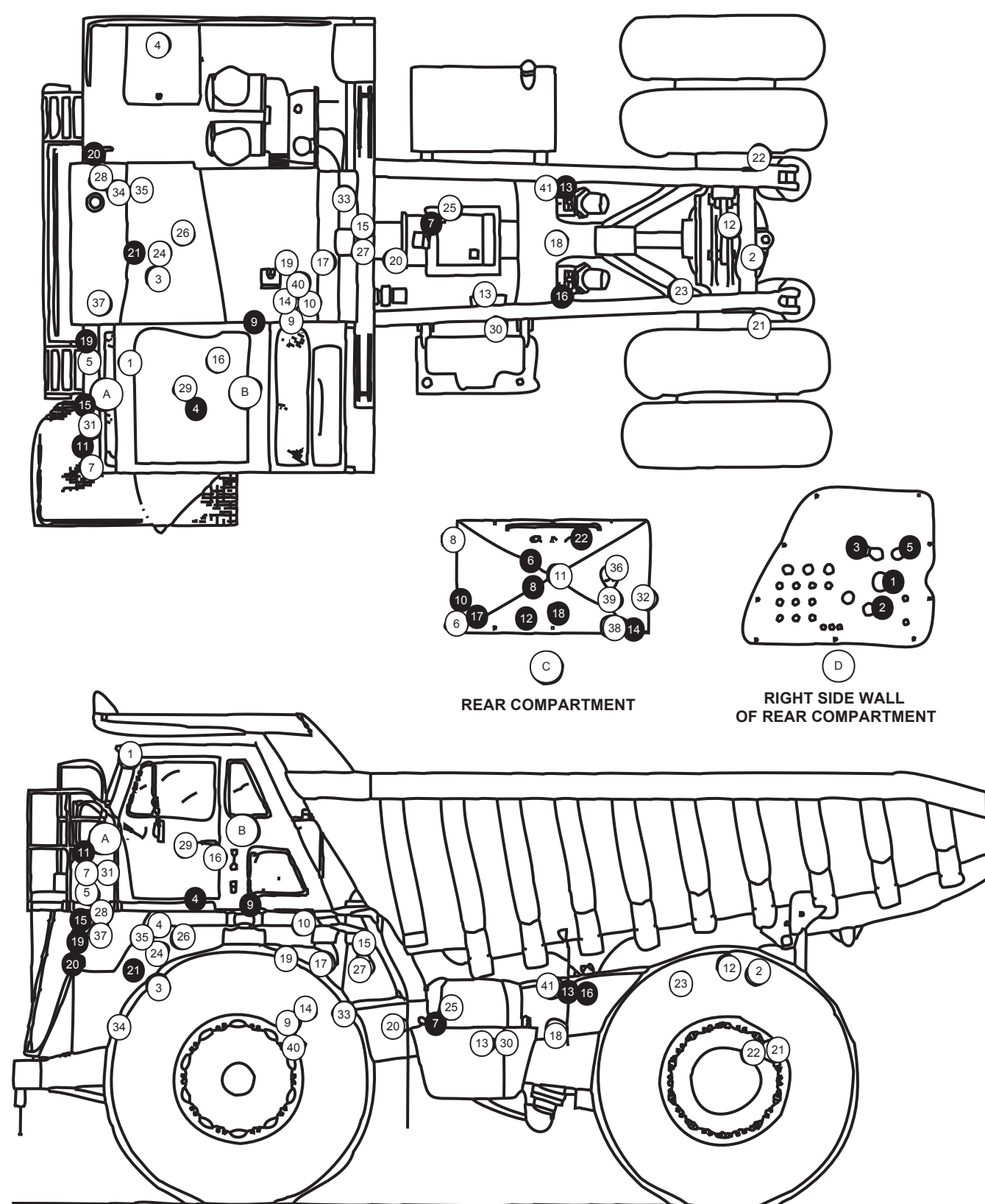


| Component Location                        |                    |                  |   |                    |                  |
|---|--------------------|------------------|---|--------------------|------------------|
| Component                                 | Schematic Location | Machine Location | Component                                 | Schematic Location | Machine Location |
| Alarm - Action (EMS)                      | C-2                | 1                | Solenoid - Engine Shutdown                | A-3                | 26               |
| Alarm - Backup                            | B-15               | 2                | Solenoid - Lockup                         | A-13               | 27               |
| Alternator                                | A-3                | 3                | Solenoid - Proportional                   | A-14               | 28               |
| Batteries                                 | A-7                | 4                | Solenoid - Start Aid                      | A-4                | 29               |
| Brake Retract                             | U-3, C-6, D-6, D-8 | A                | Solenoid - Up Shift                       | A-14               | 25               |
| Control - Engine Shutdown                 | C-3                | 5                | Speedometer                               | F-2                | A                |
| Control - Neutral Start                   | F-1                | 6C               | Switch - Backup Alarm                     | D-11               | 29               |
| Control - Supplemental Steering           | E-1                | 7                | Switch - Blower                           | E-11               | 16               |
| Control - Tractor Aid                     | D-15               | B                | Switch - Body Raise (Trns)                | D-13               | B                |
| Control - Transmission                    | E-13               | B                | Switch - Brake Master Cylinder Overstroke | A-7                | 30               |
| Distributor - Transmission Speed          | E-15               | 8C               | Switch - Brake Oil Temp (EMS)             | A-9                | 18               |
| Dryer - Air                               | A-8                | 9                | Switch - Brake Retarder Press             | F-15               | 31               |
| Flasher                                   | E-6                | A                | Switch - Brake Retract                    | D-3                | A                |
| Fuse - Supplemental Steering Lamp         | A-8                | 10               | Switch - Brake System Air Press (EMS)     | C-15               | 32C              |
| Fuses                                     | D-6                | A                | Switch - Converter/Retarder Temp (EMS)    | A-9                | 33               |
| Gauge - Air Press                         | D-3                | A                | Switch - Disconnect                       | A-6                | 4                |
| Gauge - Brake Oil Temp                    | F-2                | A                | Switch - Engine Coolant Flow (EMS)        | A-3                | 34               |
| Gauge - Coolant Temp                      | F-3                | A                | Switch - Engine Coolant Temp (EMS)        | B-3                | 3                |
| Ground - Cab/Frame                        | C-11               | 10               | Switch - Engine Coolant Temp (Start Aid)  | A-4                | 19               |
| Ground - Frame                            | B-9                | 10               | Switch - Engine Oil Press (EMS)           | A-2                | 3                |
| Ground - Cab                              | E-12               | 11C              | Switch - Fuel Press (EMS)                 | B-3                | 35               |
| Lamp - Action (EMS)                       | F-2                | A                | Switch - Key Start                        | F-3                | A                |
| Lamp - Brake Retarder                     | F-2                | A                | Switch - Operator Monitor Test            | D-3                | A                |
| Lamp - Engine Overtemp Warning (Not Used) | F-2                | A                | Switch - Parking Brake Press (EMS)        | C-15               | 36C              |
| Lamp - Supplemental Steering              | E-2                | A                | Switch - Refrigerant Press (AC)           | B-7                | 37               |
| Motor - Service                           | E-13               | B                | Switch - Running Lamp                     | E-3                | A                |
| Module - Stop Tail Lamp                   | B-14               | 12               | Switch - Secondary Brake Press (Tractor)  | E-1                | 36C              |
| Monitor - Operator (EMS)                  | D-1                | A                | Switch - Service Brake Press (Tractor)    | E-15               | 36C              |
| Motor - Brake Retract                     | A-11               | 13               | Switch - Service Brake Press (Trns)       | E-15               | 36C              |
| Motor - Starting                          | A-6                | 14               | Switch - Service Clear (Trns)             | E-13               | B                |
| Motor - Supplemental Steering             | A-7                | 15               | Switch - Service Set (Trns)               | F-15               | B                |
| Motors - Blower                           | E-10               | 16               | Switch - Shift Lever                      | D-11               | 29               |
| Pickup - Engine Speed (Tach)              | C-4                | 17               | Switch - Start Aid                        | D-3                | A                |
| Relay - Brake Retract                     | A-6                | A                | Switch - Stop Lamp Press (Module)         | F-15               | 36C              |
| Relay - Main Power                        | D-6                | A                | Switch - Supplemental Steering            | E-3                | A                |
| Relay - Starter                           | A-6                | 10               | Switch - Steering Flow                    | A-3                | 40               |
| Relay - Supplemental Steering Motor       | A-7                | 10               | Switch - Throttle                         | E-11               | 16               |
| Resistor - Blower Speed                   | E-10               | 16               | Switch - Tractor Aid Test                 | D-3                | A                |
| Resistor - Starter/Diagnostic Conn        | A-6                | 14               | Switch - Transmission                     | A-13               | 25               |
| Sender - Brake Oil Temp (Gauge)           | A-9                | 18               | Switch - Transmission Filter Press(EMS)   | A-9                | 41               |
| Sender - Coolant Temp (Gauge)             | A-3                | 19               | Switch - Transmission Oil Temp (EMS)      | A-9                | 41               |
| Sensor - Transmission Speed               | A-13               | 20               | Switch - Turn Signal                      | D-9                | A                |
| Sensor - Wheel Speed (LH)                 | B-15               | 21               | Tachograph                                | F-12               | B                |
| Sensor - Wheel Speed (RH)                 | A-15               | 22               | Tachometer                                | F-3                | A                |
| Solenoid - Air Way                        | A-14               | 23               |   |                    |                  |
| Solenoid - Air Conditioner Clutch         | A-3                | 24               |   |                    |                  |
| Solenoid - Down Shift                     | A-13               | 25               |   |                    |                  |

Machine locations are repeated for components located close together.  
 A = Components located in dash area.  
 B = Components located behind operator's seat.  
 C = Components located in rear compartment.



