

IGNITION SYSTEM COMPONENT TESTING - IN-LINE ENGINES

No. of HP Cyl	Engine Type	Model Year	Displace cu. in. (cc)	Pulsar Coils				Charge Coil				CDI Output				Ignition Coil							
				Wire leads (f) (r)	Resistance Ohms (Ω)	With Load	No Load	Wire leads (f) (r)	Resistance Ohms (Ω)	With Load	No Load	Wire leads (f) (r)	Resistance Ohms (Ω)	With Load	No Load	Wire leads (f) (r)	Resistance Ohms (Ω)	With Load	No Load				
																				Peak Voltage V @ RPM	Peak Voltage V @ RPM	Peak Voltage V @ RPM	Peak Voltage V @ RPM
6	2	IL 2-stroke	1986-92	10 (165)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	2800-4200					
2	2	IL 2-stroke	1983-94	10 (165)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	4300-6500					
2	2	IL 2-stroke	1985-96	10 (165)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.25-0.35	6800-10200					
8	2	IL 2-stroke	1984-96	10 (165)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	2800-4200					
2	2	IL 2-stroke	1993-94	10 (165)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	4300-6500					
2	2	IL 2-stroke	1995-96	10 (165)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.25-0.35	6800-10200					
9.9	2	4-stroke	1984-90	14 (232)	W/R	B	173-211	2.5	4	7.5 @ 1500	Br	Blue	569-625	90	85	195 @ 1500	0	B	0.09-0.12	2890-3910			
2	2	4-stroke	1991	14 (232)	W/R	B	173-211	2.5	4	7.5 @ 1500	Br	Blue	280-420	90	85	195 @ 1500	0	B	0.08-0.11	3485-4715			
2	2	4-stroke	1992-95	14 (232)	W/R	B	168-252	2.5	4	7.5 @ 1500	Br	Blue	280-420	90	85	195 @ 1500	0	B	0.08-0.11	3485-4715			
2	2	4-stroke	②	14 (232)	W/R	B	②	8	8	10 @ 1500	Br	Blue	②	160	150	210 @ 1500	0	B	0.08-0.11	3485-4715			
2	2	4-stroke	②	14 (232)	W/R	B	②	5	5	7 @ 1500	Br	Blue	②	160	150	210 @ 1500	0	B	0.08-0.11	3485-4715			
9.9	2	IL 2-stroke	1984-92	15 (246)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	2800-4200					
2	2	IL 2-stroke	1993-95	15 (246)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	4300-6500					
2	2	IL 2-stroke	1996	15 (246)	W/R	B	352-528	-	-	Br	Blue	248-372	-	-	Br	B	0.05-0.07	1680-2520					
15	2	IL 2-stroke	1984-92	15 (246)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	2800-4200					
2	2	IL 2-stroke	1993-95	15 (246)	W/R	B	92-112	-	-	Br	B	81-99	-	-	O	B	0.12-0.18	4300-6500					
2	2	IL 2-stroke	1996	15 (246)	W/R	B	352-528	-	-	Br	Blue	248-372	-	-	Br	B	0.05-0.07	1680-2520					
20	2	IL 2-stroke	1988-93	24 (395)	②	B	311-381	5.5	5.5	15 @ 1500	Br	Blue	342-418	125	130	125 @ 1500	③	B	0.18-0.24	2720-3680			
25	2	IL 2-stroke	1988-93	24 (395)	②	B	292-358	4	4	15 @ 1500	Br	Blue	342-418	125	130	125 @ 1500	③	B	0.18-0.24	2720-3680			
