

As-Built

ABO	24-JUL-2023	As-Built	K.Saito K. Saito	T. Saito T. Saito
REV	DATE	DESCRIPTION	Approved	Checked
OWNER	VPC ^L VAN PHONG POWER COMPANY LIMITED	VAN PHONG POWER COMPANY LIMITED		M.Nagamura M. Nagamura
PROJECT	Van Phong 1 BOT Thermal Power Plant Project			
OWNER'S ENGINEER	AFRY Switzerland Ltd.	 AFRY AF PÖRY	Status <input type="checkbox"/> Approved <input type="checkbox"/> Approved with Comment <input type="checkbox"/> Not Approved <input type="checkbox"/> Reviewed <input type="checkbox"/> Reviewed with Comment	
EPC CONTRACTORS	IHI-TESSC-CTCI-DHI CONSORTIUM  			
PROJECT DOCUMENT No	VP1-C-L2-I-CJJ-00012			REV
				ABO
DOCUMENT TITLE	MAIN TURBINE DEHC CONTROL BLOCK DIAGRAM			
EPC	TOSHIBA Toshiba Energy Systems & Solutions Corporation	EPC DOCUMENT No. 7K2K1689	REV	
			2	

Van Phong Power Company Limited
御注文主 CUSTOMER Van Phong 1 BOT Thermal Power Plant Project

製 番 JOB No. M211087/M211088 FL 3582

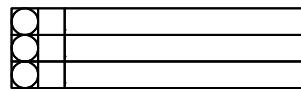
AS BUILT

**MAIN TURBINE DEHC CONTROL
BLOCK DIAGRAM**

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Toshiba ESS Corporation

OWNER	
	VAN PHONG POWER COMPANY LIMITED
PROJECT TITLE	
Van Phong 1 BOT Thermal Power Plant Project	
OWNER'S ENGINEER	
AFRY Switzerland Ltd.	<input type="checkbox"/> Approved <input type="checkbox"/> Approved with Comments <input type="checkbox"/> Not Approved <input type="checkbox"/> Reviewed <input type="checkbox"/> Reviewed with Comment
	
EPC CONTRACTORS	
IHI-TOSHIBA-CTCI-DHI CONSORTIUM	
   	DOOSAN
PROJECT DRAWING NO.	REV
VP1-C-L2-I-CJJ-00012	AB0
DRAWING TITLE	
MAIN TURBINE DEHC CONTROL BLOCK DIAGRAM	

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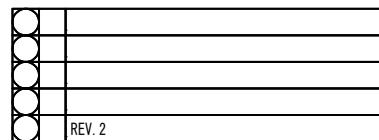
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TOTAL 83 SHEETS			SH
承認 APPROVED BY	調査 CHECKED BY	設計 DESIGNED BY	COVER
K. Saito Jun. 28. 21 K. Takahashi Jun. 28. 21	T. Saito Jun. 28. 21 K. Takahashi Jun. 28. 21	R. Fujiwara N. Yasuda Jun. 28. 21	変更記号 REV. MARK 2

F 保管 REGISTERED

7K2K1689 -001

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003		CONTENTS(2)	028		VALVE TEST DEMAND(2)	053		OPERATION MODE(2)	078		
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007		SUMMARY OF SYMBOL(2)	032		MSV B POSITION CONTROL	057		OPERATION SIGNAL(4)	082		GOV/LL OPERATION
008		SUMMARY OF SYMBOL(3)	033			058		OPERATION SIGNAL(5)	083		FLR
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013			038			063			088		GOV/LL TRANSFER
014			039			064		TARGET SPEED(1)	089		
015			040		RSV CONTROL	065		TARGET SPEED(2)	090		
016			041		RSV(A) POSITION CONTROL	066		TARGET SPEED(3)	091		HOUSE LOAD OPERATION
017		TURBINE SPEED INPUT	042		RSV(B) POSITION CONTROL	067			092		
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020			045		ICV B POSITION CONTROL	070			095		
021		LOAD REFERENCE(1)	046			071			096		
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023		MN STEAM PRESSURE	048		3:1 FLOW FUNCTION	073		HP IPR	098		THERMAL STRESS
024		LOAD DETECT	049			074			099		
025		AUTOMATIC LOAD REGULATOR	050			075			100		

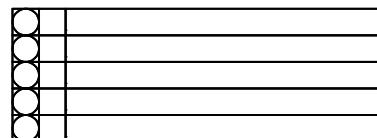


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		7K2K1689 -002 Jun. 25. 21

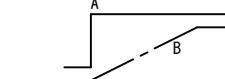
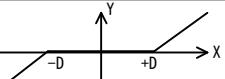
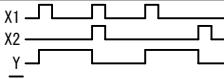
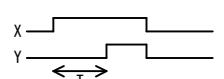
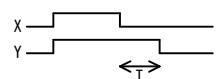
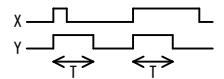
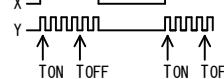
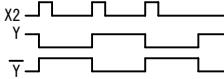
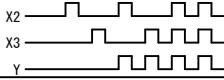
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119		OVERSPEED CIRCUIT TEST	144			169			194		
120		BACKUP OVERSPEED CIRCUIT TEST	145			170			195		
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122			147			172			197		
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124			149			174			199		REVISIONS
125			150			175			200		

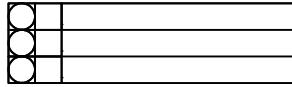


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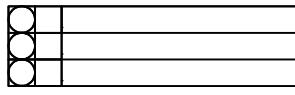
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7K2K1689 -003		

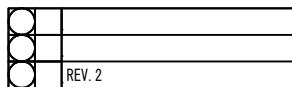
A	SYMBOL	FUNCTION	REMARK	SYMBOL	FUNCTION	REMARK	SYMBOL	FUNCTION	REMARK												
X1 X2 Y	ADD FUNCTION	$Y=X_1+X_2$		$A \rightarrow V > B$	RATE LIMITER			SIGNAL MONITOR LOW STATE													
X1 X2 Y	SUBTRACTION FUNCTION	$Y=X_1-X_2$		$X \rightarrow H$ HL=HL1	UPPER LIMITER	<table border="1"><tr><th>Input X</th><th>Output Y</th></tr><tr><td>$X < HL_1$</td><td>$Y = X$</td></tr><tr><td>$X \geq HL_1$</td><td>$Y = HL_1$</td></tr></table>	Input X	Output Y	$X < HL_1$	$Y = X$	$X \geq HL_1$	$Y = HL_1$	$X_1 \rightarrow ASW$ $X_2 \rightarrow Y$	TRANSFER SWITCH	$SW=1: Y=X_1$ $SW=0: Y=X_2$						
Input X	Output Y																				
$X < HL_1$	$Y = X$																				
$X \geq HL_1$	$Y = HL_1$																				
X1 X2 Y	MULTIPLY FUNCTION	$Y=X_1 \cdot X_2$		$X \leftarrow L$ LL=LL1	LOWER LIMITER	<table border="1"><tr><th>Input X</th><th>Output Y</th></tr><tr><td>$X > LL_1$</td><td>$Y = X$</td></tr><tr><td>$X \leq LL_1$</td><td>$Y = LL_1$</td></tr></table>	Input X	Output Y	$X > LL_1$	$Y = X$	$X \leq LL_1$	$Y = LL_1$		NOT							
Input X	Output Y																				
$X > LL_1$	$Y = X$																				
$X \leq LL_1$	$Y = LL_1$																				
X -1 Y	REVERSE	$Y=-1 \cdot X$		$X \rightarrow X $	ABSOLUTE VALUE	$Y= X $	 	OR AND													
X P Y	PROPORTIONAL	$Y=K \cdot X$		 DB	DEAD BAND		$X_1 \rightarrow S$ $X_2 \rightarrow R$ FF/R	LOGIC MEMORY FUNCTION FLIP FLOP													
$SW \downarrow$ X T I Y	INTEGRATION (WITH RESET FUNCTION)	$SW=1: Y=\frac{1}{T_s} X$ (T : TIME CONSTANT) $SW=0: Y=T$		 DBZ			$X \rightarrow TPU$ $t=T$	TIME DELAY PICK UP													
X $\frac{d}{dt}$ Y	DERIVATIVE ACTION	$Y=\frac{T_s}{1+T_s} X$		$X_1 \rightarrow H$ Y	HIGH VALUE SELECTING	$Y=\text{MAX}(X_1, X_2)$	$X \rightarrow TDO$ $t=T$	TIME DELAY DROP OUT													
SG S=A Y	SIGNAL GENERATOR	$Y=A$		$X_1 \rightarrow MED$ X2 X3 Y	MIDDLE VALUE SELECTING	$Y=\text{MED}(X_1, X_2, X_3)$	$X \rightarrow 1 \prod$ $t=T$	SINGLE SHOT TIMER													
X F(X) Y	FUNCTION GENERATOR	<table border="1"><tr><th>Input X</th><th>Output Y</th></tr><tr><td>$X < X_1$</td><td>$Y = Y_1$</td></tr><tr><td>$X_1 \leq X \leq X_{15}$</td><td>$Y = F(X)$</td></tr><tr><td>15 break points</td><td></td></tr><tr><td>$X > X_{15}$</td><td>$Y = Y_{15}$</td></tr><tr><td>($X_i \leq X_{i+1}$ ($i=1 \sim 14$))</td><td></td></tr></table>	Input X	Output Y	$X < X_1$	$Y = Y_1$	$X_1 \leq X \leq X_{15}$	$Y = F(X)$	15 break points		$X > X_{15}$	$Y = Y_{15}$	($X_i \leq X_{i+1}$ ($i=1 \sim 14$))			$X_1 \rightarrow < L$ Y	LOW VALUE SELECTING	$Y=\text{MIN}(X_1, X_2)$	$X \rightarrow FLK$	FLICKER	
Input X	Output Y																				
$X < X_1$	$Y = Y_1$																				
$X_1 \leq X \leq X_{15}$	$Y = F(X)$																				
15 break points																					
$X > X_{15}$	$Y = Y_{15}$																				
($X_i \leq X_{i+1}$ ($i=1 \sim 14$))																					
X LAG Y	FIRST DELAY FUNCTION		$X \rightarrow \frac{1}{1+T_s} Y$		SIGNAL MONITOR HIGH/LOW STATE		$X_1 \rightarrow S$ $X_2 \rightarrow R$ FF/S	LOGIC MEMORY FUNCTION													
X LLAG Y	LEAD LAG FUNCTION		$X \rightarrow \frac{1+T_{1s}}{1+T_{2s}} Y$		SIGNAL MONITOR HIGH STATE		$X_1 \rightarrow \square 2$ $X_2 \rightarrow Y$ $X_3 \rightarrow$	2 OUT OF 3													



A	SYMBOL	FUNCTION	REMARK	SYMBOL	FUNCTION	REMARK	SYMBOL	FUNCTION	REMARK
A		MEMORY			ANALOG INPUT CHECK			BALANCING FUNCTION	
B		ANALOG MEMORY			DIGITAL INPUT			TRANSFORMER	
C		DIVIDING FUNCTION	$Y = \frac{X_1}{X_2}$		DIGITAL OUTPUT				
D		DEAD TIME			ANALOG INPUT				
E					ANALOG OUTPUT				
F					SERIAL INPUT				
G					SERIAL OUTPUT				
H									
J									
K									
L									
M									
N									
P									
Q									
R									
S									
T									
U									
V									
W									
X									
Y									
Z									



A	SYMBOL	FUNCTION	REMARK	SYMBOL	FUNCTION	REMARK	SYMBOL	FUNCTION	REMARK
B				UPS	UNINTERRUPTIBLE POWER SUPPLY SYSTEM				
C	◎	SERVO VALVE		CCR	CENTRAL CONTROL ROOM				
D	XXX LVDT	LINEAR VOLTAGE DIFFERENTIAL TRANSFORMER		L	LOCAL INSTRUMENT				
E	○ ▶	TRANSFERED SIGNAL	ANALOG SIGNAL AND POWER SIGNAL	DCS	DISTRIBUTED CONTROL SYSTEM				
F				OPS	OPERATOR STATION				
G				GCB	GENERATOR CIRCUIT BREAKER				
H				AVR	AUTOMATIC VOLTAGE REGULATOR				
J				ECS-A	ELECTRICAL CONTROL CUBICLE A				
K				TSI	TURBINE SUPERVISORY INSTRUMENT PANEL				
L				GCP	GENERATOR CONTROL PANEL				
M				INI	INITIAL EXCITATION CUBICLE				
N									
P									
Q									
R									
S									
T									
U									
V									
W									
X									
Y									
Z									

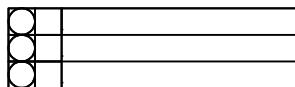


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調査 CHECKED BY T. S/K. T	設計 DESIGNED BY ---- / R. F N. Y	SUMMARY OF SYMBOL (3) Jun. 25, 21
		Jun. 25, 21
7K2K1689 -008		

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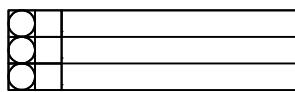
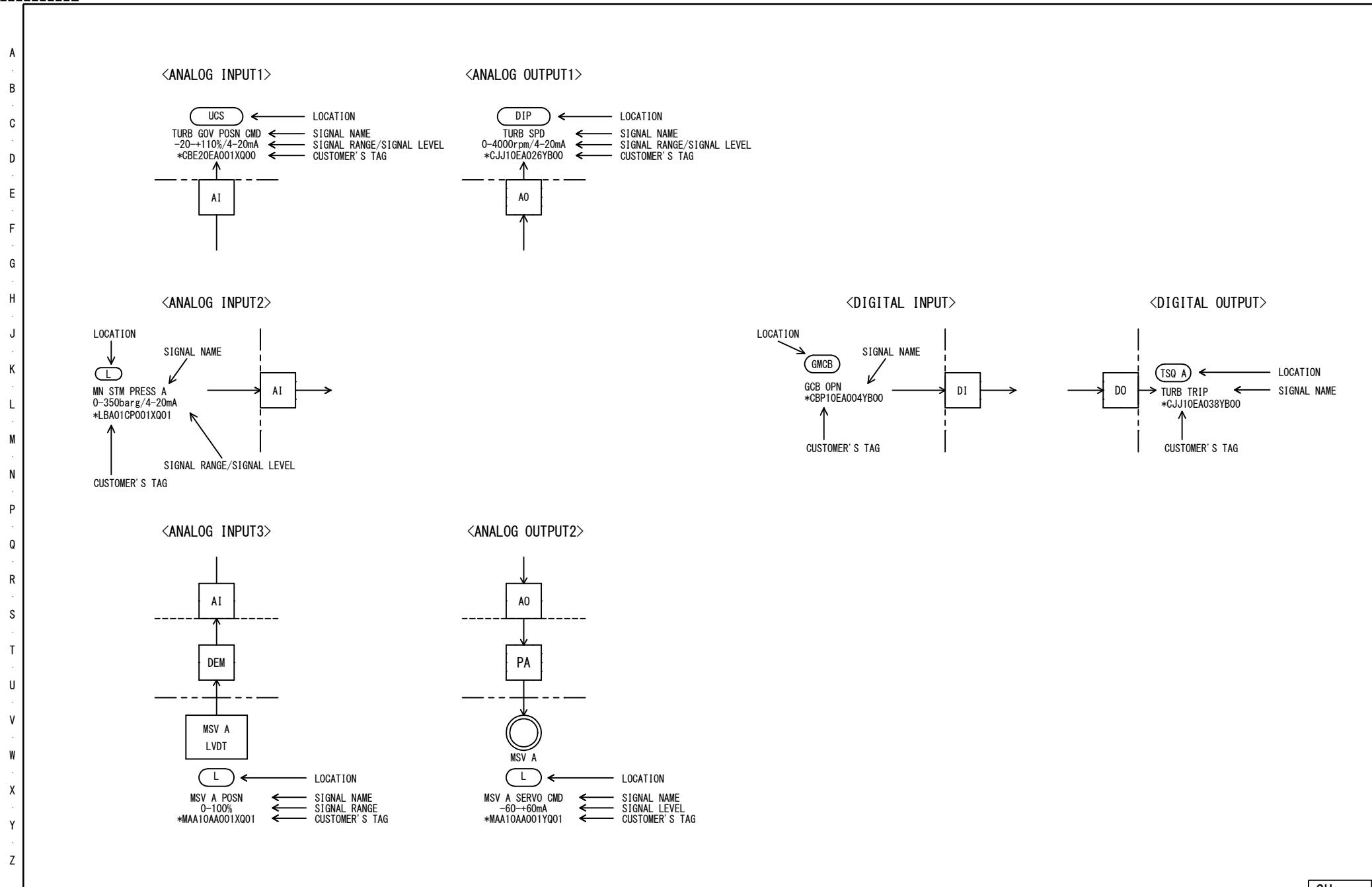
A	ABBREVIATION	MEANING						A
B	FDCL01	FREQUENCY DETECTION MODULE						B
C	PLUL01	POWER LOAD UNBALANCE MODULE						C
D	VPCLO1	VALVE CONTROL MODULE						D
E	HTML01	HARD TRIP MODULE						E
F	TSVL01	TRIP SOLENOID VALVE INTERFACE MODULE						F
G	NPCL01	COMMON TRANSMISSION MODULE						G
H	MC	MASTER CONTROLLER						H
J								J
K								K
L								L
M								M
N								N
P								P
Q								Q
R								R
S								S
T								T
U								U
V								V
W								W
X								X
Y								Y
Z								Z



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調査 T. S/K. T	CHECKED BY	設計 R. F N. Y	DESIGNED BY	ABBREVIATION
				7K2K1689 -009

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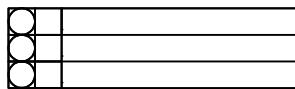
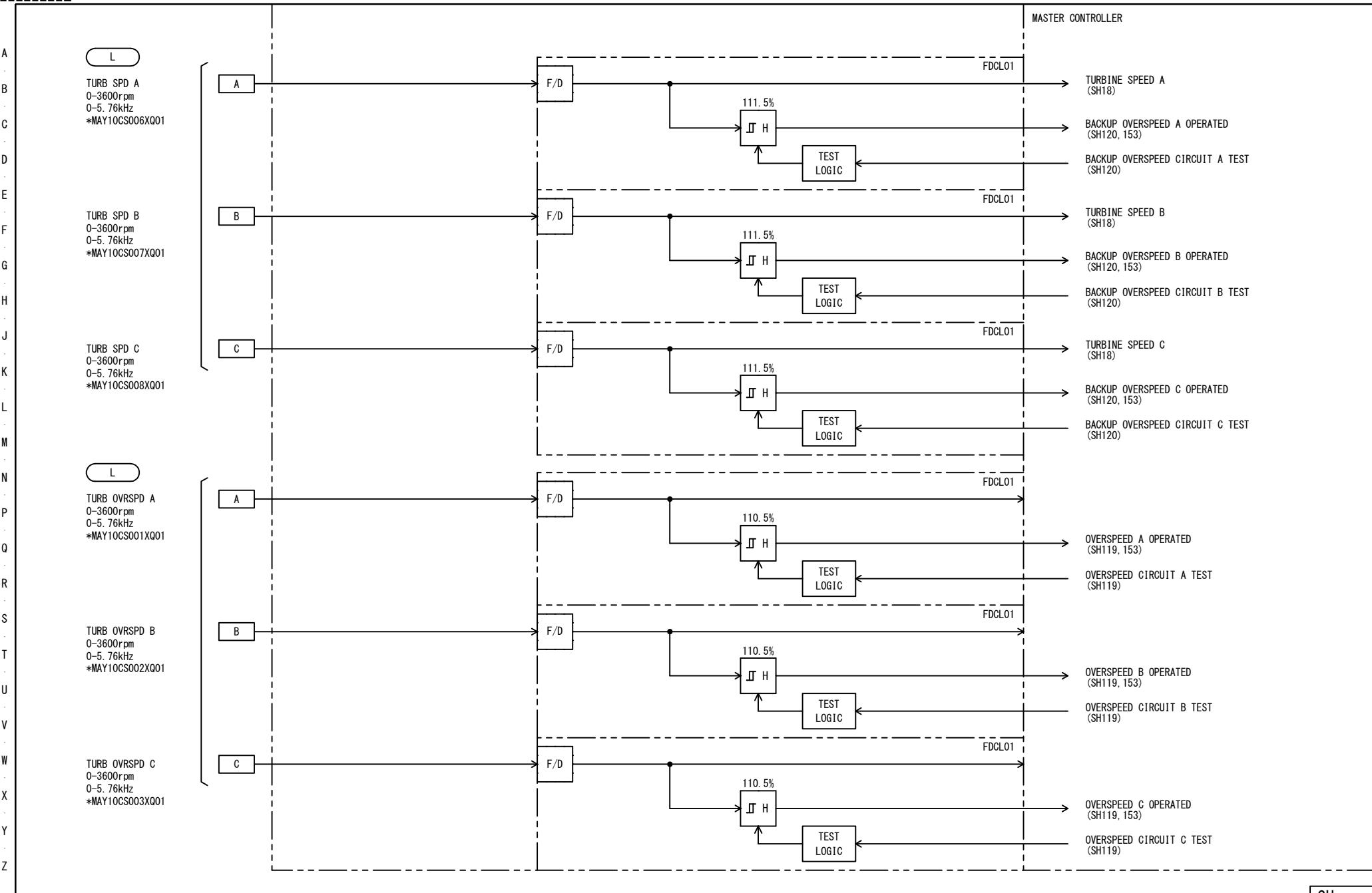


(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

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T. S/K. T	-----/ R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -011



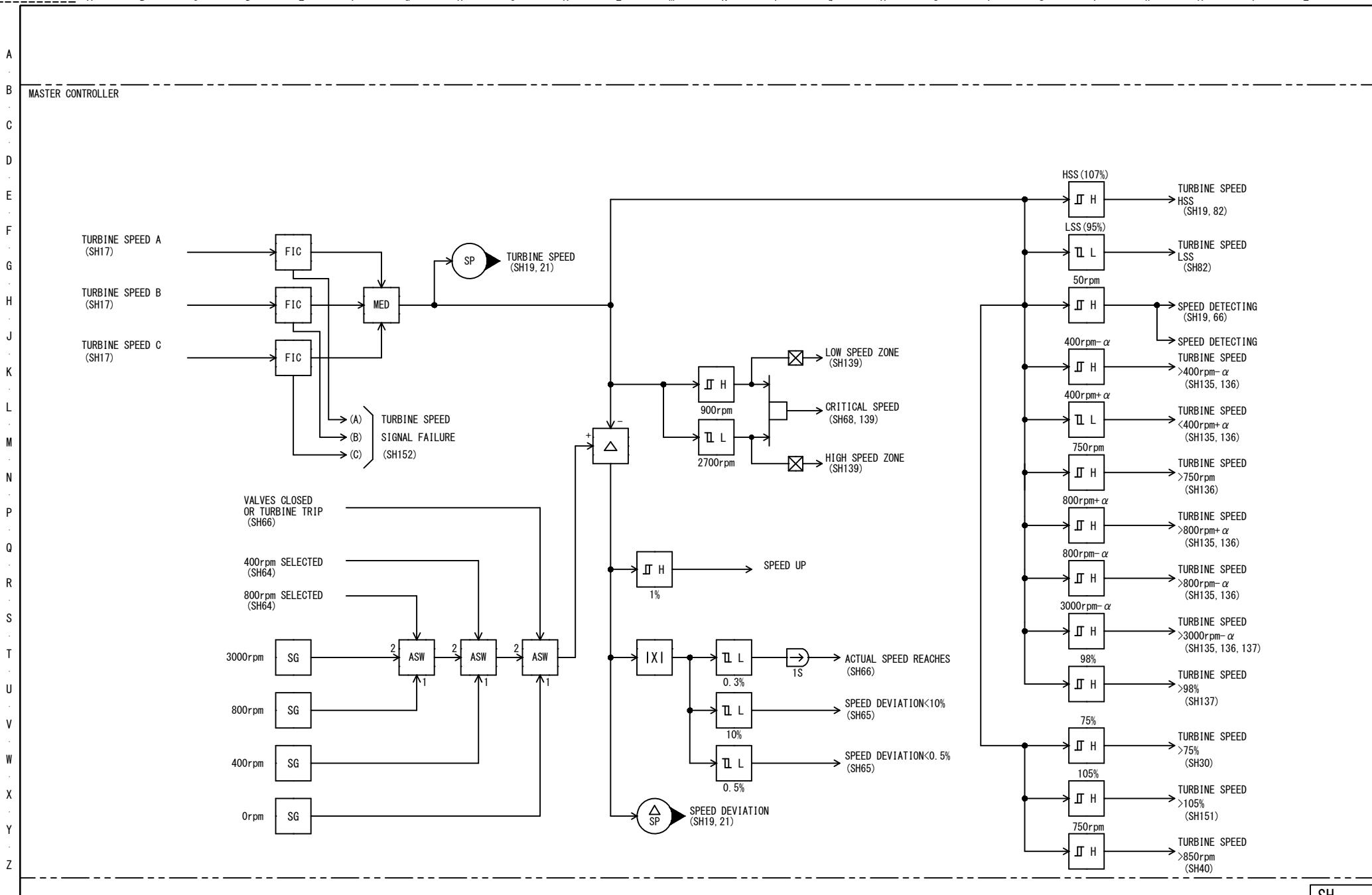
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*:10 (UNIT1)
*:20 (UNIT2)

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調査 CHECKED BY	設計 DESIGNED BY	TURBINE SPEED INPUT
T. S/K. T	R. F N. Y	7K2K1689 -017

Jun. 25. 21 Jun. 25. 21

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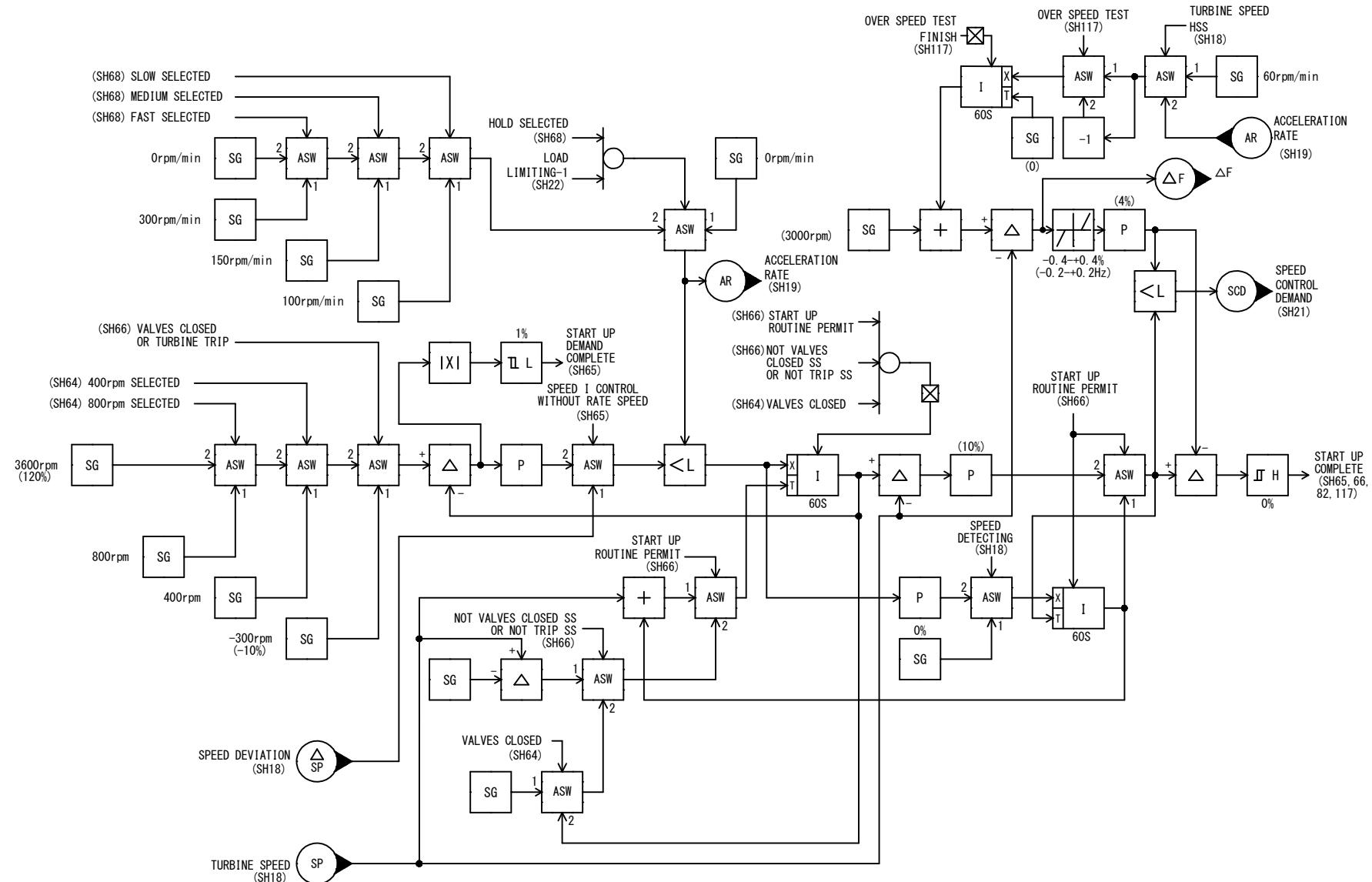


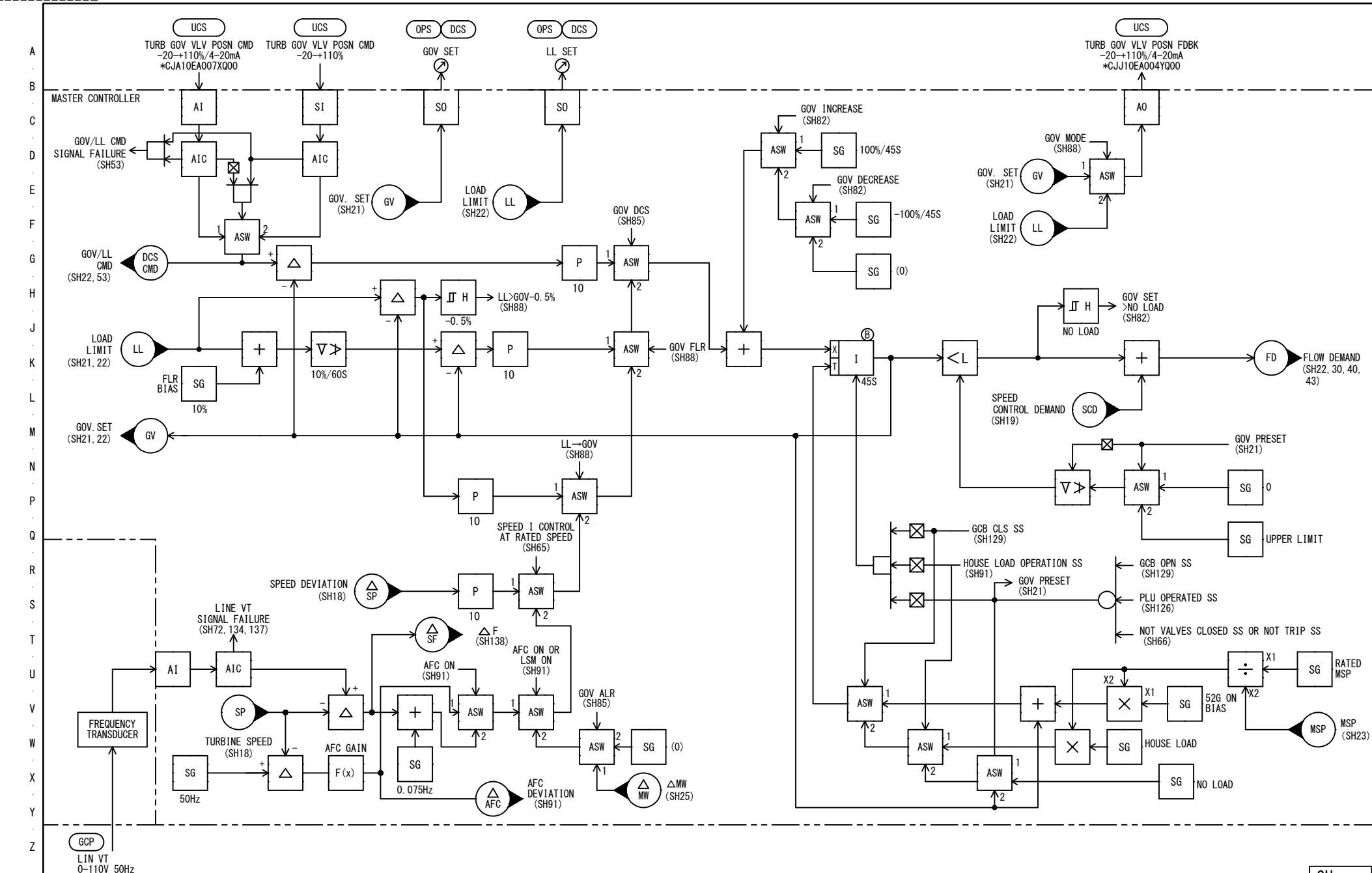
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: 20 (UNIT2)

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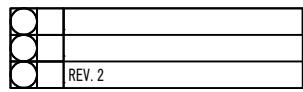
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Jun. 25. 21	Jun. 25. 21	7K2K1689 -018

MASTER CONTROLLER





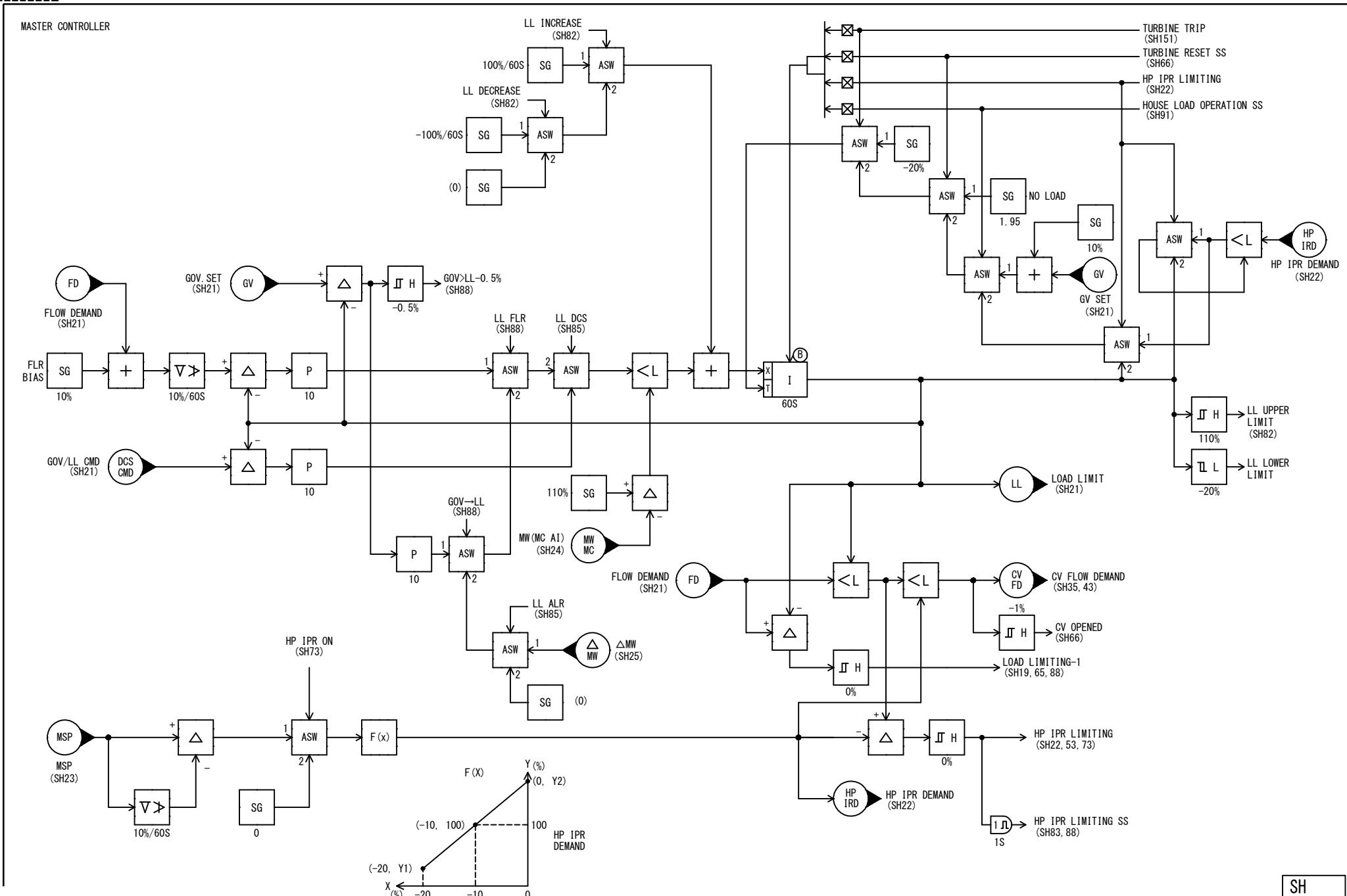
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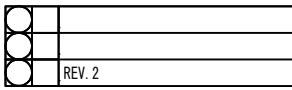
(*) NOTE
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*:20 (UNIT2)

