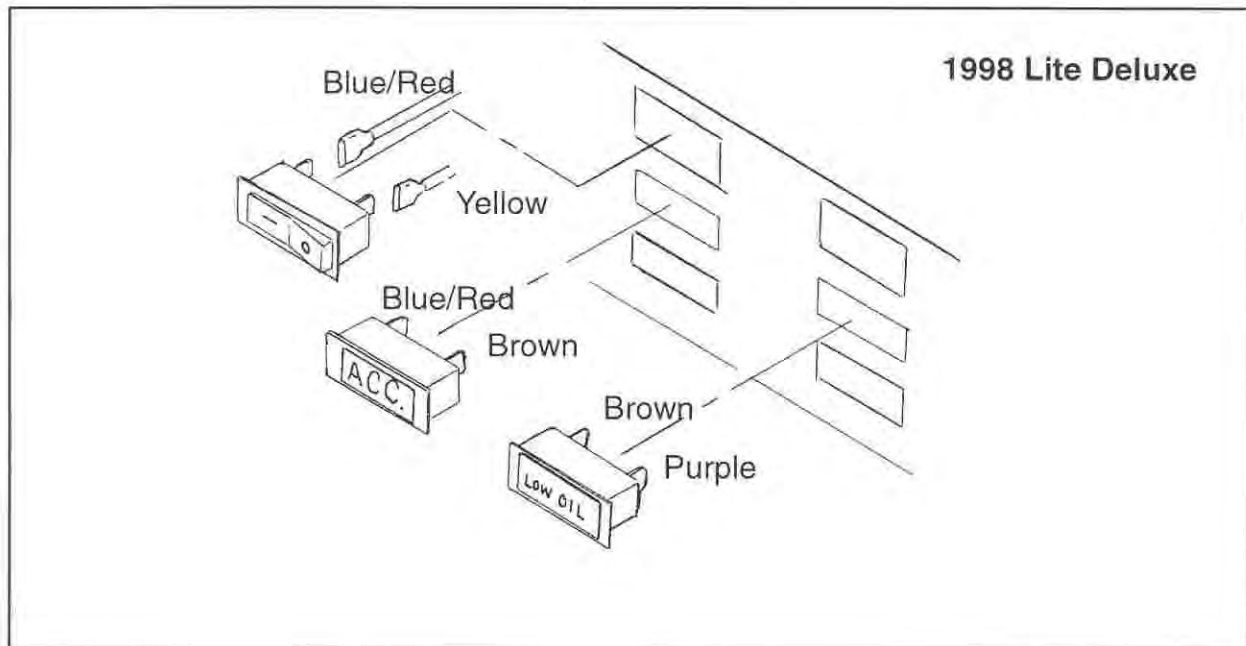
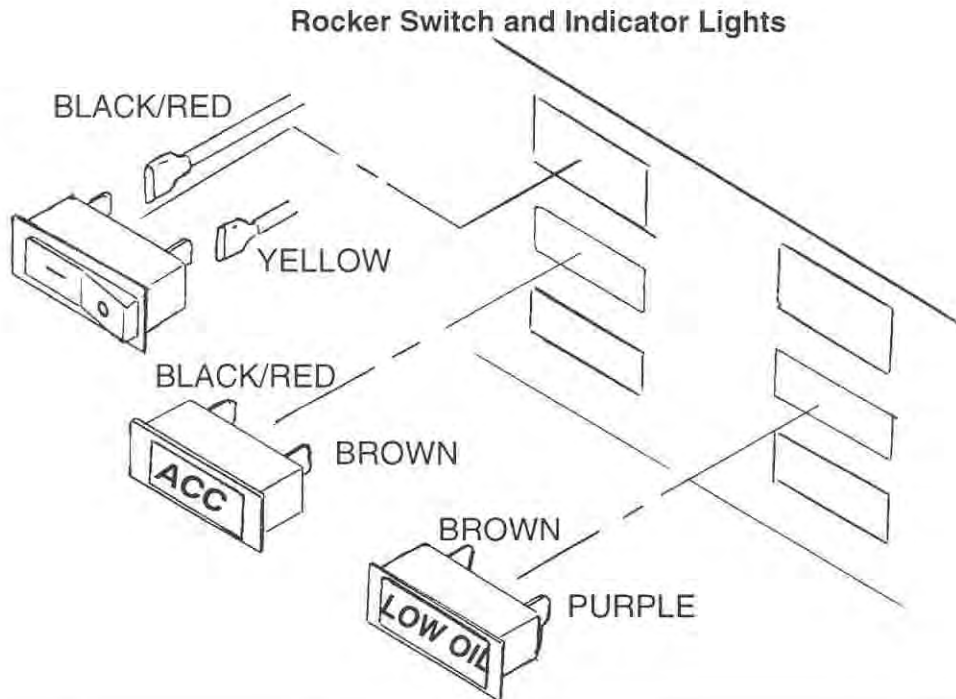


ELECTRICAL
Routing Diagram - Indicator Lights

1996 WideTrak GT Models



1996 Lite GT Models



ELECTRICAL Multimeter Usage

Multimeter Usage

The easiest and most accurate method for testing modern electrical components is with a digital multimeter. Any good quality multimeter will work. However, due to ease of operation and durability, Polaris recommends the Fluke Model 73 (PN 2870659), or Tektronix DMM155. See photo at right. This instrument will provide a digital readout of the measured value of the test being performed.

Listed below are the dial symbols, their meaning and what the dial setting can be used for.

Off = Instrument Off



V ~ = Volts AC - measuring alternator output

Used to measure AC voltage in an electrical system. AC voltage is produced from every coil on the stator plate when a magnet is passed by it.

Test Method

1. Connect black lead to Com (-) meter terminal.
2. Connect red lead to VΩ (+) meter terminal.
3. Turn selector dial to V ~ setting.
4. Connect test leads parallel with test component. The polarity of the leads is not important.

Usage

- Test unregulated voltage output of a stator coil
- Test regulated voltage to the lights and handwarmers



V --- = Volts DC - measuring battery voltage, volt drop, etc.

Used to measure DC voltage produced by a battery or rectifier.

Test Method

1. Connect black lead to Com (-) meter terminal
2. Connect red lead to VΩ (+) meter terminal.
3. Turn selector dial to V --- setting.
4. Connect test leads parallel with test component. Observe polarity.

Usage

- Test battery voltage
- Test DC regulator
- Test voltage drop for bad connections
- Test supply voltage to electric fuel gauge
- EFI electrical testing



Ω = Ohms, resistance - measuring component resistance values - testing coils, wiring, etc.

Used to test resistance to the flow of electricity in a circuit or component. A reading of OL means an open circuit or infinite resistance. Sometimes the leads themselves will have some resistance. Touch the leads together and subtract this resistance from the component reading to achieve the actual reading.

Test Method

1. Connect black lead to Com (-) meter terminal
2. Connect red lead to V Ω (+) meter terminal.
3. Turn selector dial to Ω setting.
4. Isolate test component from the rest of the electrical circuit by disconnecting wires from harness.
5. Connect test leads to the circuit to be tested.

Usage

- Testing coil resistance
- Testing switch operation
- Testing wire continuity



A ~ = Amps AC - used to test lighting coil output

Used to test the power of an alternator coil.

Test Method

1. Disconnect engine harness from system.
2. Connect red lead to 10A (+) meter terminal.
3. Connect black lead to Com (-) meter terminal.
4. Start engine and let it idle.
5. Observe and record the meter reading.

150 Watt Alternators: The reading should exceed 8 amps.

200 Watt Alternators: The reading should exceed 12 amps.

NOTE: Amperage readings are not dependent upon engine RPM. The reading you obtain at idle is essentially the same as the reading that would be obtained at higher RPMs.

NOTE: Although the meter connection is labeled 10A it will correctly read higher AC amperage (without damage to your meter) for periods of time not exceeding 10 seconds.



ELECTRICAL

Multimeter Usage

A  = Amps DC - used to check battery charge rate, system draws, etc.

Used to check the current flow to and from the battery.

Test Method

1. Make sure red lead is in the 10A terminal of the meter and the black lead is in the Com (–) terminal of the meter.
2. Disconnect battery ground wire(s) from battery (–) terminal.
3. Connect red meter lead to battery (–) terminal.
4. Connect black meter lead to harness ground wires and cable.

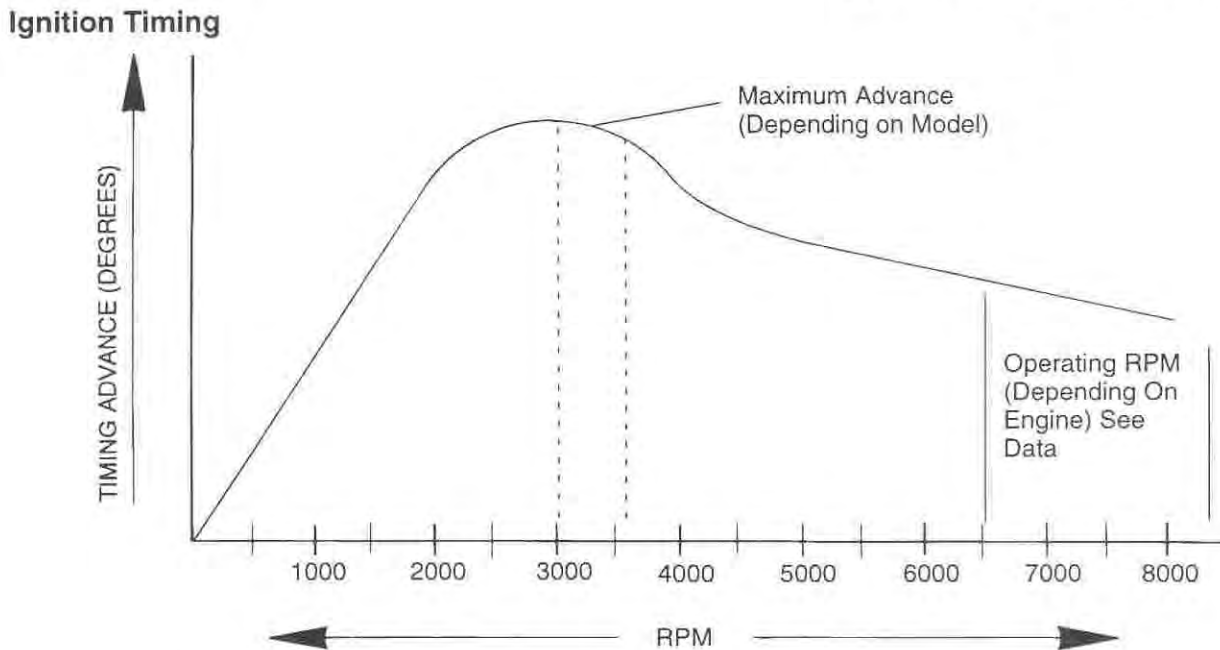
CAUTION:

Do not operate electric starter (if equipped) or meter damage may occur.

Usage

- Testing key off current draw
- Testing key on current draw
- Testing charging system break even RPM
- Testing DC current flow (direction), is battery charging?

NOTE: When using the DC Amp settings, the red test lead must be moved to the 10A socket on the front of the instrument.



NOTE: Always verify timing of engine at room temperature only (68° F / 20° C) and at the proper RPM.

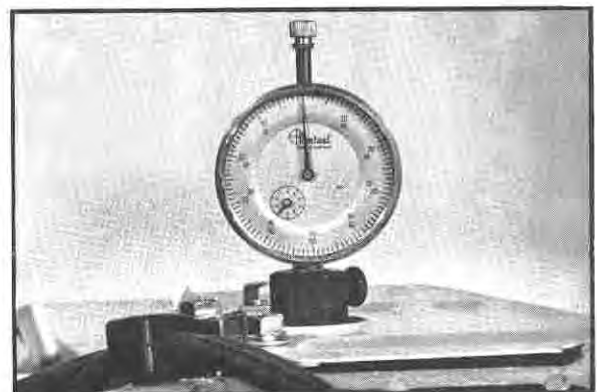
To obtain the best ignition timing accuracy and reduce the chance of error, the ignition timing specification is given at a "flat" portion of the advance curve. This flat portion on the curve is at 1500, 3000 or 3500 RPM on all current style ignition systems. Ignition timing must be checked at the specified RPM, or inaccurate timing will result. Refer to timing specifications at the beginning of this chapter.

If engine damage has occurred due to a suspected ignition related problem, verify the ignition timing is correct at the specified *operating* RPM as outlined on page 10.18.

Dial Indicating The Timing Marks

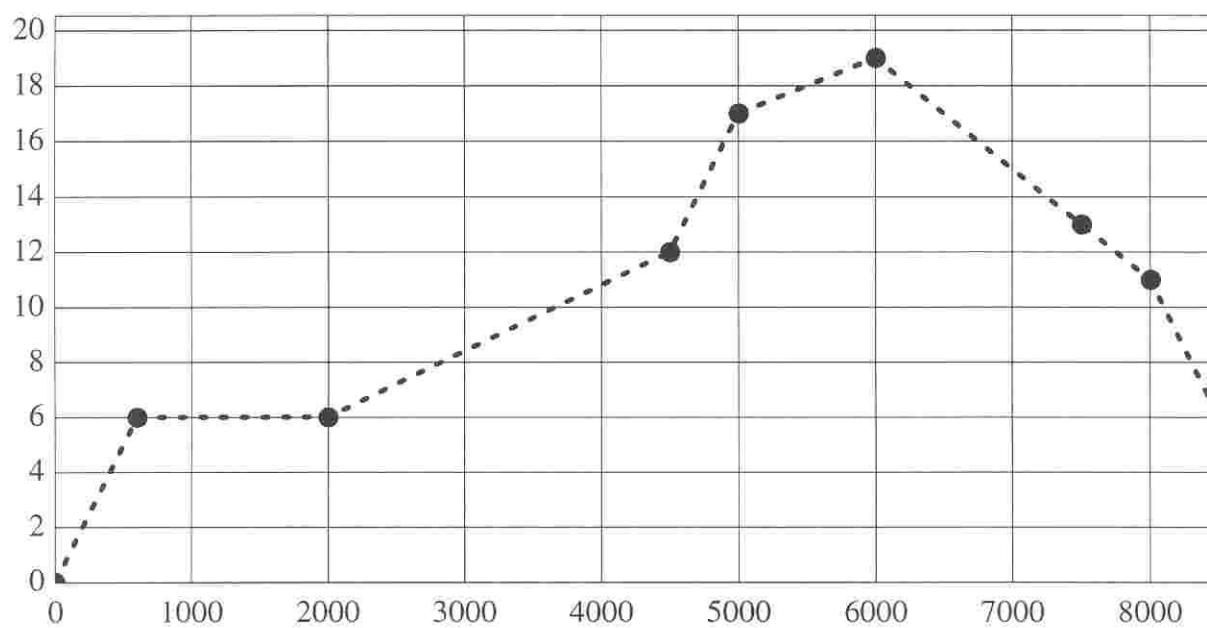
Due to differences between engines, it is necessary to dial indicate the timing marks on all engines before attempting to adjust the ignition timing. To indicate the marks:

1. Remove the mag cylinder spark plug and install the dial indicator.
2. Rotate the crankshaft by hand while observing the dial indicator. As the piston touches the indicator plunger, the dial will begin to rotate. Find the point where the pointer stops rotating and reverses direction. This will be TDC (Top Dead Center).
3. While holding the crankshaft with the piston at TDC, zero the indicator by rotating the bezel until the O on the dial and the pointer align.
4. Rotate the crankshaft opposite the direction of rotation about .250 BTDC (2 1/2 pointer revolutions).
5. Determine the correct ignition timing position from the ignition data charts and rotate the crankshaft in the normal direction of rotation to that position. **(Example:** If engine timing is .150 BTDC, the crankshaft must be rotated in the normal direction of rotation so that the dial indicator pointer does one complete revolution and stops on 50. This should be 1 1/2 pointer revolutions before top center, or .150 BTDC.
6. While holding the crankshaft at the correct timing position, mark the flywheel (with chalk or a white marker) directly in-line with the stationary pointer (or line) on the fan or recoil housing through the timing inspection window.



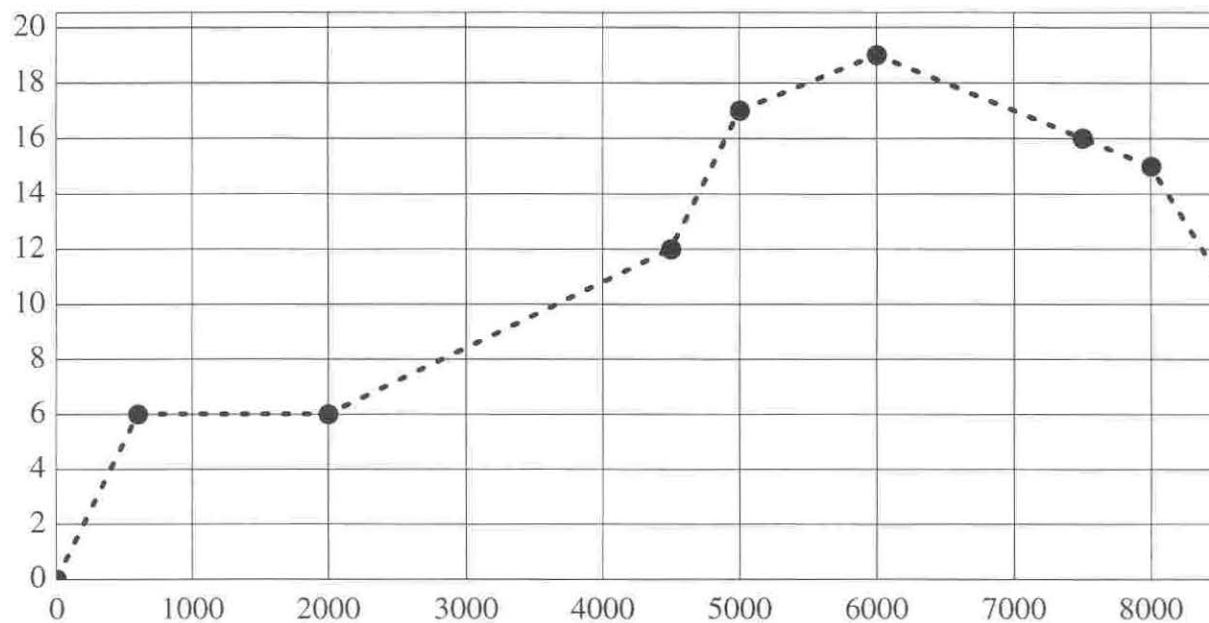
ENGINE Timing Curves

Timing Curve 1998 Domestic 600 Twins



Timing Table	
1998 600 Twin	
RPM	Degrees
600	6°
2000	6°
4500	12°
5000	17°
6000	19°
7500	13°
8000	11°
8500	6°

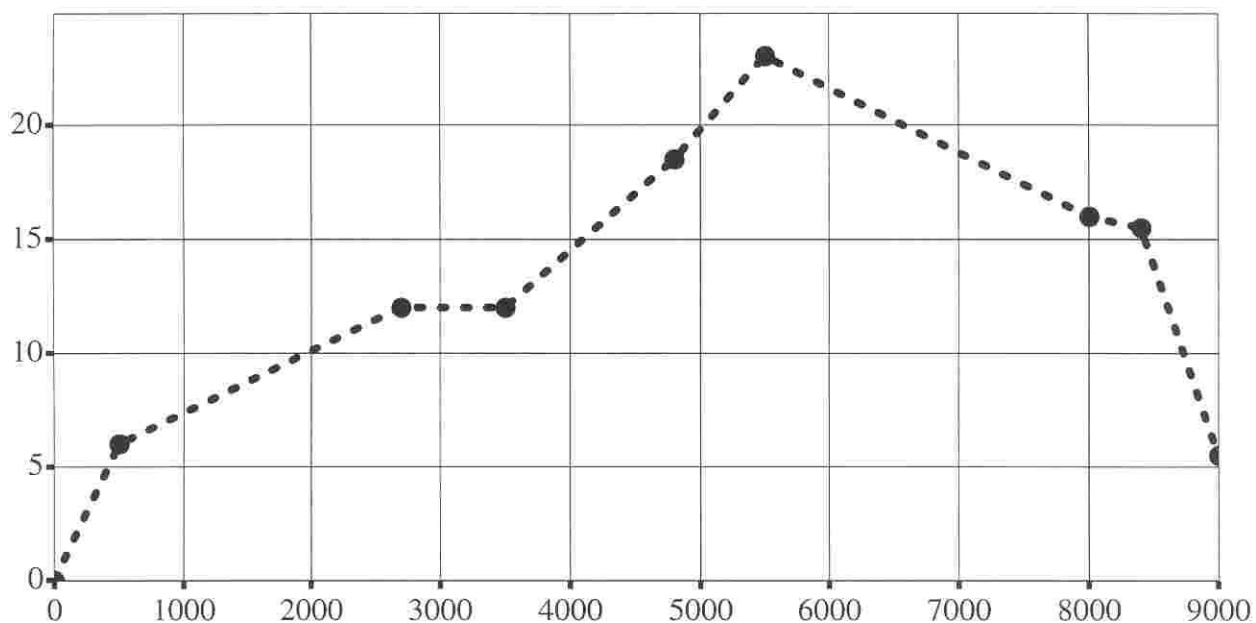
Timing Curve 1998 700 XC



Timing Table	
1998 700 XC	
RPM	Degrees
600	6°
2000	6°
4500	12°
5000	17°
6000	19°
7500	16°
8000	15°
8500	11°

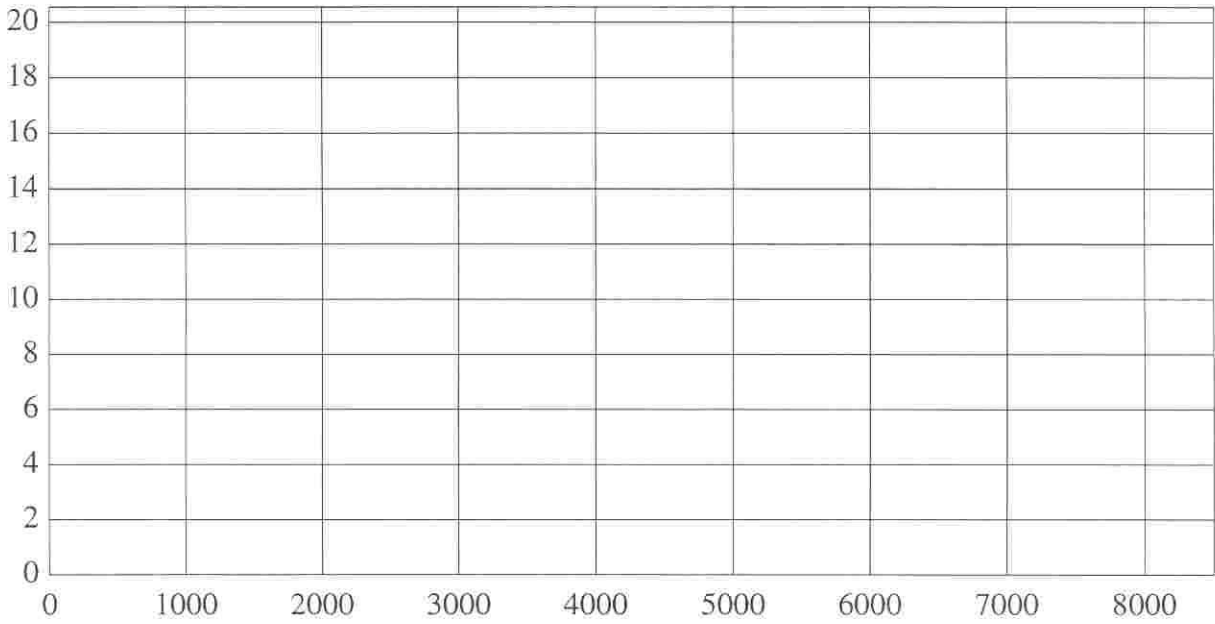
ENGINE Timing Curves

Timing Curve 1998 700 RMK



Timing Table	
1998 700 RMK	
RPM	Degrees
500	6°
2700	12°
3500	12°
4800	18.5°
5500	23°
8000	16°
8400	15.5°
9000	5.5°

ENGINE
Timing Curve Template



Timing Table	
RPM	Degrees

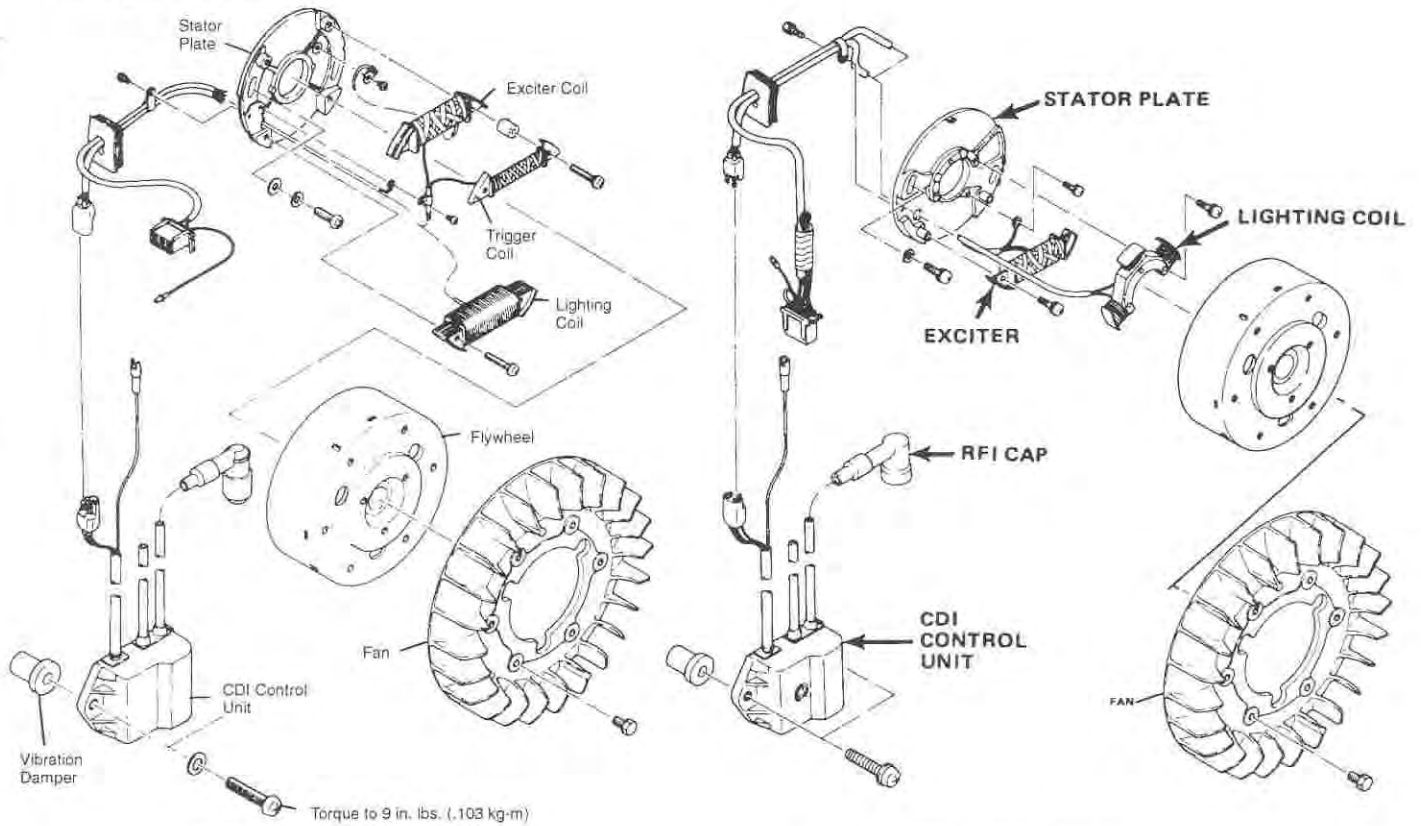
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Conversion Chart - Degrees to Piston Position - B.T.D.C.

