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For warranty support, contact Perma-Tune directly, do not return items to the store.

914126 DISTRIBUTOR WITH HARNESS

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www.facebook/PermaTune

WARNING: HIGH VOLTAGE! DISCONNECT THE BATTERY BEFORE INSTALLING OR SERVICING ANY IGNITION SYSTEMS COMPONENTS.
Failure to follow these instructions and the vehicle owners' handbook and shop manual could result in serious personal injury, death and or damage to property. This part is designed to be installed by a mechanic that is familiar with European automobiles and safety standards.

Plug and Play Installation

The interface harness makes installation easy by eliminating the need to splice the distributor wires into the engine harness. Simply plug in the distributor to the ignition module and connect to the coil. The distributor is ready to install into the engine and comes preprogrammed with general use settings. Use the road as your dyno to performance tune the engine. It is easy to customize the RPM limit, mechanical advance timing and vacuum timing control using a free app on your phone. A hose connection between the intake manifold and the distributor replaces the stock vacuum pot with a built in MAP sensor that is fully adjustable using the App. This kit contains the distributor and interface harness. The ignition module and coil are sold separately.

NOTE: This kit is for use with Perma-Tune ignition modules only. The distributor harness 3 pin connector will not fit any other brand ignition modules.

To view video instructions on installing this part, scan the QR code here or go to https://youtu.be/IPQhVyBmeas

To view video instructions on using the Tune+ App, scan the QR code here or go to https://youtu.be/IPQhVyBmeas

INSTALLATION INSTRUCTIONS

These instructions are for six cylinder Porsche 911 2.0L and 2.2L engines originally equipped with the three pin ignition module and breaker points distributor.

1. Before you start the installation, you may want to locate the correct ignition timing map for your engine as specified by the factory engine manual. The default timing program in the 914126 is generic to the early 911 cars and can serve as a starting point. You may want to change these settings to the factory specified timing map. There are many different engine configurations within the family of 2.0L and 2.2L Porsche engines so be sure to select the correct timing map for your car. You will need to download and install the Tune+ App on your phone, watch the programming tutorial and read the instructions to become familiar with using the App in order to change the settings.
   CAUTION: Setting the distributor to drastically wrong timing specifications for the engine can result in severe damage to the engine.
2. Turn off the ignition key and disconnect the battery negative terminal. Unplug the ignition module from the harness. Mark the distributor cap terminal that is connected to cylinder #1 and make a corresponding mark on the distributor housing, then remove the distributor cap from the distributor. Manually rotate the engine to TDC Cylinder 1 on the compression stroke of the piston and note the position of the rotor when the crankshaft TDC timing mark aligns with the timing pointer. The rotor should be pointing directly at the distributor cap cylinder #1 spark plug wire terminal mark that you made which should correspond to a scribe mark on the distributor housing rim indicating cylinder #1. If the rotor is not pointing at #1, continue rotating the crankshaft until the crankshaft TDC mark again aligns with the timing pointer with the rotor

Crankshaft at TDC #1
When the distributor rotor is pointing to cylinder #1, the crankshaft pulley #1 mark should align with the pointer.

pointing to cylinder #1 terminal of the distributor cap. Refer to the factory manual to identify the crankshaft pulley markings.

WARNING: Failure to disconnect the battery negative terminal and to disconnect the ignition module from the harness may cause serious personal injury, death or damage to property.

3. Turn off the ignition key and disconnect the battery. Remove the trigger wire and vacuum hose from the old distributor and then remove the distributor from the engine. Plug the vacuum hose. Loosen the distributor bow clamp and remove the old distributor from the engine leaving the bow clamp bolted to the engine. Note that the rotor will rotate slightly as the distributor is removed. This is due to the bevel of the distributor gear. If the bow clamp will not release the distributor, remove the bolt that holds the clamp to the engine. Remove the ignition module harness and note where the red wire power connection is at the ignition module and where the black wire with the violet stripe (black/violet) tachometer connection is. The black/violet wire may be connected to the distributor or to the coil **+** terminal, depending on the part number of the tachometer in the dash of the car. Later in this procedure, you will reconnect the tachometer wire to the same location on the new harness as it was on the old harness. Disconnect the harness ground connection from the ignition coil mounting bracket and remove the wires from the coil. Remove the old ignition system harness from the engine bay.

