



**Electrical Circuit Diagrams  
for  
VTC-200B  
(Mazatrol Fusion 640M)  
Publication # DD557K01004**

9/99

**CAUTION**

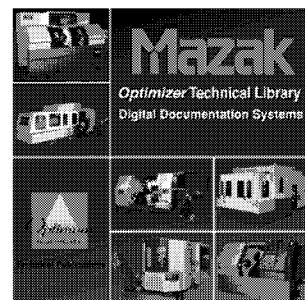
***This Manual is published to assist experienced personnel on the operation, maintenance and/or programming of Mazak machine tools.***

***All Mazak machine tools are engineered with a number of safety devices to protect personnel and equipment from injury or damage. Operators should not, however, rely solely upon these safety devices, but should operate the machine only after fully understanding what special precautions to take by reading the following documentation thoroughly.***

***Do not attempt to operate or perform maintenance / repair on the machine without a thorough understanding of the actions about to be taken. If any question exists, contact the nearest Mazak service center for assistance.***

***Certain covers, doors or safety guards may be open or removed to more clearly show machine components. These items must be in place before operating the machine. Failure to comply with this instruction may result in serious personal injury or damage to the machine tool.***

***This manual was considered complete and accurate at the time of publication, however, due to our desire to constantly improve the quality and specification of all Mazak products, it is subject to change or modification.***



**Notes:**

## SAFETY PRECAUTIONS

The machine is provided with a number of safety devices to protect personnel and equipment from injury and damage. Operators should not, however, rely solely upon these safety devices, but should operate the machine only after fully understanding what special precautions to take by reading the following documentation thoroughly.

### • BASIC OPERATING PRACTICES

#### DANGER:

- 1) Some control panels, transformers, motors, junction boxes and other parts have high voltage terminals. These should not be touched or a severe electric shock may be sustained.
- 2) Do not touch any switches with wet hands. This too, can produce an electric shock.

#### WARNING:

- 1) The emergency stop pushbutton switch location should be well known, so that it can be operated at any time without having to look for it.
- 2) Before replacing a fuse, turn off the main incoming power switch to the machine.
- 3) Provide sufficient working space to avoid hazardous falls.
- 4) Water or oil can make floors slippery and hazardous. All floors should be clean and dry to prevent accidents
- 5) Do not operate any switch without a thorough understanding of the actions about to be taken.
- 6) Avoid accidental operation of switches.
- 7) Work benches near the machine must be strong enough to hold materials placed on them to prevent accidents. Articles should be prevented from slipping off the bench surface.
- 8) If a job is to be done by two or more persons, coordinating signals should be given at each step of the operation. The next step should not be taken unless a signal is given and acknowledged.

#### CAUTION:

- 1) In the event of power failure, turn off the main circuit breaker immediately.
- 2) Use the recommended hydraulic oils, lubricants and grease or acceptable equivalents.
- 3) Replacement fuses should have the proper current ratings.
- 4) Protect the NC unit, operating panel, electric control panel, etc. from shocks, since this could cause a failure or malfunction.
- 5) Do not change parameters or electrical settings. If changes are unavoidable, record the values prior to the change so that they can be returned to their original settings, if necessary.

- 6) Do not deface, scratch or remove any caution plate. Should it become illegible or missing, order another caution plate from the supplier, specifying the part number shown at the lower right corner of the plate.

### • BEFORE POWERING UP

#### DANGER:

Cables, cords or electric wires whose insulation is damaged can produce current leaks and electric shocks. Before using, check their condition.

#### WARNING:

- 1) Be sure the instruction manual and the programming manual are fully understood before operating the machine. Every function and operating procedure should be completely clear.
- 2) Use approved oil resistant safety shoes, safety goggles with side covers, safe clothes, and other safety protection required.
- 3) Close all NC unit, operating panel, electric control panel doors and covers.

#### CAUTION:

- 1) The power cable from the factory feeder switch to the machine main circuit breaker should have a sufficient sectional area to handle the electric power used.
- 2) Cables which must be laid on the floor must be protected from hot chips, by using rigid or other approved conduit, so that short-circuits will not occur.
- 3) Before first time operation of the machine after unpacking it or from being idle for a long period of time (several days or more), each sliding part must be sufficiently lubricated. To do so, push and release the pump button several times until the oil seeps out on the sliding parts. The pump button has a return spring, so do not force it to return.
- 4) Oil reservoirs should be filled to indicated levels. Check and add oil, if needed.
- 5) For lubrication points, oil specification and appropriate levels, see the various instruction plates.
- 6) Switches and levers should operate smoothly. Check that they do.
- 7) When powering the machine on, turn on the switches in the following order: first the factory feeder switch, then the machine main circuit breaker, and then the control power on switch located on the operating panel.
- 8) Check the coolant level, and add coolant, if needed.

## • AFTER CONTROL POWER IS TURNED ON

### CAUTION:

When the control power "ON" switch on the operating panel is on, the "READY" lamp on the operating panel should also be on (check to see that it is).

## • ROUTINE INSPECTIONS

### WARNING:

When checking belt tensions, do not get your fingers caught between the belt and pulley.

### CAUTION:

- 1) Check pressure gages for proper readings.
- 2) Check motors, gear boxes and other parts for abnormal noises.
- 3) Check the motor lubrication, and sliding parts for evidence of proper lubrication.
- 4) Check safety covers and safety devices for proper operation.
- 5) Check belt tensions. Replace any set of belts that have become stretched with a fresh matching set.

## • WARM UP

### CAUTION:

- 1) Warm up the machine, especially the spindle and feed shaft, by running the machine for 10 to 20 minutes at about one-half or one-third the maximum speed in the automatic operation mode.
- 2) The automatic operation program should cause each machine component to operate. At the same time, check their operations.
- 3) Be particularly careful to warm up the spindle which can turn above 4000 rpm.

If the machine is used for actual machining immediately after being started up following a long idle period, the sliding parts may be worn due to the lack of oil. Also, thermal expansion of the machine components can jeopardize machining accuracy. To prevent this condition, always make sure that the machine is warmed up.

## • PREPARATIONS

### WARNING:

- 1) Tooling should conform to the machine specifications, dimensions and types.
- 2) Replace all seriously worn tools with new ones to prevent injuries.
- 3) The work area should be adequately lighted to facilitate safety checks.

- 4) Tools and other items around the machine or equipment should be stored to ensure good footing and clear aisles.

- 5) Do not place tools or any other items on the headstock, turret, covers and similar places (For T/M).

### CAUTION:

- 1) Tool lengths should be within specified tolerances to prevent interference.
- 2) After installing a tool, make a trial run.

## • OPERATION

### WARNING:

- 1) Do not work with long hair that can be caught by the machine. Tie it back, out of the way.
- 2) Do not operate switches with gloves on. This could cause mis-operation.
- 3) Whenever a heavy workpiece must be moved, if there is any risk involved, two or more people should work together.
- 4) Only trained, qualified workers should operate forklift trucks, cranes or similar equipment and apply slings.
- 5) Whenever operating a forklift truck, crane or similar equipment, special care should be taken to prevent collisions and damage to the surroundings.
- 6) Wire ropes or slings should be strong enough to handle the loads to be lifted and should conform to the mandatory provisions.
- 7) Grip workpieces securely.
- 8) Stop the machine before adjusting the coolant nozzle at the tip.
- 9) Never touch a turning workpiece in the spindle with bare hands, or in any other way.
- 10) To remove a workpiece from the machine other than by a pallet changer, stop the tool and provide plenty of distance between the workpiece and the tool (for M/C).
- 11) While a workpiece or tool is turning, do not wipe it off or remove chips with a cloth or by hand. Always stop the machine first and then use a brush and a sweeper.
- 12) Do not operate the machine with the chuck and front safety covers removed (For T/M).
- 13) Use a brush to remove chips from the tool tip, do not use bare hands.
- 14) Stop the machine whenever installing or removing a tool.
- 15) Whenever machining magnesium alloy parts, wear a protective mask.

**CAUTION:**

- 1) During automatic operation, never open the machine door. Machines equipped with the door interlock will set the program to single step.
- 2) When performing heavy-duty machining, carefully prevent chips from being accumulated since hot chips from certain materials can cause a fire.

**• TO INTERRUPT MACHINING****WARNING:**

When leaving the machine temporarily after completing a job, turn off the power switch on the operation panel, and also the main circuit breaker.

**• COMPLETING A JOB****CAUTION:**

- 1) Always clean the machine or equipment. Remove and dispose of chips and clean cover windows, etc.
- 2) Make sure the machine has stopped running, before cleaning.
- 3) Return each machine component to its initial condition.
- 4) Check the wipers for breakage. Replace broken wipers.
- 5) Check the coolant, hydraulic oils and lubricants for contamination. Change them if they are seriously contaminated.
- 6) Check the coolant, hydraulic oil and lubricant levels. Add if necessary.
- 7) Clean the oil pan filter.
- 8) Before leaving the machine at the end of the shift, turn off the power switch on the operating panel, machine main circuit breaker and factory feeder switch in that order.

**• SAFETY DEVICES**

- 1) Front cover, rear cover and coolant cover.
- 2) Chuck barrier, tail barrier and tool barrier (NC software).
- 3) Stored stroke limit (NC software).
- 4) Emergency stop pushbutton switch.

**• MAINTENANCE OPERATION PREPARATIONS**

- 1) Do not proceed to do any maintenance operation unless instructed to do so by the foreman.
- 2) Replacement parts, consumables (packing, oil seals, O rings, bearing, oil and grease, etc.) Should be arranged in advance.
- 3) Prepare preventive maintenance and record maintenance programs.

**CAUTION:**

- 1) Thoroughly read and understand the safety precautions in the instruction manual.
- 2) Thoroughly read the whole maintenance manual and fully understand the principles, construction and precautions involved.

**• MAINTENANCE OPERATION****DANGER:**

- 1) Those not engaged in the maintenance work should not operate the main circuit breaker or the control power "ON" switch on the operating panel. For this purpose, "Do not Touch the Switch, Maintenance Operation in Progress!" or similar warning should be indicated on such switches and at any other appropriate locations. Such indication should be secured by a semi-permanent means in the reading direction.
- 2) With the machine turned on, any maintenance operation can be dangerous. In principle, the main circuit breaker should be turned off throughout the maintenance operation.

**WARNING:**

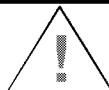
- 1) The electrical maintenance should be done by a qualified person or by others competent to do the job. Keep close contact with the responsible person. Do not proceed alone.
- 2) Overtravel limit and proximity switches and interlock mechanisms including functional parts should not be removed or modified.
- 3) When working at a height, use steps or ladders which are maintained and controlled daily for safety.
- 4) Fuses, cables, etc. made by qualified manufacturers should be employed.

**• BEFORE OPERATION & MAINTENANCE BEGINS****WARNING:**

- 1) Arrange things in order around the section to receive the maintenance, including working environments. Wipe water and oil off parts and provide safe working environments.
- 2) All parts and waste oils should be removed by the operator and placed far enough away from the machine to be safe.

**CAUTION:**

- 1) The maintenance person should check that the machine operates safely.
- 2) Maintenance and inspection data should be recorded and kept for reference.



## WARNING

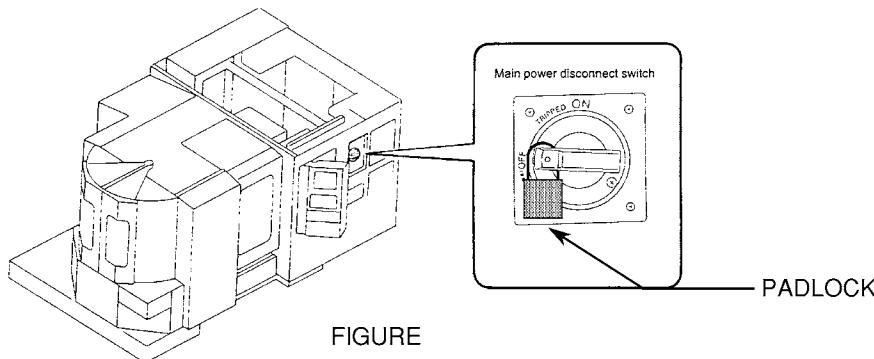
ALWAYS TURN THE MAIN CIRCUIT BREAKER TO THE "OFF" POSITION & USE AN APPROVED LOCKOUT DEVICE WHEN COMPLETING MAINTENANCE OR REPAIRS.

THE LOCKOUT PROCEDURE THAT FOLLOWS IS INTENDED TO SAFEGUARD PERSONNEL & EQUIPMENT DURING MAINTENANCE OPERATIONS, AND, REPRESENTS THE MINIMUM REQUIREMENTS. ANY ACTION SHOULD BE PRECEDED BY A "HAZARD ANALYSIS" TO DETERMINE ANY ADDITIONAL SAFETY PRECAUTIONS THAT MAY BE NECESSARY TO ENSURE THE SAFETY OF PERSONNEL AND EQUIPMENT.

**NOTE:** USE OF THE FOLLOWING LOCKOUT PROCEDURE IS MANDATORY WHEN COMPLETING MAINTENANCE OR REPAIRS.

### LOCKOUT PROCEDURE

- 1) THE LOCKOUT PROCESS MUST BE PERFORMED BY AUTHORIZED PERSONNEL ONLY.
- 2) INFORM ALL EFFECTED PERSONNEL OF YOUR INTENT TO LOCKOUT AND SERVICE THE SPECIFIED MACHINE.
- 3) SHUT OFF MACHINE POWER USING NORMAL SHUT DOWN PROCEDURES.
- 4) TURN OFF THE MACHINE AND INDIVIDUAL BUILDING CIRCUIT BREAKERS. MAKE SURE ALL STORED ELECTRICAL ENERGY IS RELIEVED. (EG: SPINDLE & AXIS SERVO CONTROLLERS)
- 5) CONNECT THE LOCKOUT DEVICE AS SHOWN IN FIGURE 1, AND ATTACH THE APPROPRIATE TAG AT THE MACHINE CIRCUIT BREAKER. THE TAG MUST IDENTIFY THE PERSON RESPONSIBLE FOR THE LOCKOUT. THIS WILL ENSURE THAT POWER CANNOT BE RESTORED BY ANYONE ELSE.
- 6) TEST THE MACHINE TO VERIFY THAT MACHINE SYSTEMS DO NOT OPERATE IN ANY WAY. ONCE TESTING IS COMPLETE, MAKE SURE ALL SWITCHES ARE IN THE "OFF" POSITION. CONFIRM THAT THE LOCKOUT DEVICES REMAIN PROPERLY INSTALLED.
- 7) COMPLETE THE REQUIRED MAINTENANCE OPERATIONS.
- 8) MAKE SURE ALL PERSONNEL ARE CLEAR OF THE MACHINE.
- 9) REMOVE THE LOCKOUT DEVICE. MAKE SURE ALL PERSONNEL ARE AT A SAFE LOCATION BEFORE RESTORING MACHINE POWER.



FIGURE

## INSTALLATION PRECAUTIONS

The following subjects outline the items that directly affect the machine installation and start-up. To ensure an efficient and timely installation, please follow these recommendations before calling to schedule a service engineer.

### • ENVIRONMENTAL REQUIREMENTS

#### Avoid the following places for installing the machine:

- 1) Avoid exposure to direct sunlight and/or near a heat source, etc. Ambient temperature during operation: 0° thru 45°C (32°F to 113°F).
- 2) Avoid areas where the humidity fluctuates greatly and/or if high humidity is present; normally 75% and below in relative humidity. A higher humidity deteriorates insulation and might accelerate the deterioration of parts.
- 3) Avoid areas that are especially dusty and/or where acid fumes, corrosive gases and salt are present.
- 4) Avoid areas of high vibration.
- 5) Avoid soft or weak ground (**minimum load bearing capacity of 1025 lbs./ft<sup>2</sup>**)

### • FOUNDATION REQUIREMENTS

For high machining accuracy, the foundation must be firm and rigid. This is typically accomplished by securely fastening the machine to the foundation with anchor bolts. In addition, the depth of concrete should be as deep as possible (minimum 6 - 8 inches). Note the following:

- 1) There can be no cracks in the foundation concrete or surrounding area.
- 2) Vibration proofing material (such as asphalt) should be put all around the concrete pad.
- 3) Form a "cone" in the foundation for J-bolt anchors, or use expansion anchors.
- 4) With the foundation anchor bolt holes open pour the primary **concrete at a minimum thickness of 6 - 8 inches**. Typically, the concrete must have a **minimum compression rating of 2500 lbs. @ 250 lbs. compression** and strengthened with reinforcing rods. When the concrete has cured, rough level the machine, and install the J-bolts, leveling blocks, etc., and pour grout into foundation bolt holes.
- 5) Mix an anti-shrinkage agent such as Denka CSA with concrete, or use Embeco grout to fill the foundation bolt holes.

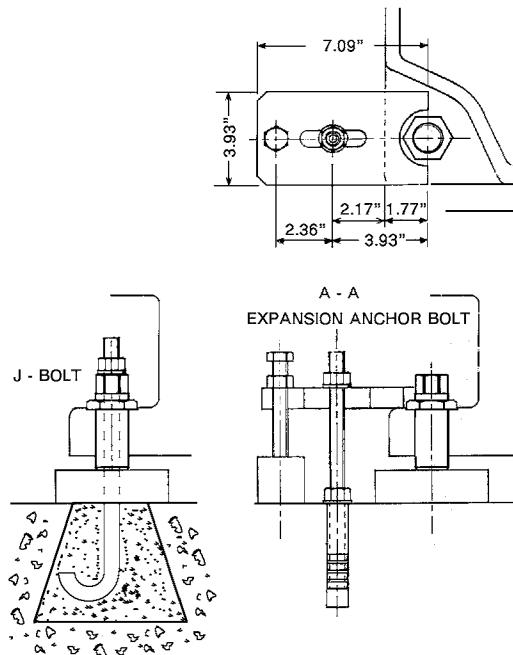
- 6) In pouring grout, fasten the leveling block base plates with the collar retaining screws to prevent the base plates from dropping. When the grout has completely hardened, level the machine properly, and tighten M24 nuts to secure the machine to the foundation.

#### Note:

The machine must be anchored to the foundation with J-bolts, expansion bolts or other suitable method.

The machine accuracy and alignment specifications quoted by Mazak can usually be obtained when the minimum foundation requirements are met. However, production of close tolerance parts requires the use of an appropriate certified foundation. Foundations that do not meet certified specifications may require more frequent machine re-leveling and re-alignment, which can not be provided under terms of warranty.

If any of these conditions cannot be met, contact the nearest Mazak service office immediately.



TYPICAL MACHINE HOLD DOWN OPTIONS

### • WIRING

- 1) Use only electrical conductors with performance ratings equivalent or superior.
- 2) Do not connect any power cables for devices which can cause line noise to the power distribution panel, such as arc welders and high frequency machinery.
- 3) Arrange for a qualified electrician to connect the power lines.
- 4) Incoming supply voltage should not deviate more than  $\pm 10\%$  of specified supply voltage.
- 5) Source frequency should be  $\pm 2$  Hz of nominal frequency.

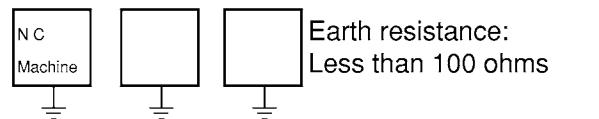
### [ CAUTION ]

**VERIFY THE ACTUAL MACHINE ELECTRICAL POWER REQUIREMENT AND THE MAIN TRANSFORMER RATING (IF APPLICABLE), AS WELL AS THE LOCAL ELECTRICAL CODE BEFORE SIZING AND INSTALLING THE INCOMING POWER WIRING.**  
**PLEASE SEE THE ADDITIONAL CAUTIONS ON THE FOLLOWING PAGE.**

### • GROUNDING

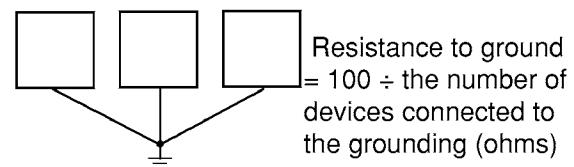
- 1) An isolated earth ground with a resistance to ground of less than 100 ohms is required. Typically, a 5/8" copper rod, 8 feet long, and no more than 5 feet from the machine, is sufficient. Building grounds or multiple machines grounded to the same ground rod, are not acceptable.
- 2) The wire size should be greater than AWG (American Wire Gauge) No. 5 and SWG (British Legal Standard Wire Gauge) No. 6.

Desirable Independent Grounding:



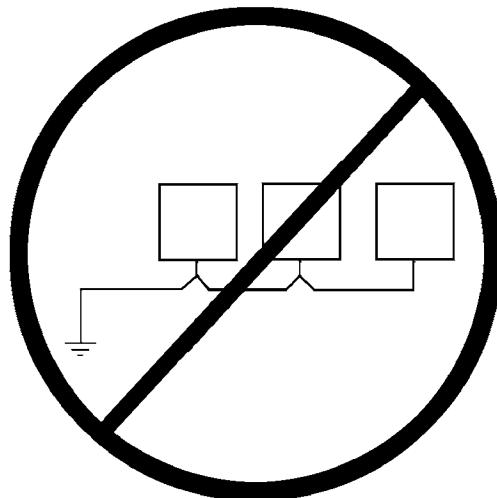
Earth resistance:  
Less than 100 ohms

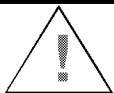
Common Grounds:



Resistance to ground  
 $= 100 \div \text{the number of devices connected to the grounding (ohms)}$

**Note: Never ground equipment as shown below:**



**CAUTION**

A step-down transformer is optional on some machine models. Be certain to verify the transformer Kva rating (where applicable), as well as local electrical code requirements before sizing and installing the incoming power wiring.

Machines not equipped with a main transformer are wired for 230 VAC, 3 phase. The end user must supply a step-down transformer where factory electrical power varies more than  $\pm 10\%$  of the 230 VAC rating.

**NOTE:**

Step-down or voltage regulating transformers are external (peripheral) to the machine tool and are considered the primary input line (source) for the machine. Local electrical code or practice may require a circuit breaker or other switching device for the isolation of electrical power when this type of transformer is used. In such cases, the machine tool end user is required to supply the necessary circuit breaker or switching device.

***FAILURE TO COMPLY CAN RESULT IN PERSONAL INJURY AND DAMAGE TO THE MACHINE. IF ANY QUESTION EXISTS, CONTACT THE NEAREST MAZAK SERVICE CENTER FOR ASSISTANCE.***

**WARNING**

MAZATROL CNC CONTROLLERS PROVIDE PARAMETER SETTINGS TO LIMIT SPINDLE RPM. THESE SETTINGS ARE BASED ON THE MAXIMUM SPEED SPECIFIED BY THE CHUCK/ACTUATOR MANUFACTURER.

MAKE SURE TO SET THESE PARAMETERS ACCORDING TO CHUCK SPECIFICATION WHEN INSTALLING A CHUCKING PACKAGE. ALSO, STAMP THE MAXIMUM SPINDLE RPM ON THE CHUCK IDENTIFICATION PLATE LOCATED ON THE MACHINE TOOL COVERS.

*REFERENCE THE CNC PARAMETER MANUAL SUPPLIED WITH THE SPECIFIC MACHINE TOOL TO IDENTIFY THE REQUIRED PARAMETERS TO CHANGE.*

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE MACHINE, SERIOUS INJURY OR DEATH.**

IF ANY QUESTIONS EXIST, CONTACT THE NEAREST MAZAK SERVICE CENTER FOR ASSISTANCE.

**WARNING**

MAZAK MACHINES ARE ENGINEERED WITH A NUMBER OF SAFETY DEVICES TO PROTECT PERSONNEL AND EQUIPMENT FROM INJURY AND DAMAGE.

**DO NOT REMOVE, DISCONNECT, BYPASS OR MODIFY ANY LIMIT SWITCH, INTERLOCK, COVER, OR OTHER SAFETY FEATURE IN ANY WAY, EITHER MECHANICALLY OR ELECTRICALLY.**

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE MACHINE, SERIOUS INJURY OR DEATH.**

IF ANY QUESTIONS EXIST, CONTACT THE NEAREST MAZAK SERVICE CENTER FOR ASSISTANCE.

**WARNING**

MAZAK MACHINES ARE ENGINEERED WITH A NUMBER OF SAFETY DEVICES TO PROTECT PERSONNEL AND EQUIPMENT FROM INJURY AND DAMAGE.

**MACHINE OPERATOR DOORS AND COVERS ARE DESIGNED TO WITHSTAND ACCIDENTAL IMPACT OF A BROKEN INSERT WHERE A MAXIMUM WEIGHT INSERT AT MAXIMUM TOOL DIAMETER IS RUNNING AT MAXIMUM SPINDLE RPM**

**NEVER USE A CUTTING TOOL OR TOOL INSERT THAT EXCEEDS MACHINE SPECIFICATIONS OR THAT OF A SPECIFIC TOOL HOLDER ITSELF, WHICHEVER IS LESS. THIS RESTRICTION APPLIES TO DIAMETER, WEIGHT, MAXIMUM SPINDLE RPM, MAXIMUM CUTTING TOOL ROTATION SPEED, ETC.**

**FOR COMPLETE SPECIFICATIONS, MAKE SURE TO REFERENCE OPERATION, MAINTENANCE AND DETAIL SPECIFICATION DOCUMENTATION SUPPLIED WITH THE MACHINE AND BY THE TOOLING MANUFACTURER.**

**NOTE: THE MAXIMUM INSERT WEIGHT FOR MAZAK MACHINES IS 20 gf. (0.04 lbs.).**

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE MACHINE, SERIOUS INJURY OR DEATH.**

**IF ANY QUESTIONS EXIST, CONTACT THE NEAREST MAZAK SERVICE CENTER FOR ASSISTANCE.**

**WARNING**

BEFORE STARTING OPERATION, CHECK THAT THE WORKPIECE IS SECURELY MOUNTED IN A VISE OR A SUITABLE FIXTURE. BE CERTAIN THAT THE MOUNTING IS SUFFICIENT TO WITHSTAND CUTTING FORCES DURING WORKPIECE MACHINING.

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE MACHINE, SERIOUS INJURY OR DEATH.**

IF ANY QUESTIONS EXIST, CONTACT THE NEAREST MAZAK SERVICE CENTER FOR ASSISTANCE.

**WARNING**

CONFIRM PROPER WORKPIECE FIXTURING/CLAMPING, TOOL SETUP AND THAT THE MACHINE DOOR IS SECURELY CLOSED BEFORE THE START OF MACHINING.

VERIFY ALL SAFETY PRECAUTIONS OUTLINED IN THIS MANUAL BEFORE USING THE FOLLOWING CUTTING CONDITIONS:

- CUTTING CONDITIONS THAT ARE THE RESULT OF THE MAZATROL FUSION 640 AUTOMATIC CUTTING DETERMINATION FUNCTION
- CUTTING CONDITIONS SUGGESTED BY THE MACHINING NAVAGATION FUNCTION
- CUTTING CONDITIONS FOR TOOLS THAT ARE SUGGESTED TO BE USED BY THE MACHINING NAVAGATION FUNCTION

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE MACHINE, SERIOUS INJURY OR DEATH.**

IF ANY QUESTIONS EXIST, CONTACT THE NEAREST MAZAK SERVICE CENTER FOR ASSISTANCE.

# MACHINE DOCUMENTATION CUSTOMER EVALUATION



The Other Thoroughbred From Kentucky

Your opinion is important to enable us to issue documentation that will fit your needs.  
Thank you for taking the time to supply this information.

Date: \_\_\_\_\_

Machine Type: \_\_\_\_\_ Machine Serial#: \_\_\_\_\_ NC Type: \_\_\_\_\_

Customer: \_\_\_\_\_ Reported By: \_\_\_\_\_

Address: \_\_\_\_\_ Position: \_\_\_\_\_

Telephone#: \_\_\_\_\_

Manual Publication #: \_\_\_\_\_ Excellent Good Adequate Fair Poor

**How well is the documentation suited to your needs?**

**Were you able to find the necessary information easily?**

**How well are the manuals organized?**

**How easy are the manuals to understand?**

**Are the illustrations helpful?**

**Overall, how do you rate the documentation?**

**What did you like about the documentation? How can it be improved?**

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RETURN TO: MAZAK Corporation  
Technical Publication Dept.  
8025 Production Drive  
Florence, Kentucky 41042



**Notes:**

# ELEMENTARY DIAGRAM LIST

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SET No.: DD 557K01004

No.	ITEM	SPECIFICATION
1	MACHINE TYPE	VTC-160A/B/200B/250B
2	MACHINE No.	557
3	CNC TYPE	M640
4	SPINDLE TYPE	SJ-VKS15-06ZM
5	PLC ROM No.	557KA_ _ _
6	AUX. 1 ROM No.	
7	AUX. 2 ROM No.	
8		

Drawn By: J. BRYANT

Checked By: M. HOTTA

Approved By:

Remarks

Option

GEARBOX OPTION

#50 30HP SPDL OPTION SJ-VS26-01M

No.	DRAWING NUMBER	TITLE
1	557K01100001	PARAMETER LIST (1)
2	557K01100010	PARAMETER LIST (2)
3	557K01100022	PARAMETER LIST (3)
4	557K01100031	PARAMETER LIST (4)
5	557K01100041	PARAMETER LIST (5)
6	557K01100051	PARAMETER LIST (6)
7	557K01100061	PARAMETER LIST (7)
8	557K01100070	PARAMETER LIST (8)
9	557K01100080	PARAMETER LIST (9)
10	557K01100090	PARAMETER LIST (10)
11	557K01100100	PARAMETER LIST (11)
12	557K01100110	PARAMETER LIST (12)
13	557K01300010	COMPONENTS LAYOUT 1
14	557K01300020	COMPONENTS LAYOUT 2
15	557K01300032	COMPONENTS LAYOUT 3
16	557K01300042	COMPONENTS LAYOUT 4
17	557K01300050	COMPONENTS LAYOUT 5
18	557K01302000	CONNECTION SYSTEM DIAGRAM (1)
19	557K01302101	CONNECTION SYSTEM DIAGRAM (2)
20	557K01302200	CONNECTION SYSTEM DIAGRAM (3)
21	557K01302300	CONNECTION SYSTEM DIAGRAM (4)
22	557K01302501	CONNECTION DIAGRAM (NC)
23	557K01302601	CONTROL CABINET CONNECTION DIAGRAM
24	557K01302700	CONTROL CABINET CONNECTION DIAGRAM
25	557K01303001	POWER LINE (1) CONNECTION DIAGRAM

## ELEMENTARY DIAGRAM LIST

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SET No.: DD557K01004

No.	DRAWING NUMBER	TITLE
26	557K01303102	POWER LINE (2) CONNECTION DIAGRAM
27	557K01304001	ELECTRIC CABINET CABLE BOX LAYOUT
28	557K01304102	JB51 BOX (COLUMN) LAYOUT
29	557K01304201	JB51 BOX (COLUMN) REMOTE I/O (AP20)
30	557K01304302	JB52 BOX (HEAD) LAYOUT
31	557K01304402	JB52 BOX (HEAD) REMOTE I/O (AP21)
32	557K01304500	REAR TOP CABLE LAYOUT
33	557K01304600	REAR BOTTOM CABLE LAYOUT
34	557K01304701	LEFT TOP CABLE LAYOUT
35	557K01304800	LEFT BOTTOM CABLE LAYOUT
36	557K01304901	TOP PLATE CABLE LAYOUT
37	557K01400112	MAIN TRANSFORMER
38	557K01400200	BREAKER TRIP (CABINET DOOR)
39	557K01400402	LINE POWER SUPPLY AC200V LINE
40	557K01400501	LINE POWER SUPPLY
41	557K01400602	LINE POWER SUPPLY AC100V LINE
42	557K01400632	WORK LIGHT
43	557K01400701	REMOTE I/O UNIT
44	557K01400800	MR-J2 MAGAZINE BUS
45	557K01400810	MR-J2 ATC ARM BUS
46	557K01401001	SPINDLE DRIVE (1) (10000rpm)
47	557K01401011	SPINDLE DRIVE (2) (10000rpm)
48	557K01401021	SPINDLE DRIVE (3) (10000rpm)
49	557K01401032	SPINDLE 20HP (STANDARD)
50	557K01401040	SPINDLE 30HP (OPTION)
51	557K01401101	X AXIS SERVO MOTOR
52	557K01401150	X AXIS SERVO MOTOR #50 TAPER (OPTION)
53	557K01401202	Y AXIS SERVO MOTOR
54	557K01401302	Z AXIS SERVO MOTOR
55	557K01401311	Z AXIS BRAKE
56	557K01401350	Z AXIS SERVO MOTOR #50 TAPER (OPTION)
57	557K01401801	MAGAZINE SERVO MOTOR
58	557K01401811	MAGAZINE
59	557K01401901	ATC SERVO MOTOR
60	557K01401910	ATC

