HITACHI INVERTER

SJ300 / L300P SERIES

SERVICE MANUAL

After reading this manual , keep it hand for future reference.

HITACHI

NBS611BX

Revision History Table

No.	Revision Contents	The Date of Issue	Operation Manual No.
1	Japanese font was removed.	Nov. 2000	NBS611BX
2		.	

Table of contents

1. Investigation of the inverter

1.1 Specification label (Model name, Manufacturing number ; MFG)

- There are 2 specification label attached to the inverter as shown in Fig 1-1.

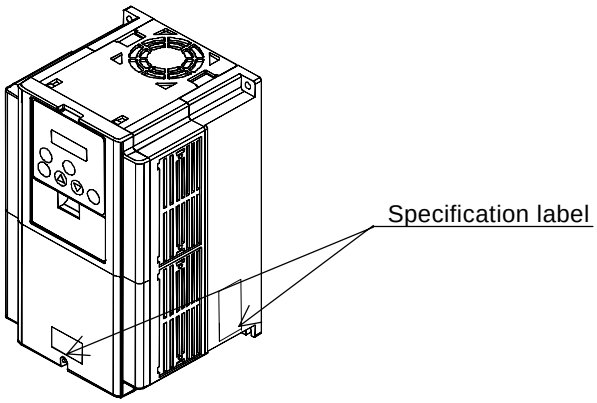


Fig 1-1 Specification label location

- Please confirm the model name and MFG number from the specification label as follows.

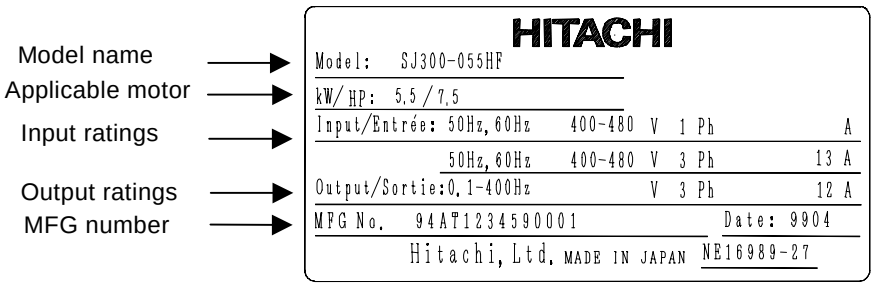
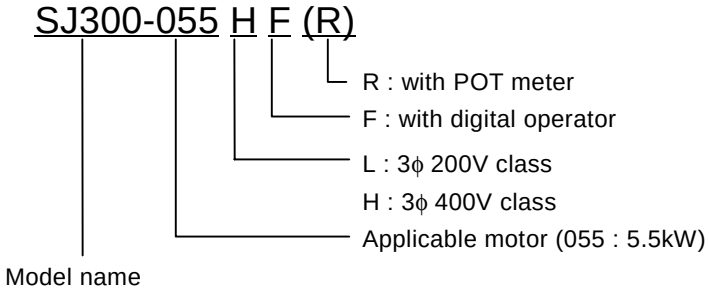
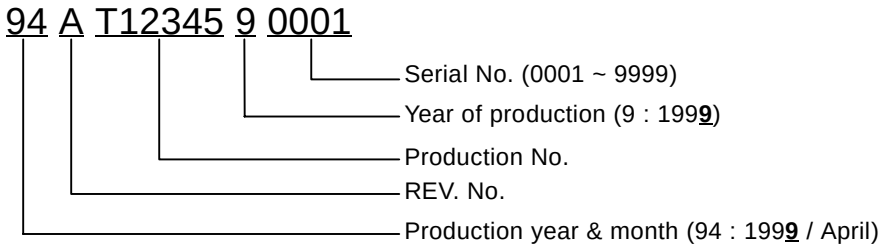


Fig 1-2 contents of specification label

1.1.1 Model name



1.1.2 MFG number

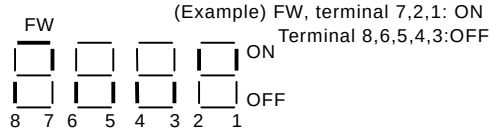
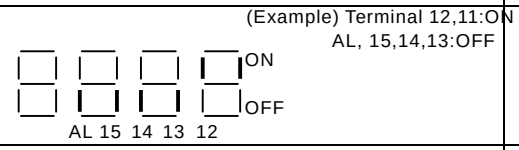


1.2 Inverter specification

1.2.1 SJ300

(Note1)

Monitor Mode

Dis-play code	Function name	SJ300 monitor or data range (digital operator)	Initial data	Note
d001	Output frequency monitor	0.00-99.99/100.0-400.0(Hz)	-	
d002	Output current monitor	0.0-999.9(A)	-	
d003	Operation direction monitor	F(forward)/o(stop)/r(reverse)	-	
d004	PID feedback monitor	0.00-99.99/100.0-999.9/1000. –9999. / 1000-9999/{100-{999 (10000-99900)	-	
d005	Intelligent input terminal monitor		-	
d006	Intelligent output terminal monitor		-	
d007	Frequency conversion monitor	0.00-99.99/100.0-999.9/1000. –9999. / 1000-3996	-	
d012	torque monitor	-300.-+300.%	-	
d013	Output voltage monitor	0.0-600.0 V	-	
d014	Input electric power monitor	0.0-999.9 kW	-	
d016	Accumulated time monitor during RUN	0.-9999./1000-9999/{100-{999 hr	-	
d017	Power ON time monitor	0.-9999./1000-9999/{100-{999 hr	-	
d080	Number of trip time monitor	0.-9999./1000-6553(10000-65530) (time)	-	
d081	Trip monitor 1	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d082	Trip monitor 2		-	
d083	Trip monitor 3		-	
d084	Trip monitor 4		-	
d085	Trip monitor 5		-	
d086	Trip monitor 6		-	
d090	Warning monitor	Warning code	-	
F001	Output frequency setting	0.0, starting frequency-Max. frequency (2^{nd} max. 3^{rd} max. frequency)(Hz)	0.00	
F002	1^{st} acceleration time	0.01-99.99/100.0-999.9/1000. -3600.(s)	30.00	
F202	2^{nd} acceleration time	0.01-99.99/100.0-999.9/1000. -3600.(s)	30.00	
F302	3^{rd} acceleration time	0.01-99.99/100.0-999.9/1000. -3600.(s)	30.00	
F003	1^{st} deceleration time	0.01-99.99/100.0-999.9/1000. -3600.(s)	30.00	
F203	2^{nd} deceleration time	0.01-99.99/100.0-999.9/1000. -3600.(s)	30.00	
F303	3^{rd} deceleration time	0.01-99.99/100.0-999.9/1000. -3600.(s)	30.00	
F004	Operation direction selection	00(forward)/01(reverse)	00	

(Note1) Change mode during run by selection of b031 (software lock selection).

(Note2) Do not forget to press “STR” key when you change the display.

Function Mode

	Code	Function name	SJ300 Setting range	Initial data -FE/-FU/-F	Note
Base setting	A001	Frequency setting selection	01(terminal)/02(operator)/03(RS485)/04(option1)/05(option2)	01/01/02	
	A002	Operation setting selection	01(terminal)/02(operator)/03(RS485)/04(option1)/05(option2)	01/01/02	
	A003	Base frequency	30. - Maximum. frequency(Hz)	50./60./60.	
	A203	Base frequency, 2nd motor	30. – 2nd Maximum. frequency (Hz)	50./60./60.	
	A303	Base frequency, 3rd motor	30. - 3rd Maximum. frequency (Hz)	50./60./60.	
	A004	Maximum frequency	30. – 400. (Hz)	50./60./60.	
	A204	Maximum frequency, 2nd motor	30. – 400. (Hz)	50./60./60.	
	A304	Maximum frequency, 3rd motor	30. – 400. (Hz)	50./60./60.	
Analog input setting	A005	AT terminal selection	00(Changing of O and OI with AT terminal)/ 01(Changing of O and O2 with AT terminal)	00	
	A006	02 selection	00(single)/01(auxiliary speed of O, OI) [no reversible] / 02(auxiliary speed of O, OI [reversible]	00	
	A011	0 start	0.00-99.99/100.0-400.0 (Hz)	0.00	
	A012	0 end	0.00-99.99/100.0-400.0 (Hz)	0.00	
	A013	0 start rate	0.-100.0 (%)	0.	
	A014	0 end rate	0.-100.0(%)	100.	
	A015	0 start selection	00 (external starting frequency)/01(0Hz)	01	
	A016	O, OI, O2 sampling	1.-30.(times)	8.	
Multistage speed,jogging frequency setting	A019	Multi-speed selection	00(binary : range is to 16 stage speed with 4 terminals)/ 01(bit : range is to 8 stage speed with 7 terminals)	00	
	A020	Multi-speed 0	0.00, starting frequency-maximum. frequency(Hz)	0.00	
	A220	Multi-speed 0, 2nd motor	0.00, starting frequency-2nd maximum frequency(Hz)	0.00	
	A320	Multi-speed 0, 3rd motor	0.00, starting frequency-3rd maximum frequency(Hz)	0.00	
	A021	Multi-speed1	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A022	Multi-speed2	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A023	Multi-speed3	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A024	Multi-speed4	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A025	Multi-speed5	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A026	Multi-speed6	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A027	Multi-speed7	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A028	Multi-speed8	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A029	Multi-speed9	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A030	Multi-speed10	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A031	Multi-speed11	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A032	Multi-speed12	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A033	Multi-speed13	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A034	Multi-speed14	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A035	Multi-speed15	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A038	Jogging frequency	0.00, starting frequency-9.99(Hz)	1.00	
	A039	Jogging selection	00(free-run on JG stop / invalid on running) / 01(stop decelerating on JG stop / invalid on running) / 02(DC braking on JG stop/invalid on running) / 03(free-run on JG stop/valid on running[JG after stop decelerating]) / 04 (stop decelerating on JG stop/valid on running) / 05 (DC braking on JG stop/valid on operating)	00	
V/f characteristic	A041	Torque boost selection	00 (manual torque boost) / 01 (automatic torque boost)	00	
	A241	Torque boost selection, 2nd motor	00 (manual torque boost) / 01 (automatic torque boost)	00	
	A042	Manual torque boost	0.0-20.0(%)	1.0	
	A242	Manual torque boost, 2nd motor	0.0-20.0(%)	1.0	
	A342	Manual torque boost, 3rd motor	0.0-20.0(%)	1.0	
	A043	Manual torque boost point	0.0-50.0(%)	5.0	
	A243	Manual torque boost point, 2nd motor	0.0-50.0(%)	5.0	
	A343	Manual torque boost point, 3rd motor	0.0-50.0(%)	5.0	
	A044	1st control	00/(VC)/01(VP1.7power)/02(free V/f setting)/03(SLV)/ 04(0Hz-SLV)/05(V2)	00	
	A244	2nd control	00/(VC)/01(VP1.7power)/02(free V/f setting) /03(SLV)/04(0Hz-SLV)	00	
	A344	3rd control	00/(VC)/01(VP1.7power)	00	
	A045	Output voltage gain	20. - 100.	100.	
Direct current braking	A051	DC braking selection	00(invalid)/01(valid)	00	
	A052	DC braking frequency	0.00-60.00(Hz)	0.50	
	A053	DC braking wait time	0.0 - 5.0(s)	0.0	
	A054	DC braking power	0. - 100. (%)	0.	
	A055	DC braking time	0.0 - 60.0(s)	0.0	
	A056	DC braking edge/level selection	00(edge action)/01(level action)	01	
	A057	DC braking power (starting time)	0. - 100. (%)	0.	
	A058	DC braking time(starting time)	0.00-60.0(s)	0.0	
	A059	DC carrier frequency	0.5-15(kHz) Derating	5.0	

Function Mode

Code		Function name	SJ300 Setting range	Initial data -FE/-FU	Note
Upper and lower limiter,jump frequency	A061	1st frequency maximum limiter	0.00, 1st frequency lower limitter - maximum frequency(Hz)	0.00	
	A261	2nd frequency maximum limiter	0.00, 2nd frequency lower limiter-2nd setting maximum frequency(Hz)	0.00	
	A062	1st frequency minimum limiter	0.00, start frequency-maximum frequency(Hz)	0.00	
	A262	2nd frequency minimum limiter	0.00, start frequency-2nd setting maximum frequency(Hz)	0.00	
	A063	Jump frequency1	0.00-99.99/100.0-400.0(Hz)	0.00	
	A064	Jump frequency Width 1	0.00-10.00(Hz)	0.50	
	A065	Jump frequency2	0.00-99.99/100.0-400.0(Hz)	0.00	
	A066	Jump frequency Width 2	0.00-10.00(Hz)	0.50	
	A067	Jump frequency3	0.00-99.99/100.0-400.0(Hz)	0.00	
	A068	Jump frequency Width 3	0.00-10.00(Hz)	0.50	
	A069	Acceleration stop frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	A070	Acceleration stop time	0.00-60.0(s)	0.0	
PID control	A071	PID selection	00(invalid)/01(valid)	00	
	A072	PID-P gain	0.2-5.0	1.0	
	A073	PID-I gain	0.0-3600.(s)	1.0	
	A074	PID-D gain	0.00-100.0(s)	0.00	
	A075	PID scale	0.01-99.99(%)	1.00	
	A076	PID feedback selection	00(feedback : OI)/01(feedback : O)	00	
AVR	A081	AVR selection	00(ON always)/01(OFF always)/02(OFF on decelerating)	02	
	A082	Motor voltage selection	200/215/220/230/240, 380/400/415/440/460/480	(230/400)/ (230/460)/ (200/400)	
Operation mode/ adjustable function	A085	Operation mode selection	00(normal operation)/01(energy-saving operation)/02(Fuzzy)	00	
	A086	Energy-saving response-accuracy adjustment	0.0-100.0	50.0	
	A092	Acceleration time2	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A292	Acceleration time2(2nd motor)	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A392	Acceleration time2(3rd motor)	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A093	Deceleration time2	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A293	Deceleration time2(2nd motor)	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A393	Deceleration time2(3rd motor)	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A094	2nd stage adjustable selection	00(change with 2CH terminal)/01(change with setting)	00	
	A294	2nd stage adjustable selection(2nd motor)	00(change with 2CH terminal)/01(change with setting)	00	
	A095	2nd acceleration frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	A295	2nd acceleration frequency(2nd motor)	0.00-99.99/100.0-400.0(Hz)	0.00	
	A096	2nd deceleration frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	A296	2nd deceleration frequency (2nd motor)	0.00-99.99/100.0-400.0(Hz)	0.00	
	A097	Acceleration pattern selection	00(straight line)/01(S-curve)/02(U-curve)/03(reverse U-curve)	00	
	A098	Deceleration pattern selection	00(straight line)/01(S-curve)/02(U-curve)/03(reverse U-curve)	00	
External frequency adjustment	A101	OI start	0.00-99.99/100.0-400.0(Hz)	0.00	
	A102	OI end	0.00-99.99/100.0-400.0(Hz)	0.00	
	A103	OI start rate	0.-100. (%)	20.	
	A104	OI end rate	0.-100. (%)	100.	
	A105	OI start selection	00(external start frequency)/01(0Hz)	01	
	A111	O2 start	-400.--100./-99.9-0.00-99.9/100.-400.(Hz)	0.00	
	A112	O2 end	-400.--100./-99.9-0.00-99.9/100.-400.(Hz)	0.00	
	A113	O2 start rate	-100. - 100. (%)	-100.	
	A114	O2 end rate	-100. - 100. (%)	100.	
Accel, Decel	A131	Acceleration curve constant	01(small swelling)-10(large swelling)	02	
	A132	Deceleration curve constant	01(small swelling-10(large swelling)	02	
Instantaneous power failure restart	b001	Retry selection	00(trip)/01(0Hz start)/02(start after equal frequency)/ 03(trip after equaling frequency and deceleration stop)	00	
	b002	Allowable under-voltage power failure time	0.3-1.0(s)	1.0	
	b003	Retry wait time	0.3-100.(s)	1.0	
	b004	Instantaneous power failure/ under-voltage trip during stop	00(invalid/01(valid)/02(invalid during stop and deceleration by stop command)	00	
	b005	Instantaneous power failure/ under-voltage retry time selection	00(16 times)/01(free)	00	
	b006	Open-phase selection	00(invalid)/01(valid)	00	
	b007	Frequency setting to match	0.00-99.99/100.0-400.0(Hz)	0.00	

Function mode

Code		Function name	SJ300 Setting range	Initial data -FE/-FU/-F	Note
Electronic thermal	b012	Electronic thermal level	0.2*constant current-1.20*constant current(A)	Rated Current of inverter	
	b212	Electronic thermal level (2nd motor)	0.2*constant current-1.20*constant current(A)	Rated Current of Inverter	
	b312	Electronic thermal level (3rd motor)	0.2*constant current-1.20*constant current(A)	Rated current of inverter	
	b013	1st electronic thermal characteristic selection	00(reduced characteristic)/ 01(constant torque characteristic)/ 02(free setting)	01/01/00	
	b213	2nd electronic thermal characteristic selection	00(reduced characteristic)/ 01(constant torque characteristic)/ 02(free setting)	01/01/00	
	b313	3rd electronic thermal characteristic selection	00/(reduced characteristic)01(constant torque characteristic)/ 02(free setting)	01/01/00	
	b015	Free electronic thermal frequency 1	0.-400.(Hz)	0.	
	b016	Free electronic thermal current 1	0.0-1000.(A)	0.0	
	b017	Free electronic thermal frequency 2	0.-400.(Hz)	0.	
	b018	Free electronic thermal current 2	0.0-1000. (A)	0.0	
	b019	Free electronic thermal frequency 3	0.-400.(Hz)	0.	
	b020	Free electronic thermal current 3	0.0-1000.(A)	0.0	
Overload limit	b021	Overload restriction selection	00(invalid)/01(enabled on acceleration / constant speed)/ 02(enabled on constant speed)/03(enabled on acceleration / constant speed (speed increasing at regenerating mode))	01	
	b022	Overload restriction level	0.50* rated current-2.00* rated current(A)	Rated current of Inverter x 1.50	
	b023	Overload restriction limit constant	0.10-30.00(s)	1.00	
	b024	Overload restriction 2 selection	00(invalid)/01(enabled on acceleration / constant speed)/ 02(enabled on constant speed)/03(enabled on acceleration / constant speed (speed increasing at regenerating mode))	01	
	b025	Overload restriction level 2	0.50*rated current-2.00*rated current(A)	Rated current of inverter x1.50	
	b026	Overload restriction constant 2	0.10-30.00(s)	1.00	
	b031	Software lock mode selection	00(impossible to change the data except this item when SFT terminal is ON)/01(impossible to change the data except setting frequency item when SFT terminal is ON)/02(impossible to change the data except this item)/ 03(impossible to change the data except setting frequency item)/ 10(possible to change data on operating)	01	
Free V/f setting	b100	Free V/f frequency 1	0.- Free V/f frequency2(Hz)	0.	
	b101	Free V/f voltage 1	0.-800.0(V)	0.0	
	b102	Free V/f frequency 2	0.- Free V/f frequency3(Hz)	0.	
	b103	Free V/f voltage 2	0.-800.0(V)	0.0	
	b104	Free V/f frequency 3	0.- Free V/f frequency4(Hz)	0.	
	b105	Free V/f voltage 3	0.-800.0(V)	0.0	
	b106	Free V/f frequency 4	0.- Free V/f frequency5(Hz)	0.	
	b107	Free V/f voltage 4	0.-800.0(V)	0.0	
	b108	Free V/f frequency 5	0.- Free V/f frequency6(Hz)	0.	
	b109	Free V/f voltage 5	0.-800.0(V)	0.0	
	b110	Free V/f frequency 6	0.- Free V/f frequency7(Hz)	0.	
	b111	Free V/f voltage 6	0.-800.0(V)	0.0	
	b112	Free V/f frequency 7	0.-400.(Hz)	0.	
	b113	Free V/f voltage 7	0.-800.0(V)	0.0	
Intelligent input terminal setting	C001	Intelligent input 1 setting	01/(RV:Reverse is valid)/02(CF1:Multi-speed1)/ 03(CF2:Multi-speed2)/ 04(CF3:Multi-speed3)/ 05(CF4:Multi-speed4)/ 06(JG:Jogging)/ 07(DB:External DC braking)/ 08(SET:2nd control)/ 09(2CH:two-stage adjustable speed)/ 11(FRS:Free-run)/ 12(EXT:External trip)/ 13(USP:Unattended start protection)/ 14(CS:commercial change)/ 15(SFT:software lock)/ 16(AT:Analog input voltage/current select)/ 17(SET3:3rdcontrol)/ 18(RS:Reset inverter)/ 20(STA:3wire run)/ 21(STP:3wire keep)/ 22(F/R:3wire forward/reverse)/ 23(PID:PID selection valid/invalid)/ 24(PIDC:PID integrating reset)/ 26(CAS:Control gain switch function)/ 27(UP:Remote control UP function)/ 28(DWN:Remote control DOWN function)/29(UDC:Remote control data clear)/ 31(OPE:Operating by operator select)/ 32(SF1:Multi-speed bit1)/ 33(SF2:Multi-speed bit2)/ 34(SF3:Multi-speed bit3)/ 35(SF4:Multi-speed bit4)/ 36(SF5:Multi speed bit5)/ 37(SF6:Multi-speed bit6)/ 38(SF7:Multi-speed bit7)/ 39(OLR:Overload restriction change) / 40(TL:Torque limit select)/ 41(TRQ1:Torque limit switch 1)/ 42(TRQ2:Torque limit switch 2)/ 43((PPI:P/PI switch)/ 44(BOK:Braking comformation)/ 45(ORT:Orientation)/ 46(LAC:LAD cancel)/ 47(PCLR:Position error clear)/ 48(STAT:Permission of pulse train)/ no(NO:No assign)	18	
	C002	Intelligent input 2 setting		16	
	C003	Intelligent input 3 setting		06	
	C004	Intelligent input 4 setting		11	
	C005	Intelligent input 5 setting		09	
	C006	Intelligent input 6 setting		03/13/03	
	C007	Intelligent input 7 setting		02	
	C008	Intelligent input 8 setting		01	

Function mode

	Code	Function name	SJ300 Setting range	Initial data -FE/-FU/-F	Note
Input terminal setting intelligent	C011	Intelligent input 1 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C012	Intelligent input 2 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C013	Intelligent input 3 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C014	Intelligent input 4 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C015	Intelligent input 5 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C016	Intelligent input 6 a/b (NO/NC) selection	00(NO)/01(NC)	00/01/00	
	C017	Intelligent input 7a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C018	Intelligent input 8 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C019	Input FW a/b (NO/NC) Selection	00(NO)/01(NC)	00	
Intelligent output terminal setting	C021	Intelligent output 11 setting	00(RUN:running)/01(FA1:Frequency arrival type1 signal)/ 02(FA2:over setting frequency)/03(OL:Overload advance notice signal)/ 04(OD:Output deviation for PID control)/05(AL:Alarm signal)/ 06(FA3:Only setting frequency)/07(OTQ:Over-torque signal)/ 08(IP:On instantaneous stop)/09(UV:Under voltage)/ 10(TRQ:Torque limit)/11(RNT:RUN time over/12(ONT:ON time over)/ 13(THM:thermal caution)/19(BRK:Brake release signal)/ 20(BER:Brake error signal)/21(ZS:Zero speed detect signal)/ 22(DSE:Speed error over signal)/23(POK:Positioning completion signal) 24(FA4:Over frequency 2 signal)/25(FA5:Only setting frequency)/ 26(OL2: Overload advance notice signal 2) (Intelligent output terminal 11-13 or 11-14 becomes AC0-AC2 or AC0-AC3 (Can:Alarm cord output) forcibly when alarm cord output is selected in C062)	01	
	C022	Intelligent output 12 setting		00	
	C023	Intelligent output 13 setting		03	
	C024	Intelligent output 14 setting		07	
	C025	Intelligent output 15 setting		08	
	C026	Alarm relay output		05	
	C027	FM selection	00(Output frequency)/01(Output current) /02(Output torque)/ 03(Digital output frequency)/04(Output voltage)/ 05(Input electric power)/06(thermal load rate)/07(LAD frequency)	00	
	C028	AM selection	00(Output frequency)/01(Output current)/02(Output torque)/ 04(Output voltage)/05(Input electric power)/06(thermal load rate)/ 07(LAD frequency)	00	
	C029	AMI selection	00(Output frequency)/01(Output current)/02(Output torque)/ 04(Output voltage)/05(Input electric power)/ 06(Thermal load rate)/07(LAD frequency)	00	
Output terminal state setting,Output level setting	C031	Intelligent output 11 a/b	00(NO)/01(NC)	00	
	C032	Intelligent output 12 a/b	00(NO)/01(NC)	00	
	C033	Intelligent output 13 a/b	00(NO)/01(NC)	00	
	C034	Intelligent output 14 a/b	00(NO)/01(NC)	00	
	C035	Intelligent output 15 a/b	00(NO)/01(NC)	00	
	C036	Alarm relay output a/b	00(NO)/01(NC)	01	
	C040	Overload advance notice signal output mode	00(On accel. And decel, constant speed)/01(Only constant speed)	01	
	C041	Overload advance notice level	0.0-2.0*rated current(A)	Inverter rated current	
	C042	Frequency arrival setting for acceleration.	0.00-99.99/100.0-400.0(Hz)	0.00	
	C043	Arrival frequency setting for deceleration.	0.00-99.99/100.0-400.0(Hz)	0.00	
	C044	PID deviation setting level	0.0-100.0(%)	3.0	
	C045	Frequency arrival setting for acceleration 2.	0.00-99.99/100.0-400.0(Hz)	0.00	
	C046	Arrival frequency setting for deceleration 2.	0.00-99.99/100.0-400.0(Hz)	0.00	
	C055	Over torque level setting (Forward-driving)	0.-200.(%)	100.	
	C056	Over torque level setting (Reverse-regenerating)	0.-200.(%)	100.	
	C057	Over torque level setting (Reverse-driving)	0.-200.(%)	100.	
	C058	Over torque level setting (Forward-regenerating)	0.-200.(%)	100.	
	C061	Thermal warning level setting	0.-100.(%)	80.	
	C062	Alarm code selection	00(Invalid)/01(3bit)/02(4bit)	00	
	C063	Zero speed detection level setting	0.00-99.99/100.(Hz)	0.00	
Communication function adjustment	C070	Data command	02(operator)/03(RS485)/04(option1)/05(option2)	02	
	C071	Communicating transmission speed	02(loop-back test) 03(2400bps)/04(4800bps)/05(9600bps)/06(19200bps)	04	
	C072	Communication code	1. -32.	1.	
	C073	Communication bit	7(7bit)/8(8bit)	7	
	C074	Communication parity	00(no parity name)/01(even parity)/02(odd parity)	00	
	C075	Communication stop bit	1(bit)/2(bit)	1	
	C078	Communication waiting time	0.-1000.(ms)	0.	
Analog meter setting	C081	O adjustment	0.-9999./1000-6553(10000-65530)	Setting on forwarding	
	C082	OI adjustment	0.-9999./1000-6553(10000-65530)	Setting on forwarding	
	C083	O2 adjustment	0.-9999./1000-6553(10000-65530)	Setting on forwarding	
	C085	Thermistor adjustment	0.0 - 1000.	105.0	
	C086	AM offset adjustment	0.0 - 10.0(V)	0.0	
	C087	AMI adjustment	0. - 255.	80	
	C088	AMI offset adjustment	0. - 20.0(mA)	Setting on forwarding	