Bow clamp (not included)

WARNING: Remove the negative terminal of the battery. Failure to disconnect the battery may cause serious personal injury, death and or damage to property.

CAUTION: To prevent foreign objects from accidentally being dropped into the engine, block the crankshaft case distributor hole .

NOTE: Do not move the crankshaft after the old distributor has been removed from the engine or the cylinder #1 TDC position of the crankshaft will have to be reset before installation of the new distributor.

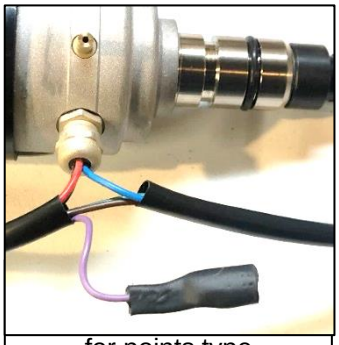
4. Remove the distributor cap from the new distributor and place the new distributor into the engine block without engaging the drive gear. Position the wire cable and hose nipple to a convenient location. The wire harness connector will be at about the seven o'clock position. Later in the procedure you will rotate the distributor housing counterclockwise (CCW). Position the housing so that the wire cable and hose nipple will allow the housing to rotate CCW.
5. Rotate the rotor in the distributor so that the rotor is pointing slightly to CCW of the same location as the old distributor when it was removed, then push the distributor all the way into the engine block engaging the drive gear. The rotor will move slightly as the distributor gear engages the crankshaft gear. The rotor on the new distributor should then be pointing to the cylinder #1 terminal of the new distributor cap. This cylinder position will probably be 180 Degrees from the cylinder #1 terminal that is molded into the cap. If the distributor rotor is not pointing to the right position, repeat step 5 until it does. The distributor must be fully inserted into the engine block with the distributor housing against the bow clamp. Install the bow clamp bolt but leave the tensioning bolt loose enough for the distributor housing to rotate. The idle dynamic timing value will be set by turning the distributor housing within the clamp later in this procedure.

NOTE: Failure to correctly engage the distributor to the crankshaft will result in a no start condition, premature wear of the distributor and rotor or poor engine performance.

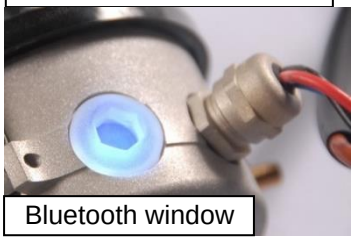
6. Route the distributor wire harness with the three pin connector to the ignition module. Plug the red power connector of the harness into the red power wire of the car harness. DO NOT plug in the ignition module yet. Route the coil harness from the distributor to the coil along the same path as the original harness. Connect the 8 MM ring terminal to the coil bracket mounting bolt. Connect the green wire of the harness to the **+** terminal of the coil and connect the brown wire of the harness to the **–** terminal of the coil. The "+" terminal of the coil is equivalent to the stock coil terminal 15 or A. The "-" terminal is equivalent to the 1 or B terminal of the stock coil. If your

old distributor had a manifold vacuum hose connected to it, do not connect it to the MAP sensor yet. Instead, temporarily block off the hose from the engine. Connect the black/violet tachometer wire to wherever it was removed from in step 3.

