

CHAPTER

24

ELECTRICAL POWER



CHAPTER 24
ELECTRICAL POWER

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A = Added, R = Revised, D = Deleted, O = Overflow

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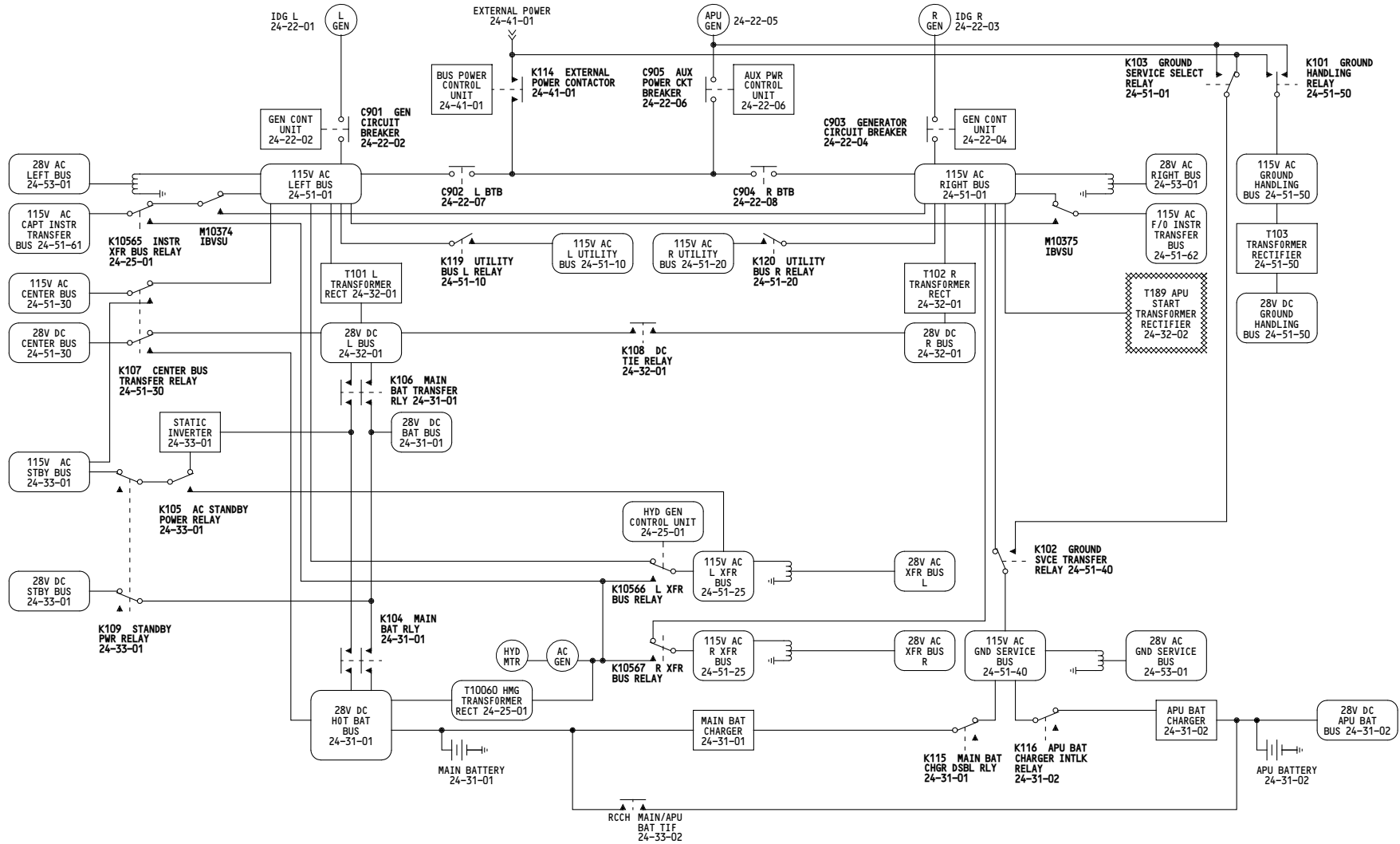
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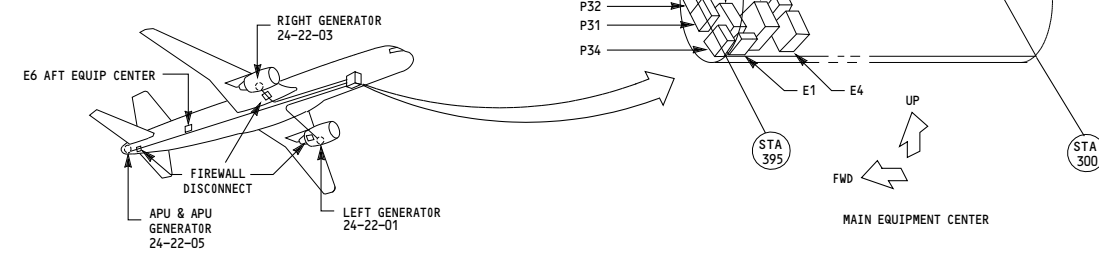
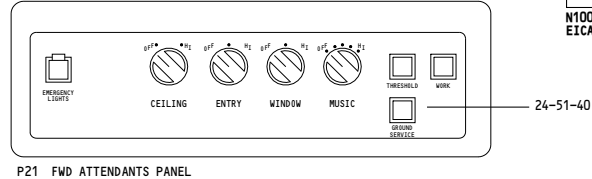
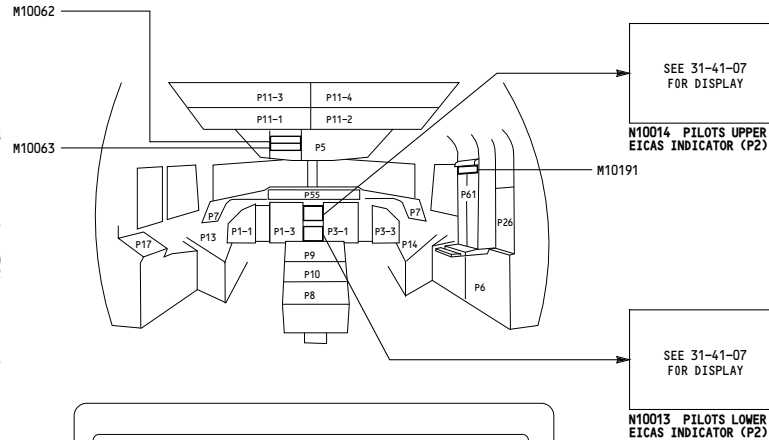
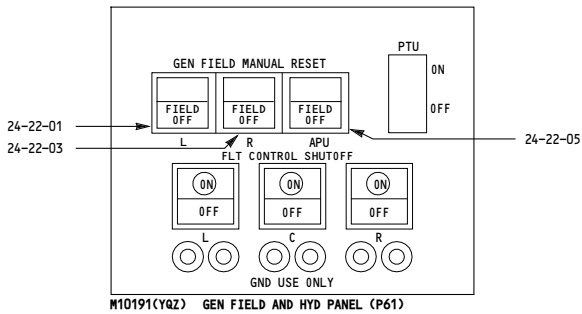
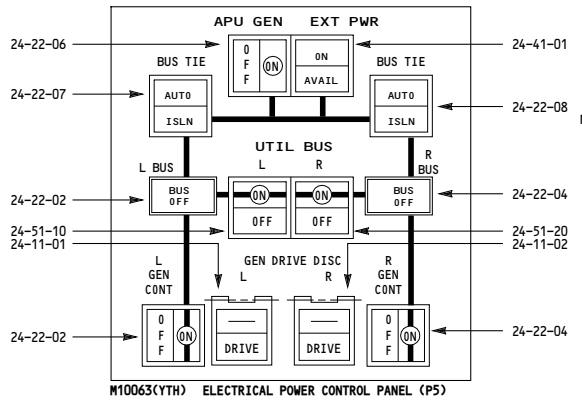
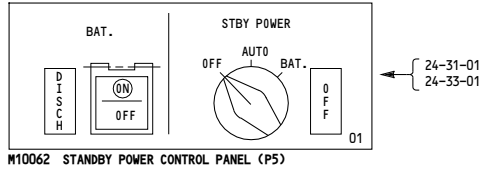
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| PANEL No. | PANEL TITLES |
|-----------|--------------------------|
| P5 | OVHD PANEL |
| P6 | MAIN PWR DISTR PANEL |
| P8 | PILOTS AFT CONTROL STAND |
| P11 | OVHD CB PANEL |
| P31 | LEFT GEN SHIELD PANEL |
| P32 | RIGHT GEN SHIELD PANEL |
| P34 | APU/EXT PWR PANEL |
| P36 | LEFT MISC RELAY PANEL |
| P37 | RIGHT MISC RELAY PANEL |
| P61 | ACCESSORY PANEL |

| SHELF No. | SHELF TITLES |
|-----------|---------------------|
| E1 | E/E EQUIPMENT SHELF |
| E2 | E/E EQUIPMENT SHELF |
| E3 | E/E EQUIPMENT SHELF |
| E4 | E/E EQUIPMENT SHELF |
| E5 | E/E EQUIPMENT SHELF |
| E6 | AFT EQUIPMENT SHELF |

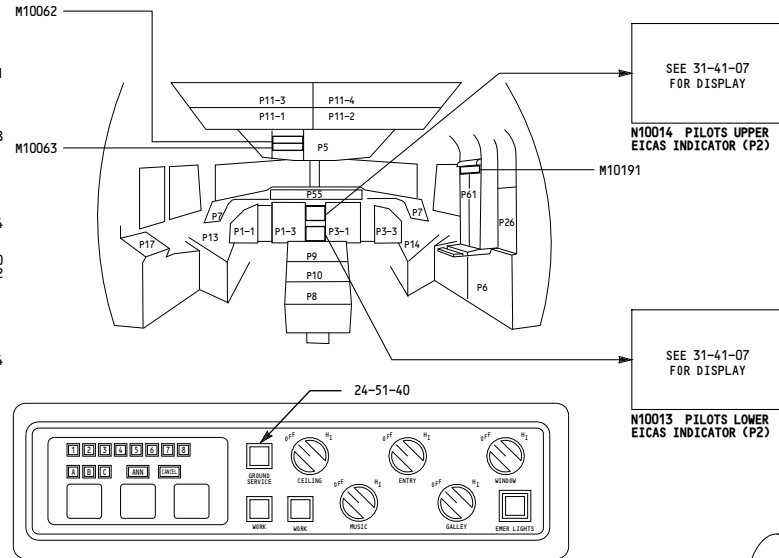
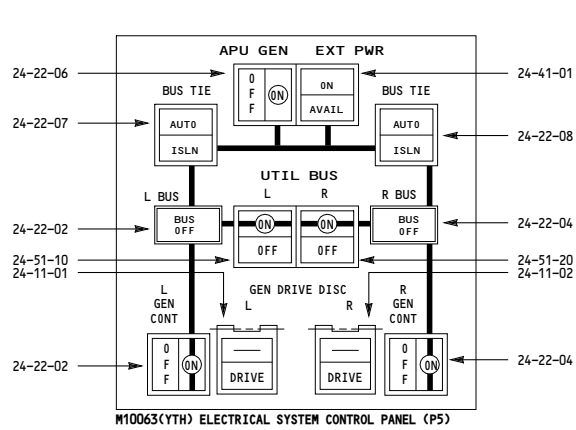
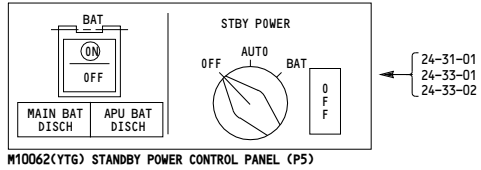
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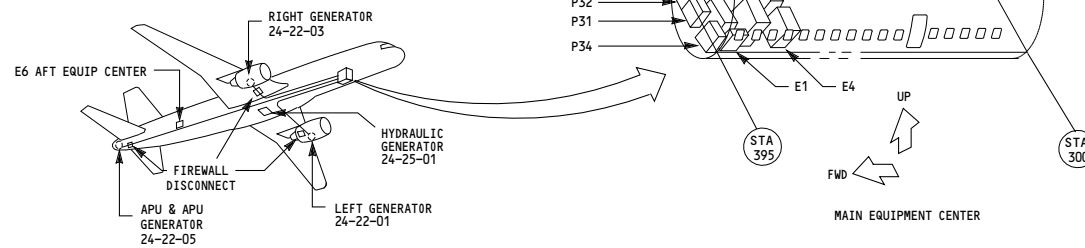
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| PANEL NO. | PANEL TITLES |
|-----------|--------------------------|
| P5 | OVHD PANEL |
| P6 | MAIN PWR DISTR PANEL |
| P8 | PILOTS AFT CONTROL STAND |
| P11 | OVHD CB PANEL |
| P31 | LEFT GEN PWR PANEL |
| P32 | RIGHT GEN PWR PANEL |
| P34 | APU/EXT PWR PANEL |
| P36 | MISC ELEC EQUIP PANEL |
| P37 | R MISC ELEC EQUIP PANEL |
| P71 | HYD GEN CONTROL PANEL |

| SHELF NO. | SHELF TITLES |
|-----------|---------------------|
| E1 | E/E EQUIPMENT SHELF |
| E2 | E/E EQUIPMENT SHELF |
| E3 | E/E EQUIPMENT SHELF |
| E4 | E/E EQUIPMENT SHELF |
| E5 | E/E EQUIPMENT SHELF |
| E6 | AFT EQUIPMENT SHELF |



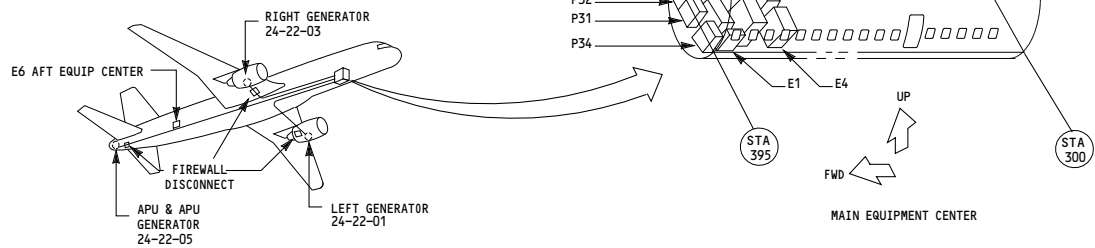
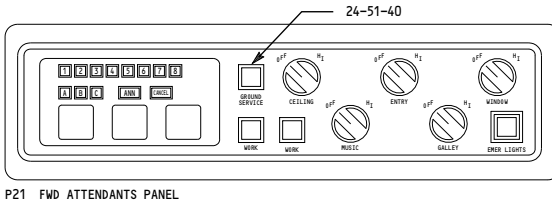
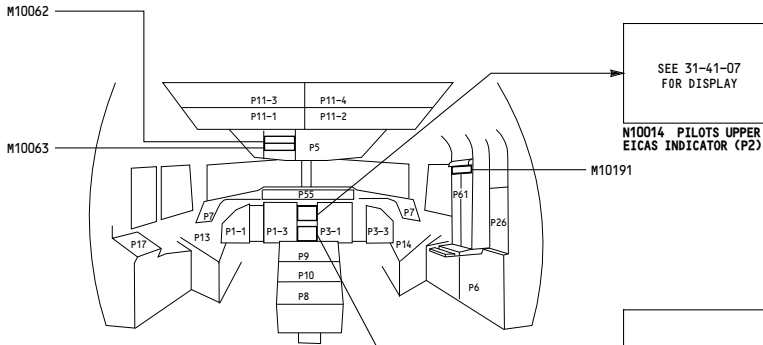
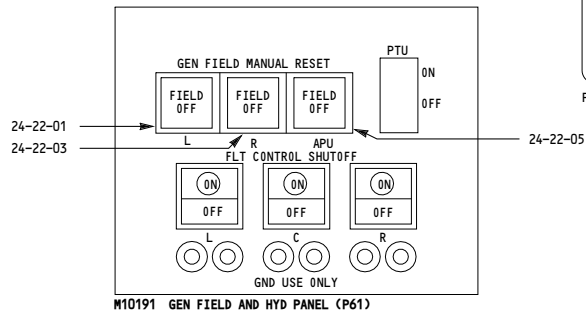
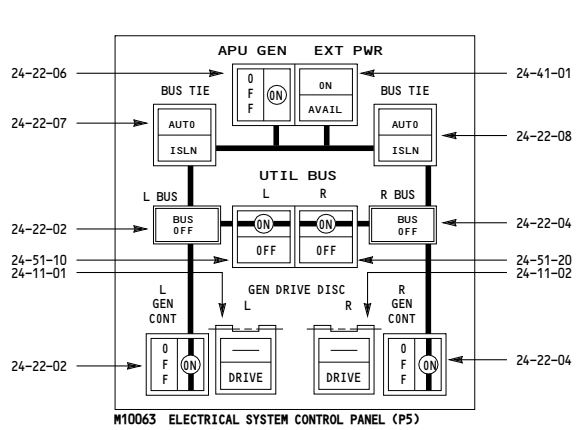
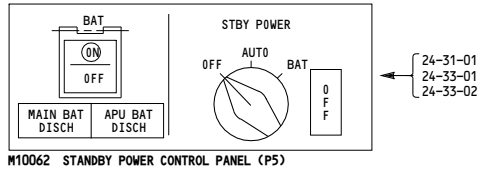
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| PANEL No. | PANEL TITLES |
|-----------|--------------------------|
| P5 | OVHD PANEL |
| P6 | MAIN PWR DISTR PANEL |
| P8 | PILOTS AFT CONTROL STAND |
| P11 | OVHD CB PANEL |
| P31 | LEFT GEN SHIELD PANEL |
| P32 | RIGHT GEN SHIELD PANEL |
| P34 | APU/EXT PWR PANEL |
| P36 | LEFT MISC RELAY PANEL |
| P37 | RIGHT MISC RELAY PANEL |
| P61 | ACCESSORY PANEL |

| SHELF No. | SHELF TITLES |
|-----------|---------------------|
| E1 | E/E EQUIPMENT SHELF |
| E2 | E/E EQUIPMENT SHELF |
| E3 | E/E EQUIPMENT SHELF |
| E4 | E/E EQUIPMENT SHELF |
| E5 | E/E EQUIPMENT SHELF |
| E6 | AFT EQUIPMENT SHELF |

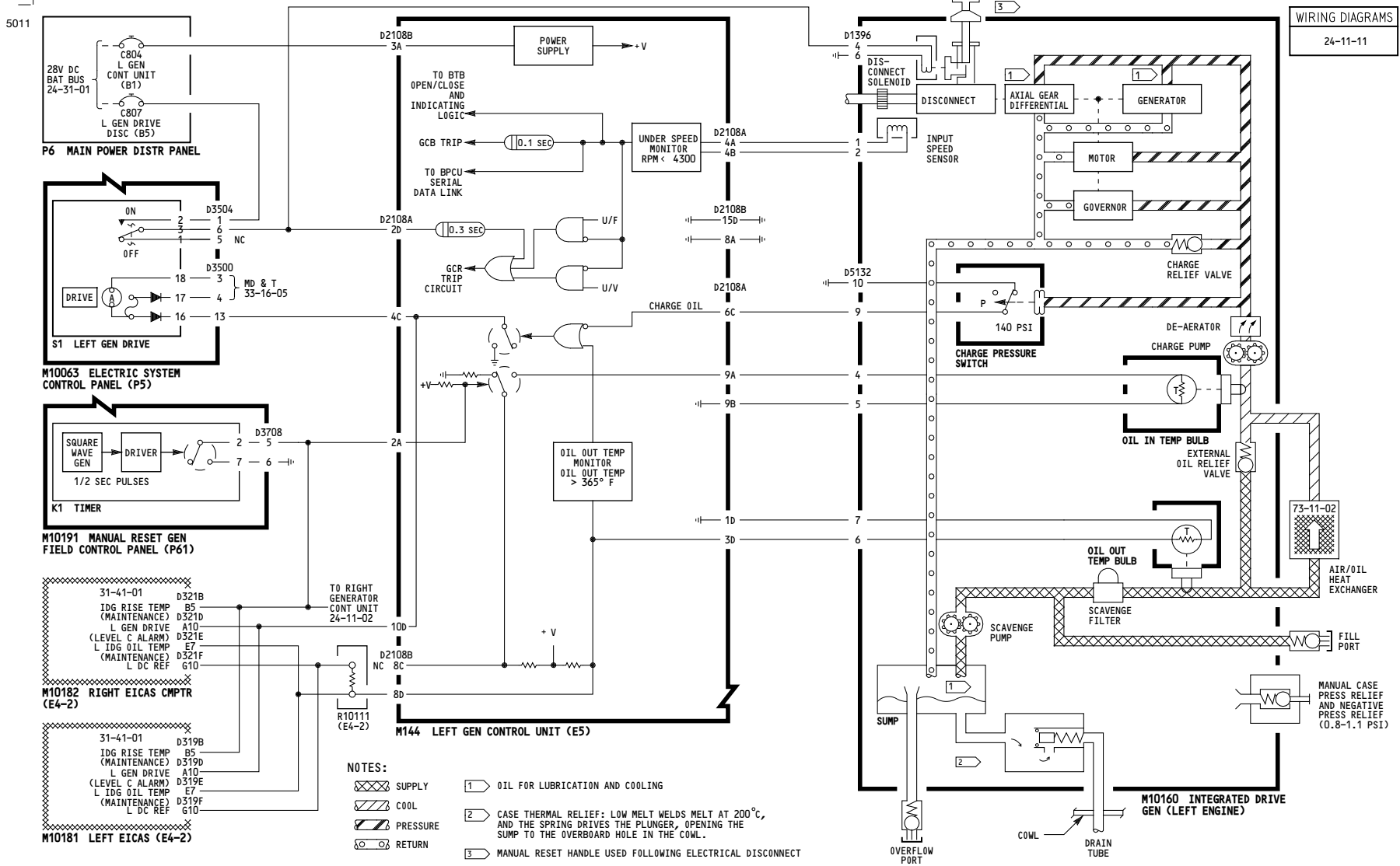
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WIRING DIAGRAMS
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ALL

LEFT INTEGRATED DRIVE GENERATOR

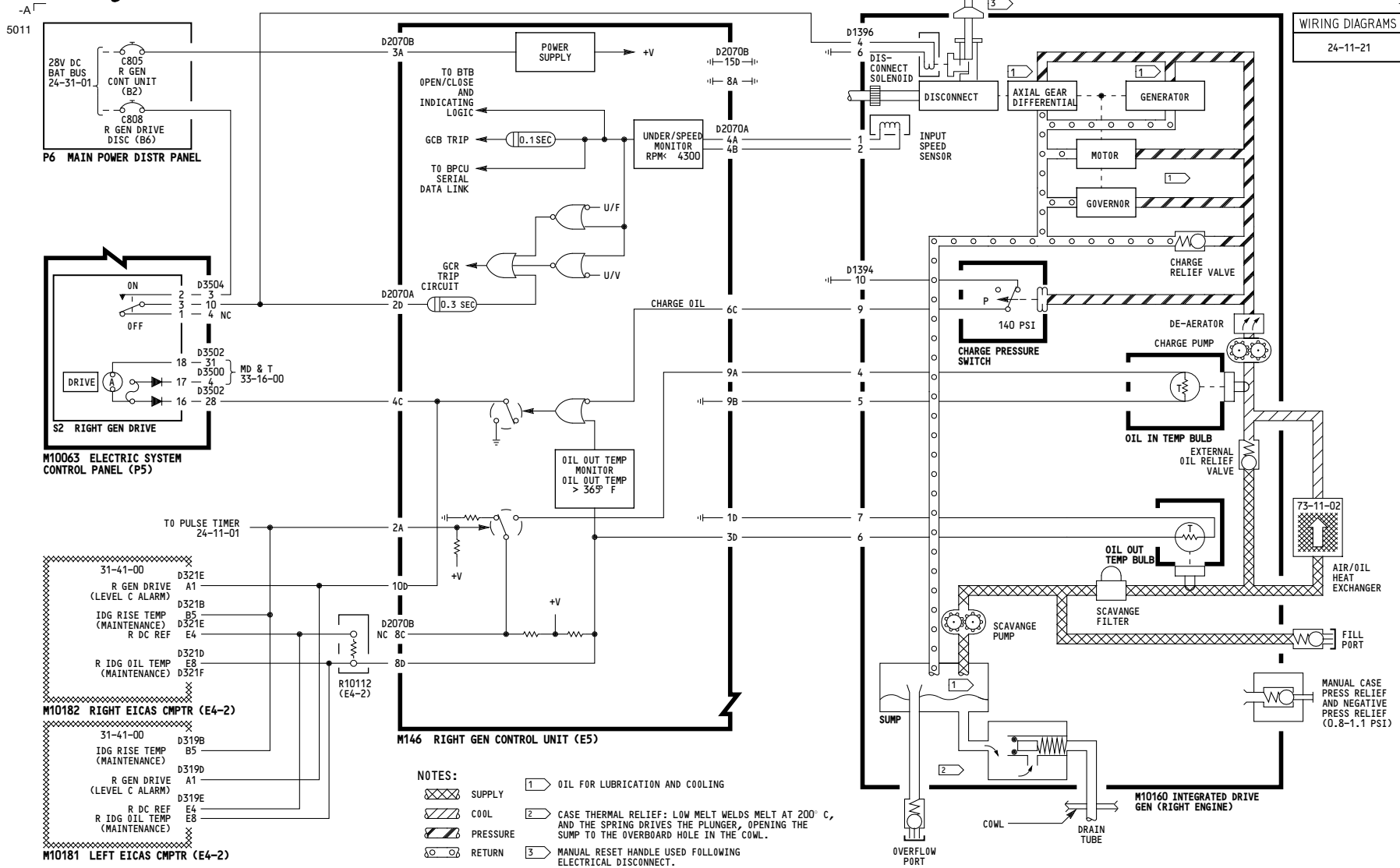
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WIRING DIAGRAMS
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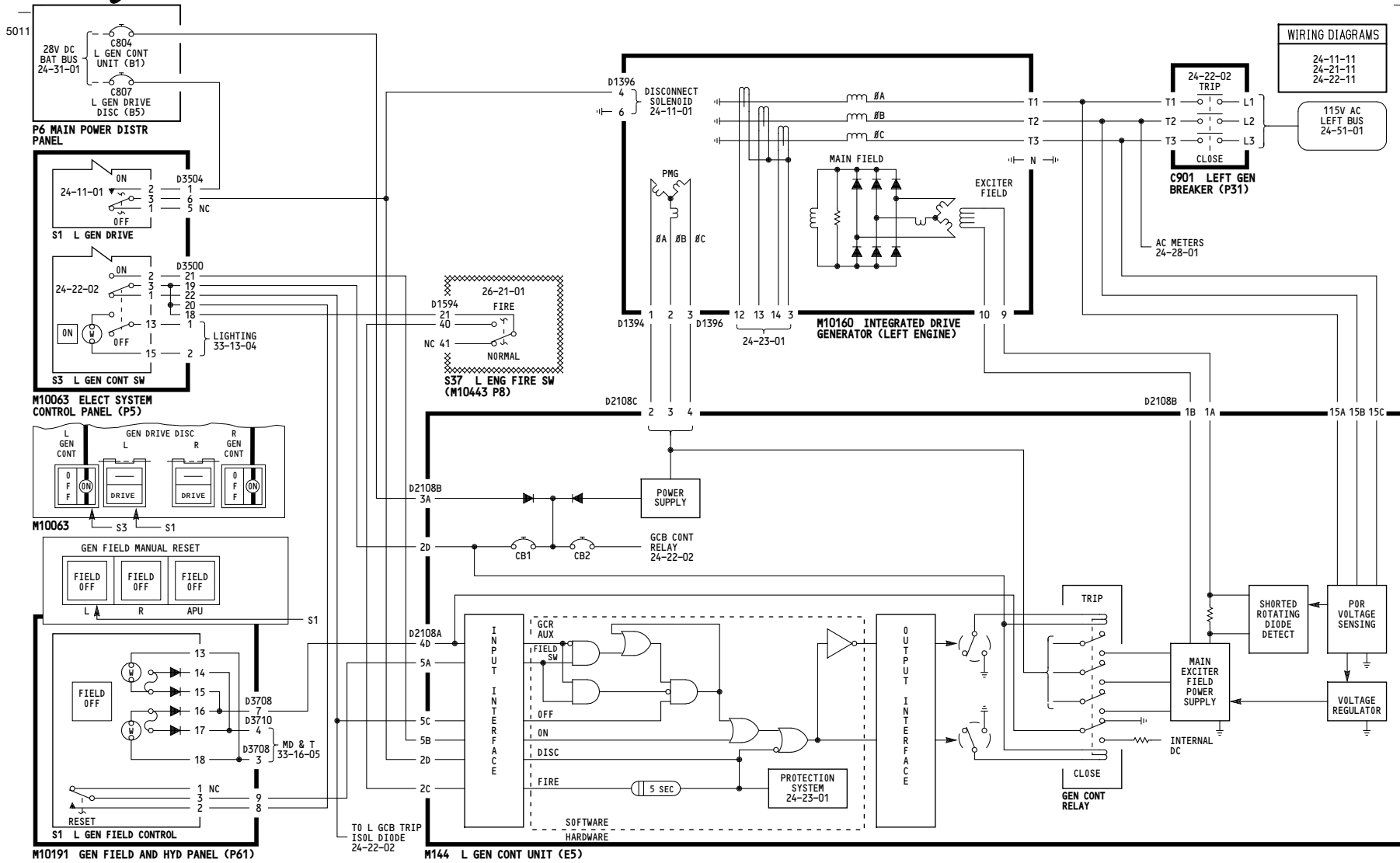
- NOTES:**
- SUPPLY
 - COOL
 - PRESSURE
 - RETURN
 - OIL FOR LUBRICATION AND COOLING
 - CASE THERMAL RELIEF: LOW MELT WELDS MELT AT 200° C, AND THE SPRING DRIVES THE PLUNGER, OPENING THE SUMP TO THE OVERBOARD HOLE IN THE COWL.
 - MANUAL RESET HANDLE USED FOLLOWING ELECTRICAL DISCONNECT.

| | |
|-----|---|
| ALL | <p>RIGHT INTEGRATED DRIVE GENERATOR</p> <p>D280N032S</p> |
|-----|---|

24-11-02

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Oct 09/2008



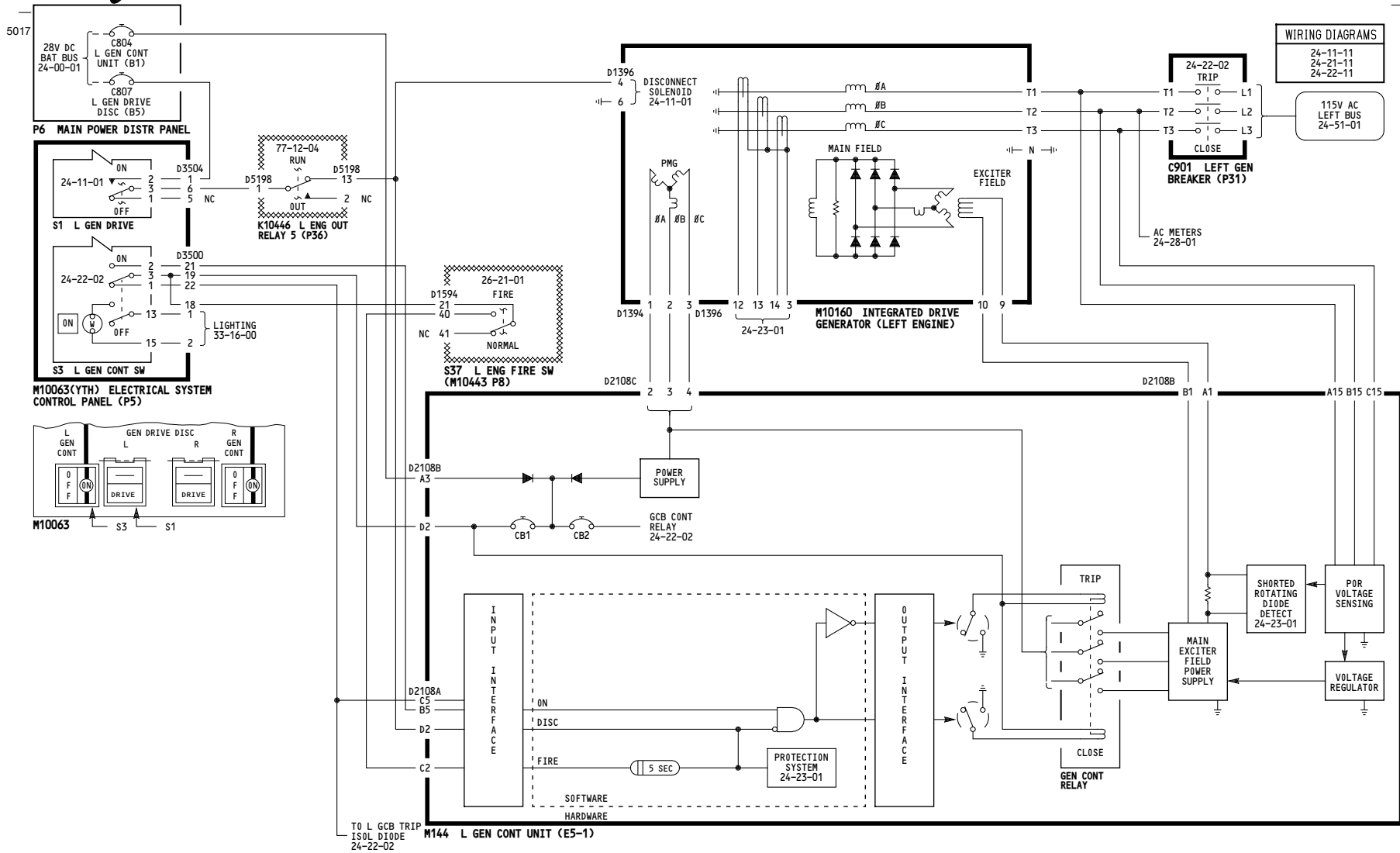
WIRING DIAGRAMS
 24-11-11
 24-21-11
 24-22-11
 115V AC LEFT BUS
 24-51-01

001-003
LEFT GENERATOR CONTROL - GCR
 D280N032S

24-22-01

Page 101

Jan 21/2005

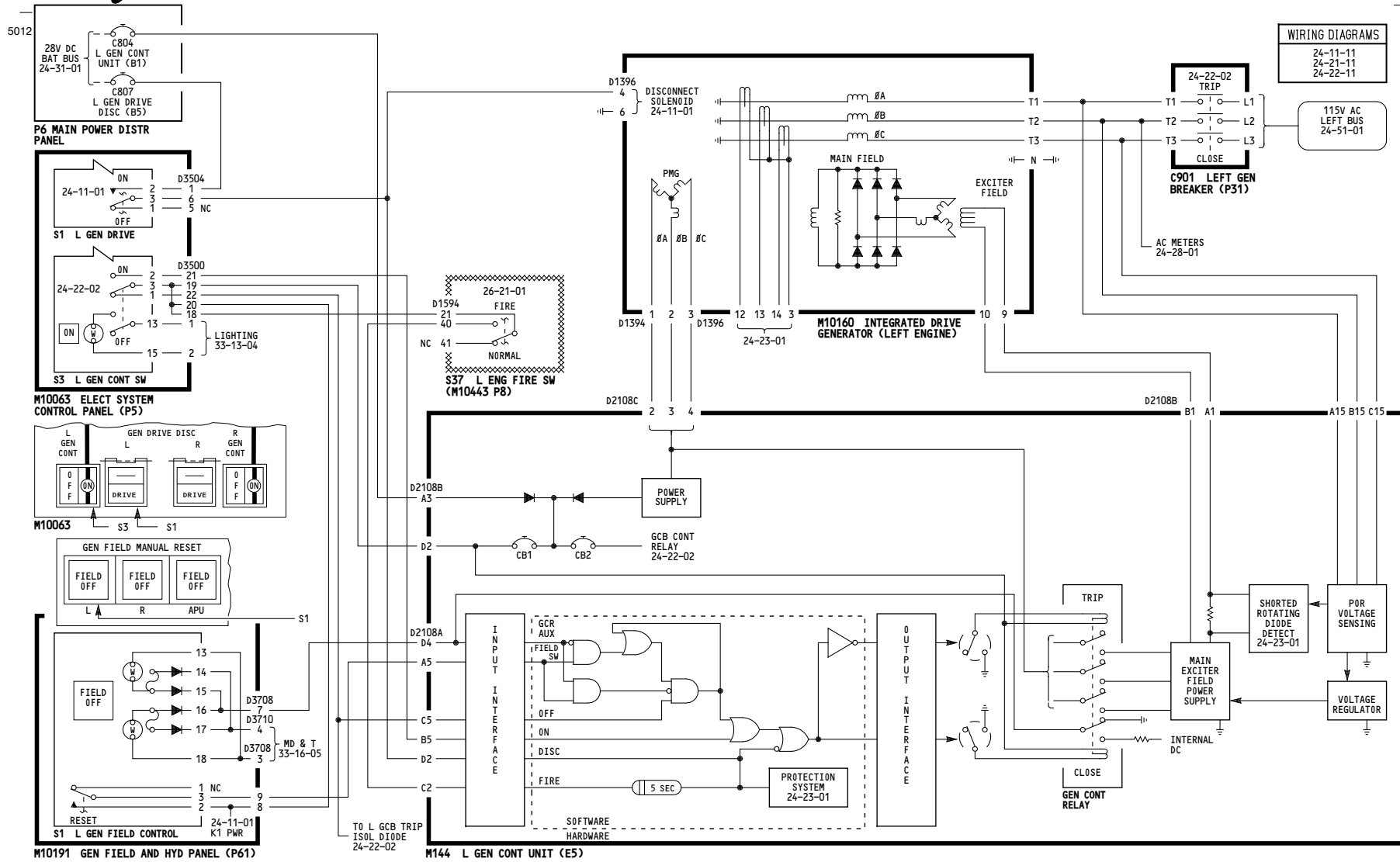


WIRING DIAGRAMS

- 24-11-11
- 24-21-11
- 24-22-11

24-22-01

| | |
|----------------|---|
| <p>004-099</p> | <p>LEFT GENERATOR CONTROL - GCR</p> <p>D280N032S</p> |
|----------------|---|



WIRING DIAGRAMS
24-11-11
24-21-11
24-22-11

115V AC LEFT BUS
24-51-01

24-22-02 TRIP
L1
L2
L3
CLOSE
C901 LEFT GEN BREAKER (P31)