## ELEMENTARY DIAGRAM LIST

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SET No. : DD 557K01004

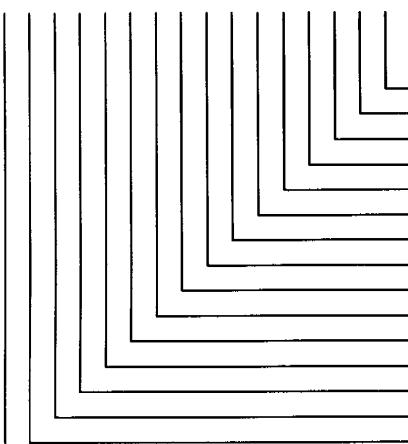
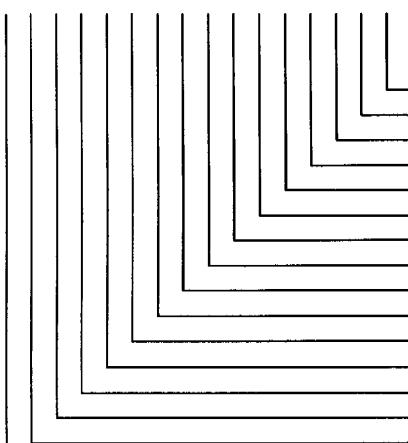
No.	DRAWING NUMBER	TITLE
61	557K01402502	FLOOD COOLANT
62	557K01402901	CHIP CONVEYOR (TYPE 1 OPTION)
63	557K01402910	CHIP CONVEYOR (TYPE 1 OPTION)
64	557K01402920	CHIP CONVEYOR (TYPE 2 OPTION)
65	557K01403002	HYDRAULIC PUMP MOTOR
66	557K01403302	HEAD COOLING FAN, HEAD LUBE PUMP, & GEARBOX PUMP MOTORS
67	557K01403400	WAY LUBE PUMP
68	557K01403502	TOOL LENGTH MEASURE
69	557K01403701	THERMAL TRIP
70	557K01404000	OPERATING PANEL
71	557K01404100	OPERATING PANEL
72	557K01404201	OPERATING PANEL
73	557K01404301	OPERATING PANEL
74	557K01404400	OPERATING PANEL
75	557K01404501	OPERATING PANEL AC OUTLET/RS232C I/F
76	557K01405050	EMERGENCY STOP (1)
77	557K01405151	MAGAZINE DOOR SAFTEY (1)
78	557K01410001	MMS UNIT 1/2 (OPTION)
79	557K01410010	MMS UNIT 2/2 (OPTION)
80	557K01410100	REVOLVING LIGHT (+24V) (OPTION)
81	557K01411100	SHOW LIGHT(OPTION)
82	557K01411200	M CODE INTERFACE(OPTION)
83	557K01411300	NC ROTARY TABLE SERVO
84	557K01411311	NC ROTARY TABLE I/O INTERFACE
85	557K01413000	AUTO POWER OFF/ON (1) (OPTION)
86	557K01414000	GEAR BOX OPTION
87	557K01420000	SPARE INPUT (1)
88	557K01420011	SPARE INPUT (2)
89	557K01420101	SPARE OUTPUT (1)
90	557K01420111	DOOR LOCK CIRCUIT OUTPUTS
91	557K01420120	SPARE OUTPUT (3)
92	557K01500101	ELECTRIC CABINET LAYOUT
93	557K01500111	ELECTRIC CABINET PARTS LIST
94	557K01500201	POWER PANEL LAYOUT
95	557K01500211	POWER PANEL PARTS LIST

## ELEMENTARY DIAGRAM LIST

PAGE 4/4

SET No. : DD 557K01004

No.	DRAWING NUMBER	TITLE
96	557K01500600	AP1 BASE I/O UNIT LAYOUT
97	557K01500700	AP2 T.U LAYOUT
98	557K01500710	AP2 T.U DIAGRAM (1)
99	557K01500720	AP2 T.U DIAGRAM (2)
100	557K01500730	AP2 T.U DIAGRAM (3)
101	557K01500740	AP2 T.U DIAGRAM (4)
102	557K01500750	AP2 T.U DIAGRAM (5)
103	557K01500760	AP2 T.U DIAGRAM (6)
104	557K01500770	AP2 T.U DIAGRAM (7)
104	557K01500780	AP2 T.U DIAGRAM (8)
106	557K01500790	AP2 T.U DIAGRAM (9)
107	557K01500801	AP2 T.U CONNECTION DIAGRAM 1
108	557K01500811	AP2 T.U CONNECTION DIAGRAM 2
109	557K01500820	AP2 T.U CONNECTION DIAGRAM 3
110	557K01500830	AP2 T.U CONNECTION DIAGRAM 4
111	557K01500840	AP2 T.U CONNECTION DIAGRAM 5
112	557K01700100	OPERATING PANEL LAYOUT & PARTS LIST
113	557K01700200	OPERATING PANEL PCB LAYOUT
114	557K01700210	OPERATING PANEL BOTTOM VIEW
115	557K01700301	MAG. PANEL (JB62)
116		
117		
118		
119		
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129		
130		

LINE	2	3	4	5	6	7	8	9	10	
1	PLC SEQUENCE PARAMETER TABLE									
2	R 2100									
3	8 4 2 1 8 4 2 1 8 4 2 1 CODE F E D C B A 9 8 7 6 5 4 3 2 1 0 bit No.									
4										
5										
6	M1000	TYPE OF TABLE	1: NC ROTARY TABLE	0: INDEX TABLE	A					
7	M1001	TYPE OF TABLE FINISH	1: FIN	0: 1 SEC PULSE						
8	M1002	INDEX TABLE TYPE	1: ERICSON	0: NIKKEN						
9	M1003	ENDMILL FOR TOOL LENGTH MEASURE	1: AVAILABLE	0: DISAVAILABLE						
10	M1004	{ TYPE OF FEEDBACK X }	1: ABSOLUTE	0: INCREMENTAL						
11	M1005	{ TYPE OF FEEDBACK Y }	1: ABSOLUTE	0: INCREMENTAL	B					
12	M1006	{ TYPE OF FEEDBACK Z }	1: ABSOLUTE	0: INCREMENTAL						
13	M1007	{ TYPE OF FEEDBACK 4 }	1: ABSOLUTE	0: INCREMENTAL	C					
14	M1008		1: ABSOLUTE	0: INCREMENTAL						
15	M1009	} MAGAZINE MAX TOOL NUMBER {NOTE 1}								
16	M1010									
17	M1011	{ ATC TOOL DETECTOR	1: DISAVAILABLE	0: AVAILABLE						
18	M1012	AXIS MOVE AT ATC BY PLC(EIA/ISO)	1: AUTO(PLC)	0: PROGRAM						
19	M1013	} DEFINITION OF 'T**' OF 'M06T**' {NOTE 2}			D					
20	M1014									
21	M1015	AXIS MOVE AT ATC BY PLC{NOTE1}	1: ONLY PROGRAM	0: BY PLC						
22										
23	R 2101									
24	8 4 2 1 8 4 2 1 8 4 2 1 CODE F E D C B A 9 8 7 6 5 4 3 2 1 0 bit No.									
25										
26										
27	<NOTE>									
28	<NOTE1> MAGAZINE MAX TOOL NUMBER									
29	R2100	NUMBER OF TOOLS	24	30	48	60				
30		M1008	0	1	0	1				
31		M1009	0	0	1	1				
32		M1010	0	0	0	0				
33	&									
34	<NOTE 2>									
35										
					CHK'D BY	DRWN BY	TITLE	PARAMETER LIST (1)		
					3-3-99	3-3-99				
					M. HOTTA	J. BRYANT		DRWN NO. 557K01100001		
	ADDED PARAMETER DATA FOR 48 & 60 TOOL MAGAZINE 11/16/99 JB									

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LINE	1	2	3	4	5	6	7	8	9	10
1										
2										
3	R 2104									A
4	8 4 2 1 8 4 2 1 8 4 2 1 8 4 2 1 CODE									
5	F E D C B A 9 8 7 6 5 4 3 2 1 0 bit No.									
6	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □									B
7	M1064 MACHINE TYPE VTC-200B/200C/300C 1: VTC300C/200C									C
8	M1065									D
9	M1066 5 AXIS	1: AVAILABLE								E
10	M1067									F
11	M1068 (AUX, HEAD)	1: VALID								G
12	M1069									H
13	M1070 CANCEL ERROR DETECT AT RESET	1: VALID								I
14	M1071 SUPER FLOW COOLANT	1: VALID								J
15	M1072 EXTERNAL FIN.	1: OFF								K
16	M1073									
17	M1074 PENDANT BOX TYPE	1: OLD-EUCHNER								
18	M1075 ENABLE GEAR SHIFT	1: VALID								
19	M1076 30HP SPINDLE MOTOR	1: VALID								
20	M1077 #50 TAPER	1: VALID								
21	M1078 UNCLAMP TIMER	1: VALID								
22	M1079									
23	M1080 CANCEL SPINDLE RUN AFTER ATC(EIA/ISO)	1: VALID								
24	M1081 WAIT CUTTING FEED TILL SP. UP TO SPEED	1: VALID								
25	M1082									
26	M1083									
27	M1084 RESTART SPINDLE RUN AFTER ATC(MAZATROL)	1: VALID								
28	M1085 EIA TOOL LIFE AT MDI	1: AVAILABLE	0: DISAVAILABLE							
29	M1086 YME (YME OR YMC) DOOR INTERLOCK	1: YMC	0: YME (A TYPE)							
30	M1087 COVER COOLANT	1: AVAILABLE	0: DISAVAILABLE							
31	M1088 YME LEVEL C, D, E	1: VALID	0: INVALID							
32	M1089									
33	M1090 (DATA SERVER MODE SELECT)		1: DIRECT DRIVE 0: SUB-PRO DRIVE							
34	M1091									
35	M1092									
	M1093									
	M1094 MAGAZINE/ATC HOME RETURN	1: VALID	0: INVALID							
	M1095 AUTO POWER OFF	1: VALID	0: INVALID							
	▲									
	▲									
	▲									
	▲ MODIFIED PARAMETERS M1064, M1071, M1074, M1075, M1076 & M1095 11/12/99 JB									
	▲ ADDED MACHINE TYPE PARAMETER FOR VTC200C/300C 5/14/99 J.B.									
	YANAZAKI MAZAK CORPORATION	CHK'D BY 2-9-99 M. HOTTA	DRWN BY 2-9-99 J. BRYANT	TITLE PARAMETER LIST (3) DRWN NO. 557K01100022						

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1 2 3 4 5 6 7 8 9 10

LINE

1

## PLC SEQUENCE PARAMETER TABLE

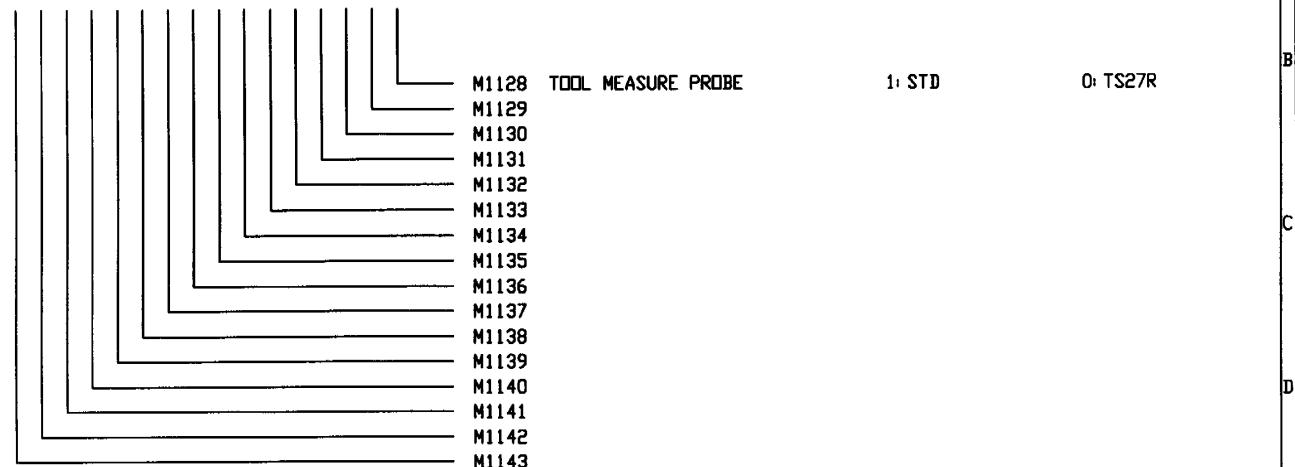
2

R 2106

3

8 4 2 1 8 4 2 1 8 4 2 1 8 4 2 1 CODE  
 F E D C B A 9 8 7 6 5 4 3 2 1 0 bit No.  
 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

4



5

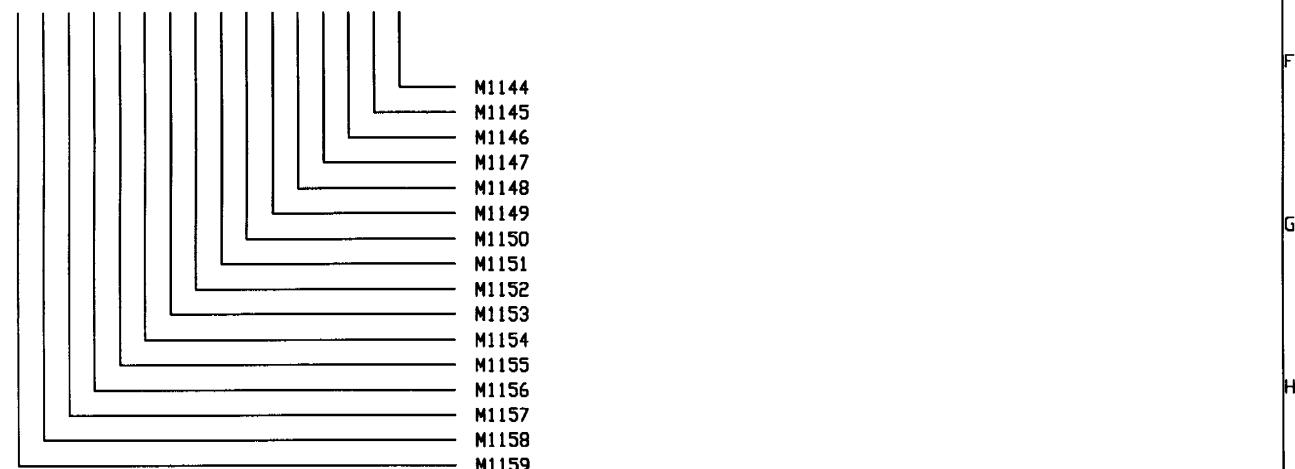
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R 2107

7

8 4 2 1 8 4 2 1 8 4 2 1 8 4 2 1 CODE  
 F E D C B A 9 8 7 6 5 4 3 2 1 0 bit No.  
 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

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A	CHK'D BY	DRWN BY	TITLE
△	2-9-99	2-9-99	PARAMETER LIST(4)
△	M. HOTTA	J. BRYANT	DRWN NO. 557K01100031
△			
△			

△ ADDED PARAMETER FOR TOOL MEASURE PROBE 3/3/00 J. B.

**Mazak**  
 YANAZAKI MAZAK CORPORATION

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PED-ELD001

LINE	1	2	3	4	5	6	7	8	9	10
1										
2										
3		R 2108								A
4	8	4	2	1	8	4	2	1	8	4
5	F	E	D	C	B	A	9	8	7	6
6	□	□	□	□	□	□	5	4	3	2
7	□	□	□	□	□	□	1	0		
8										
9										
10										
11										
12										
13										
14										
15										
16										
17	R 2109									E
18	8	4	2	1	8	4	2	1	8	4
19	F	E	D	C	B	A	9	8	7	6
20	□	□	□	□	□	□	5	4	3	2
21	□	□	□	□	□	□	1	0		
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
△										I
△										J
△										K
△										
△	ADDED INVERTER CHIP CONVEYOR PARAMETER R2108 bit 4 3/9/99 J.B.									
CHK'D BY		DRWN BY	TITLE							
	2-9-99	2-9-99	PARAMETER LIST (5)							
M. HOTTA		J. BRYANT	DRWN NO.	557K01100041						

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1 2 3 4 5 6 7 8 9 10

LINE

## PLC DATA (SHORT TYPE) PARAMETER

ADDRESS	COMMENT		STANDARD
R 2110	RO VALUE (RAPID TRAVERSE SPEED %)	%	6
1	R1 VALUE (RAPID TRAVERSE SPEED %)	%	12
2	R2 VALUE (RAPID TRAVERSE SPEED %)	%	25
3	SPINDLE JOG VALUE (SPINDLE JOG SPEED RPM)	rpm	50
4	(SPINDLE SPEED AT CLEANING TOOL ON)	rpm	22
5	(SPINDLE CLEANING TOOL No.)		0
6	MULTIPLICATION OF M,P,G INTERRUPTION		0
7	(WARM UP WORK NO. 1~9999)		0
8			
9			
R 2120			
1			
2			
3	(TOOL ID)		
4			
5	(TOOL ID)		
6			
7	(LEVEL C (MANUAL SPINDLE R.P.M UP LIMIT AT DOOR OPEN))		500
8			
9			
R 2130	PLC SW. & ALARM DISPLAY (LANGUAGE CODE)		0
1	CHIP CONVEYOR -- AMOUNT OF TIME CONVEYOR GOES REVERSE AFTER OVERLOAD (T100)	0.1s	1000
2	CHIP CONVEYOR -- AMOUNT OF TIME CONVEYOR GOES FORWARD AFTER OVERLOAD (T101)	0.1s	3000
3	CHIP CONVEYOR -- SET VALUE OF TIMES CONVEYOR GOES REVERSE BEFORE SHUTDOWN		3
4	DOOR UNLOCK ON TIME	0.1s	50
5			
6	(PALLET ID)		
7	HIGH GEAR WINDING RANGE SHIFT (OPTION)		100
8	HIGH GEAR WINDING RPM SHIFT (OPTION)		2420
9	(PALLET ID)		
R 2140	SPINDLE MOTOR COILING CHANGE SPEED (RPM) (D238) STD		SEE NOTE
1	SPINDLE MOTOR COILING CHANGE SPEED SENSITIVE BAND (RPM) STD		SEE NOTE
2			
3			
4			
5	SPINDLE SPEED ARRIVAL M-CODE CHANGE (M160)	%	0
6	SPINDLE SPEED ARRIVAL M-CODE CHANGE (M161)	%	30
7	SPINDLE SPEED ARRIVAL M-CODE CHANGE (M162)	%	50
8			
9			

&lt;NOTE&gt;

R 2116 O: \* 1      R 2140 STD#40: 2420      R 2141 STD#40: 100  
 1: \* 10            DPT#50: 605            OPT#50: 25  
 2: \*100

CHK'D BY	DRWN BY	TITLE
2 - 8-99	2 - 8-99	PARAMETER LIST (6)
M. HOTTA	J. BRYANT	DRWN NO. 557K01100051

△ ADDED DOOR UNLOCK TIMER &amp; GEARBOX PARAMETER 1/24/00 JB

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PED-ELD001

2 3 4 5 6 7 8 9 10

## PLC DATA (SHORT TYPE) PARAMETER

LINE	ADDRESS	COMMENT		STANDARD
1	R 2150			
2	1			
3	2			
4	3			
5	4			
6	5			
7	6			
8	7			
9	8			
10	9			
11	R 2160			
12	1			
13	2			
14	3			
15	4	SPINDLE AIR BLAST TIME AT ATC (D147)	0.1S	
16	5	(D145)		
17	6	(D270)		
18	7	(D271)		
19	8	(D272)		
20	9	(D273)		
21	R 2170	DATA FOR CALCULATING TOOL CLAMP/UNCLAMP		
22	1	MAGAZINE SERVO START DELAY TIMER VALUE (D350)	0.1S	16
23	2	Y-AXIS INTERLOCK DELAY FOR ATC (D351)	0.1S	10
24	3	Z-AXIS INTERLOCK DELAY FOR ATC (D144)	0.1S	10
25	4	AUTO POWER OFF DELAY TIMER	0.1S	300 0
26	5			0
27	6	(D258)		0
28	7	(D259)		0
29	8	(D252)		
30	9	(D253)		0
31	R 2180	WARM UP WARNING TIMER (D170))		150
32	1	(D157)	0.1S	0
33	2	CUTTING START INTERLOCK TIMER (D158)	0.1S	0
34	3	ALARM POWER OFF DELAY TIMER (D230)	0.1S	300
35	4	(D231)		
36	5	(D159)		
37	6	LUBE PUMP ON TIMER (D140)		300
38	7	LUBE PUMP OFF TIMER (D141)		4500
39	8	(D142)		
40	9	(D143)		

## PLC DATA (LONG TYPE) PARAMETER

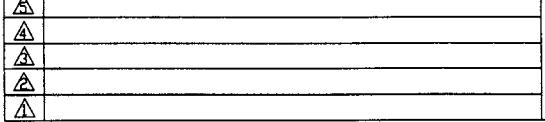
R 2190			
1			
2			
3			
4			
5			
6			
7			
8			
9			

A	 YAMAZAKI MAZAK CORPORATION	CHK'D BY	DRWN BY	TITLE
A		2-9-99	2-9-99	PARAMETER LIST (7)
A		M. HOTTA	J. BRYANT	
A				DRWN NO. 557K01100061
A	CHANGED LUBE PUMP TIMER DESCRIPTION ON->OFF 5/25/99 J.B.			

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PED-ELD001

LINE	1	2	3	4	5	6	7	8	9	10
	PLC PARAMETER (DATA TYPE)									
1	ADDRESS		COMMENT							STANDARD
2	MEMORY	ACTIVE								
3	R 2300		PLC CMN (BIT TYPE)							
4	1		PLC CMN (BIT TYPE)							
5	2		PLC CMN (BIT TYPE)							
6	3									
7	4									
8	5									
9	6									
10	7									
11	8									
12	9		(THERMAL DISPLACEMENT OFFSET MACHINE TYPE(3: V515 6: V655))							
13	R 2310									
14	1									
15	2									
16	3									
17	4		(OVER HEAT FOR 1 SAMPLING)							
18	5		(OFFSET EXEC. DELAY COUNTER)							
19	6		(OFFSET EXEC. DELAY COUNTER FOR AFTER ATC)							
20	7		(OFFSET VALUE BY ONE TIME)							
21	8		(OFFSET VALUE BY ONE TIME FOR AFTER ATC)							
22	9		(THRESHOLD)							
23	R 2320		(ATC Z AXIS LOAD METER OFFSET ??%)							
24	1									
25	2									
26	3									
27	4									
28	5									
29	6									
30	7									
31	8									
32	9									
33	R 2330									
34	1									
35	2									
36	3									
37	4									
38	5									
39	6									
40	7									
41	8	8	1st OVERRAID AT GAP ELIMINATOR SIGNAL OFF						mm/min	8000
42	9	9	CLAMP SPEED AT GAP ELIMINATOR ON						%	200



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY  
2-9-99  
M. HOTTA

DRWN BY  
2-9-99  
J. BRYANT

TITLE  
PARAMETER LIST (8)  
DRWN NO. 557K01100070

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LINE	1	2	3	4	5	6	7	8	9	10								
1	PLC_CMN PARAMETER TABLE																	
2	R 2300																	
3	8	4	2	1	8	4	2	1	8	4	2	1	CODE					
4	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0	bit No.	
5																		
6																		MANUAL MEASURE
7																		1: VALID      0: INVALID
8																		VARIABLE TIMER
9																		1: VALID      0: INVALID
10																		V100 ONLY
11																		V100 ONLY
12																		V100 ONLY
13																		FMC CONTROL
14																		FMS PALLET ID
15																		TOOL ID SERIAL TYPE
16																		EIA TOOL LIFE
17																		THERMAL DISPLACEMENT OFFSET
18																		THERMAL DISPLACEMENT MACRO VARIABLE WRITE
19																		1: VALID      0: INVALID
20																		1: VALID      0: INVALID
21																		1: VALID      0: INVALID
22																		1: VALID      0: INVALID
23																		1: VALID      0: INVALID
24																		1: VALID      0: INVALID
25																		1: ONLY FLAG      0: ALL DATA
26																		READ AND WRITE TO ID NO. GROUP NO.      1: VALID      0: INVALID
27																		TOOL DIAMETER READ AND WRITE TOOL COM. TYPE-A      1: VALID      0: INVALID
28																		
29																		
30																		
31																		
32																		
33																		
34																		
35																		
A																		
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A																		
A																		
A																		
Mazak																		
YAMAZAKI MAZAK CORPORATION																		
CHK'D BY																		TITLE
2·9·99																		PLC-CMN
M. Hotta																		PARAMETER LIST(10)
J. BRYANT																		DRWN NO.
																		557K01100090

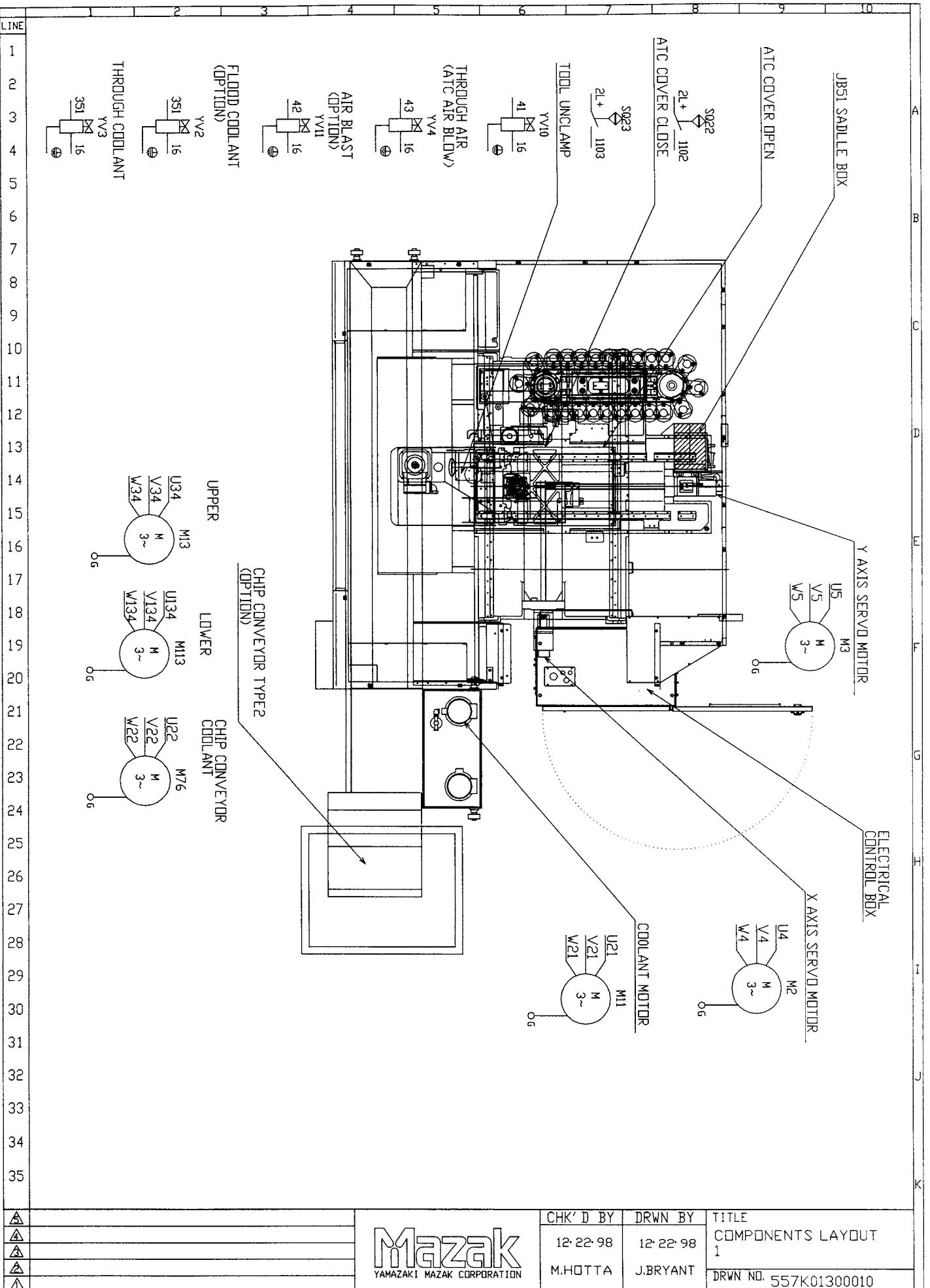
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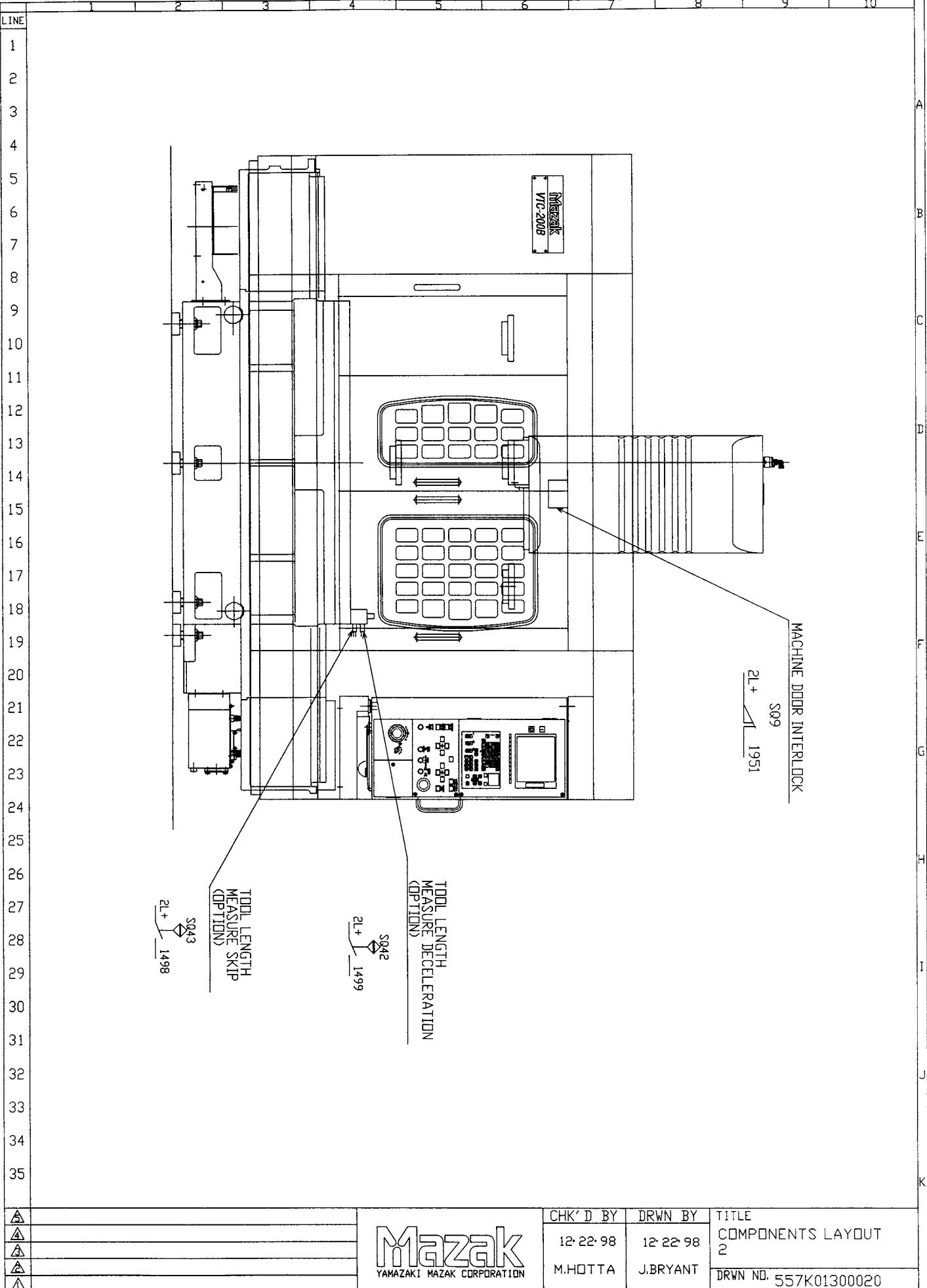
LINE	1	2	3	4	5	6	7	8	9	10
1	PLC_CMN PARAMETER TABLE									
2	R 2302									
3	8	4	2	1	8	4	2	1	8	4
4	F	E	D	C	B	A	9	8	7	6
5	□	□	□	□	□	□	□	□	□	□
6	□	□	□	□	□	□	□	□	□	□
7	□	□	□	□	□	□	□	□	□	□
8	□	□	□	□	□	□	□	□	□	□
9	□	□	□	□	□	□	□	□	□	□
10	□	□	□	□	□	□	□	□	□	□
11	□	□	□	□	□	□	□	□	□	□
12	□	□	□	□	□	□	□	□	□	□
13	□	□	□	□	□	□	□	□	□	□
14										
15	R 2303									
16	8	4	2	1	8	4	2	1	8	4
17	F	E	D	C	B	A	9	8	7	6
18	□	□	□	□	□	□	□	□	□	□
19	USR 1	PARAMETER								
20	USR 2	PARAMETER								
21	USR 3	PARAMETER								
22	USR 4	PARAMETER								
23	USR 5	PARAMETER								
24	USR 6	PARAMETER								
25	USR 7	PARAMETER								
26	USR 8	PARAMETER								
27	USR 1	DISPLAY	COMPULSION	PARAMETER						
28	USR 2	DISPLAY	COMPULSION	PARAMETER						
29	USR 3	DISPLAY	COMPULSION	PARAMETER						
30	USR 4	DISPLAY	COMPULSION	PARAMETER						
31	USR 5	DISPLAY	COMPULSION	PARAMETER						
32	USR 6	DISPLAY	COMPULSION	PARAMETER						
33	USR 7	DISPLAY	COMPULSION	PARAMETER						
34	USR 8	DISPLAY	COMPULSION	PARAMETER						
35										
▲	▲	▲	▲	▲	▲	CHK'D BY	DRWN BY	TITLE		
▲						2-9-99	2-9-99	PLC-CMN		
▲						M. Hotta	J. BRYANT	PARAMETER LIST(11)		
▲								DRWN NO.	557K01100100	
▲										