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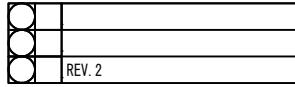
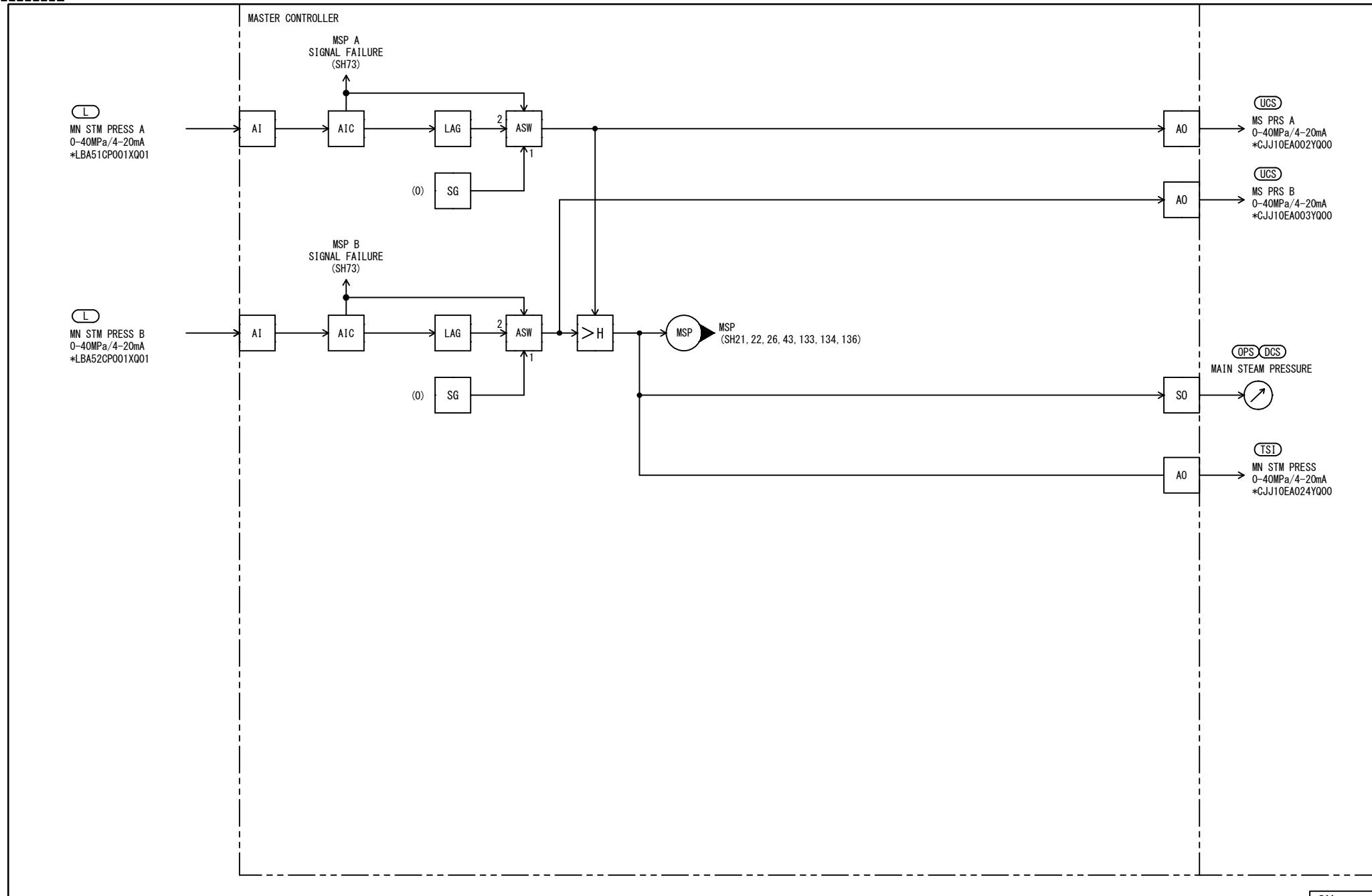
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調査 T. S/K. T	CHECKED BY Jun. 25. 21	設計 ---- / Jun. 25. 21	DESIGNED BY R. F N. Y	LOAD REFERENCE (2) 7K2K1689 -022
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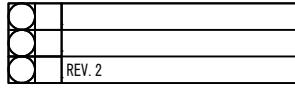
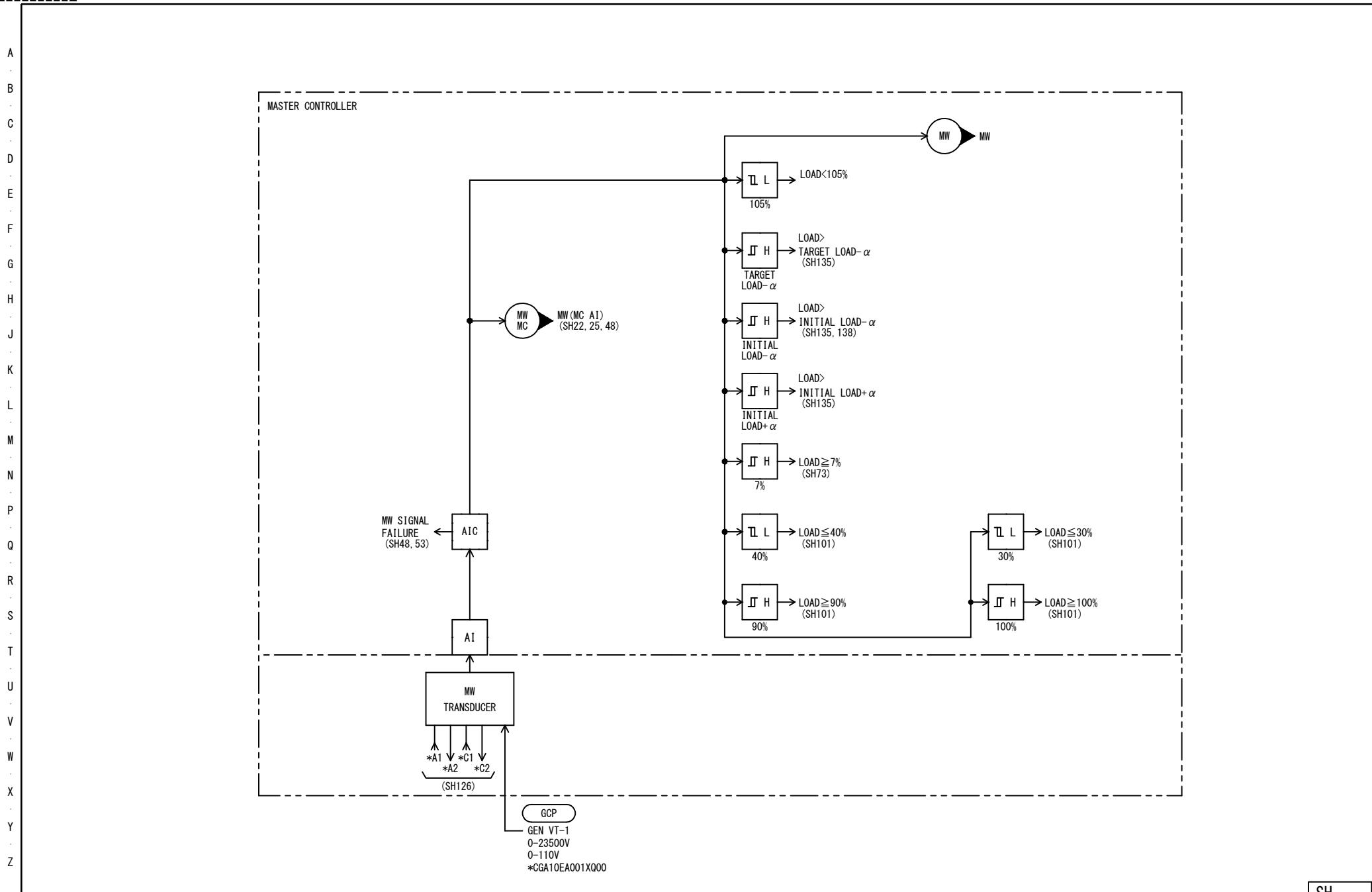
(*)NOTE
*:10 (UNIT1)
*:20 (UNIT2)

REV.2

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 DESIGNED BY R. F N. Y	MN STEAM PRESSURE Jun. 25, 21
			7K2K1689 -023

SH



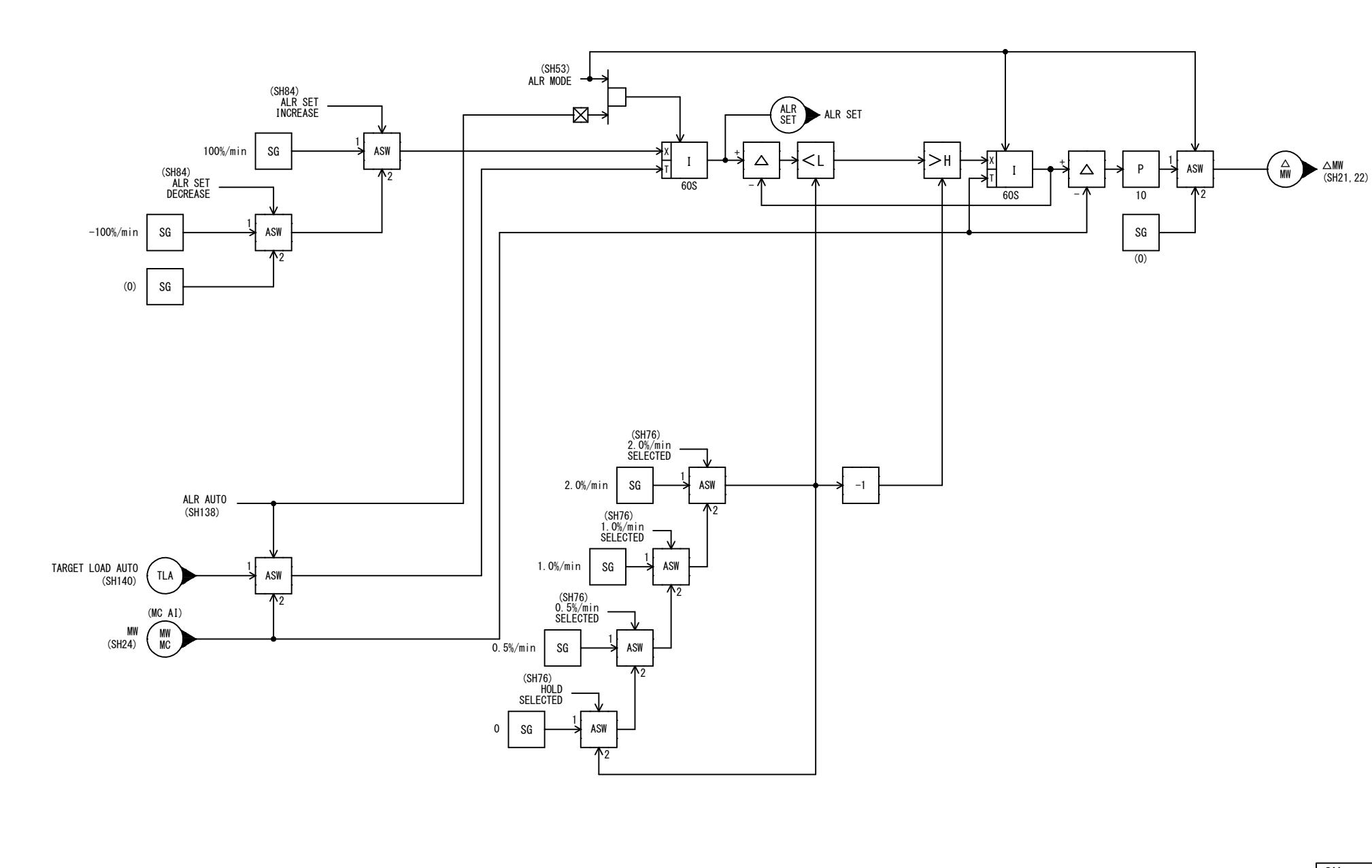
(*)NOTE
*:10 (UNIT1)
*:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	LOAD DETECT
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -024

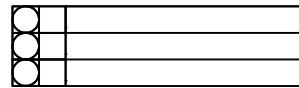
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MASTER CONTROLLER

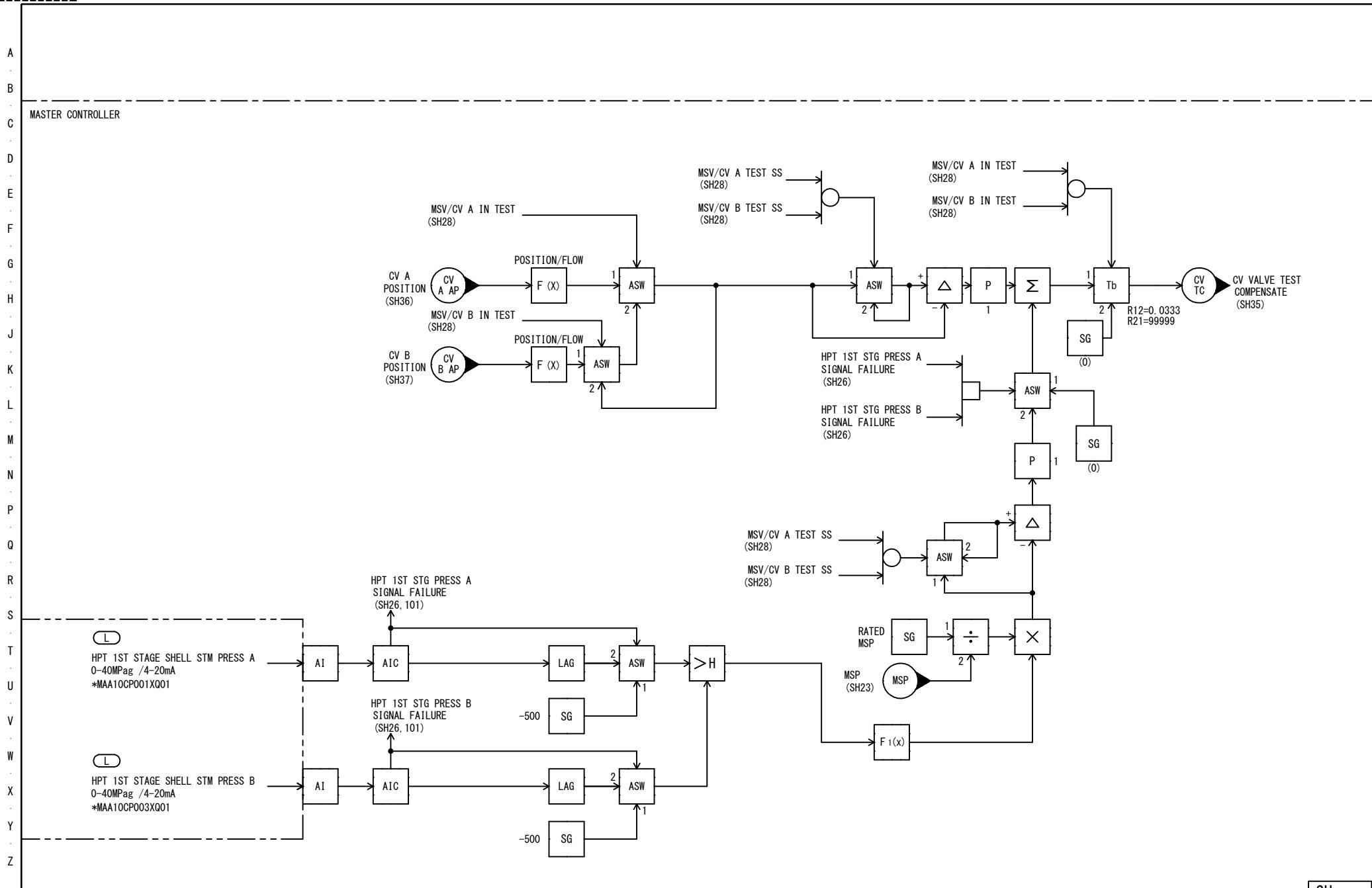


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

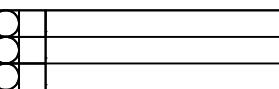
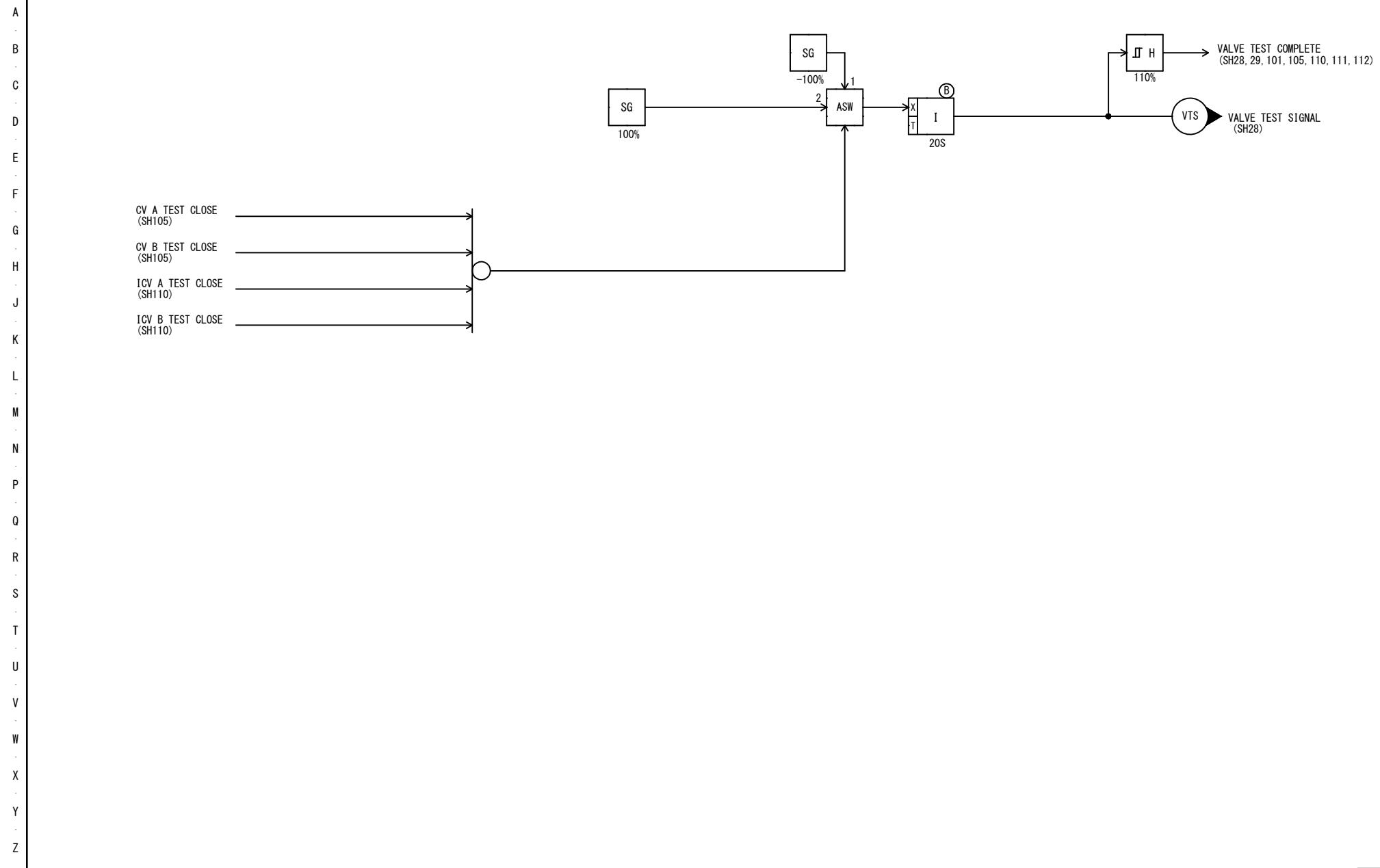
調査 CHECKED BY T. S/K. T	設計 DESIGNED BY ---- / R. F N. Y	AUTOMATIC LOAD REGULATOR
Jun. 25, 21	Jun. 25, 21	7K2K1689 -025



SH



MASTER CONTROLLER

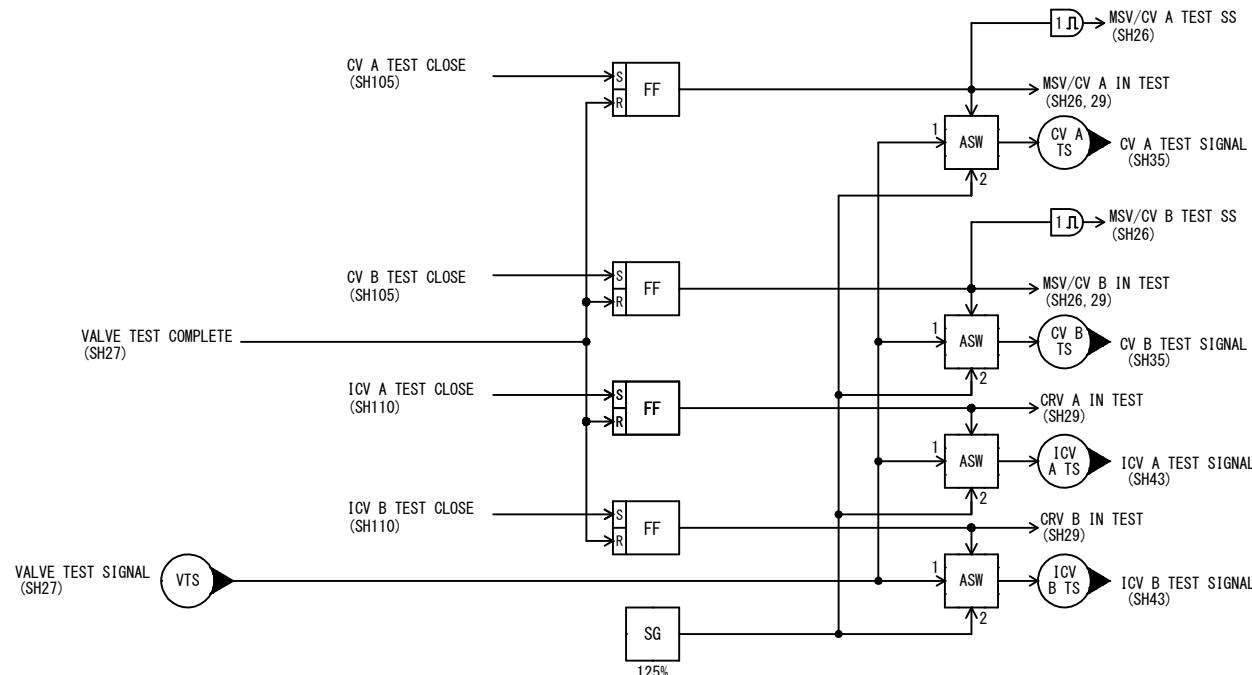


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

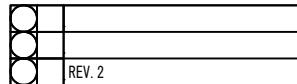
調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 R. F N. Y	DESIGNED BY Jun. 25, 21	VALVE TEST DEMAND(1)
				7K2K1689 -027

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MASTER CONTROLLER

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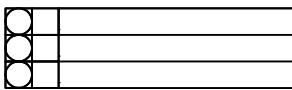
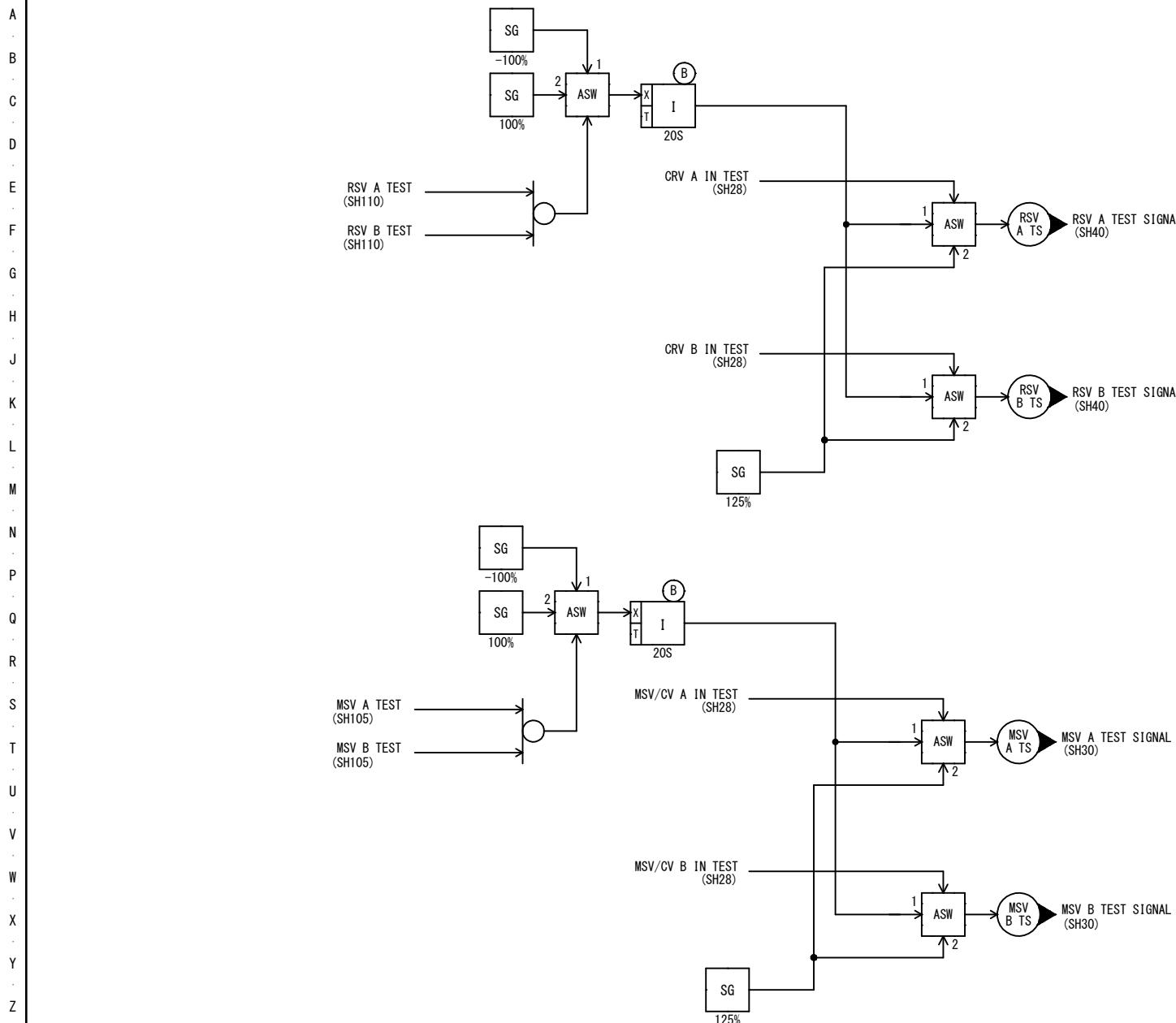
SH



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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY -----/ R. F Jun. 25, 21	設計 DESIGNED BY N. Y Jun. 25, 21	VALVE TEST DEMAND (2) 7K2K1689 -028
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MASTER CONTROLLER

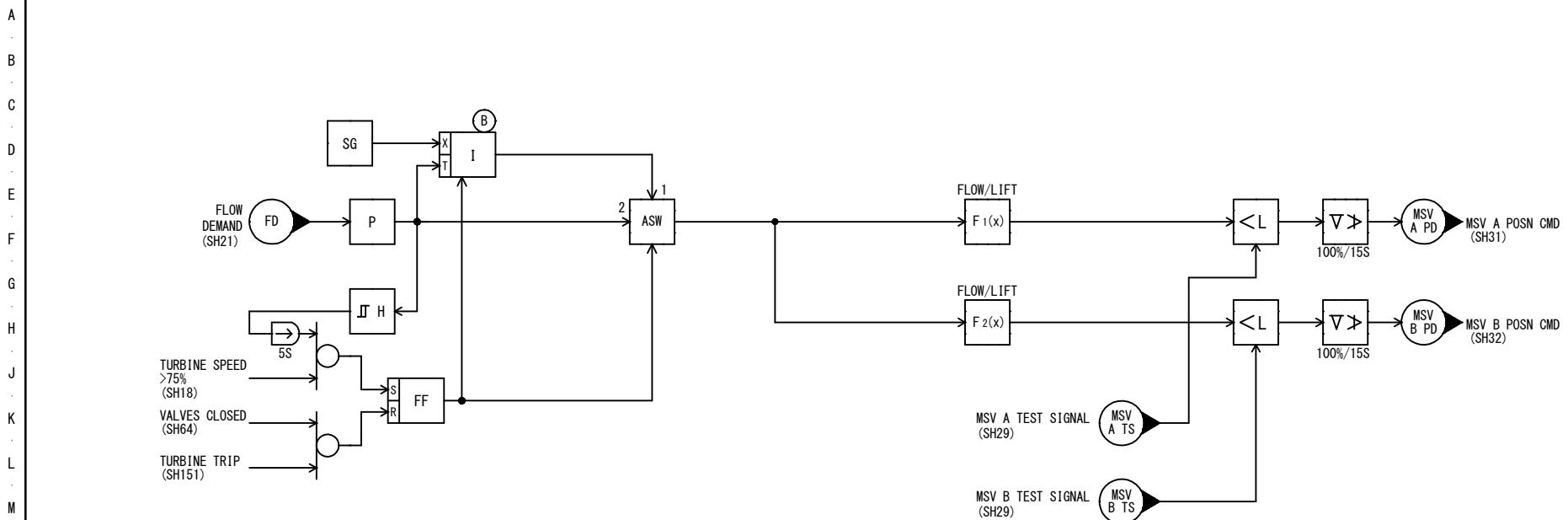


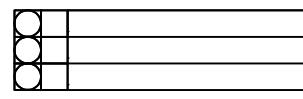
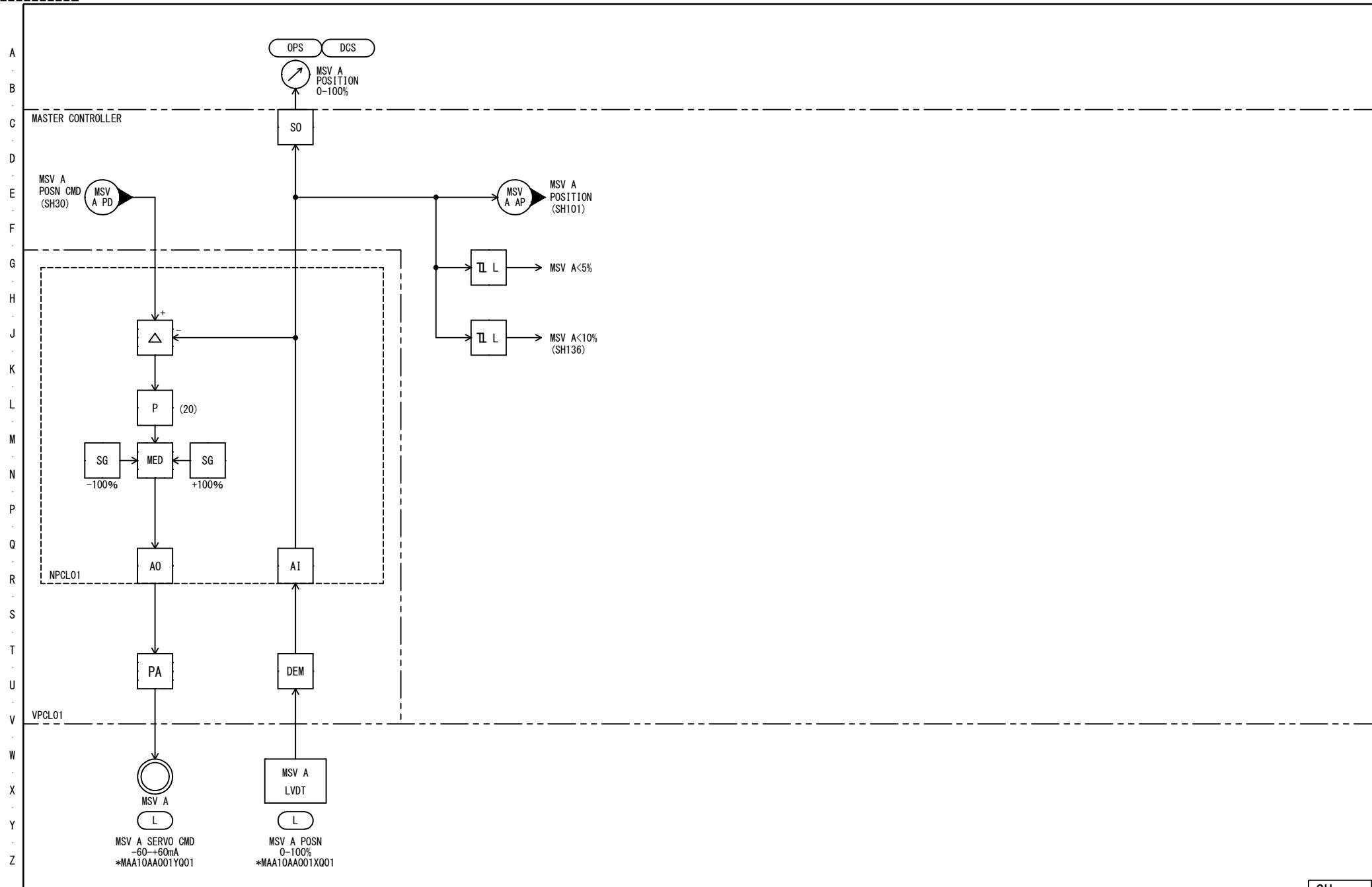
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY R. F N. Y	設計 DESIGNED BY Jun. 25, 21	VALVE TEST DEMAND (3) Jun. 25, 21
7K2K1689 -029			

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MASTER CONTROLLER

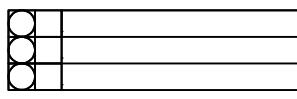
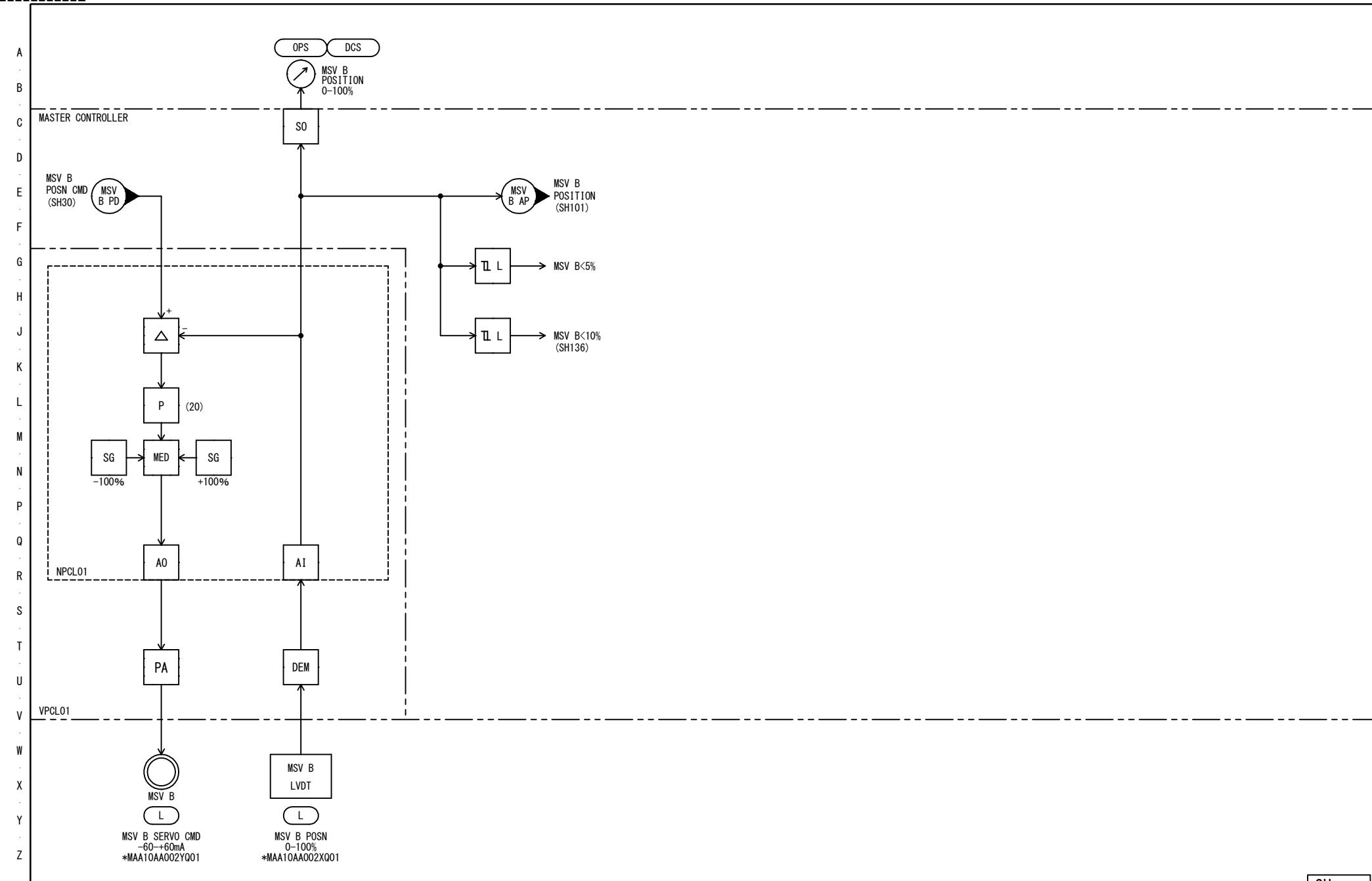




(*) NOTE
*:10 (UNIT1)
*:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	MSV A POSITION CONTROL
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -031

