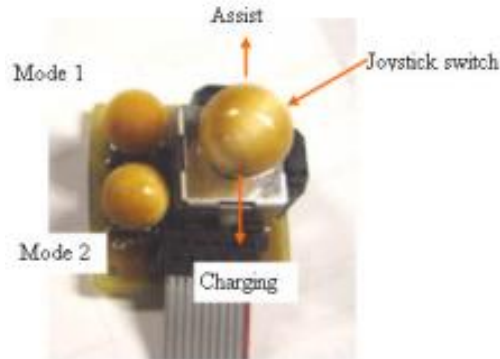


MIMA FOR BEGINNERS

MIMA and Me

I drove blindly into MIMA ownership. Well, semi-blind anyhow. I didn't know exactly what I was getting into. Oh, I had a general idea of course. I knew MIMA consisted of a little joystick controller connected to control cables and a bunch of hidden circuit boards.



I also knew MIMA promised to give me more control of the Insight's electric motor and win me more mpg's in the process. Precisely how MIMA did that and how I was supposed to operate it to achieve those results left me scratching my head. I figured I would pick it up as I went along.

So I decided to forge ahead despite the gaps in my knowledge about how MIMA did its magic. I had two good reasons to throw caution to the winds. Number one, I knew MIMA had a following. From what I could ascertain, that following was not a bunch of gullible louts, but a collection of knowledgeable and savvy car enthusiasts. That counted for something. Number two, in my own mind, MIMA was a form of "hot-rodding". Something with a long and noble tradition as far as I was concerned. Automotive hot-rodding dates back to the late 1930's and 40's when the term "hotrod" was coined. Frankly though, owners have probably modified showroom stock vehicles as long as there have been stock vehicles. Anyhow, hot-rodding is a tradition that is still vital and vibrant today. It has not been deterred by modern emission controls, economic meltdowns, safety regulations and global warming concerns. I was already part of that historical tradition since I had owned many modified vehicles over the years including pure electric vehicles, vehicles modified to run on compressed natural gas and diesels modified to run on recycled cooking oil. Why not continue with 21st century hybrid technology? I was sold on the MIMA thing. So I got one.

I live in Ohio, but I decided to drive to Connecticut and enlist Mike Dabrowski, the inventor of the MIMA system (along with Canadian Insight owner, Yves Morisette) to install it. Mike has been the guy who has refined and supported the system over the last several years. How could I possibly go wrong having him do the install? In gambling parlance, it was a safe bet.

Not to bore you with unnecessary details, I eventually arrived in Connecticut where Mike installed the system as planned. After checking

over all the new connections, He explained some of the MIMA features then sent me on my merry way back to Ohio. **I soon discovered that MIMA is a tricky little beast. It was not easy for me to learn how to operate its many features or modes.** My learning might have been steeper than most MIMA owners because I didn't grow up with computers, joysticks and what-not's. I'm not at the head of the class when it comes to new whiz-bang technology. However, I am a persistent son of a gun. So I prevailed in the end. My tottering steps along the trail of trial and error motivated me to record my experiences. Hence the material that follows. I hope it speeds up the MIMA learning process for others like myself. This is **not a substitute** for the official MIMA operating instructions posted on www.99mpg.com. Consider this a supplement to the "official" factory (i.e. Mike's) version, another interpretation of how to get to know and use your MIMA system.

MIMA — The Short Version

What is MIMA anyhow? Let's begin with a little background. The term "MIMA" is Mike Dabrowski's moniker for the add-on computer and manual control system he produces for the first generation Honda Insight hybrid. It's not for the "new" Insight, 4 door sedan or "Gen II" for short. The 2nd generation Insight uses a different way of communicating with its electronic components. This approach makes it much more difficult to "crack". So Mike's MIMA system is **exclusively for the 1st generation Honda Insight (U.S. model years 2000-2006)**.