This product is subject to all applicable export control laws and regulations by Japanese Government.  
PED-ELD001

LINE	1	2	3	4	5	6	7	8	9	10
1										
2	R 2309									
3	8 4 2 1 8 4 2 1 8 4 2 1 8 4 2 1 CODE									
4	F E D C B A 9 8 7 6 5 4 3 2 1 0 bit No.									
5	□ □ □ □ □ □ □ □ □ □ □ □									
6										
7										
8										
9										
10										
11										
12										
13										
14										
15	NOTE 1 :									
16	0 : H400N									
17	1 : H500N									
18	2 : S400H									
19	3 : V-515									
20	6 : V-655									
21	22(16H) : FJV20									
22										
23										
24										
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A										
Mazak	YAMAZAKI MAZAK CORPORATION	CHK'D BY	DRWN BY	TITLE						
		2-9-99	2-9-99	PLC-CMN						
		M. HOTTA	J. BRYANT	PARAMETER LIST(12)						
				DRWN NO.	557K01100110					

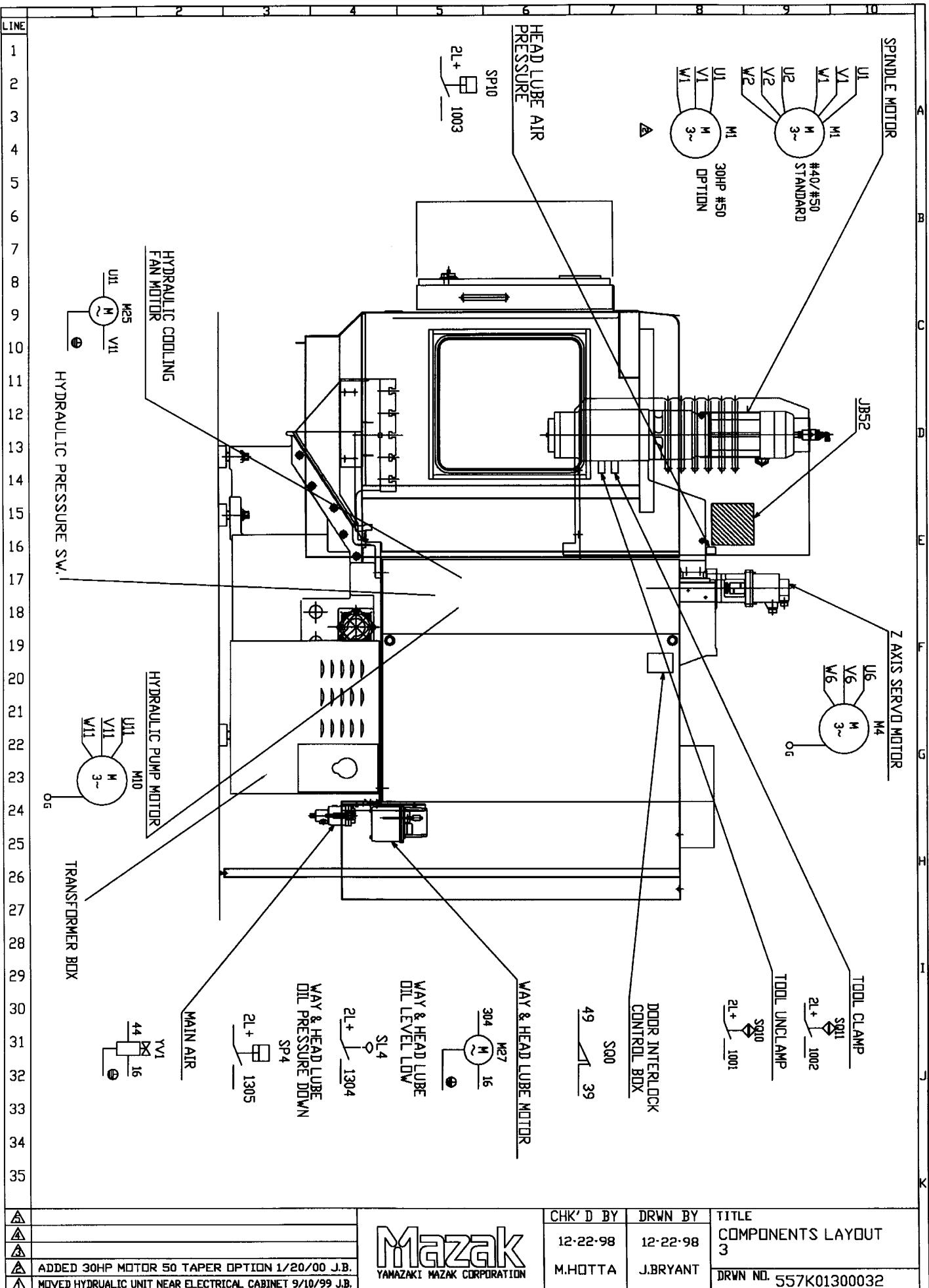
This product is subject to all applicable export control laws and regulations by Japanese Government.  
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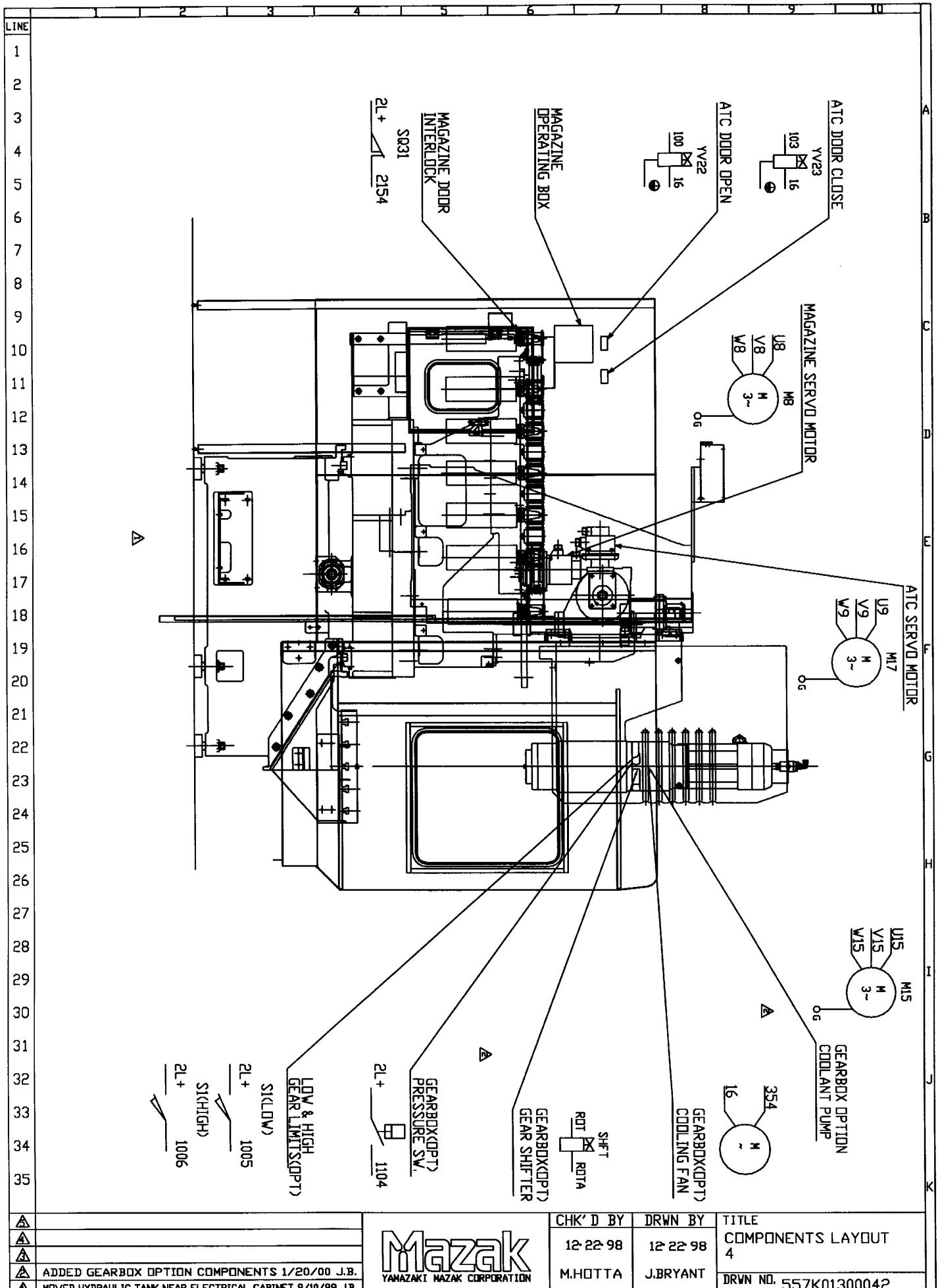
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**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

12-22-98  
M.HOTTA

DRWN BY

12-22-98  
J.BRYANT

TITLE

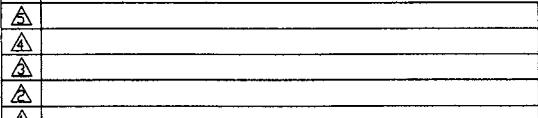
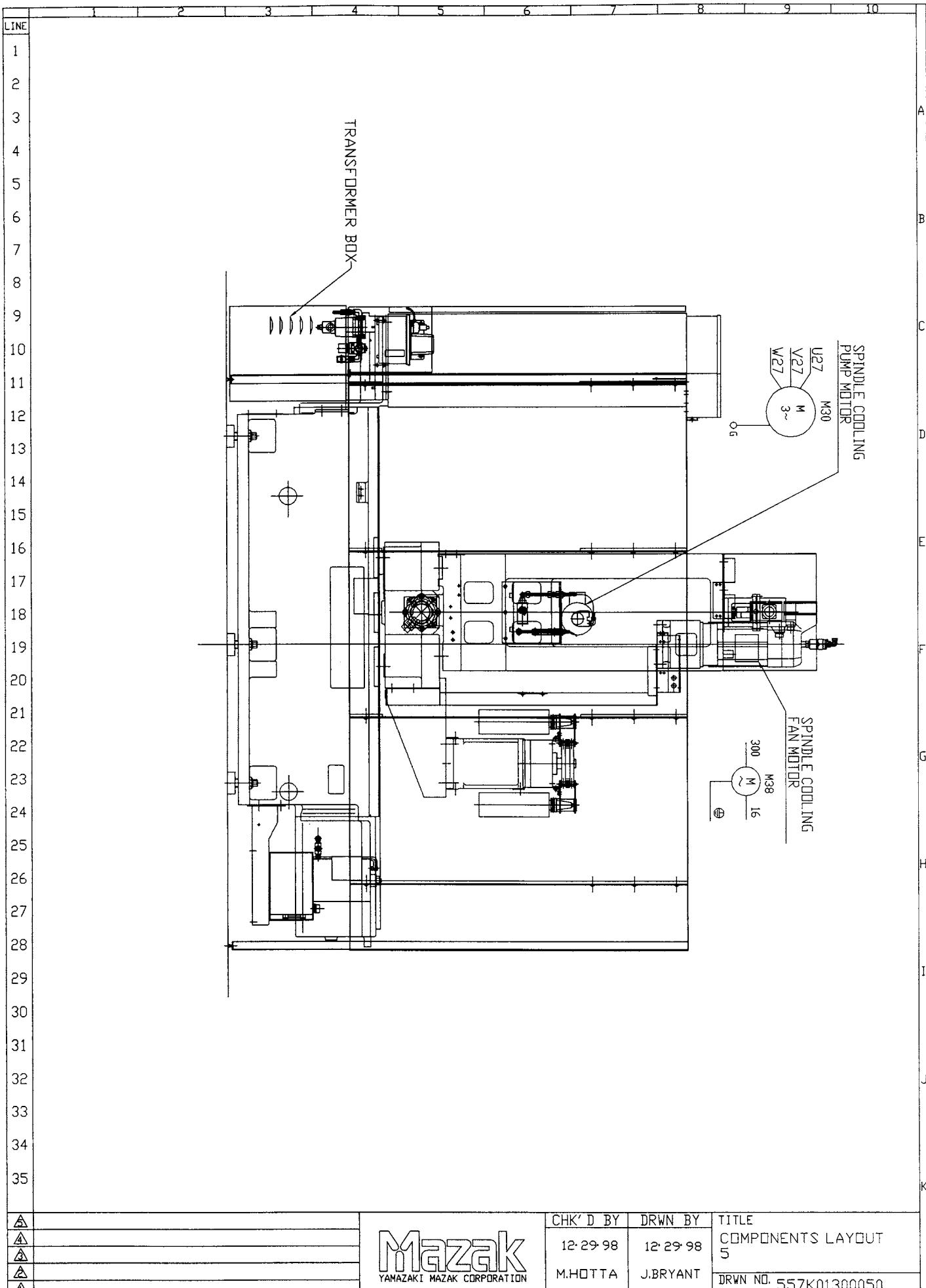
COMPONENTS LAYOUT  
4

DRWN NO.

557K01300042

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**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

12-29-98

M.HOTTA

DRWN BY

12-29-98

J.BRYANT

TITLE

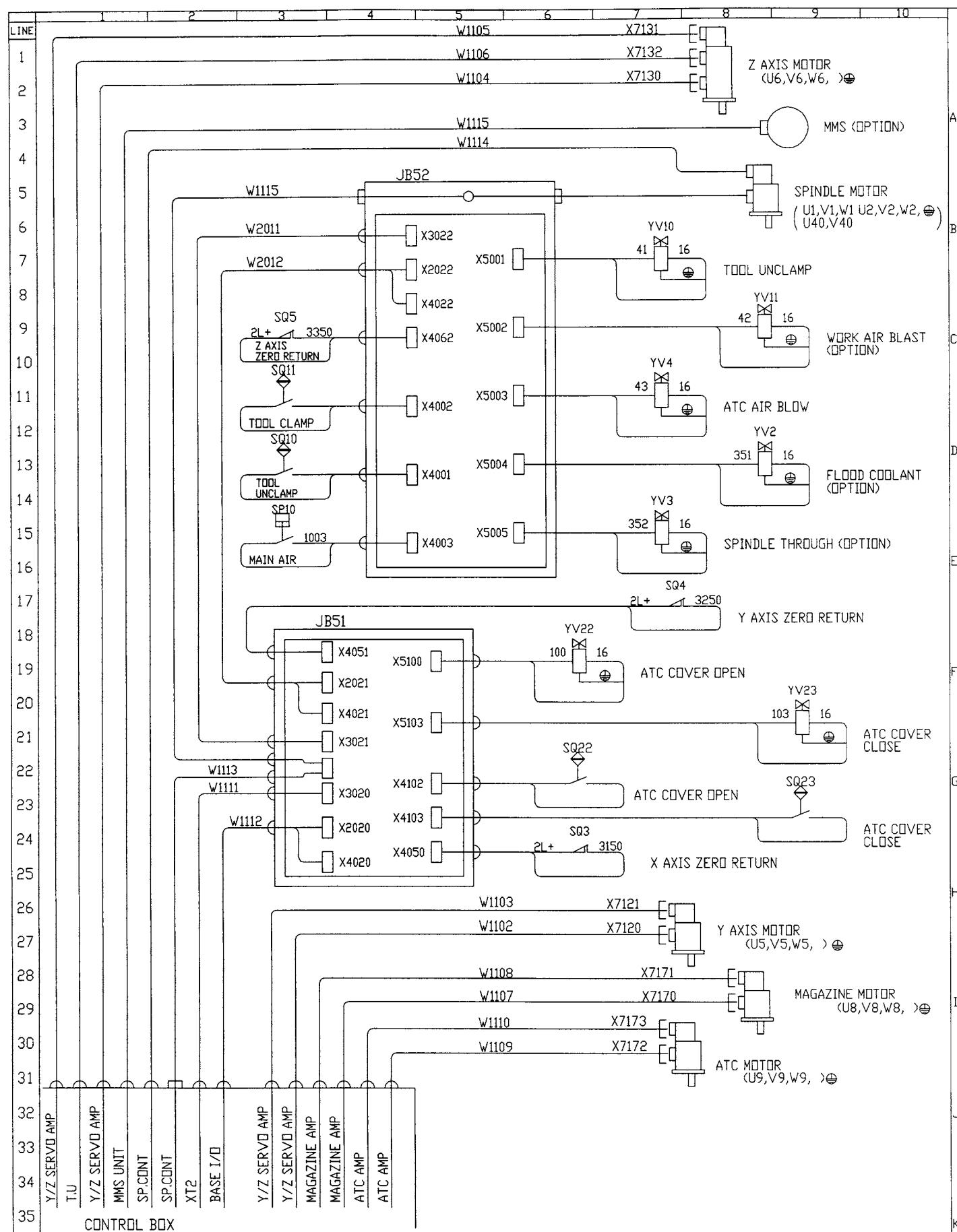
COMPONENTS LAYOUT

5

DRWN NO. 557K01300050

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**Mazak**  
YAMAZAKI MAZAK CORPORATION

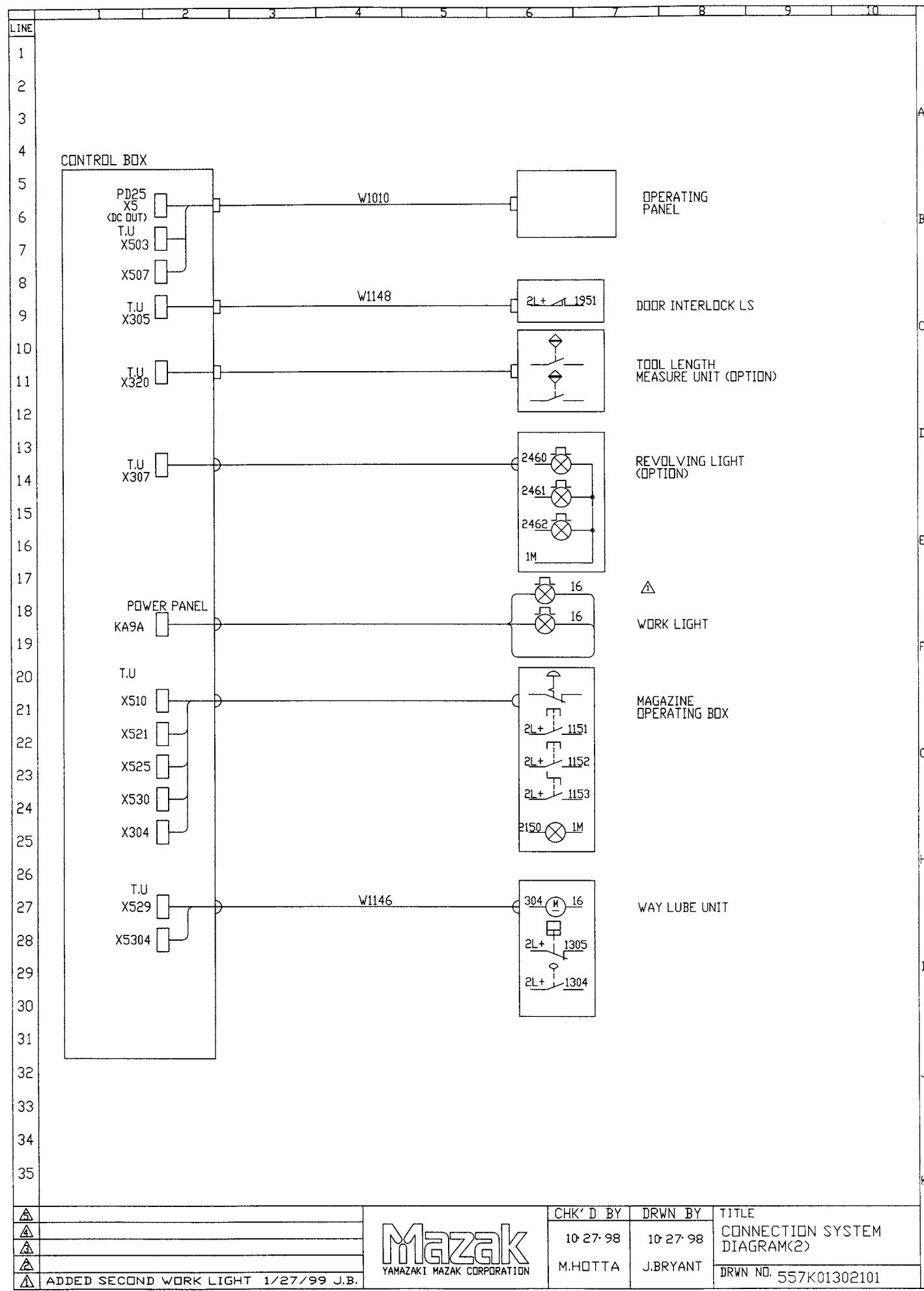
CHK'D BY

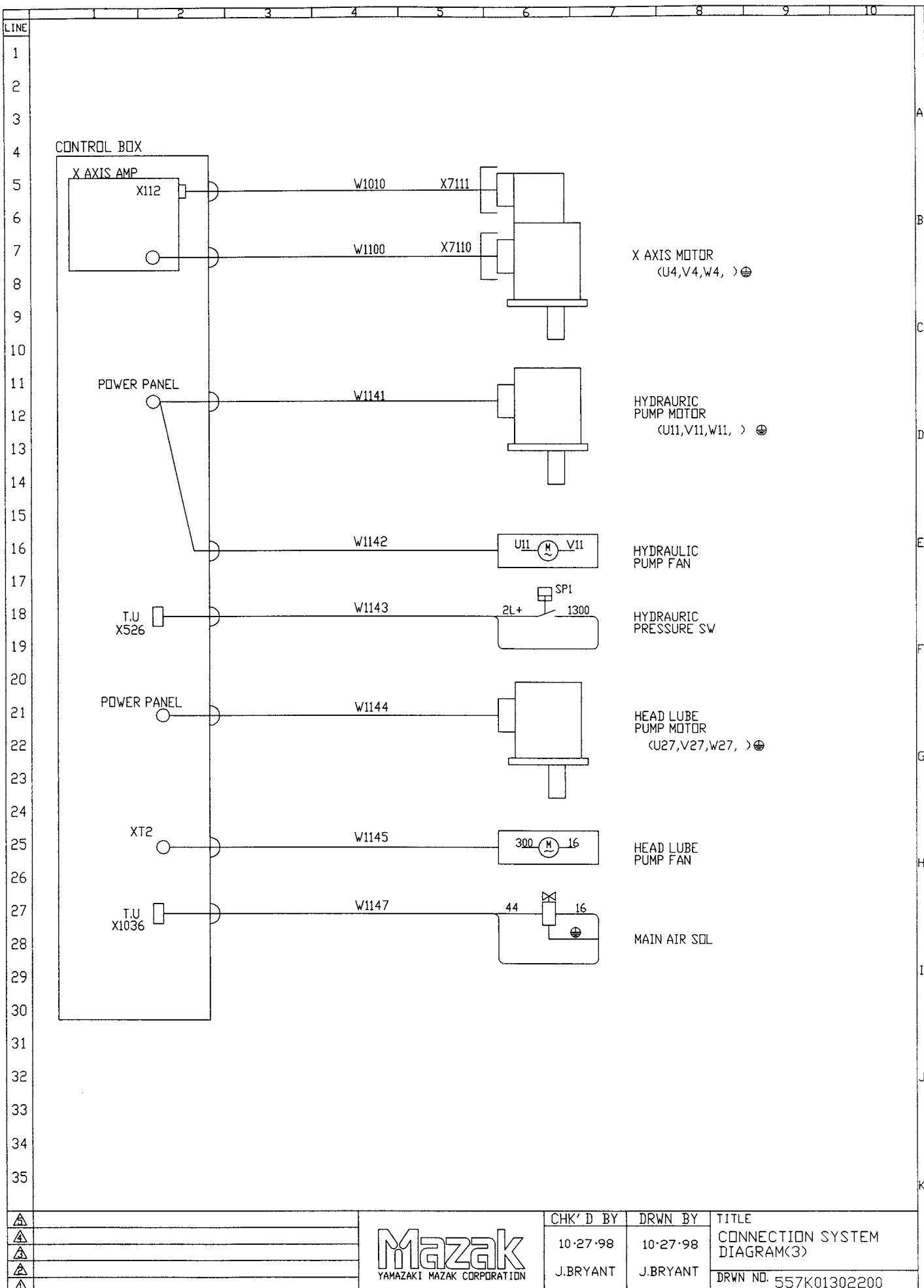
DRWN BY

TITLE

CONNECTION SYSTEM  
DIAGRAM(1)

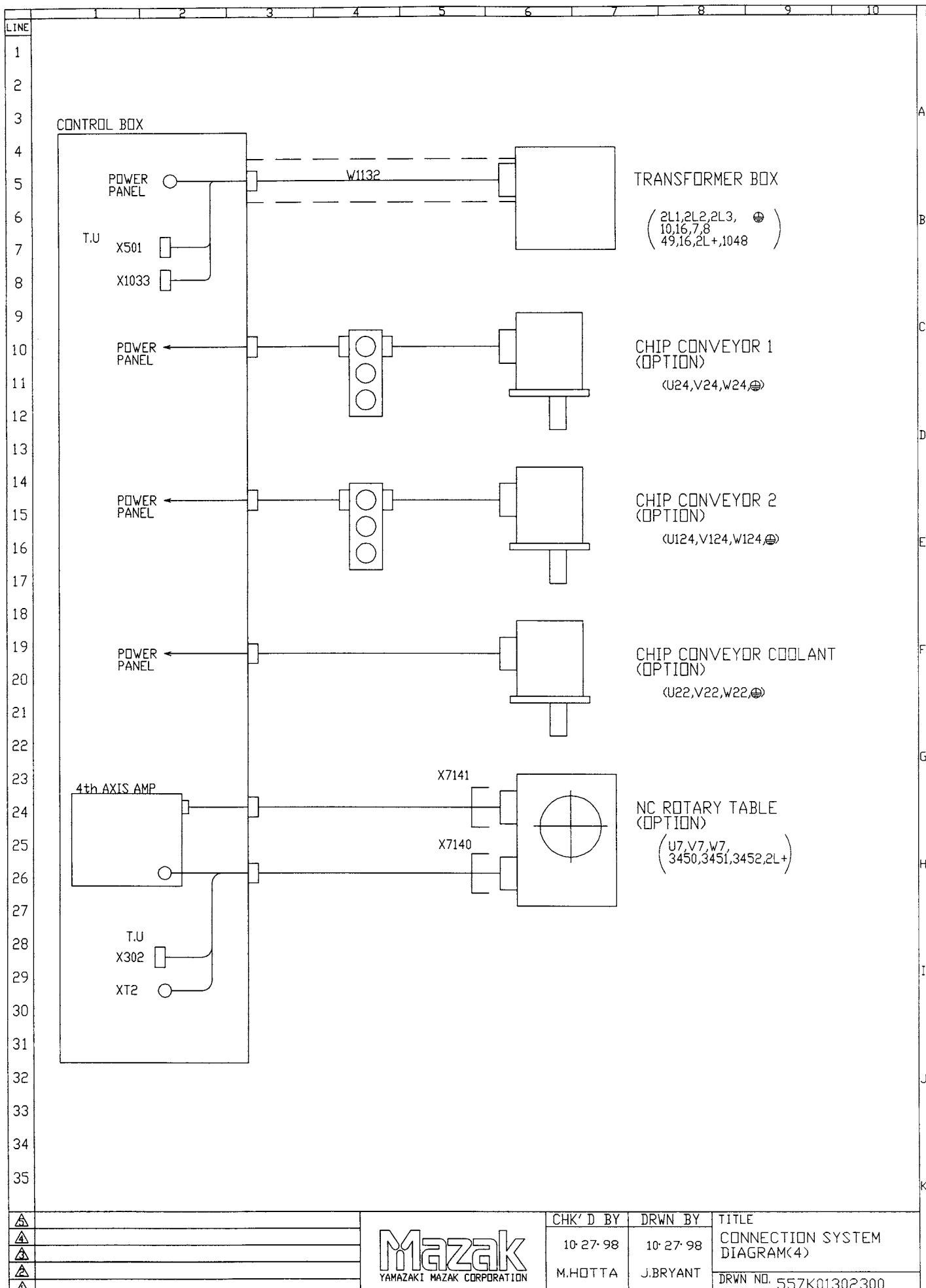
DRWN NO. 557K01302000





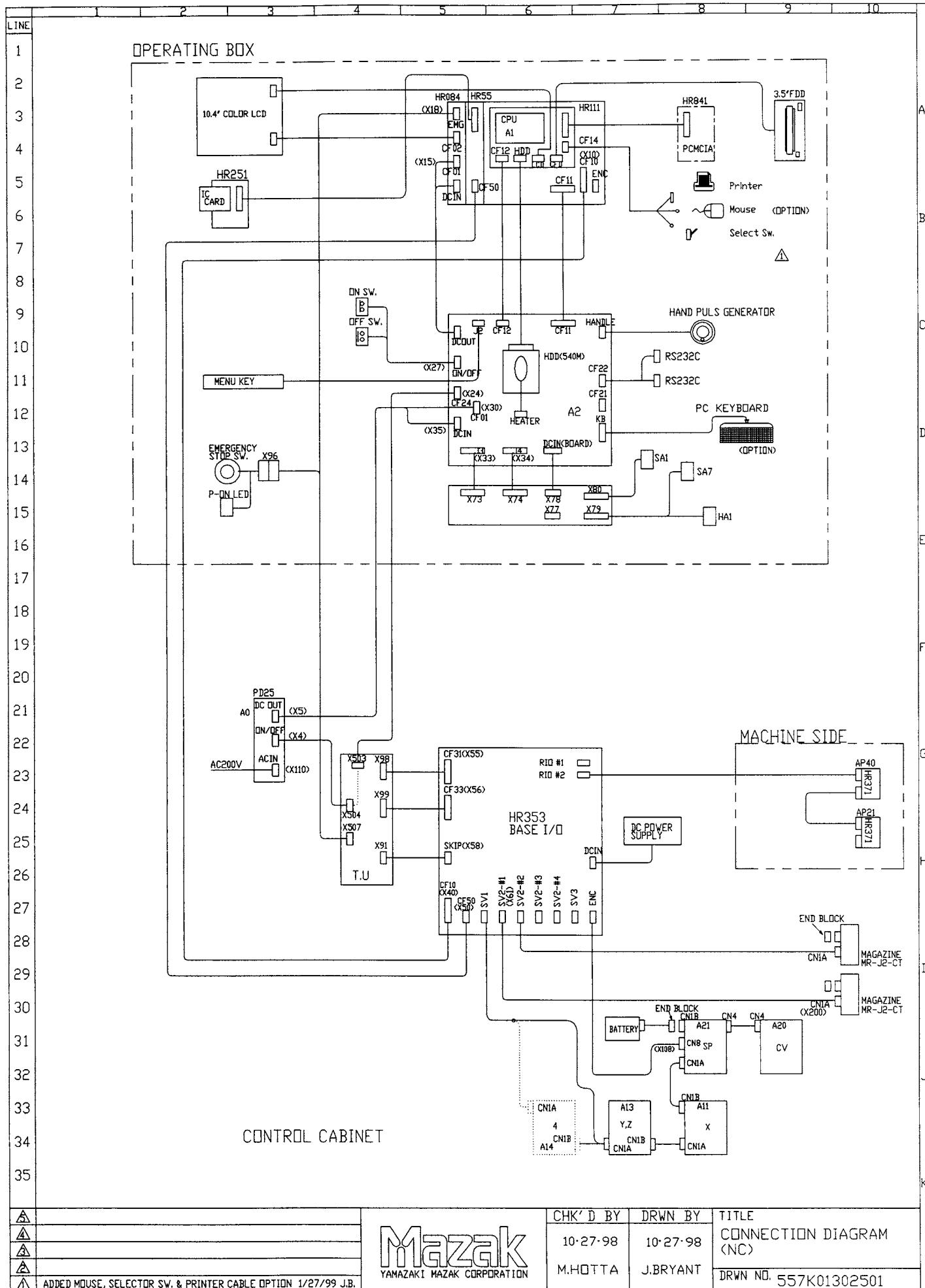
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



