CHAPTER

22

AUTOFLIGHT

CHAPTER 22
AUTOFLIGHT

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22–CONTENTS				
R		1		Jun 21/2016
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22–ALPHABETICAL INDEX				
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22-11-11				
R		101		Jun 21/2016
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R		101		Jun 21/2016
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A		101.1	1	Jun 21/2016
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R		101	1	Jun 21/2016
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AUTOFLIGHT

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CHAPTER 22
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DFCS - A AND B FCC POWER AND 26V AC EXCITATION	22-11-11		101		Jun 21/2016	ALL
DFCS - A AND B SYSTEM INTERLOCKS	22-11-12		101		Jun 21/2016	ALL
DFCS - INTERSYSTEM SWITCHING	22-11-14		101		Jun 21/2016	ALL
DFCS - INTERSYSTEM INTERFACES - VOR, ILS, LRRA	22-11-16		101		Jun 21/2016	ALL
DFCS INTERSYSTEM SWITCHING - VHF NAV ANTENNAS	22-11-18		101		Jun 21/2016	ALL
DFCS - A AND B A/P ROLL SENSORS AND ACTUATORS	22-11-31		101		Jun 21/2016	ALL
DFCS - DIGITAL BUS INTERFACES - OUTPUT	22-11-51		101		Jun 21/2016	YT101-YT105 YT132-YT133
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DFCS - DIGITAL BUS INTERFACES - INPUT	22-11-52		101		Jun 21/2016	ALL
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				2	Apr 17/2014	YT101-YT104
			101.1	1	Jun 21/2016	YT101-YT104
				2	Jun 21/2016	YT101-YT104
			102	1	Jun 21/2016	YT105-YT119 YT126-YT129
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CHAPTER 22
AUTOFLIGHT

Title	CH-SC-SU	Schem	Page	Sheet	Date	Effectivity
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DFCS - A AND B SPEED AND STABILIZER TRIM	22-13-11		101	1	Jun 21/2016	ALL
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DFCS - ANNUNCIATION AND WARNING	22-14-11		101		Jun 21/2016	ALL
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YAW DAMPER SYSTEM						
YAW DAMPER ENGAGE INTERLOCKS	22-23-11		101		Jun 21/2016	ALL
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AUTOTHROTTLE SYSTEM						
AUTOTHROTTLE SYSTEM - DIGITAL INPUTS FROM MCP, FMC, ADIRU	22-31-21		101		Jun 21/2016	ALL
AUTOTHROTTLE SYSTEM - DIGITAL INPUTS FROM SMYDC'S AND RA'S	22-31-22		101		Jun 21/2016	ALL
AUTOTHROTTLE SYSTEM - SERVO MOTOR 1	22-31-31		101		Mar 14/2016	YT101-YT117 YT126-YT131
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AUTOTHROTTLE SYSTEM - ENGAGE/DISENGAGE	22-31-51		101		Jun 21/2016	ALL
AUTOTHROTTLE SYSTEM - ARINC OUTPUT	22-31-52		101		Jun 21/2016	ALL

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AUTOFLIGHT

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22-11-53	DFCS - DIGITAL BUS INTERFACES - DATA LOADER
22-11-52	DFCS - DIGITAL BUS INTERFACES - INPUT
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22-11-16	DFCS - INTERSYSTEM INTERFACES - VOR, ILS, LRRA
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22-11-18	DFCS INTERSYSTEM SWITCHING - VHF NAV ANTENNAS
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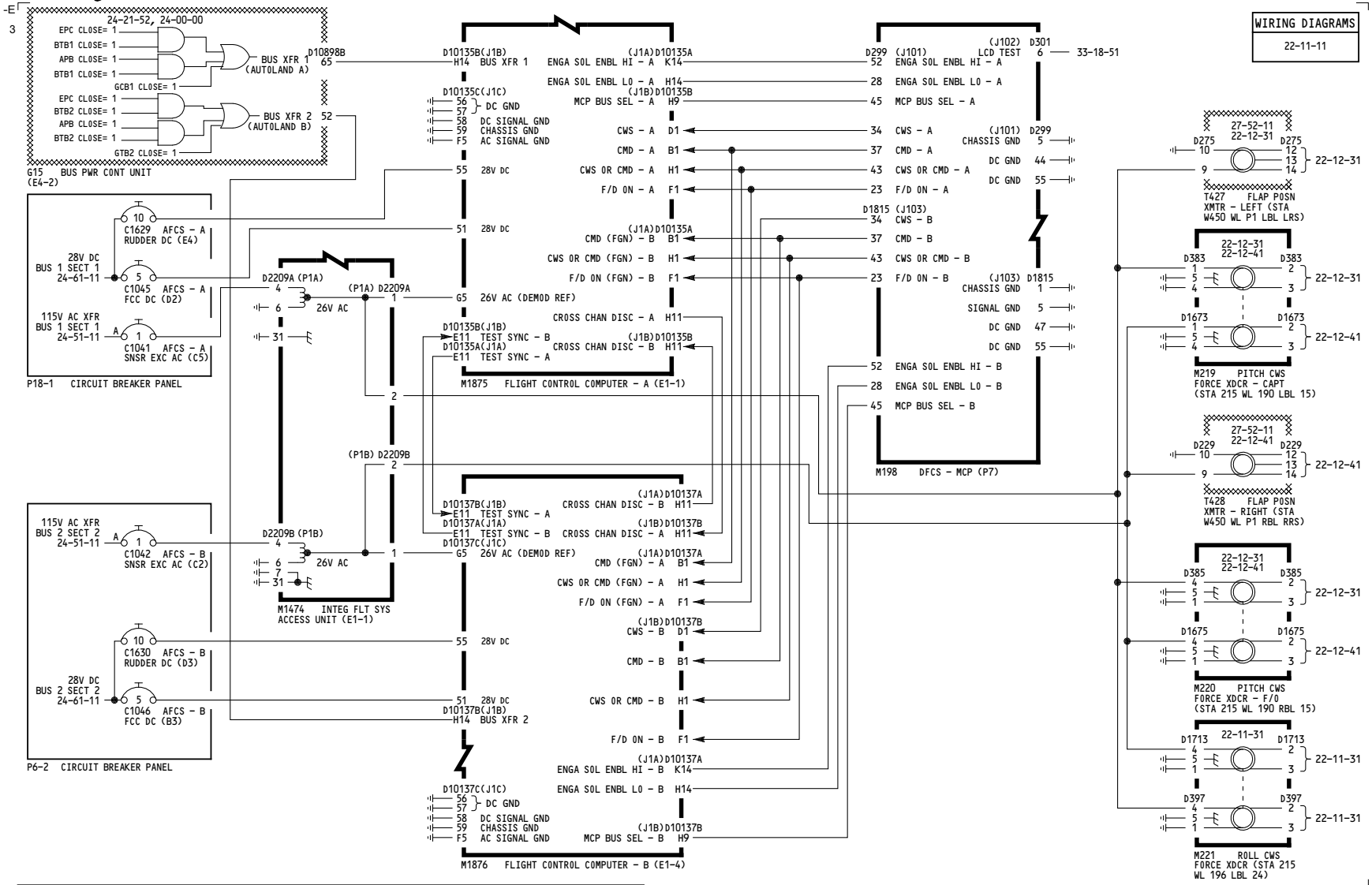
WIRING DIAGRAMS
22-11-11



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DFCS - A AND B FCC POWER AND 26V AC EXCITATION

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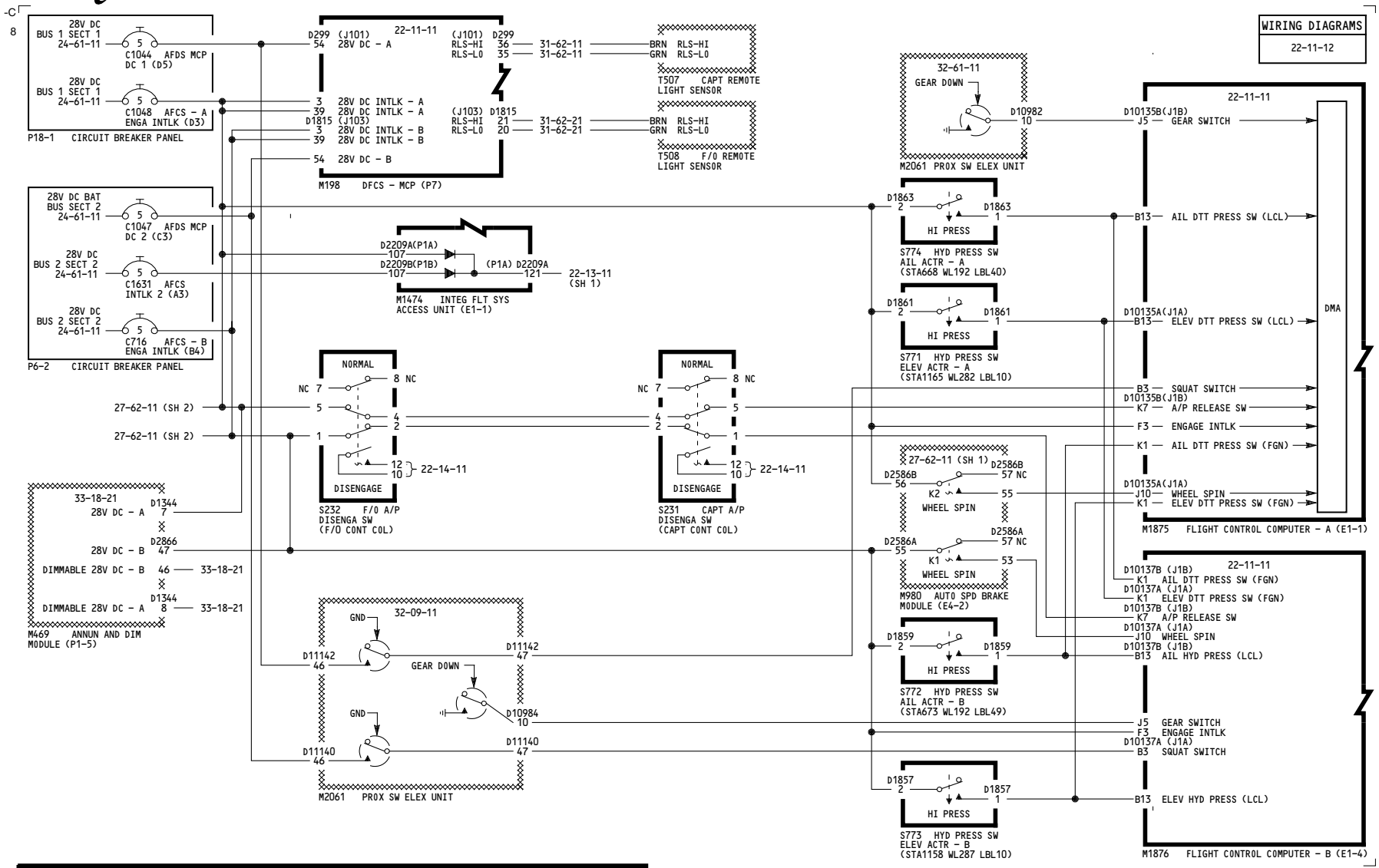

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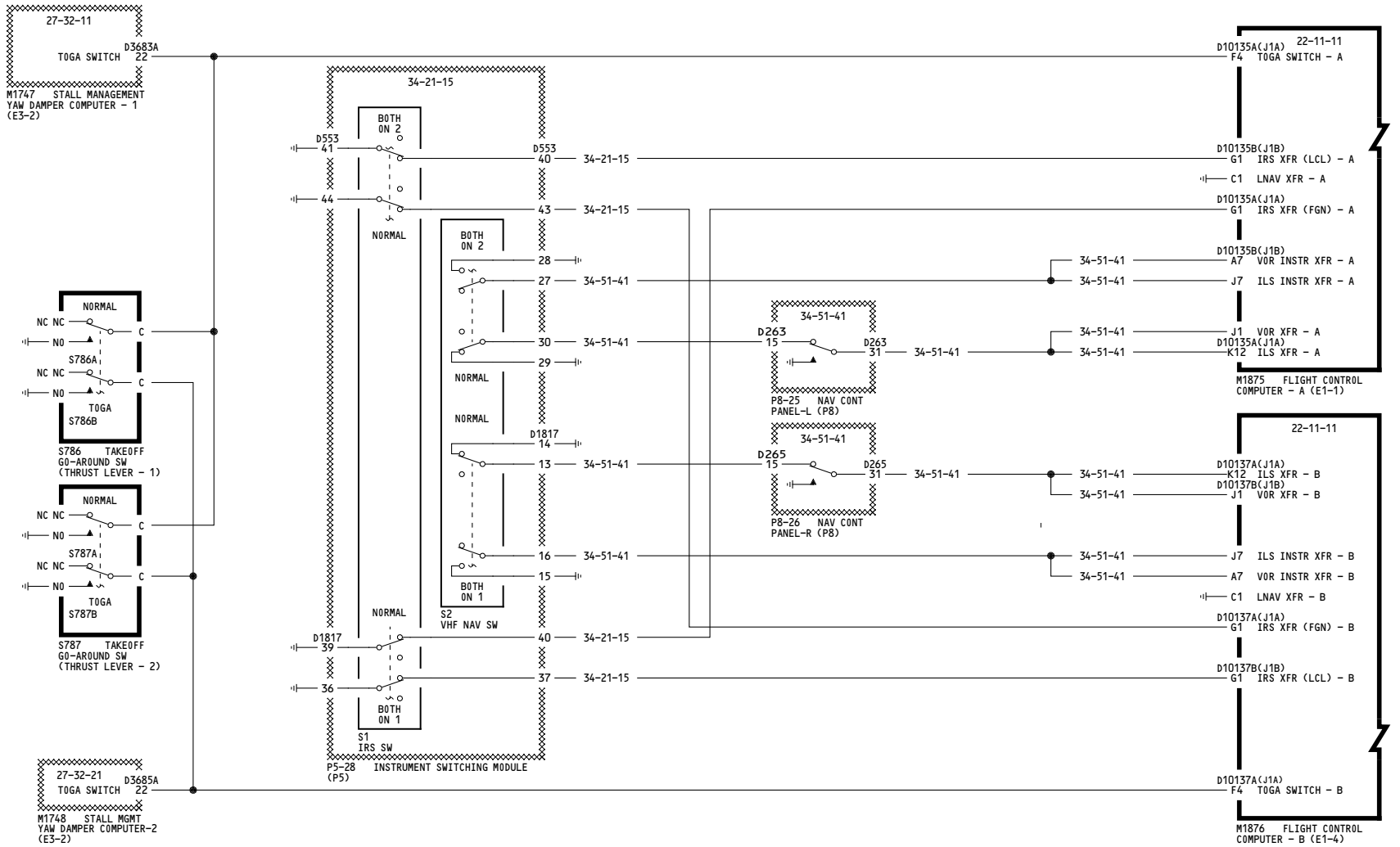

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DFCS - INTERSYSTEM SWITCHING

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WIRING DIAGRAMS
22-11-11
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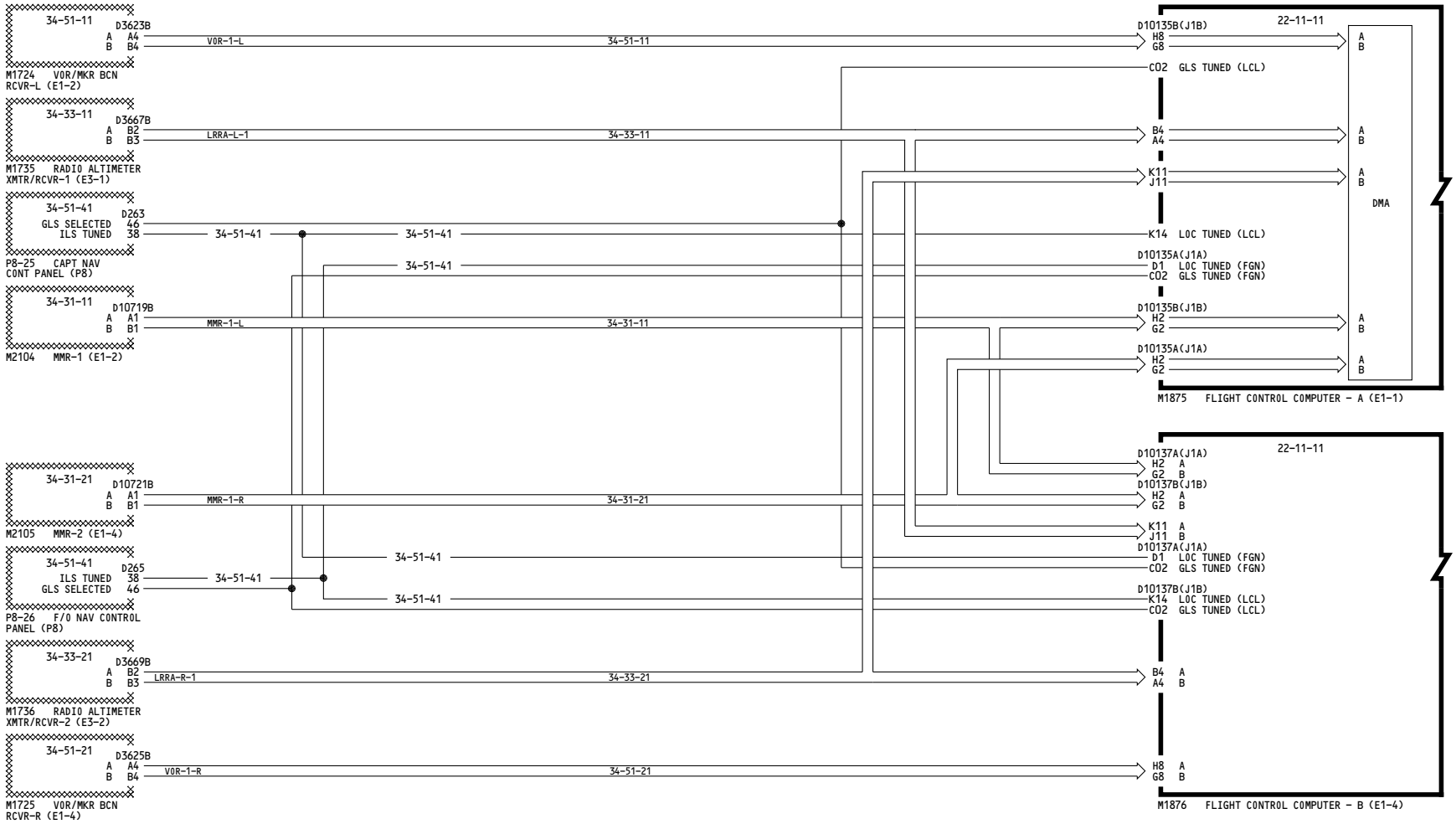