The only visible component of MIMA (after you get all the circuit boards and such installed) is a small joystick controller mounted on a board with two buttons. Deceptively simple little gizmo. As of this writing, over 100 systems have been installed with more than a million MIMA miles accumulated by intrepid Insight owners. An impressive track record for a one-man manufacturing operation. MIMA is an offspring of the official Honda term of IMA or Integrated Motor Assist. So, before we get deeper into MIMA, it's best to consider IMA first.

IMA describes how the electric motor operates in the first generation Honda Insight hybrid. **IMA stands for "Integrated Motor Assist"**. The Insight has an electric motor/generator paired or "integrated" with a small, 1.0 liter gasoline engine. Unlike other hybrid vehicles like the Toyota Prius, the Insight cannot run on its electric motor alone. The Insight's electric motor can only assist the gasoline engine, not take its place. The torque from the electric motor is integrated with or blended with the torque of the gas engine. So "integrated motor assist" is an apt description.

The electric motor/generator unit does more than just assist. It has a dual personality. Not only is it an electric motor, it can also work like a generator. When it operates as a motor, it **assists** the small gasoline engine by providing extra boost for acceleration or for pushing up hills. When it operates as a generator, it generates electricity to **charge** the main battery pack. It's the best of both worlds. The only catch is it cannot do both simultaneously. At any given moment, it's either one or the other — providing **assist** to the gas engine or **charging** the batteries.

So you might ask, who decides when and how much boost the car gets from the electric motor and likewise who decides when and how hard to charge the main battery pack?

In a stock Honda Insight, the IMA system computers control when and how much **assist** (i.e. electric motor power) is delivered by the electric motor or when and how much **charging** (of the 144v main battery pack) is done. The driver cannot alter the factory settings. Enter MIMA. **MIMA lets you make the decisions about assisting and charging rather than the computer.** MIMA is an acronym for

Manual Integrated Motor Assist. The “manual” in MIMA = you.

OK. MIMA goes IMA one better. Check. MIMA lets you decide when and how much **assisting** and **charging** occurs while driving your Honda Insight. Check. With MIMA, you temporarily ignore the factory IMA **assisting** and **charging** behavior. MIMA lets you tailor the **assisting** and **charging** to suit your personal driving habits rather than have the factory IMA tailor them to suit the driving habits of a generic “standard driver”. Got it? Next, let’s dig into the details.

MIMA — The Longer Version

MIMA lets you control **Assist** or **Charging** in two ways:

- **Manually** (by moving the joystick) or
- **Automatically** by pre-programming it apply your own custom settings for **assisting** and **charging** so you can operate in a “hands-off-the-joystick” manner once pre-programming is done

Initially, I was focused on the first method — **manually** controlling the **Assist** or **Charging** . Mike Dabrowski calls it “MIMA-on-Demand”. Move the MIMA joystick up to start **assisting** the gas engine with a boost from the electric motor. Move the joystick down to start **charging** the batteries. I latched onto MIMA-on-Demand because it is the easiest feature of MIMA to understand.

Up for **Assist**



Down for **Charging**



Up for go, down for recharge. Simple. Ah, but beyond MIMA-on-Demand, there's much more to the MIMA system. I soon discovered how much more.

Let's push this "MIMA can provide manual or automatic control" thing a bit further. To restate it in more detail:

MIMA Can Manually or Automatically Adjust:

- **How Much** "X" you get
- **When** "X" occurs
- **How Quickly** "X" ramps up

MIMA allows you to adjust other more subtle parameters too, but the "how much", "when" and "how quickly" are the key actions MIMA performs.

What is MIMA manipulating? What's the "X" factor in the box above? If we lose the "X" and plug in another piece of the puzzle, it reads like this:

MIMA Can Manually or Automatically Adjust:

- (1) **How Much Assist** or **Charging** you get
- (2) **When Assist** or **Charging** occurs
- (3) **How Quickly Assist** ramps up

But wait, there's more. MIMA offers 3 ways to manually or automatically adjust these "how much", "when" and "how quickly" settings. These 3 ways are referred to as "modes". One mode is for manual adjustments to **Assist** and **Charging**. The other two are for automatic (pre-programming) adjustments. Yeah, I know. It's getting a bit complicated. Hang in there. We're past the worst of it.