25	2	IL 2-stroke	1984-96	24 (395)	②	B	311-381	5.5	5.5	15 @ 1500	Br	Blue	342-418	125	130	125 @ 1500	③	B	0.18-0.24	2720-3680			
20	2	IL 2-stroke	1996	26 (430)	W/R	Gnd	-	5	-	-	Br	B	212-259	190	-	④	O	B	0.12-0.18	⑥			
25	2	IL 2-stroke	1990-95	26 (430)	W/R	Gnd	94.5-115.5	5	-	-	Br	B	212-259	190	-	④	O	B	0.12-0.18	⑥			
25	2	IL 2-stroke	1996	26 (430)	W/R	Gnd	-	5	-	-	Br	B	121-147	190	-	④	O	B	0.08-0.10	2975-4025			
25	2	IL 2-stroke	1984-87	30 (496)	W/R	B	12.6-15.4	5	-	-	Br	B	121-147	190	-	④	O	B	0.08-0.10	2975-4025			
30	2	IL 2-stroke	1984-86	30 (496)	W/R	B	12.6-15.4	5	-	-	Br	B	121-147	190	-	④	O	B	0.08-0.10	2975-4025			
30	2	IL 2-stroke	1989-92	30 (496)	W/R	B	12.6-15.4	5	-	-	Br	B	121-147	190	-	④	O	B	0.08-0.10	2975-4025			
2	2	IL 2-stroke	1993-96	30 (496)	②	B	311-381	4	4.5	15 @ 1500	Br	Blue	401-490	125	125	125 @ 1500	③	B	0.18-0.24	2700-3700			
40	2	IL 2-stroke	1989-96	36 (592)	W/R	B	12.6-15.4	5.5	5.5	20 @ 1500	Br	B	121-147	125	90	180 @ 1500	O	B	0.08-0.10	2970-4030			
48	2	IL 2-stroke	1996	46 (760)	W/R	B	92-112	-	-	-	Br	B	81-99	-	-	-	-	-	0	B	0.12-0.18	4320-6480	
55	2	IL 2-stroke	①	46 (760)	②	B	70-86	2	-	-	Br	Blue	210-256	135	-	⑤	GND	0.20-0.30	⑥	-	8000	20000	
2	2	IL 2-stroke	②	46 (760)	②	B	260-390	2	-	-	Br	Blue	260-390	135	-	-	-	-	Br	0.18-0.24	3260-4680	8000	20000
2	2	IL 2-stroke	②	46 (760)	W/R	B	92-112	2	-	-	Br	B	81-99	-	-	-	-	-	Br	0.18-0.24	3280-4920	8000	20000
25	3	IL 2-stroke	1996	30 (496)	②	B	277-415	4	4	②	Br	Blue	164-246	175	210	②	B	0.46-0.62	5400-7200	10000	30000		
30	3	IL 2-stroke	1987-88	43 (698)	②	B	277-415	4	4	②	Br	Blue	164-246	175	210	②	B	0.46-0.62	5400-7200	10000	30000		
28J	3	IL 2-stroke	1989-94	43 (698)	②	B	157-235	-4	-5	-10 @ 1000	Br	Blue	238-356	200	190	230 @ 1000	Br	Blue	0.46-0.62	5355-7245	-	-	
35J	3	IL 2-stroke	1995-96	43 (698)	②	B	168-252	3	4	②	Br	Blue	368-552	145	115	②	B	0.18-0.24	2720-3680	6000	30000		
3	3	IL 2-stroke	1987-88	43 (698)	②	B	277-415	-	-	-	Br	Blue	164-246	-	-	-	-	-	Br	0.46-0.62	5355-7245	-	-
3	3	IL 2-stroke	1989-94	43 (698)	②	B	157-235	-4	-5	-10 @ 1000	Br	Blue	238-356	200	190	230 @ 1000	Br	Blue	0.18-0.24	2720-3680	6000	30000	
3	3	IL 2-stroke	1995-96	43 (698)	②	B	168-252	3	4	②	Br	Blue	368-552	145	115	②	B	0.18-0.24	2720-3680	6000	30000		
40	3	IL 2-stroke	1984-88	43 (698)	②	B	277-415	-	-	-	Br	Blue	164-246	-	-	-	-	-	Br	0.46-0.62	5355-7245	-	-
3	3	IL 2-stroke	1989-94	43 (698)	②	B	157-235	-4	-5	-10 @ 1000	Br	Blue	238-356	200	190	230 @ 1000	Br	Blue	0.18-0.24	2720-3680	6000	30000	
3	3	IL 2-stroke	1995-96	43 (698)	②	B	168-252	3	4	②	Br	Blue	368-552	145	115	②	B	0.18-0.24	2720-3680	6000	30000		