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DFCS - INTERSYSTEM INTERFACES - VOR, ILS, LRRA

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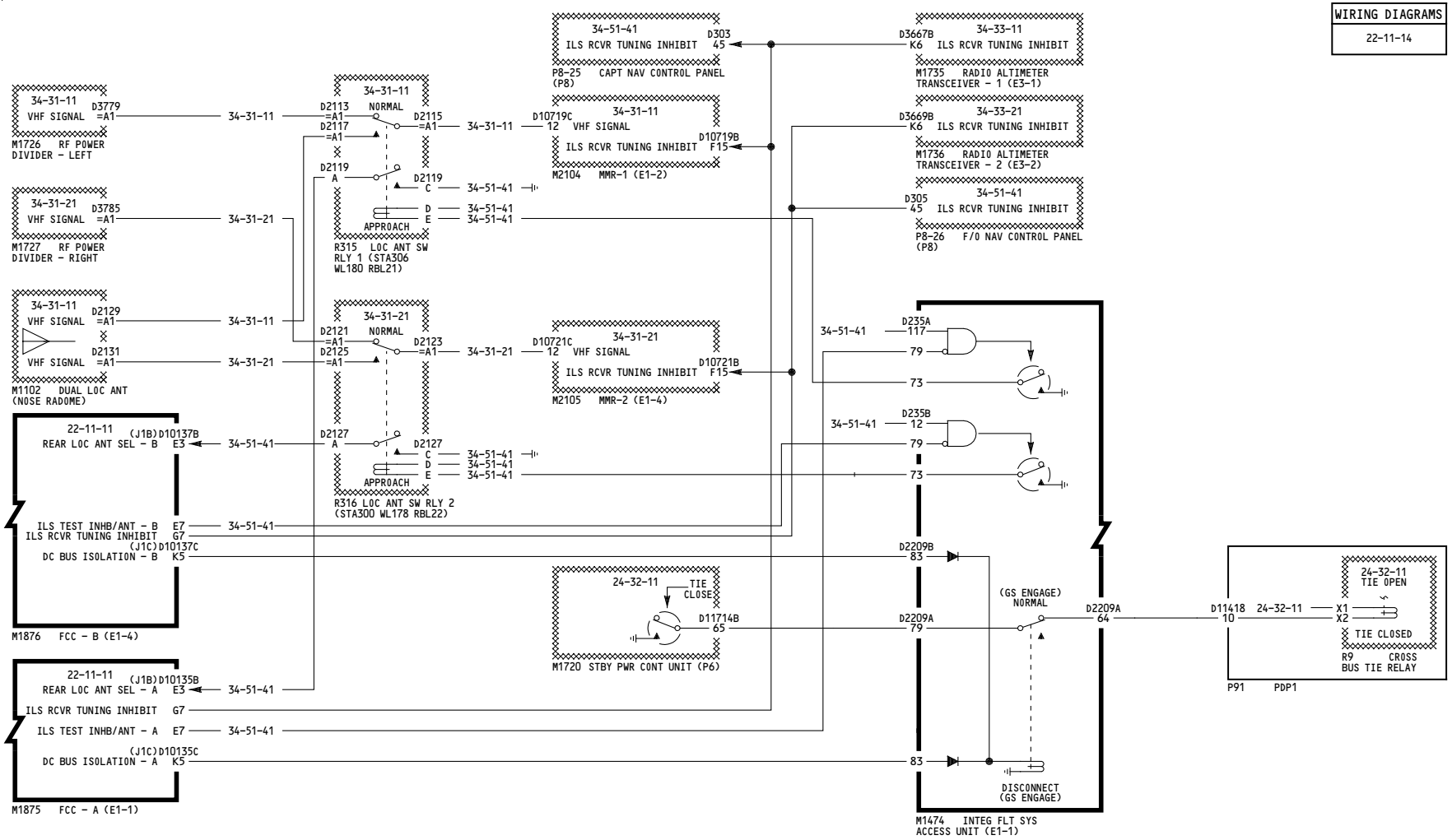
22-11-14



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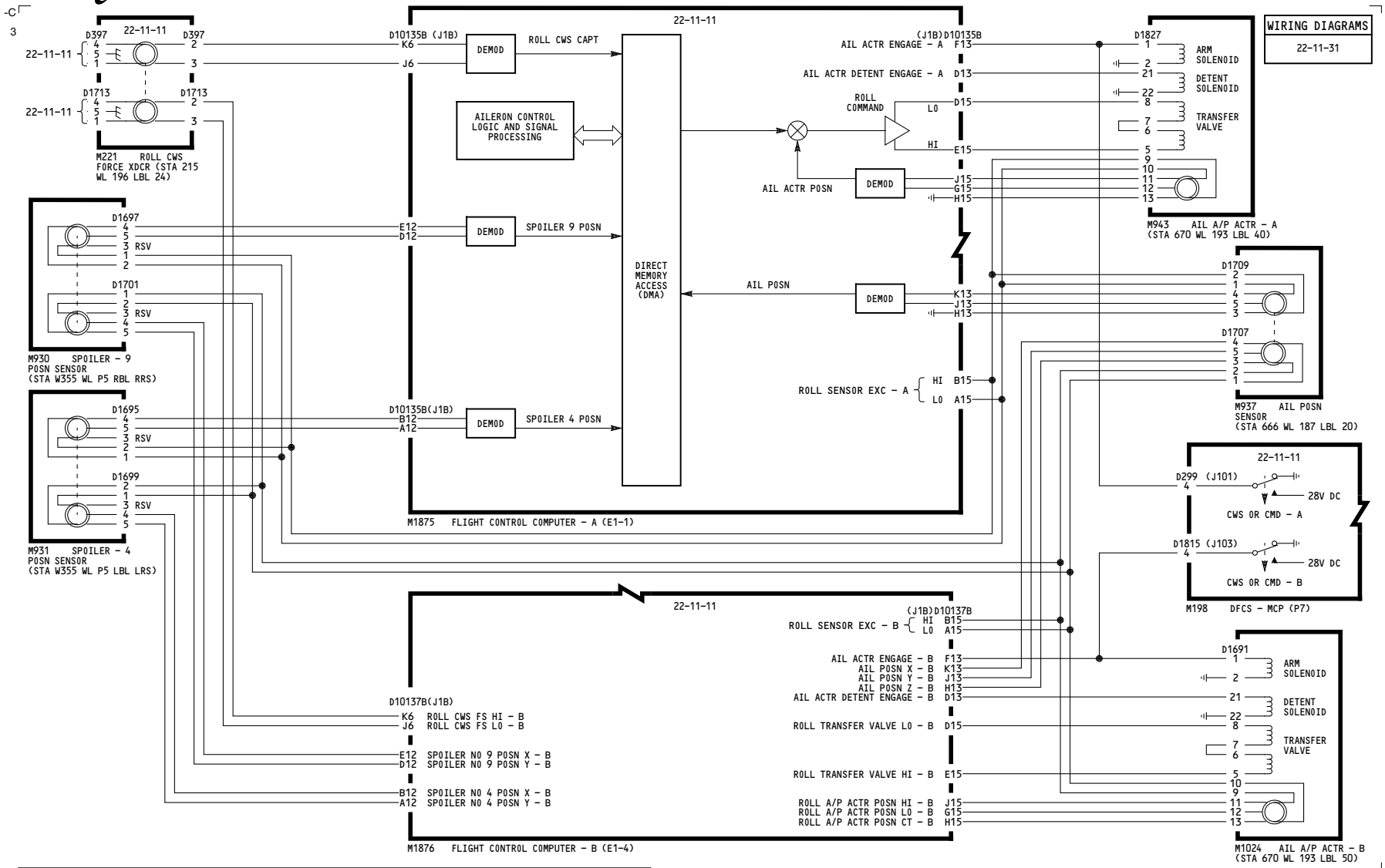

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DFCS - A AND B A/P ROLL SENSORS AND ACTUATORS

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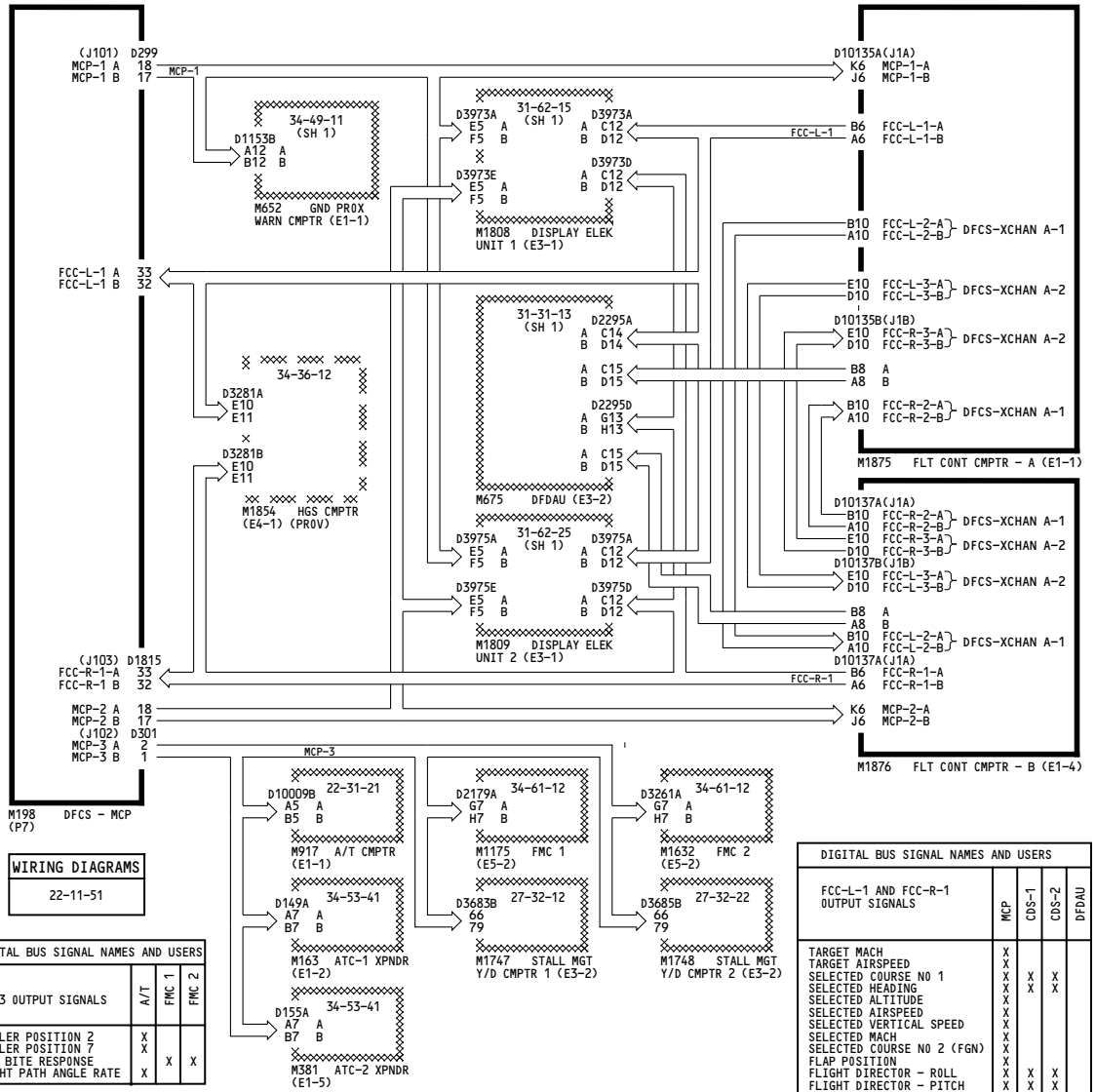
DIGITAL BUS SIGNAL NAMES AND USERS					
MCP-1 AND MCP-2 OUTPUT SIGNALS	FCC-A	FCC-B	CDS-1	CDS-2	GPWS
SELECTED HEADING	X	X	X	X	
SELECTED COURSE	X	X	X	X	X
ALTITUDE WINDOW WRAP	X	X			
MCP MAINT DISCRETES	X	X			
MCP DISCRETES	X	X			
FD 1	X	X			
FD 2	X	X			
LNAV	X	X			
VOR/LOC	X	X			
HDG SEL	X	X			
APPROACH	X	X			
SPD	X	X			
N1	X	X			
ALT HOLD	X	X			
LEVEL CHANGE	X	X			
VNAV	X	X			
VERT SPD	X	X			
CHANGE OVER	X	X			
SPD INTV	X	X			
BANK ANGLE LIMIT 10	X	X			
BANK ANGLE LIMIT 15	X	X			
BANK ANGLE LIMIT 20	X	X			
BANK ANGLE LIMIT 25	X	X			
ALT INTV	X	X			
MCP DISPLAY CHANGE	X	X			
ALTITUDE	X	X			
VERTICAL SPEED	X	X			
A CMD	X	X			
A CWS	X	X			
B CMD	X	X			
B CWS	X	X			
AIRSPEED/MACH	X	X			
ALTITUDE CHANGE	X	X			
MCP IDENTIFICATION	X	X			
PUSHBUTTON A/P ENGAGE	X	X			
ALTITUDE RESOLVERS	X	X			

DIGITAL BUS SIGNAL NAMES AND USERS			
MCP-3 OUTPUT SIGNALS	A/T	FMC 1	FMC 2
TARGET MACH	X		
TARGET AIRSPEED	X		
LOCAL SELECTED COURSE		X	X
SELECTED ALTITUDE	X	X	X
FOREIGN SELECTED COURSE		X	X
FLAP POSITION		X	X
AFDS DISCRETE WORD 2	X		
FLARE ENGAGE	X		
G/S ENGAGE	X		
FLARE ARM	X		
AFDS DISCRETE WORD 1	X	X	X
LNAV		X	X
VNAV	X	X	X
IAS		X	X
AFDS DISCRETE WORD 3	X	X	X
TOGA SW		X	X
N1 LIMIT MODE COMMAND	X	X	X
LOC ENGAGED		X	X
ALT ACQ	X	X	X
ACTIVE ALT REF	X	X	X
BARO CORRECTED ALT 2	X	X	X
GAMMA DOT ENABLE	X		
ALTITUDE HOLD	X	X	X
LOC ARM		X	X
MCP V/S ACTIVE		X	X
A/T F/S ENABLE	X		
IAS/MACH	X		
LNAV PB		X	X
VNAV PB		X	X
A/T MODE ARM	X		
A/T MODE MCP SPEED	X		
A/T MODE FMC SPEED	X		
A/T MODE N1	X		
A/T MODE RETARD	X		

DIGITAL BUS SIGNAL NAMES AND USERS			
MCP-3 OUTPUT SIGNALS	A/T	FMC 1	FMC 2
SPOILER POSITION 2	X		
SPOILER POSITION 7	X		
DFCS BITE RESPONSE		X	X
FLIGHT PATH ANGLE RATE	X		



WIRING DIAGRAMS
22-11-51

DIGITAL BUS SIGNAL NAMES AND USERS			
FCC-L-1 AND FCC-R-1 OUTPUT SIGNALS	MCP	CDS-1	CDS-2	DFDAU
TARGET MACH	X			
TARGET AIRSPEED	X			
SELECTED COURSE NO 1	X	X	X	
SELECTED HEADING	X	X	X	
SELECTED ALTITUDE	X			
SELECTED AIRSPEED	X			
SELECTED VERTICAL SPEED	X			
SELECTED MACH	X			
SELECTED COURSE NO 2 (FGN)	X			
FLAP POSITION	X			
FLIGHT DIRECTOR - ROLL	X	X	X	
FLIGHT DIRECTOR - PITCH	X	X	X	

DIGITAL BUS SIGNAL NAMES AND USERS				
FCC-L-1 AND FCC-R-1 OUTPUT SIGNALS	MCP	CDS-1	CDS-2	DFDAU
AFDS DISCRETE WORD 2	X	X	X	
FLARE ENGAGE	X	X	X	
G/S ENGAGE	X	X	X	
VOR/LOC ENGAGE	X	X	X	
HDG SEL ALT ACQ	X	X	X	
ALT HOLD	X	X	X	
V/S ENGAGE	X	X	X	
TO/GA	X	X	X	
SINGLE CH	X	X	X	
A/P OFF	X			
CWS PITCH	X	X	X	
CWS ROLL	X	X	X	
FLARE ARM	X	X	X	
G/S ARM	X	X	X	
VOR/LOC ARM	X	X	X	
V/S ARM	X	X	X	
L NAV ENGAGE	X	X	X	
MCP SPD	X	X	X	
AFDS DISCRETE WORD 4	X	X	X	
V NAV PATH	X	X	X	
V NAV SPD	X	X	X	
F/D A ON	X	X	X	
F/D B ON	X	X	X	
CMD A	X	X	X	
CMD B	X	X	X	
CWS A	X			
CWS B	X			
VISUAL ALT ALERT	X			
ILS DEV WARN	X			
A/T SPEED WARN	X			
LOC DEV WARN	X	X	X	
G/S DEV WARN	X	X	X	
LCL LIMITED MASTER	X			
SPD/ALT OPTION	X			
TEST DISPLAY CMD	X	X	X	
ALT INTV	X			
SPEED INTV	X			
AFDS DISCRETE WORD 1	X			
A MASTER LT	X			
B MASTER LT	X			
LNAV	X			
VOR/LOC	X			
HDG SEL	X			
APPROACH	X			
SPD	X			
N1	X			
ALT HOLD	X			
LVL CHG	X			
VNAV	X			
VERT SPD	X			
IAS	X			
OVERSPEED FLAG	X			
UNDERSPEED FLAG	X			
CWS WARN	X			
BITE WARN	X			
AFDS DISCRETE WORD 3	X			
TOGA SW	X			
N1 LIMIT MODE COMMAND	X			
LOC ENGAGED	X			
ALT ACQ	X			
ACTIVE ALT REF	X			
BARO CORRECTED ALT 2	X			
GAMMA DOT ENABLE	X			
ALTITUDE HOLD	X			
LOC ARM	X			
MCP V/S ACTIVE	X			
A/T F/S ENABLE	X			
IAS/MACH	X			
LNAV PB	X			
VNAV PB	X			
A/T MODE ARM	X			
A/T MODE MCP SPEED	X			
A/T MODE FMC SPEED	X			
A/T MODE N1	X			
A/T MODE RETARD	X			
A/S BUG DRIVE	X	X		
SPOILER POSITION 2	X			
SPOILER POSITION 7	X			
DFCS BITE RESPONSE	X			
FLIGHT PATH ANGLE RATE	X			