AC METERS
24-28-01

D2108B B1 A1 A15 B15 C15

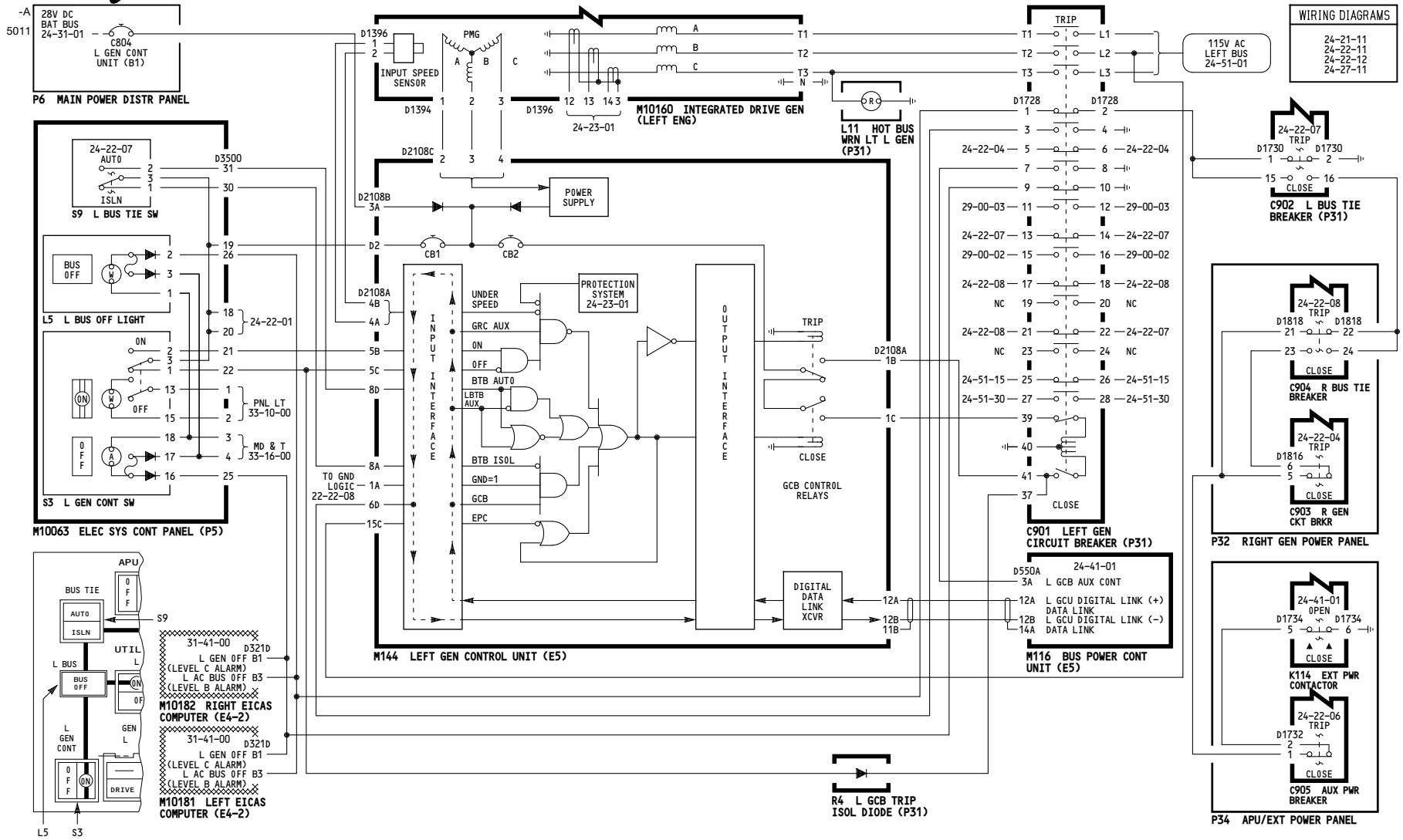
TRIP
SHORTED ROTATING DIODE DETECT
24-23-01

POR VOLTAGE SENSING
VOLTAGE REGULATOR

INTERNAL DC
GEN CONT RELAY

| | |
|-----------|-------------------------------------|
| 115-199 | LEFT GENERATOR CONTROL - GCR |
| D280N032S | |

24-22-01



001-008, 010-099

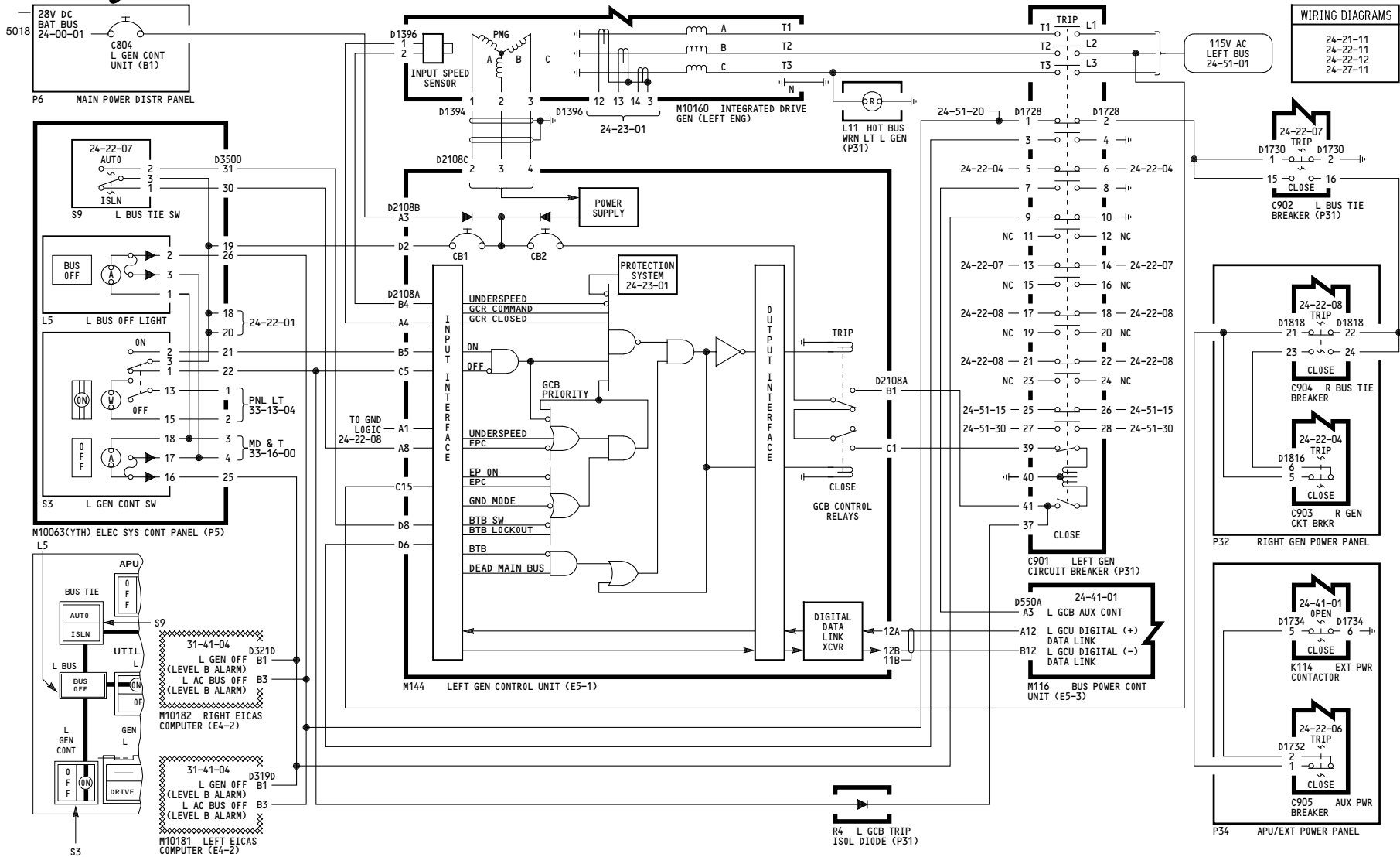
LEFT GENERATOR CONTROL - GCB

D280N032S

24-22-02

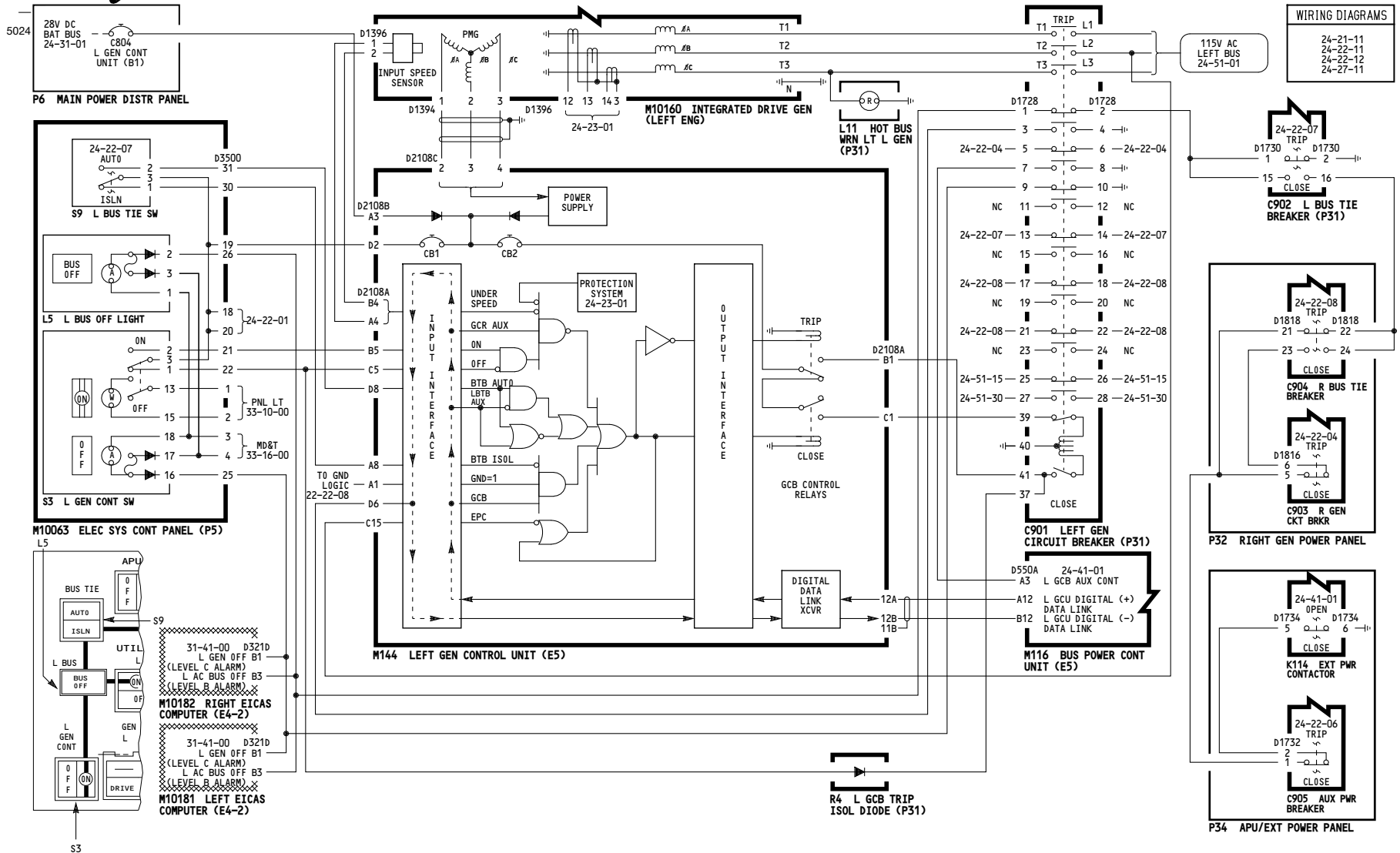
Page 101

Dec 18/2007



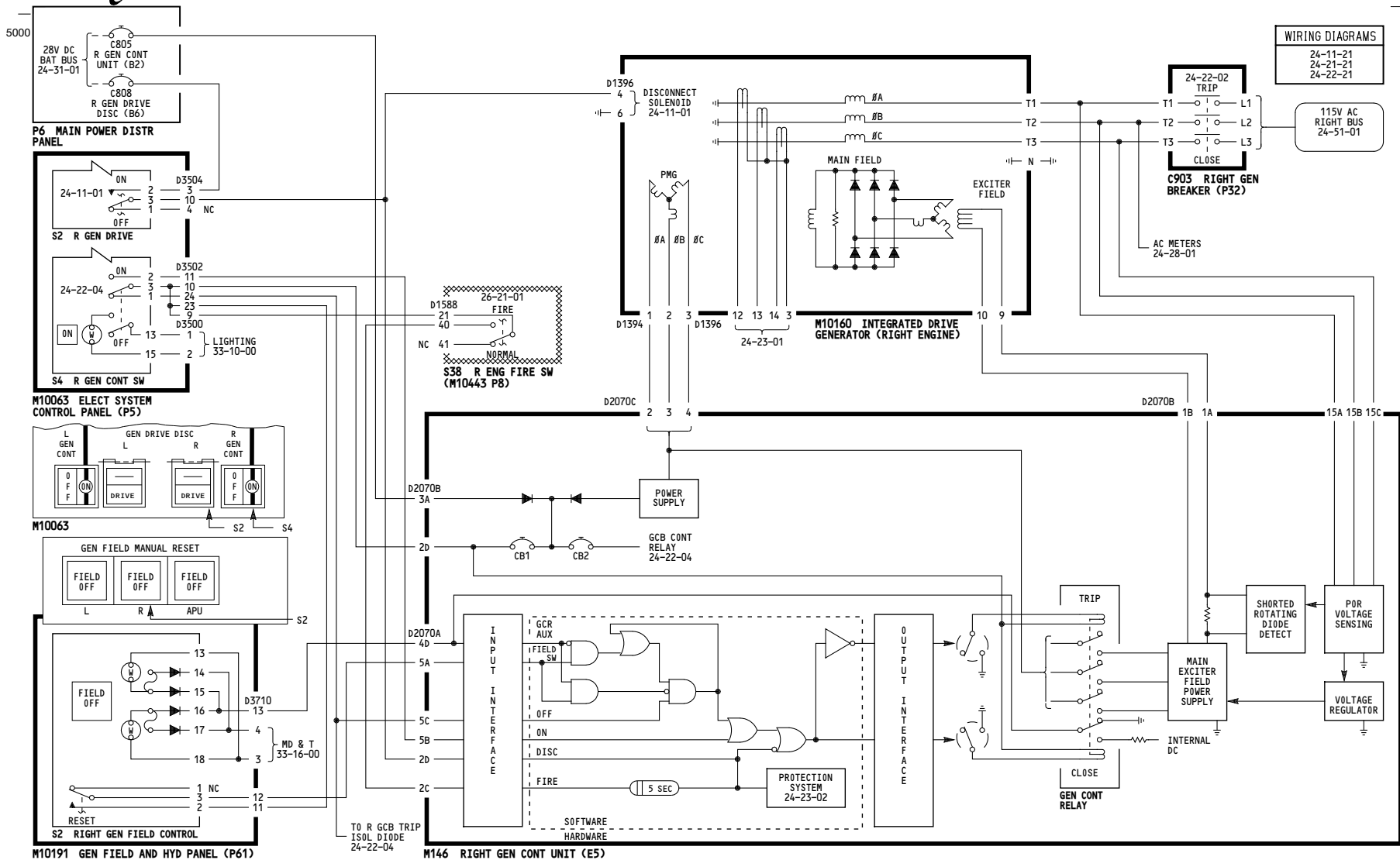
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|-----|---|
| 009 | <p>LEFT GENERATOR CONTROL - GCB</p> <p>D280N032S</p> |
|-----|---|

24-22-02



| | |
|---------|-------------------------------------|
| 115-199 | LEFT GENERATOR CONTROL - GCB |
| | D280N032S |

24-22-02



WIRING DIAGRAMS

24-11-21
24-21-21
24-22-21

115V AC
RIGHT BUS
24-51-01

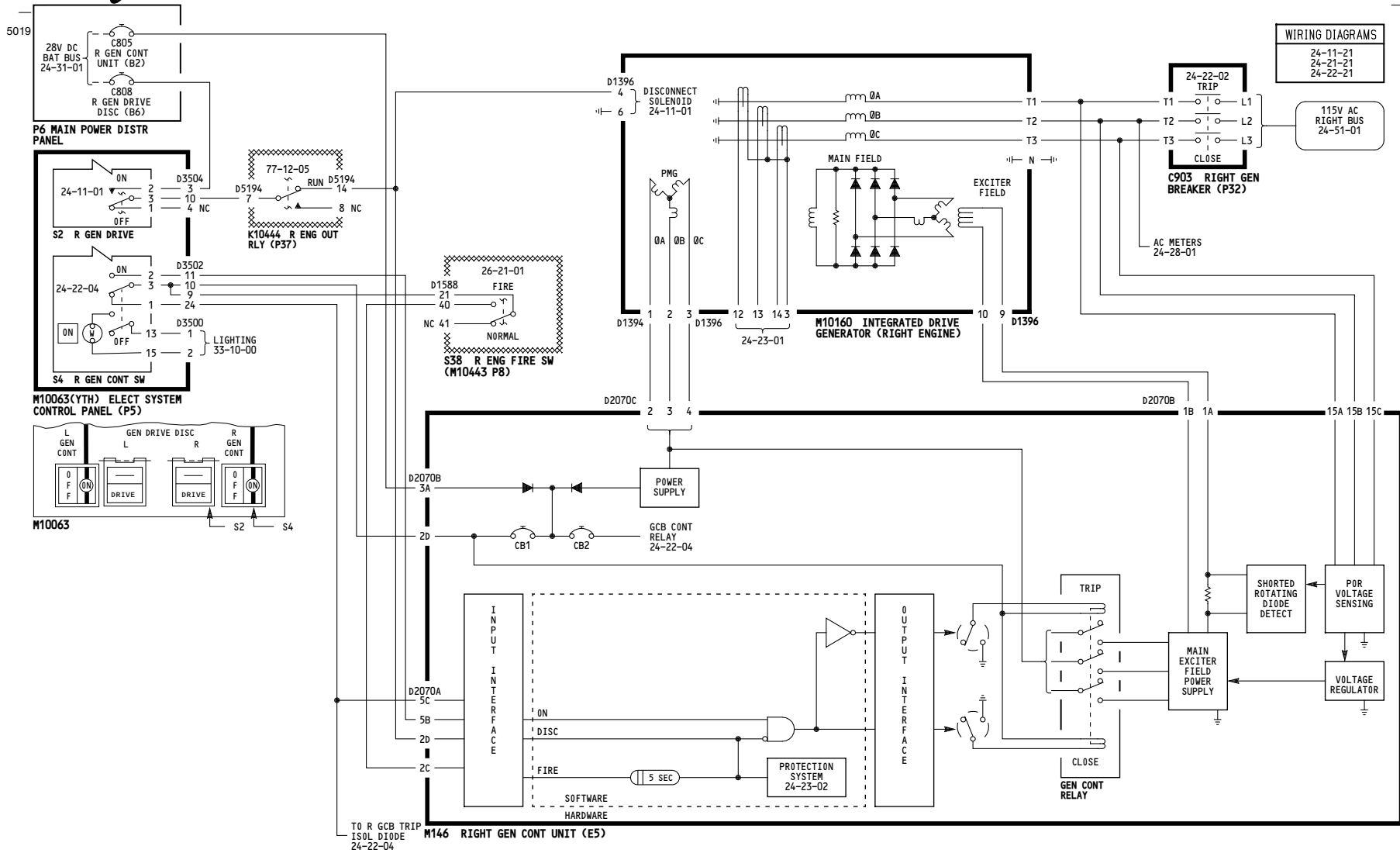
TRIP
CLOSE
GEN CONT RELAY

001-003

RIGHT GENERATOR CONTROL - GCR

D280N032S

24-22-03



WIRING DIAGRAMS
 24-11-21
 24-21-21
 24-22-21

115V AC
 RIGHT BUS
 24-51-01

004-099

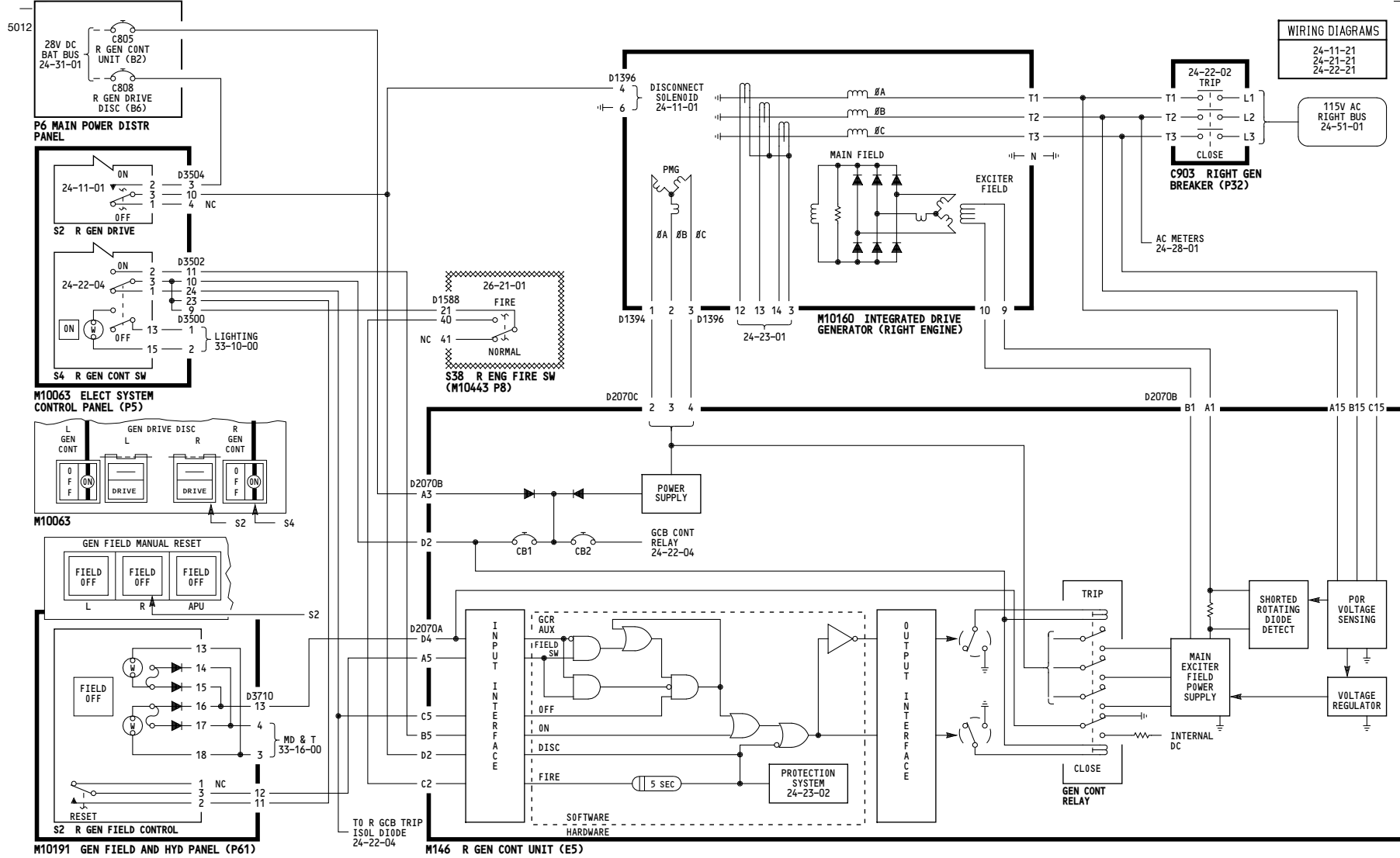
RIGHT GENERATOR CONTROL - GCR

D280N032S

24-22-03

Page 102

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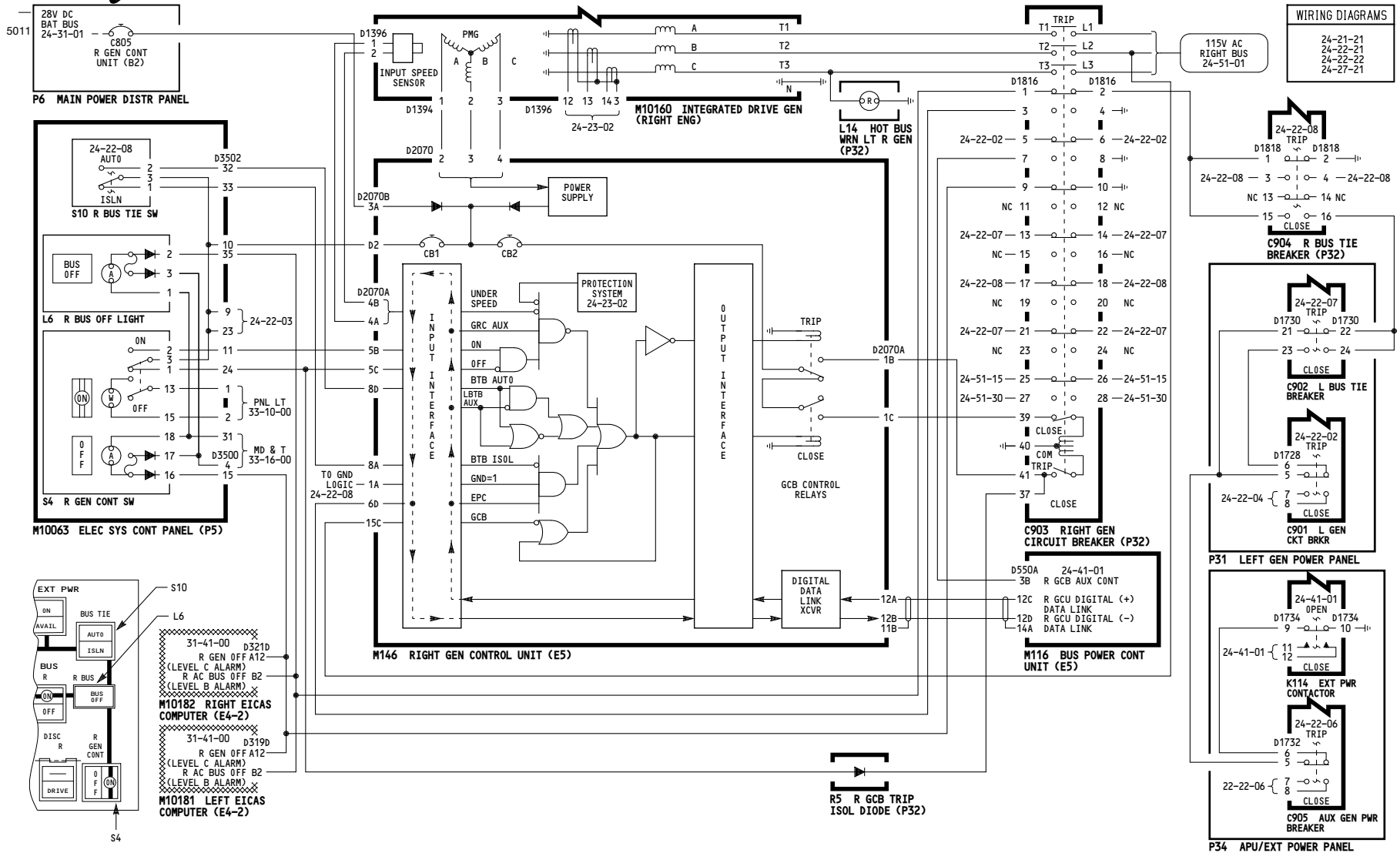


