









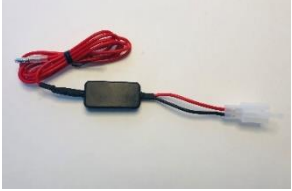








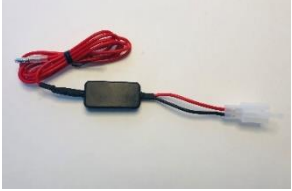








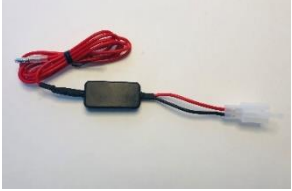






Turn Signal/Horn Kit 3104

<p>Before you begin</p>	<p>STOP! THIS KIT IS DESIGNED SPECIFICALLY FOR</p> <ul style="list-style-type: none"> HONDA PIONEER 520, all years <p>IF YOUR VEHICLE IS NOT ONE OF THESE MODELS, DO NOT PROCEED. Contact Ryco Motorsports or your local dealer for the correct kit.</p>											
<p>Digital Copy</p>	 <p>Scan to access a digital copy of these instructions.</p> <p>HINT: The text and photos can then be enlarged digitally if needed.</p>											
<p>Where do I start?</p>	<p>Please read and follow the instructions.</p> <p>If you are a guy and, like most of us, feel you can install this without taking the time to read the instructions, then you should ask your significant other to read them to you. I put a lot of effort into creating the instructions, and I feel bad when no one reads them. Answers to all your questions should be covered in the installation instructions. We've included a lot of photos for those of you who are visual and don't enjoy words.</p>											
<p>What tools do I need?</p>	<ul style="list-style-type: none"> 10 mm or 5/16" socket/nut driver or flat blade screwdriver 9/32", 1/2", 3/4" and 7/8" diameter drill bit Flat blade screwdriver Phillips screwdriver 10 mm wrench Center punch Drill motor   											
<p>What's in the box?</p>	<p>Let's become familiar with the items you will be installing on your vehicle, in order of use.</p> <table border="1" data-bbox="313 877 1528 1787"> <tr> <td data-bbox="313 877 716 1192"> <p>TURN SIGNAL/HORN SWITCH</p>  <p>The connectors interface with the various kit components.</p> </td> <td data-bbox="716 877 1122 1192"> <p>EXPANDABLE NUT AND FLANGE BOLT</p>  </td> <td data-bbox="1122 877 1528 1192"> <p>SELF-CANCELING FLASHER RELAY</p>  <p>- 3 pin connector - No marking tape</p> </td> </tr> <tr> <td data-bbox="313 1192 716 1507"> <p>RYCO POWER, GROUND & FUSE HARNESS</p>  <p>- 4 pin connector - GREEN marking tape</p> </td> <td data-bbox="716 1192 1122 1507"> <p>DASH INDICATORS HARNESS</p>  <p>- 3 pin connector - BLUE marking tape</p> </td> <td data-bbox="1122 1192 1528 1507"> <p>CABLE TIES</p>  </td> </tr> <tr> <td data-bbox="313 1507 716 1787"> <p>BRAKE STROBE INTERFACE</p>  <p>- 2 pin connector - No marking tape</p> </td> <td data-bbox="716 1507 1122 1787"> <p>PARALLEL TAP</p>  </td> <td data-bbox="1122 1507 1528 1787"> <p>HORN</p>  </td> </tr> </table>			<p>TURN SIGNAL/HORN SWITCH</p>  <p>The connectors interface with the various kit components.</p>	<p>EXPANDABLE NUT AND FLANGE BOLT</p> 	<p>SELF-CANCELING FLASHER RELAY</p>  <p>- 3 pin connector - No marking tape</p>	<p>RYCO POWER, GROUND & FUSE HARNESS</p>  <p>- 4 pin connector - GREEN marking tape</p>	<p>DASH INDICATORS HARNESS</p>  <p>- 3 pin connector - BLUE marking tape</p>	<p>CABLE TIES</p> 	<p>BRAKE STROBE INTERFACE</p>  <p>- 2 pin connector - No marking tape</p>	<p>PARALLEL TAP</p> 	<p>HORN</p> 
