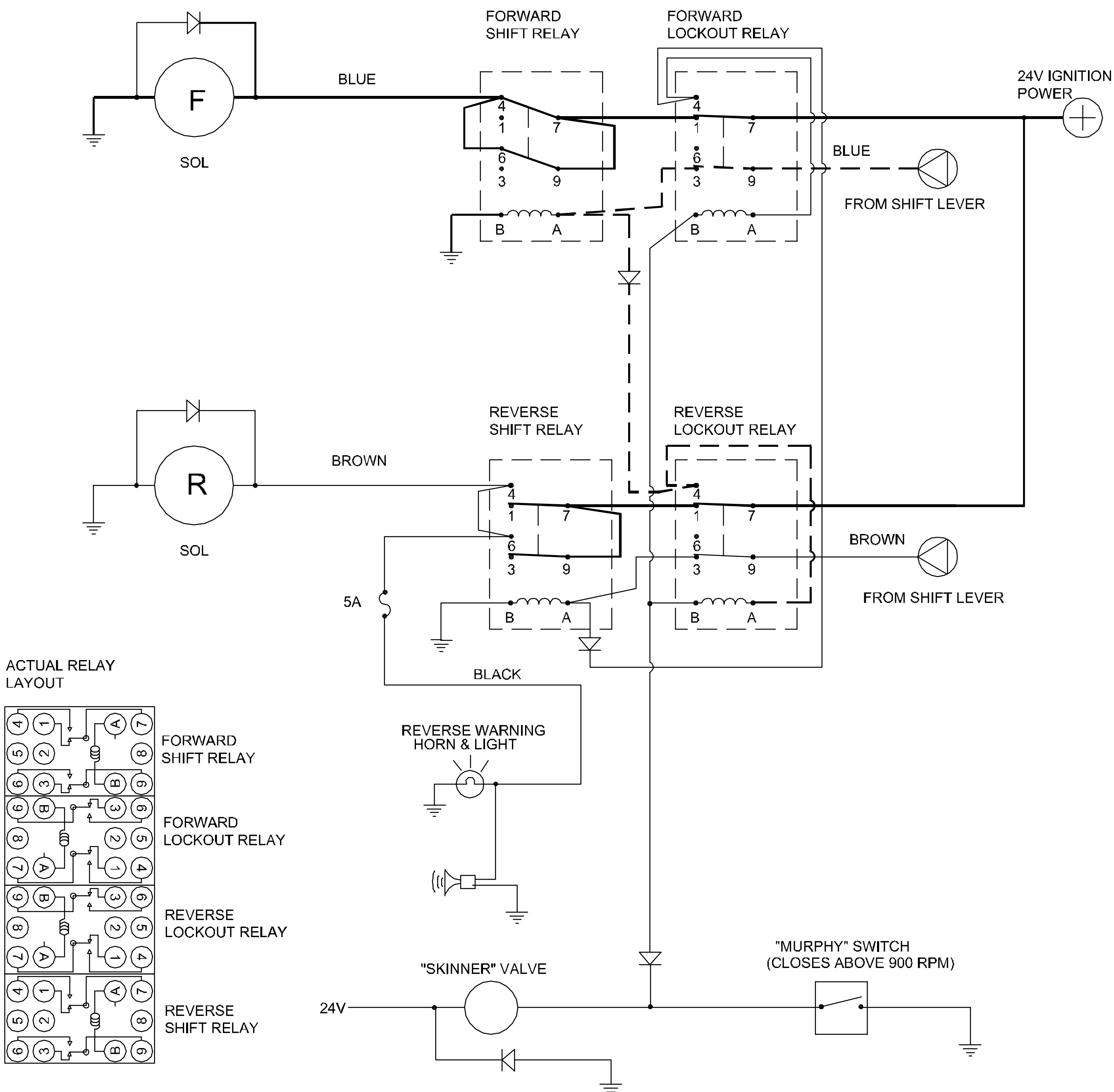
Electrical Schematic - Forward and Reverse Controls

