

TROUBLESHOOTING / Troubleshooting D



PSR Professional Service & Repair Inc.

Professional Service & Repair Inc. is a full-service mobile crane repair, inspection, and certification company. At Professional Service & Repair we understand the critical aspect of your crane being operational to your project schedule and budget. We will deliver world class service to have your crane operational in the minimum amount of time.

PSR is the global provider for sales, repair and installation of Load Moment Indicating (LMI) systems, Anti-Two Block Systems (A2B), and Rated Capacity Indicating systems. Please contact us with your crane repair and certification needs today.

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Main Line: 706-718-0856

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**P.O. Box 6506
Columbus, GA
31917-6506**

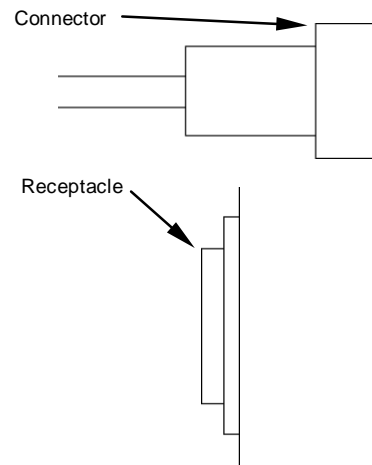
TROUBLESHOOTING / Troubleshooting D

TROUBLESHOOTING D PROCEDURE

If IDU itself or sensors connected to IDU fail, failure codes will be displayed on the monitor window of IDU. If error code is indicated, find a page showing troubleshooting procedures corresponding to an error code from table on the next page, and follow the flowchart for inspection.

Troubleshooting precautions:

- Use a digital voltmeter for measurement of voltage or resistance.
- "Measure XX between A and B" described in the flowchart implies that red tester stick of digital voltmeter is connected to A, and black tester stick to B.
- When measuring, be careful to make connection to connector side and receptacle side correctly.
- Before disconnecting connector, and turn OFF machine starter switch, and turn OFF IDU power.



T331-05-07-001

T331-05-07-002

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FAULT CODE TABLE

Function	Failure	Fault code	Failure explanation	Judgment and conditions	Reference page
Auto stop	Boom angle	E20	Boom angle upper limit failure	Boom angle > Upper limit	T5-6-4
		E21	Boom angle lower limit failure	Boom angle < Lower limit	T5-6-6
	Tower angle	E22	Tower angle upper limit failure	Tower angle > Upper limit	T5-6-4
		E26	Tower angle lower limit failure	Tower angle < Lower limit	T5-6-6
	Jib angle	E30	Jib angle upper limit failure	Jib angle > Upper limit	T5-6-8
		E31	Jib angle lower limit failure	Jib angle < Lower limit	T5-6-10
	Specification selection	E40	No ML data available	No data available corresponding to auto specification selection	T5-6-13
		E43	Mode selection failure (tower)	Crane is selected with tower attachment.	T5-6-13
		E44	Mode selection failure (crane)	Tower is selected with crane attachment.	T5-6-14
		E45	Attachment wiring short circuit	Wiring short circuit in non-disassembly position	T5-6-16
	Loads	E50	Boom/jib derricking force upper limit failure	Boom/jib derricking force > Upper limit	T5-6-18
		E51	Boom/jib no-load derricking force failure	Boom/jib derricking force < No-load criterion	T5-6-20
		E52	Boom/jib derricking force lower limit failure	Boom/jib derricking force < Lower limit	T5-6-22
		E53	Load cell power supply upper limit failure 10 V	power supply monitoring voltage > Upper limit	秘
		E54	Load cell power supply lower limit failure 10 V	power supply monitoring voltage < Lower limit 1	秘
E55		Load cell power supply short circuit failure	10 V power supply monitoring voltage < Lower limit 2	秘	
Monitoring only	Communication	W90	Control A communication failure	MC2/A communication status	T5-6-34
		W91	Control B communication failure	MC2/B communication status	T5-6-35
	Specification selection	W47	Attachment wiring failure (open circuit)	Wiring failure (open circuit) in non-disassembly position	T5-6-26
		W49	Hook overhoist wiring failure	No hook overhoist wiring available on selection side	T5-6-32
	Power supply	W10	Main power supply upper limit failure	Monitoring voltage > Upper limit	秘
		W11	Main power supply lower limit failure	Monitoring voltage < Lower limit	秘
		W14	Switch power supply short circuit failure	24V power supply monitoring voltage < Lower limit 2	秘
		WA1	Switch power supply 1 short circuit (control A)	(Control A) 24V1 power supply monitoring voltage < Lower limit 2	T5-6-36
		WA2	Switch power supply 2 short circuit (control A)	(control A) 24V2 power supply monitoring voltage < Lower limit 2	T5-6-36
		WA3	Switch power supply 3 short circuit (control A)	(Control A) 24V3 power supply monitoring voltage < Lower limit 2	T5-6-36
		WA5	Sensor power supply short circuit (control A)	(Control A) 5V power supply monitoring voltage < Lower limit 2	秘
		WB1	Switch power supply 1 short circuit (control B)		秘
		WB2	Switch power supply 2 short circuit (control B)	(Control B) 24V2 power supply monitoring voltage < Lower limit 2	T5-6-37
		WB3	Switch power supply supply 3 short circuit (control B)	(Control B) 24V3 power supply monitoring voltage < Lower limit 2	T5-6-38
		WB5	Sensor power supply short circuit (control B)	(Control B) 5V power supply monitoring voltage < Lower limit 2	秘
	Control system	W80	(Corresponding to new version)		秘
		W81	(Corresponding to new version)		秘
		W82	(Corresponding to new version)		秘
		W83	(Corresponding to new version)		秘
		W84	(Corresponding to new version)		秘
W88		(Corresponding to new version)		秘	
	W89	(Corresponding to new version)		秘	

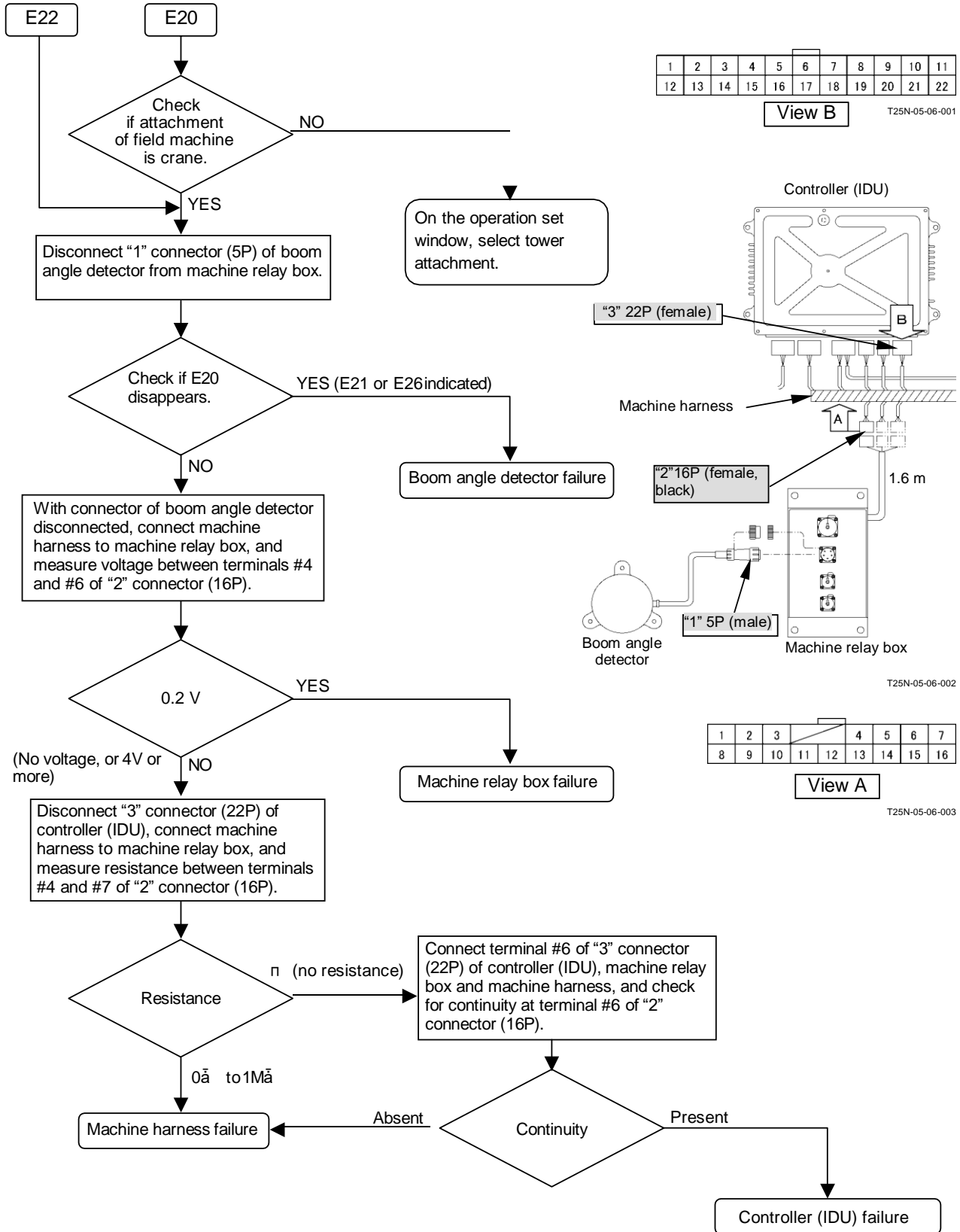
TROUBLESHOOTING / Troubleshooting D

Failure Indication (Title Bar)

Function	Failure	Fault code	Failure indication (title bar)
			Red: Auto stop Orange: Monitoring and warning
Auto stop	Boom angle	E20	E20: Boom angle is abnormal
		E21	E21: Boom angle is abnormal
	Angle	E27	E27: Angle failure (open circuit)
	Tower angle	E22	E22: Tower angle is abnormal
		E26	E26: Tower angle is abnormal
	Jib angle	E30	E30: Jib angle is abnormal
		E31	E31: Jib angle is abnormal
		E37	E37: Jib angle wiring failure (open circuit)
	Specification selection	E40	E40: No data available
		E43	E43: Tower selection
		E44	E44: Crane selection
		E45	E45: Cable reel short circuit
	Loads	E50	E50: Load cell failure
		E51	E51: Rope tension failure
		E52	E52: Load cell failure
		E53	E53: Load cell power supply failure
		E54	E54: Load cell power drop
		E55	E55: Load cell power supply short circuit
	Monitor-Communication only	Communication	W90
W91			W91: Communication B failure
Angle wiring		W38	W38: Jib angle wiring failure (open circuit)
Specification selection		W47	W47: Cable reel failure (open circuit)
		W48	W48: Counterweight detection failure
		W49	W49: Hook overhoist wiring failure
Power supply		W10	W10: Power supply voltage failure
		W11	W11: Power supply voltage drop
		W14	W14: Sensor power supply short circuit(24V)
		WA1	WA1: Sensor power supply short circuit(24V1A)
		WA2	WA2: Sensor power supply short circuit (24V2A)
		WA3	WA3: Sensor power supply short circuit (24V3A)
		WA5	WA5: Sensor power supply short circuit (5VA)
		WB1	WB1: Sensor power supply short circuit (24V1B)
		WB2	WB2: Sensor power supply short circuit (24V2B)
		WB3	WB3: Sensor power supply short circuit (24V3B)
		WB5	WB5: Sensor power supply short circuit (5VB)
Control system		W80	W80: Engine control system failure
		W81	W81: Horsepower control system failure
	W82	W82: Brake control system failure	
	W83	W83: Slew control system failure	
	W84	W84: Operating pressure detection failure	
	W88	W88: Auto stop control system failure	
W89	W89: Speed control system failure		

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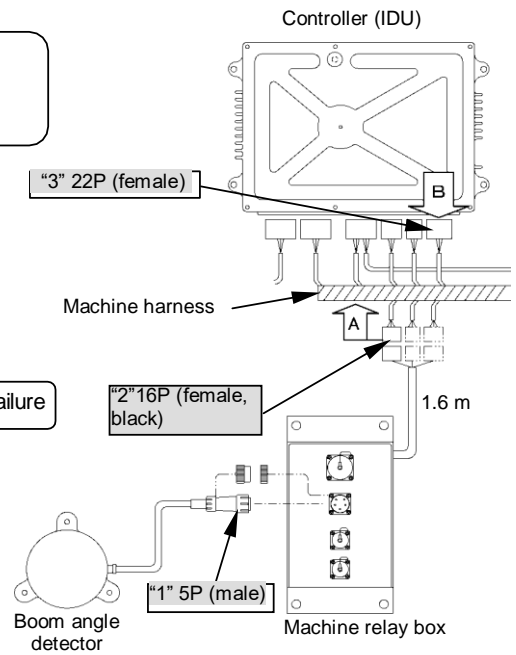
FAULT CODE E20, E22



1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

View B

T25N-05-06-001



T25N-05-06-002

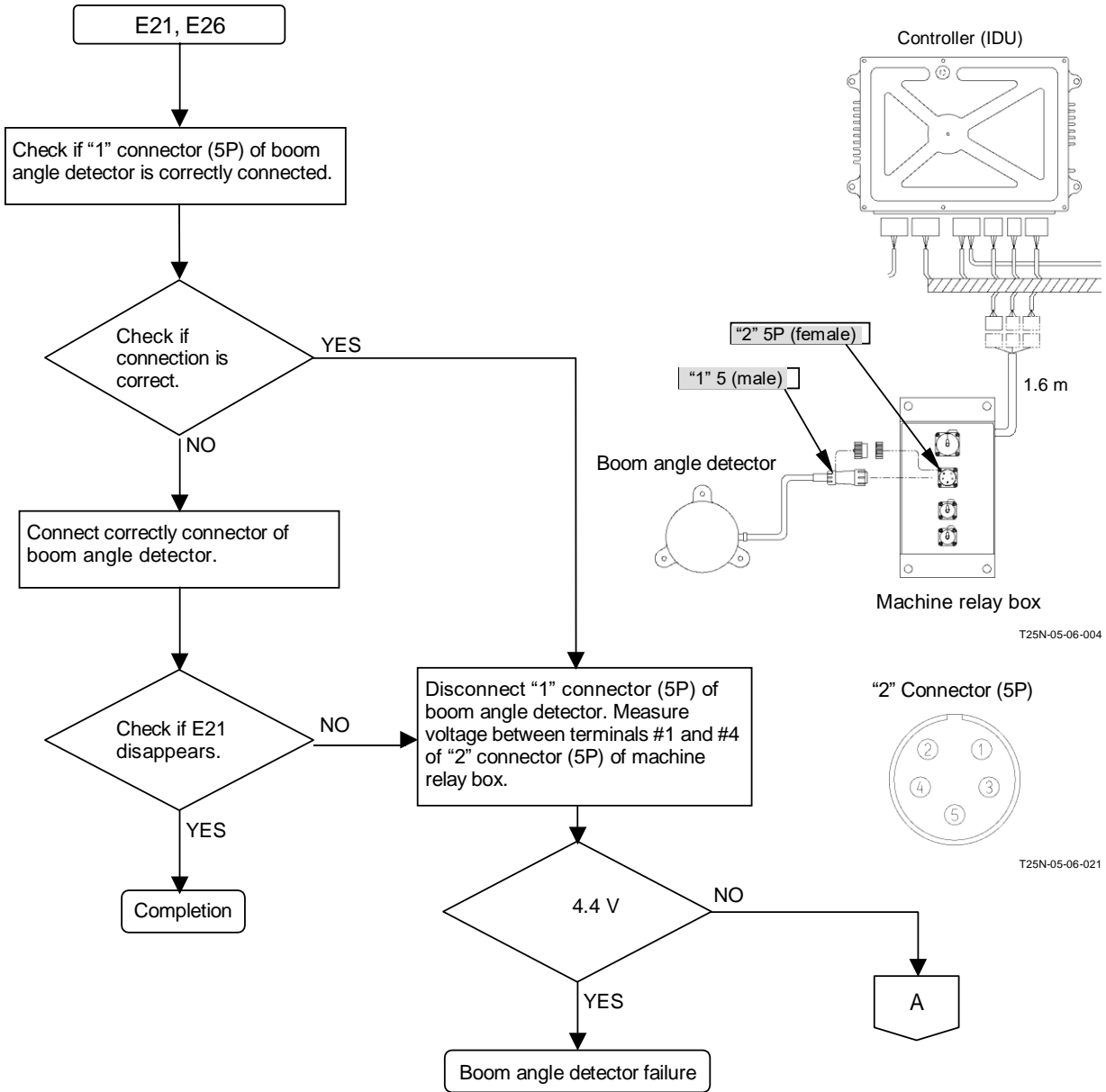
1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