Engine Model	EC44-3PM EC45PL EC50PL	EC50PM EC58PL EC65PL	EC59PL EC68PL EC80PL	EC34-2PM		SN44LDCSP-01 SN44-44LDCSP-01	SN70LDCSP-01/02 SN60-70LDCSP-01/02 SN70-70LDCSP-01/02			
DEG. BTDC	112 MM ROD 60 MM STROKE		125 MM ROD 65 MM STROKE		103 MM ROD 55.6 MM STROKE		128 MM ROD 64 MM STROKE		136 MM ROD 68 MM STROKE	
	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES
1	0.0058	0.0002	0.0062	0.0002	0.0054	0.0002	0.0061	0.0002	0.0065	0.0003
2	0.0232	0.0009	0.0249	0.0010	0.0215	0.0008	0.0244	0.0010	0.0259	0.0010
3	0.0521	0.0021	0.0561	0.0022	0.0484	0.0019	0.0548	0.0022	0.0582	0.0023
4	0.0926	0.0036	0.0997	0.0039	0.0860	0.0034	0.0974	0.0038	0.1035	0.0041
5	0.1447	0.0057	0.1558	0.0061	0.1343	0.0053	0.1522	0.0060	0.1617	0.0064
6	0.2083	0.0082	0.2242	0.0088	0.1933	0.0076	0.2190	0.0086	0.2327	0.0092
7	0.2833	0.0112	0.3050	0.0120	0.2630	0.0104	0.2979	0.0117	0.3166	0.0125
8	0.3698	0.0146	0.3981	0.0157	0.3432	0.0135	0.3889	0.0153	0.4132	0.0163
9	0.4677	0.0184	0.5036	0.0198	0.4341	0.0171	0.4919	0.0194	0.5226	0.0206
10	0.5770	0.0227	0.6212	0.0245	0.5355	0.0211	0.6068	0.0239	0.6448	0.0254
11	0.6976	0.0275	0.7510	0.0296	0.6474	0.0255	0.7336	0.0289	0.7795	0.0307
12	0.8294	0.0327	0.8930	0.0352	0.7698	0.0303	0.8723	0.0343	0.9268	0.0365
13	0.9724	0.0383	1.0470	0.0412	0.9025	0.0355	1.0227	0.0403	1.0867	0.0428
14	1.1265	0.0444	1.2129	0.0478	1.0456	0.0412	1.1849	0.0466	1.2589	0.0496
15	1.2917	0.0509	1.3908	0.0548	1.1989	0.0472	1.3586	0.0535	1.4435	0.0568
16	1.4678	0.0578	1.5804	0.0622	1.3624	0.0536	1.5439	0.0608	1.6404	0.0646
17	1.6548	0.0652	1.7818	0.0701	1.5359	0.0605	1.7406	0.0685	1.8494	0.0728
18	1.8526	0.0729	1.9948	0.0785	1.7195	0.0677	1.9487	0.0767	2.0705	0.0815
19	2.0611	0.0811	2.2193	0.0874	1.9130	0.0753	2.1681	0.0854	2.3036	0.0907
20	2.2802	0.0898	2.4552	0.0967	2.1163	0.0833	2.3986	0.0944	2.5485	0.1003
21	2.5098	0.0988	2.7024	0.1064	2.3294	0.0917	2.6402	0.1039	2.8052	0.1104
22	2.7497	0.1083	2.9608	0.1166	2.5521	0.1005	2.8927	0.1139	3.0735	0.1210
23	3.0000	0.1181	3.2303	0.1272	2.7843	0.1096	3.1560	0.1243	3.3532	0.1320
24	3.2603	0.1284	3.5107	0.1382	3.0260	0.1191	3.4300	0.1350	3.6444	0.1435
25	3.5307	0.1390	3.8019	0.1497	3.2769	0.1290	3.7146	0.1462	3.9467	0.1554
26	3.8110	0.1500	4.1038	0.1616	3.5370	0.1393	4.0096	0.1579	4.2602	0.1677
27	4.1010	0.1615	4.4161	0.1739	3.8062	0.1498	4.3149	0.1699	4.5846	0.1805
28	4.4007	0.1733	4.7389	0.1866	4.0843	0.1608	4.6303	0.1823	4.9197	0.1937
29	4.7098	0.1854	5.0719	0.1997	4.3712	0.1721	4.9558	0.1951	5.2655	0.2073
30	5.0282	0.1980	5.4149	0.2132	4.6667	0.1837	5.2911	0.2083	5.6218	0.2213
31	5.3559	0.2109	5.7679	0.2271	4.9708	0.1957	5.6361	0.2219	5.9884	0.2358
32	5.6926	0.2241	6.1306	0.2414	5.2832	0.2080	5.9907	0.2359	6.3651	0.2506
33	6.0381	0.2377	6.5028	0.2560	5.6039	0.2206	6.3546	0.2502	6.7518	0.2658
34	6.3924	0.2517	6.8845	0.2710	5.9326	0.2336	6.7278	0.2649	7.1482	0.2814
35	6.7552	0.2660	7.2754	0.2864	6.2693	0.2468	7.1099	0.2799	7.5543	0.2974
36	7.1263	0.2806	7.6753	0.3022	6.6138	0.2604	7.5010	0.2953	7.9698	0.3138
37	7.5057	0.2955	8.0840	0.3183	6.9658	0.2742	7.9007	0.3111	8.3945	0.3305
38	7.8931	0.3108	8.5015	0.3347	7.3253	0.2884	8.3089	0.3271	8.8282	0.3476
39	8.2883	0.3263	8.9274	0.3515	7.6920	0.3028	8.7254	0.3435	9.2708	0.3650
40	8.6912	0.3422	9.3616	0.3686	8.0659	0.3176	9.1501	0.3602	9.7220	0.3828

Twin Cylinder Fan CDI Ignition (Adjustable) - Exploded View - Timing

Timing Procedure

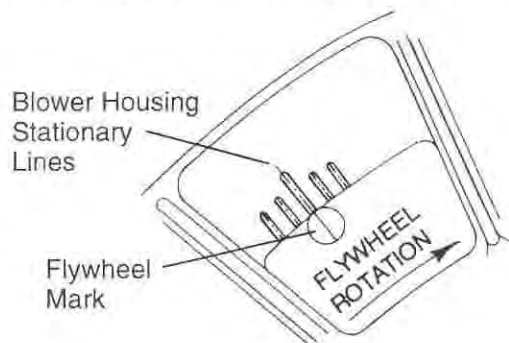


120 Watt Pulse Type

150 and 200 Watt Pulseless

NOTE: Always verify timing of engine at room temperature only (68° F/20° C).

Refer to ignition timing procedure on page 10.17.

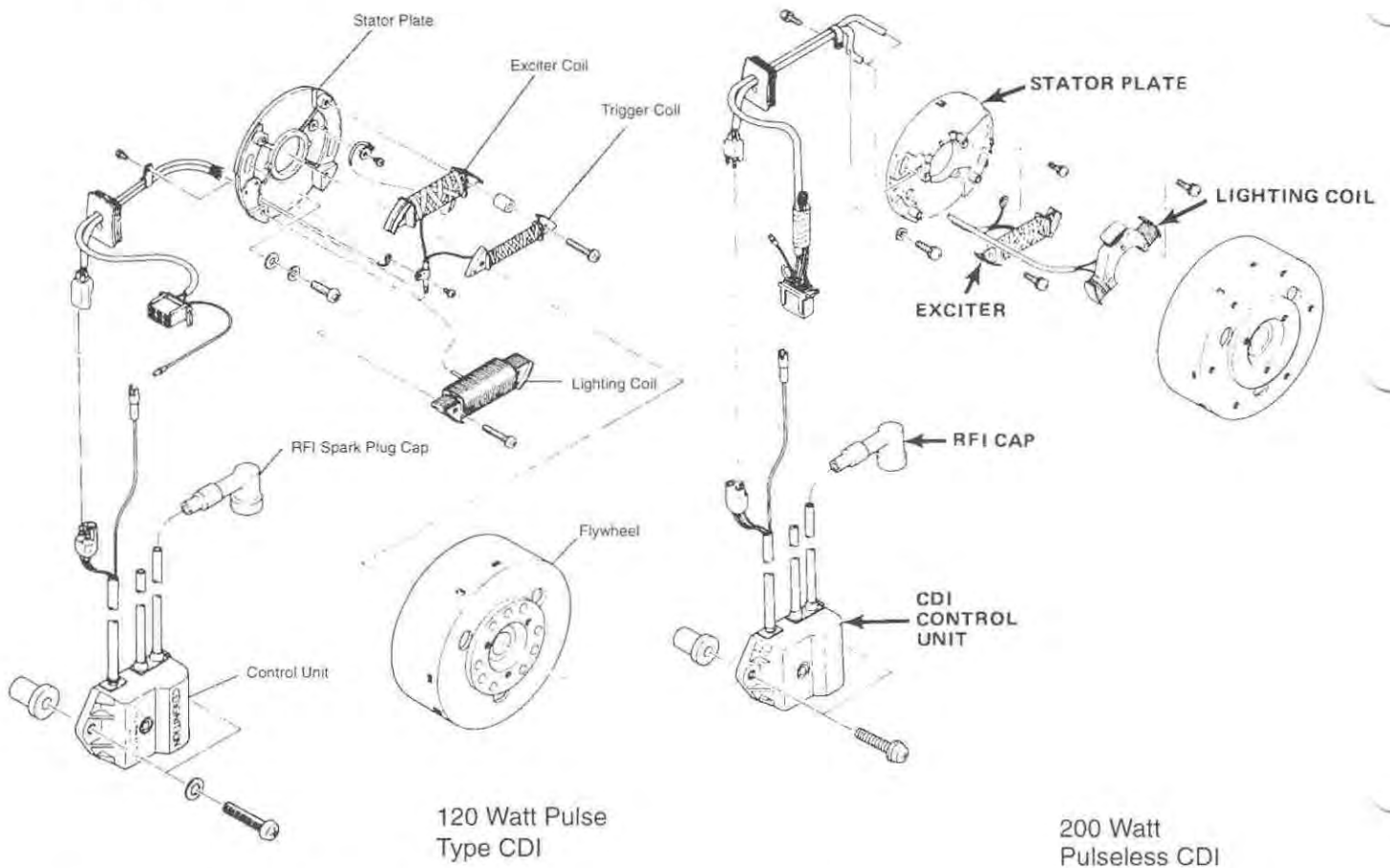


NOTE: Acceptable variance is usually one line on either side of the dial indicated blower housing stationary line.

ELECTRICAL

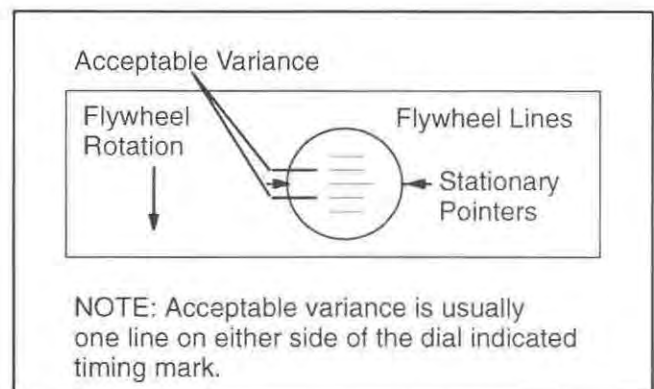
Twin Cylinder Liquid CDI Ignition (Pulse, Pulseless) - Exploded View - Timing

Timing Procedure



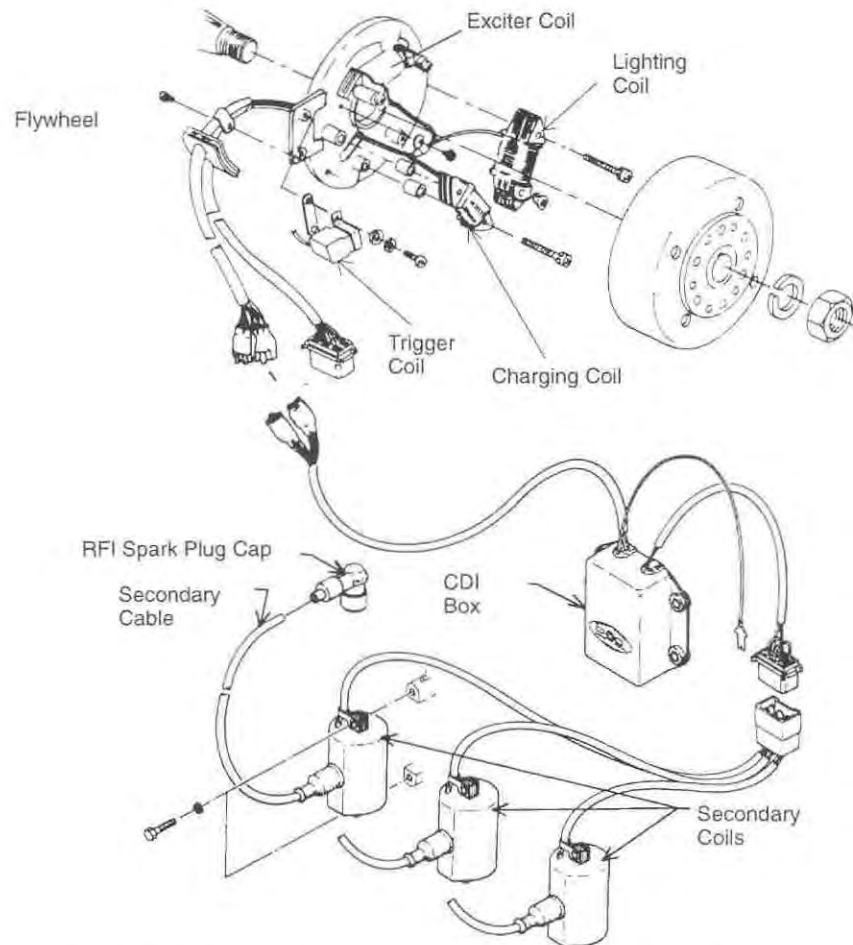
NOTE: Always verify timing of engine at room temperature only (68° F/20° C).

Refer to ignition timing procedure on page 10.17.



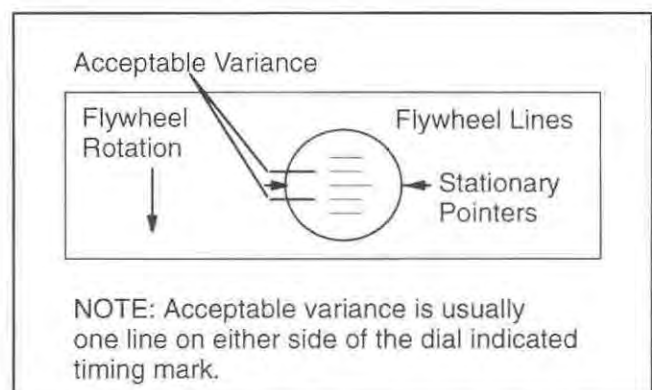
ELECTRICAL

Three Cylinder CDI Ignition Timing - Exploded View (Typical)



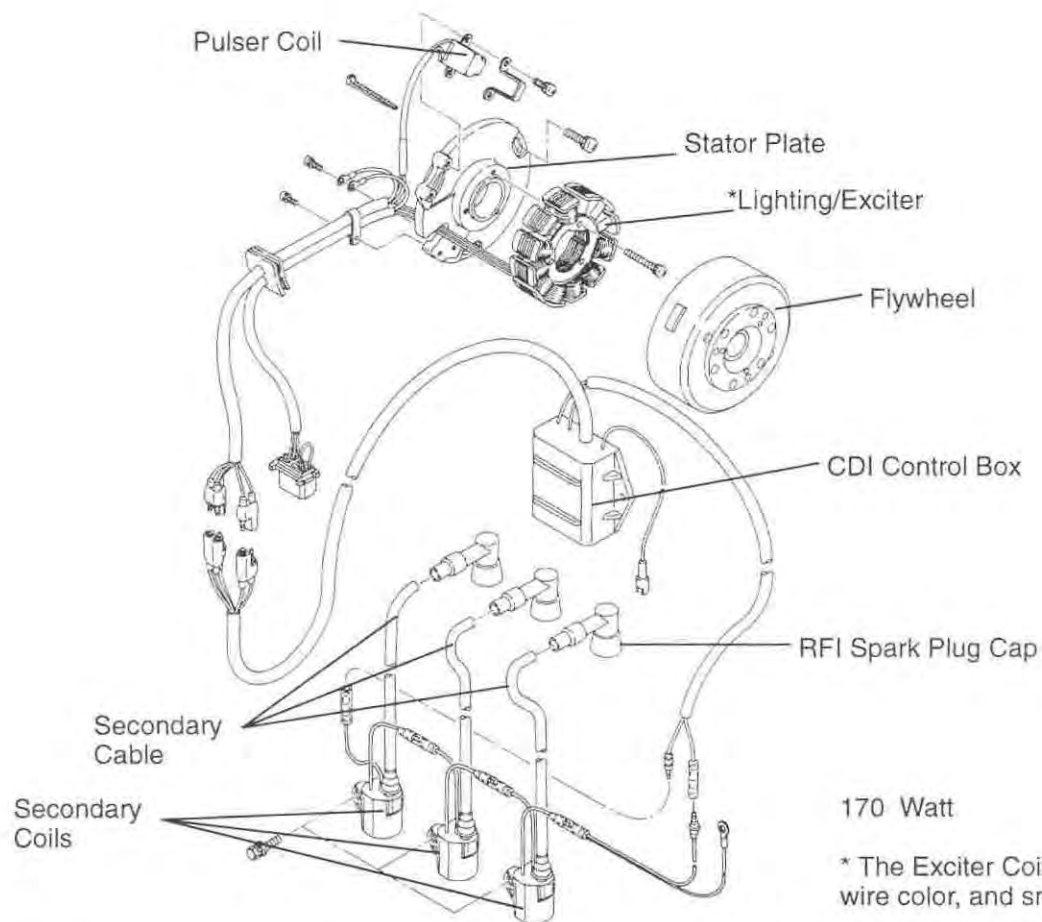
NOTE: Always verify timing of engine at room temperature only (68° F/20° C).

Refer to ignition timing procedure on page 10.17.



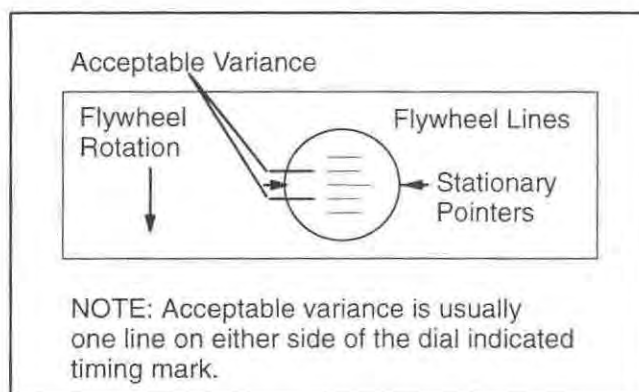
ELECTRICAL

Three Cylinder CDI Ignition - Exploded View



NOTE: Always verify timing of engine at room temperature only (68° F/20° C).

Refer to ignition timing procedure on page 10.17.



Timing Procedure - All Models

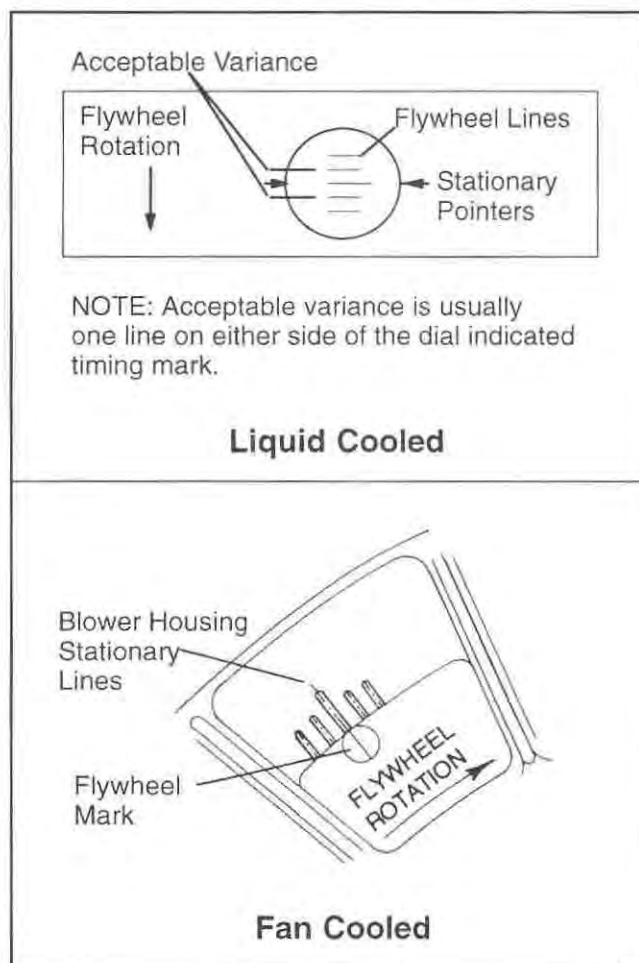
NOTE: Always verify timing of engine at room temperature only (20°C/68°F).

1. Refer to the timing specification charts at the beginning of this section to determine the proper ignition timing for the engine you are working on.
2. Use a dial indicator to place the piston in the proper timing position and mark the flywheel at this point (follow procedure on page 10.11).
3. Connect an accurate tachometer and a good quality timing light to the engine according to manufacturer's instructions.
4. Start engine and increase RPM to the point specified in the timing specification charts (1500, 3000, or 3500). Hold the throttle or set idle screws to maintain specified timing RPM.
5. Point the timing light at the timing inspection hole.
6. With your head positioned so there is a straight line between your eye, the stationary pointer and the crankshaft center line, note the relative position between the marked flywheel line and the stationary pointer. If the stationary pointer is aligned with the mark made in Step 2, (or within the acceptable $\pm$ variance) the timing is correct.
7. If the pointer is outside the variance, the stator will have to be rotated either *with* crankshaft rotation (to retard the timing) or *against* rotation to advance it.

NOTE: Rotate stator plate approximately the same distance as the marks must move.

NOTE: In most cases, the recoil starter housing, recoil drive hub, and flywheel must be removed to loosen the stator bolts and change the timing. On some engines, the stator plate retaining screws can be accessed through the flywheel.

8. Torque stator plate screws and flywheel nut to specified torque. Apply Loctite 262 (red) to crankshaft flywheel taper if required. Refer to the Engine section for torque specifications and flywheel installation procedure for engine type.



ELECTRICAL

Operating RPM Timing Check - All Models

CAUTION:

Due to the high RPM necessary and the possible danger involved, special care must be observed whenever performing an operating RPM timing check to avoid serious personal injury.

This check need not be performed unless symptoms leading to poor performance and possible engine damage are present.

- Never operate the engine with the clutch guard open or removed.
- Do not stand over or around the clutch while performing this test.
- Perform the test as quickly as possible. Avoid prolonged periods of engine free-rev.

Operating RPM Timing Test Procedure

1. Using the charts at the beginning of this unit, determine the ignition advance BTDC at the operating RPM.
2. Remove the mag side spark plug and install a dial indicator in that cylinder.
3. Zero the dial indicator as explained on page 10.11.
4. Turn the crankshaft in the opposite direction of rotation to a point approximately .100" (2.5 mm) before the operating ignition timing point.
5. Turn the crankshaft in the proper direction of rotation until the dial indicator shows the proper piston position BTDC for operating RPM ignition timing. **NOTE:** The charts only indicate degrees BTDC. This figure must be converted using the tables on page 10.12. Example: The operating timing and RPM for an engine is 16° at 7500 RPM. Using the chart, 16° on this engine is .058 BTDC at 7500 RPM. Using a properly installed and zeroed dial indicator, back the engine up to approximately .150 BTDC. Then rotate the crank in the proper direction of rotation to .058 BTDC.
6. While holding the crankshaft at the operating RPM ignition timing point, make some timing marks on the flywheel or blower housing using a piece of chalk or marker.
7. Remove the dial indicator and reinstall spark plug.
8. Start the engine. Advance and hold the throttle at the operating RPM specified on the charts. View the timing mark with the timing light. The marks should be between the allowable +/- variance indicated on the operating RPM timing specification.
9. If the operating RPM timing greatly varies from the specification, but the 3000 or 3500 RPM ignition is correct, refer to the ignition troubleshooting section in this unit for corrective action.

Preparing a New Battery for Service

To ensure maximum service life and performance from a battery, it must have proper initial servicing. To service a new battery, the following steps must be taken. **NOTE:** Do not service the battery unless it will be put into regular service within 30 days.

1. Remove vent plug from vent fitting.
2. Fill battery with electrolyte to the upper level marks on the case.
3. Set battery aside and allow it to cool and stabilize for 30 minutes.
4. Add electrolyte to bring the level back to the upper level mark on the case. **NOTE:** This is the last time that electrolyte should be added. If the level becomes low after this point, add only distilled water.
5. Charge battery at 1/10 of its amp/hour rating.
Example: 1/10 of 9 amp battery = .9 amps, 1/10 of 14 amp battery = 1.4 amps, 1/10 of 18 amp battery = 1.8 amps (recommended charging rates).
6. Check specific gravity of each cell with a hydrometer to ensure each has a reading of 1.270 or higher.

Battery Testing

There are three easy tests which can determine battery condition. Whenever the complaint is related to either the starting or charging systems, the battery should be checked first.

Lead-acid batteries should be kept at or as near full charge as possible. If the battery is stored or used in a partially charged condition, hard crystal sulfation will form on the plates, reducing their efficiency and possibly ruining the battery.

Open Circuit Voltage Test (OCV)

Battery voltage should be checked with a digital multimeter. Readings of 12.6 or less require further battery testing and charging.

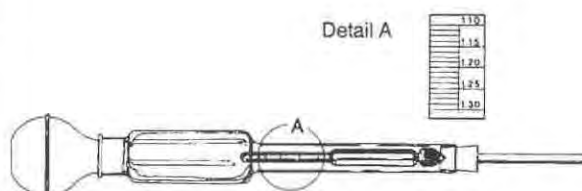
Specific Gravity Test

A tool such as the battery hydrometer (PN 2870836) can be used to measure electrolyte strength or specific gravity. As the battery goes through the charge/discharge cycle, the electrolyte goes from a heavy, more acidic state at full charge to a light, more water state when discharged. The hydrometer can measure state of charge and differences between cells in a multi-cell battery. Readings of 1.270 or greater should be observed in a fully charged battery. Differences of more than .025 between the lowest and highest cell readings indicate a need to replace the battery.

State Of Charge	Conventional Lead-acid	Yumacron Type
100% Charged	12.60V	12.70V
75% Charged	12.40V	12.50V
50% Charged	12.10V	12.20V
25% Charged	11.90V	12.0V
0% Charged	Less Than 11.80V	Less Than 11.9V

State Of Charge*	Conventional Lead-acid	Yumacron Type
100% Charged	1.265	1.275
75% Charged	1.210	1.225
50% Charged	1.160	1.175
25% Charged	1.120	1.135
0% Charged	Less Than 1.100	Less Than 1.115

*at 80° F



NOTE: Subtract .01 from the specific gravity for electrolyte at 40° F and compare these values to the chart.

ELECTRICAL Battery Service

Load Test

NOTE: This test can only be performed on machines equipped with electric start. This test cannot be performed if the engine or starting system is not working properly.

A battery may indicate a fully charge condition on the OCV test and the specific gravity test, but still not have the storage capacity necessary to properly function in the electrical system. For this reason, a battery capacity or load test should be conducted whenever poor battery performance is encountered.

To perform the test, hook a multimeter to the battery in the same manner as in the OCV test. The reading should be 12.6 volts or greater. Engage the electric starter and view the registered battery voltage while cranking the engine. Continue the test for 15 seconds. During this cranking period, the observed voltage should not drop below 9.5 volts. If the beginning voltage is 12.6 or higher and the cranking voltage drops below 9.5 volts during the test, replace the battery.

Refilling a Low Battery

The normal charge/discharge cycle of a battery causes the cells to give off gases. These gases, hydrogen and oxygen, are the components of water. Because of the loss of these gases and the lowering of the electrolyte level, it will be necessary to add pure, clean distilled water to bring the fluid to the proper level. After filling, charge the battery to raise the specific gravity to the fully charged position (1.270 or greater).

Off Season Storage

To prevent battery damage during extended periods of non-use, the following basic maintenance items must be performed.

1. Remove battery from machine and wash the case and battery tray with a mild solution of baking soda and water. Rinse with lots of fresh water after cleaning. **CAUTION:** Do not allow any of the baking soda solution to enter the battery or the acid will be neutralized.
2. Using a wire brush or knife, remove any corrosion from the cables and terminals.
3. Make sure the electrolyte is at the proper level. Add distilled water if necessary.
4. Charge at a rate no greater than 1/10 of the battery's amp/hr capacity until the electrolyte's specific gravity reaches 1.270 or greater.
5. The battery may be stored either in the machine with the cables disconnected, or on a piece of wood in a cool place. **NOTE:** Stored batteries lose their charge at the rate of 1% per day. They should be fully recharged every 30 to 60 days during a non-use period. If stored during winter months, the electrolyte will freeze at higher temperatures as the battery discharges. The chart indicates freezing points by specific gravity.

Specific Gravity of Electrolyte	Freezing Point
1.265	-75° F
1.225	-35° F
1.200	-17° F
1.150	+5° F
1.100	+18° F
1.050	+27° F

Charging Procedure

Charge battery with a charger no larger than 1/10 of the battery's amp/hr rating for as many hours as needed to raise the specific gravity to 1.270 or greater.

WARNING

The gases given off by a battery are explosive. Any spark or open flame near a battery can cause an explosion which will spray battery acid on anyone close to it. If battery acid gets on anyone, wash the affected area with large quantities of cool water and seek immediate medical attention.

WARNING

Battery electrolyte is poisonous. It contains acid! Serious burns can result from contact with the skin, eyes, or clothing.

ANTIDOTE:

EXTERNAL: Flush with water.

INTERNAL: Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.

EYES: Flush with water for 15 minutes and get prompt medical attention.

Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc. away. Ventilate when charging or using in closed space. Always shield eyes when working near batteries.

KEEP OUT OF REACH OF CHILDREN.

