



EFI HARNESS KIT

558-500, 558-501 & 558-502

Kit Contents:



Main Harness

558-102: Kits 558-500
558-103: Kits 558-501 & 502



Power Harness

558-308: All Kits



Injector Harness

558-200: Kits 558-500 & 502
558-201: Kit 558-501

Important Wiring “Do’s and Don’ts”

An EFI system depends heavily on being supplied a clean and constant voltage source. The grounds of an electrical system are just as important as the power side.

HP and Dominator ECU's both contain multiple processing devices that require clean power and ground sources. The wiring harnesses for them must be installed in such a manner that they are separated from “dirty” power and ground sources.

DO'S

- Install the main power and ground directly to the battery.
- Keep sensor wiring away from high voltage or “noisy/dirty” components and wiring, especially secondary ignition wiring, ignition boxes and associated wiring.
- Use shielded/grounded cable that is supplied for wiring crankshaft and camshaft signals.
- Properly solder and heat shrink any wire connections.
- It is critical that the engine has a proper ground connection to the battery and chassis.
- On GM LSx engines, always install the black “ignition ground” wire in the harness to the engine block or cylinder head.

DON'TS

- DO NOT EVER run high voltage or “noisy/dirty” wires in parallel (bundle/loom together) with any EFI sensor wiring. If wires need to cross, try to do so at an angle.
- Do not let Crank and Cam signal wiring near spark plugs and coil wires.
- Do not run non-shielded/grounded wire for crankshaft and camshaft signals, especially magnetic pickups.
- Do not run the USB Communications cable near or with any noisy wires.
- Do not exceed the current limits provided for the various outputs. If current levels exceed these, use the appropriate relay or solenoid drivers.
- Do not use improper crimping tools.
- Don't use things like “t-taps”, etc. Use solder and heat shrink.
- It is never recommended to splice/share signal wires (such as TPS, etc) between different electronic control units.
- Don't wire items that require “clean” ground or power to the same points.

Main Harness

The following quick guide overviews all connections on the “Main Harness”. The Main Harness supports all the primary engine sensors, fuel and ignition for 8 cylinder engines, the #1 wideband oxygen sensor, and the first four programmable input and output channels. There are two connectors for this harness designated as “J1A” (pin designations below that start with an A) and “J1B” (pin designations below that start with a B).

The following descriptions indicate the name of the item and the name as labeled on the harness is shown in parenthesis. The pinout for the ECU is then shown. If the wires are terminated into the same connector on every type of main harness, the connector pinout is given as well. If the connector may vary by application, such as a TPS or IAC, the connector pinout is not given. To see the connector pinout for a specific application, locate the wiring diagram themselves contained in the WIRING APPENDIX, located in the software.

Primary Sensors

Crank Position Sensor (CRANK)

Holley EFI systems work with 24X and 58X LS crank sensors.

A30 – Crank Input Signal
A18 – Sensor Ground
A26 – Sensor +5V Reference Out

Camshaft Position Sensor (CAM)

Holley EFI systems work with 1X and 4X LS cam sensors.

A22 – Cam Input Signal
A18 – Sensor Ground
A26 – Sensor +5V Reference Out

Throttle Position Sensor (TPS)

Holley EFI systems work with any 0-5V throttle position sensors.

A5 – TPS Signal
A18 – Sensor Ground
A26 – Sensor +5V Reference Out

Manifold Air Pressure Sensor (MAP)

Holley EFI systems work with 1, 2, 3, 4, or 5 Bar MAP sensors. Make sure to select the proper sensor used in the software.

A18 – Sensor Ground
A23 – MAP Sensor Signal
A26 – Sensor +5v Reference Out

Coolant Temperature Sensor (CTS)

Holley EFI systems work with any 2 wire thermistor style coolant temperature sensors. Make sure to select the proper sensor in the software.

A18 – Sensor Ground
A19 – Coolant Temp In

Manifold Air Temperature Sensor (MAT)

Holley EFI systems work with any 2 wire thermistor style manifold air temperature sensors. Make sure to select the proper sensor in the software.