115-199

RIGHT GENERATOR CONTROL - GCR

D280N032S

24-22-03

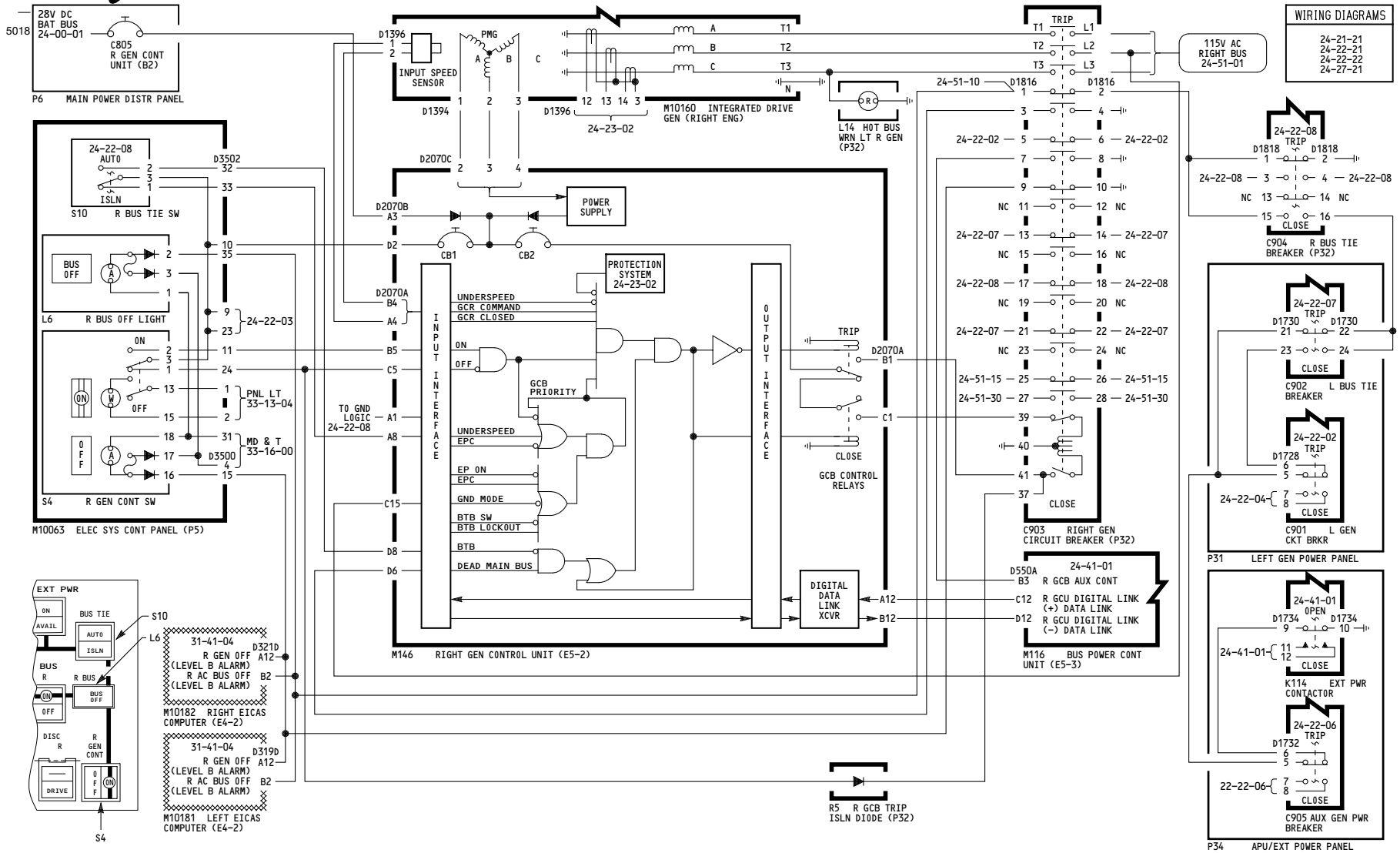


001-008, 010-099

RIGHT GENERATOR CONTROL - GCB

D280N032S

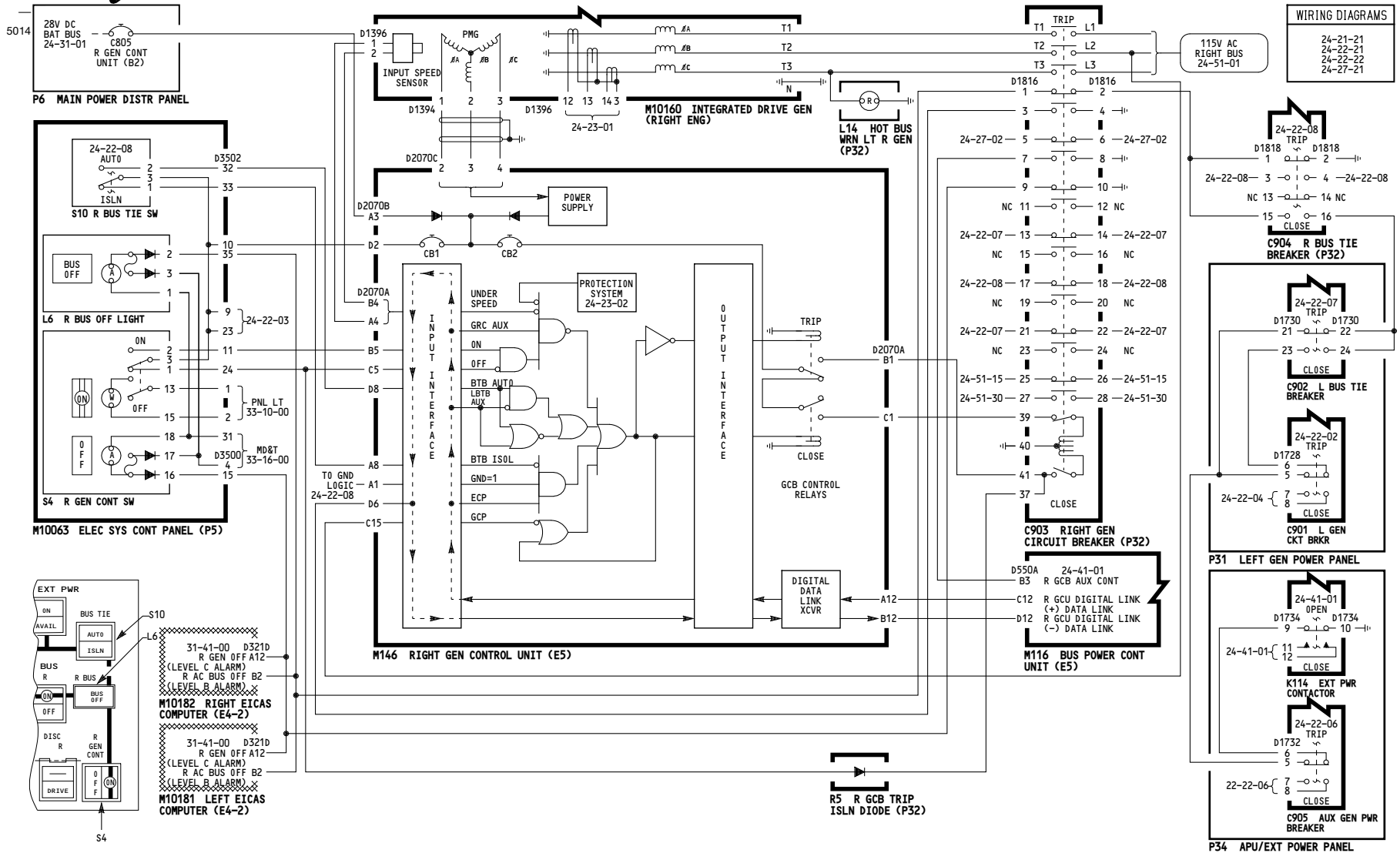
24-22-04



24-22-04

Page 102

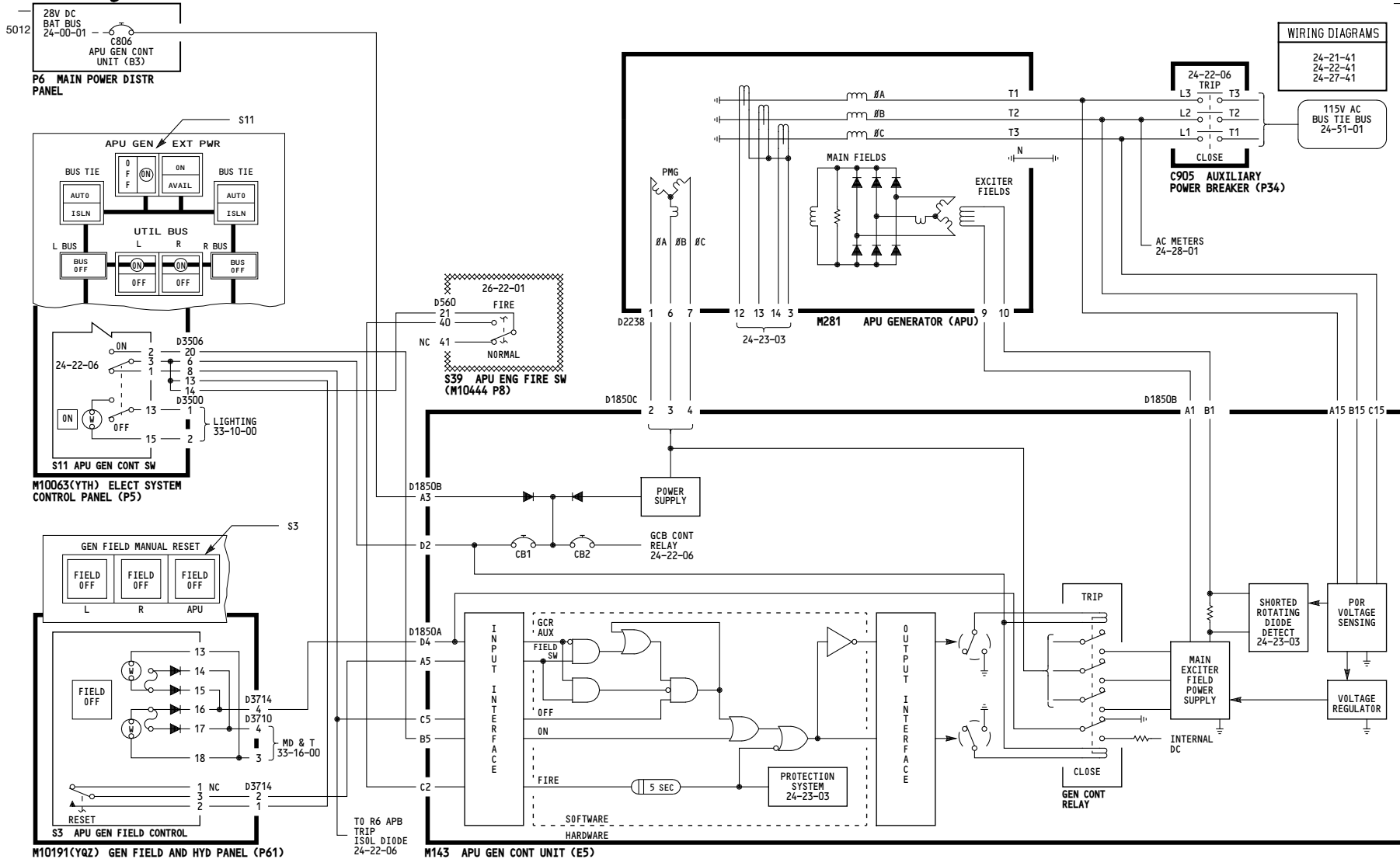
Dec 18/2007



| WIRING DIAGRAMS | |
|-----------------|--|
| 24-21-21 | |
| 24-22-21 | |
| 24-22-22 | |
| 24-27-21 | |

| | |
|-----------|--------------------------------------|
| 115-199 | RIGHT GENERATOR CONTROL - GCB |
| D280N032S | |

24-22-04



001-003

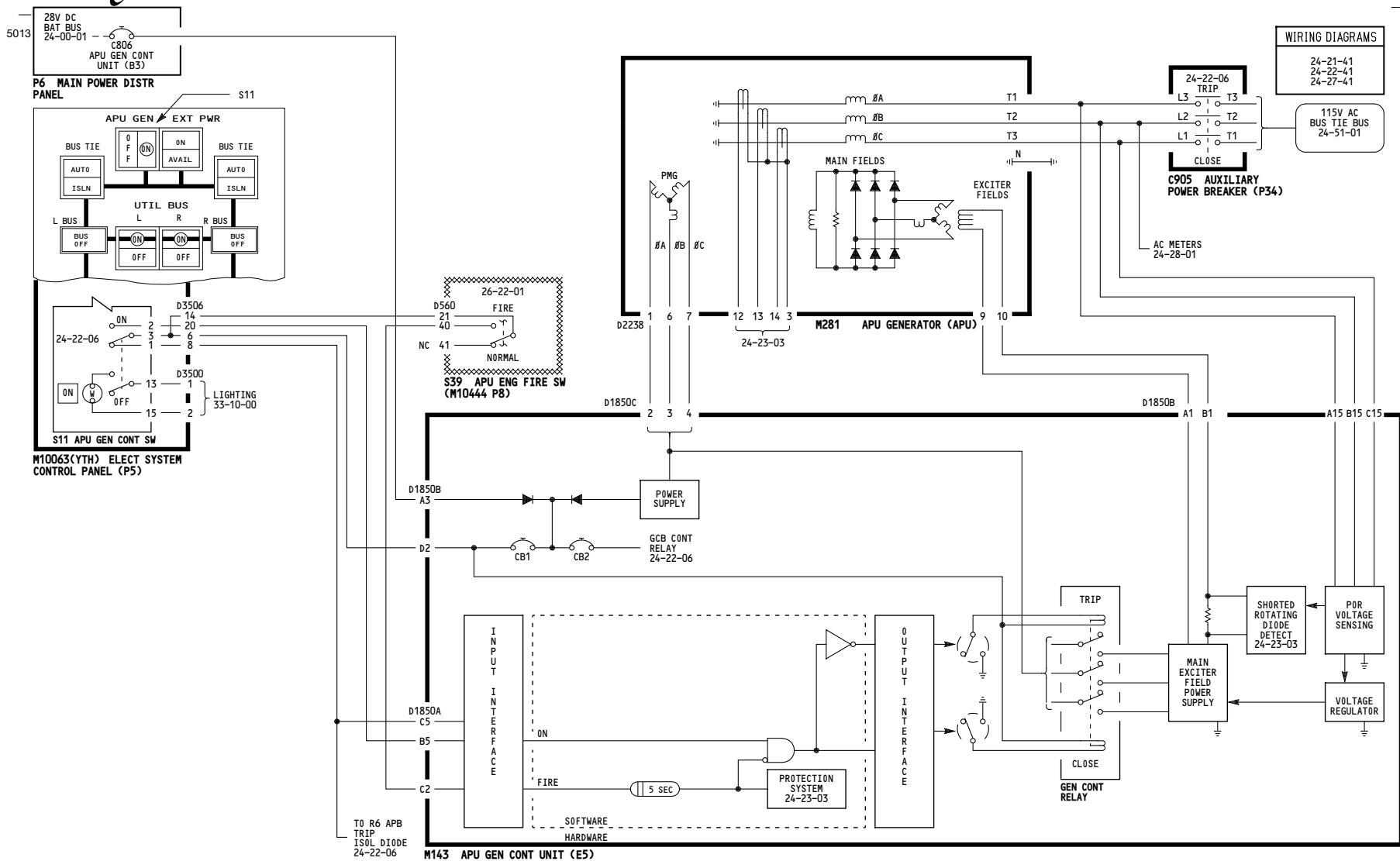
APU GENERATOR CONTROL - GCR

D280N032S

24-22-05

Page 101

Jan 21/2005

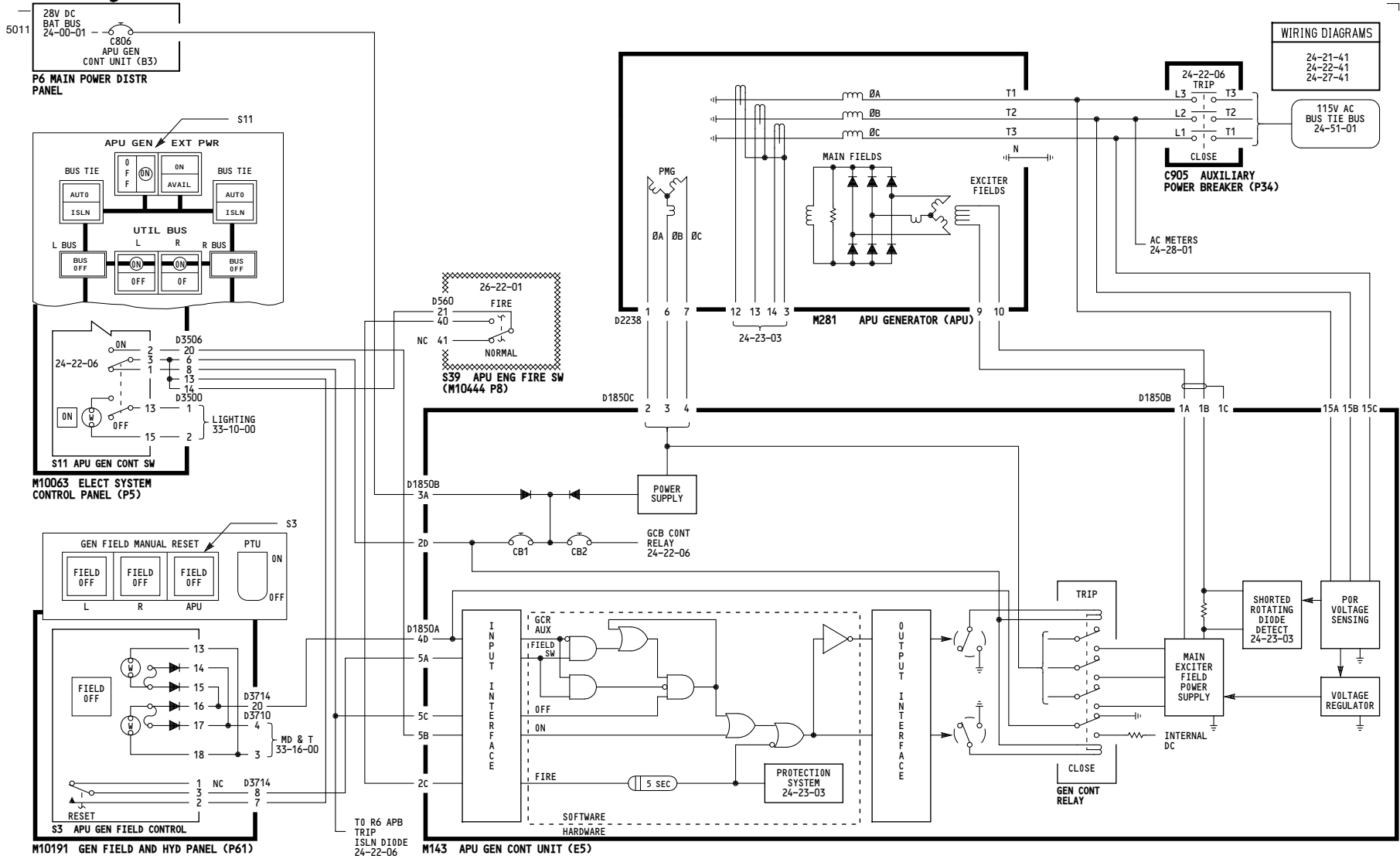


004-099

APU GENERATOR CONTROL - GCR

D280N032S

24-22-05



115-199

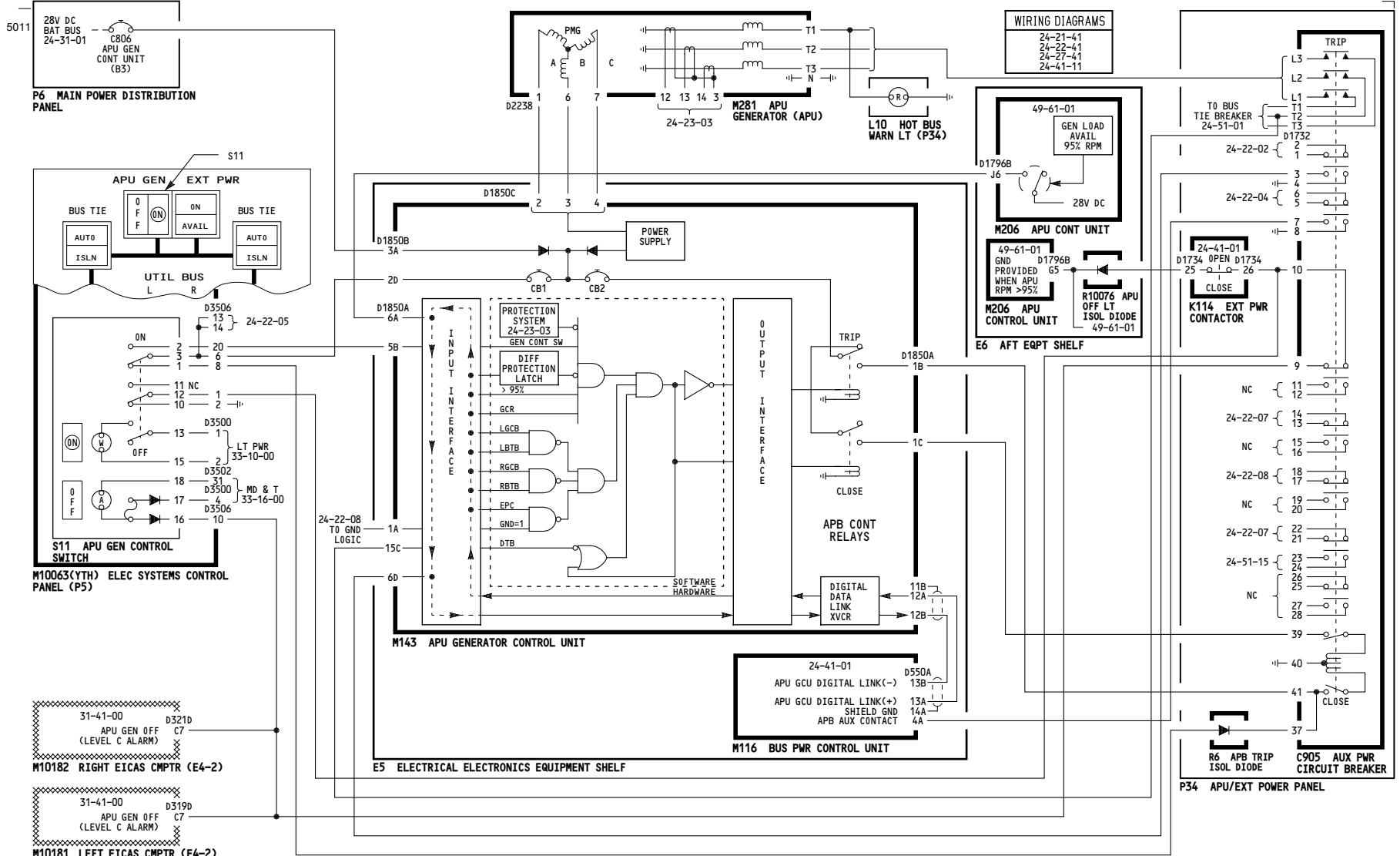
APU GENERATOR CONTROL - GCR

D280N032S

24-22-05

Page 103

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| | |
|-----|------------------------------------|
| ALL | APU GENERATOR CONTROL - APB |
| | D280N032S |

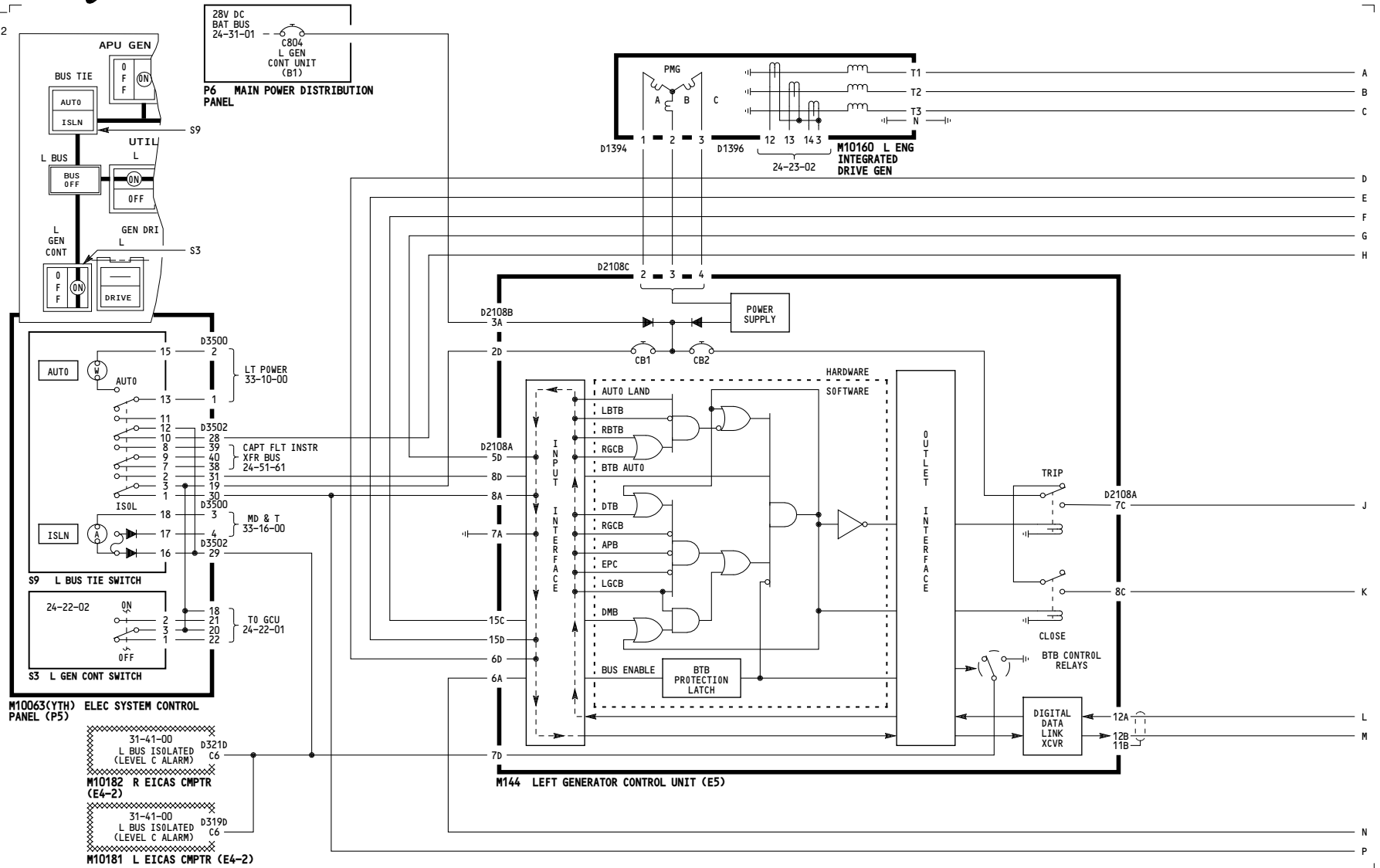
24-22-06

Page 101

Dec 18/2007

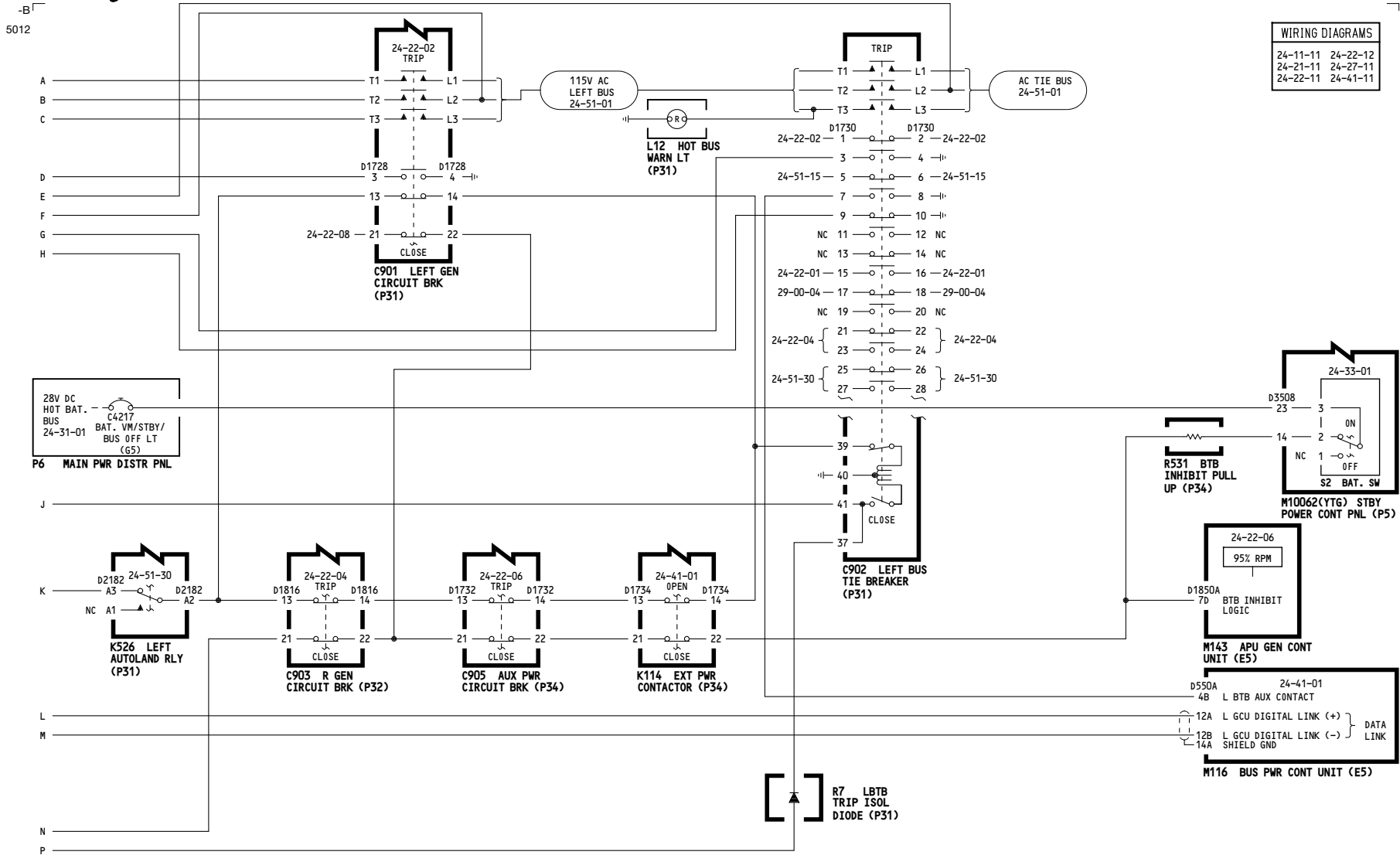
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5012



| | |
|-----|---|
| ALL | <p>LEFT BUS TIE BREAKER CONTROL</p> <p>D280N032S</p> |
|-----|---|

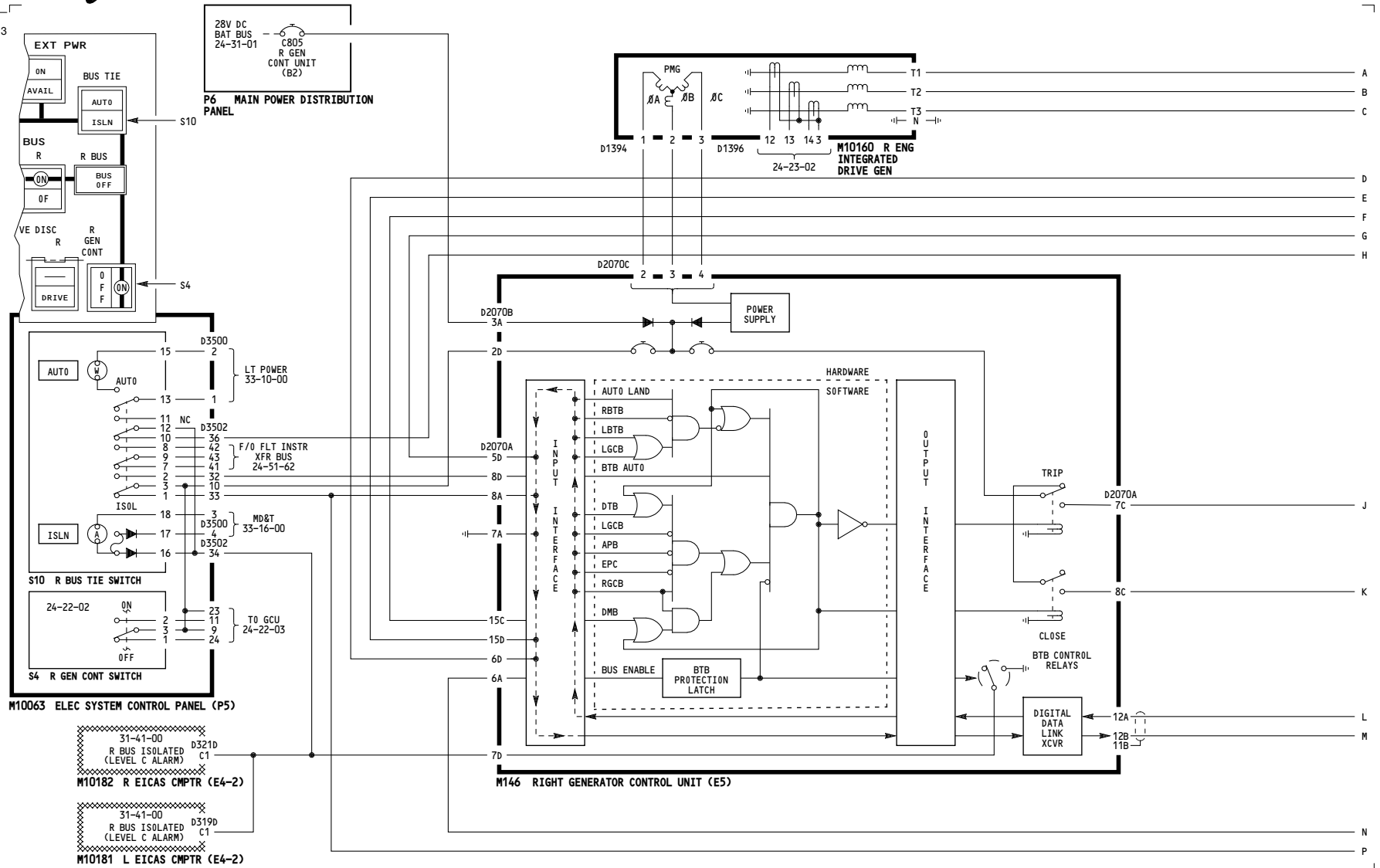
24-22-07



| | |
|-----|---|
| ALL | <p>LEFT BUS TIE BREAKER CONTROL</p> <p>D280N032S</p> |
|-----|---|

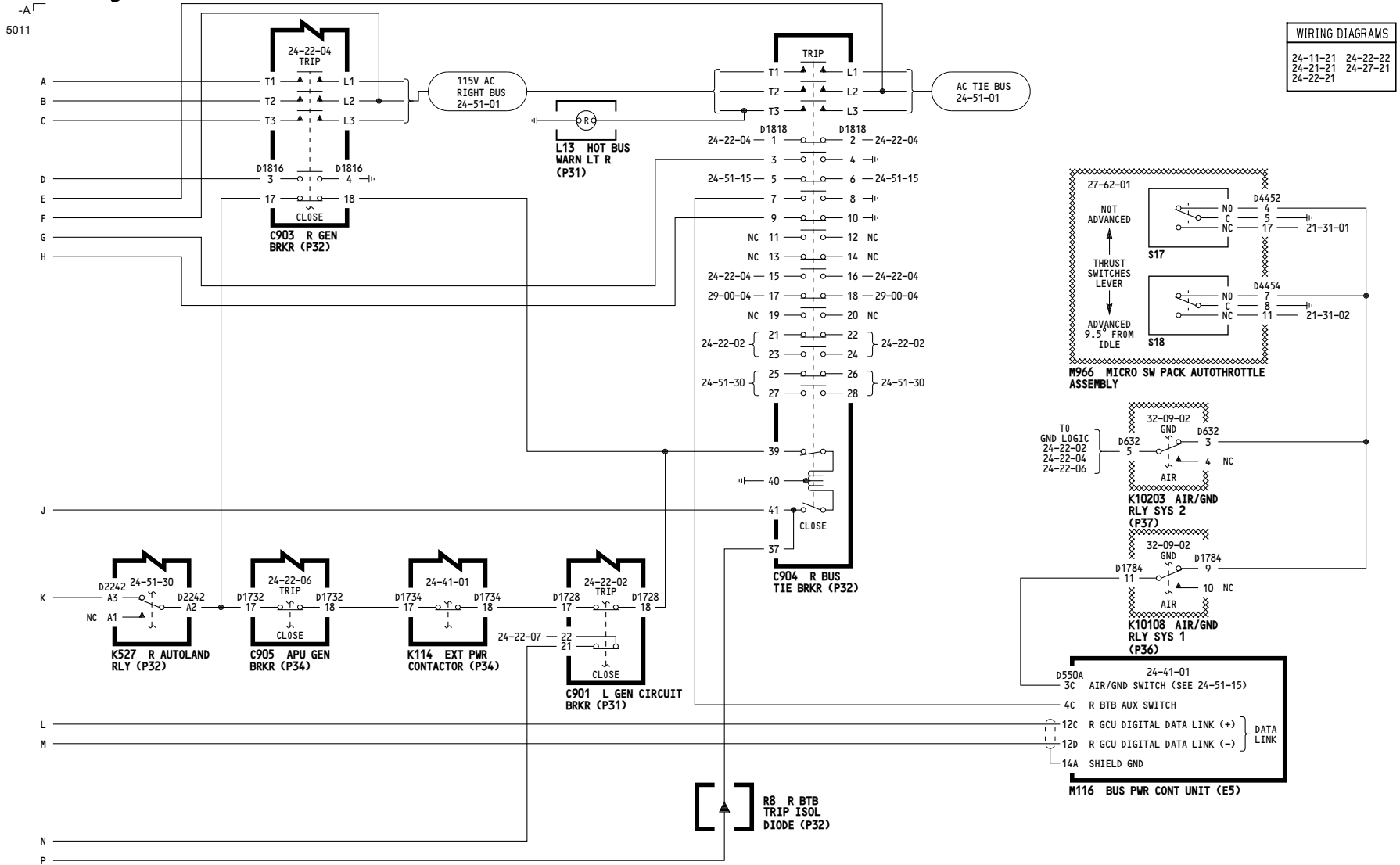
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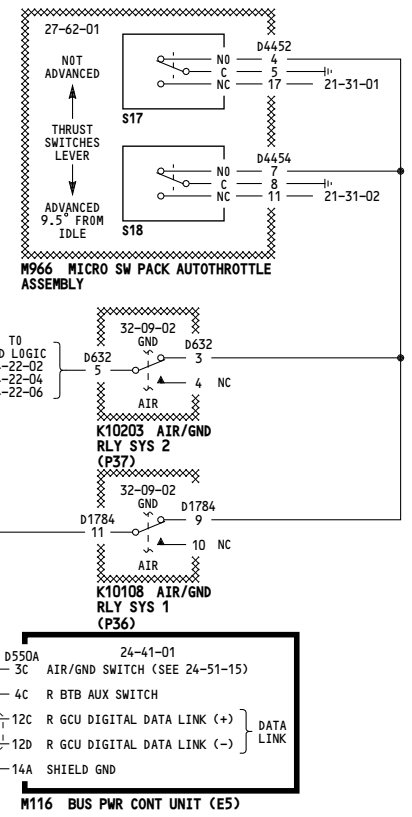


| | |
|-----|--|
| ALL | <p>RIGHT BUS TIE BREAKER CONTROL</p> <p>D280N032S</p> |
|-----|--|

24-22-08



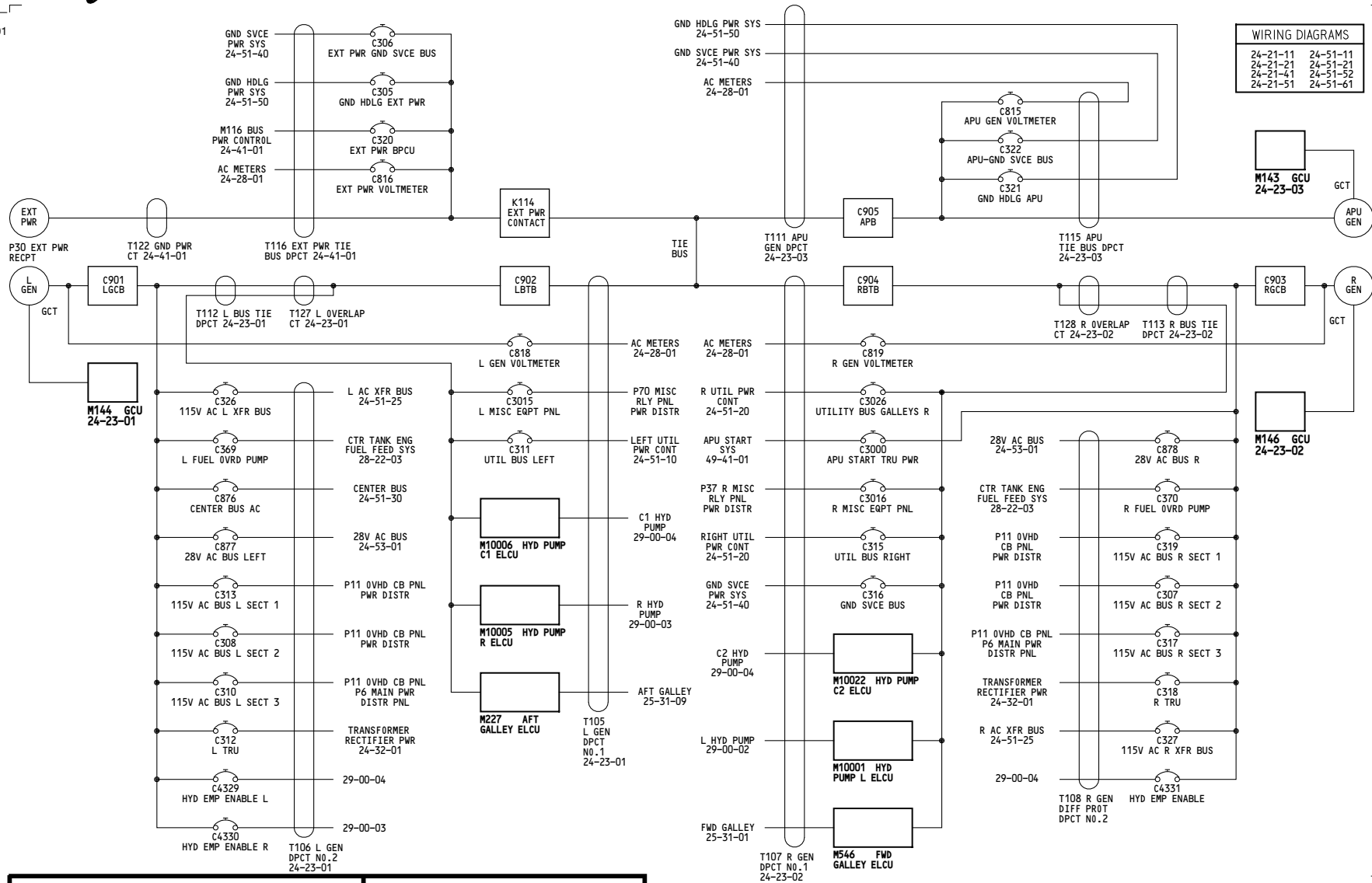
| WIRING DIAGRAMS | |
|-----------------|----------|
| 24-11-21 | 24-22-22 |
| 24-21-21 | 24-27-21 |
| 24-22-21 | |



| | |
|-----|--|
| ALL | <p>RIGHT BUS TIE BREAKER CONTROL</p> <p>D280N032S</p> |
|-----|--|

24-22-08

5201



| WIRING DIAGRAMS | |
|-----------------|----------|
| 24-21-11 | 24-51-11 |
| 24-21-21 | 24-51-21 |
| 24-51-41 | 24-51-52 |
| 24-21-51 | 24-51-61 |

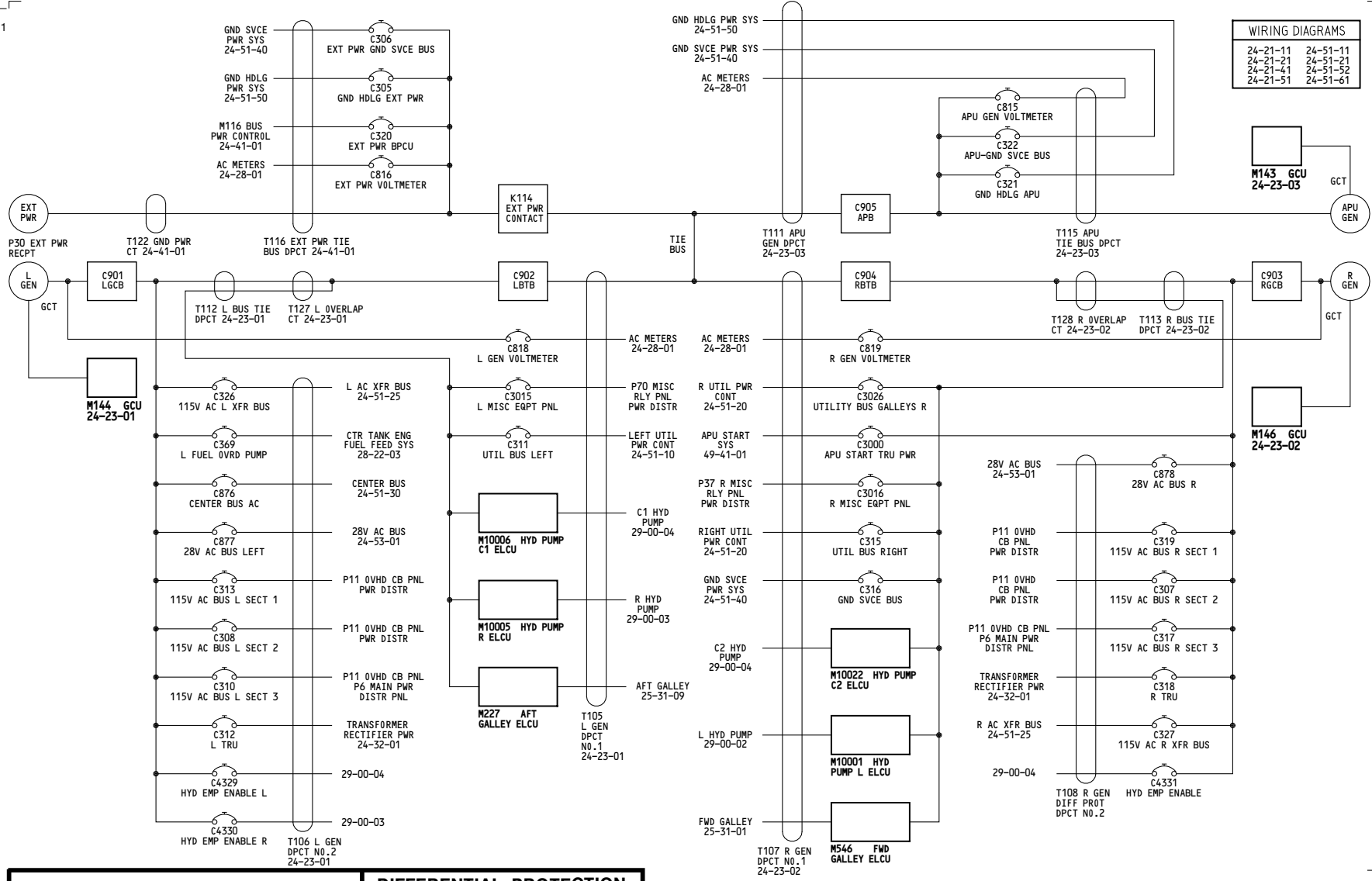
001-002

DIFFERENTIAL PROTECTION SYSTEM - SIMPLIFIED

D280N032S

24-23-00

5211



| WIRING DIAGRAMS | |
|-----------------|----------|
| 24-21-11 | 24-51-11 |
| 24-21-21 | 24-51-21 |
| 24-51-41 | 24-51-52 |
| 24-21-51 | 24-51-61 |