You can think of each mode like a gear lever position in a car with an automatic transmission. Each lever position or setting is best for certain conditions. Likewise, each MIMA mode is best suited for certain conditions. We'll get to the part where you decide WHEN to apply the different modes later. First we'll stick to the basics about these 3 modes.

MIMA — The 3 Faces of MIMA — An Introduction

The 3 modes of MIMA are:

1. MIMA on Demand
2. MIMA Mode1
3. MIMA Mode2 (PIMA)

MIMA-on-Demand is a manual method of adjusting settings. MIMA Mode1 and MIMA Mode2 (PIMA) are methods to automate or pre-program settings.

Let's start with a quick summary of each.



A. MIMA-on-Demand (*Works as Long as You "Work" It*)

- *MIMA-on-Demand Lets You Manually Adjust **How Much** & **When** You **Assist** or **Charge** in the Moment **But NOT How Quickly Either of Them Ramp Up***

MIMA on Demand Mode involves active, moment-to-moment, manual control of assist and charging. You move the joystick forward (Up) for assist or backward (Down) for charging. The momentary application of assist or charging occurs **as long as the joystick is held in that position**. One thing that goofed me up at first with understanding MIMA was that I kept wanting to call the most basic mode, MIMA on Demand, "mode1". Obviously, it ain't mode1 in MIMA-speak even though it's the "1st" mode most beginners adopt.



B. Mode1 MIMA (*Works with settings you pre-program; if you switch it off and come back into it the settings will behave the way you pre-programmed them last time; Mode1 is Probably NOT SUITED to use for ALL of a Long Trip*)

- *Mode1 Lets You Pre-Program Settings for **How Much** and **When** You **Assist** or **Charge** While in Mode1, **But NOT How Quickly Either of Them Ramp Up***

Mode1 involves you pre-program MIMA by setting parameters different from stock settings, then getting back to driving allowing the new settings to be applied automatically **as long as the car is left in Mode1**.

There are 2 primary uses for Mode1. They are:

1. Mode1 lets you adjust "when" **Charge** starts (the "set point", identified by an MPG number of your choice)

2. Mode1 lets you adjust "how much" **Charge** (the level of **Charge**) you will get, including turning it all the way off

There are 3 side effects of being in Mode1. They are:

1. Mode 1 turns off IMA
2. Mode1 leaves MIMA-on-Demand **Assist** and **Charge** available (you can still get **Assist** by moving joystick UP while in Mode1 and **Charge** by moving joystick DOWN)



C. Mode 2 MIMA or "PIMA" (*Transitional State - Works as Long as You Stay In It, CAN BE USED for ALL of a Long Trip Like Setting Your Cruise Control on a Standard Car or Truck*)

- PIMA Lets You Set **How Much** and **When** You **Assist** or **Charge** While in PIMA, **But Not How Quickly**
- PIMA involves you "programming" MIMA by setting parameters different from stock settings, then getting back to driving allowing the new settings to be applied **as long as the car is left in Mode2 (PIMA).**

Mode1 and Mode2 (PIMA) are similar. Both allow you to adjust parameters. The difference between the two modes is the parameters being set are different. Those adjusted by Mode1 are different from those adjusted by Mode2 (PIMA). PIMA, among other things, controls set points along the MPG gauge. One setpoint is where assist kicks in and another setpoint is where charging begins.

For example, you might use PIMA to set assist to come on whenever the MPG gauge reading dips below 75 mpg. Assist would increase in an effort to maintain that 75 mpg without additional demand upon the gas engine. Likewise, you might use PIMA to set charging to come on whenever mpg rises to 100+ mpg. Anything level above 100 mpg would be accompanied by a simultaneous rise in the level of charging. So PIMA is like a cruise control device. Just as you use a standard cruise control to maintain speed measured in MPH, PIMA can be used to maintain fuel economy measured in MPG.