A11 – Manifold Air Temp In
A18 – Sensor Ground

Knock Sensor (Knock)

Holley EFI systems work with either a one wire or two wire knock sensor. Application specific harnesses will have the correct knock sensor connections installed on the harness. A Universal harness comes with a 3 pin metripak connector. If a knock sensor is added, it should be connected into this connector

A21 – Knock Sensor #2 Input (**Pin A**)
A29 – Knock Sensor #1 Input (**Pin B**)
A18 – Sensor Ground (**Pin C**)

Wide Band Oxygen Sensor (WB02)

Holley EFI systems can work with either a Bosch (PN 554-101) or NTK (PN 554-100) wide band oxygen sensor. These sensors must be purchased from Holley as they are calibrated specifically for use with Holley EFI systems.

A34 – WB1 HTR+ (Pin A)
A9 – WB1 HTR - (Pin B)
A16 – WB1 COMPR1 (Pin C)
A7 – WB1 CCOMPR2 (Pin D)
A17 – WB1 VS-/IP- (Pin E)
A33 – WB1 IP+ (Pin F)
A25 – WB1 VS+ (Pin G)
A8 – WB1 Shield (Pin H)

Fuel Pressure (Fuel)

A fuel pressure input is a standard feature on Holley EFI. A connector is installed that is plug-and-play with Holley 100 PSI pressure transducer PN 554-102. A different 0-5V transducer can be used, but the calibration must be set up as a custom sensor in the software. If these are not connected to a pressure transducer, the Fuel and Oil Pressure will read "LOW Err" in the data monitor. This will not cause any issues.

A18 – Sensor Ground (Pin A)
A26 – Sensor +5V Reference Out (Pin B)
A31 – Fuel Pressure Signal (Pin C)

Oil Pressure (Oil)

An oil pressure input is a standard feature on Holley EFI. A connector is installed that is plug-and-play with Holley 100 PSI pressure transducer PN 554-102. A different 0-5V transducer can be used, but the calibration must be set up as a custom sensor in the software. If these are not connected to a pressure transducer, the Fuel and Oil Pressure will read "LOW Err" in the data monitor. This will not cause any issues.

A18 – Sensor Ground (Pin A)
A26 – Sensor +5V Reference Out (Pin B)
A20 – Fuel Pressure Signal (Pin C)

CANbus (CAN)

All harnesses have a CANbus communications connector. This is used to communicate with CANbus devices, such as the Avenger Handheld tuning module or the 5.7" Touch Screen LCD. If these devices or any other CANbus device is not being used, there is no need to do anything with this connector.

A24 – CAN Lo (Pin B)
A32 – CAN Hi (Pin A)

Primary Outputs

Idle Air Control (IAC)

The terminated IAC connector is for a 4 wire stepper type IAC. A 2 wire PWM (Pulse Width Modulated) IAC can be used, see section 9.2. The following shows the outputs for a stepper IAC.

B1 – IAC A Lo
B2 – IAC A Hi
B8 – IAC B Lo
B9 – IAC B Hi

Fuel Injector Outputs (Injectors)

All terminated harnesses have a fuel injector connector. Various fuel injector harnesses plug into this connector. It is essential these harnesses are used so that injector firing sequence is maintained.

Note that for engines with different firing orders, you do NOT change these pins. The engine's firing order is input in the software itself. Pin's A-H are routed to the cylinder number designation for the engine (i.e. A goes to cylinder #1, B goes to cylinder #2, etc). V8 harnesses offered by Holley are labeled for GM, Ford, and Chrysler engines.

B19 – Injector A (**Pin A**)
B26 – Injector B (**Pin B**)
B25 – Injector C (**Pin C**)
B13 – Injector D (**Pin D**)
B7 – Injector E (**Pin E**)
B4 – Injector F (**Pin F**)
B5 – Injector G (**Pin G**)
B6 – Injector H (**Pin H**)
+12V Power – (**Pins J/K**)

DIS Connector Even

Will connect to factory GM LS Coil harnesses. For Holley Smart Coils use PN 558-307.