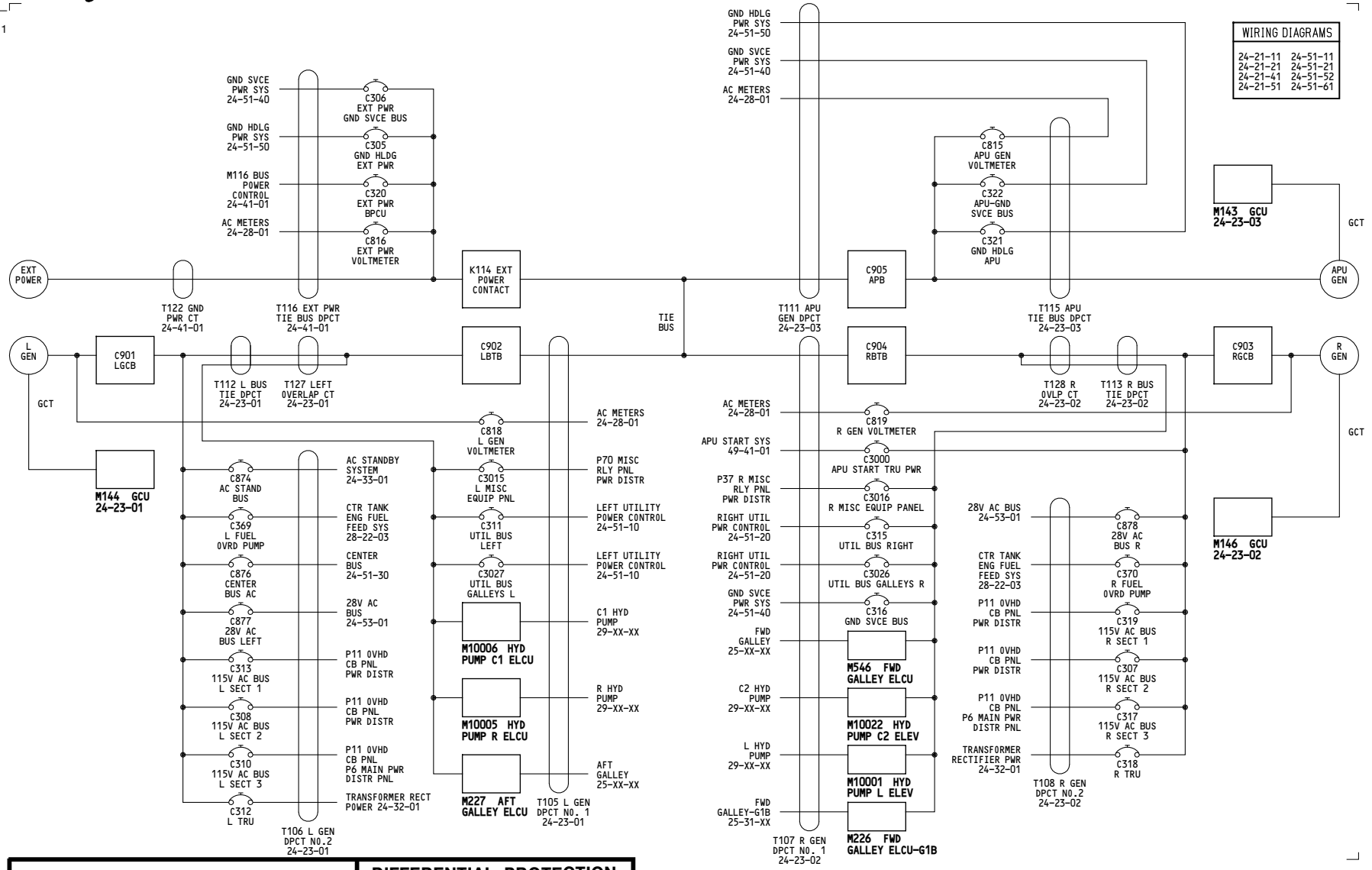
003-099

DIFFERENTIAL PROTECTION SYSTEM - SIMPLIFIED

D280N032S

24-23-00

5011



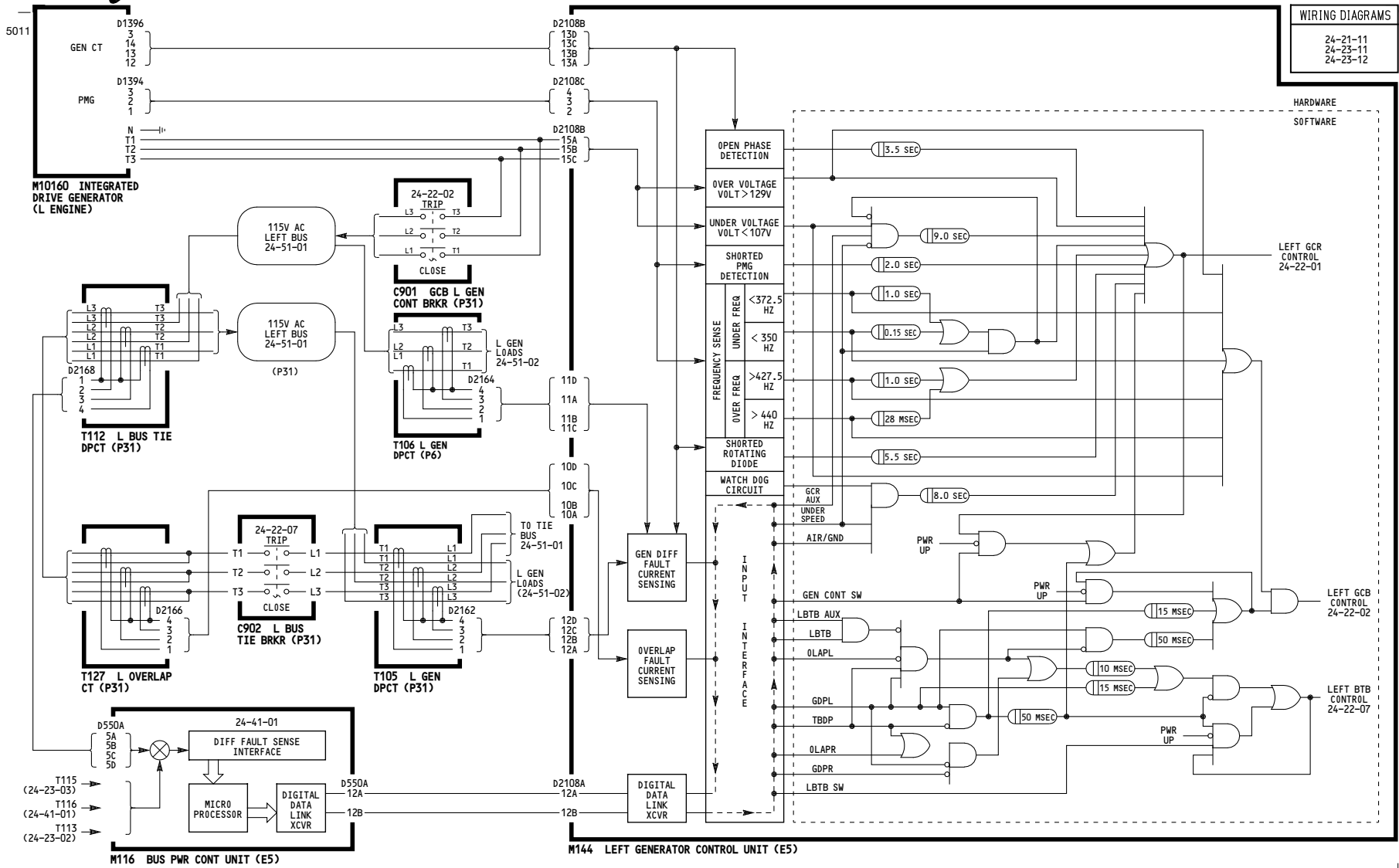
| WIRING DIAGRAMS | |
|-----------------|----------|
| 24-21-11 | 24-51-11 |
| 24-21-21 | 24-51-21 |
| 24-21-41 | 24-51-52 |
| 24-21-51 | 24-51-61 |

115-199

DIFFERENTIAL PROTECTION SYSTEM - SIMPLIFIED

D280N032S

24-23-00

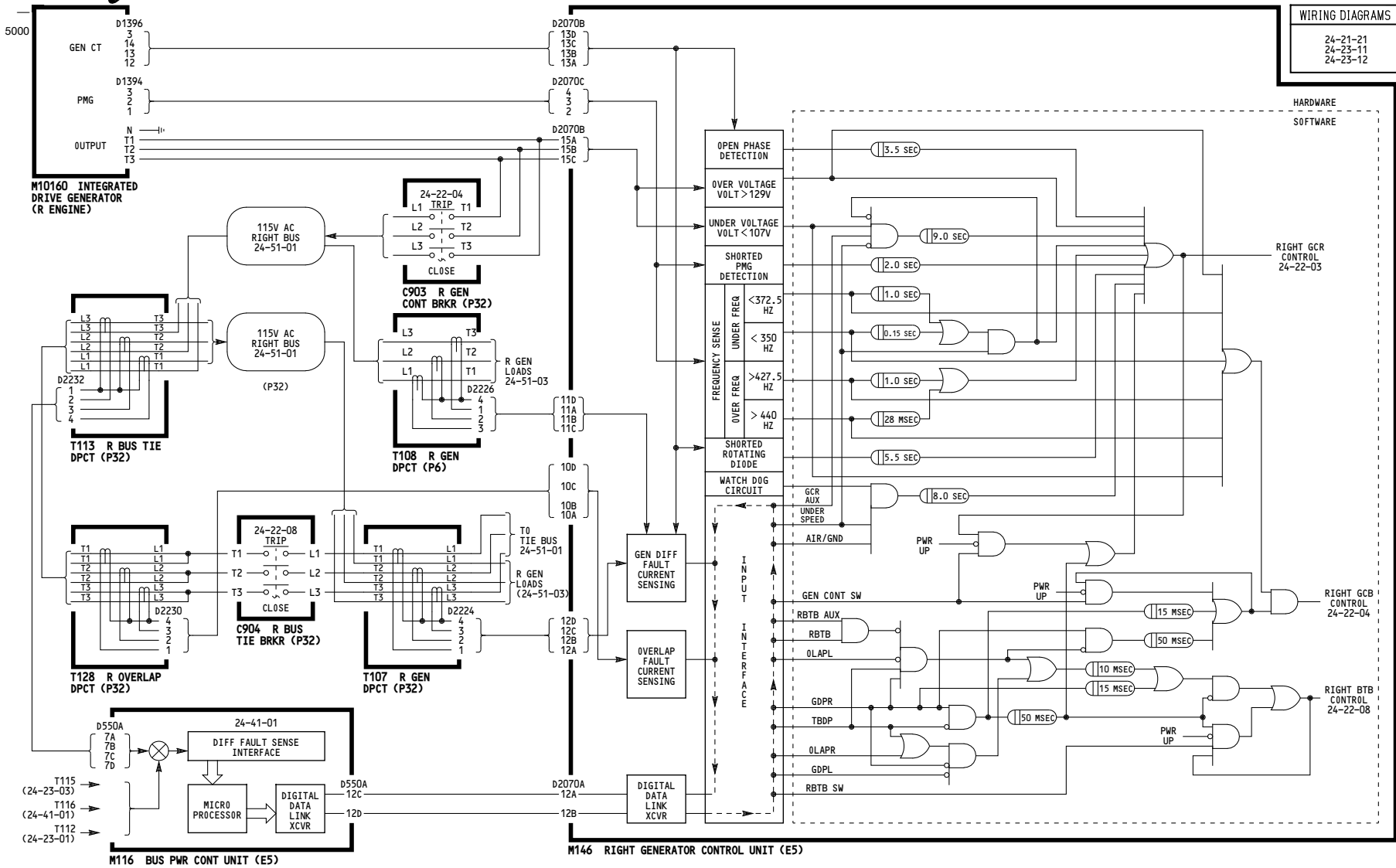


ALL

LEFT GENERATOR DIFFERENTIAL PROTECTION

D280N032S

24-23-01



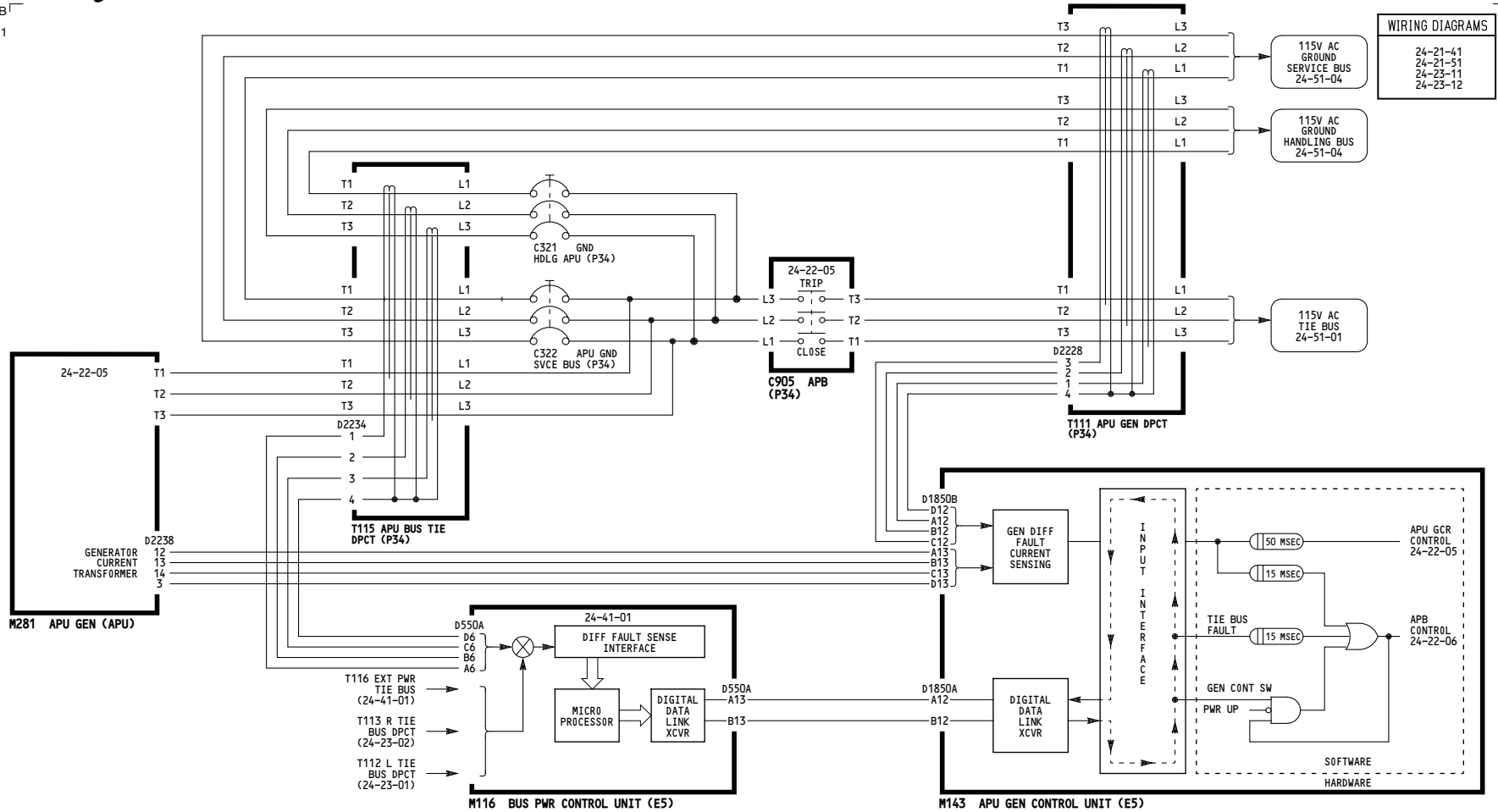
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RIGHT GENERATOR DIFFERENTIAL PROTECTION

D280N032S

24-23-02

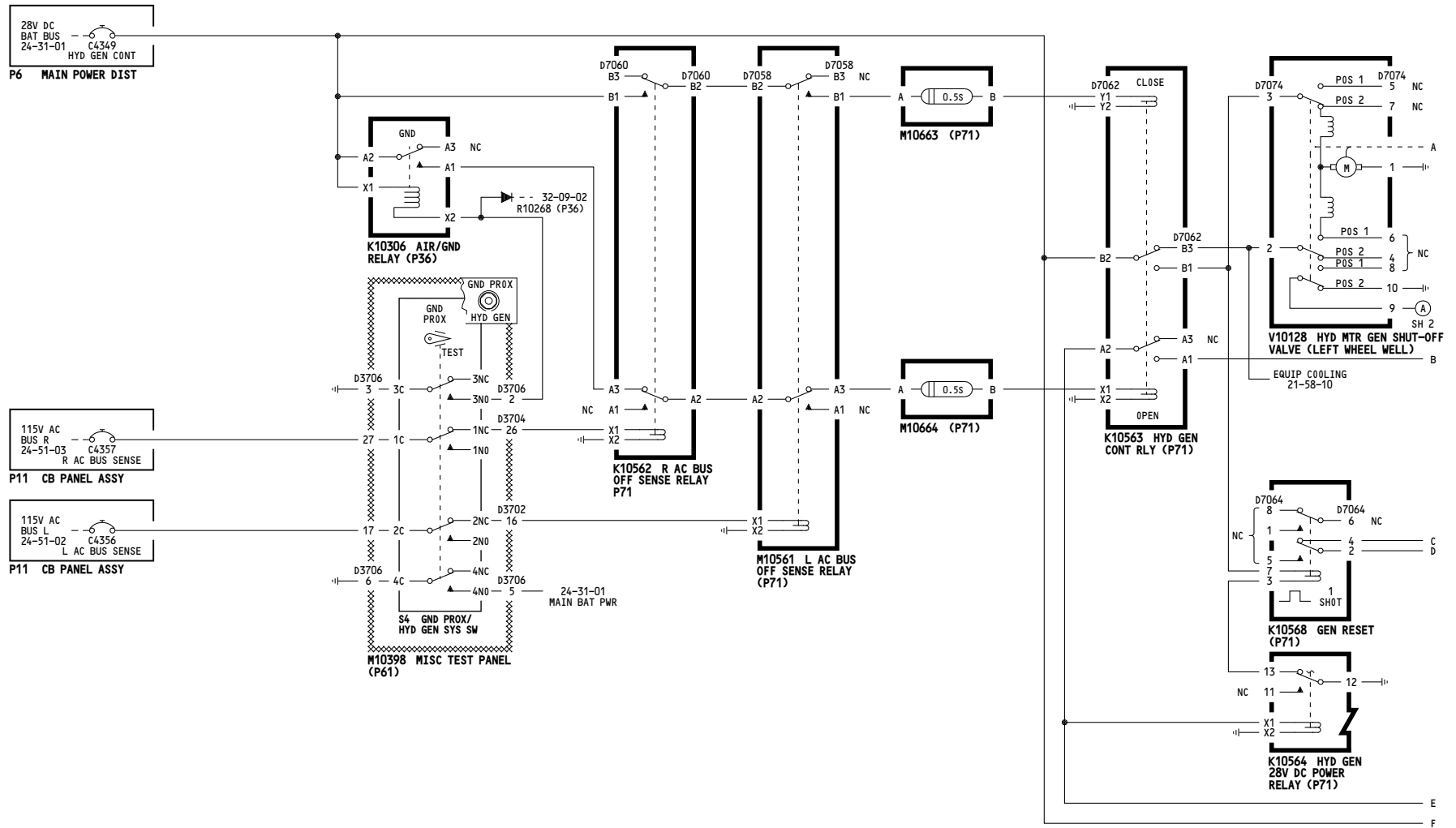
-B
5011



| | |
|-----|--|
| ALL | <p>APU GENERATOR DIFFERENTIAL PROTECTION</p> <p>D280N032S</p> |
|-----|--|

24-23-03

5000

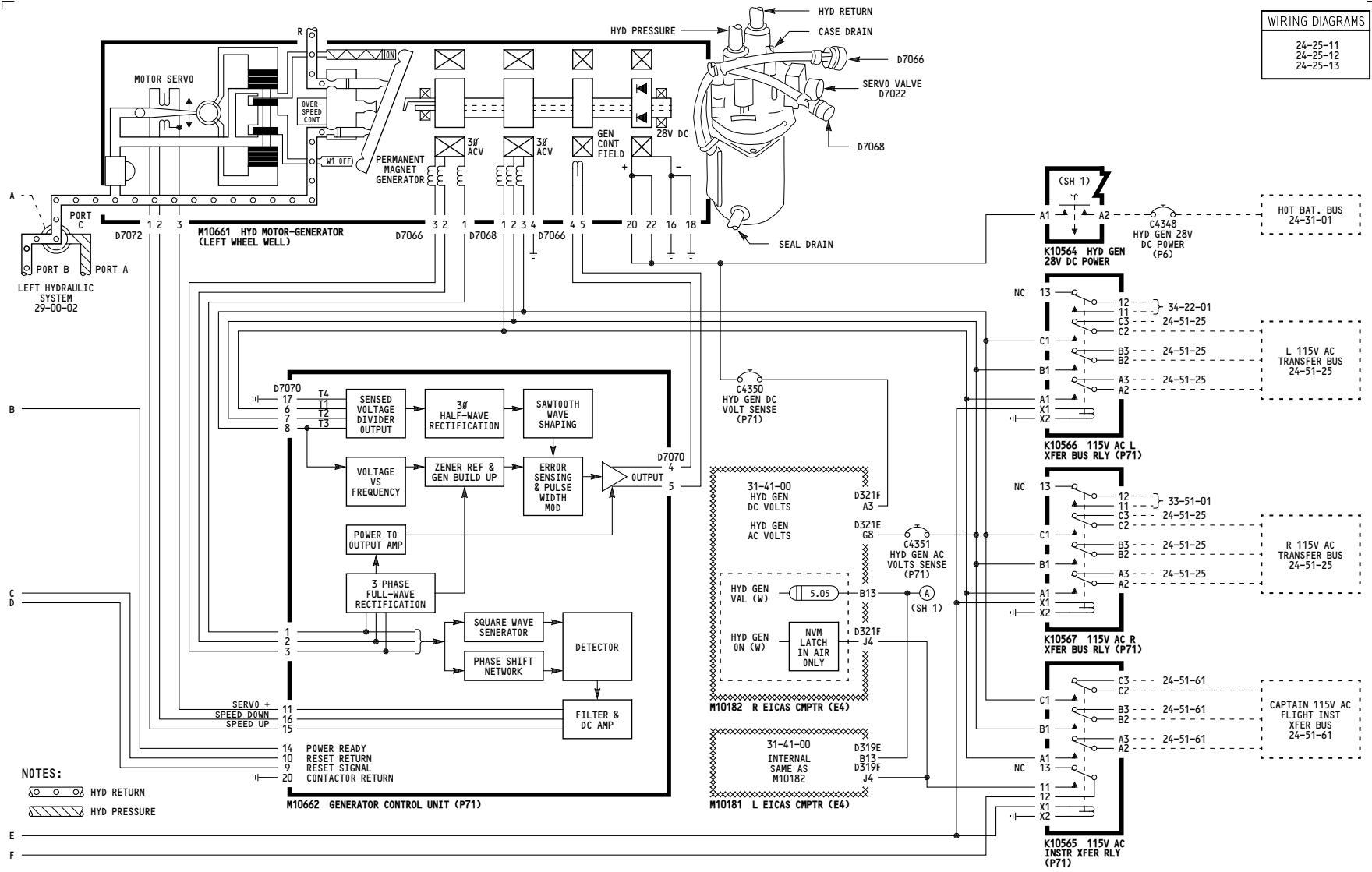


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|------------------|--|
| 001-002, 115-199 | <p>HYDRAULIC GENERATOR CONTROL</p> <p>D280N032S</p> |
|------------------|--|

24-25-01

5000

WIRING DIAGRAMS
24-25-11
24-25-12
24-25-13

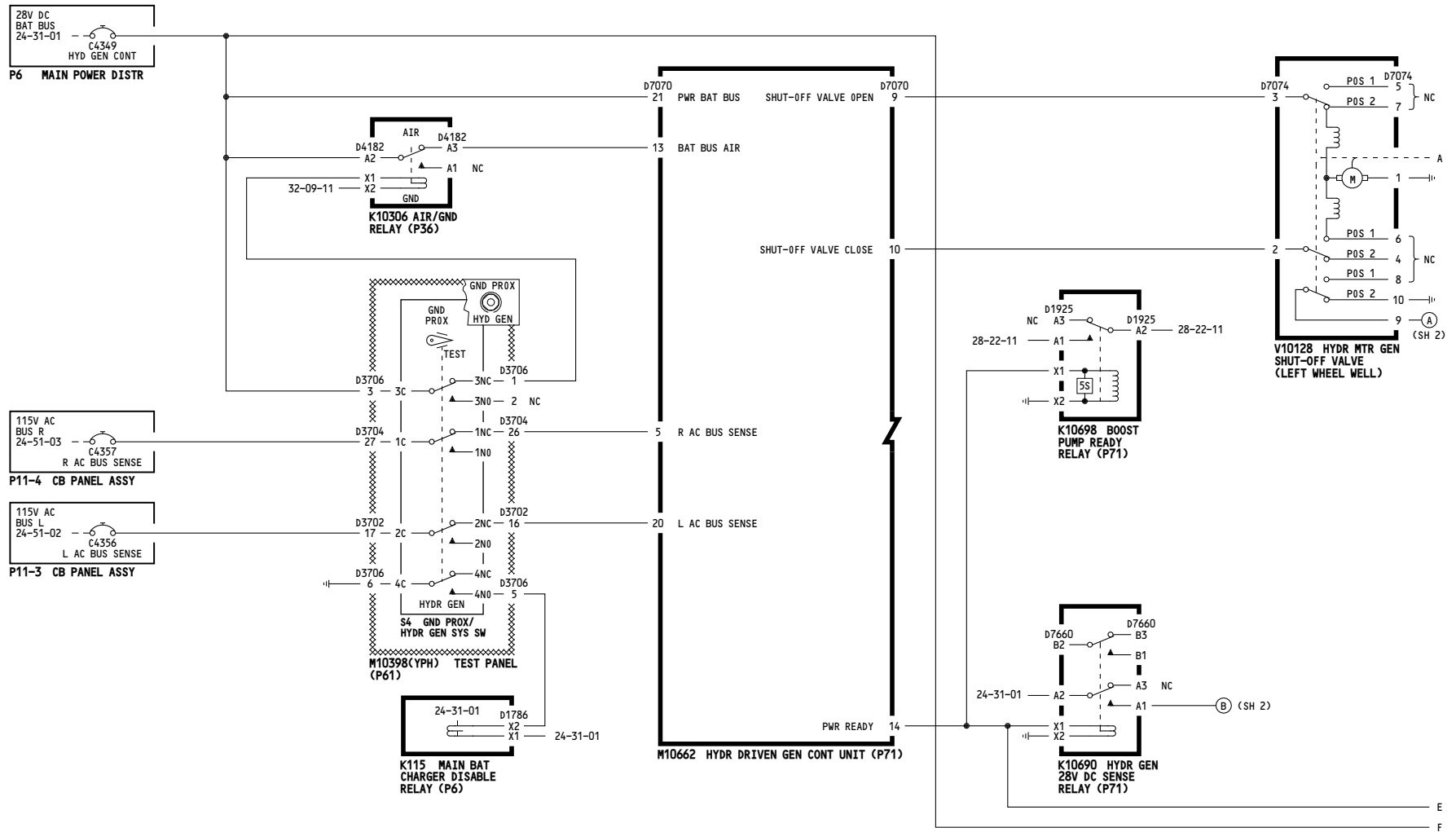


NOTES:
 HYD RETURN
 HYD PRESSURE

| | |
|------------------|--|
| 001-002, 115-199 | <p align="center">HYDRAULIC GENERATOR CONTROL</p> <p align="center">D280N032S</p> |
|------------------|--|

24-25-01

5200



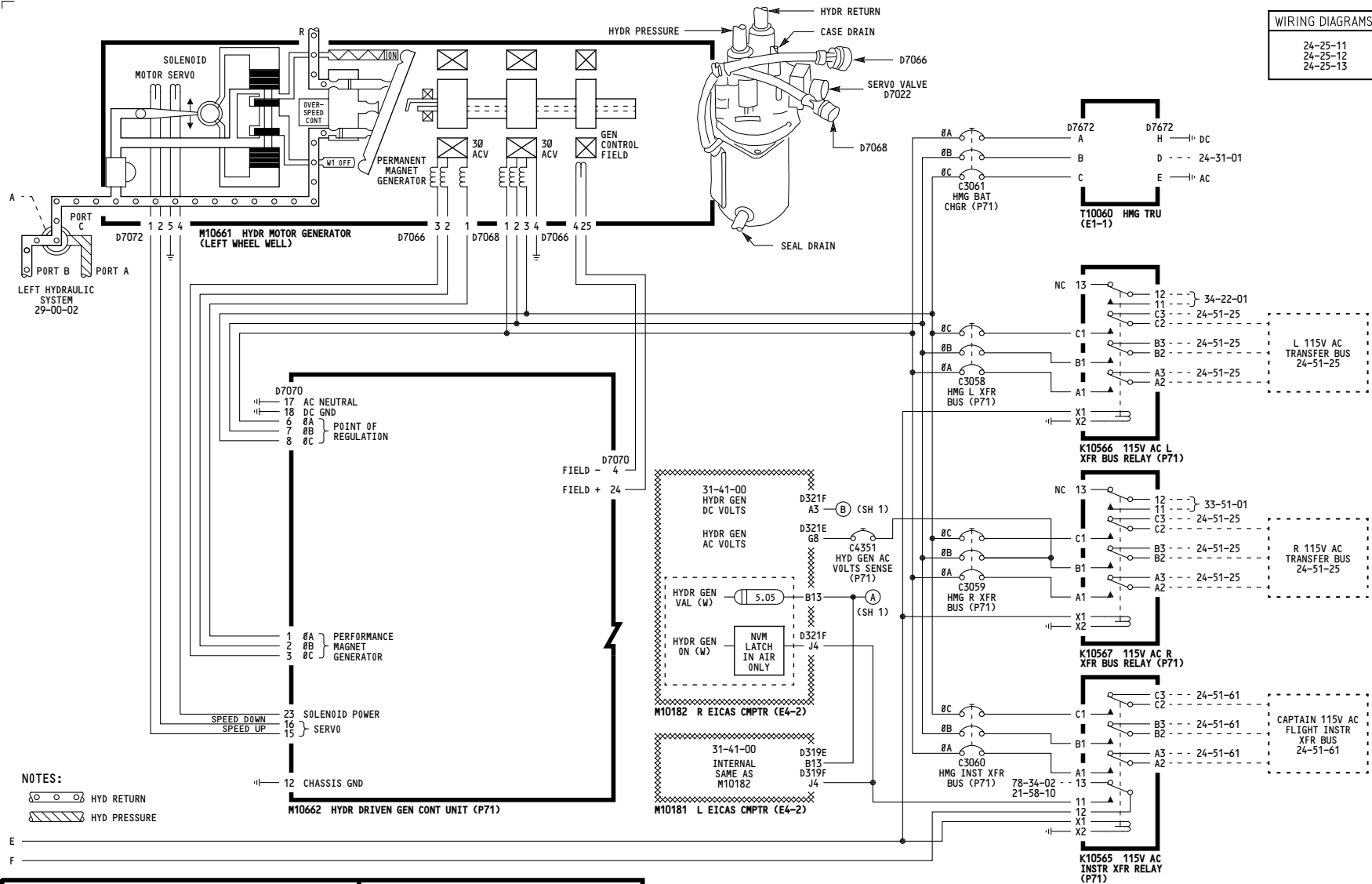
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| 003-099 | <p align="center">HYDRAULIC GENERATOR CONTROL</p> <p align="center">D280N032S</p> |
|---------|--|

24-25-01

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Sheet 1
Jan 21/2005

5200

WIRING DIAGRAMS
24-25-11
24-25-12
24-25-13



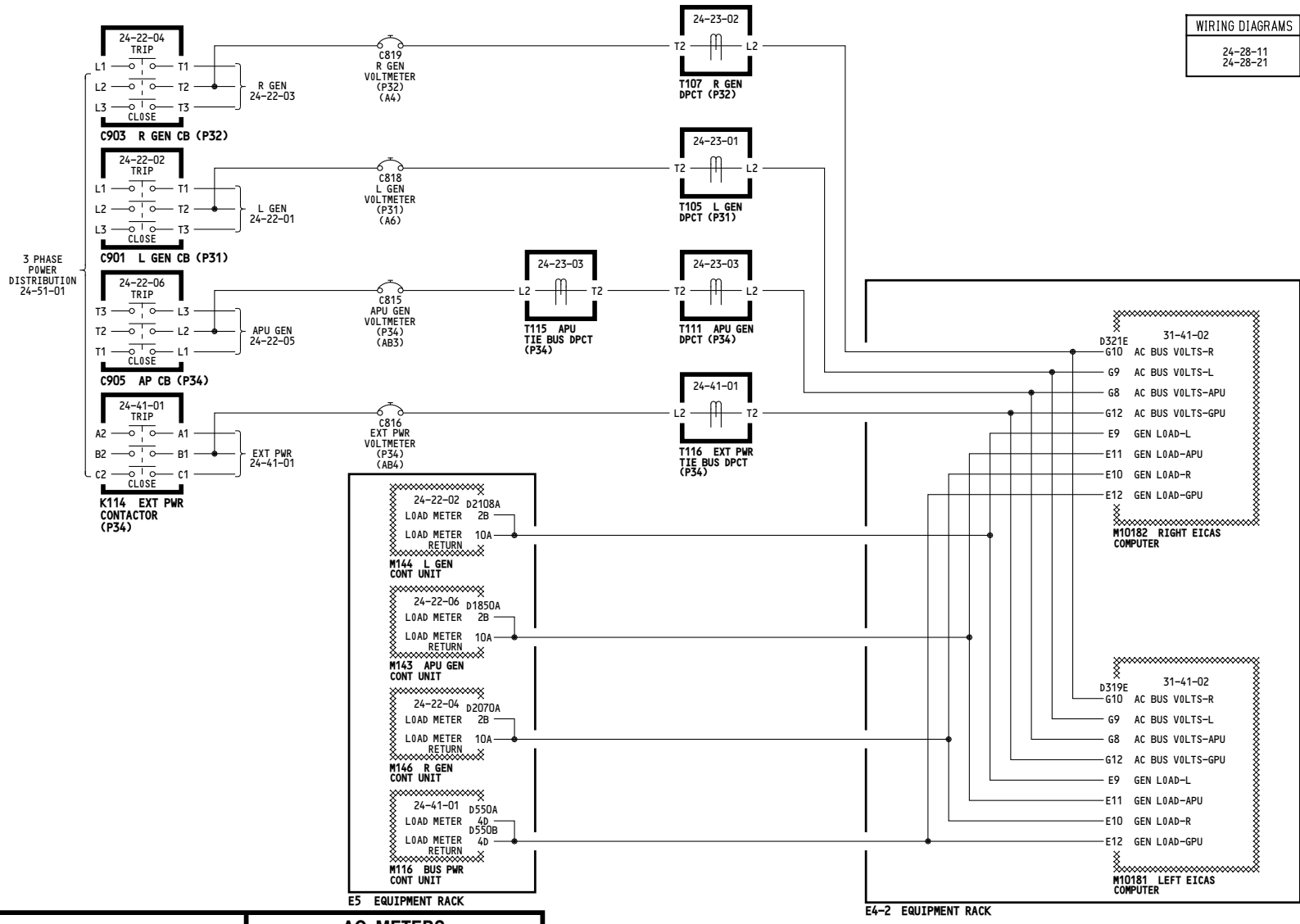
NOTES:
 HYD RETURN
 HYD PRESSURE

| | |
|---------|--|
| 003-099 | <p align="center">HYDRAULIC GENERATOR CONTROL</p> <p align="center">D280N032S</p> |
|---------|--|

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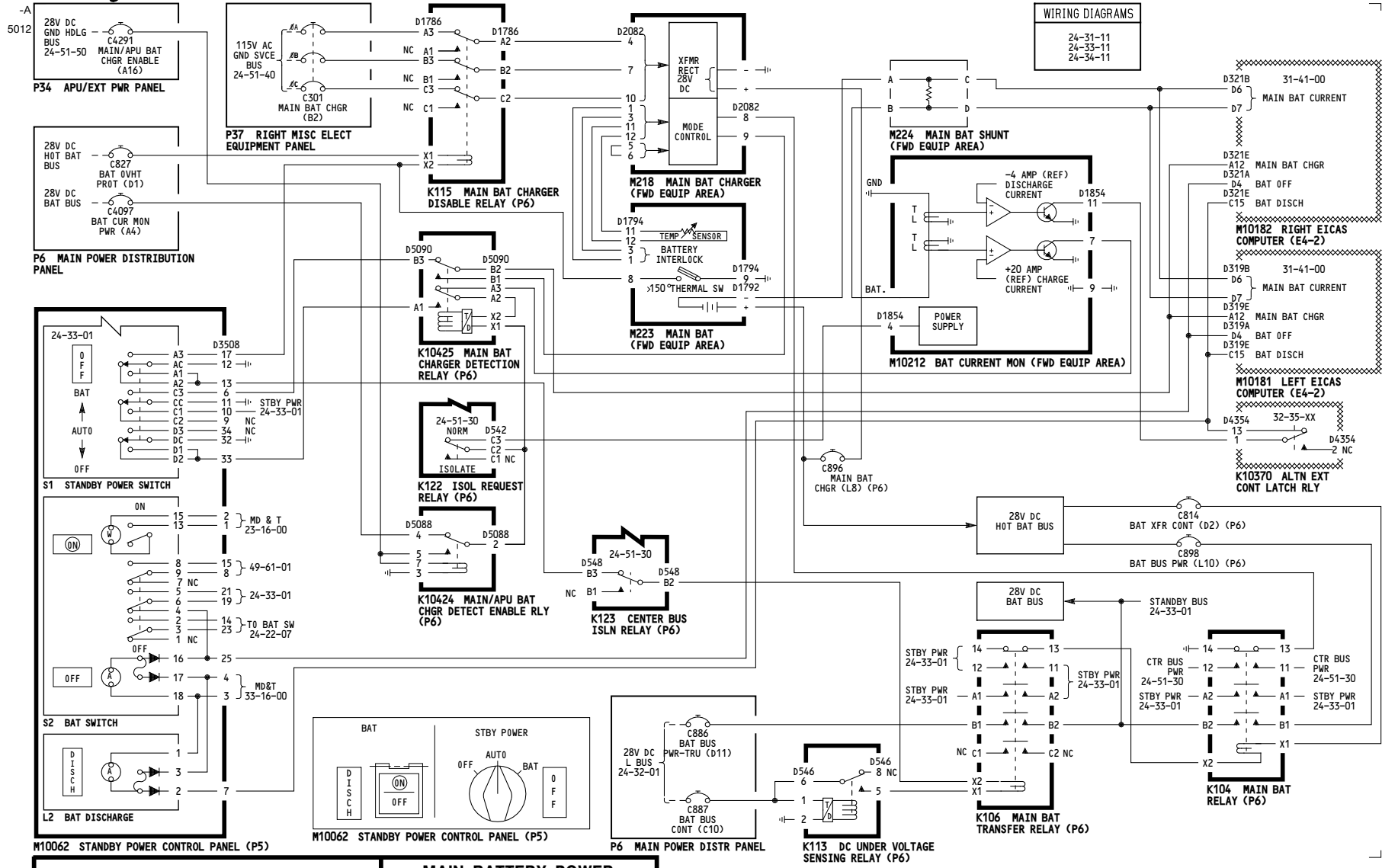
5011