Machine Harness Connector and Component Locations

| Harness Connector Location Chart |                  |   |                    |           |                  |  |                    |
|----------------------------------|------------------|---|--------------------|-----------|------------------|--|--------------------|
| Connector                        | Machine Location | Harness And/Or Components                               | Schematic Location | Connector | Machine Location | Harness And/Or Components                      | Schematic Location |
| 37 Connects                      | 1                | L-71-5645<br>Transmission Control                       | D-13               | 1         | 1                | L-71-5646<br>P-89-8484<br>Transmission Control | E-9                |
| 25 Connects                      | 2                | A-71-5648<br>Y-88-8722<br>R-71-5619                     | C-11               | 2         | 2                | A-71-5648<br>Y-88-8722<br>R-71-5619            | C-11               |
| 20 Connects                      | 3                | A-71-5648<br>Diagnostic Connector<br>(Starts And Chgng) | D-12               | 3         | 3                | A-71-5648<br>Actual Gear Indicator             | D-10               |
| 14 Connects                      | 4                | L-71-5645<br>P-89-8484<br>Operator Monitor              | D-2                | 4         | 4                | P-89-8484<br>Engine Shutdown Control           | C-3                |
| 10 Connects                      | 5                | R-71-4854<br>Y-88-8728<br>M-89-8471                     | D-15               | 5         | 5                | A-71-5648<br>Not Used                          | C-10               |
| 9 Connects                       | 6                | L-71-5645<br>VV-89-6419                                 | D-10               | 6         | 6                | A-71-5648<br>Actual Gear Indicator             | D-10               |
| 8 Connects                       | 7                | R-71-4854<br>Y-88-8728                                  | C-14               | 7         | 7                | P-89-8484<br>Y-88-8722<br>M-89-8471            | B-14               |
| 8 Connects                       | 8                | A-71-5648<br>G-85-1249                                  | E-3                | 8         | 8                | P-89-8484<br>Engine Overtemp Monitor           | F-1                |
| 8 Connects                       | 9                | A-71-5648<br>G-85-1249                                  | E-3                | 9         | 9                | M-89-8471                                      | D-4                |
| 8 Connects                       | 10               | A-71-5648<br>Q-71-5649                                  | E-14               | 10        | 10               | A-71-5648<br>N-70-1756                         | E-10               |
| 8 Connects                       | 11               | L-71-5646<br>VV-89-6419<br>Not Used                     | E-13               | 11        | 11               | A-71-5648<br>Not Used                          | D-15               |
| 8 Connects                       | 12               | Y-88-7272<br>Z-71-1148                                  | A-10               | 12        | 12               | P-89-8484<br>Z-88-1482                         | A-5                |
| 8 Connects                       | 13               | Z-71-1148<br>Transmission Switch                        | A-13               | 13        | 13               | Y-88-7272<br>Z-71-1148                         | D-9                |
| 8 Connects                       | 14               | A-71-5648<br>P-89-8484                                  | F-3                | 14        | 14               | Y-88-7272<br>Z-71-1148                         | B-1                |
| 8 Connects                       | 15               | L-71-5646<br>Stop/Lamp Module                           | B-14               | 15        | 15               | L-71-5648<br>N-70-1756                         | B-1                |
| 8 Connects                       | 16               | L-71-5648<br>P-89-8484                                  | E-8                | 16        | 16               | L-71-5648<br>Actual Gear Indicator             | D-10               |
| 8 Connects                       | 17               | L-71-5648<br>P-89-8484                                  | E-8                | 17        | 17               | L-71-5648<br>Body Raise Switch                 | D-13               |
| 8 Connects                       | 18               | L-71-5648<br>P-89-8484                                  | E-8                | 18        | 18               | L-71-5648<br>Not Used                          | F-14               |
| 8 Connects                       | 19               | L-71-5648<br>P-89-8484                                  | E-8                | 19        | 19               | L-71-5648<br>Not Used                          | A-14               |

Machine locations are repeated for connectors located close together.  
 A = Connector is located at the component.  
 B = Connector is located behind the operator's seat.  
 C = Connector is located in the rear compartment.  
 D = Connector is located at the right side wall of the rear compartment.