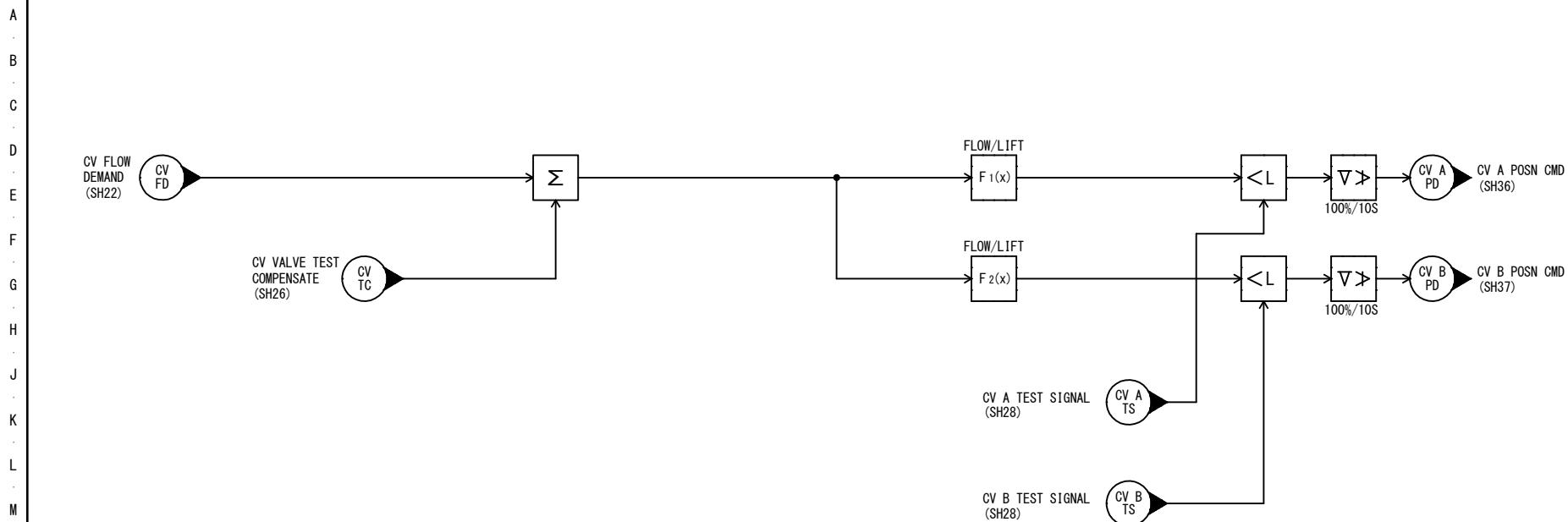


(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

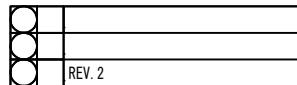
調査 CHECKED BY	設計 DESIGNED BY	MSV B POSITION CONTROL
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -032

MASTER CONTROLLER

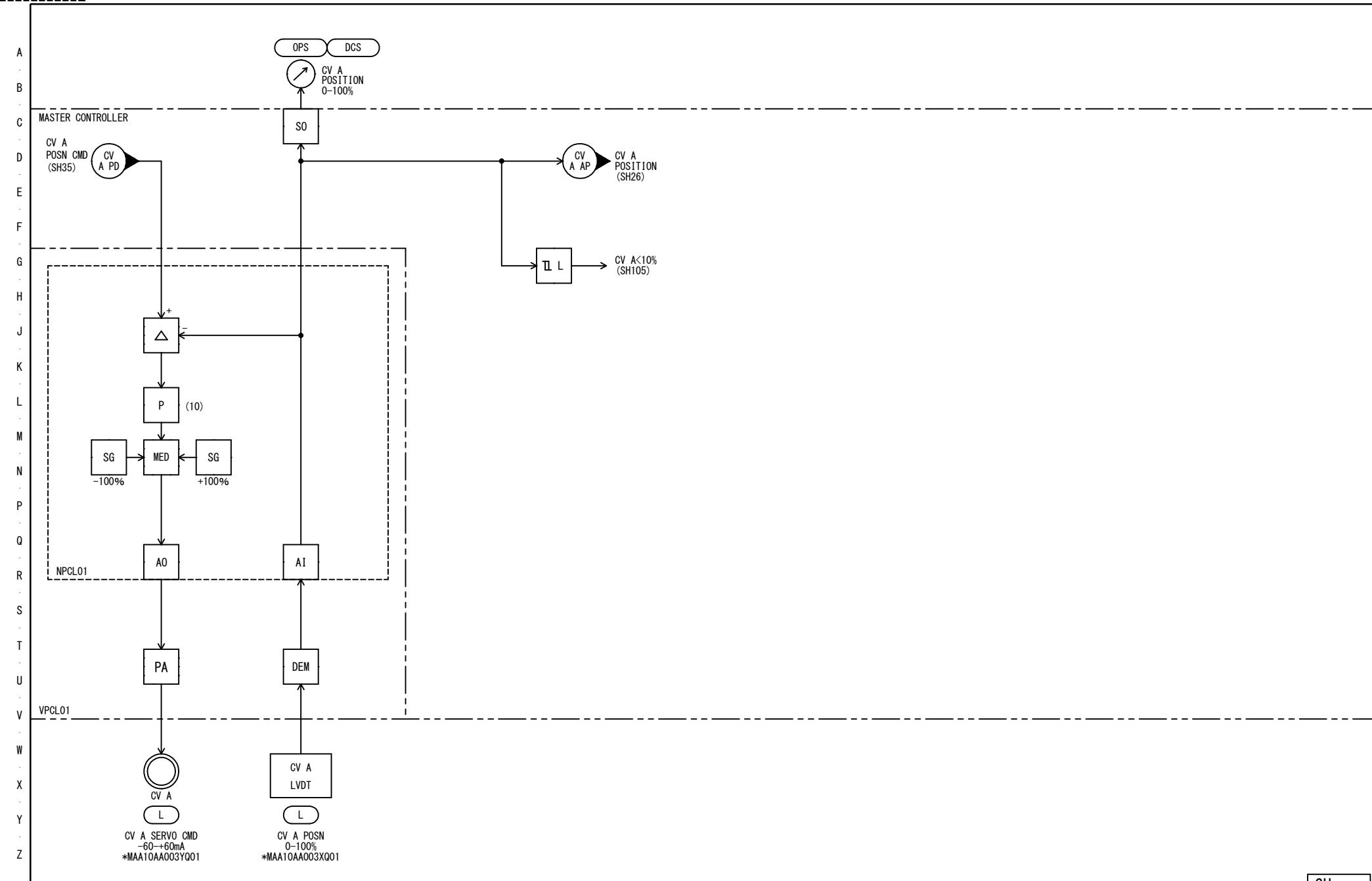


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	CV CONTROL
	-----/ R. F Jun. 25. 21	N. Y Jun. 25. 21	
			7K2K1689 -035



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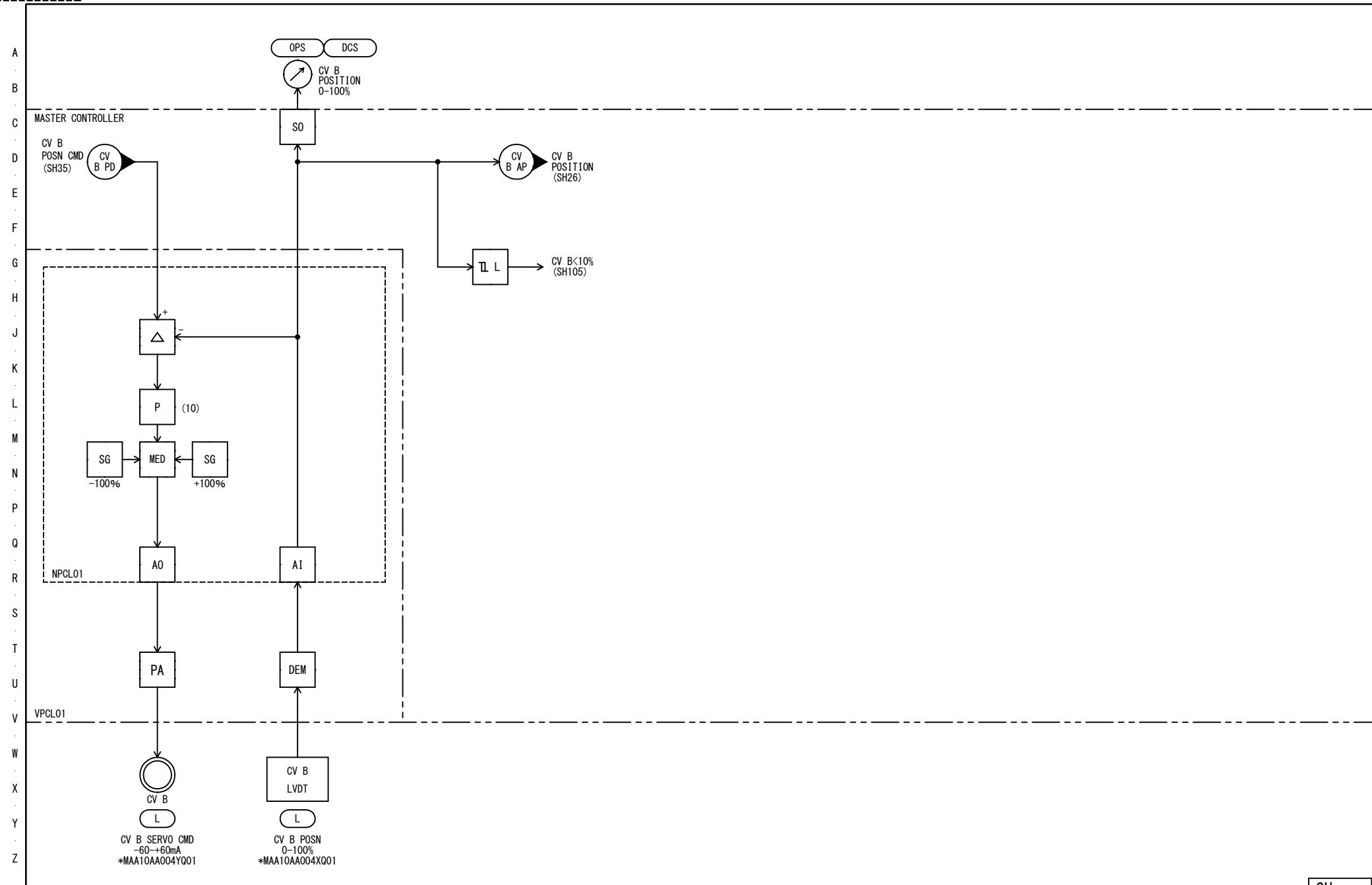


REV.2

(*)NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	CV A POSITION CONTROL
T. S/K. T	---/ R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -036



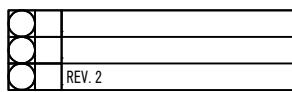
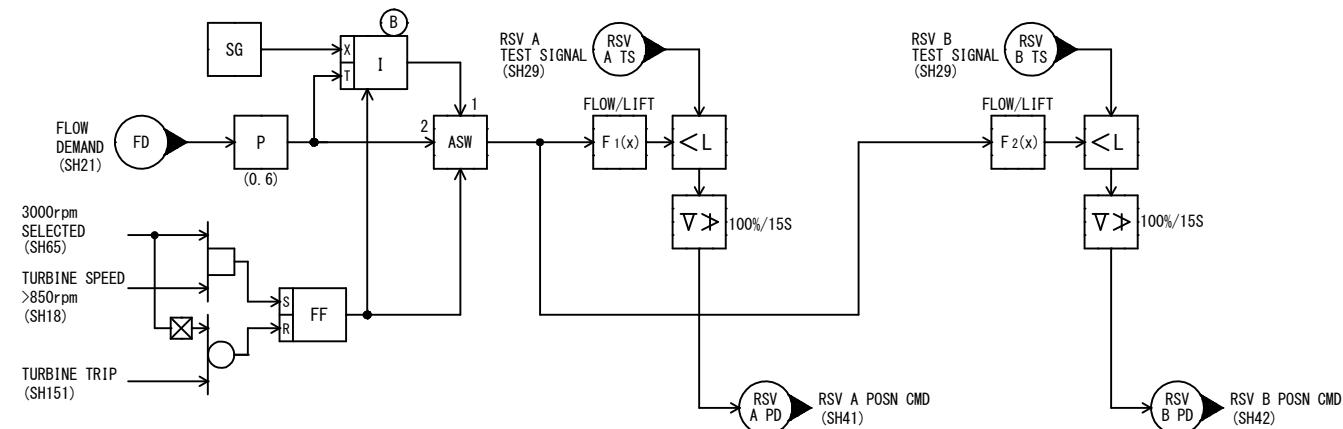
REV.2	

(*)NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	CV B POSITION CONTROL
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -037

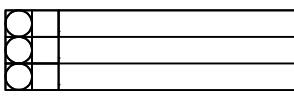
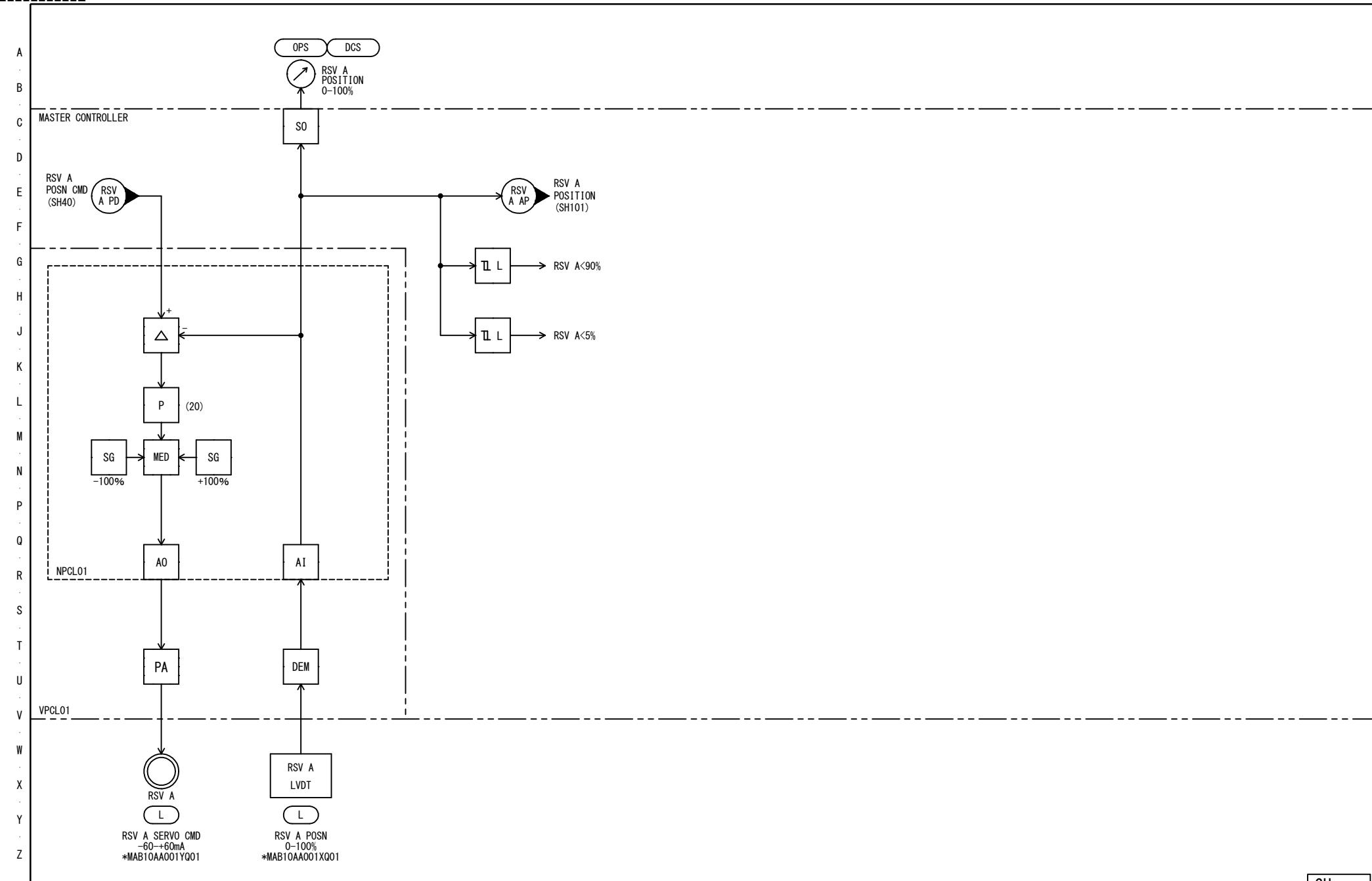
MASTER CONTROLLER

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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	RSV CONTROL
	-----/ R. F Jun. 25, 21	N. Y Jun. 25, 21	
			7K2K1689 -040

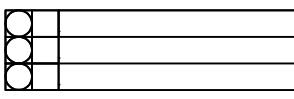
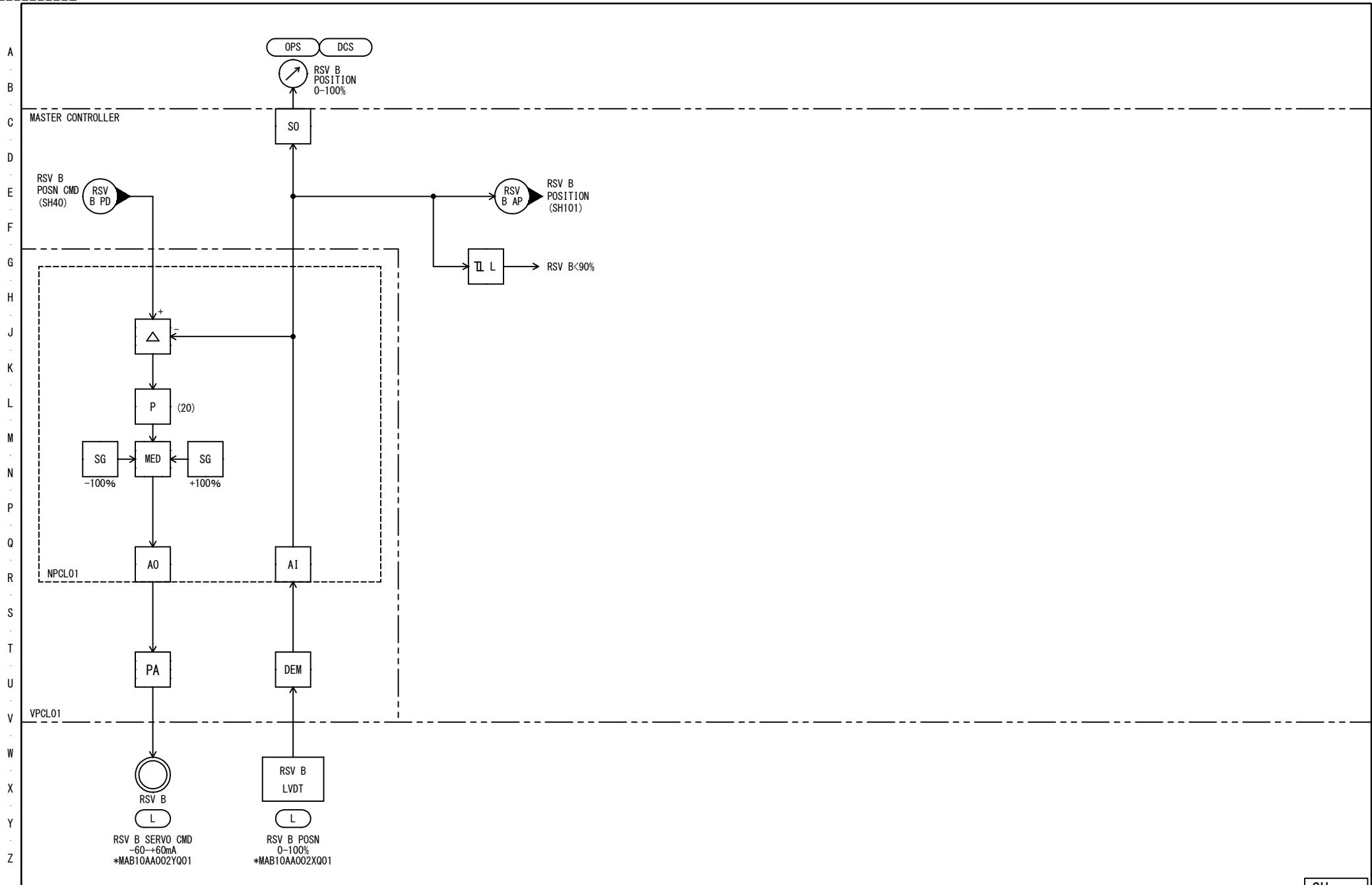
SH



(*) NOTE
*:10 (UNIT1)
*:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

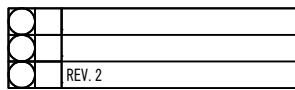
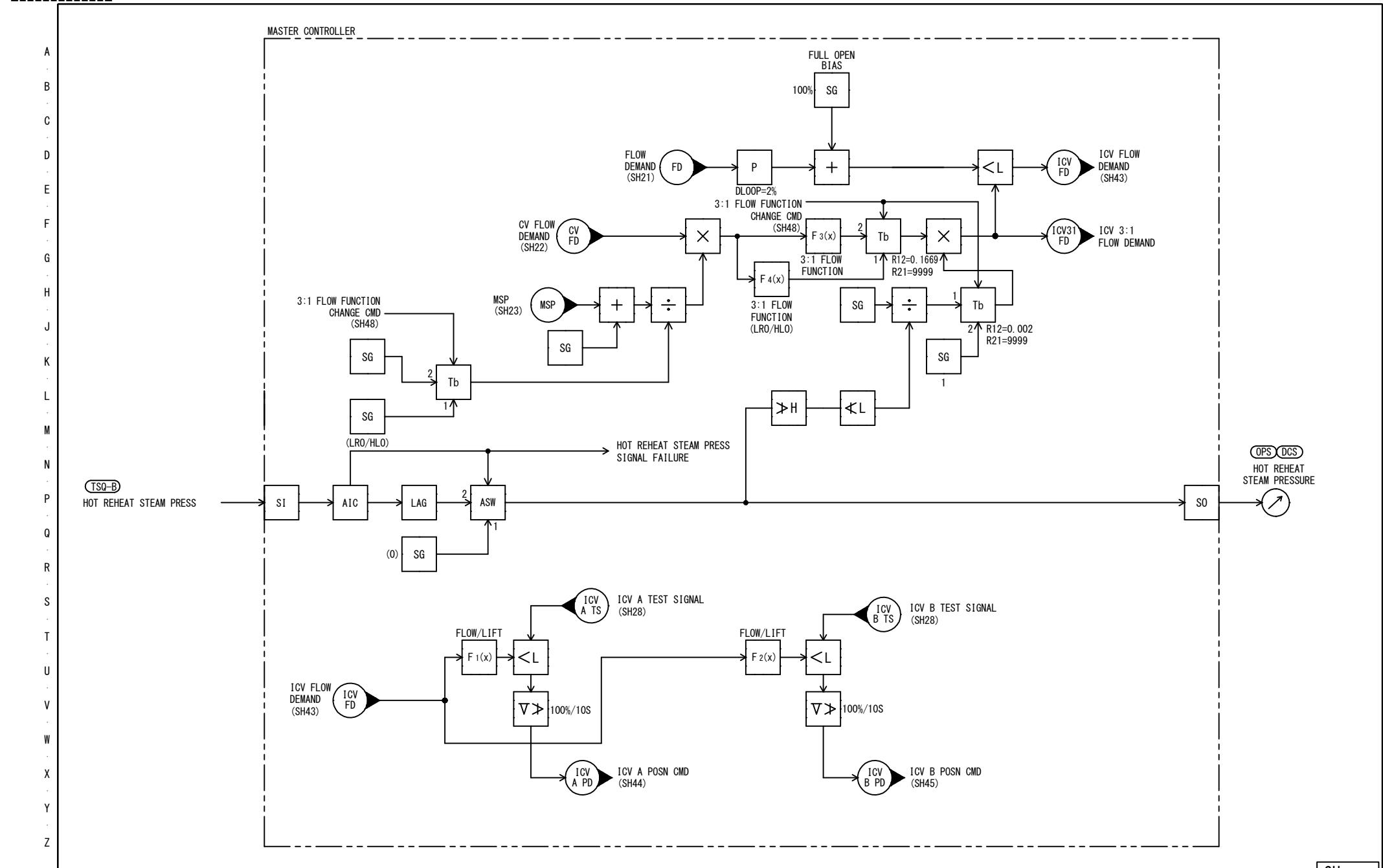
調査 CHECKED BY	設計 DESIGNED BY	RSV(A) POSITION CONTROL
T. S/K. T	---/ R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -041



(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギー・システムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY Jun. 25. 21	設計 DESIGNED BY ----- / R. F. N. Y. Jun. 25. 21	RSV(B) POSITION CONTROL 7K2K1689 -042
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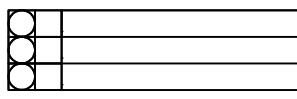
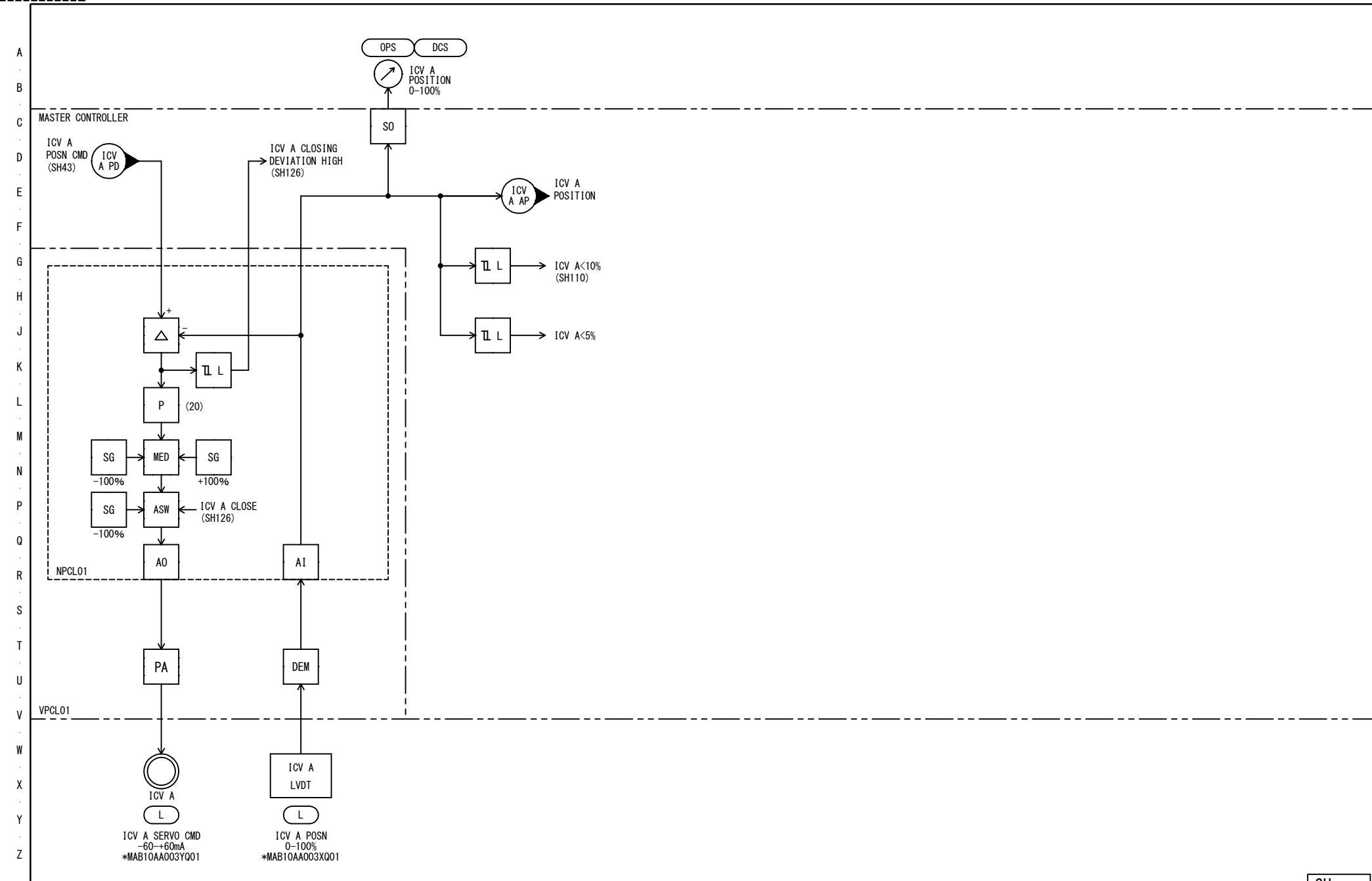


(*)NOTE
*:10 (UNIT1)
*:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY R. F N. Y	設計 DESIGNED BY ICV CONTROL
Jun. 25. 21	Jun. 25. 21	7K2K1689 -043

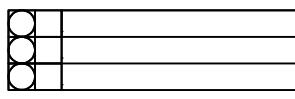
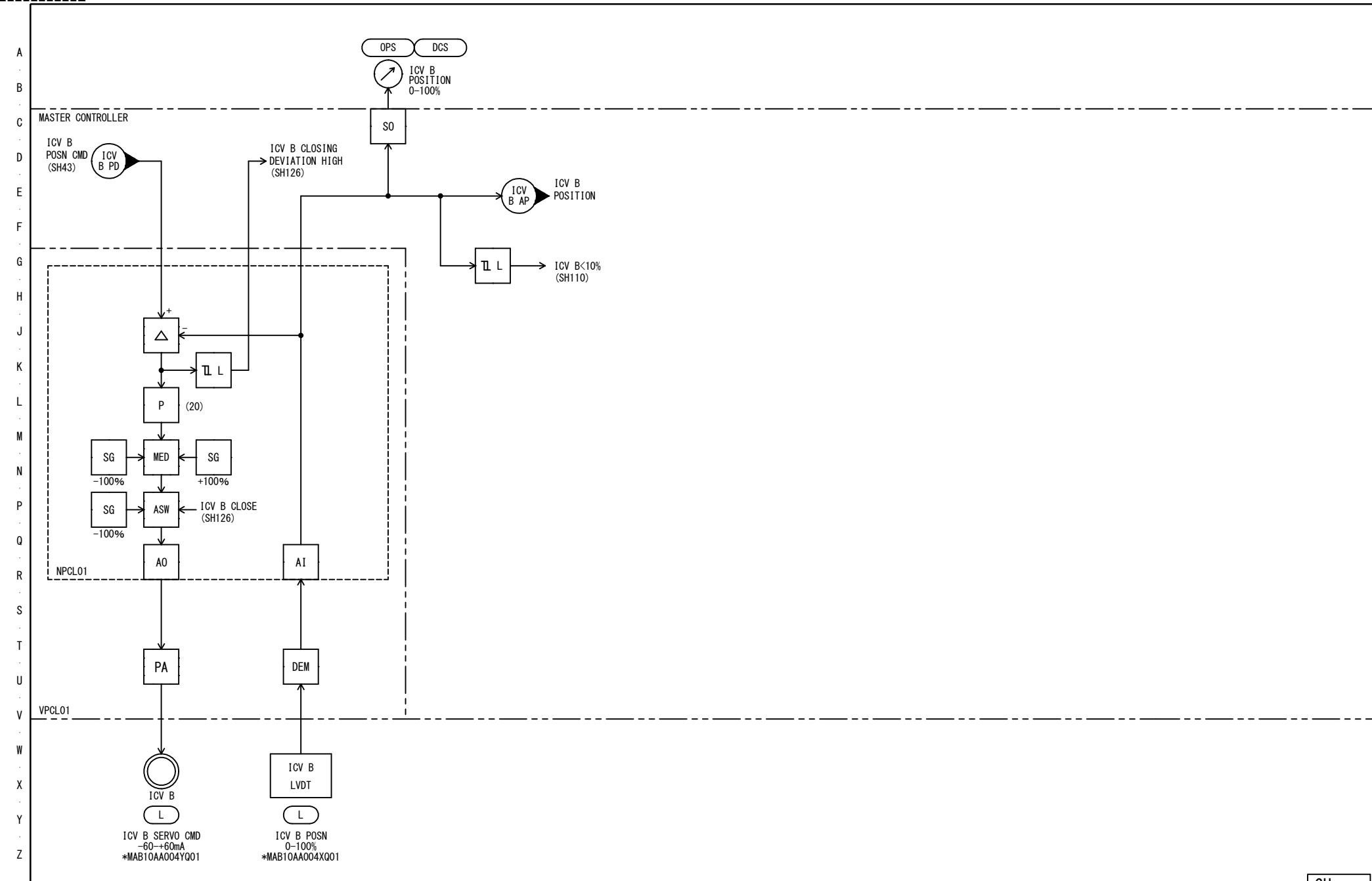
SH



(*) NOTE
*:10 (UNIT1)
*:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

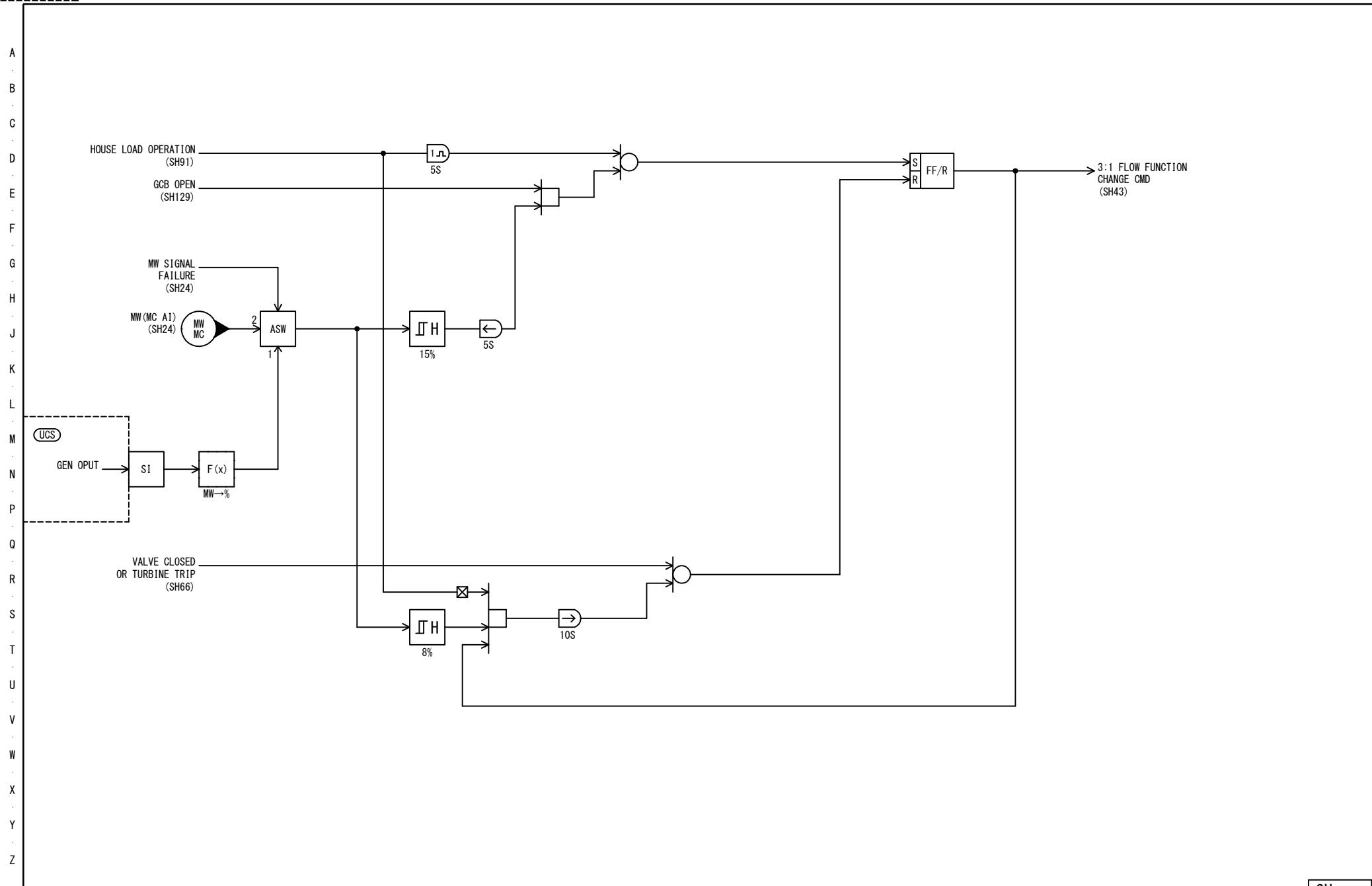
調査 CHECKED BY	設計 DESIGNED BY	ICV A POSITION CONTROL
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -044

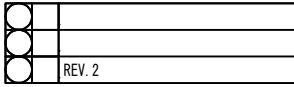
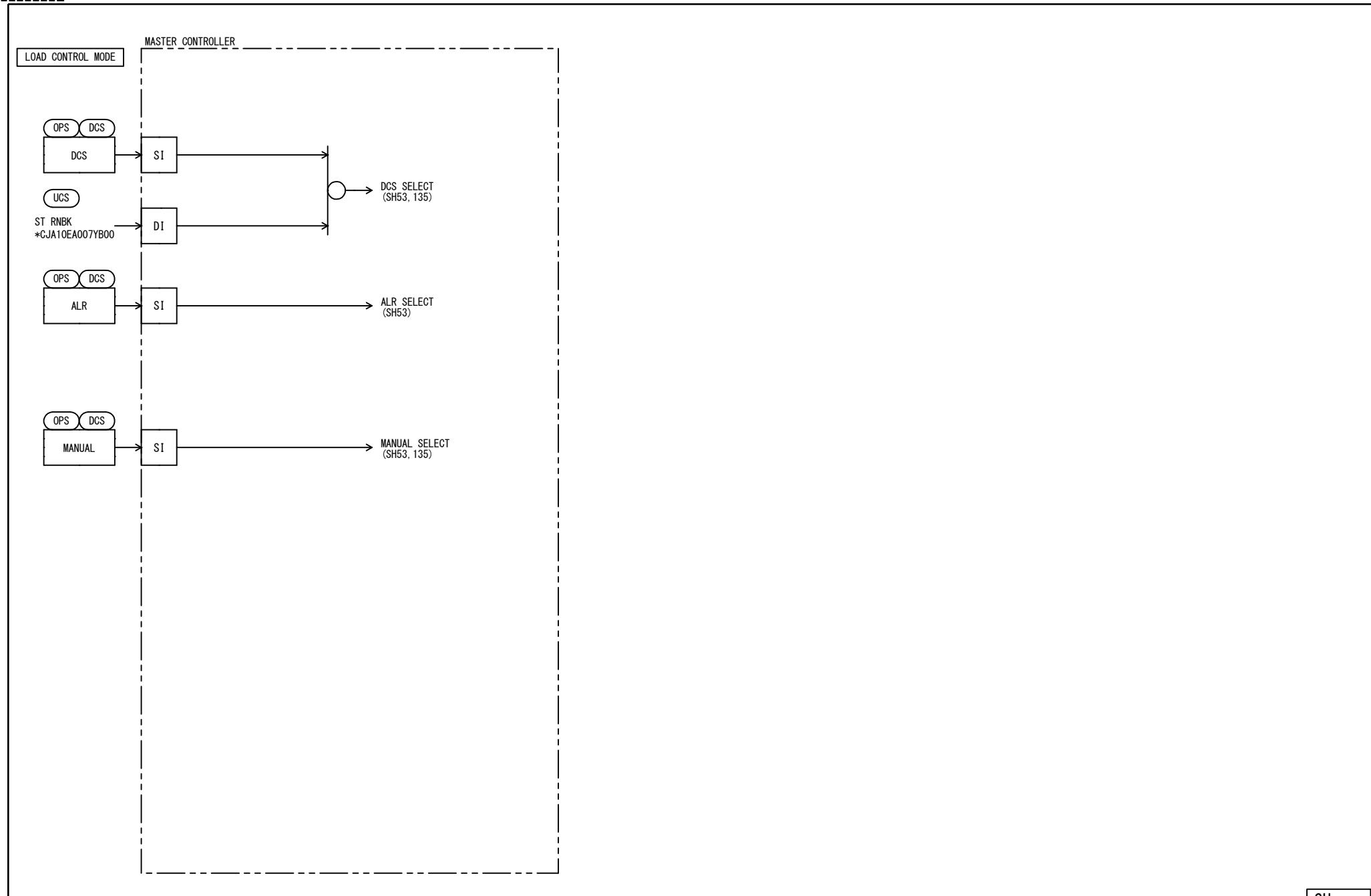