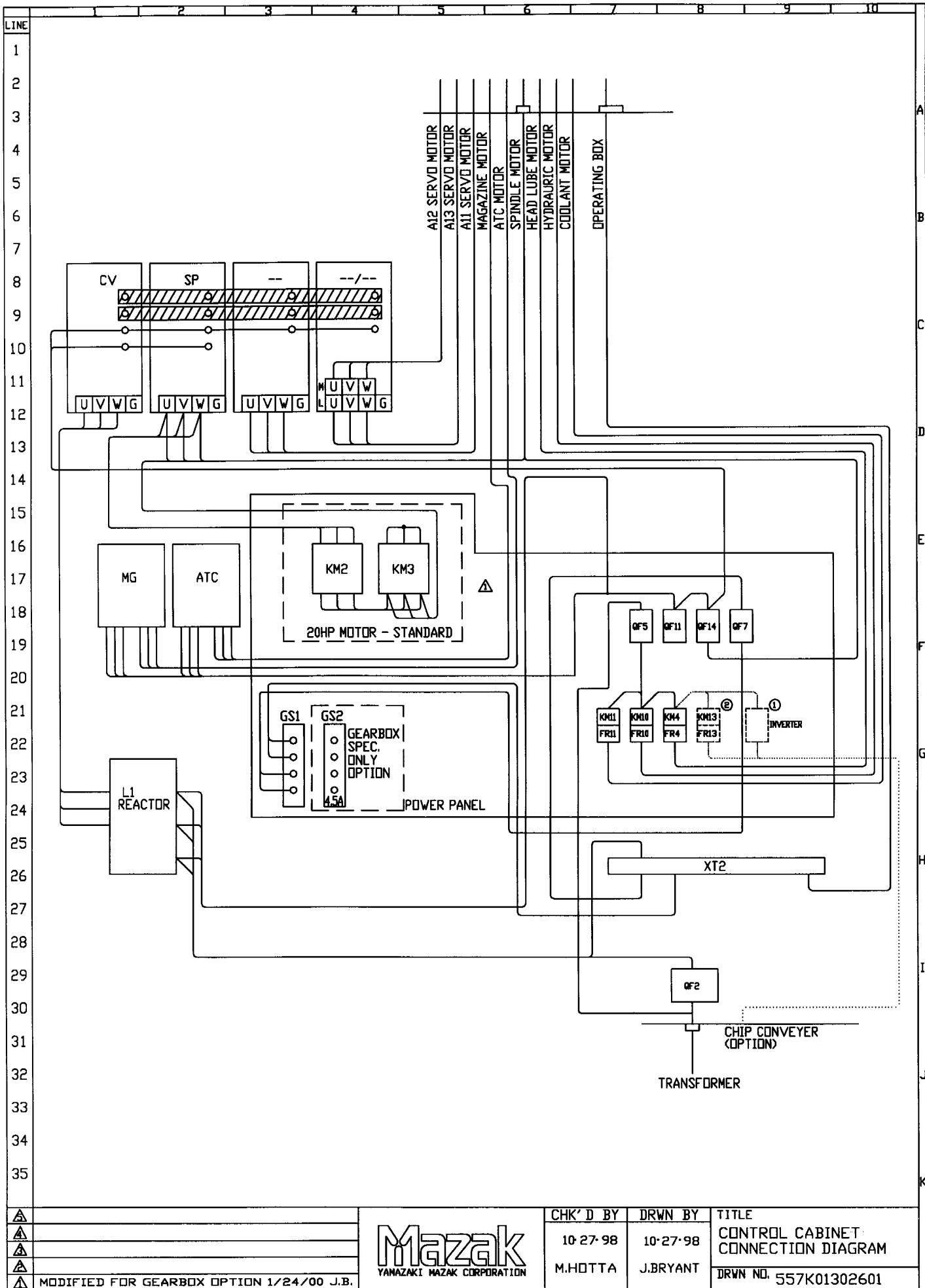
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

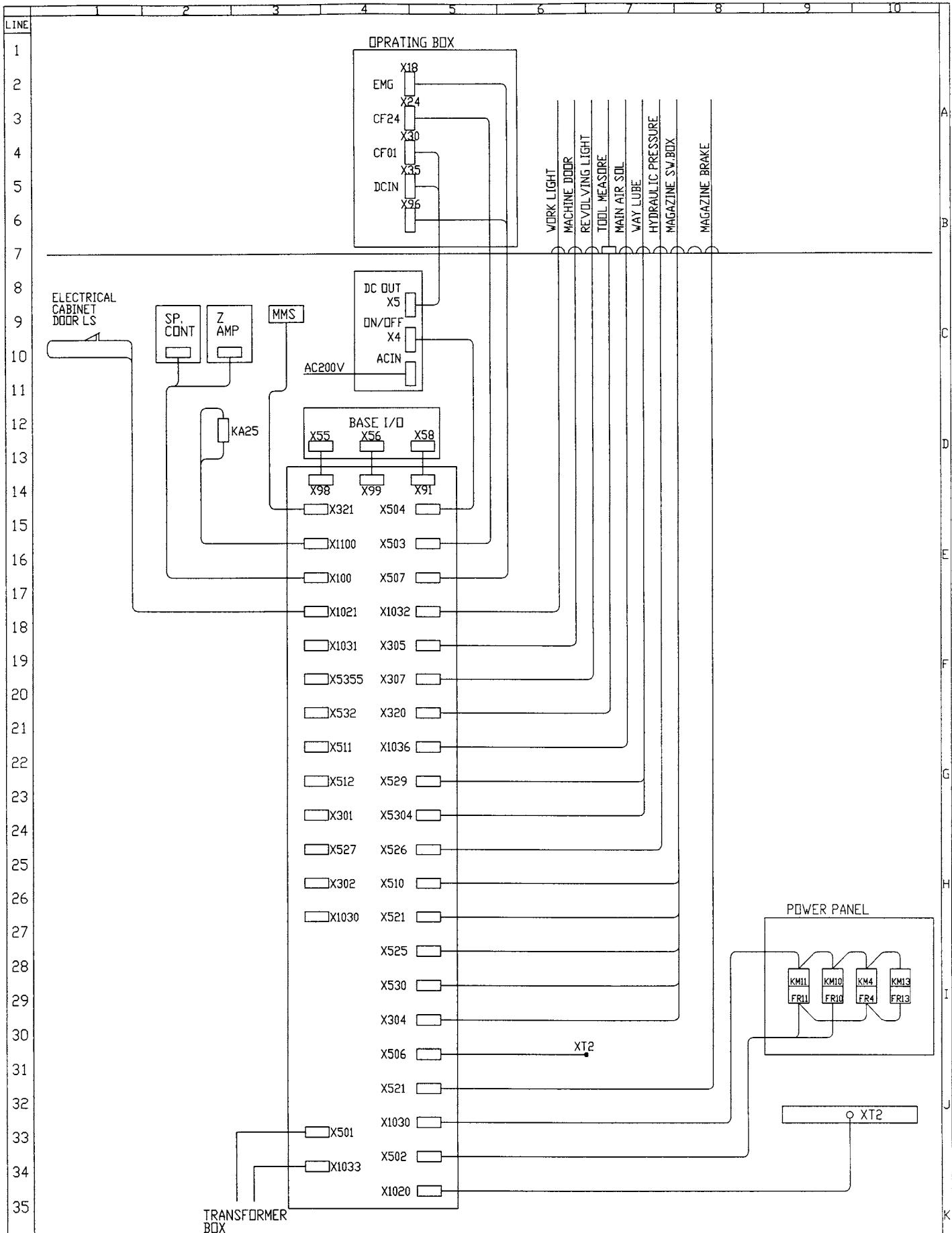


  
 YAMAZAKI MAZAK CORPORATION  
 MODIFIED FOR GEARBOX OPTION 1/24/00 J.B.

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	CONTROL CABINET CONNECTION DIAGRAM
		DRWN NO. 557K01302601

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



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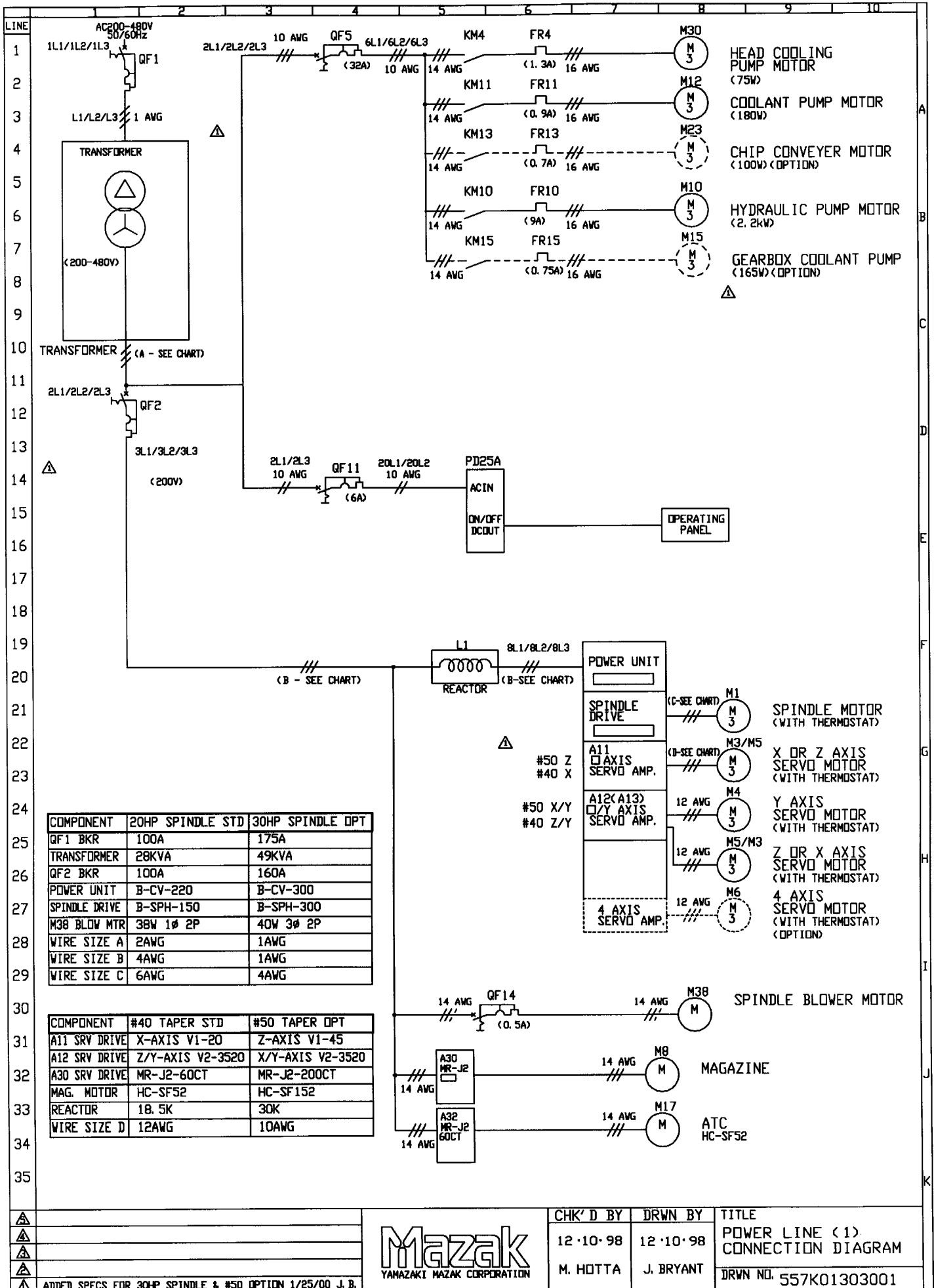
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY 10-27-98 M.HOTTA	DRWN BY 10-27-98 J.BRYANT
---------------------------------	---------------------------------

TITLE  
CONTROL CABINET  
CONNECTION DIAGRAM  
DRWN NO. 557K01302700

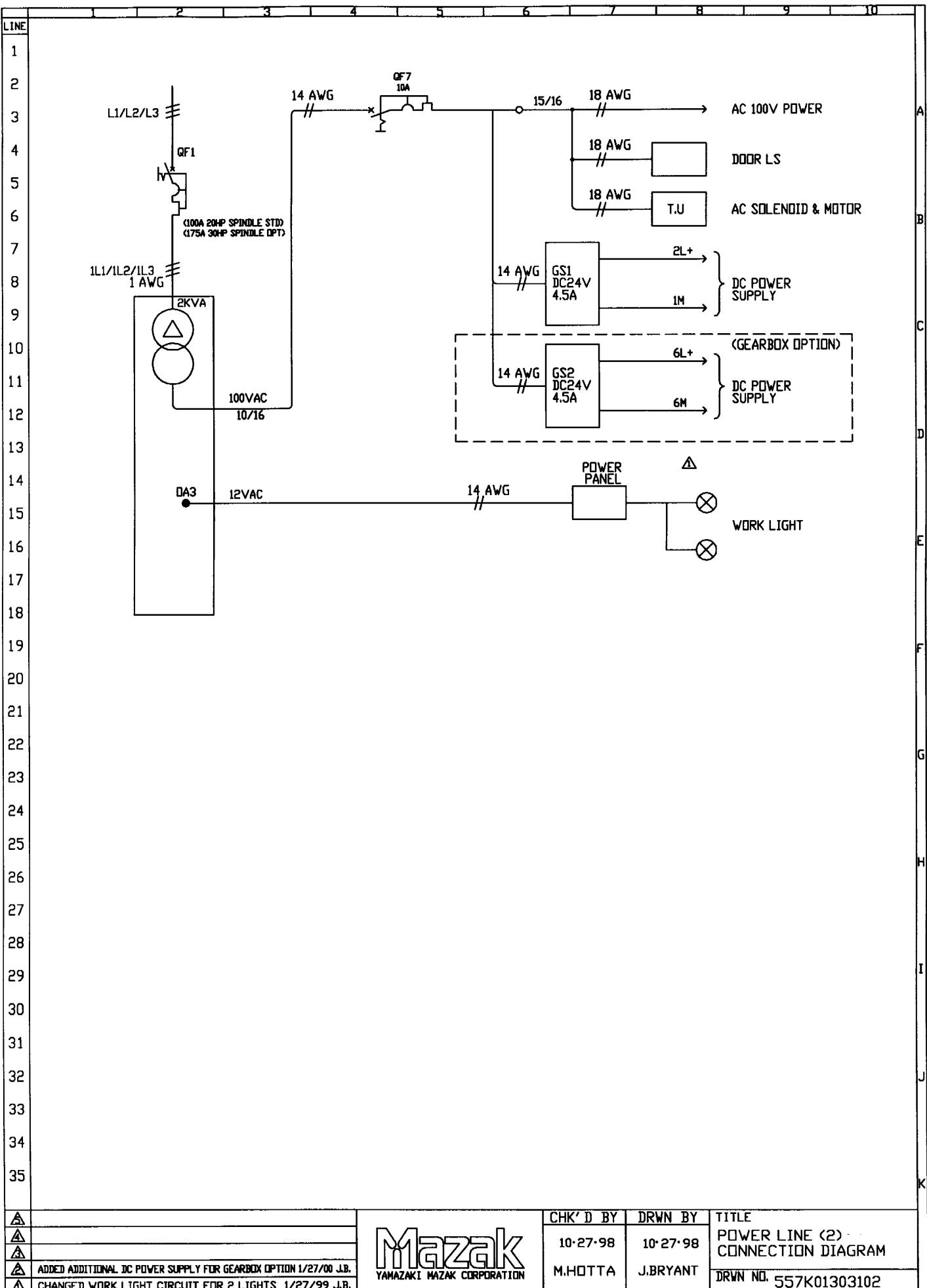
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-EL D001



This product is subject to all applicable export control laws and regulations by Japanese Government.

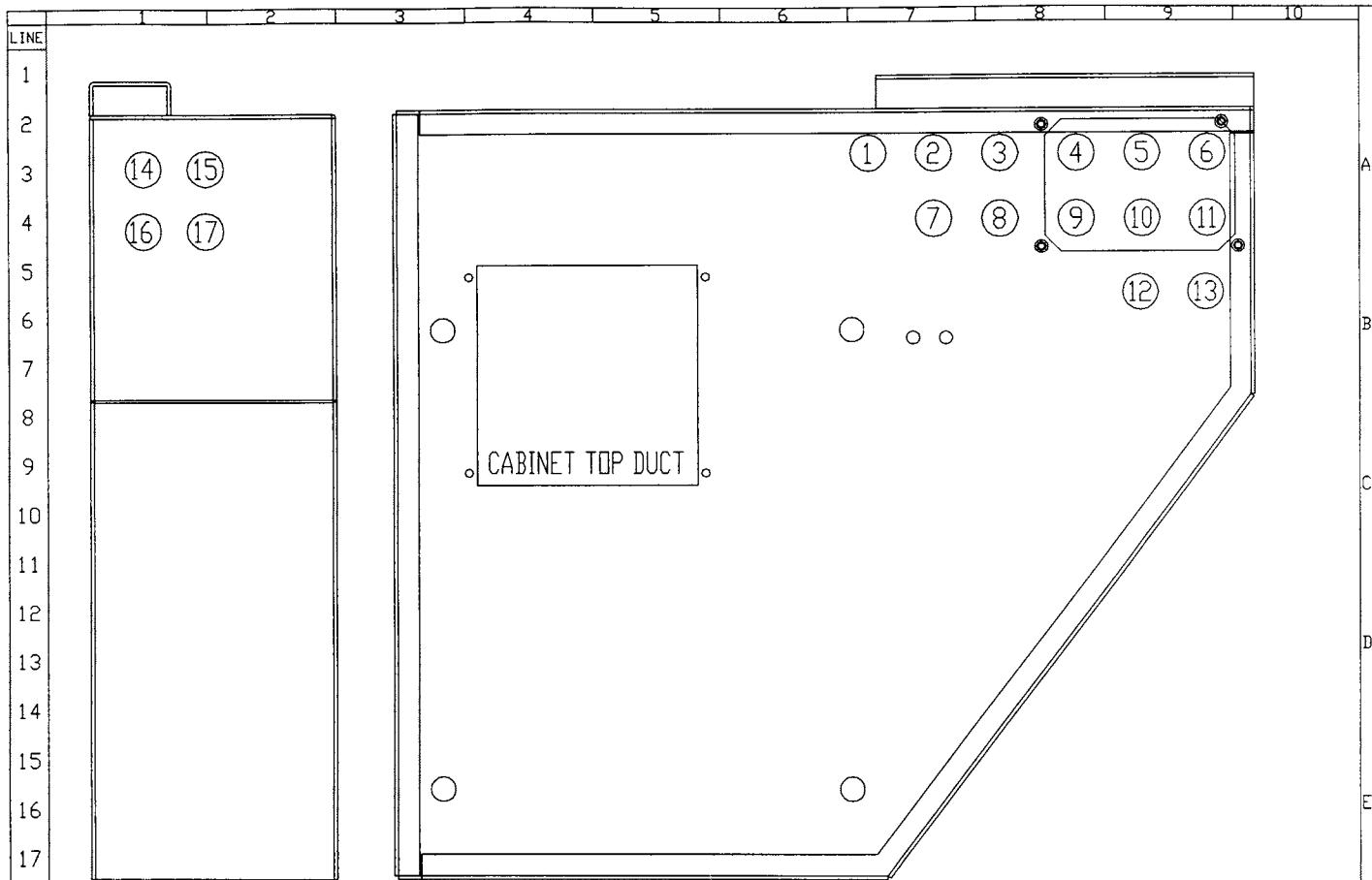
PED-ELD001



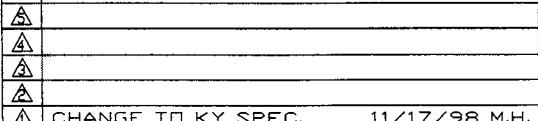
ADDED ADDITIONAL DC POWER SUPPLY FOR GEARBOX OPTION 1/27/00 J.B.  
 CHANGED WORK LIGHT CIRCUIT FOR 2 LIGHTS 1/27/99 J.B.

**Mazak**  
 YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	POWER LINE (2) CONNECTION DIAGRAM DRWN NO. 557K01303102



No.	$\phi$	OUTSIDE CONNECTION	
1	$\phi 22$	SPARE	W
2	$\phi 22$	SPARE	W
3	$\phi 22$	MAGAZINE MOTOR	W1107
4	$\phi 22$	MAGAZINE ENCODER	W1108
5	$\phi 22$	SADDLE BOX(JB51)	W1111
6	$\phi 22$	MAGAZINE OP.BOX	W1149
7	$\phi 22$	WORK LIGHT #2	W1152
8	$\phi 22$	ATC ARM MOTOR	W1109
9	$\phi 22$	ATC ENCODER	W1110
10	$\phi 22$	SADDLE BOX(JB51)	W1112
11	$\phi 22$	SPINDLE ENCODER	W1114
12	$\phi 22$	HEAD COOLING FAN	W1145
13	$\phi 22$	HEAD COOLING PUMP	W1144
14		PATENT LIGHT	W3001
15		TOUCH SENSOR	W1115
16			
17			
18			
19			
20			



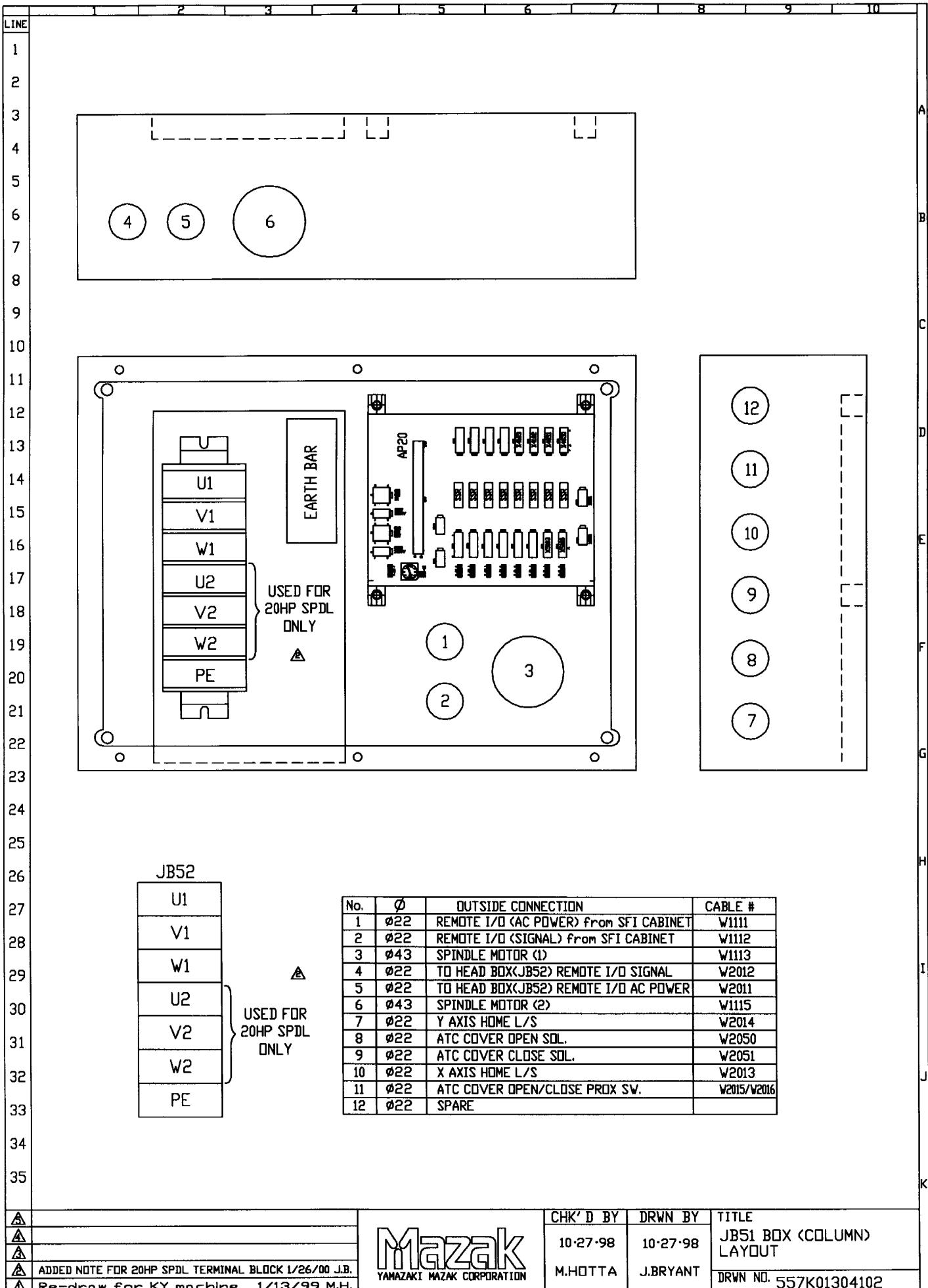
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	ELECTRIC CABINET CABLE BOX LAYOUT
		DRWN NO. 557K01304001

CHANGE TO KY SPEC. 11/17/98 M.H.

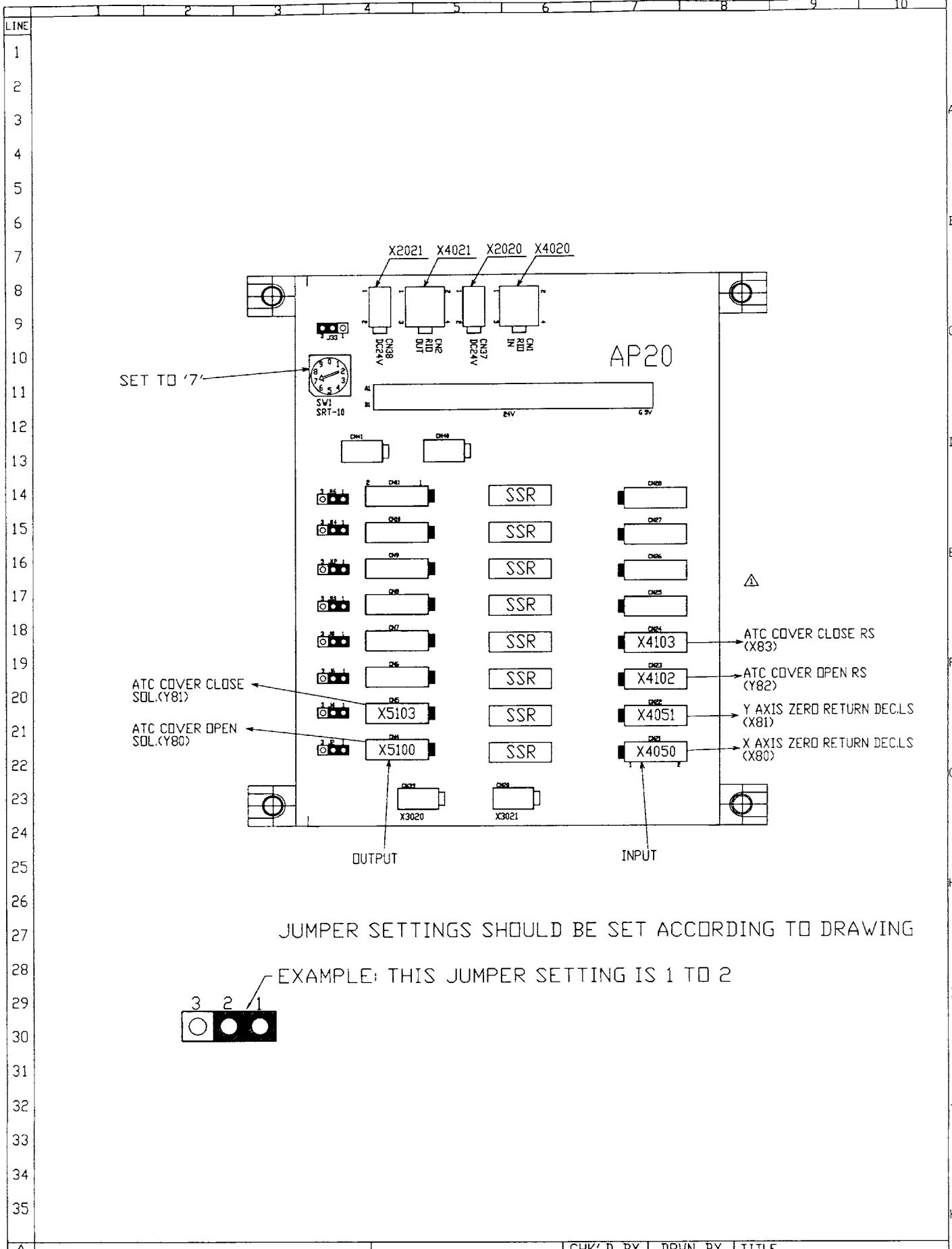
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△	△	△	△	△	CHK'D BY	DRWN BY	TITLE
△	△	△	△	△	10-27-98	10-27-98	JB51 BOX <COLUMN>
△	△	△	△	△	M.HOTTA	J.BRYANT	REMOTE I/O (AP20)

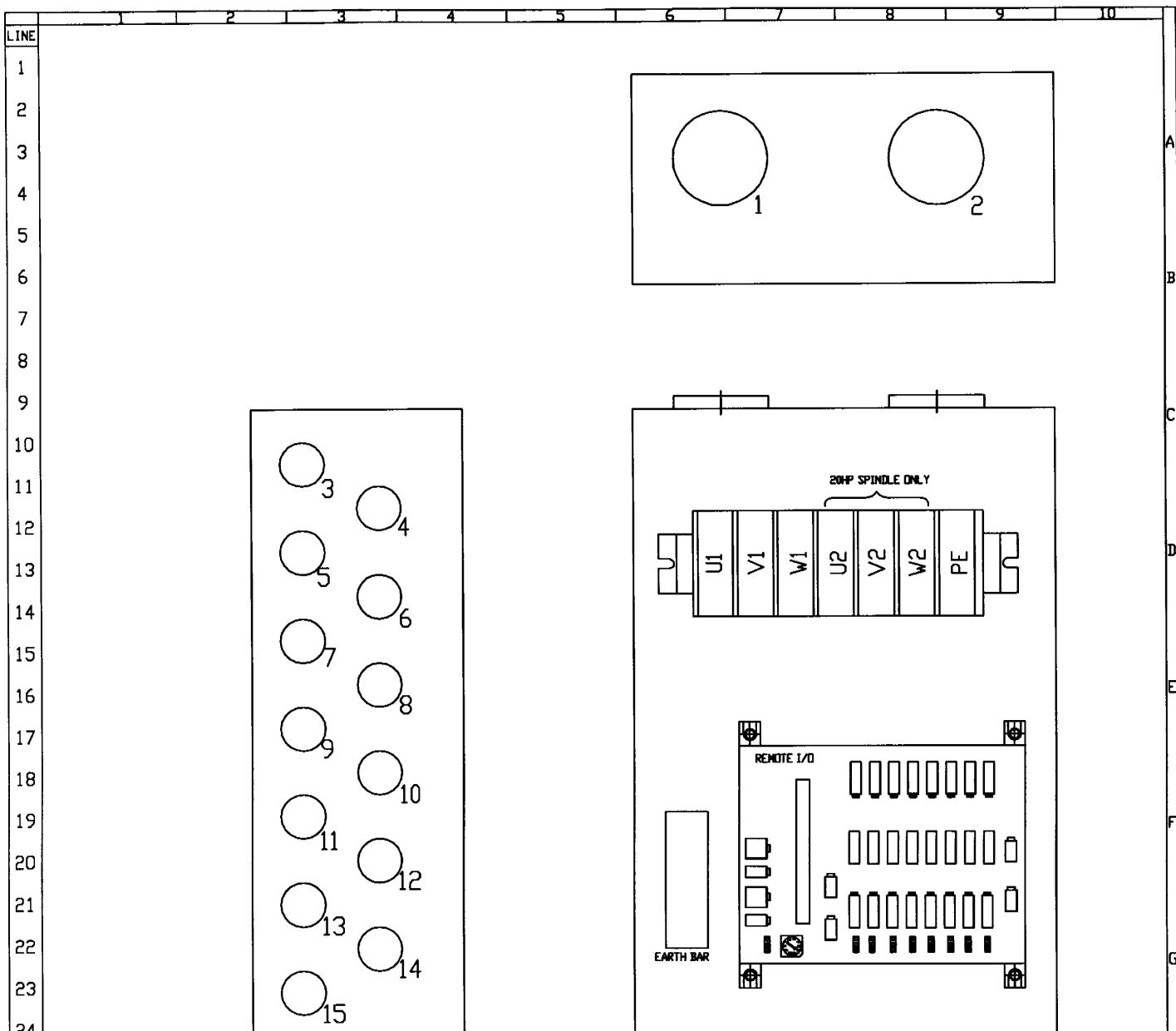
△ CORRECTED LABELS ON REMOTE I/O BOARD 9/9/99 J.B.