| Wire Description              |            |  |                          |            |                                       |
|-------------------------------|------------|--|--------------------------|------------|---------------------------------------|
| Wire Number                   | Wire Color | Description                            | Wire Number              | Wire Color | Description                           |
| <b>Power Circuits</b>         |            |  |                          |            |                                       |
| 101                           | RD         | BAT                                    | 513                      | OR         | AC COMPRESSOR/REFRIGERANT PRESS. SW   |
| 102                           | BU         | HOLMP                                  | 515                      | GY         | BLOWER MOTOR (RH)                     |
| 103                           | YL         | AUX CKT                                | 516                      | GN         | BLOWER MOTOR (MEDIUM)                 |
| 105                           | BR         | KEY SW                                 | 517                      | BU         | BLOWER MOTOR (LO)                     |
| 107                           | WH         | ENG SHUT - DOWN FIRE SUPPR             | 521                      | YL         | AC SW TO REFRIGERANT SW               |
| 109                           | OR         | ALT OUTPUT (+) TERM                    | 522                      | WH         | AC CLUTCH TO THERMOSTAT SW            |
| 112                           | PU         | MAIN POWER RELAY OUTPUT                | 537                      | GN         | TURN SIGNAL SW TO FLASHER             |
| 113                           | OR         | OPR MON PANEL B+ SWITCHED              | 539                      | BU         | TURN SIGNAL INDICATOR BASIC/RIGHT     |
| 121                           | YL         | BACKUP ALARM TO LAMP                   | 540                      | WH         | TURN SIGNAL INDICATOR LEFT            |
| 122                           | BU         | AUX CKT                                | A510                     | OR         | AC PRESSURE OUT OUT SW SIGNAL 1       |
| 123                           | WH         | AUX CKT                                | <b>Lighting Circuits</b> |            |                                       |
| 124                           | GN         | ACC                                    | 602                      | WH         | DOKE LAMP                             |
| 126                           | PK         | XMEN CONT                              | 604                      | OR         | STOP LAMP                             |
| 132                           | PK         | AETA CONT                              | 605                      | YL         | TURN LAMP - LEFT                      |
| 136                           | GN         | SUPPL STER MOTOR FUSE                  | 606                      | GY         | TURN LAMP - RIGHT                     |
| 138                           | GN         | AUTO LUBE PUMP TO PAYLOAD MON          | 610                      | OR         | HEAD LAMP BASIC                       |
| 139                           | OR         | AUXCKT                                 | 611                      | PU         | HEAD LAMP HI                          |
| 173                           | YL         | AUXCKT                                 | 614                      | PU         | PARK/TAIL/DASH LAMP                   |
| 192                           | GN         | SUPPL STER BRK TO RELAY                | 619                      | GN         | HEAD LAMP LO                          |
| <b>Ground Circuits</b>        |            |  |                          |            |                                       |
| 200                           | BK         | MAIN CHASSIS                           | 640                      | GN         | RIGHT HAND STORTIAL LAMP              |
| 201                           | BK         | OPR MON PANEL                          | <b>Control Circuits</b>  |            |                                       |
| 202                           | BK         | XMEN CONT                              | 700                      | PK         | AETA TEST SW                          |
| 203                           | BK         | CHASSIS DIAGNOSTIC                     | 703                      | BU         | XMEN UP SOL                           |
| 207                           | BK         | STARTER DIAGNOSTIC                     | 704                      | GY         | XMEN DOWN SOL                         |
| 209                           | BK         | FIRE SUPPR GROUND                      | 705                      | PK         | XMEN/STOP CLUTCH SOL BASIC            |
| 212                           | BK         | AETA CODING PIN 16                     | 706                      | BR         | XMEN/STOP SW                          |
| 213                           | BK         | AETA CODING PIN 17                     | 707                      | PU         | XMEN BED REST SW                      |
| 215                           | BK         | AETA CODING PIN 19                     | 709                      | OR         | OPR MON POWER SUPPLY                  |
| 216                           | BK         | AETA CODING PIN 20                     | 710                      | OR         | STOP PICKUP                           |
| 217                           | BK         | XMEN ID CODE 2                         | 711                      | GN         | XMEN LEVER CODE 1                     |
| 218                           | BK         | XMEN ID CODE 1                         | 712                      | GN         | XMEN LEVER CODE 2                     |
| 219                           | BK         | XMEN ID CODE 0                         | 713                      | OR         | XMEN LEVER CODE 3                     |
| 227                           | BK         | XMEN ID CODE 3                         | 715                      | YL         | XMEN LEVER CODE 5                     |
| 231                           | BK         | XMEN SW                                | 716                      | GN         | XMEN LEVER CODE 6                     |
| 237                           | BK         | KBI ETHER CONT GROUND                  | 720                      | PU         | XMEN BRK SW                           |