(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	ICV B POSITION CONTROL
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -045



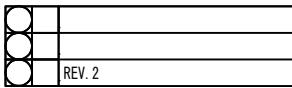
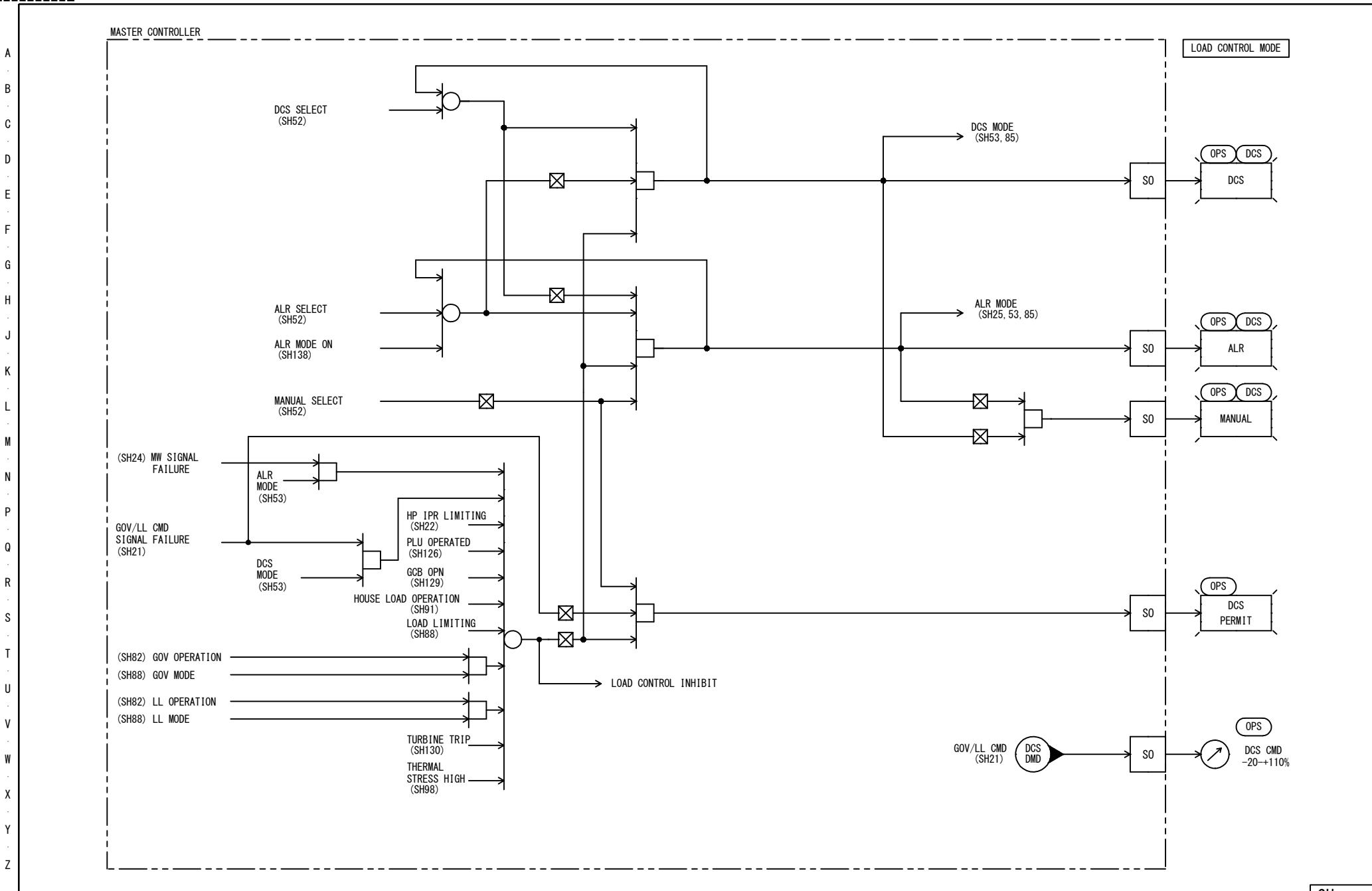


(*)NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

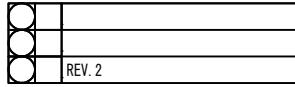
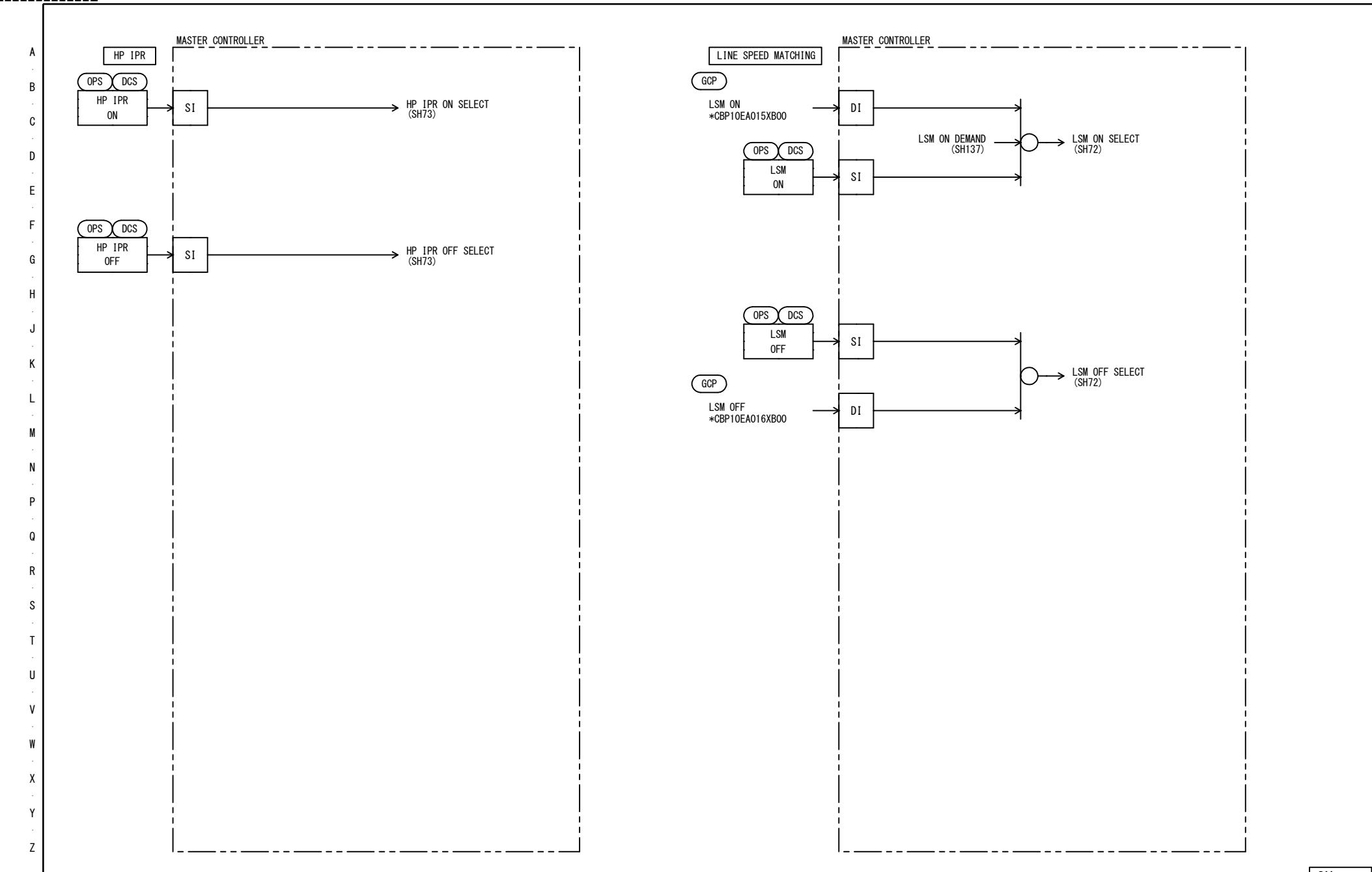
調査 CHECKED BY	設計 DESIGNED BY	OPERATION MODE(1)
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -052

SH



東芝エネルギー・システムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY Jun. 25. 21	設計 DESIGNED BY ---- / R. F Jun. 25. 21	OPERATION MODE (2) N. Y
			7K2K1689 -053



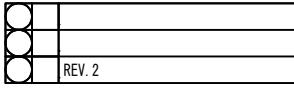
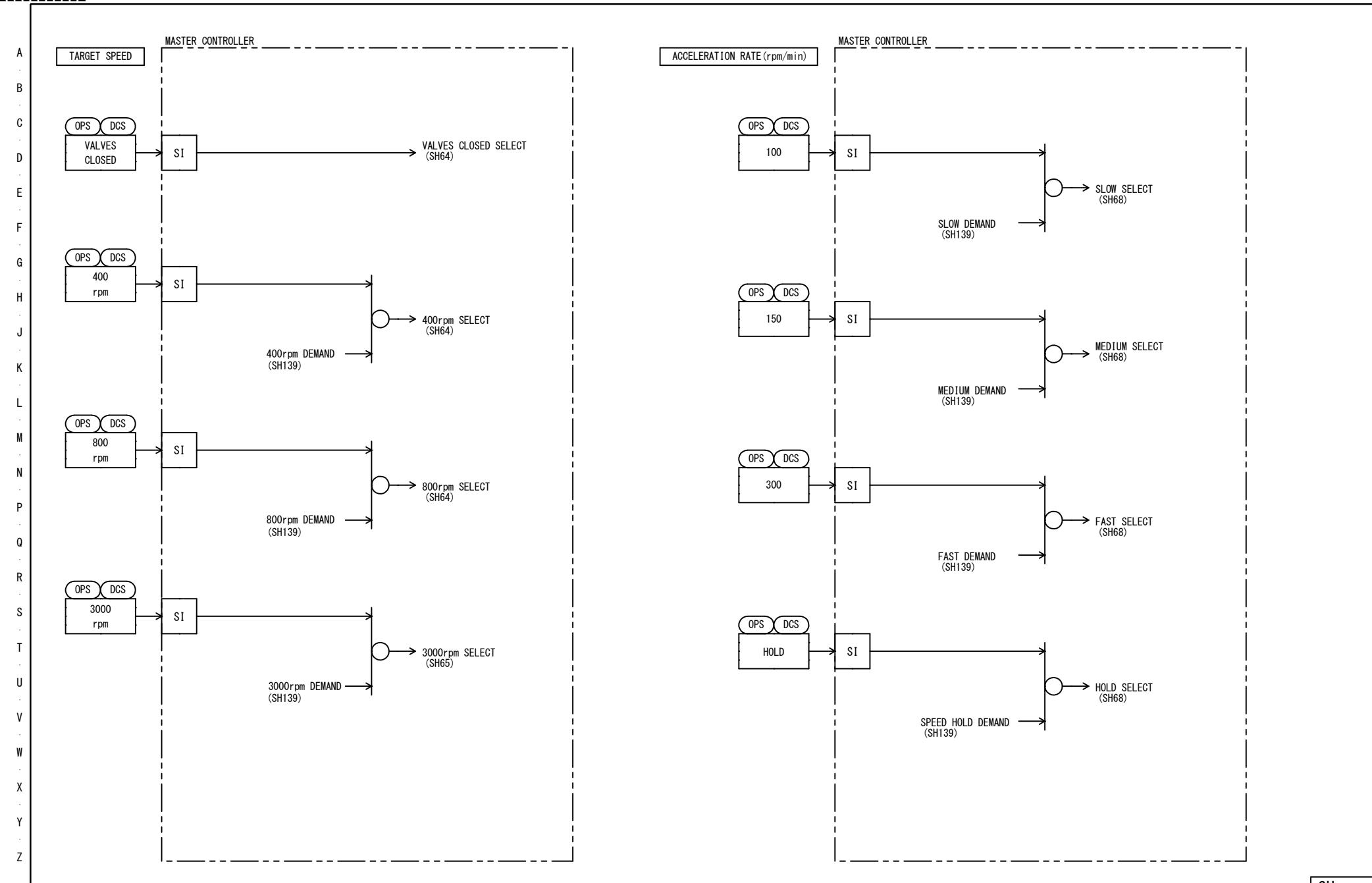
(*)NOTE
*:10 (UNIT1)
:20 (UNIT2)

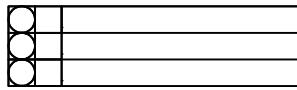
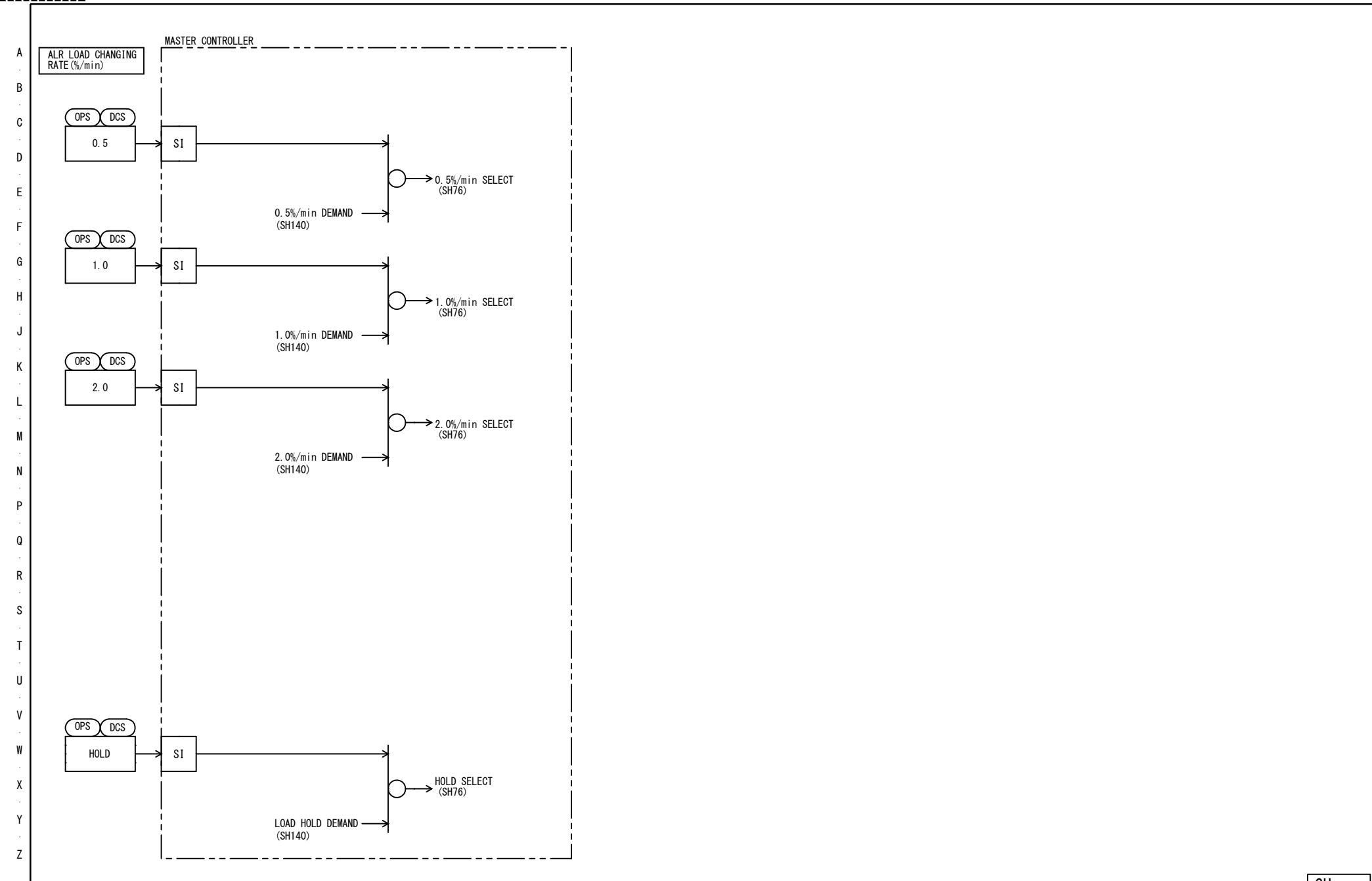
REV.2

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	OPERATION SIGNAL(1)
T. S/K. T	--- / R. F N. Y	
Jun. 25. 21	Jun. 25. 21	7K2K1689 -054

SH

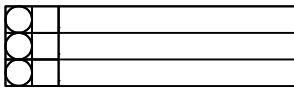
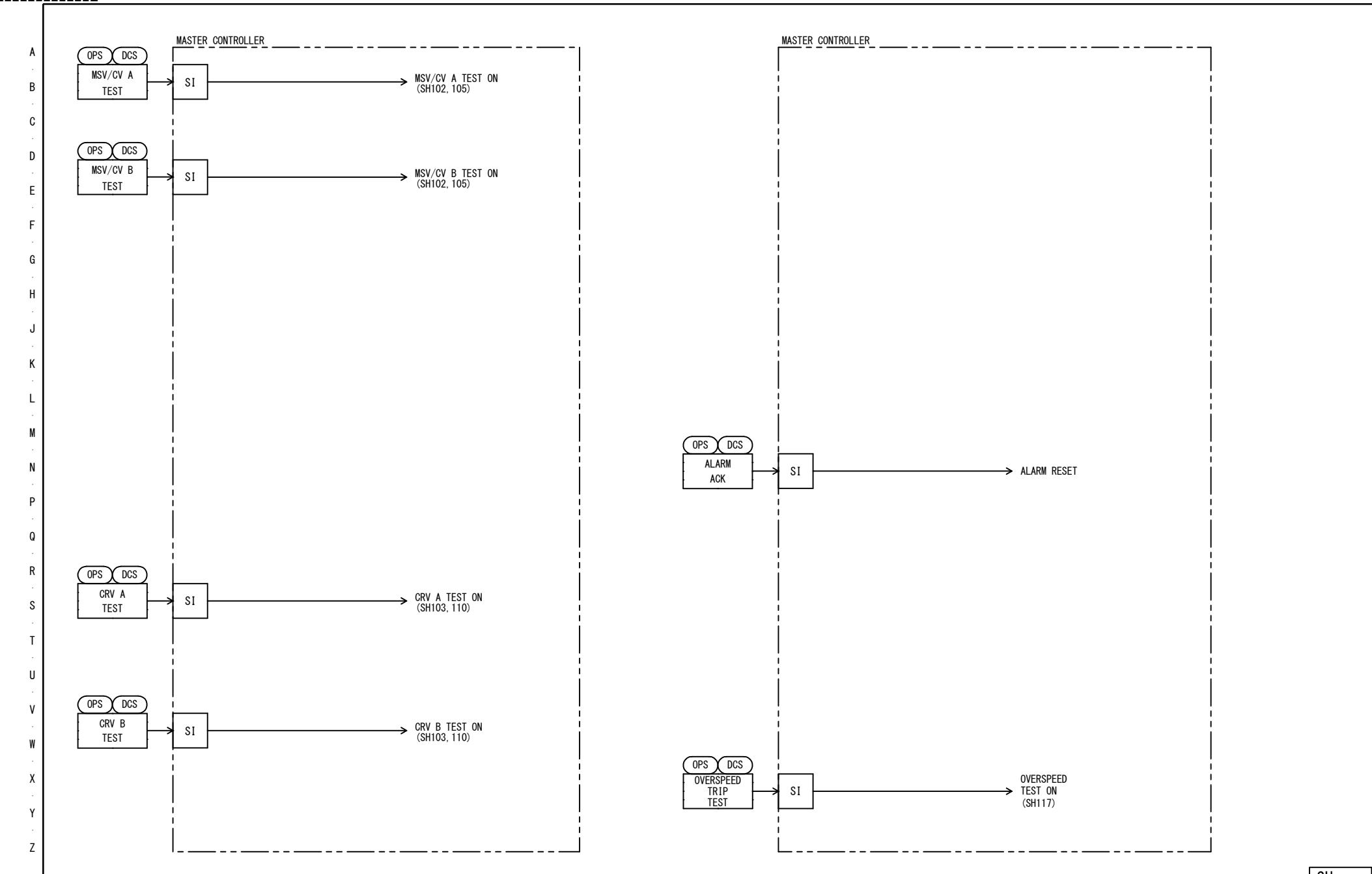


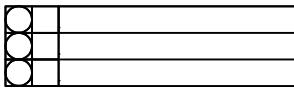
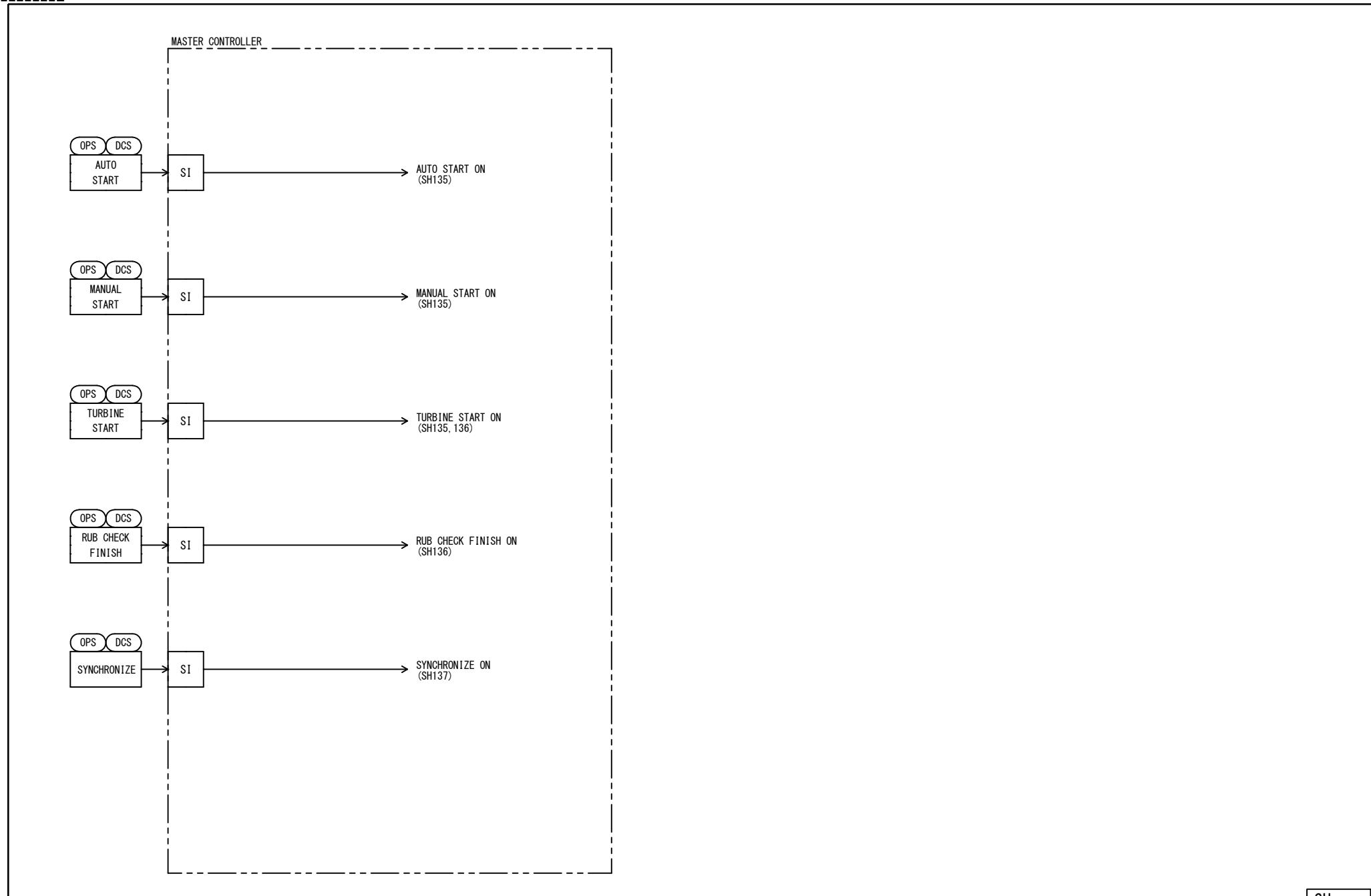


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

SH

調査 CHECKED BY	設計 DESIGNED BY	OPERATION SIGNAL (3)
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -056

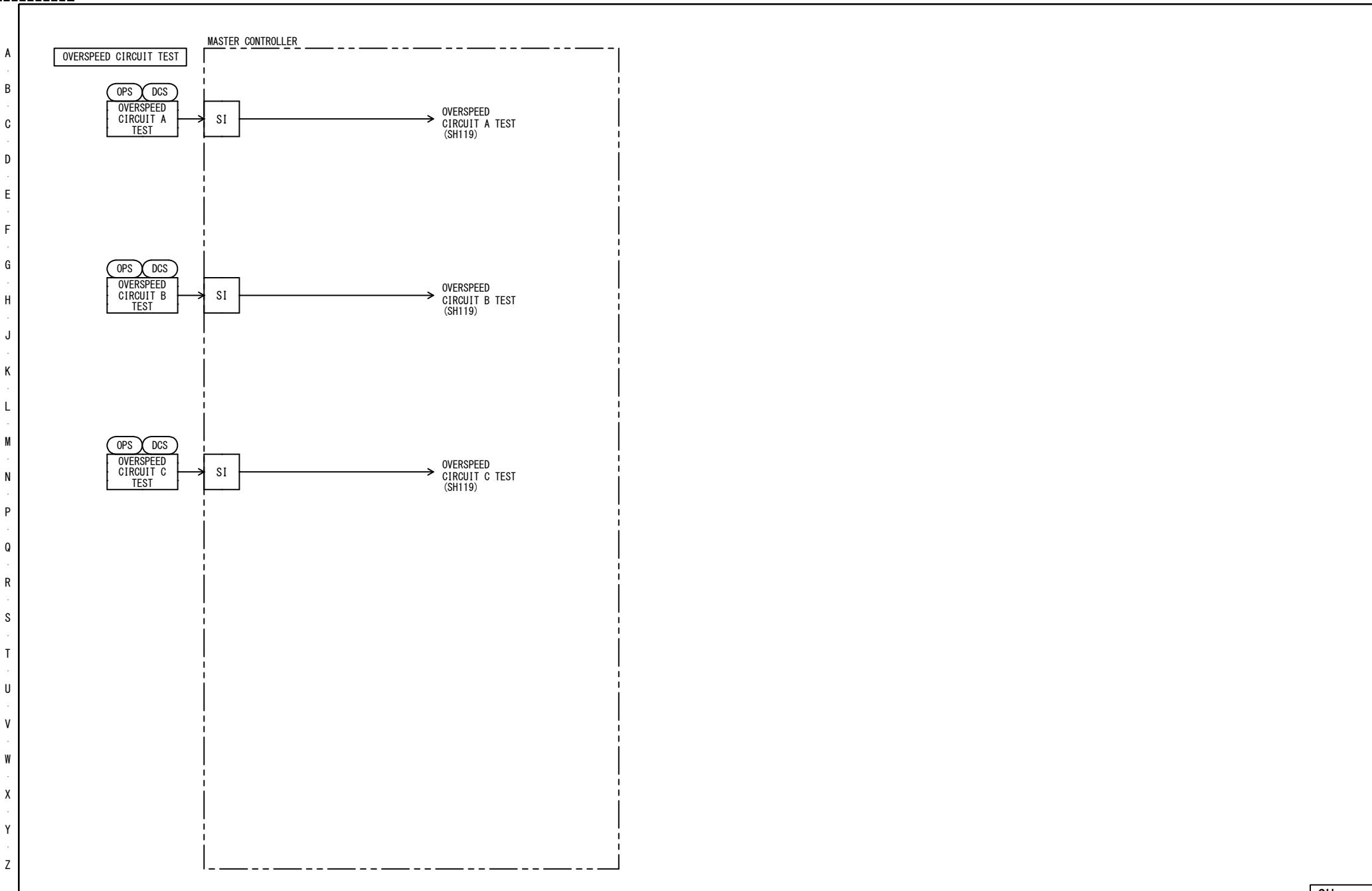




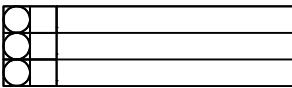
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 DESIGNED BY R. F N. Y	OPERATION SIGNAL (5) Jun. 25, 21
7K2K1689 -058			

SH



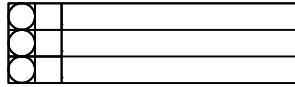
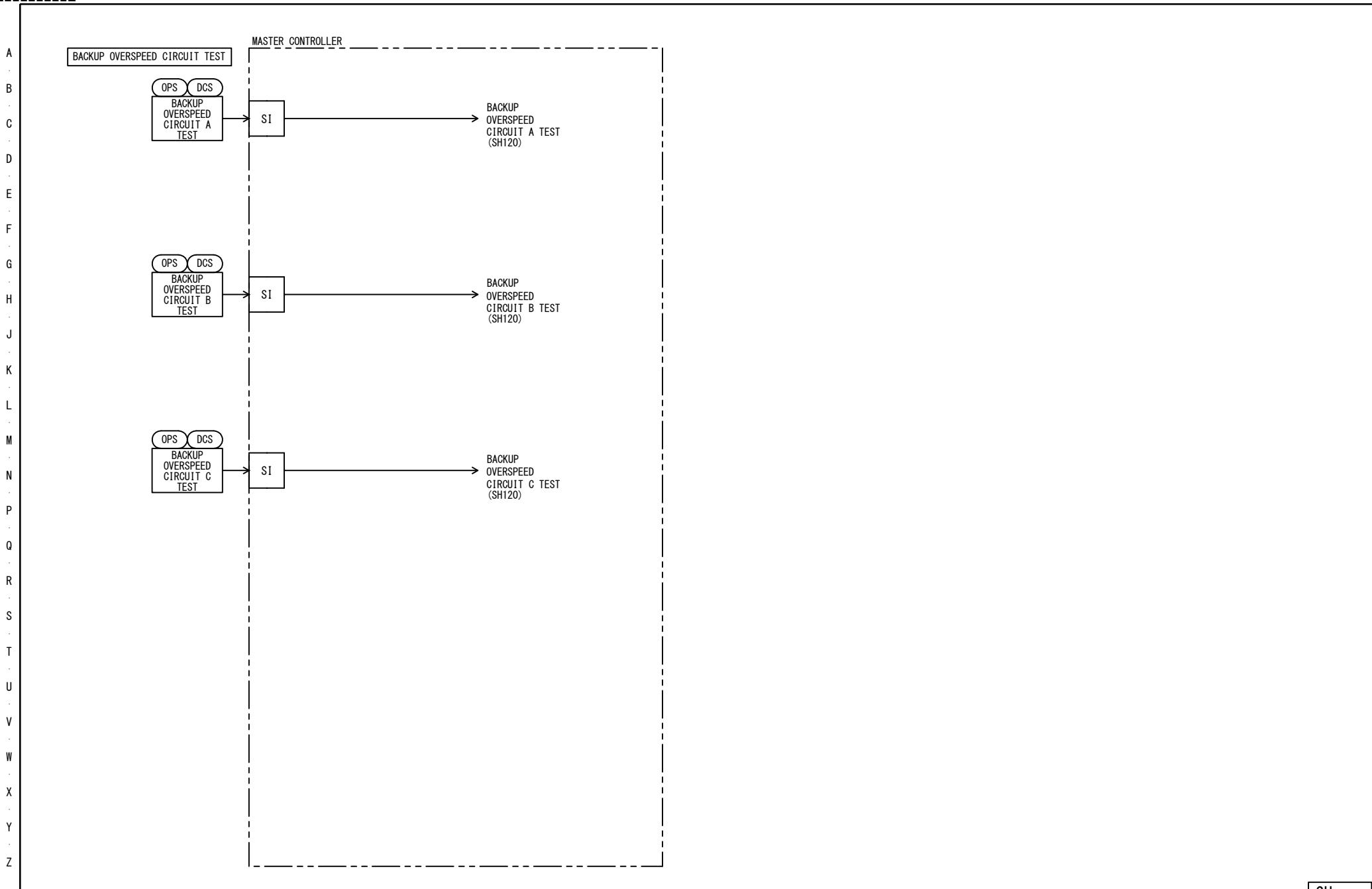
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION



SH

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	OPERATION SIGNAL (6)
	Jun. 25, 21	---/ R. F N. Y	Jun. 25, 21

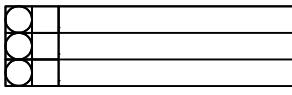
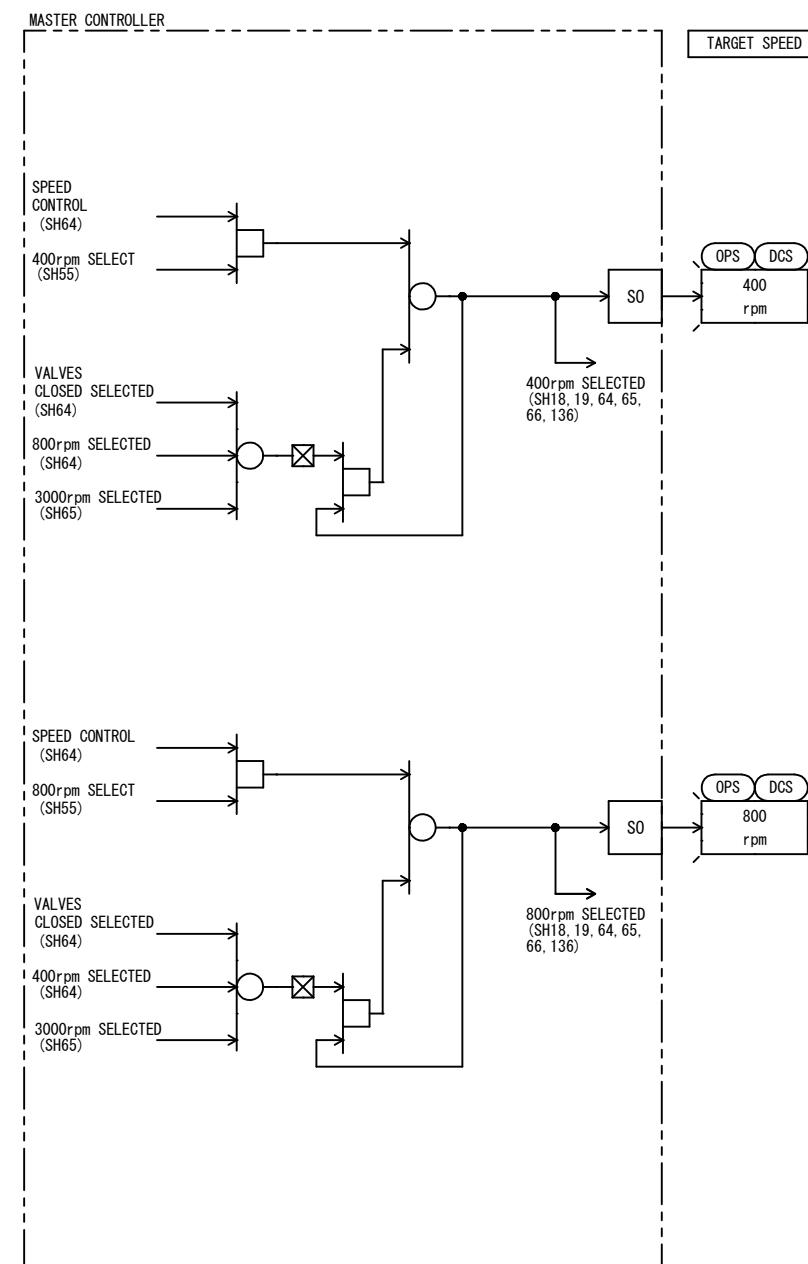
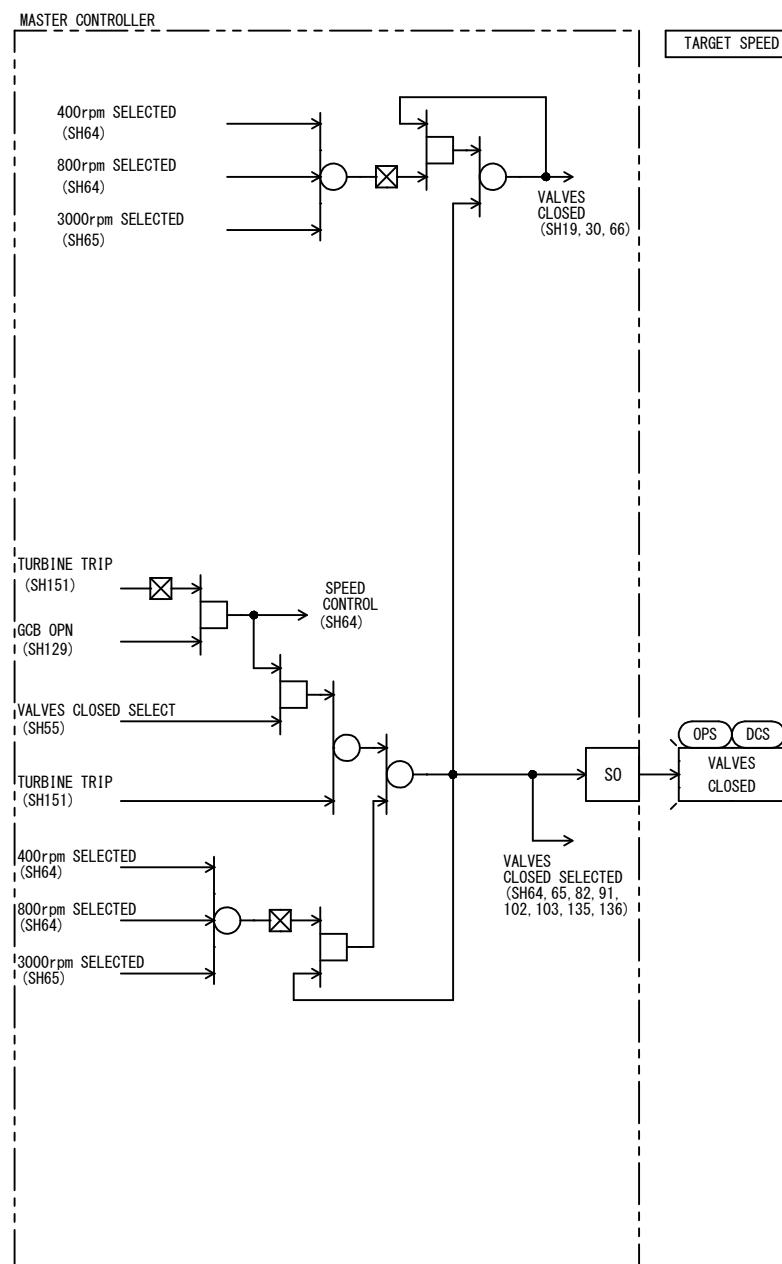
7K2K1689 -059