ELECTRICAL

Dynamic Testing of Electric Starter System

Condition: Starter fails to turn motor or motor turns slowly.

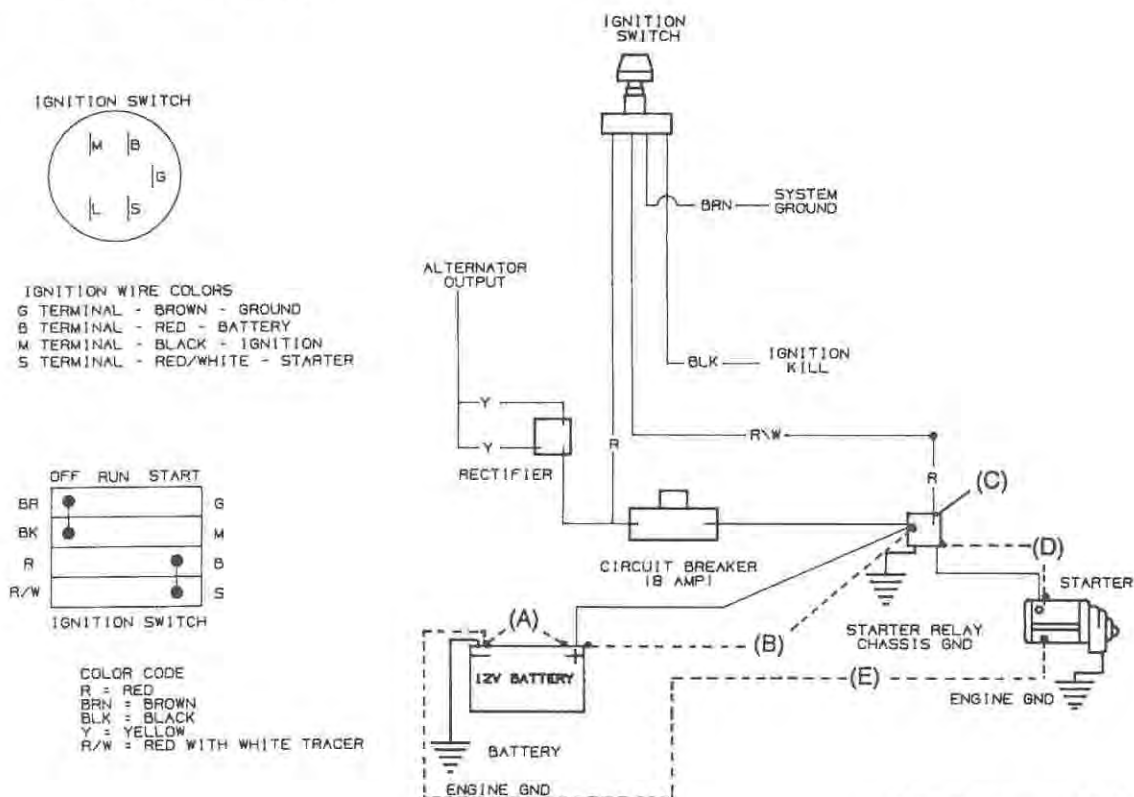
NOTE: Be sure the engine crankshaft is free to turn before proceeding. For this test a digital multimeter must be used.

With tester on VDC, place tester black lead on battery negative (-) terminal and tester red lead on battery positive (+) terminal. Reading should be 12.6V or greater. Is it? No→ Yes↓ (A) Page 10.22	Remove battery, test and/or service. Install a fully charged shop battery to continue the test. (Continue with left column)
Disconnect red engagement coil wire from start solenoid. Connect black tester wire to an appropriate ground and red lead to red harness wire at solenoid. Rotate ignition key to the start position. Meter should read battery voltage. Does it? No→ Yes↓	With black tester lead on ground, check for voltage at large relay in terminal,, circuit breaker in and out terminals, and across both sides (red and red/white) of the ignition switch with switch on start. Repair or replace any defective parts.
Reconnect solenoid, connect tester black lead to battery positive terminal and red tester lead to solenoid end of battery to solenoid cable. Turn key to start position. The reading must be less than .1V DC. Is it? No→ Yes↓ (B) Page 10.22	Clean battery to solenoid cable ends or replace cable.
Connect black tester lead to solenoid end of battery to solenoid cable and red tester lead to solenoid end of solenoid to starter cable. Turn key to start position. The reading must be less than .1V DC. Is it? No→ Yes↓ (C) Page 10.22	Replace starter solenoid.
Connect black tester lead to solenoid end of solenoid to starter cable and red tester lead to starter end of same cable. Turn key to start position. The reading must be less than .1V DC. Is it? No→ Yes↓ (D) Page 10.22	Clean solenoid to starter cable ends or replace cable.
Connect black tester lead to starter frame. Connect red tester lead to battery negative (-) terminal. Turn key to start position. The reading should be less than .1V DC. Is it? No→ Yes↓ (E) Page 10.22	Clean ends of engine to battery negative cable or replace cable.
If all these tests indicate a good condition, yet the starter still fails to turn, or turns slowly, the starter must be remove for static testing and inspection.	

ELECTRICAL

Electric Starter System Testing (Static)

Starter Motor Static Testing



A-E See page 10.21

1. Remove starter motor and disassemble. Mark end covers and housing for proper reassembly.
2. Remove pinion retaining snap ring, spring and pinion gear.
3. Remove brush end bushing dust cover.
4. Remove housing through bolts.
5. Slide brush end frame off end of starter. **NOTE:** The electrical input post must stay with the field coil housing.
6. Slide positive brush springs to the side, pull brushes out of their guides and remove brush plate.
7. Clean and inspect starter components. **NOTE:** Some cleaning solvents may damage the insulation in the starter. Care should be exercised when selecting an appropriate solvent. The brushes must slide freely in their holders. If the commutator needs cleaning, use only an electrical contact cleaner and/or a non-metallic grit sandpaper. Replace brush assembly when worn to 5/16" (.8 cm) or less.

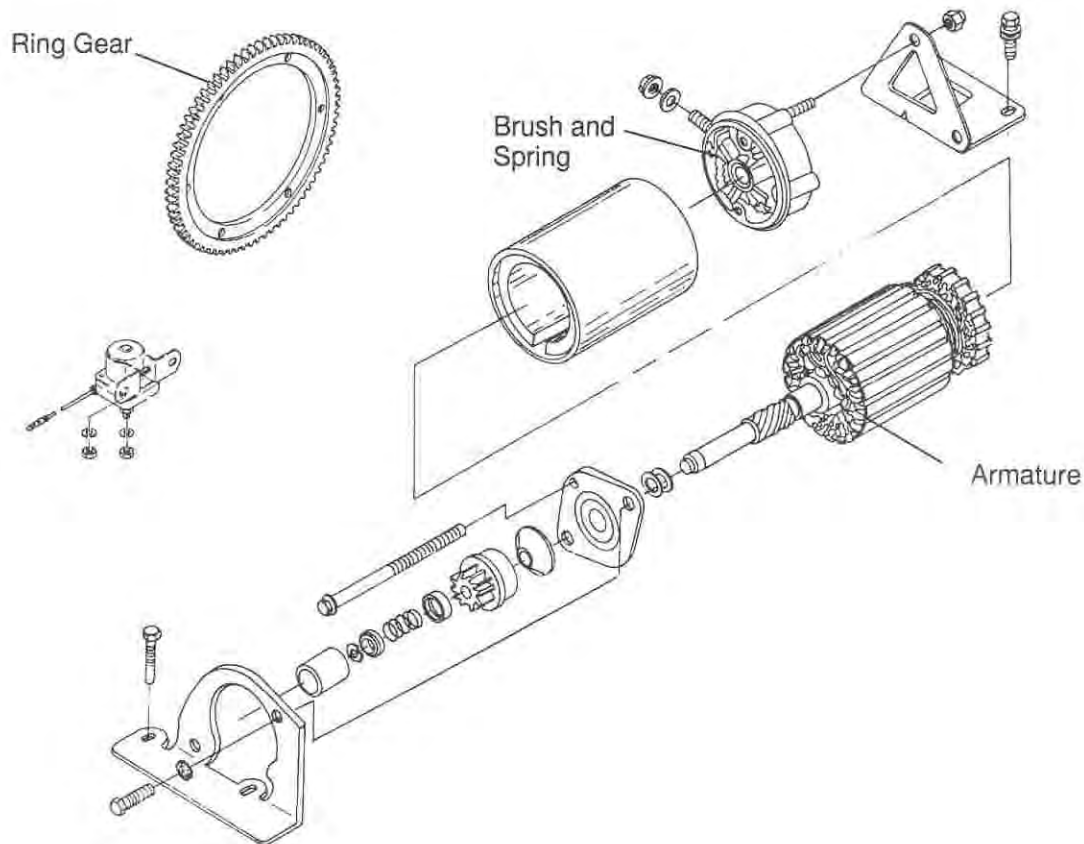
Starter Housing and Field Coil Inspection

1. Using a digital multimeter, measure resistance between starter input terminal and insulated brushes. The reading should be .3 ohms or less.
2. Measure resistance between insulated brushes and field coil housing. The reading should be infinite.
3. Inspect insulated brush wire and field coil insulation for damage. Repair or replace components as required.

Armature Testing

1. Using a digital multimeter, measure resistance between each of the segments of the commutator. The reading should indicate .3 ohms or less.
2. Measure resistance between commutator and armature shaft. Reading should be infinity.
3. Place armature in a growler. With the growler on, position a hacksaw blade lengthwise 1/8" (.03 cm) above armature coil laminates. Rotate armature 360°. If hacksaw blade is drawn to the armature on any pole, the armature is shorted and must be replaced.

Starter Assembly



1. Slide armature into field coil housing.
2. Lightly grease drive end bushing and install drive end frame on armature.
3. Mount starter vertically in a vice with brush end up.
4. While holding negative brushes out against their springs, slide brush plate down onto the commutator.
5. While holding positive brush springs to the side, slide positive brushes into their holders and correctly position the springs on top of the brushes.
6. Using a non-petroleum grease, lubricate brush end bushing and slide it onto end of armature.
7. Align threaded holes in brush plate and install dust cover and screws.
8. Reinstall through bolts and properly tighten all screws.
9. Lightly grease pinion shaft and install pinion, spring stopper and snap ring.

ELECTRICAL

Starter Installation

Starter Solenoid Bench Test

It is difficult to test the high amp side of the solenoid accurately on the bench. The only test which can be done on the bench is the pull in coil resistance, which should read 3.4 ohms.

Starter Installation

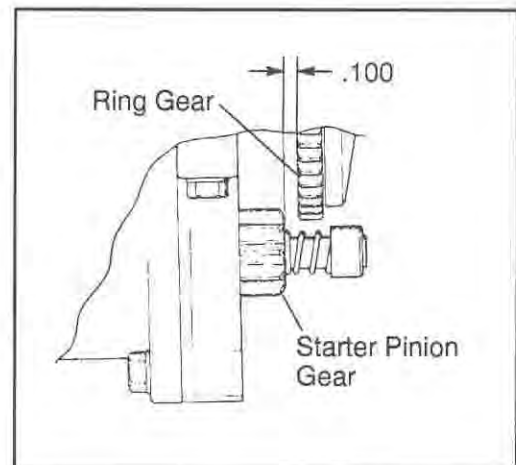
1. Position starter motor so there is no less than .100" clearance between the ring gear and the starter motor pinion gear.
2. Torque 8mm drive end mount bolts to specification.
3. Torque 6mm brush end mount bracket to engine bolts to specification.

**8mm Drive End Mount Bolt Torque -
15 ft. lbs. (2.07 kgm)**

**6mm Drive End Mount Bolt Torque -
5 ft. lbs. (.69 kgm)**

4. Torque through bolt mount bracket nuts to specification.

**Mounting Bracket Nut Torque -
30-42 in. lbs. (.34-.48 kgm)**



Unregulated Voltage

1. Turn the multimeter dial to the Volts AC (V~) position.
2. Disconnect the alternator to main harness connector at engine.
3. Connect one of the tester leads to the yellow alternator wire and the other lead to the brown alternator wire.
4. Start the engine. While observing the voltage reading, increase the engine speed to about 3000 RPM. Readings of between 15 and 45 VAC are considered normal. **NOTE:** Higher readings may occur on Ultra models.



A~ = Amps AC - used to test lighting coil output

Test Method

1. Disconnect engine harness from system.
2. Connect red lead to 10A (+) meter terminal.
3. Connect black lead to Com (-) meter terminal.
4. Start engine and let it idle.
5. Observe and record the meter reading.

150 Watt Alternators: The reading should exceed 8 amps.

200 Watt Alternators: The reading should exceed 12 amps.

NOTE: Amperage readings are not dependent upon engine RPM. The reading you obtain at idle is essentially the same as the reading that would be obtained at higher RPMs.

NOTE: Although the meter connection is labeled 10A it will correctly read higher AC amperage (without damage to your meter) for periods of time not exceeding 10 seconds.

Regulated Voltage

Due to the internal construction of the LR modules and the way they function, it is not possible to accurately measure regulated voltage with most VOMs.

There are two possible problems that can occur with voltage regulators: Not enough output or too much output. Not enough output would show itself because of low output from the lights.

1. Disconnect the yellow wire from the regulator.
2. Start the engine and observe the headlight at idle.
3. Slowly increase engine RPM a slight amount.
4. If the light output increases above what you observed when the regulator was connected, the regulator or regulator ground is probably at fault.
5. If the light output does not change when the regulator is not connected (and the lights excessively dim), this would indicate excessive system loads, poor flywheel magnets, lighting coil problems, or wiring harness problems.
6. The other possibility is too much voltage. Light bulbs that continually burn out would be an indication of too much voltage reaching the headlights.
7. Before you change the regulator due to too much voltage reaching the lights, make sure that you inspect all connections and grounds. Poor connections can cause voltage spikes which could damage the lights.

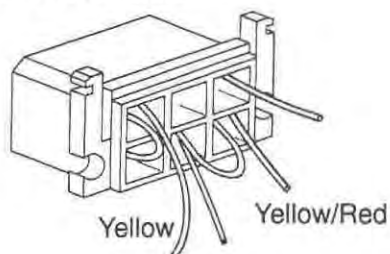
NOTE: Fuel injected models have two regulators; one for lighting and one for charging the battery. Battery charging is discussed on page 10.20.

ELECTRICAL

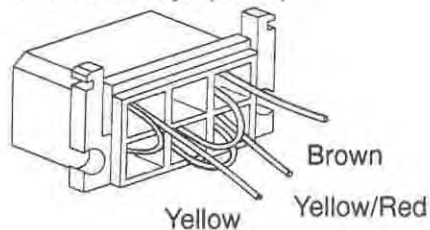
Alternator Output Test - Open Circuit

Lighting System Identification - Test between labeled wires.

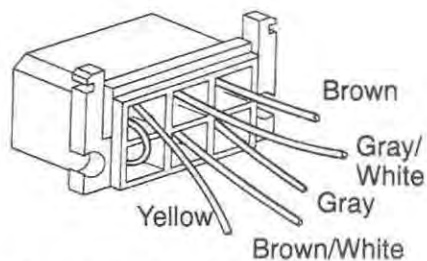
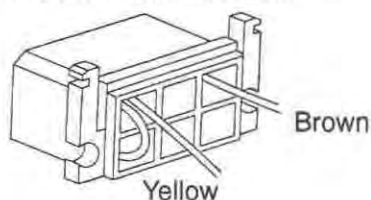
150 Watt Twins
200 Watt Twins



180 Watt 3 Cyl. (Carb.)
170 Watt 3 Cyl. (Carb.)



250 Watt Twin - 500 EFI



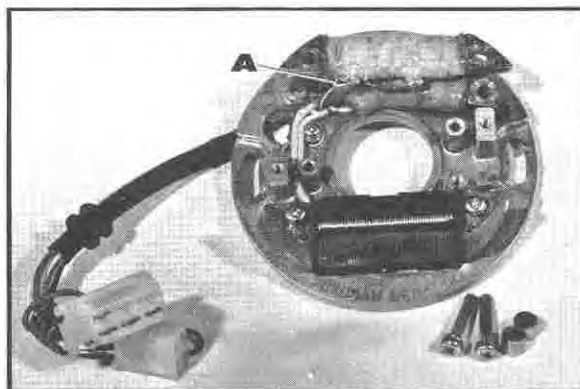
Check Lighting Coil Between
Yellow and Brown.
Check Battery Charging
Between Gray and Brown/White
and Gray/White and Brown/White.

NOTE: Gray, Gray/White, Brown/White
are Bullet Type Connectors

ELECTRICAL

Typical Exciter, Pulser or Lighting Coil Replacement

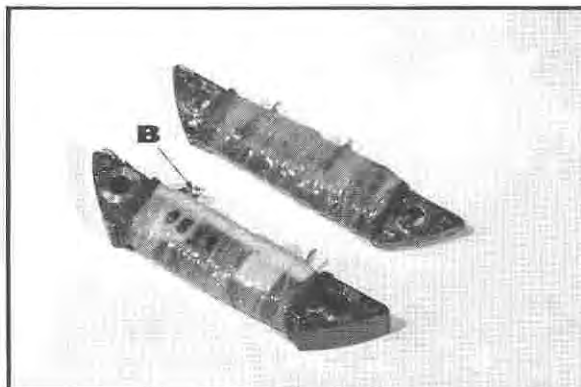
1. Remove coil retaining screws and spacers.
2. Using a pliers, remove epoxy from solder joints (A) on the coil to be replaced.



3. Unsolder connection from coil.



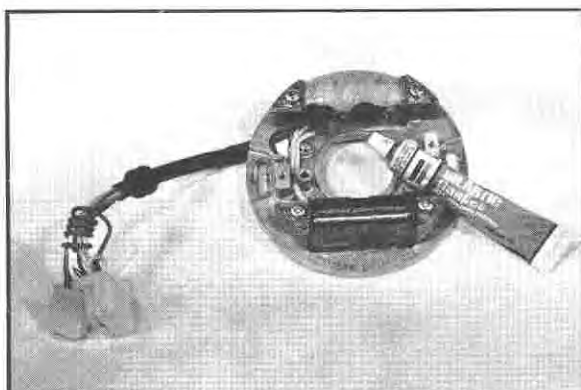
4. Clean solder terminals (B) on the replacement coil and re-solder to their proper wires. **NOTE:** Always position with numbers towards the *outside*.



5. Reinstall retaining screws and spacers.
6. Using a moisture-proof sealant, seal solder joints as shown. **NOTE:** All soldering must be done using rosin core solder.
7. Test resistance of each coil prior to stator plate installation.

NOTE: Lighting and pulseless coils are replaced in a similar manner.

IMPORTANT: After the stator plate is reinstalled on the engine, check placement of all coil leads to prevent possible contact with the flywheel.

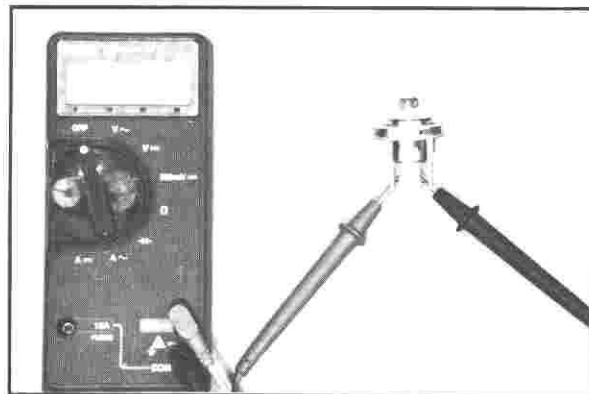


ELECTRICAL

Electrical Testing

Headlight Bulb Filament Continuity Test

1. Turn the Multitester dial to the ohms (Ω) position.
2. Disconnect the wire harness from the headlight bulb.
3. Viewing the end of the bulb with the terminal blades at the 9, 12 and 3 o'clock position, connect the black multitester lead to the 9 o'clock blade.
4. Touch the red tester lead to the 12 o'clock terminal and then to the 3 o'clock terminal, noting the resistance value of each. A reading of between 2 and 5 ohms is good. An open reading indicates a bad element.



Hi/Lo Beam Switch Testing

1. Set the multitester dial to the ohms (Ω) position.
2. If the Hi/Lo switch has not been removed from the machine, disconnect the switch to harness plug in connector.
3. With the Hi/Lo switch in the *Lo beam* position, check the resistance between the yellow and the green switch wires. The reading should be less than .4 ohms.
4. Turn the Hi/Lo switch to the *Hi beam* position and the multitester should indicate an open circuit (OL) reading.
5. Move one of the tester leads from the green to the red switch wire. The multitester should now read less than .4 ohms.
6. Turn the Hi/Lo Switch back to the *Lo beam* position and the meter should again read an open circuit (OL).

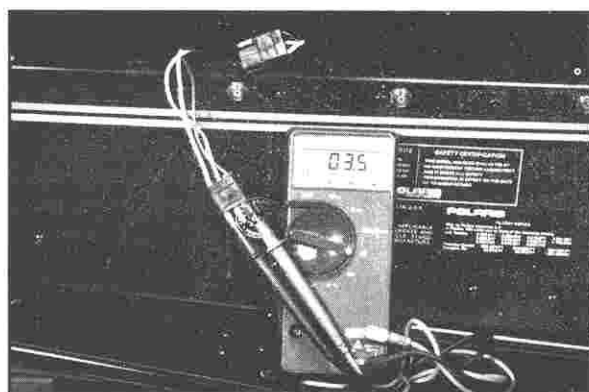


	Low	High
Grn		
Yel		
Yel/Rd		

High/Low Switch

Seat Harness Troubleshooting

1. Remove the taillight lens.
2. Remove the two taillight bulbs and the brakelight bulb.
3. Separate the seat harness from the main harness by unplugging the connector at the right rear of the tank.
4. With the multitester dial set on ohms (Ω) connect either meter test lead to the brown seat harness wire.
5. Touch the other tester lead to first the yellow wire and then the orange wire. Observe the readings. Readings other than an open circuit indicate a shorted harness or bulb socket. **NOTE:** The bulb socket tangs sometimes short to ground with the bulb removed.
6. Check between the yellow and orange wires in the same manner to check for a short between the brake and running lights. If damaged wiring is found, remove the seat.
7. Tip the seat over and remove the right side seat cover staples. Locate and repair the harness problem.
8. Reinstall the staples and re-check the seat harness.



Ignition Switch Testing (Non-Electric Start)

1. Set the multimeter dial to the ohms (Ω) position. Connect one of the tester leads to either of the switch terminals and the other tester lead to the other switch terminal.
2. With the switch off, the reading should be less than .4 ohms. With the switch on, the reading must be an open circuit (OL).
3. Check the resistance between each of the switch terminals and the switch body. With the switch still in the on position, there must be an open circuit (OL) reading. Readings other than those listed indicate a defective switch.

	Off	On
Blk		•
Brn		•

Ignition Switch

Ignition Switch Testing (Electric Start Models)

NOTE: Refer to the appropriate model and year wiring diagram for ignition switch wire colors and connections.

1. Disconnect wires. Set the multimeter dial to the ohms (Ω) position.
2. With the key in the off position, check the resistance between the G (Ground, brown) terminal and the M (Mag, black) terminal. This reading must be less than .4 ohms.
3. Turn the key to the on position. The multimeter should now read an open circuit (OL).
4. Move the tester lead from the G terminal to the switch housing and re-check the reading. It should also be an open circuit (OL).
5. Place one of the tester leads on the B (Battery, red) terminal and the other tester lead on the S (Starter, blue) terminal. With the key in the on position, there must be an open circuit (OL) reading.
6. Turn the key to the start position. The reading should be less than .4 ohms. Readings other than the ones listed indicate a defective switch.

	Off	On	Start
Brn	•		
Blk	•		
R			•
R/W			•

Ignition Switch - Electric Start

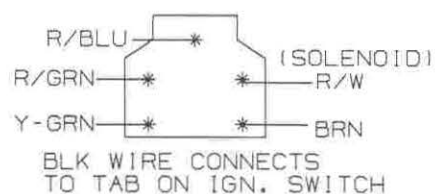
ELECTRICAL

Electrical Testing

Ignition Switch Testing (Fuel Injected Models)

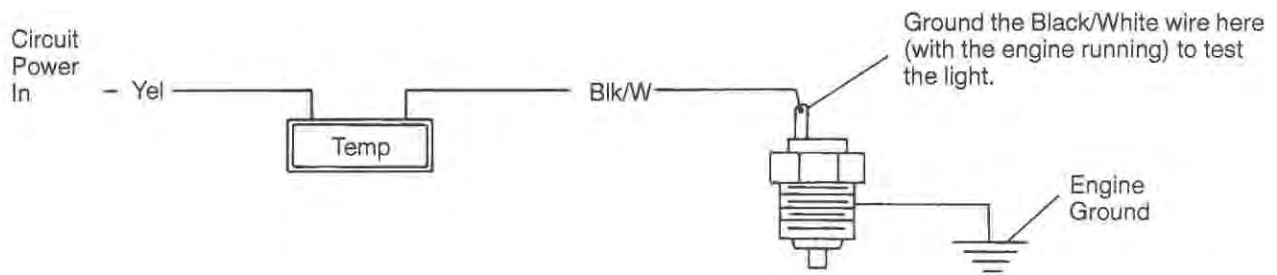
1. Disconnect wires. Set the multimeter dial to the ohms (Ω) position.
2. With the key in the off position, connect one of the tester leads to the G terminal.
3. Randomly connect the other tester lead to the other terminals. The only terminal that should show other than an open circuit (OL) is the M terminal. The M terminal should read less than .4 ohms.
4. Turn the key switch to the run position. Check the resistance between the M terminal and each of the other terminals, and the M terminal and the switch housing. All of these readings must be an open circuit (OL).
5. Return the key to the off position.
6. Connect a tester lead to the B terminal. Randomly connect the other tester lead to each terminal. The readings must be an open circuit (OL).
7. Turn the key to the run position and repeat the test. All of the readings must be an open circuit (OL), except between the B and L terminals. This reading must be less than .4 ohms.
8. With one tester lead connected to the B terminal and the other to the S terminal and with the switch in any position except start, the reading should be an open circuit (OL). In the start position, the reading must be less than .4 ohms.

	Off	On	Start
R/Grn			●
Y/Grn			●
Brn	●	●	
Blk	●	●	
R/W		●	●
R/Blu			●



ELECTRICAL

Coolant High Temperature Indicator Testing



The indicator light is controlled by a temperature/warning switch installed into the engine cooling system. When engine coolant temperature reaches approximately 205° F, the switch closes, completing the circuit through the indicator light to ground. The system should be tested periodically for proper operation.

Lamp Circuit Test

1. Remove wire from temperature sensing switch located under thermostat housing.
2. With engine idling, ground wire to engine. The temperature warning lamp on the console should light. If not, replace the lamp assembly or inspect wiring for shorts or open circuit.

Temp Light Temperature Sensor Test

The temperature/warning switch is normally open.

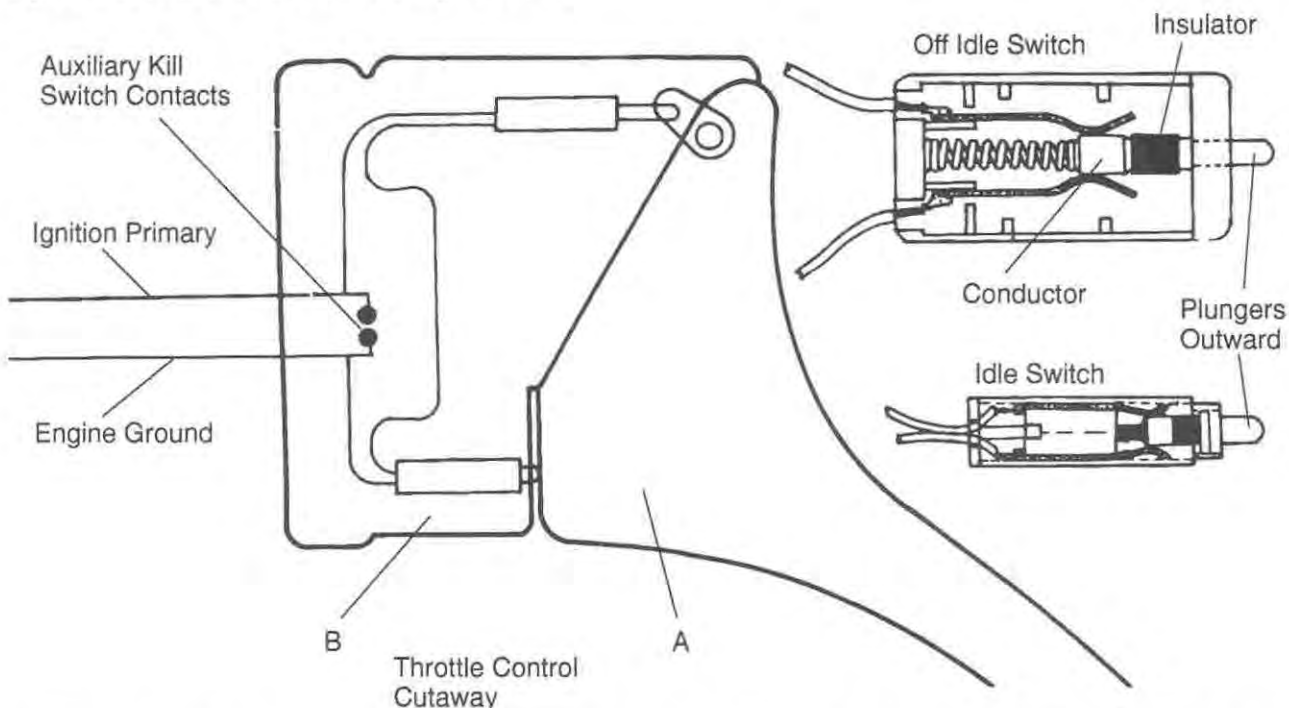
1. Set the multimeter on the ohms (Ω) scale.
2. Disconnect the lamp wire.
3. Connect one test probe to the switch terminal and the other to engine ground. The meter should show an open circuit (OL). This indicates a normally open switch. If the switch were heated to approximately 205° F, the contact in the switch would close and the reading would be less than .4 ohms.

