

Magnum low voltage power circuit breakers user manual (DS, DC, DSX, DSL, and MDE)

Instructional Booklet IB2C12060H12

Effective December 2015

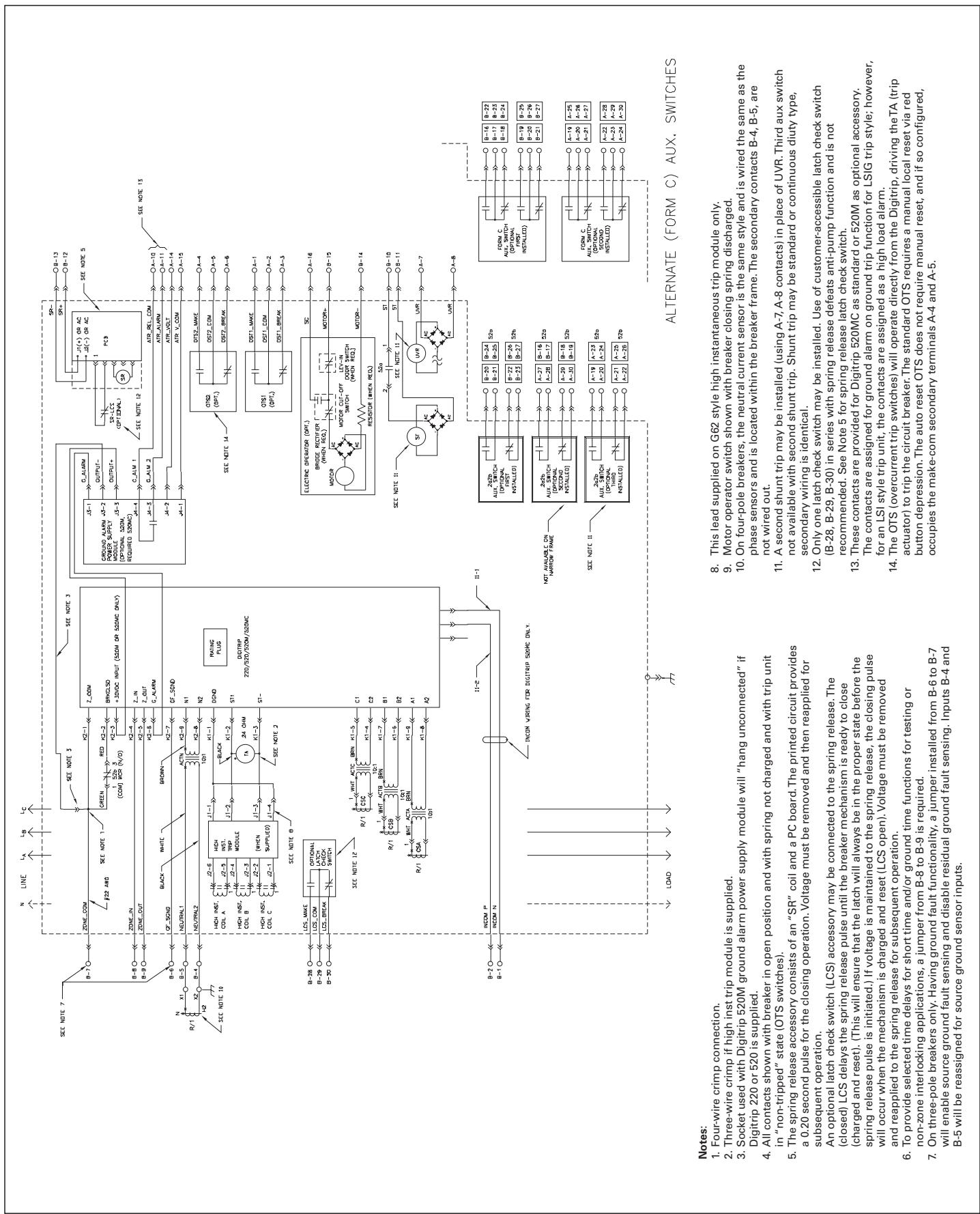


Figure 67. Digitrip 520/520M/520MC standard and narrow (except 100 kA) frames (6D32315SH01)

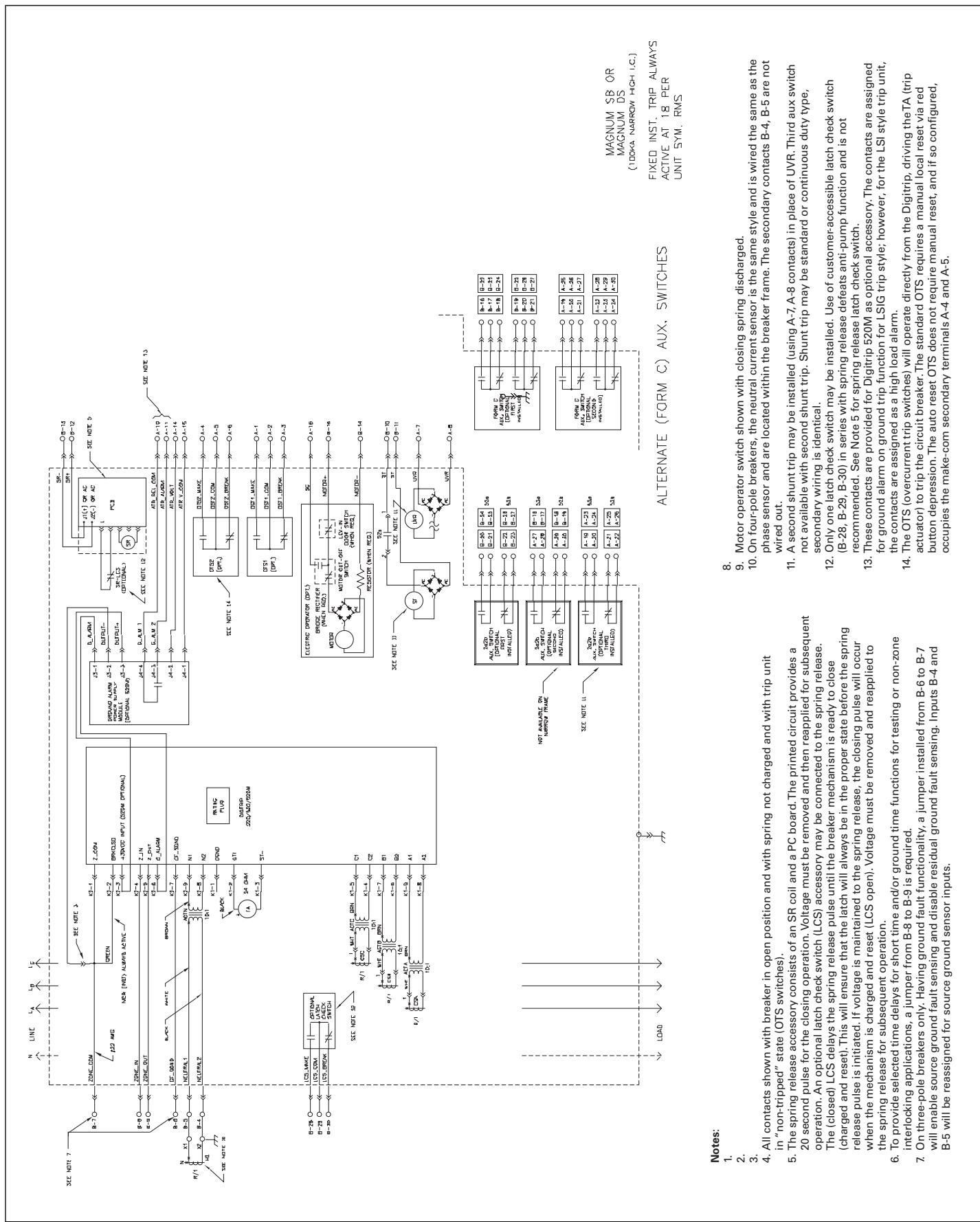
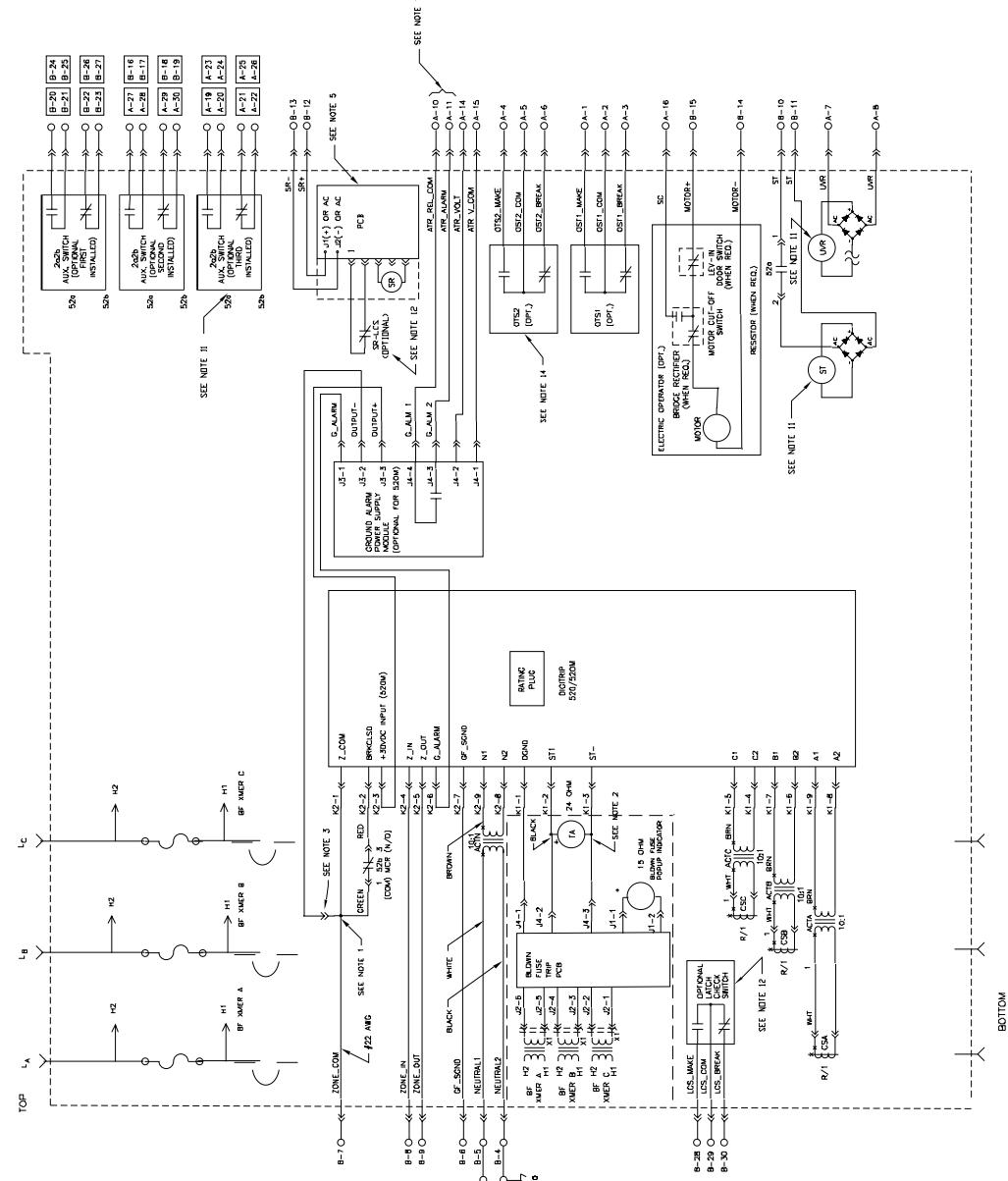