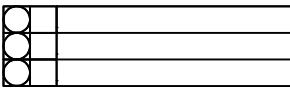
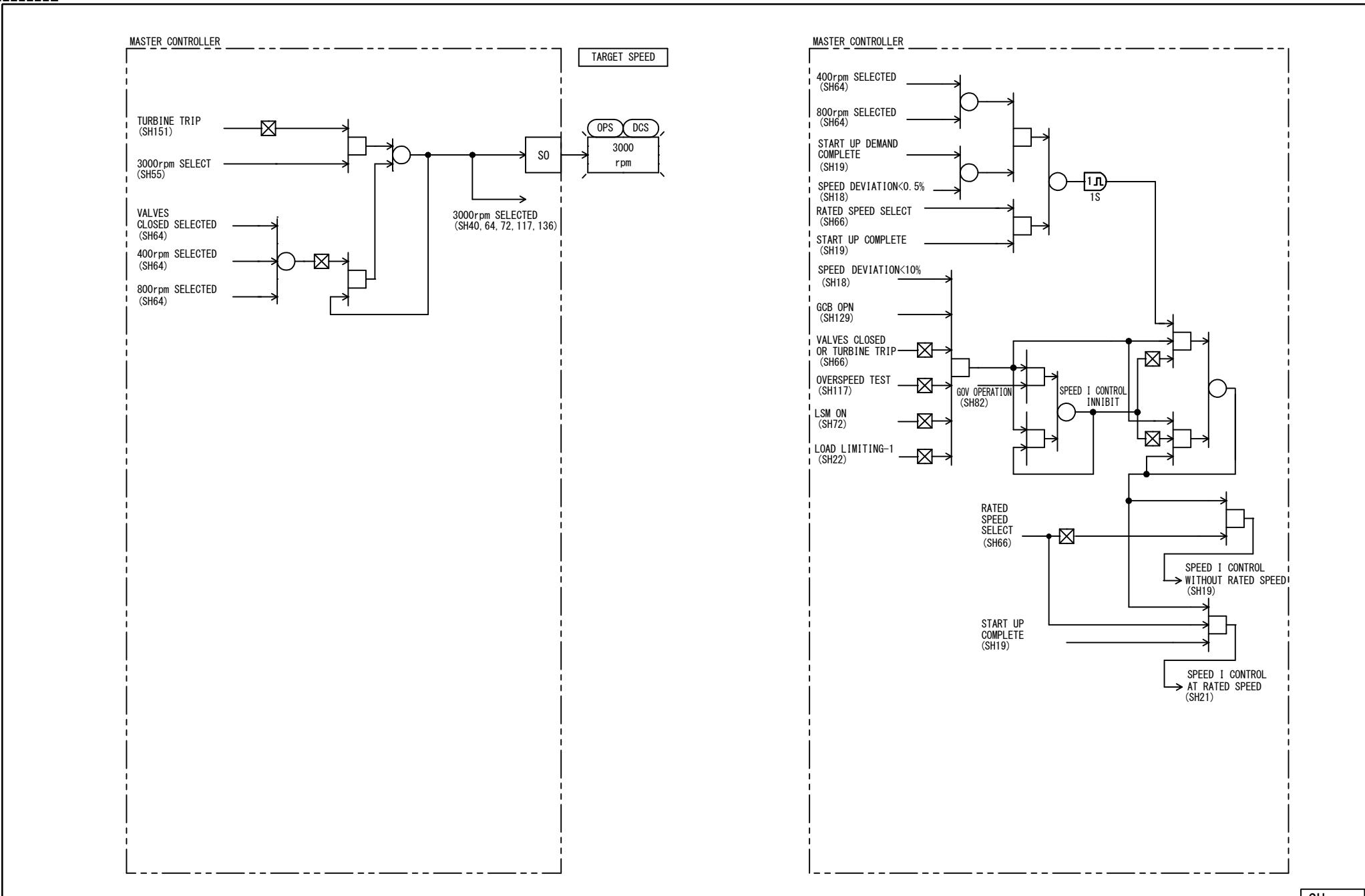


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	OPERATION SIGNAL (7)
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -060

SH

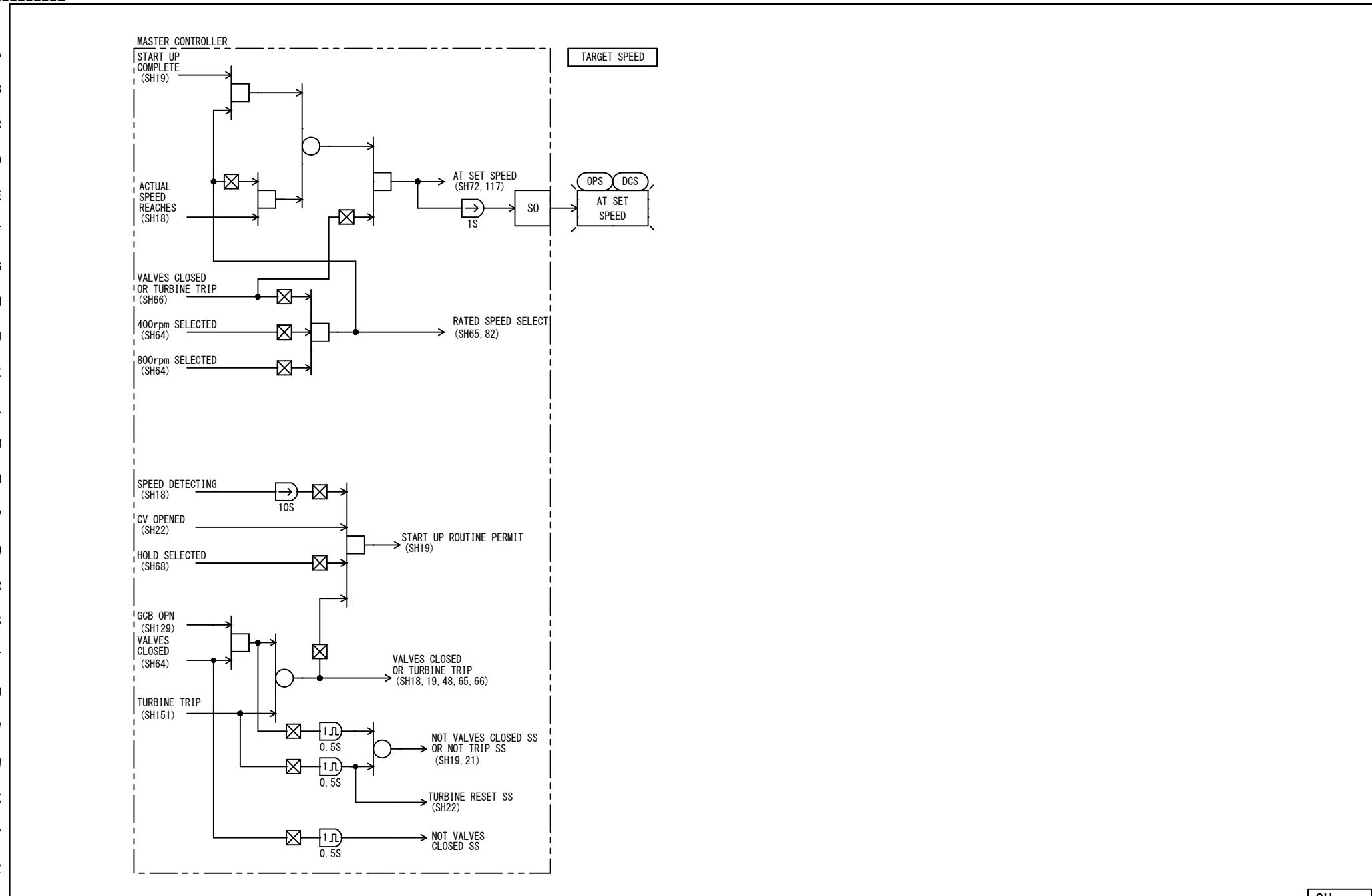




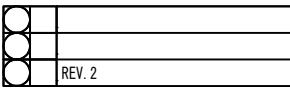
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY R. F N. Y	設計 DESIGNED BY Jun. 25. 21	TARGET SPEED(2) 7K2K1689 -065
		Jun. 25. 21	

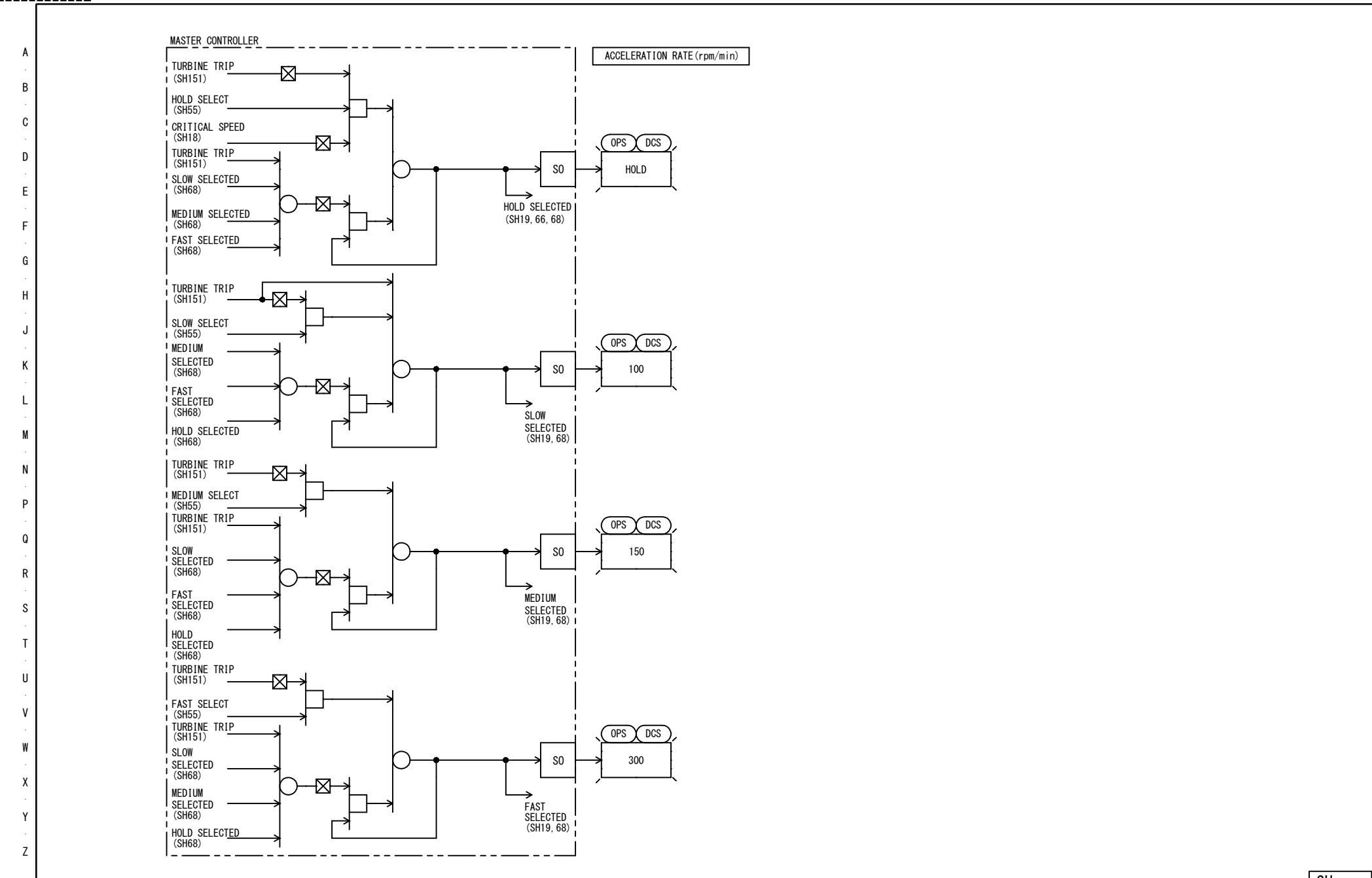
SH



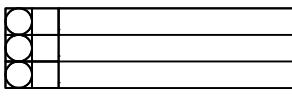
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION



調査 CHECKED BY	設計 DESIGNED BY	TARGET SPEED(3)
T. S/K. T	----- / R. F N. Y	
Jun. 25. 21	Jun. 25. 21	7K2K1689 -066

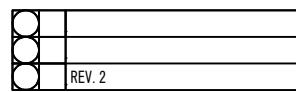
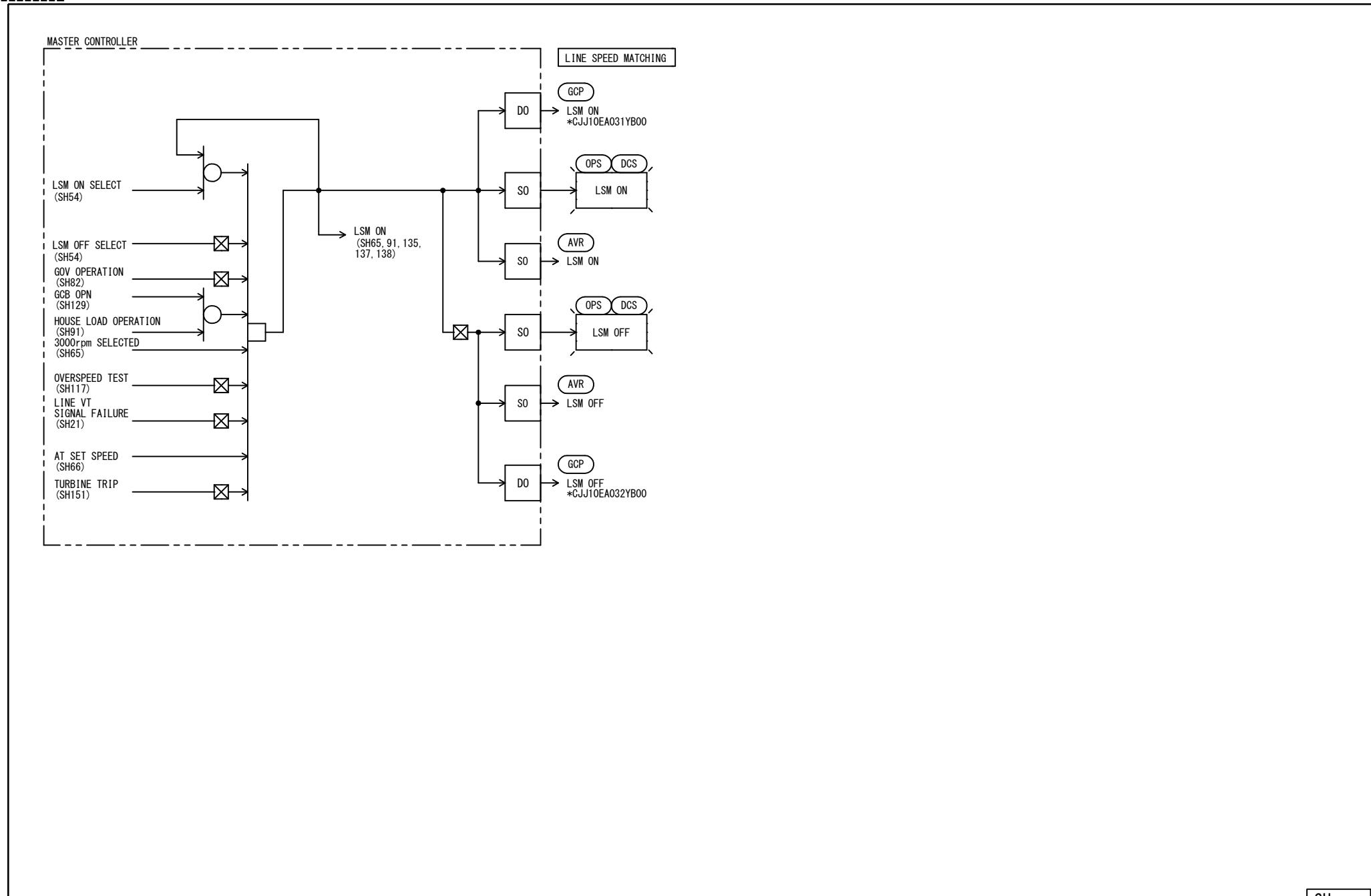


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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION



調査 CHECKED BY	設計 DESIGNED BY	ACCELERATION RATE
T. S/K. T	----- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -068

SH



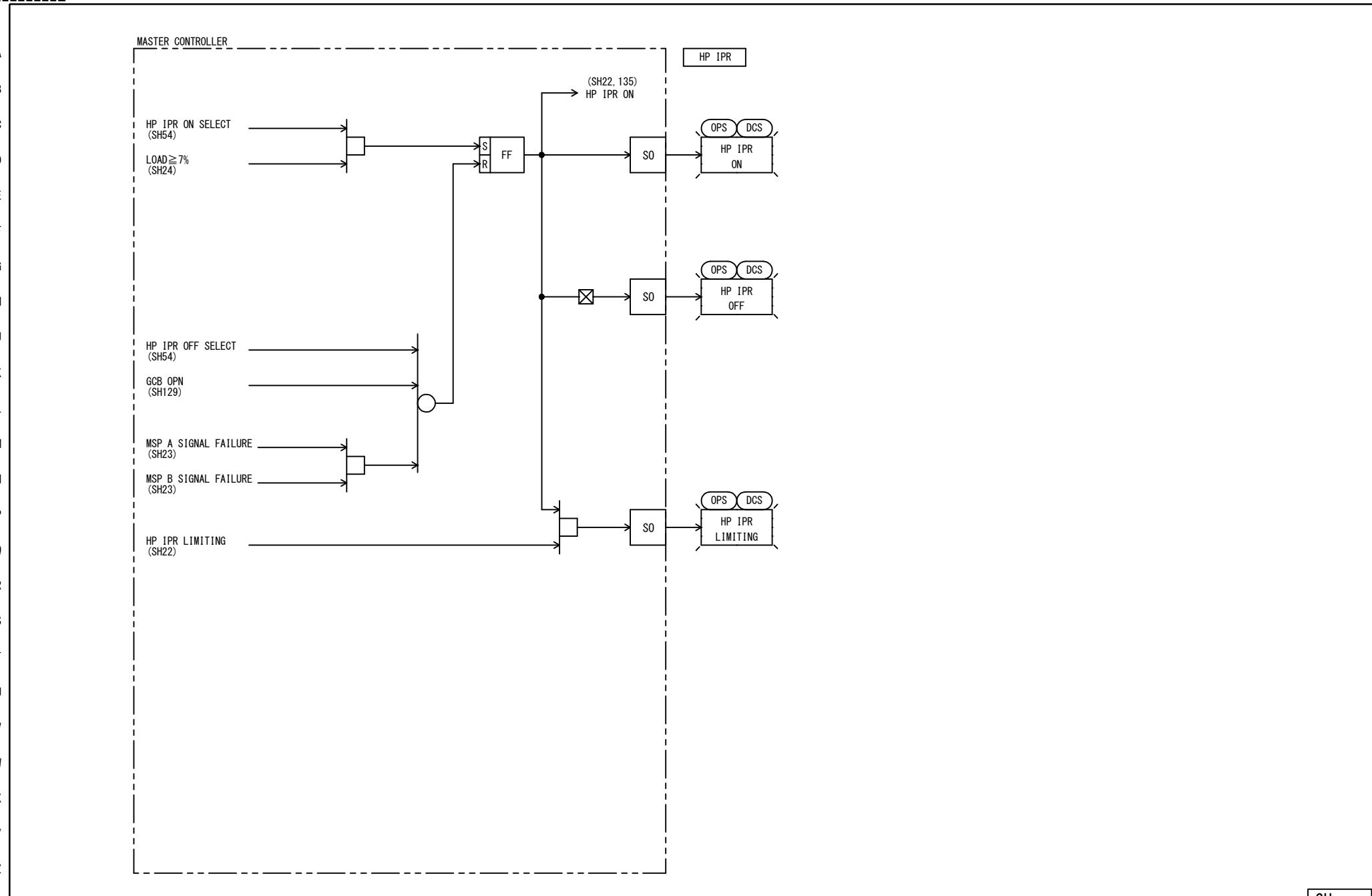
(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

REV.2

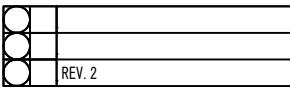
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	LINE SPEED MATCHER
T. S/K. T	--- / R. F N. Y	
Jun. 25. 21	Jun. 25. 21	7K2K1689 -072

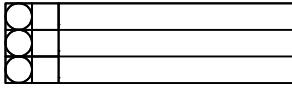
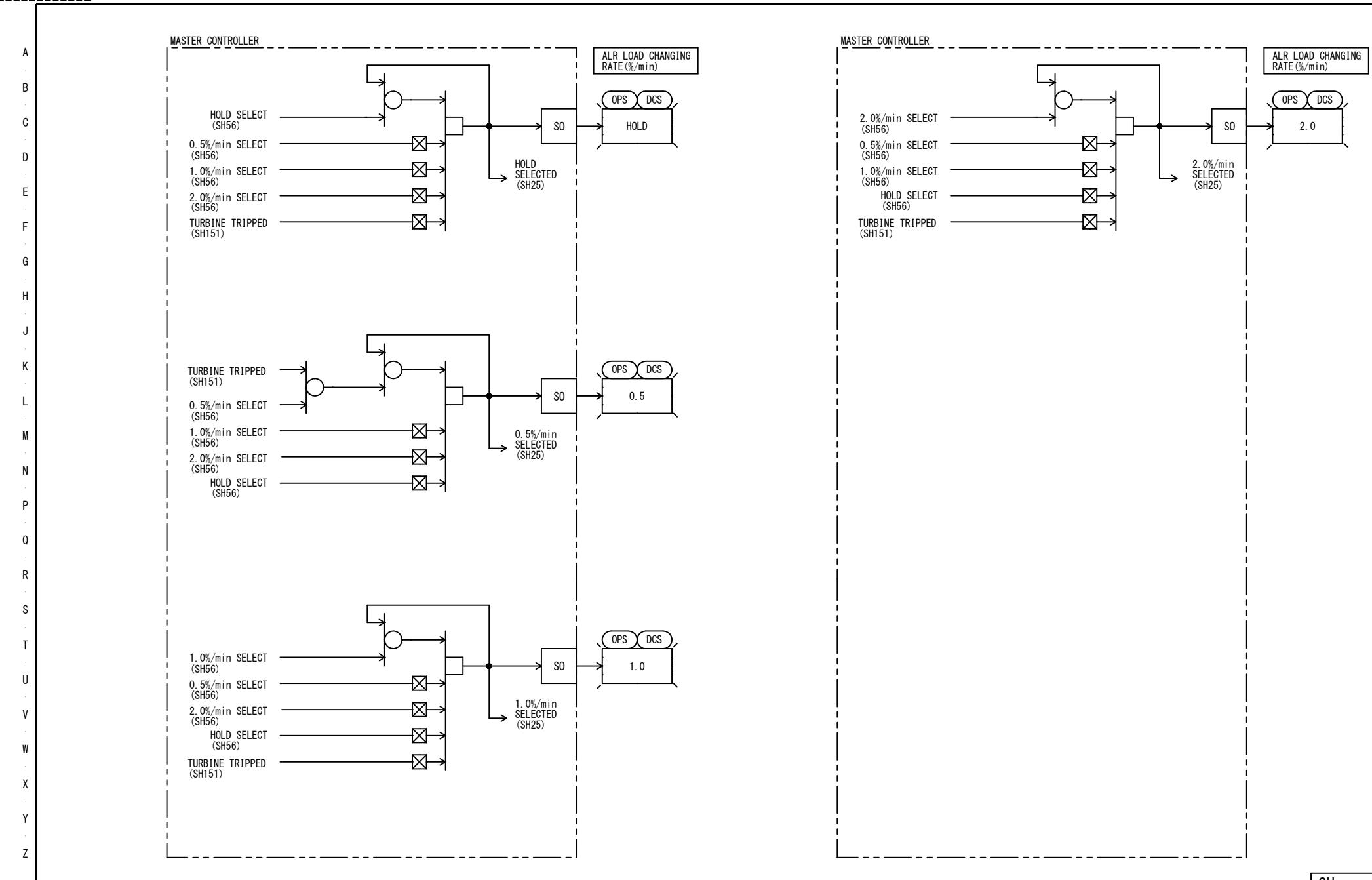
SH

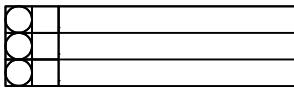
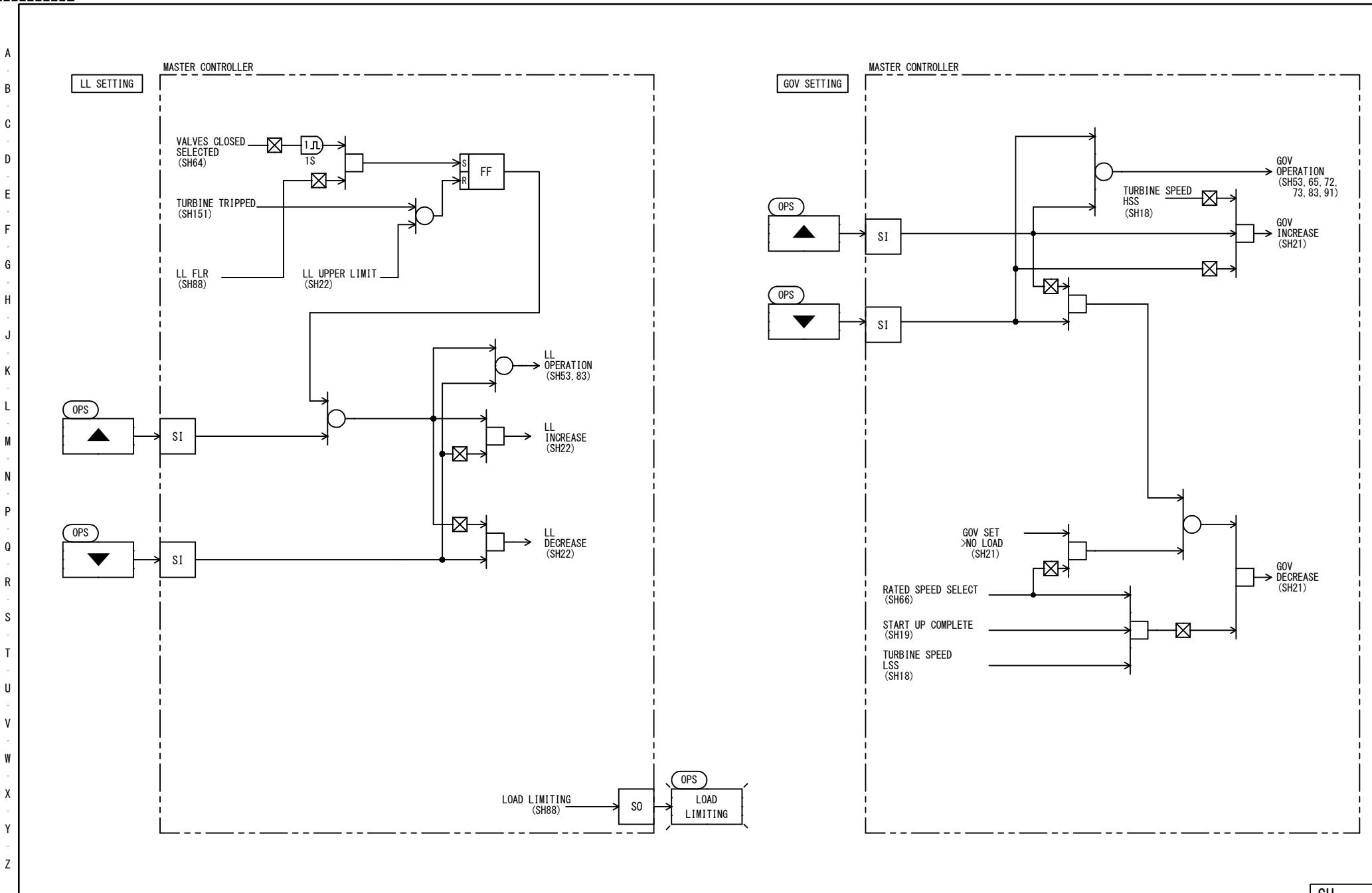


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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION



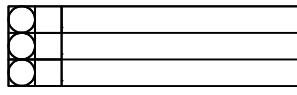
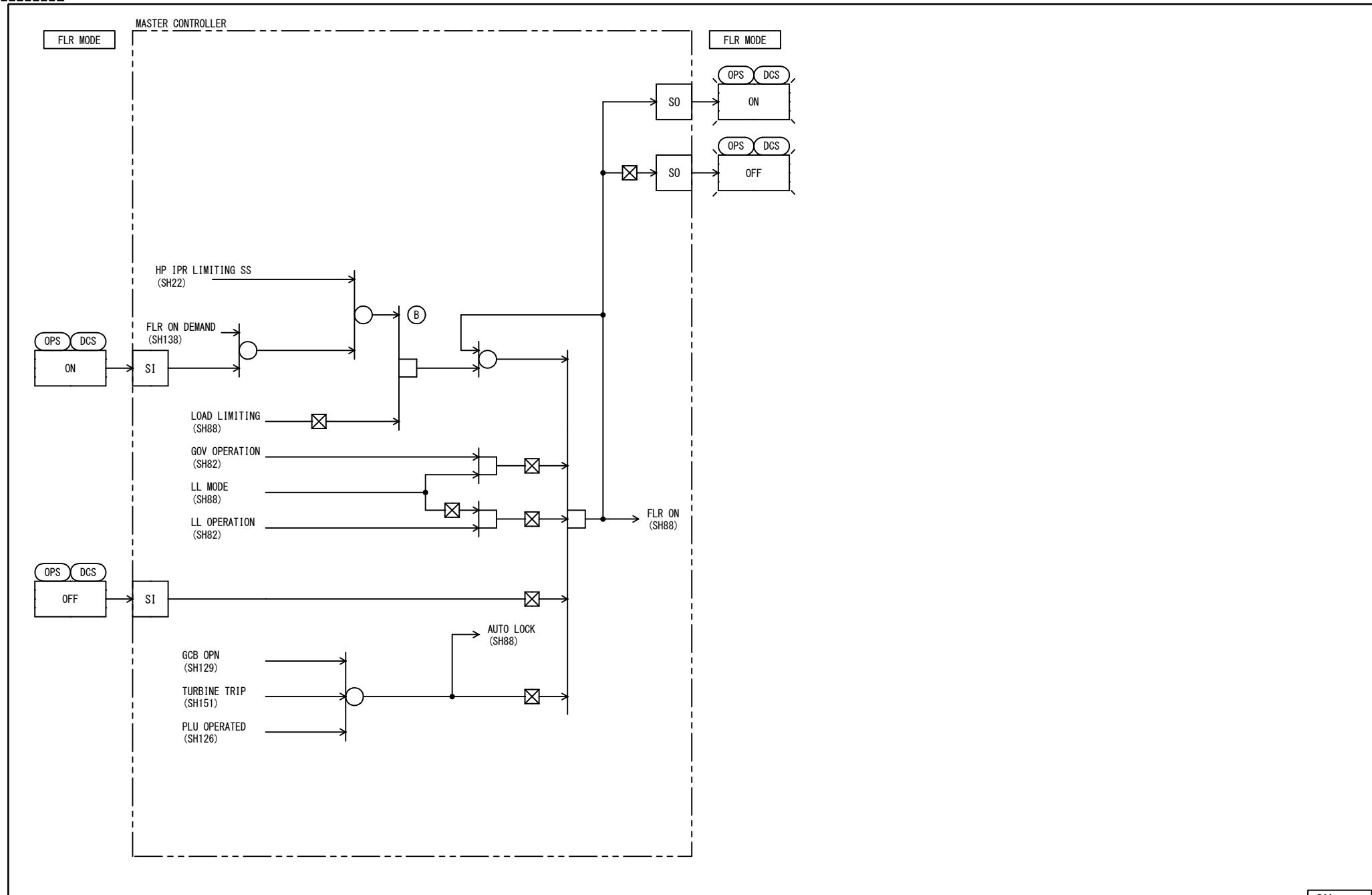
調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	HP IPR
	-----/ R. F N. Y		
Jun. 25, 21		Jun. 25, 21	7K2K1689 -073





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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

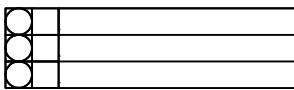
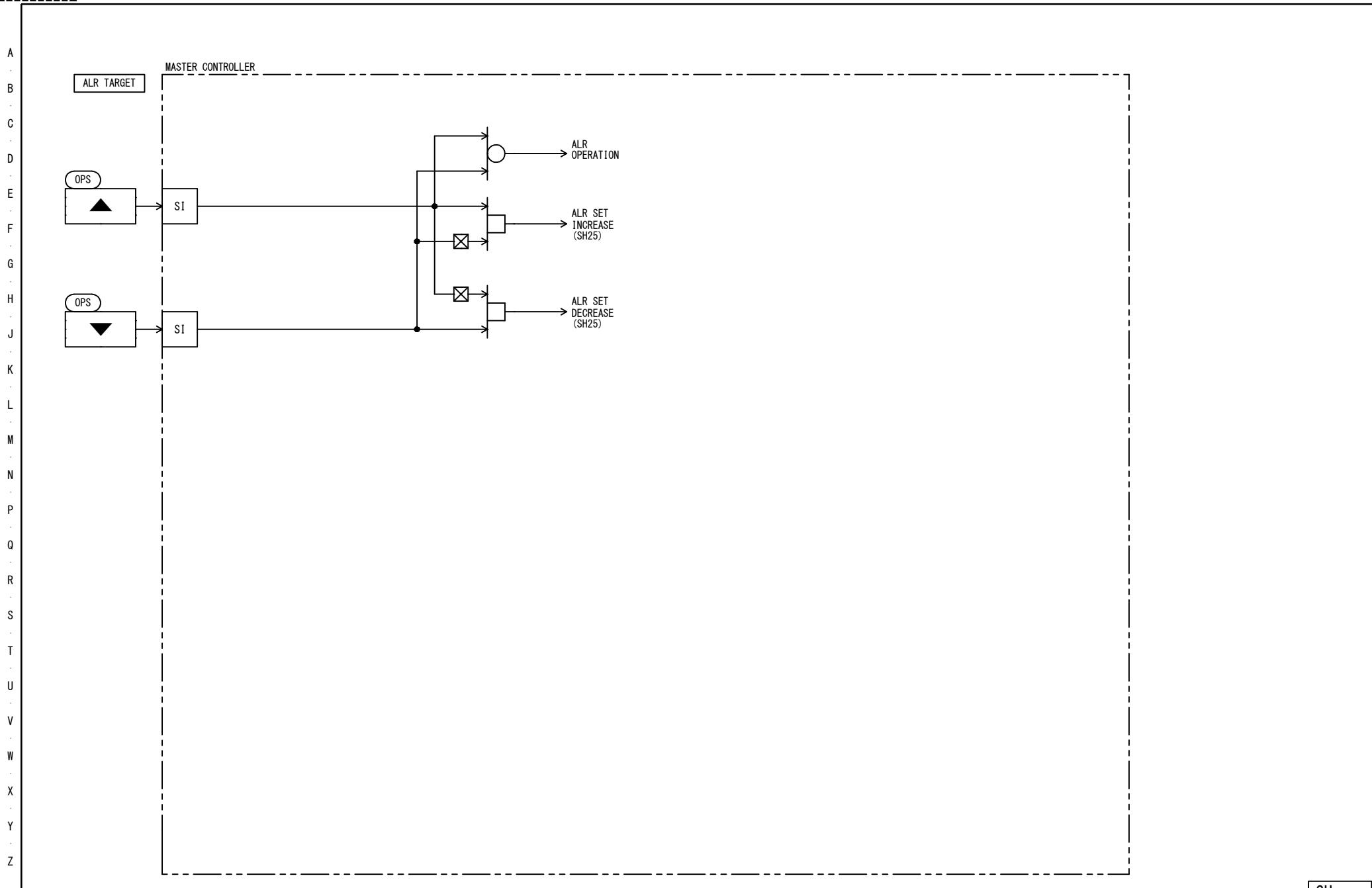
調査 CHECKED BY T. S/K. T	設計 DESIGNED BY ----- / R. F N. Y	GOV/LL OPERATION Jun. 25. 21
		7K2K1689 -082