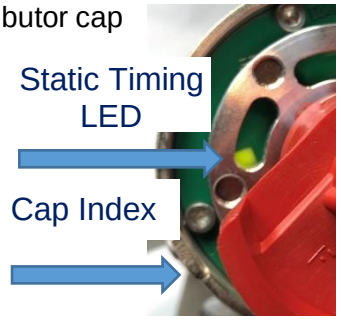
7. **WARNING: Connecting the module before proceeding with the rest of the installation will result in the ignition coil becoming live during the next step which could result in serious personal injury, death and or damage to property.**
   CAUTION: If you are unsure where to connect the tachometer wire, connect it to the lower Voltage signal at the black/violet wire. If the tachometer does not work correctly, then move the wire to the higher Voltage signal at the coil + terminal. Connecting a tachometer that needs the lower Voltage signal to the higher Voltage terminal will damage the tachometer.


for points type tachometers.

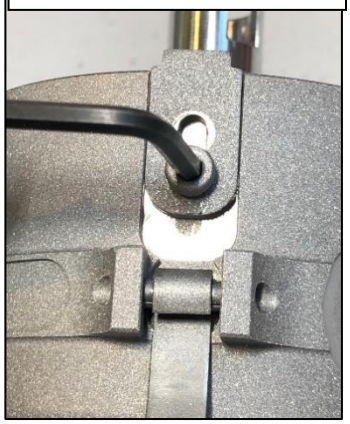
8. Reconnect the battery and turn on the ignition power. The blue LED in the distributor Bluetooth window should light up. Open the Tune+ App on your phone and connect the phone to the distributor using Bluetooth as demonstrated in the App tutorial. When the App has successfully connected to the distributor, the blue light in the distributor Bluetooth window will go out. You should now be able to view and edit the curves currently programmed into the distributor.
   NOTE: The Bluetooth default PIN is 1 2 3 4.


Bluetooth window

9. Remove the rotor to set the static engine timing. There is a green LED on the circuit board mounted underneath the magnet rotor that is visible through the slots in the magnet rotor. This LED lights up indicating when the ignition module will make a spark. Rotate the **distributor housing** CCW until the green LED lights up but no farther.
10. Turn off the ignition switch and disconnect the battery. Install the rotor and distributor cap that were provided with the Perma-Tune distributor. The cap index on the distributor can be adjusted for a black or red distributor cap. Refer to the picture. Use a 2.5 mm Allen wrench to loosen the retaining bolt. Slide the tab up for a red cap and down for a black cap, then tighten the bolt. Transfer the spark plug wires from the old distributor cap to the new distributor cap in the correct firing order. Be sure to observe the new cylinder number one position of the cap from step 5. Plug in the ignition module to the harness three pin connector and connect the brown wire of the harness to the spade terminal on the ignition module. Connect a timing light to the engine. Clear the engine bay of tools, work lights or other foreign objects.
    WARNING: Failure to clear the engine bay of tools, work lights or other foreign objects and or body parts may result in personal injury, death and or damage to property.
    WARNING: Failure to turn off the ignition switch and disconnect the battery before proceeding to the next step may cause serious personal injury, death, or damage to property.
    CAUTION: Failure to connect the brown harness wire to the module may result in a no start condition and could cause damage to the ignition module and or distributor.
    NOTE: The distributor three pin connector will connect to the Perma-Tune brand ignition module, only.



Cap Index Slide for changing between Brown and Black Cap.



11. Connect the battery and turn the ignition switch to the run position. If your car is equipped with a Perma-Tune Gen 6 Premium ignition module, the blue LED status indicator on the module and the blue LED on the distributor should

illuminate. Connect your phone to the App and switch to the Dashboard screen. The red light on the bottom left side of the App Dashboard screen should turn green, the Voltmeter should show battery Voltage and the Temperature gauge should show ambient temperature. Switch the App to the Curves screen. Note the Degrees Crankshaft at the idle RPM of your engine. If the Degrees Crankshaft value is not already set to zero, temporarily set it to zero. You may change the idle mechanical timing after the App to engine synchronization is completed in step 12.

NOTE: The Bluetooth default PIN is 1 2 3 4. We recommend that you customize your PIN in the "Immobilizer" section of the Settings page of the App.