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	<p>FRONT TURN SIGNAL HARNESS</p>  <ul style="list-style-type: none"> - 4 pin connector - RED marking tape 	<p>REAR TURN SIGNAL HARNESS</p>  <ul style="list-style-type: none"> - 3 pin connector - RED marking tape 	<p>PLATE HOLDER</p> 
	<p>SELF TAPPING SCREWS</p> 	<p>LICENSE PLATE LIGHT</p> 	<p>FLANGE BOLT and LOCK NUT</p> 
<p>Installation Steps</p>	<p>NOTE: Where possible run new cables alongside the existing wires, and use existing cable ties/anchors where practical.</p> <p>IMPORTANT: Ensure that the wiring and installed hardware do not contact moving components or hot surfaces.</p>		
<p>1. Verify Brake Lights</p>	<ul style="list-style-type: none"> • With the engine running, step on the brake pedal, and verify that the brake lights function correctly. <ul style="list-style-type: none"> ○ If yes, turn off the engine and then continue to Step 2. ○ If no, adjust the vehicle brake switch until the brake lights function, and then turn off the engine and continue to Step 2. 		
<p>2. Mount the TURN SIGNAL/HORN SWITCH</p>	<p>NOTE: The TURN SIGNAL/HORN SWITCH should NOT have any of the cables or components installed on the harness until after the switch is installed, and the switch harness is routed behind the dash.</p> <ul style="list-style-type: none"> • Position the TURN SIGNAL/HORN SWITCH with the mounting bracket on the bottom of the steering wheel housing and locate the bracket such that the holes are centered in the housing. • Mark the location of the two mounting holes. • Drill two 1/2" diameter holes. • Install the two EXPANDABLE NUTS into the holes, with the flange of the expandable nut facing down. • Temporarily mount the TURN SIGNAL/HORN SWITCH. • With the TURN SIGNAL/HORN SWITCH in the operating position, determine and mark the proper location for an access hole for the TURN SIGNAL/HORN SWITCH harness. • Remove the TURN SIGNAL/HORN SWITCH to allow room to drill the harness access hole. • Drill a 7/8" diameter hole. • Insert the TURN SIGNAL/HORN SWITCH harness connectors through the access hole, one at a time. • Install the TURN SIGNAL/HORN SWITCH grommet into the harness access hole. • Route the harness towards the center of the vehicle. • Reinstall the TURN SIGNAL/HORN SWITCH on the steering wheel housing by installing the two fasteners and washers into the expandable nuts, and tighten the fasteners until the TURN SIGNAL/HORN SWITCH is secure. 		