View A

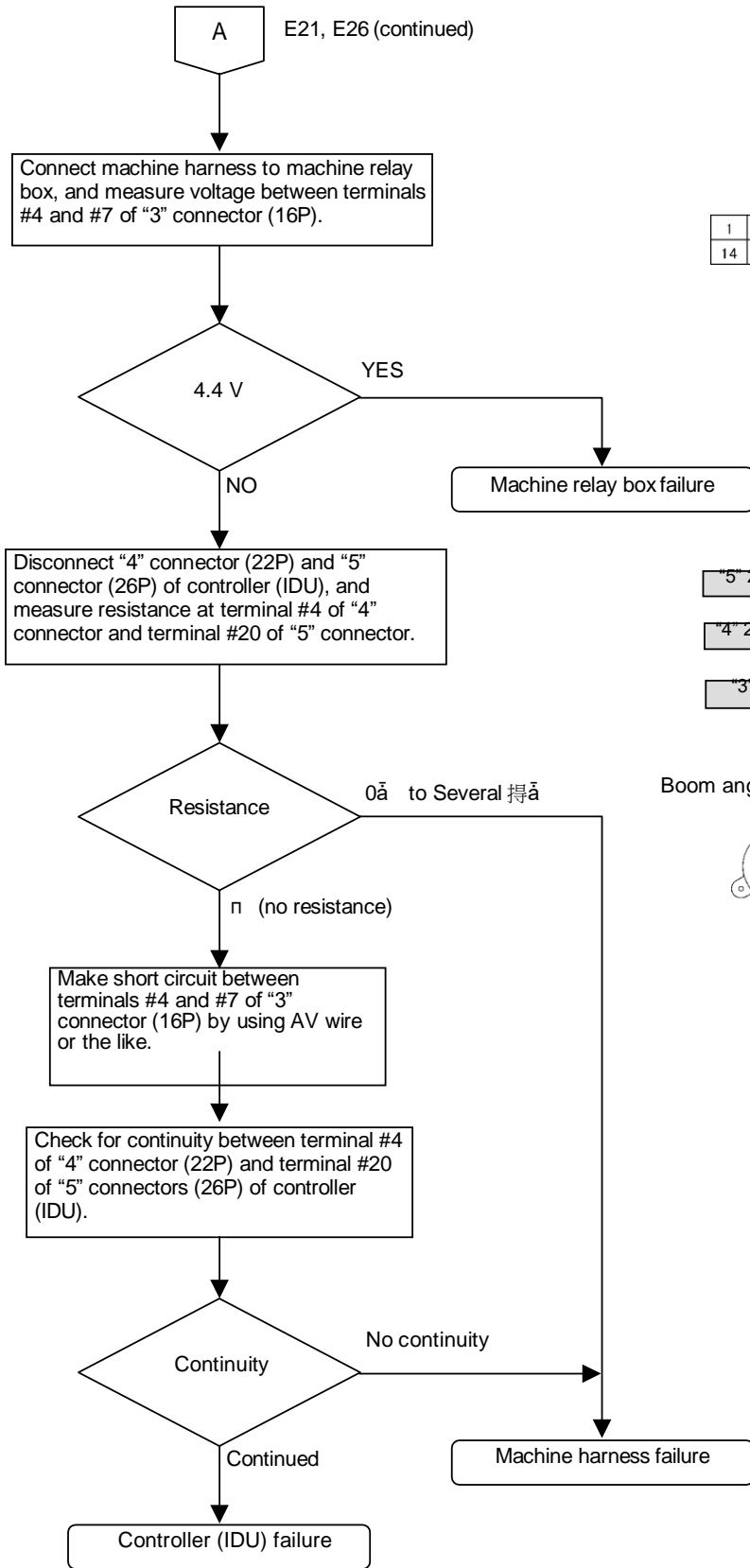
T25N-05-06-003

TROUBLESHOOTING / Troubleshooting D

FAULT CODE E21, E26



TROUBLESHOOTING / Troubleshooting D



1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

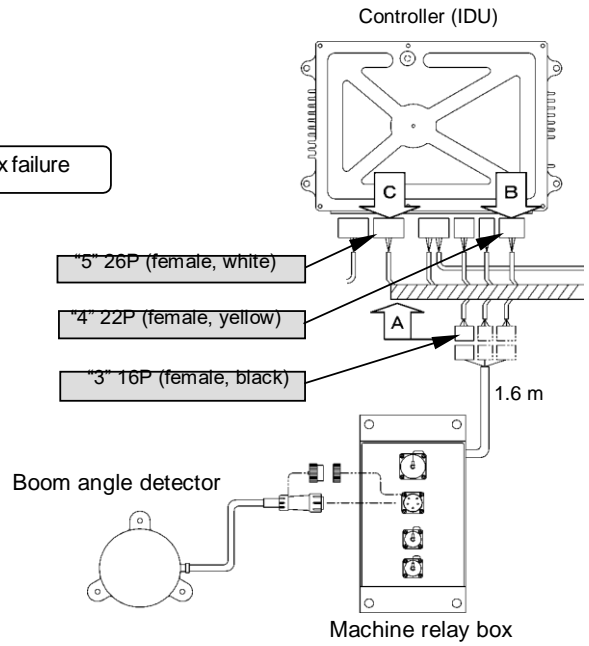
View B

T25N-05-06-001

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26

View C

T25N-05-06-005



T25N-05-06-006

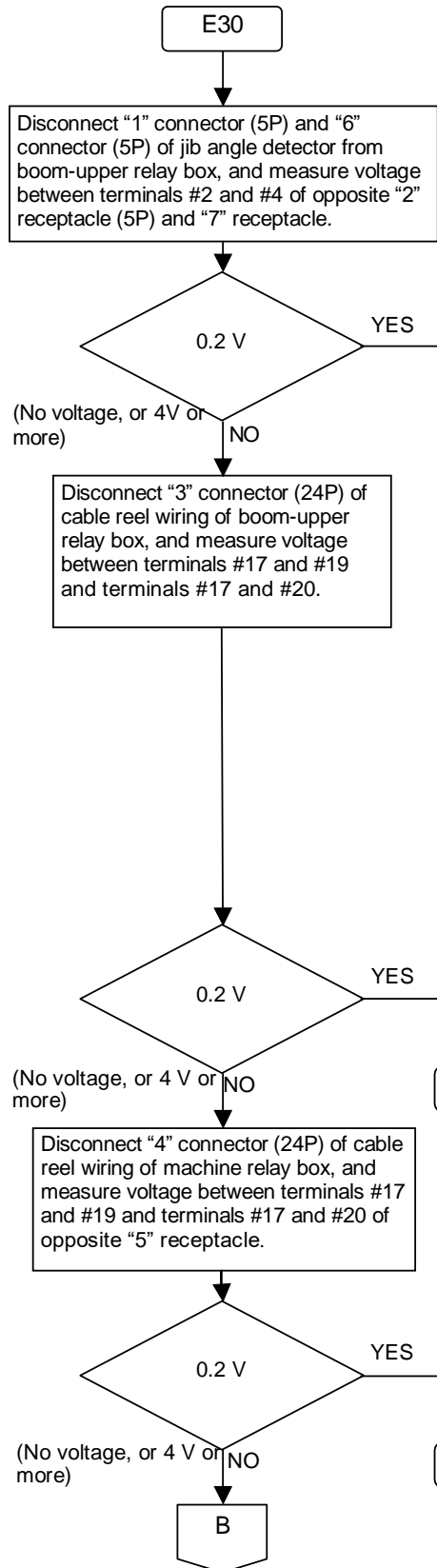
1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

View A

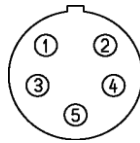
T25N-05-06-003

TROUBLESHOOTING / Troubleshooting D

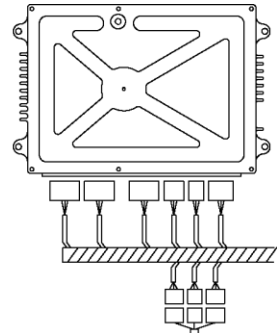
FAULT CODE E30



"1", "6" Connectors (5P)

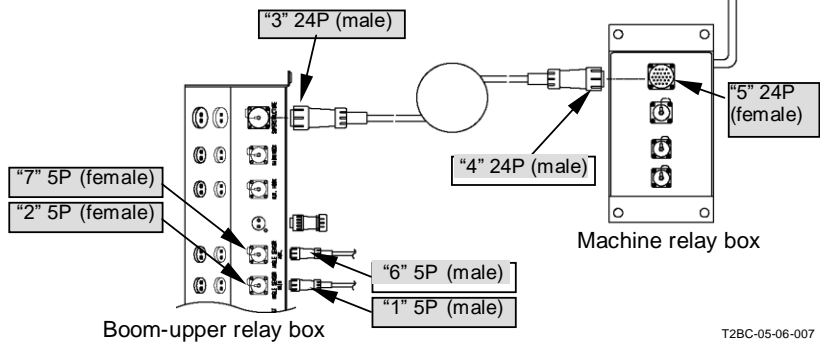


T2BC-05-06-004

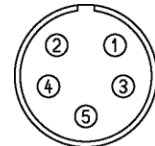


Machine relay box

T2BC-05-06-007

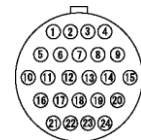


"2", "7" Receptacles (5P)



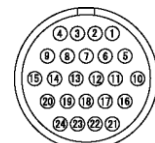
T2BC-05-06-003

"3", "4" Connectors (24P)



T2BC-05-06-002

"5" Receptacle (24P)



T2BC-05-06-001

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B E30 (continued)

Connect machine harness to machine relay box, and measure voltage between terminals #2 and #4 and terminals #1 and #4 of "8" connector (12P).

0.2 V

(No voltage, or 4 V or more)

Machine relay box failure

Disconnect "9" connector (22P) and "10" connector (26P) of controller (IDU), and measure resistance between terminal #4 of "9" connector (22P) and terminals #19, #7 of "10" connector (26P).

Resistance 0Ω to Several $M\Omega$

Check for continuity between terminal #4 of "8" connector (12P) and terminal #6 of "9" connector (22P).

Continuity

Controller (IDU) failure

Machine harness failure

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26

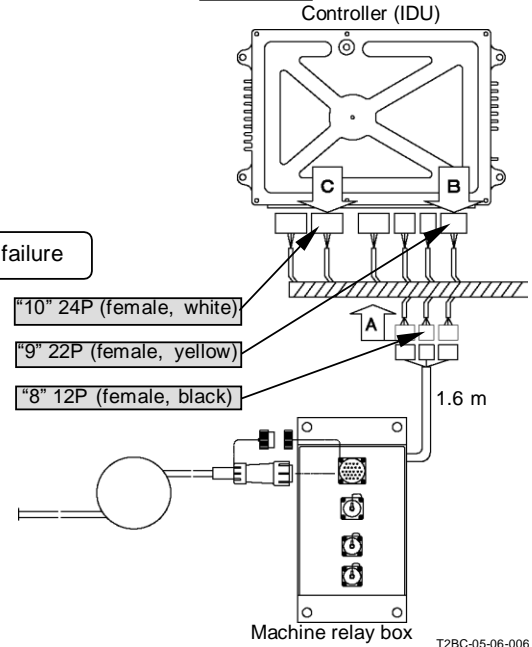
View C

T25N-05-06-005

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

View B

T25N-05-06-001



T2BC-05-06-006

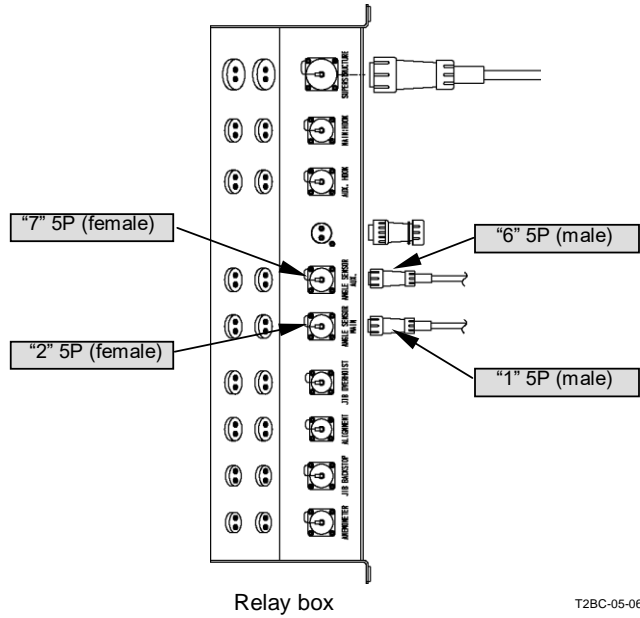
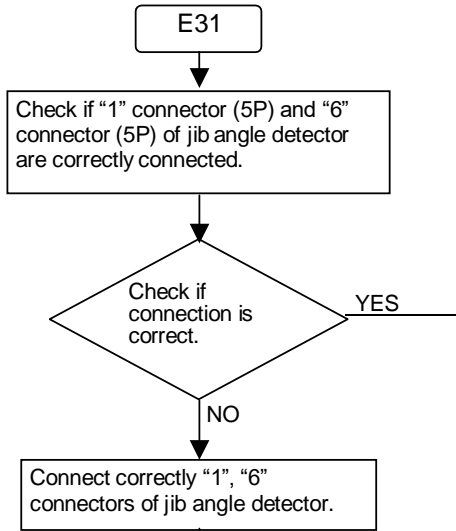
1	2	3	4	5
6	7	8	9	10
11	12			

View A

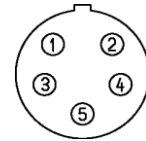
T2BC-05-06-005

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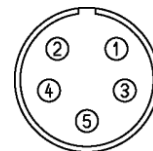
FAULT CODE E31



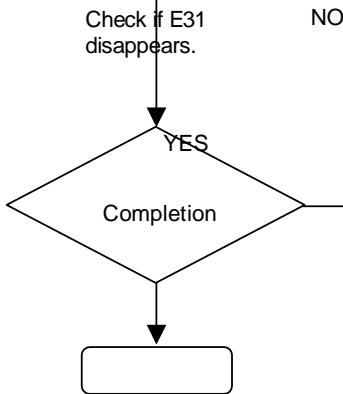
"1", "6" Connectors (5P)



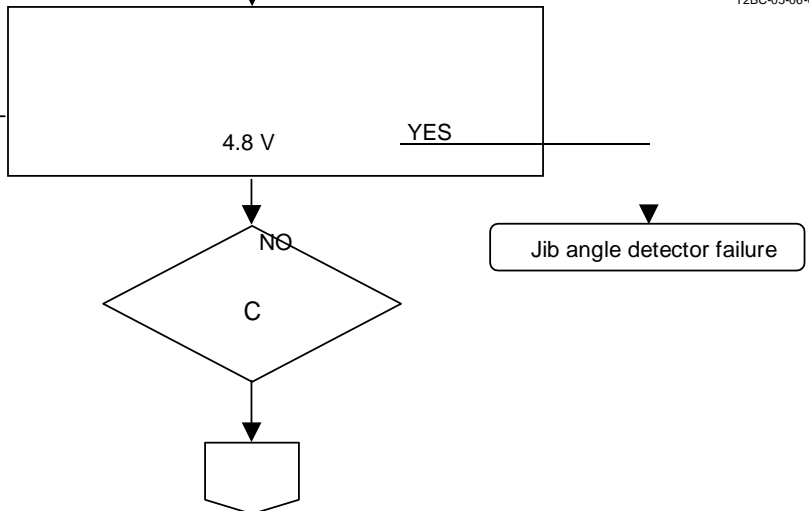
"2", "7" Receptacles (5P)