CAUTION:

If attempting to heat the sensor to close the contacts, heat only in a water bath. Never subject the sensor to an open flame to attempt to close the contacts as sensor damage will result.

ELECTRICAL

Speed Control Assurance Operation



The speed control assurance consists of two series connected switches. If one or both switch plungers are positioned inward, the circuit is open and the engine will run.

At idle, with the throttle lever properly adjusted, the bottom switch circuit is open and the plunger is inward. The top switch circuit is closed, and the plunger is outward. The speed control circuit is open, allowing the engine to run.

As the throttle lever is actuated to an off idle position, the top switch circuit is opened (plunger in) and the bottom switch circuit is closed (plunger out). The speed control circuit is still open, allowing the engine to run.

In the event the carburetor or controls malfunction and allow the throttle cable to become slack, the circuit will close (both switch plungers out), grounding the ignition system and causing the engine to stop.

Speed Control Assurance Adjustment

Throttle lever free play must always provide a specified clearance between throttle lever (A) and throttle block (B). This clearance is controlled by the throttle cable sleeve(s) and the idle speed screw(s).

Throttle Lever Freeplay -

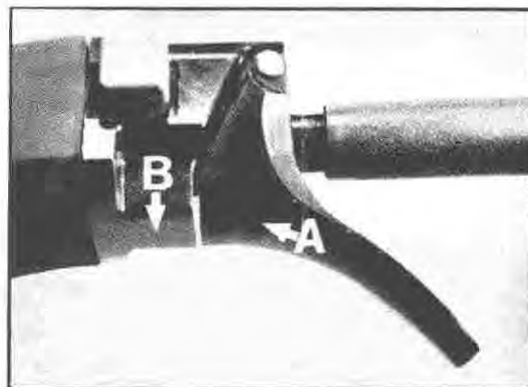
Regular Throttle - .010 - .030" (.25 - .8 mm)
EZ Throttle - .050 - .060" (1.27 - 1.5 mm)

If the idle speed screw(s) is adjusted inward and the cable sleeve(s) is not adjusted to take up the throttle lever to throttle block clearance, the engine may misfire or kill upon initial throttle opening.

CAUTION:

After any idle speed adjustments are made, the throttle lever to throttle block clearance and oil pump adjustment must be checked and adjusted.

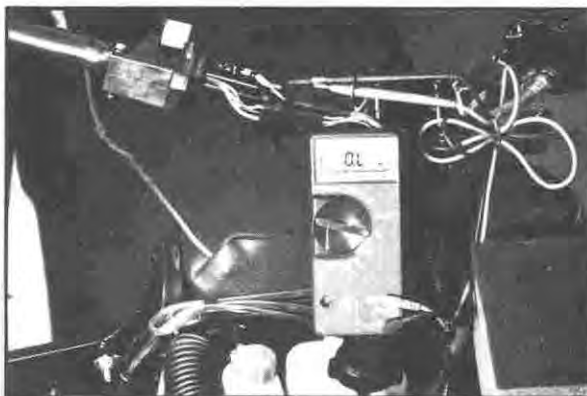
NOTE: When adjustments are made on models which have more than one carburetor, refer to Section 6, Carburetion, for proper carburetor synchronization adjustments.



1. Set the multimeter in the ohms (Ω) position.
2. Disconnect the switch harness from the main wire harness.
3. Connect the two multimeter test leads to the two switch wires.

Test 1 - Open Circuit - Run

With the auxiliary shut-off switch in the **ON** position, the multimeter should read an open circuit (OL). As the throttle lever is moved from idle to off idle, the tester should continue to read an open circuit. If the tester fluctuates and the throttle lever to throttle block clearance is adjusted properly, the switch assembly must be replaced.



Test 2 - Closed Circuit - Kill

The two speed control switches must make a complete circuit to kill the engine. To check the switches, pull the throttle lever out away from the throttle block. With the switch plungers outward and the auxiliary shut-off switch in the **ON** position, the multimeter must read less than .4 ohms resistance. Inspect wires and repair if damaged, or replace switch assembly.

Test 3 - Auxiliary Shut-Off

The multimeter should read less than .4 ohms in the **OFF** position and an open circuit in the the **ON** position. Inspect wires and repair if damaged, or replace switch assembly.

Speed Control Assurance Replacement

Auxiliary shut-off and speed control assurance switches are connected and replaced as a unit from the back side of the throttle block.

1. Remove the handlebar pad and/or throttle block backing plate.
2. Slide out the auxiliary shut-off portion of the switch.
3. Remove the two screws securing the two speed control assurance switches.
4. Remove the switches noting their placement in the throttle block.
5. Replace the assembly and check its operation.

ELECTRICAL

Electric Fuel Gauge Testing

1996 RXL Model

Use the multimeter's ohmmeter to test the resistance of the fuel sender.

Position	Ohms	Range
Empty	0 Ω	0 - 3 Ω
Full	90 Ω	85.5 - 94.5 Ω

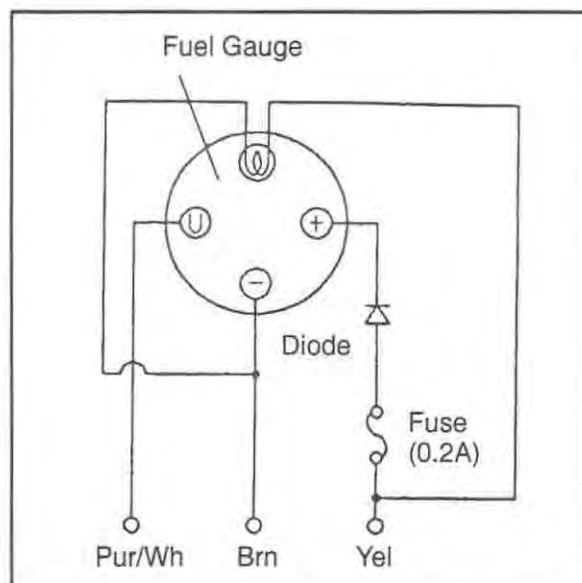
The supply voltage on the Red/White sender wire should be higher than 2 VDC, and less than 5 VDC.

All Other Models

Use the multimeter ohmmeter to test the resistance of the fuel sender.

Position	Ohms	Range
Empty	95 Ω	90 - 97.5 Ω
Full	7 Ω	4.5 - 13 Ω

The supply voltage to the gauge should be 13.5 VAC.



High-Low Handwarmer Toggle Switch

Below are the correct wire to PIN numbers:

1. Blue – High Circuit
2. Yellow – Regulated Power (A.C.)
3. Blue/Red – Low Circuit
4. Blank
5. Blank
6. Blank
7. Brown – Ground Circuit
8. Blank

Testing

1. Disconnect handwarmer connector at the handwarmer.
2. Measure the low range resistance between the Blue and Brown wires. The resistance should be 19.2 Ω .
3. Measure the high range resistance between the Brown and Blue/Red. The resistance should be 9.6 Ω .

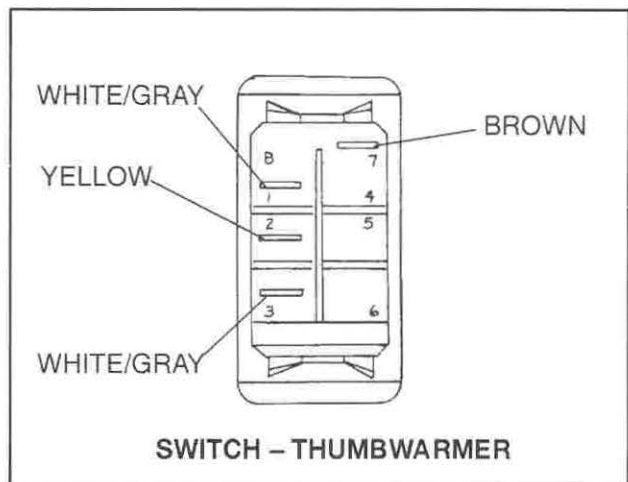
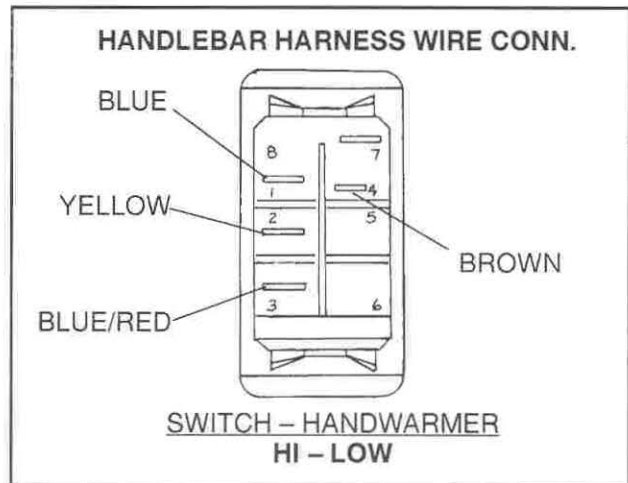
Thumbwarmer Toggle Switch

Below are the correct wire to PIN numbers:

1. White/Gray – To Thumbwarmer
2. Yellow – Regulated Power (A.C.)
3. White/Gray – To Thumbwarmer
4. Blank
5. Blank
6. Blank
7. Brown – Ground Circuit
8. Blank

Testing

Disconnect handwarmer and check resistance at handwarmer. The resistance between the Blue/Red and Brown wires is 9.6 Ω .



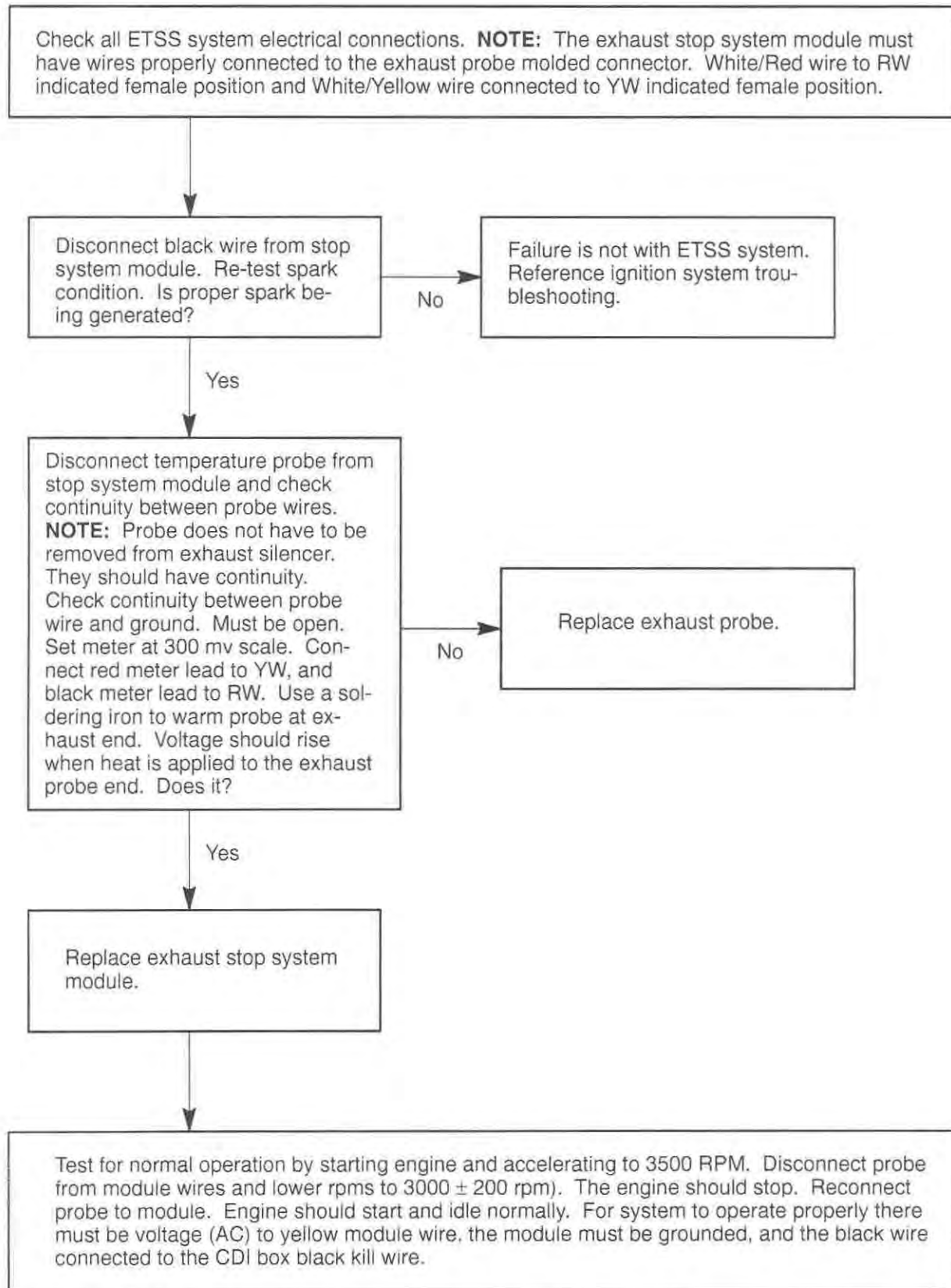
ELECTRICAL

Exhaust Thermal Sensing System (ETSS)

Ultra ETSS Diagnostic Chart

Condition: Engine misfire, weak yellow or no spark at plug wires.

Test Procedure:



Exhaust Thermal Sensing System (ETSS)

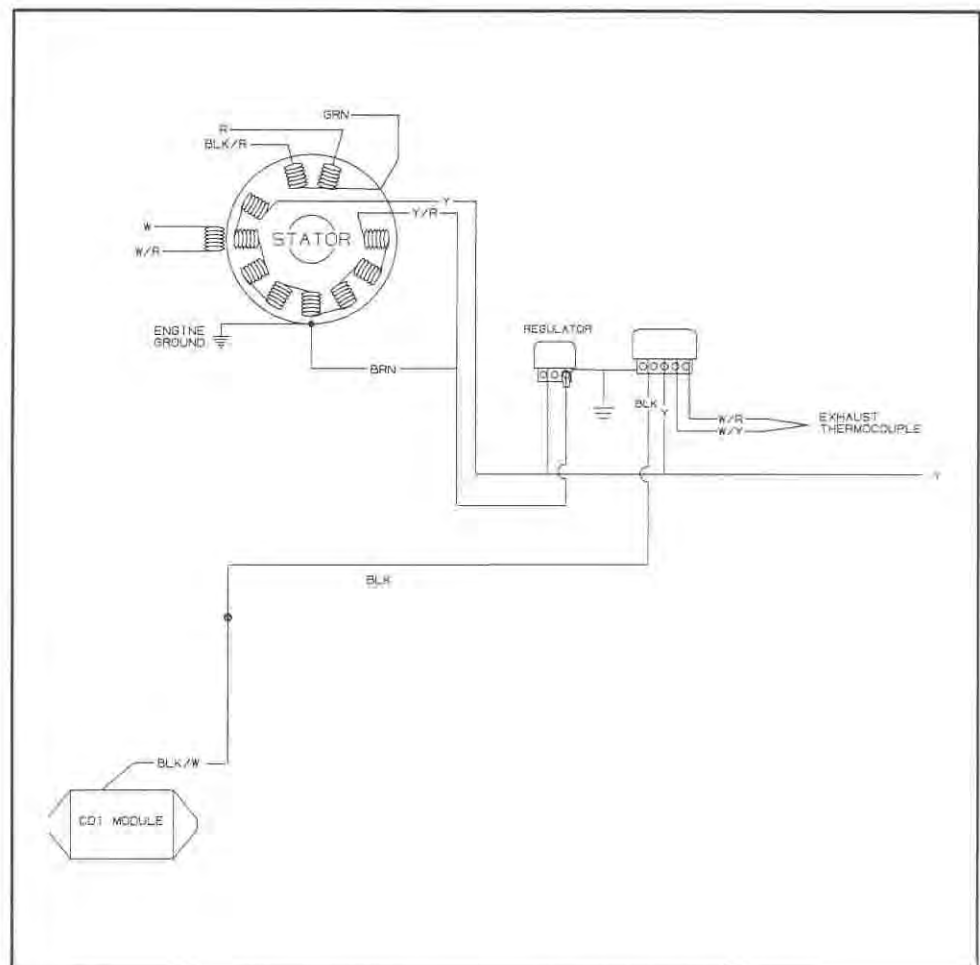
Indy Ultra models come equipped with a thermal sensing device. This device will prevent engine operation below 3000 RPM if the exhaust system's internal temperature is too high. When the exhaust temperature is high at low RPM, the potential exists for an exhaust flame being emitted from the exhaust outlet.

The condition, which causes the engine to stop operating, is rare and generally results after prolonged wide open throttle operation with a rapid return to idle.

In the event that the device is activated, the engine will restart immediately, but may not continue to idle until the exhaust system cools down. The exhaust system usually cools down within one minute of shut down.

CAUTION:

Disconnect black wire for testing purposes only. Do not operate the snowmobile with the ETSS system disconnected.



ELECTRICAL

Ignition System Troubleshooting

Condition: No Spark

Disconnect the single black (black/white) wire from the CDI Module to the ignition kill circuit. Does it have a spark? Yes→ No↓	Check the ignition switch, wire harness, throttle safety switches and kill switch for proper adjustment or short to ground. Repair or replace as necessary.
Disconnect the stator to CDI module wires. Test the resistance values of the stator coils as per the charts on page 10.3. Are the resistance values within specs? Yes→ No↓	All except 3 cylinders: If the parts of the ignition system under the flywheel check OK, the only remaining component is the coil/CDI module assembly. Replace the module with another with the same CU number. (See ignition data) All 3 cylinders: Disconnect and check the secondary ignition coil resistances. Refer to the resistance values listed on page 10.3. If the coil resistance values are within specs, replace the CDI module.
Isolate which component's resistance is not within specs. Remove the flywheel and stator. Recheck the resistances; look for pinched or bare harness wires; or replace the coil. Refer to page 10.27 for coil replacement procedures.	

Condition: Incorrect Advance/Retard

Follow the engine timing procedure for checking running timing at 3000 RPM. Is the timing within limits? No→ Yes↓	Adjust the ignition timing by rotating the stator plate to correct the timing. After adjusting the 3000 RPM timing, continue with operating RPM timing if poor performance exists. (Continue on with left column.) See ignition timing page 10.11.
Follow the engine timing procedure for checking operating RPM timing from page 10.18. Is the timing within limits? Yes→ No↓	If the 3000 and operating RPM timing are within limits, no other testing is necessary.
Remove the ignition kill circuit by disconnecting the single black wire between the CDI module and the machine harness. Is the timing now correct? Yes→ No↓	Check the ignition switch, throttle safety switches, kill switch and harness for damage which can cause intermittent shorting problems. Correct the problem.
Verify the correct CDI module by comparing the CU code on the box to the information listed in the ignition data charts at the beginning of this section. Is it the right module? No→ Yes↓	Replace the module with the correct part and readjust the ignition timing.
Check the resistance of the coils under the flywheel. Compare these values to the charts on page 10.3. Are they within limits? No→ Yes↓	Check the wiring connecting the coils and/or replace the coils as necessary.
If the 3000 RPM timing is within limits but the operating RPM timing is not acceptable, replace the CDI module.	

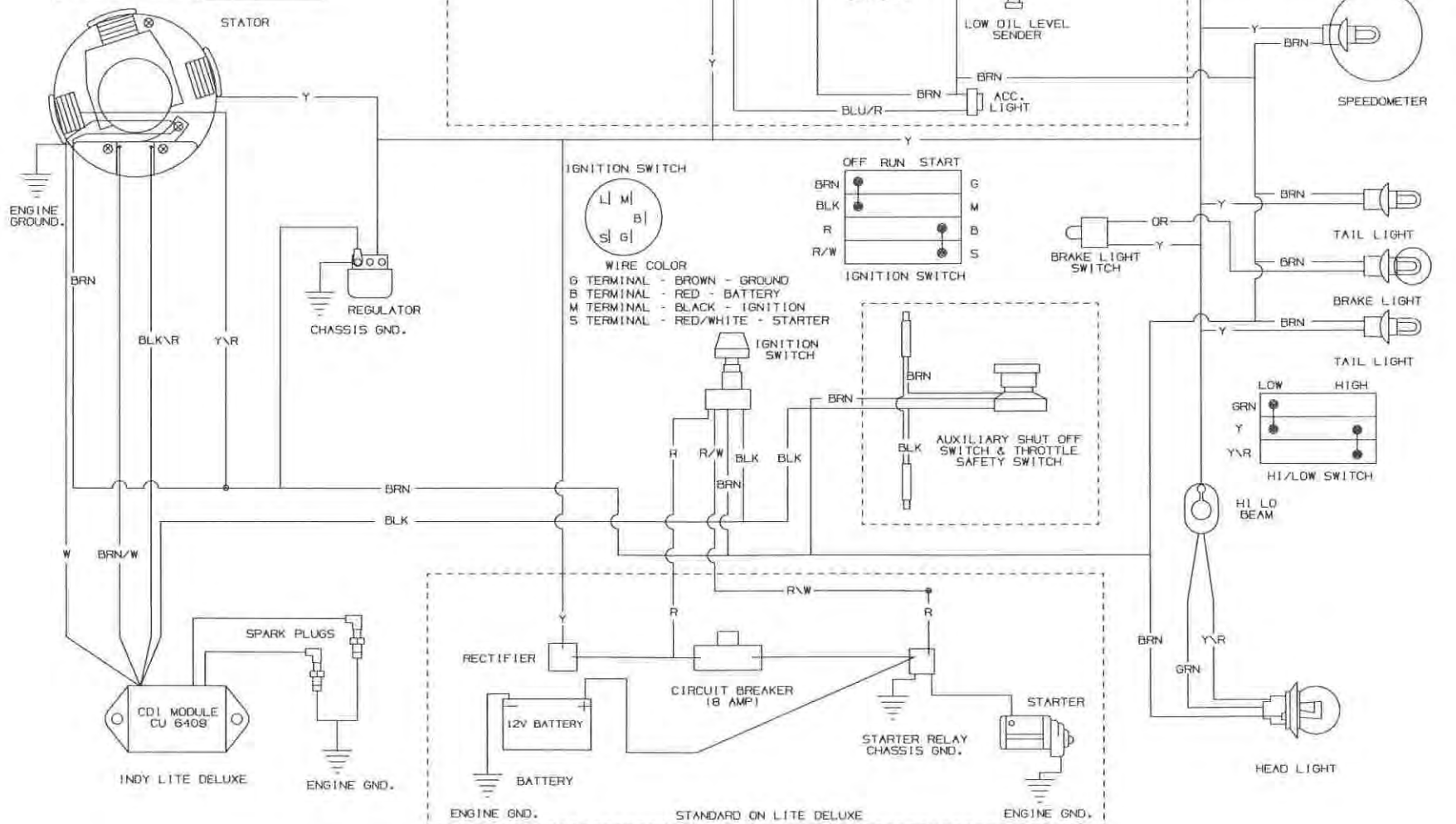
NOTE: 3 cylinder engines fire three times per revolution. At 7500 RPM the ignition is firing 21,500 times per minute. Use of a timing light not capable of handling these RPMs may provide an incorrect operating RPM timing reading. Use timing light PN 2870630 or equivalent.

Timing Light PN 2870630

ELECTRICAL **1996 Wiring Diagram - Indy Lite / GT / Lite Deluxe**

INDY LITE
 INDY LITE GT
 INDY LITE DELUXE

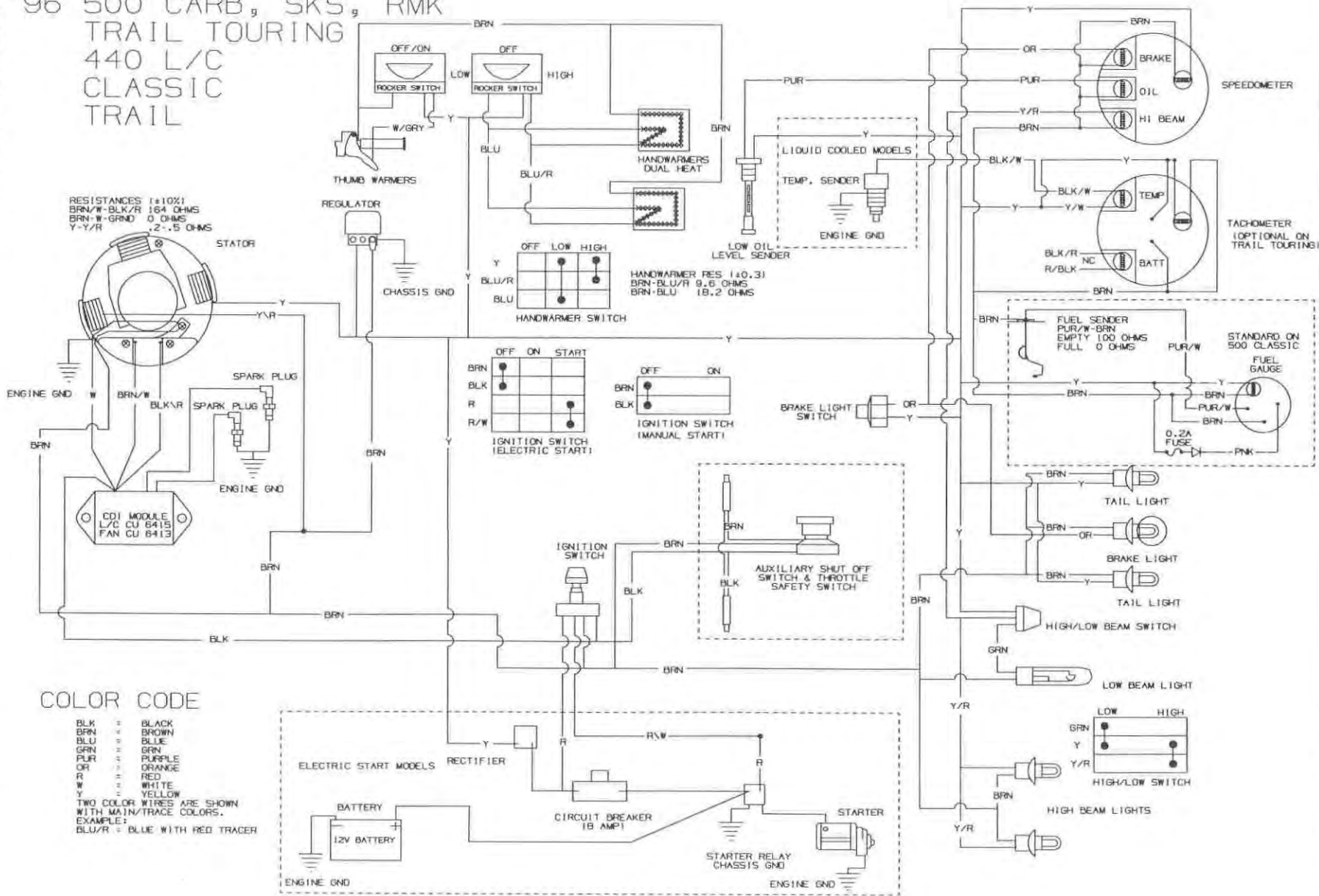
STATOR RESISTANCES	
BRN/W TO BLK/R	164 OHMS
Y TO BRN OR Y/R	.3 TO .6 OHMS
GND TO BRN TO W	0 OHMS