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3. Connect the Components to the TURN SIGNAL/HORN SWITCH Harness

IMPORTANT: When connecting the components match the color of the marking tape by the connectors (e.g., **RED** marking tape to **RED** marking tape, **GREEN** to **GREEN**, **BLUE** to **BLUE**), rather than match the color of the connectors or the wires.

NOTE: When connecting a component harness to the TURN SIGNAL/HORN SWITCH harness, check that the pins are straight, not bent. The connectors should interface very easily; if there is resistance, it is likely due to a bent pin.

Connect the following to the **TURN SIGNAL/HORN SWITCH** harness:

- **SELF-CANCELING FLASHER RELAY** (3 pin connector with NO marking tape),
- **RYCO POWER, GROUND & HORN HARNESS** (4 pin **GREEN** marking),
- **DASH INDICATORS HARNESS** (3 pin **BLUE** marking).



NOTE: Do NOT connect the front or rear turn signal harness to the TURN SIGNAL/HORN SWITCH at this time.

- Secure the **TURN SIGNAL/HORN SWITCH** harness to a cross member using a **CABLE TIE**.

NOTE: The FLASHER RELAY can be bundled and secured with a CABLE TIE to the TURN SIGNAL/HORN SWITCH harness.

Self-Canceling Flasher Relay Feature: The SELF-CANCELING FLASHER RELAY has a timing circuit that will cancel the turn signals after a few minutes. The timer is reset whenever the turn signal switch is returned to the center/off position.

4. Install the BRAKE SWITCH INTERFACE

Brake Strobe Feature: Whenever the service brake is applied, the brake lights strobe six times in the first second, and then remain on at full intensity until the brake pedal is released.

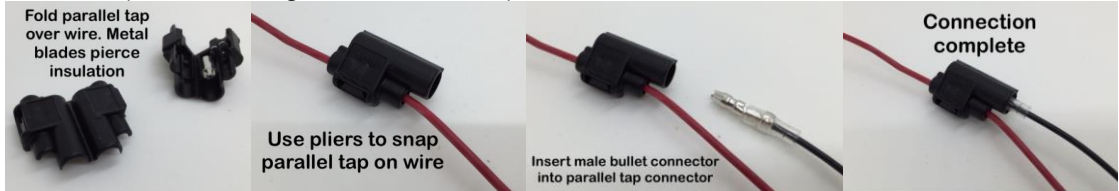
If you wish to disable the strobe feature, alter the BRAKE STROBE INTERFACE before installation:

- On the BRAKE STROBE INTERFACE cut the BLACK ground wire, or remove the BLACK ground wire from the 2 pin connector.
- Cut the two RED wires going into the BLACK rectangular box.
- Splice the two RED wires together.



How to Install a PARALLEL TAP: The wire colors may not match your application but are for illustration.



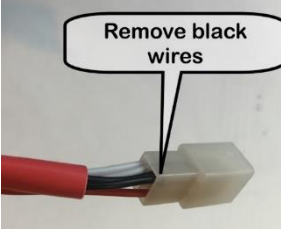




NOTE: Check the orientation of the PARALLEL TAP connectors to ensure access for the male connectors, prior to seating the terminal with pliers.



- Connect the **BRAKE STROBE INTERFACE** (2 pin with NO marking) to the **TURN SIGNAL/HORN SWITCH** harness.
- Locate the wires leading to the vehicle brake switch, just above the brake pedal.
- Trace the wires from the vehicle brake switch to the two pin connector.
- Install a **PARALLEL TAP** on the vehicle brake switch **YELLOW/GREEN** wire on the switch side of the two pin connector, OR on the **BLUE** wire on the vehicle side of the brake switch two pin connector.
- Route the **BRAKE STROBE INTERFACE** wire from the **TURN SIGNAL/HORN SWITCH** harness.
- Connect the **BRAKE STROBE INTERFACE** wire to the **PARALLEL TAP** installed on the hydraulic brake switch **YELLOW/GREEN** wire.



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<p>5. Install the DASH INDICATORS HARNESS</p>	<p>HINT: A little warmth and moisture help when installing the grommets, and again when installing the LEDs into the grommets.</p> <p>NOTE: Carefully insert the DASH INDICATORS HARNESS LEDs into the grommets to prevent damage to the wires and resistor.</p> <ul style="list-style-type: none"> • Mark the desired locations in the dash for the two DASH INDICATORS HARNESS LED lights, where they are visible to the driver. • Drill two 9/32" mounting holes in the dash for the indicator lights. • Seat the rubber grommets into the drilled holes, and then carefully push the LEDs into the grommets from the rear, until the LED is flush or slightly protruding. 
<p>6. Install the HORN</p>	<p>IMPORTANT: Do not attempt to adjust the HORN or remove the center mounting nut that attaches the HORN to the horn mounting bracket.</p> <ul style="list-style-type: none"> • Install the HORN as shown near the front driver side support member. • Use a 10mm wrench and 10mm socket to secure the HORN. • Route the RYCO POWER, GROUND & HORN HARNESS from the TURN SIGNAL/HORN SWITCH assembly, through the firewall grommet to the HORN. • Install the two flat spade connectors to the HORN terminals. <p>NOTE: Either connector can be installed on either HORN terminal.</p> 
<p>7. Install the FRONT TURN SIGNAL HARNESS</p>	<p>Front Running Lights Feature: The front turn signal LEDs are running lights, and illuminate at 60% intensity when the vehicle ignition is on, and then flash at full intensity when the turn signals are activated.</p> <p><u>If you wish to disable the running light feature,</u></p> <ul style="list-style-type: none"> • On the FRONT TURN SIGNAL HARNESS remove the BLACK wire in the 4 position connector. <p>NOTE: Use a very fine flat blade screwdriver or similar tool to depress the metal tab on the pin joining the two black wires.</p>   <ul style="list-style-type: none"> • Push the pin out of the 4 position connector, and tuck the pin into the red heat shrink or tape it out of the way. <ul style="list-style-type: none"> • Determine the locations of the front LEDs as desired, below the headlight or on the outboard side of the headlight. <p>HINT: 1¼" - 1½" spacing between the LEDs works well.</p>    <ul style="list-style-type: none"> • Mark the locations using a center punch. • Remove the screw behind the headlight assembly to facilitate drilling the holes for the front LEDs.