Function mode

Code		Function name	SJ300 Setting range	Initial data -FE/-FU/-F	Note
The others	b034	RUN time/Power ON time level	0.-9999./1000-6553(10000-65530)hr	0.	
	b035	Operation direction restrict	00(Reverse is valid)/01(Only forward)/02(Only reverse)	00	
	b036	Start reduced voltage	00(Start reduced voltage time small)-06(Start reduced voltage time large)	06	
	b037	Display selection	00(all display)/01(each function display)/02(User setting / main setting)	00	
	b040	Torque limit mode selection	00(4 quadrant mode)/01(Terminal operation)/ 02(Analog input)/03(Option1)/04(Option2)	00	
	b041	Torque limit level 1 setting (Forward-driving at 4 quadrant mode)	0.-200.(%)/no(Invalid)	150.	
	b042	Torque limit level 2 setting (Reverse-regenerating at 4 quadrant mode)	0.-200.(%)/no(Invalid)	150.	
	b043	Torque limit level 3 setting (Reverse-driving at 4 quadrant mode)	0.-200.(%)/no(Invalid)	150.	
	b044	Torque limit level 4 setting (Forward-regenerating at 4 quadrant mode)	0.-200.(%)/no(Invalid)	150.	
	b045	Torque LAD-STOP selection	00(Invalid)/01(Valid)	00	
	b046	Reverse run prevention selection	00(Invalid)/01(Valid)	00	
	b050	Selection of non-stop function at instantaneous power failure	00(Invalid)/01(Valid)	00	
	b051	Start voltage of non-stop function setting	0.0-1000.(V)	0.0	
	b052	OV LAD-STOP level of non-stop function setting	0.0-1000.(V)	0.0	
	b053	Deceleration time of non-stop function setting	0.01-99.99/100.0-999.9/1000.-3600.(s)	1.00	
	b054	Deceleration frequency width of non-stop function setting	0.00-10.00(Hz)	0.00	
	b080	AM adjustment	0. - 255.	180	
	b081	FM adjustment	0. - 255.	60	
	b082	Start frequency adjustment	0.10-9.99(Hz)	0.50	
	b083	Carrier frequency setting	0.5-15.0(kHz) Derating enable,	5.0	
	b084	Initialize mode	00(Trip history clear)/01(Data initialization)/ 02(Trip history clear + data initialization)	00	
	b085	Country code for initialization	00(Interior)/01(EC)/02(USA)	01/02/00	
	b086	Frequency scalar conversion factor	0.1-99.9	1.0	
	b087	STOP key enable	00(valid)/01(invalid)	00	
	b088	Resume on FRS cancellation mode	00(0Hz start)/01(Start f-equaling)	00	
	b090	BRD usage ratio	0.0-100.0(%)	0.0	
	b091	Stop mode selection	00(deceleration stop)/01(Free-run stop)	00	
	b092	Cooling fan control	00(Always ON)/ 01(ON during run, After power ON, then for 5 minutes on stop is implied.)	00	
	b095	BRD selection	00(invalid)/01(valid<invalid during stop>)/02(valid<valid during stop>)	00	
	b096	BRD ON level	330-380/660-760(V)	360/720	
	b098	Thermistor selection	00(invalid)/01(Positive temperature coefficient enable)/02 (NTC enable)	00	
	b099	Thermistor error level	0. - 9999. (ohm)	3000.	
	b120	Braking control selection	00(Invalid)/01(valid)	00	
	b121	Waiting time for releasing braking conformation	0.00-5.00(s)	0.00	
	b122	Waiting time for acceleration	0.00-5.00(s)	0.00	
	b123	Waiting time for stop	0.00-5.00(s)	0.00	
	b124	Waiting time for signal conformation	0.00-5.00(s)	0.00	
	b125	Releasing frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	b126	Releasing current	0.00*rated current-2.00*rated current(A)	Rated current of inverter	
	C091	Debug mode selection	00(No display)/01(Display)	00	
	C101	UP/DWN selection	00(No frequency data)/01(Keep frequency data)	00	
	C102	Reset selection	00(Trip cancel during ON)/01(Trip cancel during OFF)/ 02(Valid only during trip<Cancel during ON>)	00	
	C103	Reset f frequency matching selection	00(0Hz start)/01(Start f-equaling)	00	
	C111	Overload advance notice level	0.0-2.0*rated current(A)	Inverter rated current	
	C121	O zero adjustment	0.-9999./1000-6553(10000-65530)	Set on forwarding	
	C122	OI zero adjustment	0.-9999./1000-6553(10000-65530)	Set on forwarding	
	C123	O2 zero adjustment	0.-9999./1000-6553(10000-65530)	Set on forwarding	

Function mode

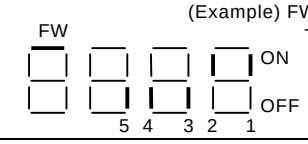
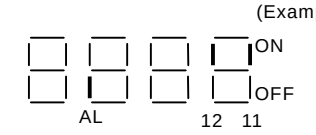
Code		Function name	SJ300 Setting range	Initial data -FE/-FU/-F	Note
The others	H001	Autotuning selection	00(Invalid)/01(Valid(the motor does not rotate))/ 02(Valid(the motor rotates))	00	
	H002	1st motor constant selection	00(Hitachi general purpose motor data)/01(Autotuning data)/ 02(Autotuning data with online autotuning)	00	
	H202	2nd motor constant selection	00(Hitachi general purpose motor data)/01(Autotuning data)/ 02(Autotuning data with online autotuning)	00	
	H003	1st allowable motor selection	0.20-75.0(kW)	Set on forwarding	
	H203	2nd allowable motor selection	0.20-75.0(kW)	Set on forwarding	
	H004	1st motor pole selection	2/4/6/8(pole)	4	
	H204	2nd motor pole selection	2/4/6/8(pole)	4	
	H005	1st speed response setting	0.001-9.999/10.00-65.53	1.590	
	H205	2nd speed response setting	0.001-9.999/10.00-65.53	1.590	
	H006	1st stabilized factor	0. - 255.	100.	
	H206	2nd stabilized factor	0. - 255.	100.	
	H306	3rd stabilized factor	0. - 255.	100.	
	H020	1st motor constant R1	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H220	2nd motor constant R1	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H021	1st motor constant R2	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H221	2nd motor constant R2	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H022	1st motor constant L	0.00-99.99/100.0-655.3(mH)	Set on forwarding	
	H222	2nd motor constant L	0.00-99.99/100.0-655.3(mH)	Set on forwarding	
	H023	1st motor constant I_0	0.00-99.99/100.0-655.3(A)	Set on forwarding	
	H223	2nd motor constant I_0	0.00-99.99/100.0-655.3(A)	Set on forwarding	
	H024	1st motor constant J	0.001-9.999/10.00-99.99/100.0-9999.(kgm^2)	Set on forwarding	
	H224	2nd motor constant J	0.001-9.999/10.00-99.99/100.0-9999.(kgm^2)	Set on forwarding	
	H030	1st motor constant R1 (Autotuning data)	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H230	2nd motor constant R1 (Autotuning data)	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H031	1st motor constant R2 (Autotuning data)	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H231	2nd motor constant R2 (Autotuning data)	0.000-9.999/10.00-65.53(ohm)	Set on forwarding	
	H032	1st motor constant L (Autotuning data)	0.00-99.99/100.0-655.3(mH)	Set on forwarding	
	H232	2nd motor constant L (Autotuning data)	0.00-99.99/100.0-655.3(mH)	Set on forwarding	
	H033	1st motor constant I_0 (Autotuning data)	0.00-99.99/100.0-655.3(A)	Set on forwarding	
	H233	2nd motor constant I_0 (Autotuning data)	0.00-99.99/100.0-655.3(A)	Set on forwarding	
	H034	1st motor constant J	0.001-9.999/10.00-99.99/100.0-9999.(kgm^2)	Set on forwarding	
	H234	2nd motor constant J	0.001-9.999/10.00-99.99/100.0-9999.(kgm^2)	Set on forwarding	
	H050	1st PI-control proportion gain setting	0.00-99.99/100.0-999.9/1000.(%)	100.0	
	H250	2nd PI-control proportion gain setting	0.00-99.99/100.0-999.9/1000.(%)	100.0	
	H051	1st PI-control integration gain setting	0.00-99.99/100.0-999.9/1000.(%)	100.0	
	H251	2nd PI-control integration gain setting	0.00-99.99/100.0-999.9/1000.(%)	100.0	
	H052	1st P-control proportion gain setting	0.01-10.00	1.00	
	H252	2nd P-control proportion gain setting	0.01-10.00	1.00	
	H060	1st 0Hz-SLV limiter setting	0.-100.(%)	100.	
	H260	2nd 0Hz-SLV limiter setting	0.-100.(%)	100.	
	H070	PI-control proportion gain for switching	0.00-99.99/100.0-999.9/1000.(%)	100.0	
	H071	PI-control integration gain for switching	0.00-99.99/100.0-999.9/1000.(%)	100.0	
	H072	P-control proportion gain for switching	0.00-10.00	1.00	

Function mode

Code		Function name	SJ300 Setting range	Initial data -FE/-FU/-F	Note
Option	P001	Option1 operation selection on error	00(TRP)/01(RUN)	00	
	P002	Option2 operation selection on error	00(TRP)/01(RUN)	00	
	P010	Feed-back option selection	00(Invalid)/01(Valid)	00	
	P011	Encoder pulse number setting	128.-9999./1000-6500(10000-65000) (pulse)	1024	
	P012	Control mode selection	00(ASR mode)/01(APR mode)	00	
	P013	Pulse train input mode selection	00(Mode 0)/01(Mode 1)/02(Mode 2)/03(Mode 3)	00	
	P014	Orientation stop position setting	0.-4095.	0.	
	P015	Orientation speed setting	0.00-99.99/100.0-120.0(Hz)	5.00	
	P016	Orientation direction selection	00(Forward)/01(Reverse)	00	
	P017	Orientation completion range setting	0.-9999./1000(10000) (pulse)	5	
	P018	Orientation completion delay time setting	0.00-9.99(s)	0.00	
	P019	Electronic gear position selection	00(Feedback)/01(Reference)	00	
	P020	Electronic gear numerator of ratio setting	0.-9999.	1.	
	P021	Electronic gear denominator of ratio setting	0.-9999.	1.	
	P022	Position control feed-forward gain setting	0.00-99.99/100.0-655.3	0.00	
	P023	Position control loop gain setting	0.00-99.99/100.0	0.50	
	P025	Compensation of secondary resistor selection	00(Invalid)/01(Valid)	00	
	P026	Over-speed detect level setting	0.00-99.99/100.0-150.0(%)	135.0	
	P027	Speed-error over detect level setting	0.00-99.99/100.0-120.0(Hz)	7.50	
	P031	Digital input option input mode selection (Acc/Dec)	00(operator)/01(option1)/02(option2)	00	
	P032	Stop position setting for orientation input mode selection	00(operator)/01(option1)/02(option2)	00	
User selection	U001	User1 selection	no/d001-P032	no	
	U002	User2 selection	no/d001-P032	no	
	U003	User3 selection	no/d001-P032	no	
	U004	User4 selection	no/d001-P032	no	
	U005	User5 selection	no/d001-P032	no	
	U006	User6 selection	no/d001-P032	no	
	U007	User7 selection	no/d001-P032	no	
	U008	User8 selection	no/d001-P032	no	
	U009	User9 selection	no/d001-P032	no	
	U010	User10 selection	no/d001-P032	no	
	U011	User11 selection	no/d001-P032	no	
	U012	User12 selection	no/d001-P032	no	

1.2.2 L300P

Monitor code

Dis-play code	Function name	L300P monitor or data range (digital operator)	Initial data	Note
d001	Output frequency monitor	0.00-99.99/100.0-400.0(Hz)	-	
d002	Output current monitor	0.0-999.9(A)	-	
d003	Operation direction monitor	F(forward)/o(stop)/r(reverse)	-	
d004	PID feedback monitor	0.00-99.99/100.0-999.9/1000. -9999. / 1000-9999/{100-{999 (10000-99900)	-	
d005	Intelligent input terminal monitor	(Example) FW, terminal2, and 1: ON Terminal 5, 4, 3 :OFF 	-	
d006	Intelligent output terminal monitor	(Example) Terminal2, 1:ON AL :OFF 	-	
d007	Frequency conversion monitor	0.00-99.99/100.0-999.9/1000. –9999. / 1000-3996	-	
d013	Output voltage monitor	0.0-600.0 V	-	
d014	Electric power monitor	0.0-999.9 kW	-	
d016	Accumulated time monitor during RUN	0.-9999./1000-9999/{100-{999 hr	-	
d017	Power ON time monitor	0.-9999./1000-9999/{100-{999 hr	-	
d080	Number of trip time monitor	0.-9999./1000-6553(10000-65530) (time)	-	
d081	Trip monitor 1	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d082	Trip monitor 2	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d083	Trip monitor 3	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d084	Trip monitor 4	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d085	Trip monitor 5	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d086	Trip monitor 6	Trip Code, frequency(Hz), current(A), voltage(V),RUN time(hr) power ON time(hr)	-	
d090	Warning monitor	Warning code	-	
F001	Output frequency setting	0.0, starting frequency-Max. frequency (2^{nd} max. frequency)(Hz)	0.00	
F002	1^{st} acceleration time	0.01-99.99/100.0-999.9/1000.-3600.(s)	30.00	
F202	2^{nd} acceleration time	0.01-99.99/100.0-999.9/1000. -3600. (s)	30.00	
F003	1^{st} deceleration time	0.01-99.99/100.0-999.9/1000. -3600. (s)	30.00	
F203	2^{nd} deceleration time	0.01-99.99/100.0-999.9/1000. -3600. (s)	30.00	
F004	Operation direction selection	00(forward)/01(reverse)	00	

(Note1) Change mode during run by selection of b031 (software lock selection).

(Note2) Do not forget to press “STR” key when you change the display.

Function Mode

Code		Function name	L300P Setting range	Initial data -FE/-FU/-FR	N o t e
Base setting	A001	Frequency setting selection	00(VR)/01(terminal)/02(operator)/03(RS485)/ 04(option1)/05(option2)	01/01/00	
	A002	Operation setting selection	01(terminal)/02(operator)/03(RS485)/04(option1)/05(option2)	01/01/02	
	A003	Base frequency	30. - Maximum. frequency(Hz)	50./60./60.	
	A203	Base frequency, 2nd motor	30. - 2nd Maximum. frequency (Hz)	50./60./60.	
	A004	Maximum frequency	30. - 400. (Hz)	50./60./60.	
	A204	Maximum frequency, 2nd motor	30. - 400. (Hz)	50./60./60.	
Analog input setting	A005	AT terminal selection	00(Changing of O and OI with AT terminal)/01(Changing of O and O2 with AT terminal)	00	
	A006	02 selection	00(single)/01(auxiliary speed of O, OI) [no reversible] /02(auxiliary speed of O, OI [reversible]	00	
	A011	0 start	0.00-99.99/100.0-400.0 (Hz)	0.00	
	A012	0 end	0.00-99.99/100.0-400.0 (Hz)	0.00	
	A013	0 start rate	0.-100.0 (%)	0.	
	A014	0 end rate	0.-100.0(%)	100.	
	A015	0 start selection	00 (external starting frequency)/01(OHz)	01	
	A016	O, OI, O2 sampling	1.-30.(times)	8.	
Multistage speed,jogging frequency setting	A019	Multi-speed selection	00(binary : range is to 16 stage speed with 4 terminals)/01(bit : range is to 6 stage speed with 5 terminals)	00	
	A020	Multi-speed 0	0.00, starting frequency-maximum. frequency(Hz)	0.00	
	A220	Multi-speed 0, 2nd motor	0.00, starting frequency-2nd maximum frequency(Hz)	0.00	
	A021	Multi-speed1	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A022	Multi-speed2	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A023	Multi-speed3	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A024	Multi-speed4	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A025	Multi-speed5	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A026	Multi-speed6	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A027	Multi-speed7	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A028	Multi-speed8	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A029	Multi-speed9	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A030	Multi-speed10	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A031	Multi-speed11	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A032	Multi-speed12	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A033	Multi-speed13	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A034	Multi-speed14	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A035	Multi-speed15	0.00, starting frequency-maximum frequency(Hz)	0.00	
	A038	Jogging frequency	0.00, starting frequency-9.99(Hz)	1.00	
	A039	Jogging selection	00(free-run on JG stop / invalid on running) / 01(stop decelerating on JG stop / invalid on running) / 02(DC braking on JG stop/invalid on running) / 03(free-run on JG stop/valid on running[JG after stop decelerating]) / 04 (stop decelerating on JG stop/valid on running) / 05 (DC braking on JG stop/valid on operating)	00	
V/f characteristic	A041	Torque boost selection	00 (manual torque boost) / 01 (automatic torque boost)	00	
	A241	Torque boost selection, 2nd motor	00 (manual torque boost) / 01 (automatic torque boost)	00	
	A042	Manual torque boost	0.0-20.0(%)	1.0	
	A242	Manual torque boost, 2nd motor	0.0-20.0(%)	1.0	
	A043	Manual torque boost point	0.0-50.0(%)	5.0	
	A243	Manual torque boost point, 2nd motor	0.0-50.0(%)	5.0	
	A044	1st control	00/(VC)/01(VP1.7power)/02(free V/f setting)	00	
	A244	2nd control	00/(VC)/01(VP1.7power)/02(free V/f setting)	00	
	A045	Output voltage gain	20. - 100. (%)	100.	
Direct current braking	A051	DC braking selection	00(invalid)/01(valid)	00	
	A052	DC braking frequency	0.00-60.00(Hz)	0.50	
	A053	DC braking wait time	0.0 - 5.0(s)	0.0	
	A054	DC braking power	0. - 70. (%)	0.	
	A055	DC braking time	0.0 - 60.0(s)	0.0	
	A056	DC braking edge/level selection	00(edge action)/01(level action)	01	
	A057	DC braking power (starting time)	0. - 70. (%)	0.	
	A058	DC braking time (starting time)	0.00-60.0(s)	0.0	
	A059	DC carrier frequency	0.5-12(kHz) Derating	3.0	

Function Mode

	Code	Function name	L300P Setting range	Initial data -FE/-FU/-FR	N o t e
Upper and lower limiter / jump frequency	A061	1st frequency upper limiter	0.00, 1st frequency lower limiter-maximum frequency(Hz)	0.00	
	A261	2nd frequency upper limiter	0.00, 2nd frequency lower limiter-2nd setting maximum frequency(Hz)	0.00	
	A062	1st frequency lower limiter	0.00, start frequency-maximum frequency(Hz)	0.00	
	A262	2nd frequency lower limiter	0.00, start frequency-2nd setting maximum frequency(Hz)	0.00	
	A063	Jump frequency1	0.00-99.99/100.0-400.0(Hz)	0.00	
	A064	Jump frequency Width 1	0.00-10.00(Hz)	0.50	
	A065	Jump frequency2	0.00-99.99/100.0-400.0(Hz)	0.00	
	A066	Jump frequency Width 2	0.00-10.00(Hz)	0.50	
	A067	Jump frequency3	0.00-99.99/100.0-400.0(Hz)	0.00	
	A068	Jump frequency Width 3	0.00-10.00(Hz)	0.50	
	A069	Acceleration stop frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	A070	Acceleration stop time	0.00-60.0(s)	0.0	
PID control	A071	PID selection	00(invalid)/01(valid)	00	
	A072	PID-P gain	0.2-5.0	1.0	
	A073	PID-I gain	0.0-3600.(s)	1.0	
	A074	PID-D gain	0.00-100.0(s)	0.00	
	A075	PID scale	0.01-99.99	1.00	
	A076	PID feedback selection	00(feedback : OI)/01(feedback : O)	00	
AVR	A081	AVR selection	00(ON always)/01(OFF always)/02(OFF on decelerating)	02	
	A082	Motor voltage selection	200/215/220/230/240, 380/400/415/440/460/480	(230/400) (230/460) (200/400)	
Operation mode/ adjustable function	A085	Operation mode selection	00(normal operation)/01(energy-saving operation)	00	
	A086	Energy-saving response-accuracy adjustment	0.0-100.0	50.0	
	A092	Acceleration time2	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A292	2nd acceleration time2	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A093	Deceleration time2	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A293	2nd deceleration time2	0.01-99.99/100.0-999.9/1000.-3600.(s)	15.00	
	A094	2nd stage adjustable selection	00(change with 2CH terminal)/01(change with setting)	00	
	A294	2nd stage adjustable selection(2nd motor)	00(change with 2CH terminal)/01(change with setting)	00	
	A095	2nd acceleration frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	A295	2nd acceleration frequency(2nd motor)	0.00-99.99/100.0-400.0(Hz)	0.00	
	A096	2nd deceleration frequency	0.00-99.99/100.0-400.0(Hz)	0.00	
	A296	2nd deceleration frequency (2nd motor)	0.00-99.99/100.0-400.0(Hz)	0.00	
	A097	Acceleration pattern selection	00(straight line)/01(S-curve)/02(U-curve)/03(reverse U-curve)	00	
	A098	Deceleration pattern selection	00(straight line)/01(S-curve)/02(U-curve)/03(reverse U-curve)	00	
External frequency adjustment	A101	OI start	0.00-99.99/100.0-400.0(Hz)	0.00	
	A102	OI end	0.00-99.99/100.0-400.0(Hz)	0.00	
	A103	OI start rate	0.-100. (%)	20.	
	A104	OI end rate	0.-100. (%)	100.	
	A105	OI start selection	00(external start frequency)/01(0Hz)	01	
	A111	O2 start	-400.--100./-99.9-0.00-99.9/100.-400.(Hz)	0.00	
	A112	O2 end	-400.--100./-99.9-0.00-99.9/100.-400.(Hz)	0.00	
	A113	O2 start rate	-100. - 100. (%)	-100.	
	A114	O2 end rate	-100. - 100. (%)	100.	
Accel Decel	A131	Acceleration curve constant	01(small swelling)-10(large swelling)	02	
	A132	Deceleration curve constant	01(small swelling-10(large swelling)	02	
Instantaneous power failure restart	b001	Retry selection	00(trip)/01(0Hz start)/02(start after equal frequency)/ 03(trip after equaling frequency and deceleration stop)	00	
	b002	Allowable under-voltage power failure time	0.3-1.0(s)	1.0	
	b003	Retry wait time	0.3-100.(s)	1.0	
	b004	Instantaneous power-failure/under-voltage trip during stop	00(invalid/01(valid)/ 02(invalid during stop and deceleration by stop command)	00	
	b005	Instantaneous power-failure/under-voltage retry time selection	00(16 times)/01(free)	00	
	b006	Open-phase selection	00(invalid)/01(valid)	00	
	b007	Frequency setting to match	0.00-99.99/100.0-400.0(Hz)	0.00	
Electronic thermal	b012	Electronic thermal level	0.2*constant current-1.20*constant current(A)	Rated Current of inverter	
	b212	Electronic thermal level (2nd motor)	0.2*constant current-1.20*constant current(A)	Rated Current of inverter	
	b013	Electronic thermal characteristic selection	00/(reduced characteristic)01(constant torque characteristic)/ 02(free setting)	01/01/00	
	b213	Electronic thermal characteristic selection (2nd motor)	00/(reduced characteristic)01(constant torque characteristic)/ 02(free setting)	01/01/00	
	b015	Free electronic thermal frequency 1	0.-400.(Hz)	0.	
	b016	Free electronic thermal current 1	0.0-1000.(A)	0.0	
	b017	Free electronic thermal frequency 2	0.-400.(Hz)	0.	
	b018	Free electronic thermal current 2	0.0-1000. (A)	0.0	
	b019	Free electronic thermal frequency 3	0.-400.(Hz)	0.	
	b020	Free electronic thermal current 3	0.0-1000.(A)	0.0	

Function Mode

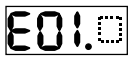
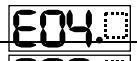
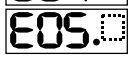
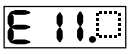
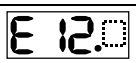
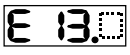
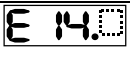
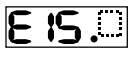
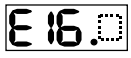
Code		Function name	L300P Setting range	Initial data -FE/-FU/-FR	N o t e
Overload limit	b021	Overload restriction selection	00(invalid)/01(enabled on acceleration / constant speed)/02(enabled on constant speed)	01	
	b022	Overload restriction level	0.50* rated current-1.50* rated current(A)	Rated current of inverter x 1.20	
	b023	Overload restriction limit constant	0.10-30.00(s)	1.00	
	b024	Overload restriction 2 selection	00(invalid)/01(valid on acceleration / constant speed)/02(valid on constant speed)	01	
	b025	Overload restriction level 2	0.50*rated current-1.50*rated current(A)	Rated current of inverter x1.20	
	b026	Overload restriction constant 2	0.10-30.00(s)	1.00	
Lock	b031	Software lock mode selection	00(impossible to change the data except this item when SFT terminal is ON)/01(impossible to change the data except setting frequency item when SFT terminal is ON)/02(impossible to change the data except this item)/03(impossible to change the data except setting frequency item)/10(possible to change data on operating)	01	
Free V/f setting	b100	Free V/f frequency 1	0.- Free V/f frequency2(Hz)	0.	
	b101	Free V/f voltage 1	0.-800.0(V)	0.0	
	b102	Free V/f frequency 2	0.- Free V/f frequency3(Hz)	0.	
	b103	Free V/f voltage 2	0.-800.0(V)	0.0	
	b104	Free V/f frequency 3	0.- Free V/f frequency4(Hz)	0.	
	b105	Free V/f voltage 3	0.-800.0(V)	0.0	
	b106	Free V/f frequency 4	0.- Free V/f frequency5(Hz)	0.	
	b107	Free V/f voltage 4	0.-800.0(V)	0.0	
	b108	Free V/f frequency 5	0.- Free V/f frequency6(Hz)	0.	
	b109	Free V/f voltage 5	0.-800.0(V)	0.0	
	b110	Free V/f frequency 6	0.- Free V/f frequency7(Hz)	0.	
	b111	Free V/f voltage 6	0.-800.0(V)	0.0	
	b112	Free V/f frequency 7	0.-400.(Hz)	0.	
	b113	Free V/f voltage 7	0.-800.0(V)	0.0	
Intelligent input terminal setting	C001	Intelligent input 1 setting	01/(RV:Reverse is valid)/02(CF1:Multi-speed1)/ 03(CF2:Multi-speed2)/ 04(CF3:Multi-speed3)/ 05(CF4:Multi-speed4)/ 06(JG:Jogging)/ 07(DB:External DC braking)/08(SET:2nd control)/ 09(2CH:two-stage adjustable speed)/11(FRS:Free-run)/ 12(EXT:External trip)/13(USP:Unattended start protection)/ 14(CS:commercial change)/15(SFT:software lock)/ 16(AT:Analog input voltage/current select)/18(RS:Reset inverter)/ 20(STA:3wire run)/ 21(STP:3wire keep)/22(F/R:3wire forward/reverse)/ 23(PID:PID selection valid/invalid)/24(PIDC:PID integrating reset)/ 27(UP:Remote control UP function)/ 28(DWN:Remote control DOWN function)/ 29(UDC:Remote control data clear)/31(OPE:Force operate ope)/ 32(SF1:Multi-speed bit1)/ 33(SF2:Multi-speed bit2)/34(SF3:Multi-speed bit3)/ 35(SF4:Multi-speed bit4)/36(SF5:Multi speed bit5)/ 37(SF6:Multi-speed bit6)/38(SF7:Multi-speed bit7)/ 39(OLR:Overload restriction change)/no(NO:No assign)	18	
	C002	Intelligent input 2 setting		16	
	C003	Intelligent input 3 setting		03/13/03	
	C004	Intelligent input 4 setting		02	
	C005	Intelligent input 5 setting		01	
Input terminal setting intelligent	C011	Intelligent input1 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C012	Intelligent input2 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C013	Intelligent input3 a/b (NO/NC) selection	00(NO)/01(NC)	00/01/00	
	C014	Intelligent input4 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C015	Intelligent input5 a/b (NO/NC) selection	00(NO)/01(NC)	00	
	C019	Input FW a/b (NO/NC) Selection	00(NO)/01(NC)	00	
Intelligent output terminal setting	C021	Intelligent output 11 setting	00(RUN:running)/01(FA1:Frequency arrivaltype1 signal)/ 02(FA2:frequency arrival type2 signal)/03(OL:Overload advance notice signal)/04(OD:Output deviation for PID control)/05(AL:Alarm signal)/06(FA3:Only setting frequency)/08(IP:On instantaneous stop/ 09(UV:Under voltage)/11(RNT:RUN time over)/12(ONT:ON time over)/	01	
	C022	Intelligent output 12 setting		00	
	C026	Alarm relay output		05	
	C027	FM selection	00(Output frequency)/01(Output current) / 03(Digital output frequency)/04(Output voltage)/ 05(Input electric power)/06(thermal load rate)/07(LAD frequency)	00	
	C028	AM selection	00(Output frequency)/01(Output current)/04(Output voltage)/ 05(Input electric power)/06(thermal load rate)/07(LAD frequency)	00	
	C029	AMI selection	00(Output frequency)/01(Output current)/04(Output voltage)/ 05(Input electric power)/06(Thermal load rate)/07(LAD frequency)	00	
Output terminal state setting, Output level setting	C031	Intelligent output 11 a/b	00(NO)/01(NC)	00	
	C032	Intelligent output 12 a/b	00(NO)/01(NC)	00	
	C036	Alarm relay output a/b	00(NO)/01(NC)	01	
	C040	Overload advance notice signal output mode	00(On accel. And decel, constant speed)/01(Only constant speed)	01	
	C041	Overload advance notice level	0.0-2.0*rated current(A)	Inverter rated current	
	C042	Frequency arrival setting for acceleration.	0.00-99.99/100.0-400.0(Hz)	0.00	
	C043	Arrival frequency setting for deceleration.	0.00-99.99/100.0-400.0(Hz)	0.00	
	C044	PID deviation setting level	0.0-100.0(%)	3.0	