Loose – Chassis Ground (**Pin A**)
B15 – EST B/CYL 2 (**Pin B**)
B16 – EST D/CYL 4 (**Pin C**)
Empty – (**Pin D**)
B14 – EST Ground Out (**Pin E**)
B17 – EST F/CYL 6 (**Pin F**)
B18 – EST H/CYL 8 (**Pin G**)
RELAY 30 +12V Coil power (**Pin H**)

DIS Connector Odd

Will connect to factory GM LS Coil harnesses. For Holley Smart Coils use PN 558-307.

Loose – Chassis Ground (**Pin A**)
B24 – EST G/CYL 7 (**Pin B**)
B23 – EST E/CYL 5 (**Pin C**)
Empty – (**Pin D**)
B14 – EST Ground Out (**Pin E**)
B22 – EST C/CYL 3 (**Pin F**)
B21 – EST A/CYL 1 (**Pin G**)
RELAY 30 +12V Coil power (**Pin H**)

NOTE: On GM LSx engines, always install the black “ignition ground” wire in the harness to the engine block or cylinder head.

NOTE: See section 8.0 of the Holley EFI User Manual for diagrams on wiring most ignition systems

Loose Wires

The following loose wires in the main wiring harness should be connected as follows on all systems:

12V Switched – Color = Red/White – Should be connected to a clean +12 volt power source. Power source should only be active when the ignition is on. Make sure source has power when engine is cranking as well. Not all sources apply power when the ignition switch is in “cranking” position.

12V Battery – Color = Red – Should be connected directly to the battery. There is a fuse holder attached that should contain a 20A rated fuse. This powers the fuel pump and fuel injectors.

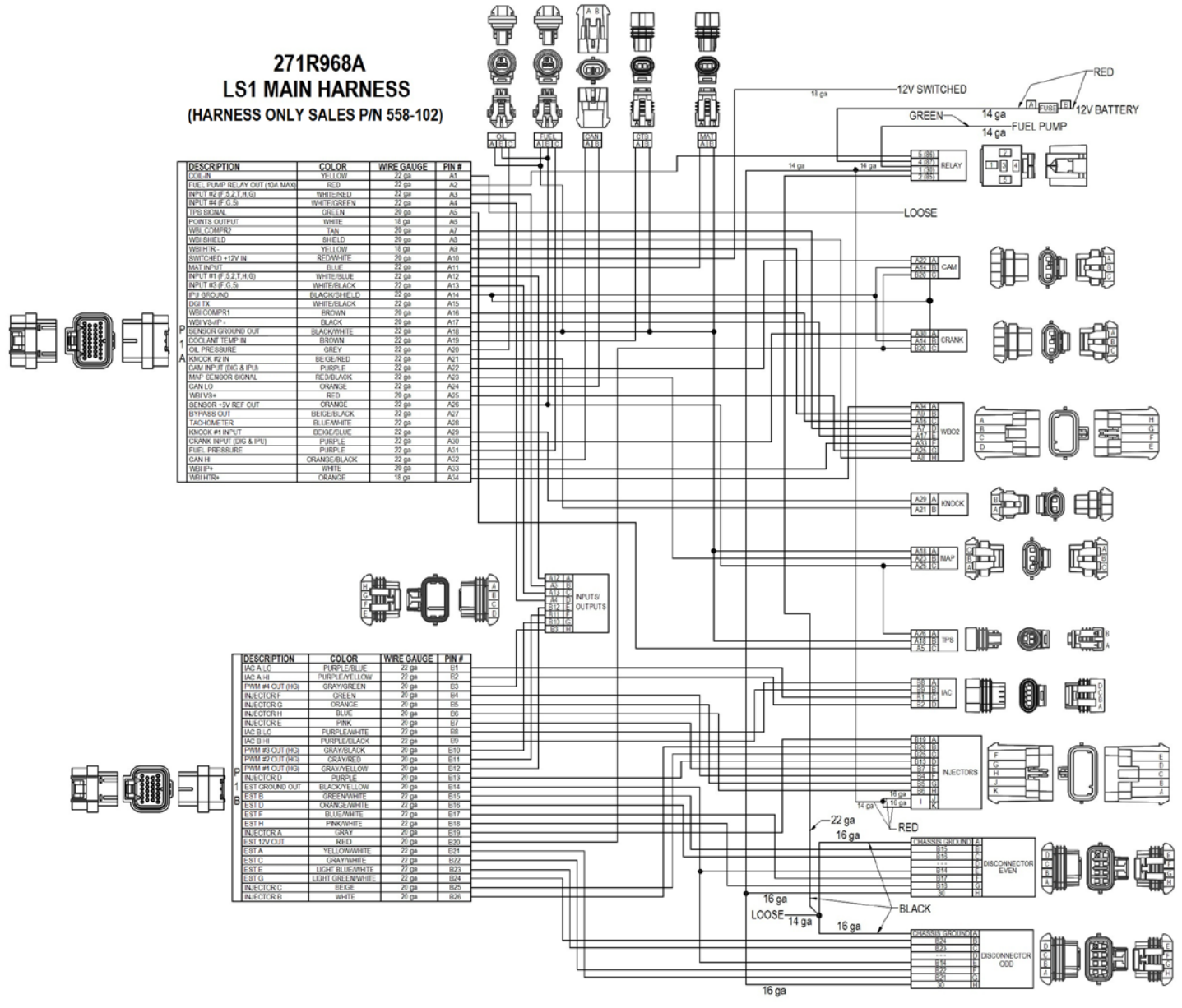
12V Fuel Pump – Color = Green - Used to directly power a fuel pump (+12 volt). Fully terminated harnesses utilize a relay to supply this power. 14 gauge wire is used. Due to this, it is not recommended for pumps that draw over 10-12 Amps to use this wire. For high current pumps, use this wire to trigger a separate relay and use larger gauge wire to feed the pump - 10 gauge is recommended.