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HINT: Push/pull the plastic cover away from the drill bit so as not to damage the cover.

NOTE: A stepped drill works best to drill the holes in the plastic body work.

- Drill the six 3/4" diameter holes as marked for the front turn signal LEDs.
- From the front side of the firewall, route the **FRONT TURN SIGNAL HARNESS** 4 pin connector and cables through the grommet in the firewall.
- Connect the **FRONT TURN SIGNAL HARNESS** (4 pin **RED** marking) to the **TURN SIGNAL/HORN SWITCH** harness.

NOTE: The tags on the FRONT TURN SIGNAL HARNESS are marked "L" for the driver side, and "R" for the passenger side.

HINT: A little warmth and moisture helps to slip everything together.

- Route the **FRONT TURN SIGNAL HARNESS** LEDs to the front corners of the vehicle.
- Slide the rubber flange gaskets on the LEDs back onto the wires.
- Slip each LED through the applicable 3/4" diameter hole, fold each flange gasket, and push through its respective hole.
- Install each flange gasket into its hole, with the flange of the gasket towards the front of the vehicle.
- Insert each LED into its flange gasket with a gentle pulling and rocking motion, to seat the LED into the gasket.
- Rotate each LED within its gasket to orient the LEDs in the same relative position.
- Reinstall the headlight cover screw previously removed.



8. Install the REAR TURN SIGNAL HARNESS

EXPLANATION: Only the two outside pins of the **REAR TURN SIGNAL HARNESS** 3 pin connector is used. The rear turn signal circuit utilizes the existing vehicle ground.

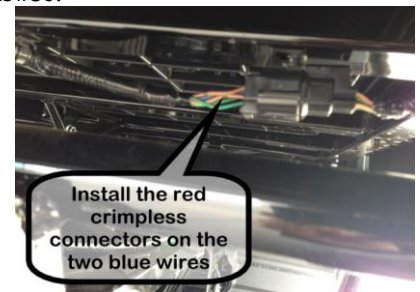
- Connect the **REAR TURN SIGNAL HARNESS** (3 pin **RED** marking) to the **TURN SIGNAL/HORN SWITCH** harness.
- Remove the seats and the center tunnel cover.

NOTE: Ensure the wiring does not contact moving components or hot surfaces.

- Route the **REAR TURN SIGNAL HARNESS** from the front of the vehicle to the rear of the vehicle on the passenger side.
- Secure with **CABLE TIES**.
- At the rear of the vehicle locate the vehicle wire harness leading to the rear taillight assemblies.
- Locate the 6 pin connector and then remove the tape and cover on the taillight side of the connector to expose a couple of inches of wire.
- Locate the two **BLUE** wires leading to the taillight assemblies.

IMPORTANT: You **MUST** cut the vehicle taillight wires, and connect to the **RED** and **BLACK** wires on the **REAR TURN SIGNAL HARNESS**. If you splice into the wires, rather than cut the wires, it will not function properly.

- Cut the vehicle taillight **BLUE** wires approximately 2-3" in front or behind the connector.
- Strip approximately 1/8" – 3/16" of the wire insulation from each of the **BLUE** wires going to the taillight.