Figure 68. Digitrip 520/520M narrow 100 kA frame (6D32315SH02)

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Notes:

1. Four-wire crimp connection.
2. Three-wire crimp if high instantaneous trip module is supplied.
3. All contacts shown with breaker in open position and with spring not charged and with trip unit in "non-tripped" state (OTS switches).
4. The spring release accessory consists of an "SR" coil and a PC board. The printed circuit provides a 0.20 second pulse for the closing operation. Voltage must be removed and then reapplied for subsequent operation. An optional latch check switch (LCS) accessory may be connected to the spring release. The (closed) LCS delays the spring release pulse until the breaker mechanism is ready to close (charged and reset). (This will ensure that the latch will always be in the proper state before the spring release pulse.) If voltage is maintained to the spring release, the closing pulse will occur when the mechanism is charged and open (LCS open). Voltage must be removed and reapplied to the spring release for subsequent operation.
5. The spring release accessory provides ground fault sensing and disable residual ground fault sensing. Inputs B-4 and B-5 will be re-signed for source ground sensor inputs.
6. To provide selected time delays for short time and/or ground time functions for testing or non-zone interlocking applications, a jumper from B-8 to B-9 is required.
7. On three-pole breakers only, having ground fault functionality, a jumper installed from B-6 to B-7 will enable source ground fault sensing and disable residual ground fault sensing. Inputs B-4 and B-5 will be re-signed for source ground sensor inputs.
8. For non-auto, omit Digitrip unit and related components and wiring from assembly.
9. Motor operator switch shown with breaker closing spring discharged.
10. For residual ground fault sensing, the neutral sensor must match the phase current sensor and rating plug value.
11. Second shunt trip may be installed (using A7/A8 contacts) in place of UVR. Third auxiliary switch not available with second shunt trip.
12. Only one latch check switch may be installed. Use of customer-accessible latch check switch (B-28, B-29, B-30) in series with spring release defeats anti-pump function and is not recommended. See Note 5 for spring release latch check switch.
13. These contacts are provided for Digitrip 520M as an optional accessory. The contacts are assigned for ground alarm on ground trip function for LSIG trip style. However, for an LS style trip unit, the contacts are assigned as a high load alarm.
14. The OTS (overcurrent trip switches) will operate directly from the Digitrip, driving the TA (trip actuator) to trip the circuit breaker. The OTS requires a manual local reset via red button depression.

Figure 69. MDSL Digitrip 520/520M with blown fuse trip (6D32373SH01)

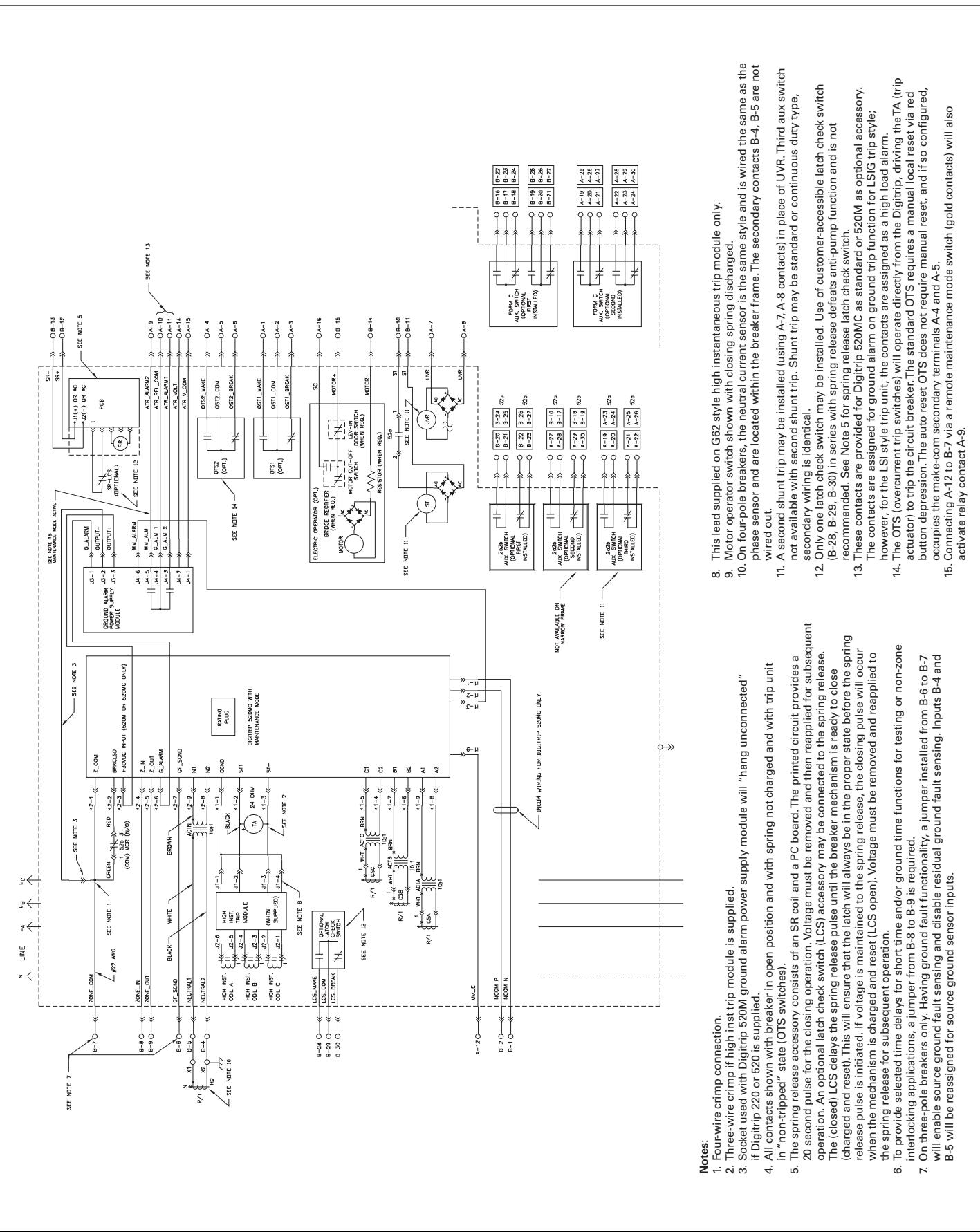


Figure 70. Digitrip 520MC/ARMS standard and narrow (except 100 kA) frames (6D32315SH03)