Points Output – Color = White – Used to trigger a CD ignition box. See the ignition wiring section for detailed wiring.

Ignition/DIS Chassis Ground – Color = Black – Connect to a ground point that has excellent connectivity with both the engine and the battery.

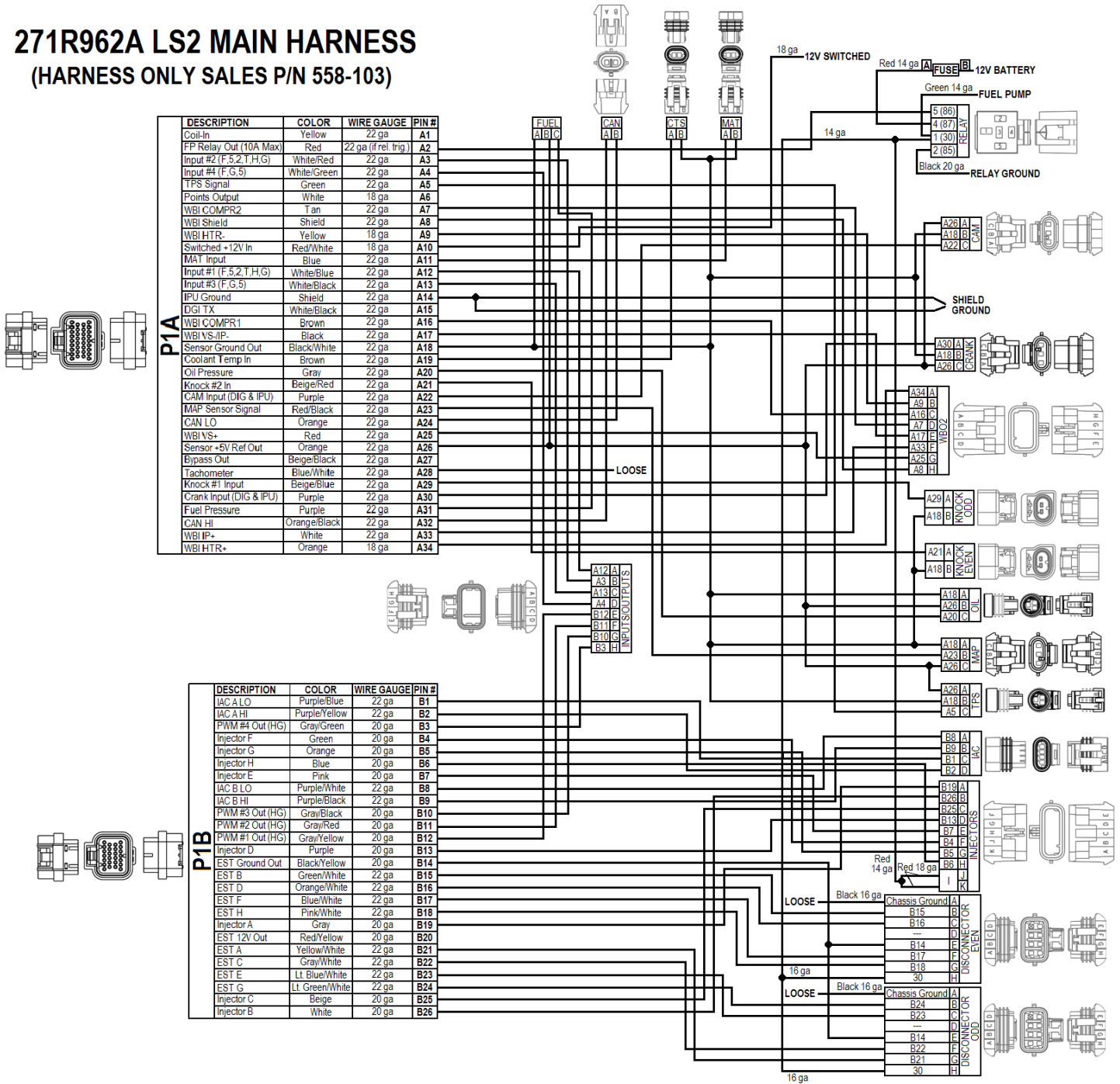
“Coil –” – Color = Yellow – Used for an RPM input signal – when not controlling timing and NOT running a Capacitive Discharge (MSD) ignition system. See the ignition wiring section 8.0 for detailed wiring. **WARNING!** Connecting this wire to the coil of a CD ignition will damage the ECU.