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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	FLR
	-----/ R. F N. Y		
Jun. 25, 21		Jun. 25, 21	7K2K1689 -083

SH

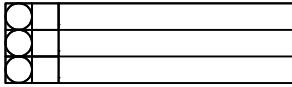
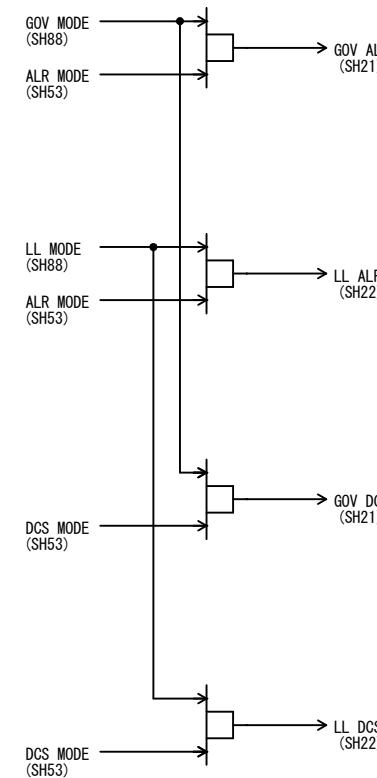


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	ALR OPERATION(1)
	-----/ R. F N. Y		
Jun. 25. 21		Jun. 25. 21	7K2K1689 -084

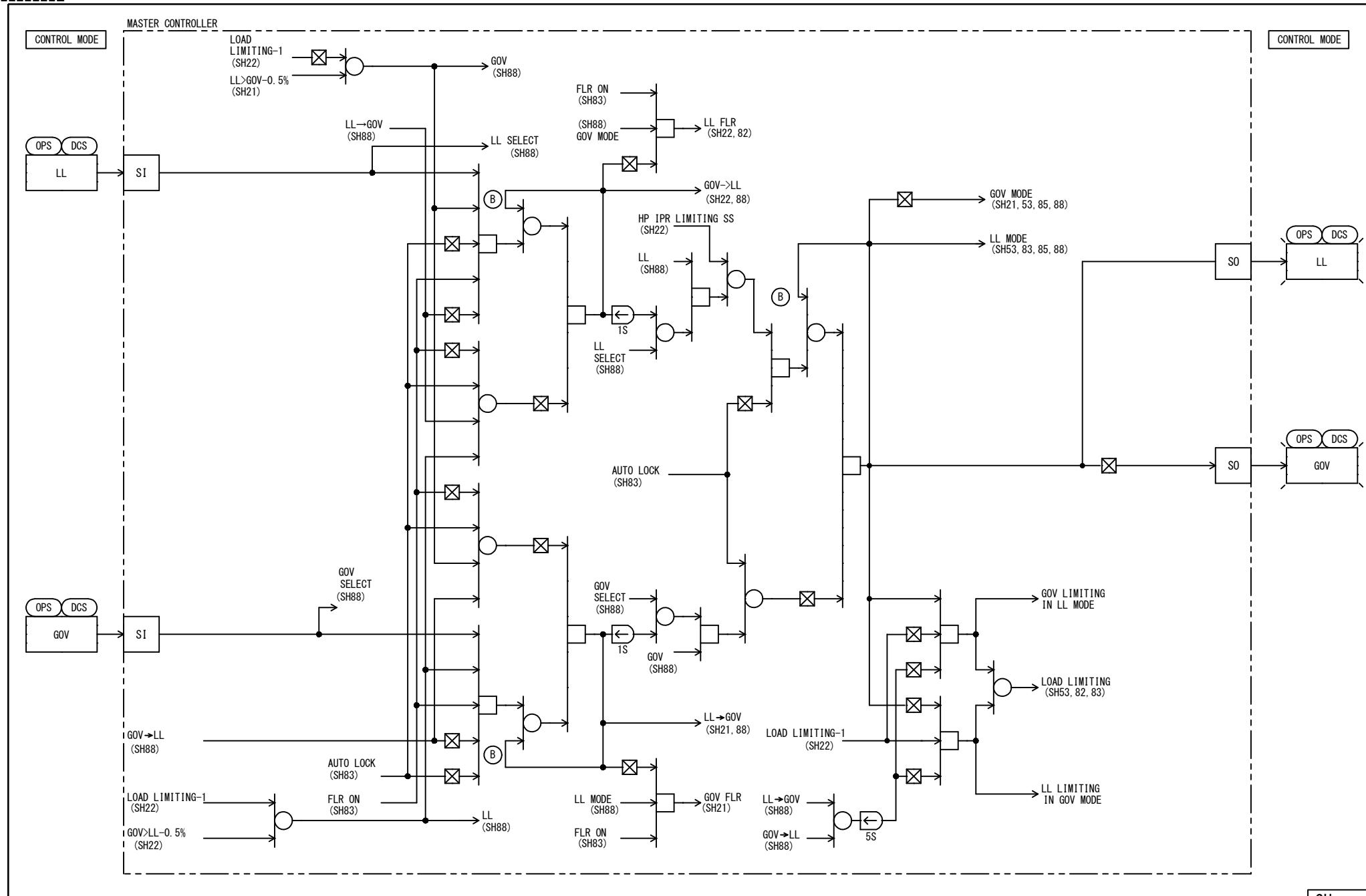
SH

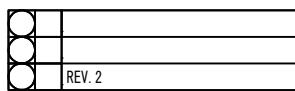
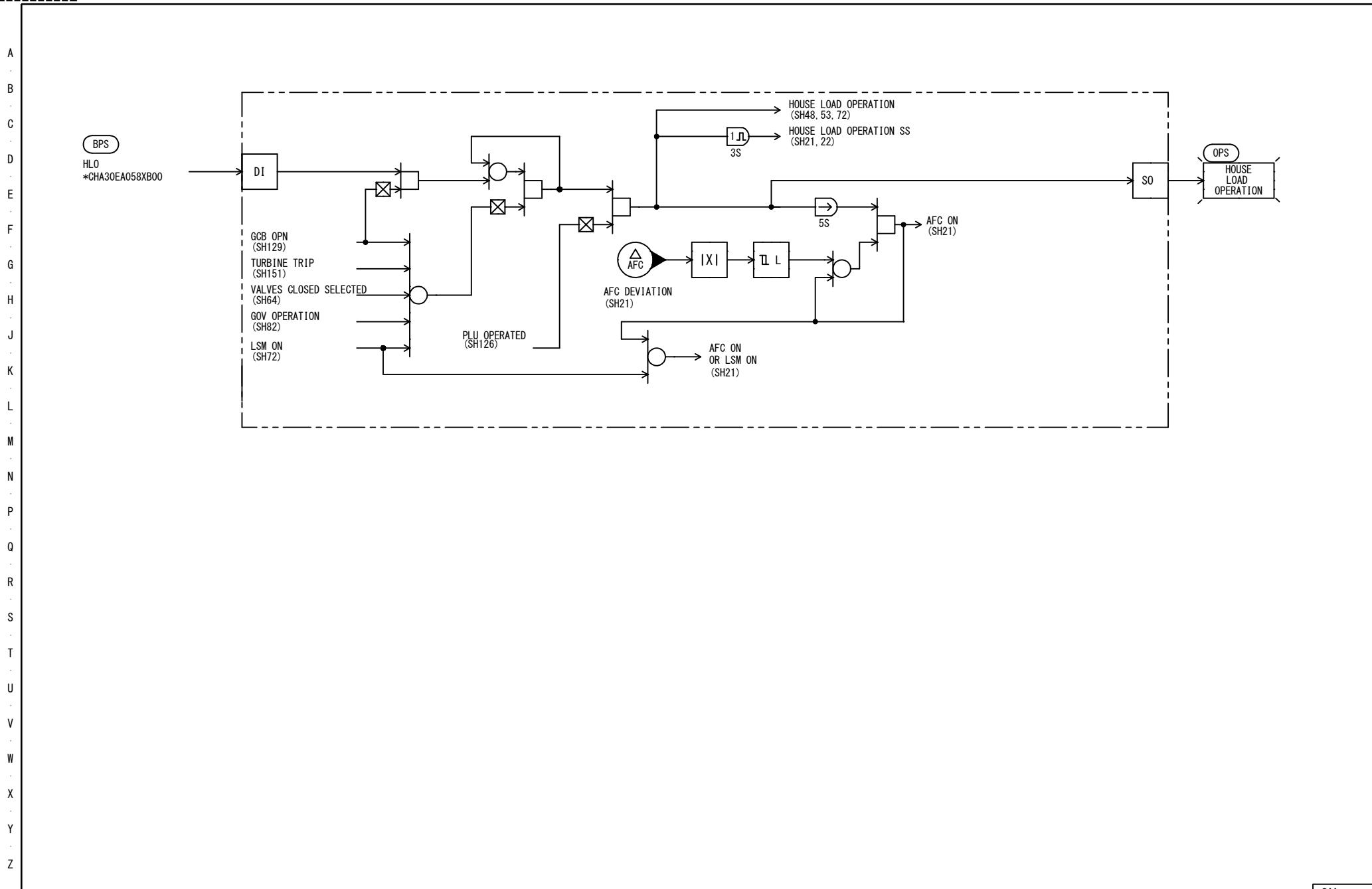
MASTER CONTROLLER



東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY T. S/K. T	設計 DESIGNED BY ----- / R. F Jun. 25. 21	ALR OPERATION(2) N. Y Jun. 25. 21
		7K2K1689 -085



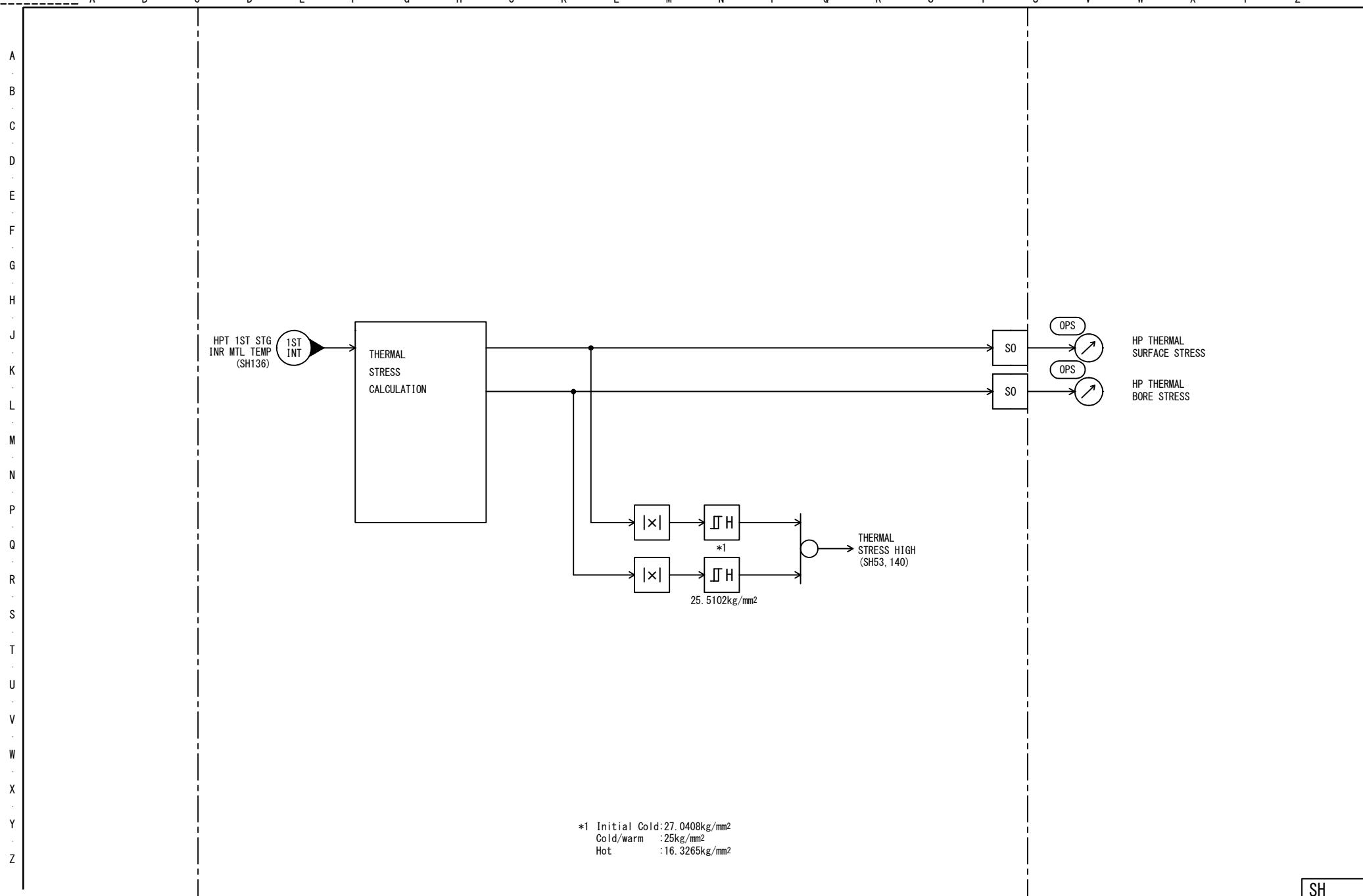


(*)NOTE
*:10 (UNIT1)
*:20 (UNIT2)

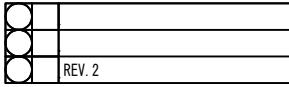
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	HOUSE LOAD OPERATION
	-----/ R. F N. Y		
Jun. 25, 21	Jun. 25, 21	Jun. 25, 21	7K2K1689 -091

SH

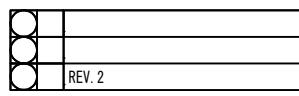
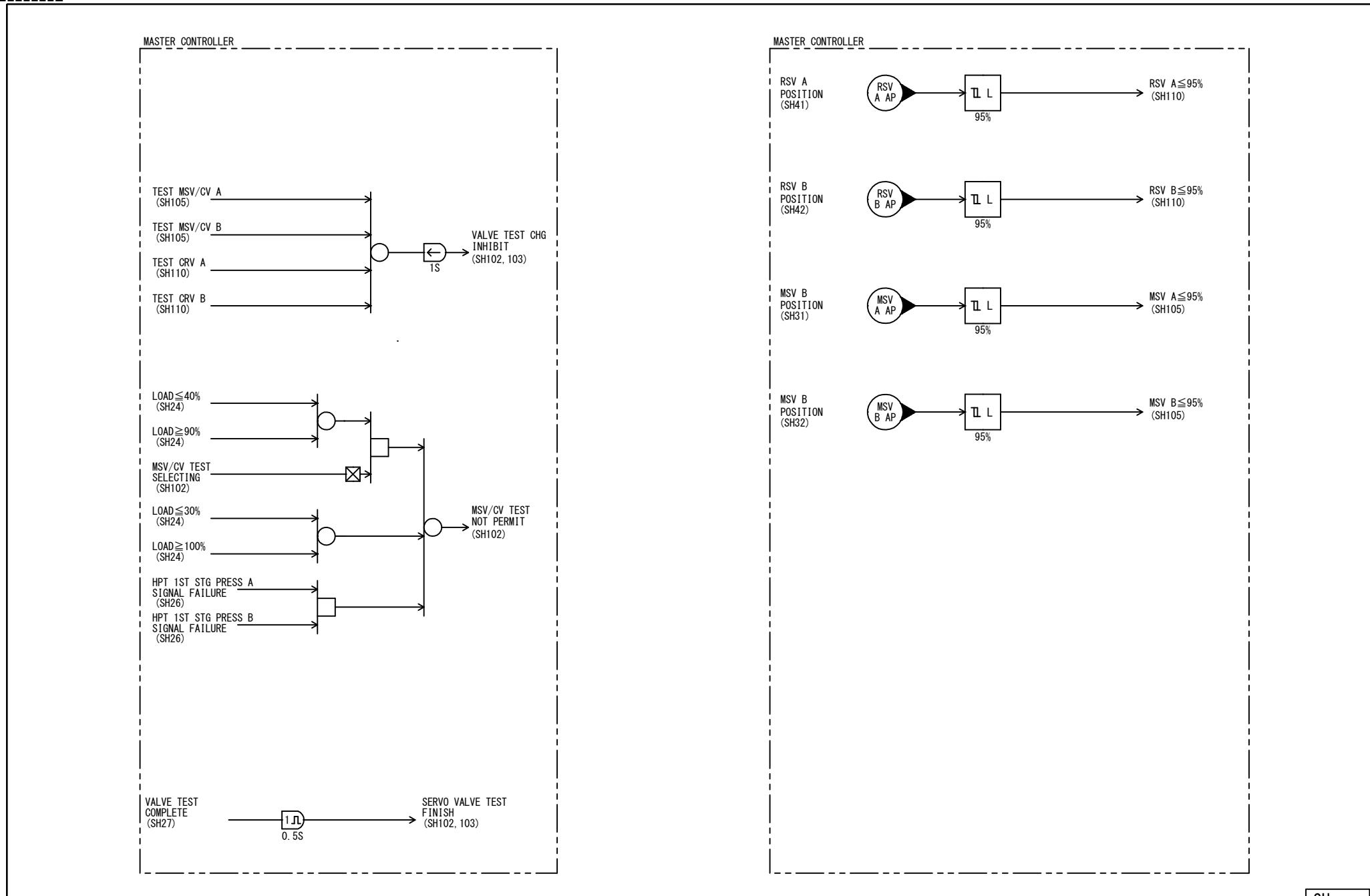


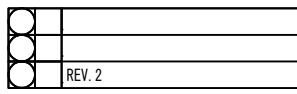
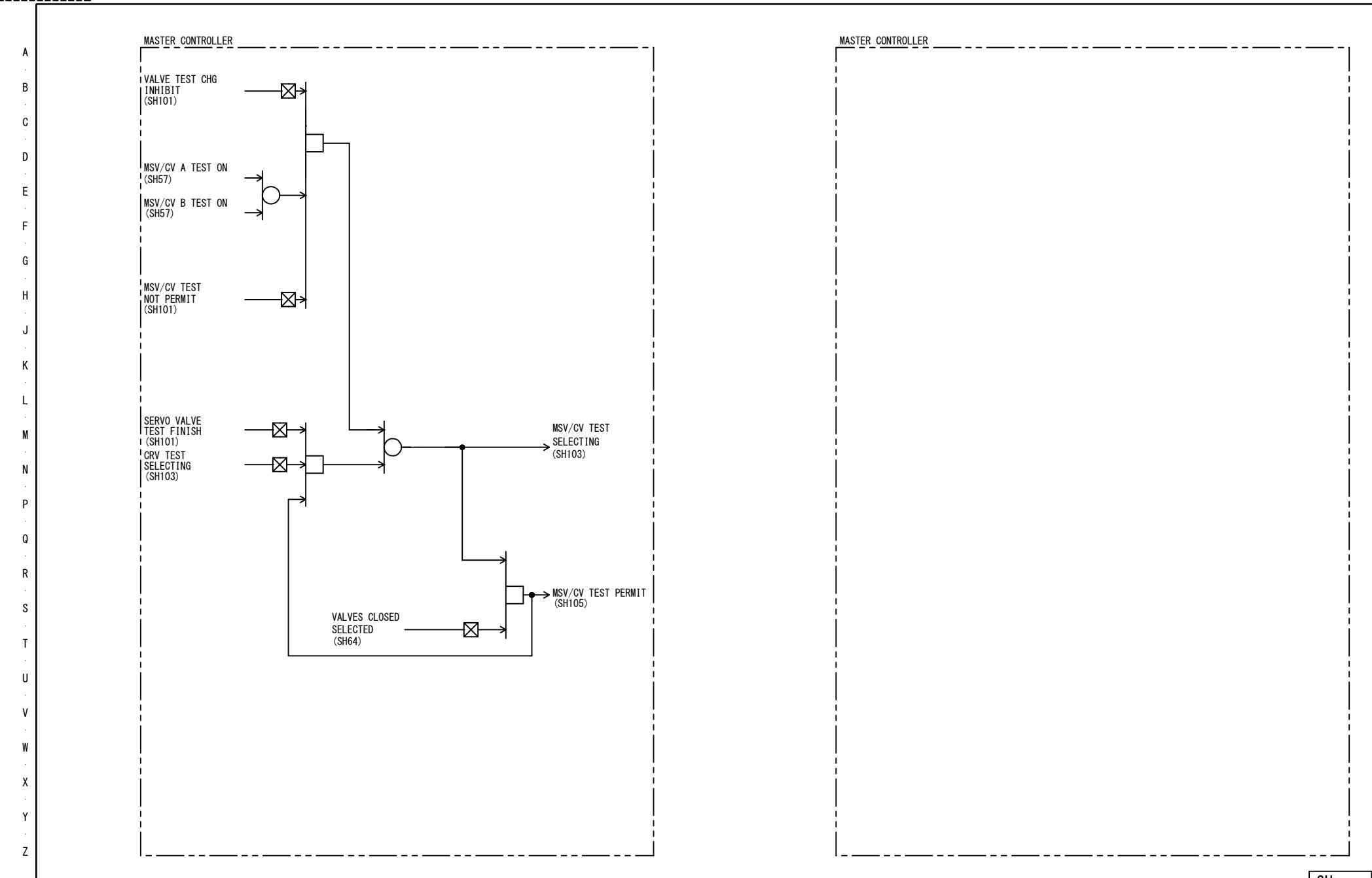
SH

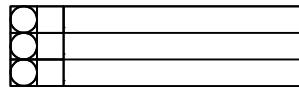
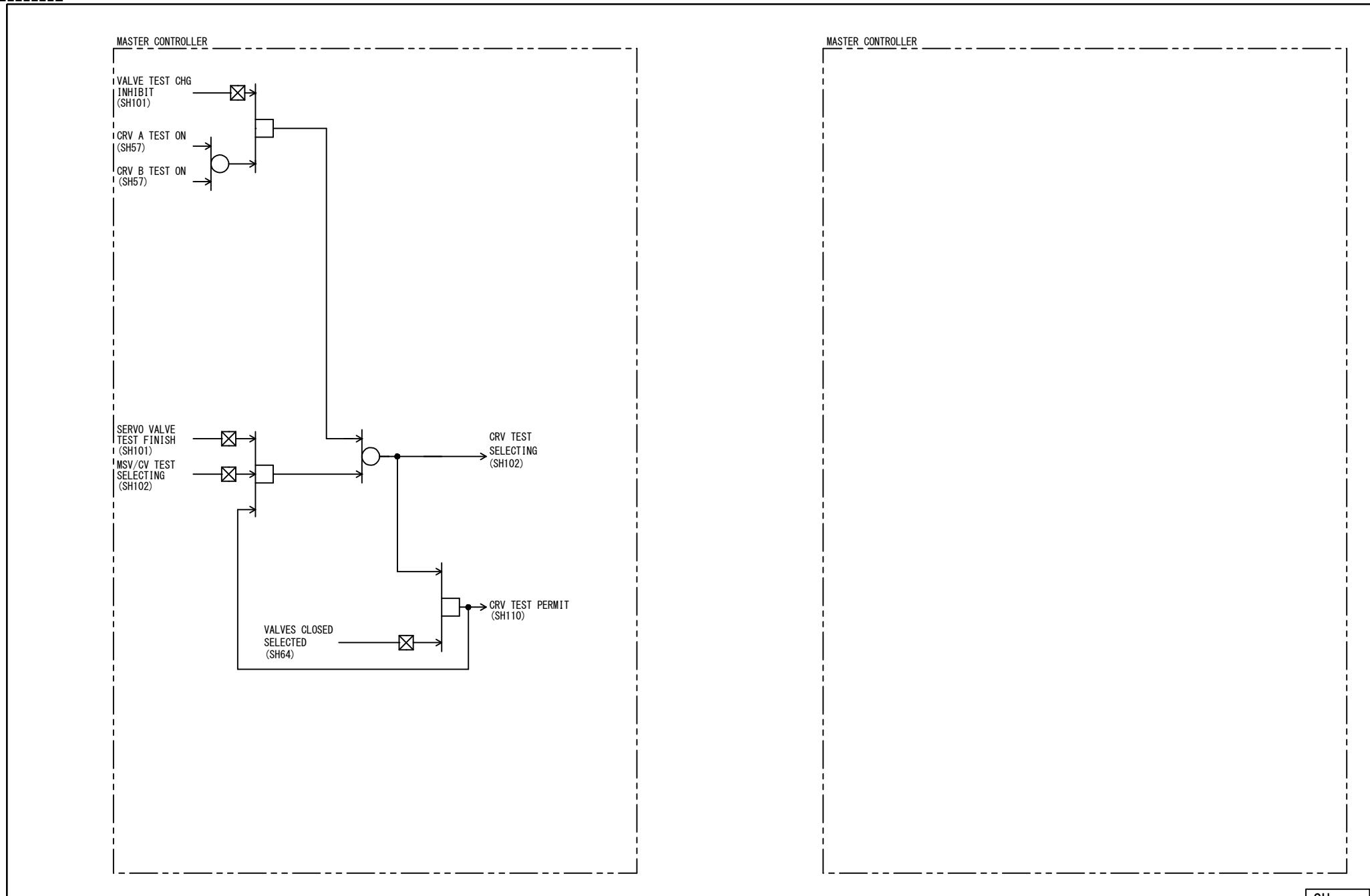


東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 R. F N. Y	DESIGNED BY Jun. 25, 21	THERMAL STRESS
				7K2K1689 -098



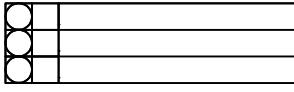
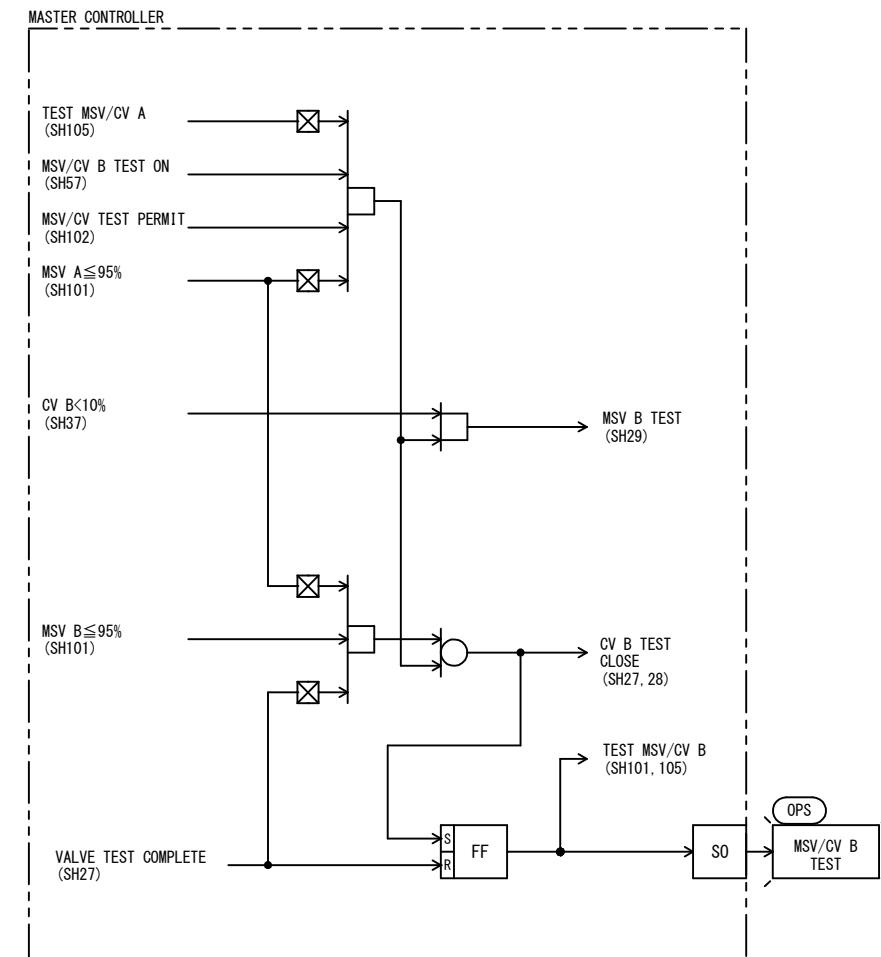
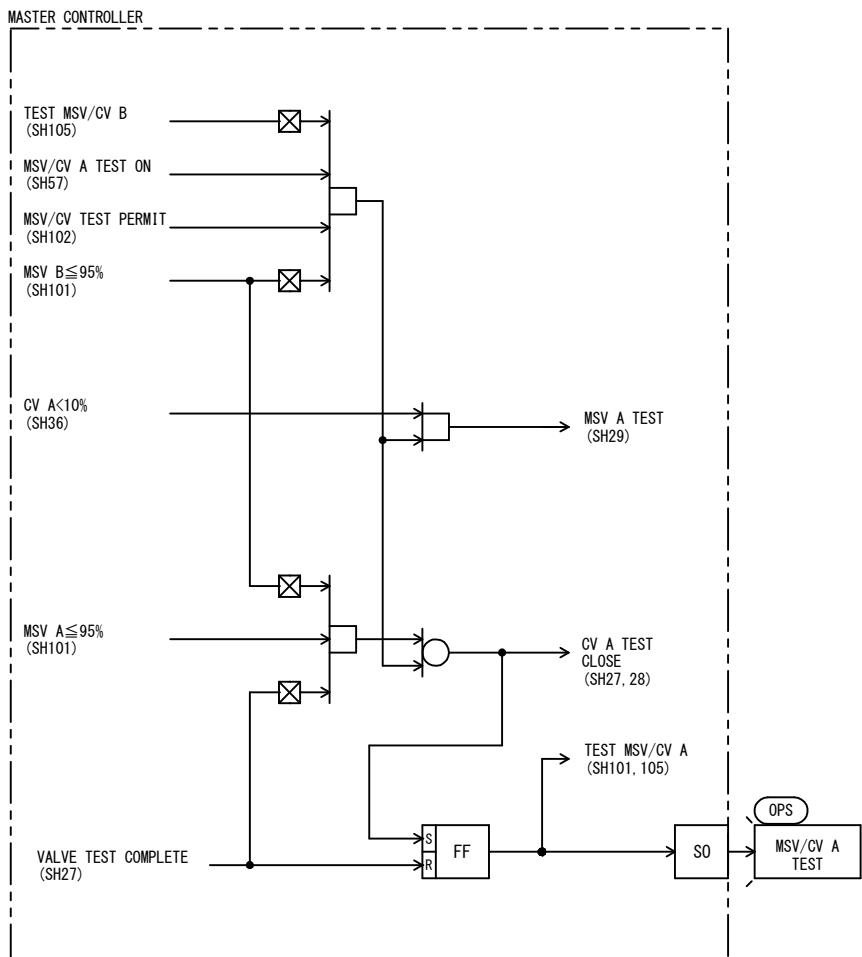


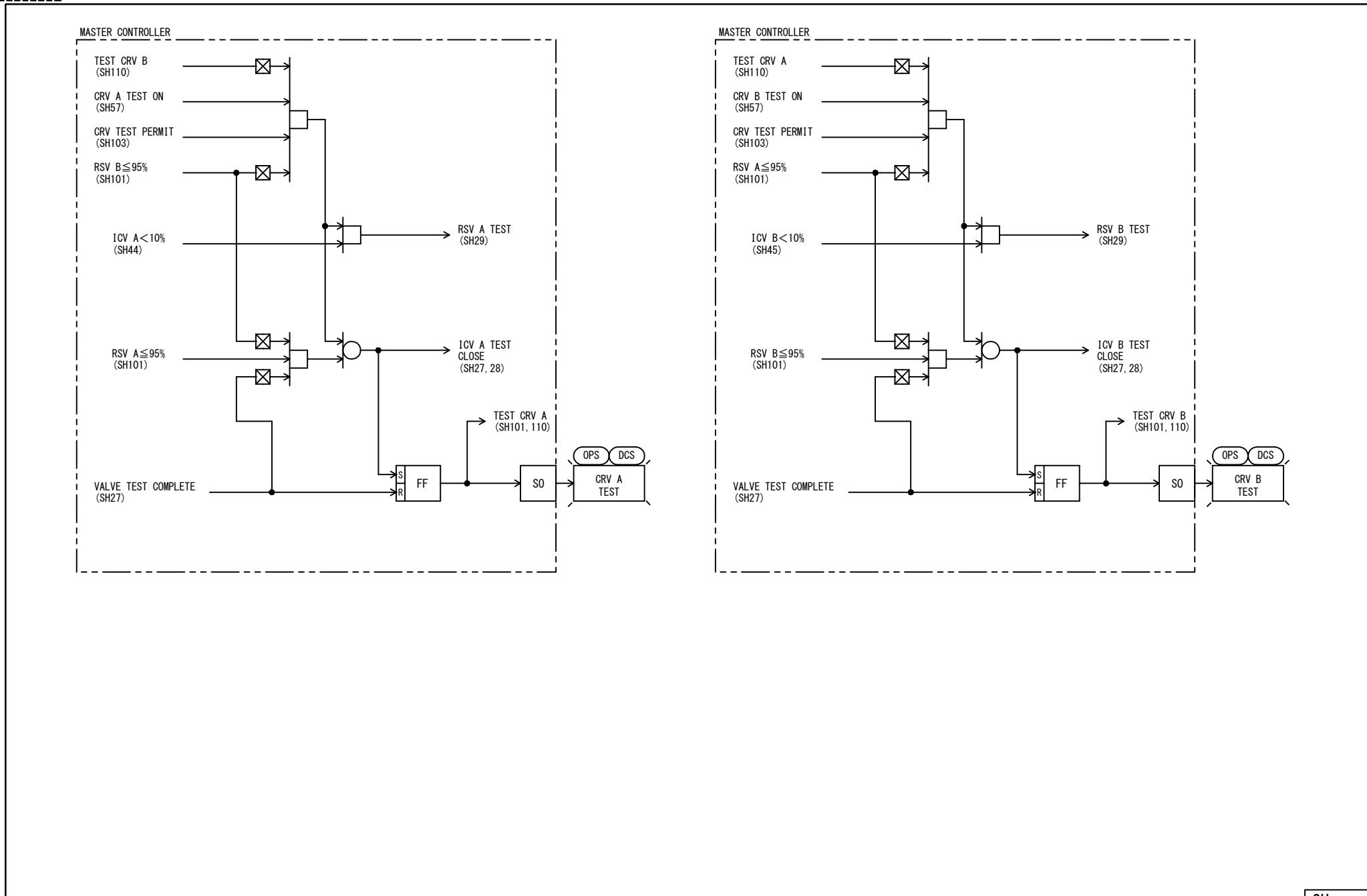


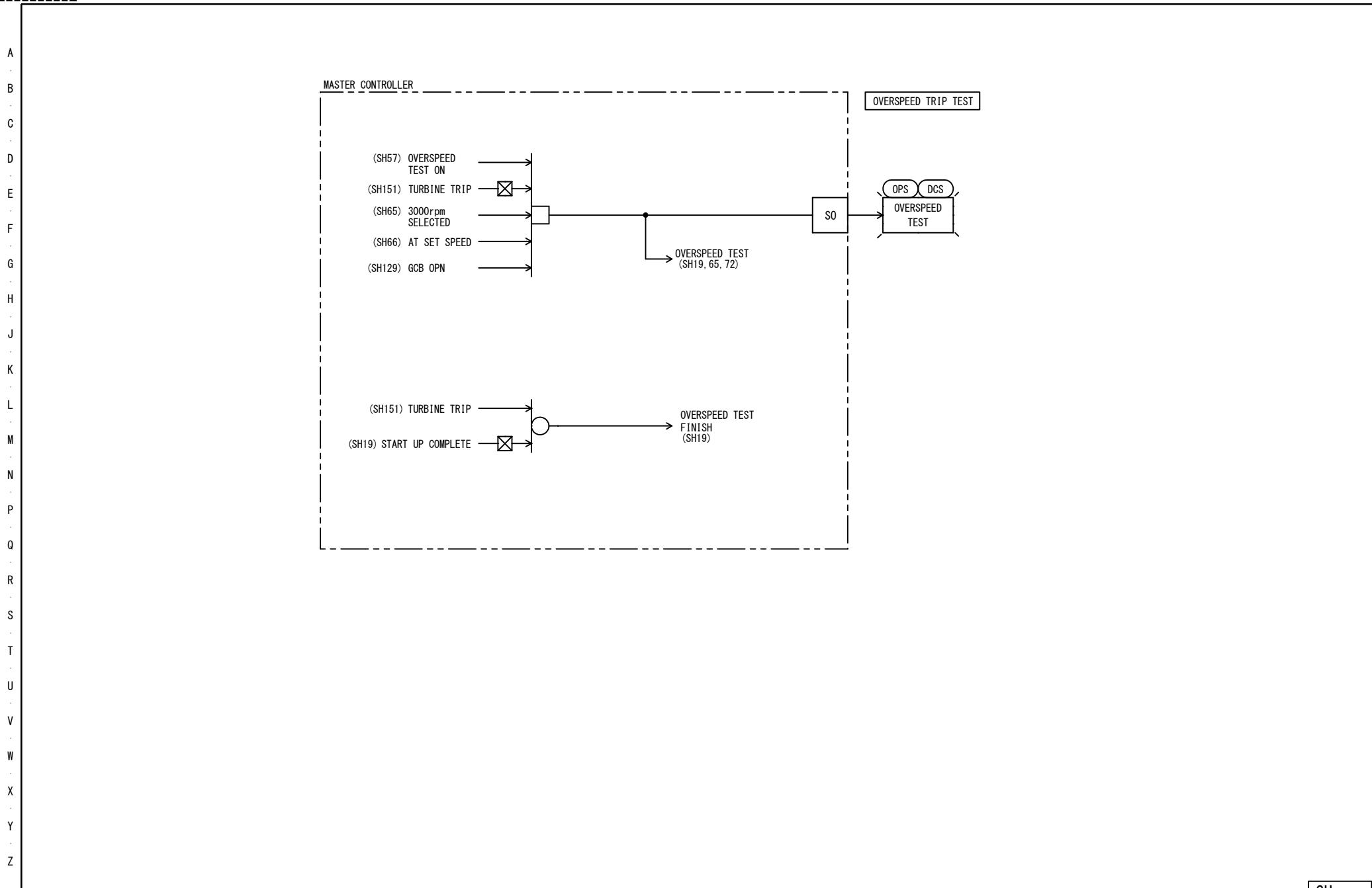
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	VALVE TEST (3)
T. S/K. T	--- / R. F N. Y	
Jun. 25, 21	Jun. 25, 21	7K2K1689 -103