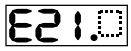
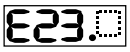
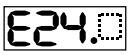
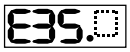
Function Mode

	Code	Function name	L300P Setting range	Initial data -FE/-FU/-FR	N o t e
Communication function	C070	Data command	02(operator)/03(RS485)/04(option1)/05(option2)	02	
	C071	Communicating transmission speed	02(loop-back test)/03(2400bps)/04(4800bps)/ 05(9600bps)/06(19200bps)	04	
	C072	Communication code	1. -32.	1.	
	C073	Communication bit	7(7bit)/8(8bit)	7	
	C074	Communication parity	00(no parity name)/01(even parity)/02(odd parity)	00	
	C075	Communication stop bit	1(bit)/2(bit)	1	
	C078	Communication waiting time	0.-1000.(ms)	0.	
Analog meter setting	C081	O adjustment	0.-9999./1000-6553(10000-65530)	Setting on forwarding	
	C082	OI adjustment	0.-9999./1000-6553(10000-65530)	Setting on forwarding	
	C083	O2 adjustment	0.-9999./1000-6553(10000-65530)	Setting on forwarding	
	C085	Thermistor adjustment	0.0 - 1000.	105.0	
	C086	AM offset adjustment	0.0 - 10.0(V)	0.0	
	C087	AMI adjustment	0. - 255.	80	
	C088	AMI offset adjustment	0. - 20.0(mA)	Setting on forwarding	
The others	b034	RUN time/Power ON time level	0.-9999./1000-6553(10000-65530)hr	0.	
	b035	Operation direction restrict	00(Reverse is valid)/01(Only forward)/02(Only reverse)	00	
	b036	Start reduced voltage	00(Start reduced voltage time small) -06(Start reduced voltage time large)	06	
	b037	Display selection	00(all display)/01(each function display)/ 02(User setting / main setting)	00	
	b080	AM adjustment	0. - 255.	180	
	b081	FM adjustment	0. - 255.	60	
	b082	Start frequency adjustment	0.10-9.99(Hz)	0.50	
	b083	Carrier frequency setting	0.5-12.0(kHz) Derating enable,	3.0	
	b084	Initialize mode	00(Trip history clear)/01(Data initialization)/ 02(Trip history clear + data initialization)	00	
	b085	Country code for initialization	00(Interior)/01(EC)/02(USA)	01/02/00	
	b086	Frequency scalar conversion factor	0.1-99.9	1.0	
	b087	STOP key enable	00(valid)/01(invalid)	00	
	b088	Resume on FRS cancellation mode	00(0Hz start)/01(Start f-equaling)	00	
	b090	BRD usage ratio	0.0-100.0(%)	0.0	
	b091	Stop mode selection	00(deceleration stop)/01(Free-run stop)	00	
	b092	Cooling fan control	00(Always ON)/01(ON during run, After power ON, then for 5 minutes on stop is implied.)	00	
	b095	BRD selection	00(invalid)/01(valid<invalid during stop>)/ 02(valid<valid during stop>)	00	
	b096	BRD ON level	330-380/660-760(V)	360/720	
	b098	Thermistor selection	00(invalid)/01(Positive temperature coefficient enable)/ 02 (NTC enable)	00	
	b099	Thermistor error level	0. – 9999. (ohm)	3000.	
	C061	Thermal warning level	0. – 100. (%)	80	
	C091	Debug mode selection	00(No display)/01(Display)	00	
	C101	UP/DWN selection	00(No frequency data)/01(Keep frequency data)	00	
	C102	Reset selection	00(Trip cancel during ON)/01(Trip cancel during OFF)/ 02(Valid only during trip<Cancel during ON>)	00	
	C103	Reset f frequency matching selection	00(0Hz start)/01(Start f-equaling)	00	
	C121	O zero adjustment	0.-9999./1000-6553(10000-65530)	Set on forwarding	
	C122	OI zero adjustment	0.-9999./1000-6553(10000-65530)	Set on forwarding	
	C123	O2 zero adjustment	0.-9999./1000-6553(10000-65530)	Set on forwarding	
	H003	1st allowable motor selection	0.20-75.0(kW)	Set on forwarding	
	H203	2nd allowable motor selection	0.20-75.0(kW)	Set on forwarding	
	H004	1st motor pole selection	2/4/6/8(pole)	4	
	H204	2nd motor pole selection	2/4/6/8(pole)	4	
	H006	1st stabilized factor	0. - 255.	100.	
	H206	2nd stabilized factor	0. - 255.	100.	
	P001	Option1 operation selection on error	00(TRP)/01(RUN)	00	
	P002	Option2 operation selection on error	00(TRP)/01(RUN)	00	
	P031	Digital input option input mode selection(Acc/Dec)	00(operation)/01(option1)/02(option2)	00	
	U001	User1 selection	no/d001-P031	no	
	U002	User2 selection	no/d001-P031	no	
	U003	User3 selection	no/d001-P031	no	
	U004	User4 selection	no/d001-P031	no	
	U005	User5 selection	no/d001-P031	no	
	U006	User6 selection	no/d001-P031	no	
	U007	User7 selection	no/d001-P031	no	
	U008	User8 selection	no/d001-P031	no	
	U009	User9 selection	no/d001-P031	no	
	U010	User10 selection	no/d001-P031	no	
	U011	User11 selection	no/d001-P031	no	
	U012	User12 selection	no/d001-P031	no	

2. TROUBLE SHOOTING

2.1 Inverter trip contents, remedy, advice

Trip	contents		Digital operator display	Remedy, advice
Over current detection at output stage	It's one of INV failure by locked motor, fast ACC/DEC because big current will be flown. By over current detection, INV will shut the output by the hardware. This detection will be done by AC CT. Over current will be detected about 200% of rated level on SJ300. Over current will be detected about 150% of rated level on L300-p.	While constant speed		Load changed rapidly. Short circuit or earth contact (ground fault) in the motor or the motor cable.
		While deceleration		If fast deceleration is happening preset Decel time longer
		While acceleration		If fast acceleration is happening preset Accel time longer Any motor locked, check the wires High preset torque boost, reduce the value
		others		Is the preset DC injection brake level high Any CT malfunction, any noise
Over load detection at output stage(with motor)	INV is monitoring the output current, if the connected motor was overload conditions, INV will detect the overload, if the level was exceeded preset level, INV will shut the output. (E-thermal characteristic has deleting characteristic by the output freq. If the freq. Is less than 5Hz, it has more chance to have the trip. Over current will be detected about 200% of rated level on SJ300. If the load has big inertia moment, while ACC, there is a possibility to disturb the ACC by the detection. In this case, adjust torque boost if v/f control is selected.			Too heavy load Thermal level proper ? Perform above adjustment referring to d104, to reduce the electronic thermal level.
Over voltage detection after BRD %ED was run out	This detection is over voltage detection, but the condition is different from the normal over voltage trip. The difference is below. If the preset BRD %ED level(d090) was run out, BRD circuit can not work and if DC bus voltage will detect the over voltage level, INV will shut the output.			Any fast decel Busy running cycle Preset BRD%ED proper ? low ? Perform above adjustment referring to d103, to reduce the BRD usage ratio.
Over voltage detection (DC bus voltage)	If DC bus voltage is exceeded specific level by generating energy from the connected motor, high incoming AC voltage, INV will shut the output. The DC bus voltage level is About 400VDC (200V class) About 800VDC (400V class)			Any fast decel Earth contact (ground fault) in the motor or the motor cable. Any back energy from the load Perform above adjustment referring to d102, so that the DC bus voltage does not exceed the trip level.
EEPROM (contradiction)	INV uses EEPROM to preset parameters, if the EEPROM was affected by external noise, abnormal heat, micro processor will detect the contradiction such as sum check , INV will shut the output.			Any big noise near the INV Ambient temp. is too high.
Under voltage(DC bus voltage)	If DC bus voltage is low, INV can't work properly especially control circuit, in this case, INV will shut the output. The DC bus voltage level is About 200VDC or less(200V class) About 400VDC or less(400V class)			Any incoming AC V drop Sufficient power capacity Any thyristor failure Perform above adjustment referring to d102, so that the DC bus voltage does not exceed the trip level.
CT offset	INV uses CT to detect motor current, if the CT outputs unusual offset level while INV stop, INV will shut the output. The voltage level is about 0.6V or more.			Any high offset signal of the CT
CPU(micro processor mis-operation)	If built in Micro processor works improper, if it detects failure, INV will shut the output.			Any big noise near the INV Micro processor failure
External(customer's selection)	If the intelligent terminal detects the input signal from external devices, INV will shut the output. This function/trip is customer's selection. If EXT function is not selected, there is no chance to have the trip.			Check the configuration, signal, wiring, conditions
USP(US version default or customer's selection)	If INV is ready to start at power on, INV will shut the output. This function/trip is customer's selection. If USP function is not selected, there is no chance to have the trip.			Check the configuration, signal, wiring, conditions
Ground default at power on at output stage	Only at power on, INV will detect ground fault between INV and the connected motor, INV will shut the output. If the motor remaining voltage exists, this detection doesn't work.			Earth contact (ground fault) in the motor or the motor cable., IGBT failure
Incoming over voltage detection	If DC bus voltage is continuously exceeding specific level more than 30 sec, INV will shut the output. The DC bus voltage level is About 380VDC or above (200V class) About 760VDC or above (400V class)			Any high incoming voltage except deceleration implement input ACL
Instant power failure detection	If Instant power failure 15ms or more happened, INV will shut the output. If the instant power failure is longer than preset allowable time or affordable control supply voltage time, INV will work as normal power off. This			Any incoming AC V drop No contact failure in MCB,Mg?

	means INV will re-start with the run command after the long instant power failure.		
Over heat detection	If main circuit temp. was exceeded specific level such as high ambient temp., fan failure, INV will shut the output. The temp. is detected at heat sink over 100 Celsius.		Any cooling fan failure, disturbance of the cooling such as dusty fin. Installation vertical Ambient temp. high
Gate array(INV domestic problem)	If there was any communication error between micro processor and gate array, or if gate array can't detect IGBT's turn on/off such as IGBT failure.		Any big noise near the INV Any IGBT failure Connection of flat cable/ribbon cable
Input phase failure detection	If one of incoming 3 phase voltage was missed, INV will shut the output if the detect function was preset. The detection delay is about 1 sec.		Any missing phase No contact failure in MCB,Mg?
IGBT over current detection (equivalent as power module)	If instant over current happened between INV and the connected motor, INV will shut the output. Under this INV trip, the detected phase is possible to refer at d105 display. Even retry function is preset, INV can not retry after this detection.		Short circuit or earth contact (ground fault) in the motor or the motor cable Any IGBT failure Any loose connection on main circuit such as power board
Thermister(customer's selection)	If motor over temp. happened by integrated thermistor's resistor value in the motor, INV will shut the output.		Check the motor temp. Any thermistor failure in the motor Any noise in the thermistor signal
Brake error (customer's selection)	After INV output brake release signal, INV couldn't detect brake on/off within b124(waiting time for brake operation. (if b120(brake control switch) was preset "01")		Is the brake working ON/OFF Preset B124 too short Brake signal/connection OK
Option board 1 error 0–9	Detection of connected option card 1. For more details, refer to the instruction manual of the card.		Make sure the connection of the card 1 Make sure if the usage is proper
Option boad 2 error 0-9	Detection of connected option card 2. For more details, refer to the instruction manual of the card.		Make sure the connection of the card 2 Make sure if the usage is proper
Power off/ waiting from AC incoming voltage recovery	Stand by condition because of low DC bus voltage such as power off, INV will shut the output. The detection level is same as under voltage trip.		Any incoming AC V drop No contact failure in MCB,Mg? Check the DC bus voltage Perform above adjustment referring to d102, so that the DC bus voltage does not exceed the trip level.

2.2 Option error

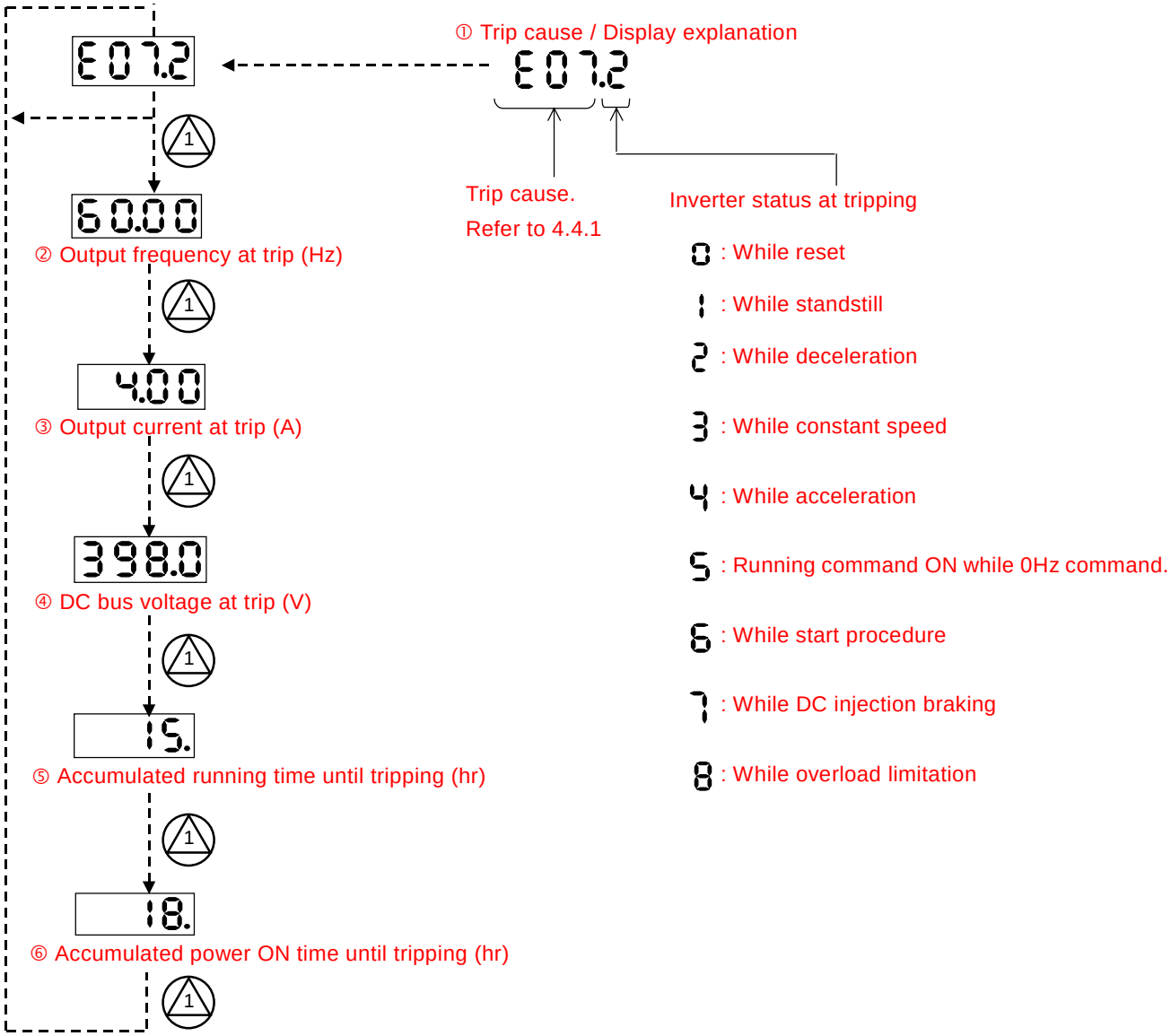
2.2.1 Feedback card

Trip	Contents	Digital operator display	Remedy, advice
Encorder wire cut	✓ Wire break and/or loose connection of the encoder signal. ✓ Encoder failure or used the encoder which is not line driver output. ✓ Used encoder without Z phase signal.	E60.□ , E70.□	✓ Check the wiring. ✓ Replace recommended encoder. ✓ Set SWENC-2 "OFF" on the card.
Over speed	Detect when the motor rotation exceeds (Maximum frequency) × (over speed detection level (P026))	E61.□ , E71.□	✓ Tune Kp & J parameters which are related to ASR to reduce the speed overshoot.
Positioning error	Detects when the deviation between actual position and position command exceeds 1,000,000 pulses.	E62.□ , E72.□	✓ Increase position loop gain of APR. ✓ Decrease the input pulses per second of the pulse train input.

2.2.2 Digital option card

Trip	contents	Digital operator display	Remedy, advice
Option card error	To detect the option card error(failure)	E60.□ , E70.□	Make sure the connection of the card Make sure if the usage is proper

2.3 Check of the trip monitor contents



2.4 Check of the warning monitor contents

✓ Warning message is come out when there is any contradiction.

✓ Program lamp "PRG" is turned ON while warning (until the data are corrected).

Warning message and automatic rewriting

Warning	Related parameters	condition	Base
¦-¦001/ ¦-¦201	Frequency upper limiter A061/A261	>	Maximum frequency A004/A204
¦-¦002/ ¦-¦202	Frequency lower limiter A062/A262	>	
¦-¦004/ ¦-¦204	Base frequency A003/A203	>	
¦-¦005/ ¦-¦205	Output frequency F001, Multistage speed 0 A020/A220	>	
¦-¦006/ ¦-¦206	Multistage speed 1~15 A021 ~ A035	>	
¦-¦012/ ¦-¦212	Frequency lower limiter A062/A262	>	Frequency upper limiter A061/A261
¦-¦015/ ¦-¦215	Output frequency F001, Multistage speed 0 A020/A220	>	
¦-¦016/ ¦-¦216	Multistage speed 1~15 A021 ~ A035	>	
¦-¦021/ ¦-¦221	Frequency upper limiter A061/A261	<	Frequency lower limiter A062/A262
¦-¦025/ ¦-¦225	Output frequency F001 , Multi stage speed 0 A020/A220	<	
¦-¦031/ ¦-¦231	Frequency upper limiter A061/A261	<	Start frequency b082
¦-¦032/ ¦-¦232	Frequency lower limiter A062/A262	<	
¦-¦035/ ¦-¦235	Output frequency F001 , Multi stage speed 0 A020/A220	<	
¦-¦036	Multi stage speed 1~15 A021-A035	<	
¦-¦037	Jogging frequency A038	<	
¦-¦085/¦-¦285	Output frequency F001 , Multi stage speed 0 A020/A220	<>	Jump freq.1/2/3 ± Jump width A063 ± A064 A065 ± A066 A067 ± A068 (note 1)
¦-¦086	Multi stage speed 1~15 A021-A035	<>	
¦-¦ 091/¦-¦291	Frequency upper limiter A061/A261	>	Free v/f 7 b112
¦-¦ 092/¦-¦292	Frequency lower limiter A062/A262	>	
¦-¦ 095/¦-¦295	Output frequency F001 , Multi stage speed 0 A020/A220	>	
¦-¦096	Multi stage speed 1~15 A021-A035	>	
¦-¦110	Free v/f frequency 1-6 b100,b102,b104,b106,b108,b110	>	
	Free v/f frequency 2-6 b102,b104,b106,b108,b110	<	Free v/f 1 b100
	Free v/f frequency 1 b100	>	Free v/f 2 b102
	Free v/f frequency 3-6 b104,b106,b108,b110	<	
	Free v/f frequency 1,2 b100,b102	>	Free v/f 3 b104
	Free v/f frequency 4-6 b106,b108,b110	<	
	Free v/f frequency 1-3 b100,b102,b104	>	Free v/f 4 b106
	Free v/f frequency 5,6 b108,b110	<	
	Free v/f frequency 1-4 b100,b102,b104,b106	>	Free v/f 5 b108
	Free v/f frequency 6 b110	<	
	Free v/f frequency 1-5 b100,b102,b104,b106,b108	>	Free v/f 6 b110
¦-¦120	Free electronic thermal frequency 2,3 b017,b019	<	Free electronic thermal frequency 1 b015
	Free electronic thermal frequency 1 b015	>	Free electronic thermal frequency 2 b017
	Free electronic thermal frequency 3 b019	<	
	Free electronic thermal frequency 1,2 b015,b017	>	Free electronic thermal frequency 3 b019

Warning is cleared when the setting fulfils the above condition.

Date will be changed automatically to the basic code.

(note 1)The jump frequency will be automaically re-written to the lowest jump frequency (=jump frequency - jump width)

3.Debug Mode

Additional displays as follows can be seen by turning Debug mode ON (C091 ->1).

3.1 Monitor

d101 : Output frequency monitor (Hz)

Monitor of the output frequency of the inverter.

d102 : DC bus voltage monitor (V)

Monitor of the DC bus voltage (VPN) of the inverter.

d103 : BRD ON monitor (s)

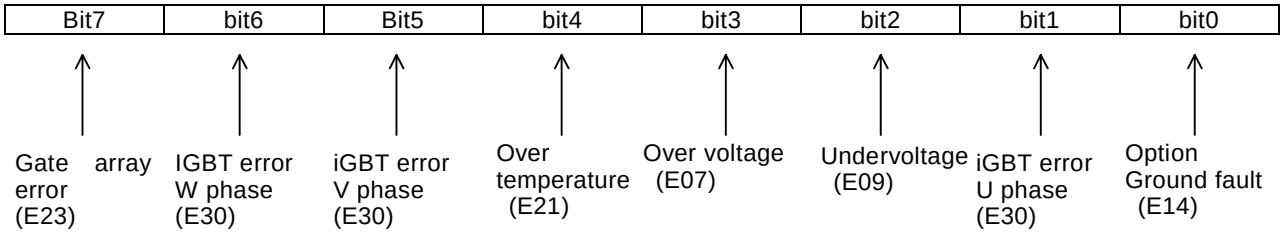
There is an integrated BRD circuit on 11kw and less for SJ300, and 15kW and less for L300P series. Youcan find accumulated turning ON time for the integrated BRD transistor.

d104 : Electronic thermal monitor (%)

You can find the usage ratio of electronic thermal performance as %.

d105 : Trip cause monitor of gate array

There are 8 items of trips which are detected by the internal gate array and these items are transmitted to MCU.



Contents of d105 are expressed in HEX.

(Example 1)

20

20 (HEX) = 00100000 (BIN)

bit5 = “1” -> iGBT error (V phase)

(Example 1)

62

62 (HEX) = 01100010 (BIN)

bit1, bit5, bit6 = “1” -> iGBT error (U, V, Wphase)

3.2 Parameter settings for inverter

Inverter (logic card) settings can be done as follows.

Code	Function name	Contents	Initial setting
C195	Area code	00(JPN) /01(EU) /02(USA)	Set before shipment
C196	Capacity code	0.2(0.2kW) ~ 315.0(315kW)	Set before shipment
C197	Voltage code	200(200V class) /400(400V class/600(600Vclass)	Set before shipment
C198	Series code	00(SJ300) 01(L300P)	Set before shipment

Be sure to perform initialization according to the instruction manual after change the data above.

Parameter b085 is prior to C195.

4. Maintenance and Inspection

4.1 Maintenance and Inspection

4.1.1 Daily inspection

Main check points to be done while operation are as follows.

(1) Whether the motor rotates as expected.
(2) Whether the installation condition have no problem.
(3) Whether there is no problem in cooling.
(4) Whether there is any abnormal vibration and noise.
(5) Whether there is any abnormal temperature rising and change in color.
(6) Whether there is any abnormal smell.

Measure the input voltage of the inverter by a tester while operation to confirm the followings.

(1) No frequent voltage fluctuation.
(2) All line voltages are balanced and stable.

4.1.2 Cleaning

Always keep the inverter clean.
Use soft cloth dipped with neutrality detergent or ethanol and wipe the dirty portion with care.

(note) Do not use such as acetone, benzene, toluene or alcohol which may damage the coating of the inverter.

4.1.3 Periodical inspection

Check the portions where the inverter must not be in operation.
Please contact HITACHI for a periodical inspection.

(1) Is there any abnormality in cooling? ---- Cleaning of air filter.
(2) Tightening check and additional tightening. ---- Loose tightening of the screws and bolts could occur due to vibrations and/or temperature changing. Be sure to confirm carefully.
(3) Isn't there any corrosion or damage in the conductors?
(4) Measurement of insulation resistance.
(5) Check and replace of cooling fan, DC bus capacitors, contactors and relays if necessary.

4.2 Daily and annual maintenance

	Item	Contents	Interval D	Interval A	Method	Criteria
Overall	Ambient Environment	Check ambient temperature, humidity, dust, corrosive gas, oil mist, etc.	X		Refer to 2.1. Installation	Ambient temperature: -10 ~ +50°C (no icing) No condensation
	Devices overall	Check for abnormal vibrations and noise.	X		Visual inspection	No abnormalities
	Power supply voltage	Check voltage between input lines	X		Measure the voltage between input terminals	No abnormalities and within specifications
Mains	Overall	Megger check (Power terminal - Earth)		X	Remove connector J61 Disconnect power line Remove logic terminal Make short circuit R, S, T, U, V, W, P, PD ,N ,RB Megger test between above and earth	> 5Mohm
		Check installation for looseness.		X	Tighten	No abnormalities
		Check for evidence of over heating in the various components		X	Visual inspection	No abnormalities
		Cleaning		X		
	Conductors / cables	No change in shape?		X	Visual inspection	No abnormalities
		No damage in coating?		X	Visual inspection	No abnormalities
	Terminal block	No damage?		X	Visual inspection	No abnormalities
	Inverter / Converter	Tester check between each terminal		X	Remove power cables Measure resistance; Each input ⇔ P, N Each output ⇔ P, N with 1ohm range	Refer to "5.5 How to measure inverter & converter" portion
	DC bus capacitor	Check for leaking liquid	X		Visual inspection	No abnormalities
		Check for swelling	X		Visual inspection	No abnormalities
		Check for capacitance		X	With capacitance meter	85% or more of rated capacitance
	Relay, contactor	Check for stuttering noise during operation		X	Aural inspection	No abnormalities
		No damage of contact?		X	Visual inspection	No abnormalities
	Resistors	Check for cracks or changes in color		X	Visual inspection	No abnormalities
		No open circuit?		X	Tester check	Tolerance of within ±10% of rated value
Cooling	Cooling fan	Check for abnormal vibration and noise	X		Rotate manually during power off	Smooth rotation and no abnormalities
		Check for dust	X		Visual inspection	No abnormalities
Control circuit	Operation check	Check the balance of the output voltage of each phase to phase without motor.		X	Measure the output voltage between U, V and W	Within 2% of voltage difference between each phases.
		Perform a sequence protection operation test and make sure that there are no errors in the protection and display circuits.		X	Simulate operation of the protection circuit	Each protection should be performed
LED display	Display	No illegible display; No missing characters; No segment failure of LEDs	X		Visual inspection	No abnormalities
		Cleaning		X		
	Meter	Working correct?	X	X	Visual inspection	Displays correct value
Motor	Overall	No abnormal vibration & noise?	X		Visual, aural inspection	No abnormalities
		No abnormal smell?	X		Confirm the smell caused by overheat, damage etc.	No abnormalities
	Insulation resistance	Megger check All terminals together - Earth		X	Measure resistance; Each input ⇔ Earth With and without motor cables	> 5Mohm

4.3 Megger test

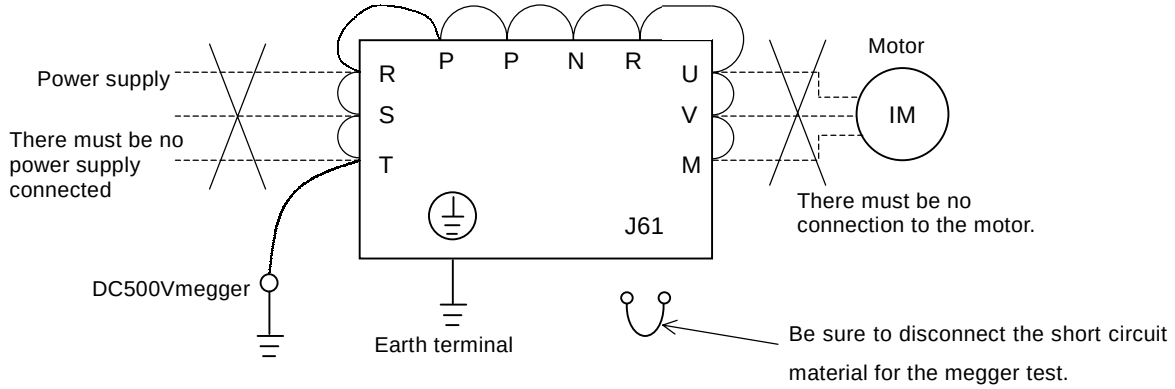
Disconnect all the wiring in case of megger test on external circuit, so that no test voltage is supplied to the inverter.