| <b>Basic Machine Circuits</b> |            |  |                          |            |                                       |
| 301                           | BU         | STARTER NO. 1 SOL                      | 721                      | BR         | XMEN GEAR CODE 1                      |
| 302                           | GN         | STARTER NO. 1 RESISTOR TO DIAGNOSTIC   | 722                      | WH         | XMEN GEAR CODE 2                      |
| 304                           | WH         | STARTER RELAY NO. 1 OUTPUT             | 723                      | GN         | XMEN GEAR CODE 3                      |
| 306                           | GN         | STARTER RELAY COIL TO NEUT START SW    | 724                      | BR         | XMEN GEAR CODE 4                      |
| 307                           | DR         | KEY SW TO NEUT START                   | 725                      | GN         | XMEN GEAR CODE 5                      |
| 308                           | YL         | MAIN POWER RELAY COIL                  | 726                      | BU         | XMEN GEAR CODE 6                      |
| 310                           | PU         | START AID RELAY START AID SOL          | 727                      | GN         | SUPPL STER MOTOR RELAY                |
| 311                           | WH         | START AID RELAY TEMP SW                | 733                      | BR         | SWITCHING GEAR CODE 1 FRONT           |
| 313                           | GY         | STARTER NO. 2 RELAY TO DIAGNOSTIC      | 734                      | WH         | SWITCHING GEAR CODE 2 FRONT           |
| 314                           | PU         | KEY SW TO START AID SOL                | 735                      | OR         | SWITCHING GEAR CODE 3 FRONT           |
| 321                           | BR         | OPR MON TRAN TRAVEL SIGNAL             | 736                      | YL         | SWITCHING GEAR CODE 4 FRONT           |
| 326                           | PK         | KEY SW TO START AID SOL                | 737                      | GN         | SWITCHING GEAR CODE 5 FRONT           |
| 327                           | WH         | SHUTDOWN SOL                           | 767                      | WH         | AETA PICKUP POWER                     |
| 403                           | GN         | AL TERMINAL (R) TERM                   | 768                      | OR         | AETA PICKUP XMEN                      |
| 405                           | GY         | OPR MON TRAN (NO SETTING)              | 769                      | BU         | WHEEL SPEED PICKUP LEFT               |
| 406                           | BU         | OPR MON COOLANT FAN                    | 770                      | GN         | WHEEL SPEED PICKUP RIGHT              |
| 408                           | WH         | OPR MON CONVERTER/RETARDER OIL TEMP    | 772                      | BR         | AETA RETARDER SW                      |
| 409                           | OR         | OPR MON NEUT                           | 773                      | GY         | AETA SERVIVALVE                       |
| 410                           | OR         | OPR MON ACTION ALARM                   | 774                      | YL         | AETA SOL - LEFT                       |
| 411                           | OR         | OPR MON ACTION LAMP                    | 775                      | BR         | AETA SOL - RIGHT                      |
| 412                           | BU         | OPR MON COOLANT FLOW                   | 777                      | PU         | BRAKE RELEASE MOTOR                   |
| 416                           | BR         | OPR MON FUEL PRESS                     | 784                      | YL         | PAYLOAD MON XMEN SPEED                |
| 415                           | GN         | OPR MON TEST SW                        | 891                      | BU         | NEUT START CONT TO PAYLOAD MON SYSTEM |
| 417                           | GY         | PRIMARY STER SW                        | 892                      | BR         | DATA LINK (L)                         |
| 419                           | YL         | OPR MON PARKING BRAKE                  | 893                      | GN         | DATA LINK (R)                         |
| 426                           | BR         | OPR MON POWER TRAIN OIL FL FTL         | 918                      | GY         | ENG OVERSPEED LIGHT AND HORN          |
| 437                           | BR         | OPR MON FUEL LEVEL TO FUEL FTER JUMPER | 919                      | GN         | ENG OVERSPEED TEST SW                 |
| 441                           | OR         | ENG COOLANT TEMP GAGE                  | 930                      | BR         | BRAKE RETRACT SW TO RELAY COOL        |
| 446                           | PU         | BRAKE OIL TEMP GAGE                    | 943                      | OR         | TEMP SWING - JOY 2                    |
| 449                           | BU         | SPDM SENDER (SIGNAL NO. 1)             | 8983                     | BU         | ENG THROTTLE CONT - SIGNAL            |
| 450                           | YL         | TACH SENDER (V)                        | 8779                     | YL         | FAN CONTROL SOLENOID POSITIVE         |
| 454                           | GN         | RETARDER INDICATOR LAMP                | 8771                     | BR         | FAN CONTROL SOLENOID RETURN           |
| 462                           | YL         | SUPPL STER MOTOR INDICATOR             | 8948                     | OR         | START AID CONT MANUAL INPUT           |
| 470                           | PU         | CAME SW NEUT                           | 8954                     | YL         | START AID CONT TEST SW INPUT          |
| 472                           | OR         | PARKING BRAKE SW TO OVERSTROKE SW      | 8958                     | BU         | START AID CONT LAMP 2 OUTPUT          |
| 481                           | GN         | CONVERTER TEMP SW TO BRAKE OIL TEMP SW | 8966                     | GY         | AFTERCOOLER COOLANT LEVEL             |
|                               |            |  | 0963                     | PK         | SEVERE SHFT LIMIT CONT RACK SOL       |
|                               |            |  | 0969                     | PU         | TRANSMISSION CONT SERVICE SET         |
|                               |            |  | 0997                     | YL         | TRANSMISSION CONT SERVICE CLEAR       |