WIRING DIAGRAMS
24-28-11
24-28-21



| | |
|-----|-----------|
| ALL | AC METERS |
| | D280N032S |

24-28-01

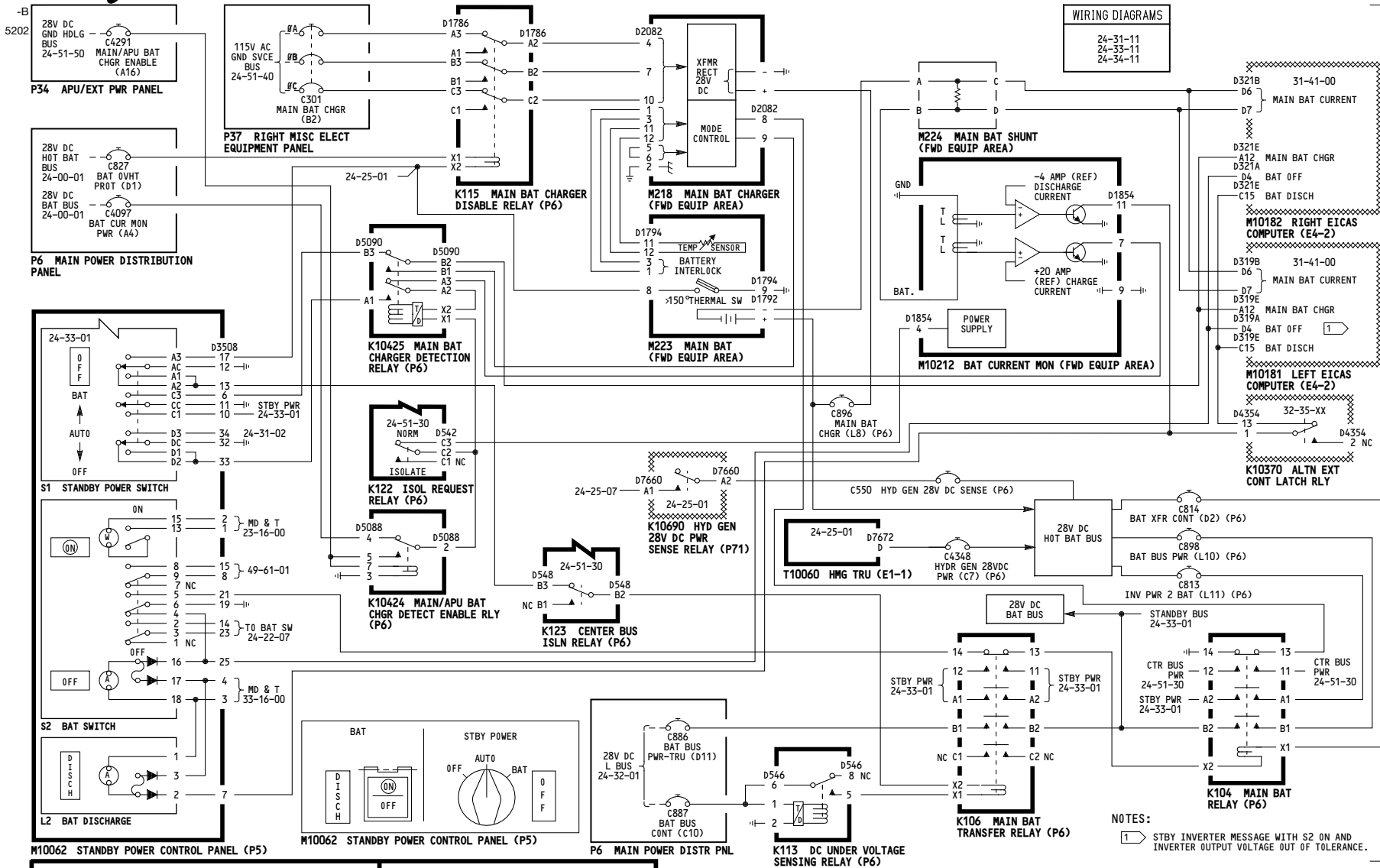


001-002

MAIN BATTERY POWER

D280N032S

24-31-01

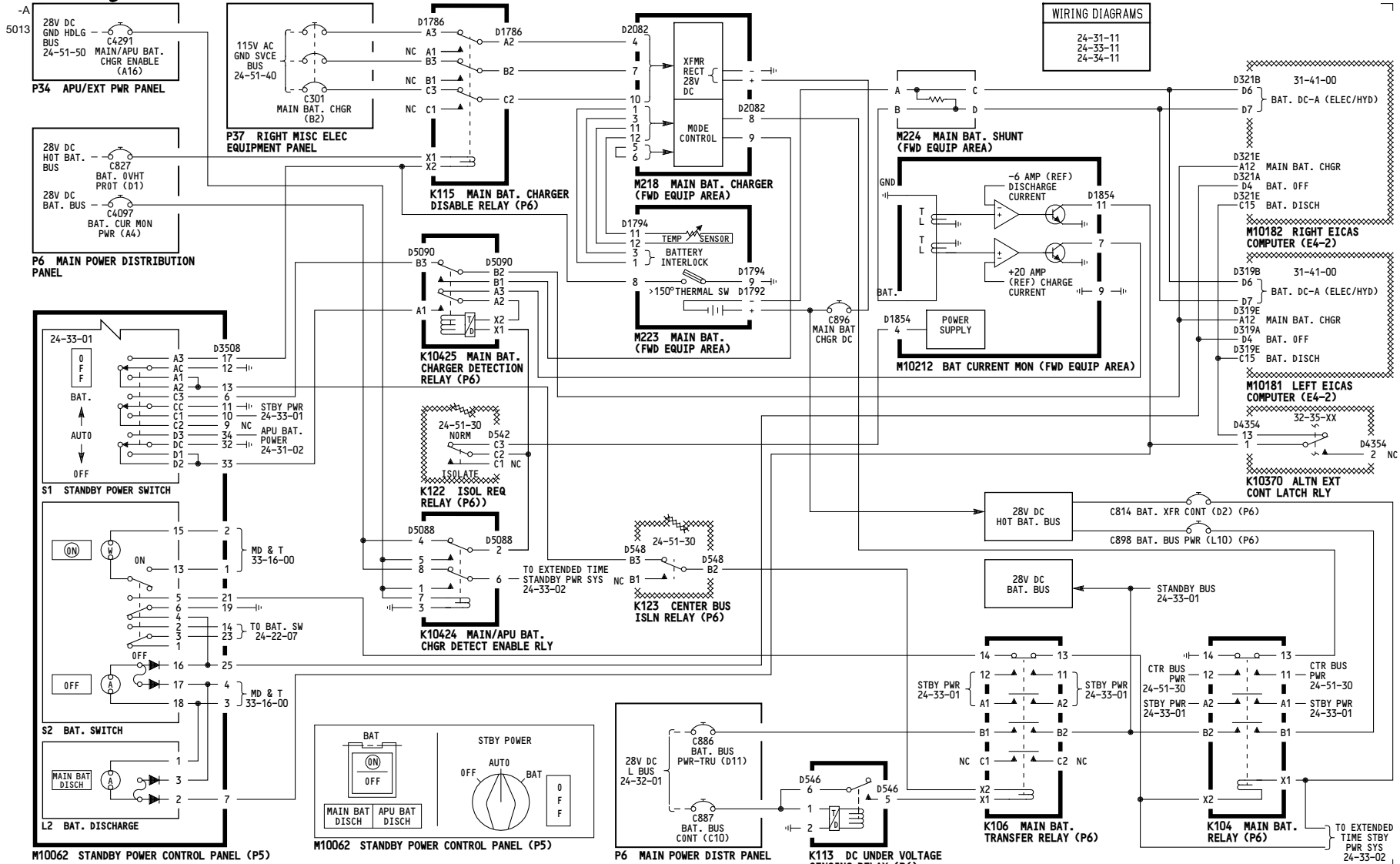


003-099

MAIN BATTERY POWER

D280N032S

24-31-01



115-199

MAIN BATTERY POWER

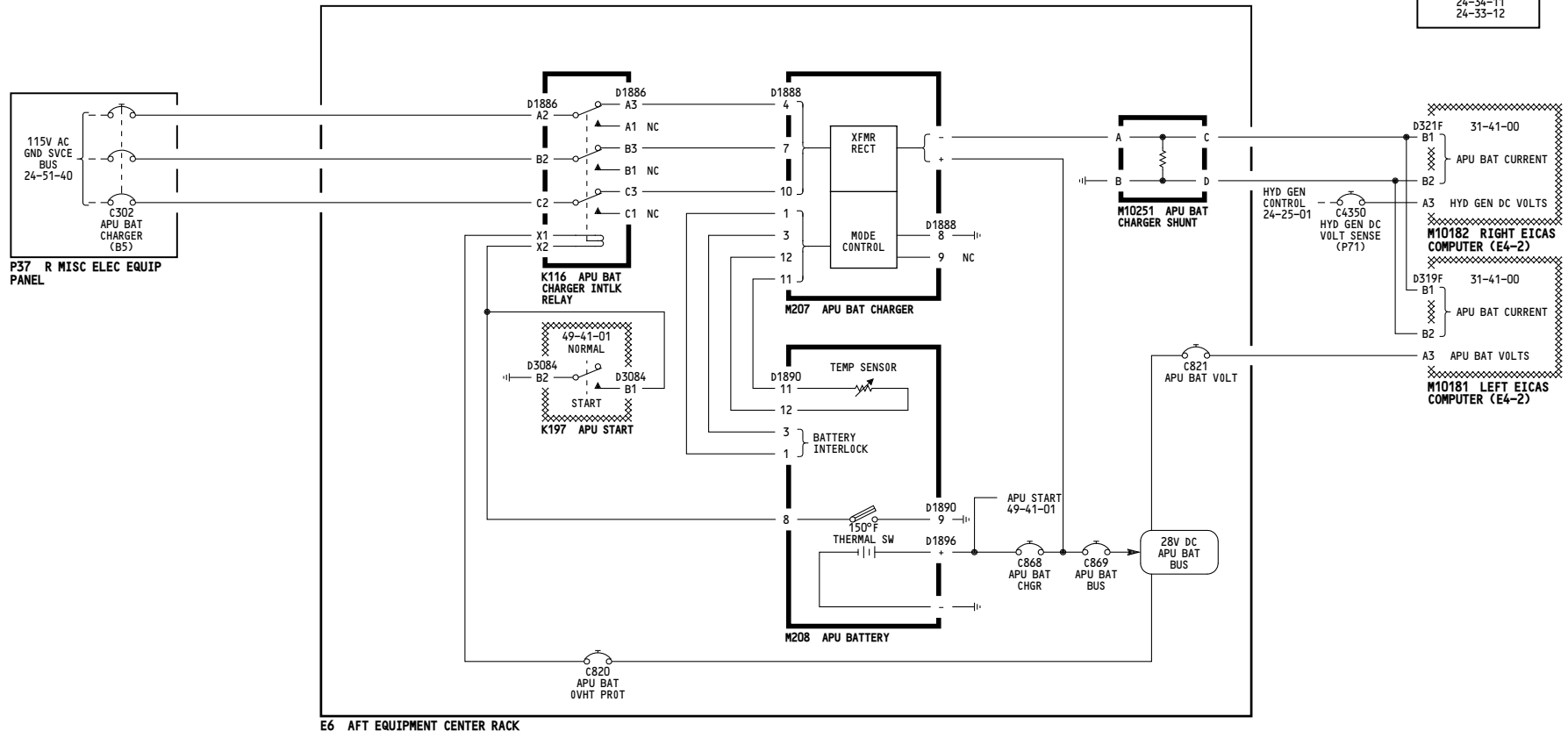
D280N032S

CONFIGURATION NOTES:
PARALLEL DUAL BATTERIES CONFIG
NONE ETOP PROVISION

24-31-01

5214

WIRING DIAGRAMS
24-31-41
24-34-11
24-33-12



| | |
|---------|--|
| 001-002 | <p align="center">DC POWER SYSTEM - APU BATTERY</p> <p align="center">D280N032S</p> |
|---------|--|

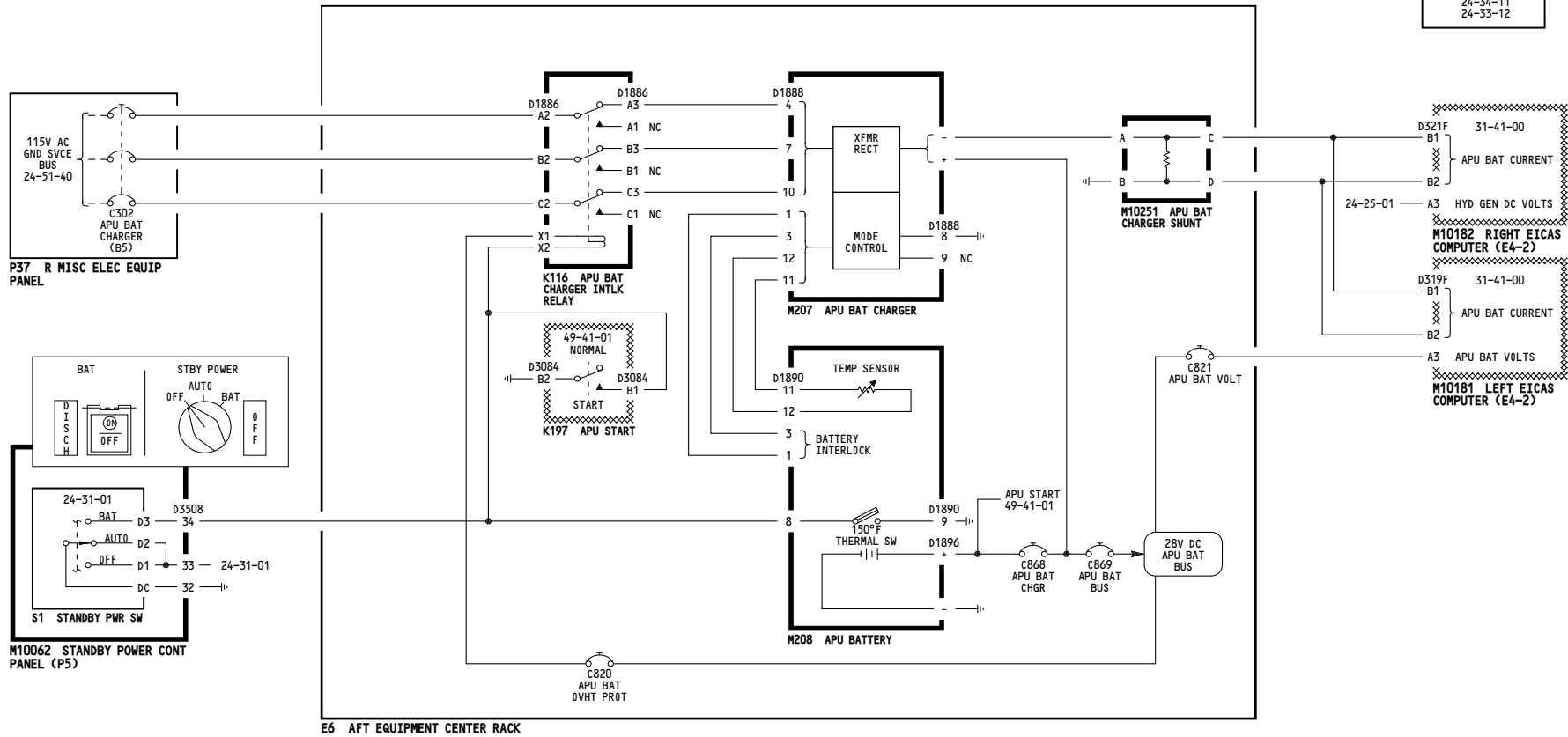
24-31-02

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5202

WIRING DIAGRAMS
24-31-41
24-34-11
24-33-12



003-099

**DC POWER SYSTEM -
APU BATTERY**

D280N032S

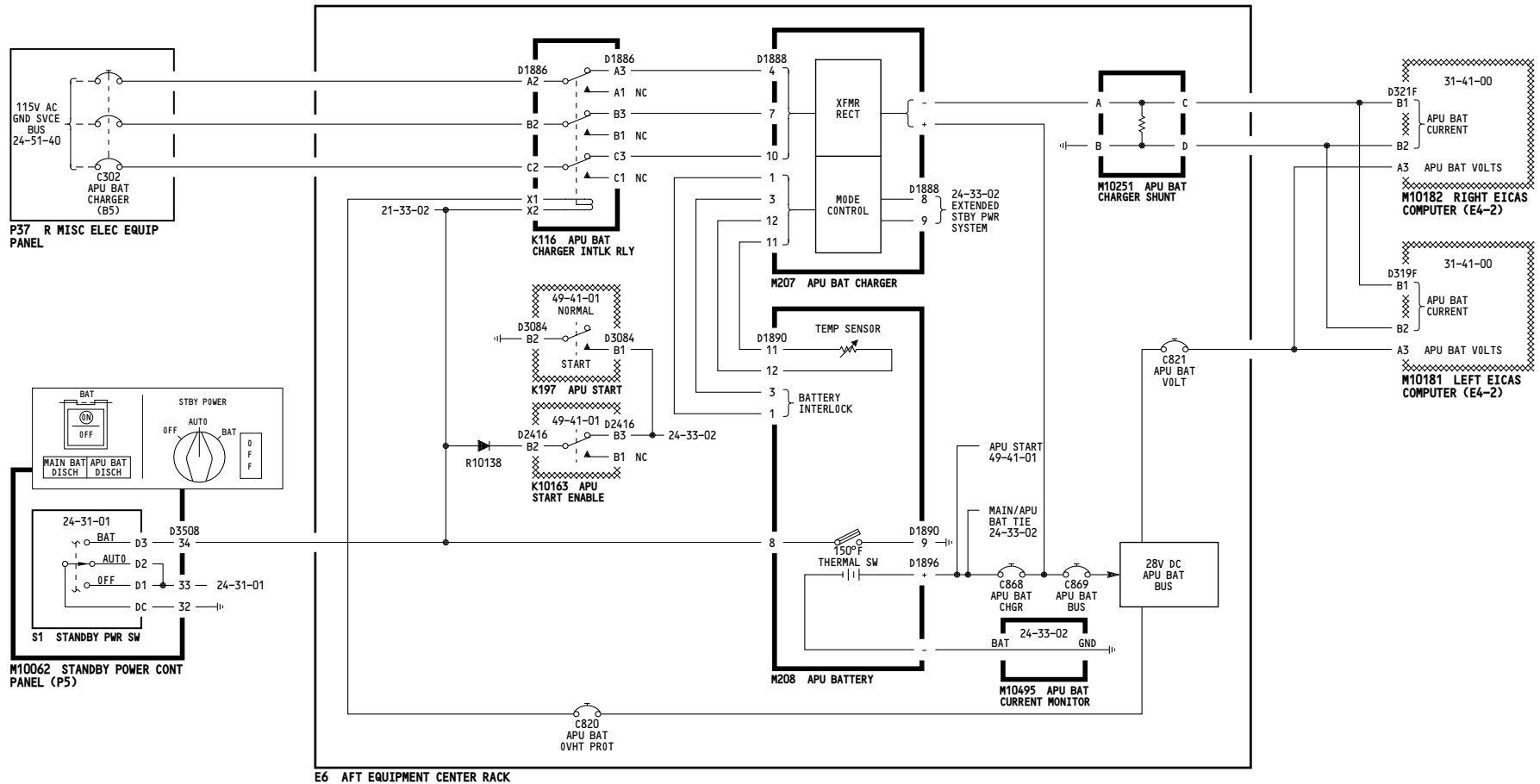
24-31-02

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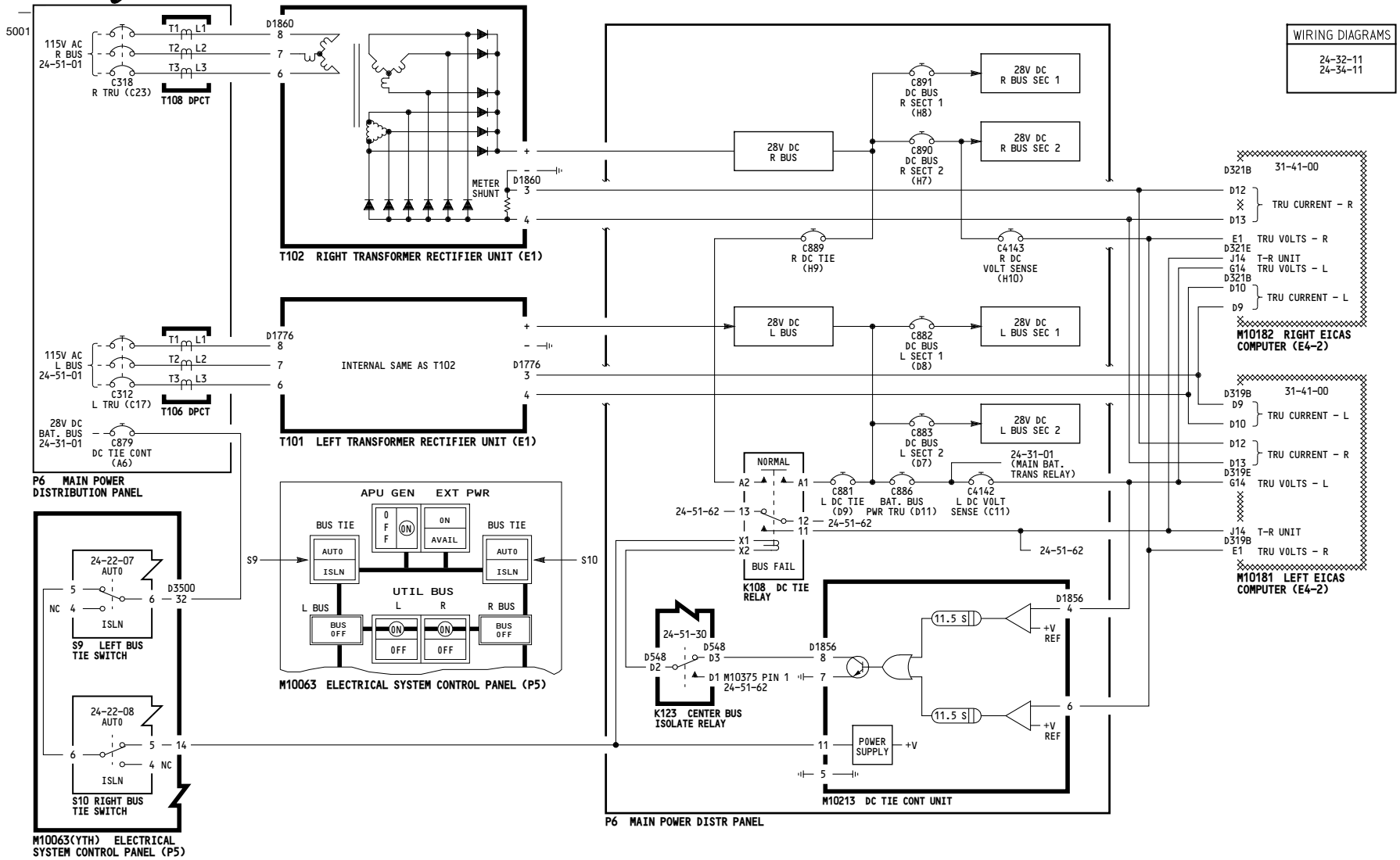
5011

WIRING DIAGRAMS
24-31-41
24-34-11
24-33-12



| | |
|---------|--|
| 115-199 | <p align="center">DC POWER SYSTEM - APU BATTERY</p> <p align="center">D280N032S</p> |
|---------|--|

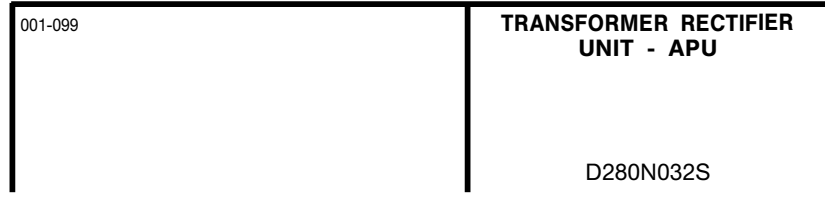
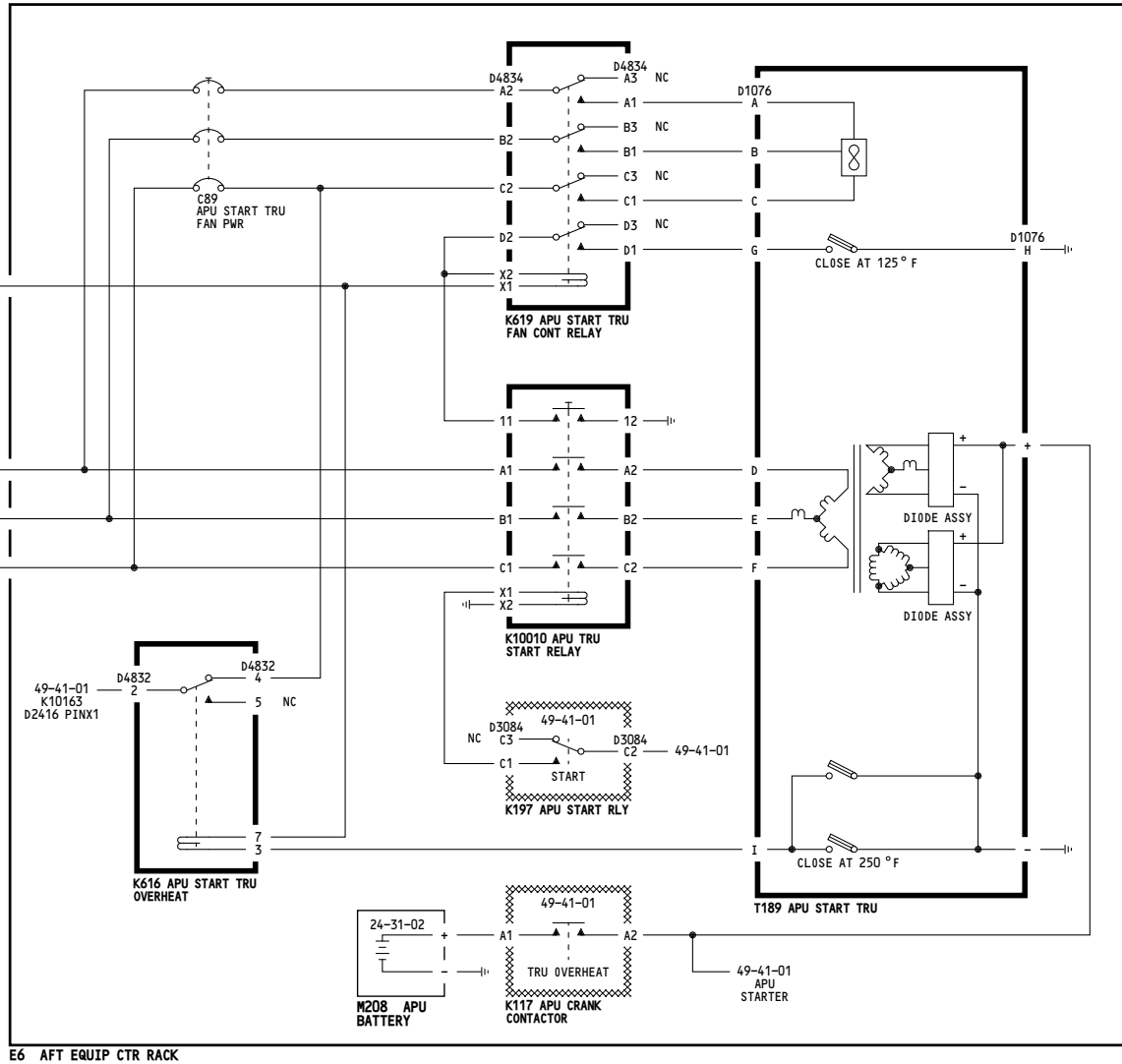
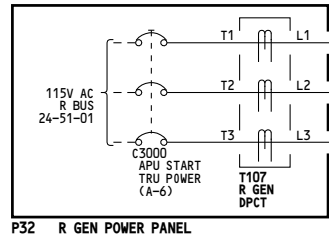
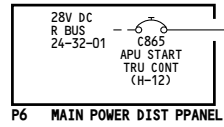
24-31-02



| | |
|-----|------------------------------------|
| ALL | TRANSFORMER RECTIFIER POWER |
| | D280N032S |

5011

WIRING DIAGRAMS
24-32-41
49-41-11



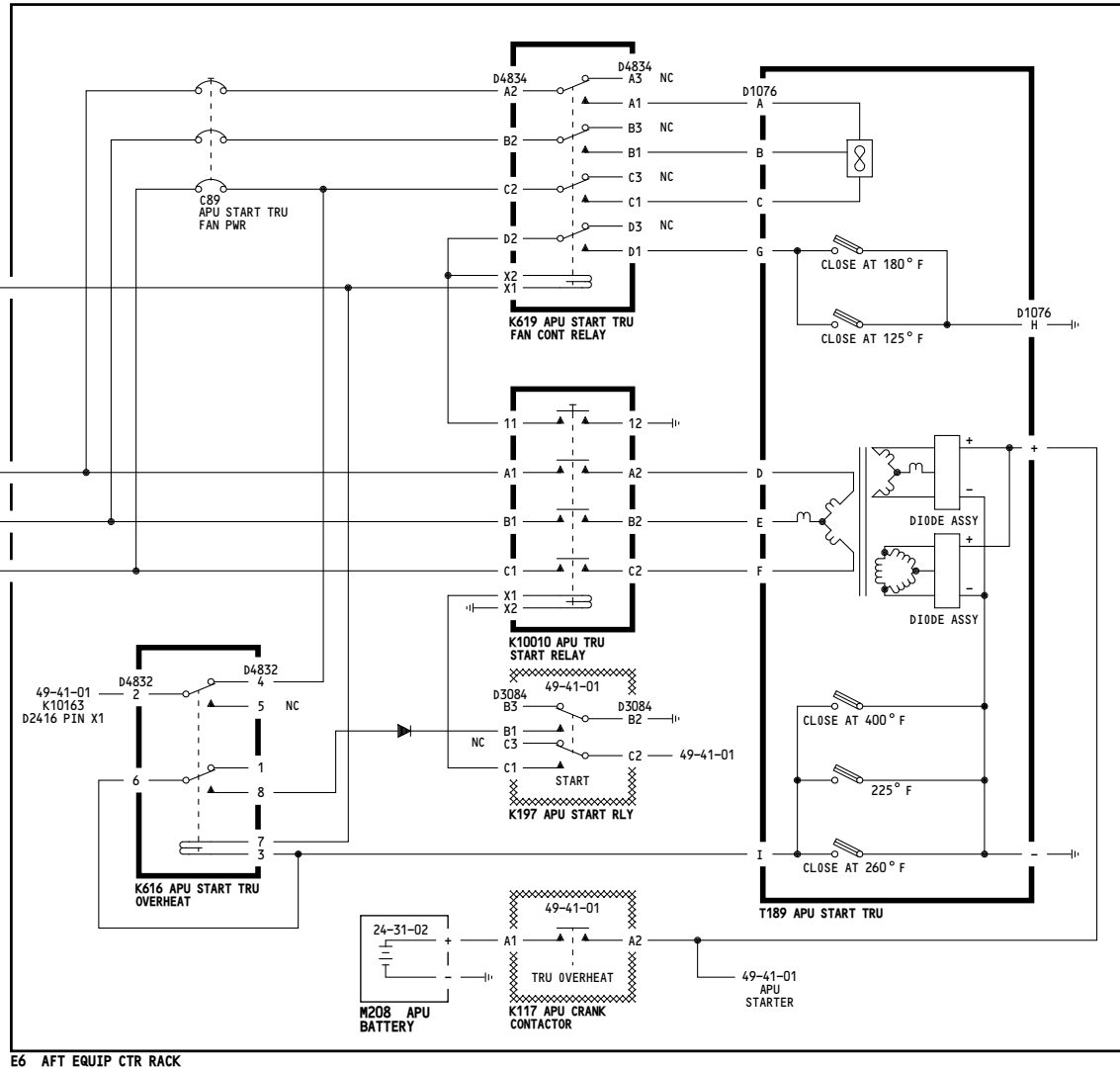
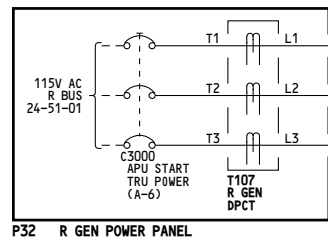
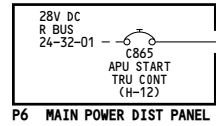
24-32-02

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WIRING DIAGRAMS
24-32-41
49-41-11



| | |
|---------|---|
| 115-199 | <p align="center">TRANSFORMER RECTIFIER UNIT - APU</p> <p align="center">D280N032S</p> |
|---------|---|

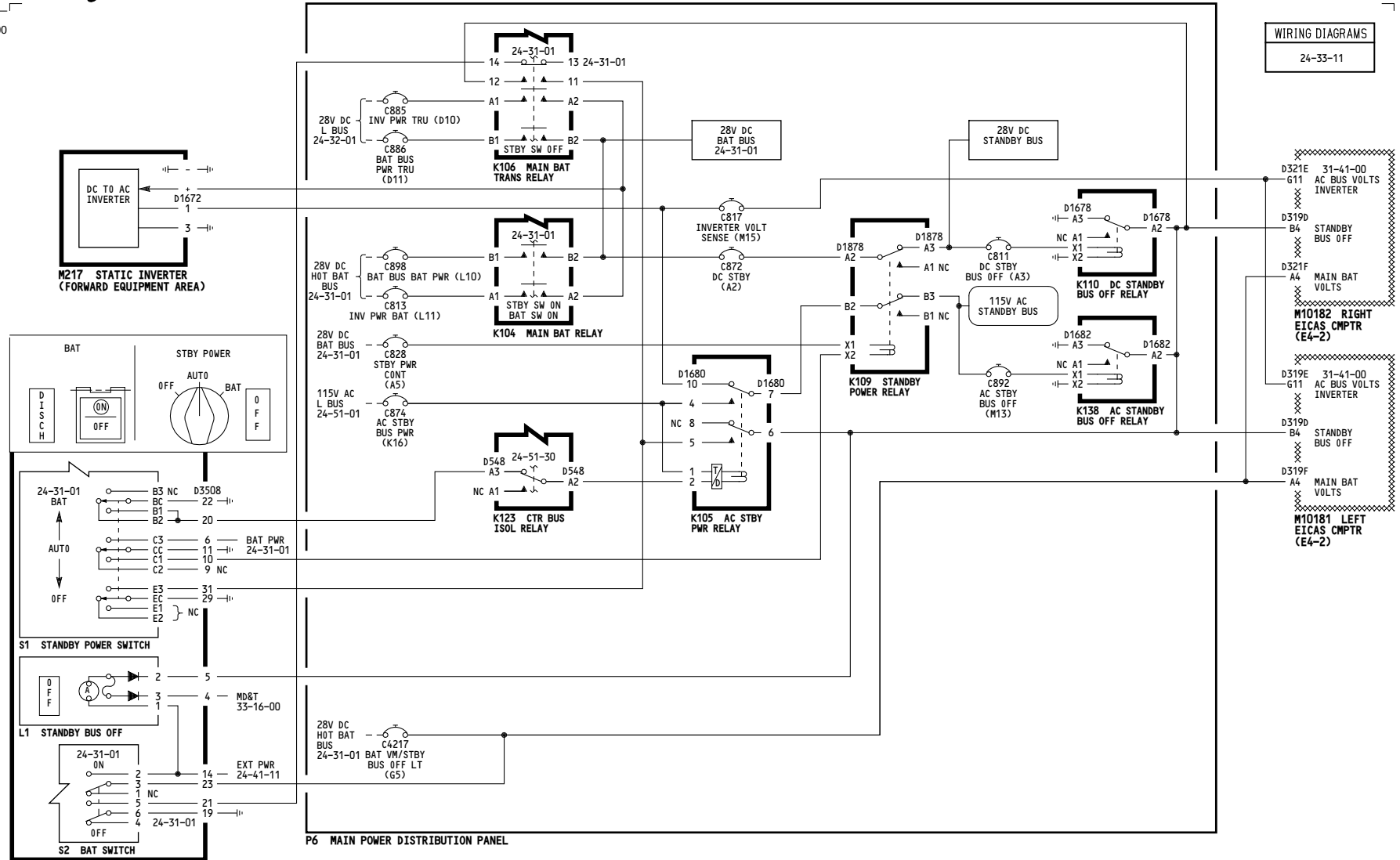
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WIRING DIAGRAMS
24-33-11



M10062 STBY PWR CONT PNL (P5)

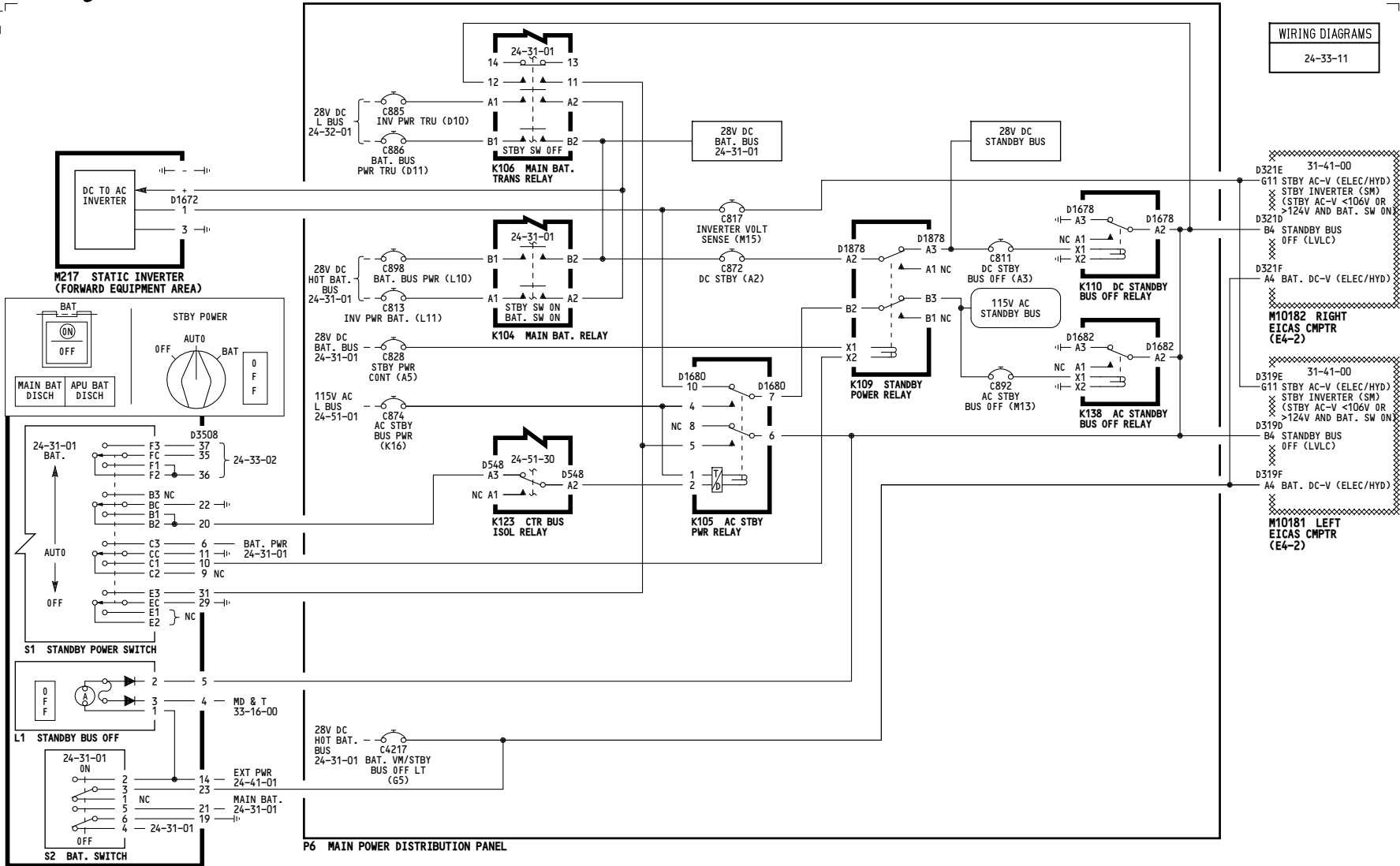
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|-----------|-----------------------------|
| 001-099 | STANDBY POWER SYSTEM |
| D280N032S | |