YT101-YT105, YT132-YT133

DFCS - DIGITAL BUS INTERFACES - OUTPUT

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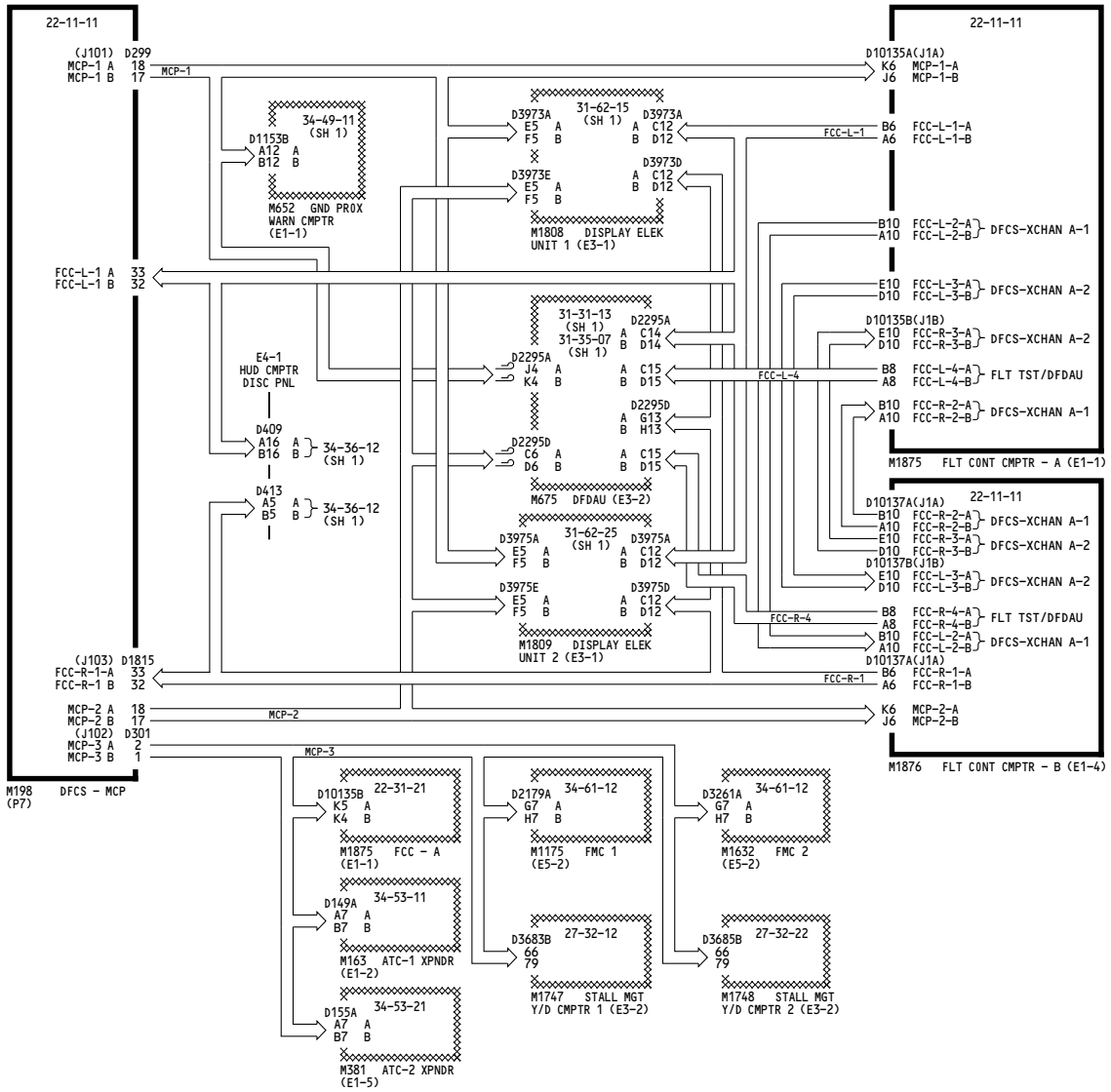
WIRING DIAGRAMS
22-11-51



YT106-YT131

DFCS - DIGITAL BUS INTERFACES - OUTPUT

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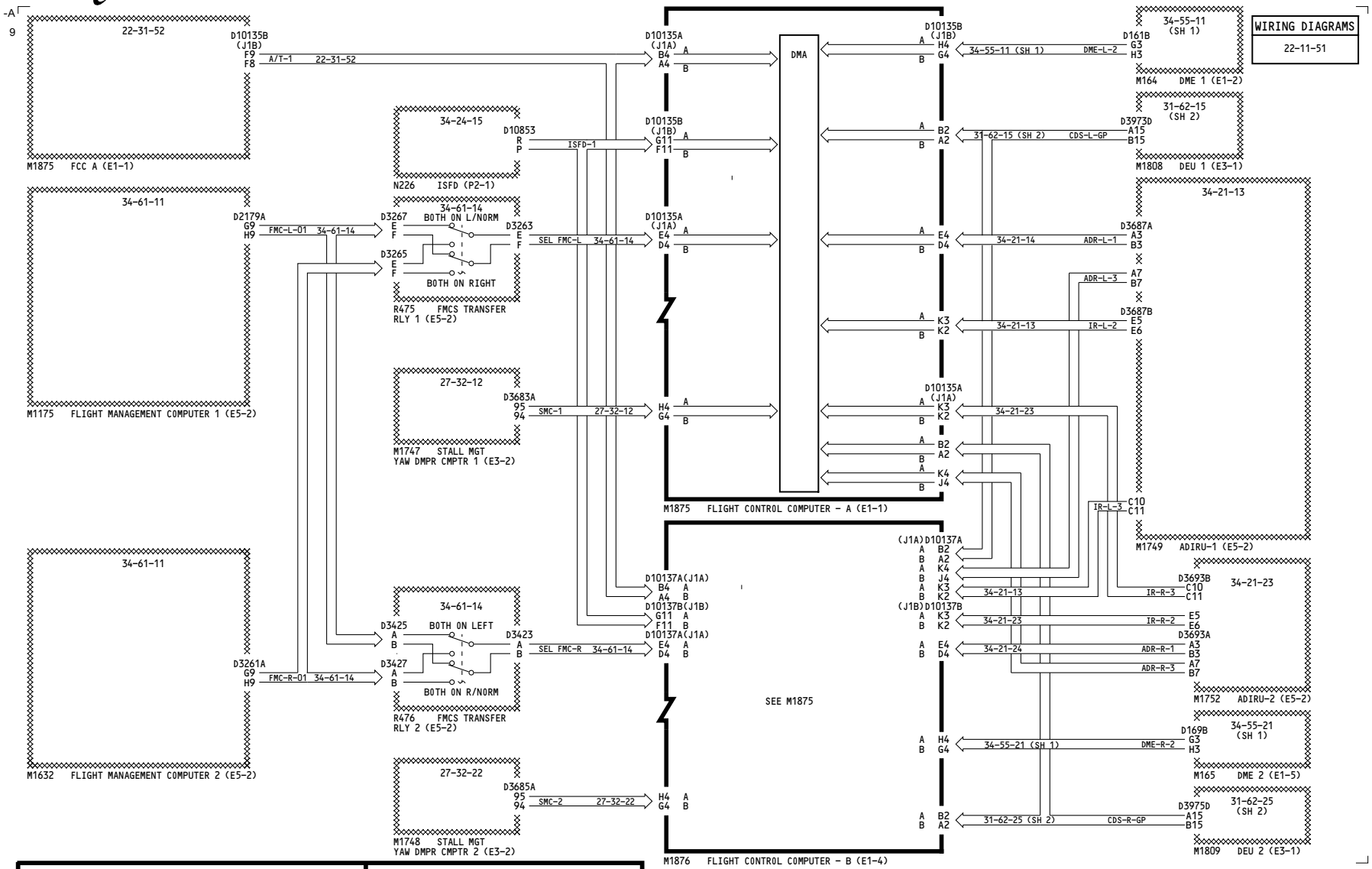

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DFCS - DIGITAL BUS INTERFACES - INPUT

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22-11-52

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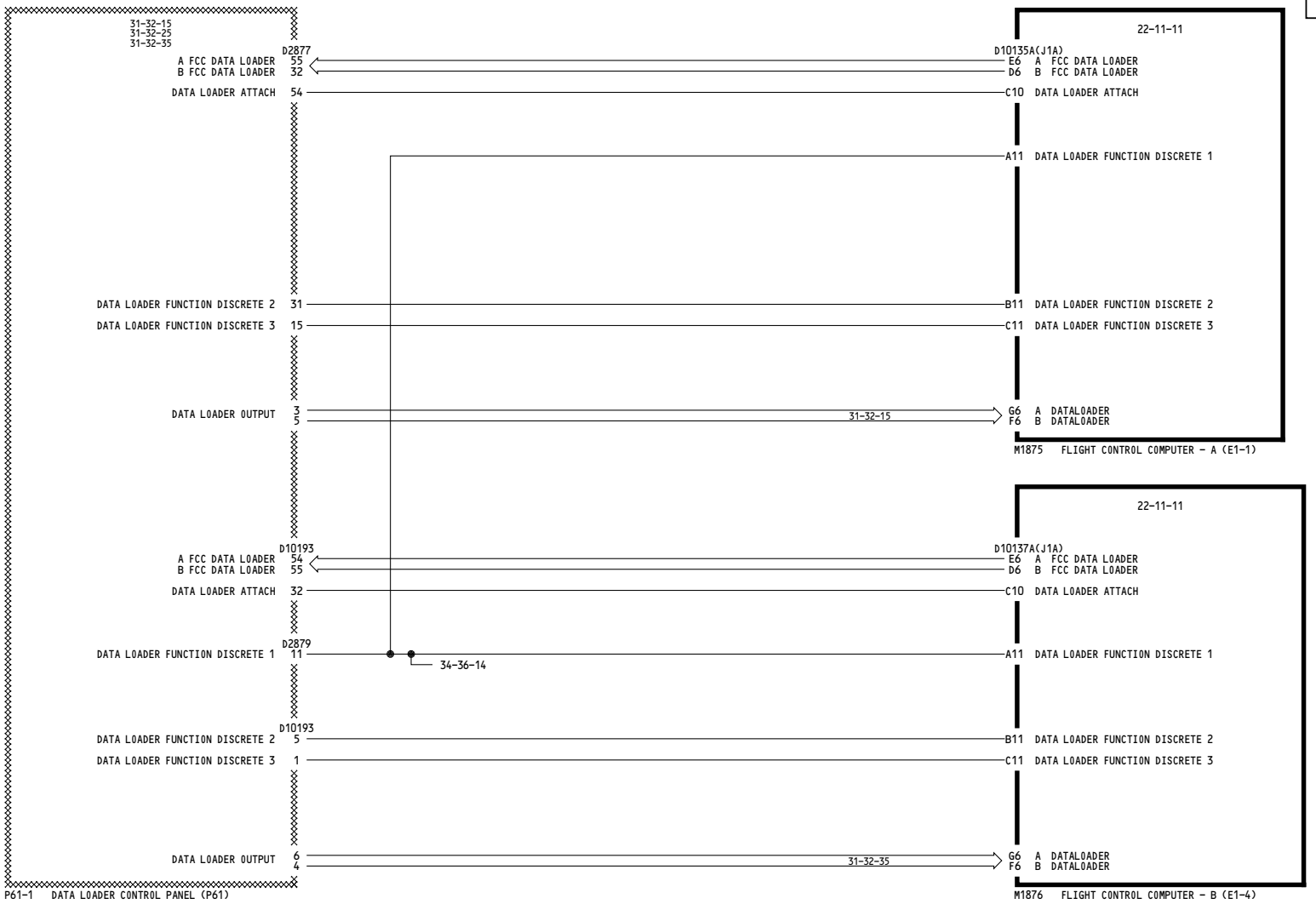

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DFCS - DIGITAL BUS INTERFACES - DATA LOADER

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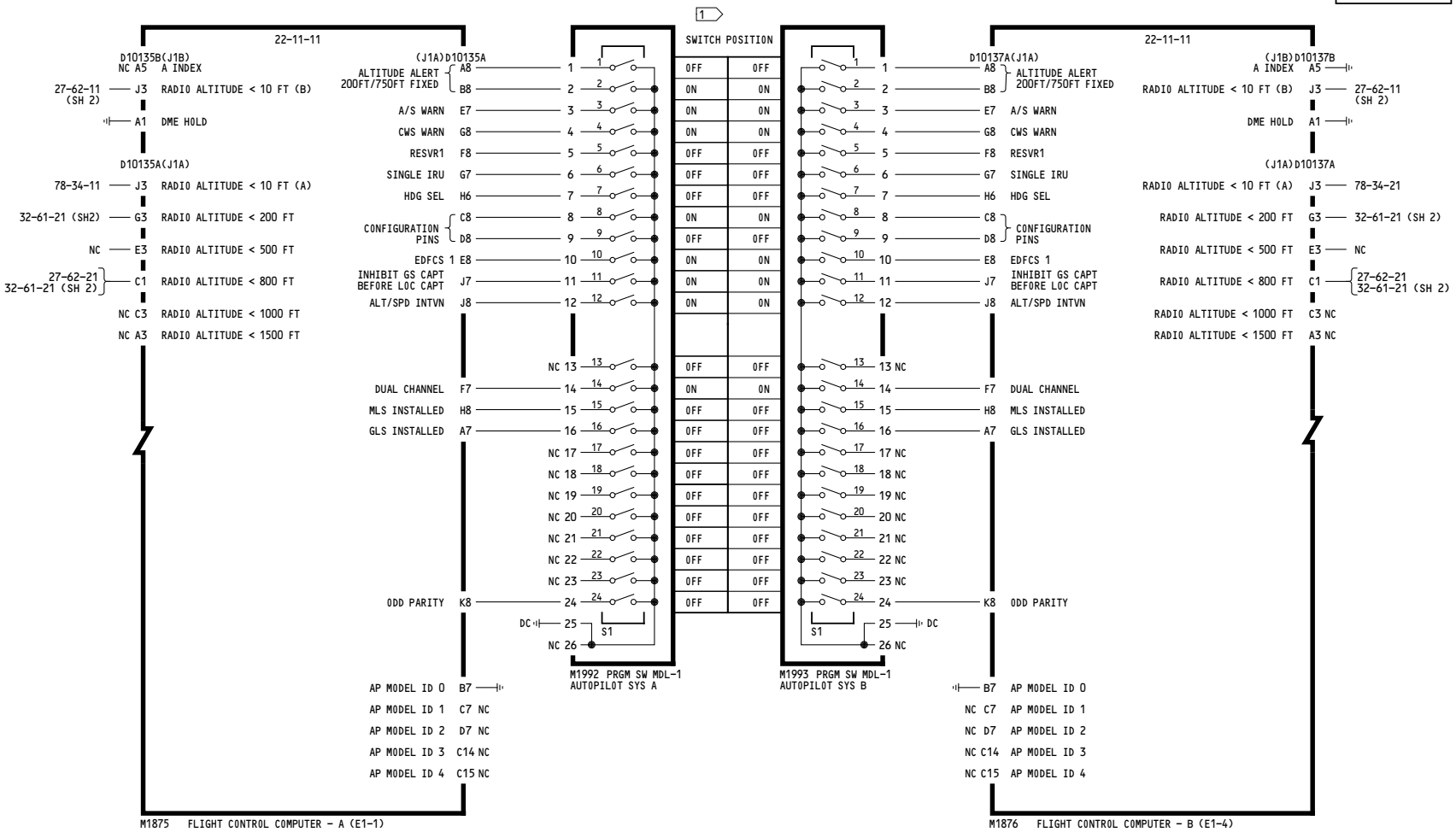

1 OFF = OPEN
ON = CLOSED

YT101-YT104

**DFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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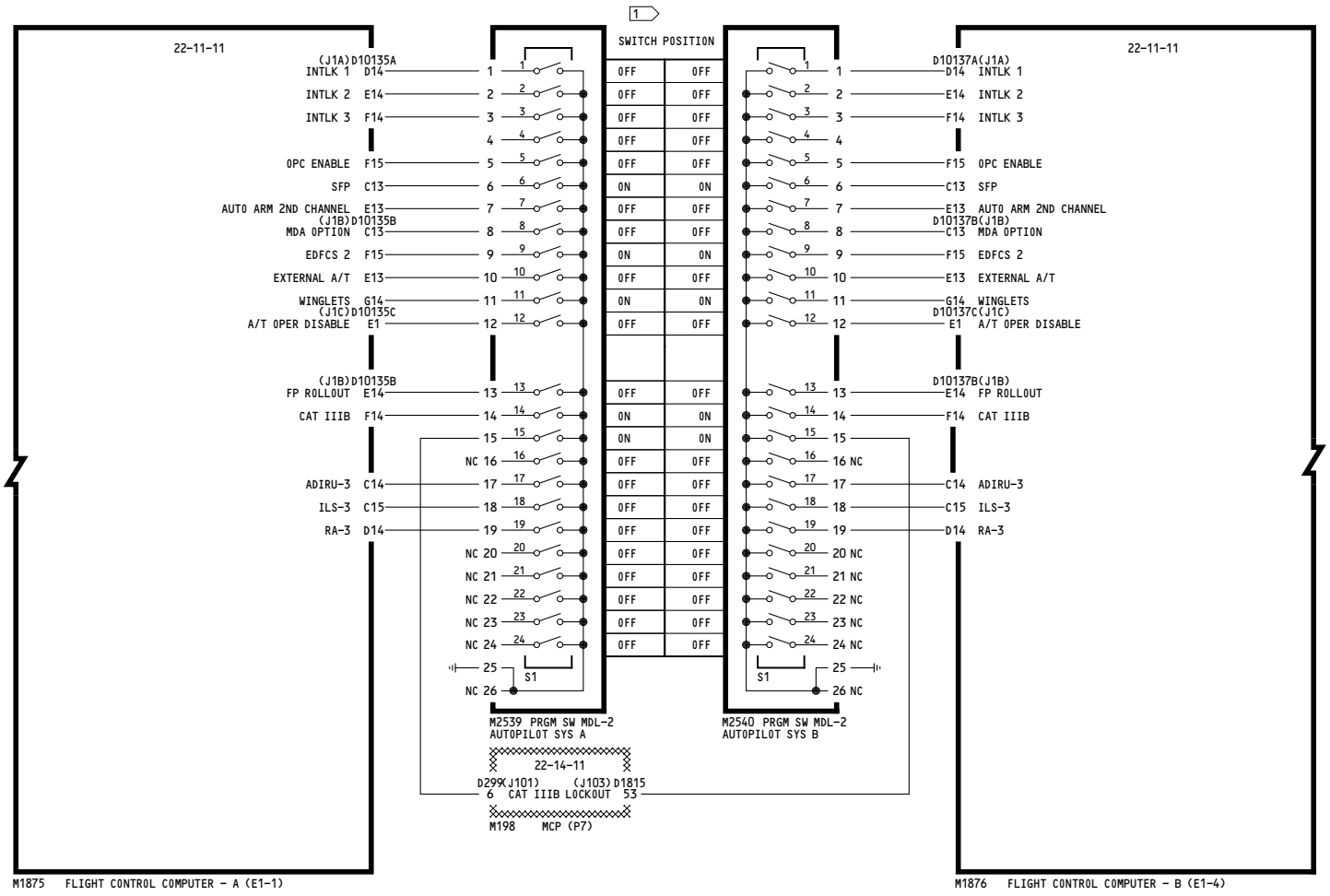