Use tester (high resistance range) for the test of control circuit. Do not use megger nor buzzer.

Megger test should be done only on the power (mains) portions. Do not perform megger test on control circuits.

(Use DC500V megger in case of megger test.)

In case of megger test on power terminals, disconnect short circuit material at connector “J61” located close to R0T0 terminal, and connect R, S, T, PD, P, N, RB, U, V and W all together. Connect again the short circuit material to J61 after the test is done.



4.4 Withstand voltage test

Do not perform withstand voltage test.

Semiconductors that are used in inverter can be degraded when withstand voltage is performed.

4.5 How to check inverter & converter portion

Inverter and converter module can be checked by using a tester.

(Preparation)

(1)Disconnect all the connected wires and devices to the power terminals (R, S, T, U, V, W, P, RB).

(2)Tester is to be set as 1ohm range.

(How to check)

Check the ON condition of each point shown below.

(note 1) Be sure to discharge DC bus voltage beforehand, which should be checked by DC bus voltage.

(note 2) Normally, the resistance shows ∞ in case of OFF mode.

In some cases resistance does not show ∞ due to the capacitance of DC bus capacitors.

Resistance shows 3ohm ~ 50ohm (depends on the tester voltage) in case of ON mode.

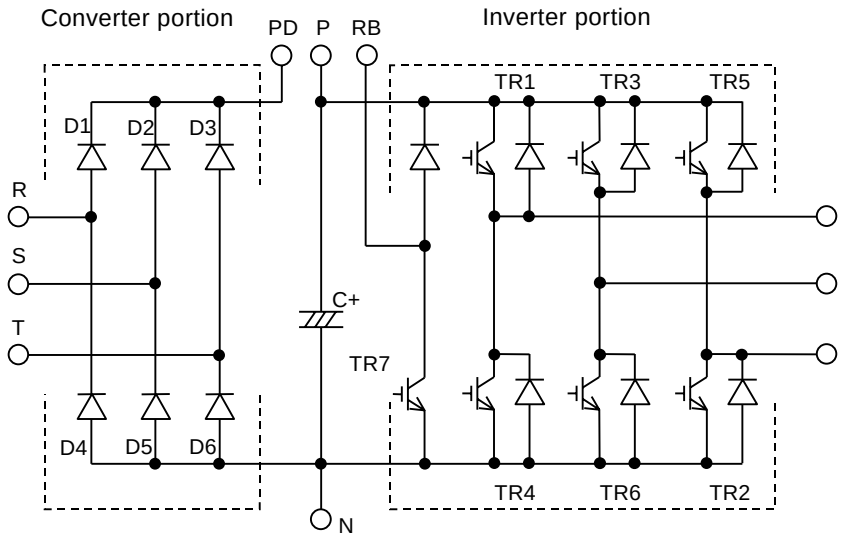
Resistance values may not be completely the same due to the electrical device (IGBT chip, diode chip…) difference.

But we can regard the result is okay if all the data are nearly the same.

		Tester polarity		Measurement
		⊕ (Red)	⊖ (Blk)	
Converter	D1	R	PD	OFF
		PD	R	ON
	D2	S	PD	OFF
		PD	S	ON
	D3	T	PD	OFF
		PD	T	ON
	D4	R	N	ON
		N	R	OFF
	D5	S	N	ON
		N	S	OFF
	D6	T	N	ON
		N	T	OFF
Inverter	TR1	U	P	OFF
		P	U	ON
	TR2	V	P	OFF
		P	V	ON
	TR5	W	P	OFF
		P	W	ON
	TR4	U	N	ON
		N	U	OFF
	TR6	V	N	ON
		N	V	OFF
	TR2	W	N	ON
		N	W	OFF
BRD	TR7	RB	P	OFF
		P	RB	ON
		RB	N	OFF
		N	RB	OFF

ON; Low resistance

OFF; High resistance



4.6 Parts replacement

Inverter is consists from many electrical components. And inverter cannot work properly unless all of them works normal. Electrical components in following table are the components which may degrade according to the usage period.

HITACHI recommend to replace those electrical components periodically to avoid any expected failure caused by them.

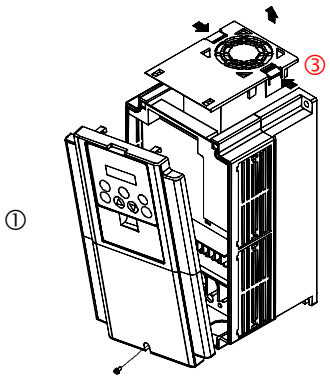
Parts name	Recommended period for replacement	Remarks
Cooling fan	2 ~ 3 years	Replace with fresh one.
DC bus capacitors	5 years	Replace with fresh one. (Decide after inspection.)
Electrolytic capacitors on PCB	5 years	Replace with fresh one. (Decide after inspection.)
Relays	-	Inspection in advance

(1) Cooling fan

Lifetime of the cooling fan depends on the usage condition, however it is normally around 35,000 hours. That means it is recommended to replace the cooling fan every 2 ~ 3 years in case the inverter operates continuously. Of course it should be replaced immediately in case the abnormality is found.

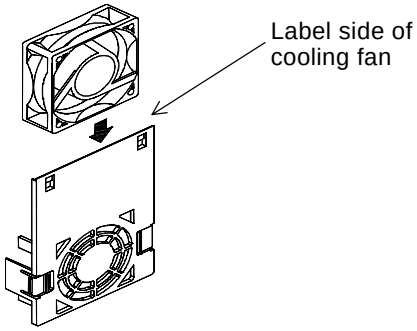
(How to remove cooling fan for mold case)

① Remove terminal cover and front cover.
② Reconfirm that the charge lamp is turned OFF.
③ Push both side of the cooling fan holder plate and pull out like following figure.
④ Remove the connector for fan connection.



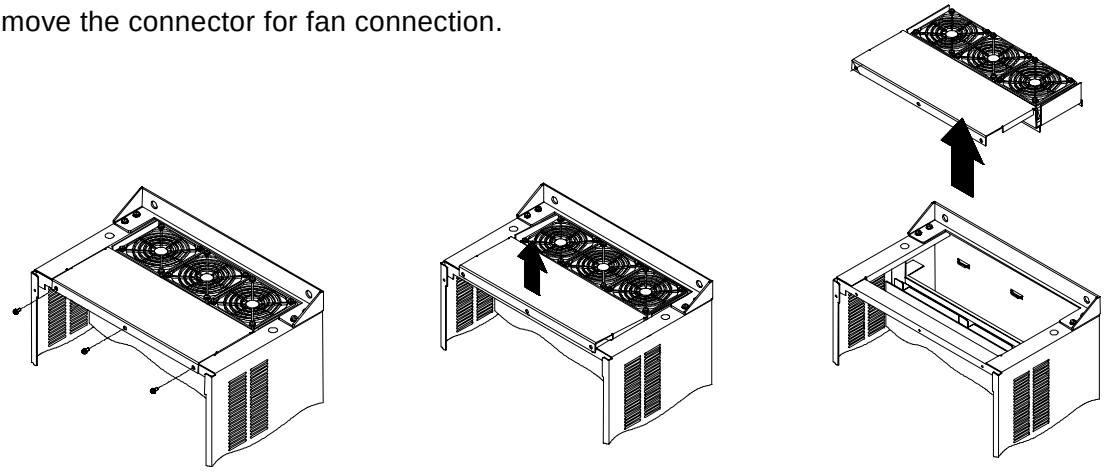
(How to fix cooling fan for mold case)

① Pay attention to the direction of the cooling fan.
② Connect the fan connector to J21 or J22 (depends on the model) on the power PCB.
③ Fix the cooling fan holder board to the inverter main body.
④ Fix the front cover and terminal cover.



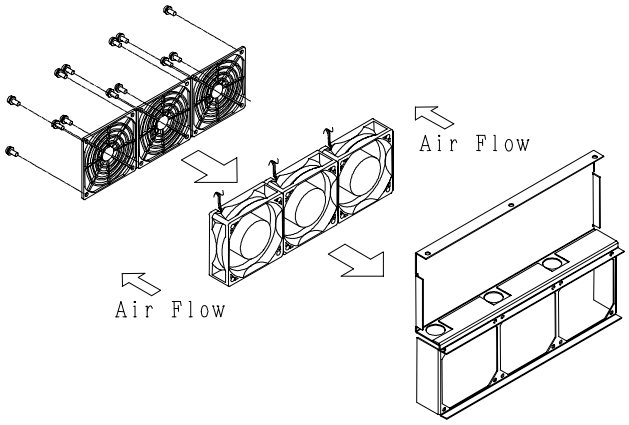
(How to remove cooling fan for steel case)

① Remove terminal cover and front cover.
② Reconfirm that the charge lamp is turned OFF.
③ Remove the all screws of the cooling fan case and pull out like following figure.
④ Remove the connector for fan connection.



(How to fix cooling fan for steel case)

① Pay attention to the direction of the cooling fan.
② Connect the fan connector to J21 or J22 or J23 or J24 (depends on the model) on the power PCB.
③ Fix the cooling fan case to the inverter main body.
④ Fix the front cover and terminal cover.



(2) DC bus capacitor

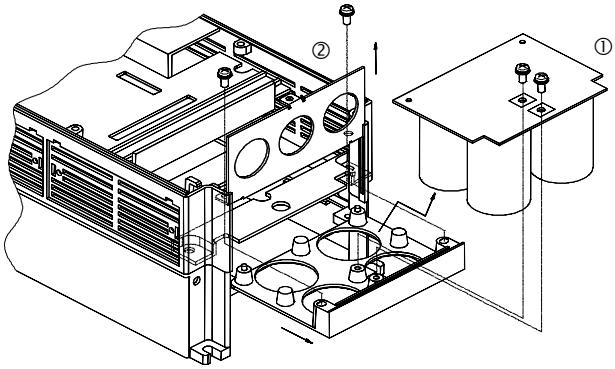
Big capacitance of electrolytic capacitors are used in a DC bus line of the inverter as a smoothing circuit. Due to the chemical reaction inside the capacitor, its lifetime highly depends on the ambient temperature and usage condition. Replacement is recommended to be done in 5 years under normal usage condition. Also, it should be anyway replaced with new ones when there is any abnormality is found or its capacity becomes less than 85% of its rated capacitance.

(How to remove DC bus capacitor for mold case)

① Remove terminal cover.
② Reconfirm that the charge lamp is turned OFF.
③ Remove blind cover.
④ Remove all the screws connecting capacitor PCB and power PCB.
⑤ Pull the capacitor PCB downwards.

(How to fix DC bus capacitors for mold case)

① Put capacitor PCB onto the capacitor holder plate and put insulation sheet on it.
② Insert capacitor holder plate sliding along the ditch.
③ Fix the capacitor PCB with screws.
④ Fix terminal cover.

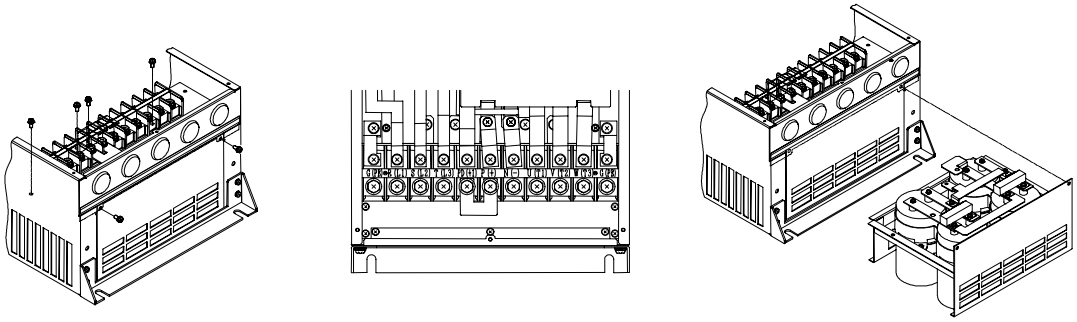


(How to remove DC bus capacitor for steel case)

① Remove terminal cover.
② Reconfirm that the charge lamp is turned OFF.
③ Remove all the screws connecting P,N BAR.
④ Remove all the screws connecting capacitor case and inverter main body.
⑤ Pull the capacitor case downwards.

(How to fix DC bus capacitors for steel case)

① Put capacitor onto the capacitor case and drive all the screws.
② Insert capacitor case sliding along the ditch.
③ Fix the capacitor case with screws.
④ Fix terminal cover.

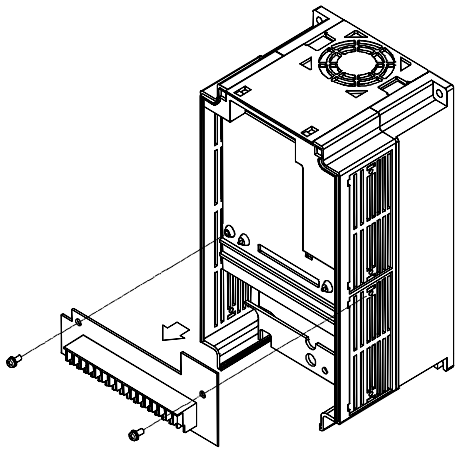


4.7 Unit replacement

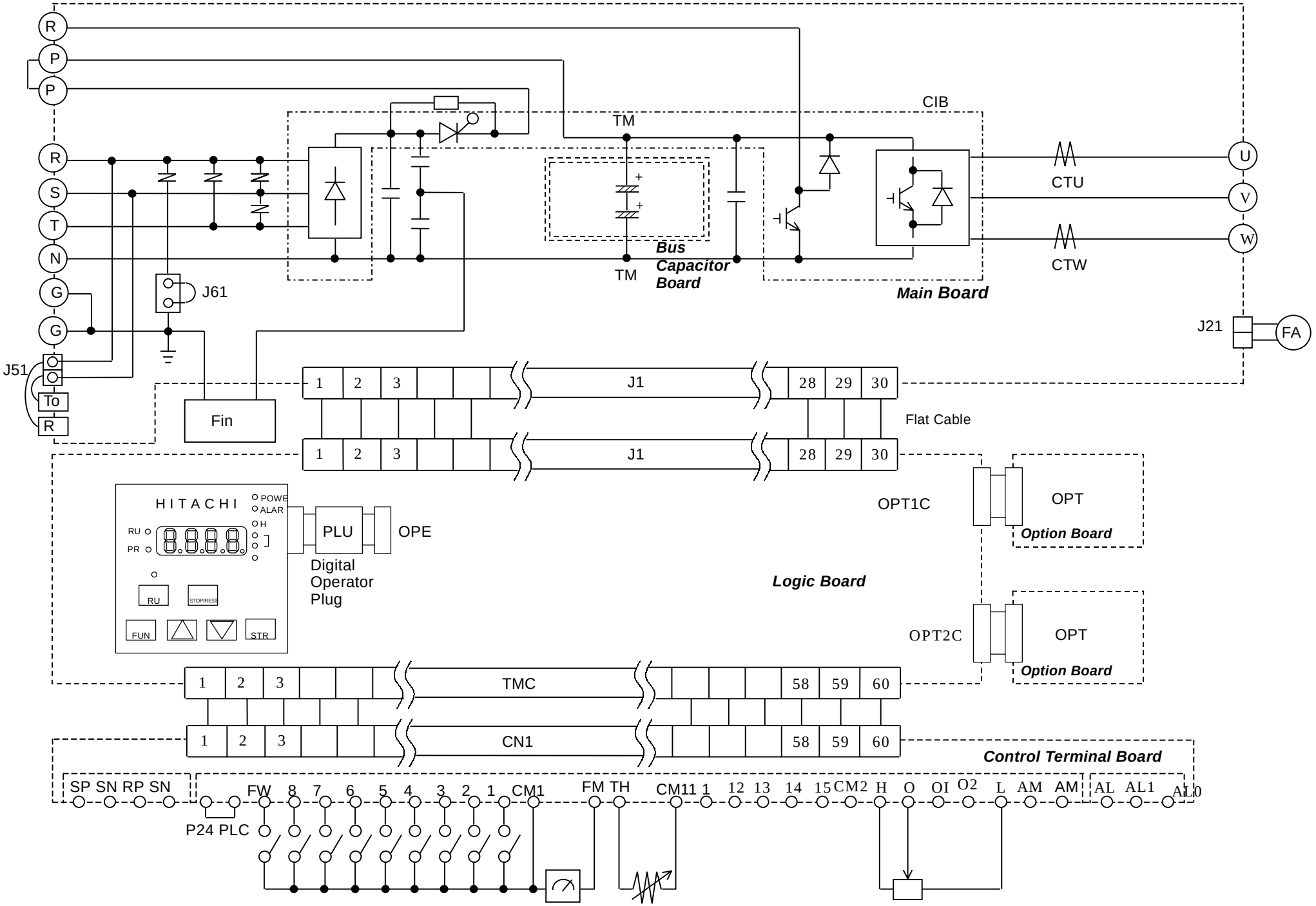
Unit replacement can be done without rewiring of the logic signal.

(How to exchange)

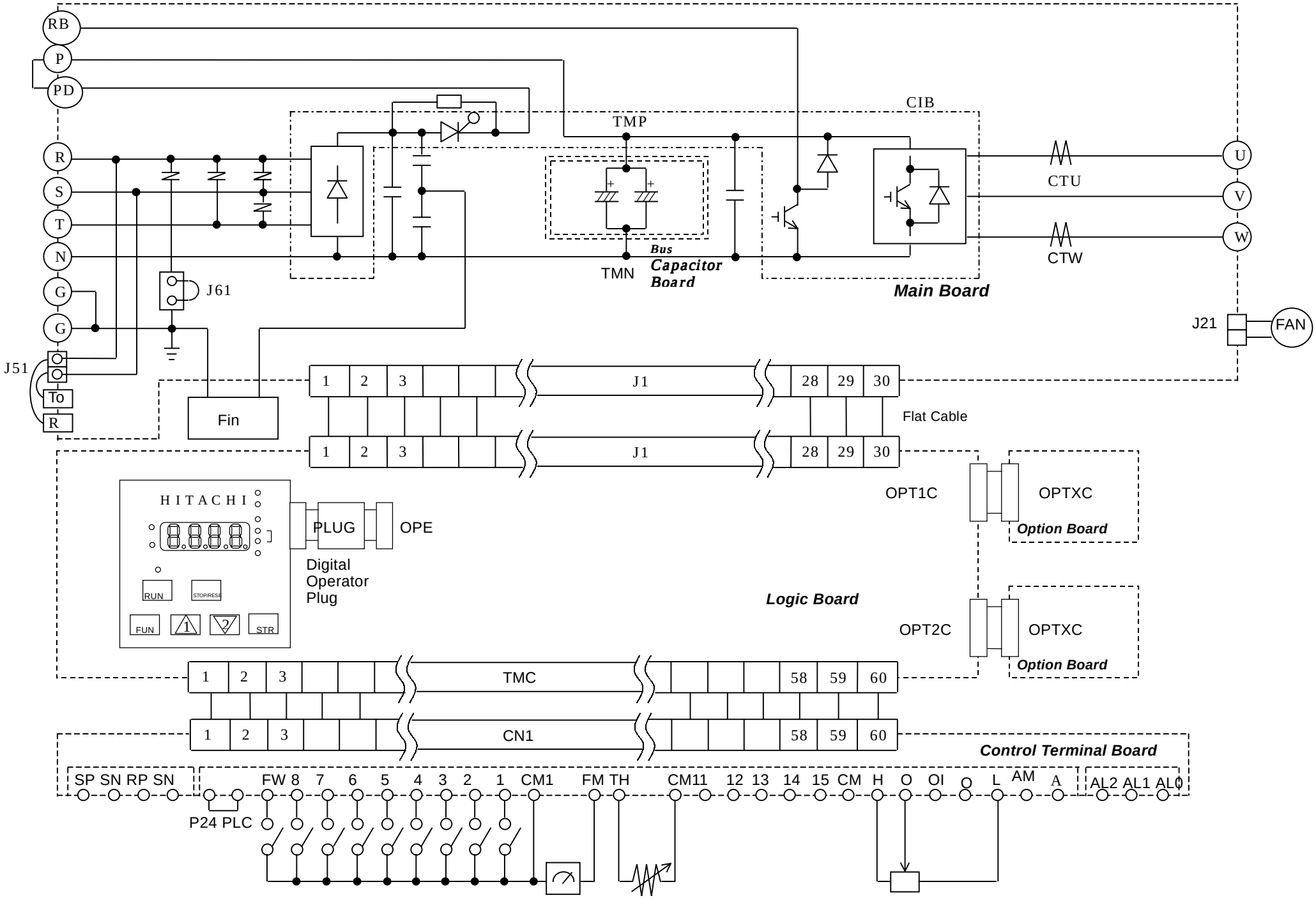
① Remove terminal cover.
② Reconfirm that the charge lamp is turned OFF.
③ Remove the screws at top, right and left portion.
④ Plug out the logic terminal carefully.
⑤ In case of plugging in to the new inverter, pay attention not to bend the connection pins.