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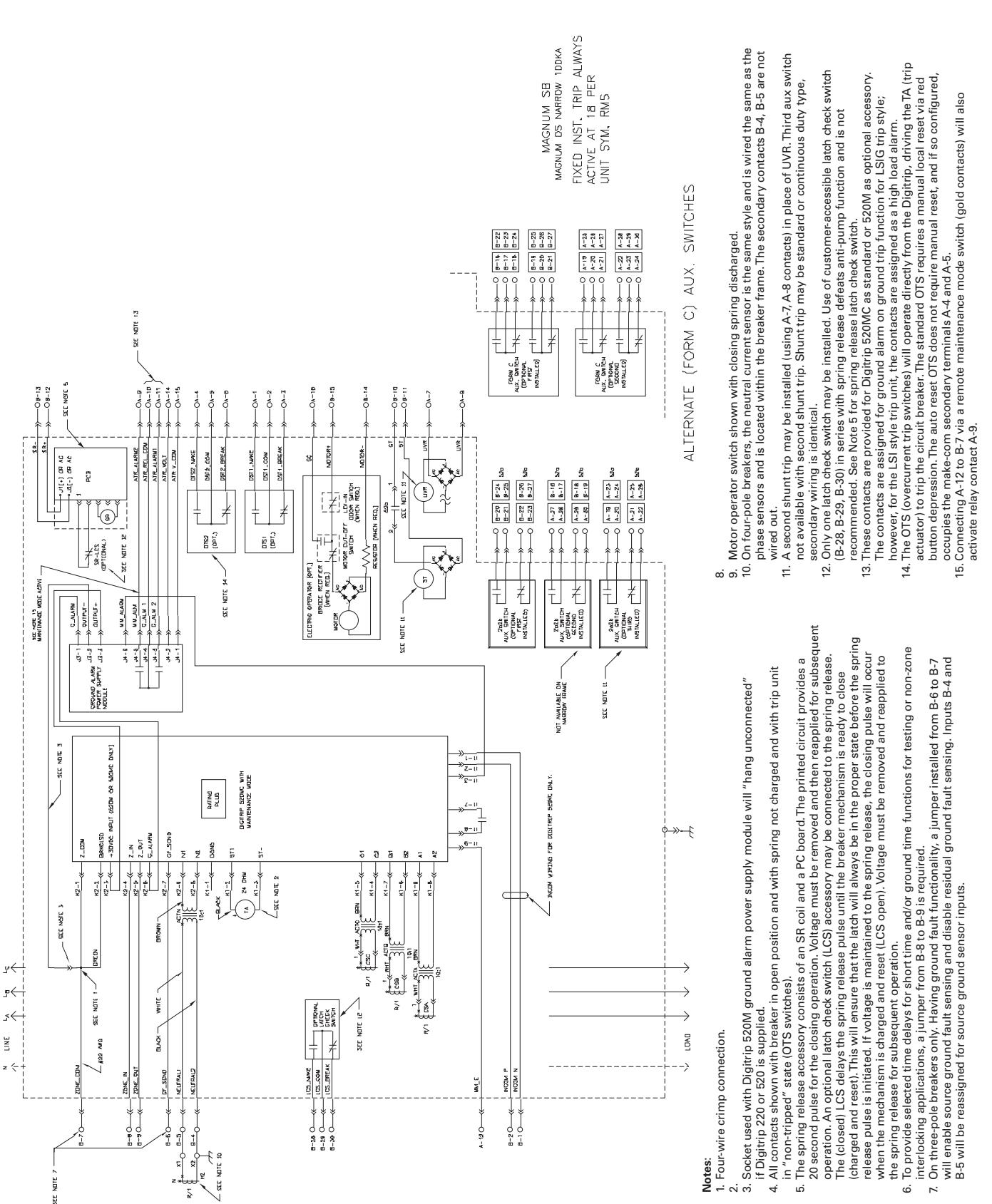
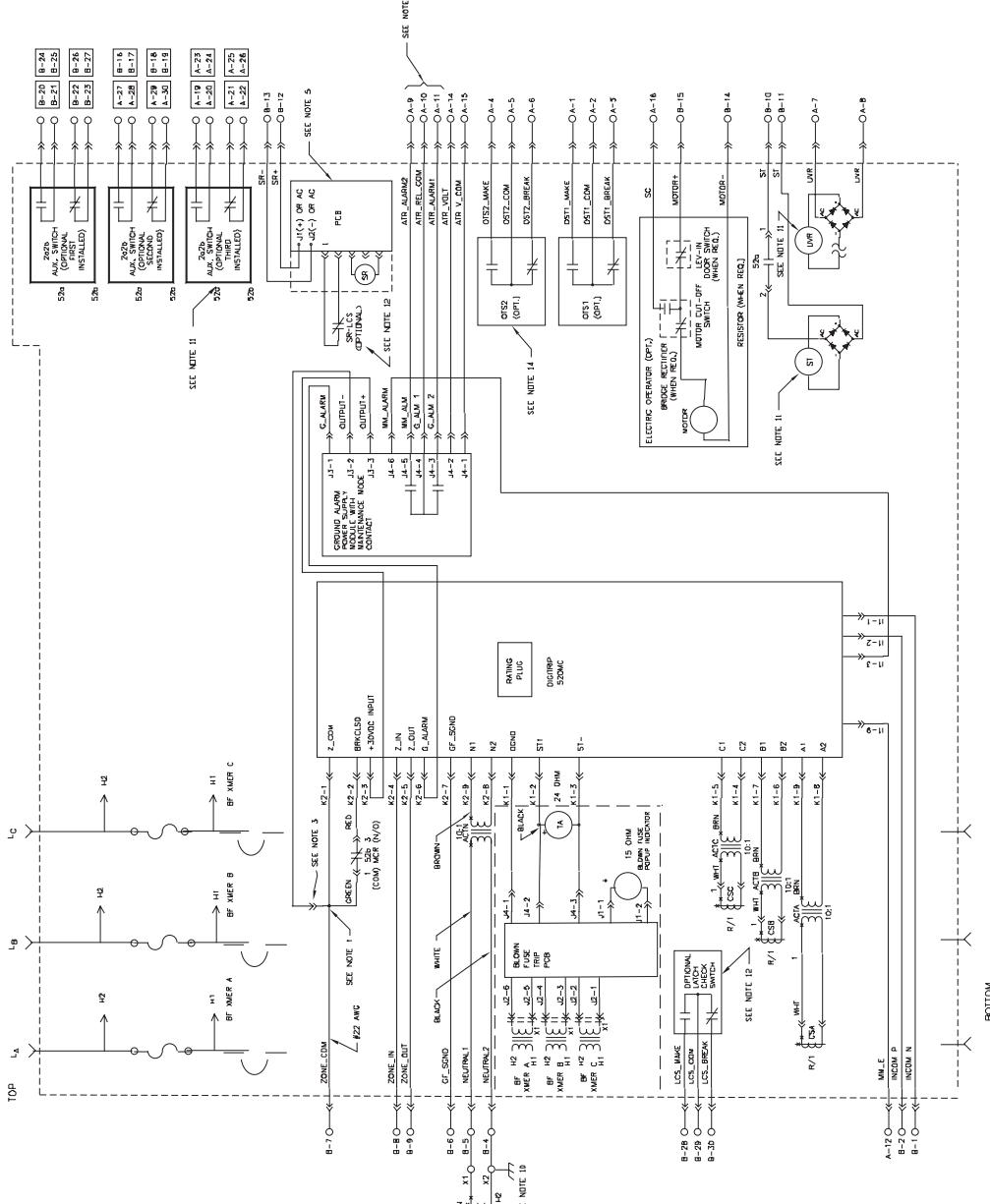