271R968A
LS1 MAIN HARNESS
(HARNESS ONLY SALES P/N 558-102)



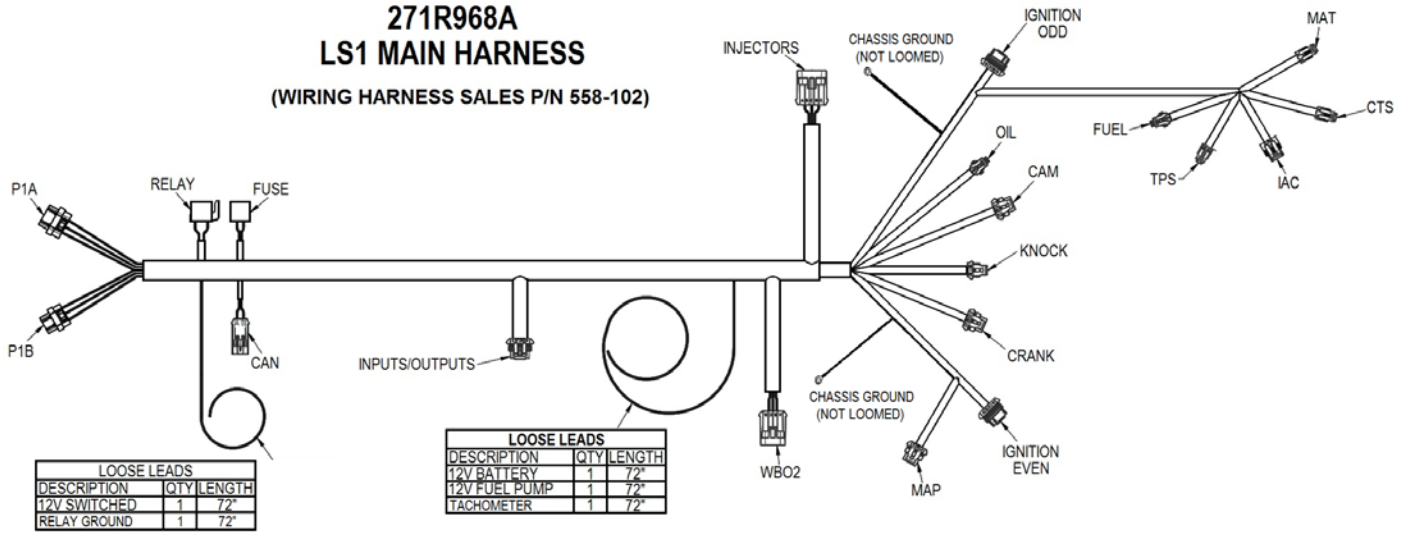
Please visit www.holley.com, type in the P/N in search or go directly to https://www.holley.com/products/fuel_systems/fuel_injection/hp_efi/hp_harnesses/parts/558-500 in order to zoom in on these harnesses.