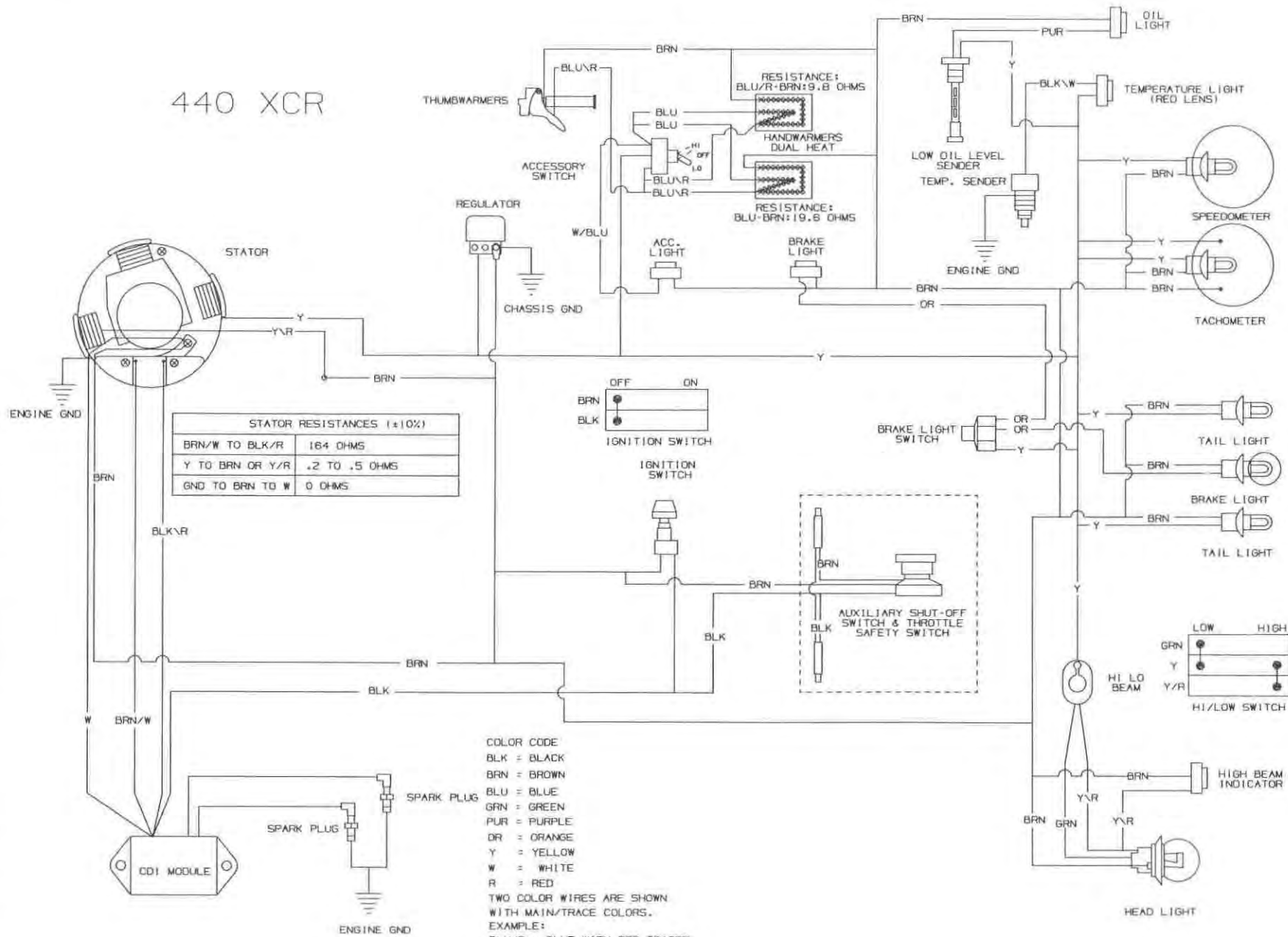
1996 Wiring Diagram - Indy Sport / Super Sport / Sport Touring / TransPort



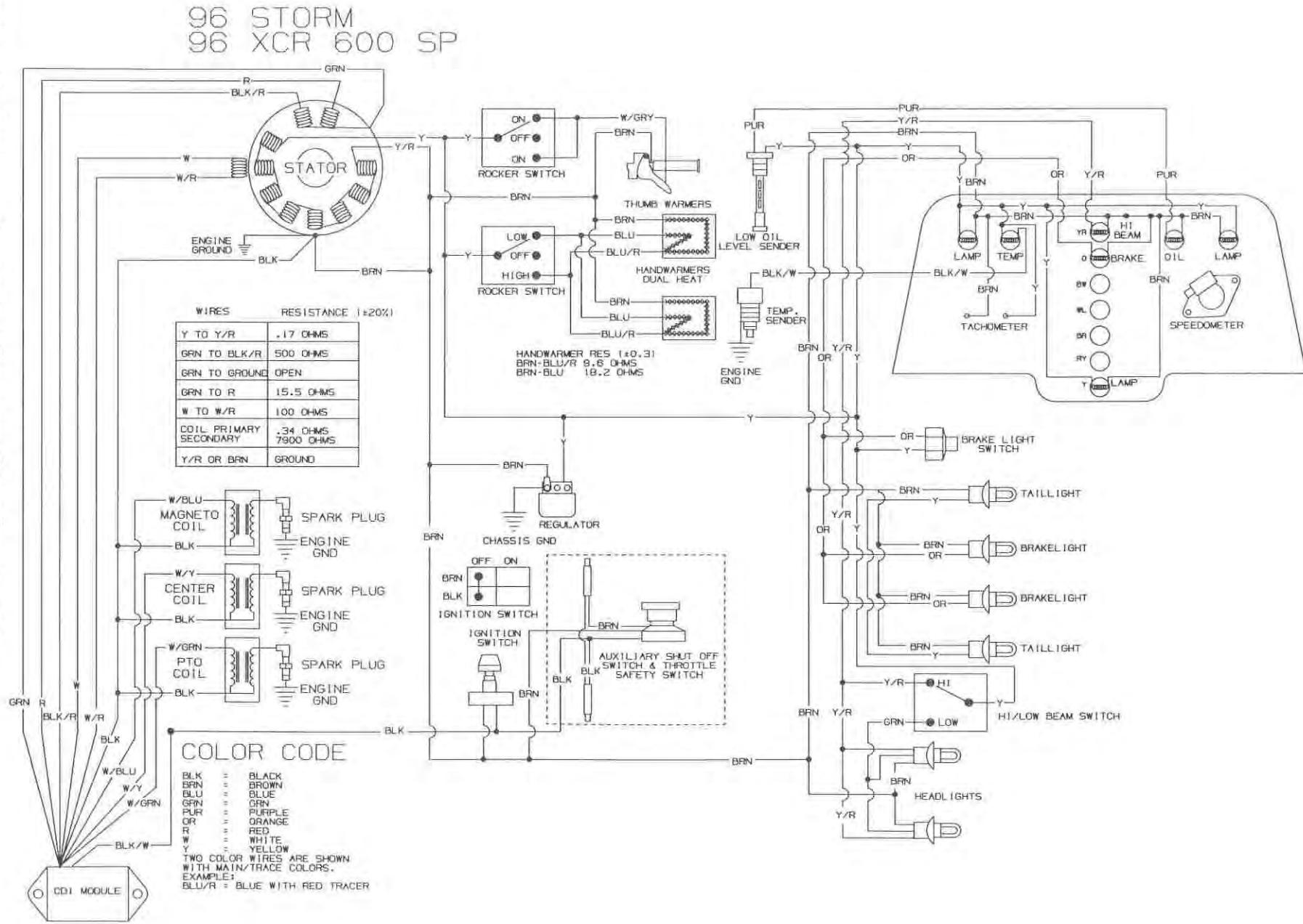
'96 500 CARB, SKS, RMK
 TRAIL TOURING
 440 L/C
 CLASSIC
 TRAIL

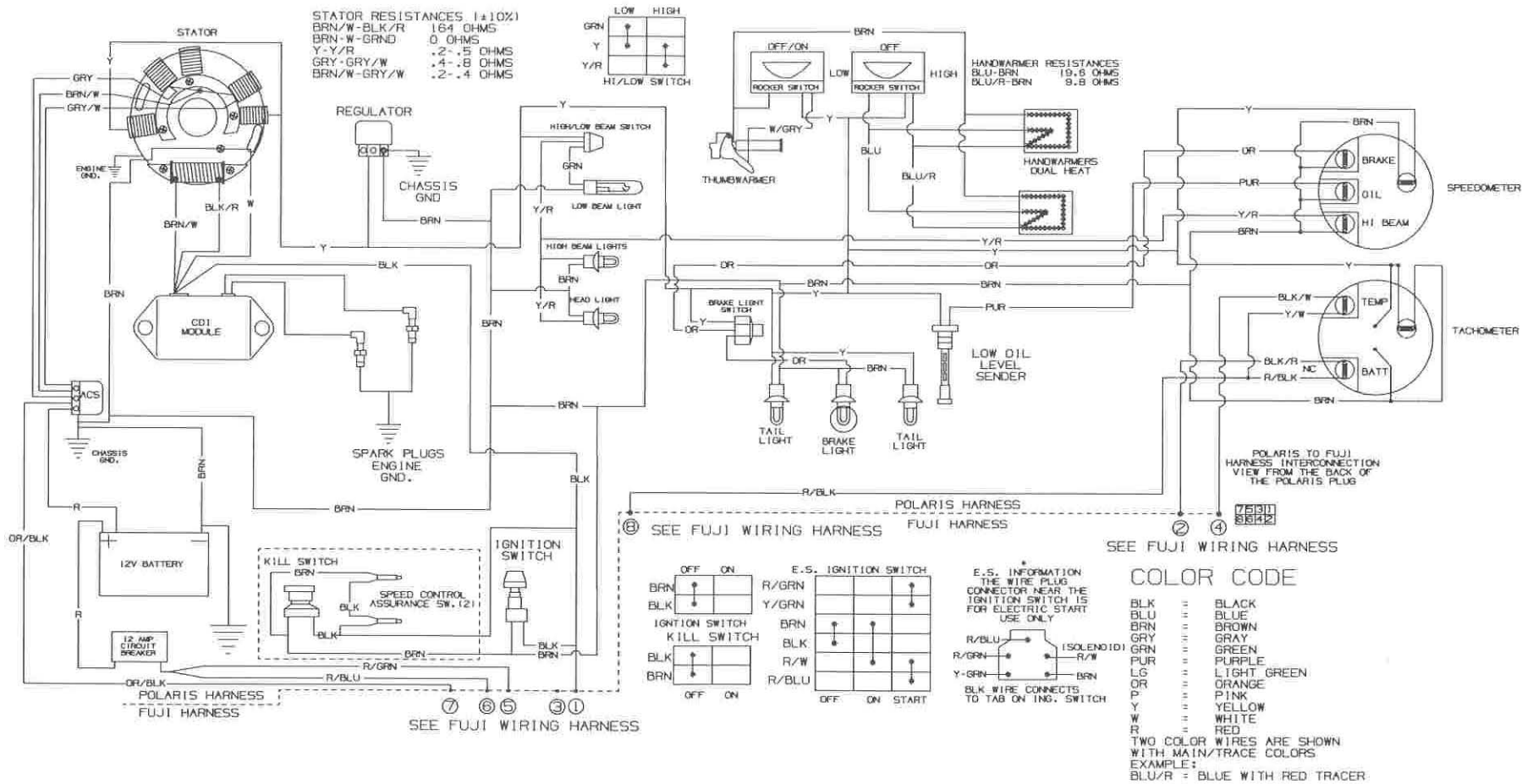


440 XCR



ELECTRICAL 1996 Wiring Diagram - Indy 600 XCR SP / Storm, SKS, RMK





500 E F I

ECU

PIN #		PIN #	
& WIRE	COLOR	& WIRE	COLOR
1	= P/BLU	101	= LG
3	= W	102	= LG/BLK
4	= BLU/W	105	= GRN/W
5	= BLU/GRN	106	= R/GRN
8	= GRN/R	111	= BRN
10	= BLK	112	= BRN/R
11	= OR/BLK	113	= P
14	= Y/BLU	114	= BRN/Y
15	= Y/GRN	115	= BRN/Y
16	= GRN/Y	116	= R/BLK
17	= BLK/Y	121	= BRN
		122	= BRN/R
		123	= BLK/R
		124	= BLK/W
		125	= BRN/Y
		126	= R/BLK

SEE POLARIS WIRING HARNESS

POLARIS HARNESS
FUJI HARNESS

COLOR CODE

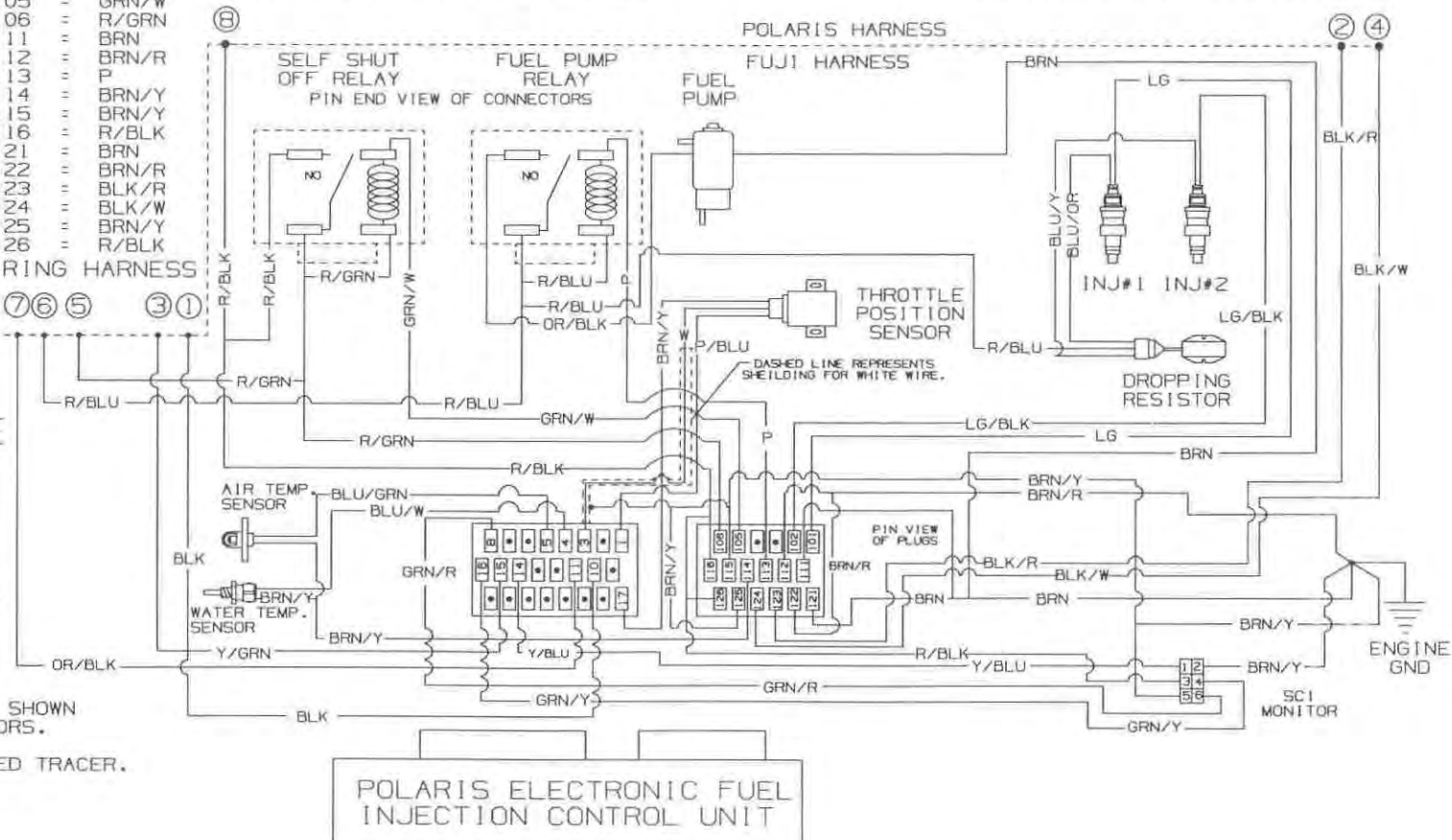
BLK	=	BLACK
BLU	=	BLUE
BRN	=	BROWN
GRY	=	GRAY
GRN	=	GREEN
PUR	=	PURPLE
LG	=	LIGHT GREEN
OR	=	ORANGE
P	=	PINK
Y	=	YELLOW
W	=	WHITE
R	=	RED

TWO COLOR WIRES ARE SHOWN
WITH MAIN/TRACE COLORS.
EXAMPLE:
BLU/R = BLUE WITH RED TRACER.