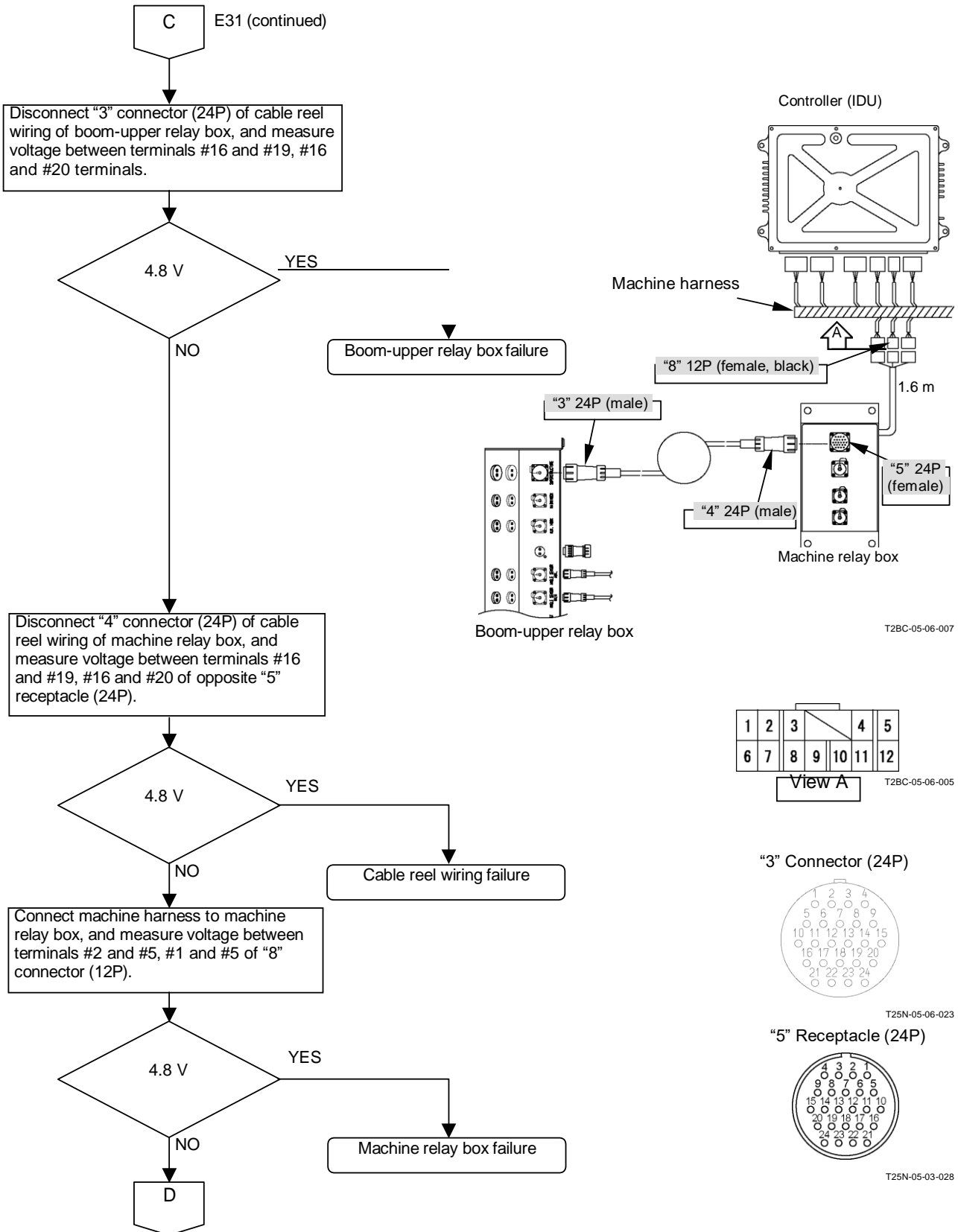
Connect correctly "1", "6" connectors of jib angle detector.



Disconnect "1" connector (5P) and "6" connector (5P) of jib angle detector.
 Measure voltage between terminals #1 and #4 of "2" receptacle (5P) and "7" receptacle (5P) opposite to "1" connector (5P) and "6" connector (5P) of jib angle detector respectively.



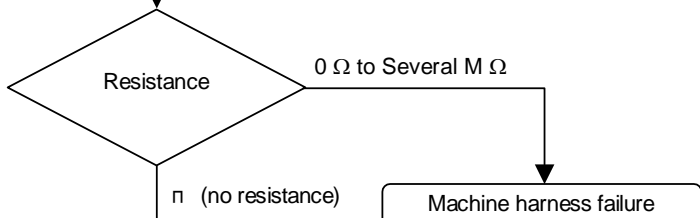
TROUBLESHOOTING / Troubleshooting D



TROUBLESHOOTING / Troubleshooting D

D
E31 (continued)

With "8" connector (12P) disconnected, disconnect "10" connector (26P) and "9" connector (22P) of controller (IDU). Measure resistance between terminal #4 of "9" connector (22P) and terminal #7 of "10" connector (26P), terminal #4 of "9" connector (22P) and terminal #19 of "10" connector (26P).



Machine harness failure

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

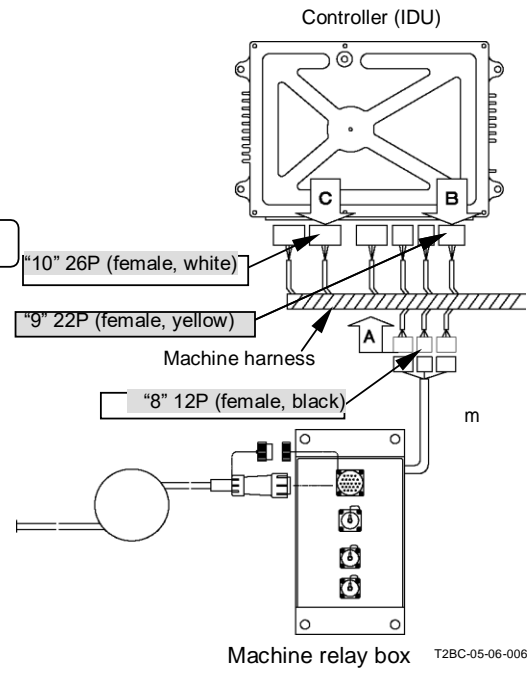
View B

T25N-05-06-001

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14	15	16	17	18	19	20	21	22	23	24	25	26

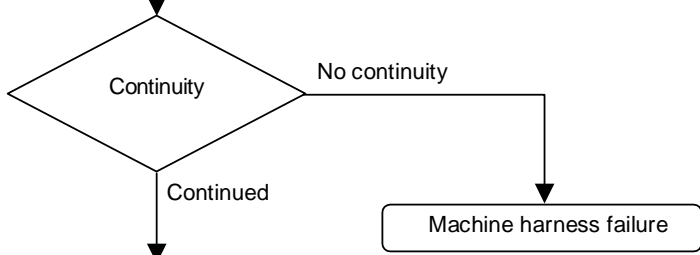
View C

T25N-05-06-005



T25C-05-06-006

Disconnect "10" connector (26P) of controller (IDU). Check for continuity between terminals #19 and #2 of "8" connector (12P). Check for continuity between terminal #7 of "10" connector (26P) and terminal #1 of "8" connector (12P).