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How to Use the Solderless Connectors:

- Unscrew the solderless connector end piece, and slip it over the wire of the component to connect.
- Start to screw the end piece back in place, and push the wire of the component being connected, so it is seated in the solderless connector.
- Tighten the end pieces.



Connect the **REAR TURN SIGNAL HARNESS** to the vehicle taillight wires using the solderless connectors:

- Attach the **REAR TURN SIGNAL HARNESS** BLACK wire to the RIGHT taillight vehicle **BLUE** wire.
- Attach the **REAR TURN SIGNAL HARNESS** RED wire to the LEFT taillight vehicle **BLUE** wire.
- Abandon the cut vehicle **BLUE** wires COMING FROM THE FRONT OF THE VEHICLE, and tuck the ends back into the factory wire harness sleeve and/or tape over with electrical tape

NOTE: If you connect the REAR TURN SIGNAL HARNESS wires to the vehicle **BLUE** wires coming from the front of the vehicle, the rear turn signals and brake lights will not function.

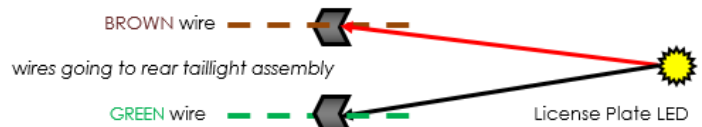
9. Install the LICENSE PLATE LIGHT and PLATE HOLDER

NOTE: Prior to drilling the mounting holes, verify that the license PLATE HOLDER clears the supports, etc., with the bed in the travel, dump, and extended dump position (i.e., dump cylinder pin removed).

IMPORTANT: Use the flange nut provided with the LICENSE PLATE LIGHT. Do NOT overtighten the nut on the LICENSE PLATE LIGHT. The LICENSE PLATE LIGHT body is aluminum, and the threads can be stripped quite easily.


EXPLANATION: The LICENSE PLATE LIGHT is installed in the single hole where the light will shine down on the license plate.

- Near the passenger side rear taillight assembly, install a **PARALLEL TAP** on the **BROWN** 12 V DC wire, and a **PARALLEL TAP** on the **GREEN** (ground) wires leading to the rear taillight assembly.
- Using the **PLATE HOLDER** as a guide, mark the location of the two mounting holes.
- Drill two pilot holes in the metal tube under the bed to mount the **PLATE HOLDER**.
- Using the **SELF-TAPPING SCREWS** provided, secure the **PLATE HOLDER** to the frame of the vehicle.
- Install the **LICENSE PLATE LIGHT** in the plate holder and secure with the provided nut.
- Route the **LICENSE PLATE LIGHT** wires to the two female bullet connectors on the **REAR TURN SIGNAL HARNESS** near the passenger side taillight 4 pin connector.
- Locate the **BROWN** 12 volt DC taillight and **GREEN** ground wires leading to the rear taillight assembly.
- Install a **PARALLEL TAP** connector on the **BROWN** wire and another **PARALLEL TAP** on the **GREEN** wire, referring to "How to Install a PARALLEL TAP" in Step 4 as needed.
- Route the **LICENSE PLATE LIGHT** wires to the **PARALLEL TAPs** installed on the **BROWN** wire and **GREEN** wires.
- Connect the **LICENSE PLATE LIGHT** RED wire into the **PARALLEL TAP** on the **BROWN** 12V DC wire.
- Connect the **LICENSE PLATE LIGHT** BLACK wire into the **PARALLEL TAP** on the **GREEN** wire.
- Mount the license plate (when available) using the provided **FLANGE BOLTS** and **LOCK NUTS**.