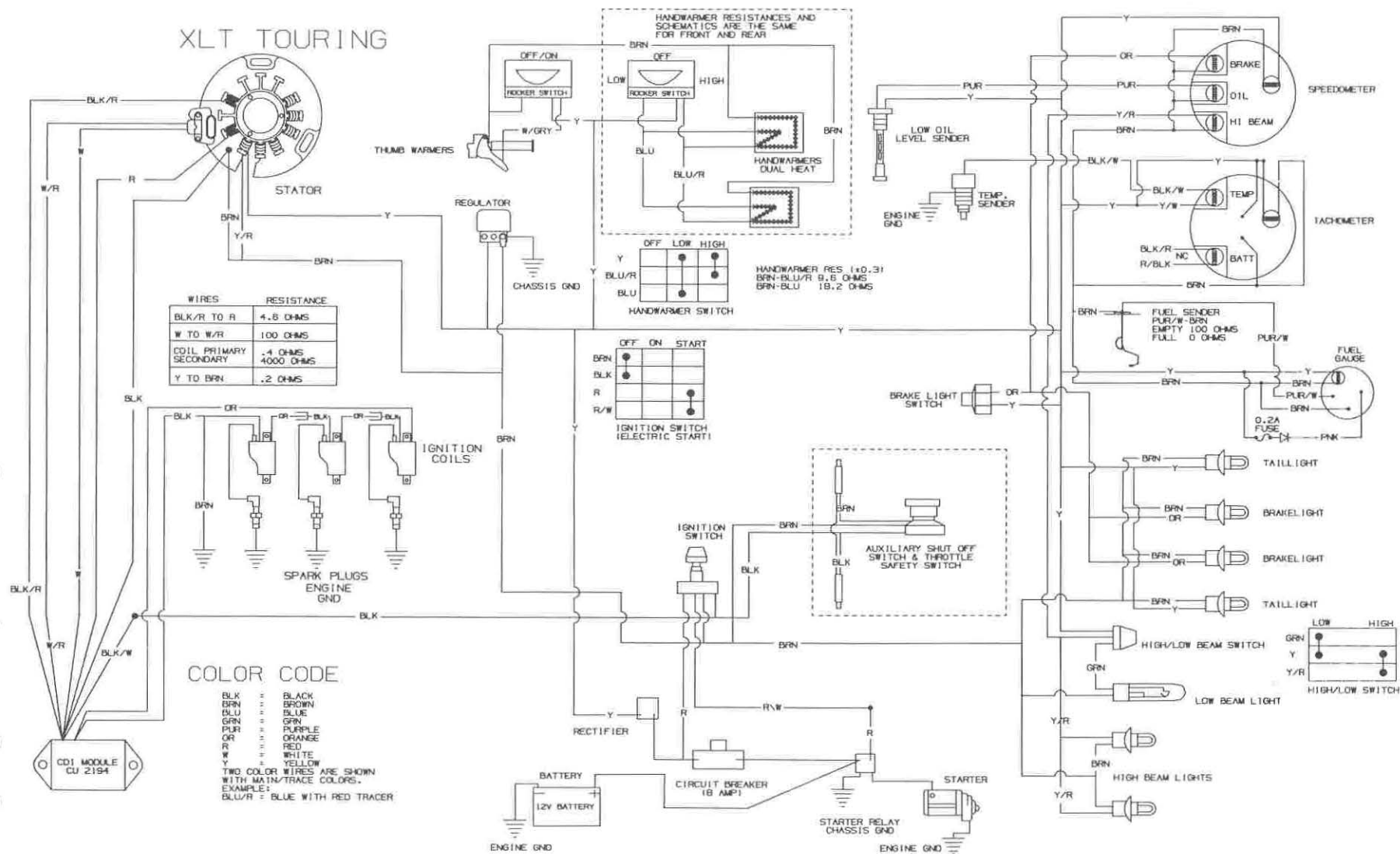
POLARIS TO FUJI
HARNESS INTERCONNECTION
VIEW FROM THE BACK OF
THE POLARIS PLUG

SEE POLARIS WIRING HARNESS

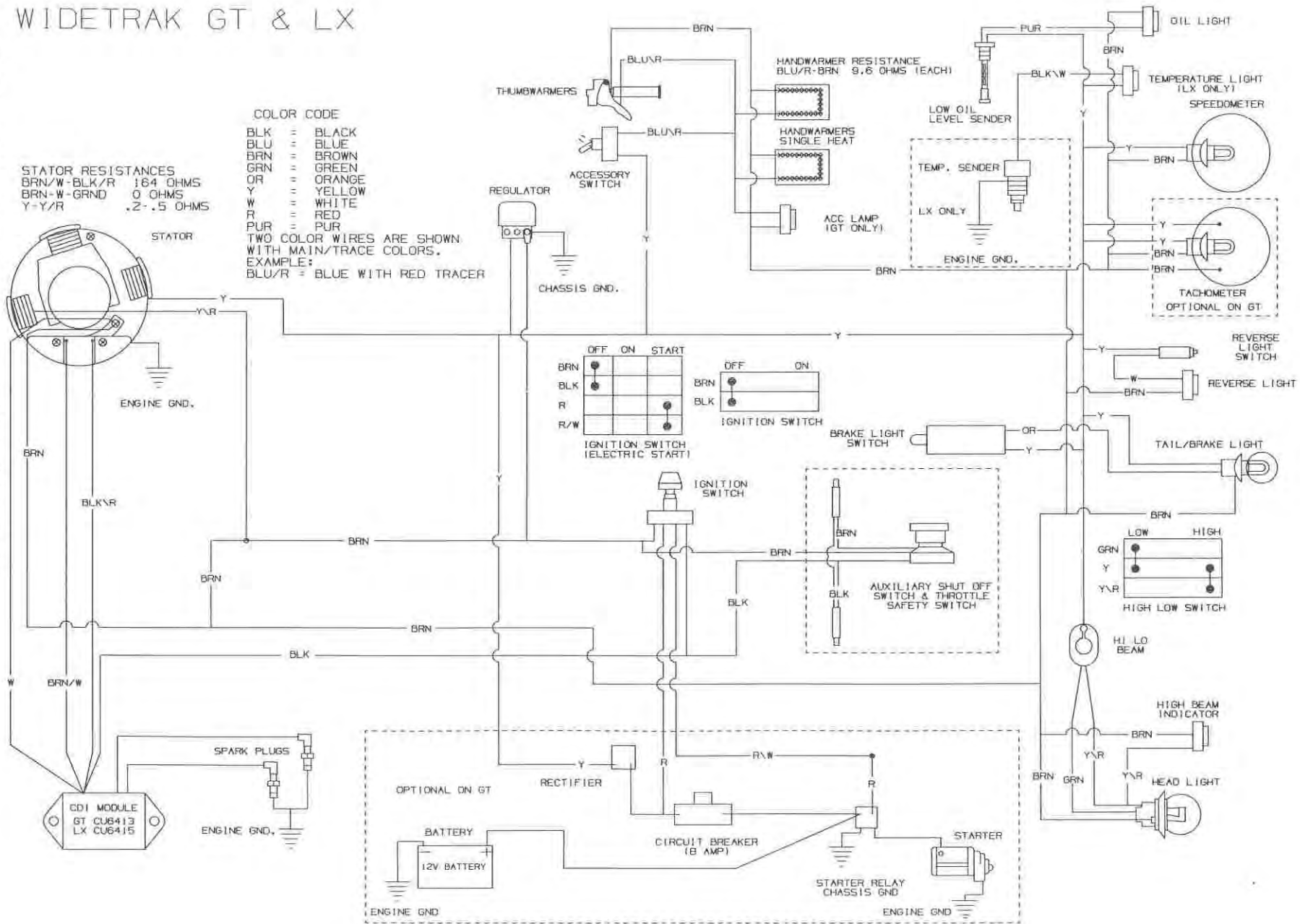
SEE POLARIS WIRING HARNESS



ELECTRICAL **1996 Wiring Diagram - Indy XLT Touring**

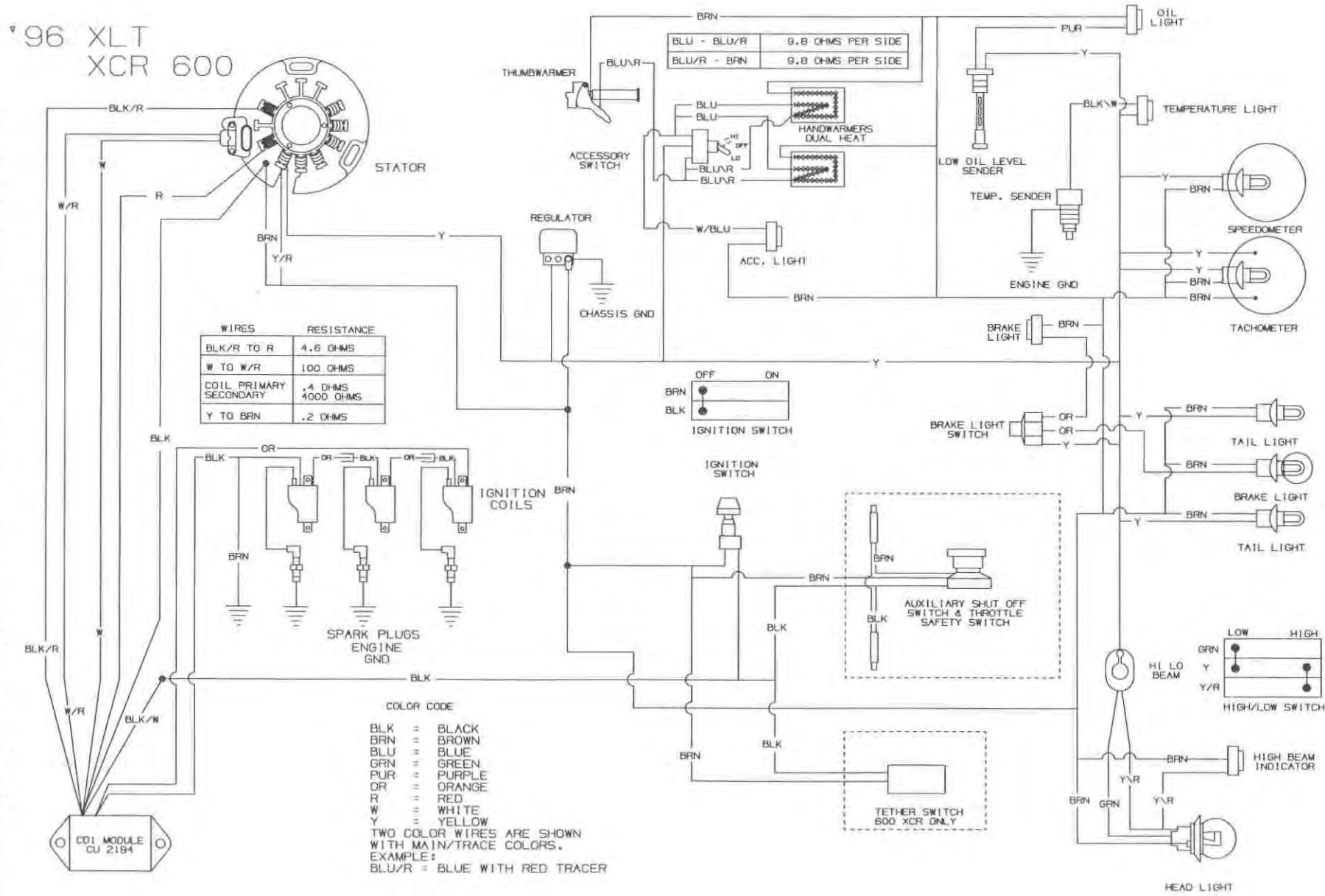


WIDETRAK GT & LX

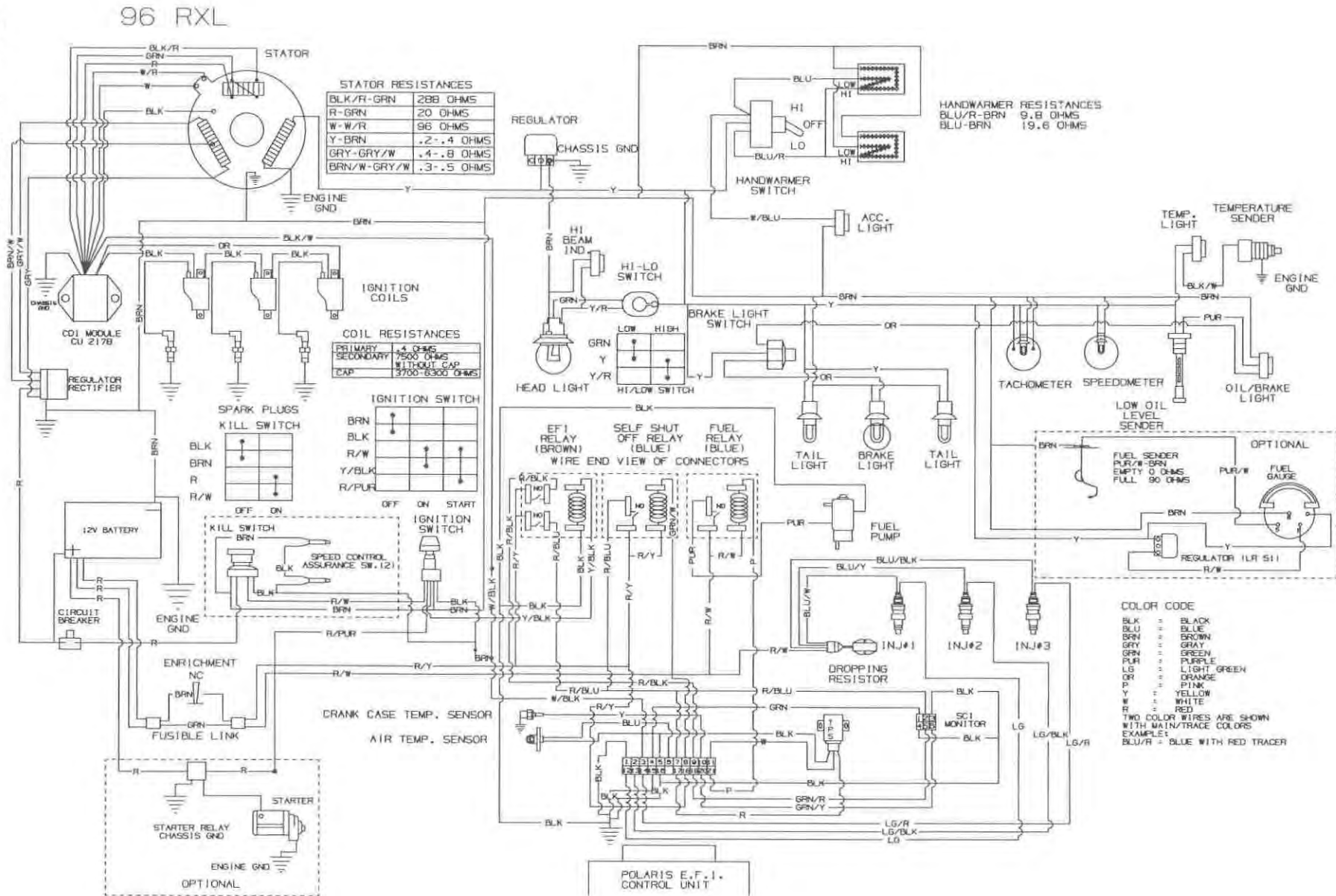


ELECTRICAL

1996 Wiring Diagram - Indy XLT / XLT SP / XLT SKS / XLT RMK / 600 XCR

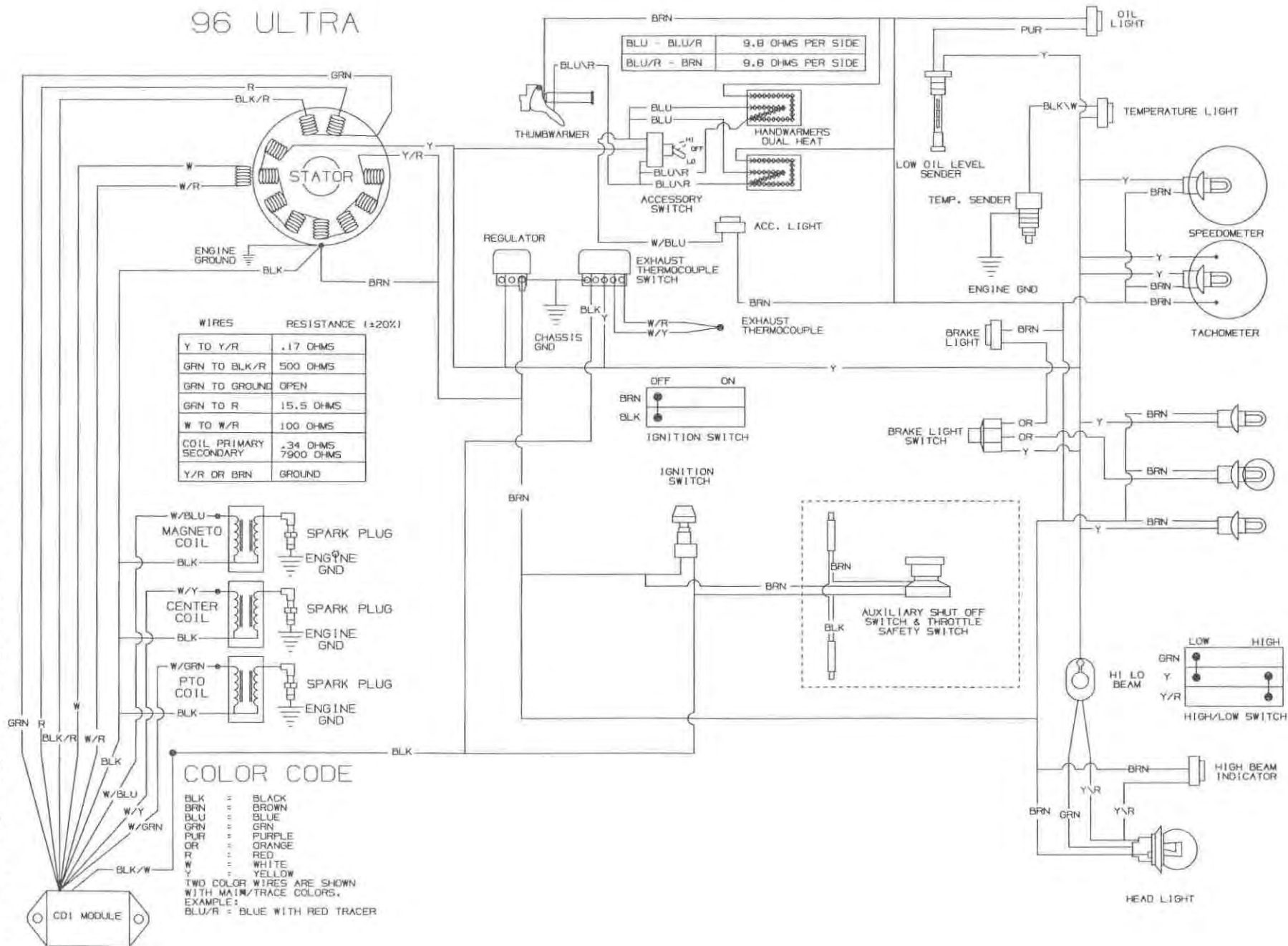


ELECTRICAL **1996 Wiring Diagram - Indy RXL**



ELECTRICAL **1996 Wiring Diagram - Indy Ultra SP / SKS / RMK**

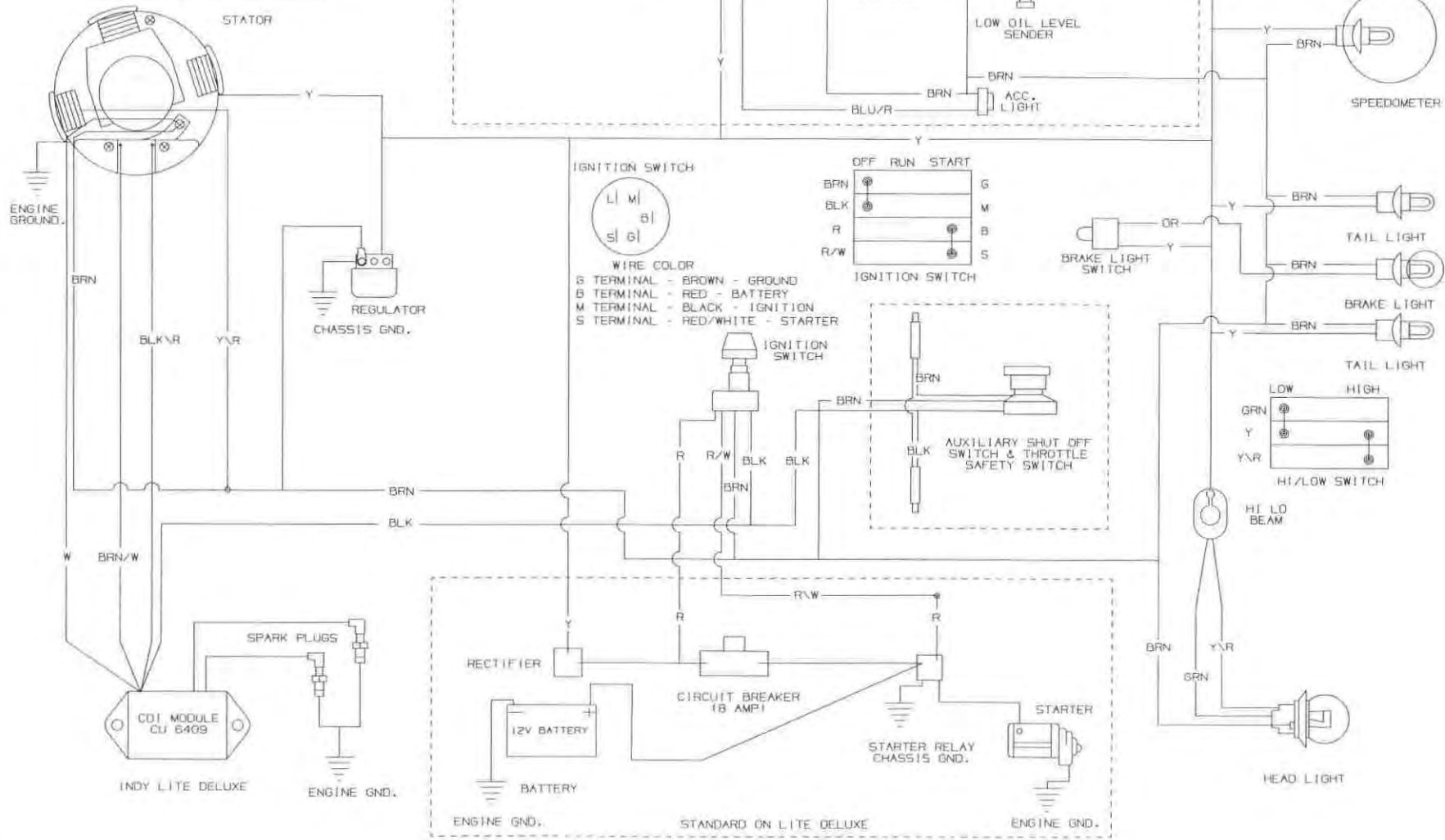
96 ULTRA



1997 Wiring Diagram - Indy Lite / Lite GT / Lite Deluxe ELECTRICAL

97 INDY LITE
INDY LITE GT
INDY LITE DELUXE

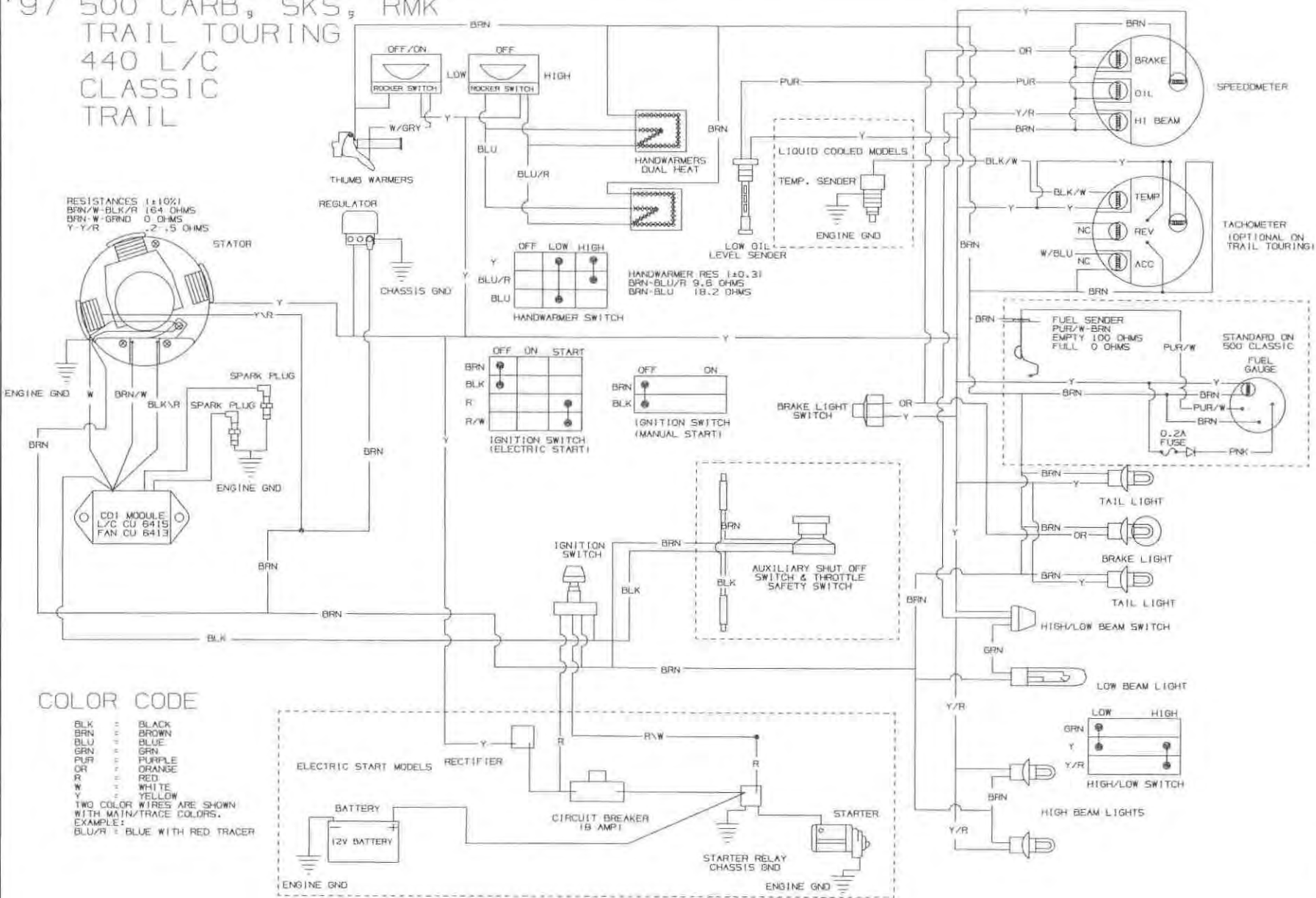
STATOR RESISTANCES	
BRN/W TO BLK/R	164 OHMS
Y TO BRN OR Y/R	.3 TO .6 OHMS
GND TO BRN TO W	0 OHMS



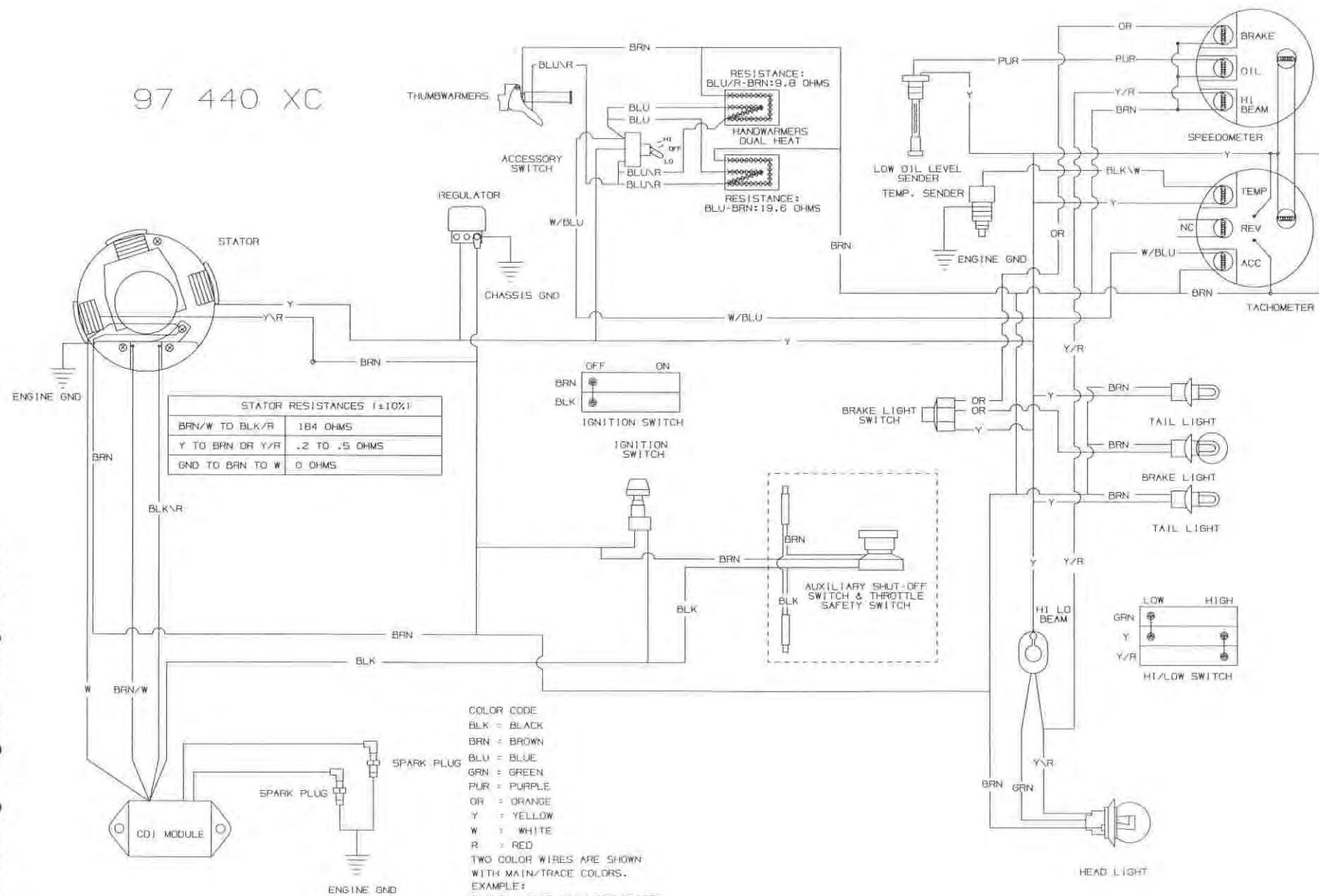
1997 Wiring Diagram - Indy XCF / Trail RMK / Sport / Super Sport / Sport Touring / TranSport



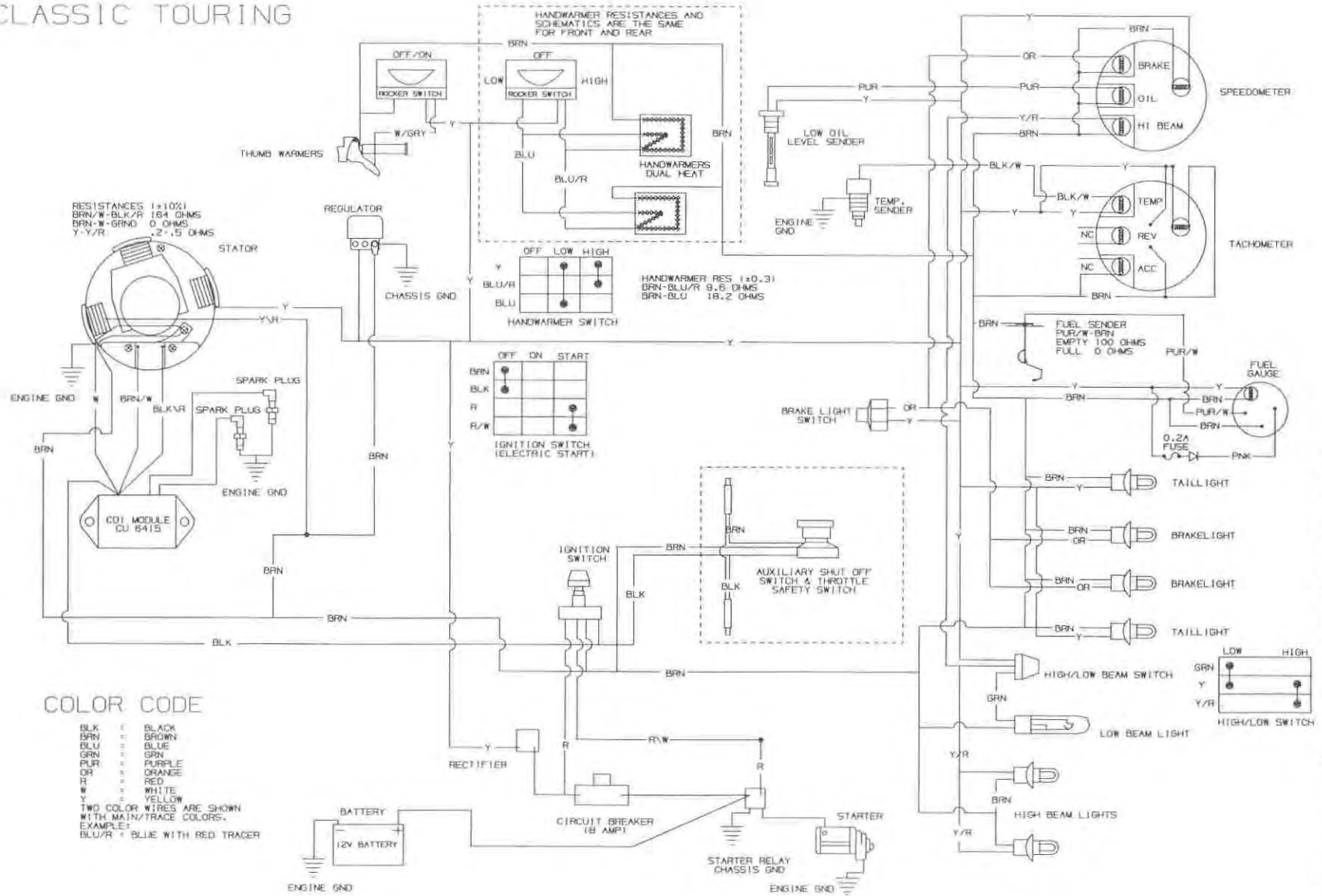
97 500 CARB, SKS, RMK
TRAIL TOURING
440 L/C
CLASSIC
TRAIL



ELECTRICAL **1997 Wiring Diagram - Indy 440 XC**

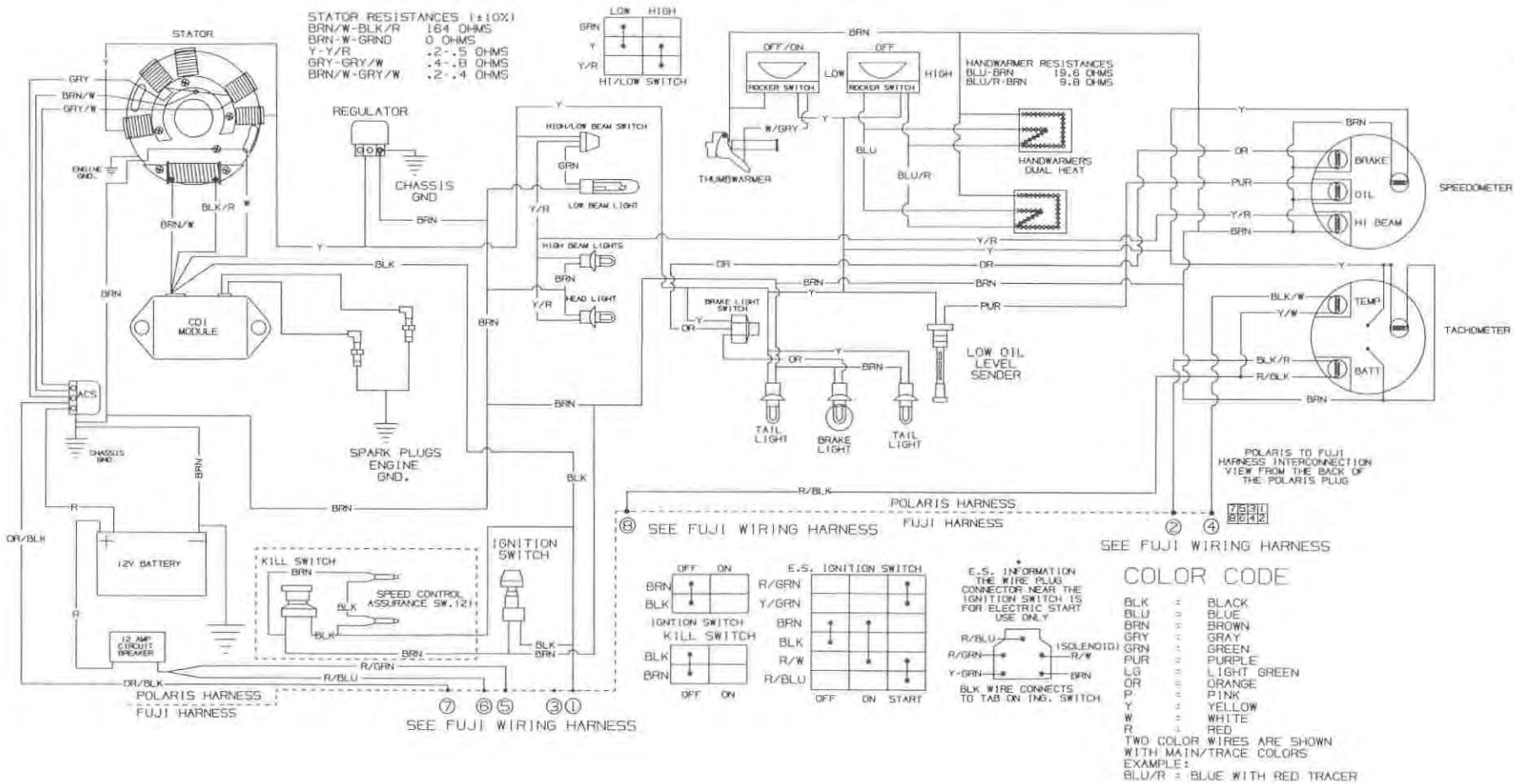


97 CLASSIC TOURING



1997 Wiring Diagram - Indy Classic Touring ELECTRICAL

ELECTRICAL 1997 Wiring Diagram - Indy 500 EFI (1 of 2)



97 500 EFI

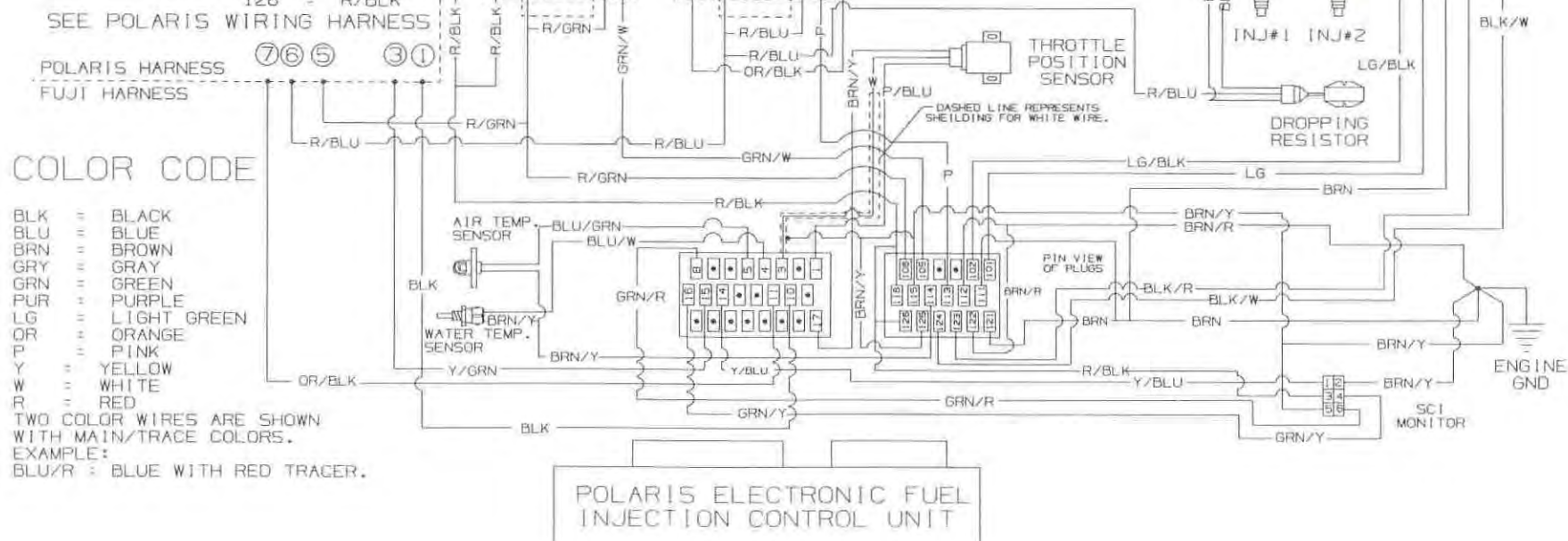
ECU

PIN # & WIRE COLOR	PIN # & WIRE COLOR
1 = P/BLU	101 = LG
3 = W	102 = LG/BLK
4 = BLU/W	105 = GRN/W
5 = BLU/GRN	106 = R/GRN
8 = GRN/R	111 = BRN
10 = BLK	112 = BRN/R
11 = OR/BLK	113 = P
14 = Y/BLU	114 = BRN/Y
15 = Y/GRN	115 = BRN/Y
16 = GRN/Y	116 = R/BLK
17 = BLK/Y	121 = BRN
	122 = BRN/R
	123 = BLK/R
	124 = BLK/W
	125 = BRN/Y
	126 = R/BLK