1 OFF = OPEN
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YT101-YT104

**DFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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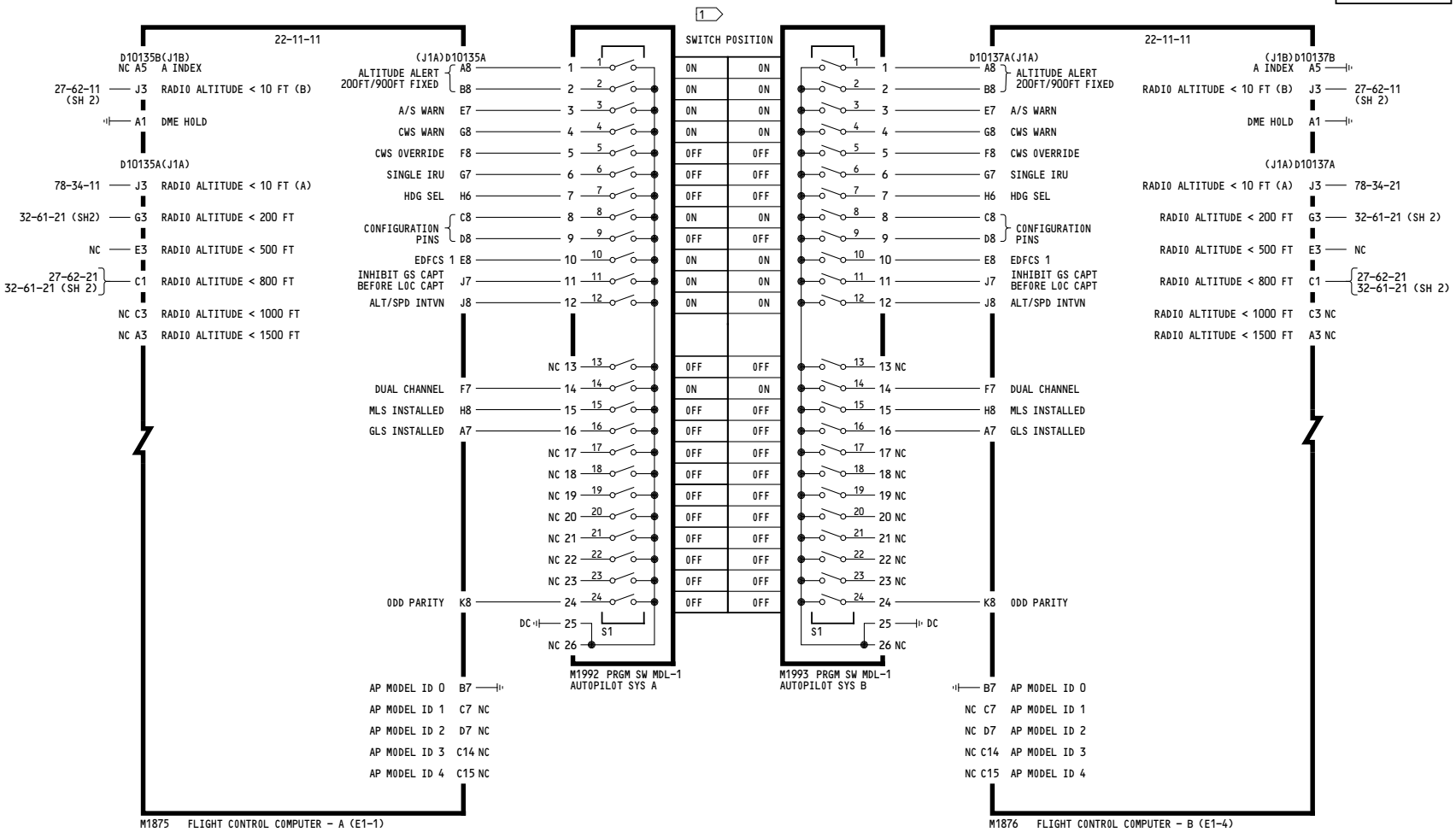

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YT101-YT104

**DFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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Incorporates
22-1295

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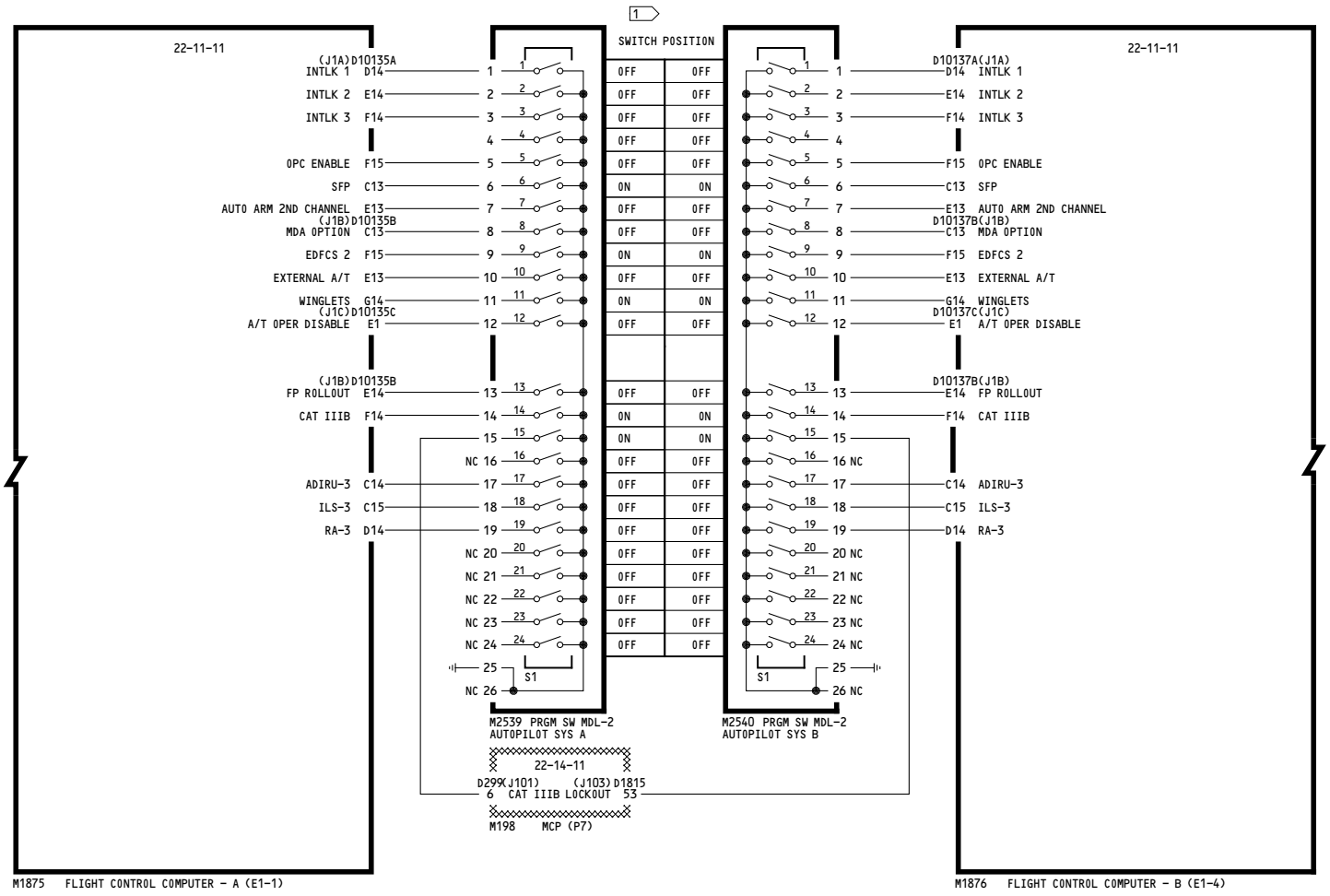

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YT101-YT104

**DFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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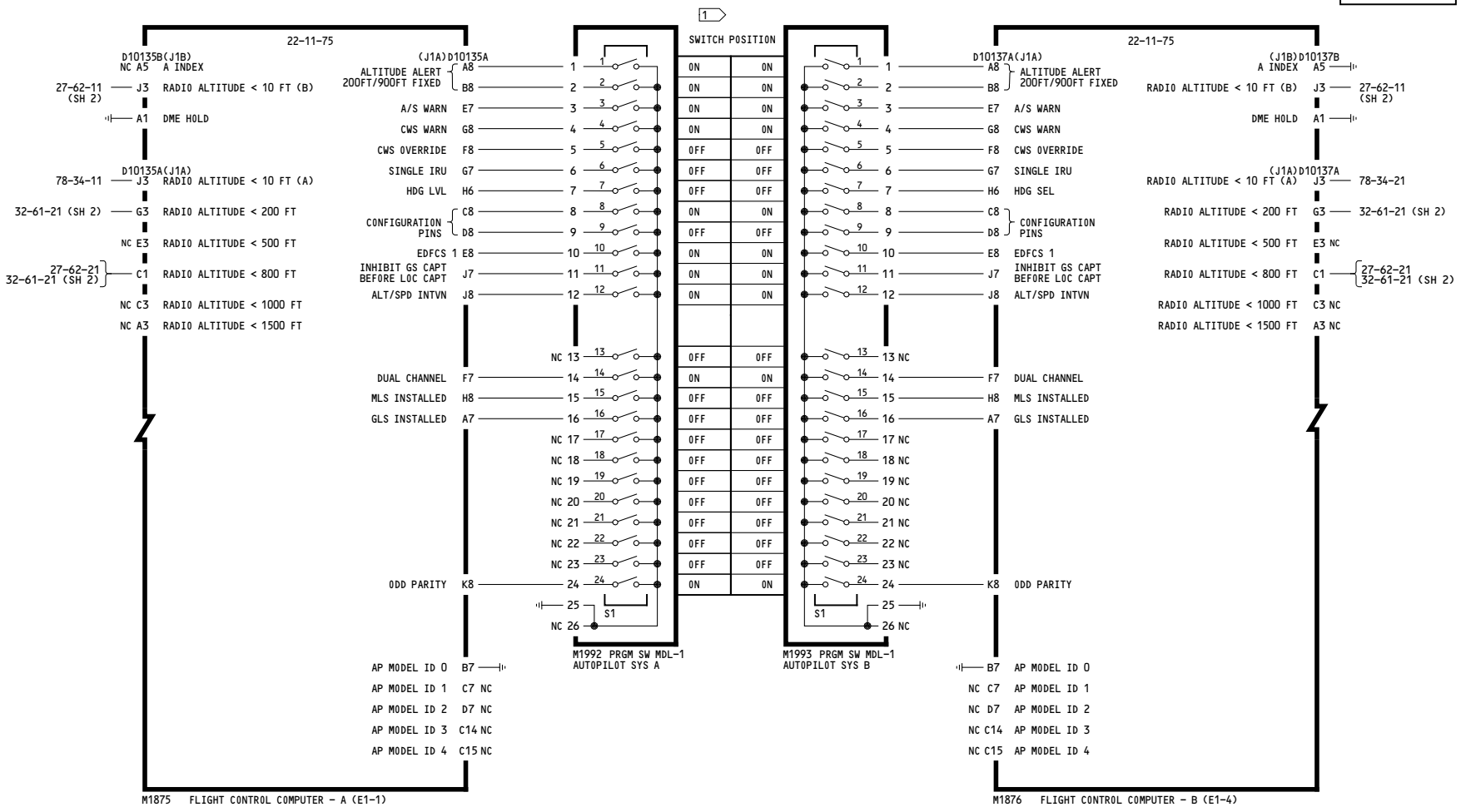

1 OFF = OPEN
ON = CLOSED

YT105-YT119, YT126-YT129

**DFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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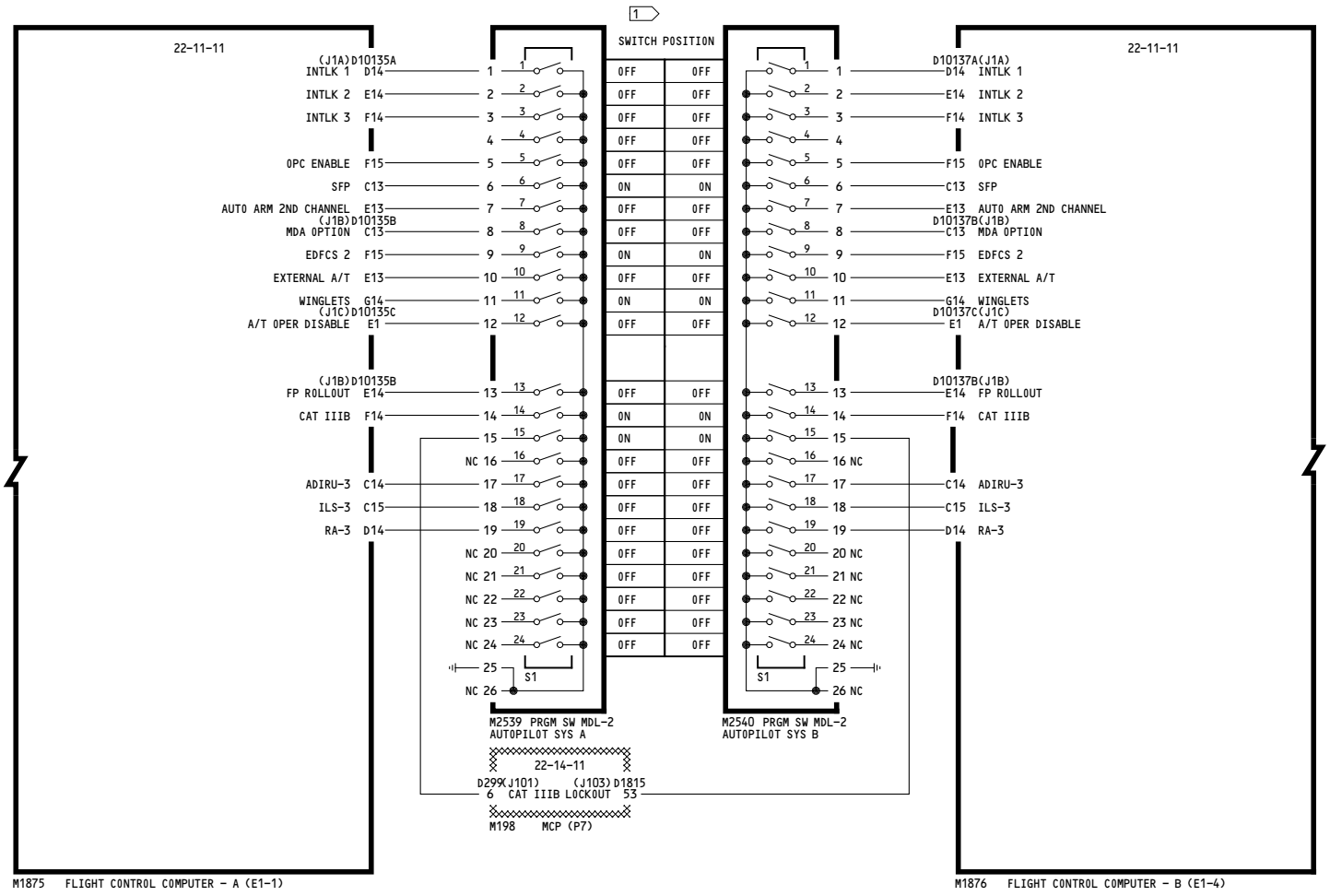