24-33-01

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WIRING DIAGRAMS
24-33-11



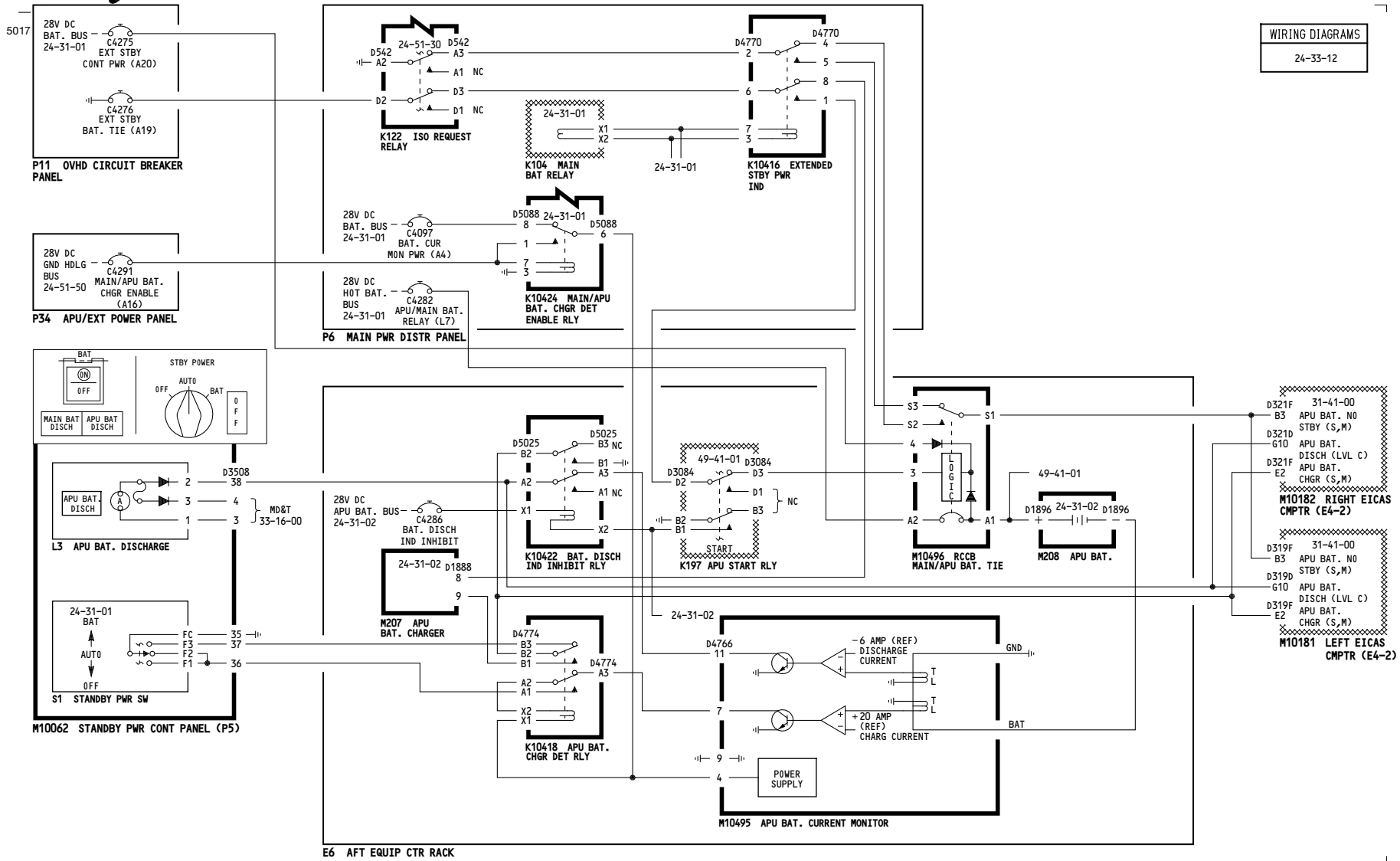
115-199

STANDBY POWER SYSTEM

D280N032S

24-33-01

WIRING DIAGRAMS
24-33-12



001-008, 010-099

**EXTENDED TIME
STANDBY POWER SYSTEM**

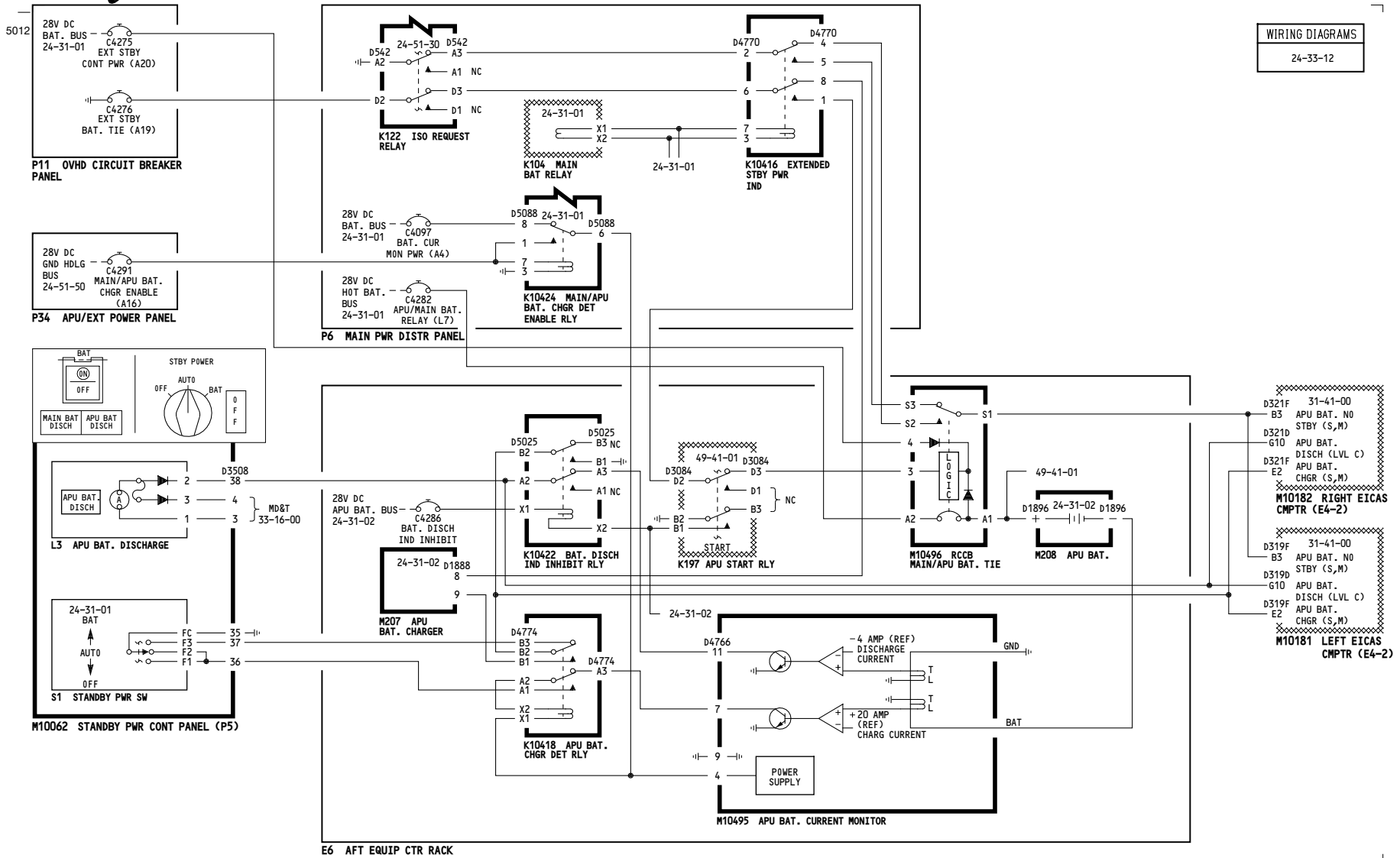
D280N032S

24-33-02

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WIRING DIAGRAMS
24-33-12

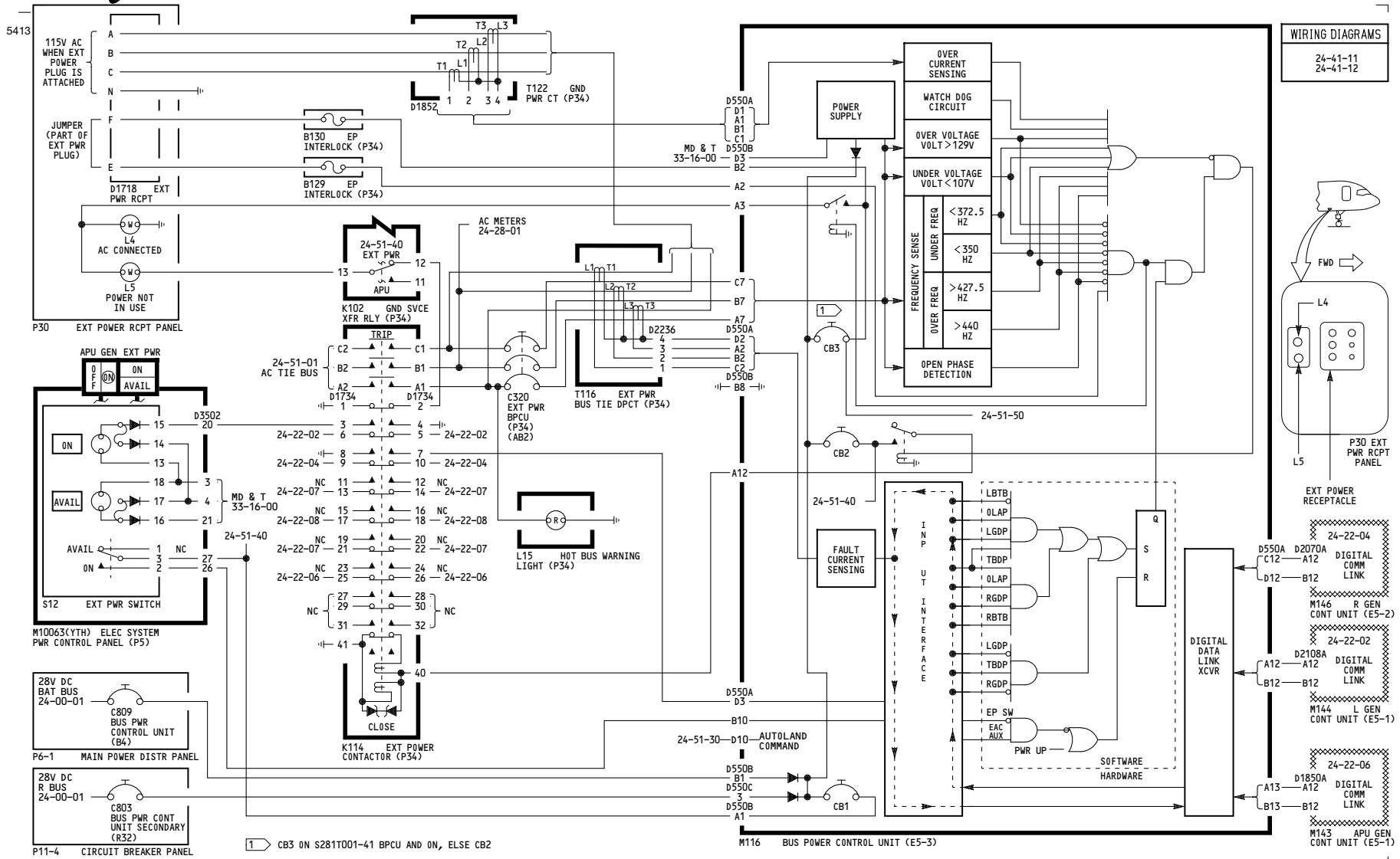


009, 115-199

**EXTENDED TIME
STANDBY POWER SYSTEM**

D280N032S

24-33-02

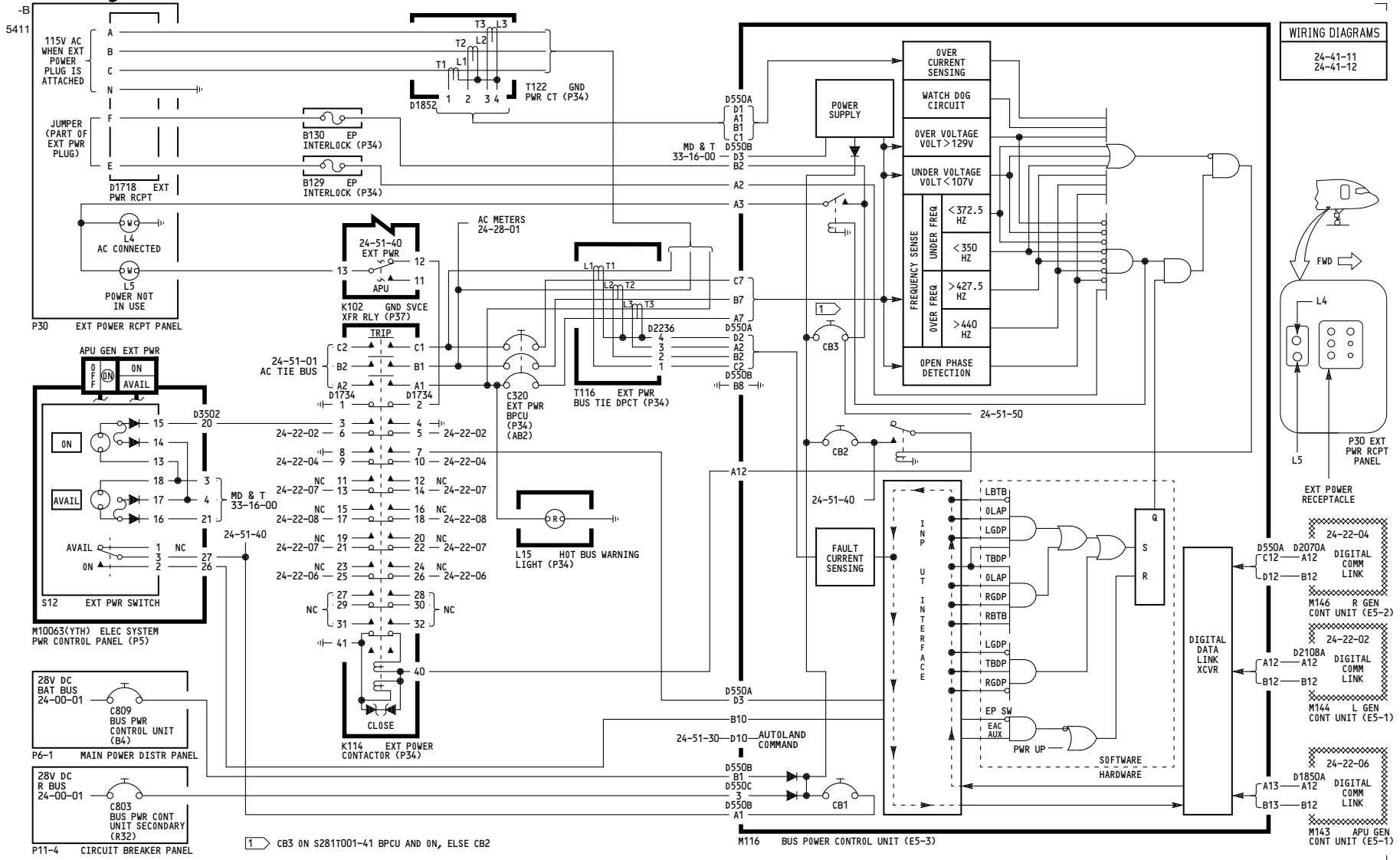


001-099

EXTERNAL POWER SYSTEM

D280N032S

24-41-01



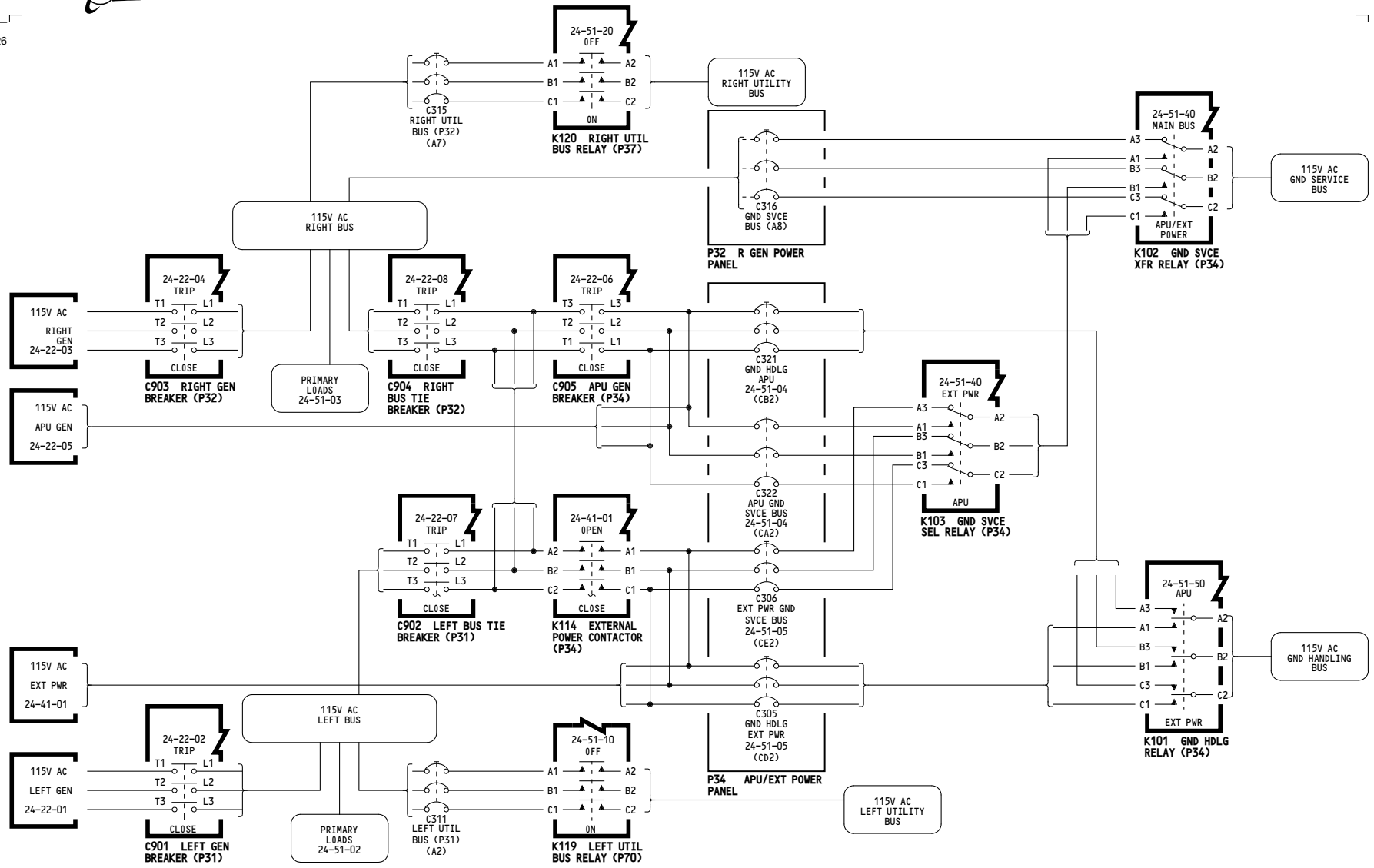
115-199

EXTERNAL POWER SYSTEM

D280N032S

24-41-01

5026



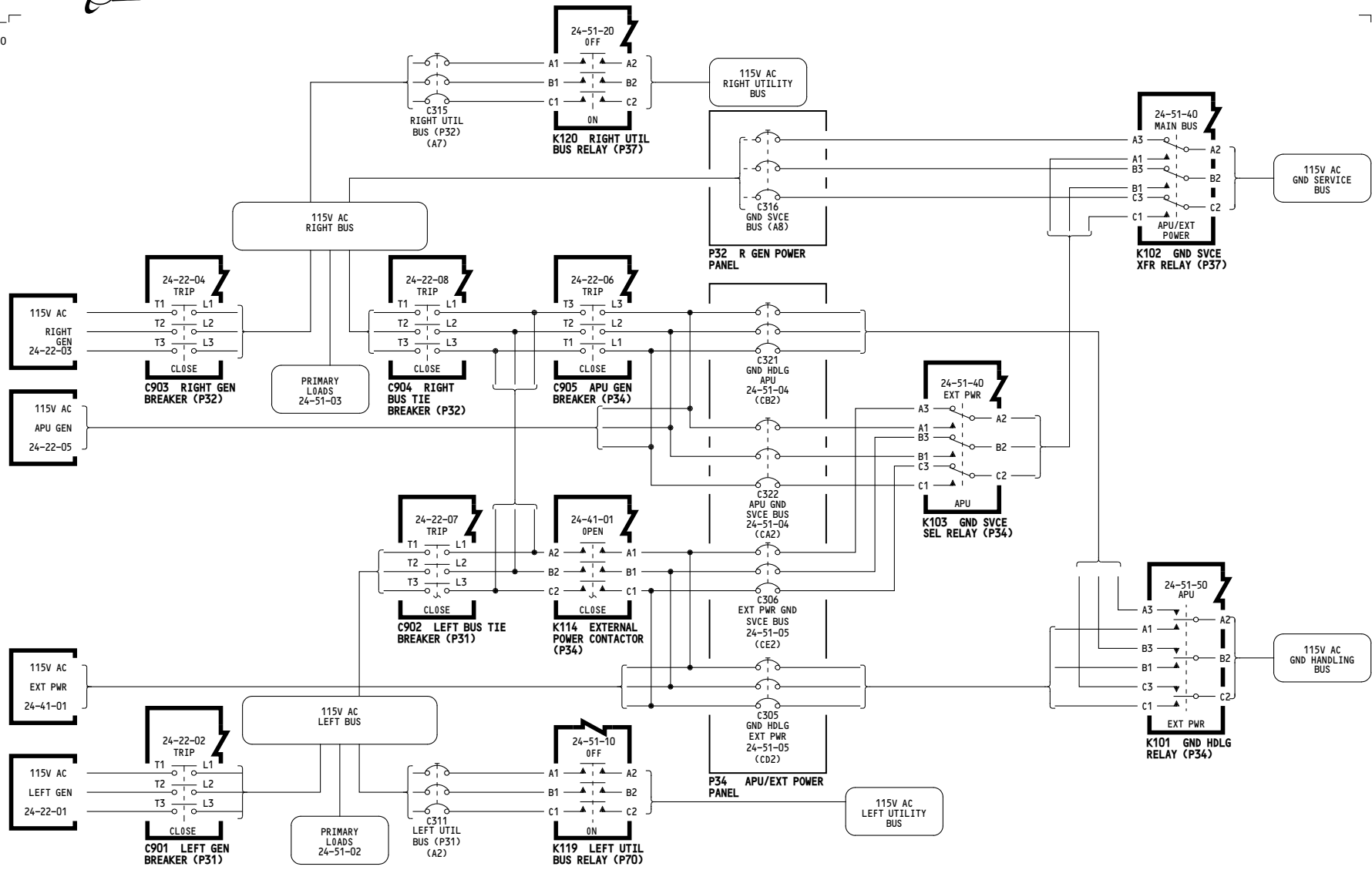
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|-----------|---------------------------------------|
| 001-099 | THREE PHASE POWER DISTRIBUTION |
| D280N032S | |

24-51-01

Page 101

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5000



115-199

THREE PHASE POWER DISTRIBUTION

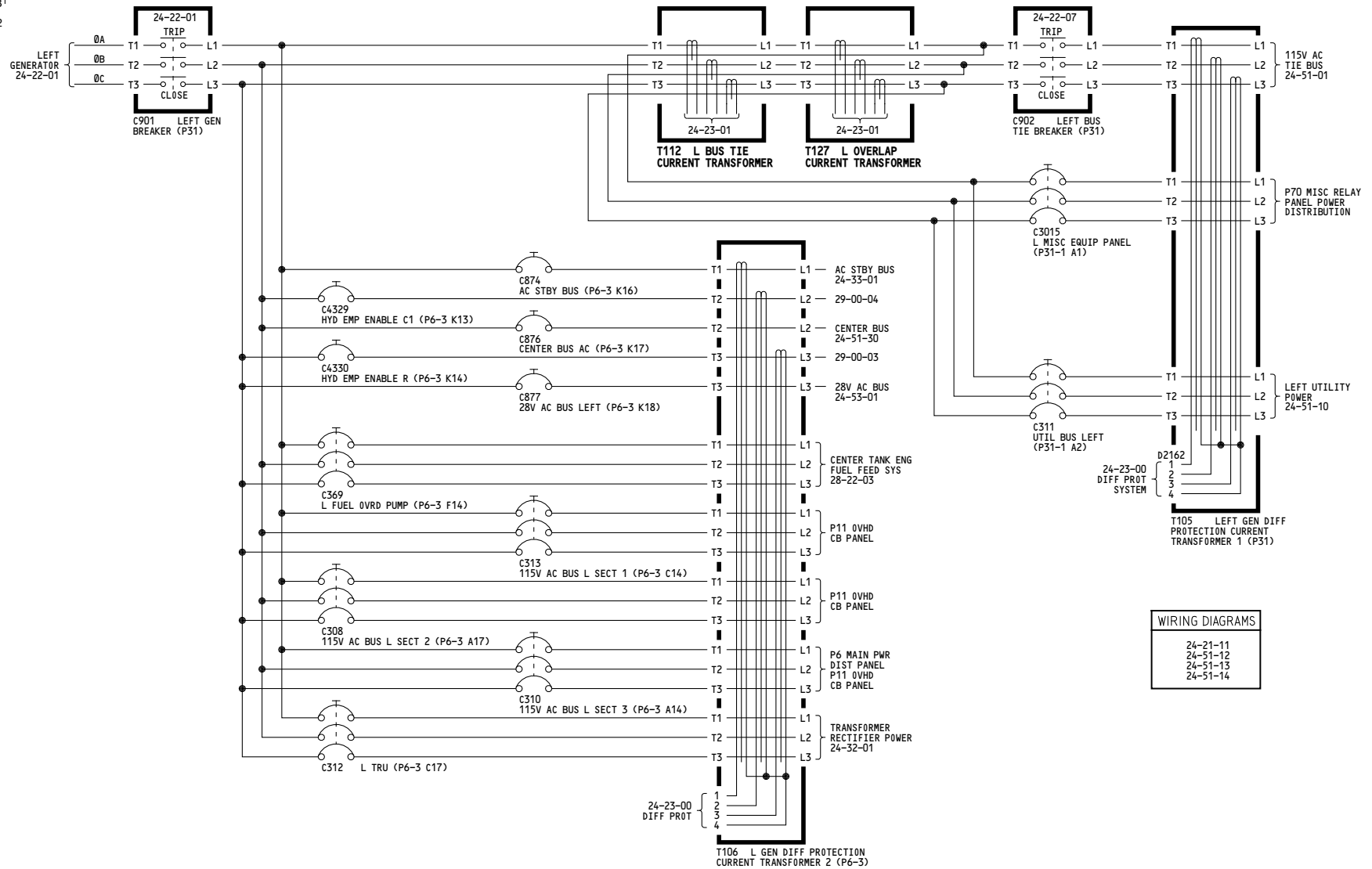
D280N032S

24-51-01

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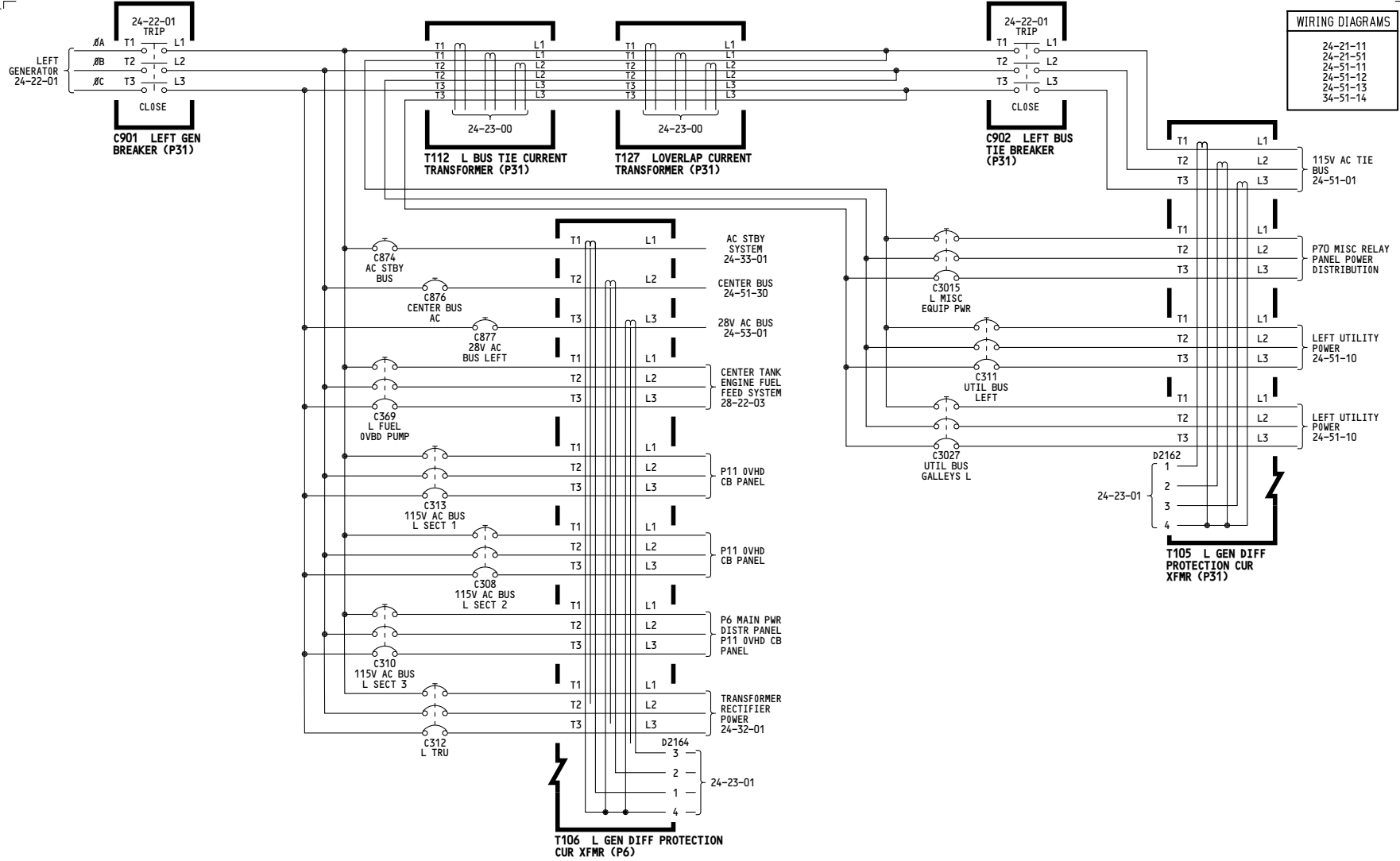
Apr 27/2005

-B
5012



| | |
|---------|--|
| 001-099 | <p>LEFT GENERATOR LOADS - PRIMARY DISTRIBUTION</p> <p>D280N032S</p> |
|---------|--|

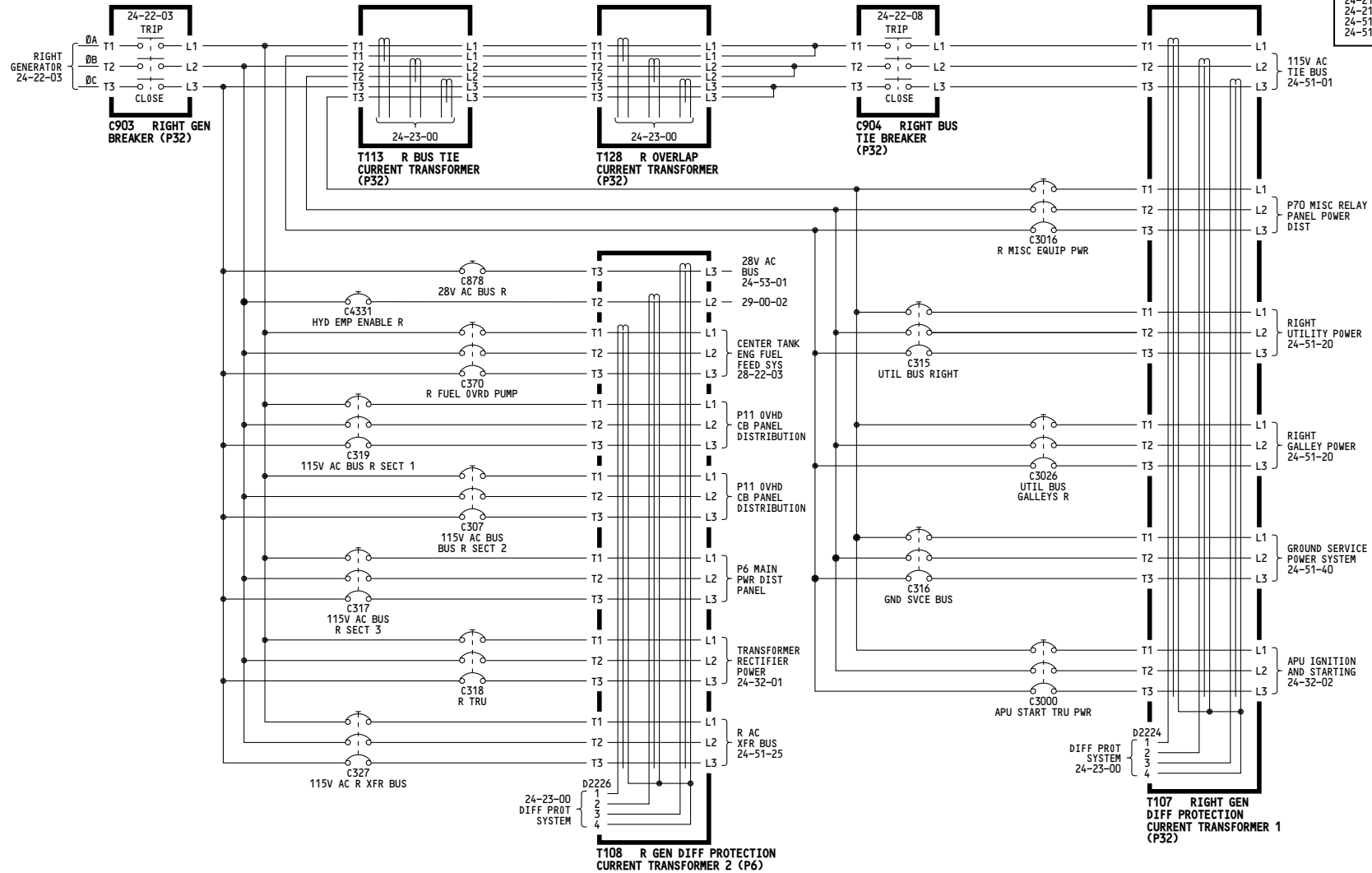
5011



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| 115-199 | <p>LEFT GENERATOR LOADS - PRIMARY DISTRIBUTION</p> <p>D280N032S</p> |
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5024

WIRING DIAGRAMS
24-21-21 24-51-23
24-21-51 24-51-24
24-51-21 24-51-52
24-51-22



| | |
|---------|---|
| 001-002 | <p align="center">RIGHT GENERATOR LOADS - PRIMARY DISTRIBUTION</p> <p align="center">D280N032S</p> |
|---------|---|

24-51-03

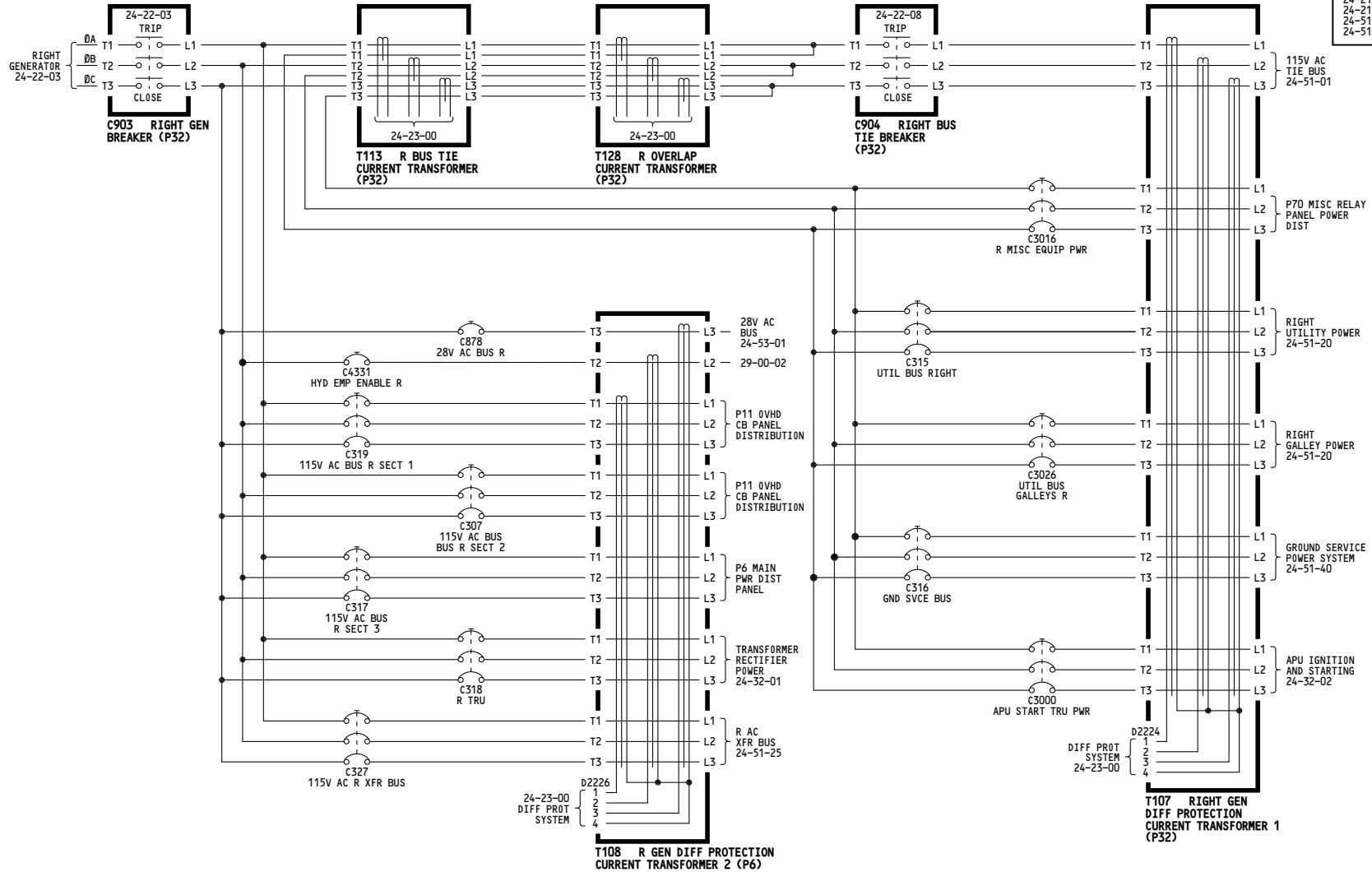
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WIRING DIAGRAMS

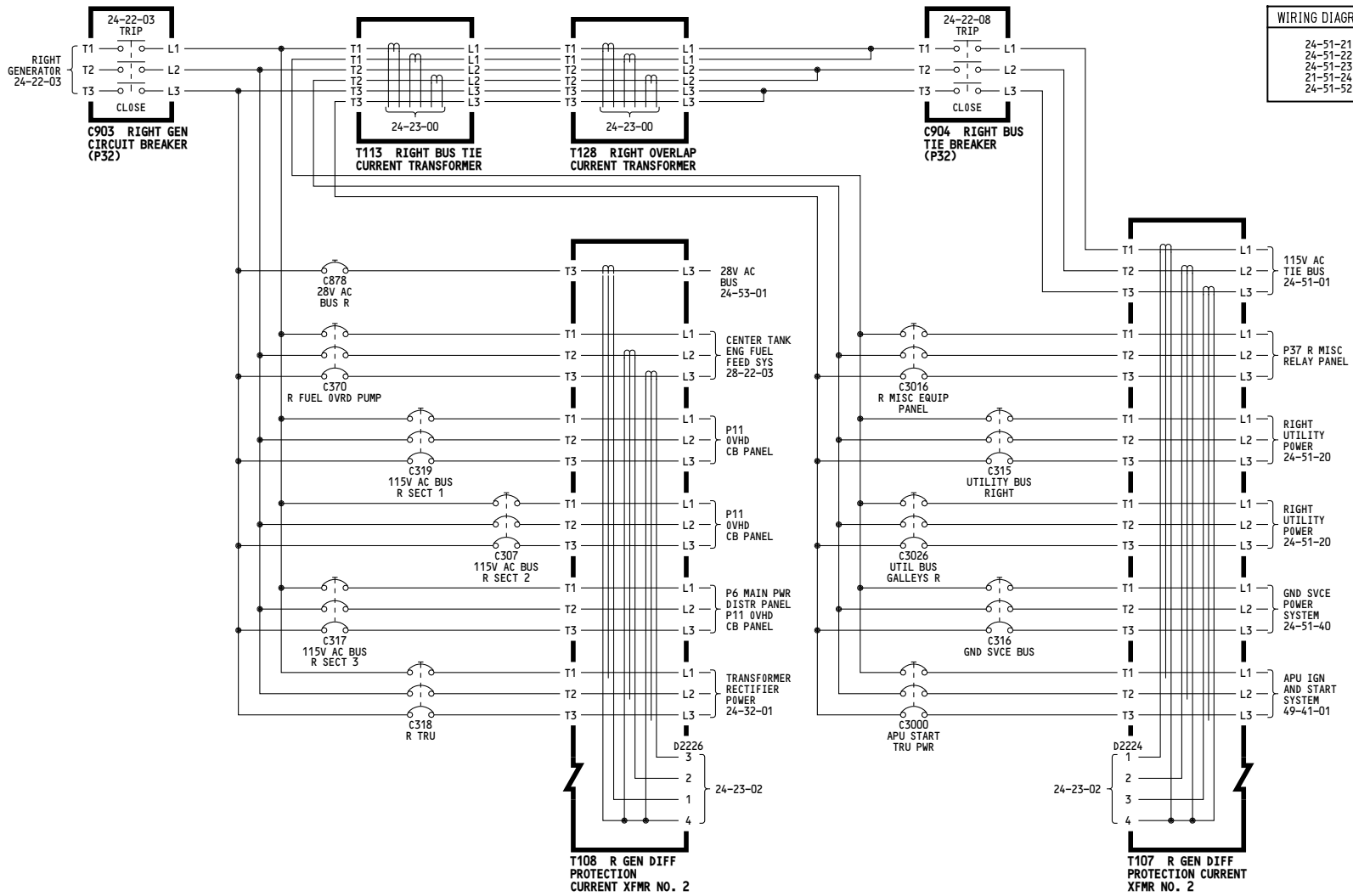
24-21-21 24-51-23
24-21-51 24-51-24
24-51-21 24-51-52
24-51-22



| | |
|---------|---|
| 003-099 | <p align="center">RIGHT GENERATOR LOADS - PRIMARY DISTRIBUTION</p> <p align="center">D280N032S</p> |
|---------|---|