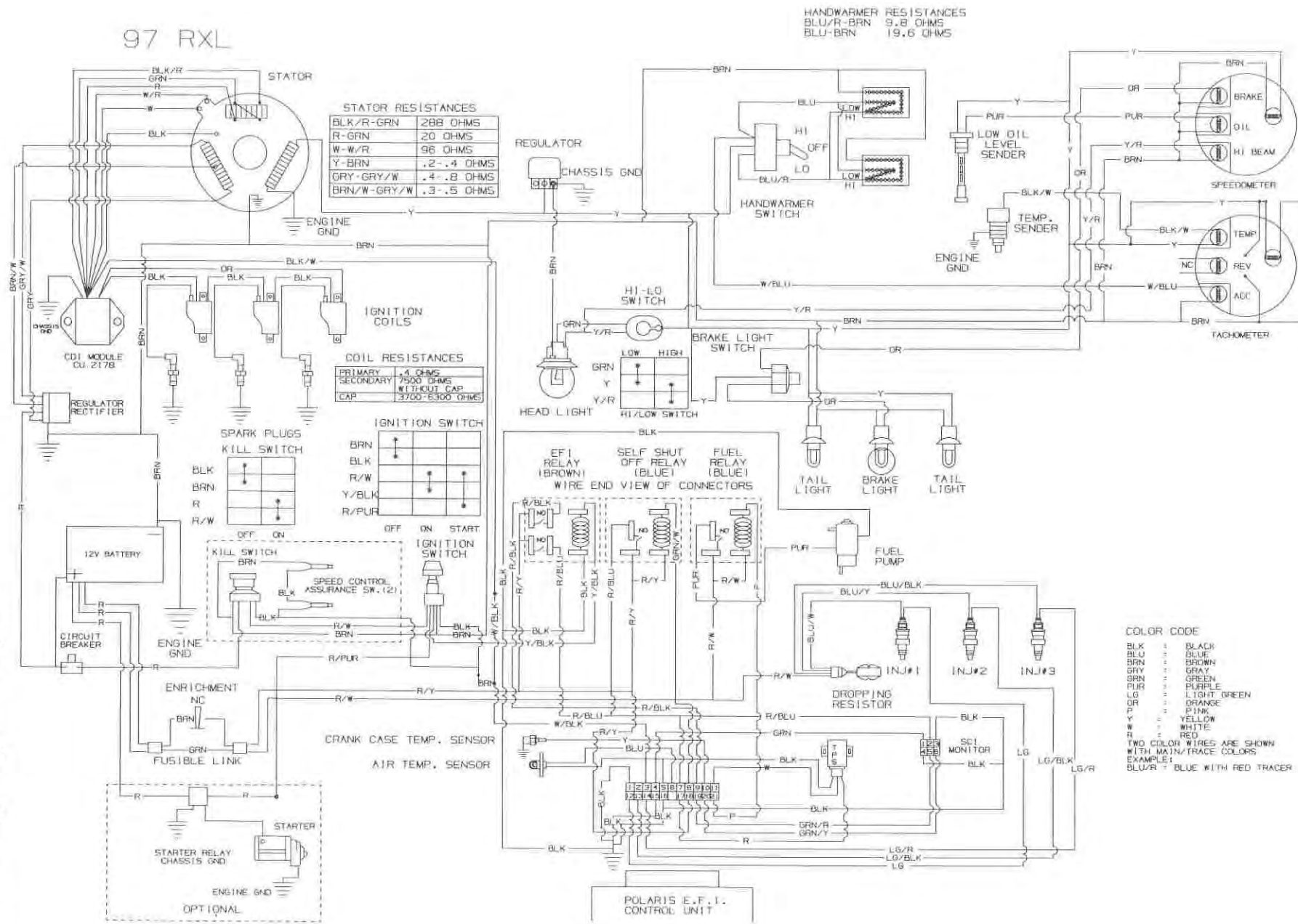
75311
 8642
 POLARIS TO FUJI
 HARNESS INTERCONNECTION
 VIEW FROM THE BACK OF
 THE POLARIS PLUG

SEE POLARIS WIRING HARNESS

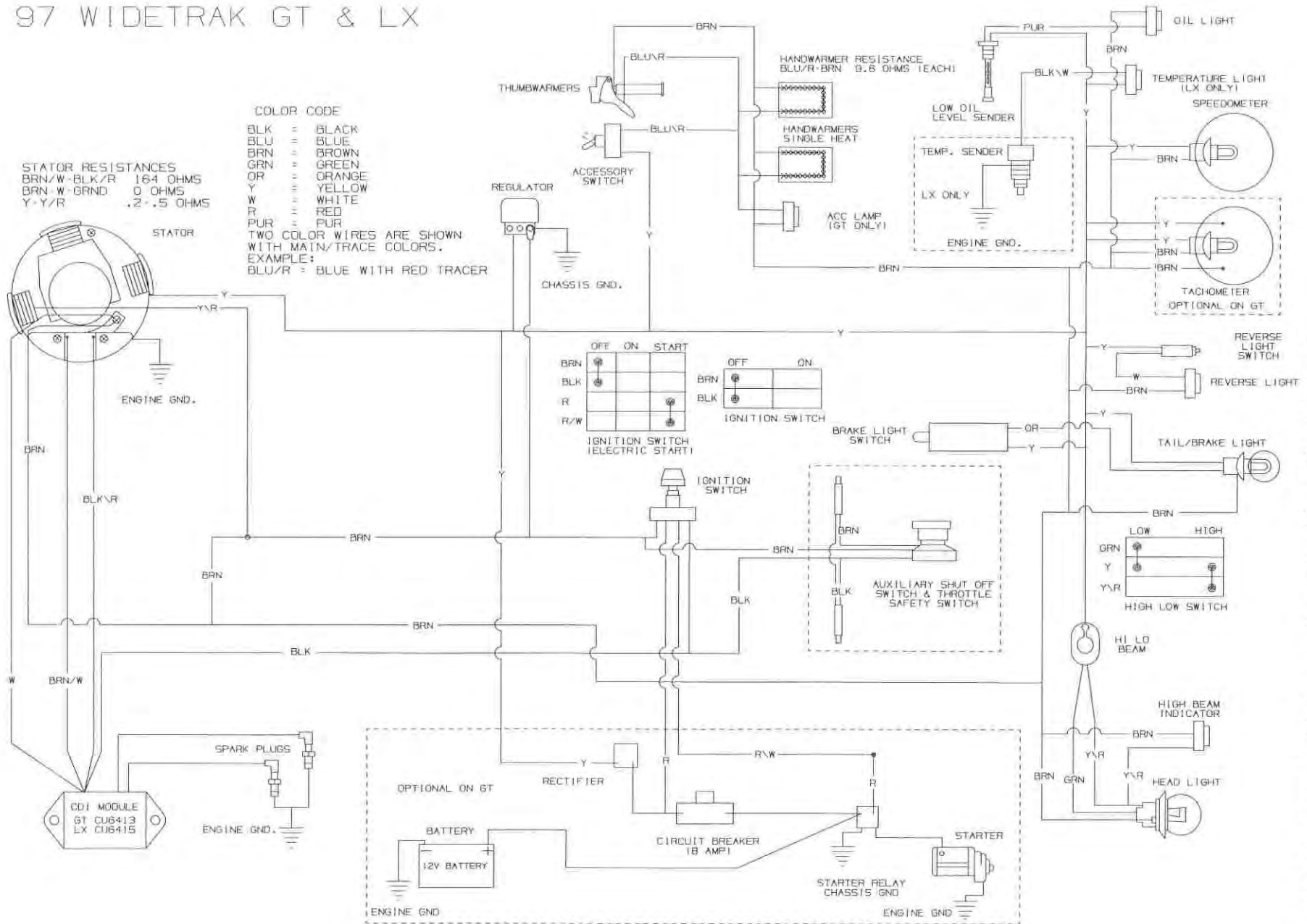
SEE POLARIS WIRING HARNESS



ELECTRICAL **1997 Wiring Diagram - Indy RXL**

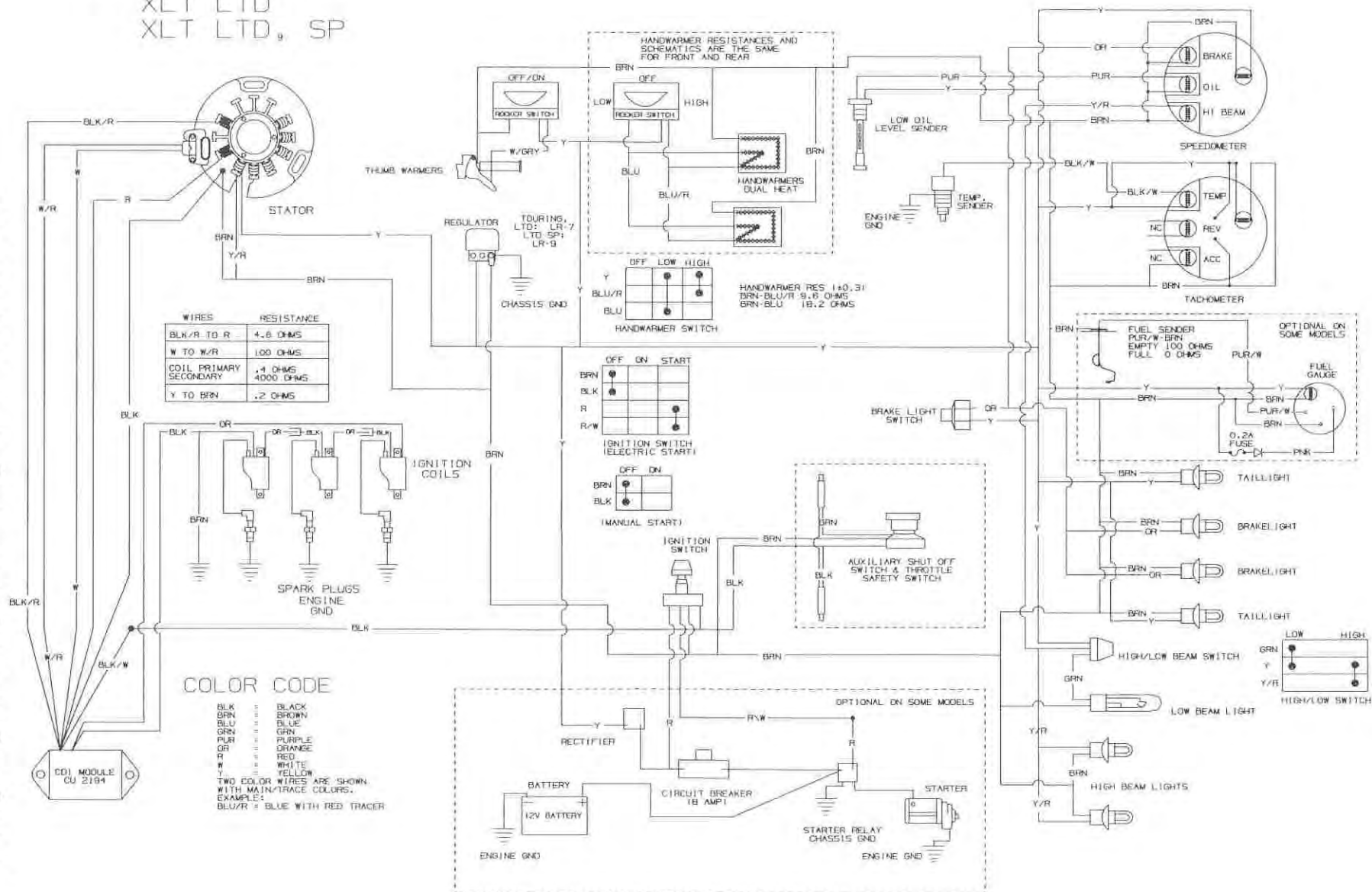


97 WIDETRAK GT & LX



ELECTRICAL

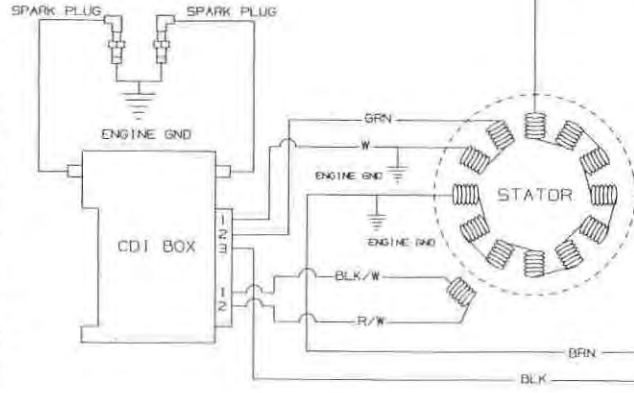
97 XLT TOURING
XLT LTD
XLT LTD. SP





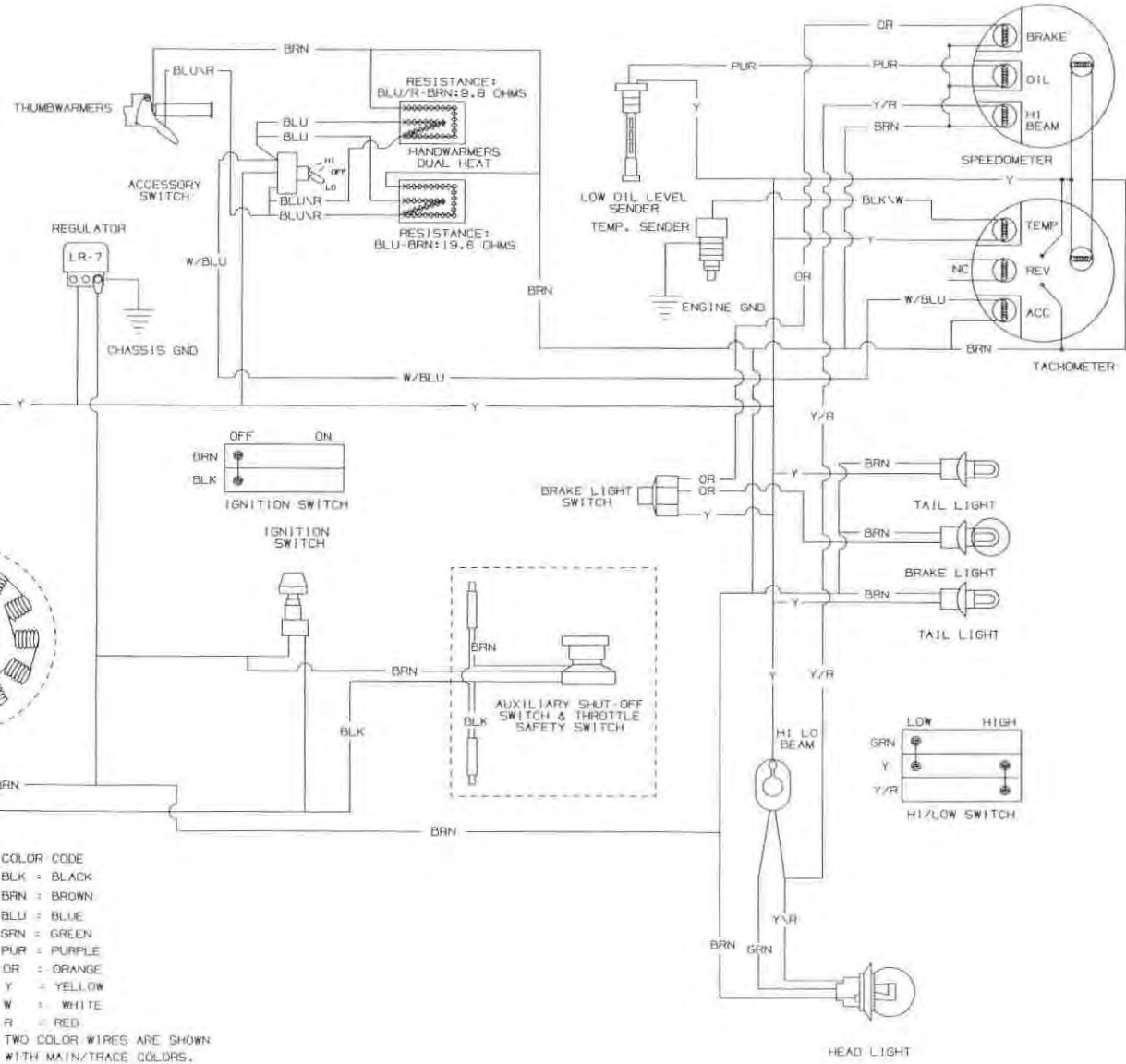
97 700 RMK
700 SKS

STATOR RESISTANCES	
BRN TO Y	0.12-0.15 OHMS
BRN TO BASE	0 OHMS
W TO GRN	5.3-6.0 OHMS
W TO BASE	0 OHMS
R/W TO BLK/W	150-190 OHMS
R/W TO BASE	OPEN
BLK	OPEN

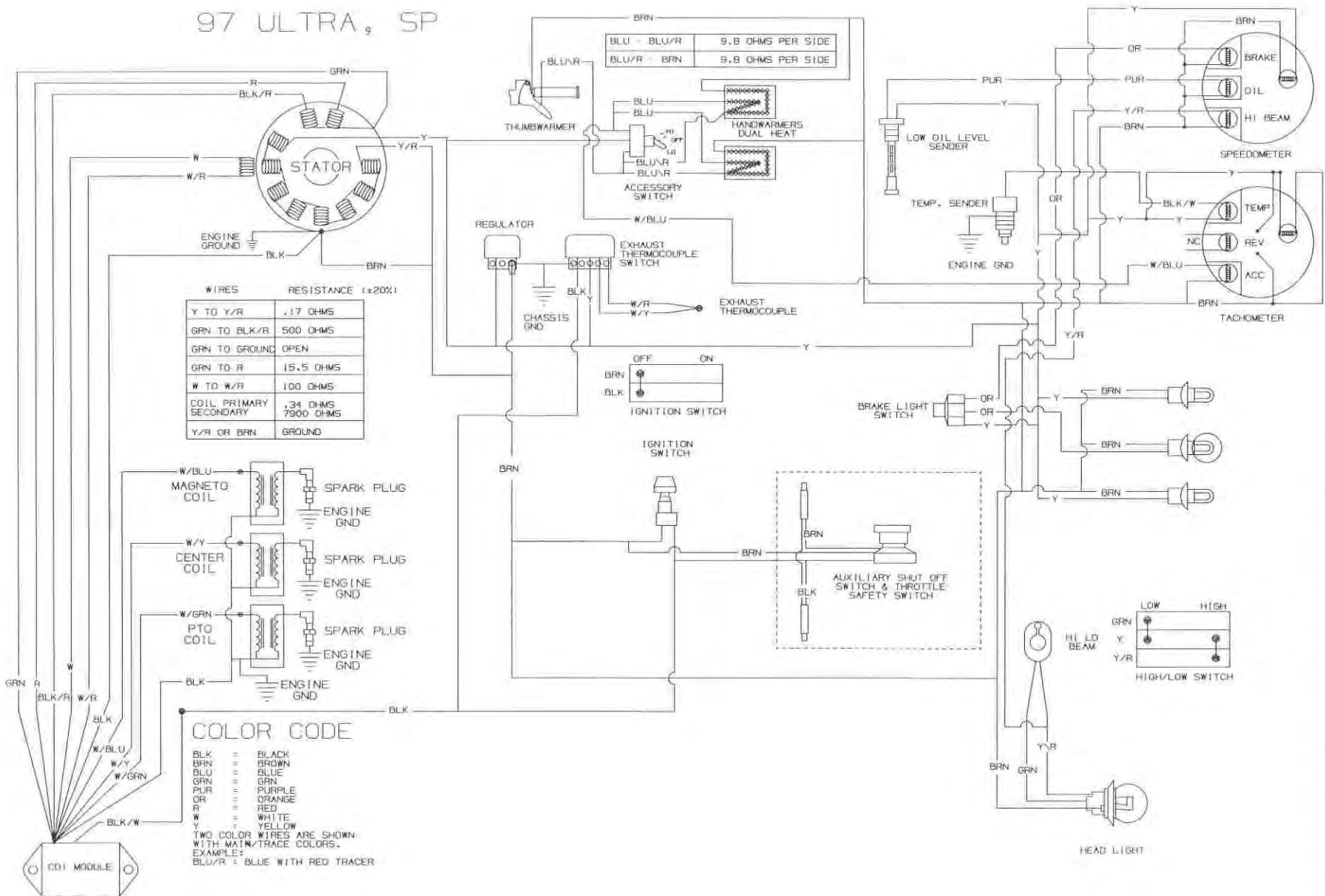


COIL RESISTANCES	
CAP	5000 OHMS
WIRE - WIRE	1000-1300 OHMS
CAP - CAP	11K-12K OHMS

COLOR CODE
 BLK = BLACK
 BRN = BROWN
 BLU = BLUE
 GRN = GREEN
 PUR = PURPLE
 OR = ORANGE
 Y = YELLOW
 W = WHITE
 R = RED
 TWO COLOR WIRES ARE SHOWN
 WITH MAIN/TRACE COLORS.
 EXAMPLE:
 BLU/R = BLUE WITH RED TRACER



97 ULTRA₉ SP



ELECTRICAL
1997 Wiring Diagram - Indy Ultra / Ultra SP

ELECTRICAL
1997 Wiring Diagram - Indy 600 XCR / 600 XCR SE / Ultra Touring / Ultra SPX SE / Storm / Storm SE / Storm RMK

97 STORM, SE, RMK
 97 600 XCR, SE

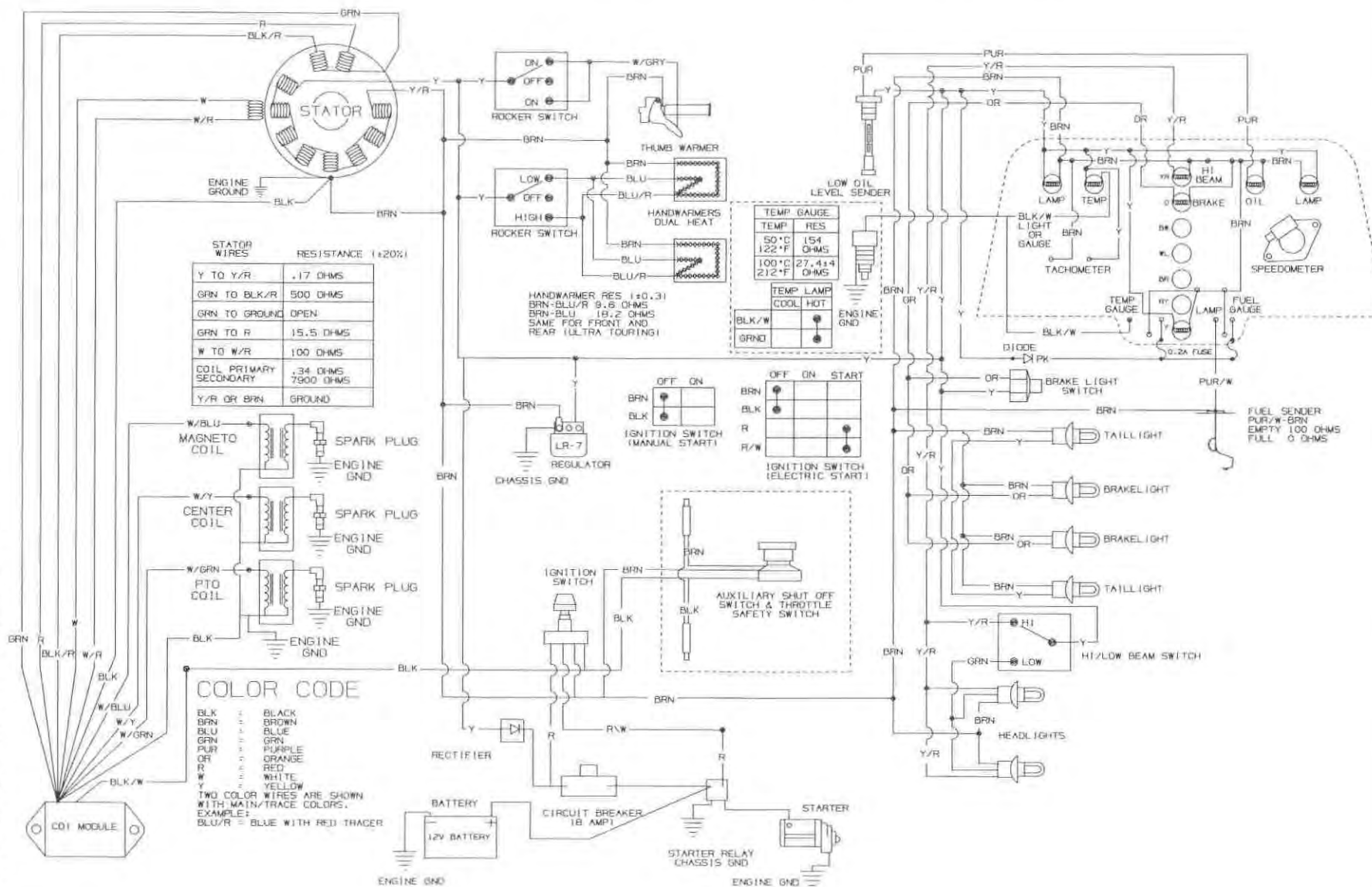
97 ULTRA TOURING
 97 ULTRA SPX, SE

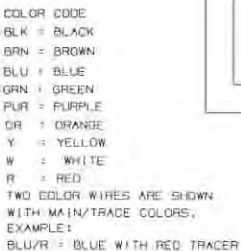
NOT ALL EQUIPMENT SHOWN IS STANDARD ON ALL MODELS

Polaris Industries Inc.