Machine harness failure

Controller (IDU) failure

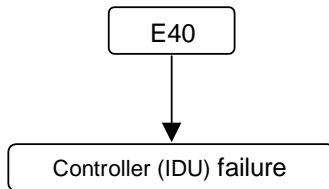
1	2	3	4	5
6	7	8	9	10
11	12			

View A

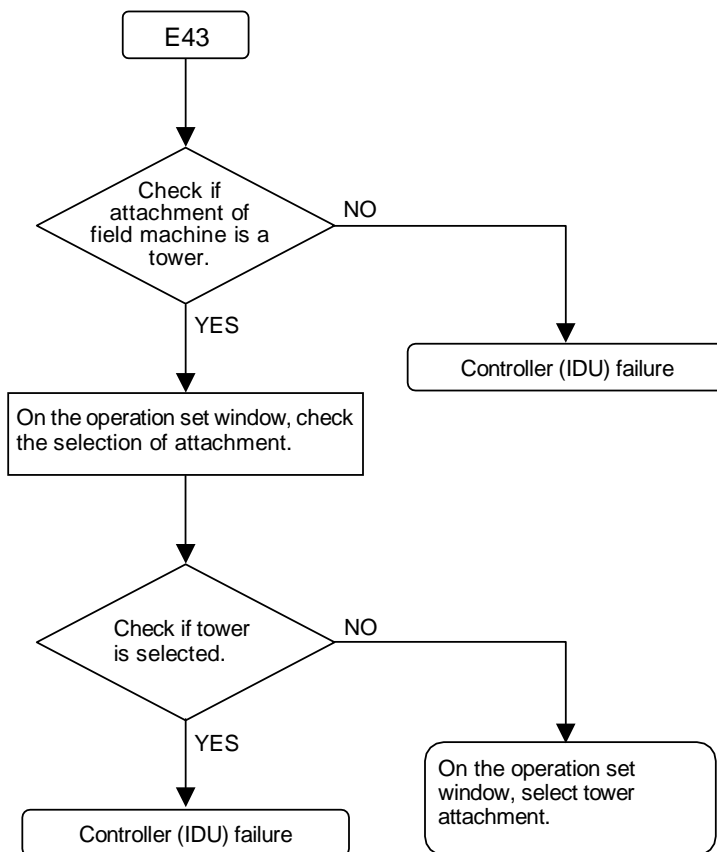
T25C-05-06-005

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FAULT CODE E40

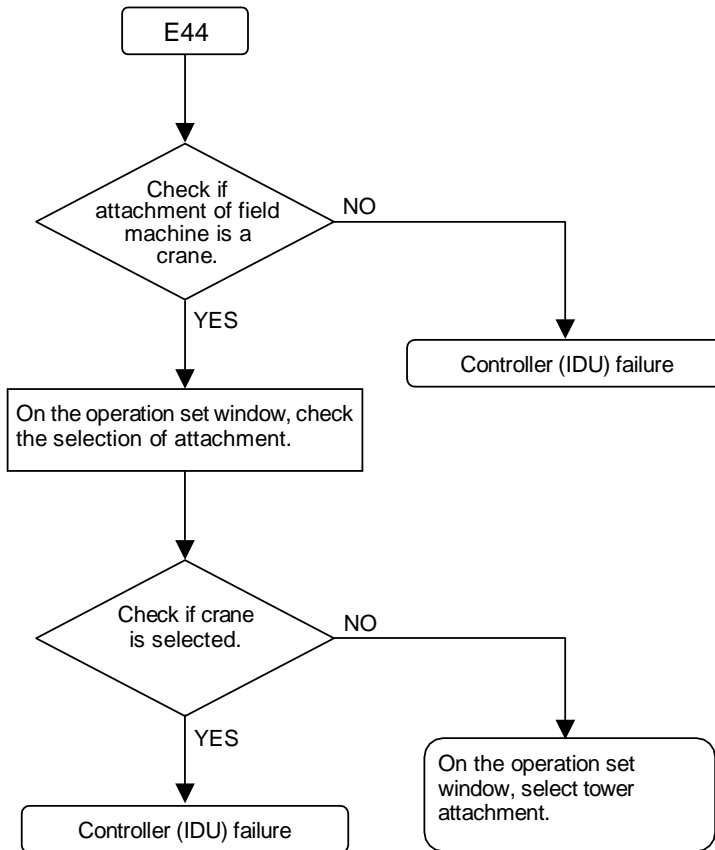


FAULT CODE E43



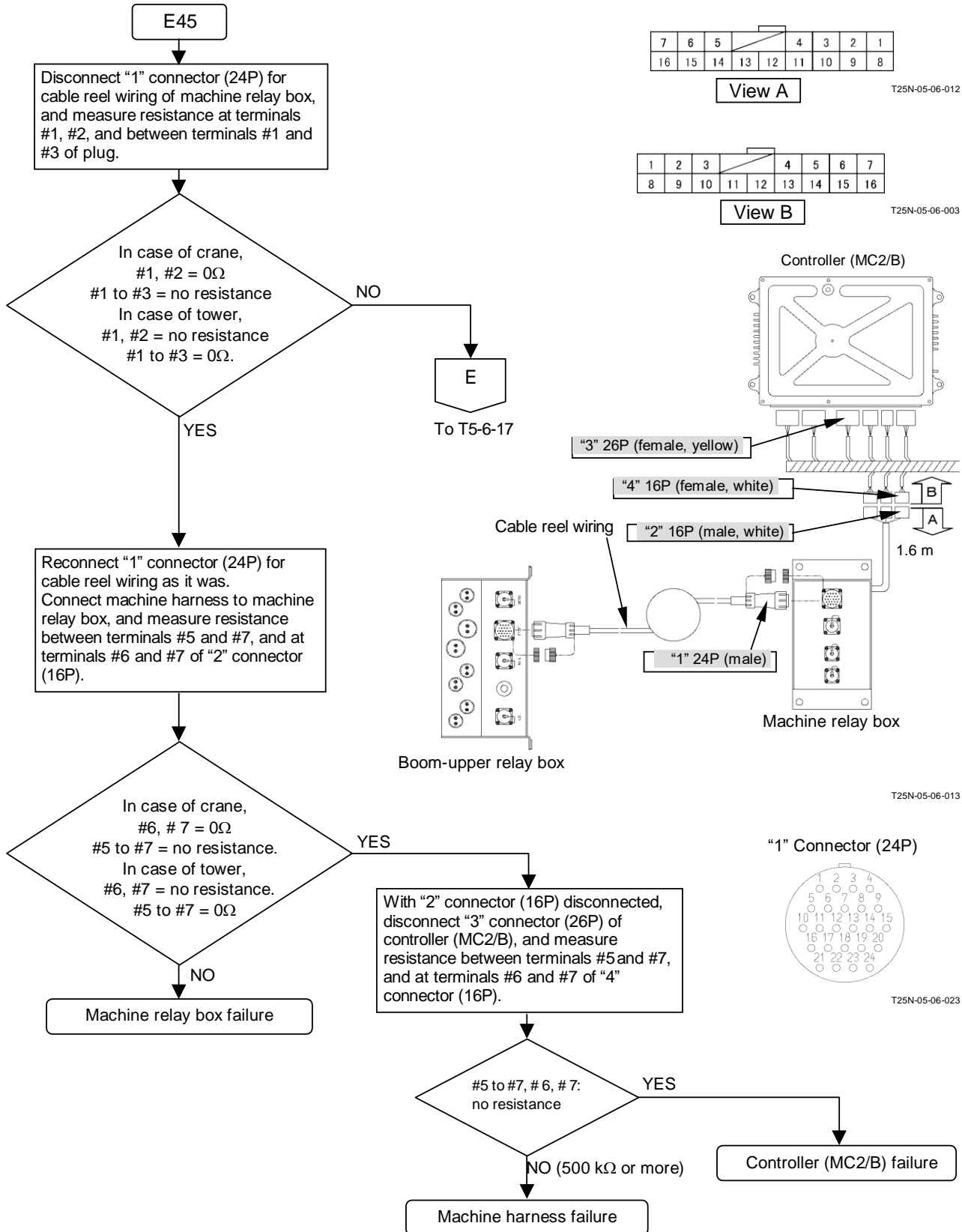
TROUBLESHOOTING / Troubleshooting D

FAULT CODE E44

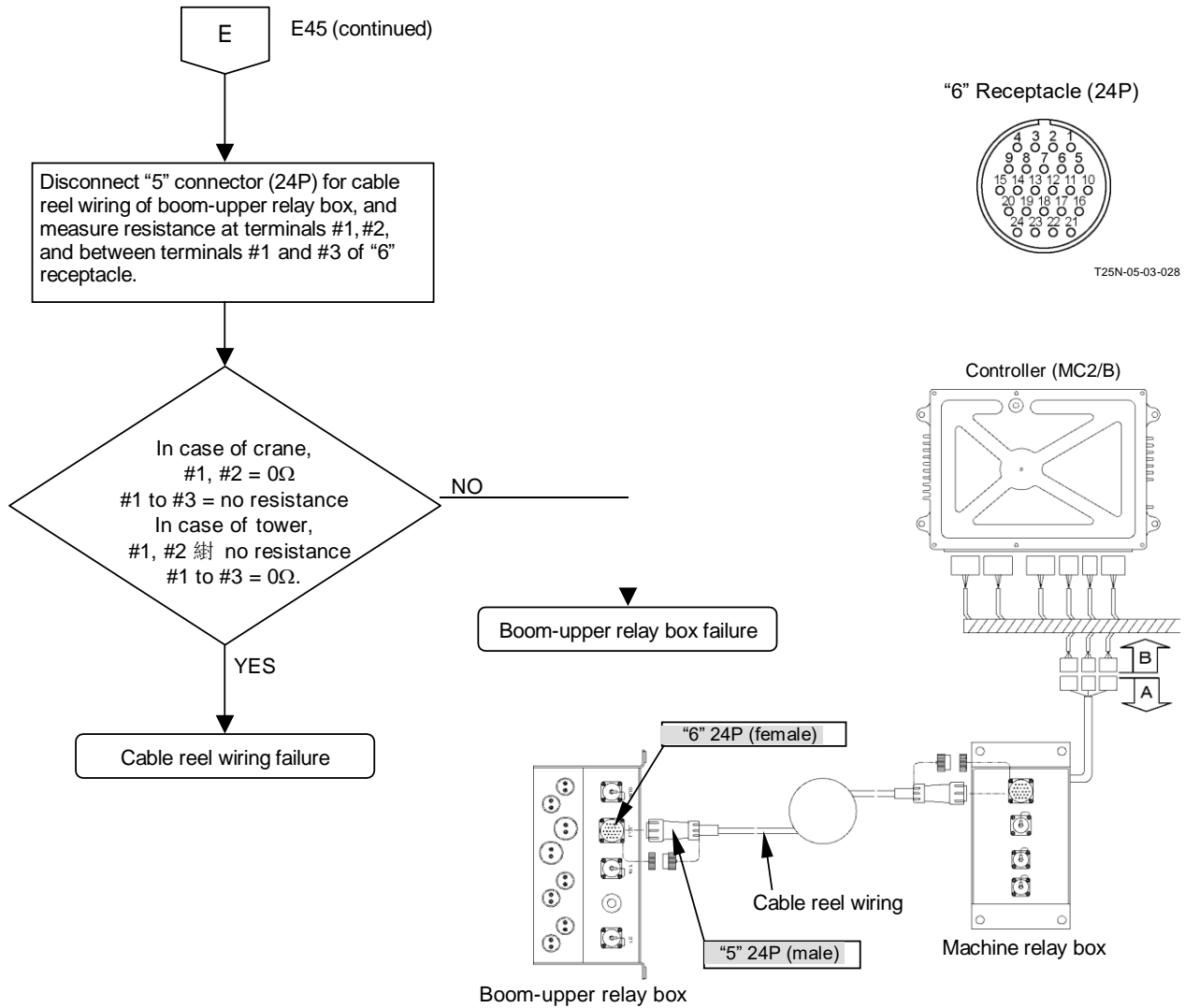


TROUBLESHOOTING / Troubleshooting D

FAULT CODE E45

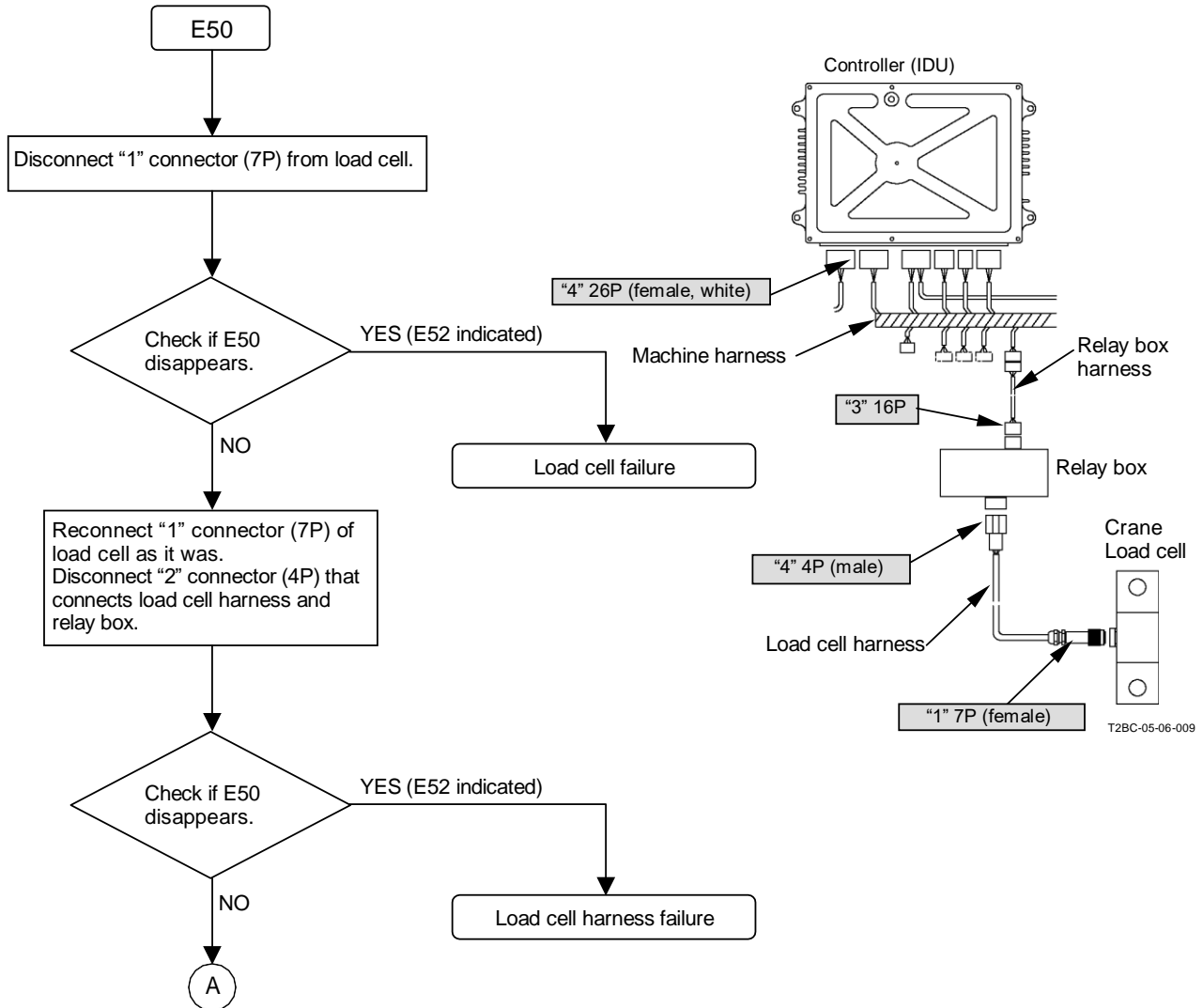


TROUBLESHOOTING / Troubleshooting D

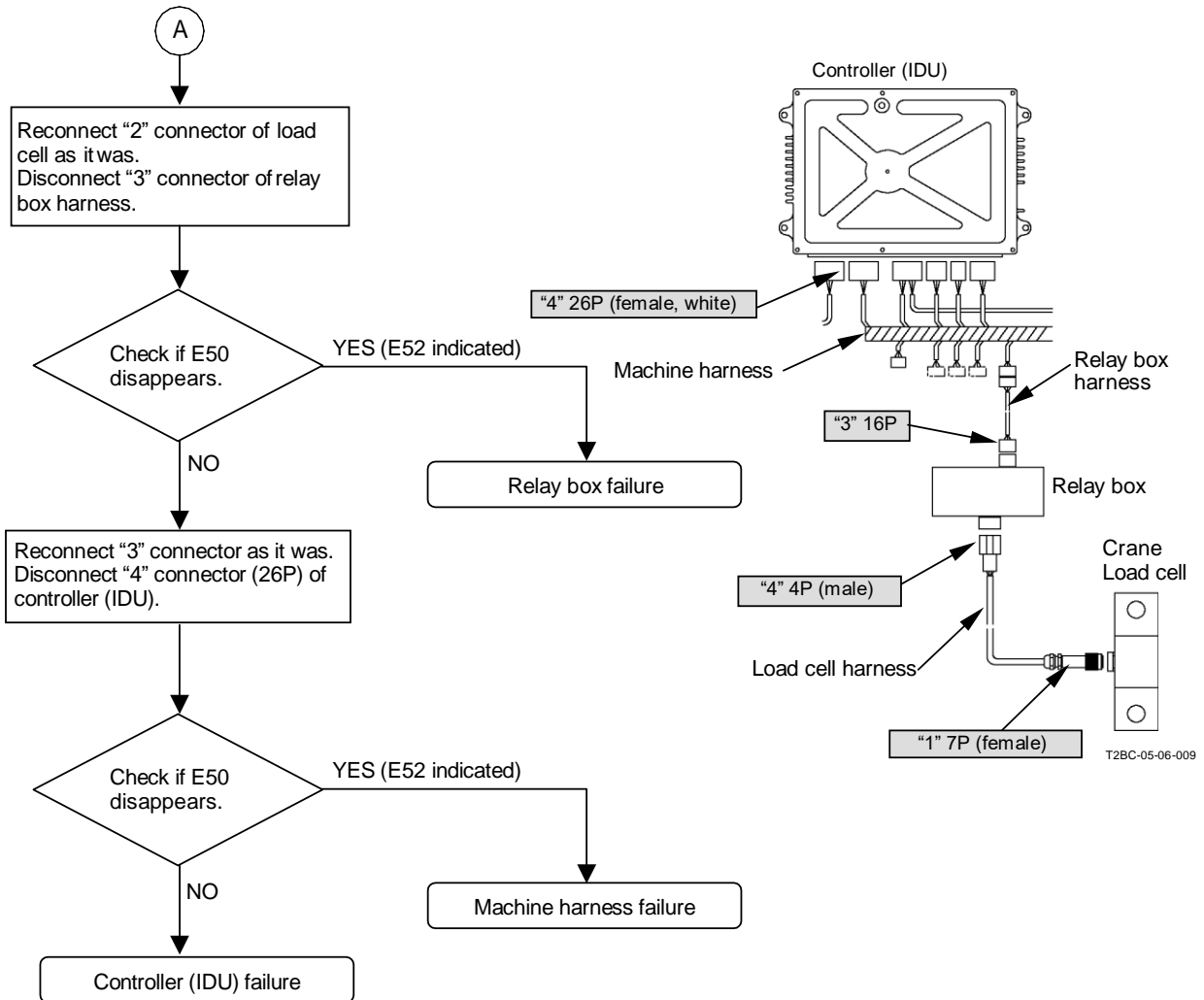


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FAULT CODE E50 (CRANE)

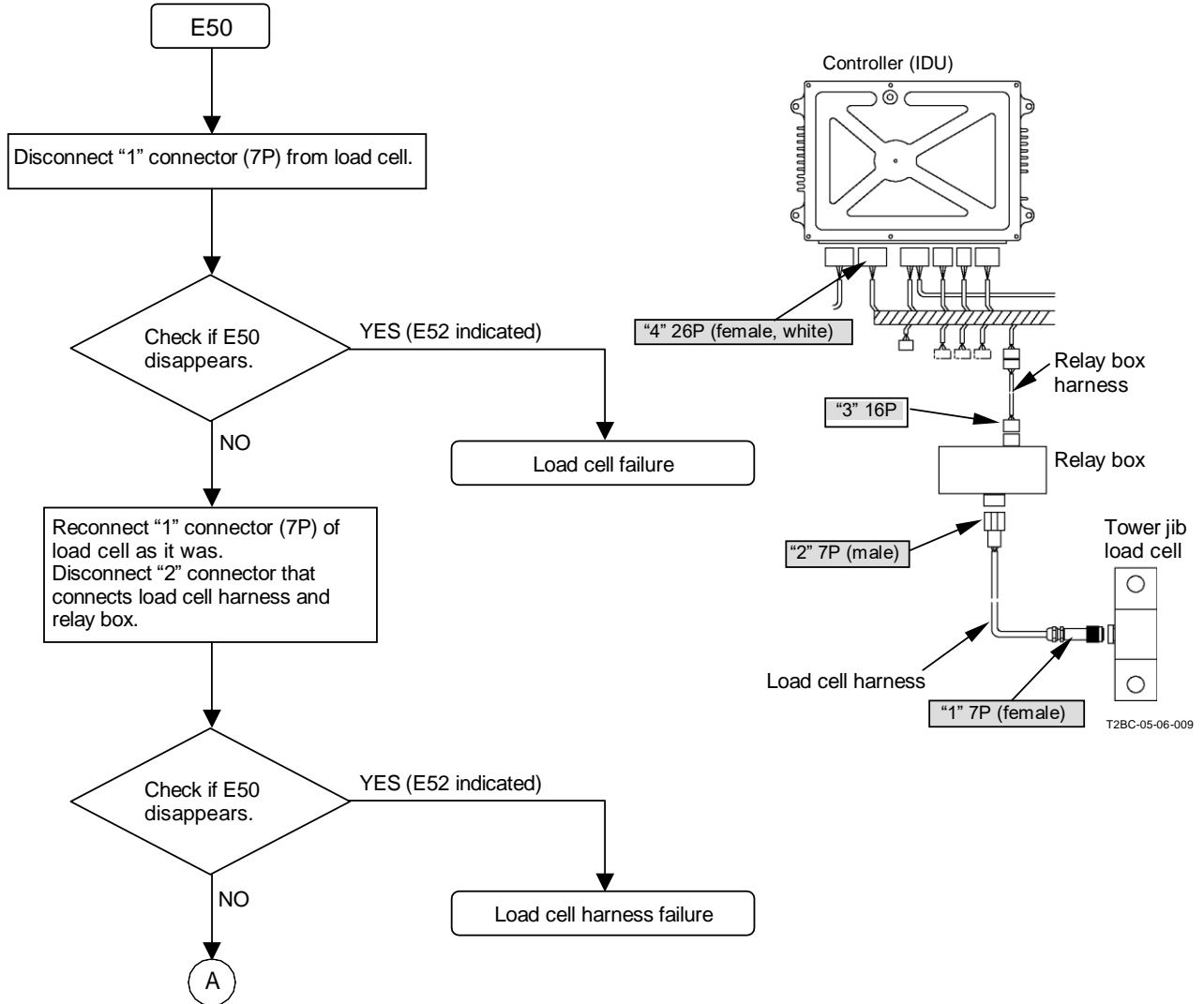


TROUBLESHOOTING / Troubleshooting D



TROUBLESHOOTING / Troubleshooting D

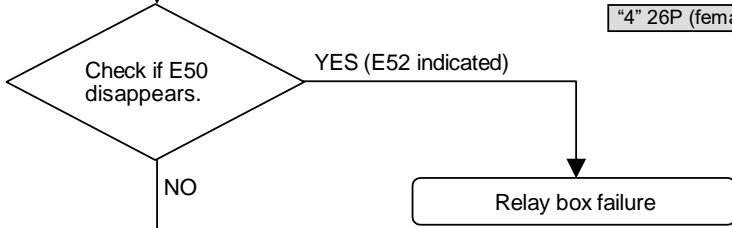
FAULT CODE E50 (TOWER)



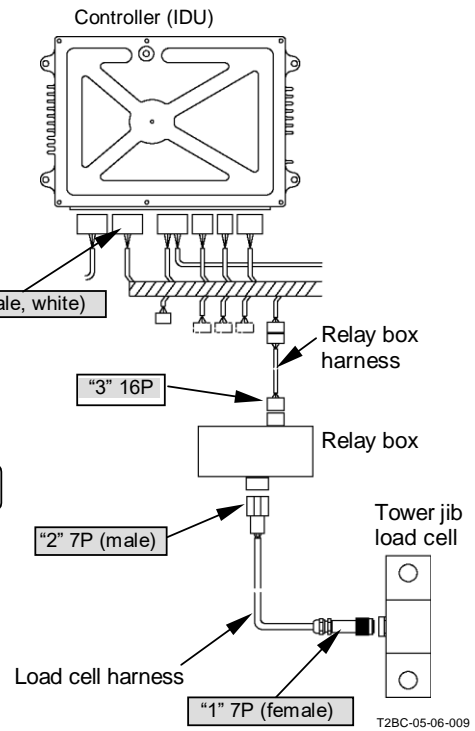
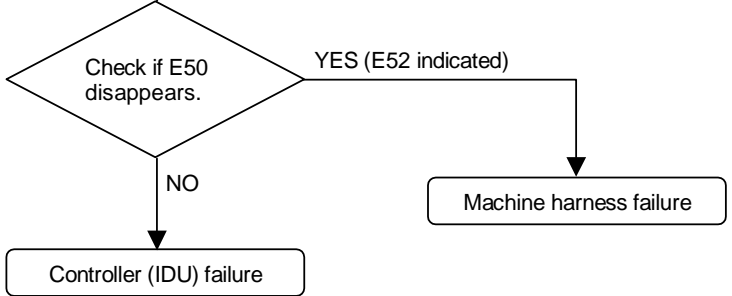
TROUBLESHOOTING / Troubleshooting D

A

Reconnect "2" connector of load cell as it was. Disconnect "3" connector of relay box harness.