Figure 71. Digitrip 520MC/ARMS narrow 100 kA frame (6D32315SH04)

- Notes:**

 1. Four-wire
 - 2.
 3. Sockets if Digital
 4. All controls in "no"
 5. The space 20 sec operate. The (charge release when the space
 6. To program interlock
 7. On the will enable B-5 with

- 8.
 9. Motor operator switch shown with closing spring discharged.
 10. On four-pole breakers, the neutral current sensor is the same style and phase sensors and is located within the breaker frame. The secondary wired out.
 11. A second shunt trip may be installed (using A7-A8 contacts) in place of the primary shunt trip. Shunt trip may be standard or customer-accessible. Secondary wiring is identical.
 12. Only one latch check switch may be installed. Use of customer-accessible (B-28, B-29, B-30) in series with spring release defeats anti-pump function recommended. See Note 5 for spring release latch check switch.
 13. These contacts are provided for Digitrip 5200M as standard or 5200M as optional. The contacts are assigned for ground trip function for however, for the LSI style trip unit, the contacts are assigned as a high overcurrent trip switches will operate directly from the Digitrip actuator to trip the circuit breaker. The standard OTS requires a manual button depression. The auto reset OTS does not require manual reset; it occupies the make-com secondary terminals A-4 and A-5.
 15. Connecting A12 to B-7 via a remote maintenance mode switch (gold contacts) activate relay contact A-9.



Notes:

- Notes:**

 1. Four-wire crimp connection.
 - 2.
 - 3.
 4. All contacts shown with breakaway connection.
 5. The spring release accessory is a 0.20 second pulse for the circuit. A subsequent operation. An opto-release. The (closed) LCS delay (charged and reset). (This will release pulse is initiated.) If when the mechanism is charged spring release for subsequent interlocking applications, a jump
 6. To provide selected time delay

Figure 72. MDSL Digitrip 520MC/ARMS with blown fuse trip (6D32373SH02)

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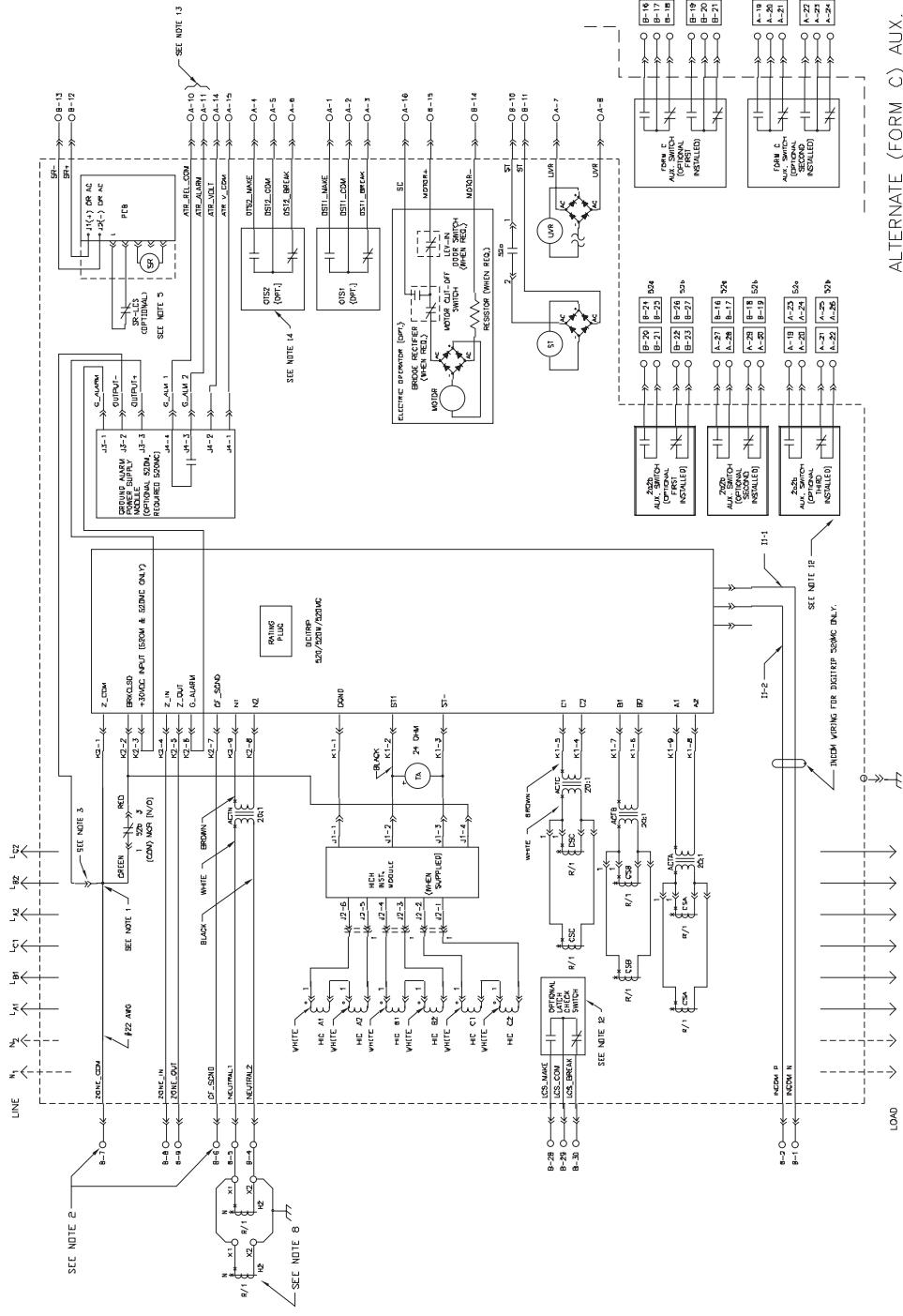


Figure 73. Digitrip 520/520M/520MC double-narrow double-standard frame, ABCABC configuration (6D32320SH01)

- Notes:**

 1. Four-wire crimp connection.
 2. Three-wire crimp if high instantaneous trip module is supplied.
 3. Socket used with Digitrip 520M ground alarm power supply module will "hang unconnected" if Digitrip 220 or 520 is supplied.
 4. All contacts shown with breaker in open position and with spring not charged and with trip unit in "non-tripped" state (OTS switches).
 5. The spring release accessory consists of an "SR" coil and a PC board. The printed circuit provides a 0.20 second pulse for the closing operation. Voltage must be removed and then reapplied for subsequent operation. An optional SR latch check switch (LCS) accessory may be connected to the spring release. The (closed) LCS delays the spring release pulse until the breaker mechanism is ready to close (charged and reset). This will ensure that the latch will always be in the proper state before the spring release pulse is initiated. If voltage is maintained to the spring release, the closing pulse will occur when the mechanism is charged and open (LCS open). Voltage must be removed and reapplied to the spring release for subsequent operation.
 6. To provide selected time delays for short time and/or ground fault functions for testing or non-zone interlocking applications, a jumper from B-8 to B-9 is required.
 7. On three-pole breakers only, having ground fault functionality, a jumper installed from B-6 to B-7 will enable source ground fault sensing and disable residual ground fault sensing. Inputs B-4 and B-5 will be reAssigned for source ground sensor inputs.

8. This lead supplied on G62 style high instantaneous trip module only.

9. Motor operator switch shown with breaker closing spring discharged.

10. On four-pole breakers, the neutral current sensor is the same style and wired the same as the sensors and is located within the breaker frame. The secondary contacts B-4, B-5, are not wires.

11. A second shunt trip may be installed (using A-7, A-8 contacts) in place of UVR. Third auxiliary not available with second shunt trip. Shunt trip may be standard or continuous duty type. Secondary wiring is identical.

12. Only one latch check switch may be installed. Use of customer-accessible latch check switch (B-29, B-30) in series with spring release defeats anti-pump function and is not recommended. See Note 5 for spring release latch check switch.

13. These contacts are provided for Digitrip 520MC as standard or 520M as optional accessory. The contacts are assigned for ground alarm on ground trip functions for LSIG trip style. However for an LSI style trip unit, the contacts are assigned as a high load alarm.

14. The OTS (overcurrent trip switches) will operate directly from the Digitrip, driving the TA (trip to the circuit breaker). The standard OTS requires a manual local reset via red button dependent on the auto reset OTS. The standard OTS does not require manual reset. And if so configured, occupies the secondary terminals A-4 and A-5.