SENTR6395  
December 1993

# Schematic

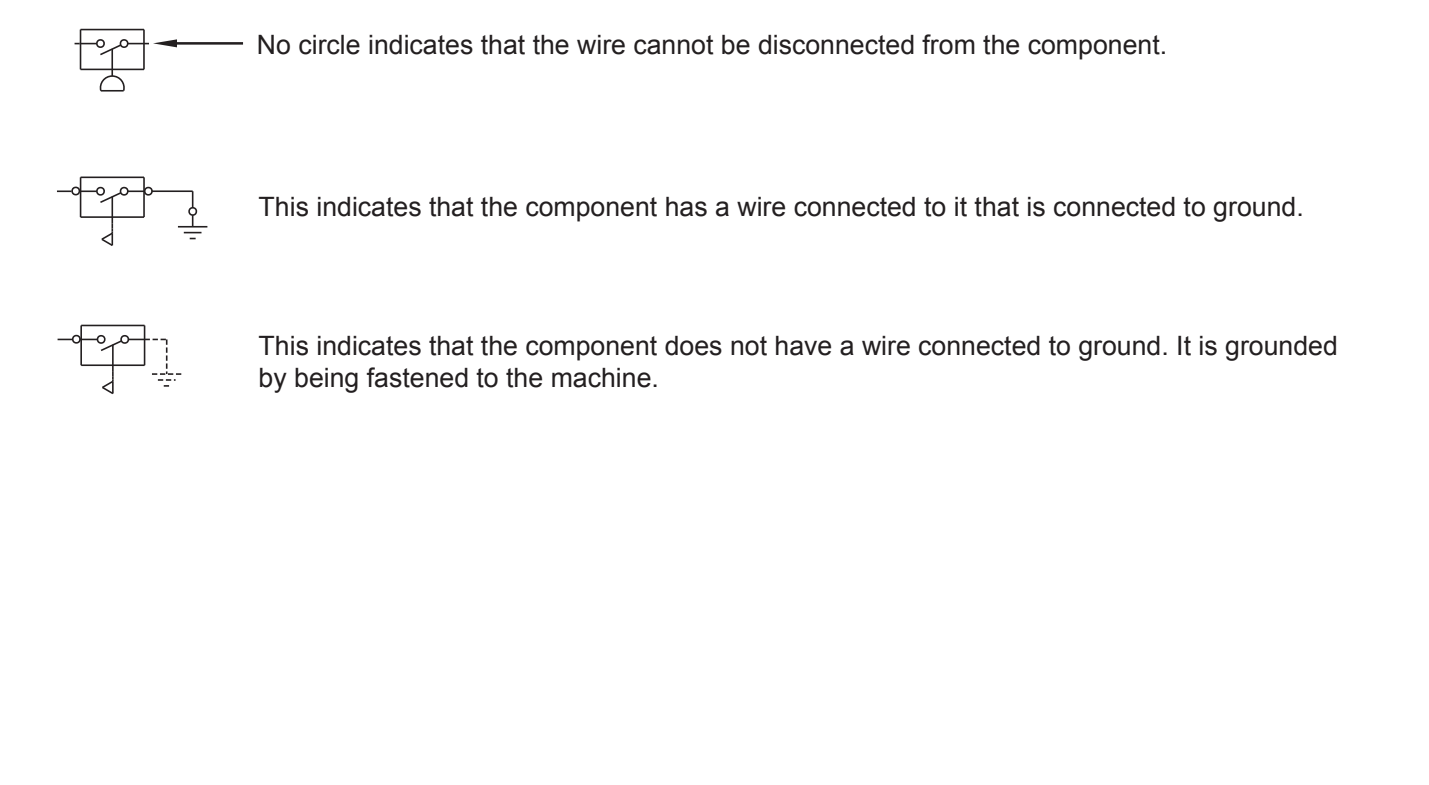
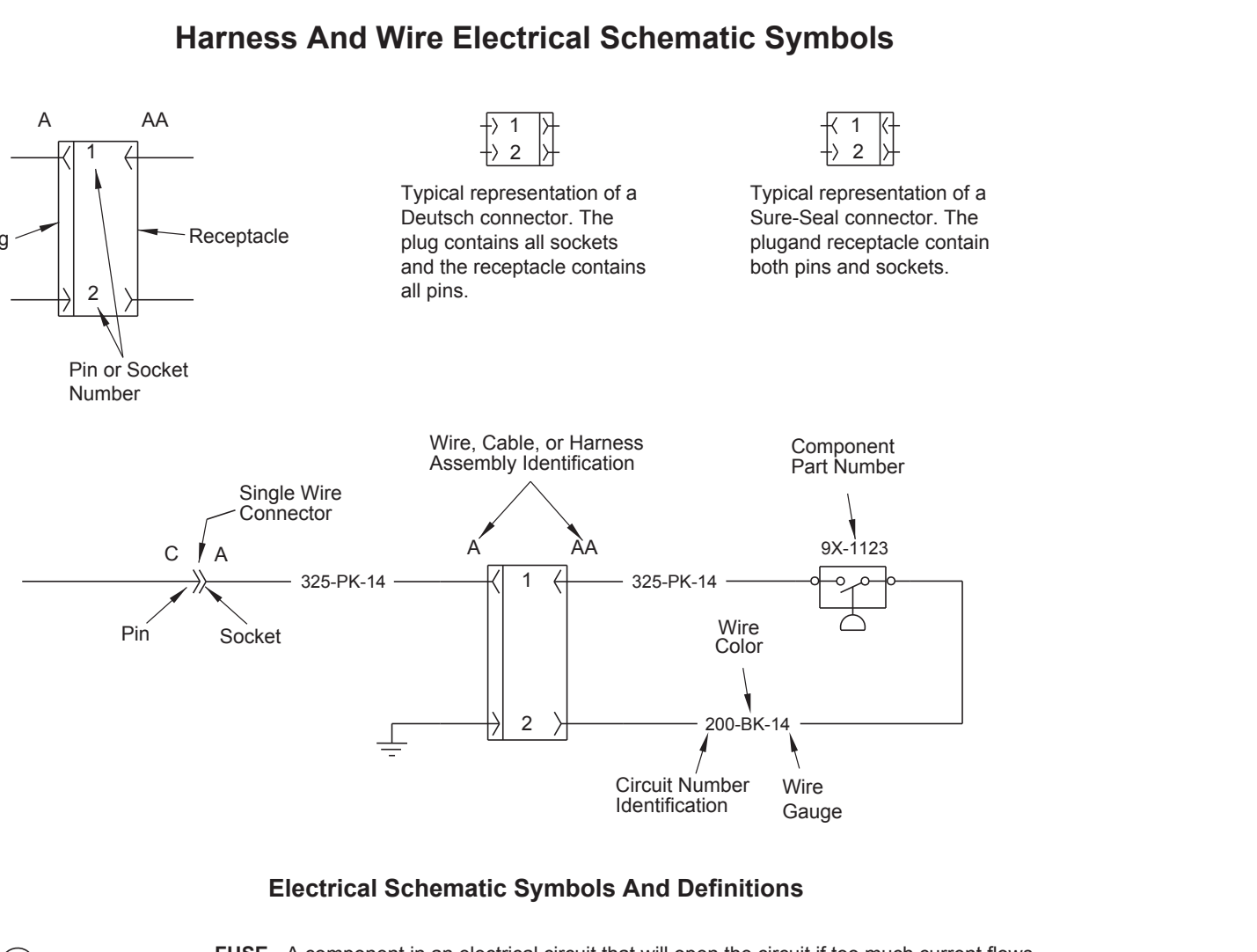