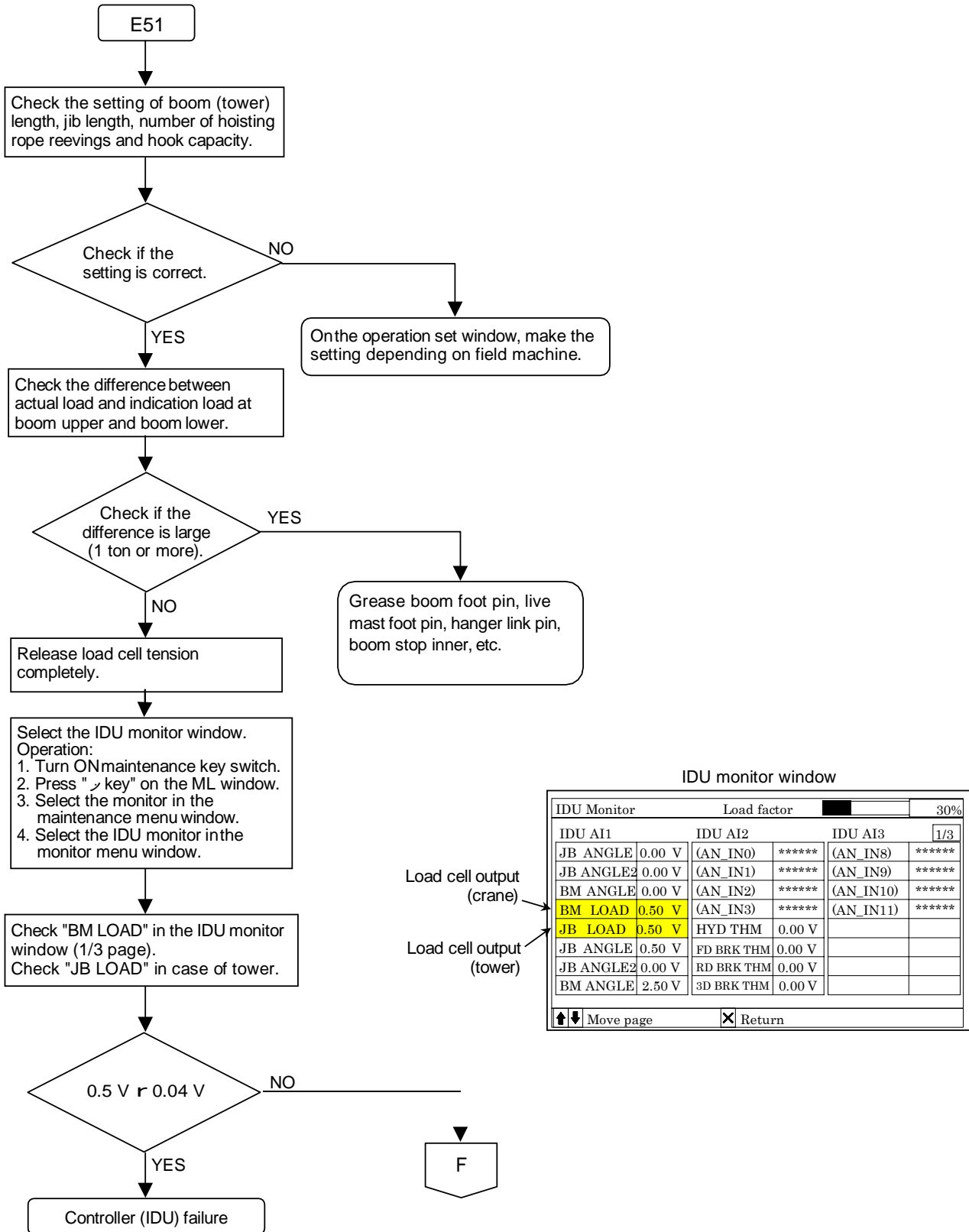


Reconnect "3" connector as it was. Disconnect "4" connector (26P) of connector (IDU).



TROUBLESHOOTING / Troubleshooting D

FAULT CODE E51



IDU monitor window

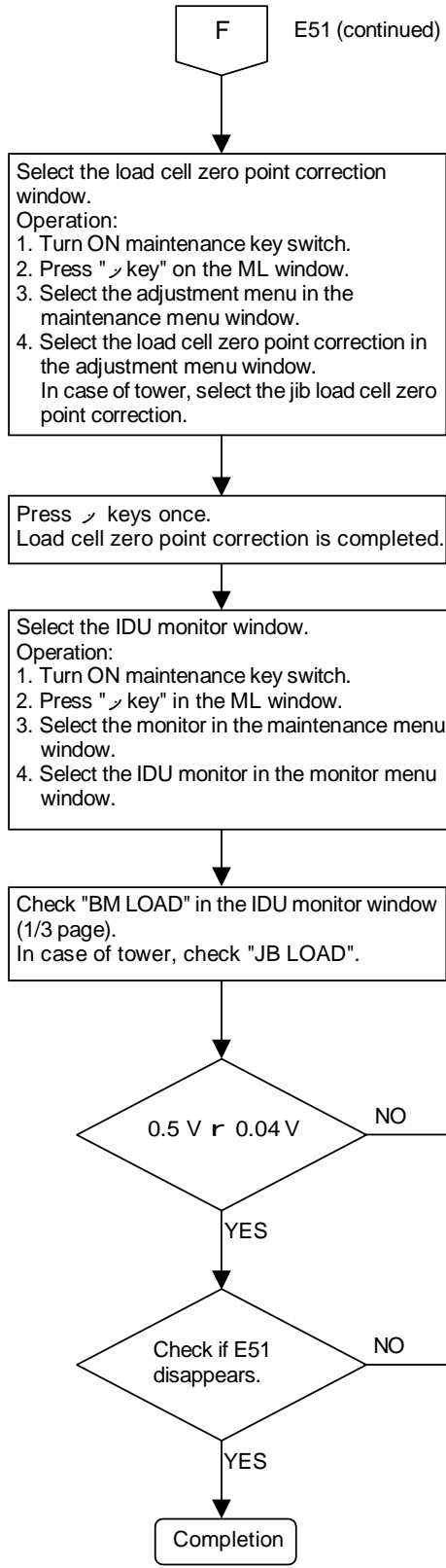
IDU Monitor		Load factor		30%	
IDU AI1	IDU AI2	IDU AI3	1/3		
JB ANGLE	0.00 V	(AN_IN0)	*****	(AN_IN8)	*****
JB ANGLE2	0.00 V	(AN_IN1)	*****	(AN_IN9)	*****
BM ANGLE	0.00 V	(AN_IN2)	*****	(AN_IN10)	*****
BM LOAD	0.50 V	(AN_IN3)	*****	(AN_IN11)	*****
JB LOAD	0.50 V	HYD THM	0.00 V		
JB ANGLE	0.50 V	FD BRK THM	0.00 V		
JB ANGLE2	0.00 V	RD BRK THM	0.00 V		
BM ANGLE	2.50 V	3D BRK THM	0.00 V		

⬆️⬆️ Move page ⓧ Return

Load cell output (crane) →

Load cell output (tower) →

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Load cell zero point correction window

Load cell zero point correction Load factor		30%
Load cell output voltage	0.538	
Corrected output voltage	0.008	
Standard correction voltage	0.508	
Correctable voltage range	0.208	
<p>Detach the load cell from the hoist rope to completely eliminate the load ratio from the load cell. After detaching the load cell, press <START> key. Pay attention. Dont disconnect the connector from the load cell.</p>		
<input checked="" type="checkbox"/> Cancel		<input checked="" type="checkbox"/> Start

Load cell zero point correction completion window

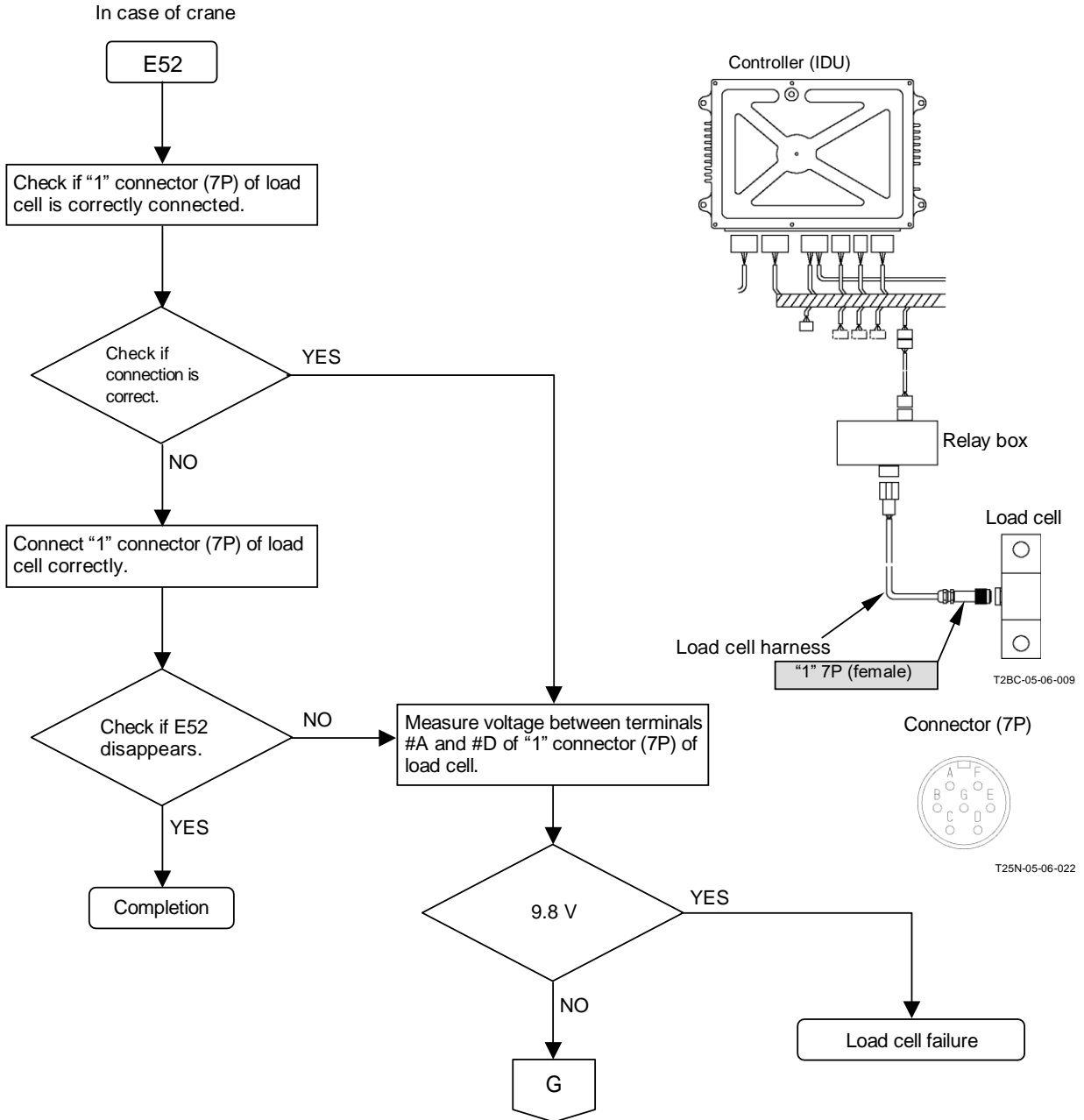
Load cell zero point correction Load factor		30%
Load cell output voltage	0.538	
Corrected output voltage	0.008	
Standard correction voltage	0.508	
Correctable voltage range	0.208	
<p>Detach the load cell from the hoist rope to completely eliminate the load ratio from the load cell. After detaching the load cell, press <START> key. Pay attention. Dont disconnect the connector from the load cell.</p>		
<input checked="" type="checkbox"/> Cancel		<input checked="" type="checkbox"/> Start

IDU monitor window

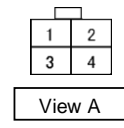
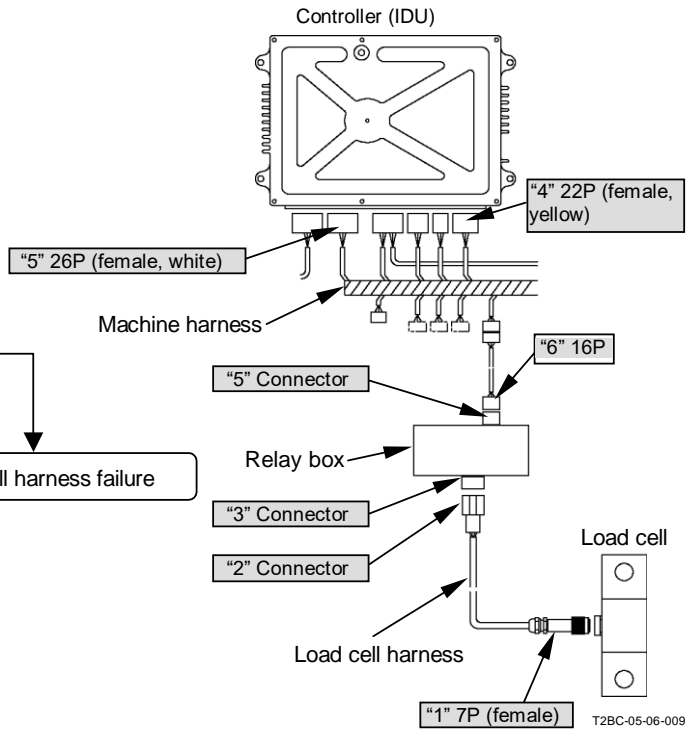
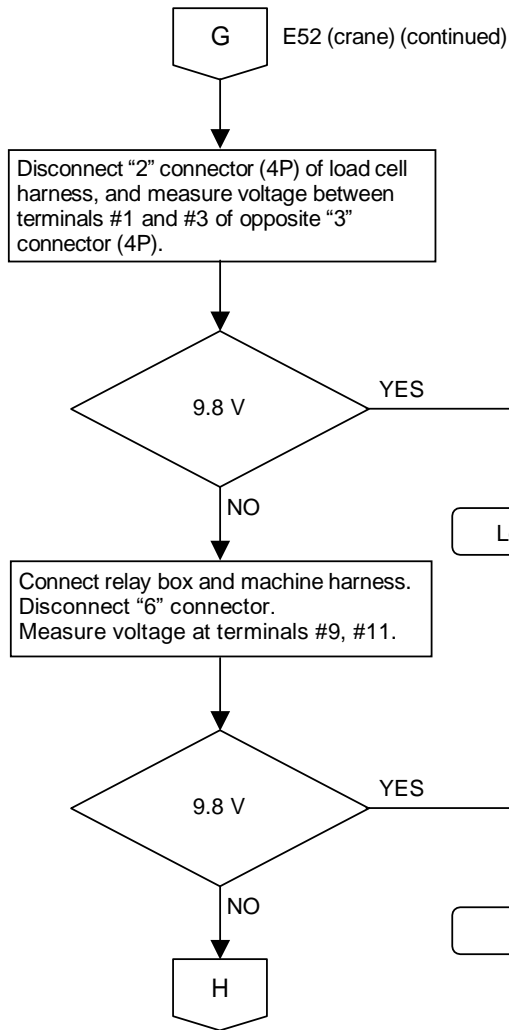
IDU Monitor		Load factor		30%
IDU AI1	IDU AI2	IDU AI3	1/3	
JB ANGLE 0.00 V	(AN_IN0) *****	(AN_IN8) *****		
JB ANGLE2 0.00 V	(AN_IN1) *****	(AN_IN9) *****		
BM ANGLE 0.00 V	(AN_IN2) *****	(AN_IN10) *****		
BM LOAD 0.50 V	(AN_IN3) *****	(AN_IN11) *****		
JB LOAD 0.50 V	HYD THM 0.00 V			
JB ANGLE 0.50 V	FD BRK THM 0.00 V			
JB ANGLE2 0.00 V	RD BRK THM 0.00 V			
BM ANGLE 2.50 V	3D BRK THM 0.00 V			
Load cell output (crane) → Load cell output (tower) →				
<input type="button" value="Move page"/>		<input checked="" type="button" value="Return"/>		