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<p>10. Connect to the Main Power</p>	<p>IMPORTANT: The LEDs and SELF-CANCELING FLASHER RELAY are polarity sensitive. The RYCO POWER, GROUND & HORN HARNESS RED fused wire MUST be connected to the 12 volt DC (positive side), and the BLACK ground wire must be connected to the vehicle ground wire. If this is not done correctly, the horn will work, but the turn signals will not function.</p> <p>WARNING: Damage to the SELF-CANCELING FLASHER RELAY may occur if the wires are installed backwards.</p> <ul style="list-style-type: none"> • Ensure the ignition key is in the "OFF" position. • At the auxiliary power outlet that is mounted on the dash (i.e., the cigarette lighter outlet, for you ol' timers), on the back of the power outlet, remove the outer wrap enough to then install a PARALLEL TAP on the GREEN/BROWN wire, and another PARALLEL TAP on the WHITE/BLACK wire, referring to "How to Install a PARALLEL TAP" in Step 4 as needed. • Connect the RYCO POWER, GROUND & HORN HARNESS BLACK ground wire to the PARALLEL TAP connector on the vehicle GREEN/BROWN wire (ground). • Connect the RYCO POWER, GROUND & HORN HARNESS RED fused wire to the PARALLEL TAP on the WHITE/BLACK wire (12 volt DC). 
<p>11. Test</p>	<ul style="list-style-type: none"> • Double check all the connectors. • Turn the ignition key to the "ON" position. • Verify that the turn signals, four-way flasher, horn, brake, and license plate light work correctly. • Refer to the Troubleshooting Guide at the end of this document. <div style="border: 1px solid black; padding: 5px;"> <p>Four-Way Flasher Feature: With either the key on or the engine running, pull the red lever on the TURN SIGNAL/HORN SWITCH to activate all four turn signal lights. To deactivate the four-way flashers move the TURN SIGNAL/HORN SWITCH black lever either direction.</p> <p>NOTE: The SELF-CANCELING FLASHER RELAY feature means the four-way flasher will time out after a few minutes. If the four-way flasher feature is used regularly, contact Ryco Motorsports for a different flasher relay without the self-canceling feature.</p> </div>
<p>12. Done</p>	<p>IMPORTANT: Ensure that the wiring and installed hardware do not contact moving components or hot surfaces.</p> <ul style="list-style-type: none"> • Once all the cabling is in place and functionality is verified, double check the routing, and secure with CABLE TIES. • Bundle any extra wire length and secure with the CABLE TIES. • Reinstall the dash, front access cover, center tunnel and seats.



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Troubleshooting Guide							
Does It Work Correctly?	Front Turn Signals	Indicator Lights	Horn	Brake Lights	Rear Turn Signals	License Plate Light	Resolution
Scenario 1	✓	✓	✓	✓	✓	✓	Go riding!
Scenario 2	✓	✓	✓	No	✓	✓	BRAKE STROBE INTERFACE was not installed correctly. Refer to Step 4.
Scenario 3	✓	✓	✓	No	No	✓	The REAR TURN SIGNAL HARNESS was connected incorrectly. Refer to Step 8.
Scenario 4	✓	✓	✓	✓	✓	No	Ensure that the LICENSE PLATE LIGHT RED power and BLACK ground wires are connected correctly (i.e. cables are not reversed). Refer to Step 9.
Scenario 5	No	No	✓	No	No	No	Ensure that the RYCO POWER, GROUND & HORN HARNESS RED main power and BLACK ground wires are connected correctly (i.e., the cables are not reversed). Refer to Step 10.
Scenario 6	No	No	No	✓	✓	No	Ensure that the RYCO POWER, GROUND & HORN HARNESS BLACK ground wire is connected to a good ground. Refer to Step 10.
Scenario 7	No	No	✓	✓	No	✓	If the turn signal lights illuminate but do not flash, then the SELF-CANCELING FLASHER RELAY is damaged or defective. Contact Ryco Motorsports by email or phone, provide your shipping address, and we will send you a replacement, at no charge, to correct the problem.
Scenario 8	No	No	No	✓	No	✓	If the vehicle blows a fuse when the key is turned on, check for a bent pin on the connection between the RYCO POWER, GROUND & HORN HARNESS and the TURN SIGNAL/HORN SWITCH harness.
Scenario 9	If a set of lights does not work, check for a bent pin on the connection between the light harness and the TURN SIGNAL/HORN SWITCH harness.						