10.62

9/96

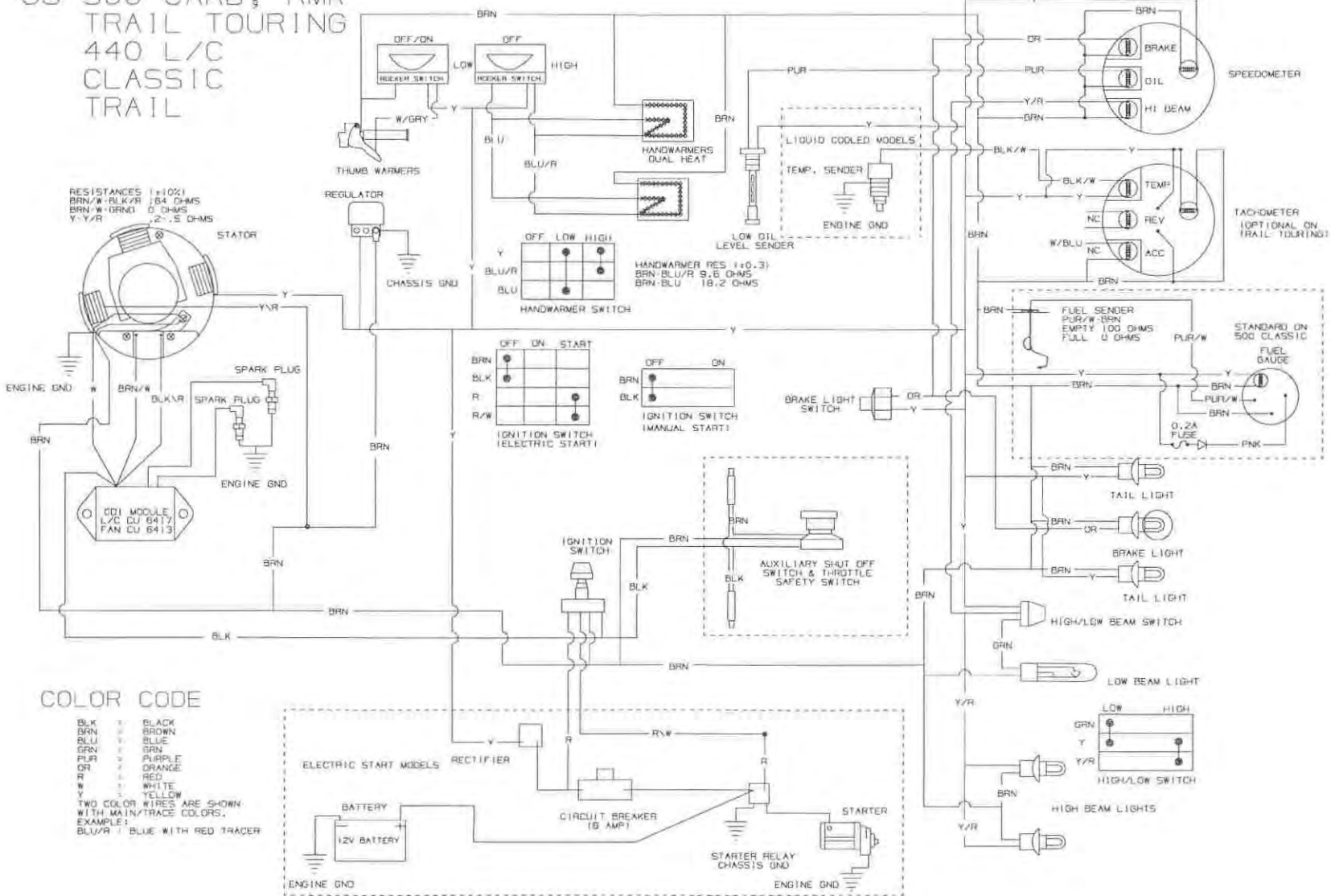


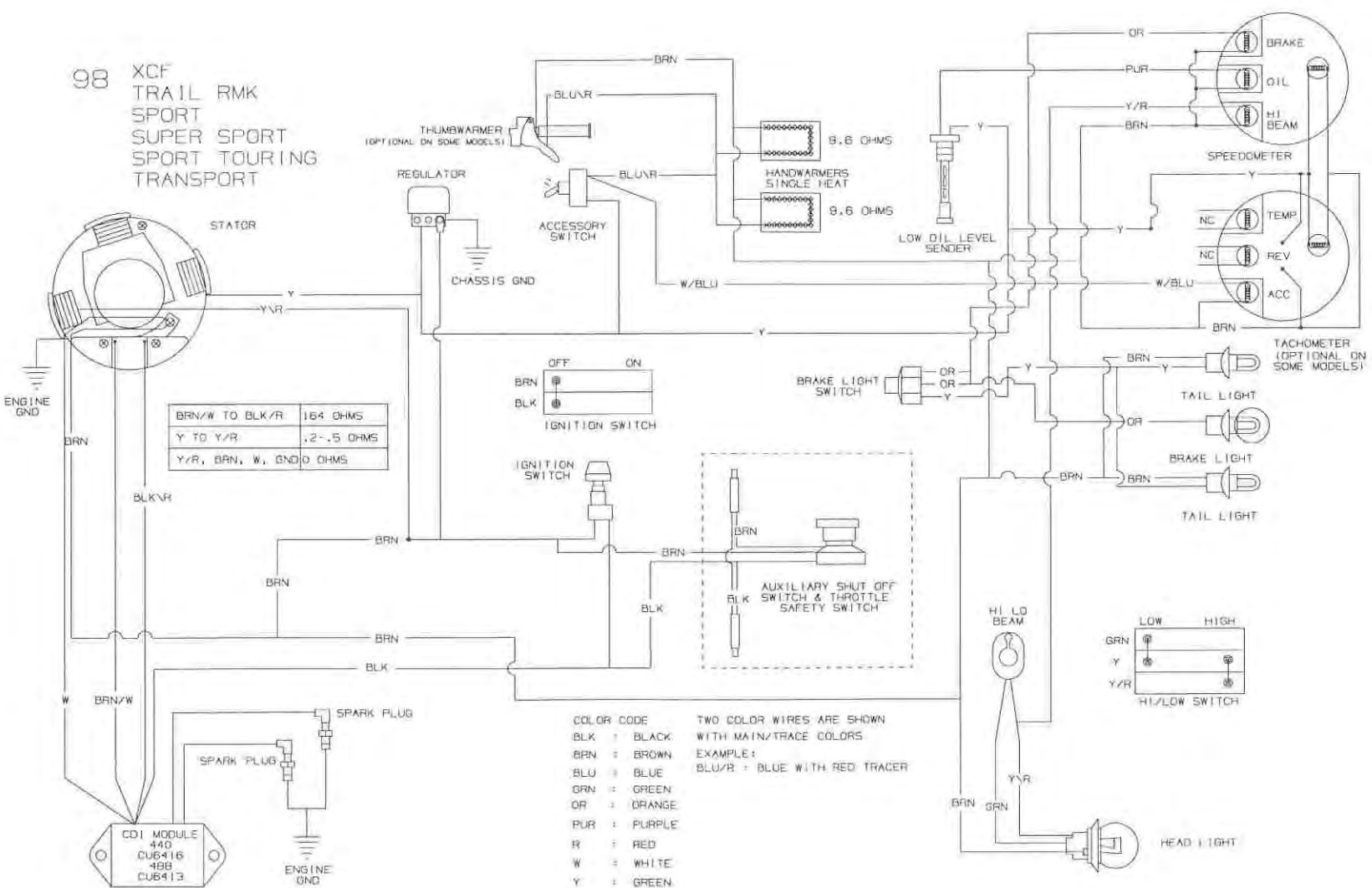




ELECTRICAL **1998 Wiring Diagram - Indy 500 Carb, RMK, Trail Touring** **440 L/C, Classic, Trail**

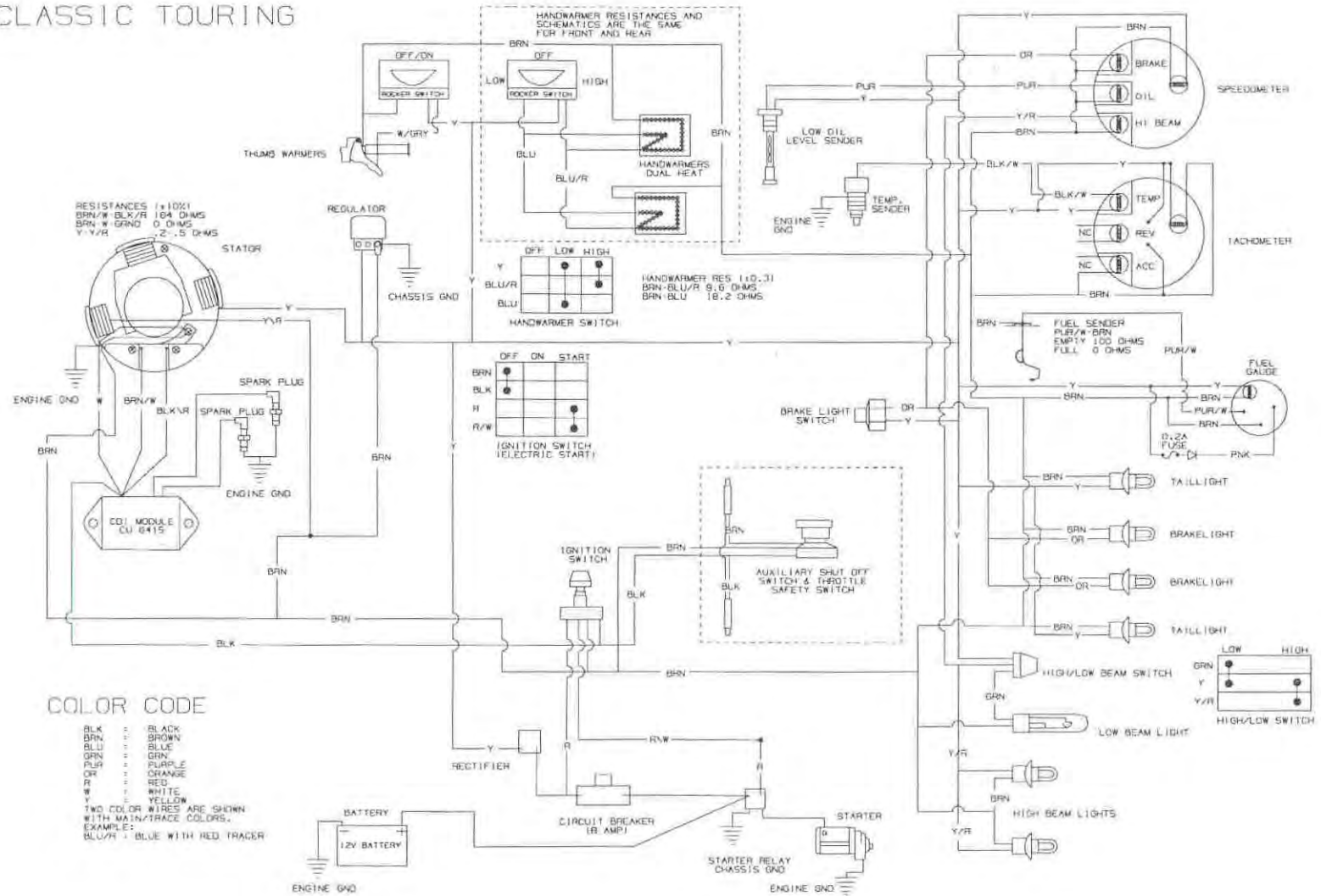
'98 500 CARB, RMK
 TRAIL TOURING
 440 L/C
 CLASSIC
 TRAIL



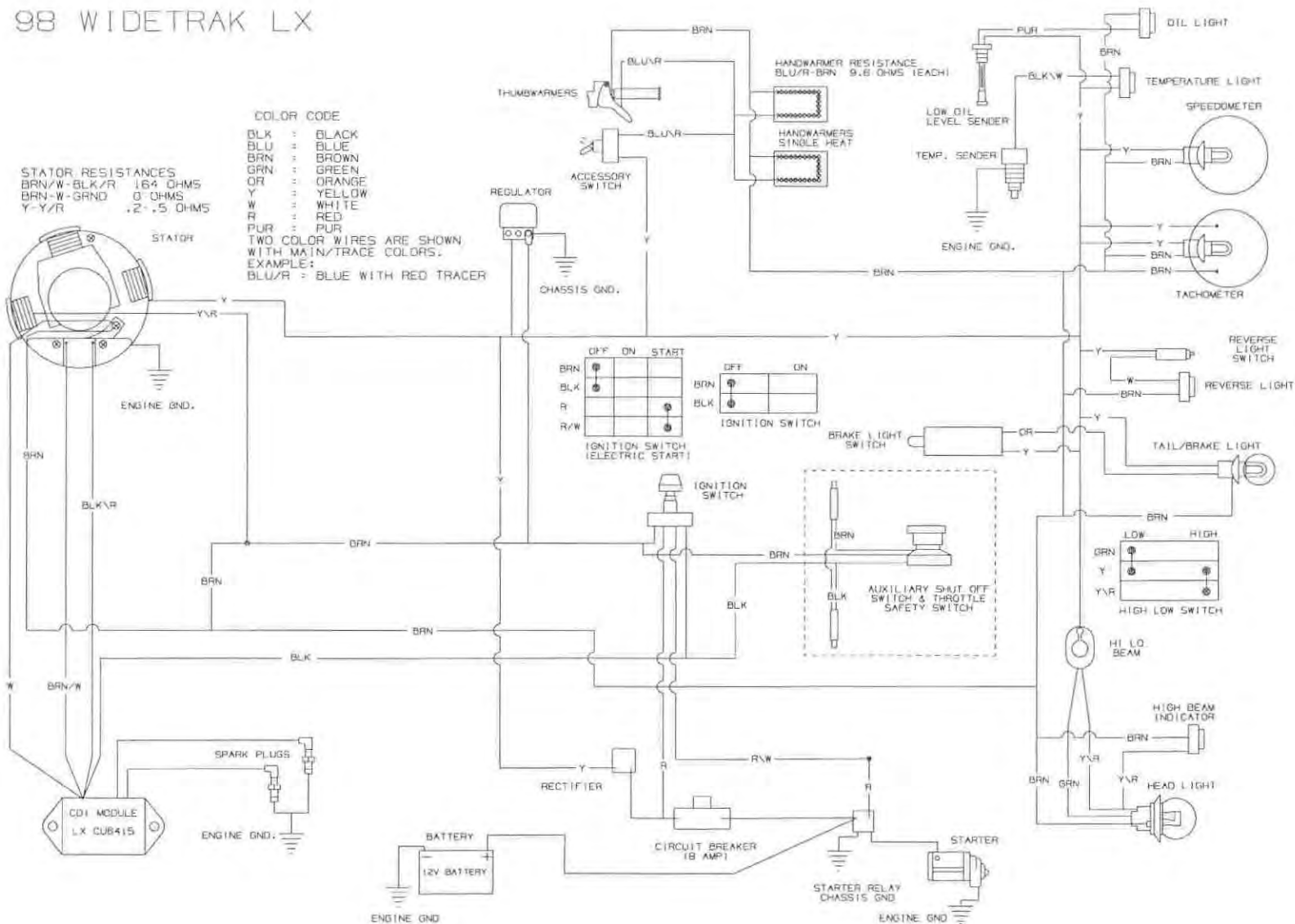


ELECTRICAL 1998 Wing Diagram - Indy Classic Touring

98 CLASSIC TOURING

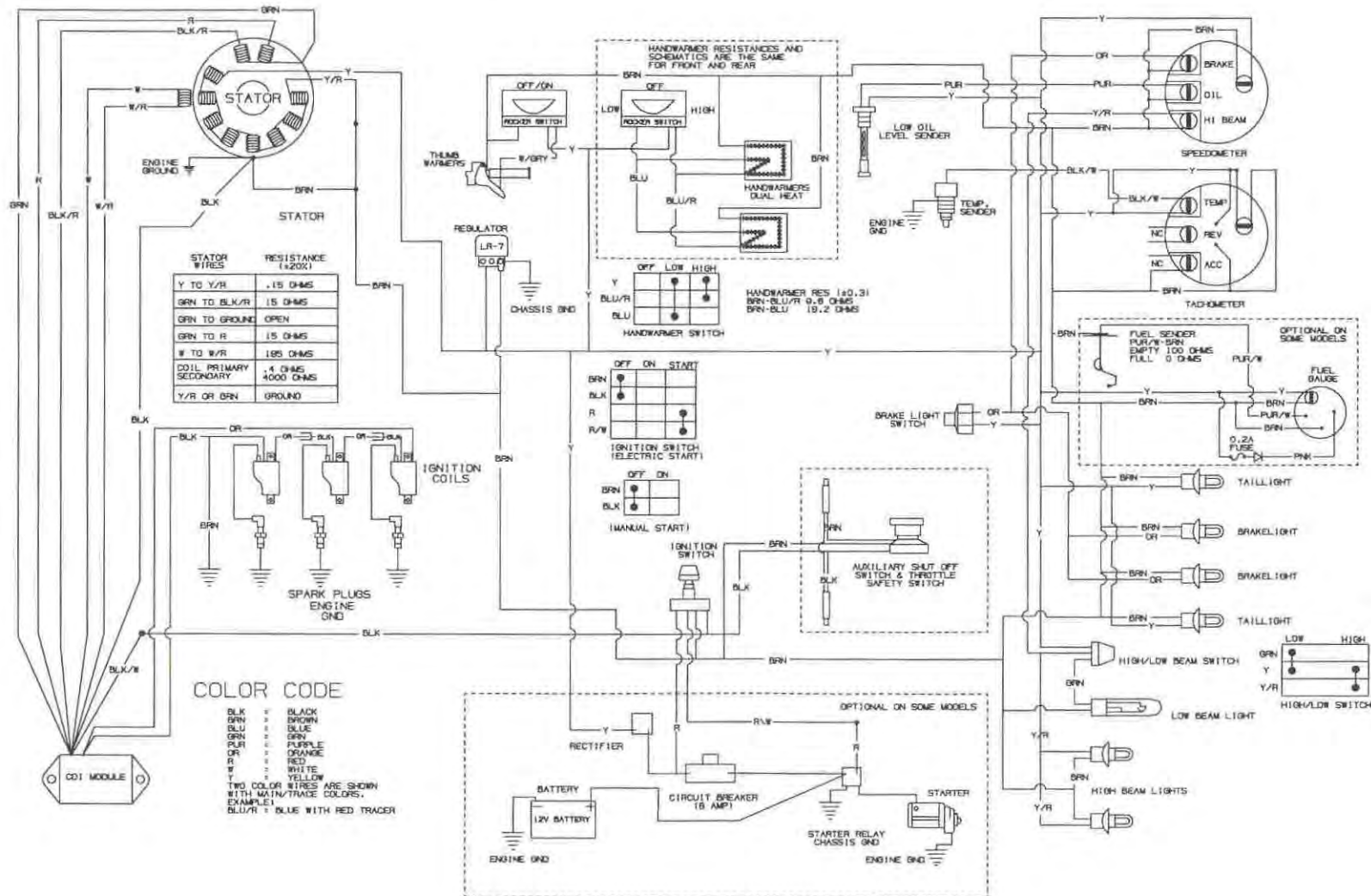


98 WIDETRAK LX



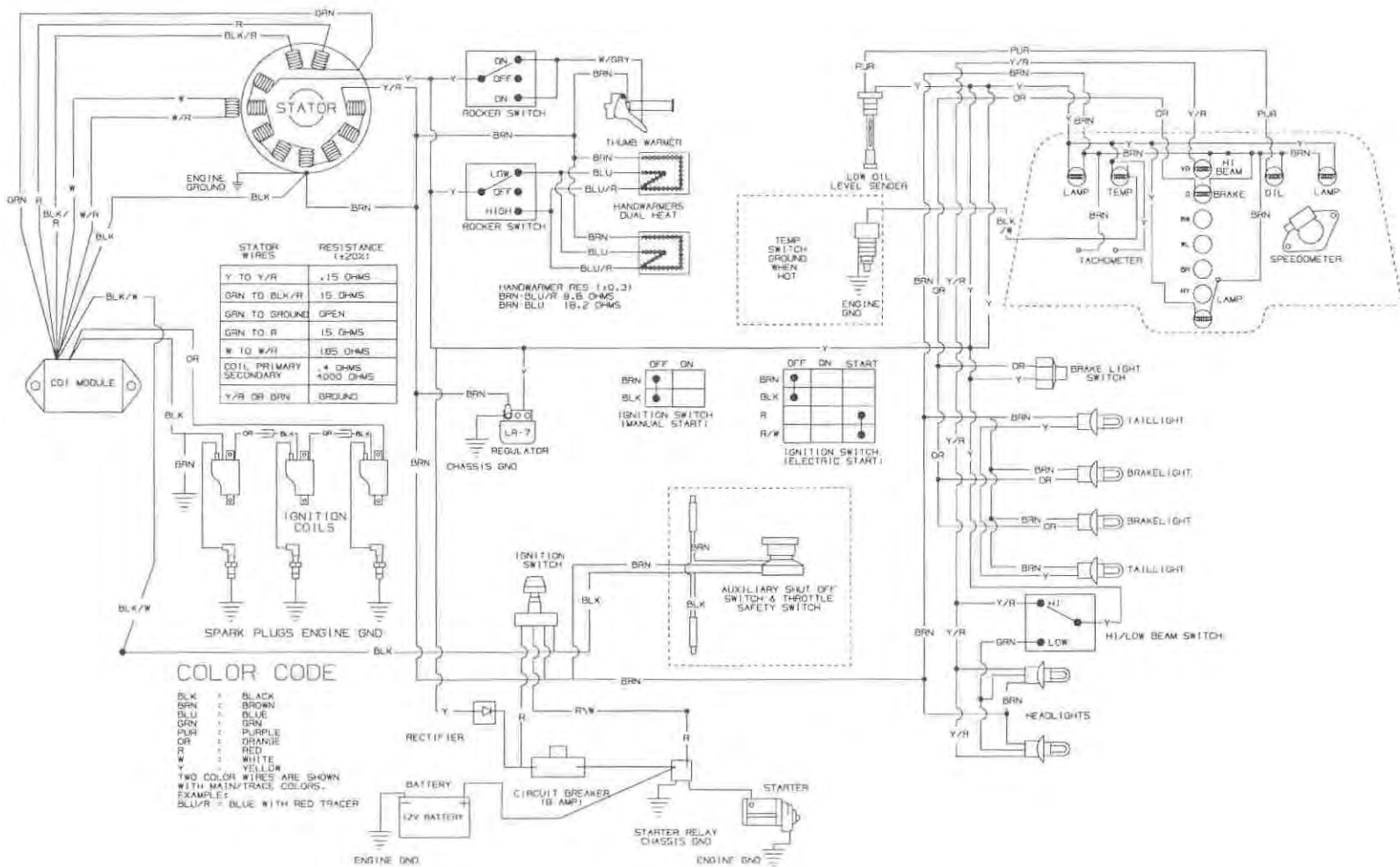
ELECTRICAL 1998 Wiring Diagram - Indy XLT Touring, LTD, Classic

98 XLT TOURING, LTD, CLASSIC



98 XLT SPECIAL

NOT ALL EQUIPMENT SHOWN IS STANDARD.



ELECTRICAL 1998 Wiring Diagram - Indy 600 RMK, 700 RMK, 440 XCR, 600 XC, 700 XC

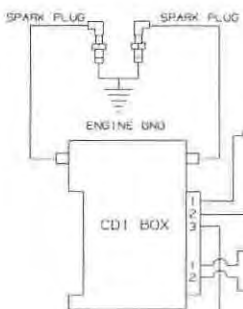
9/97

10.70

Polaris Industries Inc.

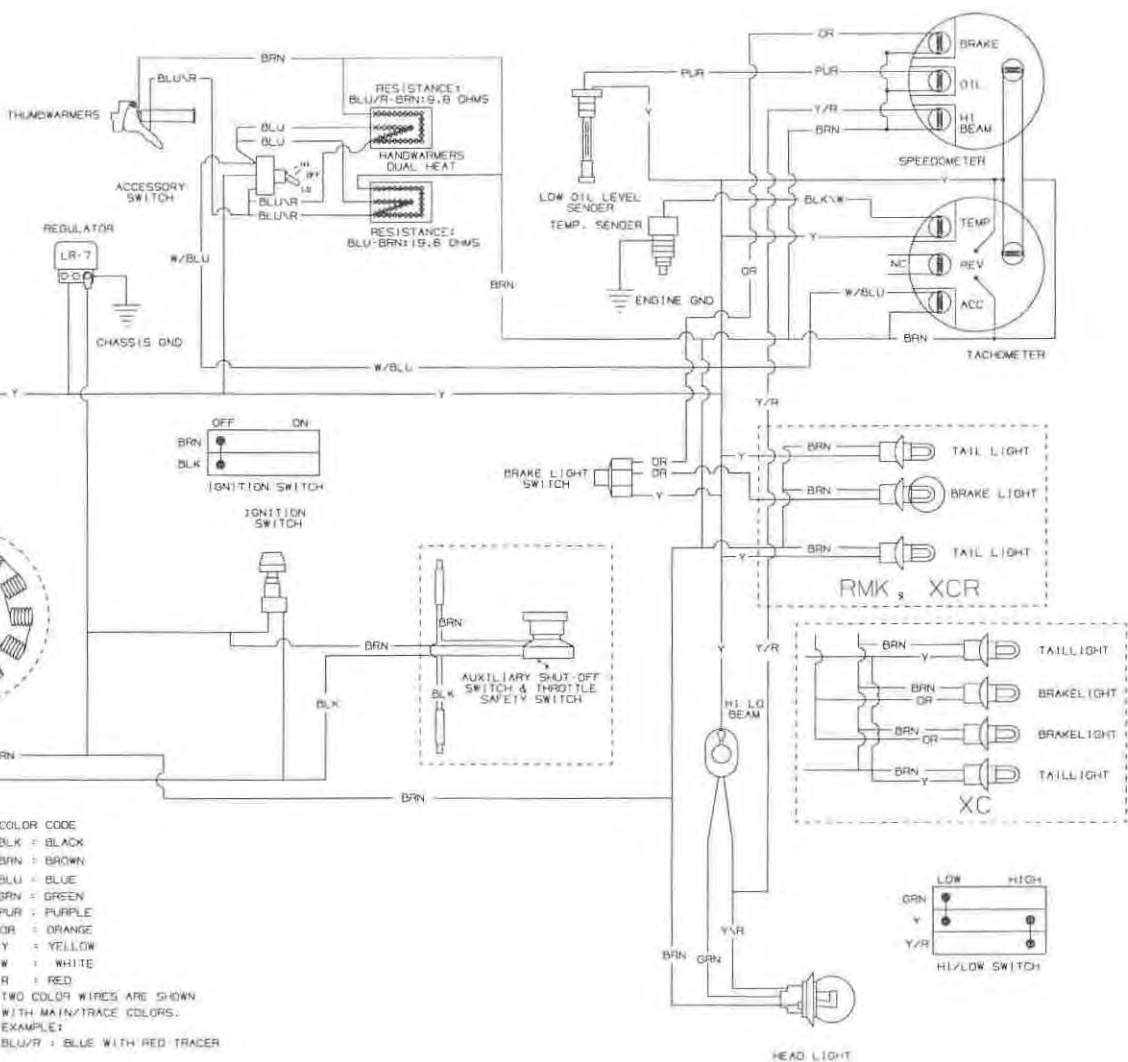
98 600 RMK
700 RMK
440 XCR
600 XC
700 XC

STATOR RESISTANCES	
BRN TO Y	0.12-0.15 OHMS
BRN TO BASE	0 OHMS
W TO BRN	5.3-6.0 OHMS
W TO BASE	0 OHMS
R TO BLU	150-160 OHMS
R TO BASE	OPEN
BLK	OPEN

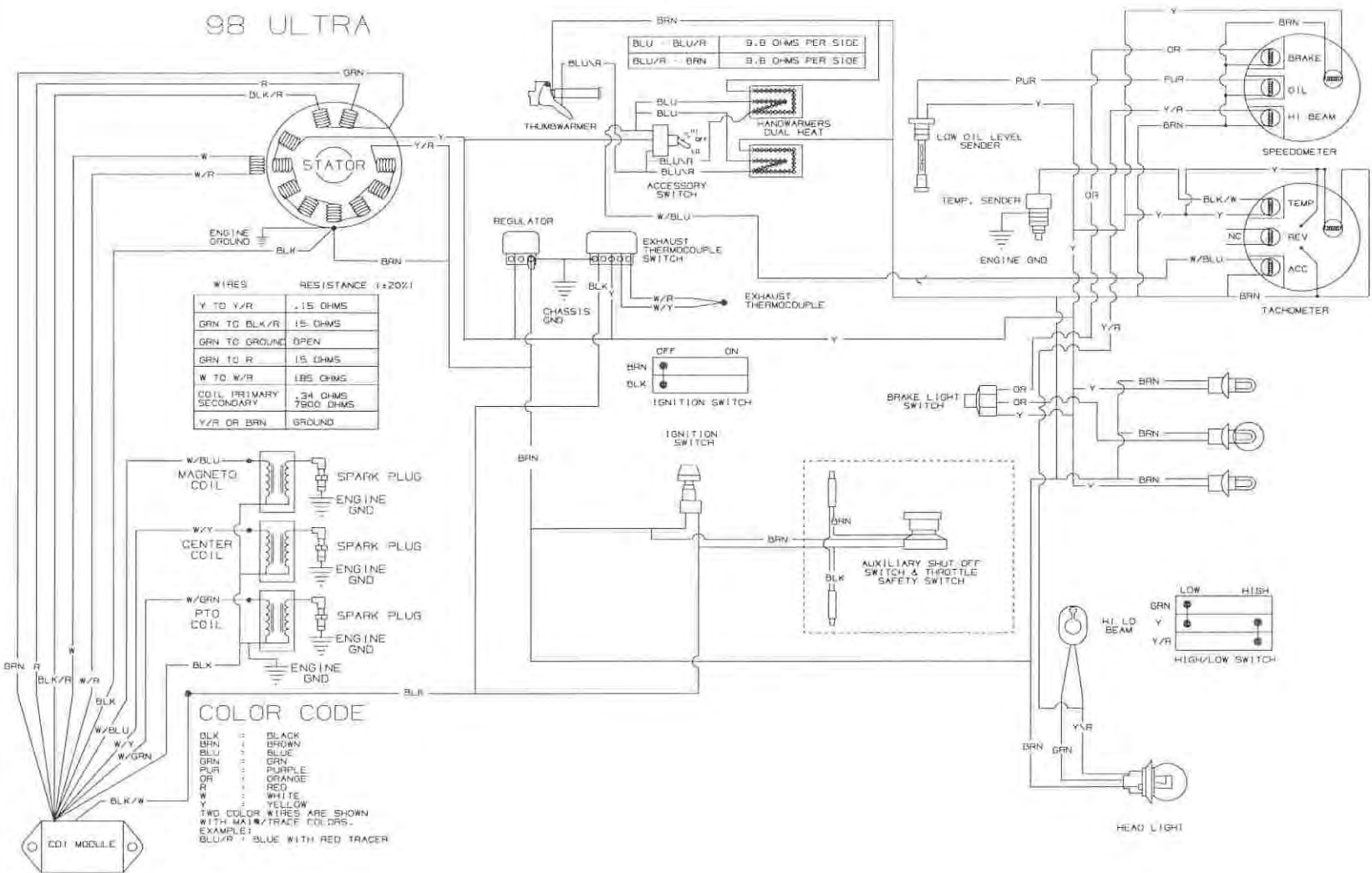


COIL RESISTANCES	
CAP	5000 OHMS
WIRE - WIRE	1000-1300 OHMS
CAP - CAP	11K-12K OHMS

COLOR CODE
BLK = BLACK
BRN = BROWN
BLU = BLUE
GRN = GREEN
PUR = PURPLE
OR = ORANGE
Y = YELLOW
W = WHITE
R = RED
TWO COLOR WIRES ARE SHOWN
WITH MAIN/TRACE COLORS.
EXAMPLE:
BLU/R = BLUE WITH RED TRACER



ELECTRICAL **1998 Wiring Diagram - Ultra**



ELECTRICAL 1998 Wiring Diagram - Indy 600 XCR, 700 XCR, Ultra Touring, Storm

NOT ALL EQUIPMENT SHOWN IS STANDARD ON ALL MODELS.

98 STORM
600 XCR
700 XCR
ULTRA TOURING