TROUBLESHOOTING / Troubleshooting D

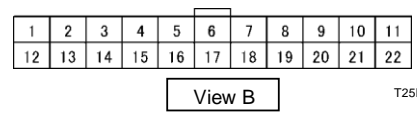
FAULT CODE E52



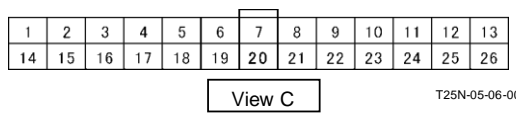
TROUBLESHOOTING / Troubleshooting D



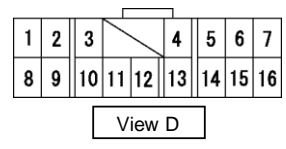
T25N-05-06-020



T25N-05-06-001

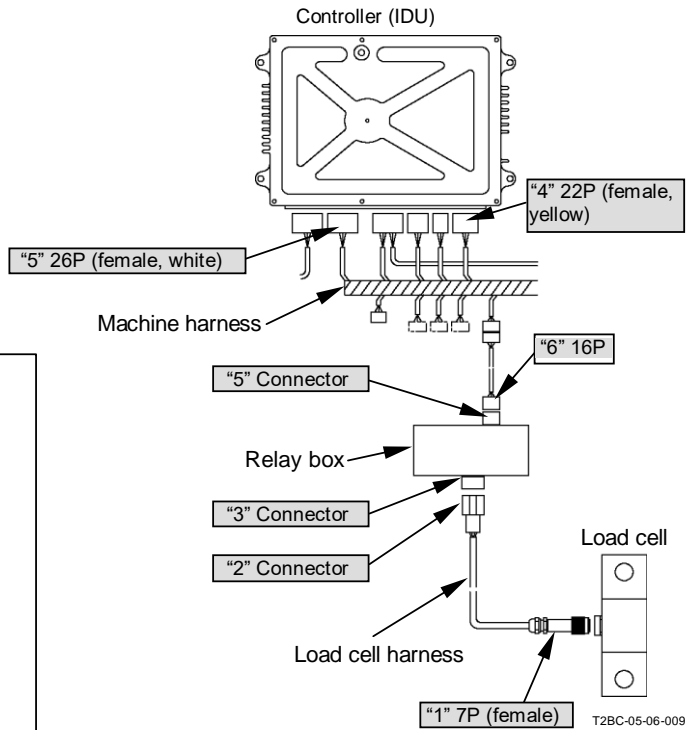
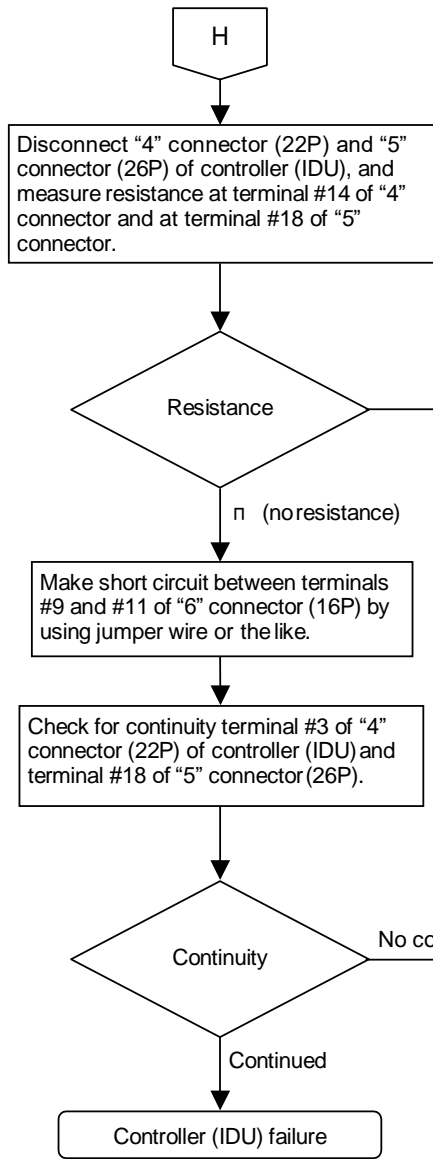


T25N-05-06-005

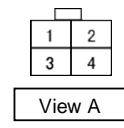


T25N-05-06-010

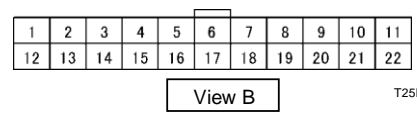
TROUBLESHOOTING / Troubleshooting D



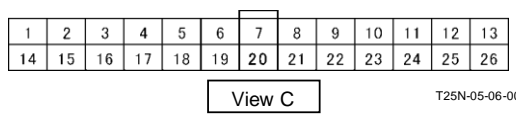
T2BC-05-06-009



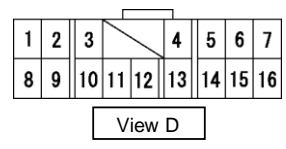
T25N-05-06-020



T25N-05-06-001

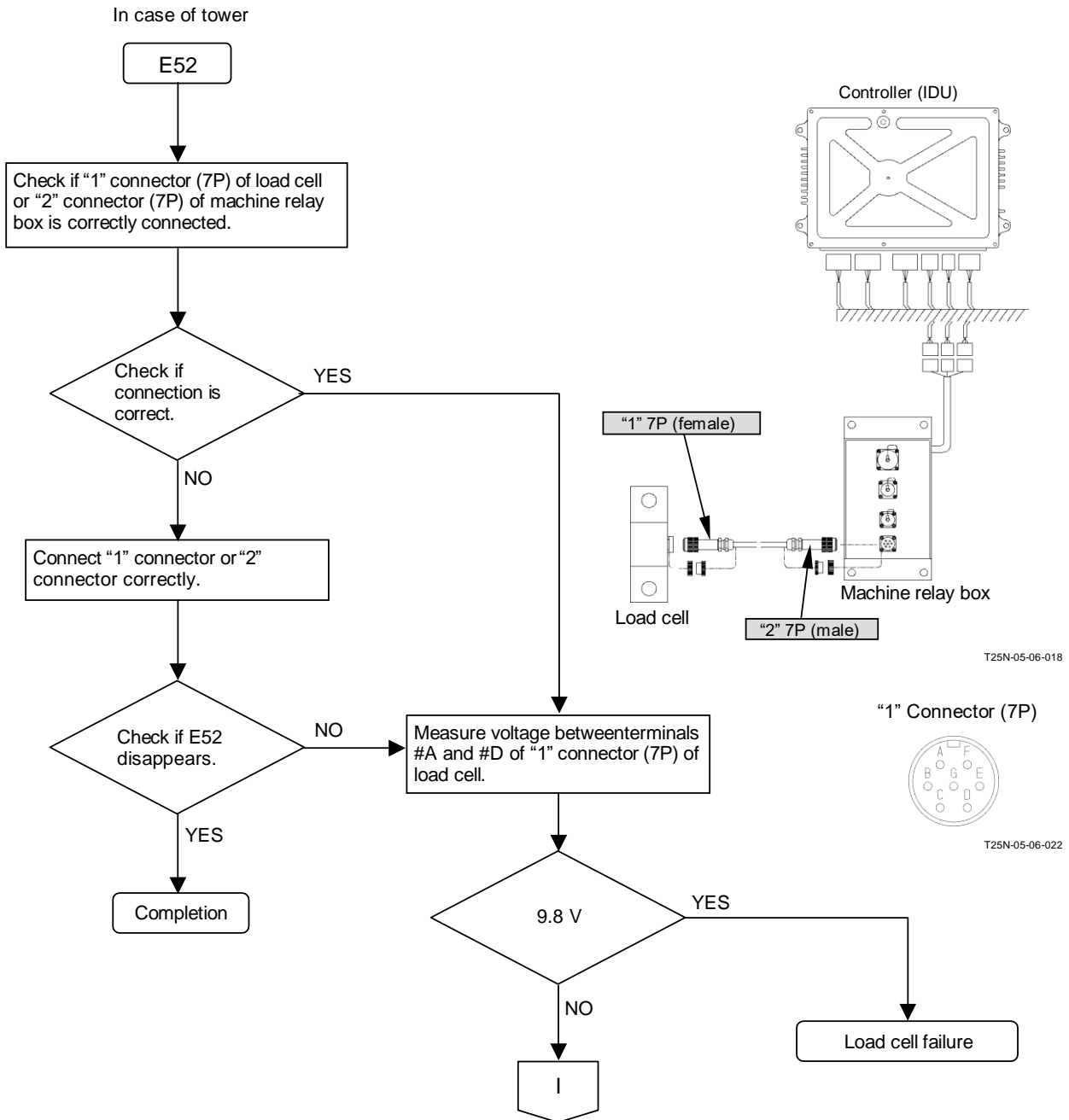


T25N-05-06-005

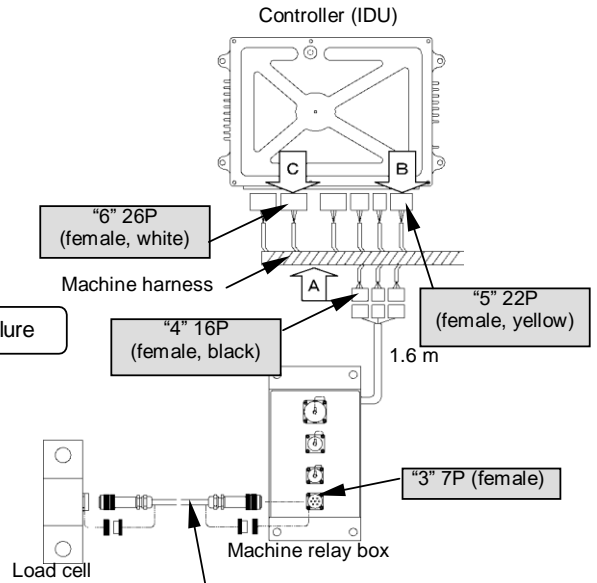
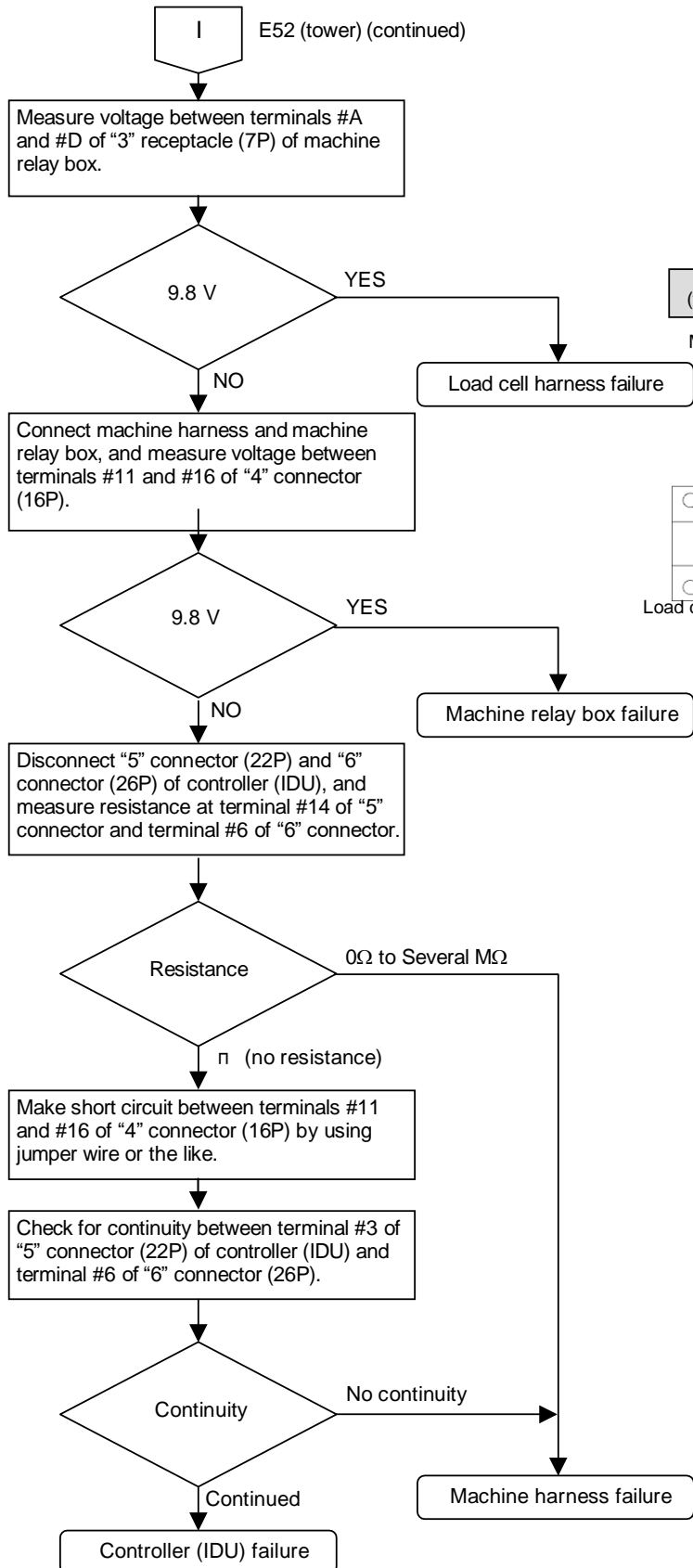


T2BC-05-06-010

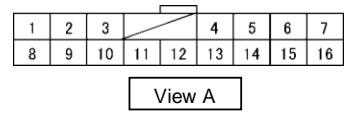
TROUBLESHOOTING / Troubleshooting D



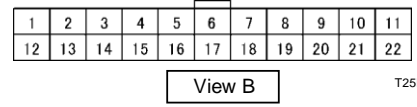
TROUBLESHOOTING / Troubleshooting D



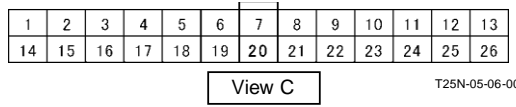
T25N-05-06-019



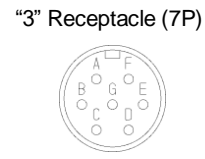
T25N-05-06-003



T25N-05-06-001



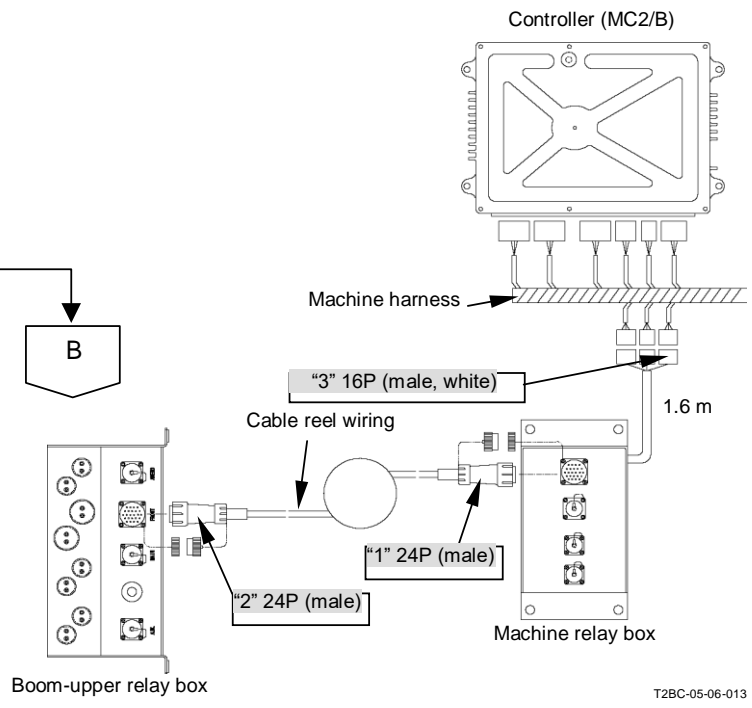
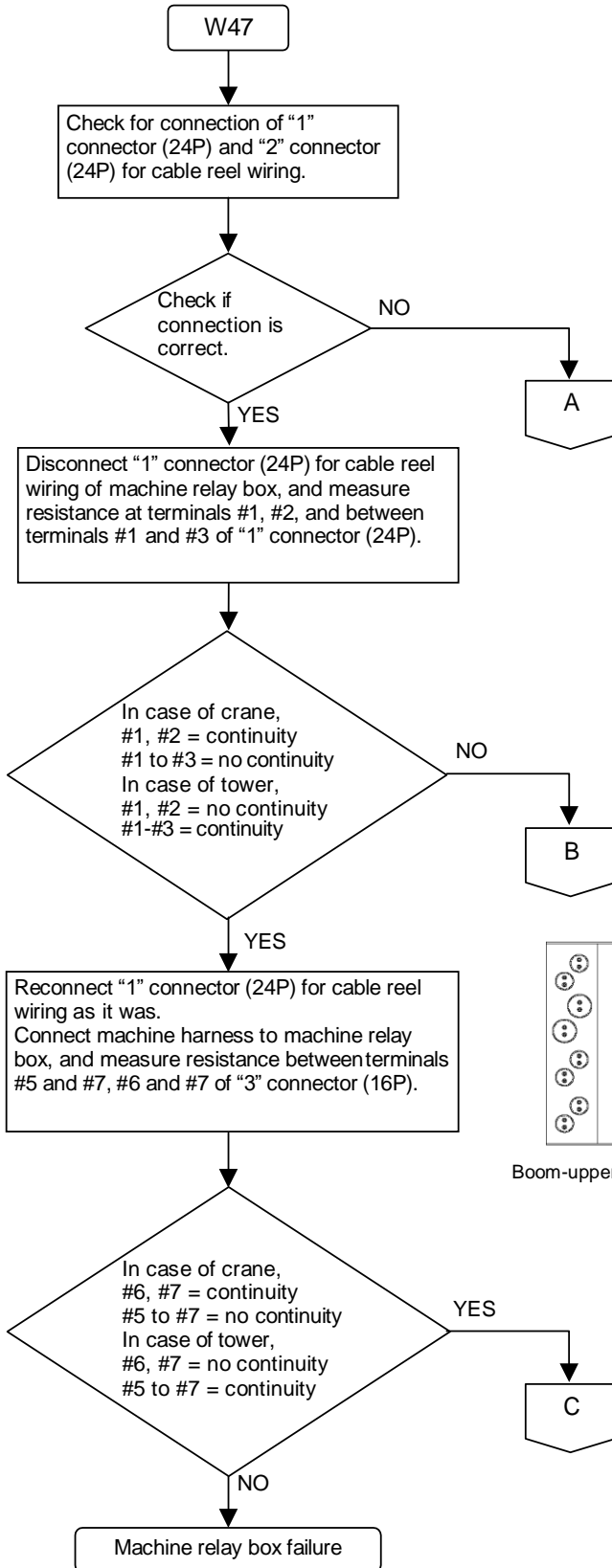
T25N-05-06-005