271R962A LS2 MAIN HARNESS (HARNESS ONLY SALES P/N 558-103)



Please visit www.holley.com, type in the P/N in search or go directly to https://www.holley.com/products/fuel_systems/fuel_injection/hp_efi/hp_harnesses/parts/558-500 in order to zoom in on these harnesses.

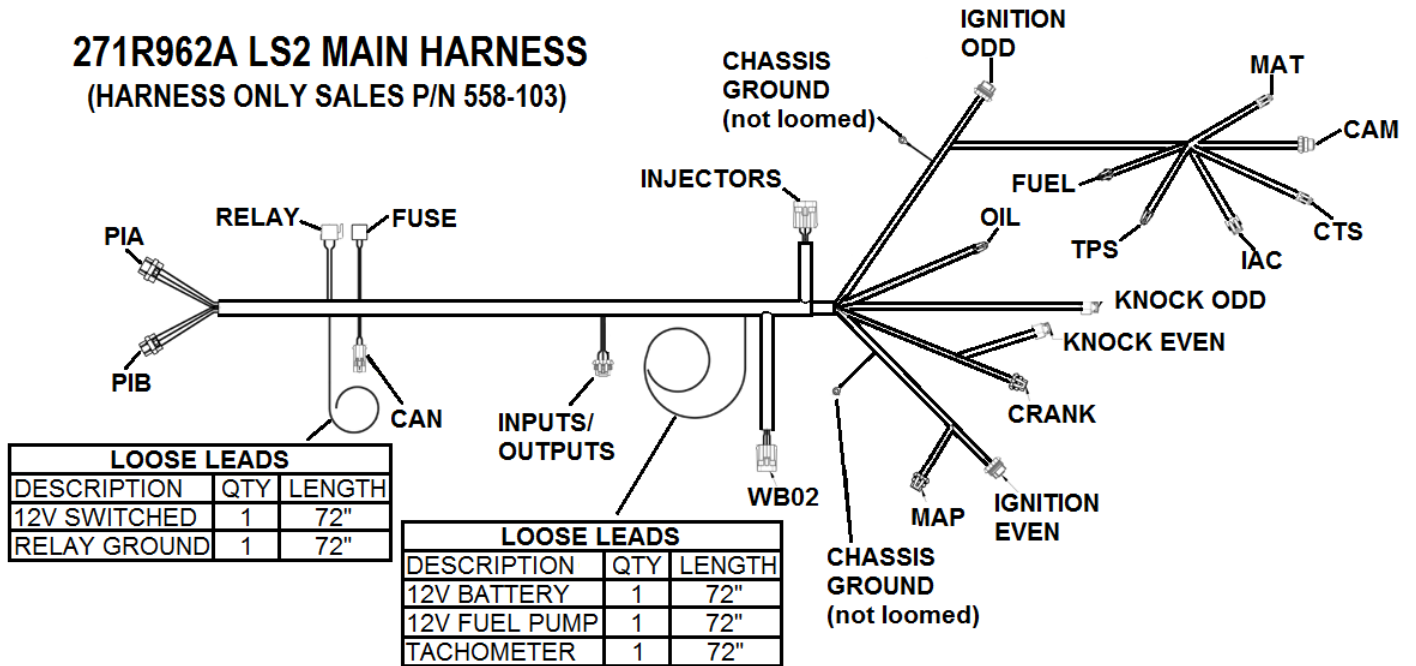
**271R968A
LS1 MAIN HARNESS**
(WIRING HARNESS SALES P/N 558-102)