1 OFF = OPEN
ON = CLOSED

YT105-YT119, YT126-YT129

**DFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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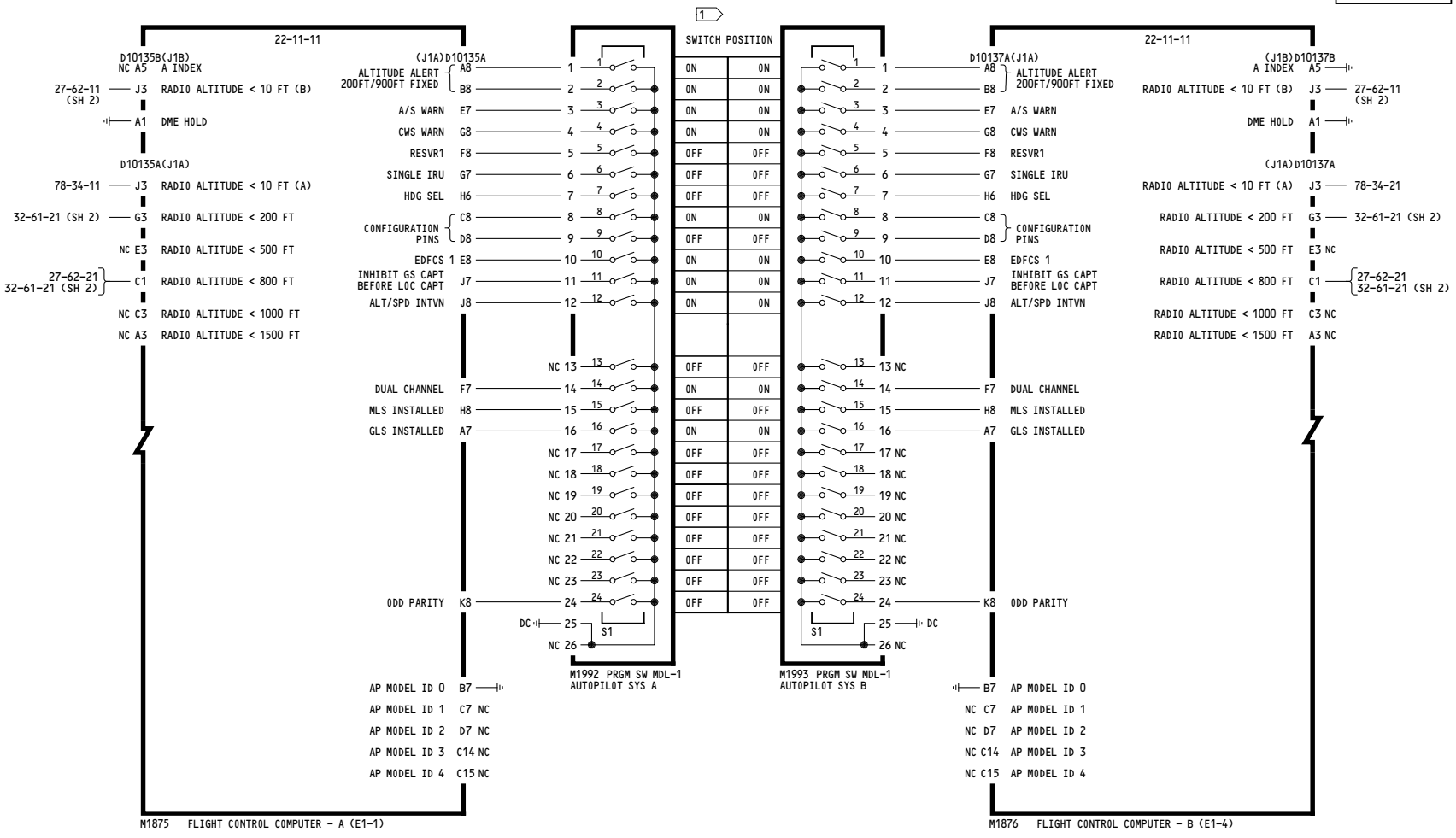

1 OFF = OPEN
ON = CLOSED

YT120, YT130-YT133

EDFCS - A AND B OPTION PINS AND DISCRETE OUTPUTS

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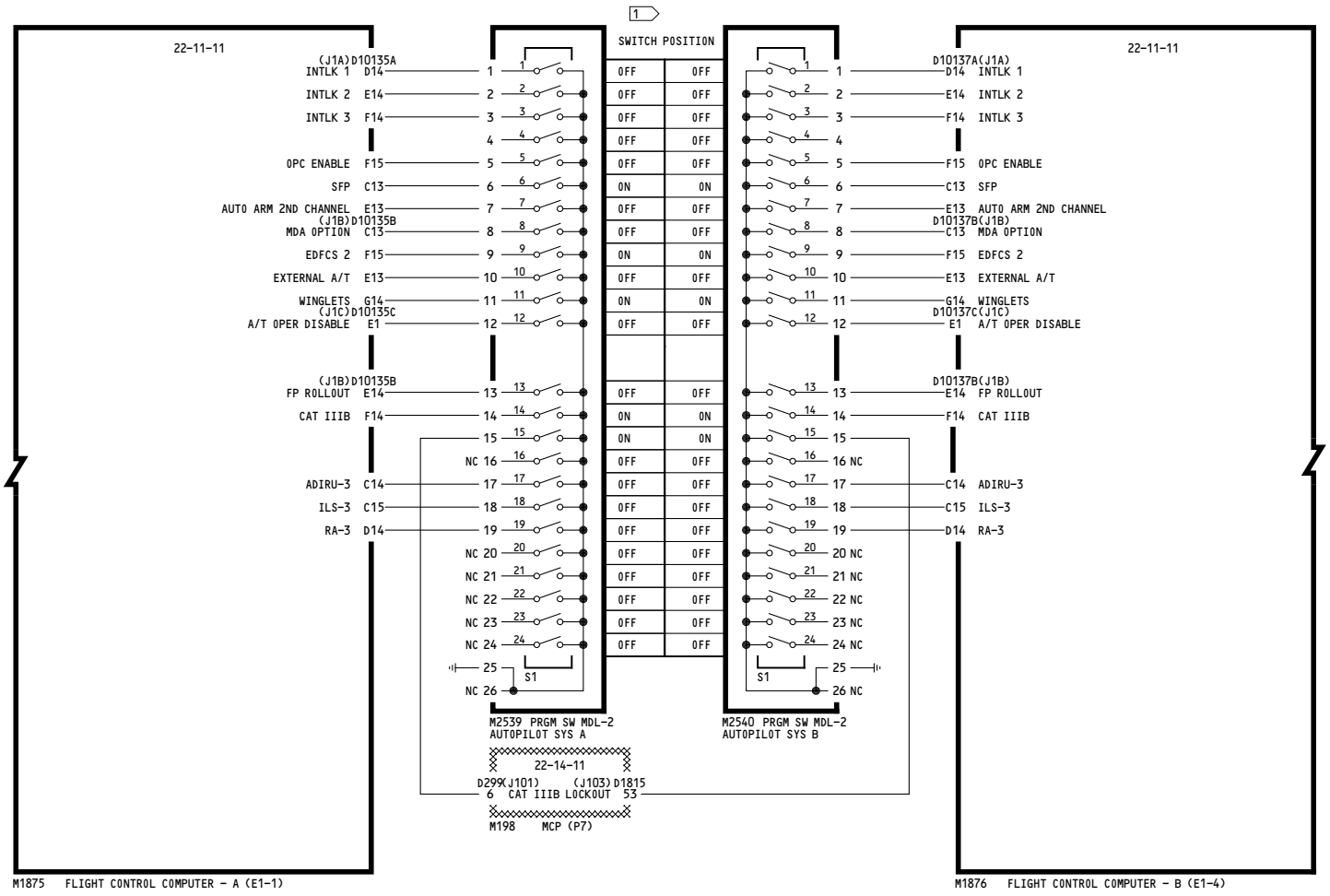

1 OFF = OPEN
ON = CLOSED

YT120, YT130-YT133

**EDFCS -
A AND B OPTION PINS
AND DISCRETE OUTPUTS**

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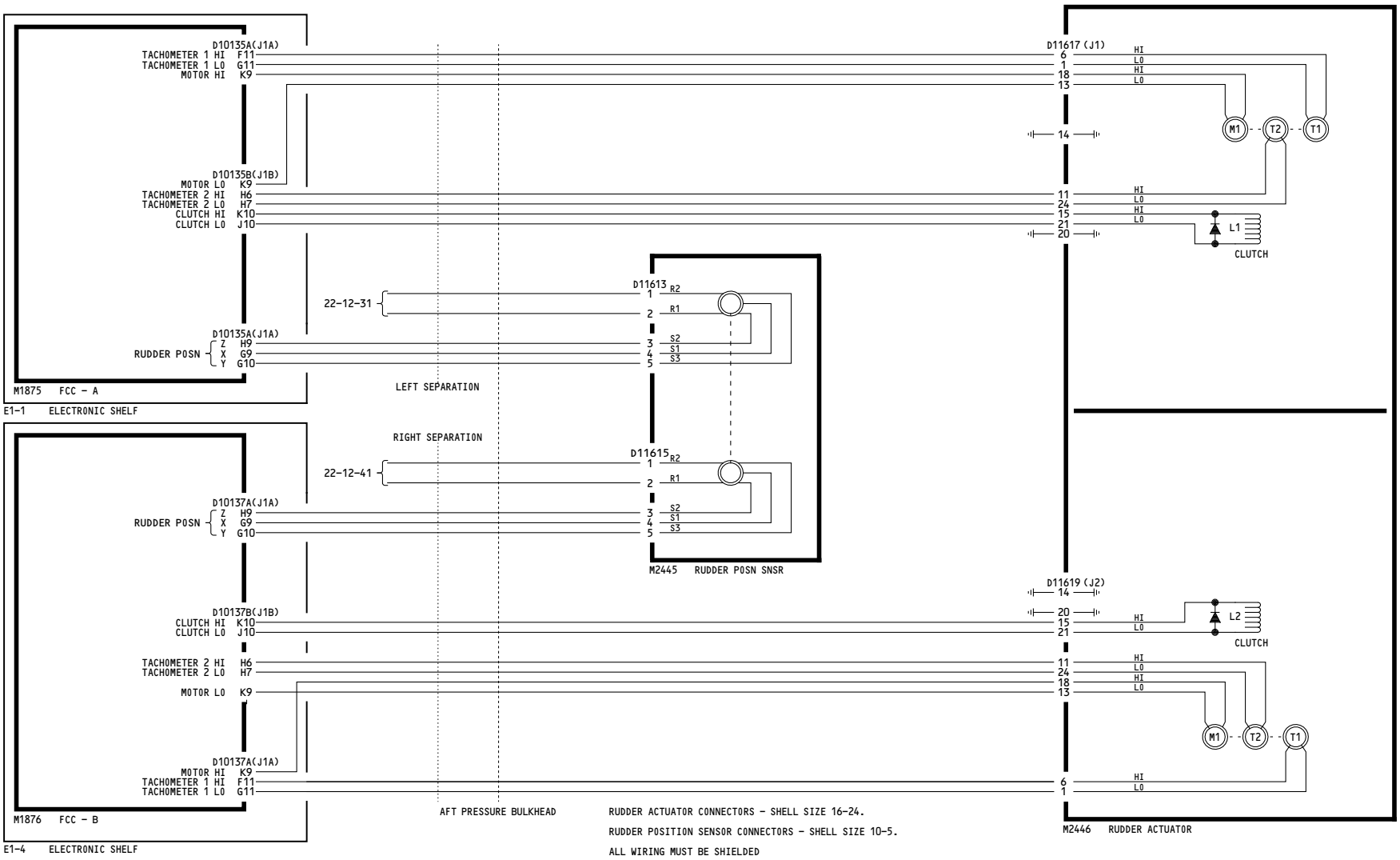

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DFCS - RUDDER COMMAND AND CONTROL

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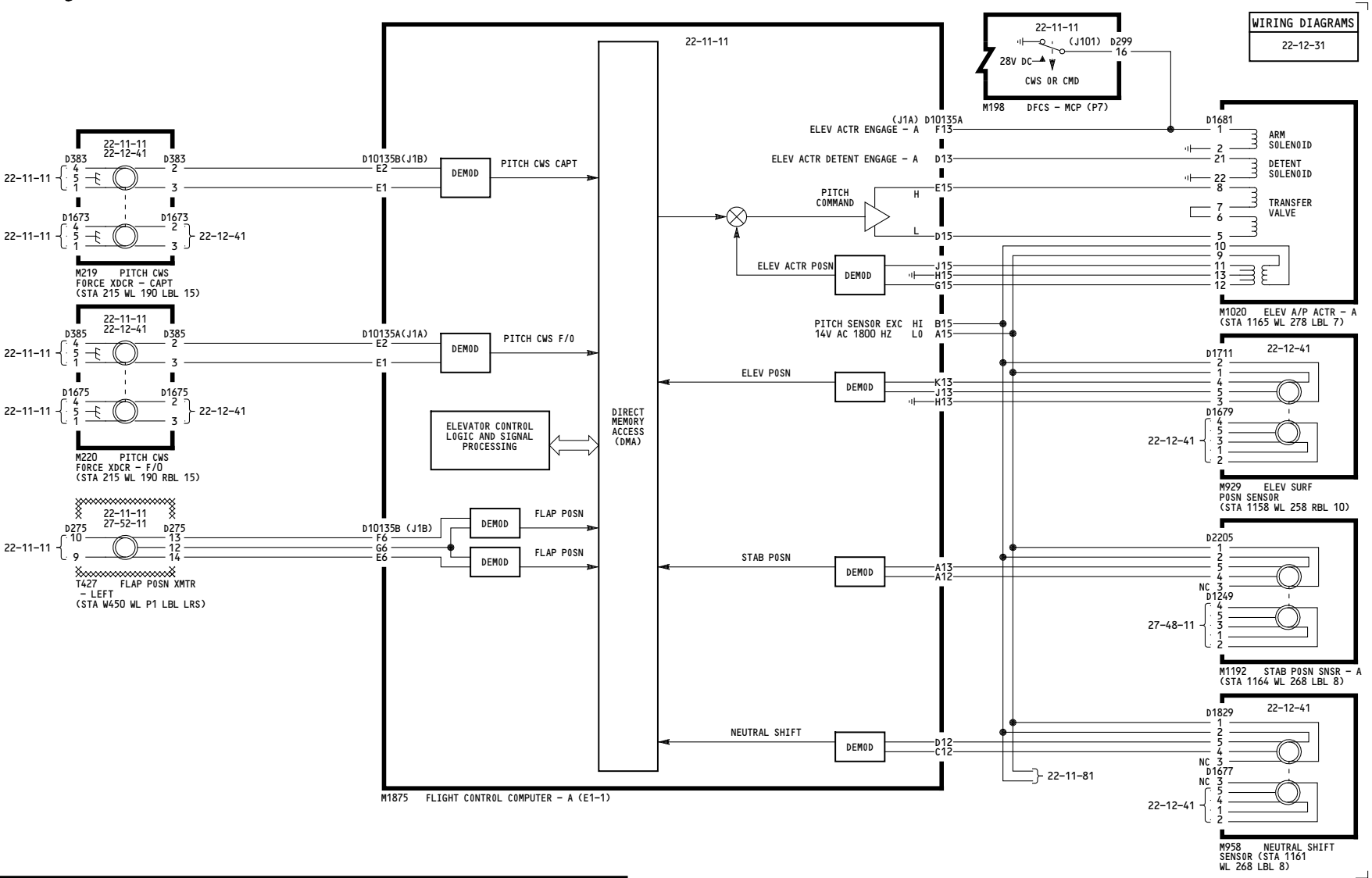

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DFCS - A A/P PITCH SENSORS AND ACTUATORS

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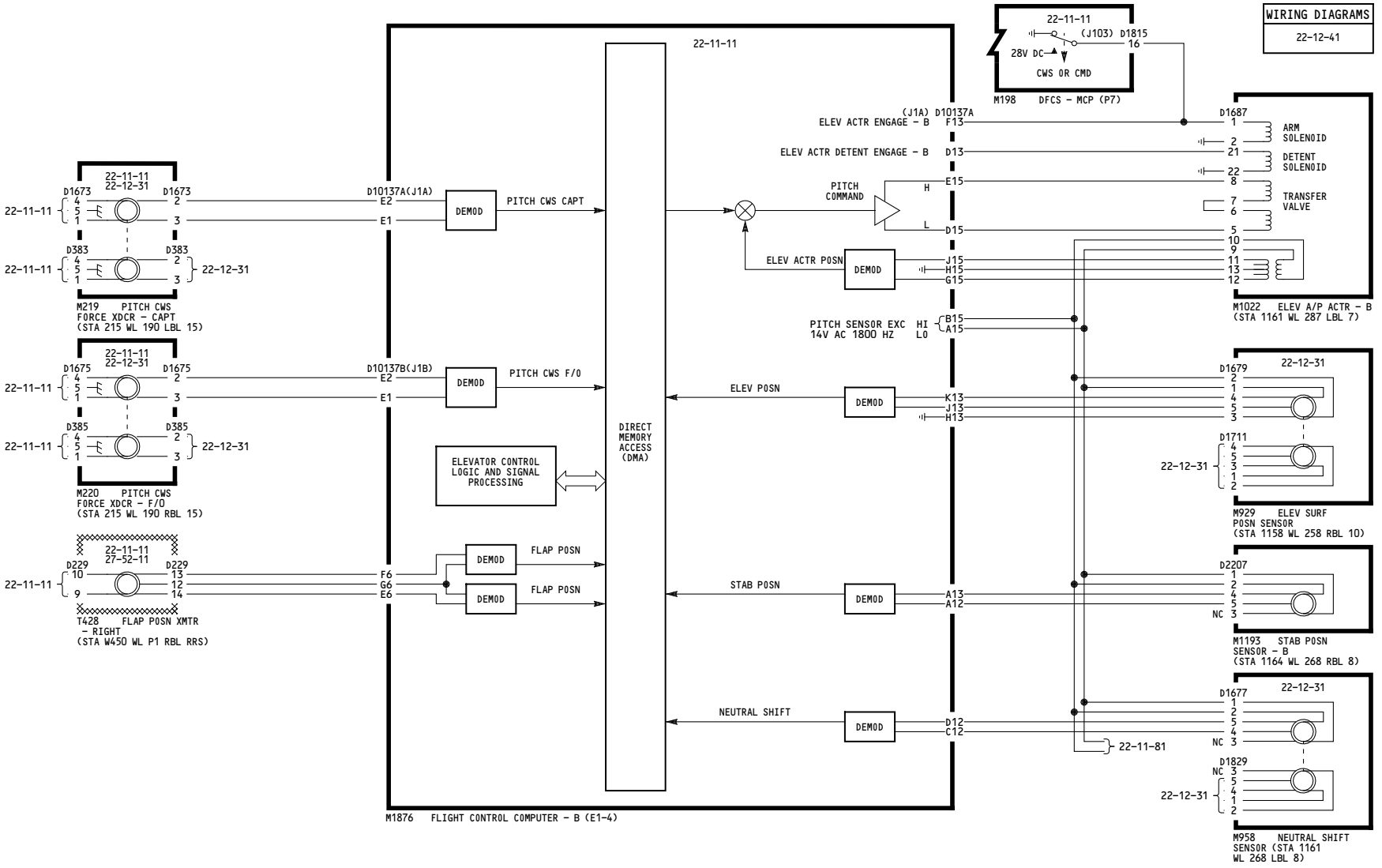

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DFCS - B A/P PITCH SENSORS AND ACTUATORS