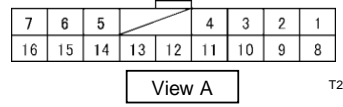
T25N-05-06-022

TROUBLESHOOTING / Troubleshooting D

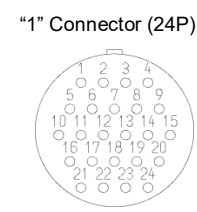
FAULT CODE W47



T2BC-05-06-013

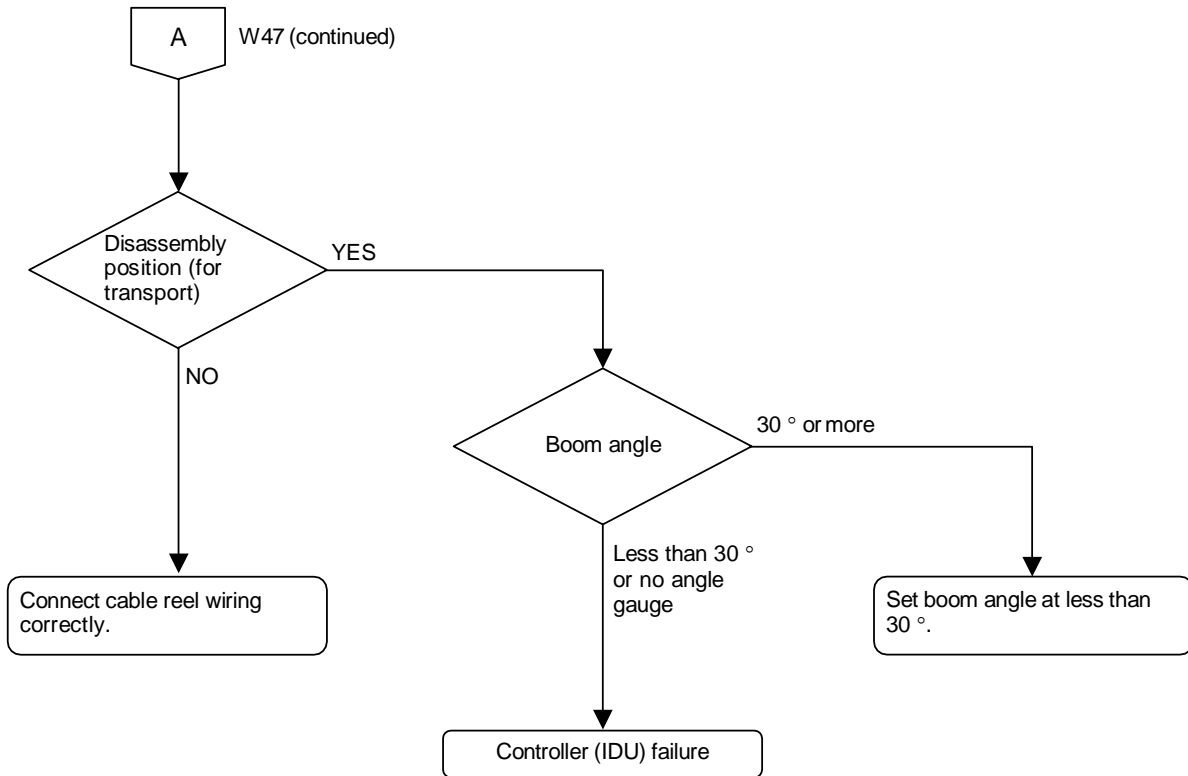


T25N-05-06-012



T25N-05-06-023

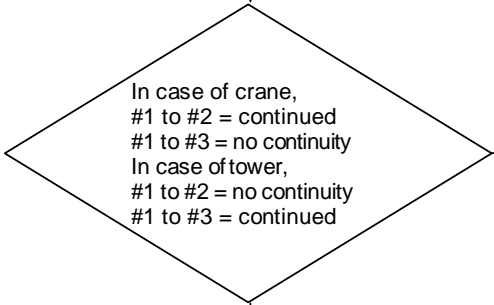
TROUBLESHOOTING / Troubleshooting D



TROUBLESHOOTING / Troubleshooting D

B W47 (continued)

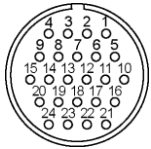
Disconnect "2" connector (24P) for cable reel wiring of boom-upper relay box, and check for continuity between terminals #1 and #2, terminals #1 and #3 of "6" receptacle.



Boom-upper relay box failure

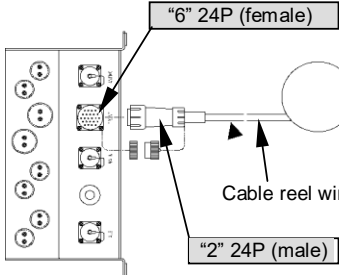
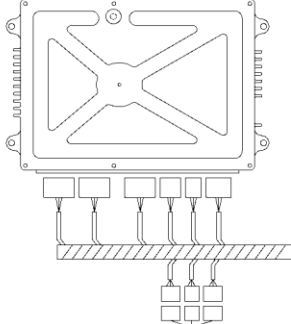
Cable reel wiring failure

"6" Receptacle (24P)



T25N-05-03-028

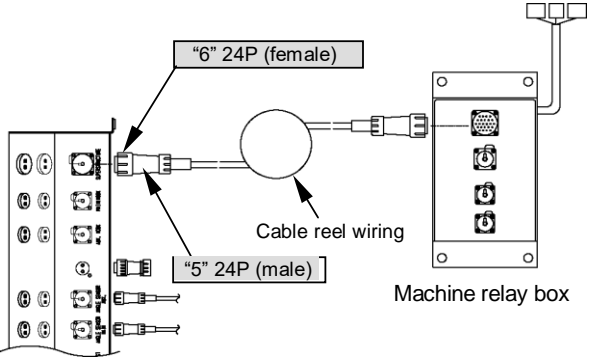
Controller (MC2/B)



Boom-upper relay box (crane)

Machine relay box

T25N-05-06-025

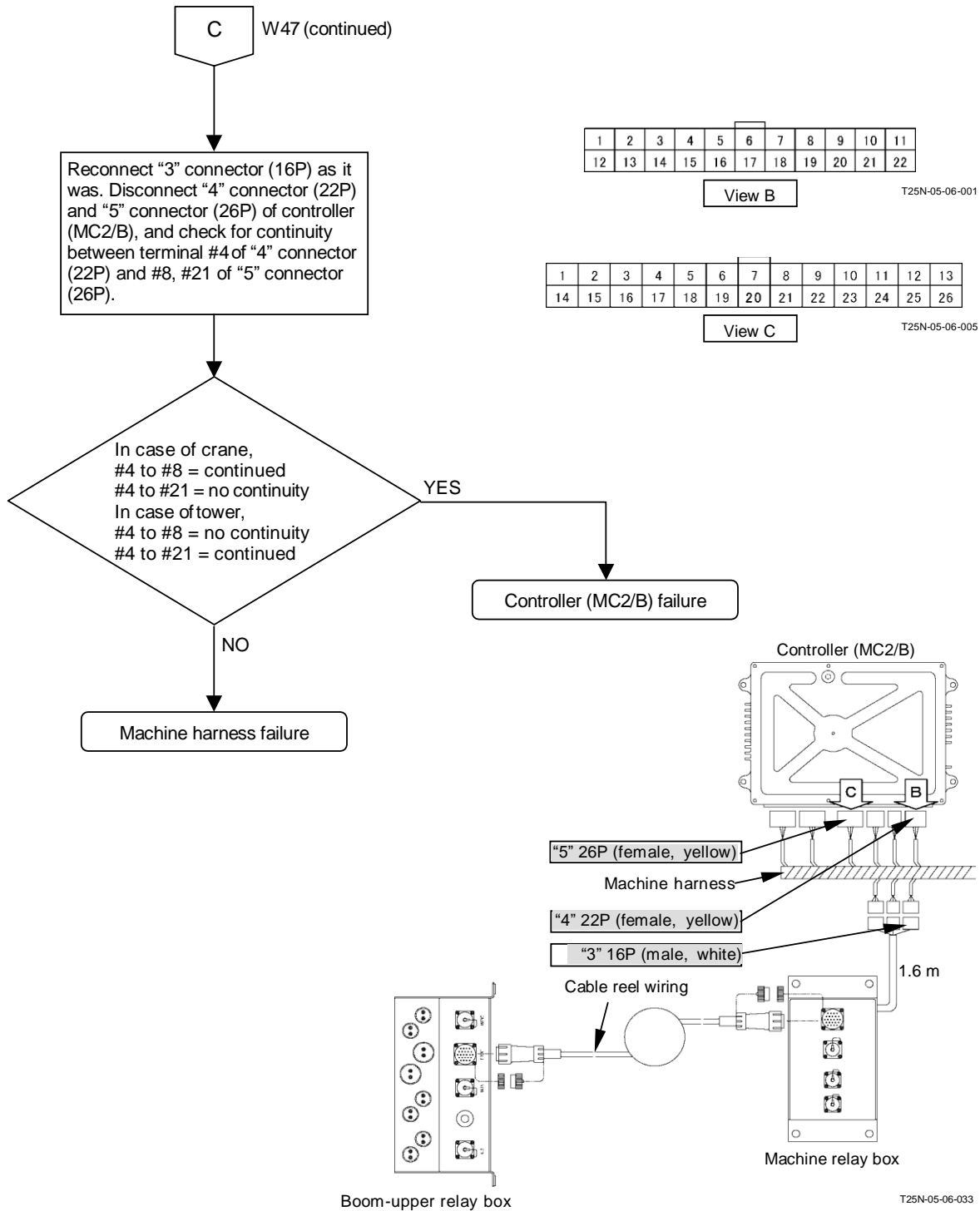


Boom-upper relay box (tower)