It should be noted that PIMA really uses MAP values, not MPG values. Problem is you can't see the MAP settings, so you can't use them to program PIMA set points. Because you CAN see a given MPG number displayed on the stock FCD display and the MPG number has a MAP value "behind the curtain" as it were, the MPG number stands in for MAP value. Thus, it's MPG numbers that you use as a gauge. those engine conditions change and vary so PIMA will then kick in or out at different MPG points when those set engine conditions occur. Admittedly, this may be more techno-babble than you need!

It should be noted that **NOT EVERY MIMA MODE lets you adjust all 3 of the Big 3. Remember the "Big 3" are**

- (1) **How much Assist** or **Charging** you get
- (2) **When Assist** or **Charging** occurs (sometimes called the "set point") and

(3) How quickly **Assist** ramps up.

For example, PIMA can adjust many parameters but it cannot adjust how quickly charging ramps up.

MIMA — Early Fumbling of Modes

Misunderstandings to Avoid

I got flummoxed early. I had two mistaken notions right out of the gate.

In my first days of MIMA ownership, I thought there was overlapping in the 3 MIMA modes (i.e. MIMA-on-demand, Mode1 and PIMA). That is, I thought a setting I made in Mode1, for example, would effect what would happen in PIMA or in MIMA-on-Demand. My second idea was that adjustments made in Mode1 or Mode2(PIMA) would somehow change the way the **stock** IMA system would operate once I was out of MIMA and back to the stock IMA operation.

To set the record straight, neither of these notions are true. **The 3 MIMA modes operate independently of each other** (with the notable exception that the maneuver of pushing the joystick “up for assist”, a standard feature of the MIMA-on-Demand mode, overlaps with Mode1 — it works while operating in Mode1 also). Furthermore, while it is true that the MIMA modes temporarily override the stock IMA, **they do not change any of the factory settings in the stock IMA system**. Once you are out of whatever MIMA mode you are employing, you return to an IMA system whose control programming has been unaltered by your foray into MIMA land. Like the prodigal son, you can always go home again. Breathe easy.

When Up Isn't Up

I also got tripped up about “raise” and “increase”. Yeah, seems pretty obvious. Let me explain. I took to thinking of “increase” as “give me more” and “lower” as “give me less”. There are MIMA operating instructions on Mike’s website for using all of the MIMA features. For example, there is a procedure for “raising the level of regen”. OK, “raising” here means **you get more**. But then consider, “raising the set point of regen”. “Raising” here means **you get LESS** at a given set point. This may just be a terminally unique rut my brain fell into and no one else in MIMA land will have this little brain fart, or maybe there’s a few of you who may be prone to plummeting into this particular conceptual chuckhole. If you’re congratulating yourself on how much more advanced you are, more power to you and forget you ever saw this paragraph.

MIMA — The 3 Faces of MIMA — Getting Better Acquainted

In the “3 Faces of MIMA” introductory section above, we got a glimpse of what the 3 MIMA modes were. Let’s consider them in more detail.

1. **MIMA on Demand**
2. **Mode1-A MIMA and Mode1-B MIMA** (We’ll consider the 2 flavors of MIMA Mode1 - A & B together as one)

3. Mode 2 MIMA or "PIMA" for Short

	What It Does	When To Use It	How to Get Into It	How to Get Out of It	Move Joystick to Boost or Recharge Works?	Stock IMA System On?	Joylock & FAS available ?	Example	Key Benefits
1. MIMA on Demand	Push joystick up to boost; Push joystick down to charge	When you want to apply boost and apply recharge at will	just move joystick forward or back	release the joystick	Yes	On	Yes	Push joystick down to charge while going downhill	
2A. Mode1 -A MIMA Set Amount of "ABC" (Automatic Background Charging)	Lets you: Apply assist like MIMA-on - demand by moving stick up Set the AMOUNT of background charging	When you want to turn off the standard IMA control; you want to control everything	Fast tap of the mode #1 button	Tap the Mode1 button	Yes	OFF	Yes		Keeps IMA from charging at inopportune times like when you're going up a