**Mazak**  
YAMAZAKI MAZAK CORPORATION

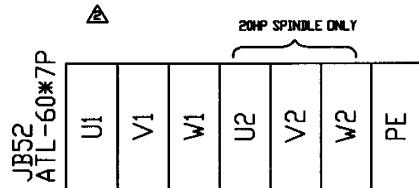
10-27-98 10-27-98  
M.HOTTA J.BRYANT  
DRWN NO. 557K01304201

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PED-ELD001



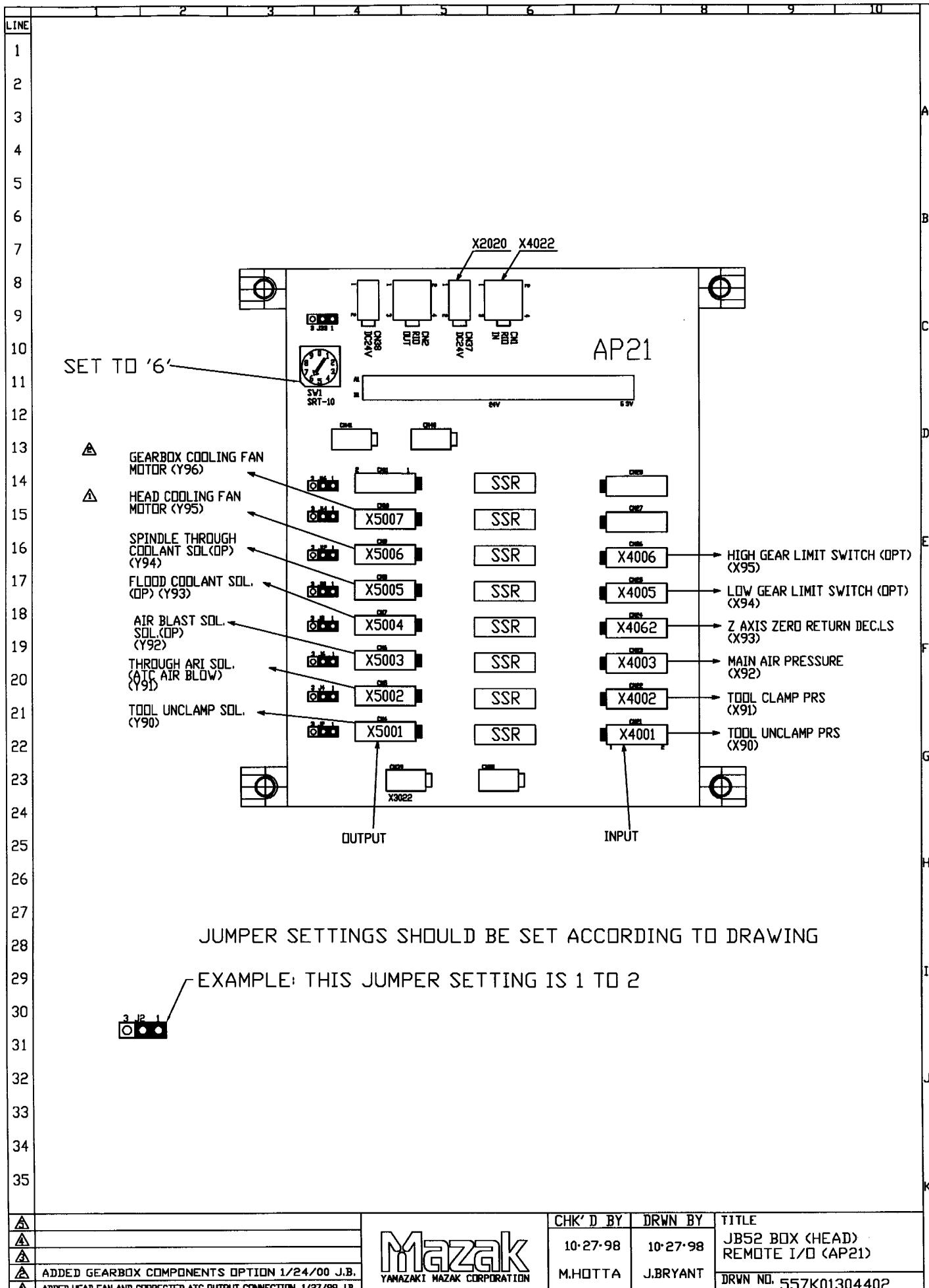
No.	Ø	OUTSIDE CONNECTION	CABLE #	REMARK
1	Ø45	SPINDLE MOTOR		Machine #1-7
2	Ø45	SPINDLE MOTOR (2)	W1115	Machine #1-7
3	Ø21	TOOL CLAMP/UNCLAMP PROX SW.	V2112/V2113	Built-IN
4	Ø21	HEAD COOLING FAN	W2152	
5	Ø21	MAIN AIR PRESSURE SW.	W2114	Built-IN
6	Ø21	Z AXIS ZERO RETURN DECLS	W2111	
7	Ø21	From Column Box(JB51) Remote I/O AC Power	W2011	
8	Ø21	From Column Box(JB51) Remote I/O Signal	W2012	
9	Ø21	TOOL UNCLAMP SOL	W2150	
10	Ø21	ATC AIR BLOW SOL	W2151	
11	Ø21	WORK AIR BLOW SOL	W3002	OPTION
12	Ø21	FLOOD COOLANT SOL	W3003	OPTION
13	Ø21	SPINDLE THROUGH SOL	W3004	OPTION
14	Ø21	GEAR BOX COOLING FAN MOTOR	XCA3	OPTION
15	Ø21	GEAR BOX LOW LIMIT & HIGH LIMIT SWITCHES	XCA2	OPTION



CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	JB52 BOX (HEAD) LAYOUT
		DRWN NO. 557K01304302

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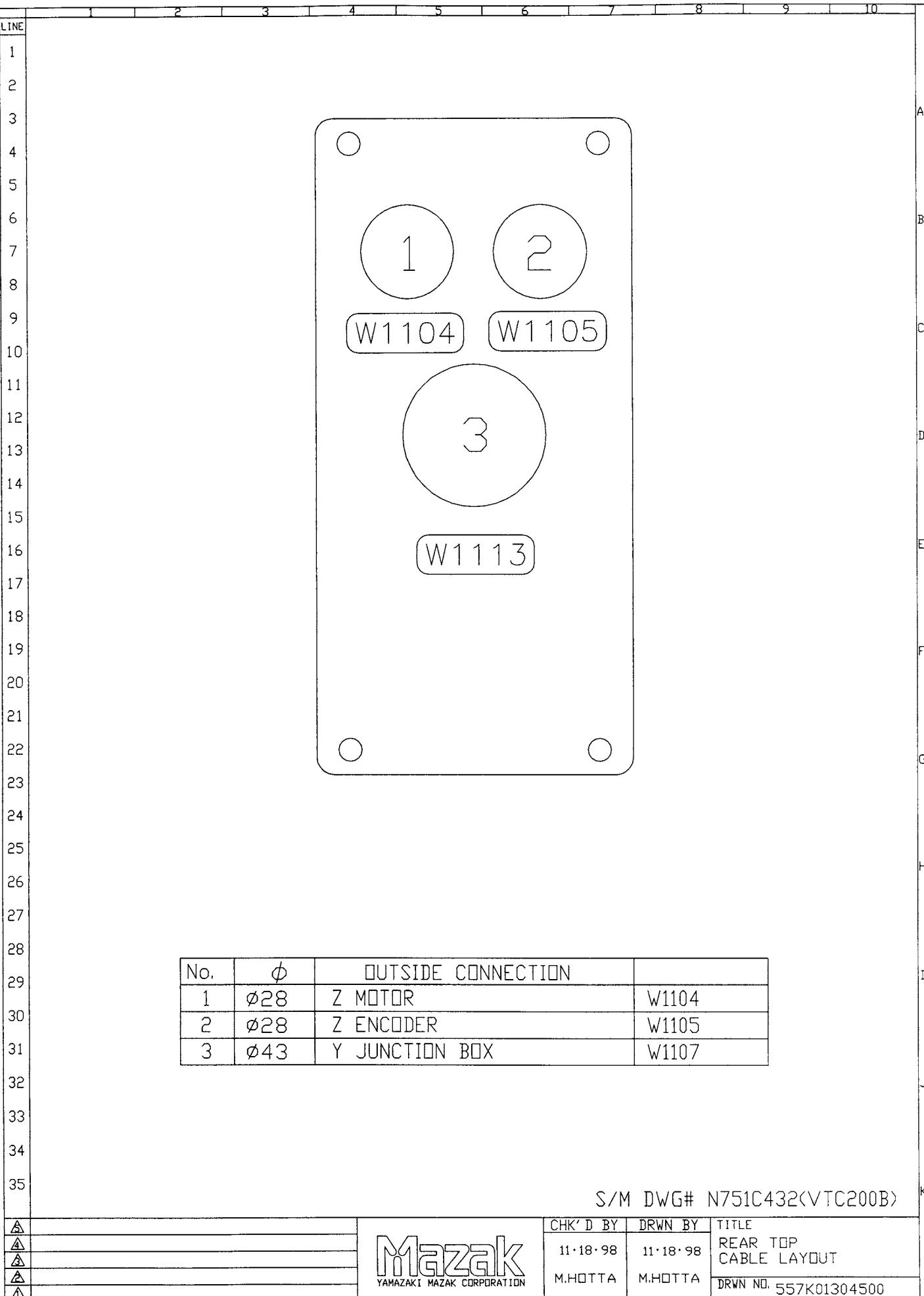
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

▲	
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▲	
▲	ADDED GEARBOX COMPONENTS OPTION 1/24/00 J.B.
▲	ADDED HEAD FAN AND CORRECTED ATC OUTPUT CONNECTION 1/27/99 J.B.

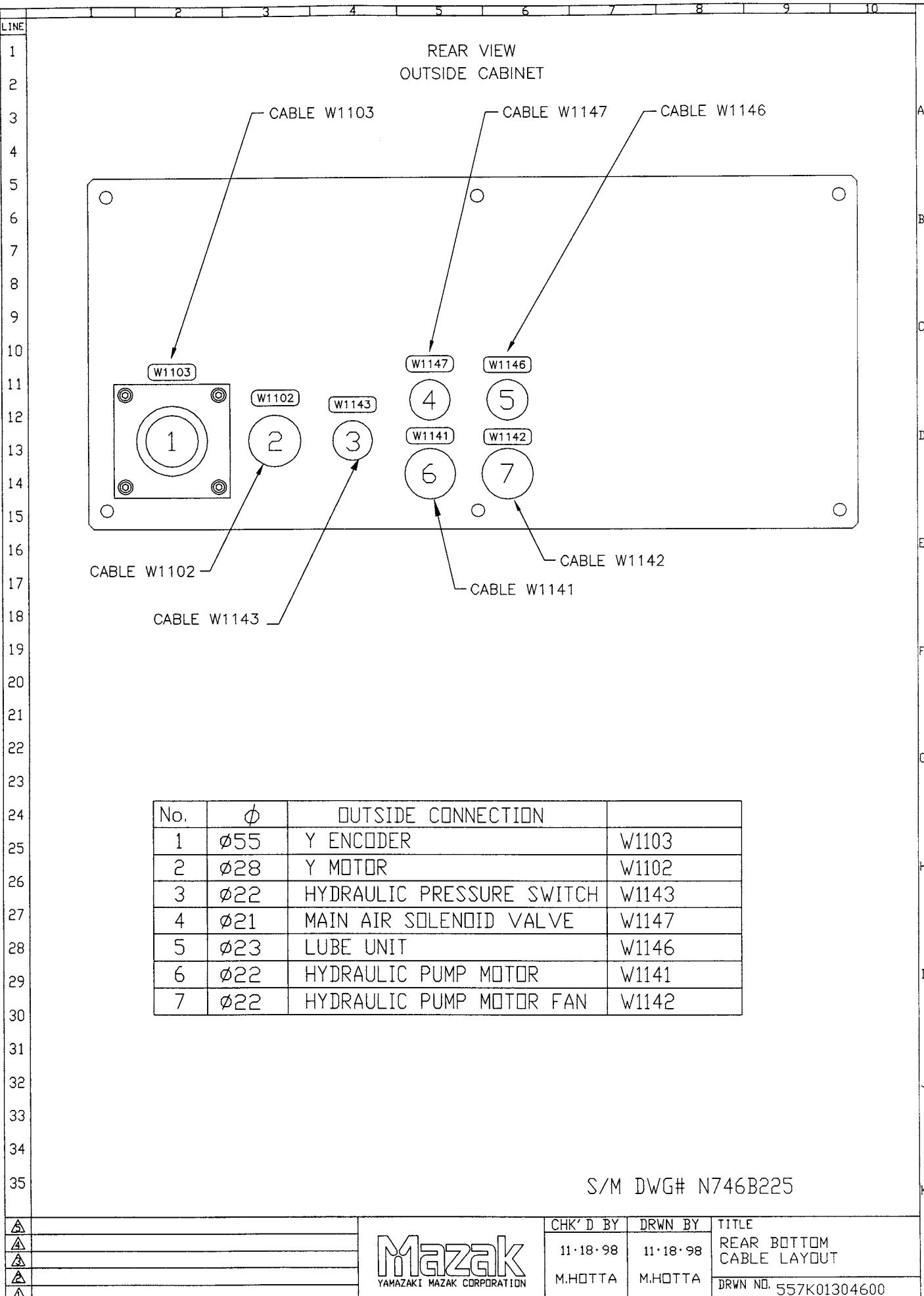
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	JB52 BOX (HEAD) REMOTE I/O (AP21)
		DRWN NO. 557K01304402



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PED-ELD001

1 2 3 4 5 6 7 8 9 10

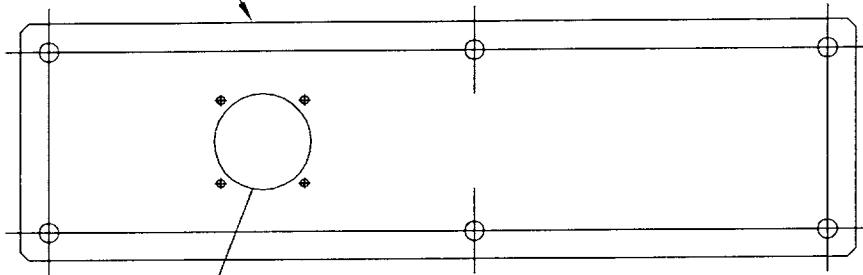
LINE

SIDE VIEW  
OUTSIDE CABINET

5 LEFT TOP CABLE PLATE →  
6  
7  
8  
9  
10  
11  
12  
13

VTC-200B

14 TOOL MEASURE CONNECTOR  
15  
16  
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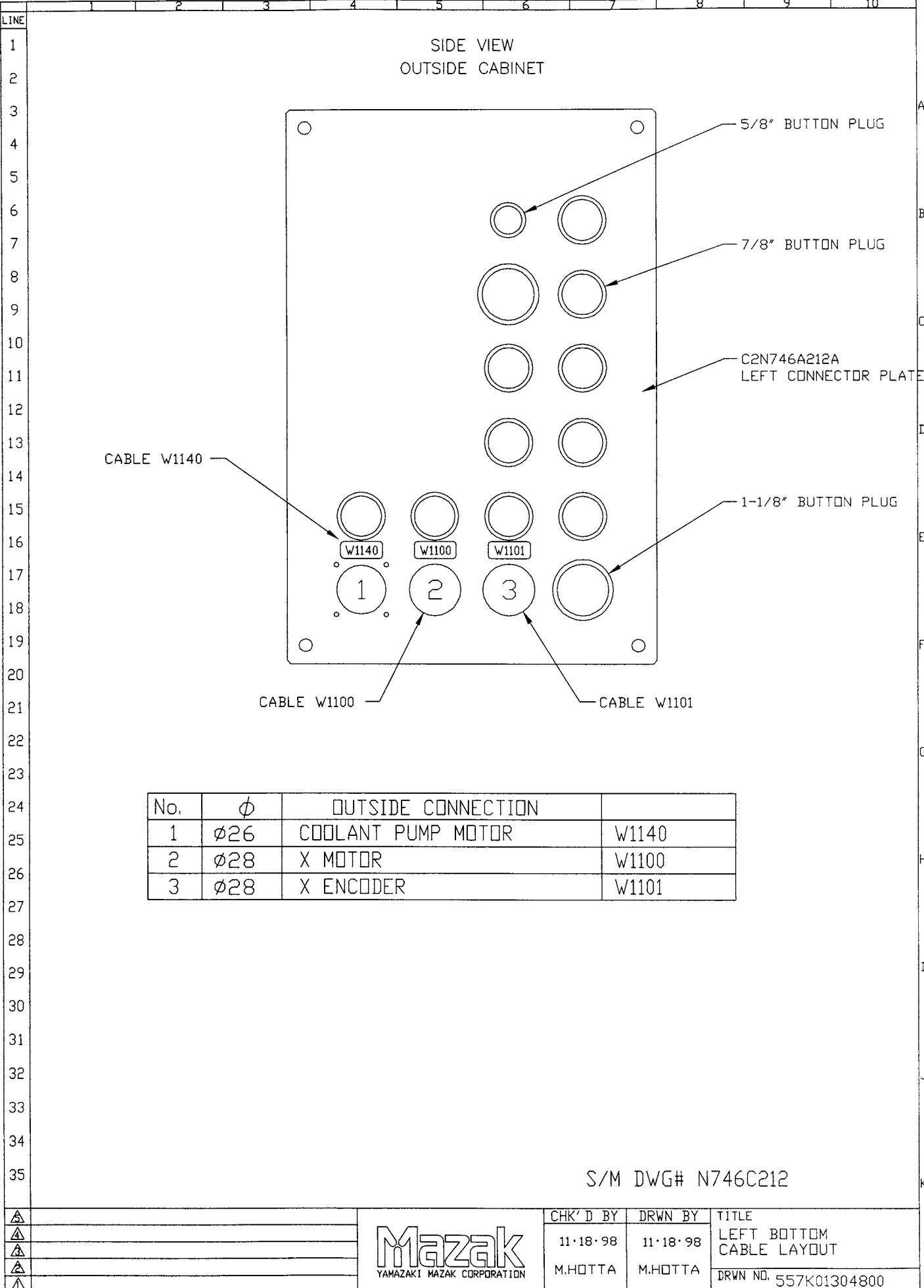


S/M DWG# N746B225

△	CHK'D BY	DRWN BY	TITLE
△	11-18-98	11-18-98	LEFT TOP
△	M.HOTTA	M.HOTTA	CABLE LAYOUT
△			DRWN NO. 557K01304701
△	CHANGED CABLE PLATE FOR TOOL MEASURE CONNECTOR 4/4/99 J.B.		

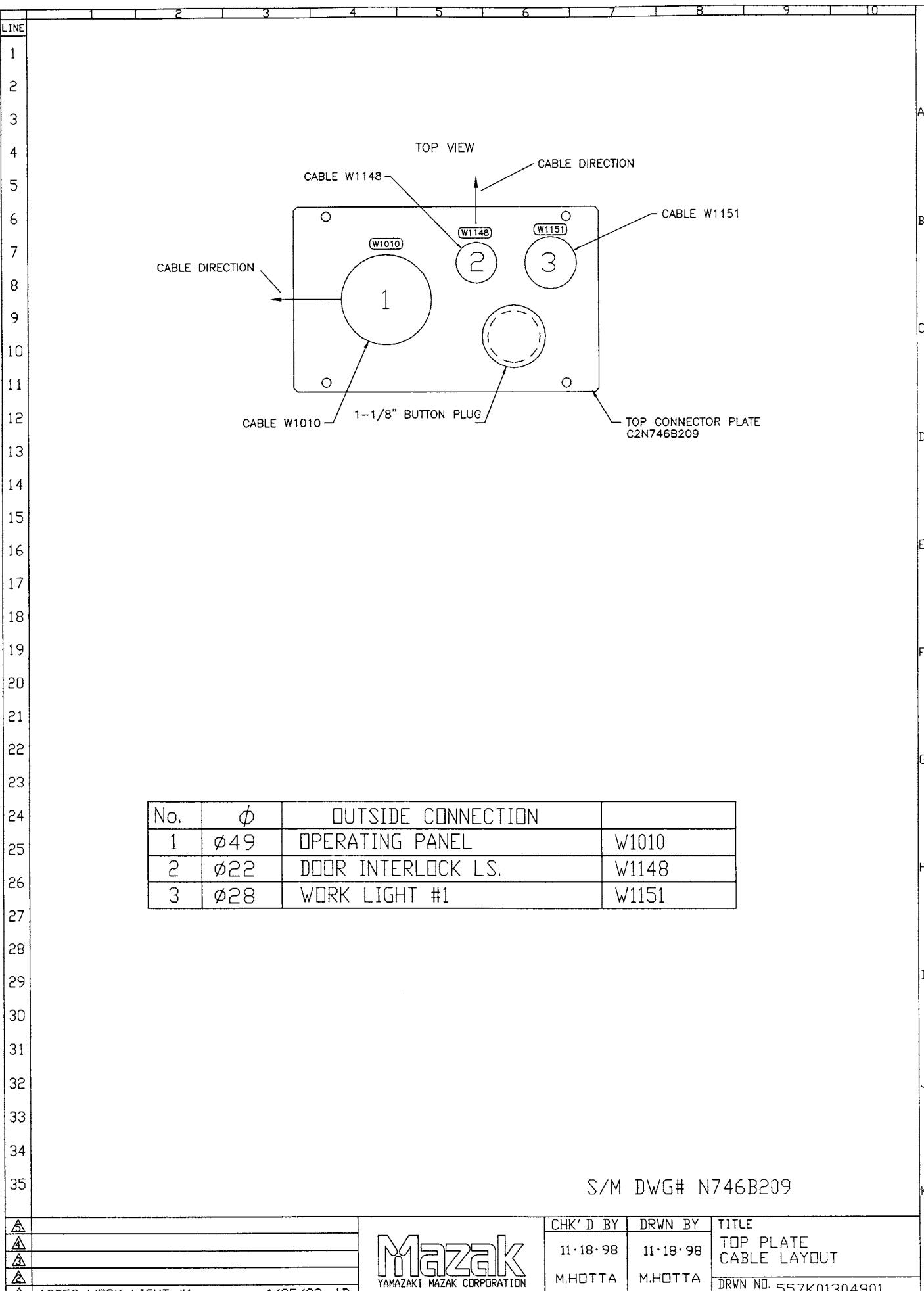
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



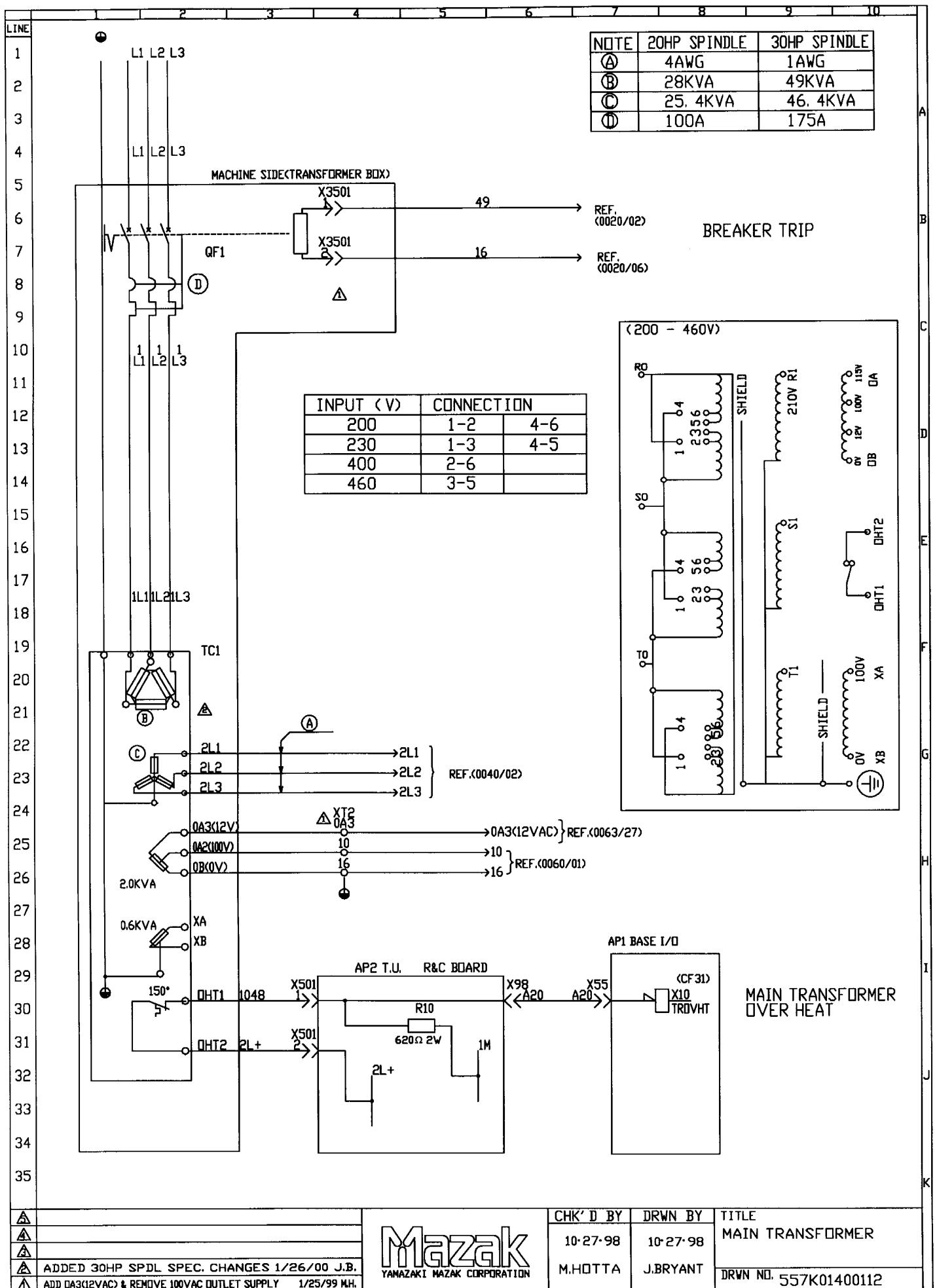
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



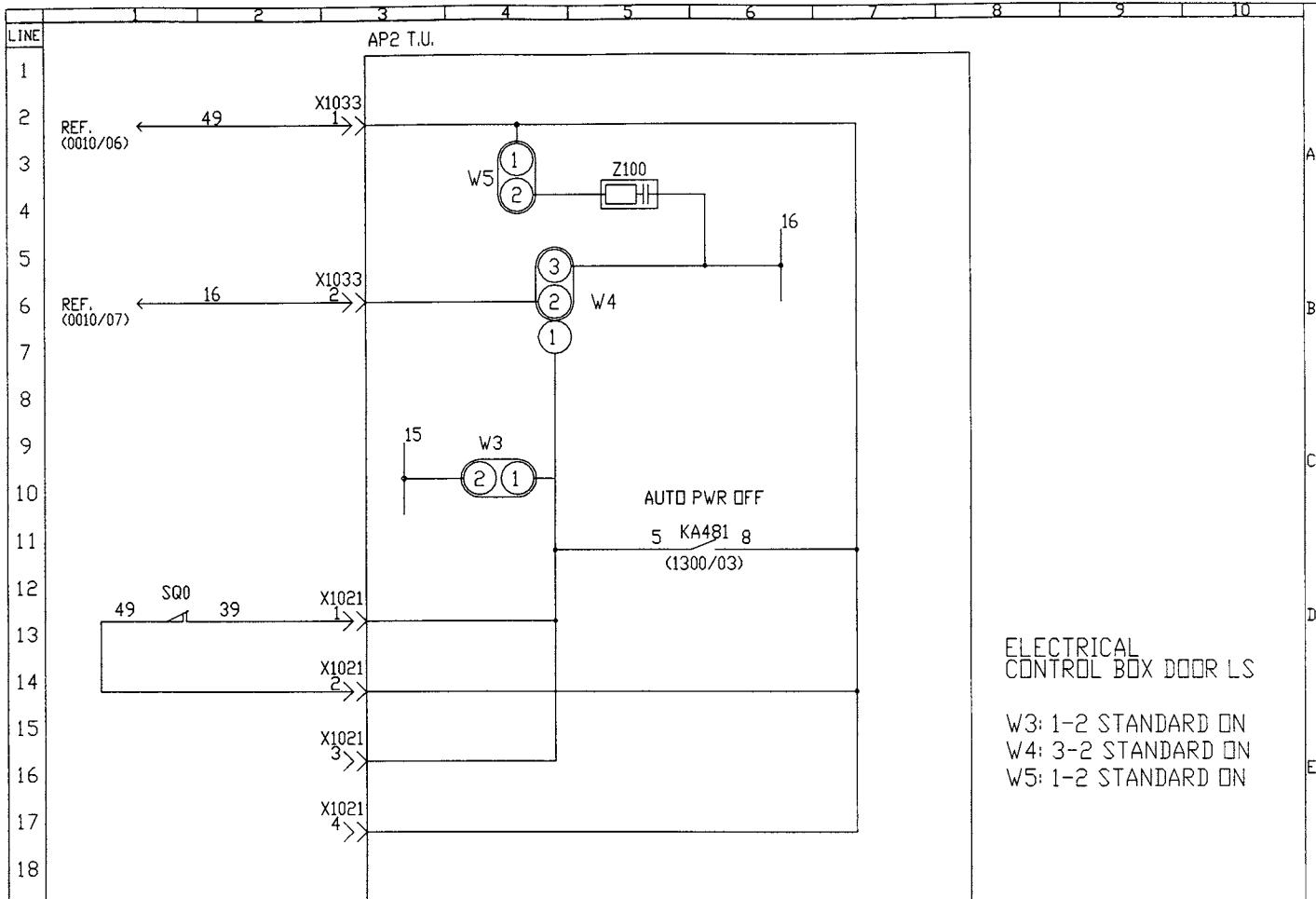
This product is subject to all applicable export control laws and regulations by Japanese Government.