SH

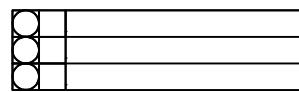
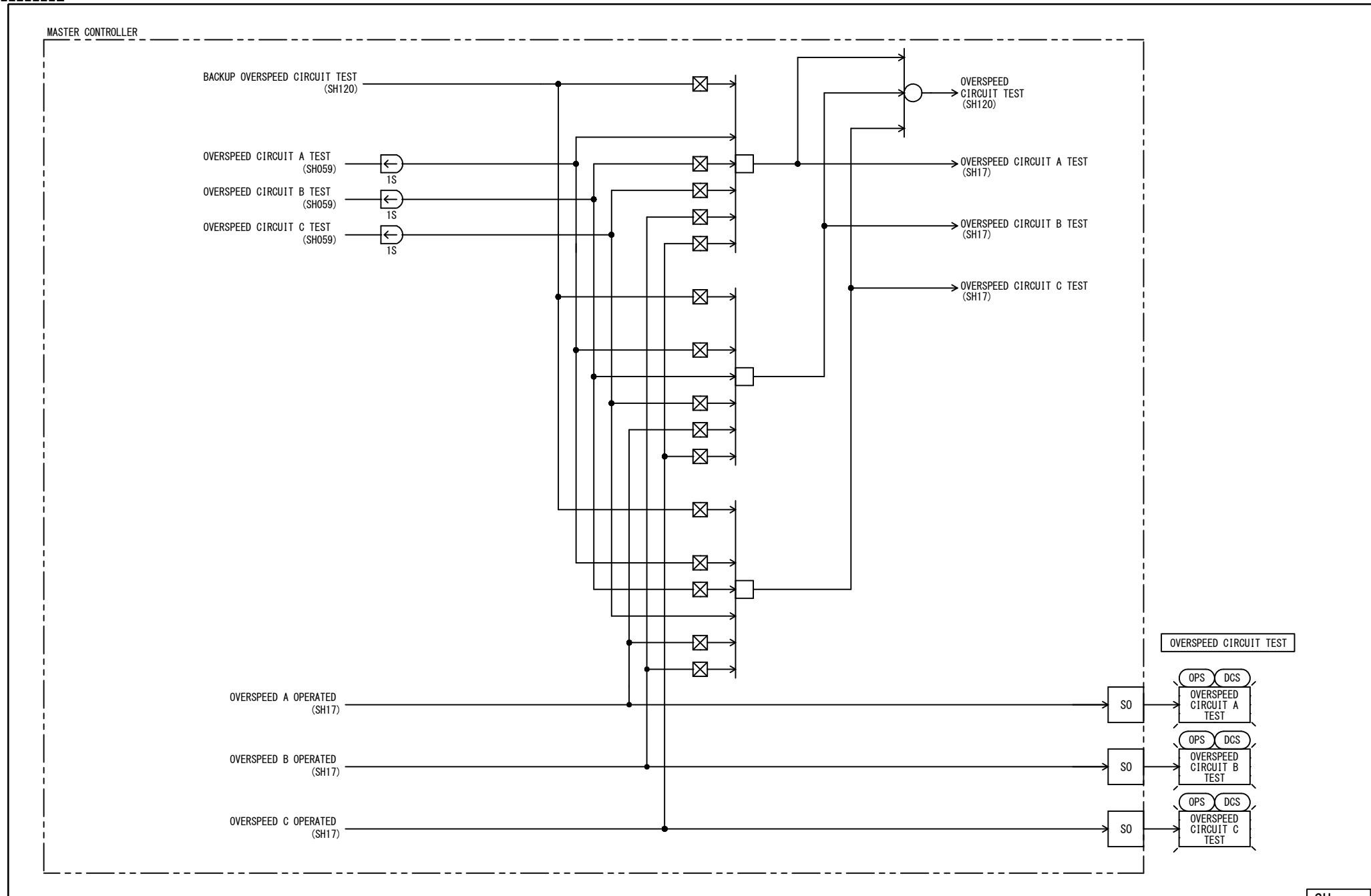






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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

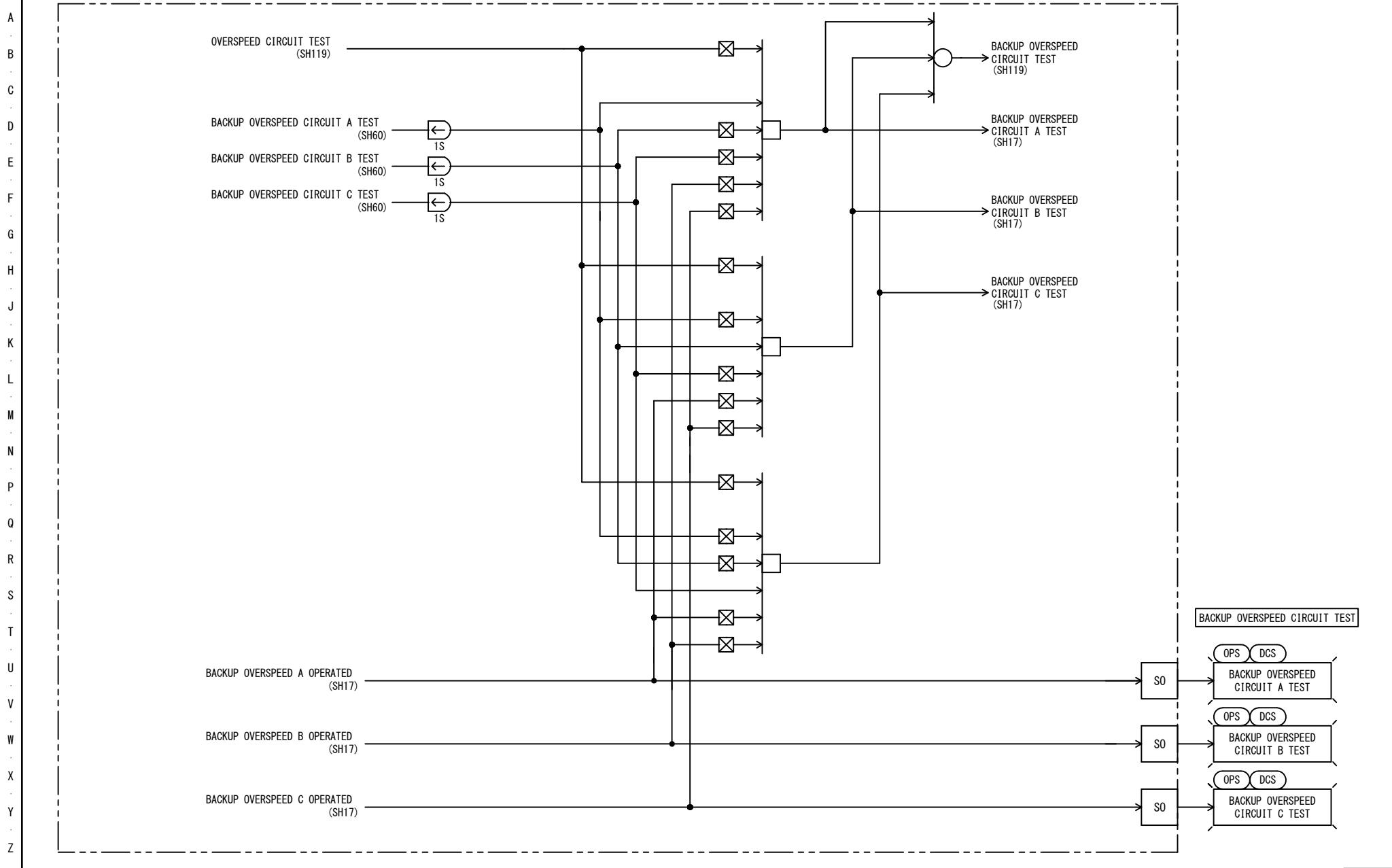
調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 DESIGNED BY R. F N. Y	OVERSPEED TEST Jun. 25, 21
SH			7K2K1689 -117



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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

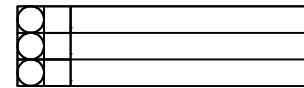
調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 R. F N. Y	DESIGNED BY Jun. 25, 21	OVERSPEED CIRCUIT TEST
				7K2K1689 -119

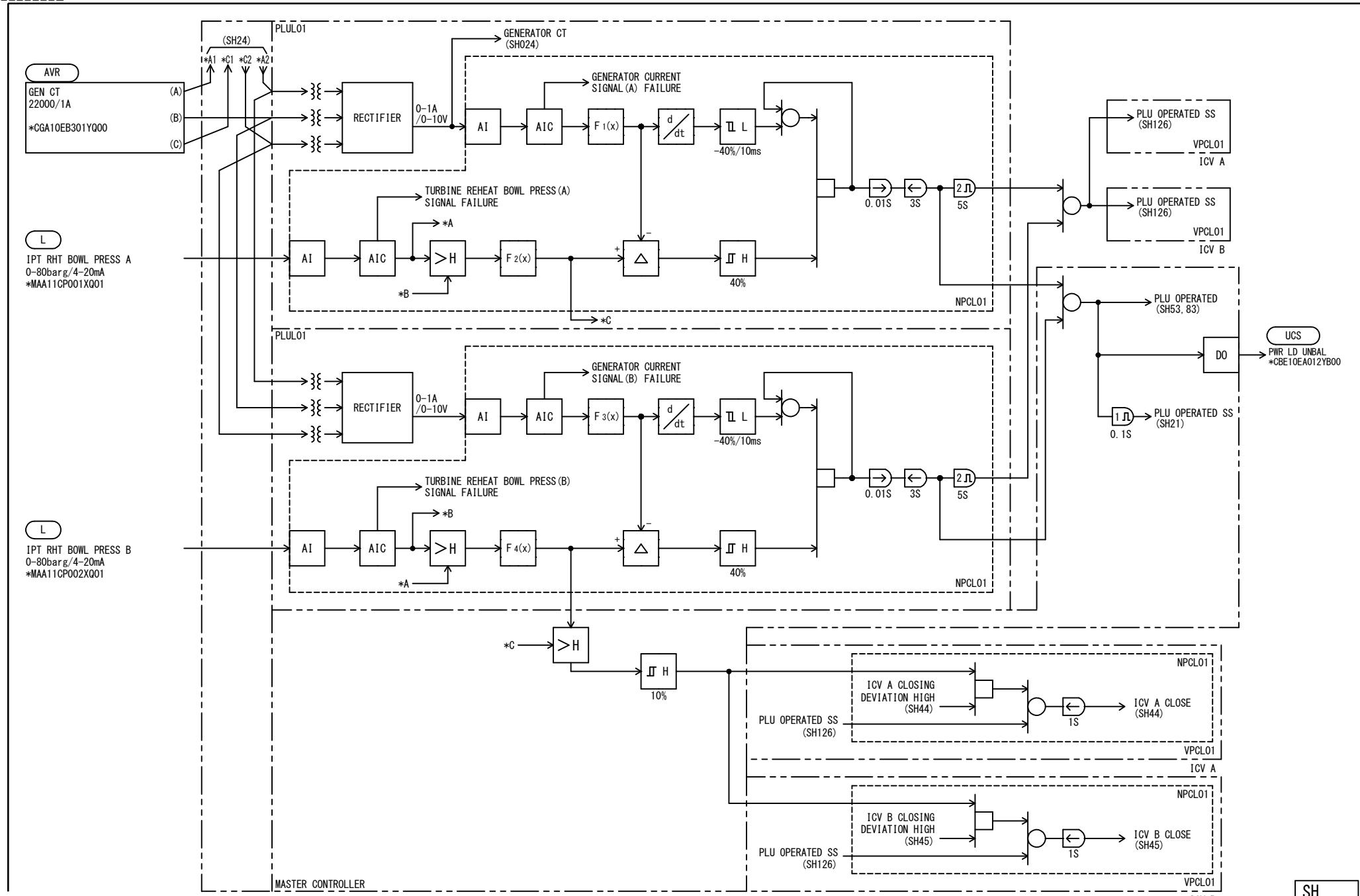
MASTER CONTROLLER



東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 R. F N. Y	DESIGNED BY	BACKUP OVERSPEED CIRCUIT TEST
Jun. 25. 21	---	Jun. 25. 21	---	7K2K1689 -120



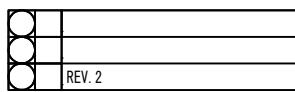
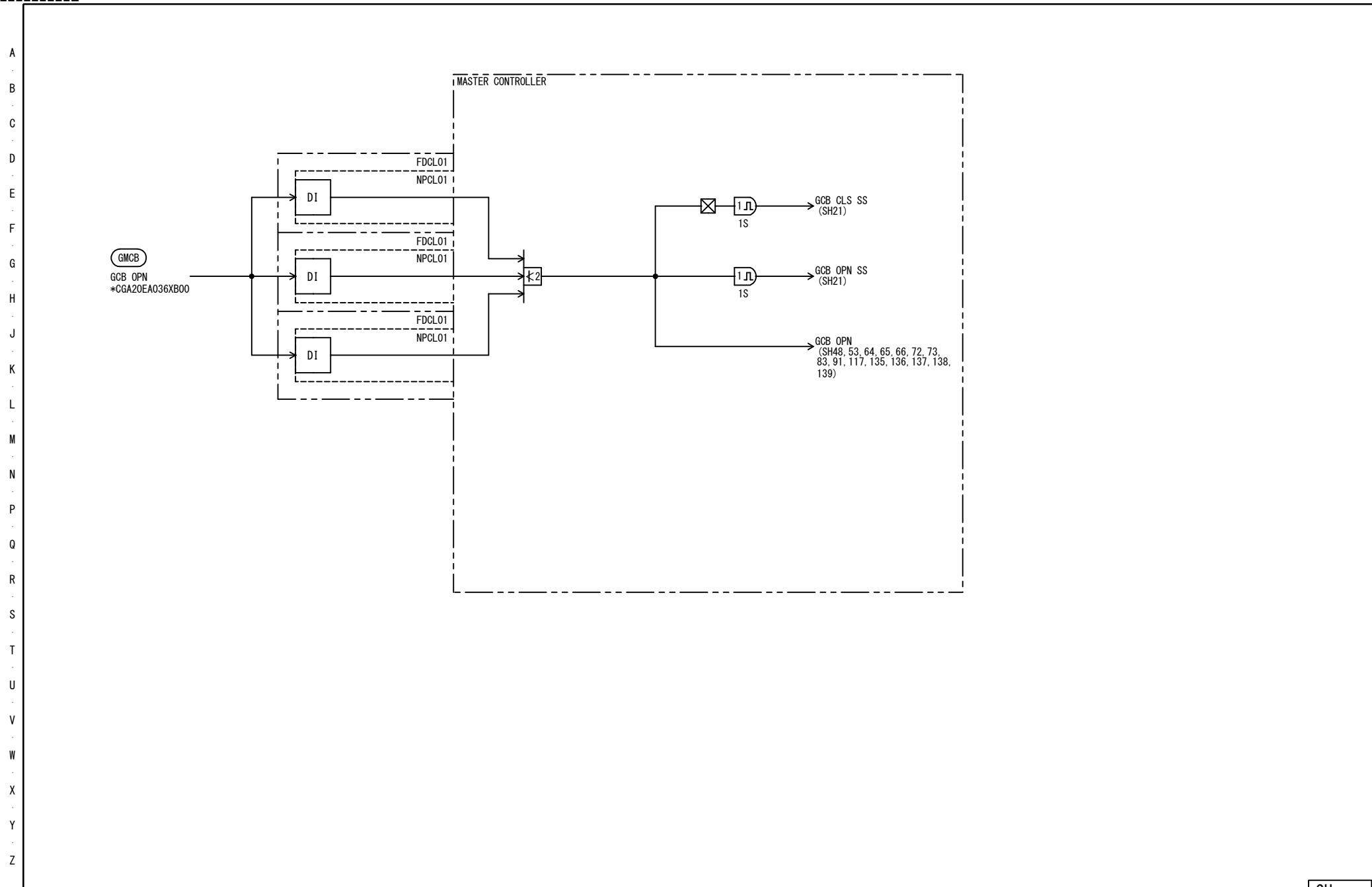


(*) NOTE
*:10(UNIT1)
:20(UNIT2)

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調査 CHECKED BY	設計 DESIGNED BY	POWER LOAD UNBALANCE
T. S/K. T	---- / R. F N. Y	Jun. 25. 21 Jun. 25. 21 7K2K1

7K2K1689 -126

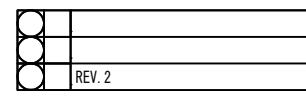
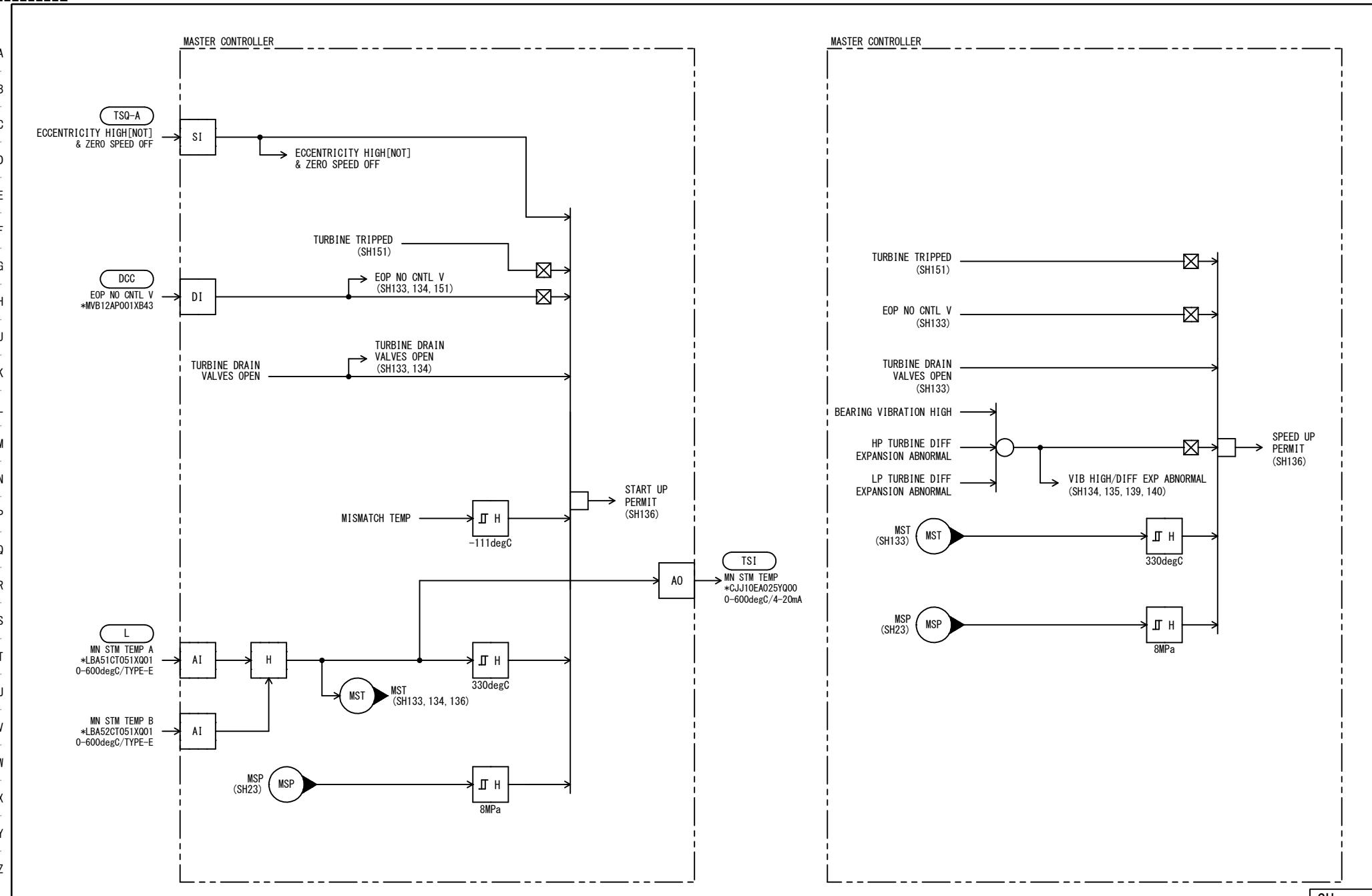


(*)NOTE
*:10 (UNIT1)
*:20 (UNIT2)

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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY	設計 DESIGNED BY	52G INPUT
	-----/ R. F N. Y		
Jun. 25. 21		Jun. 25. 21	7K2K1689 -129

SH

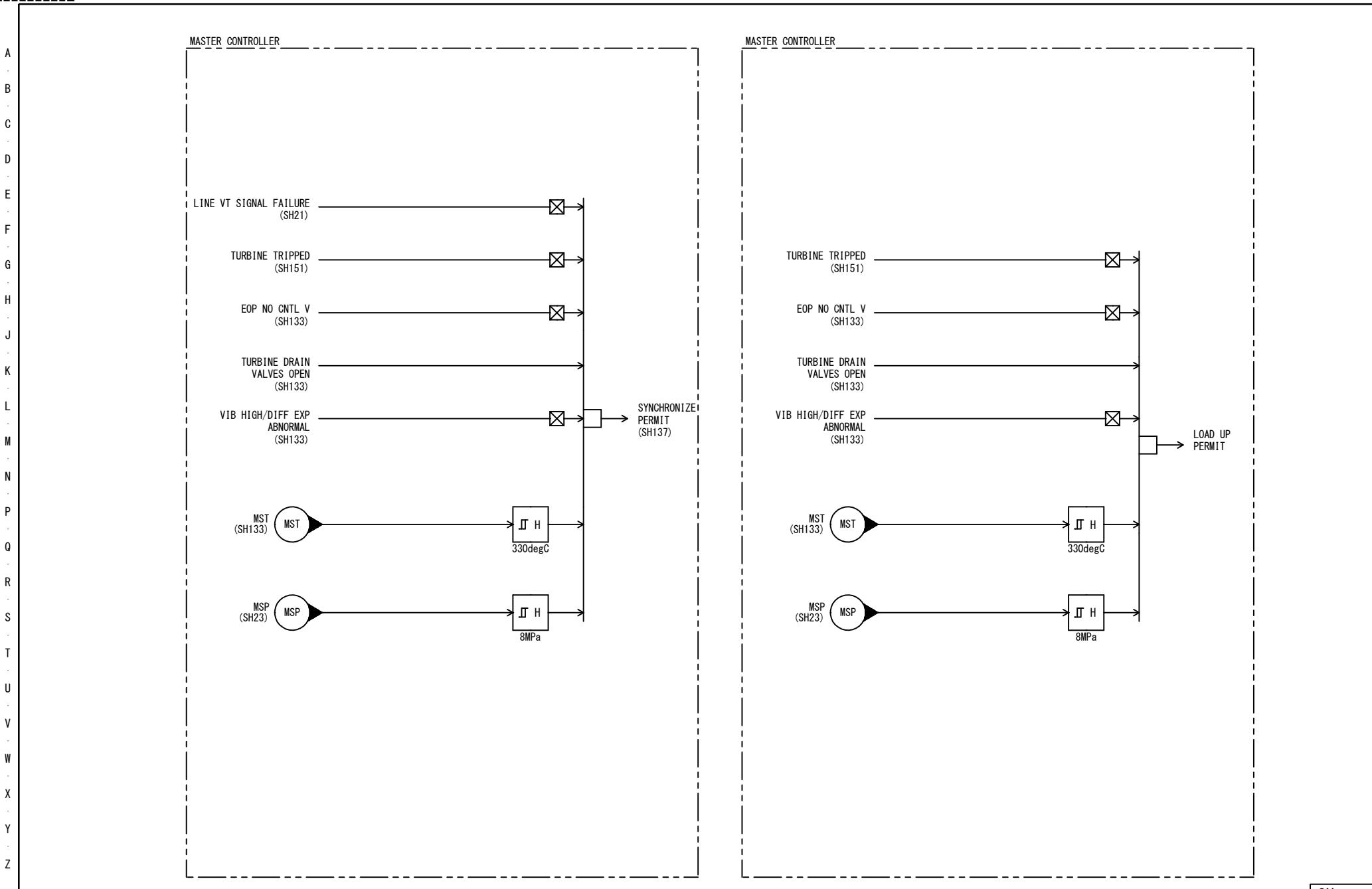


(*)NOTE
*:10 (UNIT1)
*:20 (UNIT2)

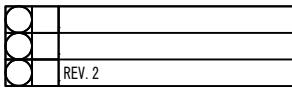
東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	AUTOMATIC START UP PERMIT CONDITION(2)
T. S/K. T Jun. 25, 21	R. F N. Y Jun. 25, 21	7K2K1689 -133

SH

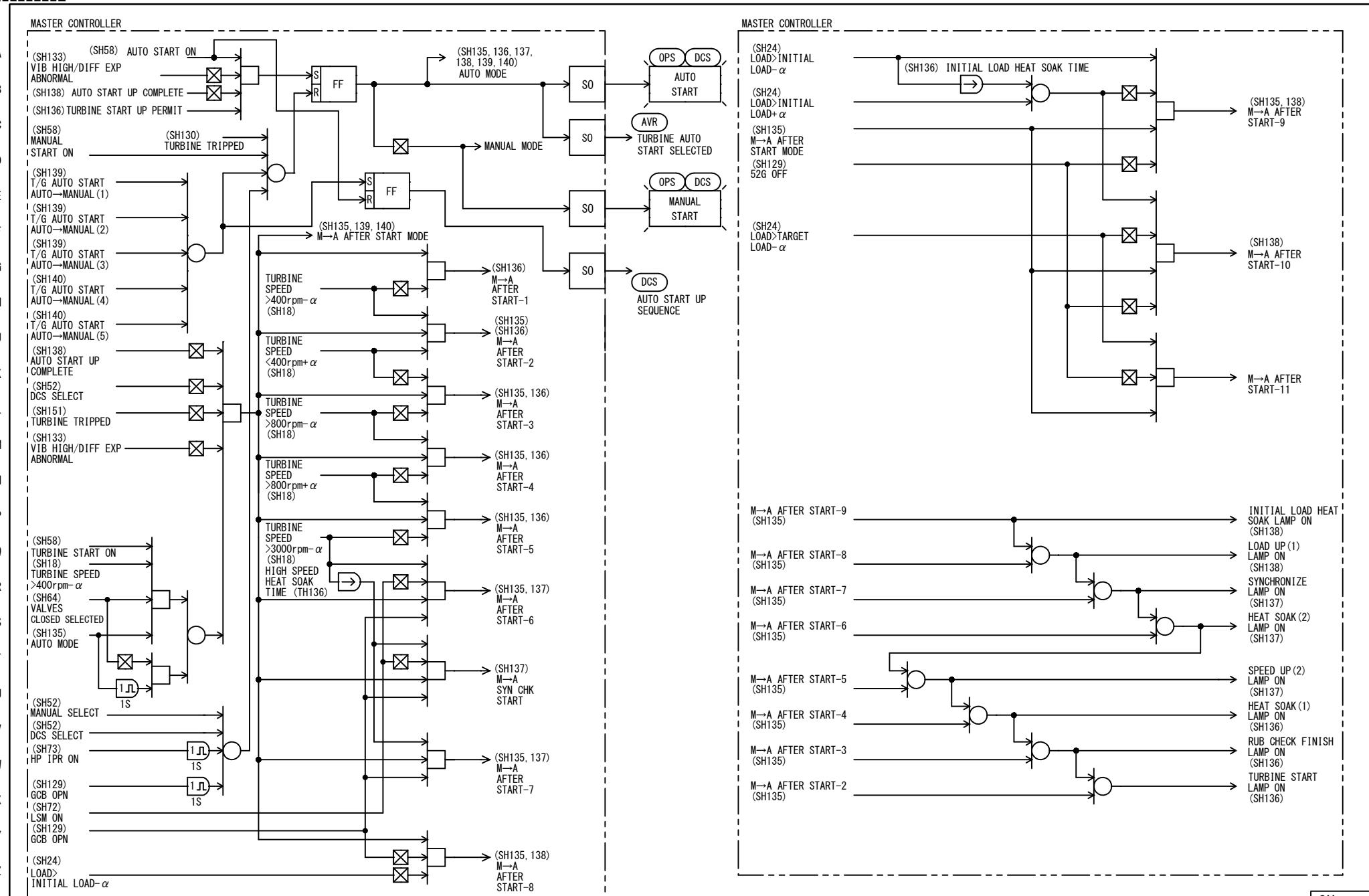


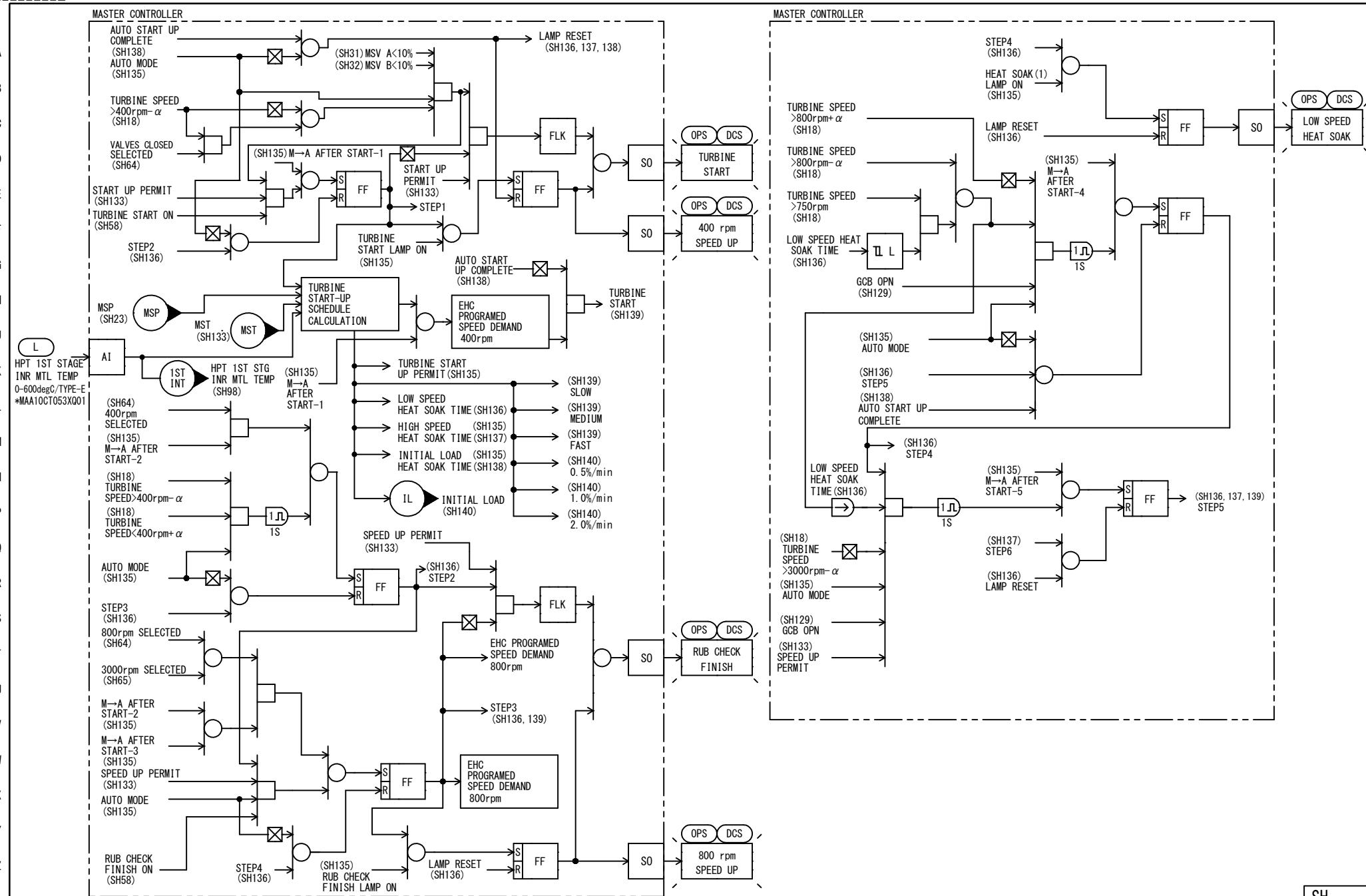
SH



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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 CHECKED BY	設計 DESIGNED BY	AUTOMATIC START UP PERMIT CONDITION(3)
T. S/K. T	R. F ---/ N. Y	
Jun. 25. 21	Jun. 25. 21	7K2K1689 -134



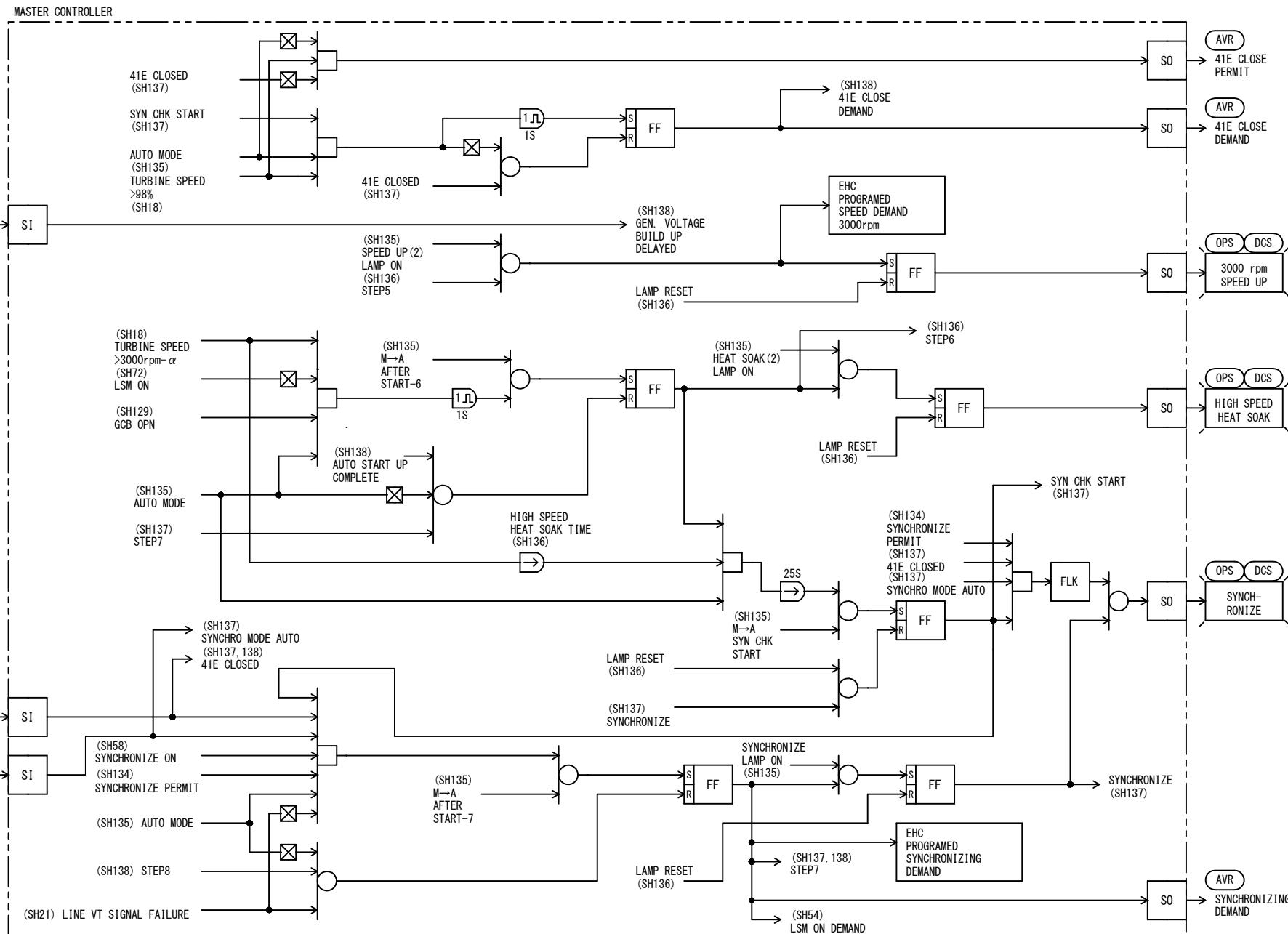


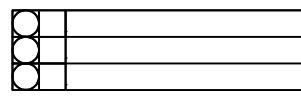
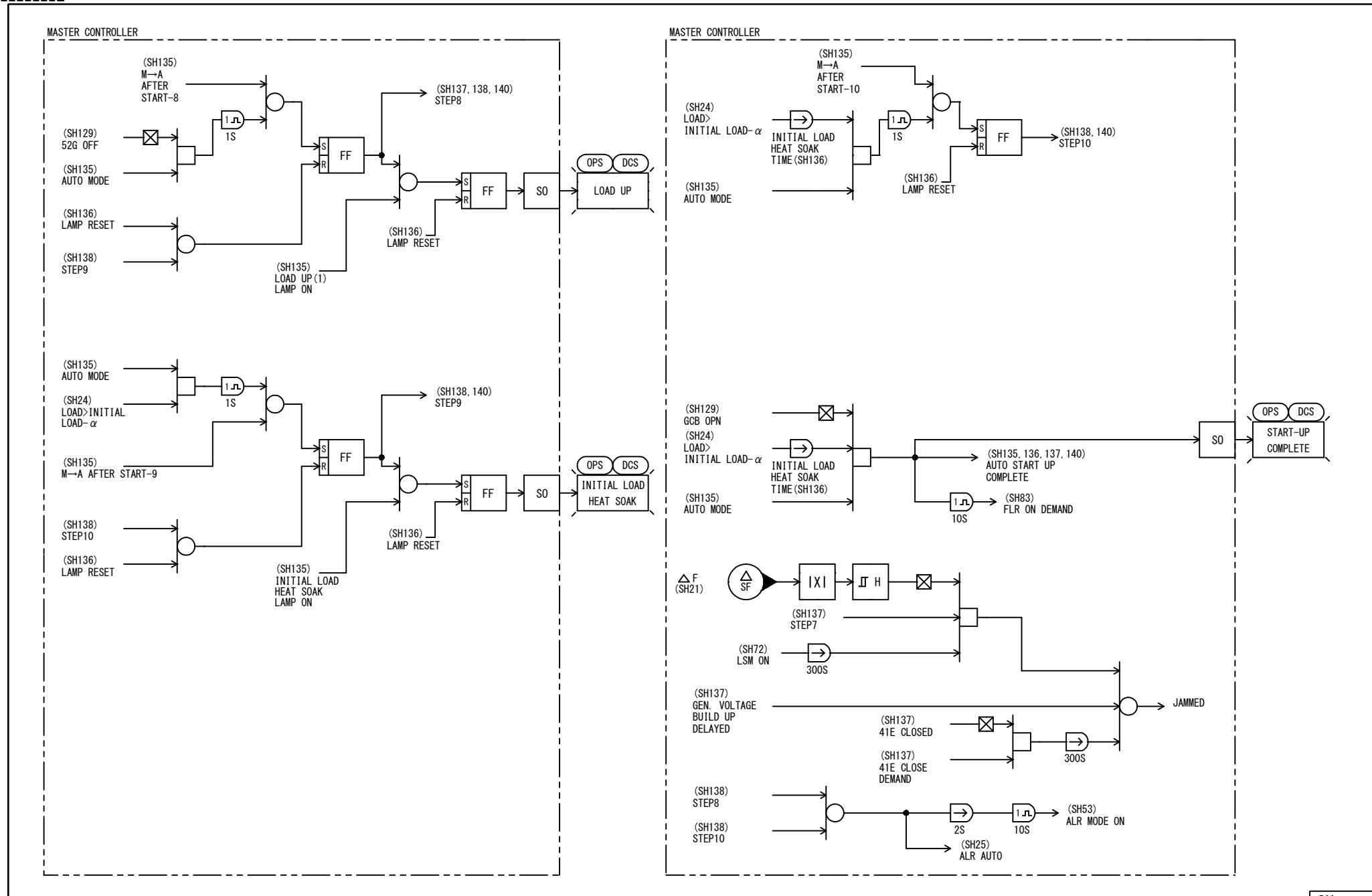
(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