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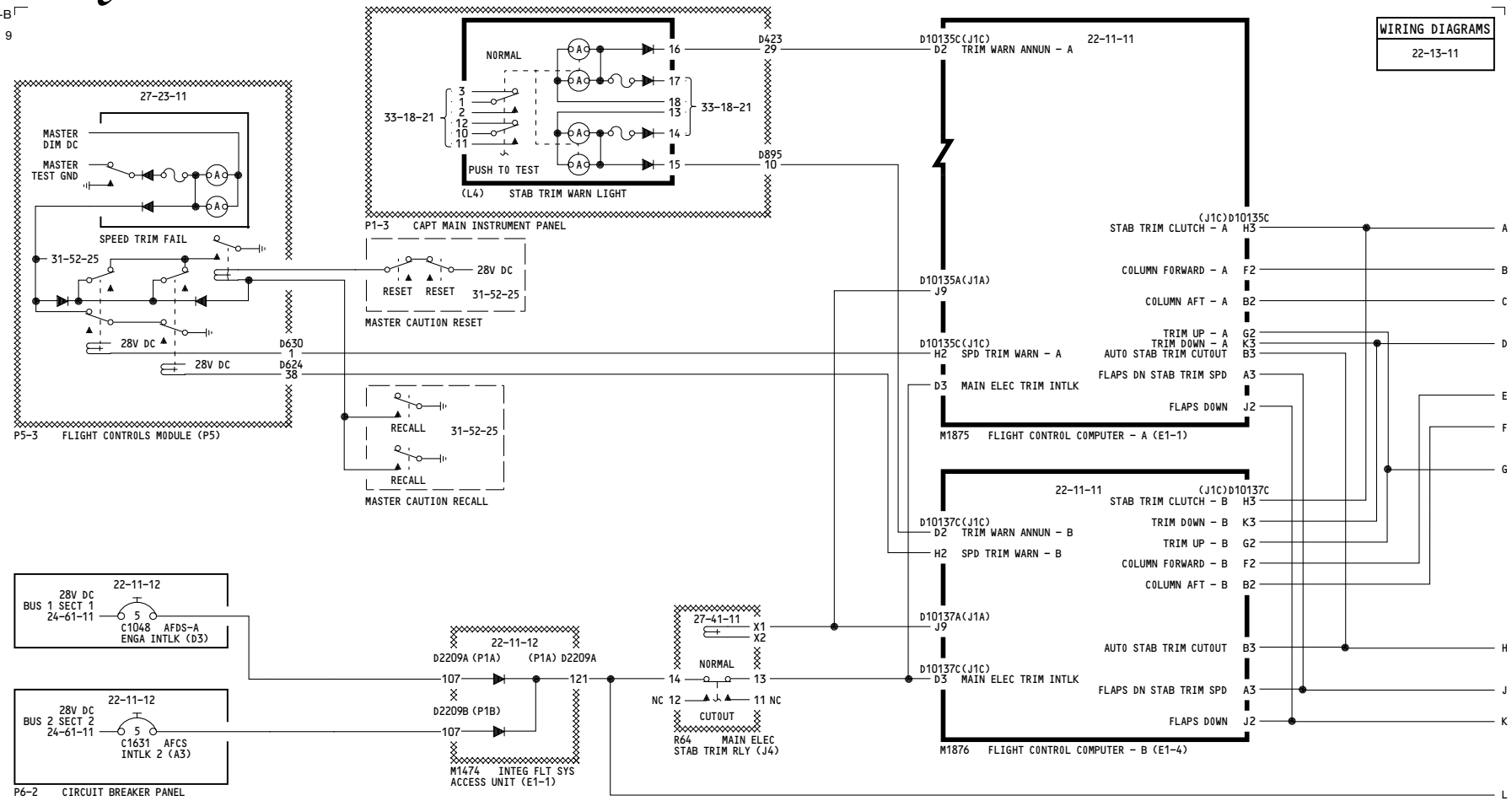

ALL	DFCS - A AND B SPEED AND STABILIZER TRIM
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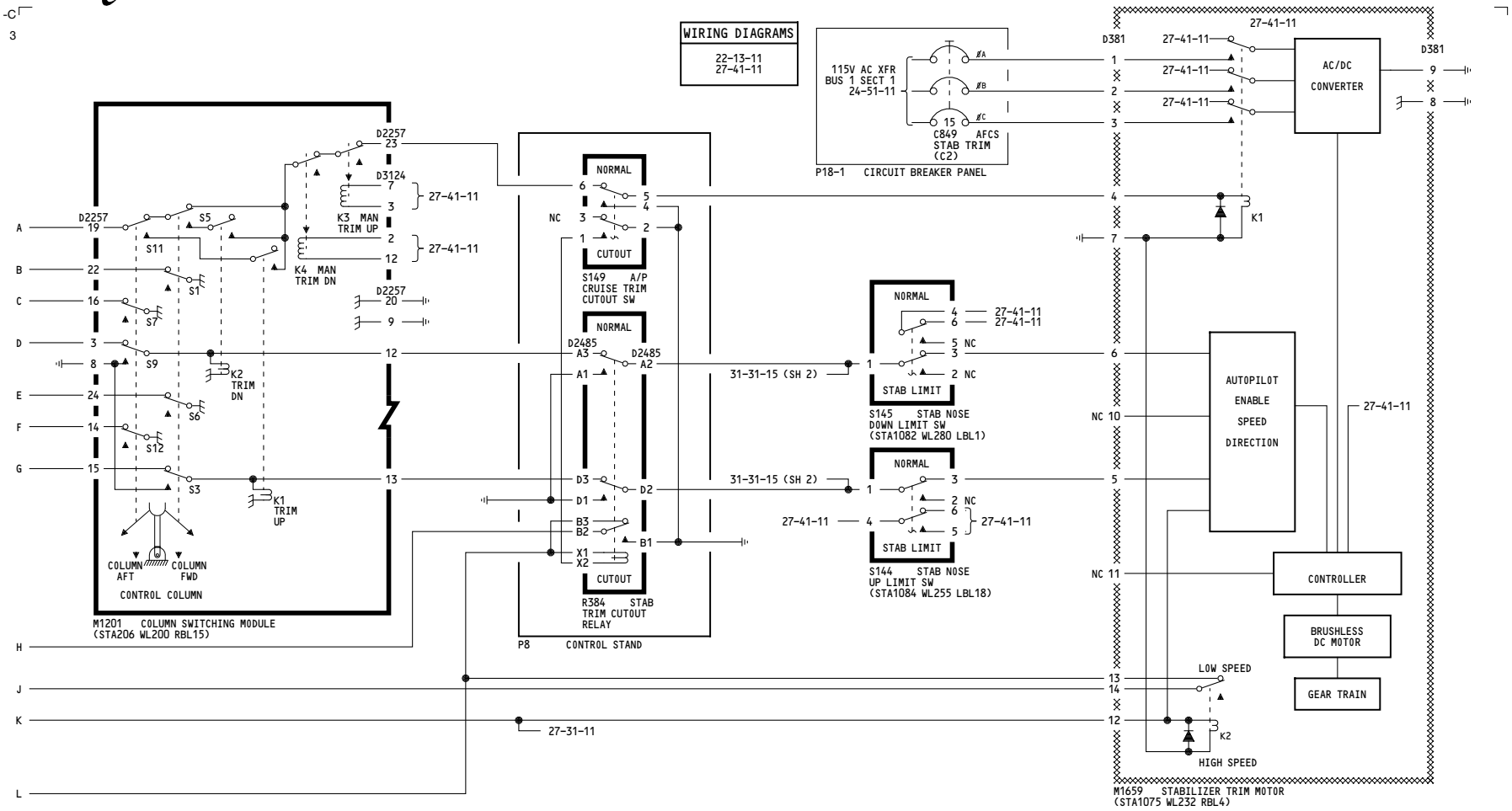

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DFCS - A AND B SPEED AND STABILIZER TRIM

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22-13-11

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Sheet 2
Jun 21/2016

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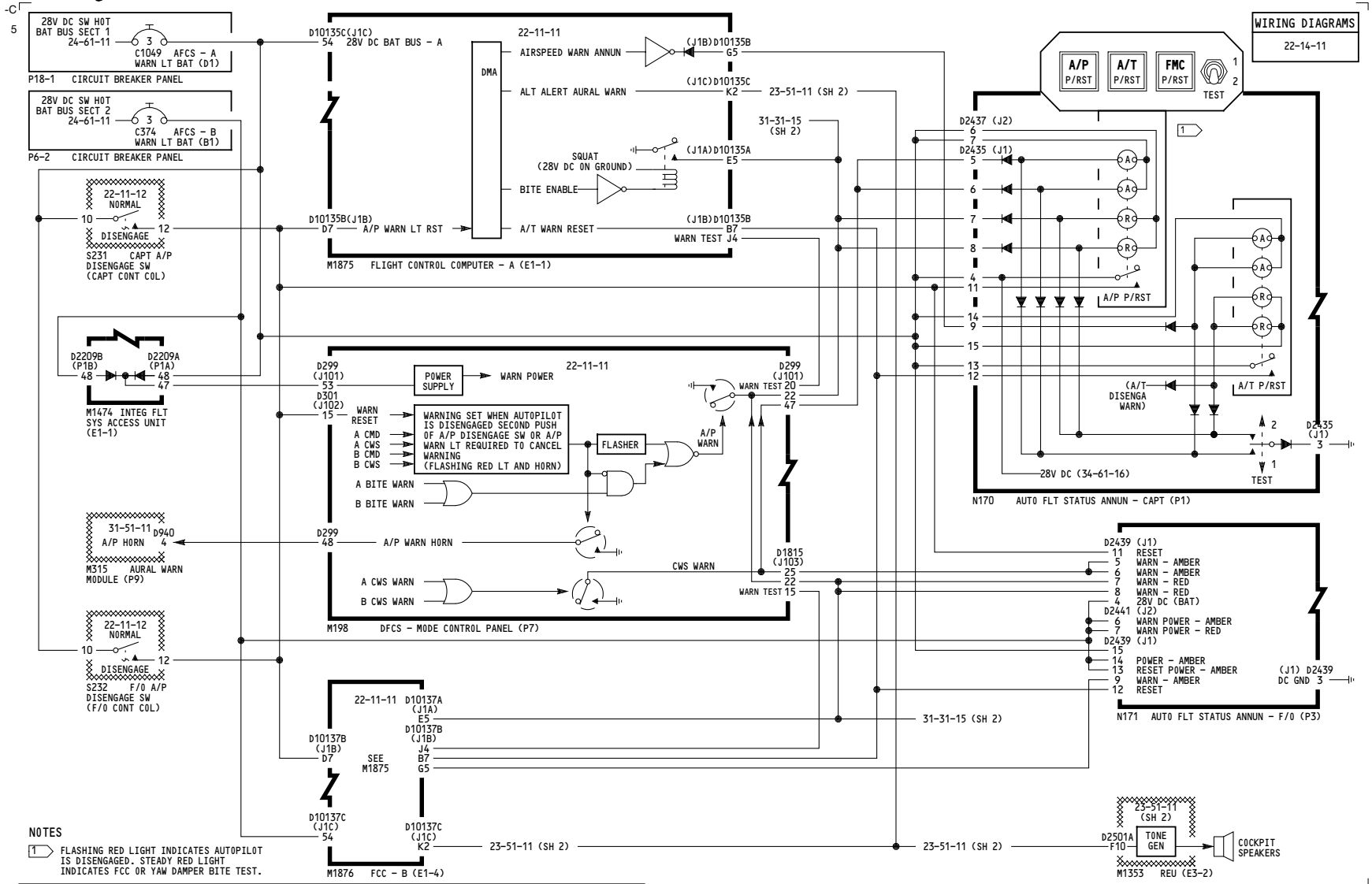

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DFCS - ANNUNCIATION AND WARNING

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22-14-11

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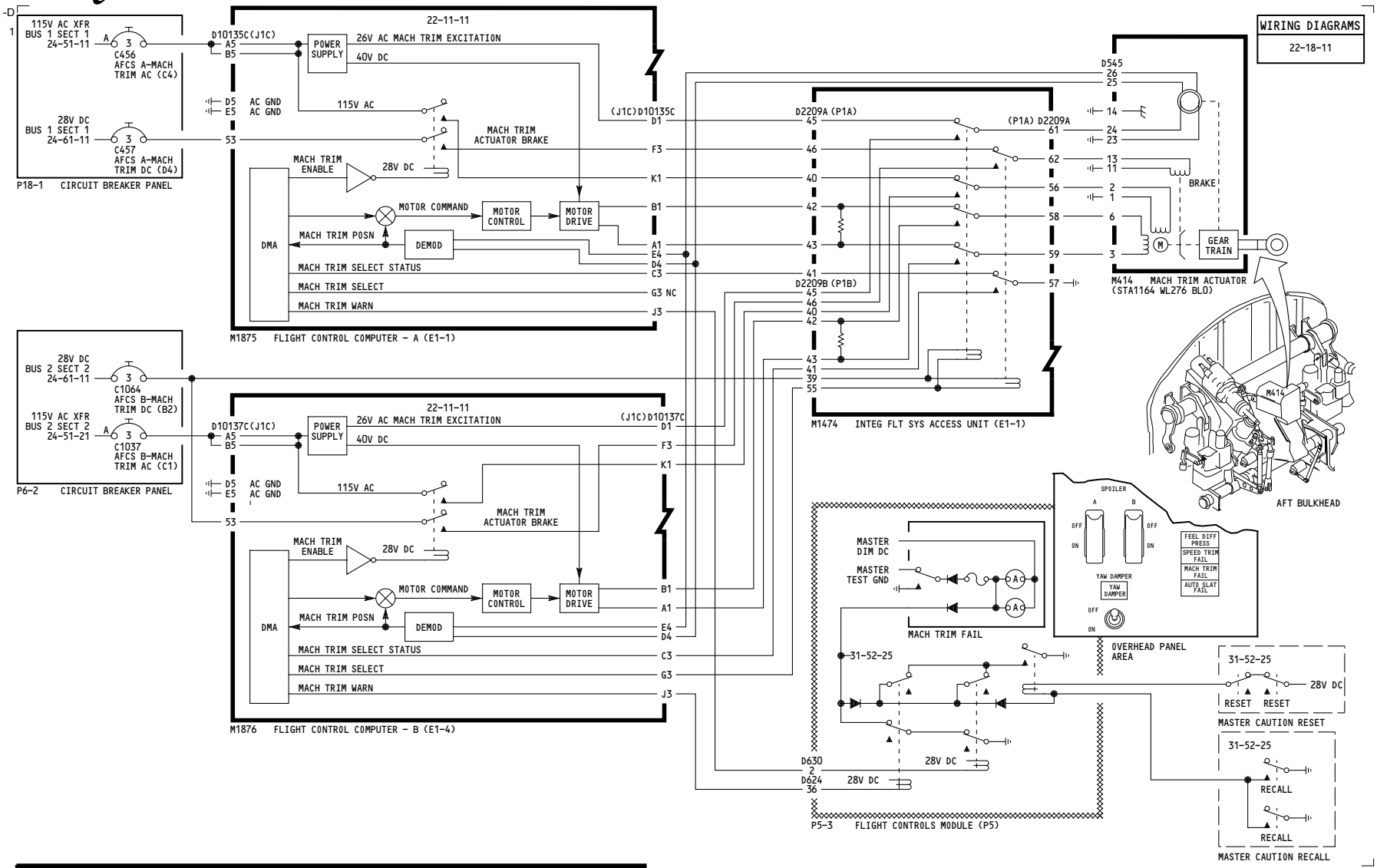
WIRING DIAGRAMS
22-18-11



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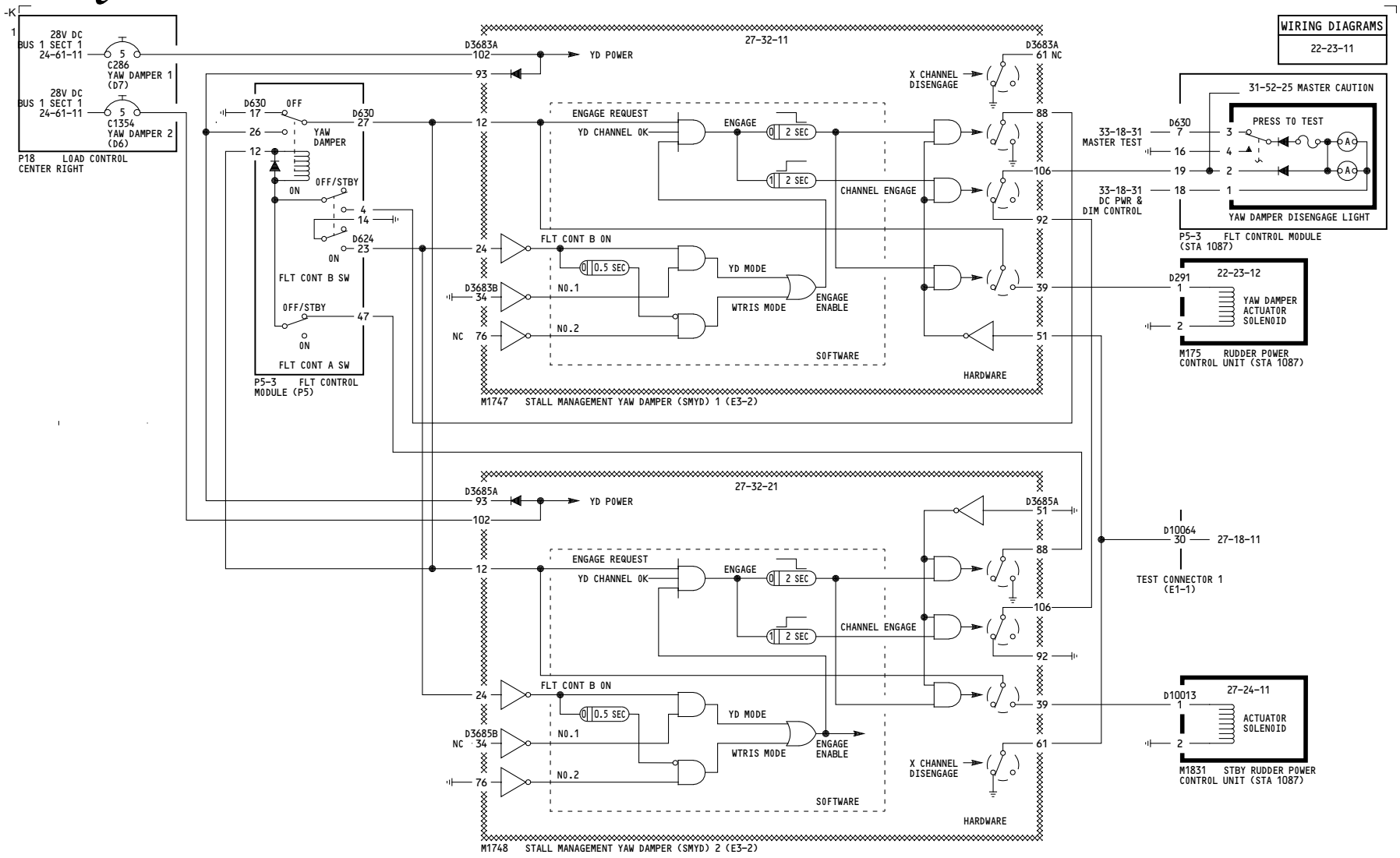