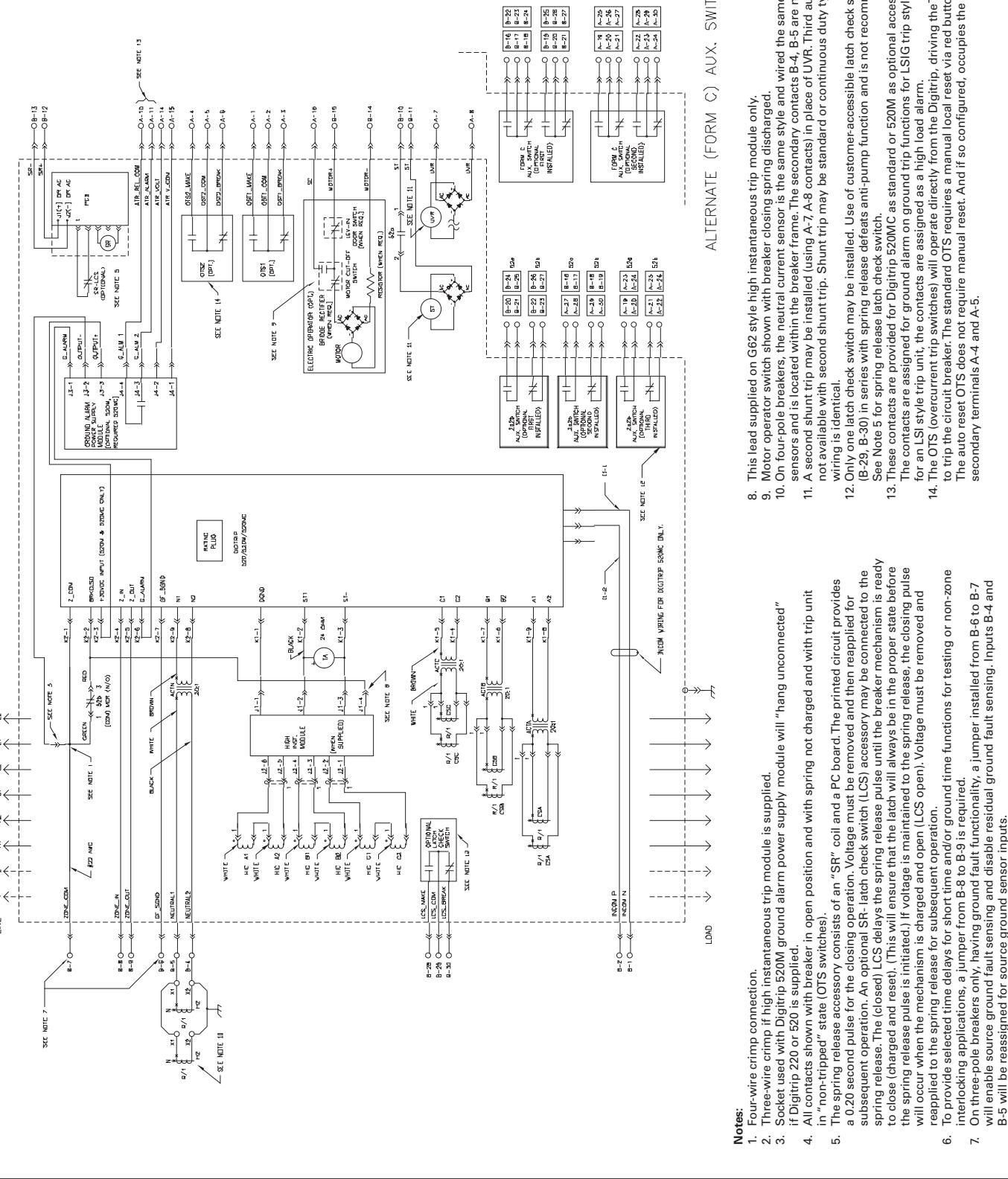


Figure 74. Digitrip 520/520M/520MC double-narrow double-standard frame, AABBCC configuration (6D32320SH02)

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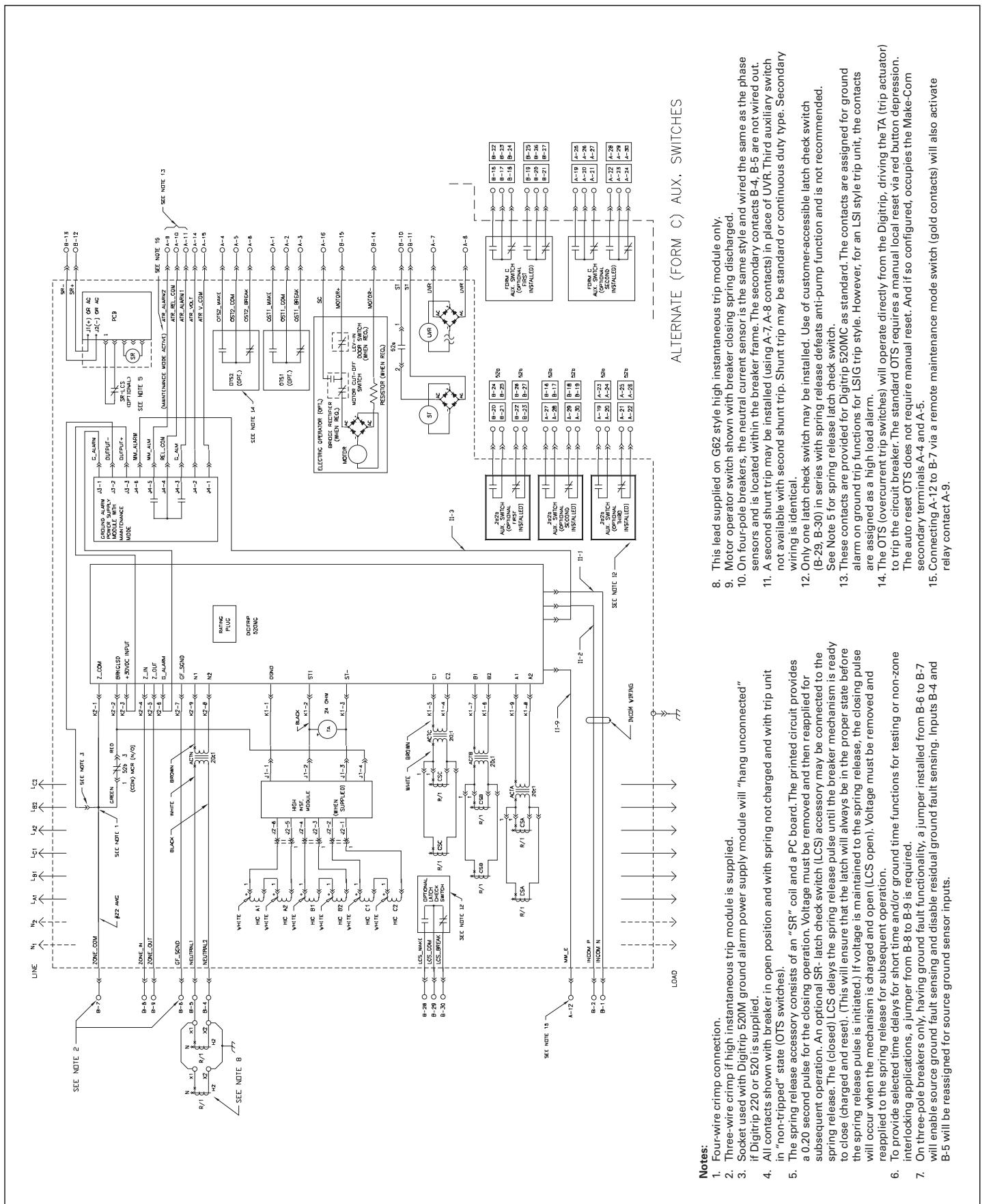
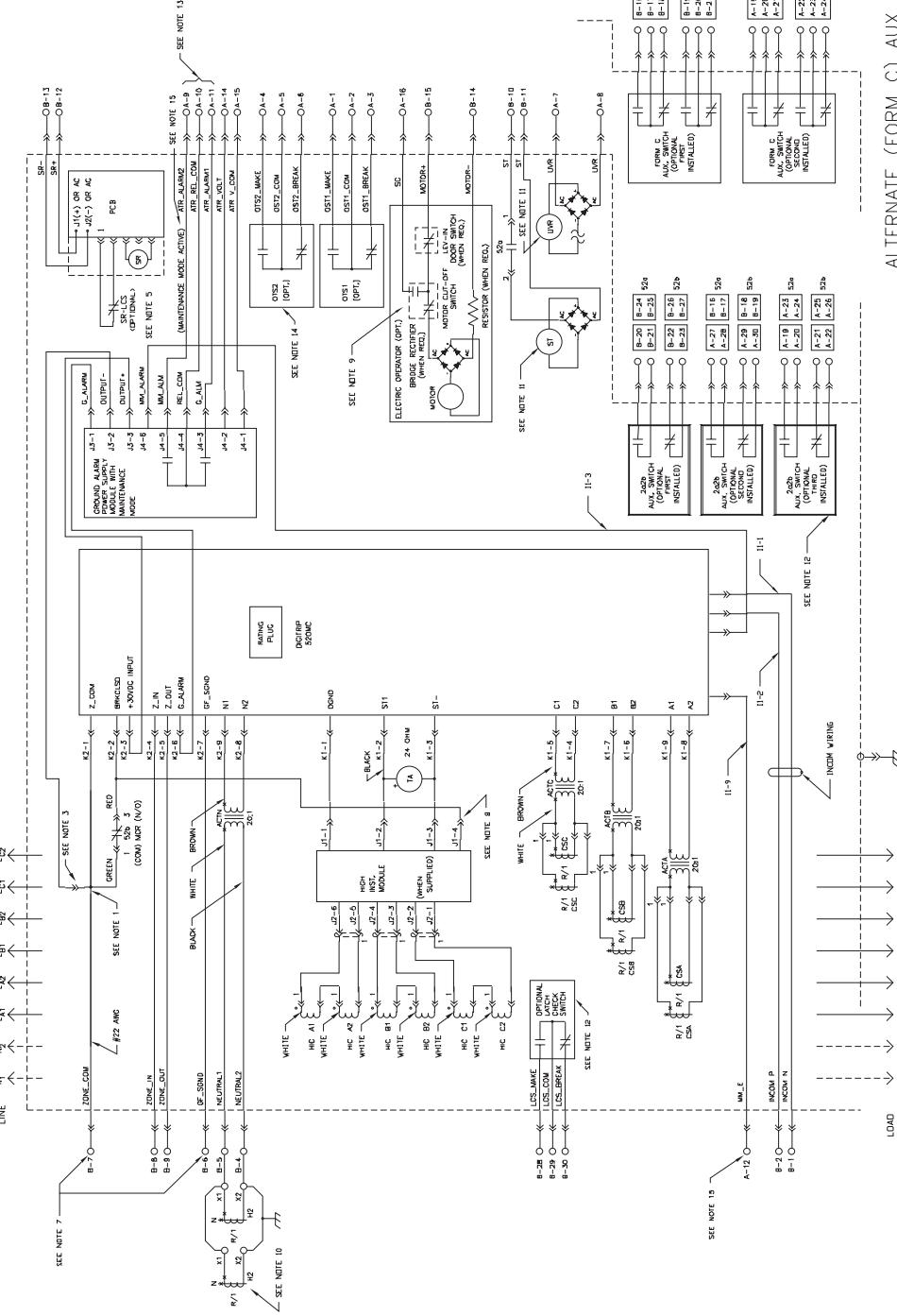