Below 900 RPM - Forward Range

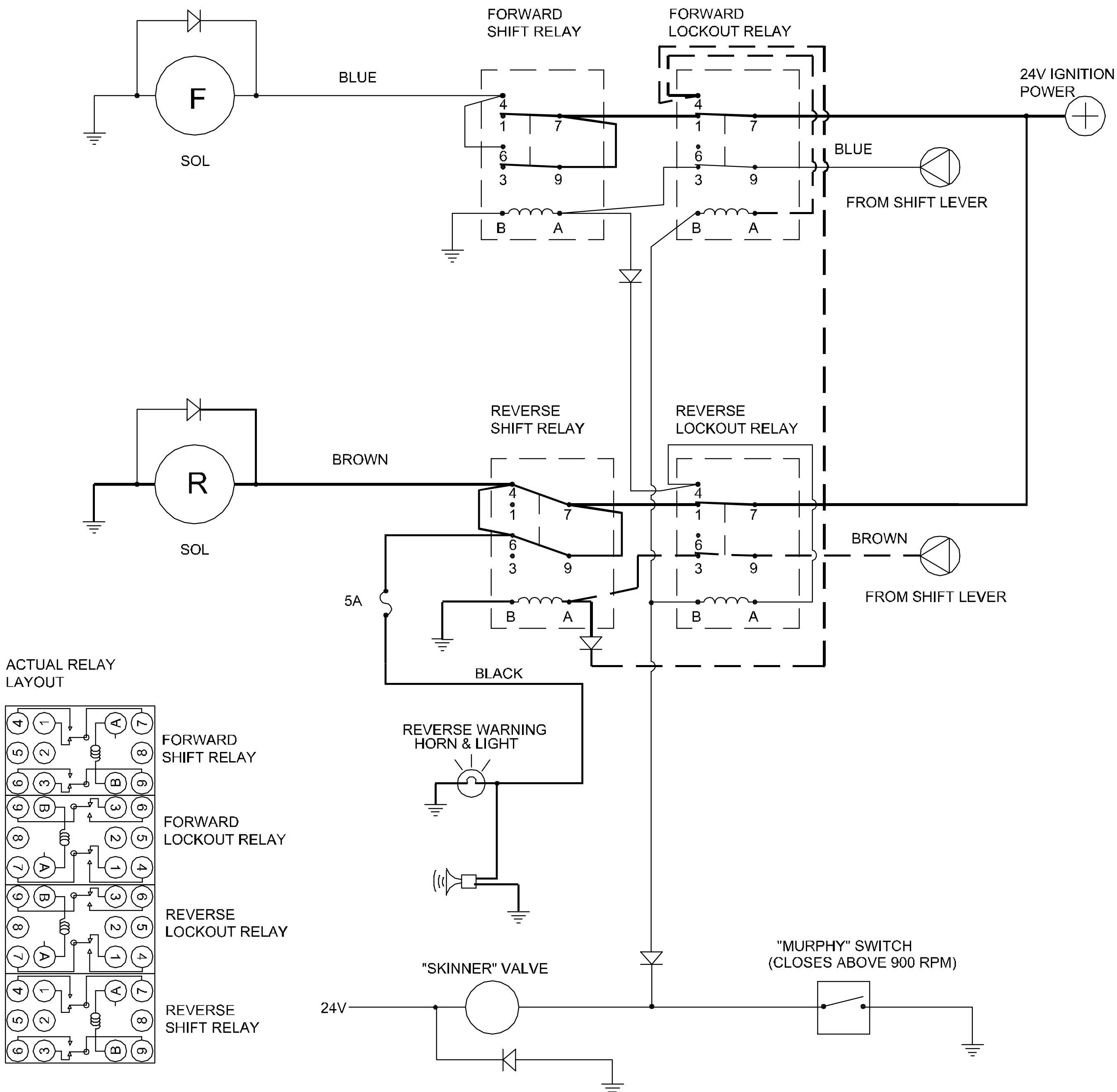
Below 900 rpm, the shift lever sends 24 vdc current through the lockout relay and into the shift relay coil, which closes the relay contacts, power from the ignition then runs through both relays to the forward solenoid. (The forward solenoid runs forward on the transmission)



Shifting to “neutral” or “reverse” on the shift lever merely removes power to the relay coil, breaking the power to the forward solenoid. (The diode at the forward solenoid acts as a voltage-spike suppressor.)