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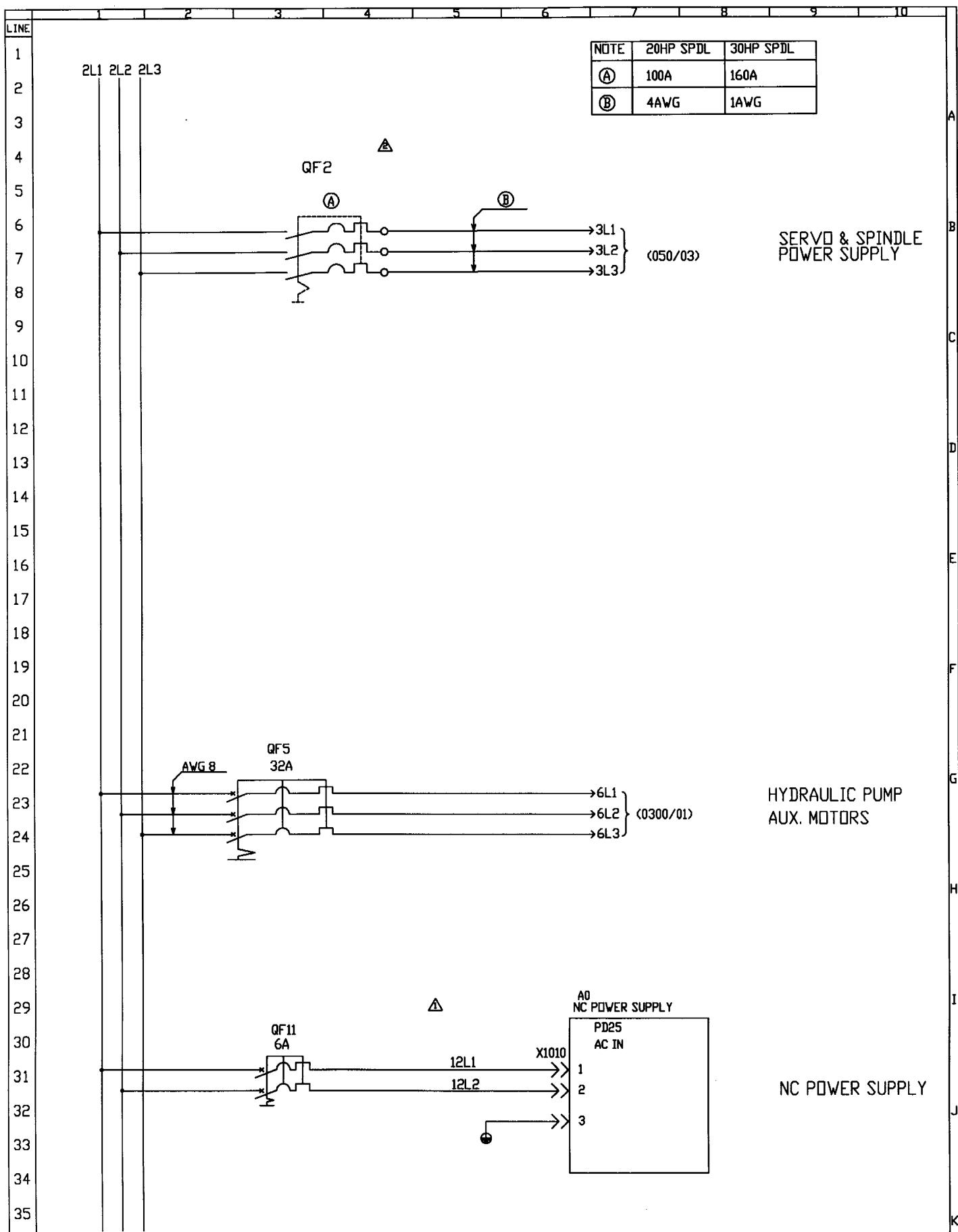
PED-ELD001



CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	BREAKER TRIP (CABINET DOOR) DRWN NO. 557K01400200

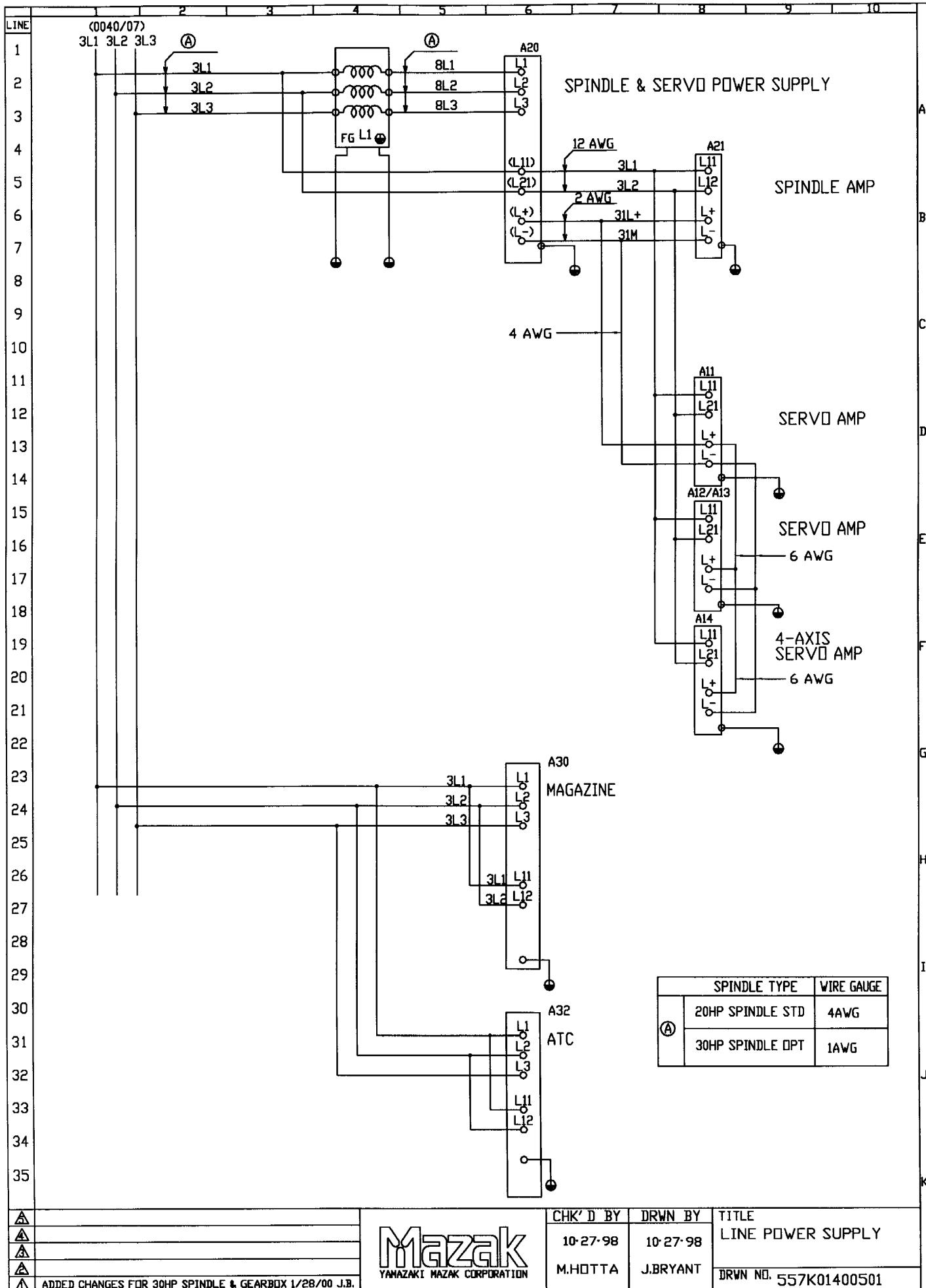
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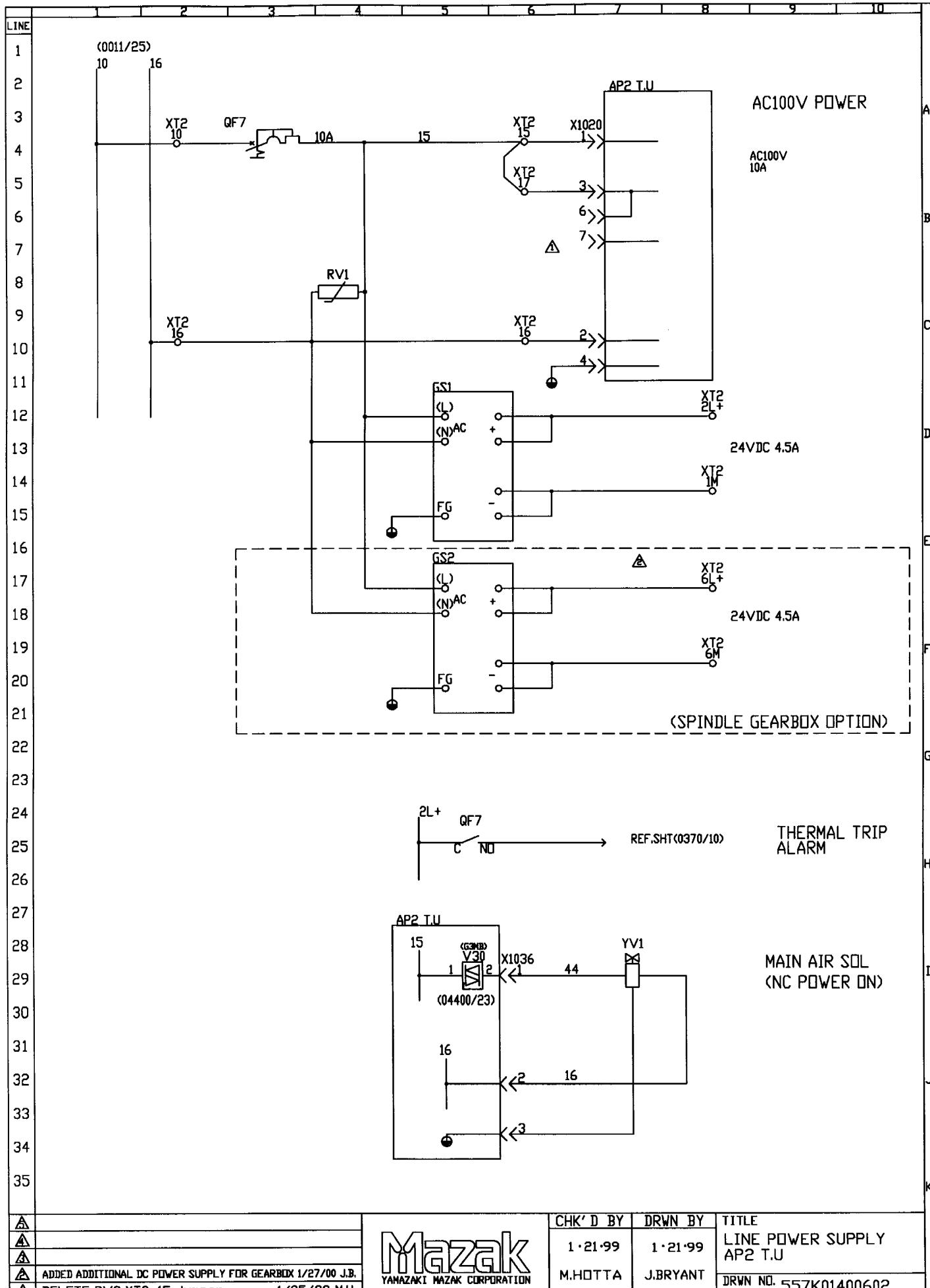
CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	LINE POWER SUPPLY 200VAC LINE
		DRWN NO. 557K01400402

▲ ADDED 160A BKR FOR 30HP SPDL OPT 1/26/00 J.B.  
▲ CHANGED WIRE LABELS BETWEEN PD25 AND QF11 1/27/99 J.B.



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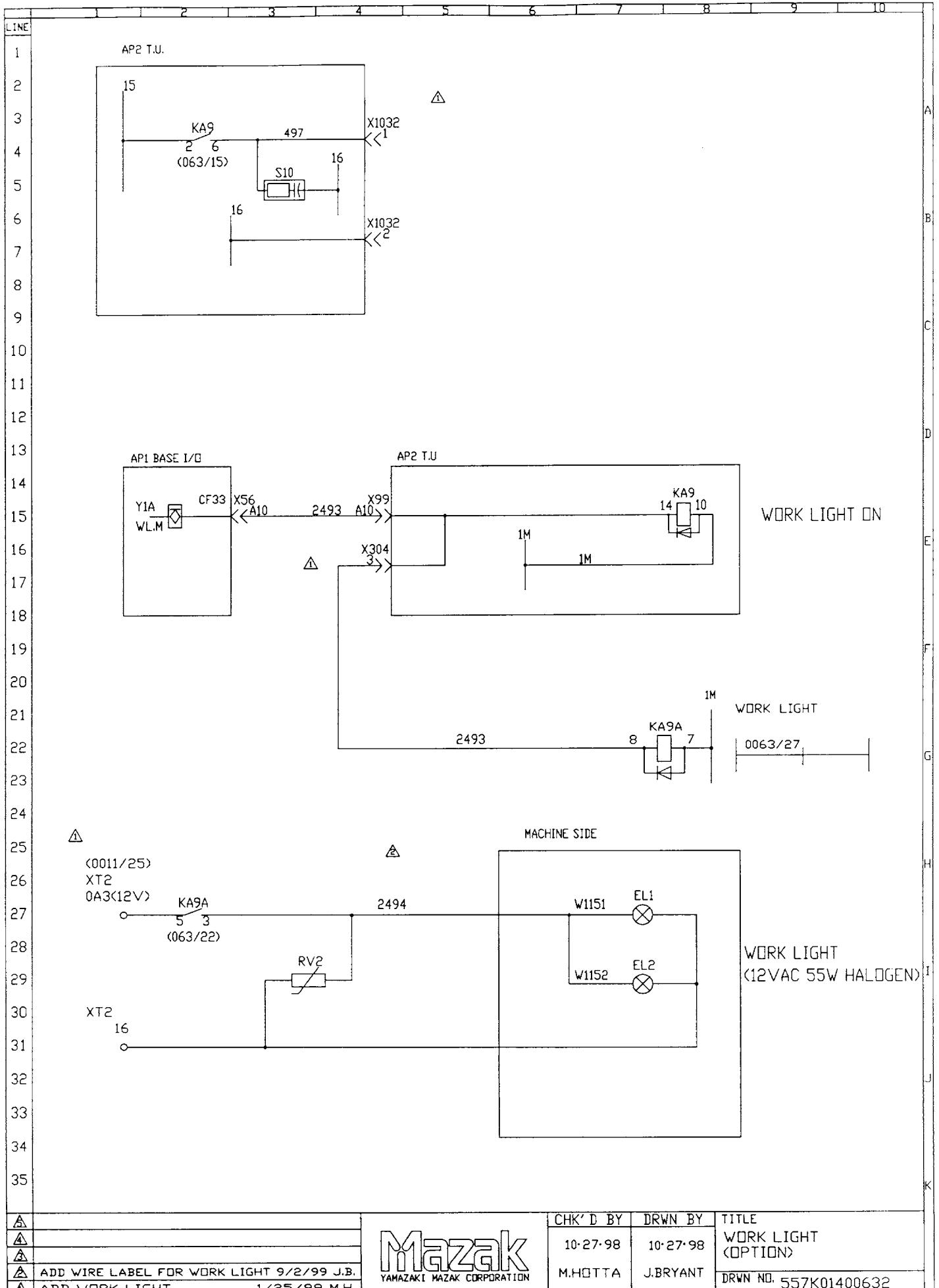
▲  
 ▲  
 ▲  
 ▲ ADDITIONAL DC POWER SUPPLY FOR GEARBOX 1/27/00 J.B.  
 ▲ DELETE RV2,XT2-15 Jumper 1/25/99 M.H.

**Mazak**  
YAHAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
1.21.99 M.HOTTA	1.21.99 J.BRYANT	LINE POWER SUPPLY AP2 T.U.
		DRWN NO. 557K01400602

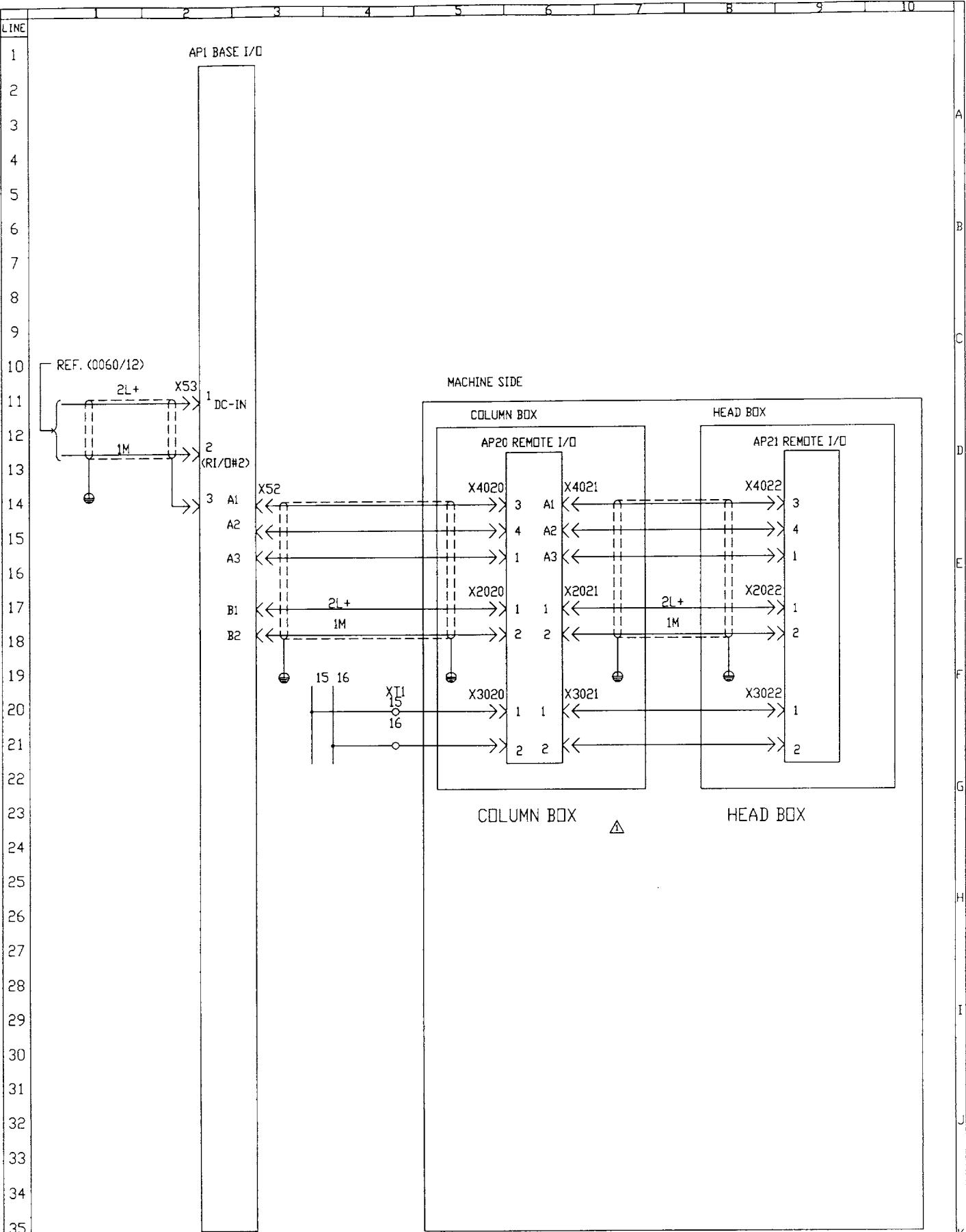
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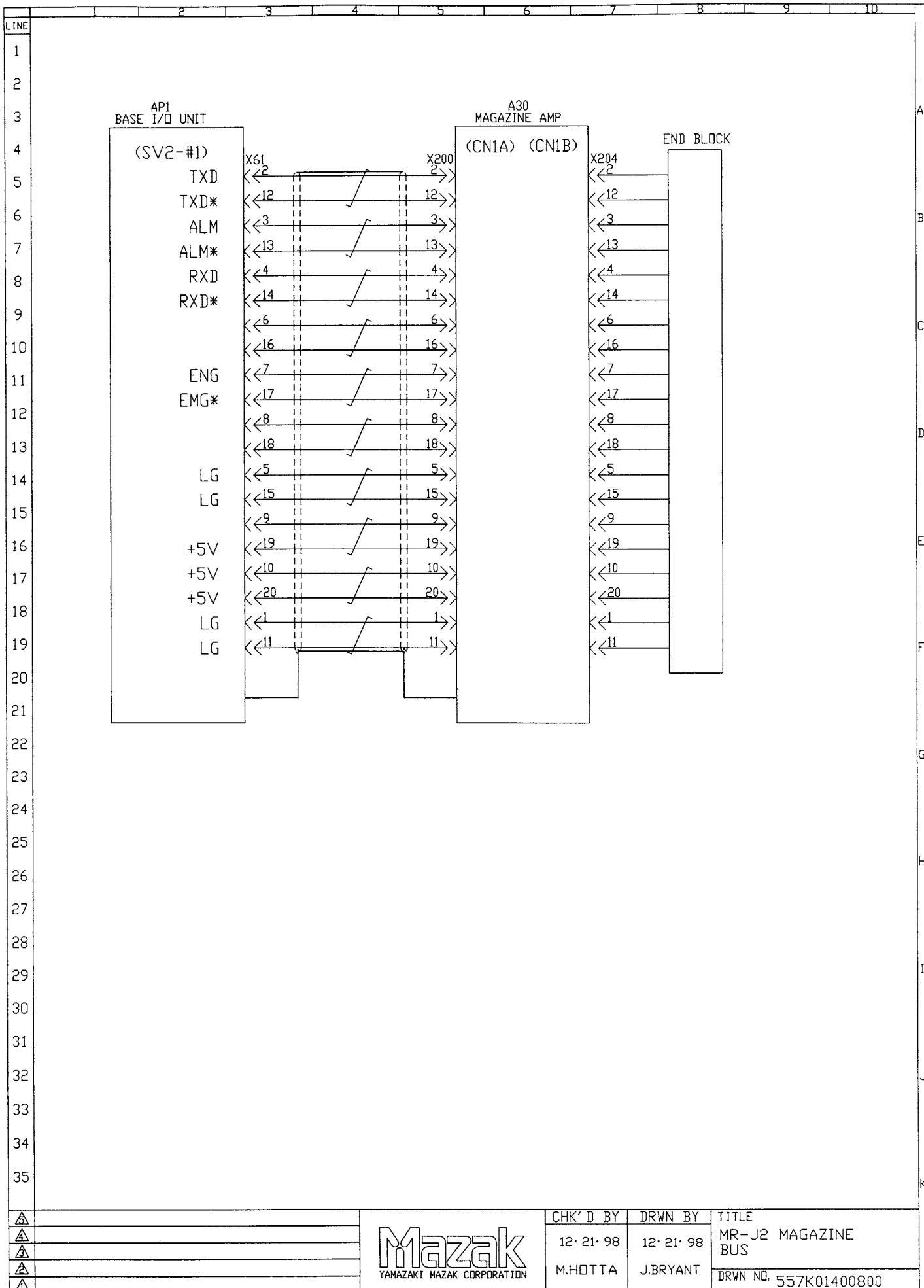
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	REMOTE I/O UNIT 1
		DRWN NO. 557K01400701

▲ CHANGED PIN OUTS ON AP20 REMOTE I/O 9/2/99 J.B.

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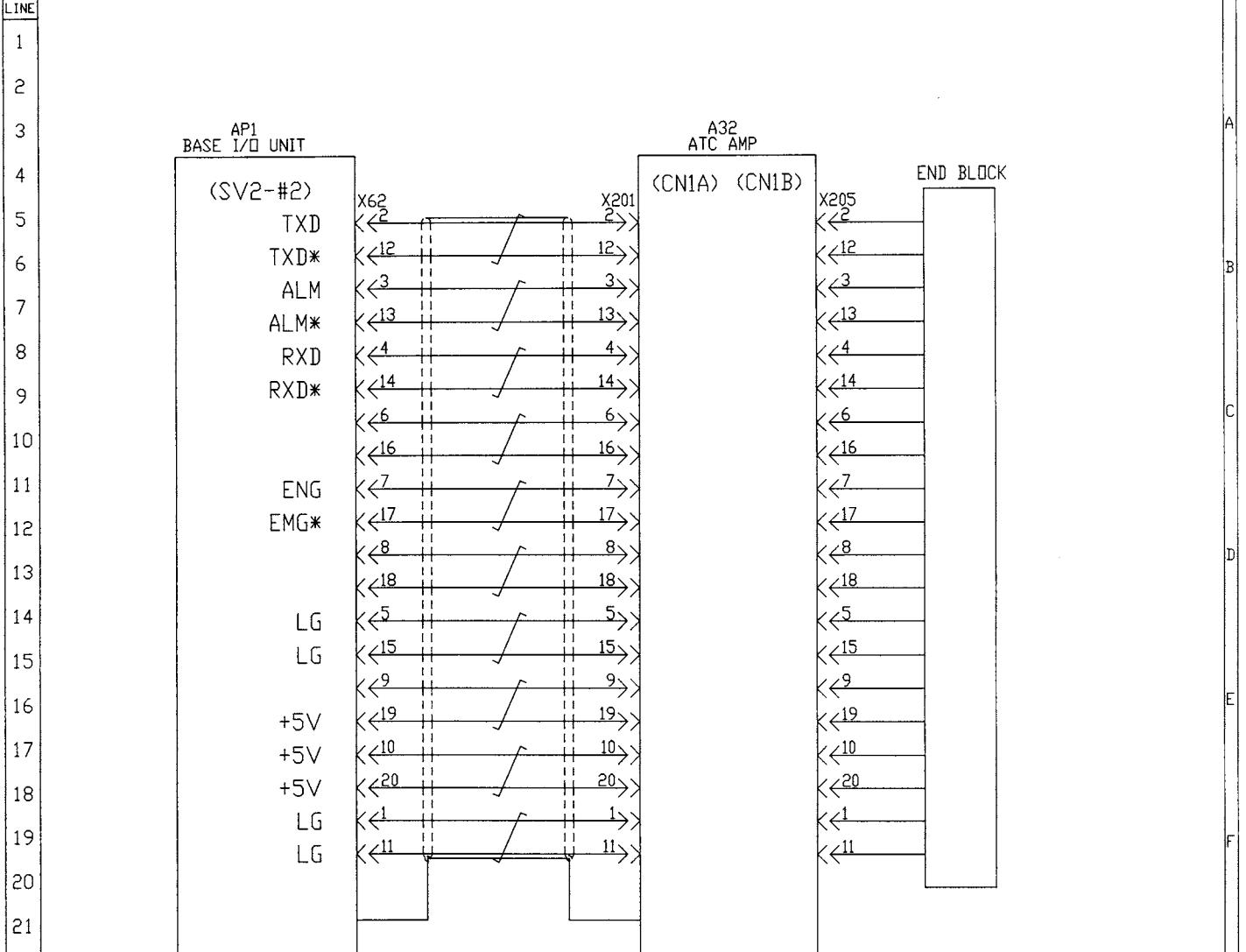
PED-ELD001



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PED-ELD001

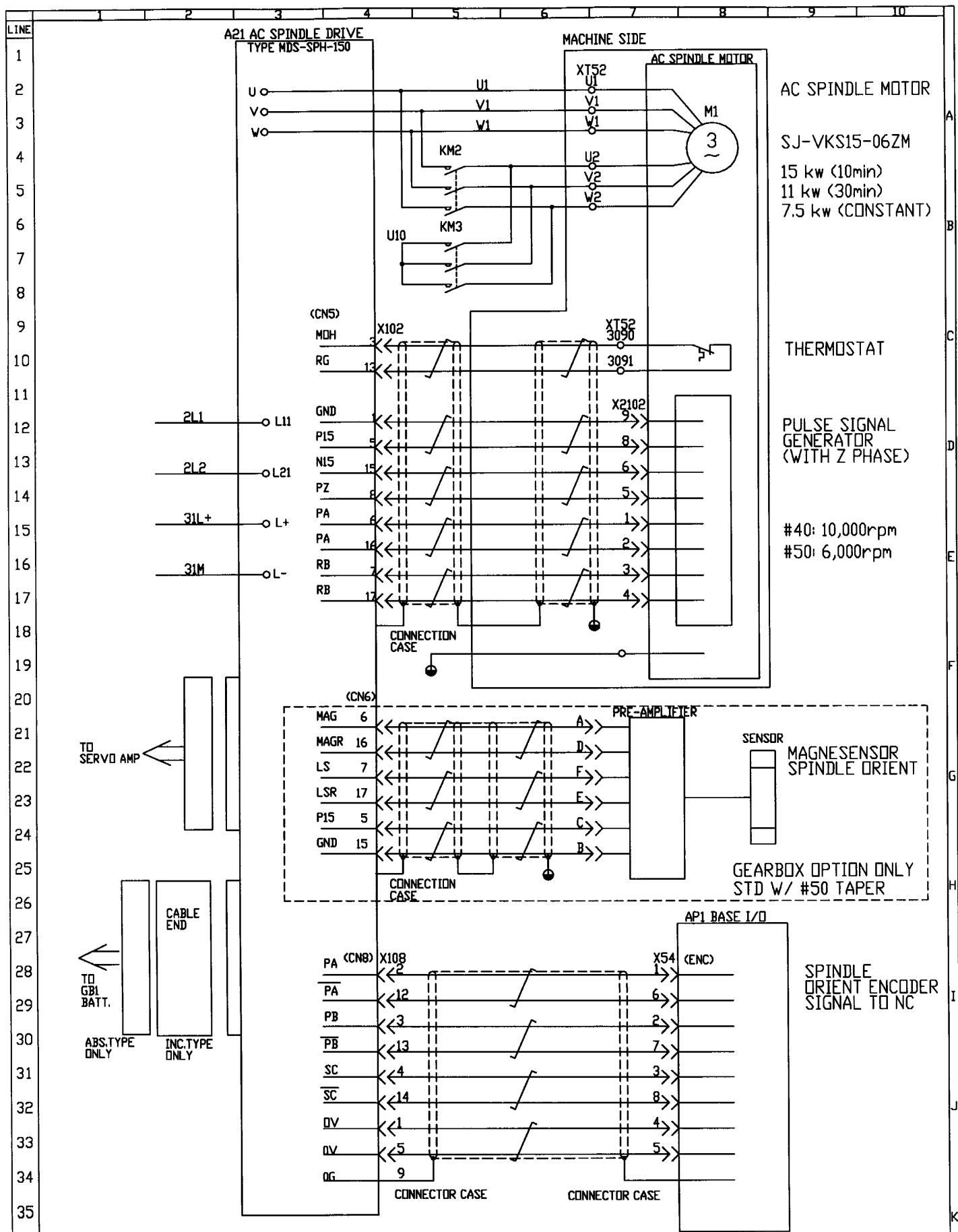
1 2 3 4 5 6 7 8 9 10



A	CHK'D BY	DRWN BY	TITLE
A	12-30-98	12-30-98	MR-J2 ATC ARM BUS CONNECTION
A	M.HOTTA	J.BRYANT	DRWN NO. 557K01400810
A			
A			
A			
A			

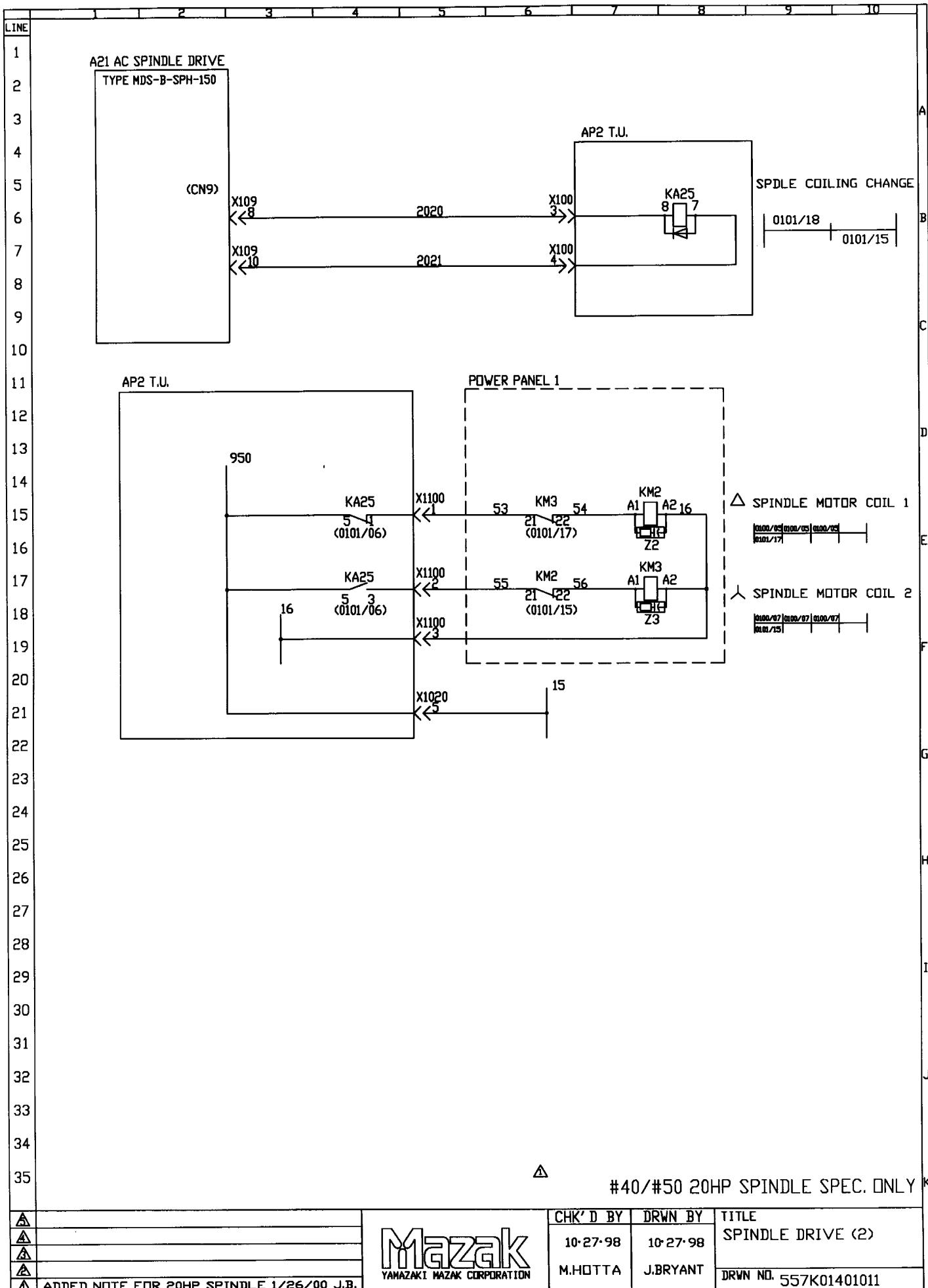
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