Figure 75. Digitrip 520MC/ARMS double-narrow double-standard frame, ABCABC configuration (6D32320SH03)



ALTERNATE (FORM C) AUX. SWITCHES

- This lead supplied on G62 style high instantaneous trip module only.
- Motor operator switch shown with breaker closing spring discharged.
- On four-pole breakers, the neutral current sensor is the same style and wired the same as the phase sensors and is located within the breaker frame. The secondary contacts B-4-B-5 are not wired out.
- A second shunt trip may be installed (using A-7-A-8 contacts) in place of UVR. Third auxiliary switch not available with second shunt trip. Shunt trip may be standard or continuous duty type. Secondary wiring is identical.
- Only one latch check switch may be installed. Use of customer-accessible latch check switch (B-28-B-30) in series with spring release defeats anti-pump function and is not recommended.
- See Note 5 for spring release latch check switch.
- These contacts are provided for Digitrip 520MC as standard. The contacts are assigned for ground alarm on ground trip functions for LSG trip style. However, for an LSI style trip unit, the contacts are assigned as a high load alarm.
- The OTS (overcurrent trip switches) will operate directly from the Digitrip, driving the TA (trip actuator) to trip the circuit breaker. The standard OTS requires a manual local reset via red button depression. The auto reset OTS does not require manual reset. And if so configured, occupies the Make-Com secondary terminals A-4 and A-5.
- Connecting A-12 to B-7 via a remote maintenance mode switch (gold contacts) will also activate relay contact A-9.

Figure 76. Digitrip 520MC/ARMS double-narrow double-standard frame, AABBCC configuration (6D32320SH04)

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Instructional Booklet IB2C12060H12

Effective December 2015

Figure 77. Digitrip 1150/ARMS standard and narrow (except 100 kA) frames (6D32314SH02)

THIS DRAWING NOT APPLICABLE FOR 100KA NARROW FRAME

ALTERNATE (FORM C) AUX. SWITCHES

8. Normally open contact programmed as relay C, via Digitrip front panel (latching contact).

9. This lead supplied on CO2 style high instantaneous trip module only.

10. Motor operator switch shown with closing spring discharged.

11. On four-pole breakers, the neutral current sensor is the same style and is wired the same as the phase sensor and are located within the breaker frame. The secondary contacts B-4, B-5 are not wired out.

12. Four point socket used here.

13. A second shunt trip may be installed (using A-7, A-8 contacts) in place of UVR. Third aux switch not available with second shunt trip. Shunt trip may be standard or continuous duty type, secondary wiring is identical.

14. Only one latch switch may be installed. Use of customer-accessible latch check switch (B-29, B-30) in series with spring release contacts anti-pump function and is not recommended. See Note 3 for spring release latch check switch.

15. The OTS (overcurrent trip switches) will operate directly from the Digitrip, driving the TA (trip actuator) to trip the circuit breaker. The standard OTS requires a manual local reset via red button depression. The auto reset OTS does not require manual reset, and if so configured, occupies the make-com secondary terminals A-4 and A-5.

16. For circuit breakers built after July 2006 and Digitrip 1150 units of Firmware rev 20 decimals or greater, the maintenance mode feature (ARMS) is supplied. The reverse power deselection is front panel programmable only.

Notes:

1. Three-wire crimp if high inst trip module is supplied.

2. All contacts shown with breaker in open position and with trip unit in "non-tripped" state (OTS switches) and spring not charged.

3. The spring release accessory consists of an "SR" coil and a PC board. The printed circuit provides a 0.20 second pulse for the closing operation. Voltage must be removed and then reapplied for subsequent operation.

An optional SR-latch check switch (LCS) accessory may be connected to the spring release. The (closed) LCS delays the spring release pulse until the breaker mechanism is ready to close (charged and reset). (This will ensure that the latch will always be in the proper state before the spring release pulse is initiated). If voltage is maintained to the spring release, the closing pulse will occur when the mechanism is charged and reset (LCS open). Voltage must be removed and reapplied to the spring release for subsequent operation.

4. To provide selected time delays for short time and/or ground time functions for testing or non-zone interlocking applications, a jumper from B-8 to B-9 is required.

5. On three-pole breakers only. Having ground fault functionality, a jumper installed from B-6 to B-7 will enable source ground fault sensing and disable residual ground fault sensing. Inputs B-4 and B-5 will be reassigned for source ground sensor inputs.

6. Normally open contact programmed as relay A, via Digitrip front panel (alarm contact). This can also be assigned to indicate maintenance mode feature is in use.