4-78 IGNITION AND ELECTRICAL SYSTEMS

IGNITION SYSTEM COMPONENT TESTING - IN-LINE ENGINES

No. of HP Cyl	Engine Type	Model Year	Displace cu. in. (cc)	Pulsar Coils				Charge Coil				Ignition Coil														
				Wire leads (f) (-)	Resistance Ohms (Ω)	Peak Voltage		Wire leads (f) (-)	Resistance Ohms (Ω)	Peak Voltage		Wire leads (f) (-)	Resistance Primary Ohms (Ω)	Secondary Ohms (Ω)												
						With Load	No Load			V @ RPM	With Load			No Load	Primary	Secondary										
50	3 IL 2-stroke	1984-87	43 (696)	Ⓢ B	277-415	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
3	IL 2-stroke	1989-94	43 (696)	Ⓢ B	157-235	4	-5	-10 @ 1000	Br	Blue	238-356	200	190	120 @ 1000	BMW B	B	175	0	1215 @ 1000	BMW B	B	0.18-0.24	2720-3680	6000	130,000	
3	IL 2-stroke	1995-96	43 (696)	Ⓢ B	168-252	3	4	Ⓢ Br	Blue	368-552	145	115	Ⓢ	Ⓢ	BMW B	B	125	0	Ⓢ	BMW B	B	0.18-0.24	2170-3680	6000	30,000	
50	3 IL 2-stroke	1994-96	52 (849)	W/R	240-360	2.5	4.5	16.5 @ 1500	Br	Blue	136-204	120	110	160 @ 1500	BMW B	B	105	0	145 @ 1500	BMW B	B	0.18-0.24	3260-4880	-	-	
60	3 IL 2-stroke	1991	52 (849)	Ⓢ B	104-156	2.5	2.7	8 @ 1000	Br	Blue	132-198	140	170	200 @ 1000	BMW B	B	100	0	200 @ 1000	BMW B	B	0.20-0.24	3840-5760	12,000	20,000	
3	IL 2-stroke	Ⓢ	52 (849)	W/R	240-360	2.5	4.5	16.5 @ 1500	Br	Blue	136-204	120	110	160 @ 1500	BMW B	B	105	0	145 @ 1500	BMW B	B	0.18-0.24	3260-4880	-	-	
70	3 IL 2-stroke	1984-91	52 (849)	Ⓢ B	104-156	2.5	2.7	8 @ 1000	Br	Blue	132-198	140	170	200 @ 1000	BMW B	B	100	0	200 @ 1000	BMW B	B	0.20-0.24	3840-5760	12,000	20,000	
3	IL 2-stroke	1992-96	52 (849)	W/R	240-360	2.5	4.5	16.5 @ 1500	Br	Blue	136-204	120	110	160 @ 1500	BMW B	B	105	0	145 @ 1500	BMW B	B	0.18-0.24	3260-4880	-	-	
65L	3 IL 2-stroke	1987-88	70 (1140)	Ⓢ	342-418	-	-	-	Ⓢ	Ⓢ	680-1020	-	-	-	BMW B	B	-	-	-	BMW B	B	0.23-0.28	2000-3000	-	-	
3	IL 2-stroke	1989	70 (1140)	Ⓢ	342-418	-	-	-	Ⓢ	Ⓢ	680-1020	-	-	-	BMW B	B	-	-	-	BMW B	B	0.18-0.26	3840-5760	-	-	
3	IL 2-stroke	1990-91	70 (1140)	Ⓢ	264-396	2.5	5	7 @ 1500	Ⓢ	Ⓢ	840-1260	85	120	75 @ 1500	BMW B	B	95	-	130 @ 1500	BMW B	B	0.18-0.26	3840-5760	-	-	
3	IL 2-stroke	1992-96	70 (1140)	W/R	242-362	2.5	7	14 @ 1500	Ⓢ	Ⓢ	64-96	60	55	170 @ 1500	BMW B	B	130	-	155 @ 1500	BMW B	B	0.18-0.24	3280-4920	-	-	
75	3 IL 2-stroke	1994-96	70 (1140)	Ⓢ	264-396	2.5	0	7 @ 1500	Ⓢ	Ⓢ	840-1260	85	120	79 @ 1500	BMW B	B	95	-	130 @ 1500	BMW B	B	0.18-0.26	3840-5760	-	-	
80	3 IL 2-stroke	1994-96	70 (1140)	W/R	242-362	5	7	14 @ 1500	Ⓢ	Ⓢ	64-96	60	55	170 @ 1500	BMW B	B	130	-	155 @ 1500	BMW B	B	0.18-0.24	3280-4920	-	-	
85	3 IL 2-stroke	1989	70 (1140)	Ⓢ	342-418	2.5	0	7 @ 1500	Ⓢ	Ⓢ	680-1020	85	120	79 @ 1500	BMW B	B	95	-	130 @ 1500	BMW B	B	0.18-0.26	3840-5760	-	-	
3	IL 2-stroke	1990-96	70 (1140)	Ⓢ	342-418	2.5	0	7 @ 1500	Ⓢ	Ⓢ	840-1260	85	120	79 @ 1500	BMW B	B	95	-	130 @ 1500	BMW B	B	0.18-0.26	3840-5760	-	-	
90	3 IL 2-stroke	1984-88	70 (1140)	Ⓢ	342-418	-	-	-	Ⓢ	Ⓢ	680-1020	-	-	-	BMW B	B	-	-	-	BMW B	B	0.23-0.28	2000-3000	-	-	
3	IL 2-stroke	1989	70 (1140)	Ⓢ	342-418	-	-	-	Ⓢ	Ⓢ	680-1020	-	-	-	BMW B	B	-	-	-	BMW B	B	0.18-0.26	3840-5760	-	-	
3	IL 2-stroke	1990-91	70 (1140)	Ⓢ	264-396	2.5	5	7 @ 1500	Ⓢ	Ⓢ	840-1260	85	120	75 @ 1500	BMW B	B	95	-	130 @ 1500	BMW B	B	0.18-0.26	3840-5760	-	-	
3	IL 2-stroke	1992-96	70 (1140)	W/R	242-362	5	7	14 @ 1500	Ⓢ	Ⓢ	64-96	60	55	170 @ 1500	BMW B	B	130	-	155 @ 1500	BMW B	B	0.18-0.24	3280-4920	-	-	
45	4-stroke	1995-96	58 (935)	W/R	326-524	7	-	-	Ⓢ	Ⓢ	272-408	140	140	150 @ 1500	Ⓢ	Ⓢ	B	105	-	Ⓢ	Ⓢ	B	0.08-0.11	3280-4920	-	-
50	4-stroke	1995-96	58 (935)	W/R	326-524	7	-	-	Ⓢ	Ⓢ	272-408	140	140	150 @ 1500	Ⓢ	Ⓢ	B	105	-	Ⓢ	Ⓢ	B	0.08-0.11	3280-4920	-	-