| LOOSE LEADS | | |
|--------------|-----|--------|
| DESCRIPTION | QTY | LENGTH |
| 12V SWITCHED | 1 | 72" |
| RELAY GROUND | 1 | 72" |

| LOOSE LEADS | | |
|---------------|-----|--------|
| DESCRIPTION | QTY | LENGTH |
| 12V BATTERY | 1 | 72" |
| 12V FUEL PUMP | 1 | 72" |
| TACHOMETER | 1 | 72" |

271R962A LS2 MAIN HARNESS
(HARNESS ONLY SALES P/N 558-103)



| LOOSE LEADS | | |
|--------------|-----|--------|
| DESCRIPTION | QTY | LENGTH |
| 12V SWITCHED | 1 | 72" |
| RELAY GROUND | 1 | 72" |

| LOOSE LEADS | | |
|---------------|-----|--------|
| DESCRIPTION | QTY | LENGTH |
| 12V BATTERY | 1 | 72" |
| 12V FUEL PUMP | 1 | 72" |
| TACHOMETER | 1 | 72" |

ECU Pinout

The following is a pinout of the J1A and J1B connectors:

NOTE: ECU pinout is identical for the HP and Dominator.

J1A Connector

| Pin | Function |
|-----|---|
| A1 | Coil - Input |
| A2 | Fuel Pump Out (+12v) (10A Max) |
| A3 | Input #2 (F52THG) |
| A4 | Input #4 (F5G) |
| A5 | TPS Input |
| A6 | Points Trigger Output |
| A7 | WB1 COMPR2 |
| A8 | WB1 Shield |
| A9 | WB HTR - |
| A10 | Switched +12v Input |
| A11 | Manifold Air Temp Input |
| A12 | Input #1 (F52THG) |
| A13 | Input #3 (F5G) |
| A14 | Cam/Crank Ground |
| A15 | Gauge Digital Output |
| A16 | WB1 COMPR1 |
| A17 | WB1 VS-/IP+ |
| A18 | Sensor Ground |
| A19 | Engine Coolant Temp Input |
| A20 | Oil Pressure Input |
| A21 | Knock #2 Input |
| A22 | Cam Sync Input / Ignition Bypass Output |
| A23 | Map Sensor Input |
| A24 | CAN Lo |
| A25 | WB1 VS+ |
| A26 | Sensor +5v |
| A27 | NOT USED |
| A28 | EST/Spout Output |
| A29 | Knock #1 Input |
| A30 | Crank Speed Input |
| A31 | Fuel Pressure Input |
| A32 | CAN Hi |
| A33 | WB1 IP+ |
| A34 | WB HTR + |

J1B Connector

| Pin | Function |
|-----|----------------------------|
| B1 | IAC A Lo |
| B2 | IAC A Hi |
| B3 | Output #4 (G P-) |
| B4 | Injector F Output |
| B5 | Injector G Output |
| B6 | Injector H Output |
| B7 | Injector E Output |
| B8 | IAC B Lo |
| B9 | IAC B Hi |
| B10 | Output #3 (G P-) |
| B11 | Output #2 (H P+) |
| B12 | Output #1 (H P+) |
| B13 | Injector D Output |
| B14 | EST Ground Output |
| B15 | EST 2 Output (Cylinder #2) |
| B16 | EST 4 Output (Cylinder #4) |
| B17 | EST 6 Output (Cylinder #6) |
| B18 | EST 8 Output (Cylinder #8) |
| B19 | Injector A Output |
| B20 | EST 12V Output |
| B21 | EST 1 Output (Cylinder #1) |
| B22 | EST 3 Output (Cylinder #3) |
| B23 | EST 5 Output (Cylinder #5) |
| B24 | EST 7 Output (Cylinder #7) |
| B25 | Injector C Output |
| B26 | Injector B Output |

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