ALL	YAW DAMPER ENGAGE INTERLOCKS
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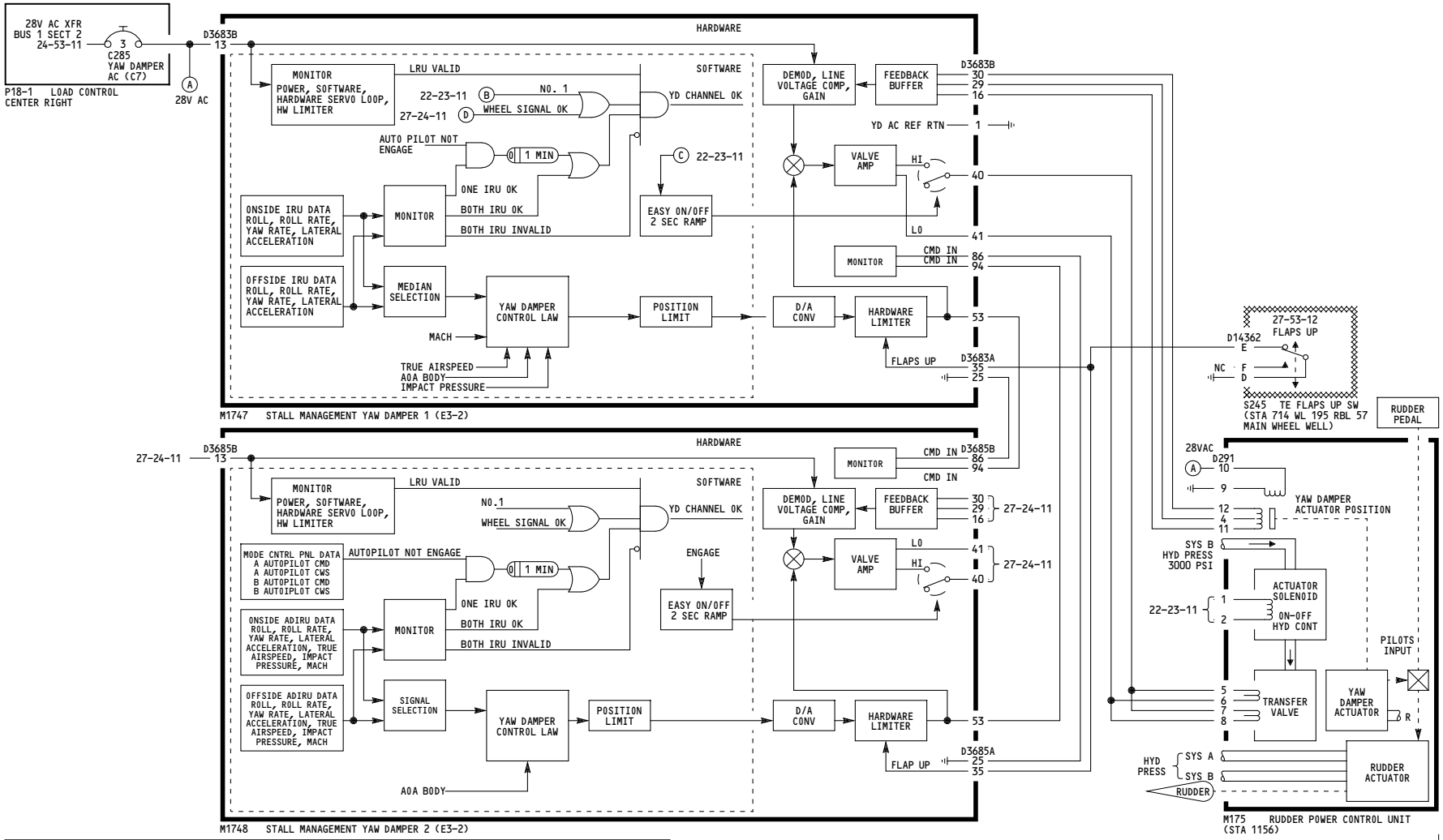

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YAW DAMPER RUDDER CONTROL

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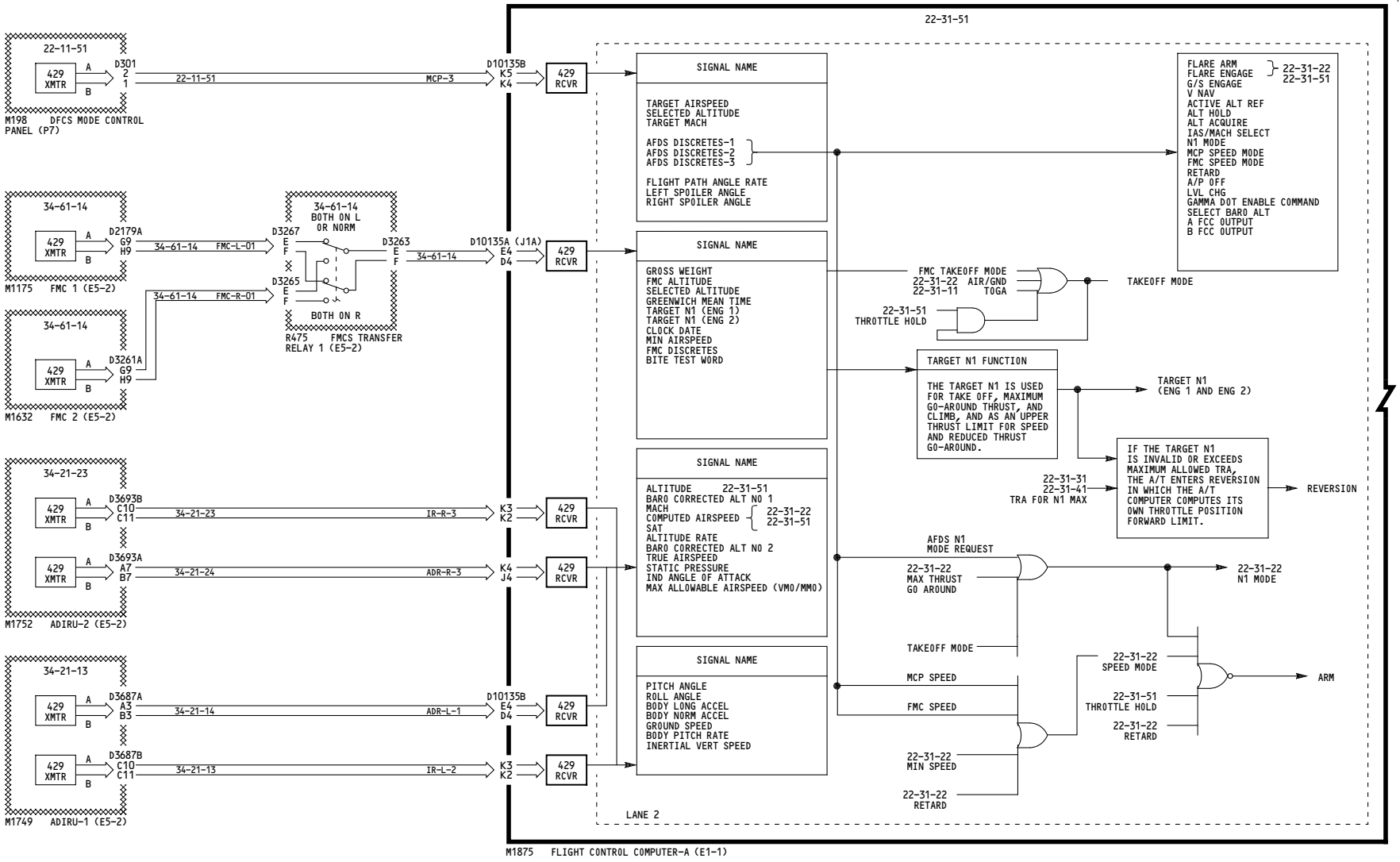

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AUTOTHROTTLE SYSTEM - DIGITAL INPUTS FROM MCP, FMC, ADIRU

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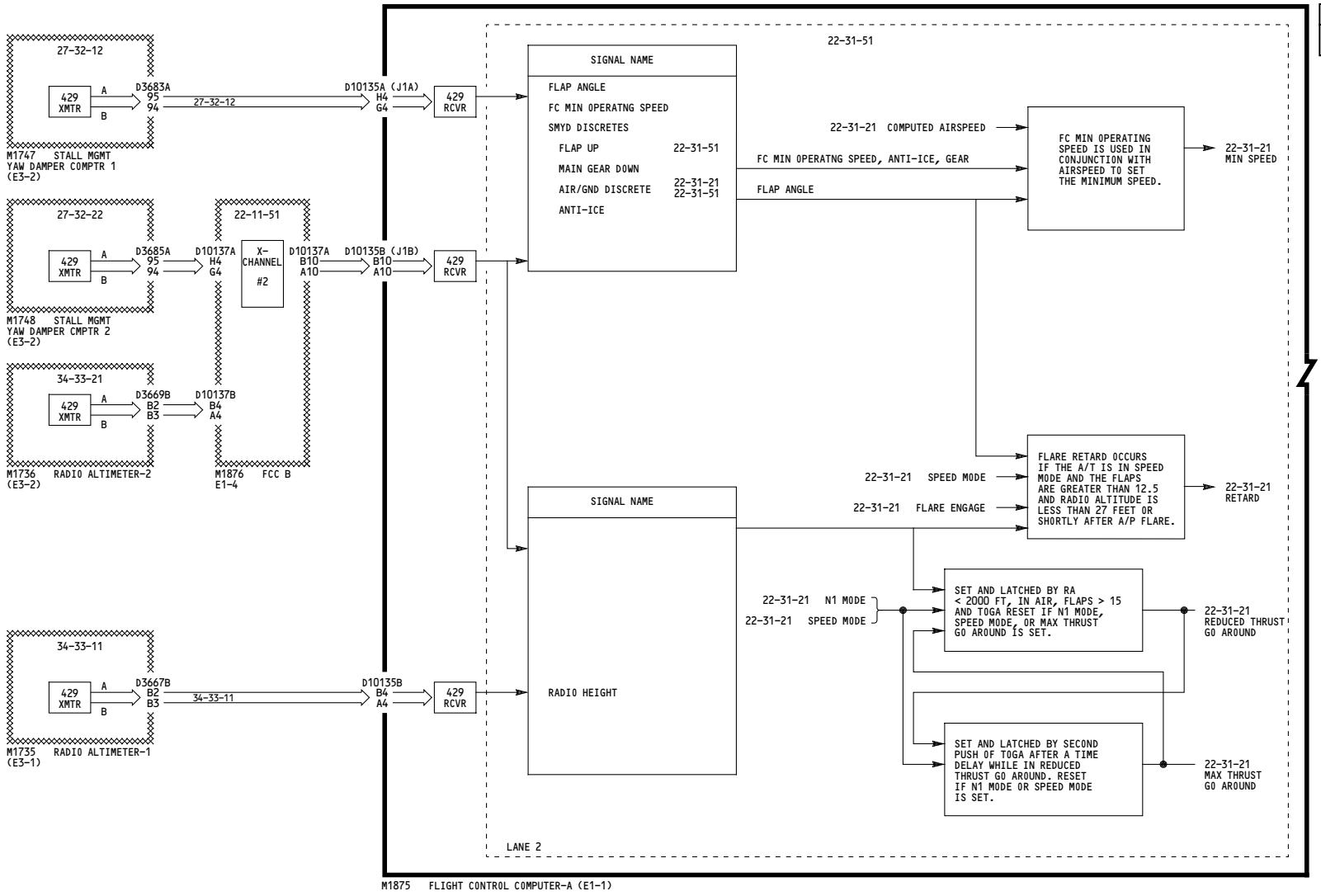

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AUTOTHROTTLE SYSTEM - DIGITAL INPUTS FROM SMYDC'S AND RA'S

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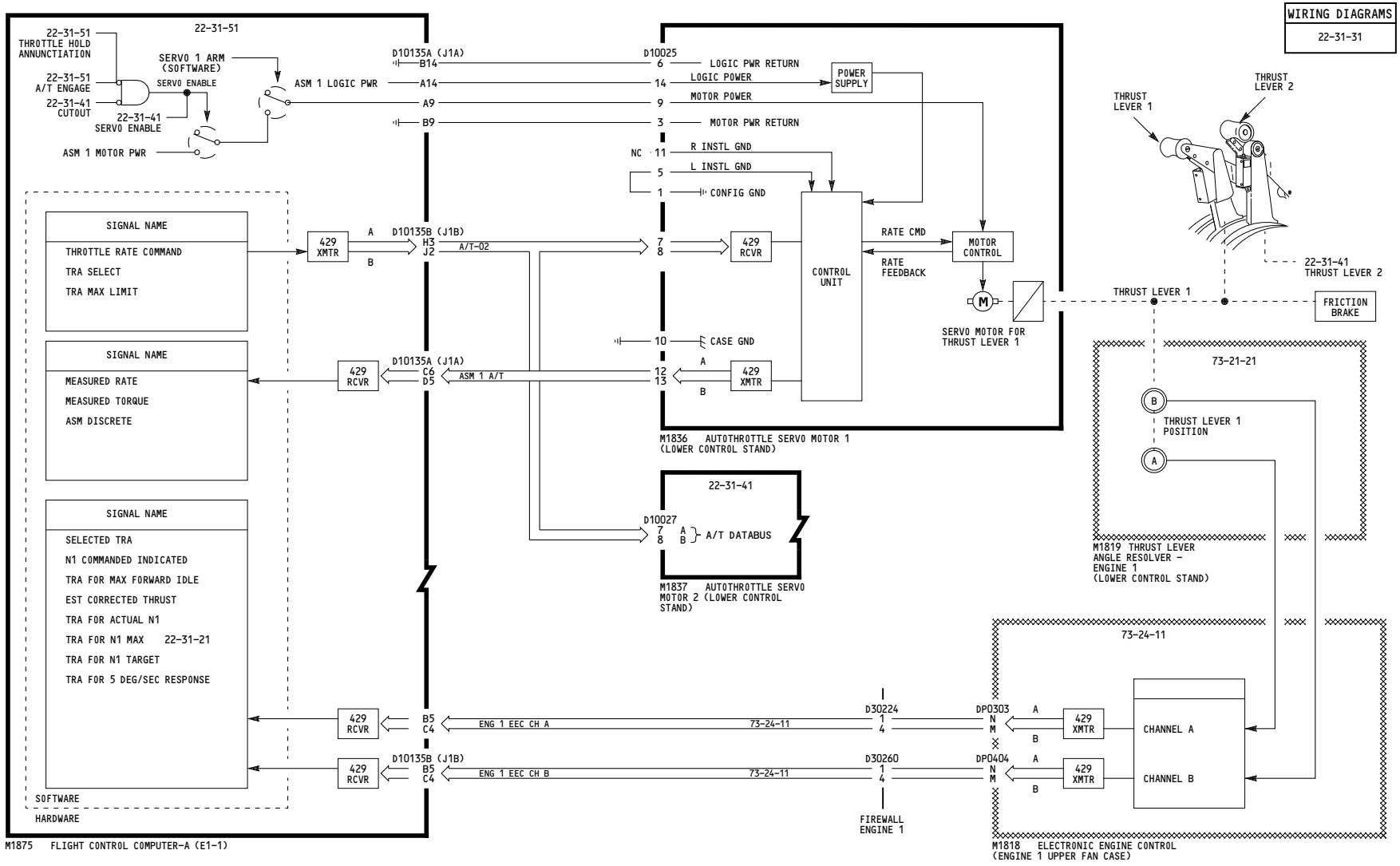
WIRING DIAGRAMS
22-31-31



YT101-YT117, YT126-YT131

AUTOTHROTTLE SYSTEM - SERVO MOTOR 1

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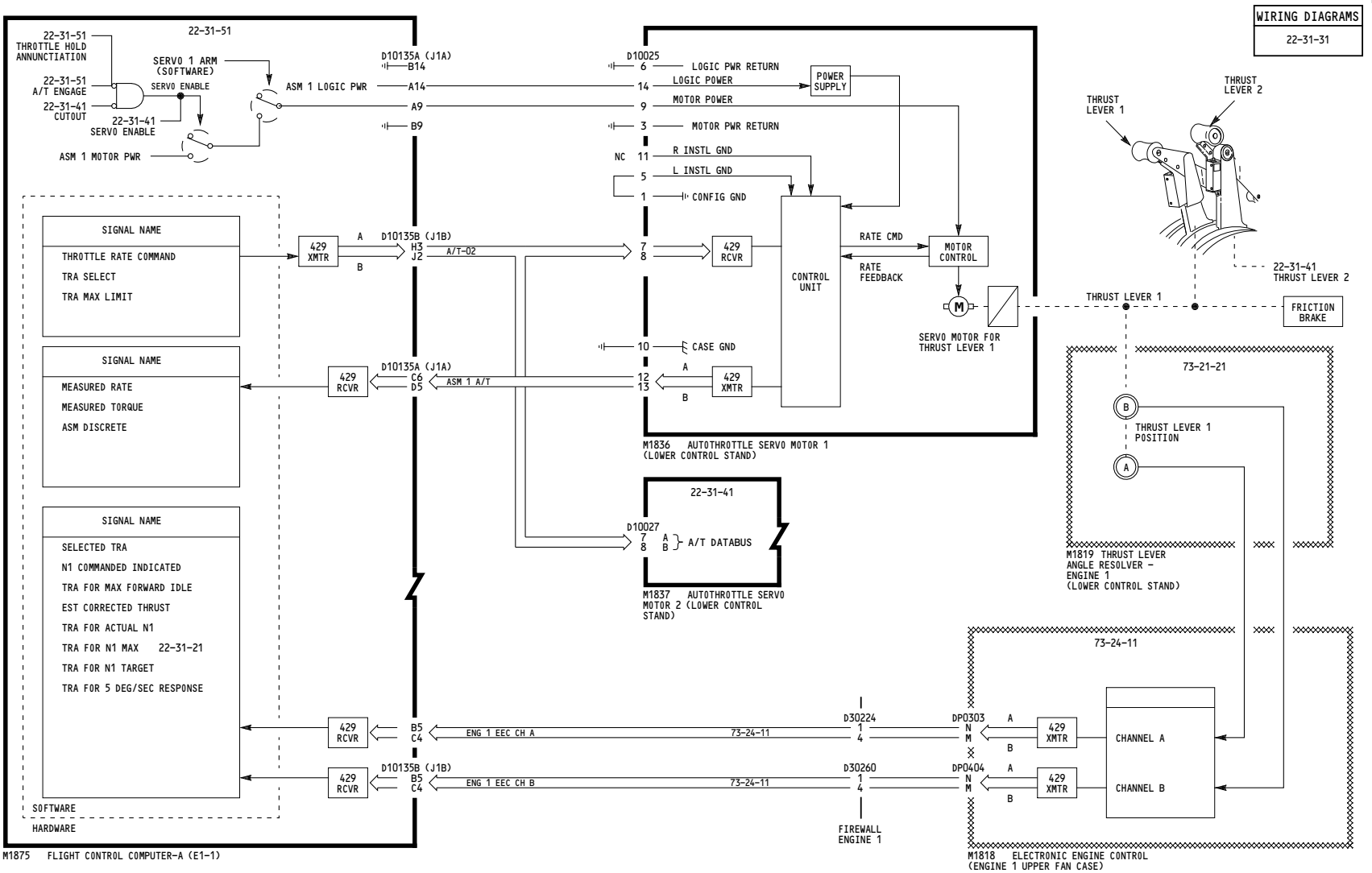