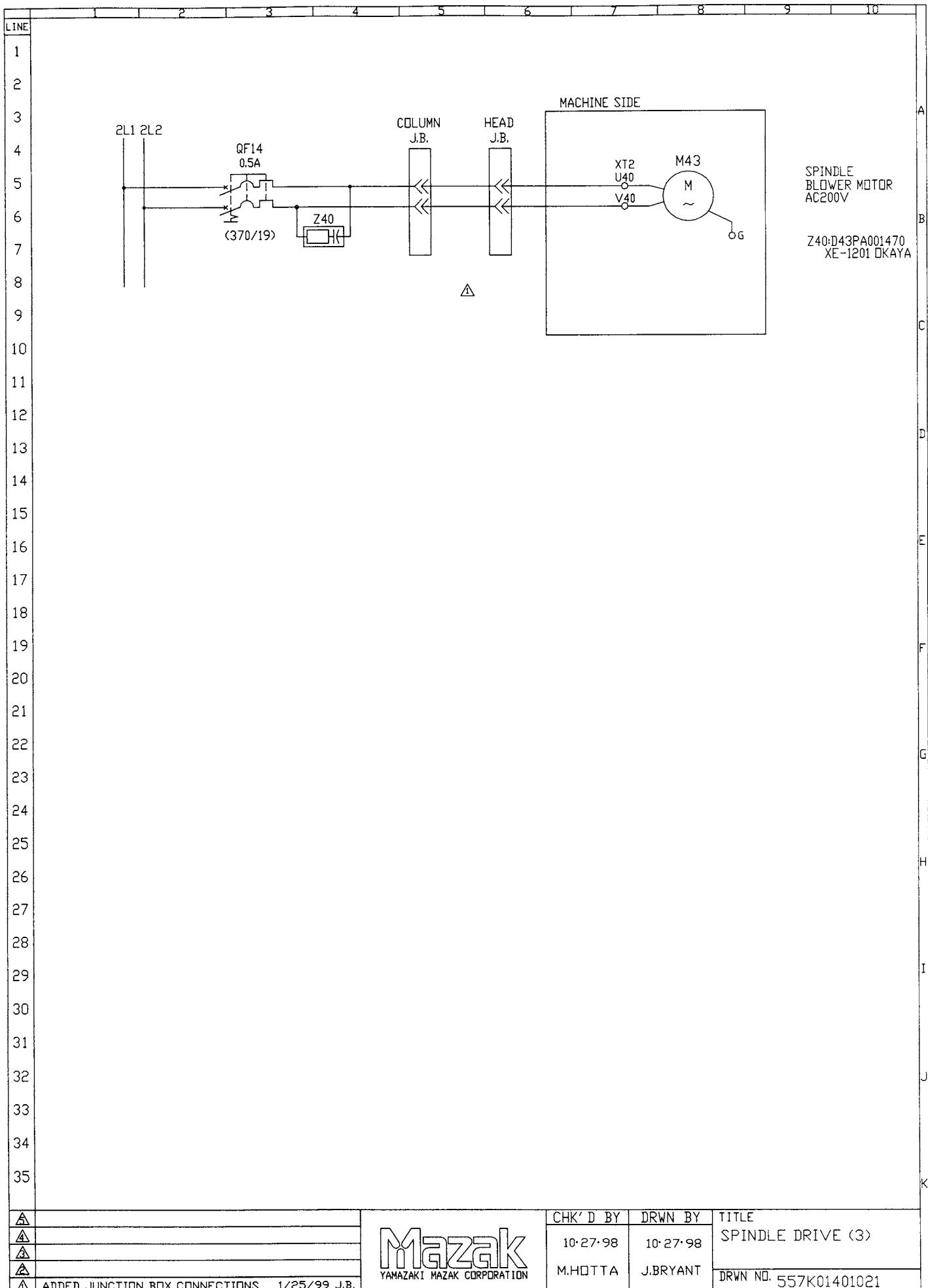
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



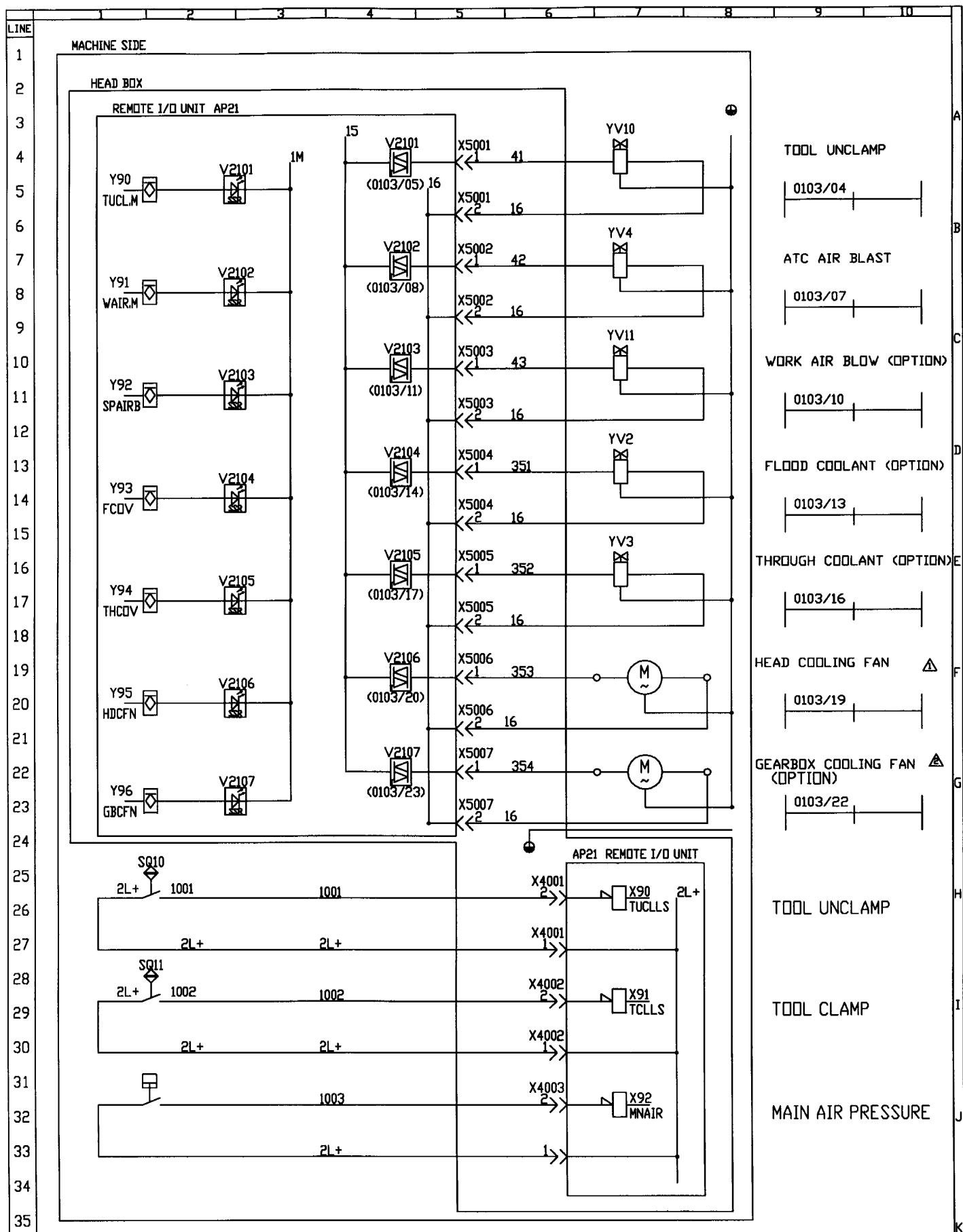
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**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

7-14-99  
M.HOTTA

DRWN BY

7-14-99  
J.COUCH

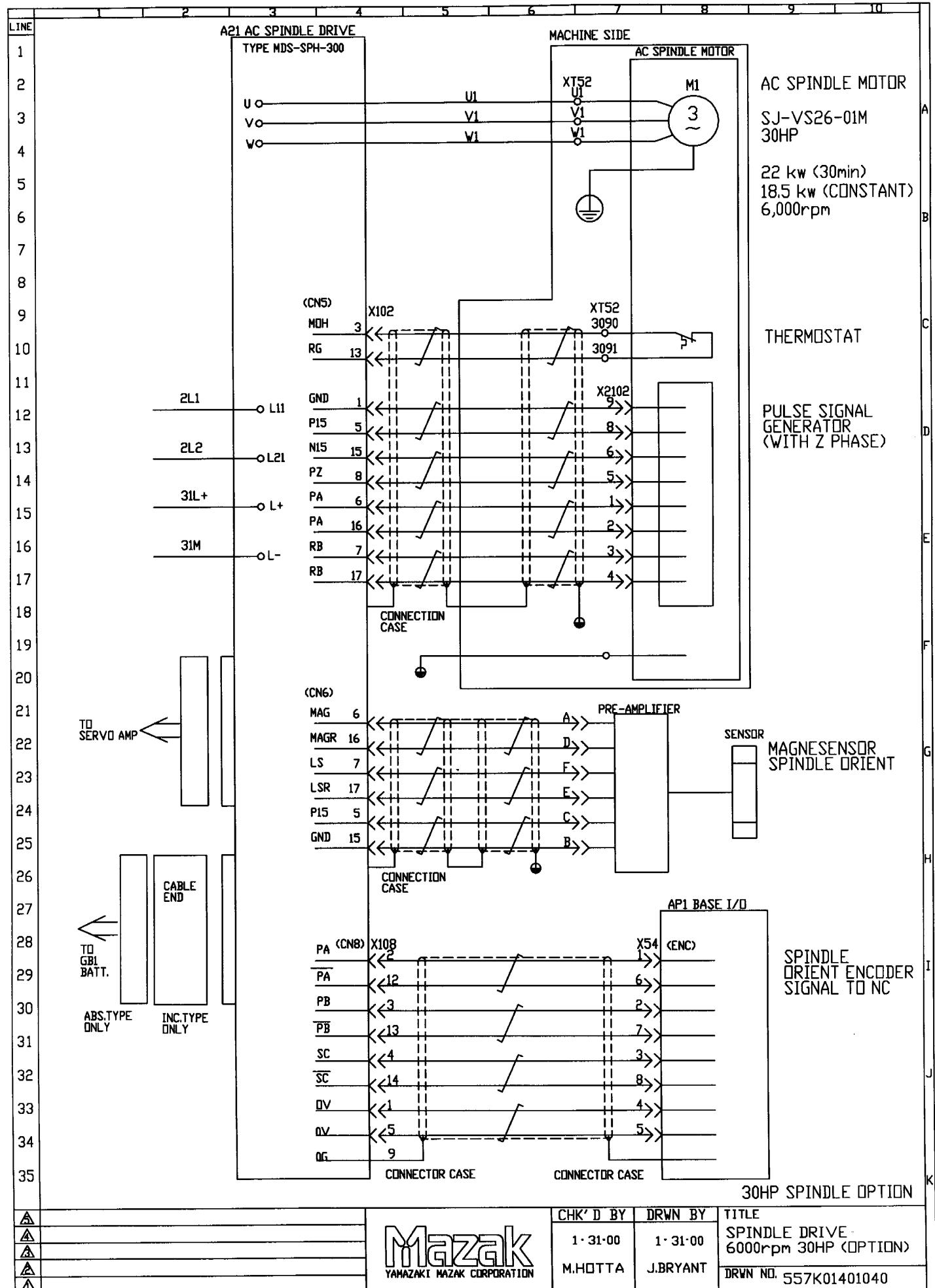
TITLE

SPINDLE  
REMOTE I/O

DRWN NO. 557K01401032

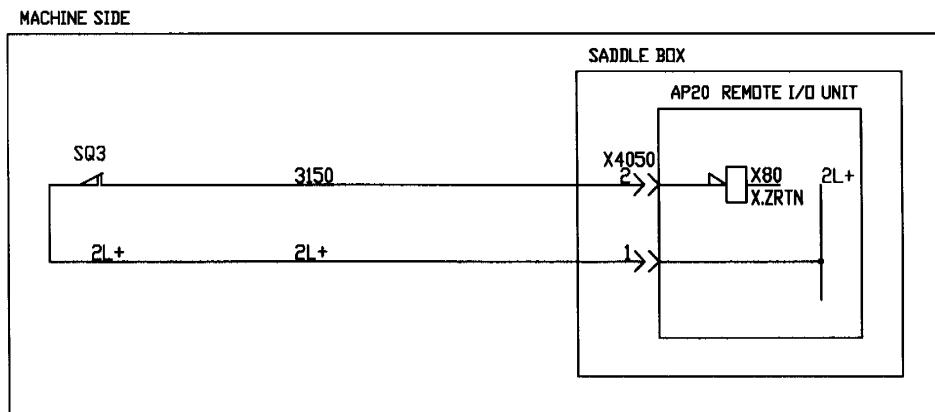
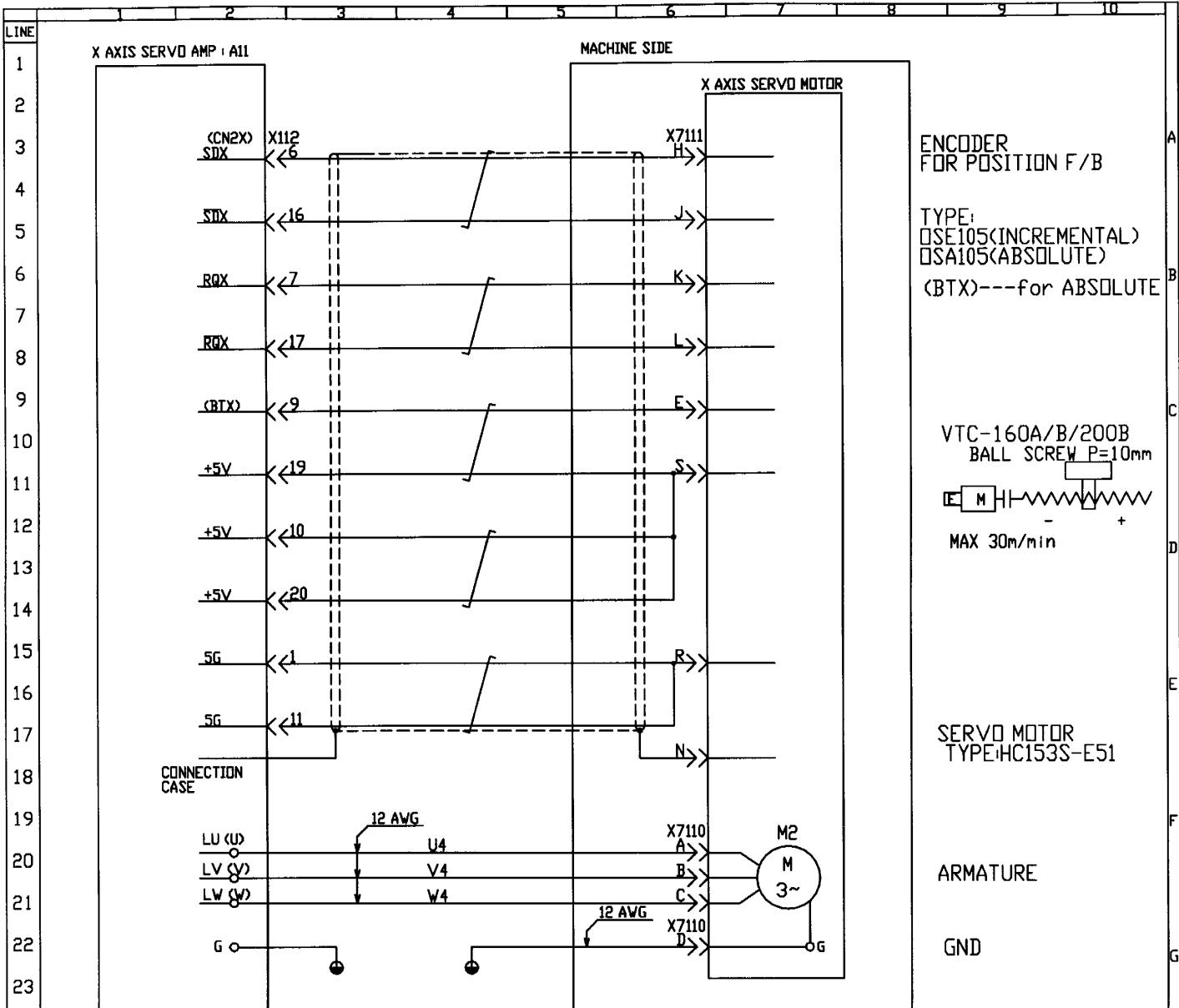
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



△ #40 SPEC.

△	
△	
△	
△	
△	ADDED NOTE FOR #40 TAPER MACHINE 1/31/00 J.B.

**Mazak**  
 YAMAZAKI MAZAK CORPORATION

CHK'D BY

10-27-98

DRWN BY

10-27-98

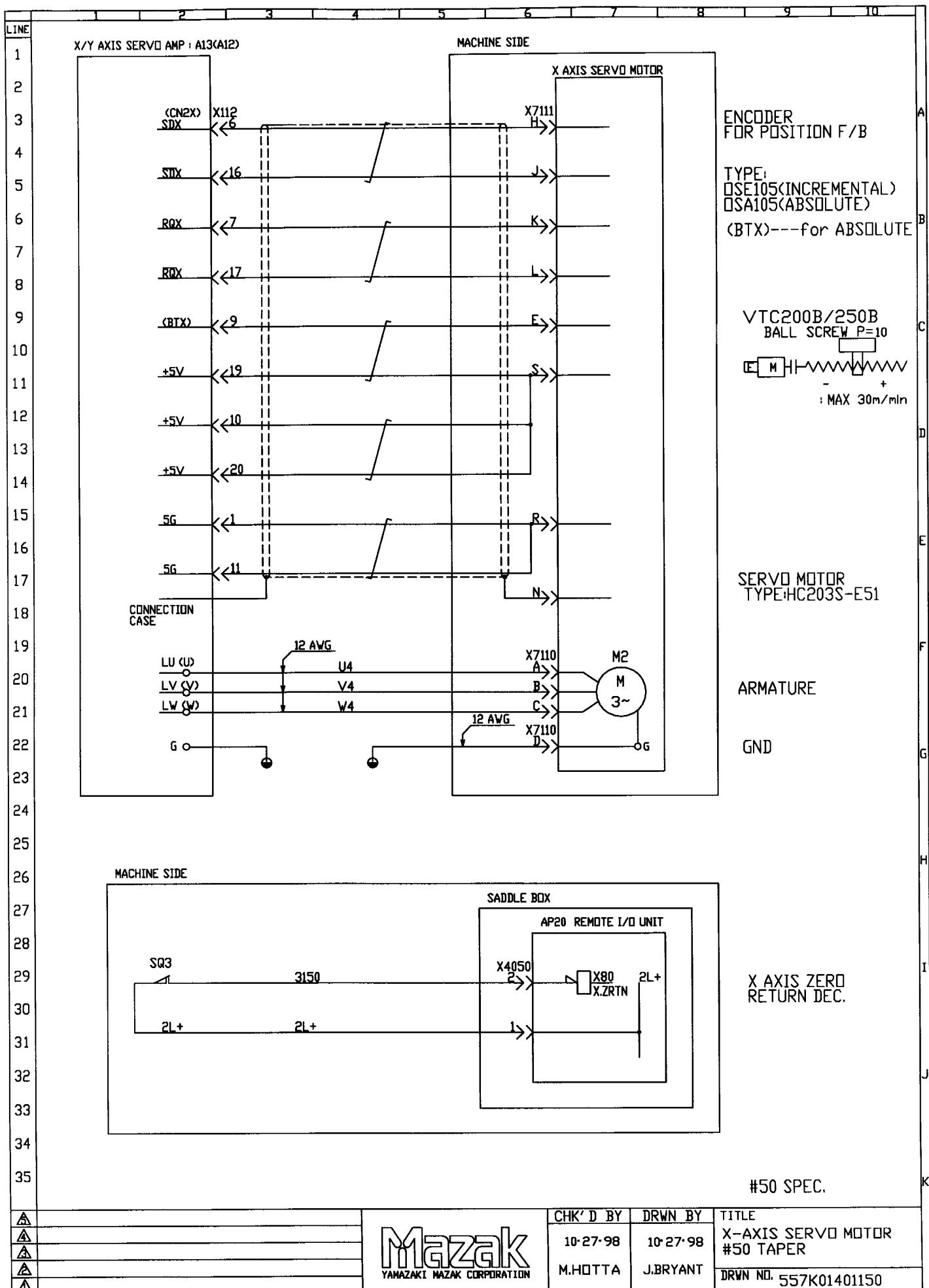
TITLE

X-AXIS SERVO MOTOR  
 #40 TAPER

DRWN NO. 557K01401101

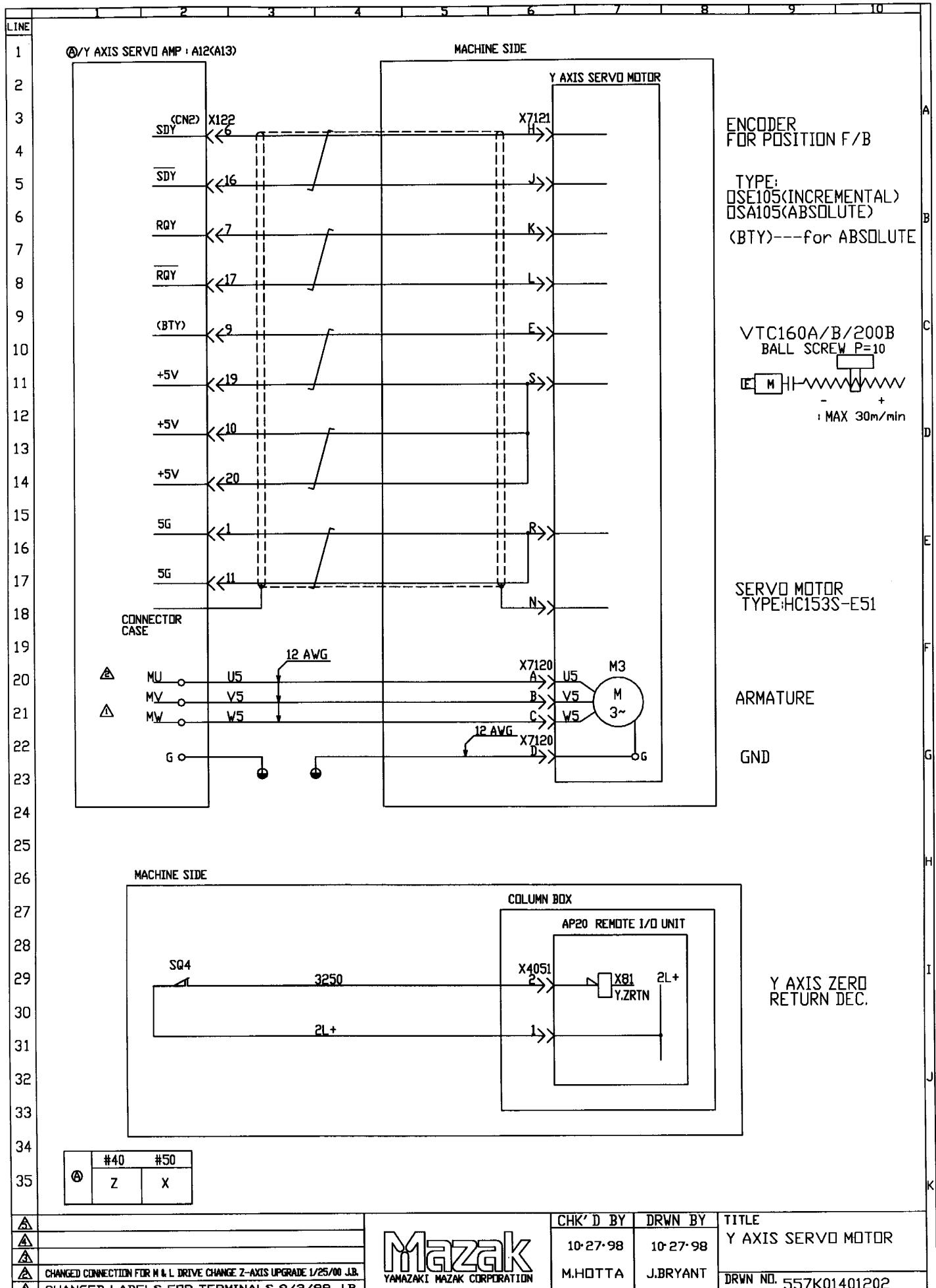
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



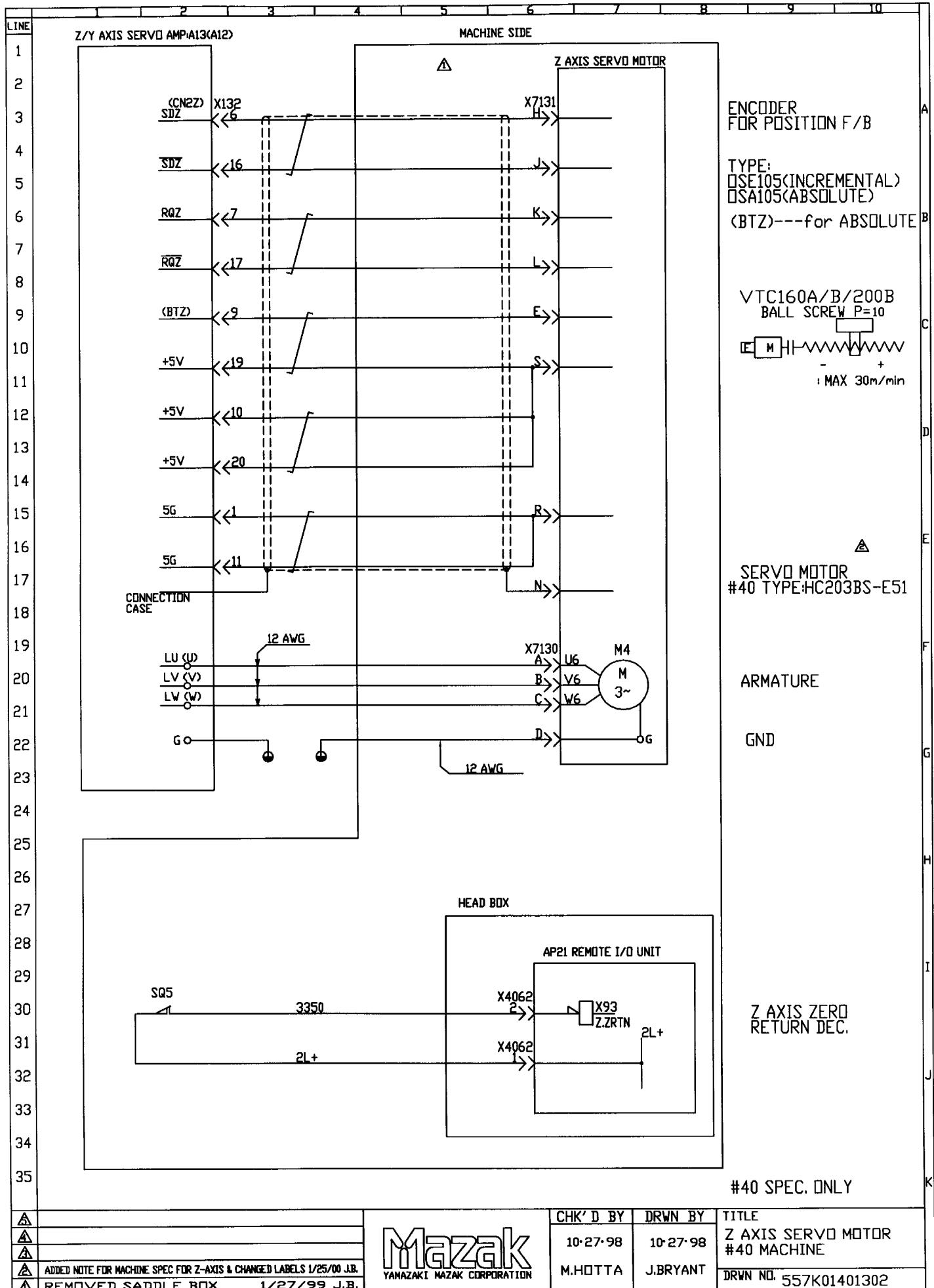
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



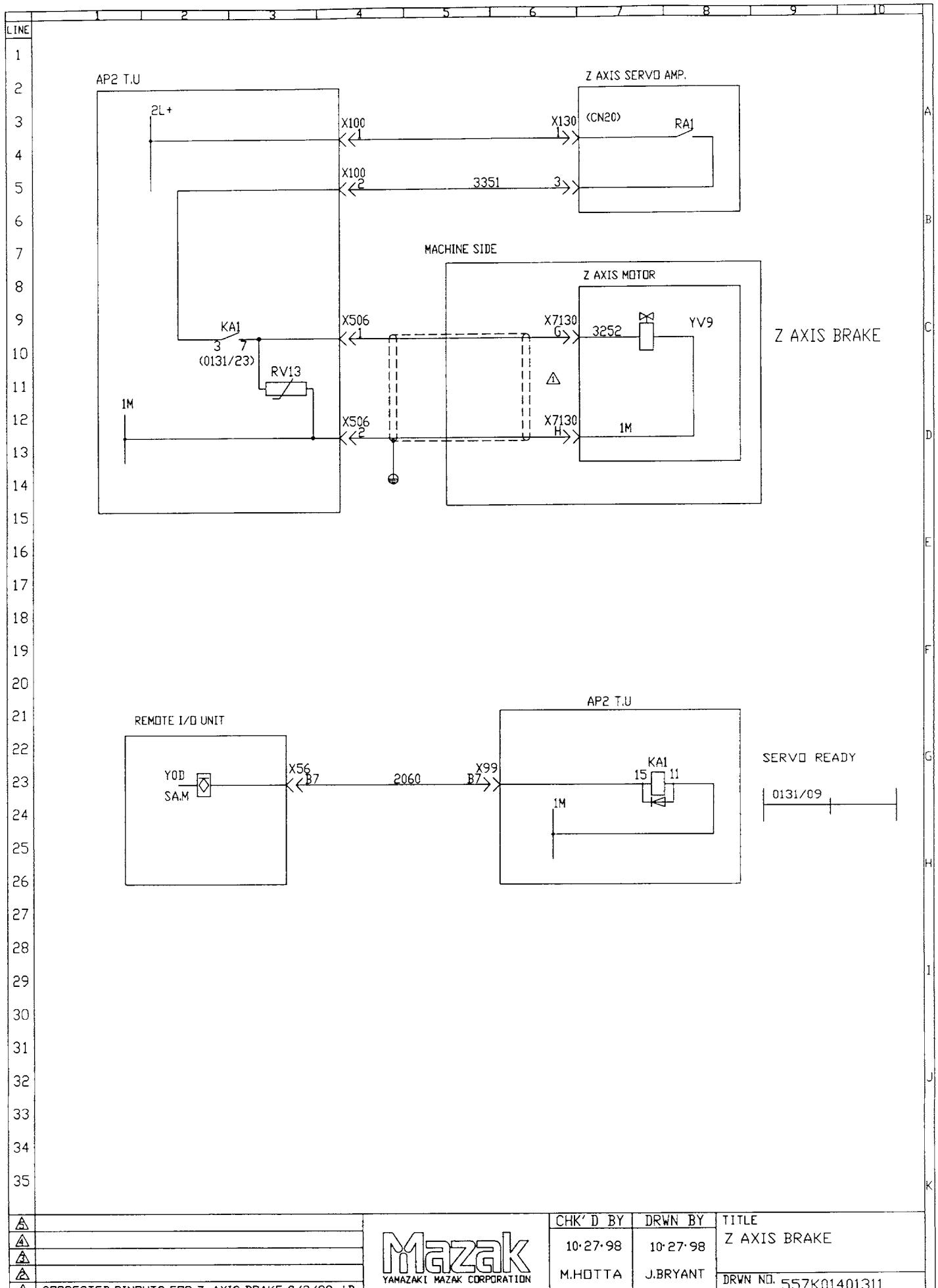
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