Electrical Schematic - Forward and Reverse Controls

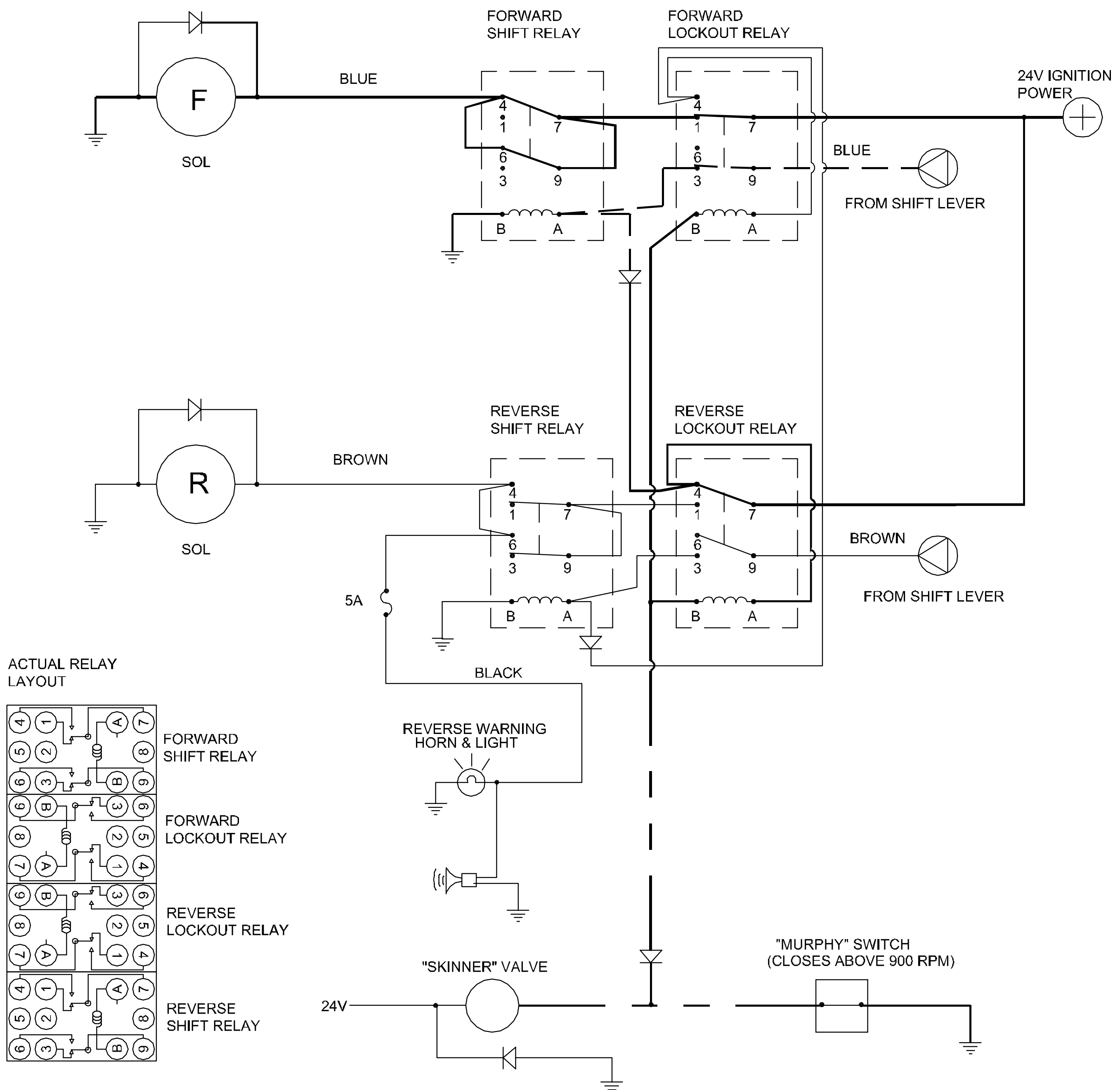
Below 900 RPM - Reverse Range
The same shift lever sends power to the reverse relay coil when the lever is pulled into reverse, just like the forward shift case.



Again, shifting out of reverse merely stops power to the relay coil, allowing the contacts to open and cutting off power to the reverse solenoid.