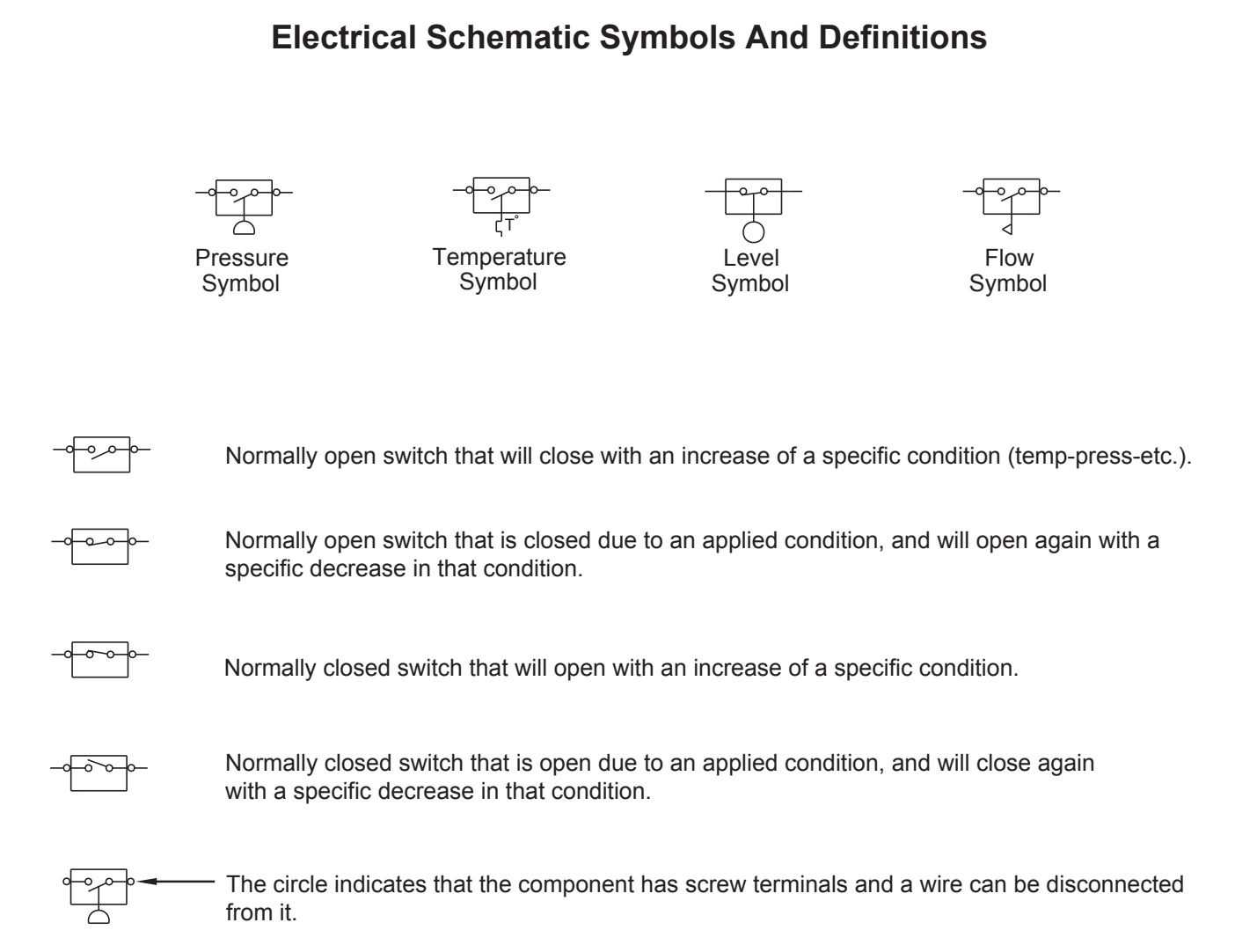
## 768C Tractor & 796C Truck Electrical System