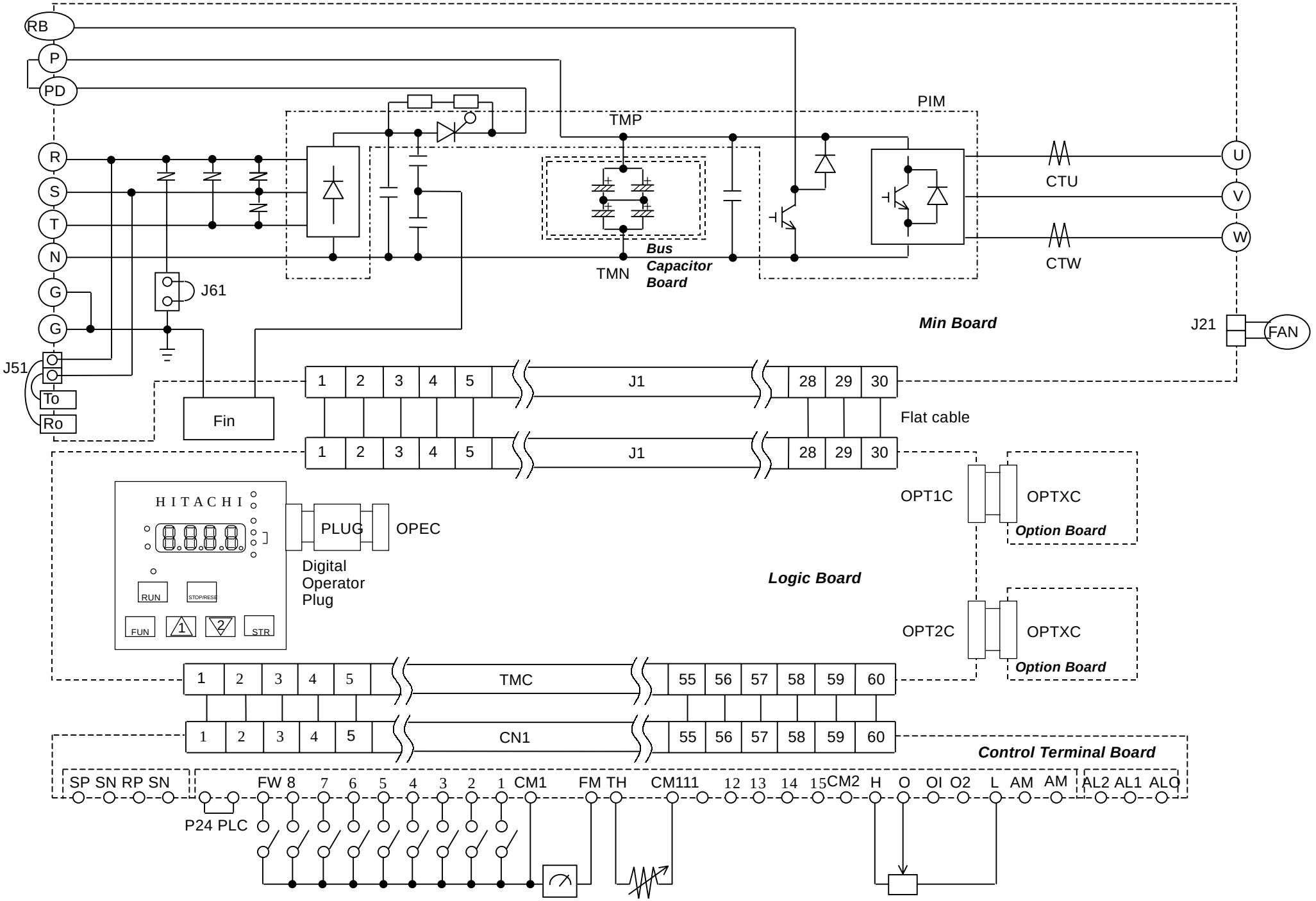
SJ300-007HF Circuit Diagram



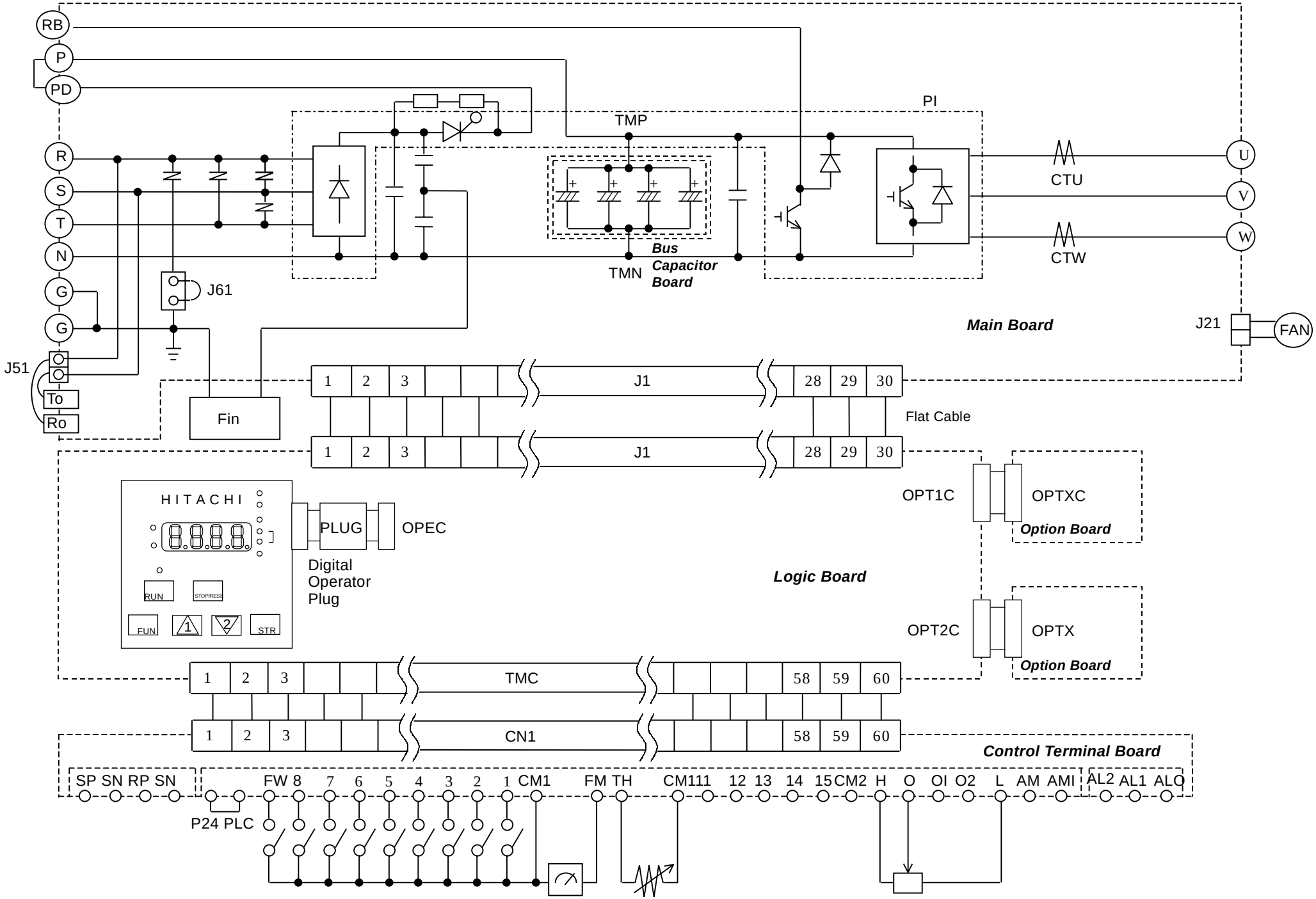
SJ300-004-007LF Circuit Diagram



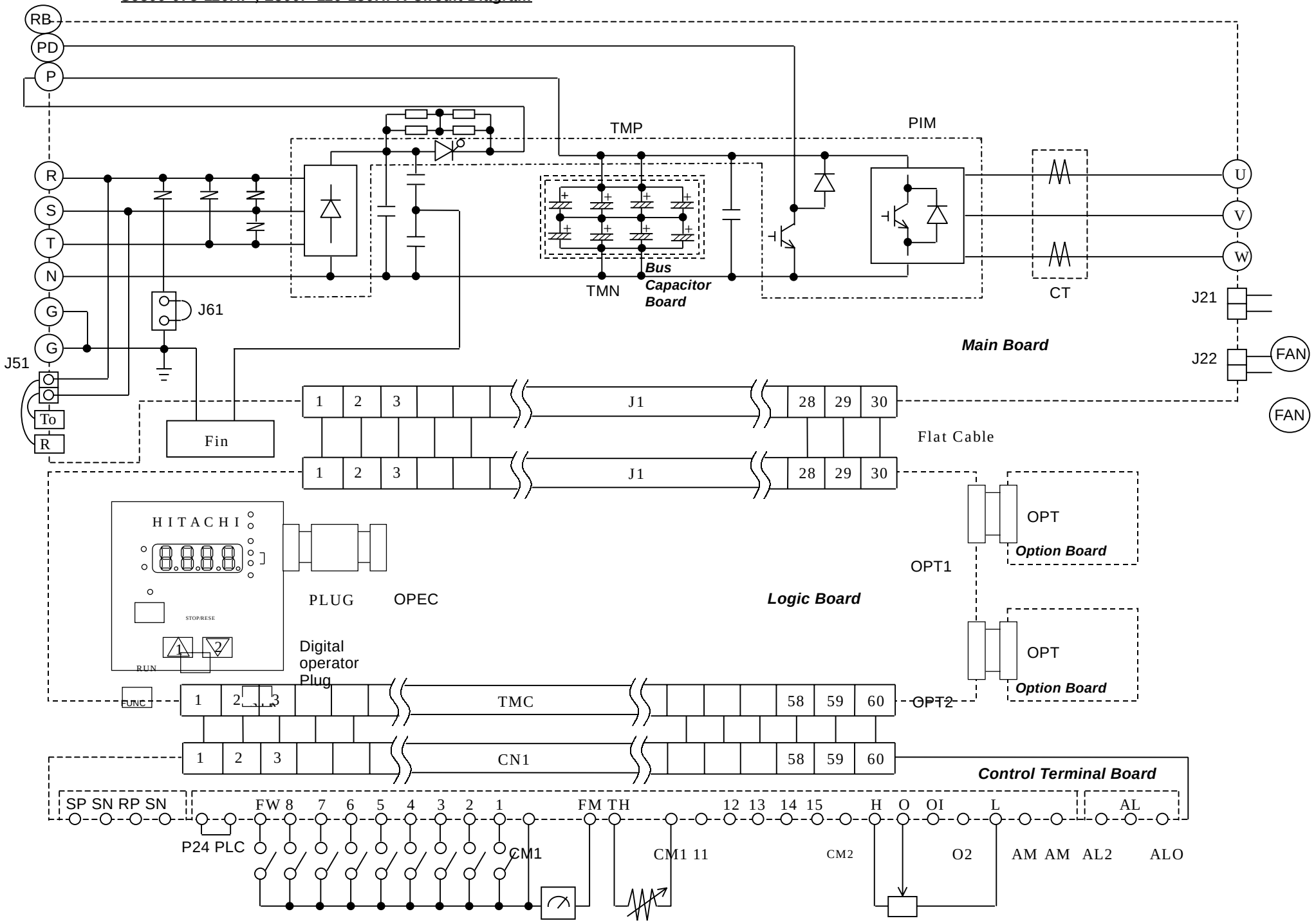
SJ300-015-055HF Circuit Diagram



SJ300-015 - 055LF Circuit Diagram

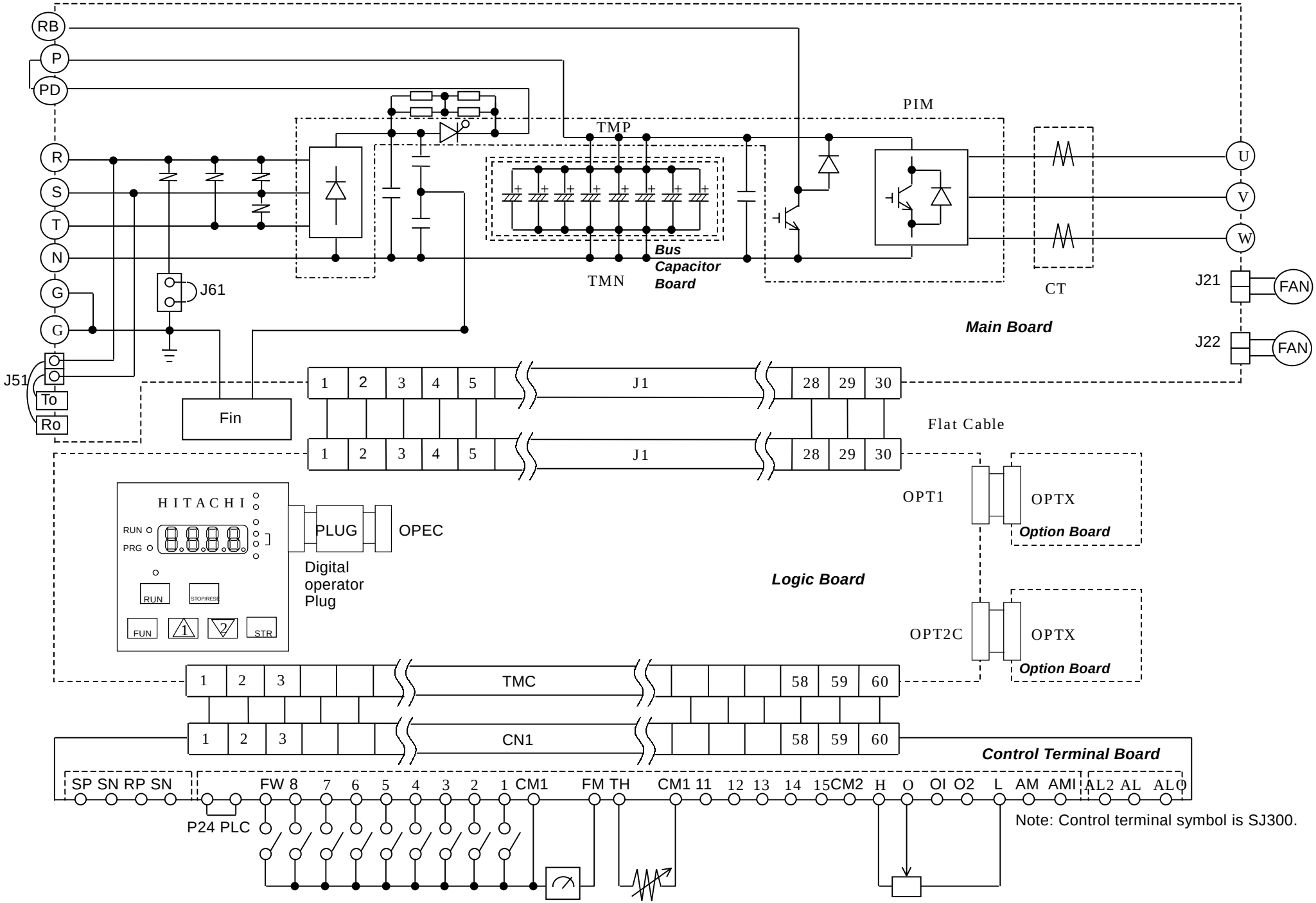


SJ300-075-110HF , L300P-110-150HFR Circuit Diagram

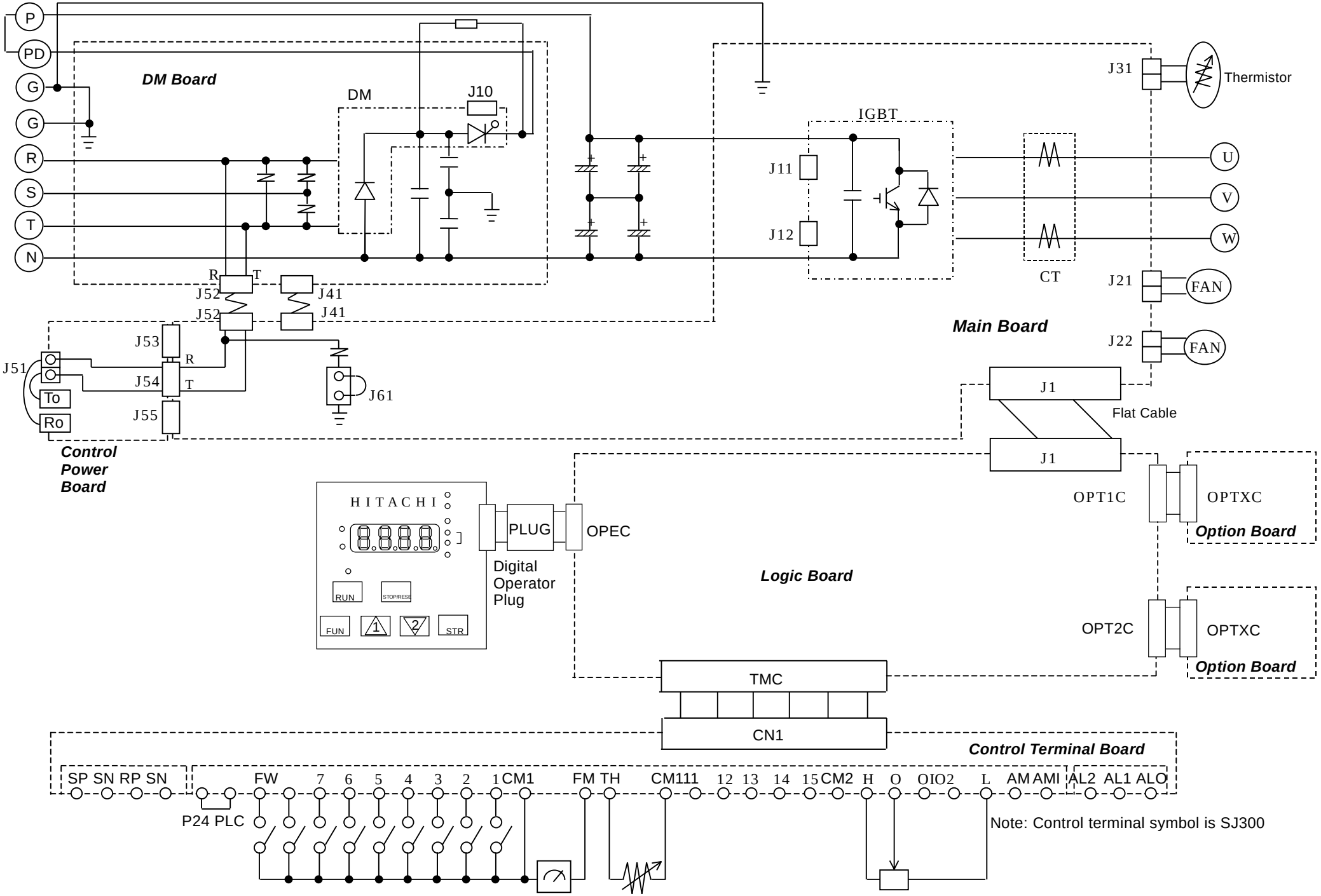


Note: Control terminal symbol is SJ300.

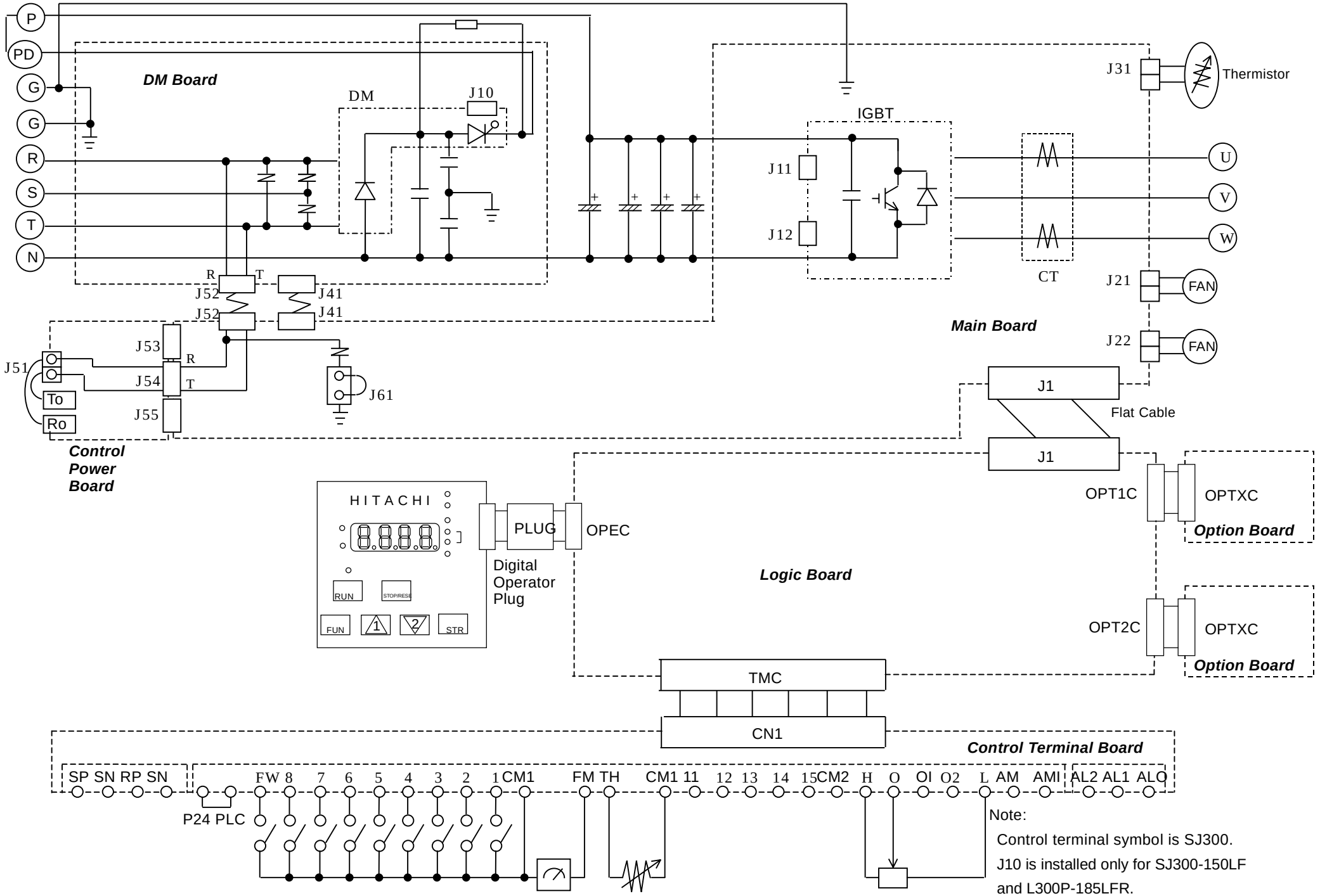
SJ300-075-110LF , L300P-110-150LFR Circuit Diagram



SJ300-150 - 220HF , L300P-185 - 300HFR Circuit Diagram



SJ300-150 - 220LF , L300P-185 - 300LFR Circuit Diagram

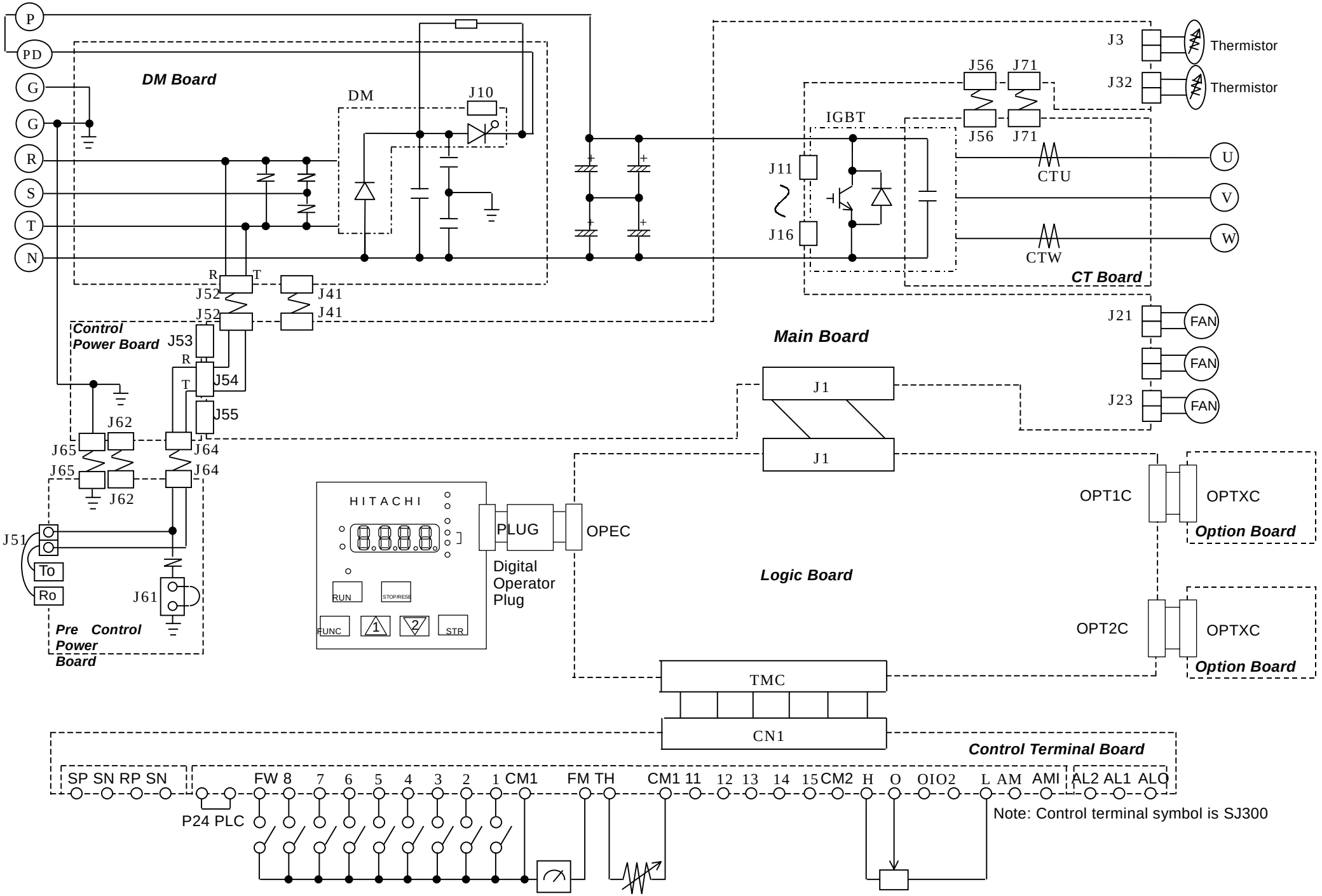


Note:

Control terminal symbol is SJ300.

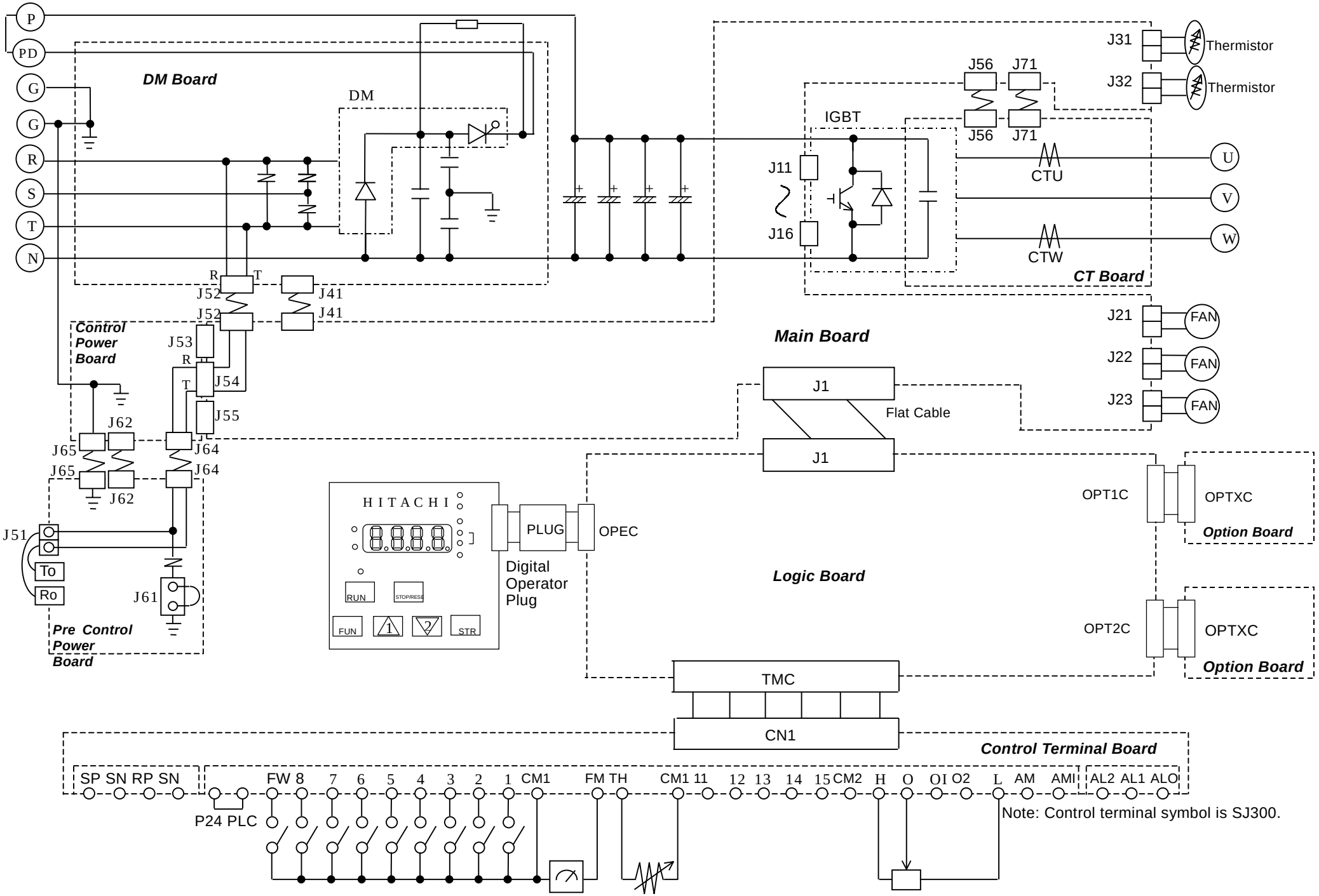
J10 is installed only for SJ300-150LF and L300P-185LFR.

SJ300-300HF , L300P-370HFR Circuit Diagram



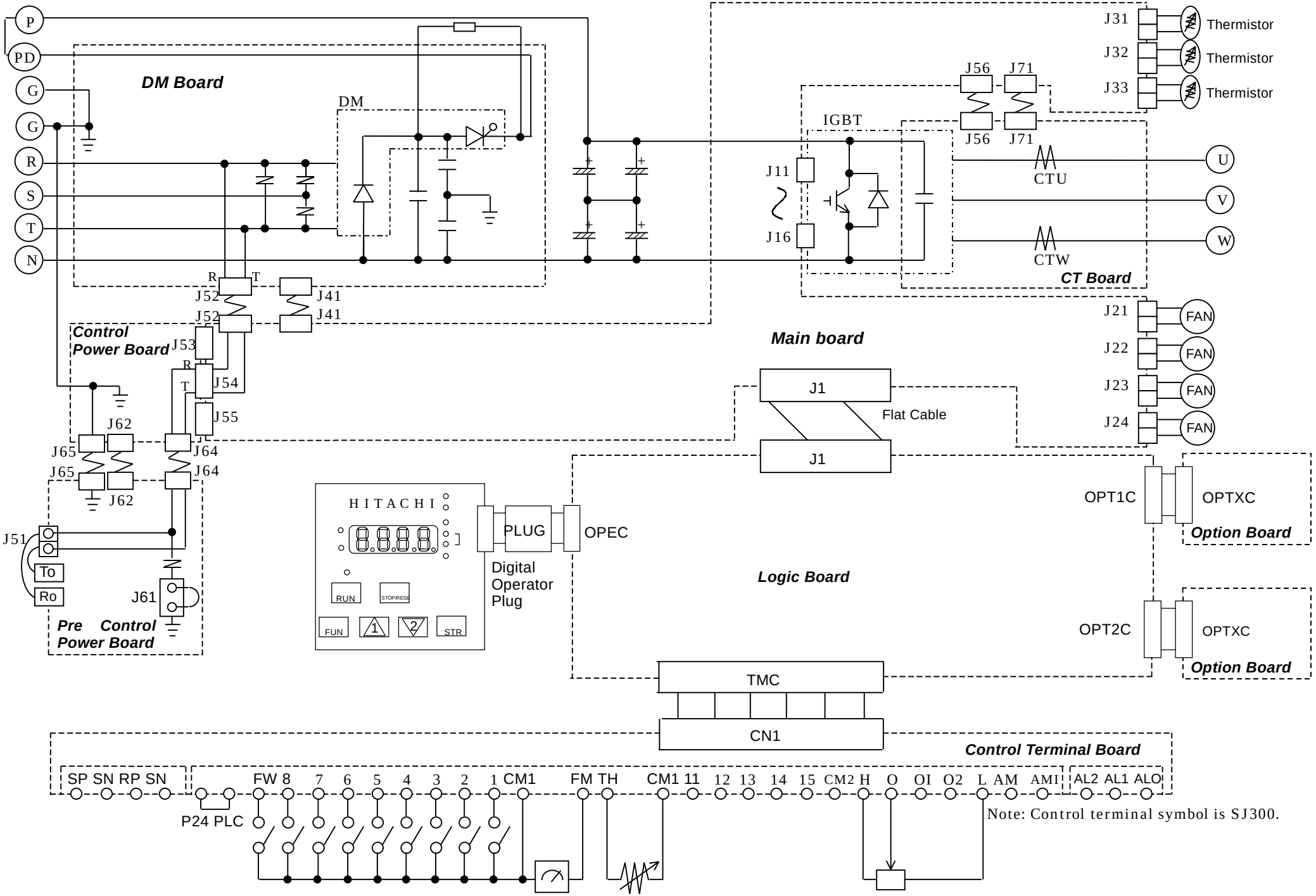
Note: Control terminal symbol is SJ300

SJ300-300LF, L300P-370LFR Circuit Diagram



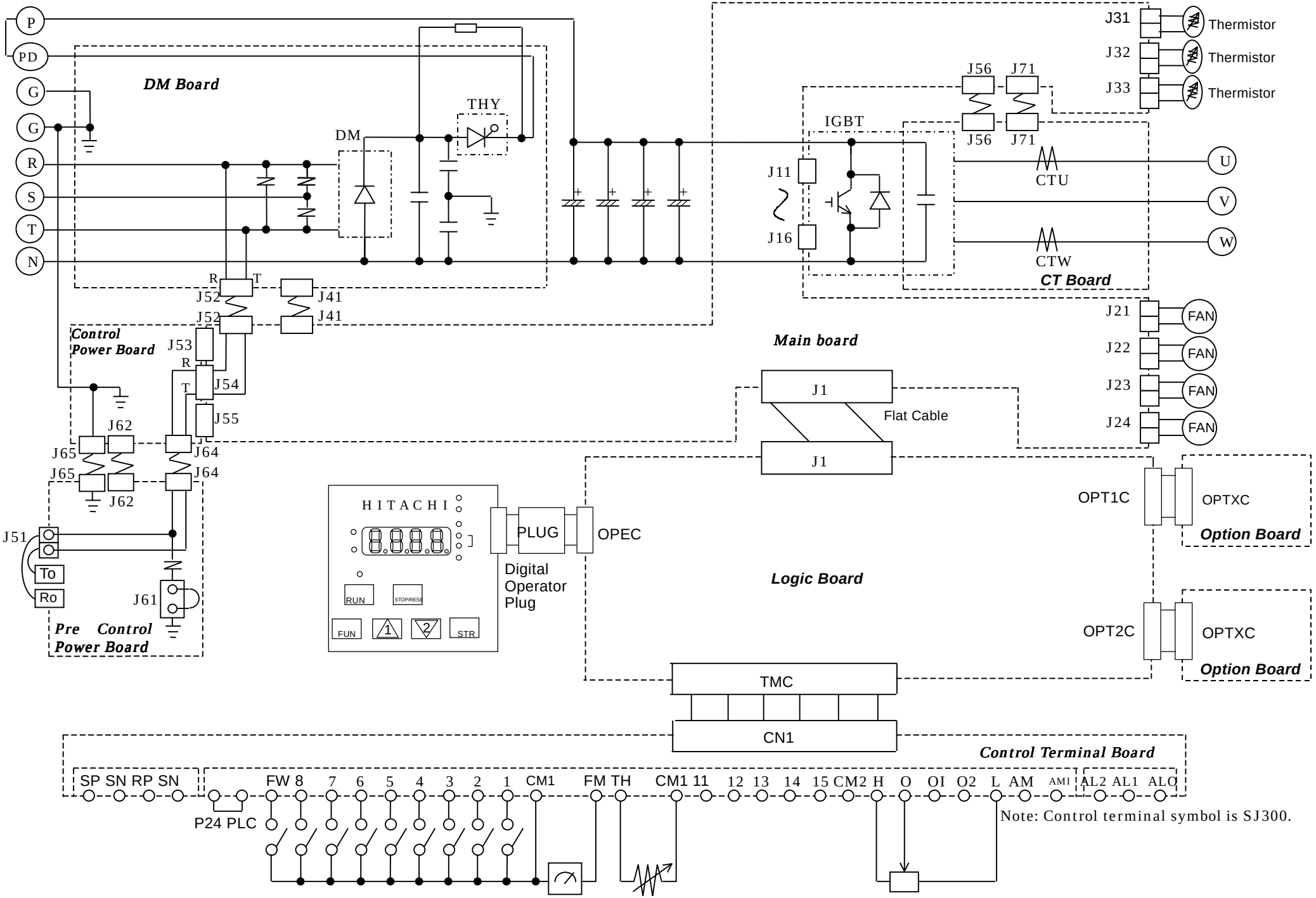
Note: Control terminal symbol is SJ300.