24-51-03

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| WIRING DIAGRAMS | |
|-----------------|--|
| 24-51-21 | |
| 24-51-22 | |
| 24-51-23 | |
| 21-51-24 | |
| 24-51-52 | |

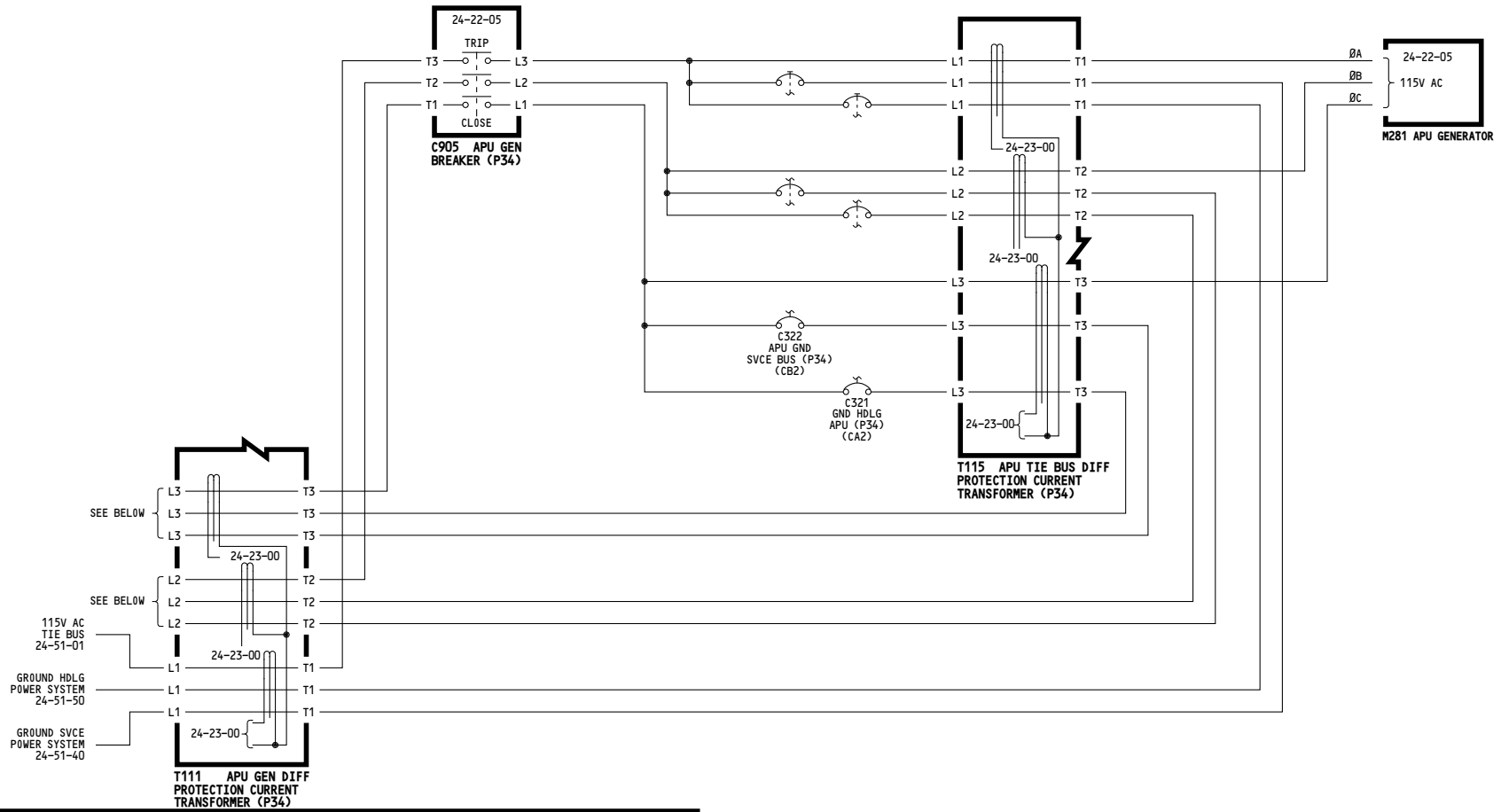
| | |
|-----------|---|
| 115-199 | RIGHT GENERATOR LOADS - PRIMARY DISTRIBUTION |
| D280N032S | |

24-51-03

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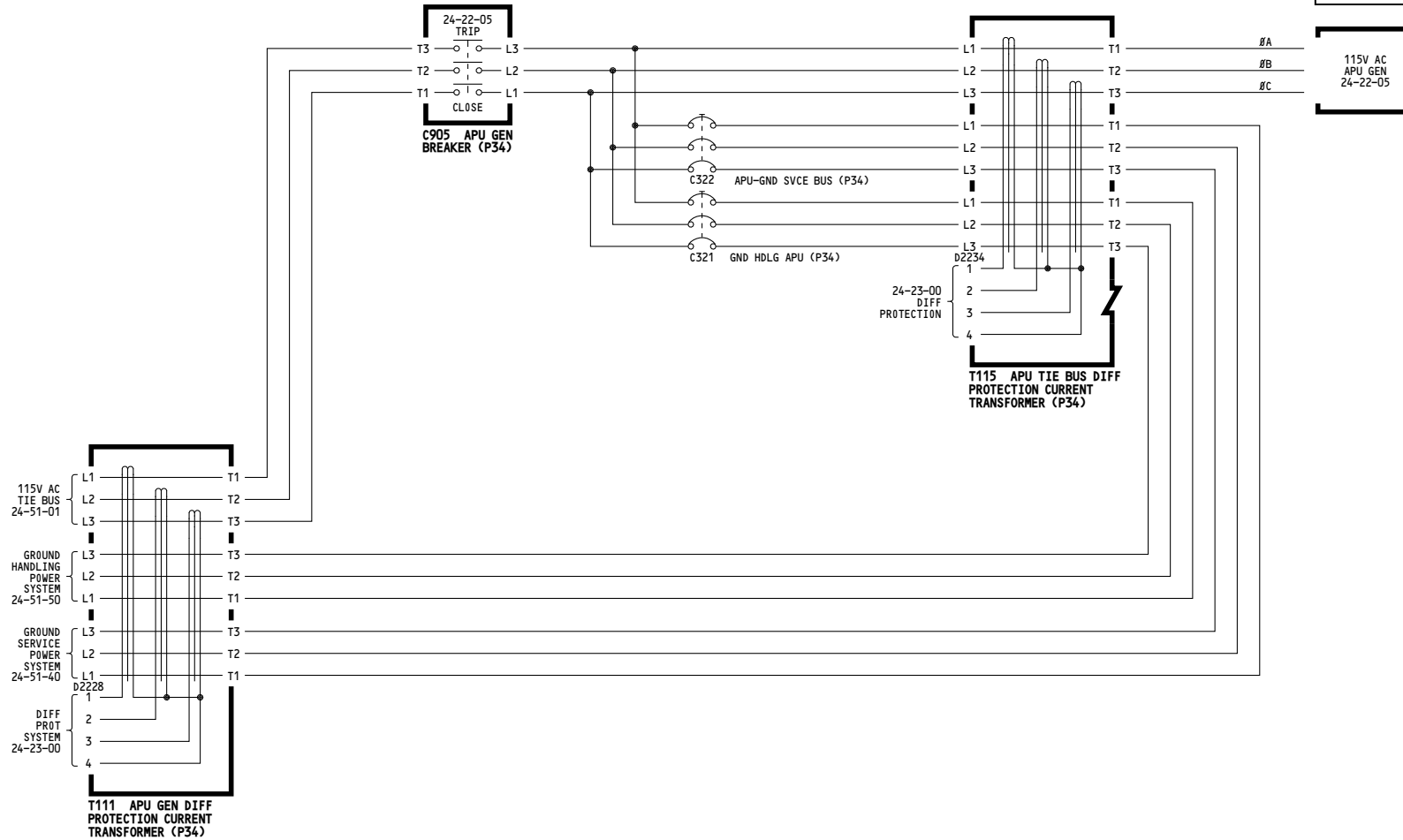
Jan 21/2005

| WIRING DIAGRAMS | |
|-----------------|--|
| 24-21-51 | |
| 24-21-41 | |
| 24-51-52 | |
| 24-51-61 | |



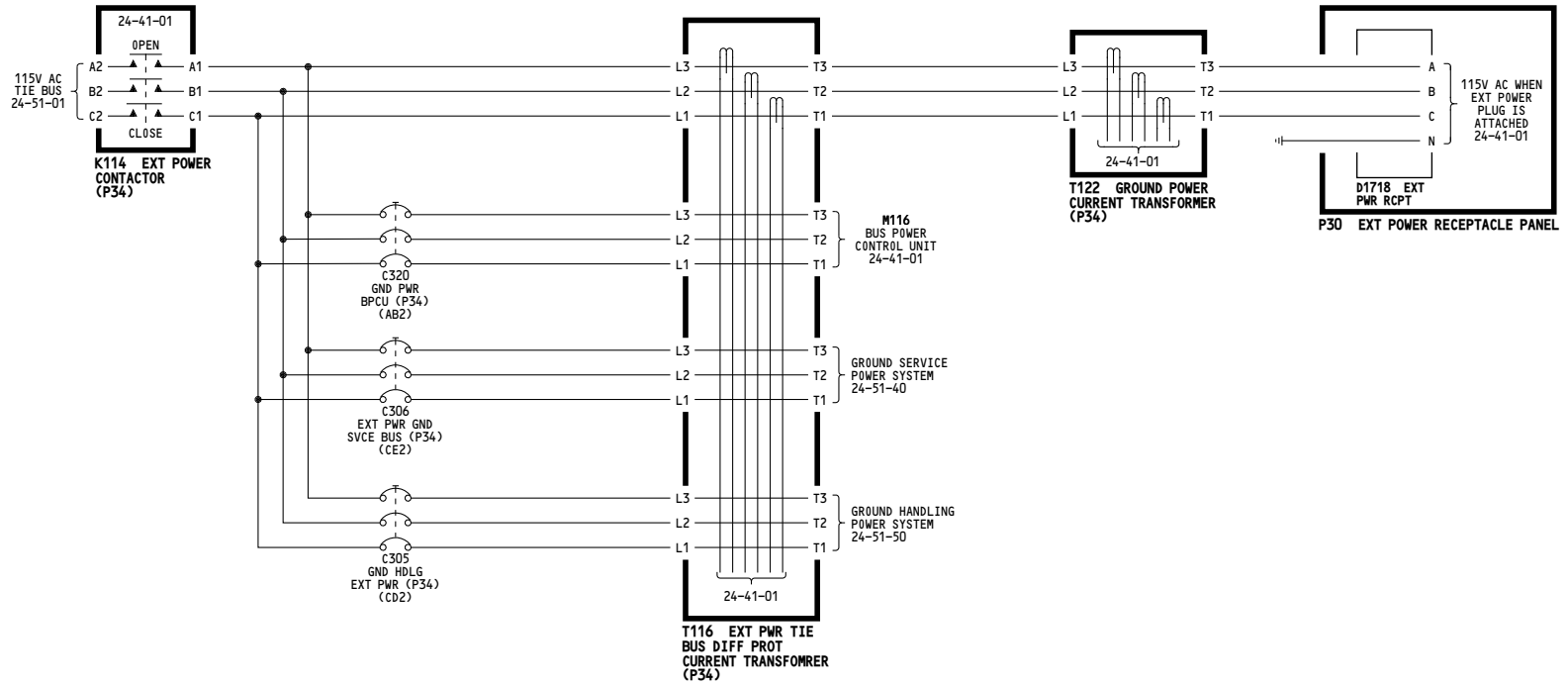
| | |
|---------|---|
| 001-099 | <p align="center">APU LOADS - PRIMARY DISTRIBUTION</p> <p align="center">D280N032S</p> |
|---------|---|

WIRING DIAGRAMS
 24-21-51
 24-21-41
 24-51-52
 24-51-61



| | |
|---------|---|
| 115-199 | <p align="center">APU LOADS - PRIMARY DISTRIBUTION</p> <p align="center">D280N032S</p> |
|---------|---|

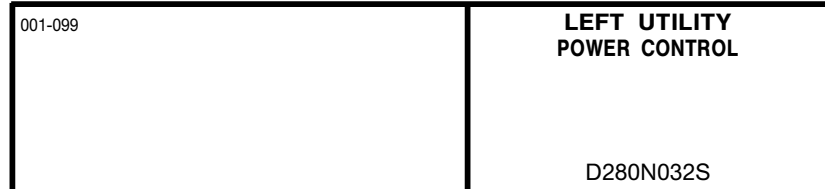
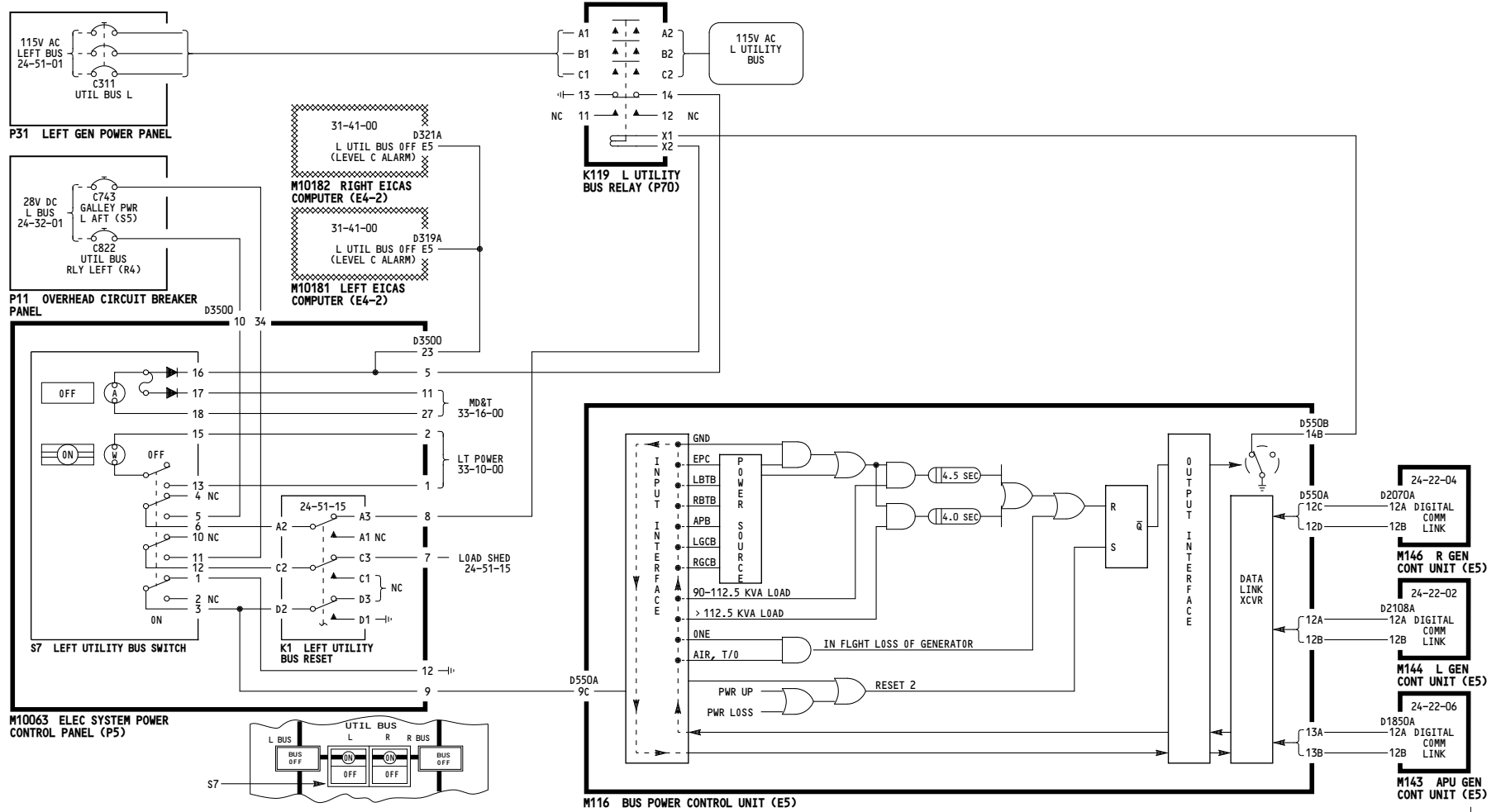
WIRING DIAGRAMS
 24-41-11
 24-51-52
 24-51-61



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| ALL | EXTERNAL POWER LOADS - PRIMARY DISTRIBUTION |
| | D280N032S |

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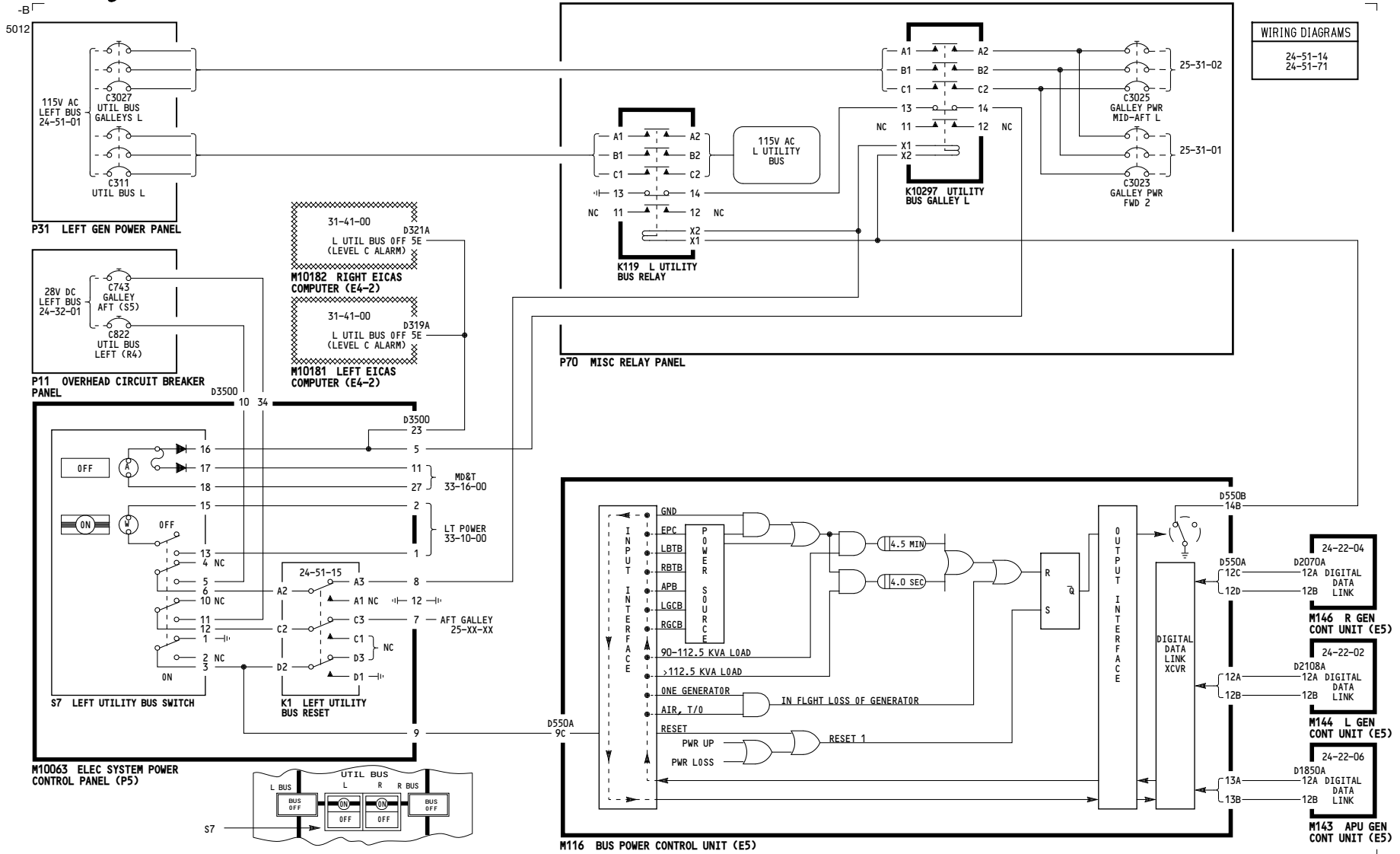
WIRING DIAGRAMS
24-51-14
24-51-71



24-51-10

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115-199

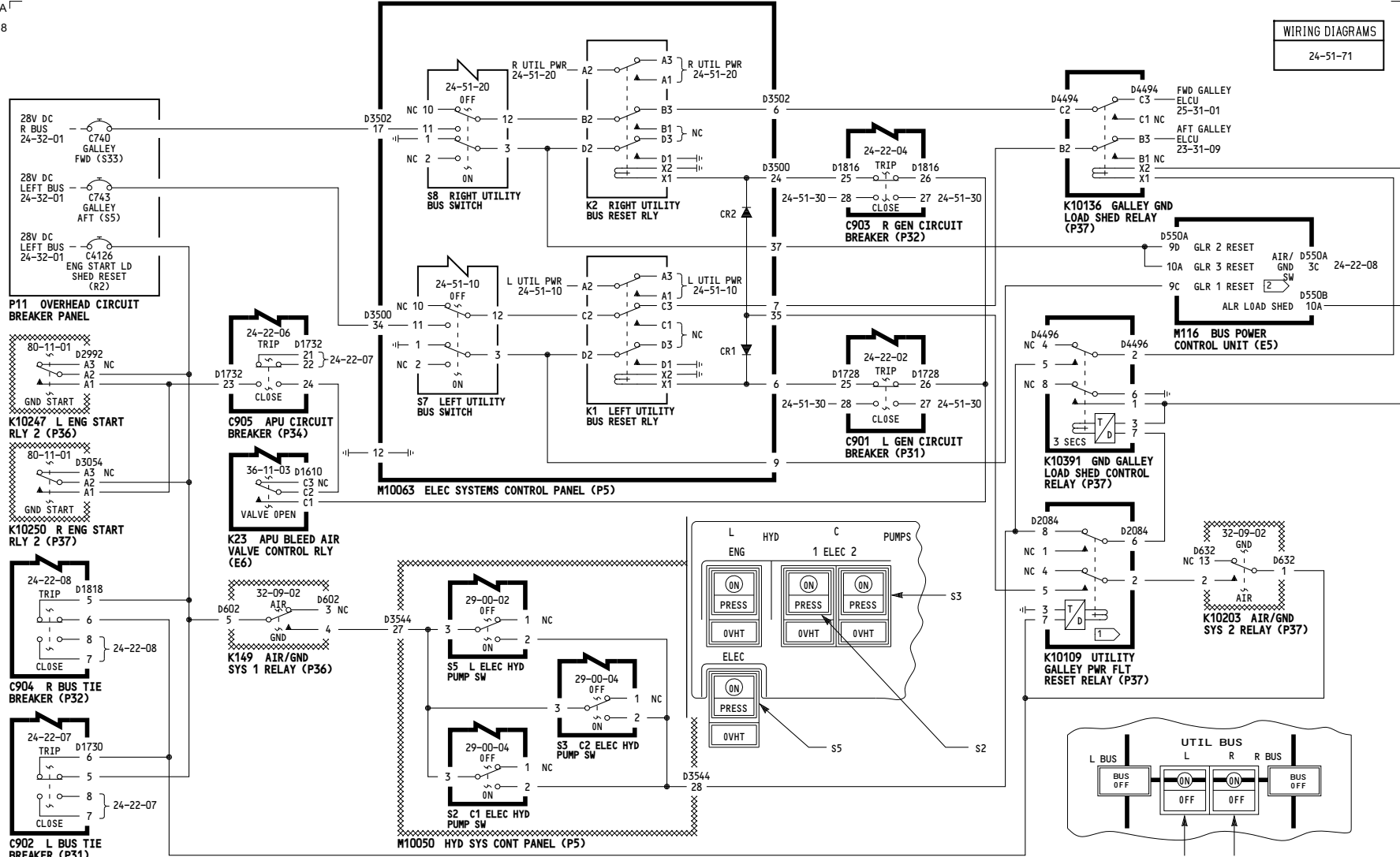
LEFT UTILITY POWER CONTROL

D280N032S

24-51-10

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5018

WIRING DIAGRAMS
24-51-71



1 WHEN POWER IS APPLIED, RELAY STAYS ENERGIZED FOR ONLY 1.5 SECONDS.

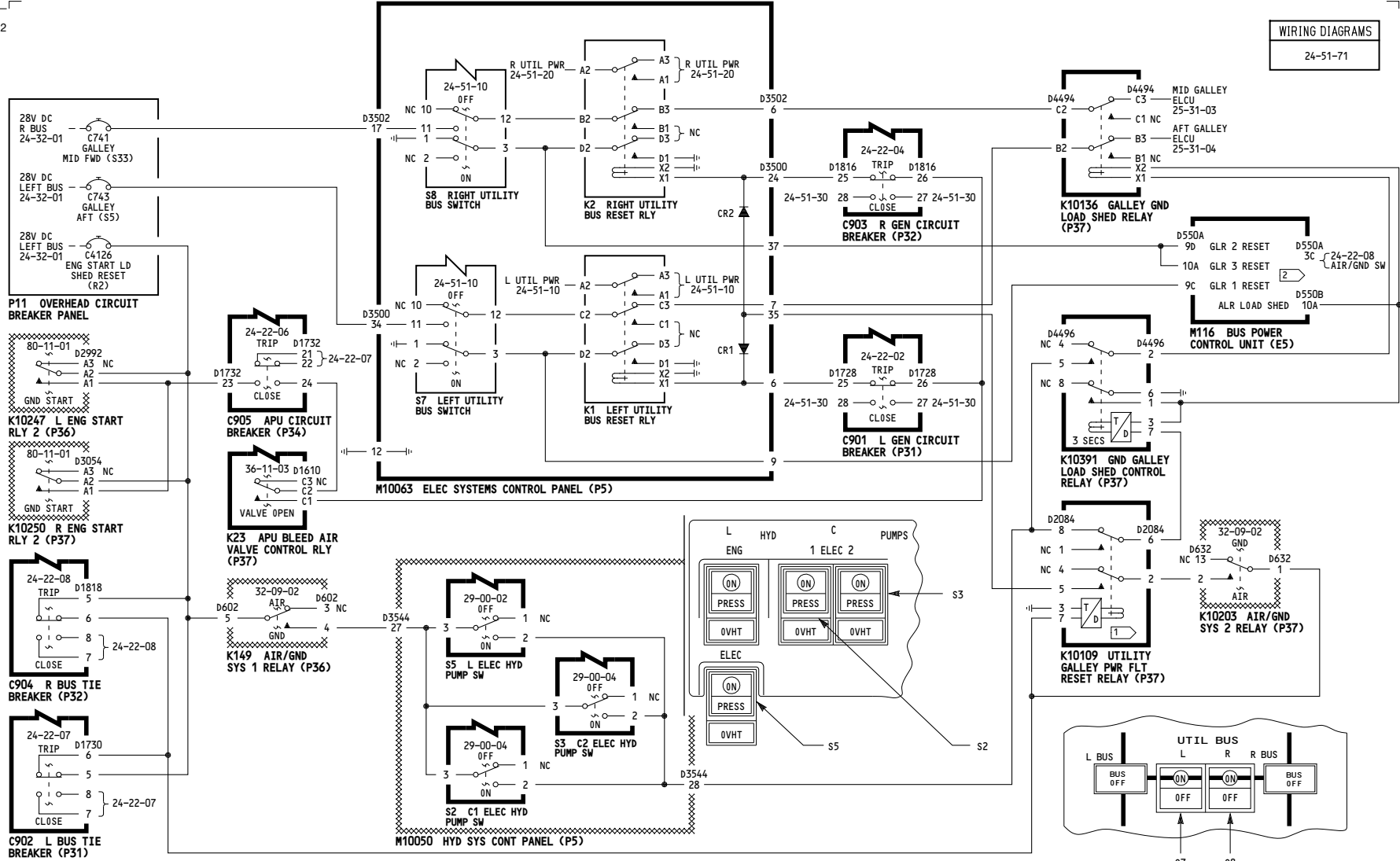
2 10 SECONDS T/D BEFORE GRD SIGNAL IS RECOGNIZED AND RESETS ARE ENABLED FOLLOWING SINGLE-SOURCE LOAD SHED ON GROUND.

| | |
|-----------|---------------------------------|
| 001-099 | ELECTRICAL LOAD SHEDDING |
| D280N032S | |

M10063 ELEC SYSTEMS CONTROL PANEL (P5)
24-51-15

5012

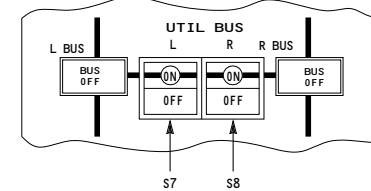
WIRING DIAGRAMS
24-51-71



1 WHEN POWER IS APPLIED, RELAY STAYS ENERGIZED FOR ONLY 1.5 SECONDS.

2 10 SECONDS T/D BEFORE GRID SIGNAL IS RECOGNIZED AND RESETS ARE ENABLED FOLLOWING SINGLE-SOURCE LOAD SHED ON GROUND

M10063 ELEC SYSTEMS CONTROL PANEL (P5)

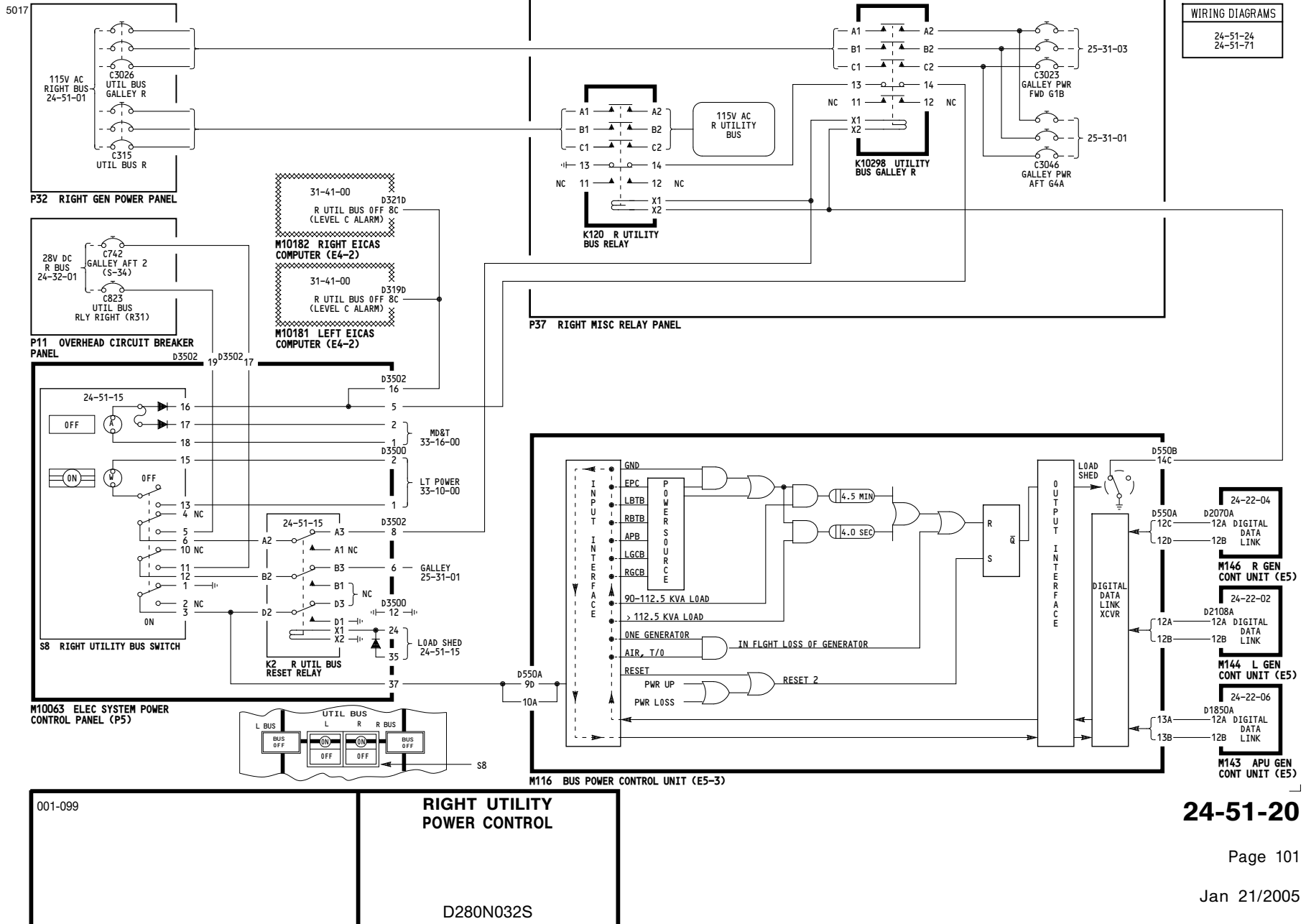


115-199

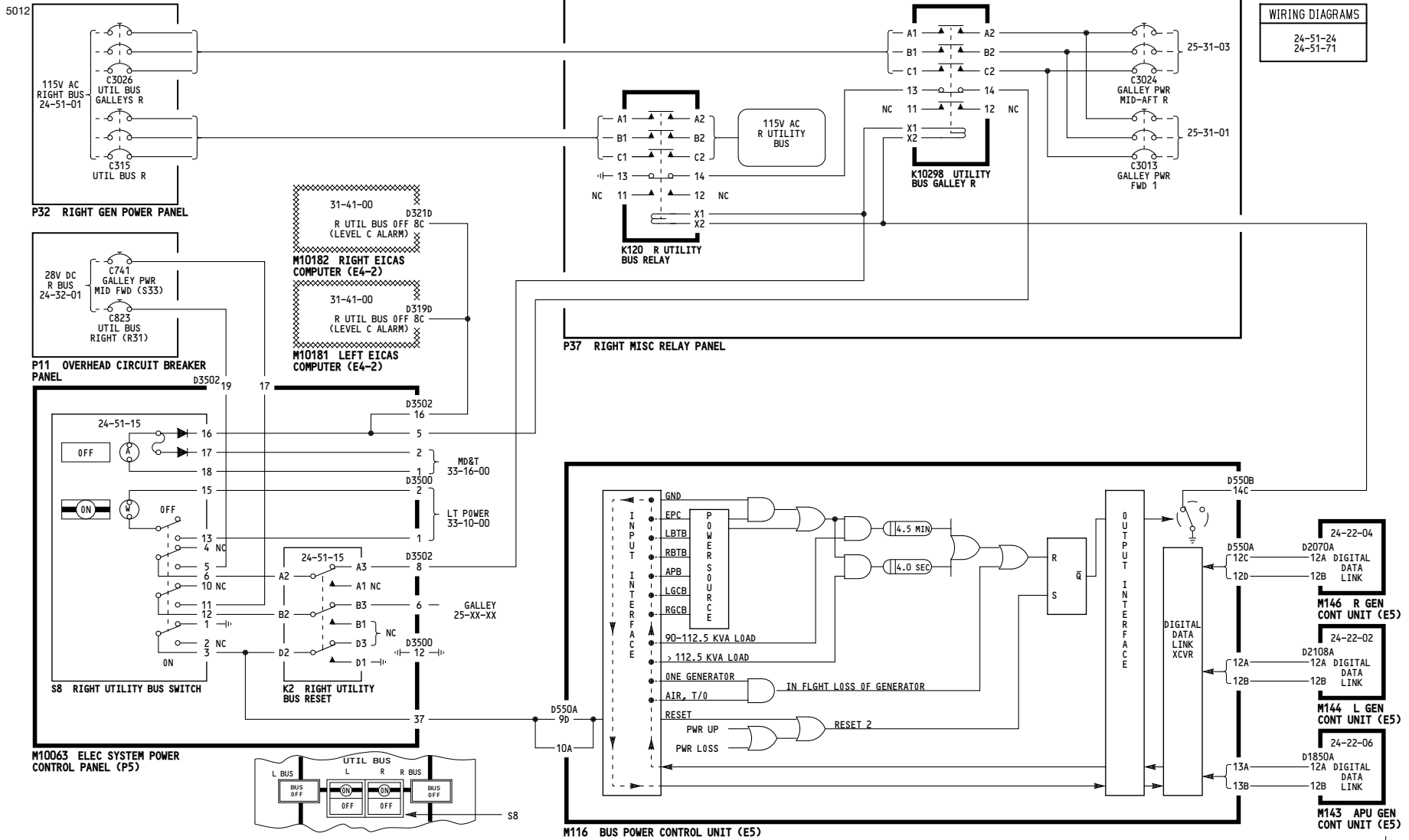
ELECTRICAL LOAD SHEDDING

24-51-15

D280N032S



24-51-20

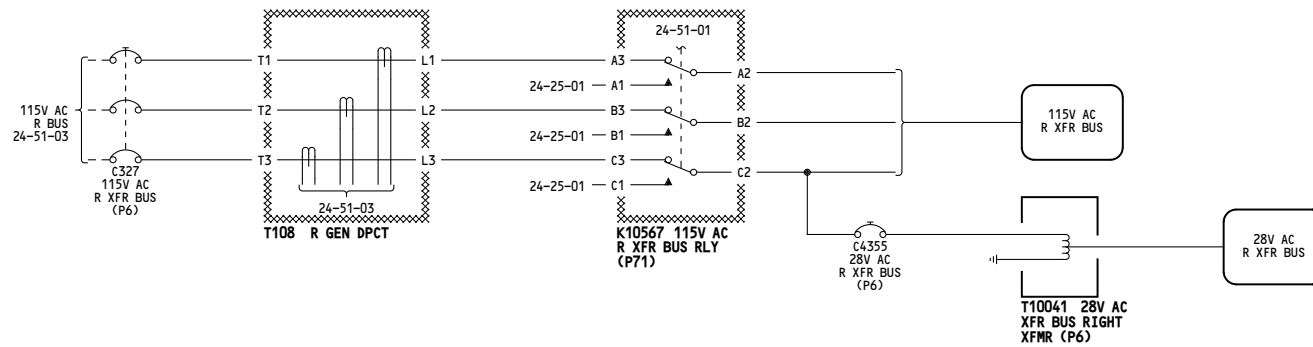
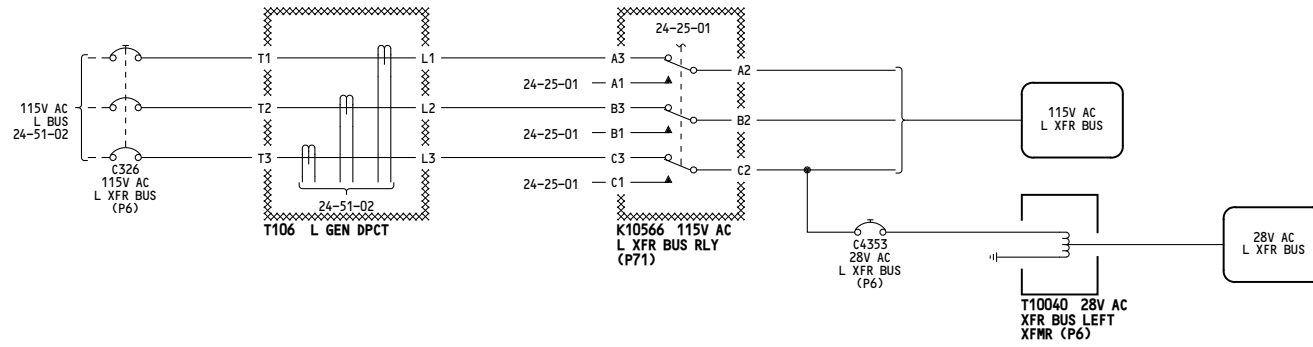