12. Start the engine and note the flashing red strobe LED of the ignition module as the starter is engaged. While the starter is turning, the red LED should flash with each spark generated by the ignition module. When the engine is idling, the LED will appear to glow dimly and get brighter as the engine RPM increases. While the engine is running, there should be no fluttering, flashes or interruptions visible in the red LED. Check the engine timing using an engine timing light, the timing should be close to zero degrees TDC. Remaining clear of moving parts, adjust the engine timing to zero degrees TDC by turning the distributor body while viewing the TDC pulley mark. The App Degrees Crankshaft curve values will now be synchronized with the engine. Turn off the ignition switch and disconnect the battery. Tighten the bow clamp bolt on the distributor hold down clamp and connect the manifold vacuum hose to the distributor MAP sensor hose connection.

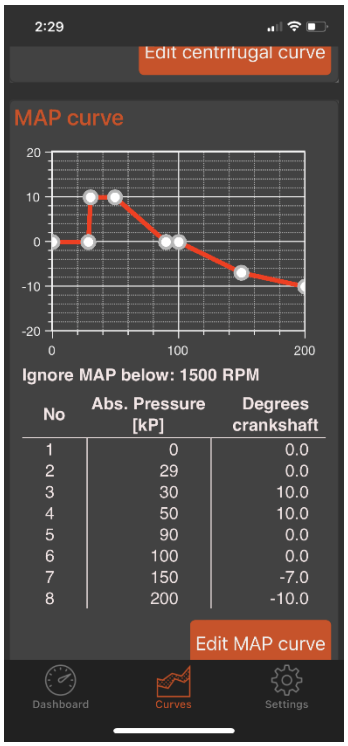
    WARNING: Failure to stay clear of moving parts may result in personal injury, death and or damage to property.

    WARNING: Failure to turn off the ignition switch and disconnect the battery may cause serious personal injury, death and or damage to property.

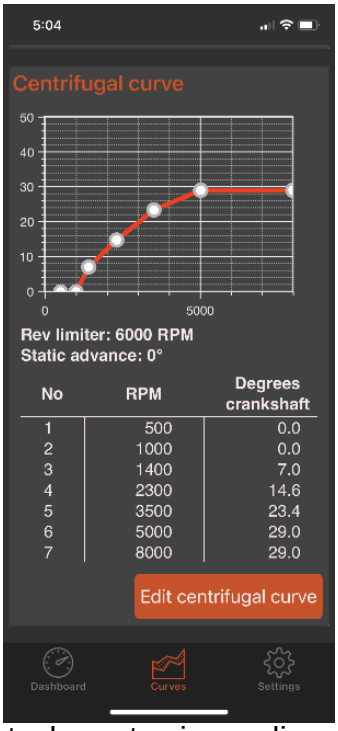
    CAUTION: Failure to synchronize the App zero degree at idle setting with the engine TDC mark at idle will cause the App to be out of synchronization with the engine that may result in serious damage to the engine.

    CAUTION: Do not over tighten the bow clamp bolt or damage to the bow clamp will result.

13. Connect the battery and turn the ignition switch to the run position. Open the App to the Curves screen. You may return the idle RPM Degrees Crankshaft value back to the value that you noted in step 11 or you may want to program the distributor with the factory recommended timing curves for your engine or you may want to make your own curves. If you want to use the factory manual curves and the manual calls for setting the idle timing to a value something other than zero degrees with the vacuum hose disconnected and blocked, add that value to the mechanical curve figures in the App in crankshaft degrees. If your engine had a vacuum retard function, this function is now automatic and can be controlled using the "Ignore MAP below:" function of the MAP curve page. The vacuum connection to the MAP sensor can be used to compensate the mechanical curve values for load or can be set to the factory manual values. If you do not want to use the MAP sensor, plug the vacuum hose but do not block the MAP sensor nipple. If you wish to set the static timing to a value after top dead center, use the "Static advance" function of the Edit Centrifugal curve page of the App. Keep in mind that any value entered in the Static advance window will shift the entire centrifugal curve by that amount and will not be reflected on the



Mechanical curve. When using the Static advance function, verify the actual crankshaft timing with a dial back timing light.