SJ300-370- 550HF, L300P-450 - 550HFR Circuit Diagram

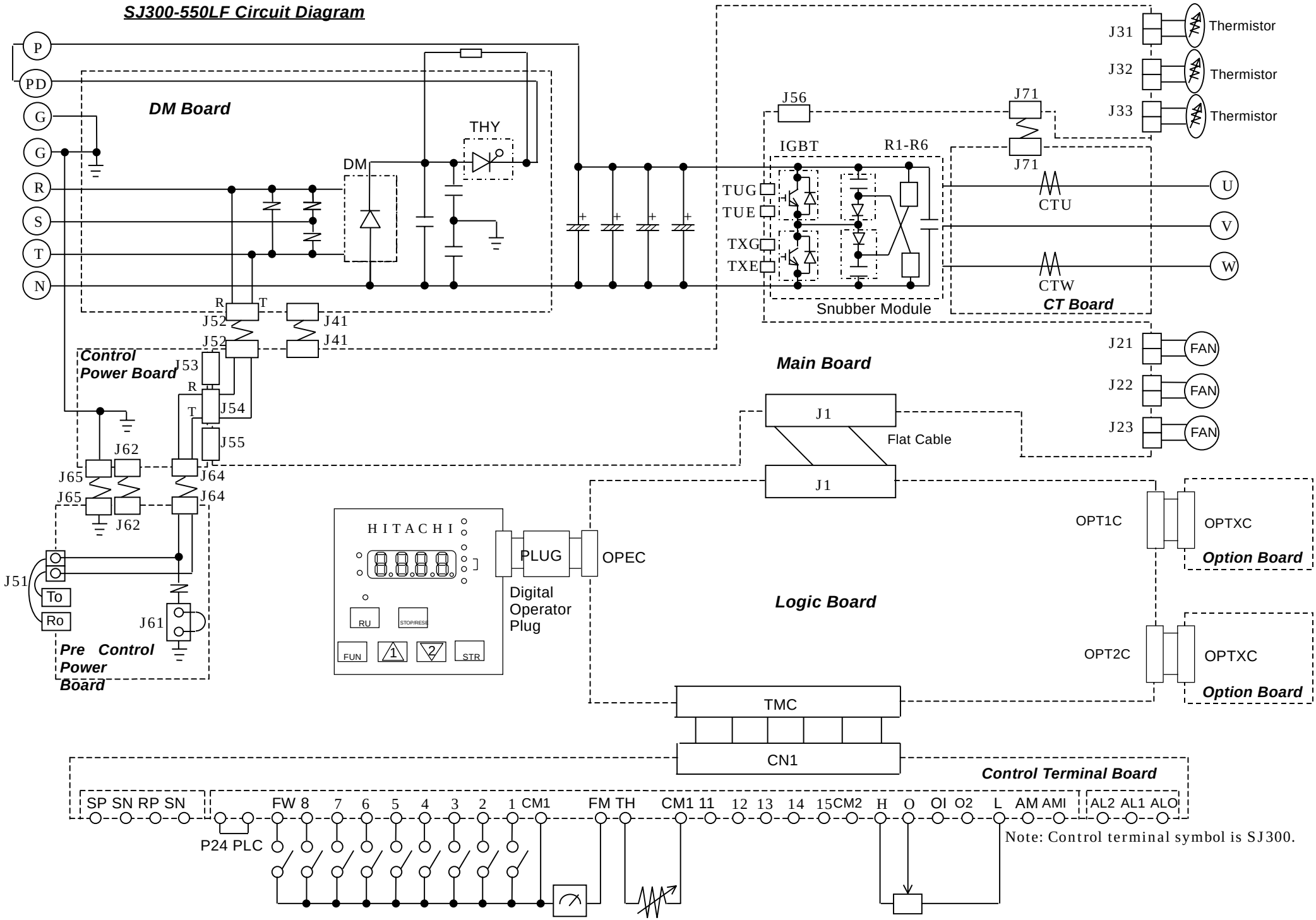


Note: Control terminal symbol is SJ300.

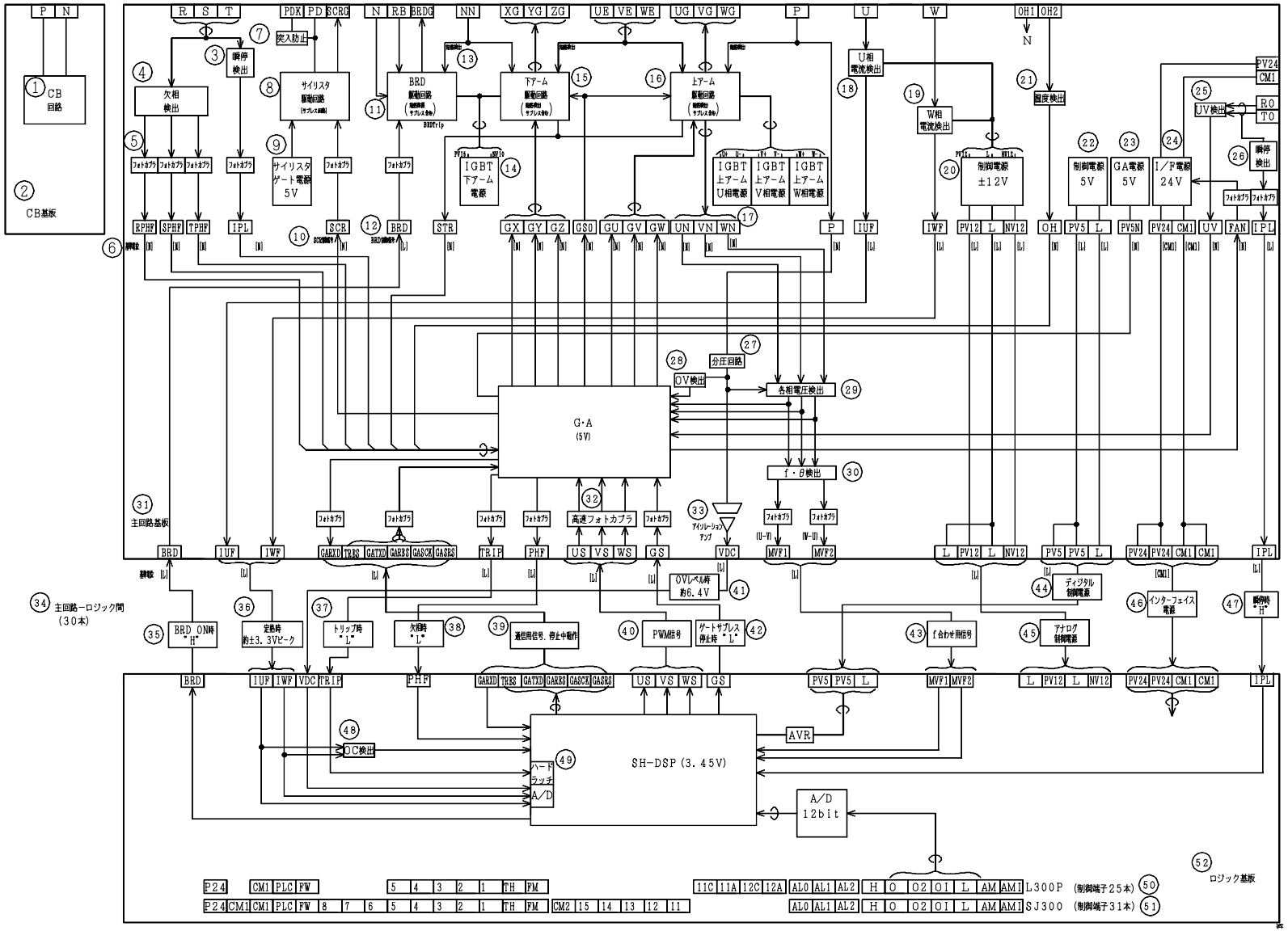
SJ300-370-450LF, L300P-450-550LFR Circuit Diagram



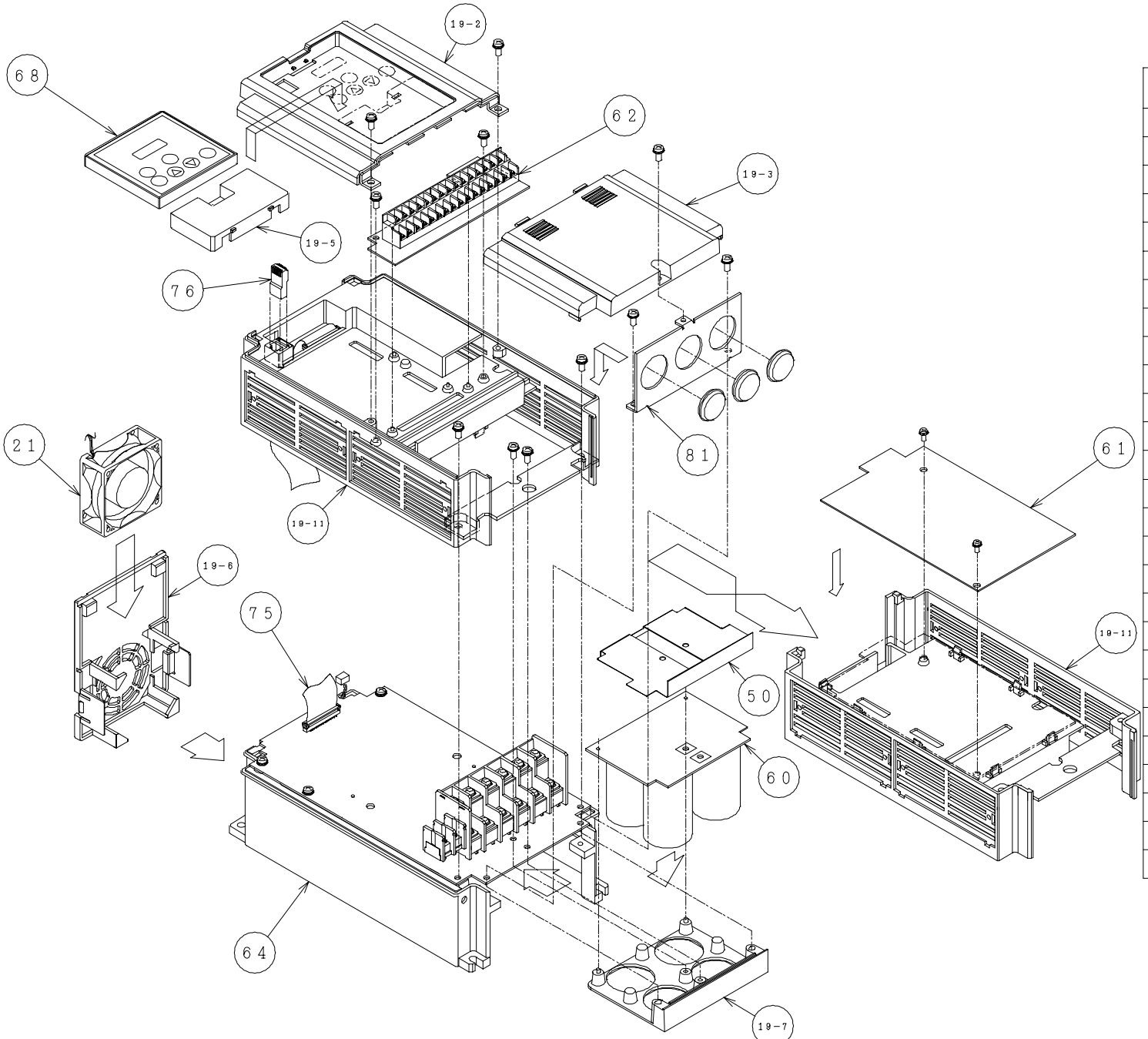
Note: Control terminal symbol is SJ300.


SJ300-550LF Circuit Diagram
P
PD
G
G
R
S
T
N
DM Board
DM
THY
R
T
J52
J52
J41
J41
Control Power Board
J53
R
T
J54
J55
J62
J65
J65
J64
J64
J62
J51
To
Ro
J61
Pre Control Power Board
H I T A C H I
RU
STOP/RESE
FUN
1
2
STR
PLUG
OPEC
Digital Operator Plug
J56
IGBT
R1-R6
TUG
TUE
TXG
TXE
Snubber Module
J71
J71
CTU
CTW
CT Board
U
V
W
J31
J32
J33
Thermistor
Thermistor
Thermistor
J21
J22
J23
FAN
FAN
FAN
Main Board
J1
Flat Cable
J1
Logic Board
OPT1C
OPTXC
Option Board
OPT2C
OPTXC
Option Board
TMC
CN1
Control Terminal Board
SP SN RP SN
P24 PLC
FW 8 7 6 5 4 3 2 1 CM1
FM TH
CM1 11 12 13 14 15 CM2 H O OI O2 L AM AMI
AL2 AL1 ALO
Note: Control terminal symbol is SJ300.

Internal block diagram



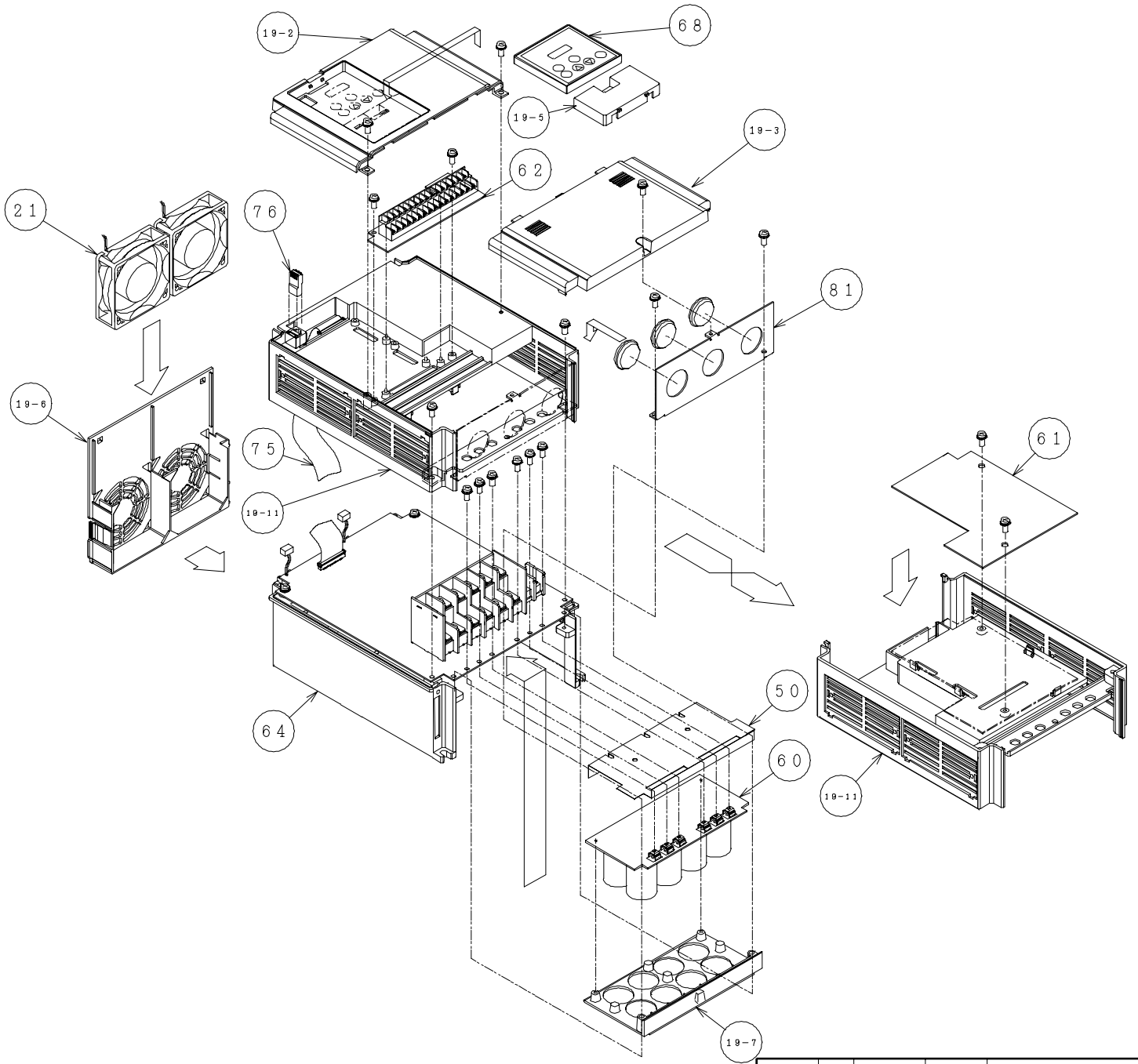
No.	English
1	CB circuit / DC bus capacitor circuit
2	CB board / DC bus capacitor board
3	Instantaneous power failure detection
4	Phase failure detection
5	Opt coupler / Photo coupler
6	Reference voltage
7	Inrush current limiting (circuit)
8	Thyrister drive circuit (Suppressing circuit)
9	Power supply for Thyrister gate
10	Control signal for Thyrister
11	BRD drive circuit (incl. Short circuit protection)
12	Control signal for BRD
13	Short circuit detection
14	Power supply for lower arm IGBTs
15	Drive circuit for lower arm IGBTs (incl.Short circuit detection)
16	Drive circuit for upper arm IGBTs (incl.Short circuit detection)
17	Power supply for U phase
18	Current detection for U phase
19	Current detection for W phase
20	Control power supply
21	Temperature detection
22	Control power supply
23	Power supply for GA (Gate Array)
24	Power supply for I/F (interface)
25	UV (Under voltage) detection
26	Instantaneous power failure detection
27	Dividing circuit
28	OV (Over voltage) detection
29	Voltage detection for earch phase
30	f,sita detection
31	Main PCB
32	High speed opt coupler
33	Isolation amplifier
34	30 connections between main PCB and logic PCB
35	"H" while BRD ON
36	Approx. 3.3V peak at rated current
37	"L" while Inverter trips
38	"L" while phase failure
39	Communication signal,operates while standstill
40	PWM signal
41	Approx. 6.4V at OV level
42	"L" while stopped by Gate suppressing
43	Signal for frequency matching
44	Control power supply for digital portion
45	Control power supply for analog portion
46	Power supply for I/F (interface)
47	"H" while instantaneous power failure
48	OC(Over current)detection
49	Hardware latch
50	25 control terminals
51	31 control terminals
52	Logic PCB



No.	Abbreviation	Name of parts	Quantity for 1 unit
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-11}	CV	Main body cover	1
21	FAN	Cooling fan	1
50	INS	Insulation board	1
60	P/SUB	DC bus capacitor PCB	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB with main body case	1
68	PANEL	Digital operator	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
81	PL	Wiring blind cover	1

DWN	M. HIROTA	2000-01-14	SJ300-015~055LF Structure diagram	Hitachi, Ltd. Tokyo Japan
CHKD	S. SEKIGUCHI	〃		NARASHINO WORKS DWG. NO. 324 3T823583
APPD	M. TOKASHIKI	〃		

REV



No.	Abbreviation	Name of parts	Quantity for 1 unit
19-8	CV	Front cover	1
19-3	CV	Terminals cover	1
19-5	CV	Spacer cover	1
19-6	FUDO	Cooling fan attachment board	1
19-7	PL	DC bus capacitor attachment block	1
19-11	CV	Main body cover	1
21	FAN	Cooling fan	2
50	INS	Insulation board	1
60	P/SUB	DC bus capacitor PCB	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB with main body case	1
68	PANEL	Digital operator	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
81	PL	Wiring blind cover	1

DWN	M. HIROTA	2000-01-14
CHKD	S. SEKIGUCHI	〃
APPD	M. TOKASHIKI	〃

SJ300-075・110LF/HF
Structure diagram

Hitachi, Ltd.
Tokyo Japan

NARASHINO WORKS DWG. NO.
324 3T8235584

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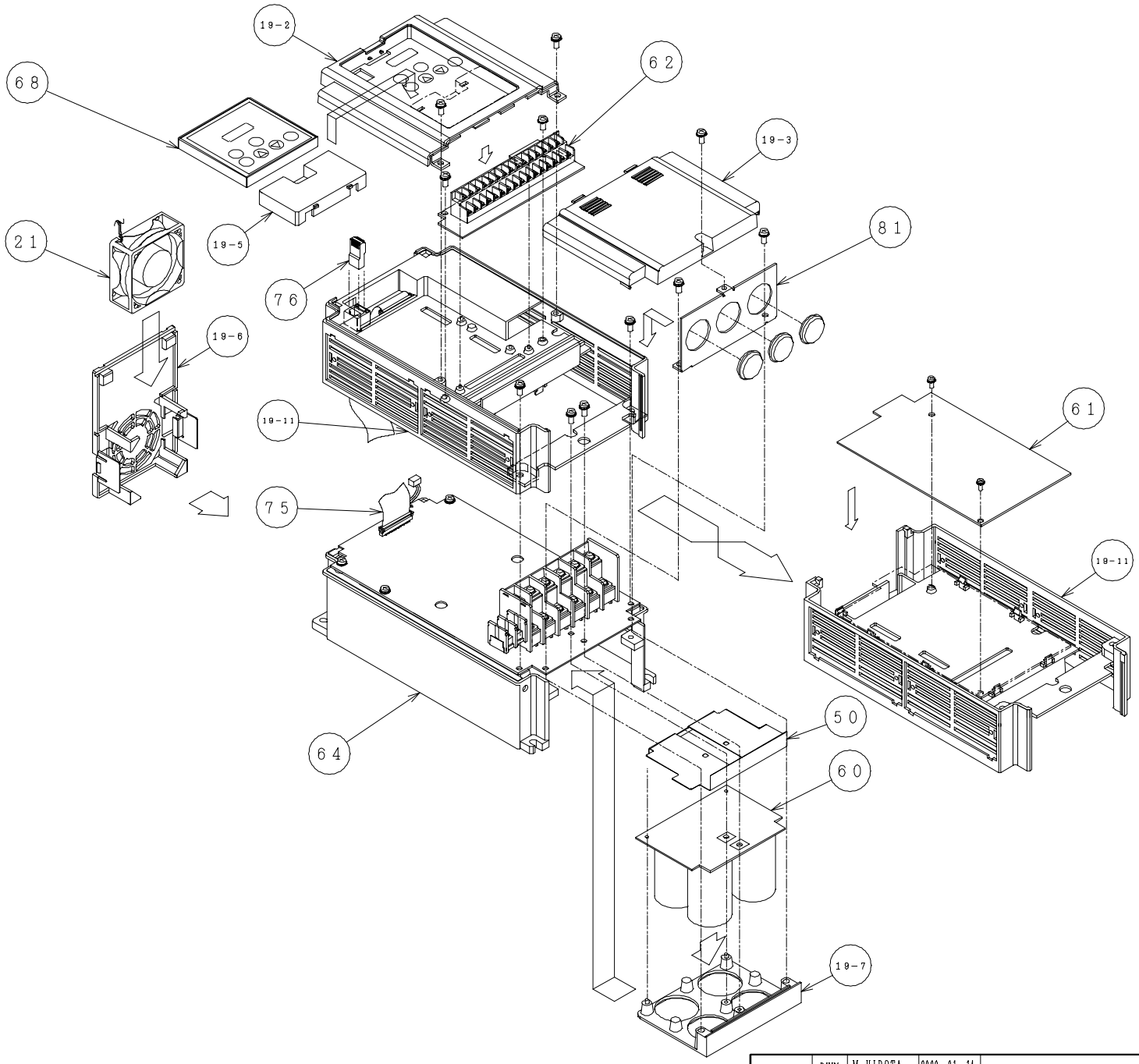

No.	Abbreviation	Name of parts	Quantity for 1 unit
19_2	CV	Front cover	1
19_3	CV	Terminals cover	1
19_5	CV	Spacer cover	1
19_6	FUDO	Cooling fan attachment board	1
19_7	PL	DC bus capacitor attachment block	1
19_11	CV	Main body cover	1
21	FAN	Cooling fan	1
50	INS	Insulation board	1
60	P/SUB	DC bus capacitor PCB	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB with main body case	1
68	PANEL	Digital operator	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
81	PL	Wiring blind cover	1

DWN	M. HIROTA	2000-01-14	SJ300-015~055HF Structure diagram	Hitachi, Ltd. Tokyo Japan
CHKD	S. SEKIGUCHI	〃		NARASHINO WORKS DWG. NO. 324 3T823593
APPD	M. TOKASHIKI	〃		