Machine relay box

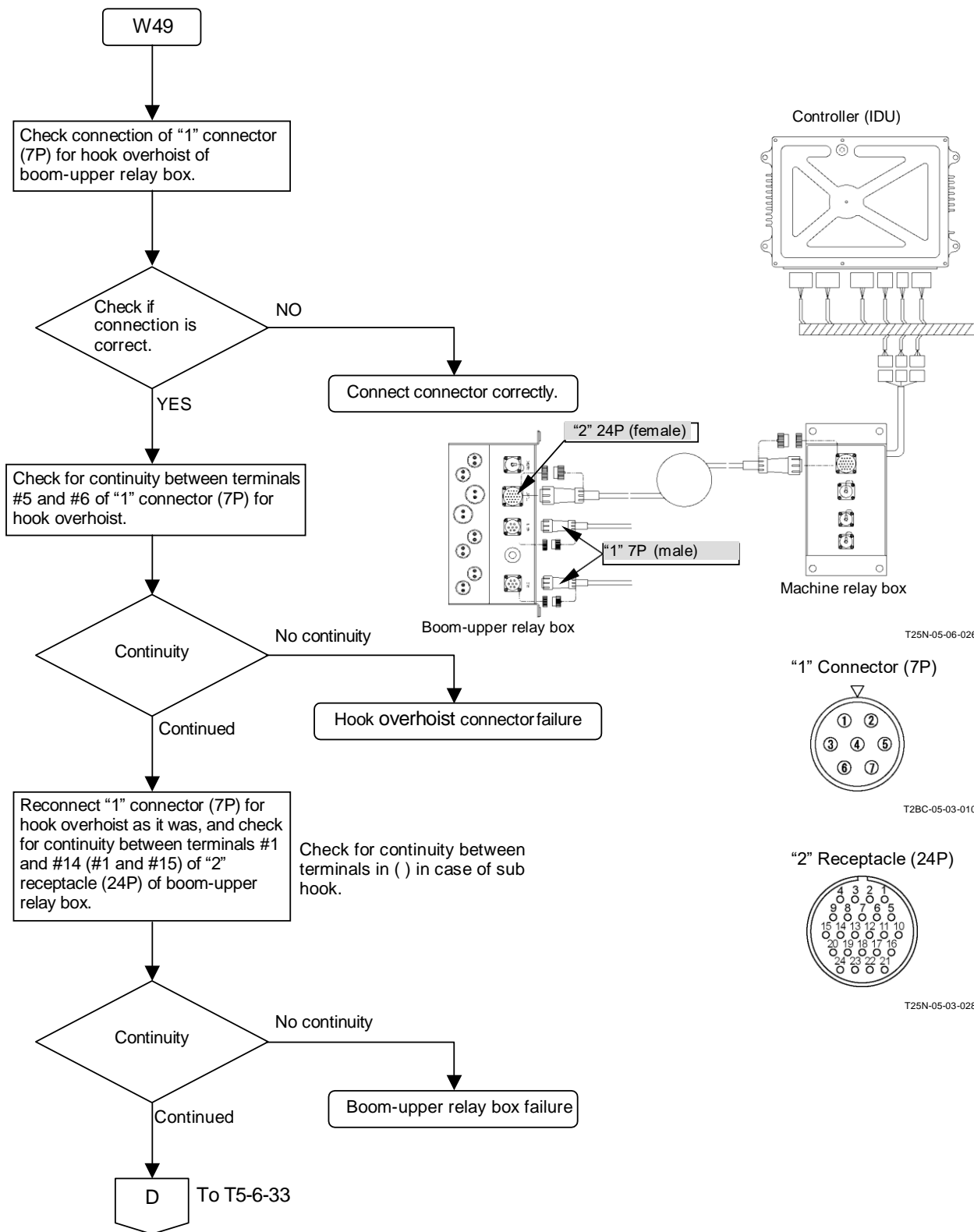
T2BC-05-06-012

TROUBLESHOOTING / Troubleshooting D

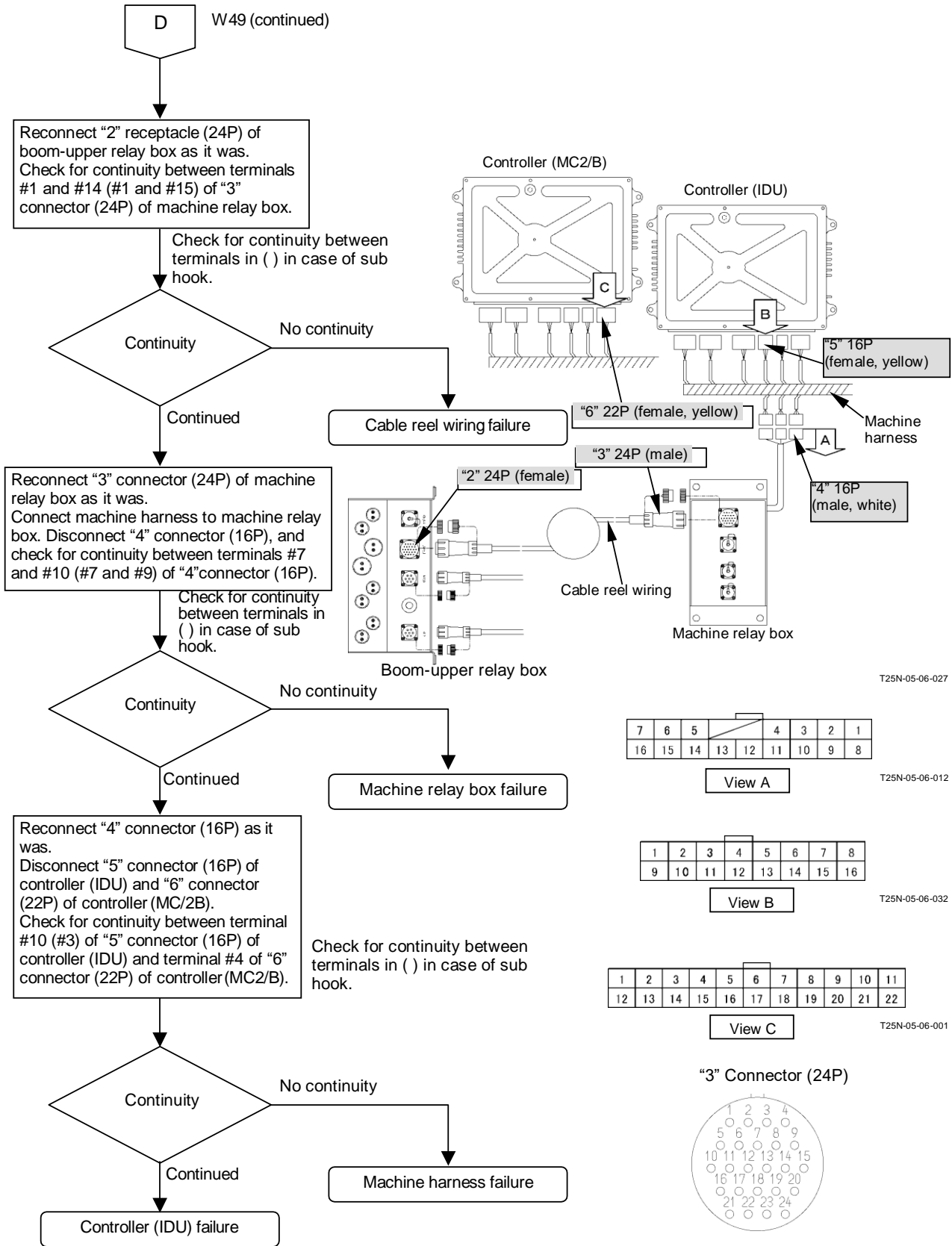


TROUBLESHOOTING / Troubleshooting D

FAULT CODE W49



TROUBLESHOOTING / Troubleshooting D



T25N-05-06-027

T25N-05-06-012

T25N-05-06-032

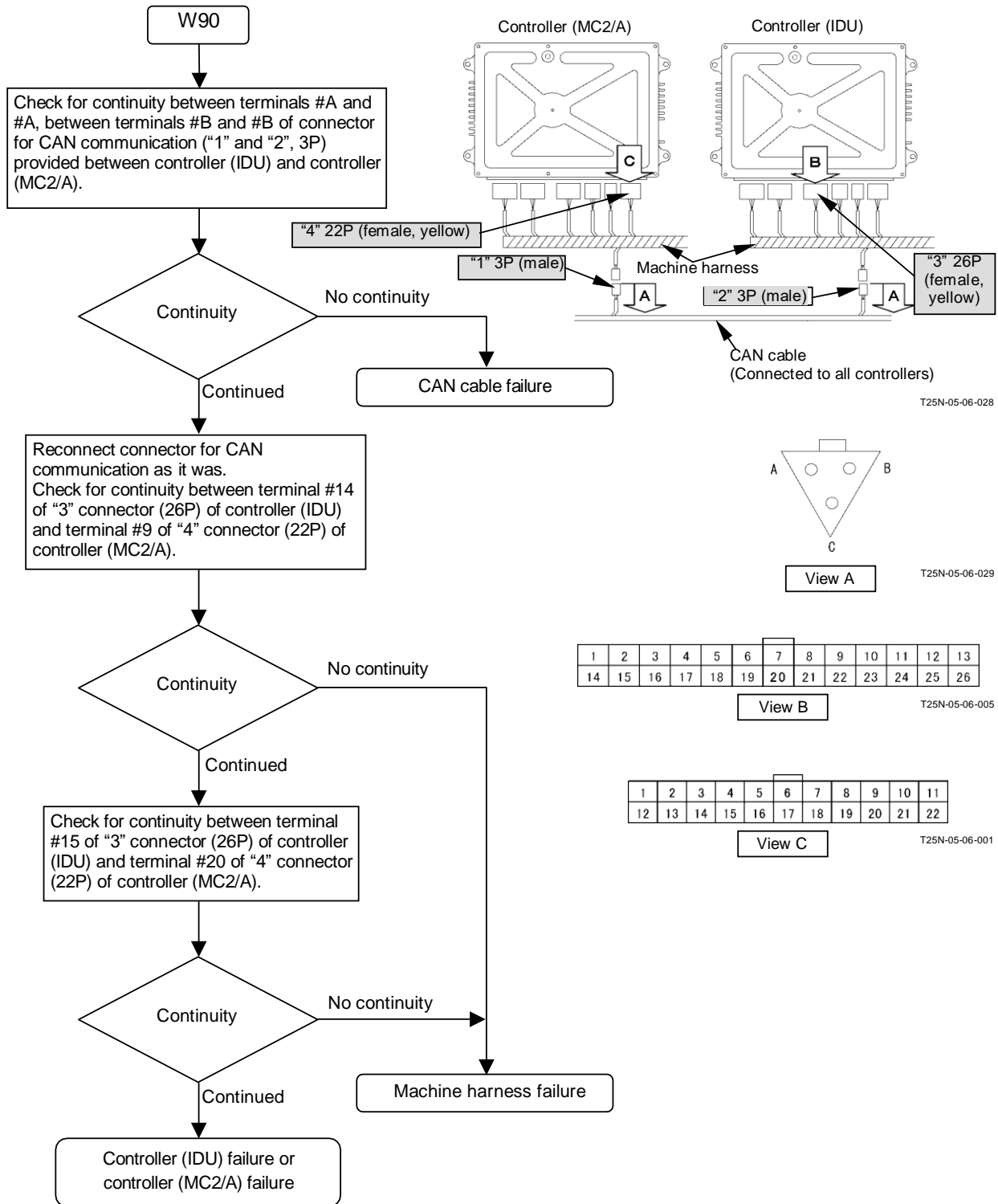
T25N-05-06-001

TROUBLESHOOTING / Troubleshooting D

125N-05-06-023

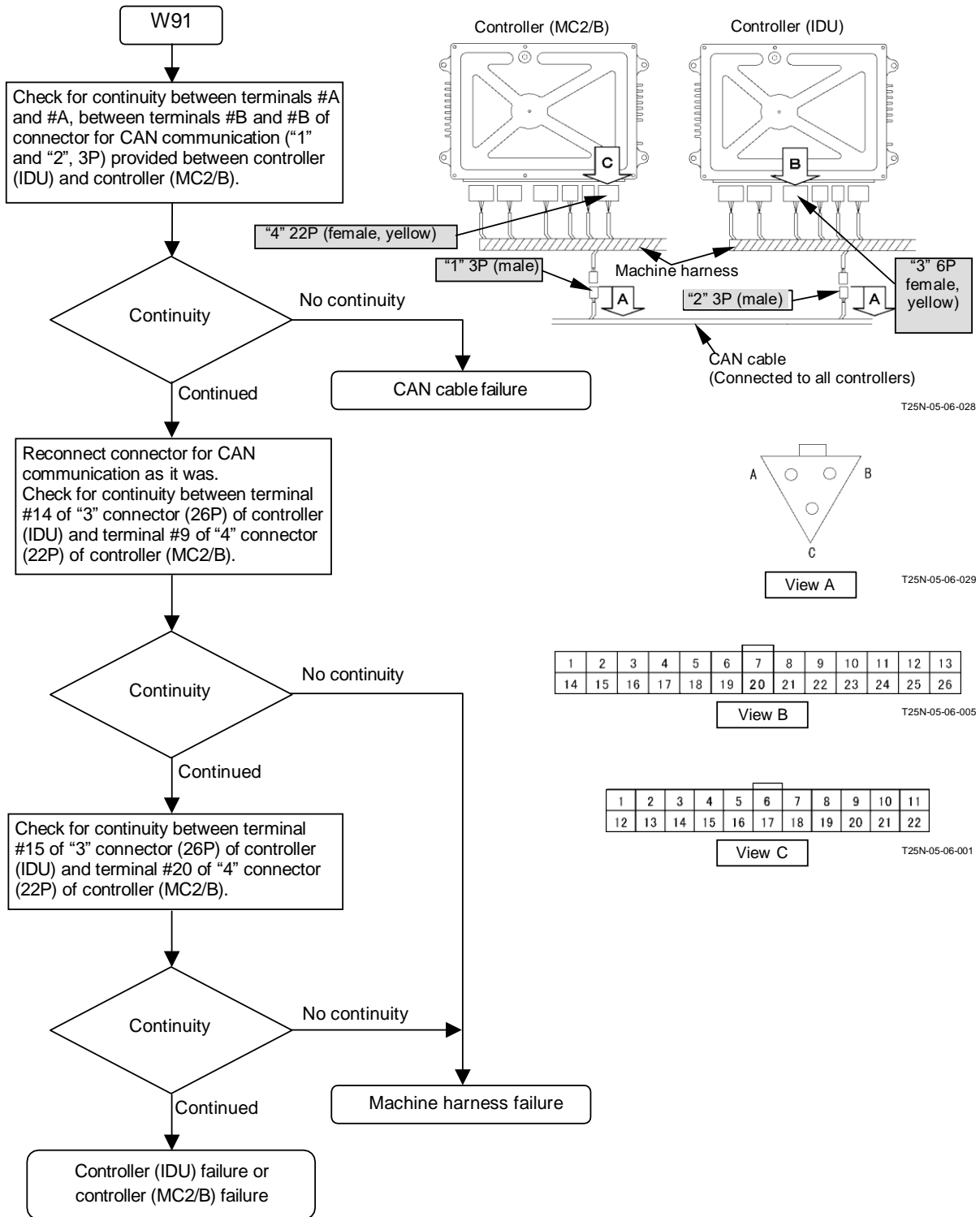
TROUBLESHOOTING / Troubleshooting D

FAULT CODE W90



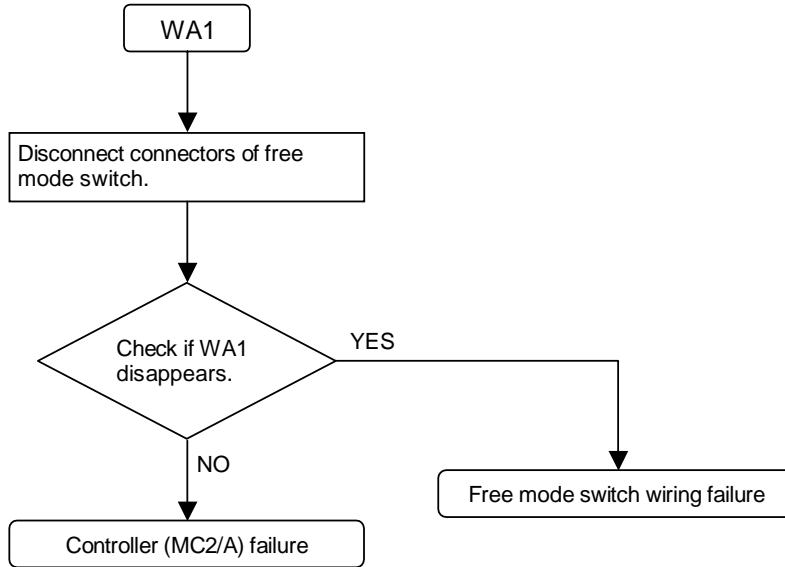
TROUBLESHOOTING / Troubleshooting D

FAULT CODE W91

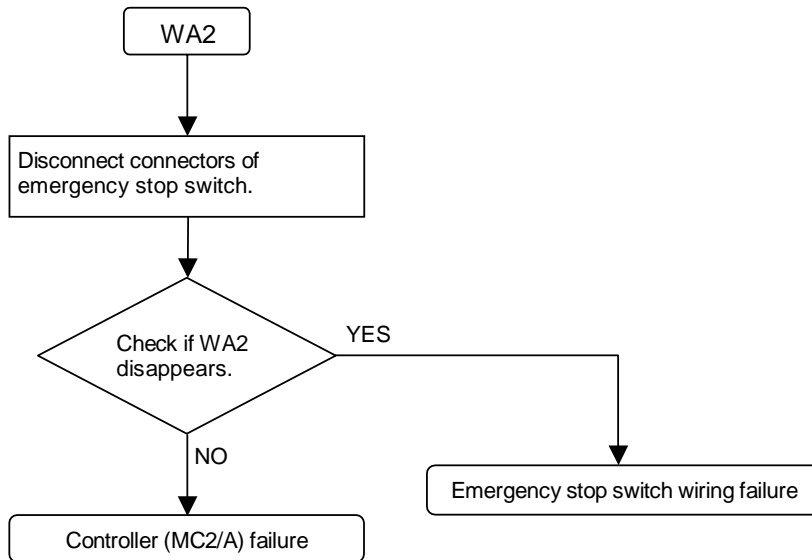


TROUBLESHOOTING / Troubleshooting D

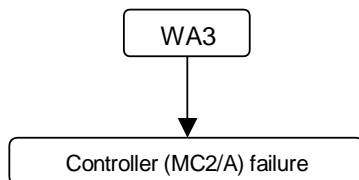
FAULT CODE WA1



FAULT CODE WA2

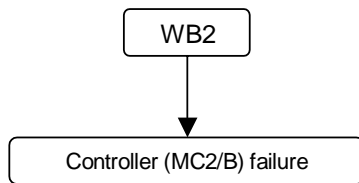


FAULT CODE WA3



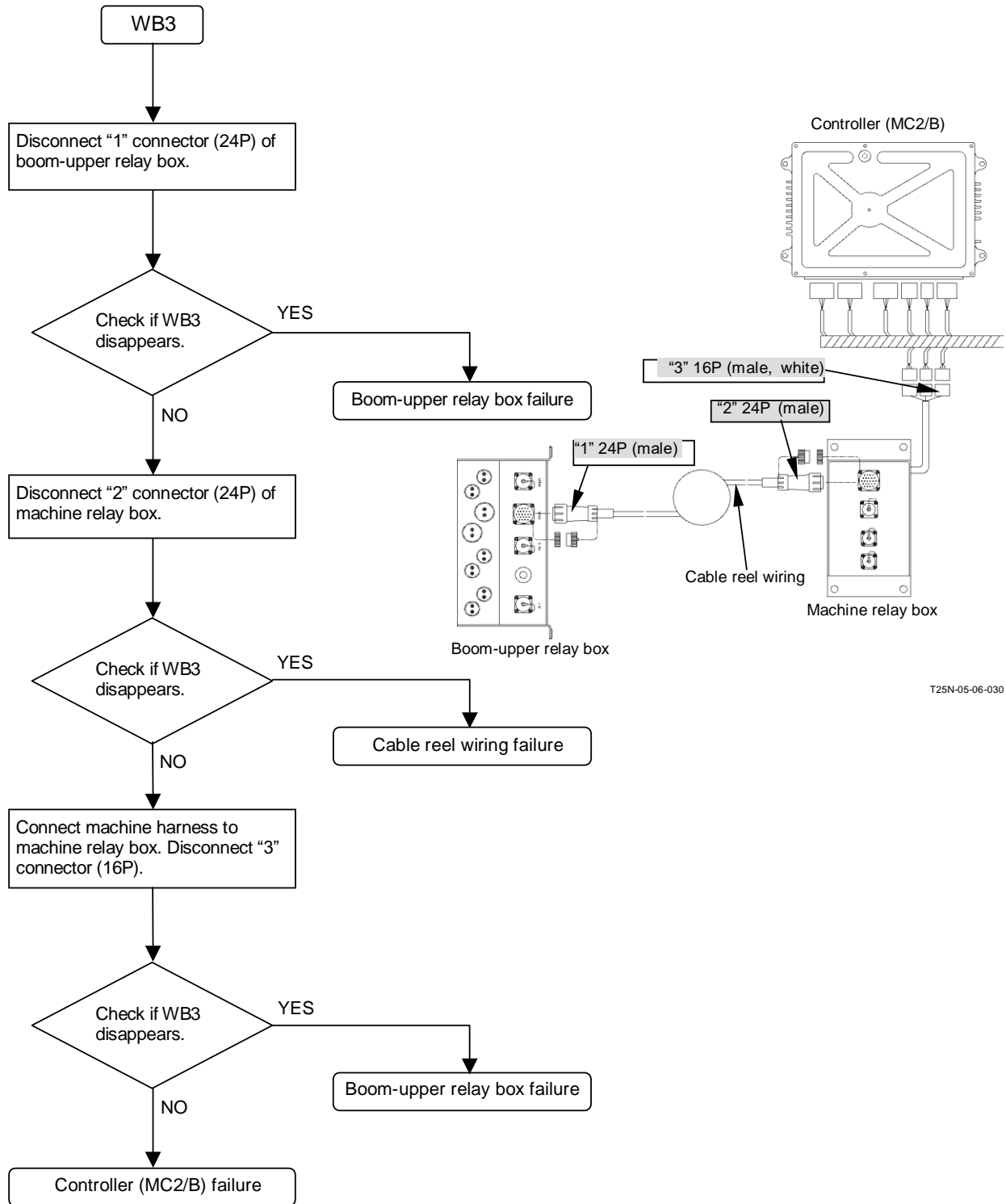
TROUBLESHOOTING / Troubleshooting D

FAULT CODE WB2



TROUBLESHOOTING / Troubleshooting D

FAULT CODE WB3



T25N-05-06-030

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