Installation Instructions for 40040 & 40041
JEGS DISG Complete Ignition System

Congratulations on your purchase of the JEGS DISG Ignition System. Unlike most high performance ignition systems which use capacitive discharge circuitry (CDI - Capacitive Discharge Ignition) JEGS DISG Ignition System uses Digital Inductive Spark Generation. The JEGS DISG ignition system generates maximum spark duration and intensity through the entire RPM range and the digital spark management provides more precise and consistent spark delivery and system reliability. It's simple yet effective design makes it more resistant to damage from vibration. The 7 amp digital ignition box features a built in 2 stage rev limiter and 80 preprogrammed ignition curves.

This kit includes:

- 7amp Digital Ignition Box w/ push button two stage rev limiter, 80 pre loaded push button ignition curves and a dedicated tach output
- Billet Distributor
- 9mm Spark Plug Wires
- Ignition Coil
- Wiring Harness and Installation Hardware

NOTE: The components supplied with your JEGS DISG Ignition System are specifically designed to work together. If replacement parts are required please contact JEGS.

What you should know about your new ignition system:

DISG vs. CDI

DISG ignition systems combine the benefits of high intensity CDI systems and the longer duration of O.E variable dwell systems. These two factors combine to produce the greatest possible total spark energy throughout the entire RPM range. Improved output is achieved by using a higher coil primary current, resulting in the secondary spark current being more intense. The system also uses MOSFET switching technology which is faster and minimizes both heat dissipation and wasted energy, to produce the longest duration spark available. The biggest difference between the JEGS system with DISG and CDI systems is the amount of total spark energy available between 1000 rpm and 8000 rpm or higher. The JEGS Ignition System maintains a set intensity level with a varying amount of spark duration in time, to provide a constant amount of crank degrees of spark duration throughout the entire RPM range. CDI systems have a set intensity level and a set amount of spark duration in time, resulting in a shorter amount of crank degrees of spark duration at low to mid RPM levels, only growing to a reasonable level at the higher end (8000 rpm plus) of the RPM range.

Microprocessor Technology

Thanks to the use of microprocessor technology, the JEGS DISG Ignition System offers many features not available with CDI systems. At cranking speeds, the JEGS system multi sparks, providing four closely spaced bursts of spark energy, giving maximum power for starting. The current drain at cranking speeds is also very low, in contrast to other variable dwell systems. There is virtually no minimum cranking speed to obtain a good spark. The dwell period, that is the length of time the coil primary is switched on each cycle, to charge the coil in readiness for the next spark, is where the JEGS system really shines. The DISG microprocessor software incorporates an algorithm that senses the rate of acceleration (or deceleration) of the engine. It then computes just how much shorter (or longer) the next 90 degrees (on a V8 engine) of engine rotation will be, before it actually happens. This is so it can turn on the coil ahead of time so it will reach full current at exactly the moment it needs to be turned off to produce the spark. At higher engine speeds, the microprocessor switches to an alternative program which deals with the problem of extinguishing the spark by turning the coil primary back on before the spark has gone out naturally. This is done so there will be sufficient time for the coil current to build up to the set amount of maximum energy for the next spark. It calculates the optimum compromise of time for coil charging versus time for spark duration.

Additional Features

Unlike other ignition systems that require separate controls for a 2-step or rev limiter the JEGS DISG Ignition System has them built right into the box.

Many ignition systems use a mechanical or vacuum advance. The JEGS DISG Ignition System has 80 preprogrammed ignition curves that are adjusted at the push of a button. Please see the table below to adjust your advance to the desired setting.

All of these features combine to give you the most complete and powerful ignition system available.

Wiring Instructions:

Distributor to ignition box harness:

- Insure distributor to ignition box harness is routed separately from ignition box to coil wire and high voltage wires.

Ignition box to coil harness:

- **Orange** wire to coil positive (run direct to ignition coil - do not splice with any other wires).
- **Green** wire to coil negative (run direct to ignition coil - do not splice with any other wires).
- **Black** wire to ground (run direct to battery negative - do not splice with any other wires - keep as short as possible).

Optional features:

- **White** (single) wire: Apply 12 volts to activate Two-Step 'LOWER' rpm limit (usually armed by trans-brake switch or similar).
- **Green** (single) wire: Tach Output (12 volt square wave - normally high, then low for 1.1 m/s per spark).

Power supply to coil positive:

- Supply 12 volts switched (13.8 - 14.8 volts from alternator when running) to coil positive via ignition switch.
- Run this wire direct to the ignition coil - do not splice with any other wires.
- If vehicle has ballast resistor or resistor wire, by-pass these and feed direct voltage to coil.
- If wired correctly, two wires go to coil positive and one wire goes to coil negative.