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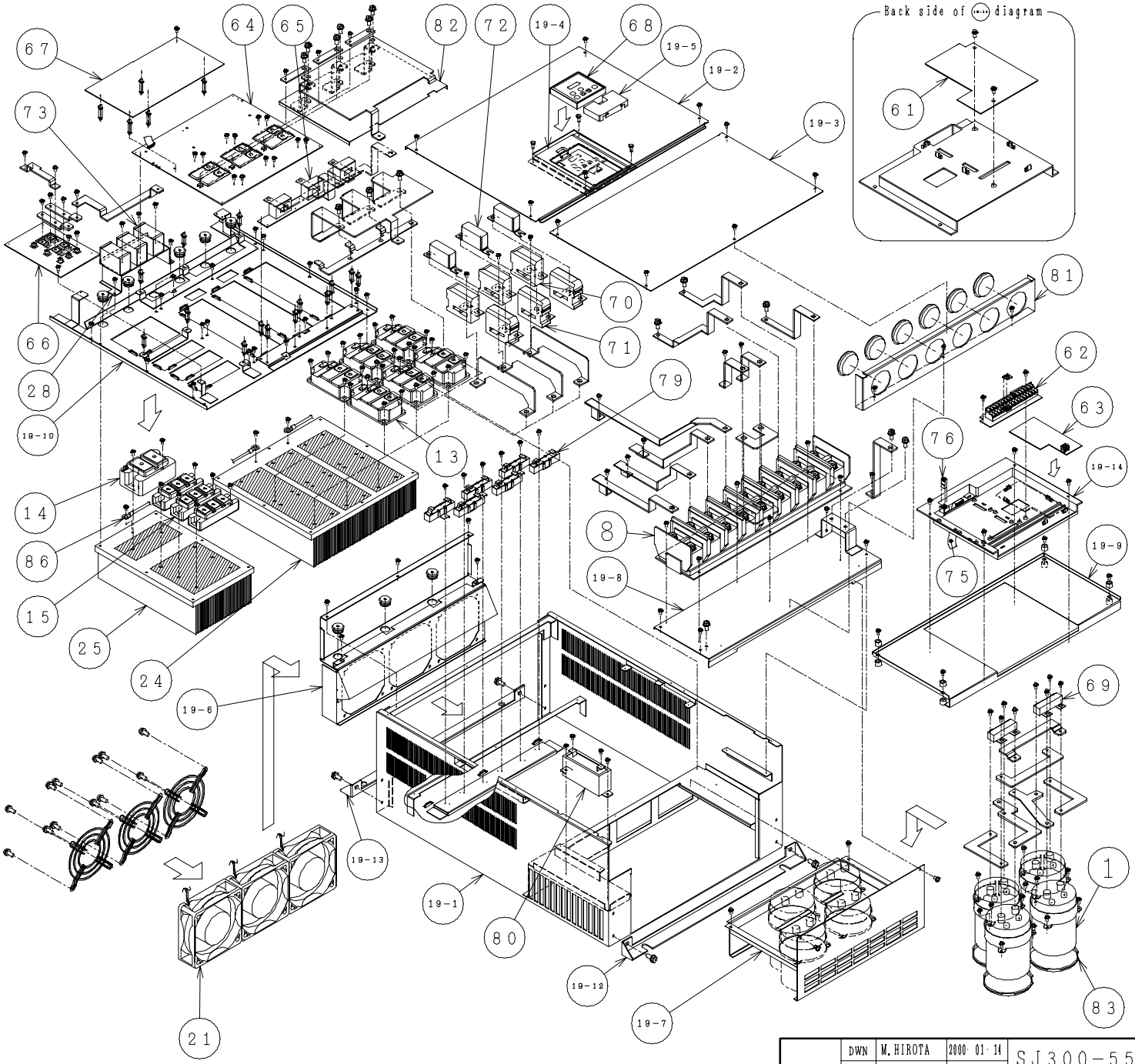

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
13	TRS	IGBT module	6
14	THY	Thyristor module	1
15	DM	Diode module	3
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-4}	CV	Digital operator attachment board	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-9}	PL	Shielding board	1
19_{-10}	PL	Parts attachment board	1
19_{-12}	PL	Attachment board	1
19_{-13}	PL	Attachment board	1
19_{-14}	PL	Control PCB attachment board	1
21	FAN	Cooling fan	3
24	FIN	Heat sink	1
25	FIN	Heat sink	1
28	PL	Snubber capacitor attachment board	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	2
70	C1~C3	Snubber capacitor	3
71	C1~C3	Snubber capacitor	3
72	C1~C3	Snubber capacitor	3
73	C1~C3	Snubber capacitor	3
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
79	R1~R6	Snubber resistor	6
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRM1	Thermistor	3

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-550LF
Structure diagram

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Tokyo Japan

NARASHINO WORKS DWG. NO.
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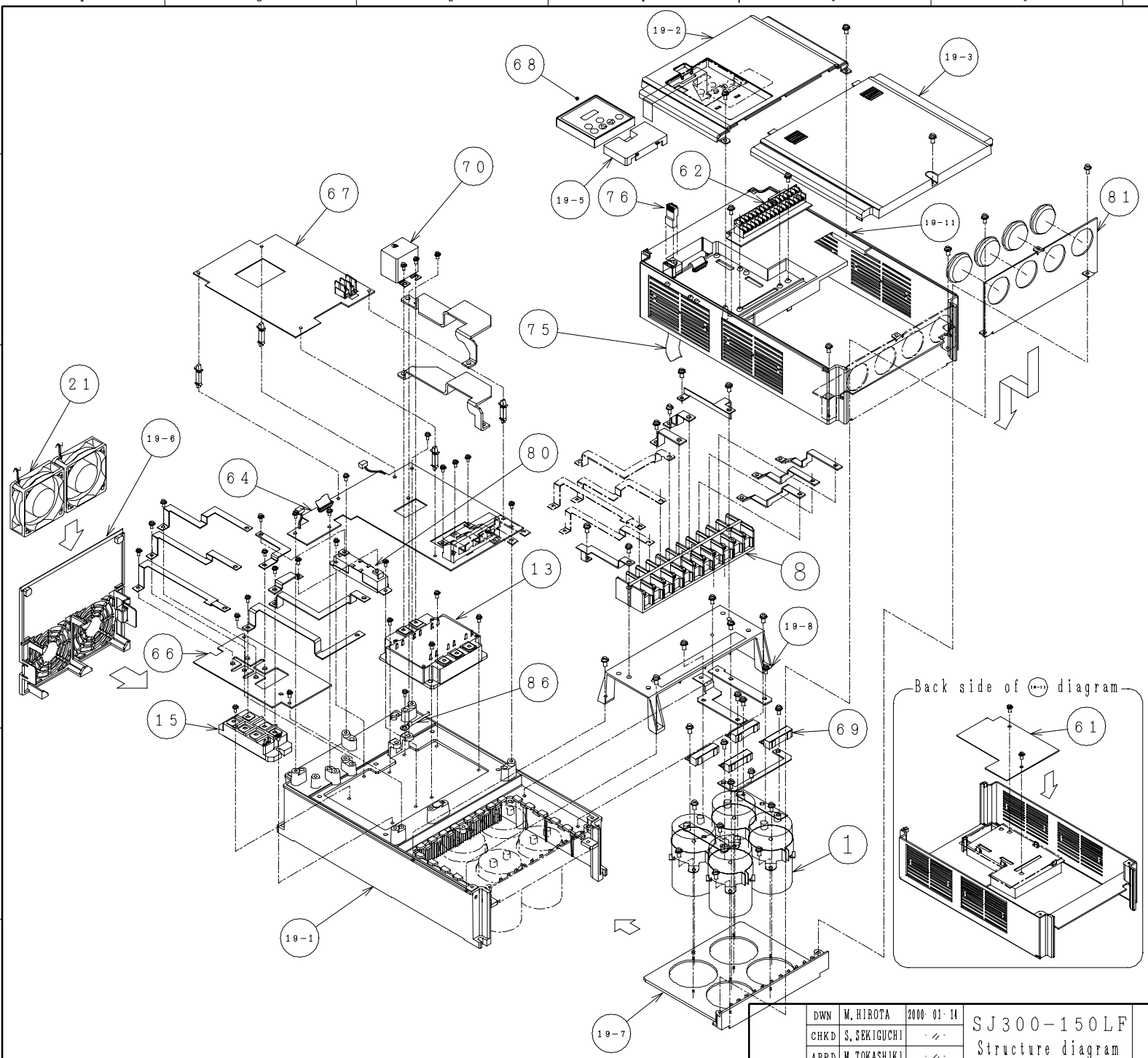

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T. BLK	Main circuit terminals	1
13	TRS	IGBT module	1
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-11}	CV	Main body cover	1
21	FAN	Cooling fan	2
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
70	CB	Sunbber capacitor	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
86	TRMI	Thermistor	1

DWN	M. HIROTA	2000-01-14
CHKD	S. SEKIGUCHI	〃
APPD	M. TOKASHIKI	〃

SJ300-150LF
Structure diagram

Hitachi, Ltd.
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NARASHINO WORKS DWG. NO.
324 3T823586

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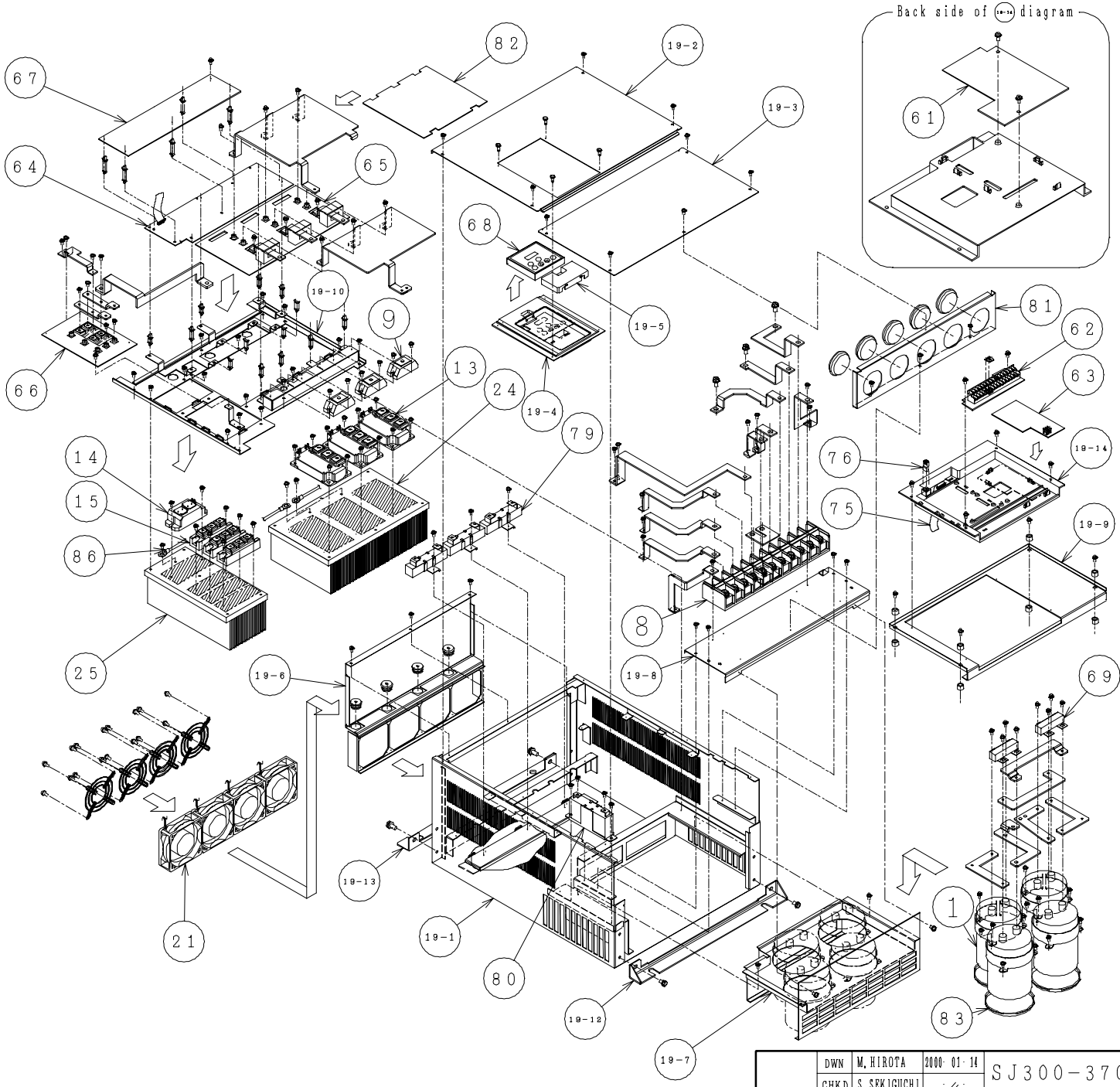

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
14	THY	Thyristor module	1
15	DM	Diode module	3
19-1	CS	Main body case	1
19-2	CV	Front cover	1
19-3	CV	Terminals cover	1
19-4	CV	Digital operator attachment board	1
19-5	CV	Spacer cover	1
19-6	FUDO	Cooling fan attachment board	1
19-7	PL	DC bus capacitor attachment block	1
19-8	BED	Terminal attachment board	1
19-9	PL	Shielding board	1
19-10	PL	Parts attachment board	1
19-12	PL	Attachment board	1
19-13	PL	Attachment board	1
19-14	PL	Control PCB attachment board	1
20	PL	DM PCB attachment board	1
21	FAN	Cooling fan	4
24	FIN	Heat sink	1
25	FIN	Heat sink	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
79	R1~R3	Snubber resistor	3
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRM1	Thermistor	3

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-370LF
Structure diagram

Hitachi, Ltd.
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NARASHINO WORKS DWG. NO.
324 3T823590

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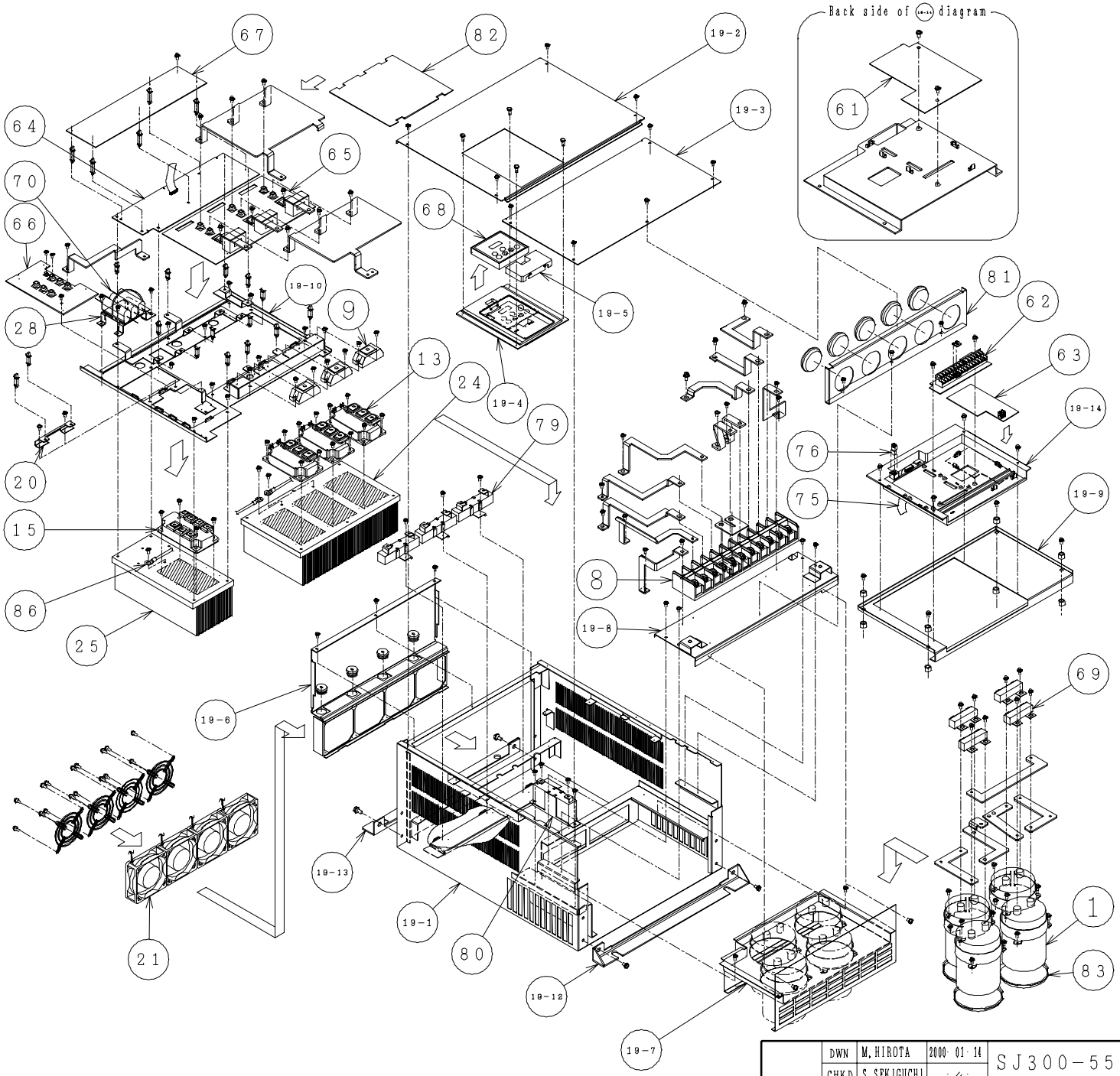

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T. BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-4}	CV	Digital operator attachment board	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-9}	PL	Shielding board	1
19_{-10}	PL	Parts attachment board	1
19_{-12}	PL	Attachment board	1
19_{-13}	PL	Attachment board	1
19_{-14}	PL	Control PCB attachment board	1
20	PL	DM PCB attachment board	1
21	FAN	Cooling fan	4
24	FIN	Heat sink	1
25	FIN	Heat sink	1
28	PL	Snubber capacitor attachment board	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
70	C1~C3	Snubber copacitor	3
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
79	R1~R3	Snubber resistor	3
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRMI	Thermistor	3

DWN	M. HIROTA	2000-01-14
CHKD	S. SEKIGUCHI	〃
APPD	M. TOKASHIKI	〃

SJ300-550HF
Structure diagram

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NARASHINO WORKS DWG. NO.
324 3T823598

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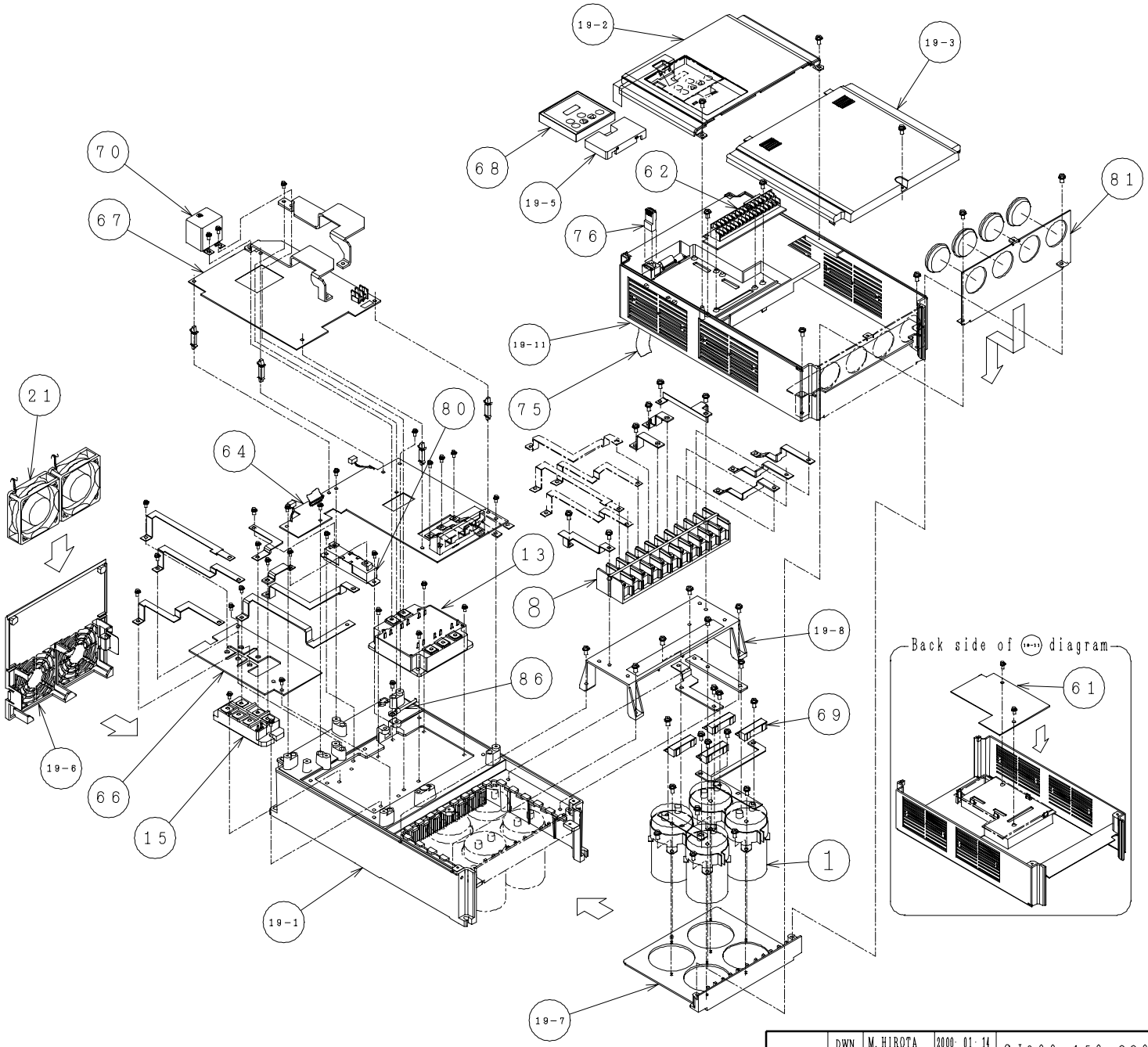

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
13	TRS	IGBT module	1
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-11}	CV	Main body cover	1
21	FAN	Cooling fan	2
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
70	CB	Sunbber capacitor	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
86	TRMI	Thermistor	1

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-150~220HF
Structure diagram

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Tokyo Japan

NARASHINO WORKS DWG. NO.
324 3T823594

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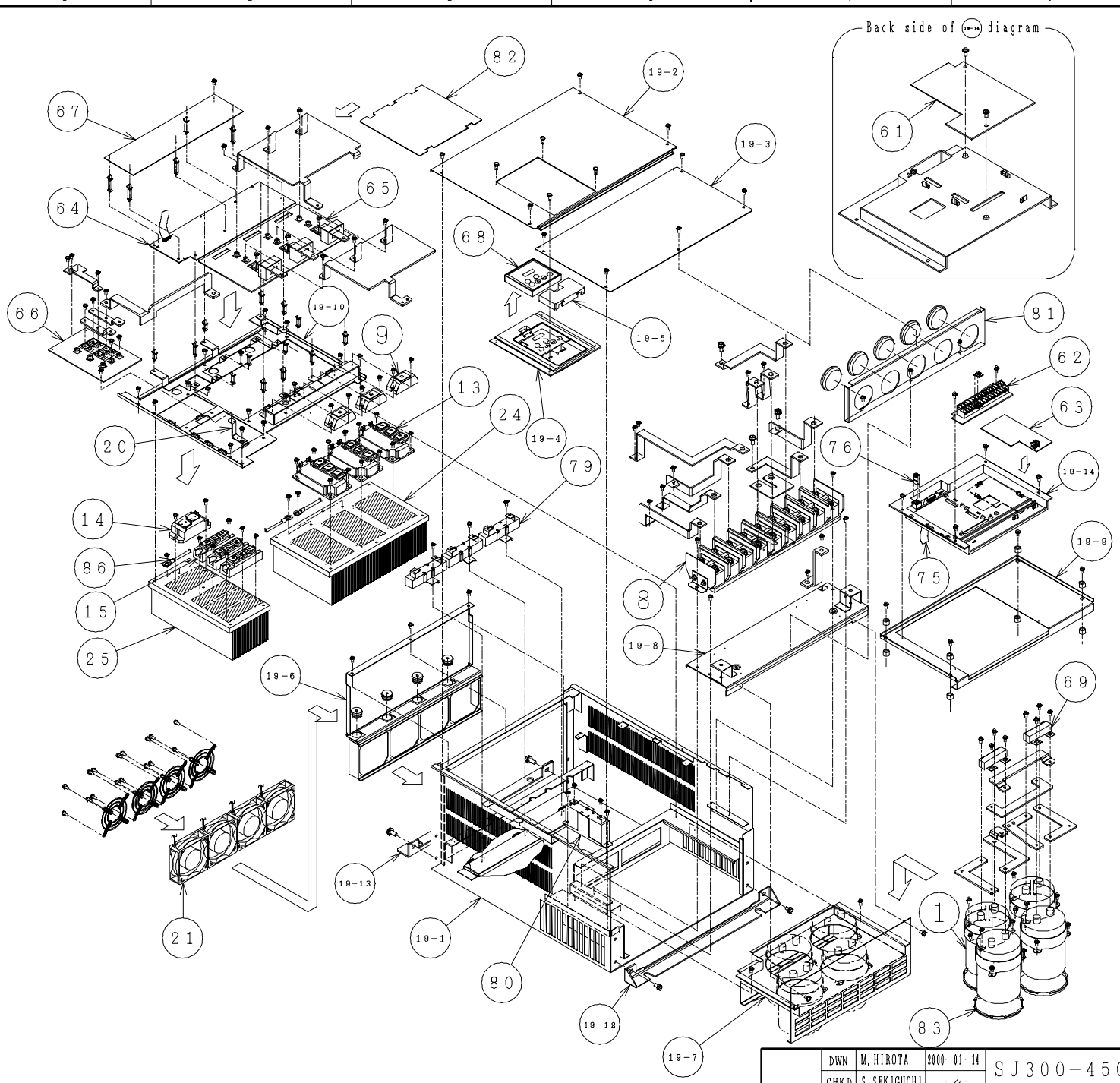

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
14	THY	Thyristor module	1
15	DM	Diode module	3
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-4}	CV	Digital operator attachment board	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-9}	PL	Shielding board	1
19_{-10}	PL	Parts attachment board	1
19_{-12}	PL	Attachment board	1
19_{-13}	PL	Attachment board	1
19_{-14}	PL	Control PCB attachment board	1
20	PL	DM PCB attachment board	1
21	FAN	Cooling fan	4
24	FIN	Heat sink	1
25	FIN	Heat sink	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
79	R1~R3	Snubber resistor	3
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRM1	Thermistor	3

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-450LF
Structure diagram

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NARASHINO WORKS DWG. NO.
324 3T823591

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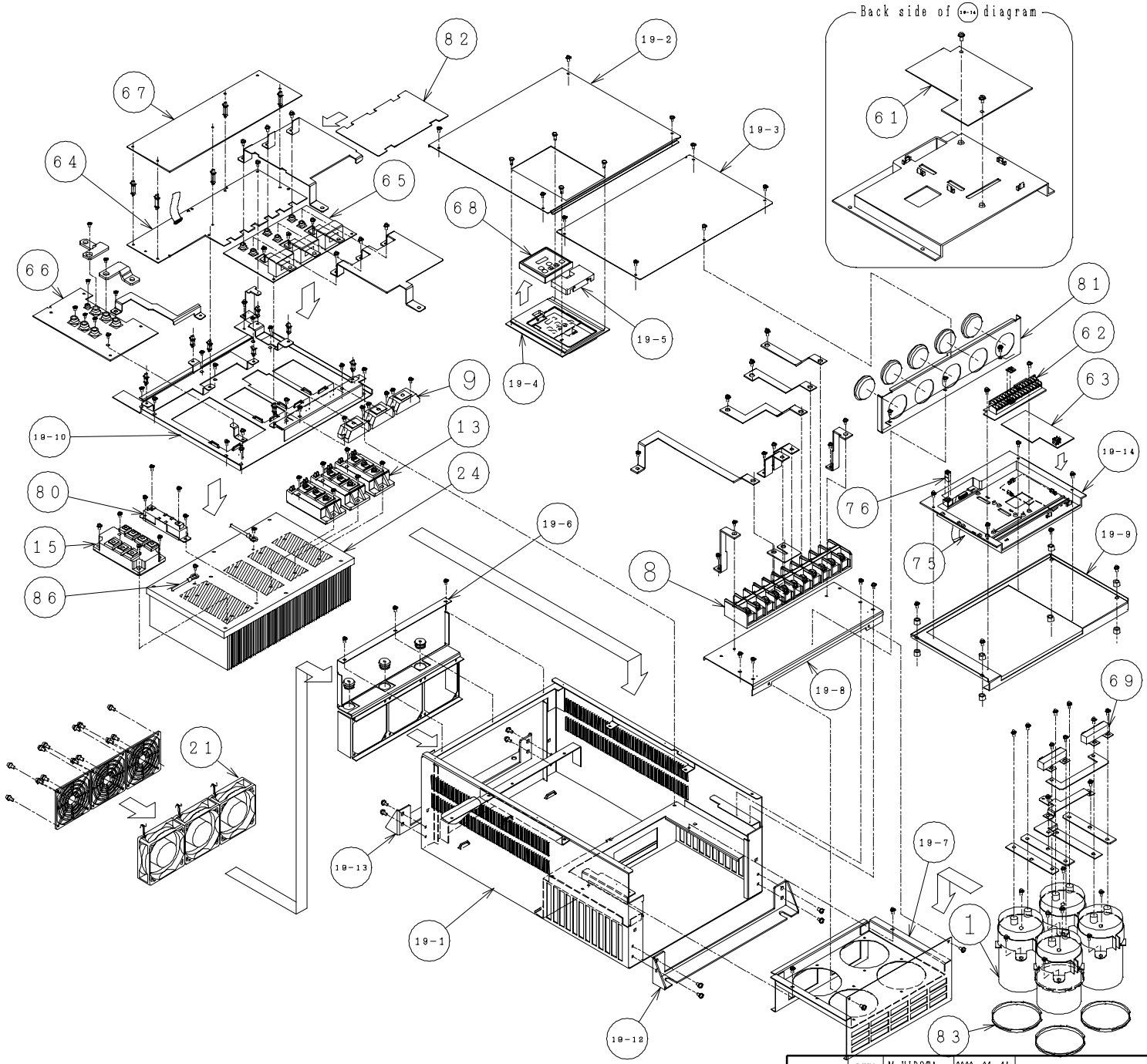

