Gen2 Electrical Wiring Schematics

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Table of Contents

6-Speed and 7-Speed AutoShift Wiring Diagram ................................................................. 1
6-Speed UltraShift ASW Wiring Diagram ........................................................................... 3
10-Speed AutoShift Wiring Diagram .................................................................................. 5
10-Speed UltraShift DM Wiring Diagram ........................................................................... 7
18-Speed AutoShift Wiring Diagram .................................................................................. 9
Eaton Shift Lever Wiring Diagram ..................................................................................... 11
OEM Shift Lever Wiring Diagram ..................................................................................... 12
6-Speed and 7-Speed AutoShift Wiring Diagram

Trans ECU Legend
All OEM responsible wiring shown is "typical". Consult specific application.
(A1, E1) = +12 volt non-switched from battery
(B1, E2) = +12 volt switched from shift control to transmission controller
(F1) = Signals into the ECU
(C1, C2, C3, J-1939) = Communication from and to the ECU
(F2, A3, B3) = Signal returns, grounds, and general OEM wiring
(F3) = Aux output 1
6-Speed and 7-Speed AutoShift Wiring Diagram

Shift Control ECU Legend
All OEM responsible wiring shown is "typical". Consult specific application.
- (J1, K1, 30, Run to Solenoid) = +12 volt non-switched from battery
- (J2, K2) = +12 volt switched from shift control to transmission controller
- (C1) = +12 volt switched from ignition switch
- (A2-87, B3, A1, H3, D1) = Signals into the ECU
- (F1, F2, F3, G1, G2, G3, E1, E2, B2, C2, J-1939) = Communication from and to the ECU
- (J3, K3, E3, H1, B1) = Signal returns, grounds, and general OEM wiring
- (A3-85) = -12 volt relay source
- (C3-86) = +12 volt relay source

- 10 AMP 12 volt only automatic resetting circuit breaker
- Ignition power (switched power) run to main power lead that feeds the ignition bus
- J-1587 data link
- For transmission diagnostics

Battery
- 10 AMP 12 volt only automatic resetting circuit breaker
- Ignition power (switched power) run to main power lead that feeds the ignition bus
- J-1587 data link

Terminating resistor
- Shield termination
- J-1939/11 data link

Engine ECM
Area #3 Input (see OEM for wiring diagrams and correct operation)
Area #4 Input (see OEM for wiring diagrams and correct operation)
Area #5 Input (see OEM for wiring diagrams and correct operation)

Dash lights
- Back side of gauges

Dimmer control input
- Start enable relay
- Run to starter solenoid
- Run to start signal from ignition switch

J-1939/11 data link
(OEM supplied)

Gear display
10 AMP 12 volt only automatic resetting circuit breaker
Or
10 AMP fuse

+12 volts battery

Transformer diagnostics
6-Speed UltraShift ASW Wiring Diagram

30 AMP fuse

Battery power
(Non-switched power)
run to starter or batteries

A
B

Rail select
sensor

Gear select
sensor

Input shaft
speed sensor

Output shaft
speed sensor

Inertia brake

Trans ECU Legend
All OEM responsible wiring shown is “typical”. Consult specific application.
(A1, E1) = +12 volt non-switched from battery
(B1, E2) = +12 volt switched from shift control to transmission controller
(F1) = Signals into the ECU
(C1, C2, C3, J-1939) = Communication from and to the ECU
(F2, A3, B3) = Signal returns, grounds, and general OEM wiring
(F3) = Aux output 1
6-Speed UltraShift ASW Wiring Diagram

All OEM responsible wiring shown is "typical". Consult specific application.

- (J1, K1, 30, Run to Solenoid) = +12 volt non-switched from battery
- (J2, K2) = +12 volt switched from shift control to transmission controller
- (C1) = +12 volt switched from ignition switch
- (A2, 87, B3, A1, H3, D1) = Signals into the ECU
- (F1, F2, F3, G1, G2, G3, E1, E2, B2, C2, J-1939) = Communication from and to the ECU
- (J3, K3, E3, H1, B1) = Signal returns, grounds, and general OEM wiring
- (A3-85) = -12 volt relay source
- (C3-86) = +12 volt relay source

For transmission diagnostics

Shift Control ECU Legend
Trans ECU Legend
All OEM responsible wiring shown is "typical". Consult specific application.
(A1, E1) = +12 volt non-switched from battery
(B1, E2) = +12 volt switched from shift control to transmission controller
(F1) = Signals into the ECU
(C1, C2, C3, J-1939) = Communication from and to the ECU
(F2, A3, B3) = Signal returns, grounds, and general OEM wiring
(F3) = Aux output 1
Shift Control ECU Legend

All OEM responsible wiring shown is "typical". Consult specific application.