Ground:

- Insure battery negative cable runs direct to engine block (should also be attached to body) as a single cable.

General:

- Keep both harnesses routed away from high voltage wires.
- These measures are to insure no noise enters the loom and disrupts the microprocessor inside the unit.
- Mount the unit using the vibration mounts supplied, inside the vehicle cabin, away from heat and moisture.
- Avoid soldering wires, as they become brittle where the solder ends, flex at that point, then break.
- To insure unit functions correctly, the above steps must be followed.

Adjusting the Two-Step:

It could not be any easier. Simply use the push button controls on the end of the box to adjust the 'LOWER' and 'UPPER' RPM from 100 to 9900 in 100 RPM increments. Use only the first two digits of the RPM. For example:

- 01 = 100 RPM
- 05 = 500 RPM
- 10 = 1000 RPM
- 35 = 3500 RPM

Adjusting the Timing Curve:

1. Set the 'CURVE' switches located on the end of the box to '00'. This will not allow the ignition box to advance the timing.
2. Set the idle to the desired RPM and set the desired "base" ignition timing at idle by rotating the distributor. Tighten down the distributor hold-down.
3. Using the charts on the next page and the 'CURVE' switches located on the end on the box select your desired ignition curve.

How it works:

Say you set your "base" idle timing at 20° and you would like 32° total advance at wide open throttle. The 32° is achieved by adding your "base" timing plus the 'Degrees of advance' in the table on the next page. Lets use 'CURVE' 52 as an example: Any RPM from 0 to 1150 would be 20°; any RPM from 3200 up to red line would be (20° + 12°) = 32°. From 1150 to 3200 RPM it uses a linear slope; so to find what the ignition timing is at 3000 RPM you would use the following equations:

First find the degrees per 50 RPM: (12°/41) = .29 ….12° is the 'Degrees of advance' from the table and 41 is the number of increments in the selected 'CURVE'. See chart below for other curves.

Second find the number of increments to desired RPM: (3000-1150/50) = 37 ….3000 is the desired RPM to be known and 1150 is the starting RPM of your selected 'CURVE'.

Third find the timing on the curve at point: (.29 x 37 + 20°) = 30.7° ….20° is the "base" timing.

Number of increments on the selected 'CURVE'

- Curve 00 thru 20 = 47
- Curve 21 thru 40 = 44
- Curve 41 thru 60 = 41
- Curve 61 thru 79 = 38

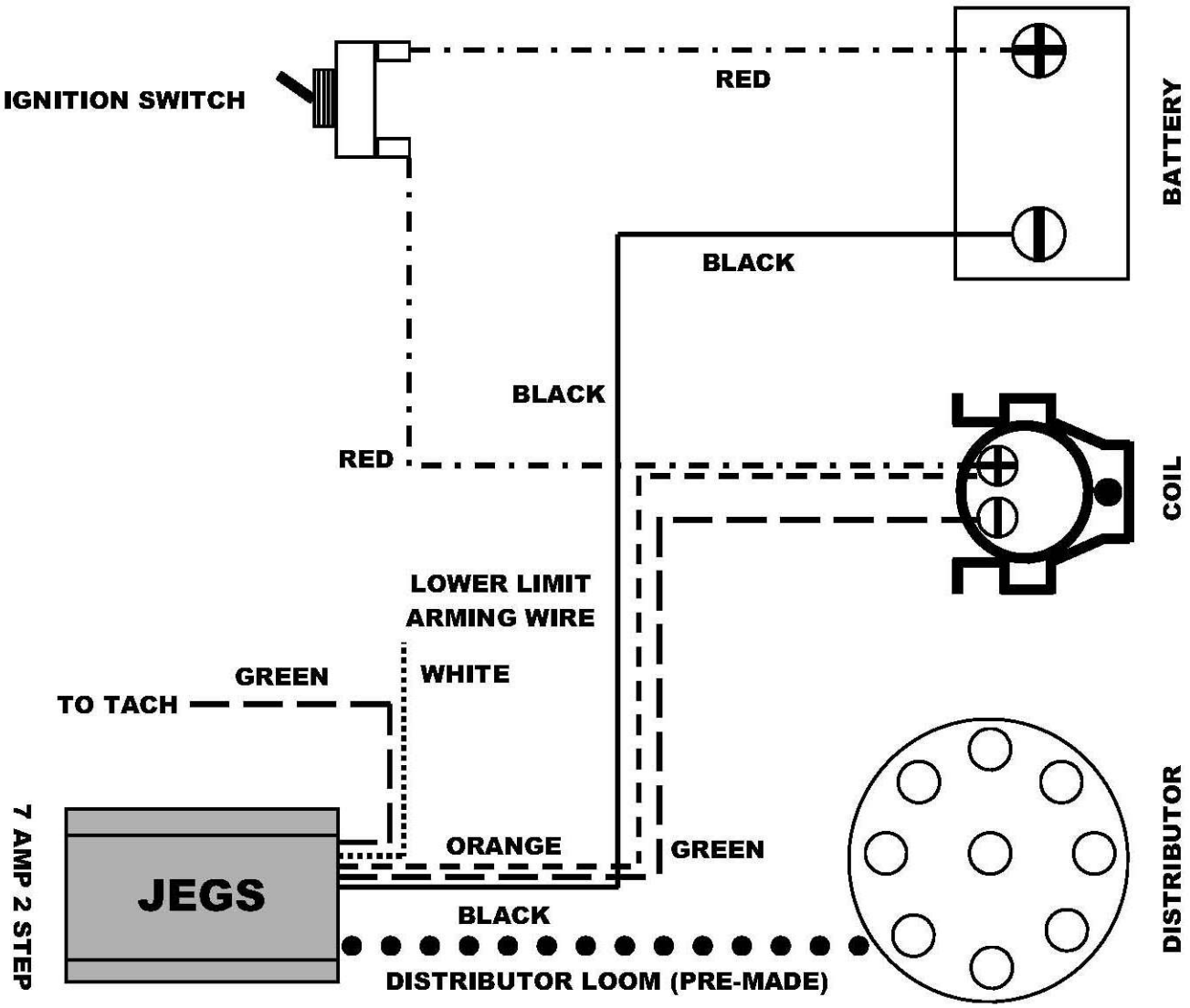
‘CURVE’ Select Switches: **(expressed in crankshaft degrees and engine rpm)**