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-4}	CV	Digital operator attachment board	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-9}	PL	Shielding board	1
19_{-10}	PL	Parts attachment board	1
19_{-12}	PL	Attachment board	1
19_{-13}	PL	Attachment board	1
19_{-14}	PL	Control PCB attachment board	1
21	FAN	Cooling fan	3
24	FIN	Heat sink	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRMI	Thermistor	2

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-300LF
Structure diagram

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Tokyo Japan

NARASHINO WORKS DWG. NO.
324 3T823589

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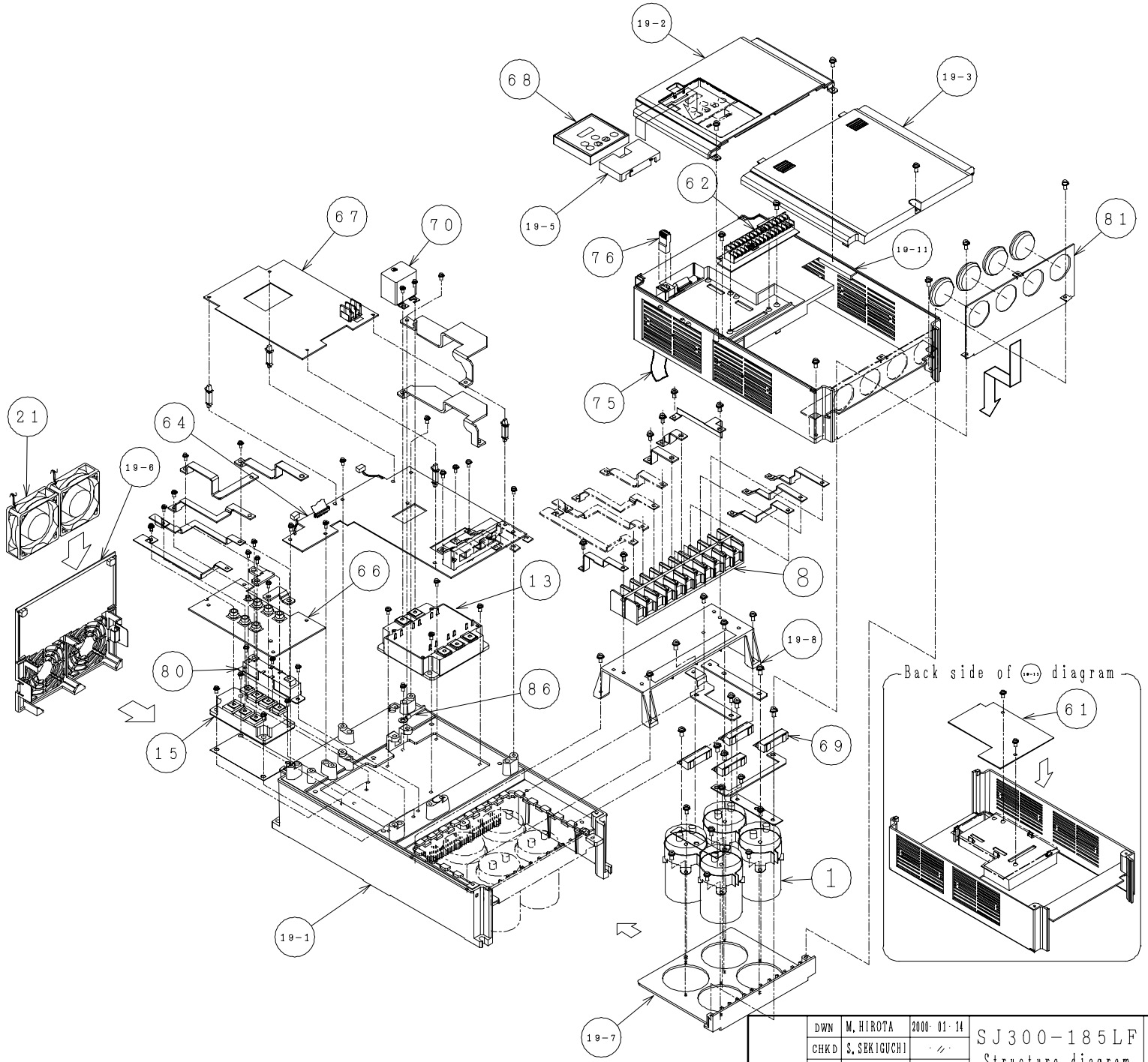


No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T, BLK	Main circuit terminals	1
13	TRS	IGBT module	1
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-11}	CV	Main body cover	1
21	FAN	Cooling fan	2
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
70	CB	Sunbber capacitor	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
86	TRMI	Thermistor	1

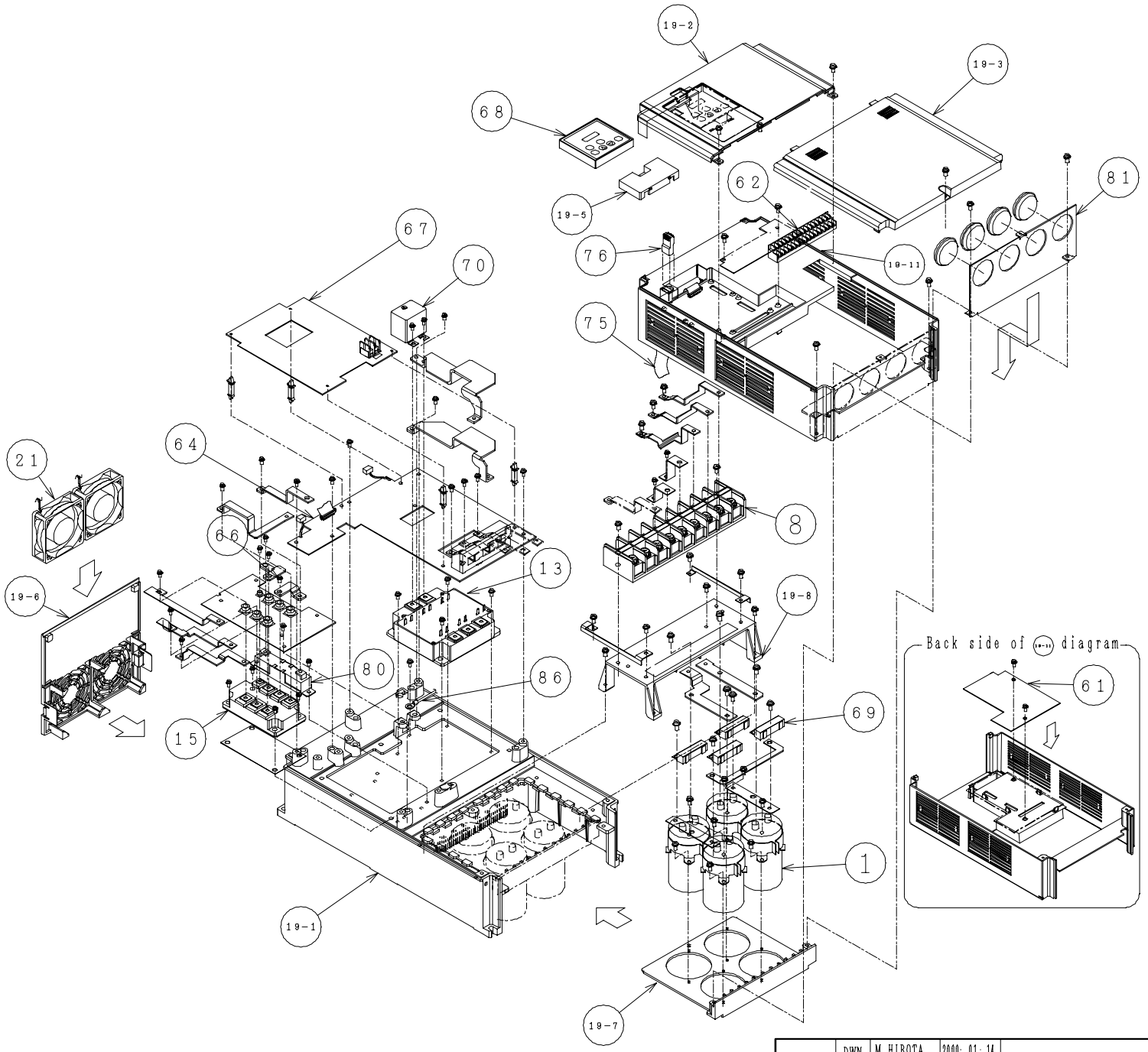
DWN	M. HIROTA	2000-01-14
CHKD	S. SEKIGUCHI	〃
APPD	M. TOKASHIKI	〃

SJ300-185LF
Structure diagram

Hitachi, Ltd.
Tokyo Japan

NARASHINO WORKS DWG, NO.
324 3T823587

REV



No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
13	TRS	IGBT module	1
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-11}	CV	Main body cover	1
21	FAN	Cooling fan	2
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
70	CB	Sunbber capacitor	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
86	TRMI	Thermistor	1

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-220LF
Structure diagram

Hitachi, Ltd.
Tokyo Japan

NARASHINO WORKS DWG. NO.
324 3T823588

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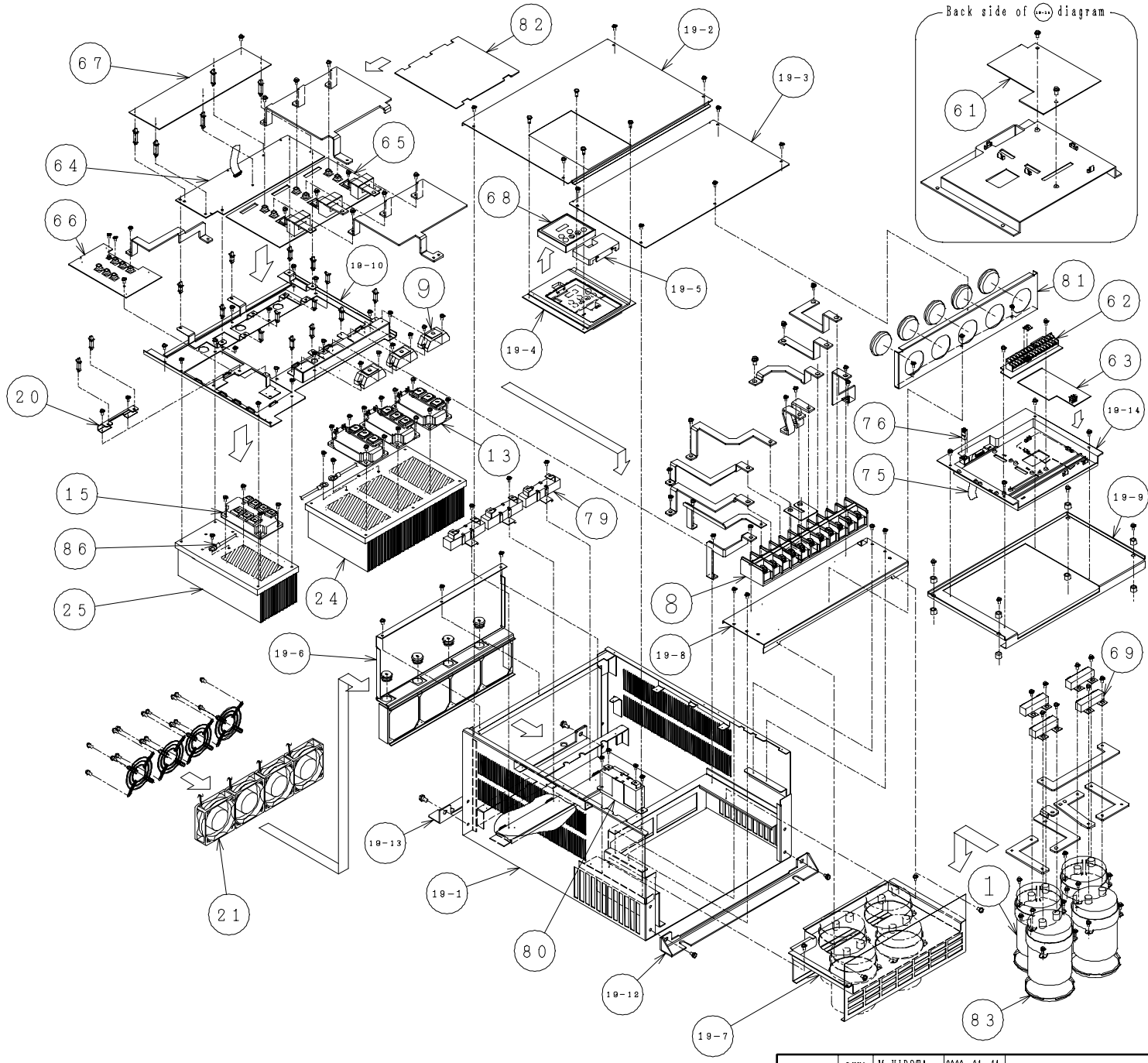

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T. BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-4}	CV	Digital operator attachment board	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-9}	PL	Shielding board	1
19_{-10}	PL	Parts attachment board	1
19_{-12}	PL	Attachment board	1
19_{-13}	PL	Attachment board	1
19_{-14}	PL	Control PCB attachment board	1
20	PL	DM PCB attachment board	1
21	FAN	Cooling fan	4
24	FIN	Heat sink	1
25	FIN	Heat sink	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
79	R1~R3	Snubber resistor	3
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRMI	Thermistor	3

DWN	M. HIROTA	2000-01-14
CHKD	S. SEKIGUCHI	〃
APPD	M. TOKASHIKI	〃

SJ300-450HF
Structure diagram

Hitachi, Ltd.
Tokyo Japan

NARASHINO WORKS DWG. NO.
324 3T823597

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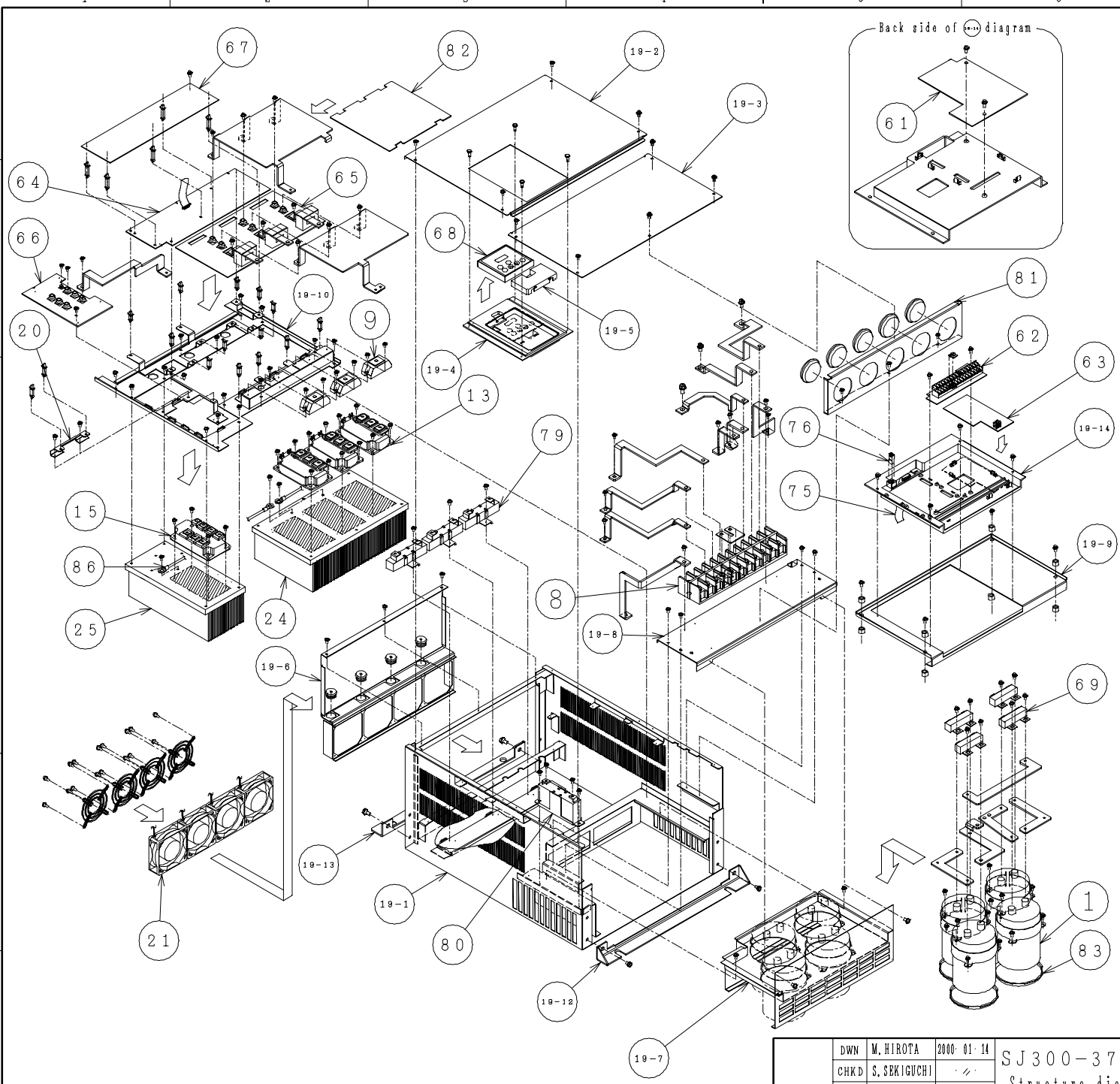

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
15	DM	Diode module	1
19-1	CS	Main body case	1
19-2	CV	Front cover	1
19-3	CV	Terminals cover	1
19-4	CV	Digital operator attachment board	1
19-5	CV	Spacer cover	1
19-6	FUDO	Cooling fan attachment board	1
19-7	PL	DC bus capacitor attachment block	1
19-8	BED	Terminal attachment board	1
19-9	PL	Shielding board	1
19-10	PL	Parts attachment board	1
19-12	PL	Attachment board	1
19-13	PL	Attachment board	1
19-14	PL	Control PCB attachment board	1
20	PL	DM PCB attachment board	1
21	FAN	Cooling fan	4
24	FIN	Heat sink	1
25	FIN	Heat sink	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
79	R1~R3	Snubber resistor	3
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRMI	Thermistor	3

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-370HF
Structure diagram

Hitachi, Ltd.
Tokyo Japan

NARASHINO WORKS DWG. NO.
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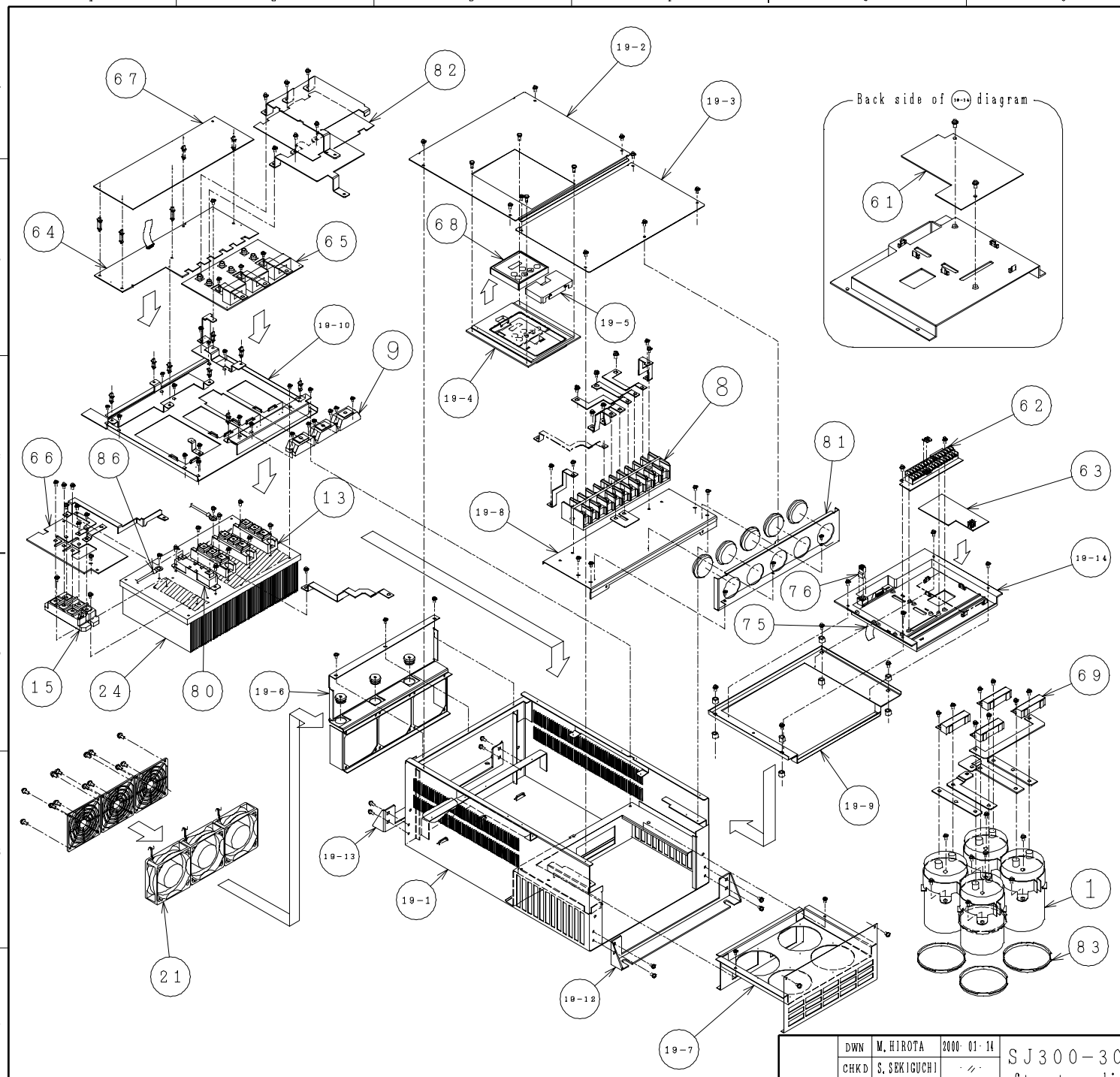

No.	Abbreviation	Name of parts	Quantity for 1 unit
1	CB	DC bus capacitor	4
8	T.BLK	Main circuit terminals	1
9	INS	Insulation terminal	3
13	TRS	IGBT module	3
15	DM	Diode module	1
19_{-1}	CS	Main body case	1
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-4}	CV	Digital operator attachment board	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-8}	BED	Terminal attachment board	1
19_{-9}	PL	Shielding board	1
19_{-10}	PL	Parts attachment board	1
19_{-12}	PL	Attachment board	1
19_{-13}	PL	Attachment board	1
19_{-14}	PL	Control PCB attachment board	1
21	FAN	Cooling fan	3
24	FIN	Heat sink	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
63	PCB	ROTO PCB	1
64	PCB	Main PCB	1
65	PCB	(CT/snubber PCB)	1
66	PCB	DM PCB	1
67	PCB	Power source PCB	1
68	PANEL	Digital operator	1
69	RB	Balance resistor	4
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
80	RS	Current-limiting resistor	1
81	PL	Wiring blind cover	1
82	PL	Busbar insulation board	1
83	SPACER	Spacer	4
86	TRMI	Thermistor	2

DWN	M.HIROTA	2000-01-14
CHKD	S.SEKIGUCHI	〃
APPD	M.TOKASHIKI	〃

SJ300-300HF
Structure diagram

Hitachi, Ltd.
Tokyo Japan

NARASHINO WORKS DWG. NO.
324 3T823595

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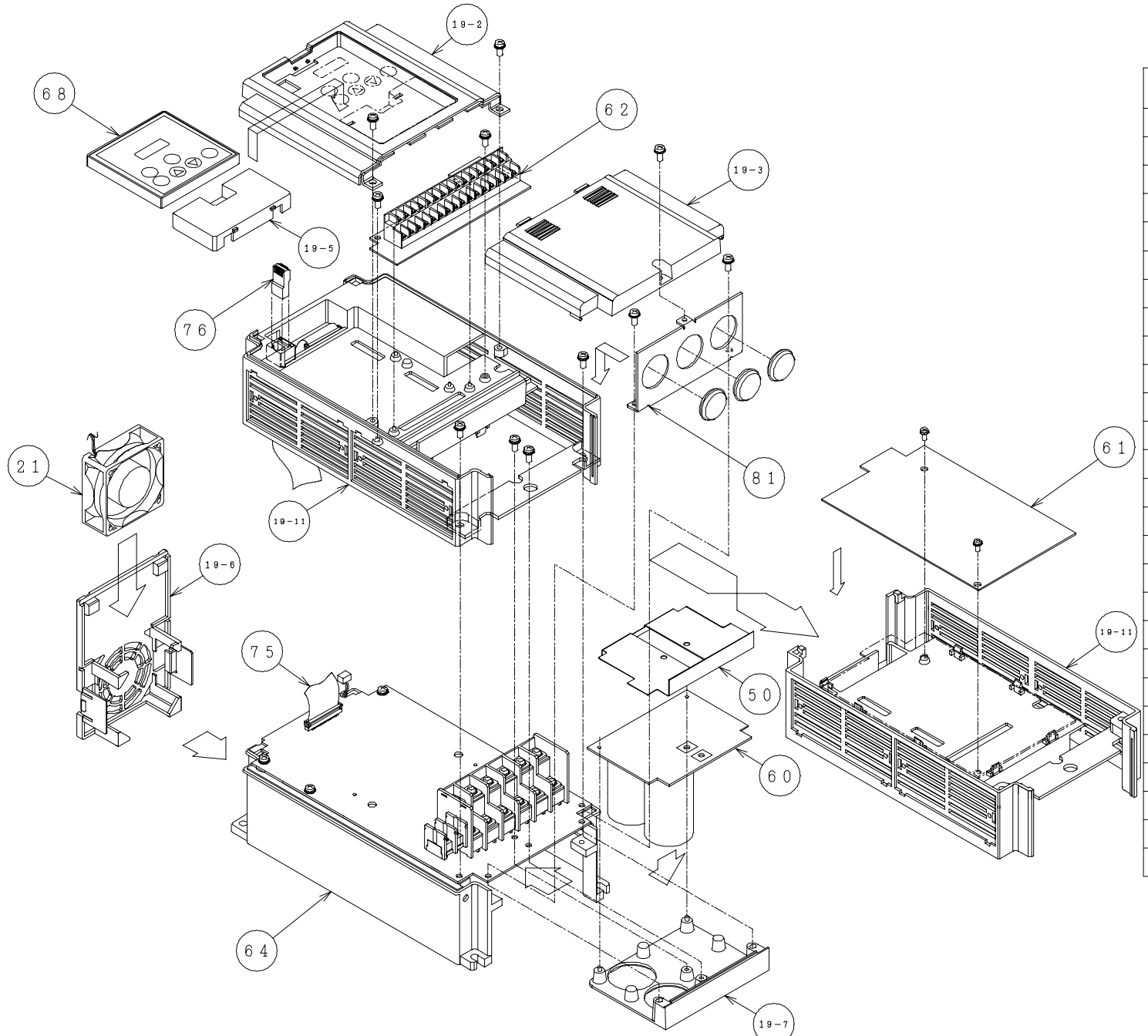

No.	Abbreviation	Name of parts	Quantity for 1 unit
19_{-2}	CV	Front cover	1
19_{-3}	CV	Terminals cover	1
19_{-5}	CV	Spacer cover	1
19_{-6}	FUDO	Cooling fan attachment board	1
19_{-7}	PL	DC bus capacitor attachment block	1
19_{-11}	CV	Main body cover	1
21	FAN	Cooling fan	1
50	INS	Insulation board	1
60	P/SUB	DC bus capacitor PCB	1
61	P/L	Logic PCB	1
62	P/SUB	Control circuit terminals PCB	1
64	PCB	Main PCB with main body case	1
68	PANEL	Digital operator	1
75	WIRE	FFC	1
76	PLUG	Digital operator connection plug	1
81	PL	Wiring blind cover	1

DWN	M. HIROTA	2000-01-14	SJ300-004·007LF/HF Structure diagram
CHKD	S. SEKIGUCHI	-//-	
APPD	M. TOKASHIKI	-//-	

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