768C: 2X371-399  
769C: 1X6001-6599



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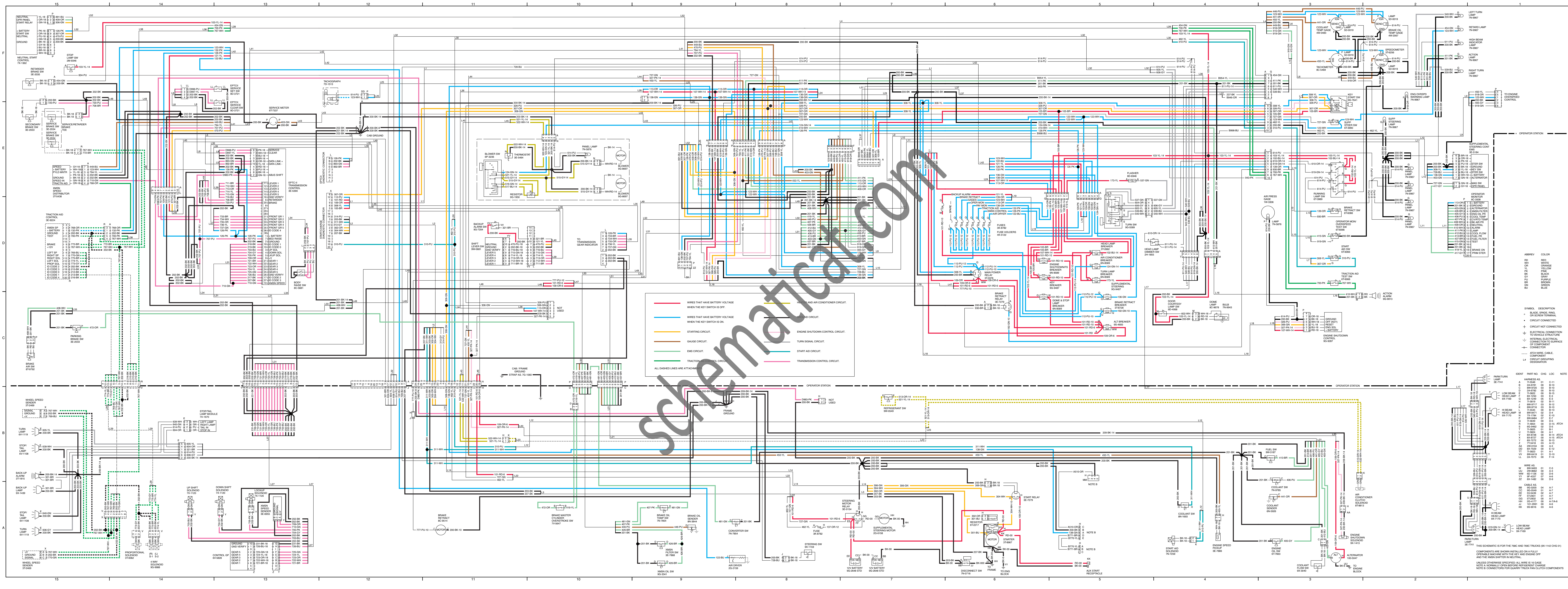
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| Resistor, Sender and Solenoid Specifications |  |                                   |
|--|--|-----------------------------------|
| Part No.                                     | Component Description                    | Resistance (Ohms)                 |
| 90-1950                                      | Resistor - Blower Motor Speed            | Overall 2.0 ± 0.1, Tap 1.0 ± 0.05 |
| 87-2217                                      | Resistor - Starter/Diagnostic Conn       | 150 ± 7.5                         |
| 90-9988                                      | Solenoid - 4 Way                         | 24.9                              |
| 87-8813                                      | Solenoid - A/C Clutch                    | 14.4 ± 0.6                        |
| 7X-1120                                      | Solenoids - Down Shift, Up Shift, Lockup | 33.7                              |
| 90-1413                                      | Solenoid - Engine Shutdown               | 3.72 ± 37                         |
| 3T-0062                                      | Solenoid - Proportional                  | 16.0                              |
| 7N-7259                                      | Solenoid - Start Aid                     | 6.0                               |