115-199

RIGHT UTILITY POWER CONTROL

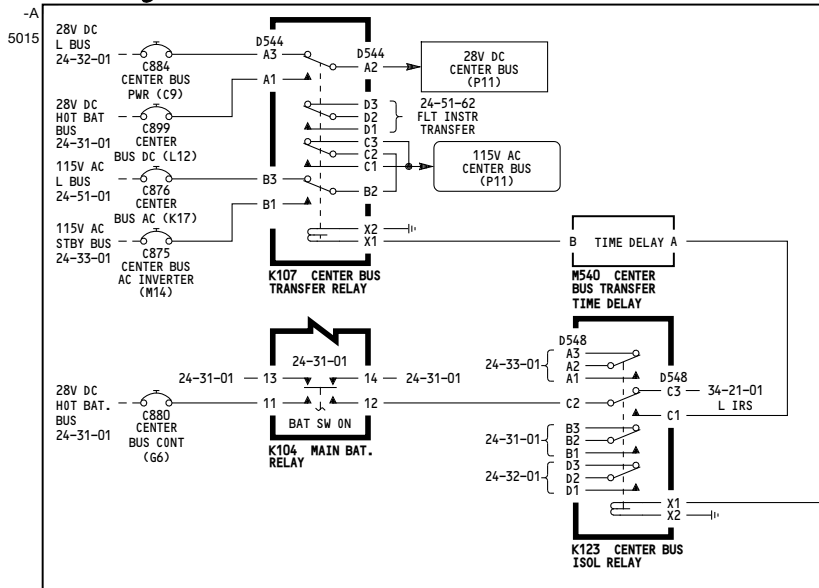
D280N032S

24-51-20

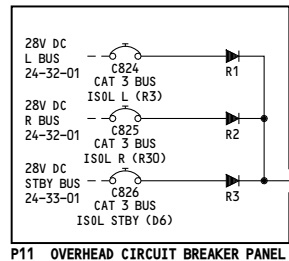
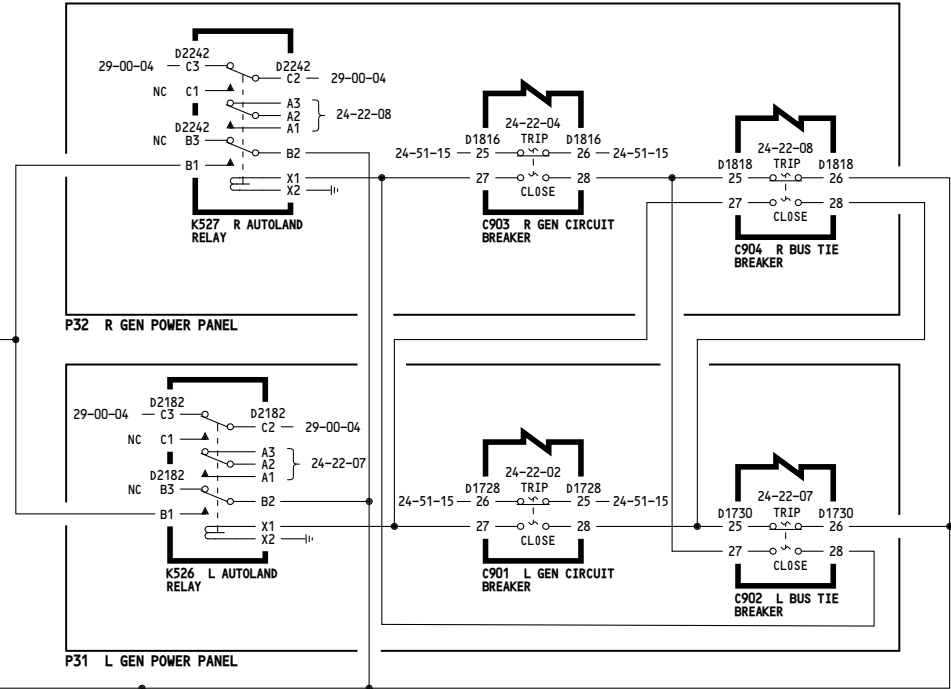


| | |
|---------|---|
| 001-099 | <p align="center">LEFT AND RIGHT AC TRANSFER BUSES</p> <p align="center">D280N032S</p> |
|---------|---|

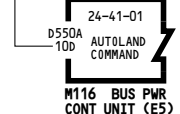
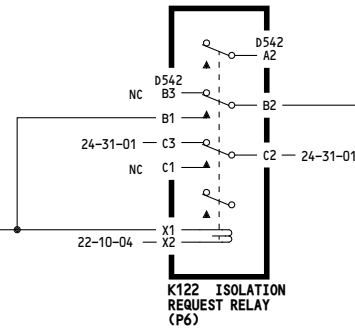
WIRING DIAGRAMS
 24-22-12
 24-22-22
 24-51-31



P6 MAIN POWER DISTRIBUTION PANEL



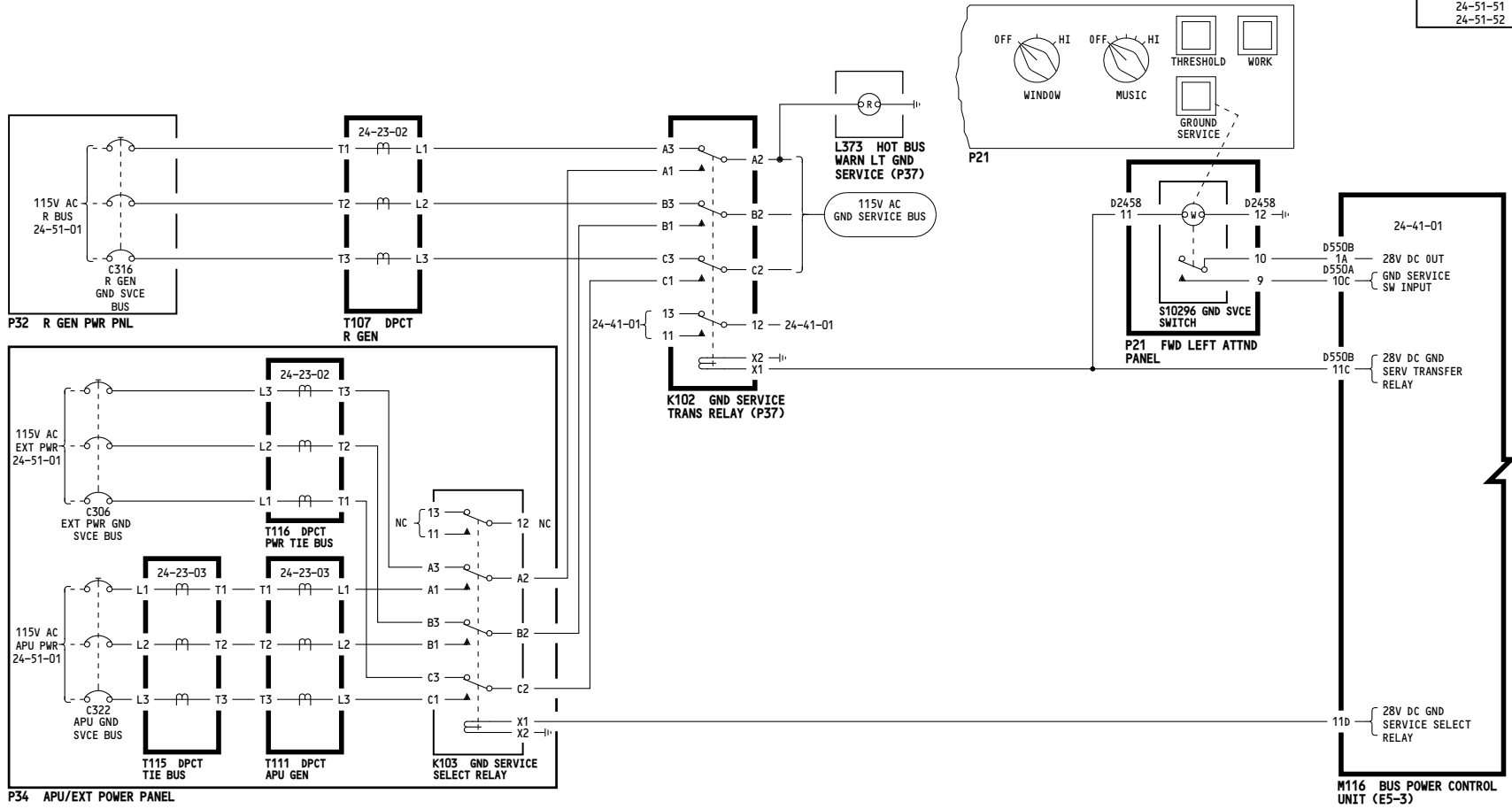
P11 OVERHEAD CIRCUIT BREAKER PANEL



| | |
|-----|-------------------------|
| ALL | CENTER BUS POWER SYSTEM |
| | D280N032S |

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WIRING DIAGRAMS
24-51-51
24-51-52

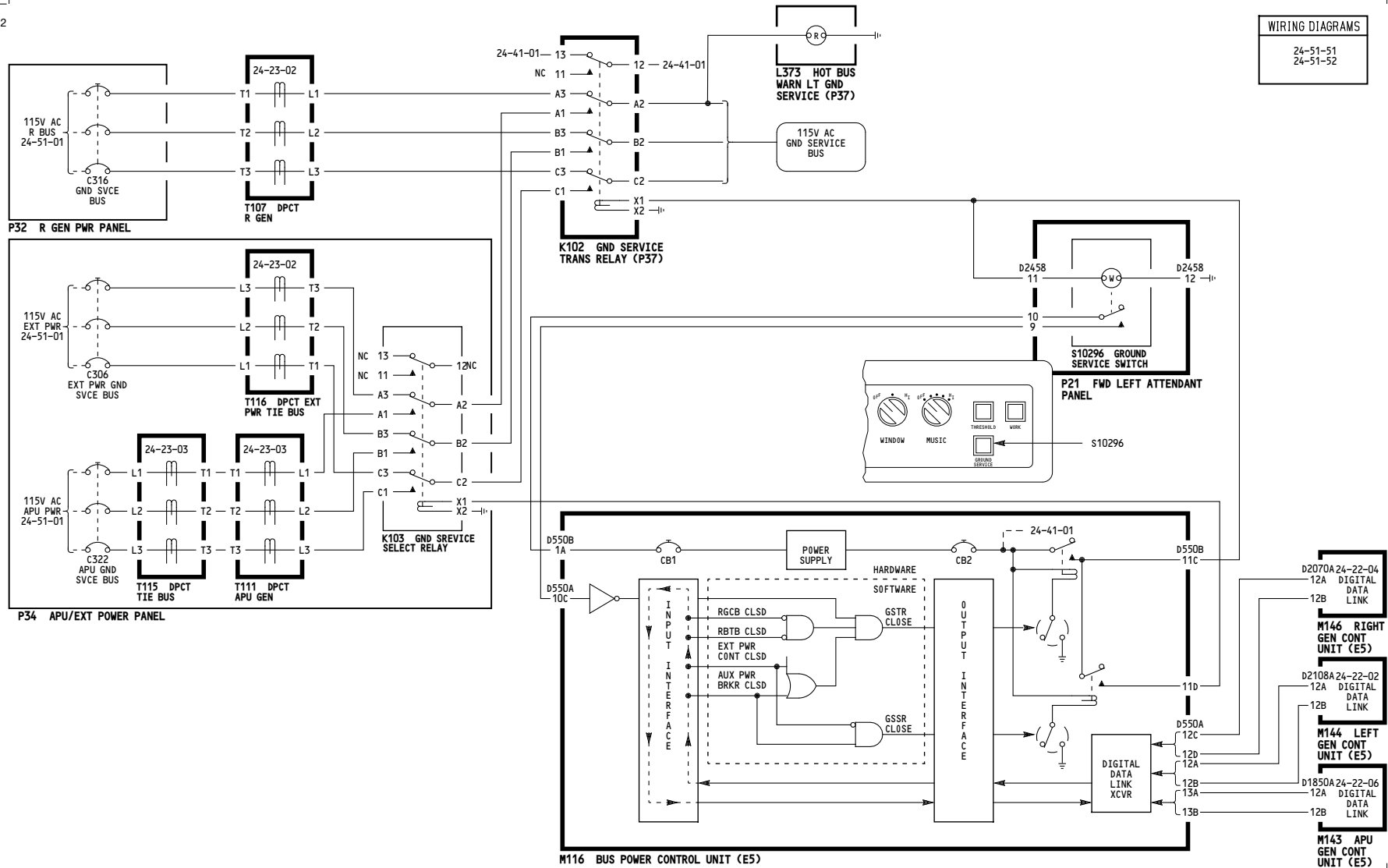


| | |
|---------|---|
| 001-099 | <p align="center">GROUND SERVICE POWER CONTROL</p> <p align="center">D280N032S</p> |
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24-51-40

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WIRING DIAGRAMS
24-51-51
24-51-52



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GROUND SERVICE POWER CONTROL

D280N032S

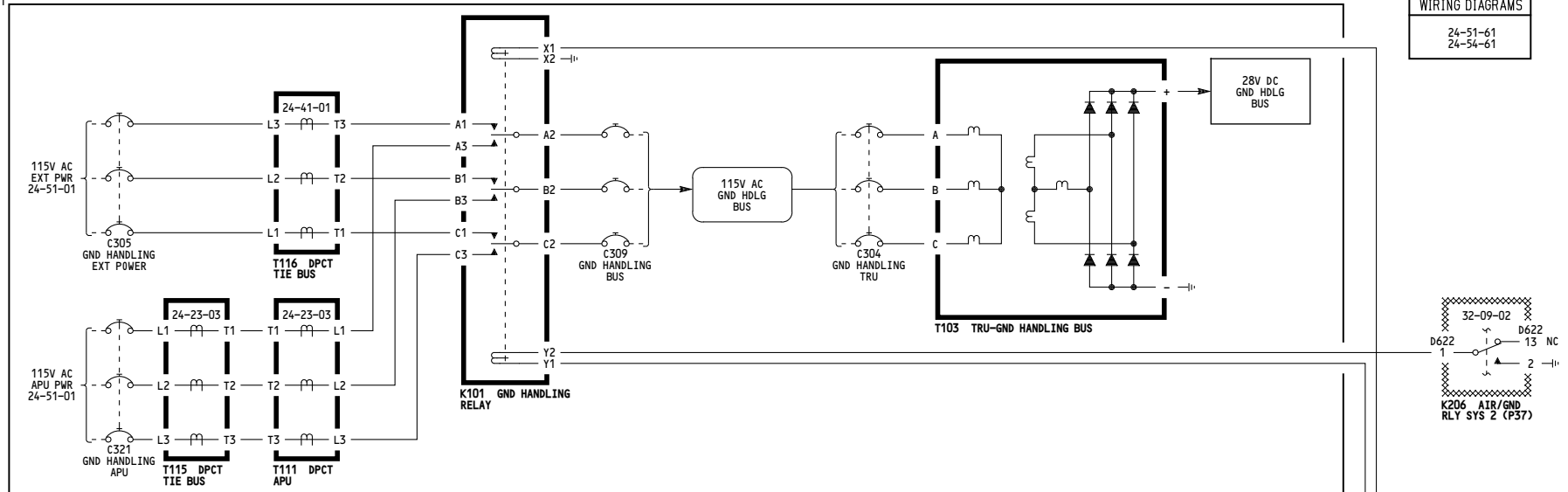
24-51-40

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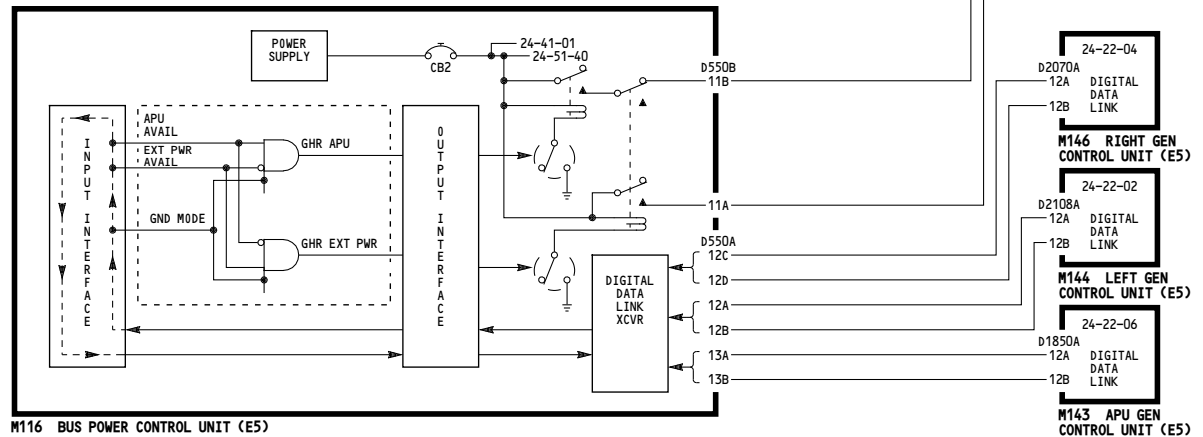
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WIRING DIAGRAMS
24-51-61
24-54-61



P34 APU/EXT POWER PANEL



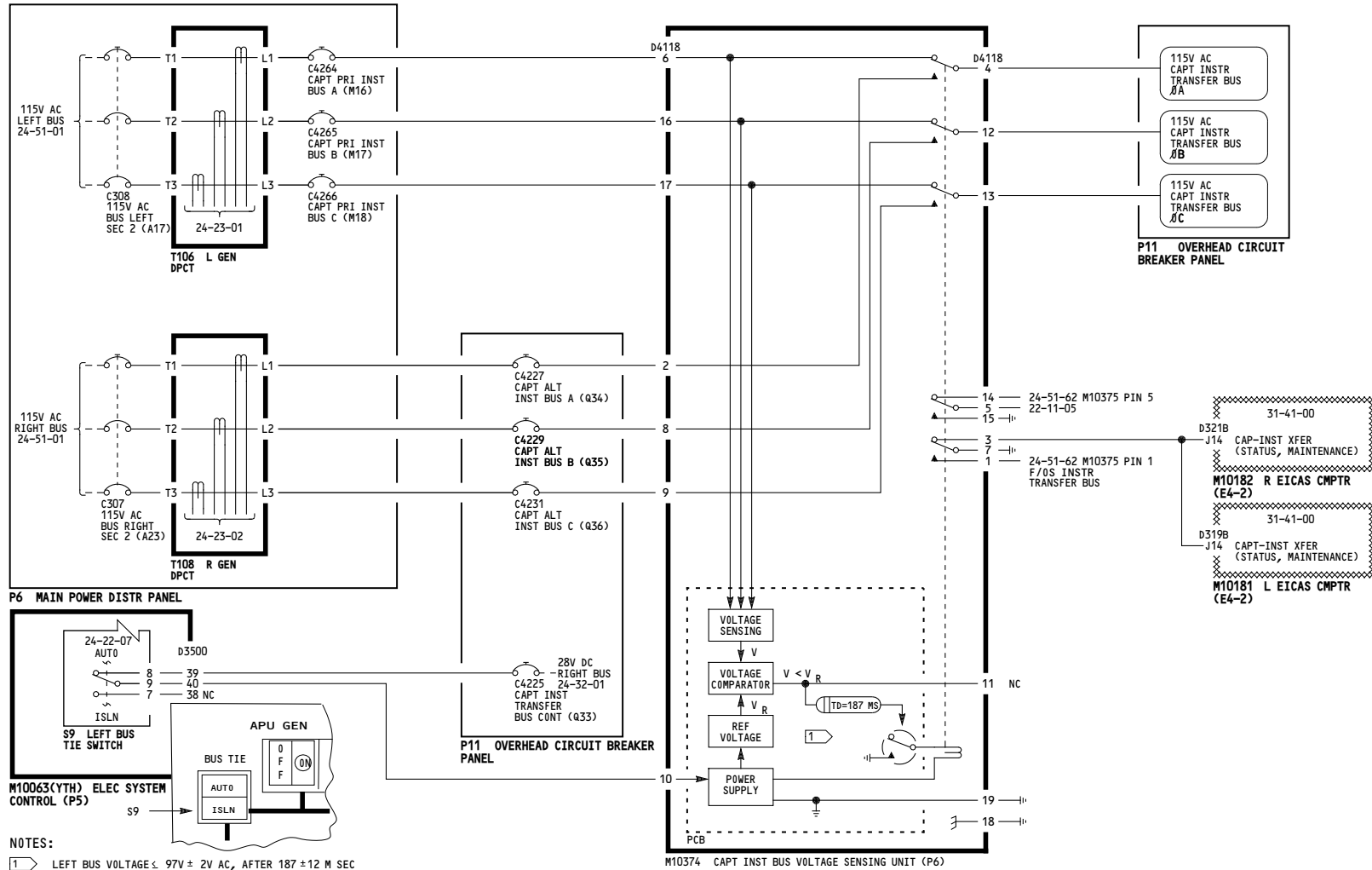
H116 BUS POWER CONTROL UNIT (E5)

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| ALL | <p>GROUND HANDLING POWER CONTROL</p> <p>D280N032S</p> |
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24-51-50

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WIRING DIAGRAMS
24-51-12
24-51-22
24-51-72



NOTES:
1 LEFT BUS VOLTAGE < 97V ± 2V AC, AFTER 187 ± 12 M SEC SYSTEM SWITCHES TO RIGHT BUS.
WHEN LEFT BUS VOLTAGE ≥ 106 ± 2V AC, AFTER 1.2 ± 0.2 SEC SYSTEM SWITCHES BACK TO LEFT BUS.

001-099

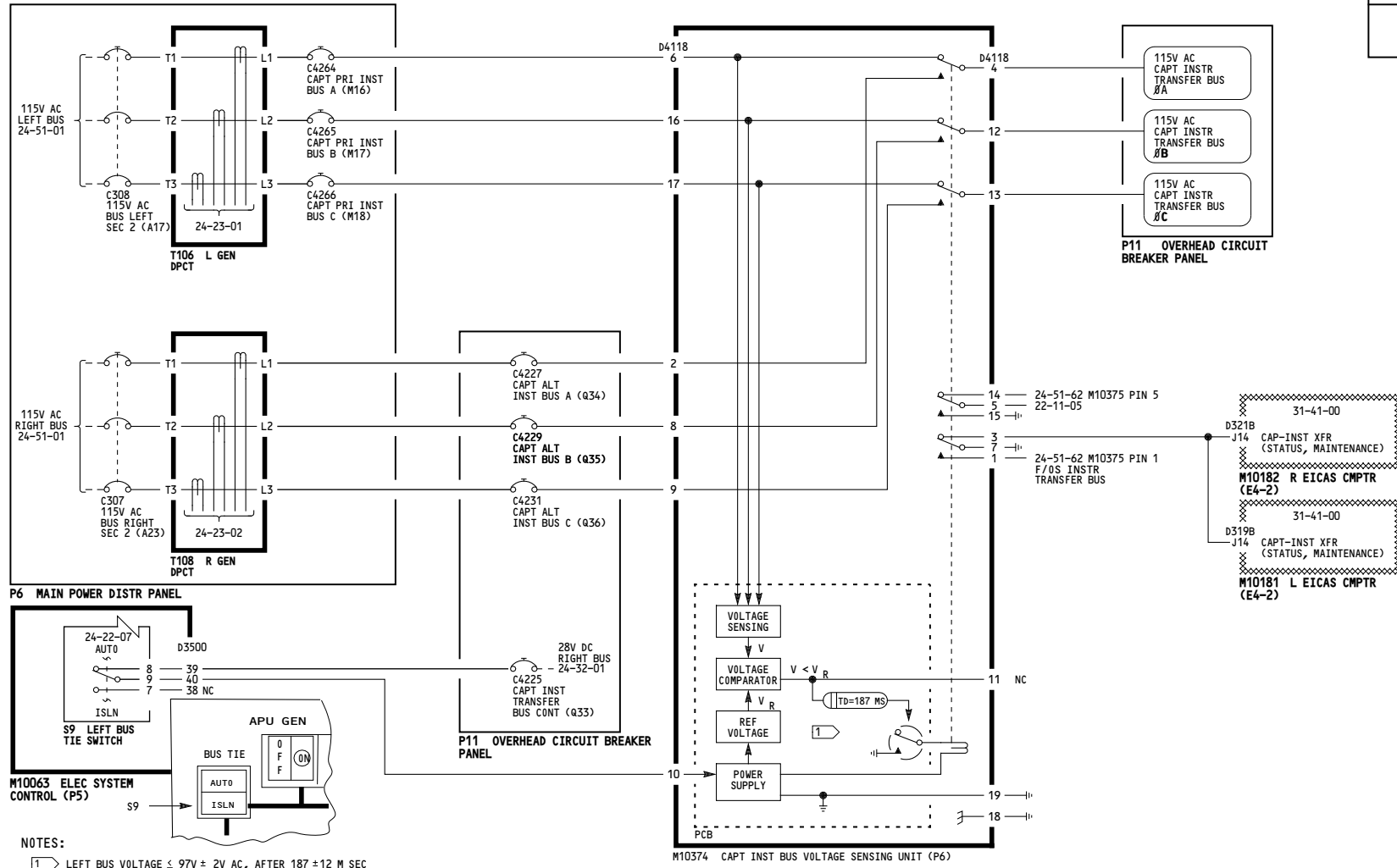
CAPTAINS FLIGHT INSTRUMENT TRANSFER BUS

D280N032S

24-51-61

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5012

WIRING DIAGRAMS
24-51-12
24-51-22
24-51-72

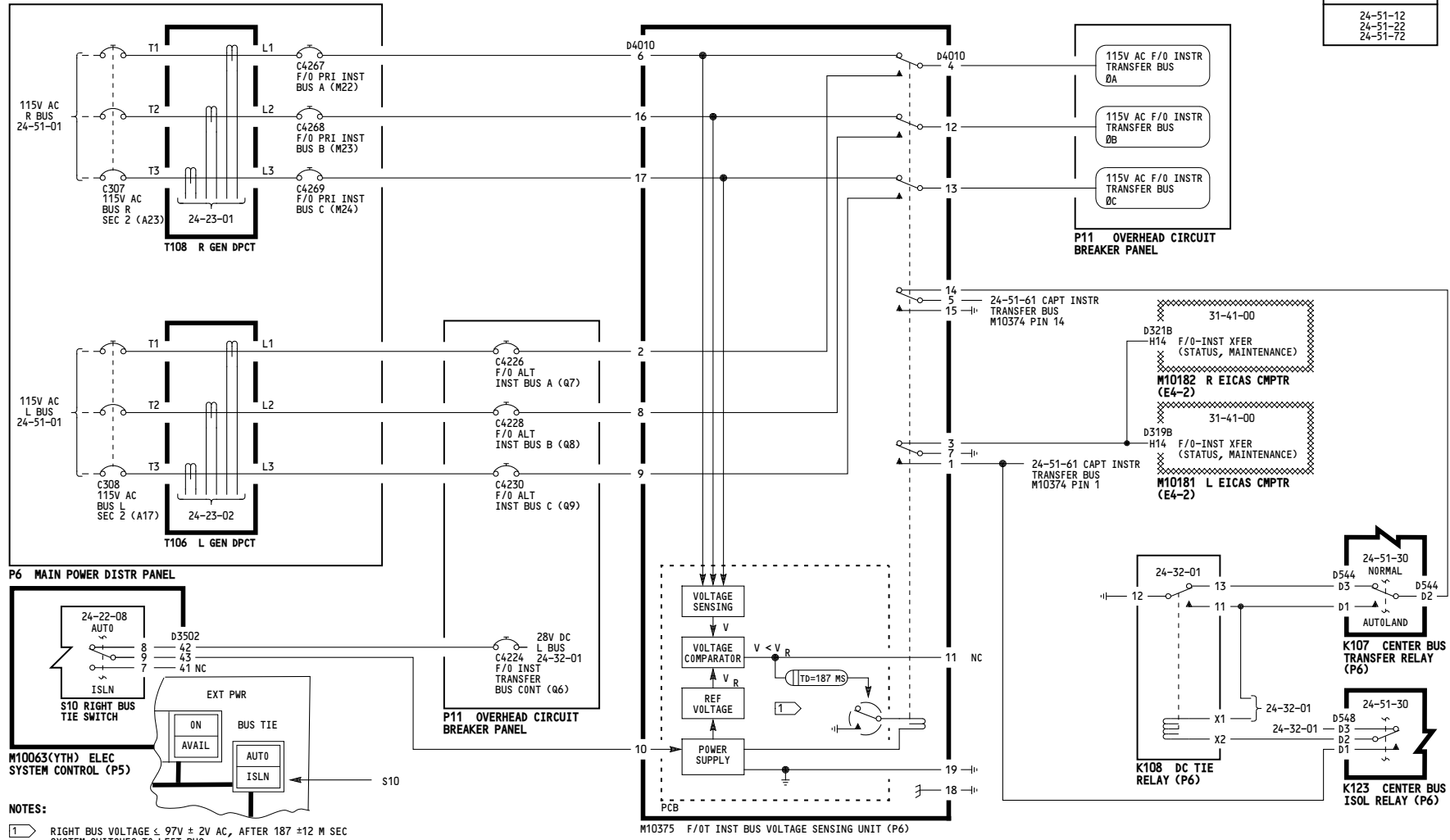


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| 115-199 | CAPTAINS FLIGHT INSTRUMENT TRANSFER BUS |
| D280N032S | |

24-51-61

5011

WIRING DIAGRAMS
24-51-12
24-51-22
24-51-72



001-099

FIRST OFFICERS FLIGHT INSTRUMENT TRANSFER BUS

D280N032S

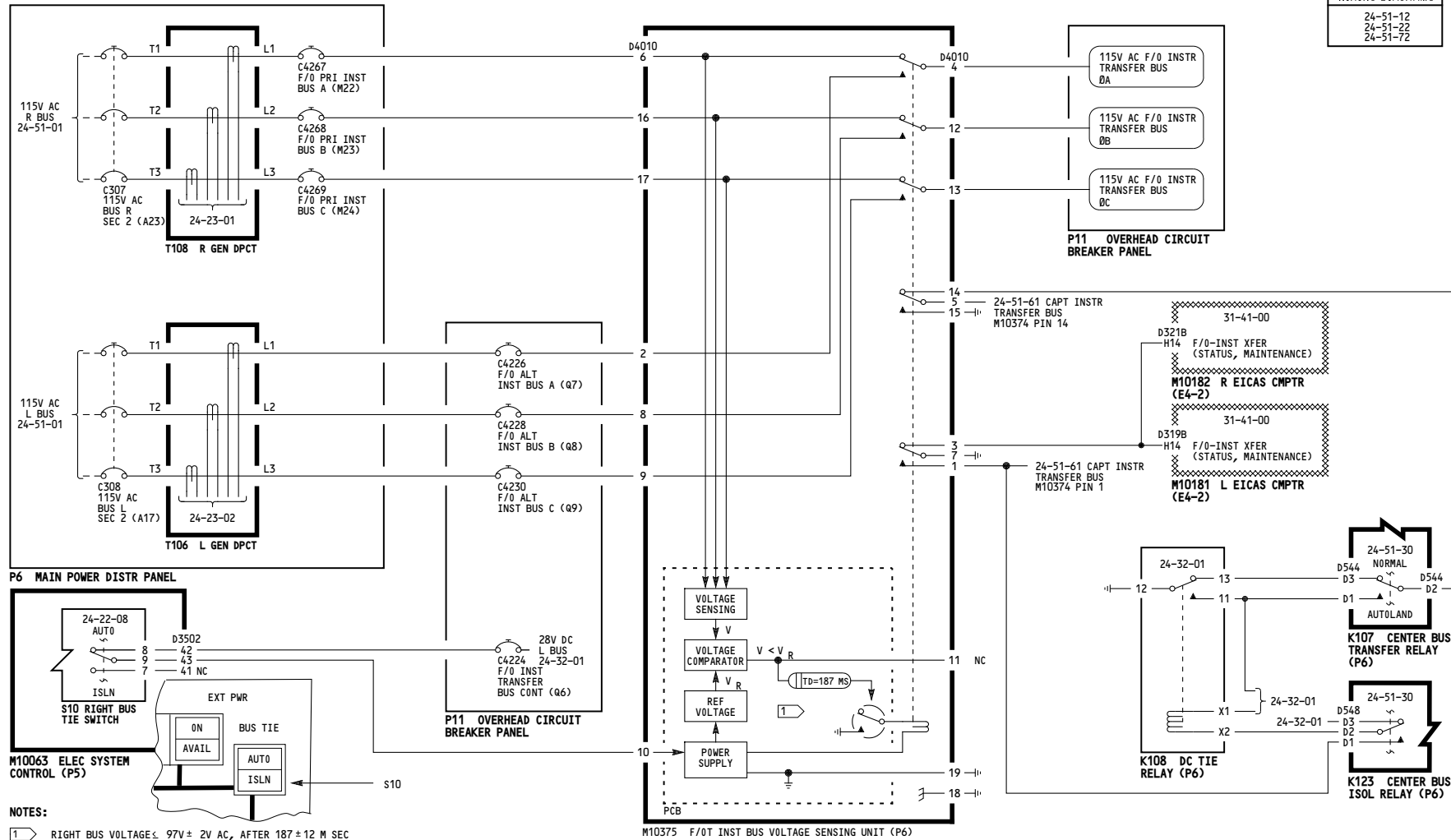
24-51-62

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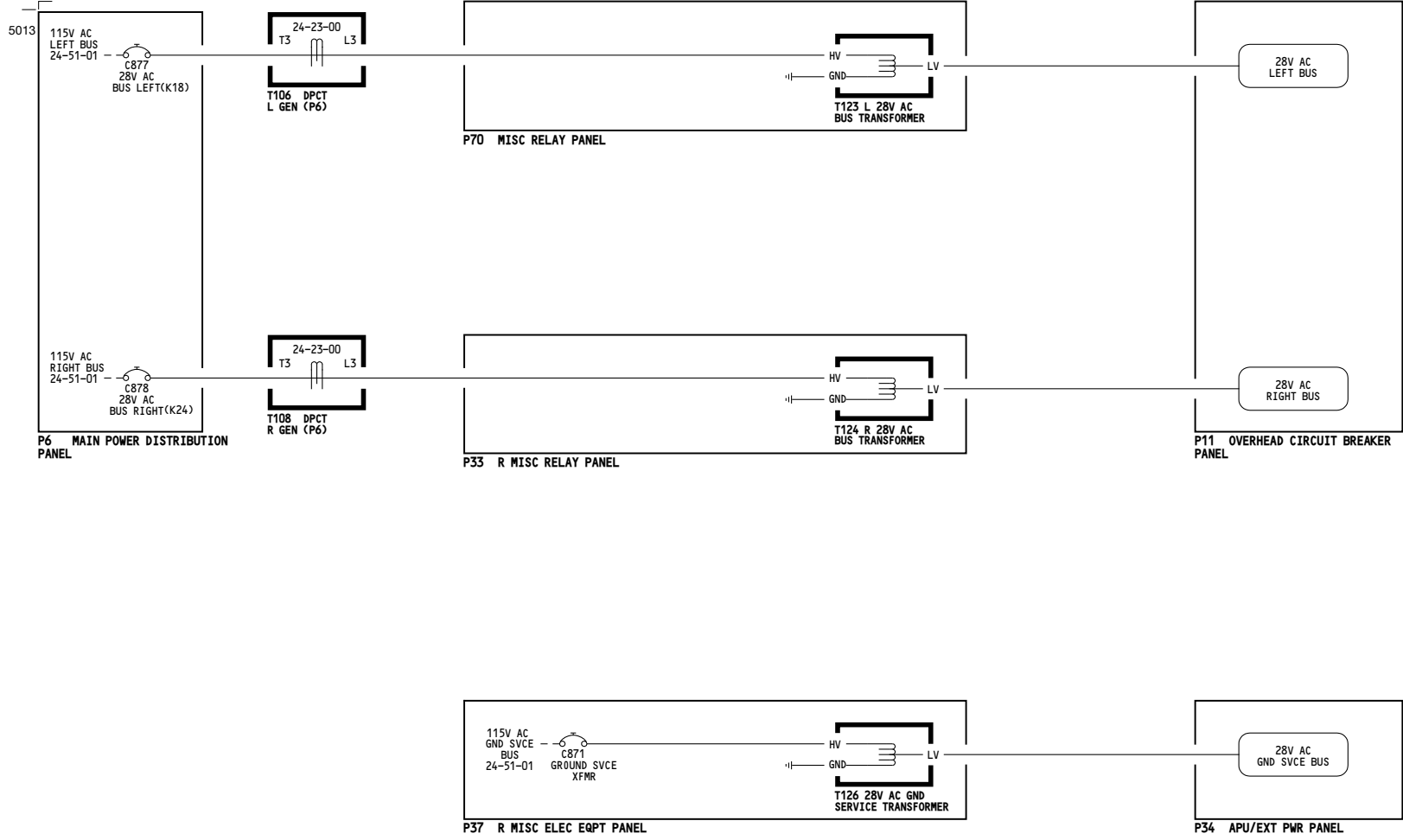
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WIRING DIAGRAMS
24-51-12
24-51-22
24-51-52



| | |
|-----------|--|
| 115-199 | FIRST OFFICERS FLIGHT INSTRUMENT TRANSFER BUS |
| D280N032S | |



WIRING DIAGRAMS
24-53-11
24-53-21
24-53-51

| | |
|-----|--|
| ALL | <p>28V AC DISTRIBUTION</p> <p>D280N032S</p> |
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24-53-01

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