2B. Mode1 -B MIMA Set Point on MPG Scale Where "ABC" Starts	Lets you: Apply assist like MIMA-on-demand by moving stick up Set the POINT where charging occurs	When you want to turn off the standard IMA control; you want to control everything	Fast tap of the mode #1 button to first enter Mode1-A, then while moving stick to either left or right PRESS down (Left-most Red light on MIMA display should start flashing to confirm you're in Mode1-B)	Tap the Mode1 button	Yes	OFF	Yes		
3. Mode2 MIMA or "PIMA" for Short	Sets the MPG value where boost kicks in to keep MPG up Sets the upper MPG value where charging begins to occur	To set the point of activation for boost & recharge Set how aggressively the boost increases as you press on throttle	Fast tap of the mode #2 button		NO		NO	Set boost to come on when MPG dips to 60 mpg Set charge to come on when MPG hits 100 mpg & be fully engaged at 150 mpg	Preserves higher mpg by keeping IMA above 60 mpg Stock IMA won't charge at high MF unless battery level is in lowest 1/3
FAS Option	Cuts fuel to injectors	Coasting in neutral for extended time	Center the joystick and tap downward	Engine restarts automatically					

Forced Auto Stop (FAS)

Yes, there's an acronym for everything. FAS is a popular MIMA option and deserves special mention. This is not the same thing as the stock "auto-stop" function every Honda Insight employs to save fuel. The auto-stop function turns off the engine when you stop at a light. If you shift into neutral and the clutch pedal is depressed, auto-stop can happen at up to 19 MPH. The engine is restarted automatically if you accelerate, shift into gear, or the brake vacuum has dropped to a non-functioning level.

FAS goes auto-stop one better. FAS forces the engine to stop whenever the driver chooses. You can be doing 60 mph on a freeway and use FAS to stretch your fuel economy. Sounds scary, but it isn't. All safety systems including the electric power steering and power brake vacuum still functions. If brake vacuum drops below a functional level, the engine still restarts automatically — just like it does in regular stock auto-stop.

Here's how FAS came to be a MIMA option. According to Mike Dabrowski (explained in more detail on the www.99mpg.com website) an early MIMA user figured out how to tap into the fuel injector system with a momentary manually activated switch system that cut fuel to the fuel injectors. A second switch simulated the clutch being pressed. This combination allowed him to cut the engine by temporarily starving it of fuel until it stalled, simulating auto-stop **at any speed**. The down side of this initial version of a FAS system was twofold. The clutch switch needed to be actuated manually and the 12V charging system was disabled during the FAS cycle.

Another MIMA user further developed the FAS system by automating the clutch simulation switch with relays, and tied in the neutral switch to get the system back to normal operation when the gear shift was moved from the neutral position. Two wires were run to the rear IMA system to keep the 12V dc/dc charging system on while in the FAS cycle. Many Insight drivers were interested in this FAS system, so Mike whipped up a more polished version of the electronics to do it.

Joylock

Under certain conditions you might want to lock in a particular level of assist or regen. Enter Joylock. Holding the joystick in the regen position to take advantage of a long, downhill run loses its novelty after the first 10 seconds. Joylock lets you lock in the regen for the duration of a long, downhill run and pop it out of joylock at the bottom of the hill. Neat. To engage joylock and lock in a particular regen or assist setting, simply press down — as if you were pressing the joystick straight down into the floor of your car. Joylock works for any assist or regen setting. I use it to set a temporary level of regen much more often than I use it to set a level of assist. Your own driving terrain and habits may dictate otherwise.