Electrical Schematic - Forward and Reverse Controls

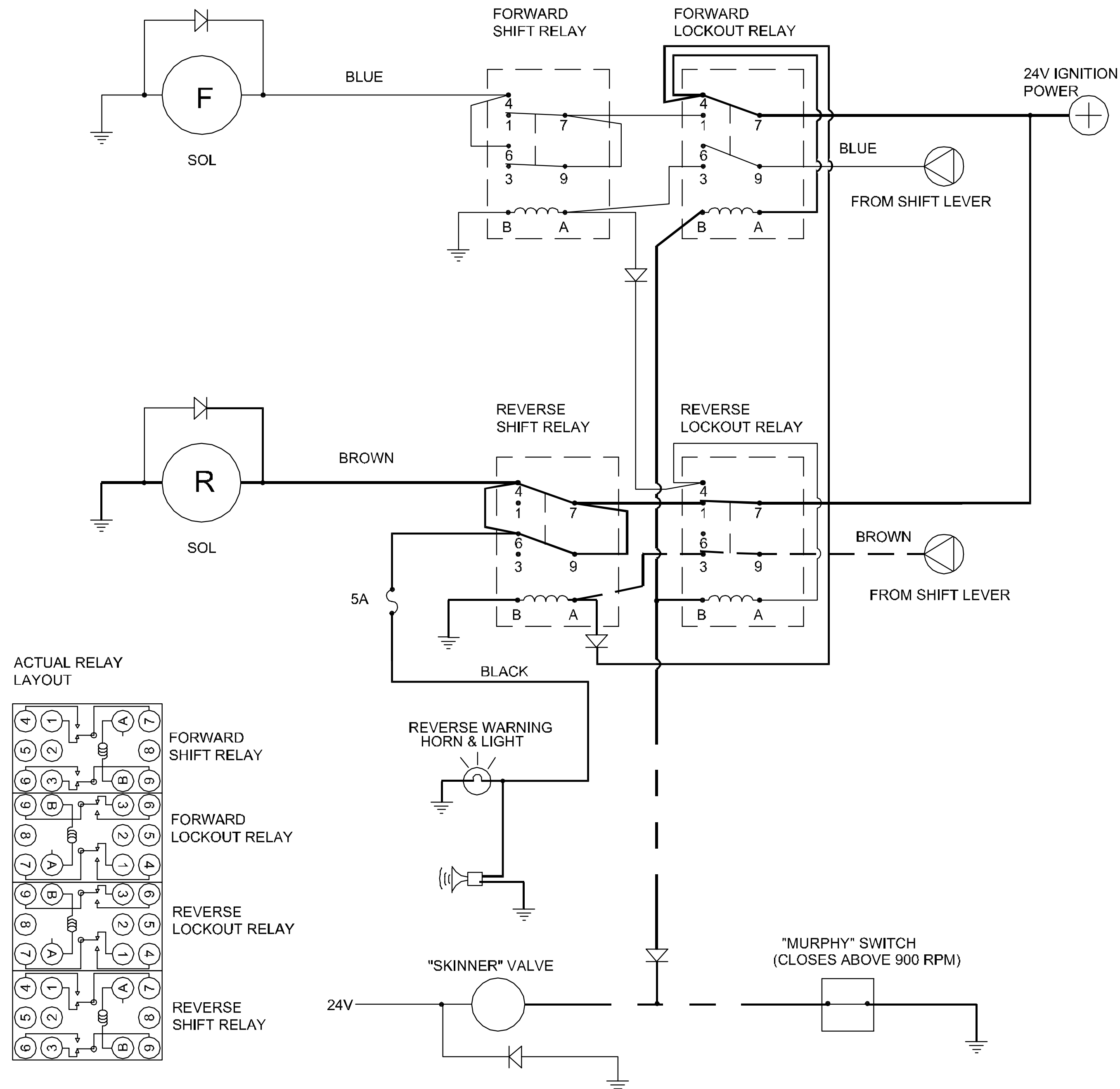
Above 900 RPM - Forward Range
Above 900 rpm, there is a possibility of damaging the transmission if the machine is suddenly shifted from forward to reverse. To prevent this, a reverse lockout relay is also powered by the shift lever.



This lockout relay opens the reverse solenoid circuit, anbd this relay *holds* itself open until the engine speed goes below 900 rpm.
(A murphy speed switch senses engine rpm, and closes the lockout relay coil to ground at above 900 rpm).

Electrical Schematic - Forward and Reverse Controls

Above 900 RPM - Reverse Range
The same lockout method applies to prevent inadvertent shifting from reverse to forward. A lockout relay cannot unlatch itself until the engine speed is brought down, even if the machine is in neutral or sitting still.



(One will be able to shift to neutral at any time, if desired).