7. Normally closed contact programmed as relay B, via Digitrip front panel (block close contact)

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45

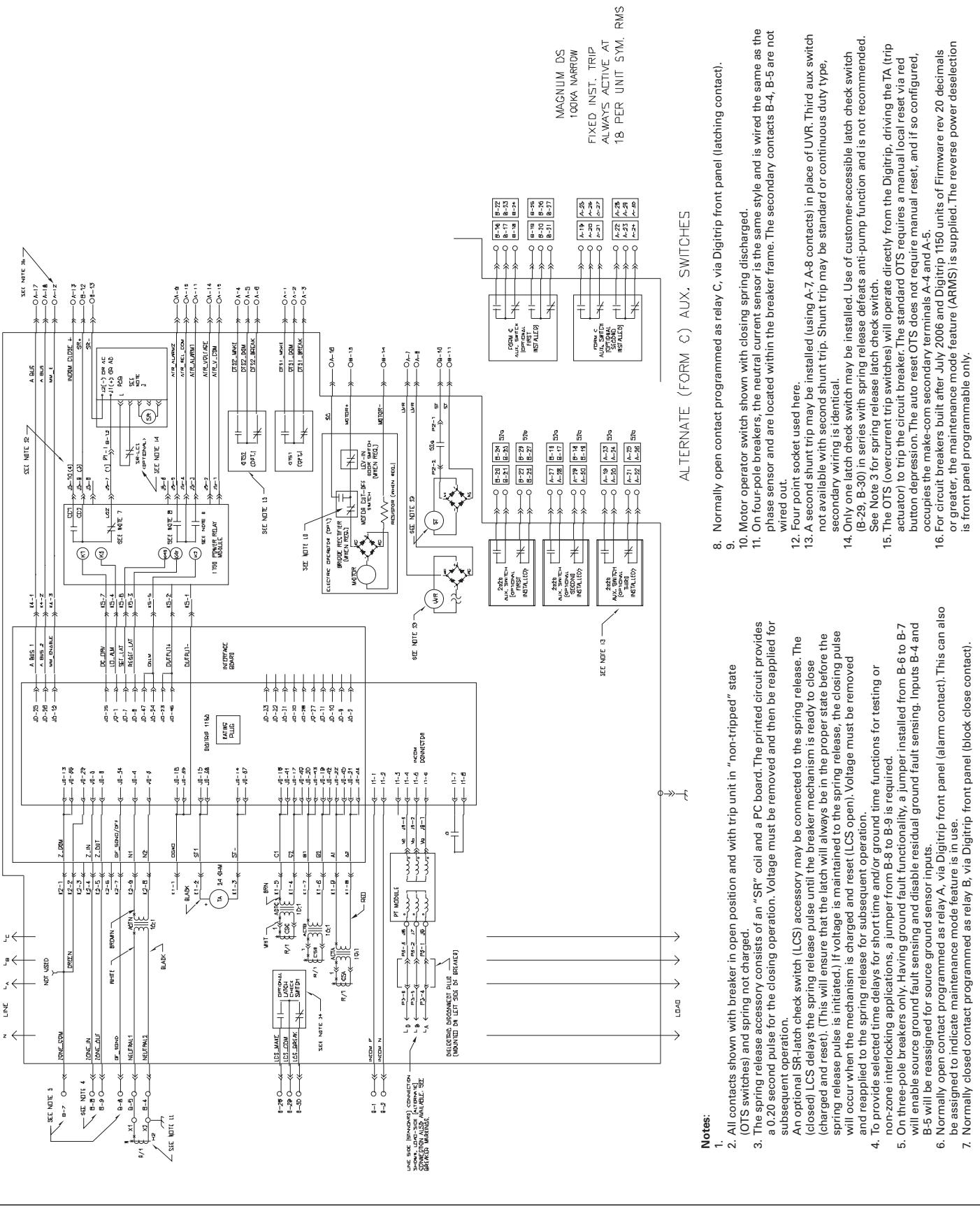
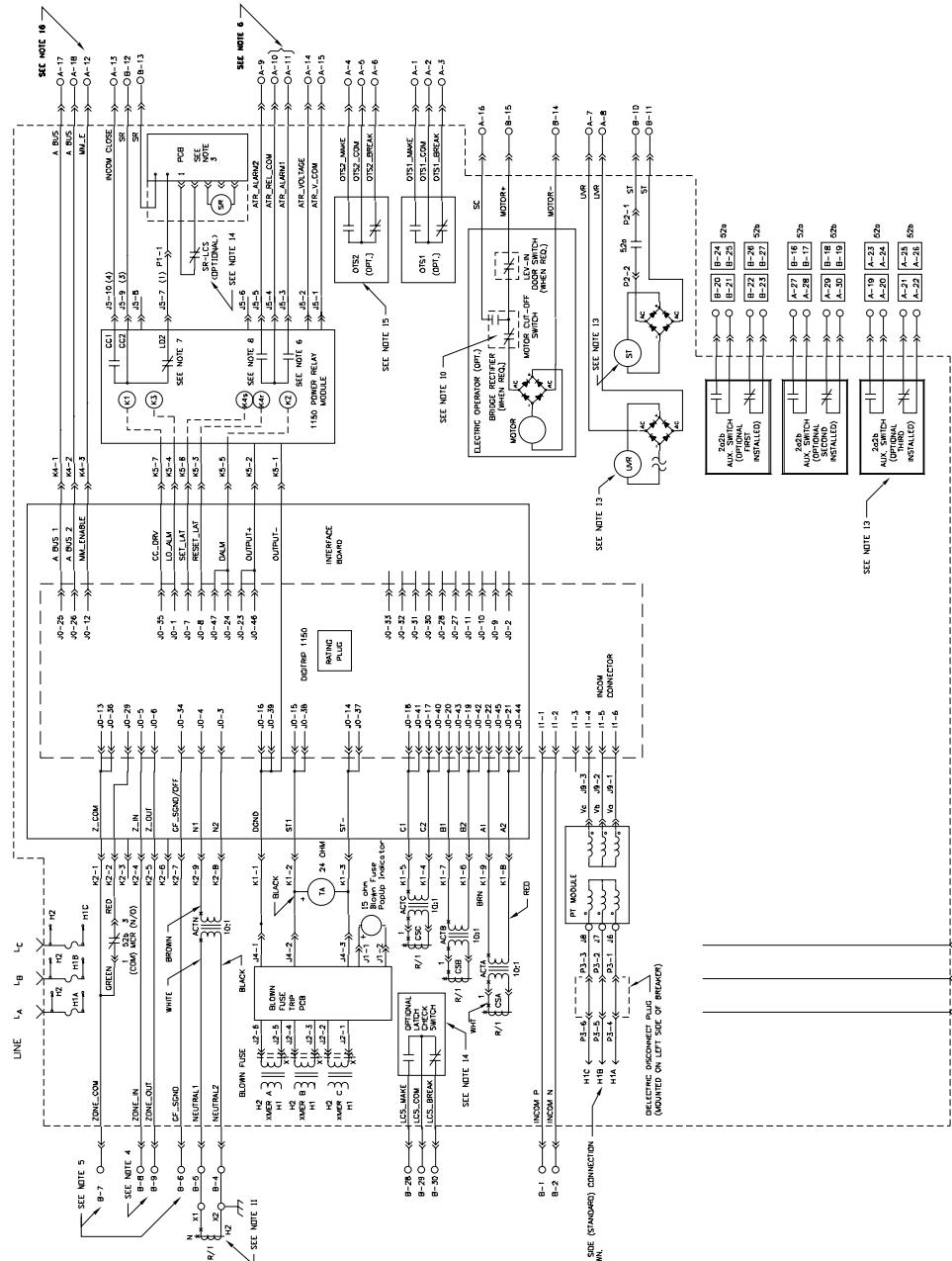


Figure 78. Digitrip 1150/ARMS narrow 100 kA frame (6D32314SH04)