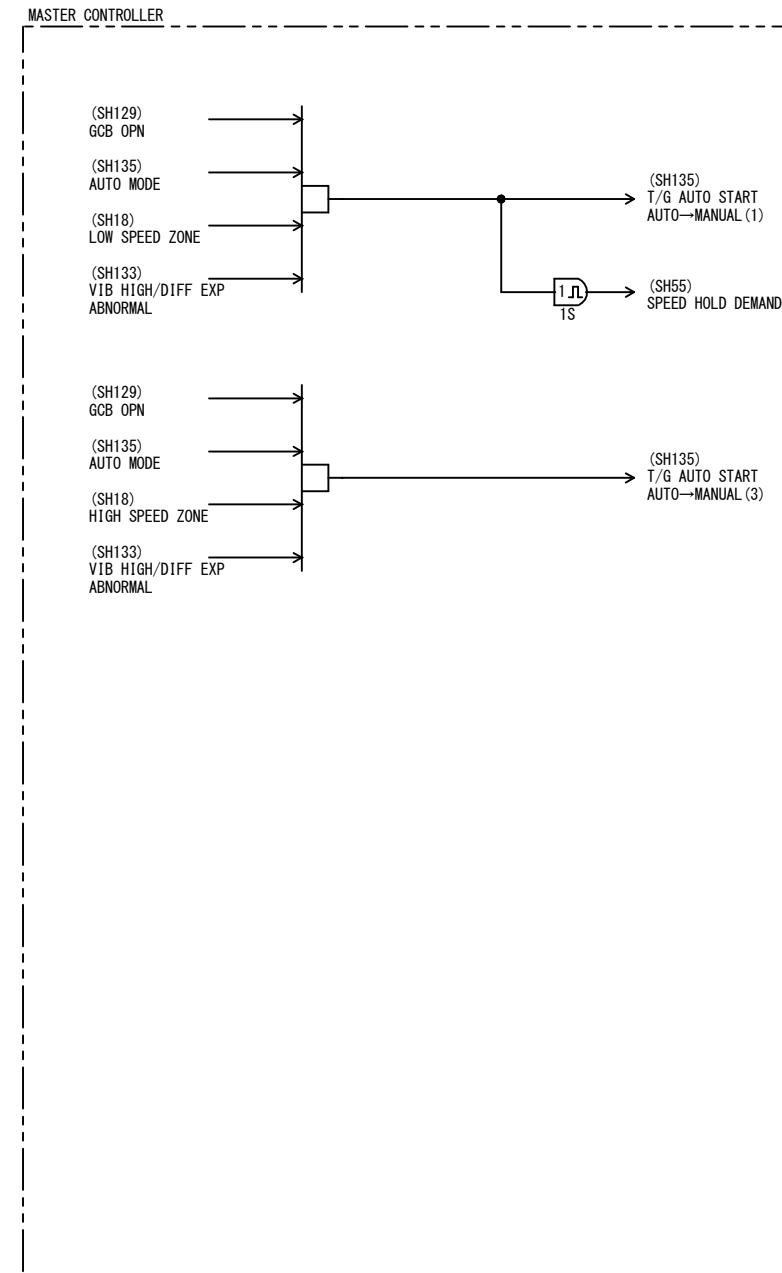
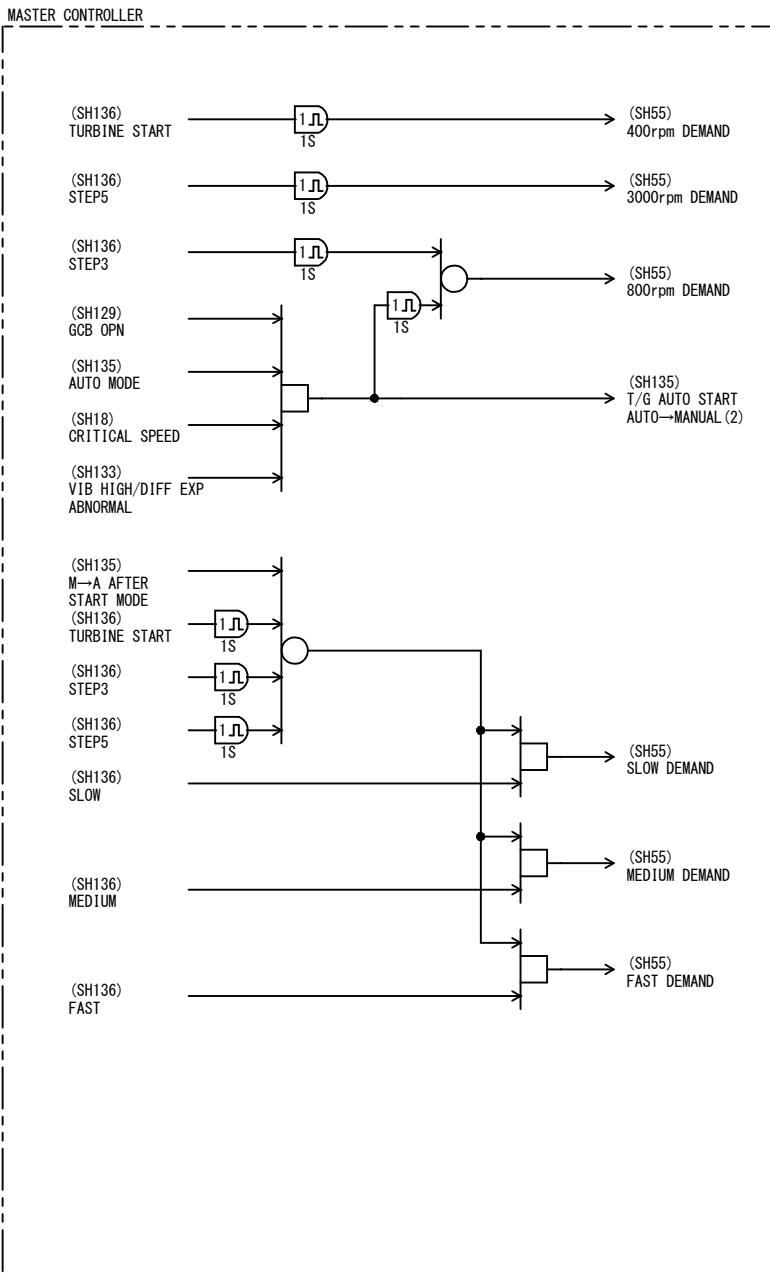
東芝エネルギー・システムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

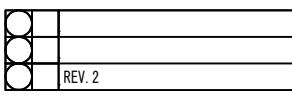
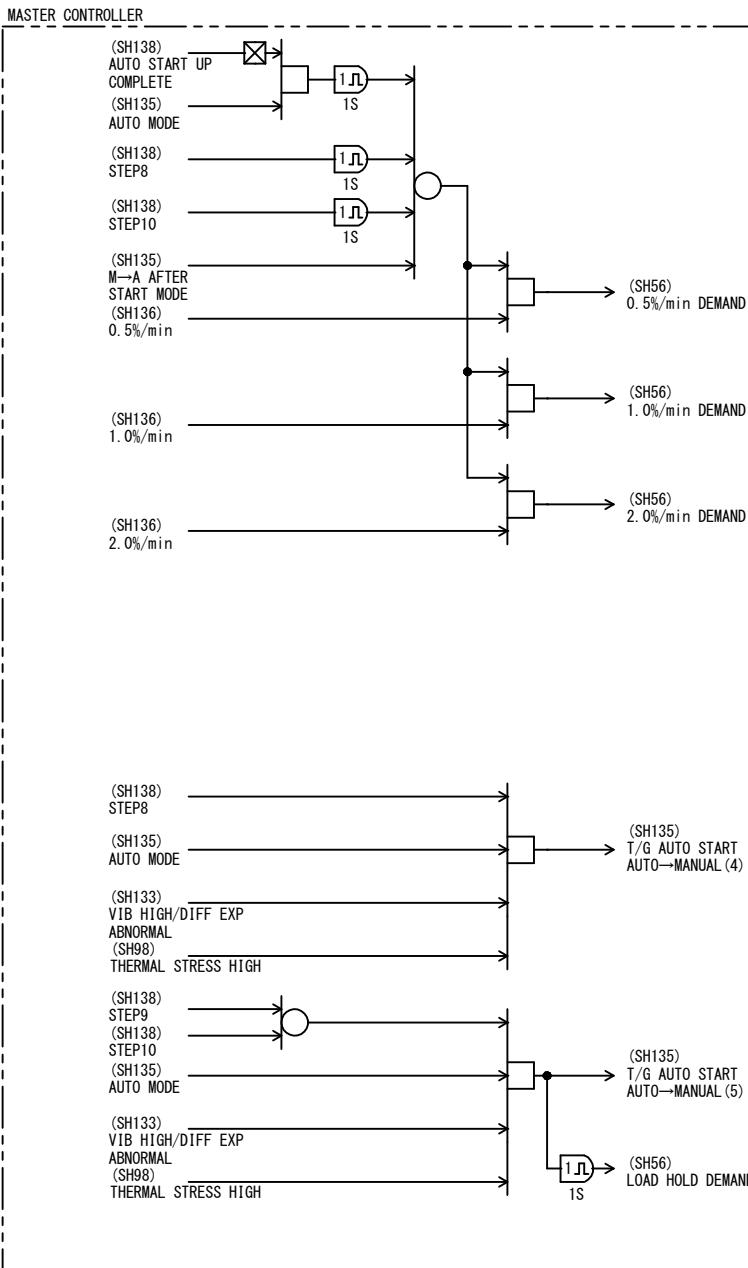
調査 T. S/K. T	CHECKED BY Jun. 25. 21	設計 ---- / R. F N. Y	DESIGNED BY Jun. 25. 21	AUTOMATIC SPEED UP(2) 7K2K1
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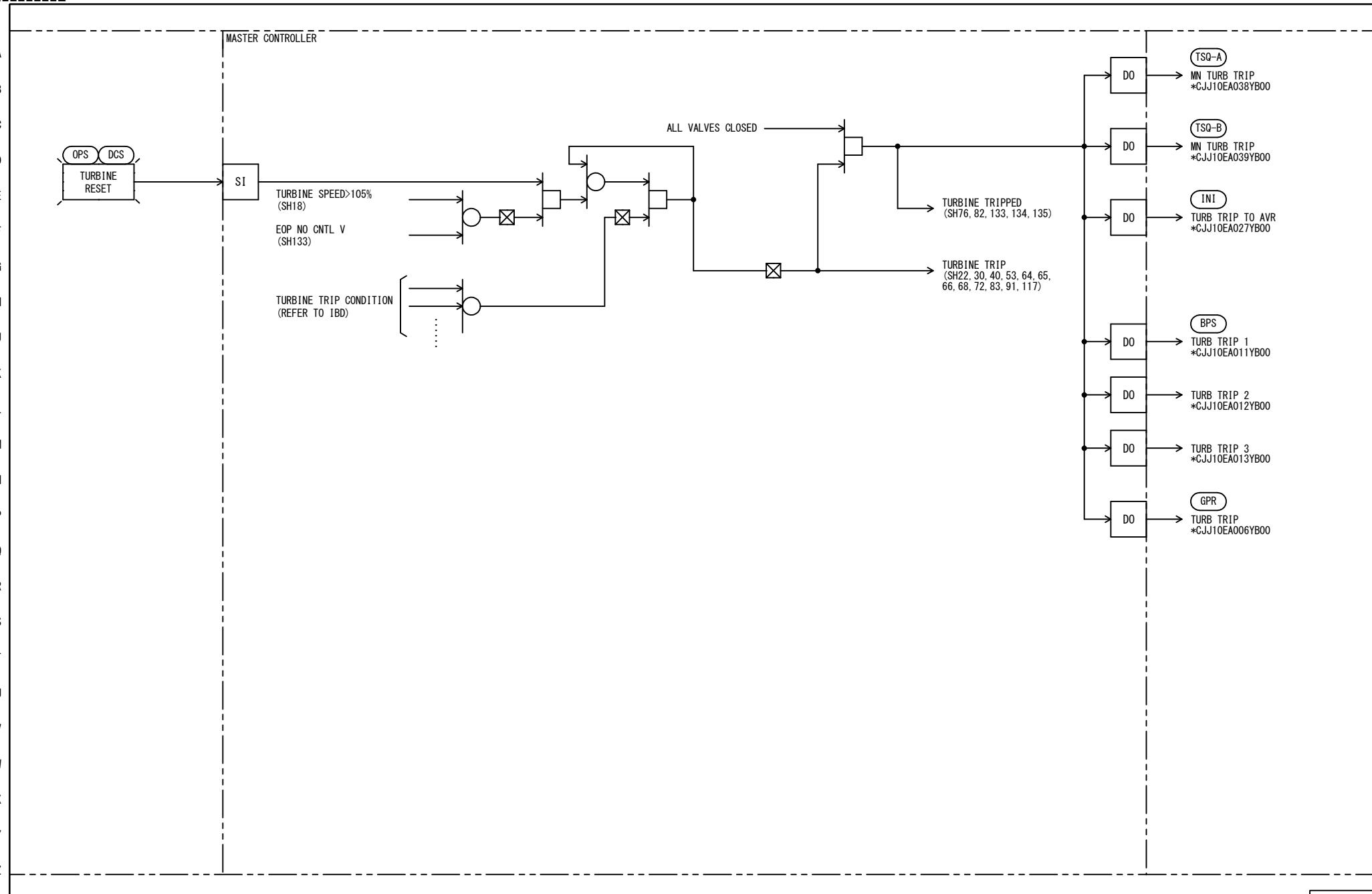
7K2K1689 -136











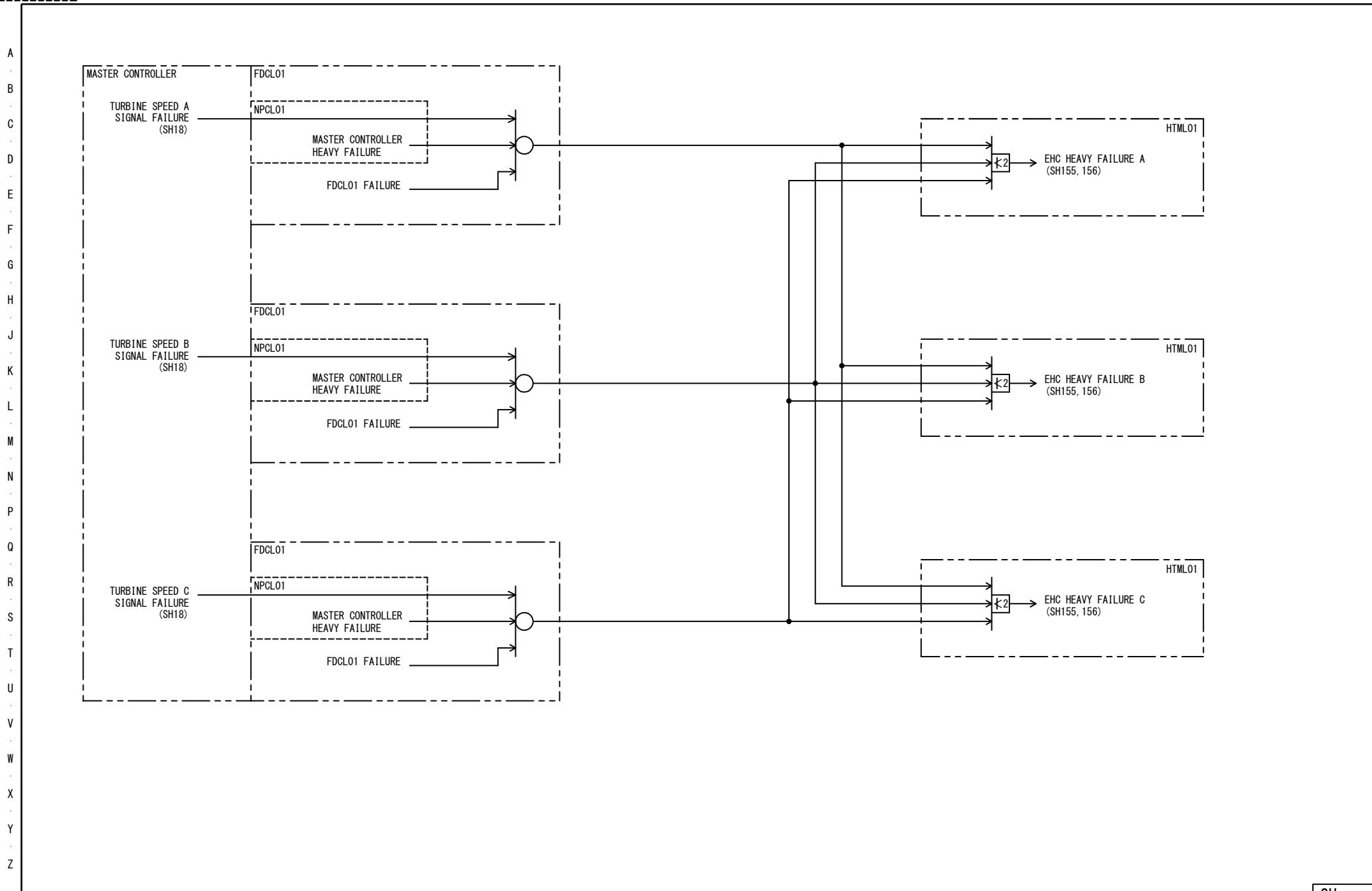
REV.2

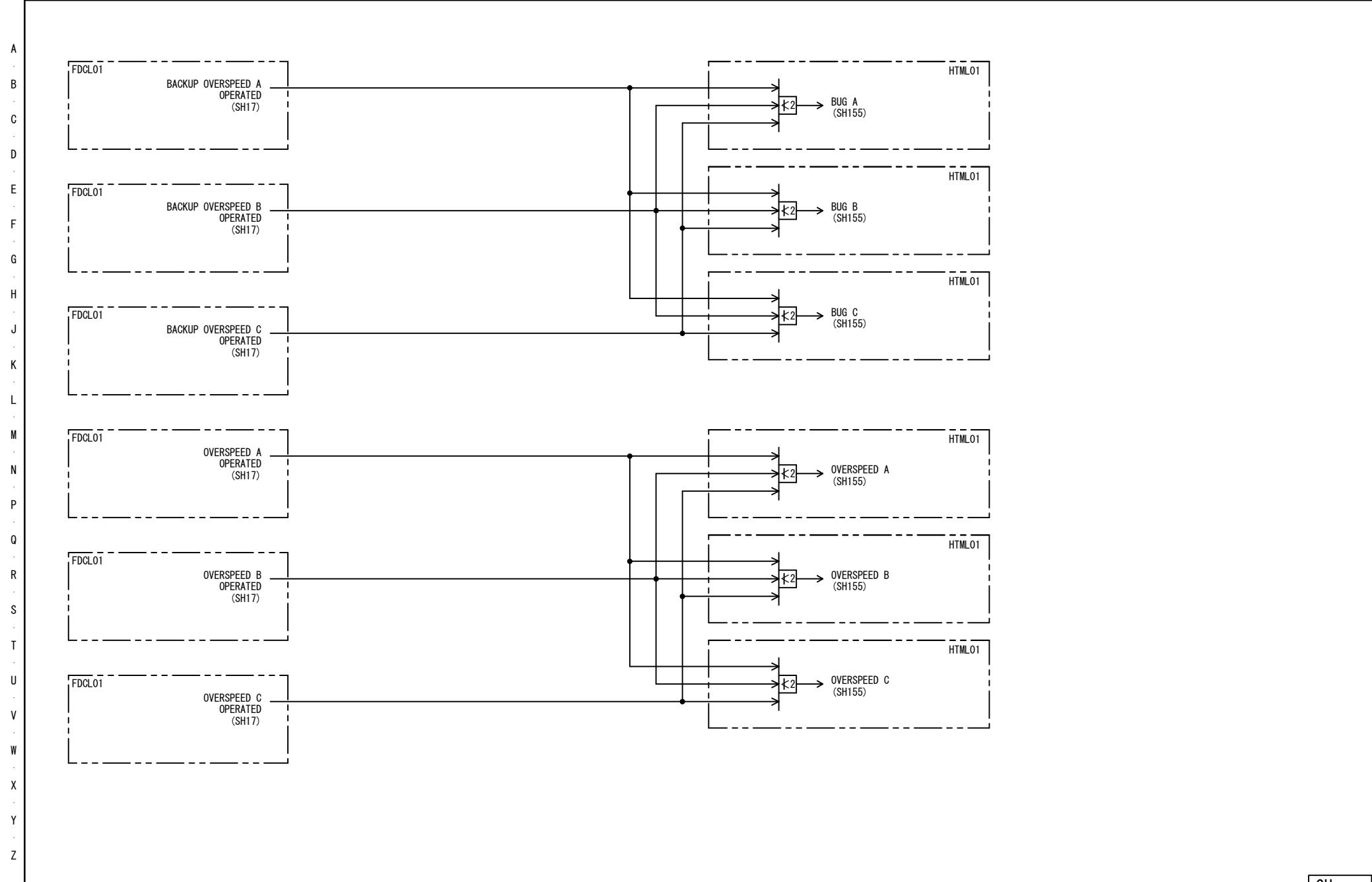
(*) NOTE
*:10 (UNIT1)
:20 (UNIT2)

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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY -----/ R. F Jun. 25, 21	設計 DESIGNED BY N. Y Jun. 25, 21	TURBINE TRIP(1)
			7K2K1689 -151

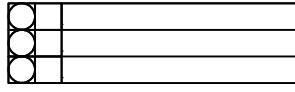
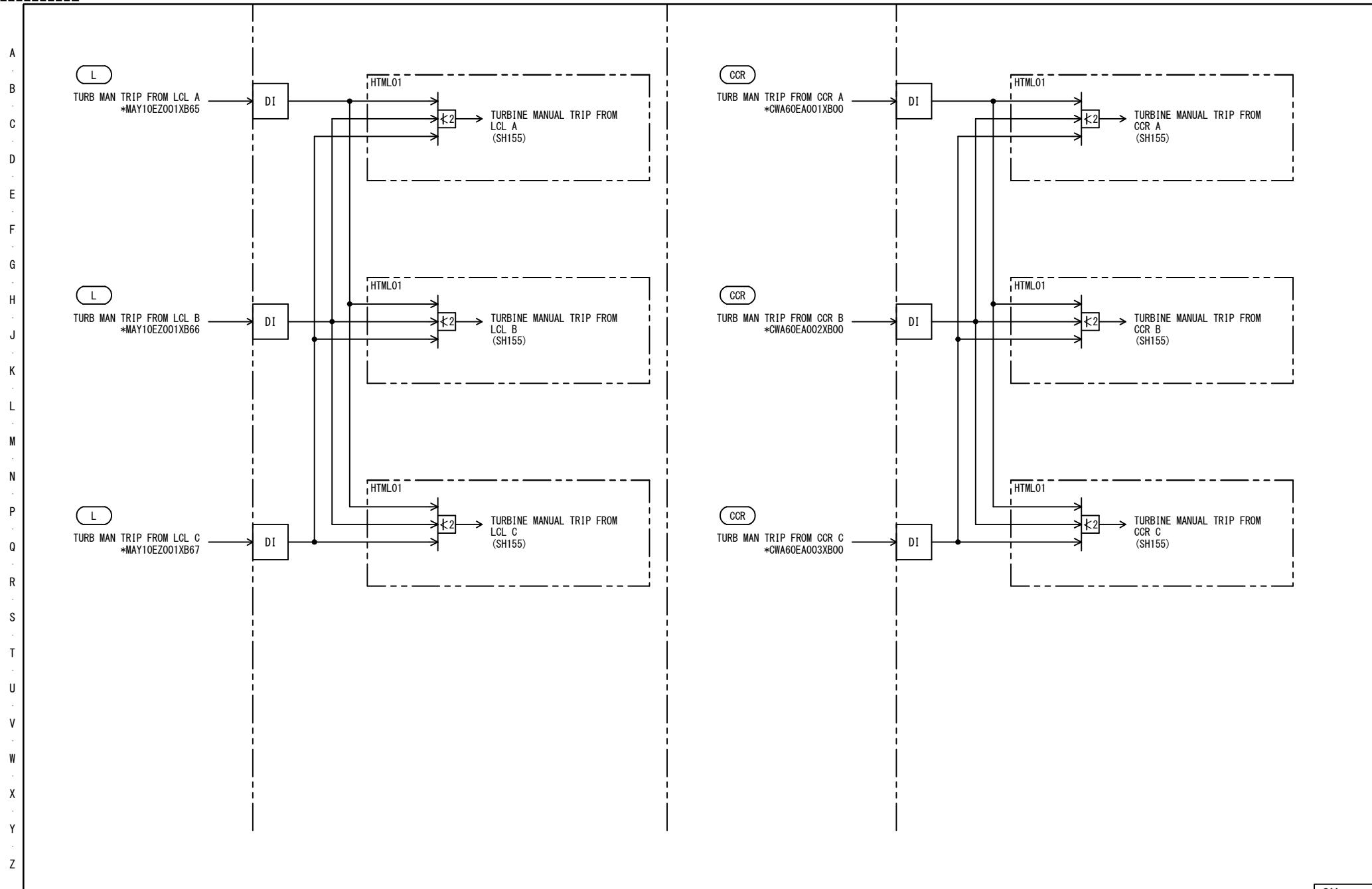
SH





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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 R. F N. Y	DESIGNED BY Jun. 25, 21	TURBINE TRIP(3)
7K2K1689				-153

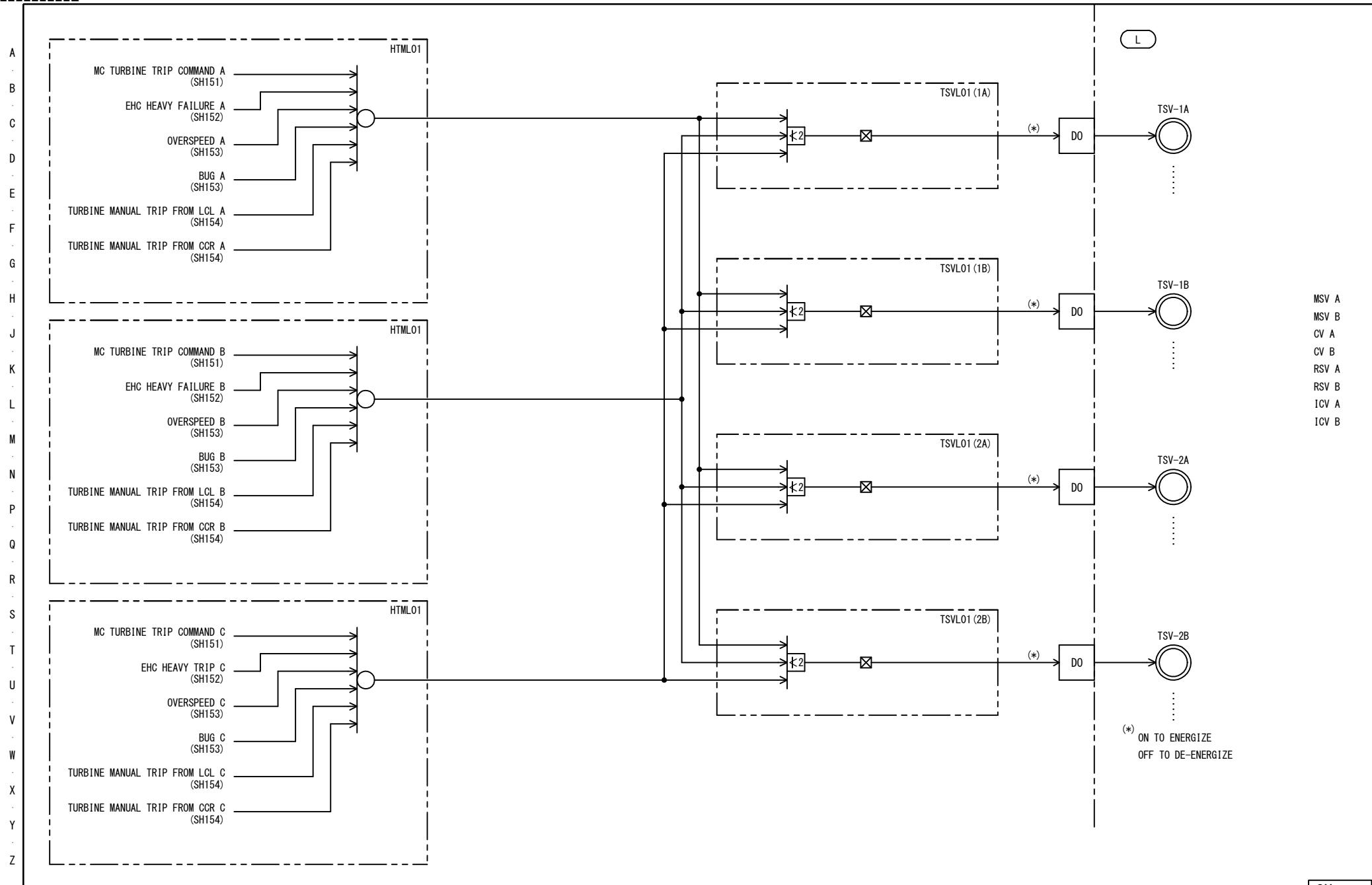


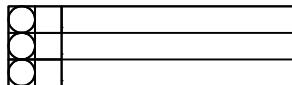
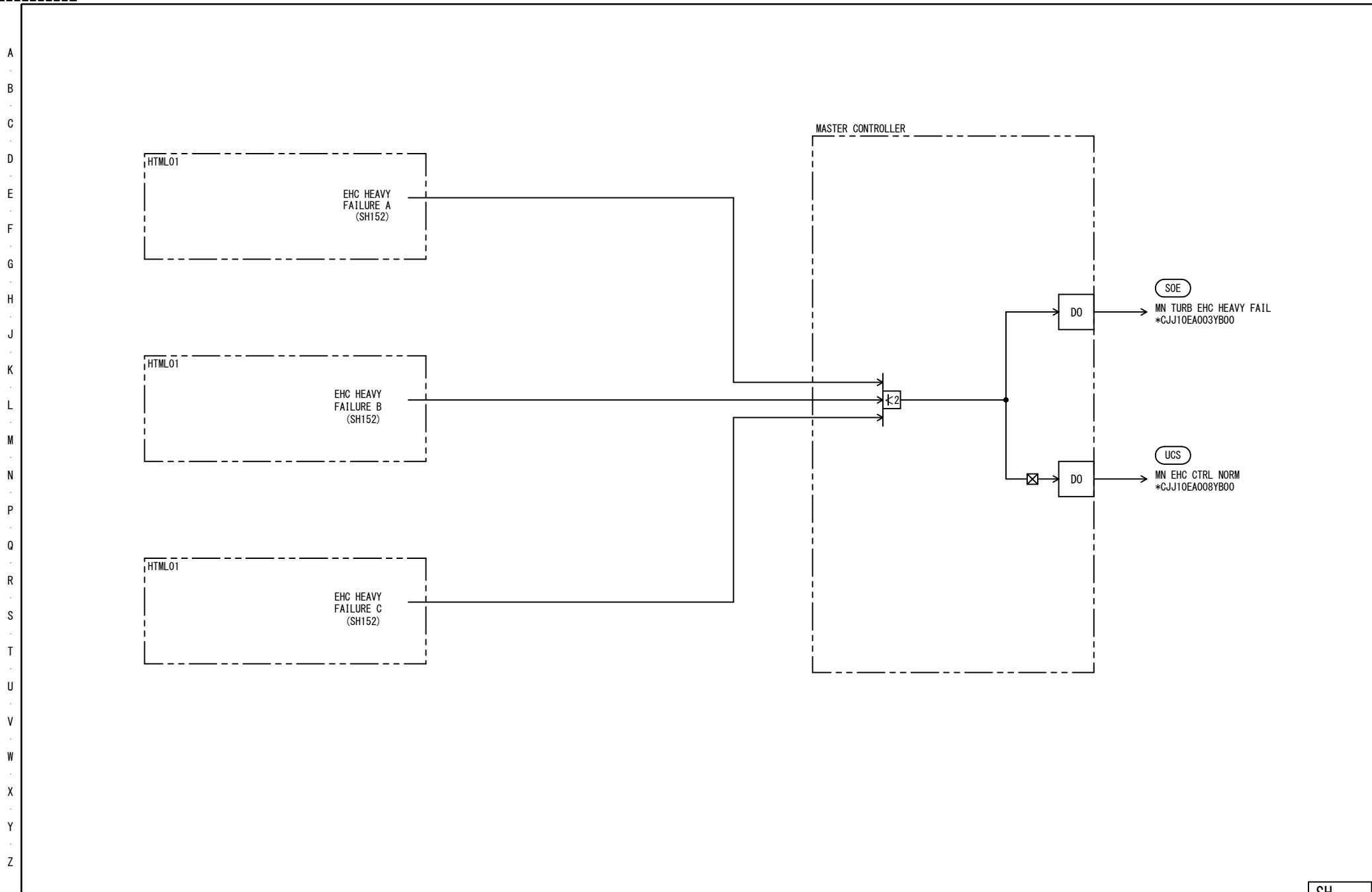
(*)NOTE
*:10 (UNIT1)
:20 (UNIT2)

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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

調査 T. S/K. T	CHECKED BY R. F N. Y	設計 DESIGNED BY Jun. 25, 21	TURBINE TRIP(4) Jun. 25, 21
			7K2K1689 -154

SH





(*)NOTE
*:10 (UNIT1)
:20 (UNIT2)

東芝エネルギーシステムズ株式会社
TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

SH

調査 T. S/K. T	CHECKED BY Jun. 25, 21	設計 R. F N. Y	DESIGNED BY Jun. 25, 21	MAJOR FAILURE
				7K2K1689 -156

A	REV SH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	REV SH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	REV SH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B	001	0															051	-																151	0		2														
C	002	0	2														052	0	2															152	0																
D	003	0															053	0	1	2														153	0																
E	004	-															054	0	2															154	0																
F	005	-															055	0	2															155	0																
G	006	0															056	0																156	0																
H	007	0															057	0																157	-																
I	008	0	2														058	0																158	-																
J	009	0															059	0																159	-																
K	010	-															060	0																160	-																
L	011	0															061	-																161	-																
M	012	-															062	-	-															162	-																
N	013	-															063	-	-															163	-																
O	014	-															064	0																164	-																
P	015	-															065	0																165	-																
Q	016	-															066	0	2															166	-																
R	017	0															067	-																167	-																
S	018	0	1	2													068	0																168	-																
T	019	0	2														069	-																169	-																
U	020	-															070	-																170	-																
V	021	0	2														071	-																171	-																
W	022	0	2														072	0	2															172	-																
X	023	0	1	2													073	0	2															173	-																
Y	024	0	1	2													074	-																174	-																
Z	025	0															075	-																175	-																
Q	026	-	-	2													076	0																176	-																
R	027	0															077	-																177	-																
S	028	0	2														078	-																178	-																
T	029	0															079	-																179	-																
U	030	0															080	-																180	-																
V	031	0															081	-																181	-																
W	032	0															082	0																182	-																
X	033	-	-														083	0																183	-																
Y	034	-	-														084	0																184	-																
Z	035	0	2														085	0																185	-																
Q	036	0	2														086	-																186	-																
R	037	0	2														087	-																187	-																
S	038	-	-														088	0																188	-																
T	039	-	-														089	-																189	-																
U	040	0	2														090	-																190	-																
V	041	0															091	0	2															191	-																
W	042	0															092	-																192	-																
X	043	0	2														093	-																193	-																
Y	044	0															094	-																194	-																
Z	045	0																																																	

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