YT118-YT120, YT132-YT133

AUTOTHROTTLE SYSTEM - SERVO MOTOR 1

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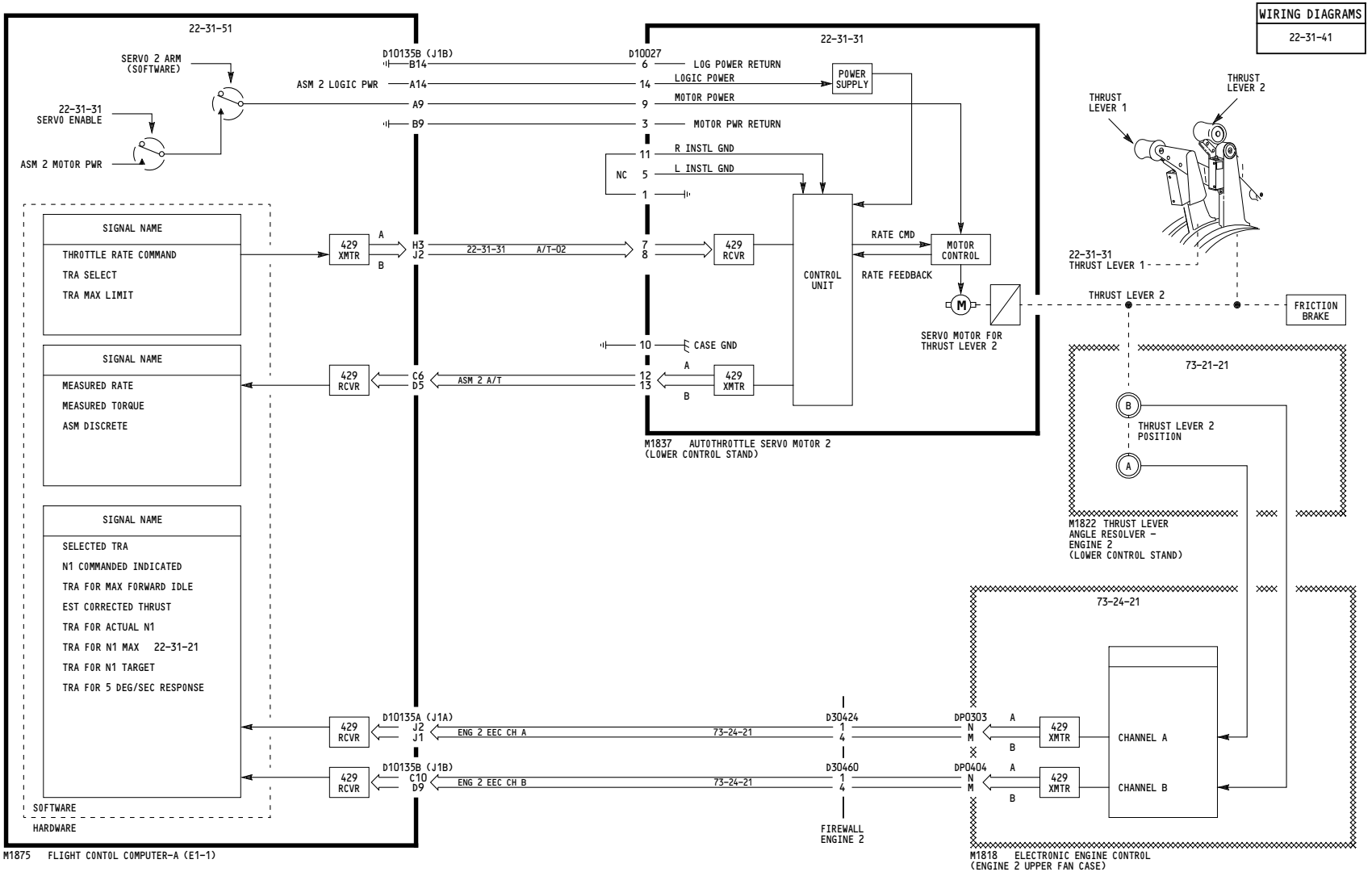
7

WIRING DIAGRAMS
22-31-41



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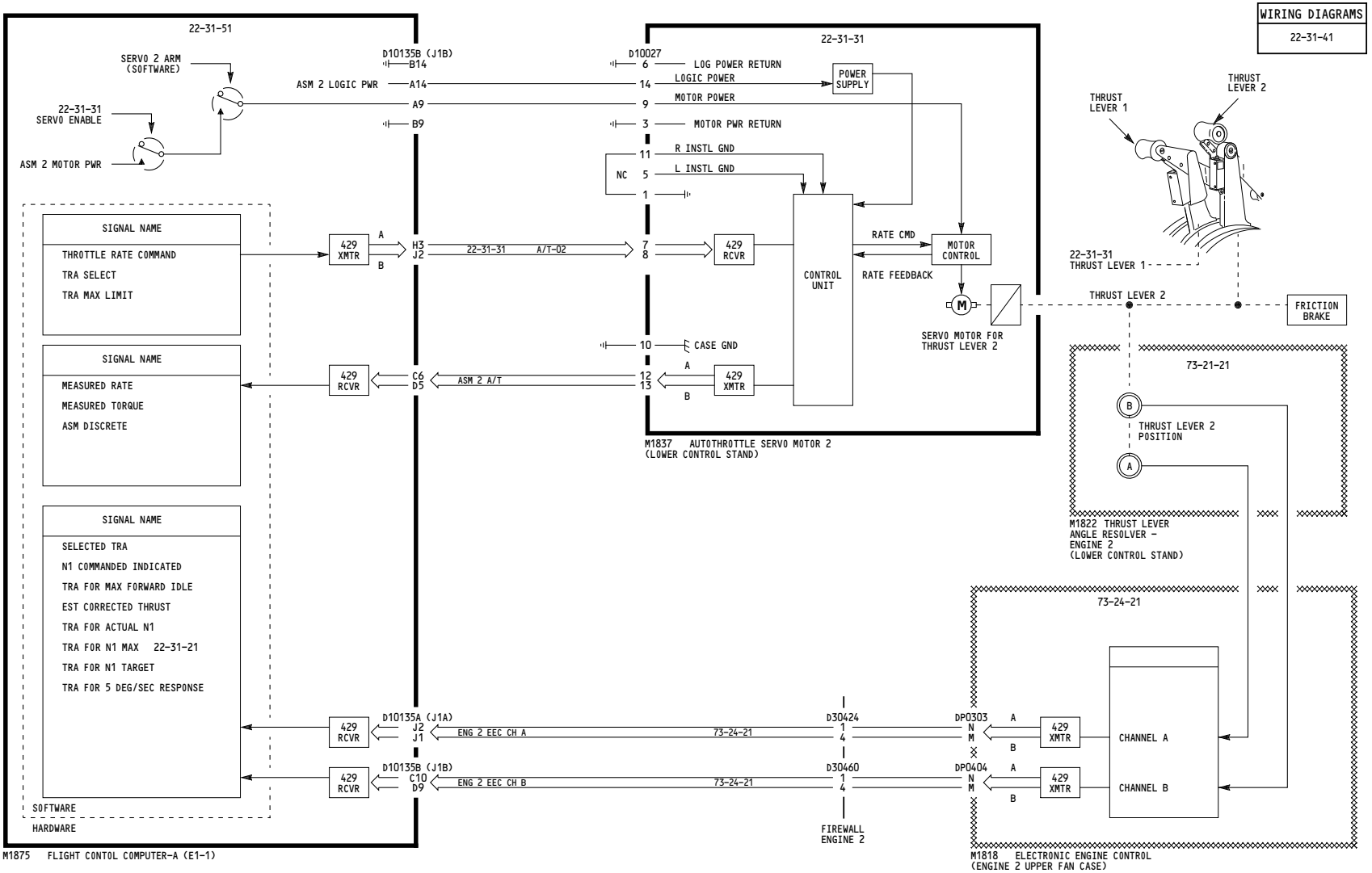
WIRING DIAGRAMS
22-31-41



YT118-YT120, YT132-YT133	**AUTOTHROTTLE SYSTEM - SERVO MOTOR 2**
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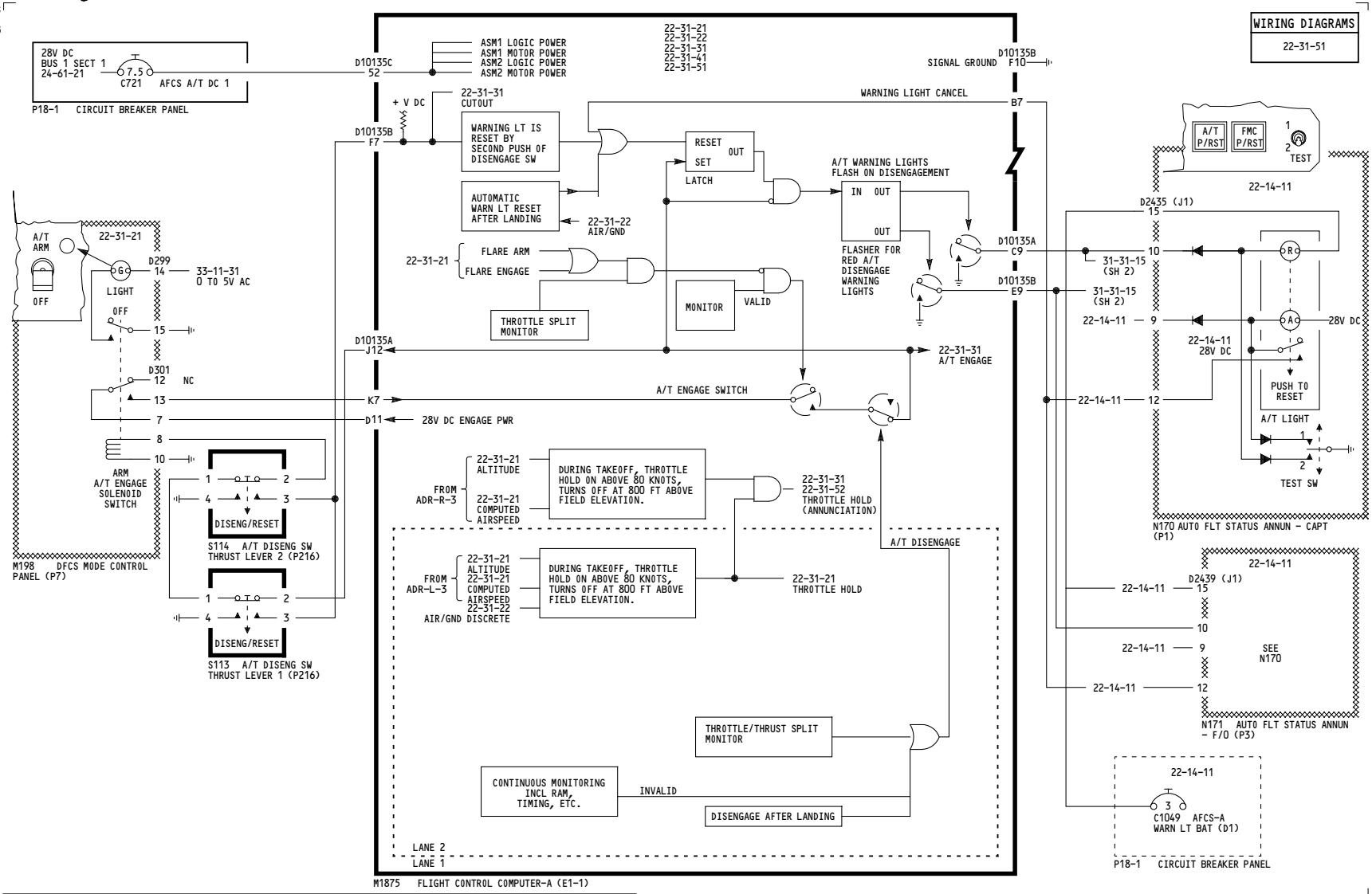

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AUTOTHROTTLE SYSTEM - ENGAGE/DISENGAGE

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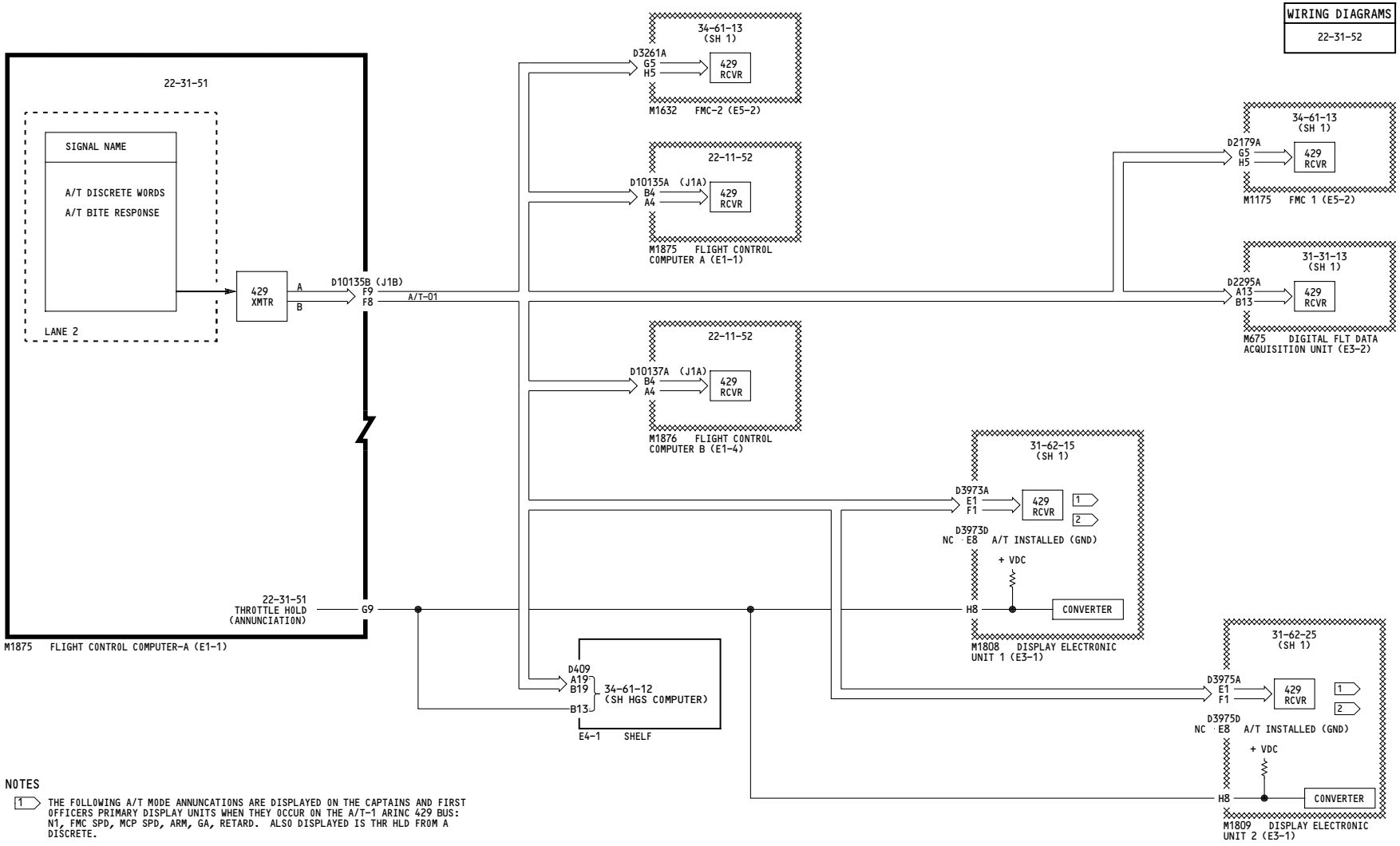
WIRING DIAGRAMS
22-31-52



NOTES

1. THE FOLLOWING A/T MODE ANNUNCATIONS ARE DISPLAYED ON THE CAPTAINS AND FIRST OFFICERS PRIMARY DISPLAY UNITS WHEN THEY OCCUR ON THE A/T-1 ARINC 429 BUS: N1, FMC SPD, MCP SPD, ARM, GA, RETARD. ALSO DISPLAYED IS THR HLD FROM A DISCRETE.

2. THE FOLLOWING A/T MODE ANNUNCIATION IS DISPLAYED ON THE ENGINE DISPLAY UNIT WHEN IT OCCURS ON THE A/T-1 ARINC 429 BUS: A/T LIM.

ALL

AUTOTHROTTLE SYSTEM - ARINC OUTPUT

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