MIMA - Lights, Camera, Action — How to Know What Mode You're In

The MIMA display confused me at first. Bam, you start your Insight and the lights on the display start burning steadily or flashing. Press the gas pedal and lights flash. Press the brake pedal and lights flash. Move the joystick and lights flash. Whole lot of flashing going on. I knew it must mean something, but what?

Here's the low-down.

Far left red light = system is in Mode1. Middle red light = system is in PIMA. Amber lights mean ASSIST. Green lights mean REGEN. That's the basics.

Light Description	What It Means	Comments
Far Left Red light (steady)	Mode 1 is On	Either Click Mode1 key or when joystick is moved UP or DOWN (i.e. "MIMA on Demand")

Middle Red Light (steady)	PIMA is On	Mode 2 "PIMA" key has been tapped once to ON position
Far Red Light (steady)	Calibration is being set	

MIMA - Never Use a Hammer to Drive in a Screw

A MIMA system is a set of tools. Like any toolbox, the real MIMA trick is picking up the right tool for the job at hand. The more correctly you operate MIMA, the more valuable it becomes. Misapply one of the MIMA modes or miss the opportunity to apply one of the modes and you miss the benefits — benefits for which you've already paid. Easily said. Not so easily done.

I realize that every driver's situation is unique. Terrain, traffic, temperature and trip length dictate not only which MIMA mode is the right tool but when it should be applied. There's no pat answer to the "right tool" question that will fit all situations and all drivers. The most useful advice I can offer is in the form of general recommendations and the specific lessons I've learned from my own experimentation applying MIMA modes to my own trips.

Here's the general principles:

Driving Situation	Stock IMA	MIMA	MIMA Benefit
Going Up a Hill	Assist on at 50 mpg or less	PIMA can be set to give assist at 85 mpg or less	MPG higher
Going Up a Hill	Charging ON if SOC is 3/4 full or less	Charging can be turned OFF with tap of Mode1 button once Mode 1 has been set to turn off charging	MPG higher
Going Down a Hill	Charging OFF if SOC gauge shows 3/4 full	MIMA-on-Demand: Charging can be turned ON by angling the Joystick down with up to 100% SOC showing PIMA: Can be set to give 3 or 4 bars of regen coasting downhill	MPG higher
Going Down a Hill	Need to use brakes to slow down	Applying regen charging slows the car without using the brakes AND recharges the battery pack for a double benefit	Saves wear on brakes AND recharges battery pack

Need to pass a slower vehicle on the highway	Gasoline engine is used to provide the extra passing power; this lowers MPG	No need to change the throttle position or downshift. Just hit the joystick to provide electric motor assist and stay at higher mpg	MPG higher; less wear and tear on the engine
Accelerating onto the Highway	Only PARTIAL assist comes on and only when you dip below 50 mpg	Partial assist can be set to begin at 85 mpg with FULL Assist engaged by 60 mpg	MPG higher

Here's how I use my MIMA system:

MIMA-on-Demand

Don't use it much. I used it initially because it was easy, but once I figured out PIMA, I preferred that. The drawback I found with MIMA-on-Demand was that I wasn't very good at holding the little MIMA joystick steady to yield a smooth and consistent assist or regen. Thus, I'd get jerky assist or regen despite my best efforts at keeping my finger steady while the car was in motion. That discouraged me from using MIMA-on-Demand. Only time I use it is when I have an unusually long downhill stretch of road where I can apply regen instead of using the brakes.

MIMA Mode1

Only use it in one situation. I engaged Mode1 and dialed the regen down to zero. After doing that initial setup, I only click into Mode1 to prevent the stock IMA system from applying regen while I'm driving up a long hill. Why pay the MPG price going uphill when I'll soon be going downhill and getting "free" regen anyhow? Otherwise, I ignore Mode1.