- (J1, K1, 30, Run to Solenoid) = +12 volt non-switched from battery
- (J2, K2) = +12 volt switched from shift control to transmission controller
- (C1) = +12 volt switched from ignition switch
- (A2-87, B3, A1, H3, D1) = Signals into the ECU
- (F1, F2, F3, G1, G2, G3, E1, E2, B2, C2, J-1939) = Communication from and to the ECU
- (J3, K3, E3, H1, B1) = Signal returns, grounds, and general OEM wiring
- (A3-85) = -12 volt relay source
- (C3-86) = +12 volt relay source
Battery power (Non-switched power) run to starter or batteries

30 AMP fuse

Rail select motor

Gear select motor

Electric select shifter

Battery power

Rail select sensor

Gear select sensor

Output shaft speed sensor

Range valve

Terminating resistor

Inertia brake

Trans ECU Legend
All OEM responsible wiring shown is "typical". Consult specific application.
(A1, E1) = +12 volt non-switched from battery
(B1, E2) = +12 volt switched from shift control to transmission controller
(F1) = Signals into the ECU
(C1, C2, C3, J-1939) = Communication from and to the ECU
(F2, A3, B3) = Signal returns, grounds, and general OEM wiring
(F3) = Aux output 1

EPL data link

Bulkhead connector located at firewall
Push Button Shift Control

For transmission diagnostics

10-Speed UltraShift DM Wiring Diagram

10-Speed UltraShift DM Wiring Diagram

Shift Control ECU Legend

All OEM responsible wiring shown is “typical”. Consult specific application.

(J1, K1, Run to Solenoid, Start: 3D) = +12 volt non-switched from battery

(J2, K2) = +12 volt switched from shift control to transmission controller

(C1, Ignition Power, Ignition: 3D, 86, 87a) = +12 volt switched from ignition switch

(A2-87) = Signals into the ECU

(F1, F2, F3, G1, G2, G3, E1, E2, B2, C2, J-1939) = Communication from and to the ECU

(J3, K3, E3, H5-87) = Signal returns, grounds, and general OEM wiring

(A3-85, H1-85) = +12 volt relay source

(C3-86) = +12 volt relay source

* For vehicle/engine systems which use a vehicle system ECU, contact the Eaton OEM liaison for installation schematics.
18-Speed AutoShift Wiring Diagram

Battery power (Non-switched power) run to starter or batteries

30 AMP fuse

Inertial brake (Optional)

Trans ECU Legend:
All OEM responsible wiring shown is "typical". Consult specific application.
(A1, E1) = +12 volt non-switched from battery
(B1, E2) = +12 volt switched from shift control to transmission controller
(F1) = Signals into the ECU
(C1, C2, C3, J-1939) = Communication from and to the ECU
(F2, A3, B3) = Signal returns, grounds, and general OEM wiring
(F3) = Aux output 1

Note: All wiring diagrams are illustrative and may not reflect the exact configuration of specific systems.
18-Speed AutoShift Wiring Diagram

**Shift Control ECU Legend**

All OEM responsible wiring shown is "typical". Consult specific application.

- (J1, K1, 30, Run to Solenoid) = +12 volt non-switched from battery
- (J2, K2) = +12 volt switched from shift control to transmission controller
- (C1) = +12 volt switched from ignition switch
- (A2-87, B3, A1, H3, D1) = Signals into the ECU
- (F1, F2, F3, G1, G2, G3, E1, E2, B2, C2, J-1939) = Communication from and to the ECU
- (J3, K3, E3, H1, B1) = Signal returns, grounds, and general OEM wiring
- (A3-85) = -12 volt relay source
- (C3-86) = +12 volt relay source

**Wiring Diagram Details**

- **Gear display**
- **Back side of gauges**
- **Dimmer control input**
- **10 AMP 12 volt only automatic resetting circuit breaker**
- **10 AMP fuse**
- **Ignition power (switched power) run to main power lead that feeds the ignition bus**
- **J-1587 data link**
- **Battery**
- **Shield termination**
- **Terminating resistor**
- **For transmission diagnostics**
- **9-way**
- **6-way**
- **Run to starter solenoid**
- **Run to start signal from ignition switch**
- **Start enable relay**
- **J-1939/11 data link (OEM supplied)**

For a detailed understanding of the wiring, refer to the OEM for wiring diagrams and correct operation.
Eaton Shift Lever Wiring Diagram

Shift Lever Legend
All OEM responsible wiring shown is "typical". Consult specific application.

(J2-4) = +12 volt switched from shift controller to shift lever
(D1-1, D2-8, D3-2, B3-5) = Signals into the ECU
(3) = Signal returns, grounds, and general OEM wiring
(H2-6) = +12 volt signal from shift control to shift lever
OEM Shift Lever Wiring Diagram

Shift Control with Shift Lever Software

Shift Lever Legend
All OEM responsible wiring shown is "typical". Consult specific application.
(D1-B, D2-A, D3-C) = Signals into the ECU
(H2) = +12 volt signal from shift control to shift lever