\* At room temperature unless otherwise noted.

| FMI No. | Failure Description                           |
|---------|---|
| 0       | Data valid but above normal operational range |
| 1       | Data valid but below normal operational range |
| 2       | Data erratic, intermittent or inconsistent    |
| 3       | Voltage above normal or shorted high          |
| 4       | Voltage below normal or shorted low           |
| 5       | Current below normal or open circuit          |
| 6       | Current above normal or grounded circuit      |
| 7       | Mechanical system not responding properly     |
| 8       | Abnormal frequency, pulse width, or period    |



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| IDENT | PART NO. | CHG | LOC  | NOTE      |
|-------|----------|-----|------|-----------|
| A     | 71-544   | 01  | C-11 | HORN BELL |
| B     | 71-544   | 01  | B-10 | HORN BELL |
| C     | 71-544   | 01  | B-10 | HORN BELL |
| D     | 71-544   | 01  | B-10 | HORN BELL |
| E     | 71-544   | 01  | B-10 | HORN BELL |
| F     | 71-544   | 01  | B-10 | HORN BELL |
| G     | 71-544   | 01  | B-10 | HORN BELL |
| H     | 71-544   | 01  | B-10 | HORN BELL |
| I     | 71-544   | 01  | B-10 | HORN BELL |
| J     | 71-544   | 01  | B-10 | HORN BELL |
| K     | 71-544   | 01  | B-10 | HORN BELL |
| L     | 71-544   | 01  | B-10 | HORN BELL |
| M     | 71-544   | 01  | B-10 | HORN BELL |
| N     | 71-544   | 01  | B-10 | HORN BELL |
| O     | 71-544   | 01  | B-10 | HORN BELL |
| P     | 71-544   | 01  | B-10 | HORN BELL |
| Q     | 71-544   | 01  | B-10 | HORN BELL |
| R     | 71-544   | 01  | B-10 | HORN BELL |
| S     | 71-544   | 01  | B-10 | HORN BELL |
| T     | 71-544   | 01  | B-10 | HORN BELL |
| U     | 71-544   | 01  | B-10 | HORN BELL |
| V     | 71-544   | 01  | B-10 | HORN BELL |
| W     | 71-544   | 01  | B-10 | HORN BELL |
| X     | 71-544   | 01  | B-10 | HORN BELL |
| Y     | 71-544   | 01  | B-10 | HORN BELL |
| Z     | 71-544   | 01  | B-10 | HORN BELL |
| AA    | 71-544   | 01  | B-10 | HORN BELL |
| AB    | 71-544   | 01  | B-10 | HORN BELL |
| AC    | 71-544   | 01  | B-10 | HORN BELL |
| AD    | 71-544   | 01  | B-10 | HORN BELL |
| AE    | 71-544   | 01  | B-10 | HORN BELL |
| AF    | 71-544   | 01  | B-10 | HORN BELL |
| AG    | 71-544   | 01  | B-10 | HORN BELL |
| AH    | 71-544   | 01  | B-10 | HORN BELL |
| AI    | 71-544   | 01  | B-10 | HORN BELL |
| AJ    | 71-544   | 01  | B-10 | HORN BELL |
| AK    | 71-544   | 01  | B-10 | HORN BELL |
| AL    | 71-544   | 01  | B-10 | HORN BELL |

THIS SCHEMATIC IS FOR THE 7800 AND 7900 TRUCKS (BK-142 CH4-D).  
 COMPONENTS ARE SHOWN INSTALLED ON A FULLY  
 OPERABLE MACHINE WITH THE KEY AND ENGINE OFF  
 AND THE MESH SHIFTER IN NEUTRAL.  
 UNLESS OTHERWISE SPECIFIED ALL WIRES ARE GAGE  
 16 AWG (1.32 MM) UNLESS OTHERWISE SPECIFIED.  
 NOTE A NORMALLY OPEN BEFORE REVERSE CHARGE  
 NOTE B COMPONENTS FOR QUARRY TRUCK FAN CLUTCH COMPONENTS