MIMA Mode2 (PIMA)

I've found PIMA to be the most useful MIMA system tool. I usually setup regen to kick in at about 100-110 mpg level and assist to start in at about 75 mpg and be on full by the time I dip to 60 mpg. Most of my driving is on the interstate with relatively flat terrain interrupted only occasionally by long, gentle hills. The PIMA settings I use give me the most mpg benefit without unduly draining the main battery pack forcing the gasoline engine to do the regen. It's easy enough to click out of PIMA if I'm draining the main pack too fast and click right back into it when I encounter some downhill grades where I can replenish the charge I've used up with my more-aggressive-than-stock assist setting. Here's how I do those adjustments.

To Adjust ASSIST in PIMA:

Do this first: Step on the gas until you see ASSIST kick in, then slowly **decrease** throttle, till the ASSIST gauge is about half scale.

- 1. To RAISE the level of ASSIST at that point,** flick the joystick straight up to the MORE (+) assist position. **RIGHT** most **amber** LED on display will flash during flick to show MORE assist.

2. **To LOWER the level of ASSIT at that point**, flick the joystick straight DOWN to the LESS (—) assist position. **LEFT** most **amber** LED on display will flash during flick to show LESS assist.

To Adjust **REGEN** in PIMA

Do this first: Let up on the gas until you see REGEN kick in, then slowly **increase** throttle, till the REGEN gauge is about half scale.

1. **To RAISE the level of REGEN at that point**, flick the joystick to the RIGHT to the MORE (+) regen position. **LEFT** most **green** led on the display will flash during flick to show MORE REGEN.
2. **To LOWER the level of REGEN at that point**, flick the joystick to the LEFT to the LESS (—) regen position. **RIGHT** most **green** led on display will flash during flick to show LESS REGEN.

A Final Note

Hope this material has been helpful. Remember to check in regularly at Mike's website at www.99mpg.com for MIMA updates. One thing's for sure. MIMA continues to evolve.

MIMA-Speak Glossary

Boost	<i>Drains</i> electricity from main battery pack — Electric motor/generator runs as a MOTOR to assist the gasoline engine in driving the car forward
Recharge	<i>Restores</i> electricity to main battery pack; also generically referred to as "regen" — Electric motor/generator runs as a GENERATOR to recharge the main 114V NIMH battery pack from a depleted state
ICE	Internal Combustion Engine — e.g. the 3 cylinder gasoline engine in the Insight
IMA	Integrated Motor Assist; Honda's label for electric motor assisting gas engine or charging the battery pack; this is the factory stock setup
MAF	Mass Airflow — usually means the mass airflow sensor, a device the measures the amount of air flowing through the intake system; low airflow means low vacuum (i.e. typically wide open throttle tip in) an high airflow means high vacuum (i.e. usually partial throttle opening at medium to high engine rpm)
MAP	Manifold Absolute Pressure — usually means the MAP sensor, a device the measures the manifold pressure in the intake system; MAF and MAP are sometimes used interchangeably although they are not identical; the MAP measurement is used to calculate air density and determine the engine's air mass flow rate indirectly (MAF sensor measures airflow)

directly), which in turn determines the required fuel metering for optimum combustion.

A fuel-injected engine may alternately use a **MAF** (mass air flow) sensor to detect the intake airflow. A typical configuration employs one or the other, but not both.

MIMA Manual Integrated Motor Assist; Mike Dabrowski's term for the add-on computer and manual control system he produces that enables the driver to control assist and charging in the Honda Insight

SoC State of Charge; stock Honda SoC gauge indicates 100% full when battery pack is actually only 80% charged and 0% when battery pack is really 20% charged — this is done to extend the life of the battery pack as a completed charged and completed discharged (i.e. 100% - 0%) pattern of use shortens battery life

MIMA Rule #1: If you use ASSIST, you must provide charging to replenish the energy drained from battery pack.

MIMA Rule #2: While you are using ASSIST, it's best to apply slight gas pedal pressure to avoid having the engine act as a brake. If your foot is off the gas pedal, engine acts as a vacuum pump and this would increase the load on the electric motor providing the ASSIST and, in turn, increase the drain on the battery pack.