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Effective December 2015



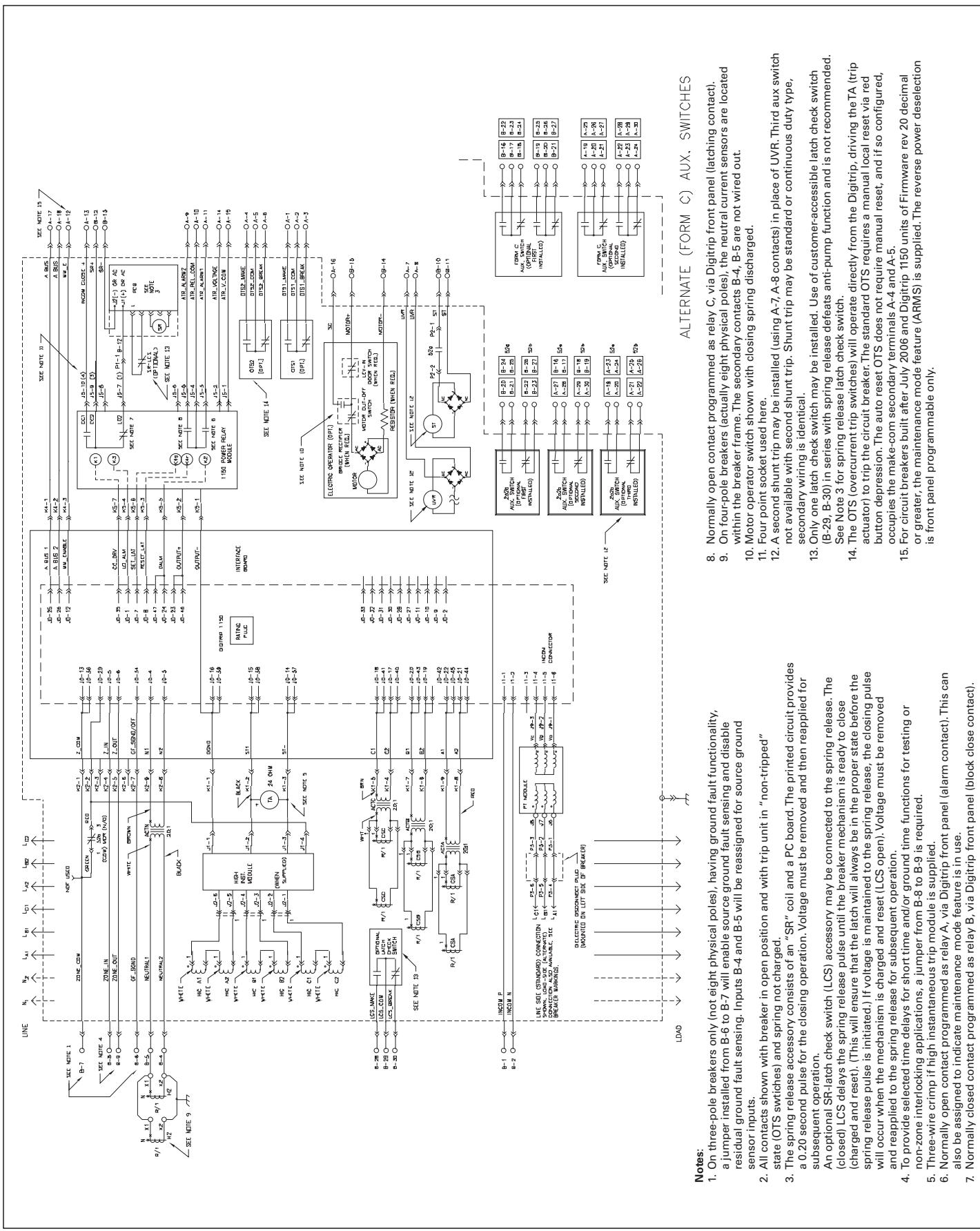


Figure 80. Digitrip 1150/ARMS double-narrow double-standard frame, ABCABC configuration (6D32319SH03)

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Effective December 2015

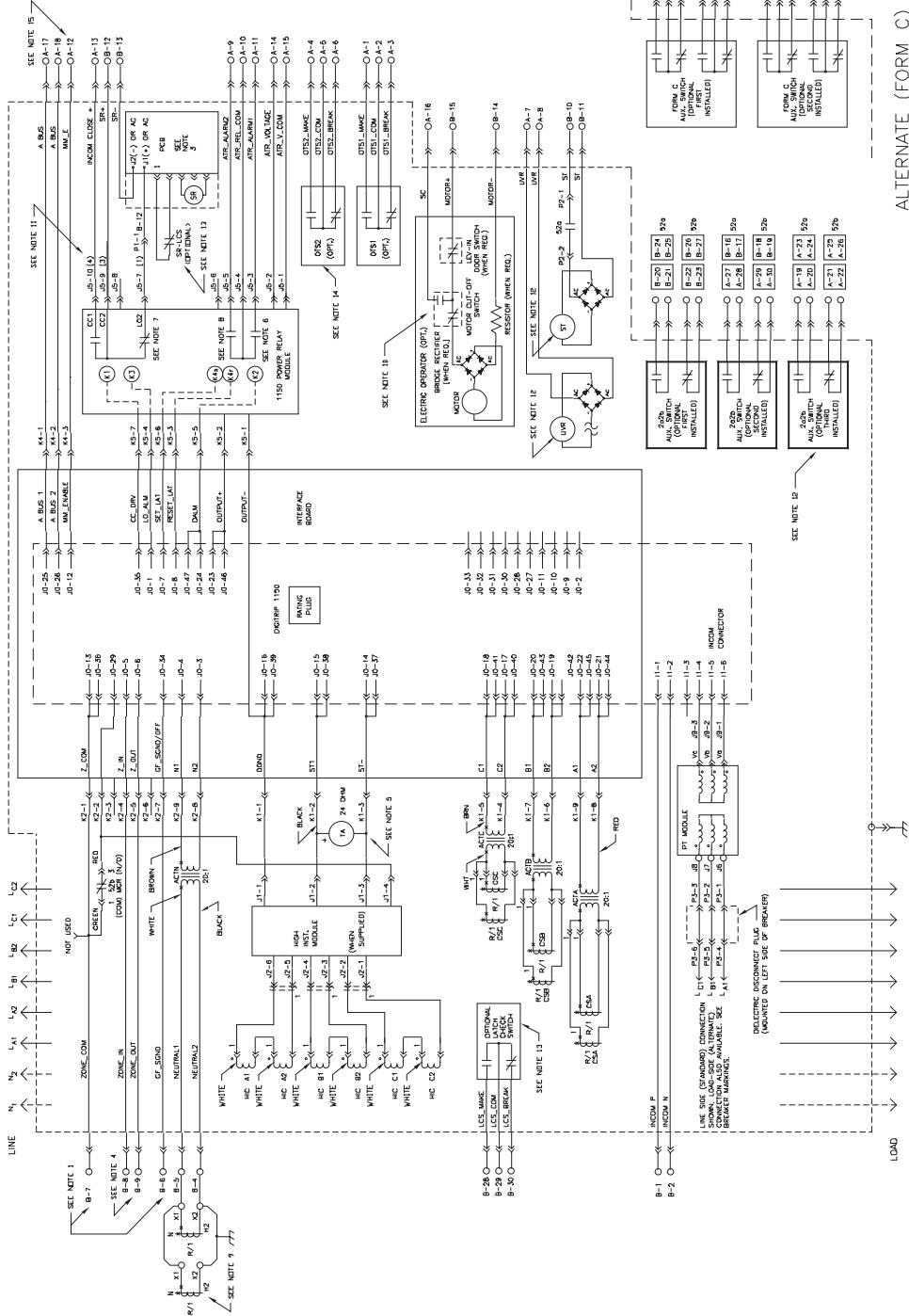


Figure 81. Digitrip 1150/ARMS double-narrow double-standard frame, AABBCC configuration (6D32319SH04)

Notes:

- On three-pole breakers only (not eight physical poles), having ground fault functionality, a jumper installed from B-6 to B-7 will enable source ground fault sensing and disable residual ground fault sensing. Inputs B-4 and B-5 will be reassigned for source ground sensor inputs.
- All aux switch contacts shown with breaker in open position and with trip unit in "non-tripped" state (OTS switches).
 - The spring release accessory consists of an "SR" coil and a PC board. The printed circuit provides a 0.20 second pulse for the closing operation. Voltage must be removed and then reapplied for subsequent operation.
 - An optional SR-latch check switch (LCS) accessory may be connected to the spring release. The (closed) LCS delays the spring release pulse until the breaker mechanism is ready to close (charged and reset). (This will ensure that the latch will always be in the proper state before the spring release pulse is initiated.) If voltage is maintained and reset (LCS open), the closing pulse will occur when the mechanism is charged and reset (LCS open). Voltage must be removed and reapplied to the spring release for subsequent operation.
 - To provide selected time delays for short time and/or ground time functions for testing or non-zone interlocking applications, a jumper from B-8 to B-9 is required.
 - Three-wire crimp if high instantaneous trip module is supplied.
 - Normally open contact programmed as relay A, via Digitrip front panel (alarm contact). This can also be assigned to indicate maintenance mode feature in use.
 - Normally closed contact programmed as relay B, via Digitrip front panel (block close contact).

ALTERNATE (FORM C) AUX. SWITCHES

- Normally open contact programmed as relay C, via Digitrip front panel (latching contact).
- On four-pole breakers (actually eight physical poles), the neutral current sensors are located within the breaker frame. The secondary contacts B-4, B-5 are not wired out.
- Motor operator switch shown with closing spring discharged.
- A second shunt trip may be installed (using A-7-A-8 contacts) in place of UVR. Third aux switch not available with second shunt trip. Shunt trip may be standard or continuous duty type, secondary wiring is identical.
- Only one latch check switch may be installed. Use of customer-accessible latch check switch actuator to trip the circuit breaker. The standard OTS requires a manual local reset via red button depression. The auto reset OTS does not require manual reset, and if so configured, occupies the make-com second terminals A-4 and A-5.
- For circuit breakers built after July 2006 and Digitrip rev 20 decimal or greater, the maintenance mode feature (ARMS) is supplied. The reverse power deselection is front panel programmable only.