CAUTION: If you do not use the MAP sensor, plug only the manifold side of the hose, do not plug the MAP sensor hose nipple on the distributor. Plugging the MAP sensor will block the sensor from sensing atmospheric pressure and may cause incorrect ignition timing.

CAUTION: When using the static advance function, the actual ignition timing is offset by the value set in the Static advance window. The Centrifugal curve will not show changes made in the Static advance window.

NOTE: Do not change the mechanical idle advance value shown by the timing light by turning the distributor body or the App curves will no longer be accurate. Use the App to change the idle timing.

NOTE: The factory specifications may be given in degrees of distributor values and distributor RPM values. The App is calibrated for crankshaft degrees and crankshaft RPM values. You must double the distributor values to enter specifications into the App in crankshaft values.

14. Start the engine. Using your timing light RPM function, verify that the tachometer is reading correctly. Map the mechanical advance function using a dial back timing light and observe the red strobe LED on the ignition module. The strobe LED on the ignition module should never flicker while revving the engine, it will increase and decrease in intensity with changes in the engine RPM. The distributor timing functions should conform to the factory specifications for your car found in the factory engine manual. Do not adjust the idle setting by turning the distributor housing, use the mechanical timing function of the Tune+ App on your phone to attain the desired setting.

CAUTION: Do not change the idle timing by turning the distributor body or the App curves will no longer be accurate. Use the APP to change the idle timing.

15. Reconnect the battery and start the engine. At this point the car can be put on a chassis dyno to fine tune the engine ignition timing using the Tune+ App. If you are using the MAP function, the chart on the last page of these instructions converts engine manifold pressure, measured in kPa by the App, to engine gauge values. If you wish to tune the engine on the road, a driver and passenger capable of using the App are required. Start the engine and open the App to the Dashboard page. Tap the “Tune” button located between the electrical gauge and the temperature gauge. The tuning page should open. Tap the “Tuning” button to activate the controls. The X button closes the page and returns to the dashboard page. The RPM test range can be selected using the two RPM selection windows and set the green RPM range shown on the App tachometer. The – and + buttons adjust the mechanical timing by offsetting the entire curve, not just the timing in the green zone shown on the App tachometer. Each time the – or +

buttons are tapped the timing changes in the – or + direction one degree. Each time the engine is accelerated through the green range, the elapsed time will be displayed below the RPM range windows. Using the – and + buttons, the engine timing can be adjusted as the engine is running to attain the fastest elapsed time. After tuning the engine for the selected RPM range, the changes must be applied to the distributor permanently using the Edit Centrifugal Curve page of the App. Tuning and then updating the Mechanical curve page one RPM range at a time will allow you to eventually fine tune the entire engine RPM range.

WARNING: Using the App while driving is illegal may result in injury, death and or damage to property.

NOTE: The Tune function page will not open unless the engine is running.

NOTE: Changes made using the – and + buttons offset the entire curve by the amount selected, not just the green RPM range selected using the RPM windows.

NOTE: Changes made in the Tune page of the App are not automatically saved to the distributor and will be lost if the changes are not made using the Edit Centrifugal Curve page of the App.

USING THE REV LIMITER

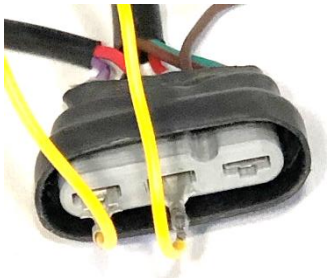
The distributor Rev Limiter is a type of limiter designed to control engine RPM. It operates as a soft limiter, functioning by interrupting every other spark once the engine reaches the RPM Limiter setting. This mechanism effectively restricts the engine RPM when the engine is under load but does not impose limits when the engine is freewheeling without a load. However, it's important to note that relying solely on the Rev Limiter may not protect the engine if the driver shifts into neutral instead of the next gear and presses the gas pedal aggressively.