Digit	Advance starts @ rpm	Advance finishes @ rpm	Degrees of advance
00	n/a	n/a	Locked
01	1450	3800	1deg
02	1450	3800	2deg
03	1450	3800	3deg
04	1450	3800	4deg
05	1450	3800	5deg
06	1450	3800	6deg
07	1450	3800	7deg
08	1450	3800	8deg
09	1450	3800	9deg
10	1450	3800	10deg
11	1450	3800	11deg
12	1450	3800	12deg
13	1450	3800	13deg
14	1450	3800	14deg
15	1450	3800	15deg
16	1450	3800	16deg
17	1450	3800	17deg
18	1450	3800	18deg
19	1450	3800	19deg
20	1450	3800	20deg

Digit	Advance starts @ rpm	Advance finishes @ rpm	Degrees of advance
21	1300	3500	1deg
22	1300	3500	2deg
23	1300	3500	3deg
24	1300	3500	4deg
25	1300	3500	5deg
26	1300	3500	6deg
27	1300	3500	7deg
28	1300	3500	8deg
29	1300	3500	9deg
30	1300	3500	10deg
31	1300	3500	11deg
32	1300	3500	12deg
33	1300	3500	13deg
34	1300	3500	14deg
35	1300	3500	15deg
36	1300	3500	16deg
37	1300	3500	17deg
38	1300	3500	18deg
39	1300	3500	19deg
40	1300	3500	20deg

Digit	Advance starts @ rpm	Advance finishes @ rpm	Degrees of advance
41	1150	3200	1deg
42	1150	3200	2deg
43	1150	3200	3deg
44	1150	3200	4deg
45	1150	3200	5deg
46	1150	3200	6deg
47	1150	3200	7deg
48	1150	3200	8deg
49	1150	3200	9deg
50	1150	3200	10deg
51	1150	3200	11deg
52	1150	3200	12deg
53	1150	3200	13deg
54	1150	3200	14deg
55	1150	3200	15deg
56	1150	3200	16deg
57	1150	3200	17deg
58	1150	3200	18deg
59	1150	3200	19deg
60	1150	3200	20deg

Digit	Advance starts @ rpm	Advance finishes @ rpm	Degrees of advance
61	1000	2900	1deg
62	1000	2900	2deg
63	1000	2900	3deg
64	1000	2900	4deg
65	1000	2900	5deg
66	1000	2900	6deg
67	1000	2900	7deg
68	1000	2900	8deg
69	1000	2900	9deg
70	1000	2900	10deg
71	1000	2900	11deg
72	1000	2900	12deg
73	1000	2900	13deg
74	1000	2900	14deg
75	1000	2900	15deg
76	1000	2900	16deg
77	1000	2900	17deg
78	1000	2900	18deg
79	1000	2900	19deg



WIRE COLOR LEGEND

- DISTRIBUTOR LOOM
- ORANGE WIRE
- GREEN WIRE
- BLACK WIRE
- WHITE WIRE
- RED WIRE