NOTE: Unless stated otherwise, With Load tests are made with circuit connected as normal, while No Load tests are conducted with the component disconnected from the wiring harness

Ⓢ Unless noted otherwise all resistance specifications are at an ambient temperature 68 degrees F (20 degrees C). Keep in mind that all resistance readings will vary with temperature and from meter-to-meter

Ⓢ The pulser coil wire leads are normally W/R for the No. 1 cylinder and WB for the No. 2 cylinder, and for triples, W/G for the No. 3 cylinder

Ⓢ The CDI output leads are normally either BW for both cylinders or B/O for the No. 1 cylinder and BW for the No. 2 cylinder

Ⓢ Specification is 150 volts cranking and a minimum of 165 volts with the engine running at 1500 rpm

Ⓢ Specification is 140 volts cranking and a minimum of 155 volts with the engine running at 1500 rpm

Ⓢ Secondary resistance specification varies slightly with model year: 2800-4200 for 1990-92, 4320-6480 for 1993-95 or 6800-10,200 for 1996 and later

Ⓢ Specifications are for CV55E models produced through 1995

Ⓢ Specifications are for CV55R and CV55TR (available in the US and Canada), and for various 55 hp world production models including 55BE, 55BM and 55BET

Ⓢ Specifications are for the ES5C

Ⓢ Output to the No. 1 coil Gray wire, output to the No. 2 coil Orange wire

Ⓢ Specifications conflict in certain manufacturer sources. Service manuals say all motors are 2000-3000 ohms, but other guides say that is for 1989-91 only and that 1992-94 models should be 2480-3720 ohms

Ⓢ Specifications are a minimum of 11 volts @ 1500 rpm or 20 volts @ 3500 rpm

Ⓢ Specifications are a minimum of 205 volts @ 1500 rpm or 115 volts @ 3500 rpm

Ⓢ Wire colors may vary, some models may have 3 BW leads, while most have B/O for No. 1, BW for No. 2 and BY for No. 3. Note that colors are for leads coming directly out of CDI unit as they may all connect to BW leads before reaching the individual coils

Ⓢ Specifications are a minimum of 9 volts @ 1500 rpm or 15 volts @ 3500 rpm

Ⓢ Specifications are a minimum of 160 volts @ 1500 rpm or 130 volts @ 3500 rpm

Ⓢ Specifications are a minimum of 140 volts @ 1500 rpm or 110 volts @ 3500 rpm