To disable the distributor App Rev Limiter, you can set it to 8,000 RPM. Disabling this limiter allows the engine to surpass 10,000 RPM. If you prefer to set the engine rev limiter to 8,000 RPM, you should input 7,990 RPM into the App.

All Perma-Tune Gen 5 and Gen 6 ignition modules come preset with a Rev Limiter setting of 8,000 RPM. Unlike the distributor App, the Perma-Tune Rev Limiter operates as a two-stage limiter. In the first stage, it interrupts every other spark until the RPM reaches 3% of the Rev Limiter setting. Above this threshold, all sparks are blocked. When the RPM drops below the 3% threshold, every other spark is enabled, and once the RPM falls below 8,000 RPM, all sparks are enabled. It's essential to note that the OE Bosch ignition module lacks a rev limiter entirely. The use of RPM limiting rotors is not recommended.

CAUTION: Using an RPM limiting rotor with the Perma-Tune distributor can lead to damage to both the distributor and the engine.

NOTE: Perma-Tune offers racing versions of all our modules designed to handle extreme race engine demands. For more details, please reach out to us directly.



Bluetooth PIN and Reboot Function

If the App cannot access the distributor because you have forgotten what you changed your Bluetooth PIN code to, this procedure will restore the PIN code to the default setting of 1 2 3 4. If the App cannot pair to the distributor

Bluetooth, check to see if the Bluetooth LED is flashing. If so, this procedure will reboot the distributor Bluetooth module.

1. Close the App on all devices (very important).
2. Turn off the engine key.
3. Disconnect the distributor harness connector from the ignition module. Jumper pins B (power) and C (signal) as shown in the picture.
4. Turn ON the ignition key. The blue LED on the side of the distributor will begin to flash in about 10 seconds.
5. After about 30 seconds, the blue LED will stay on indicating that the reboot procedure is complete.
6. Turn OFF the ignition key, remove the jumper and plug the connector back into the ignition module.
7. Now the PIN code is reset to 1234, the Bluetooth is rebooted and the distributor is ready to function normally.

The conversion chart below is used for converting gauge values to absolute manifold pressure in kPa values used by the App.

Conversion Chart Key

kPa = kilo Pascal, Absolute
“HG = Gauge Vacuum
cmHG = Gauge Vacuum
“HG A = inches Mercury, Absolute
PSIA = Pounds per Square Inch, Absolute
PSIG = Pounds per Square Inch Gauge pressure
kg/cm2 = Pressure
Bar A = Absolute Bar Pressure
Bar Boost = Gauge Pressure

kPa	“ HGk	cmHG	“HG A	PSIA	PSIG	kg/cm2	Bar A	Bar Boost
10	26.58	67.5	2.953	1.45				
20	23.62	60.0	5.90	2.9				
30	20.67	52.5	8.86	4.22				
40	17.72	45.0	11.81	5.8				
50	14.77	37.5	14.76	7.25				
60	11.81	30.0	17.72	8.7				
70	8.85	22.5	20.67	10.15				
80	5.9	15.0	23.62	11.6				
90	2.95	7.36	26.58	13.4				
100	Zero	Zero	29.53	14.5	Zero	Zero	1	Zero
110			32.48	15.95	1.45	.1	1.1	.1
120			35.44	17.4	2.9	.2	1.2	.2
130			38.39	18.85	4.35	.3	1.3	.3
140			41.34	20.3	5.8	.4	1.4	.4
150			44.29	21.75	7.25	.5	1.5	.5
160			47.25	23.2	8.70	.6	1.6	.6
170			50.20	24.65	10.15	.7	1.7	.7
180			53.15	26.1	11.6	.8	1.8	.8
190			26.10	27.55	13.05	.9	1.9	.9
200			59.06	29.00	14.5	1.0	2	1