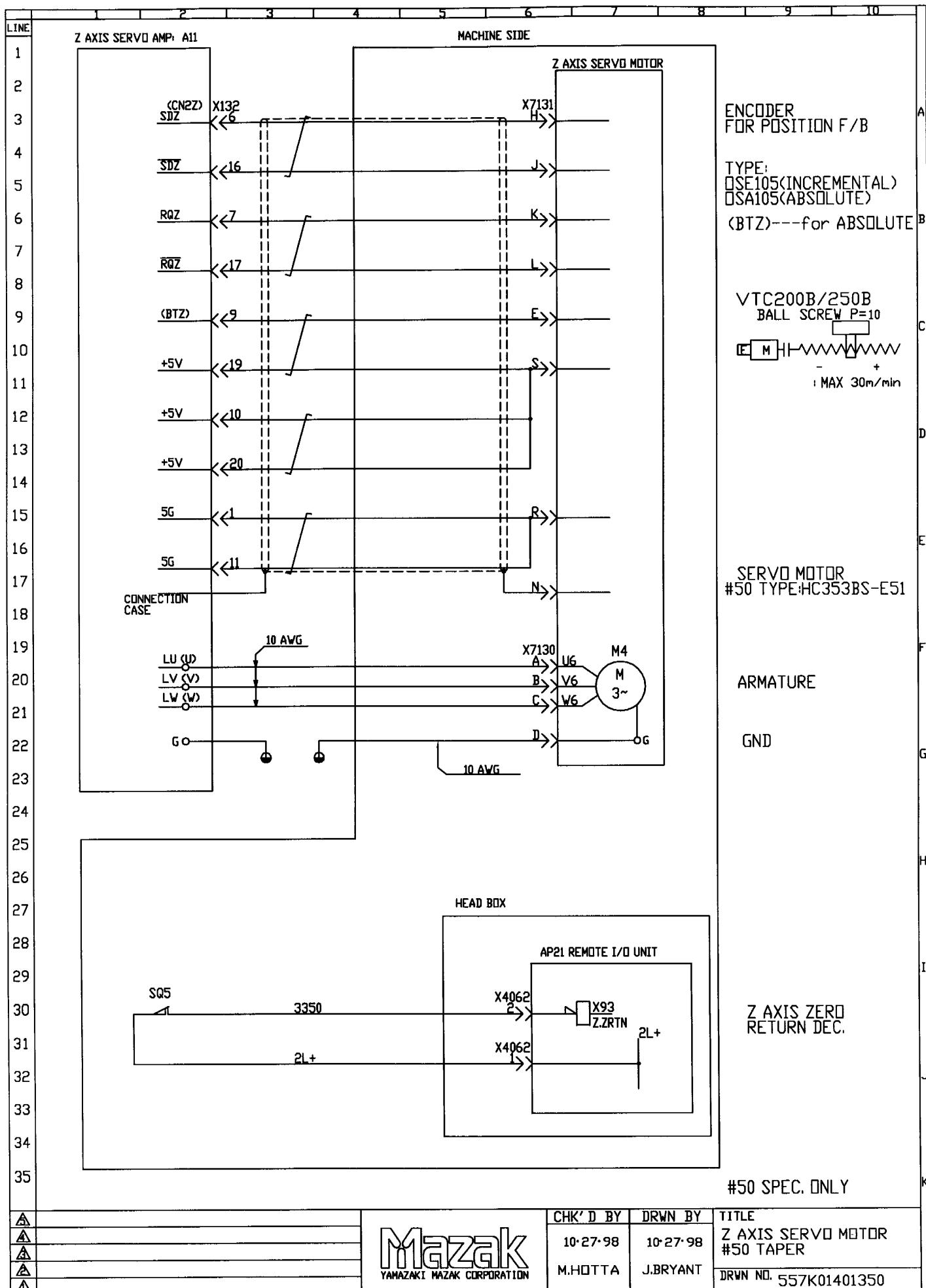
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



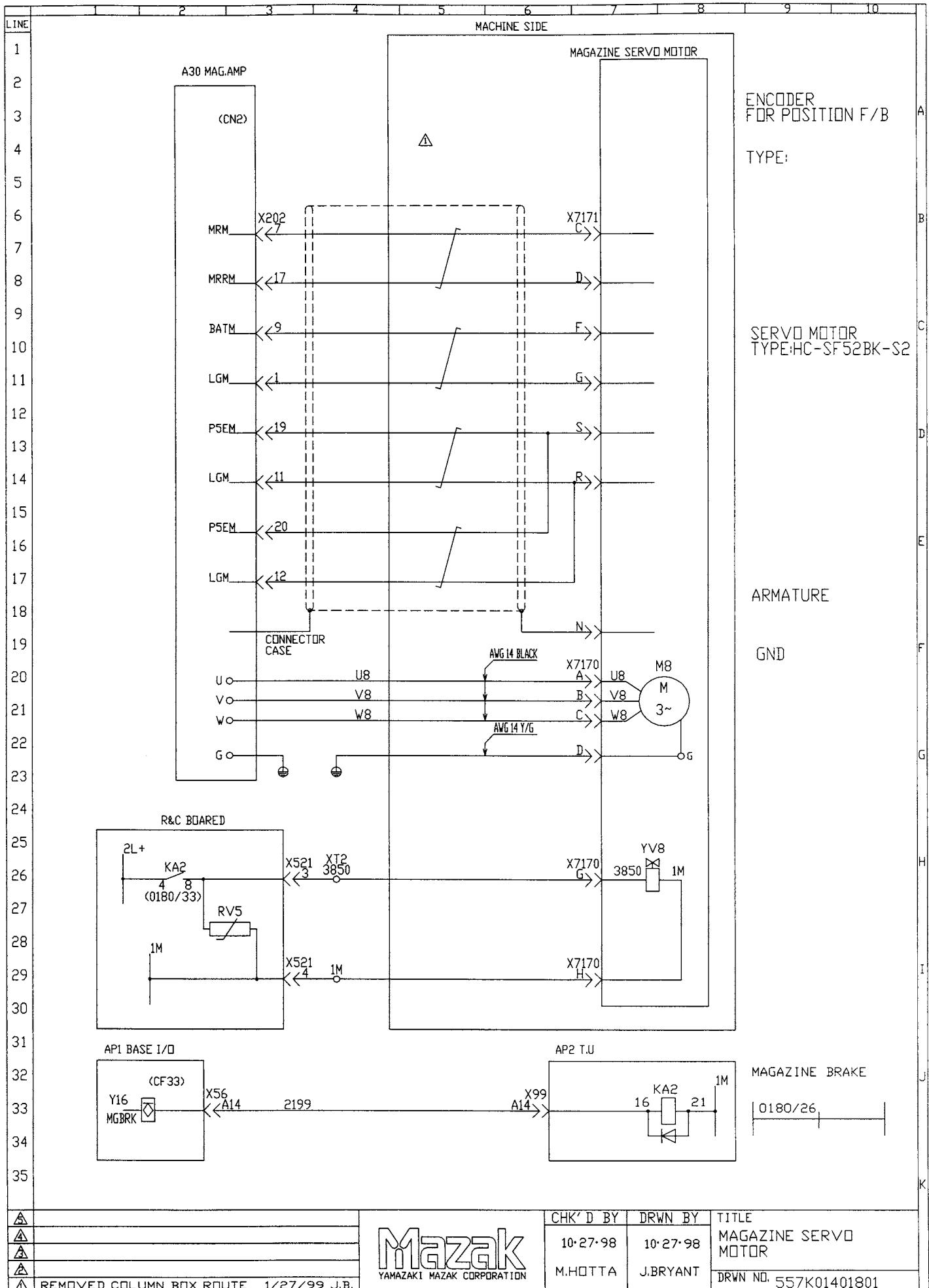
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



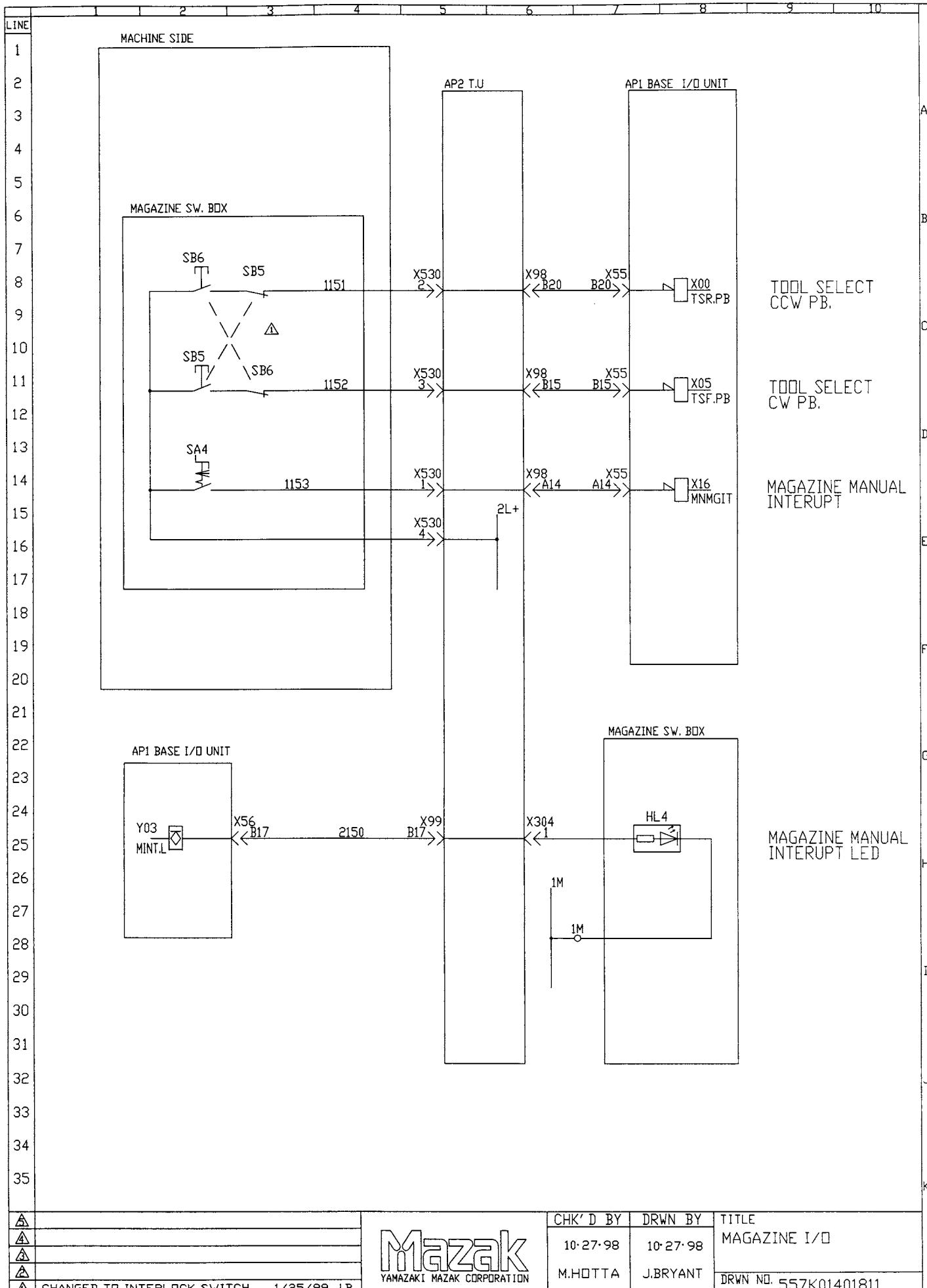
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



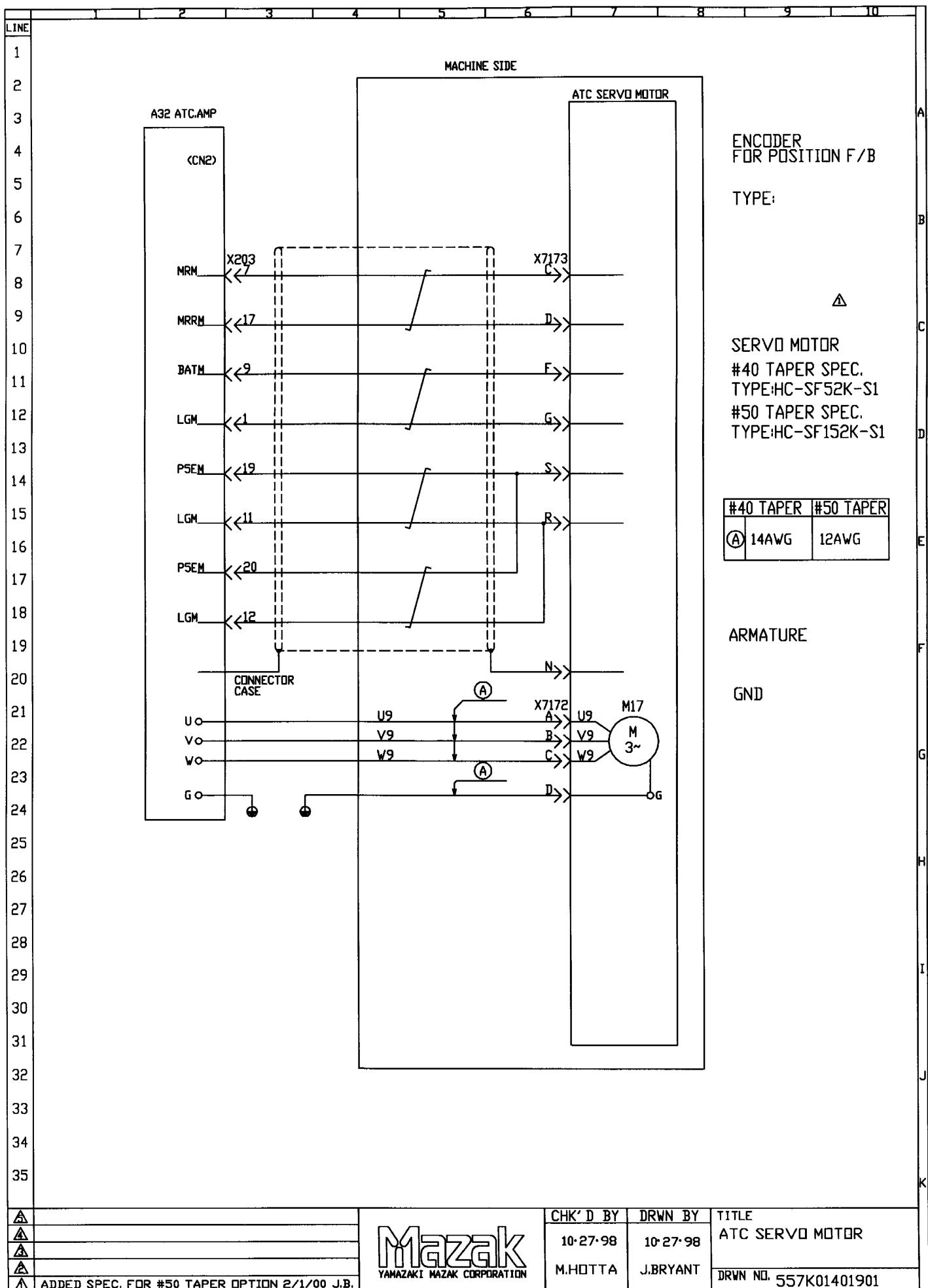
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

10-27-98

DRWN BY

10-27-98

TITLE

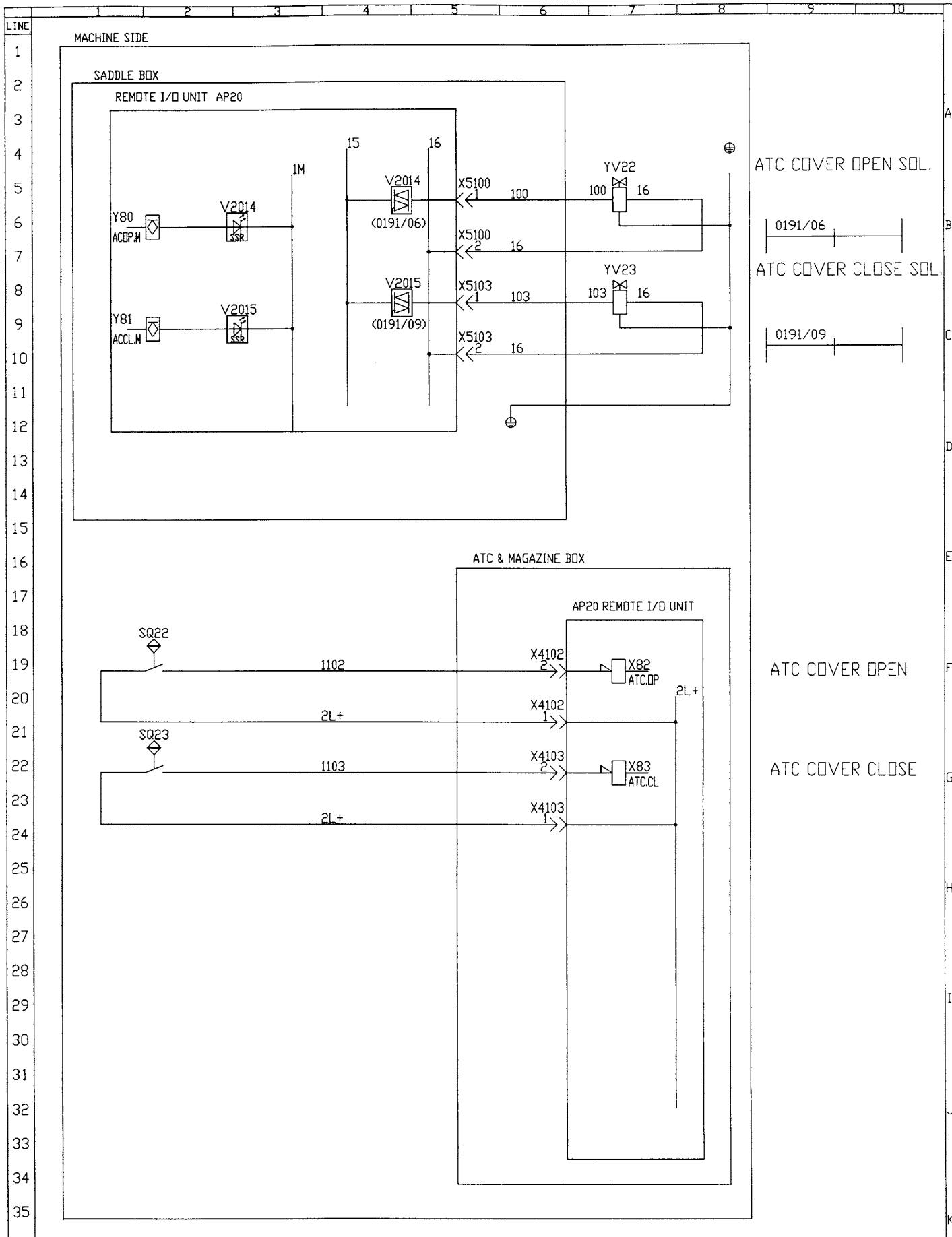
ATC SERVO MOTOR

DRWN NO. 557K01401901

⚠ ADDED SPEC. FOR #50 TAPER OPTION 2/1/00 J.B.

This product is subject to all applicable export control laws and regulations by Japanese Government.

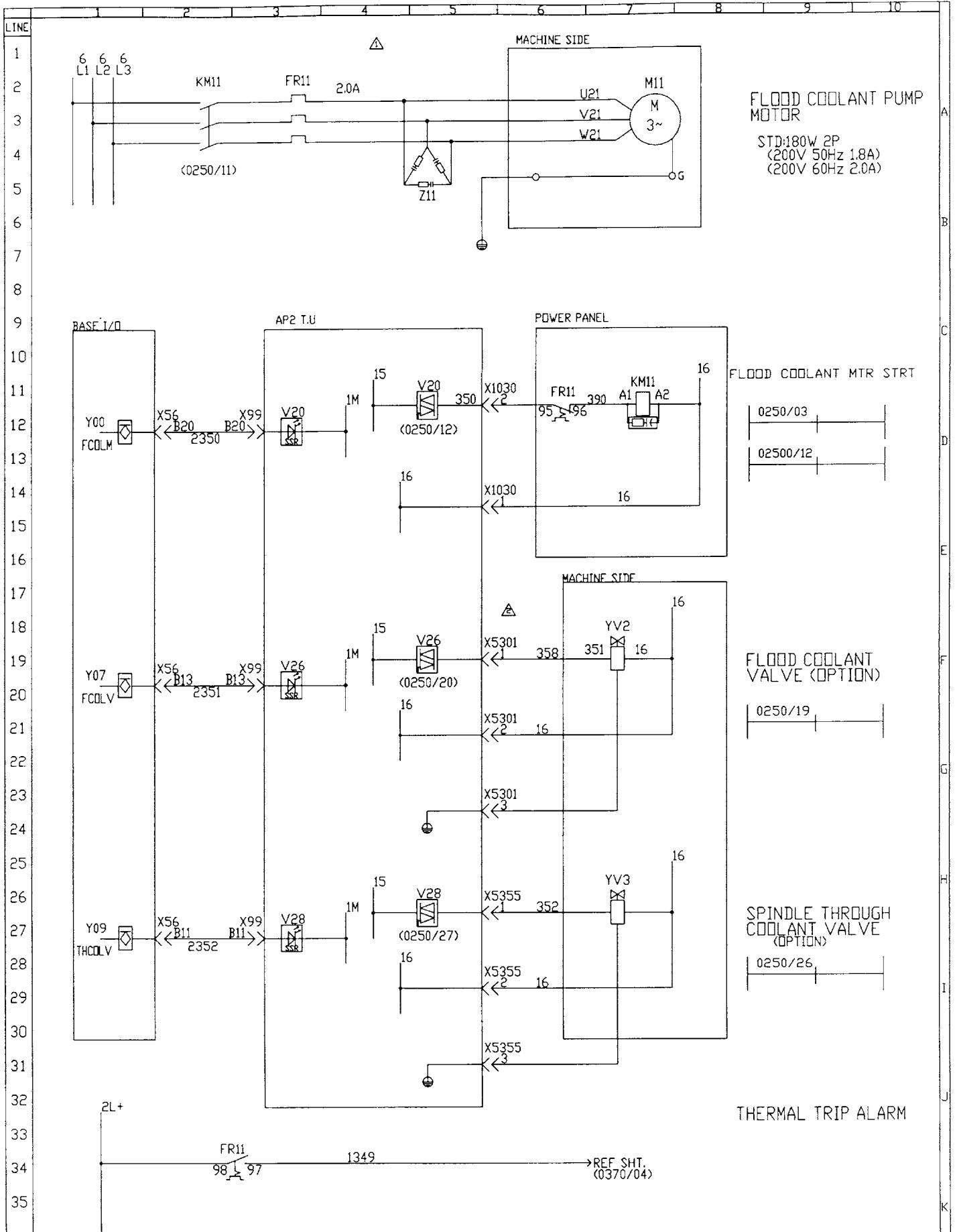
PED-ELD001



CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	ATC I/O
		DRWN NO. 557K01401910

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



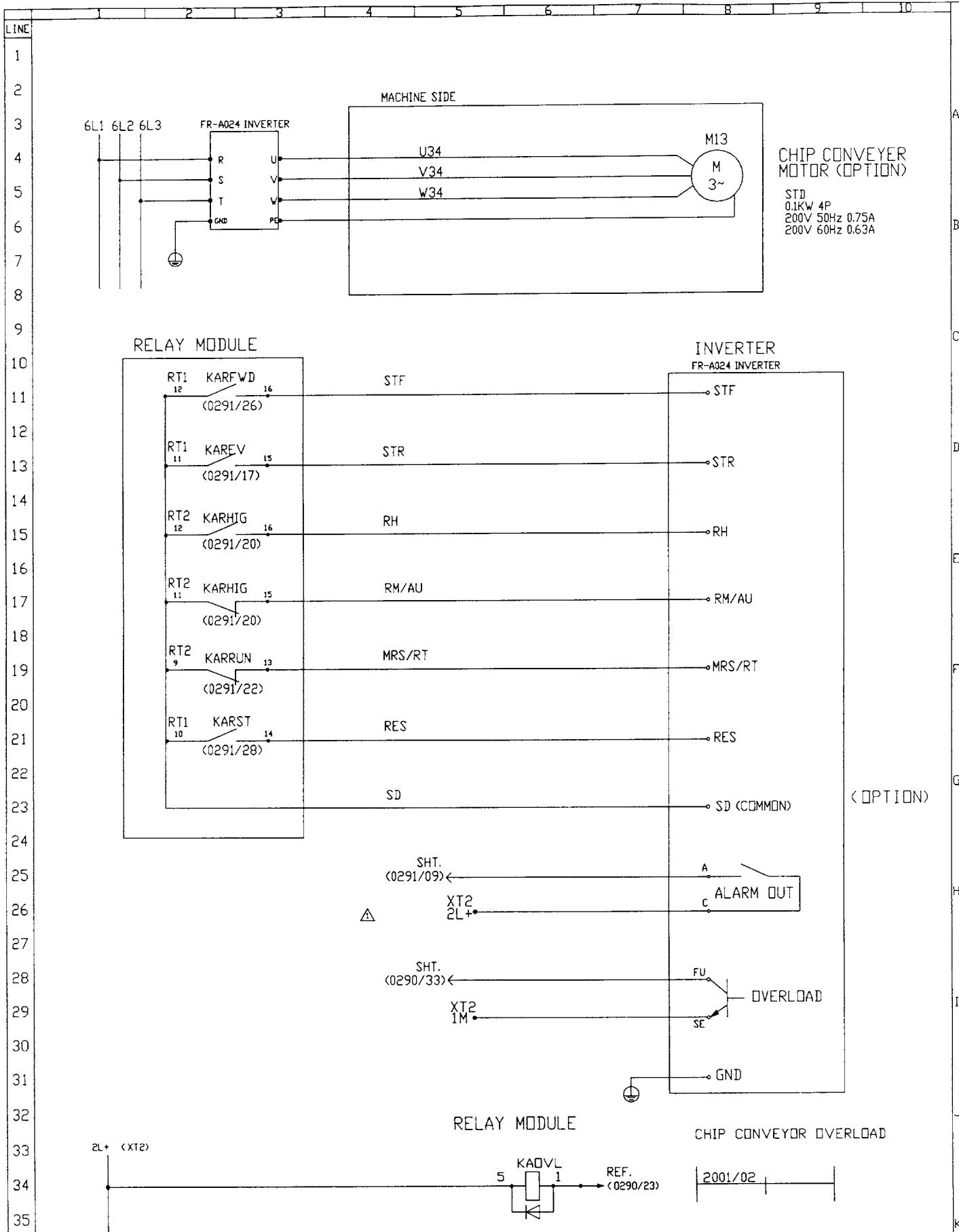
△	
△	
△	
△	CHANGED CONNECTOR FROM X1031 TO X5301 9/2/99 J.B.
△	CHANGED OVERLOAD HEATER SETTING FROM 0.9A TO 2.0A 2/23/99 J.B.

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	FLOOD COOLANT
		DRWN NO. 557K01402502

This product is subject to all applicable export control laws and regulations by Japanese Government.

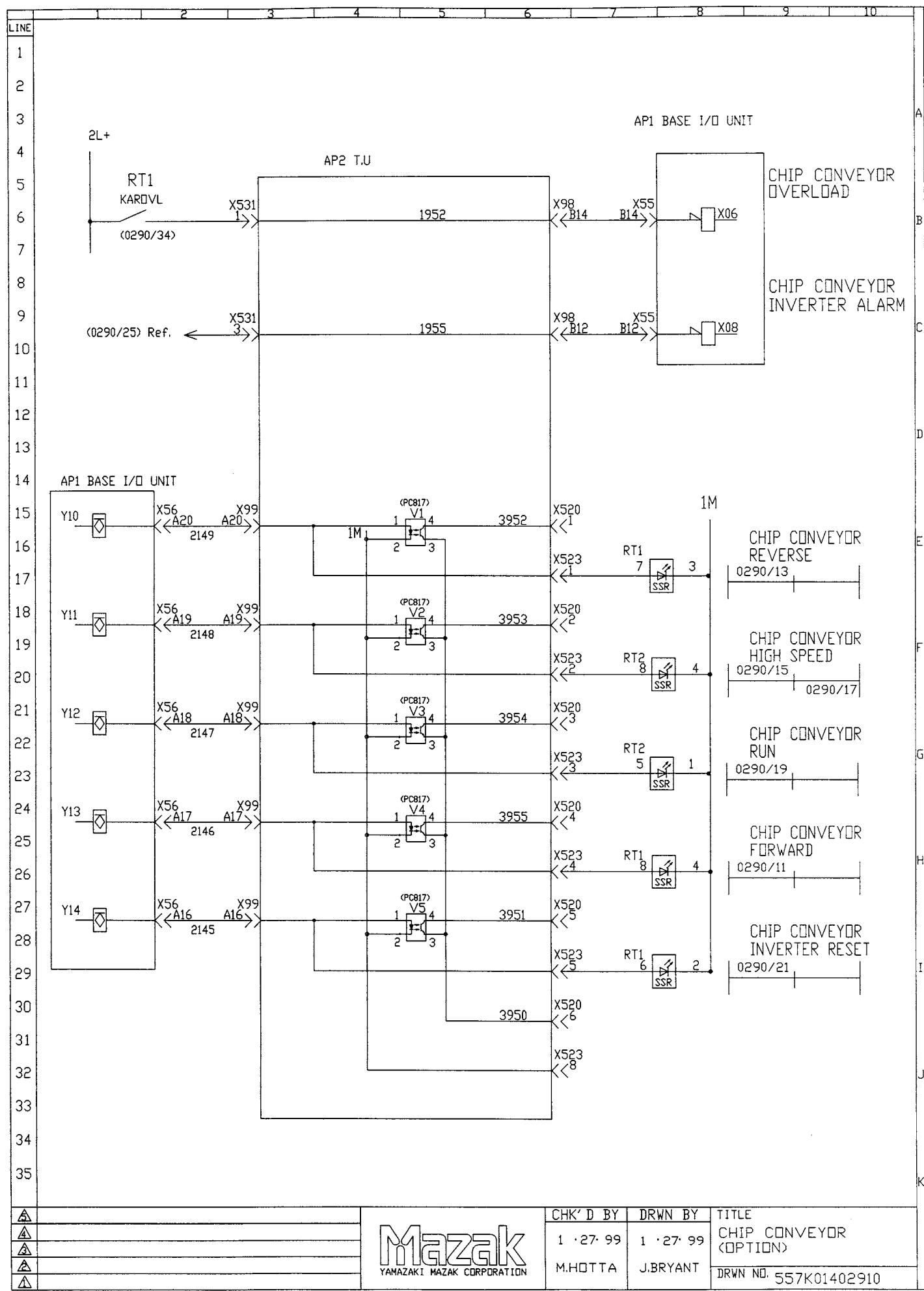
PED-ELD001



CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	CHIP CONVEYOR (OPTION)
DRWN NO. 557K01402901		
<b>CHANGED XT1 TO XT2</b> 9/2/99 J.B.		

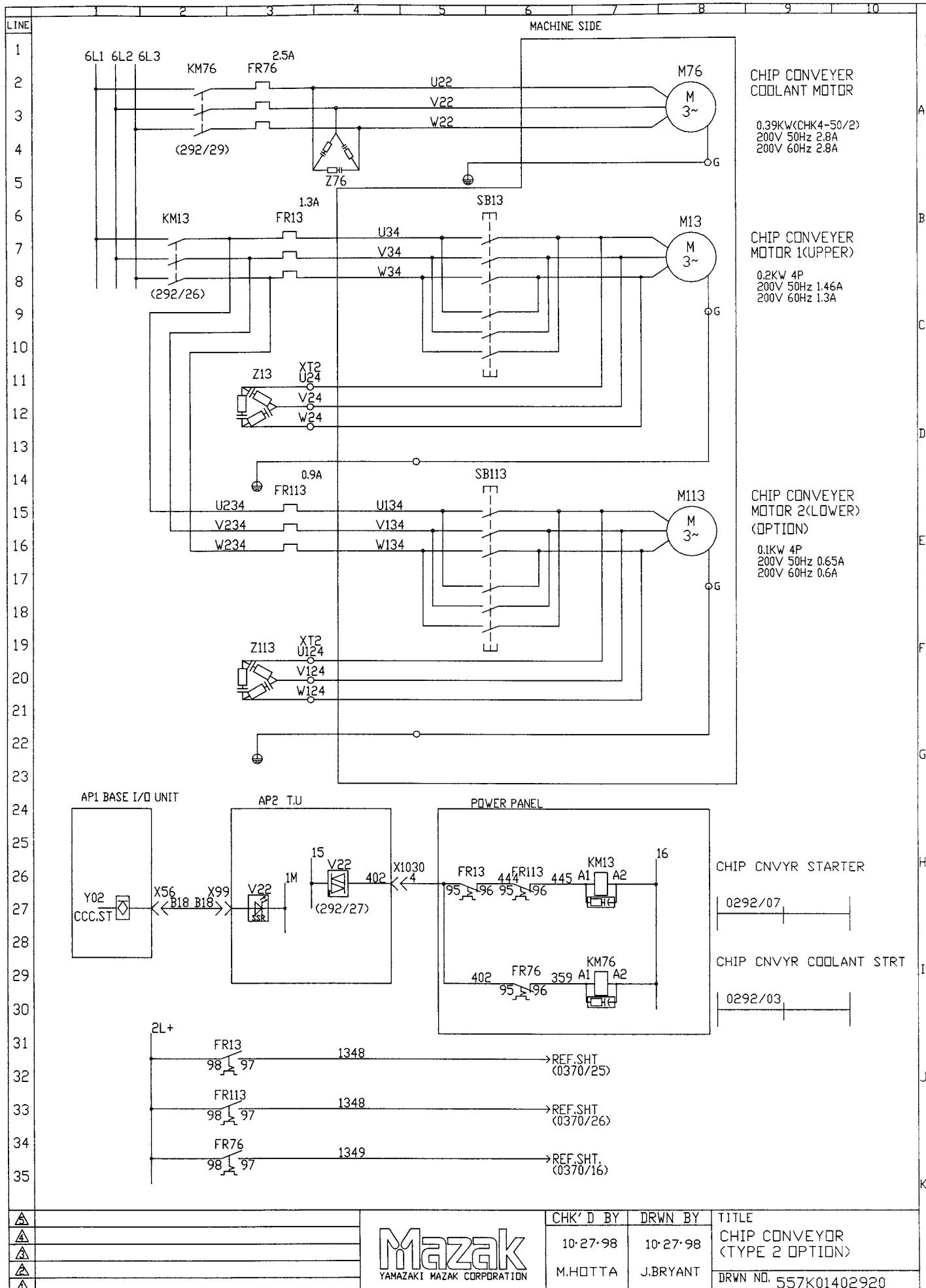
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



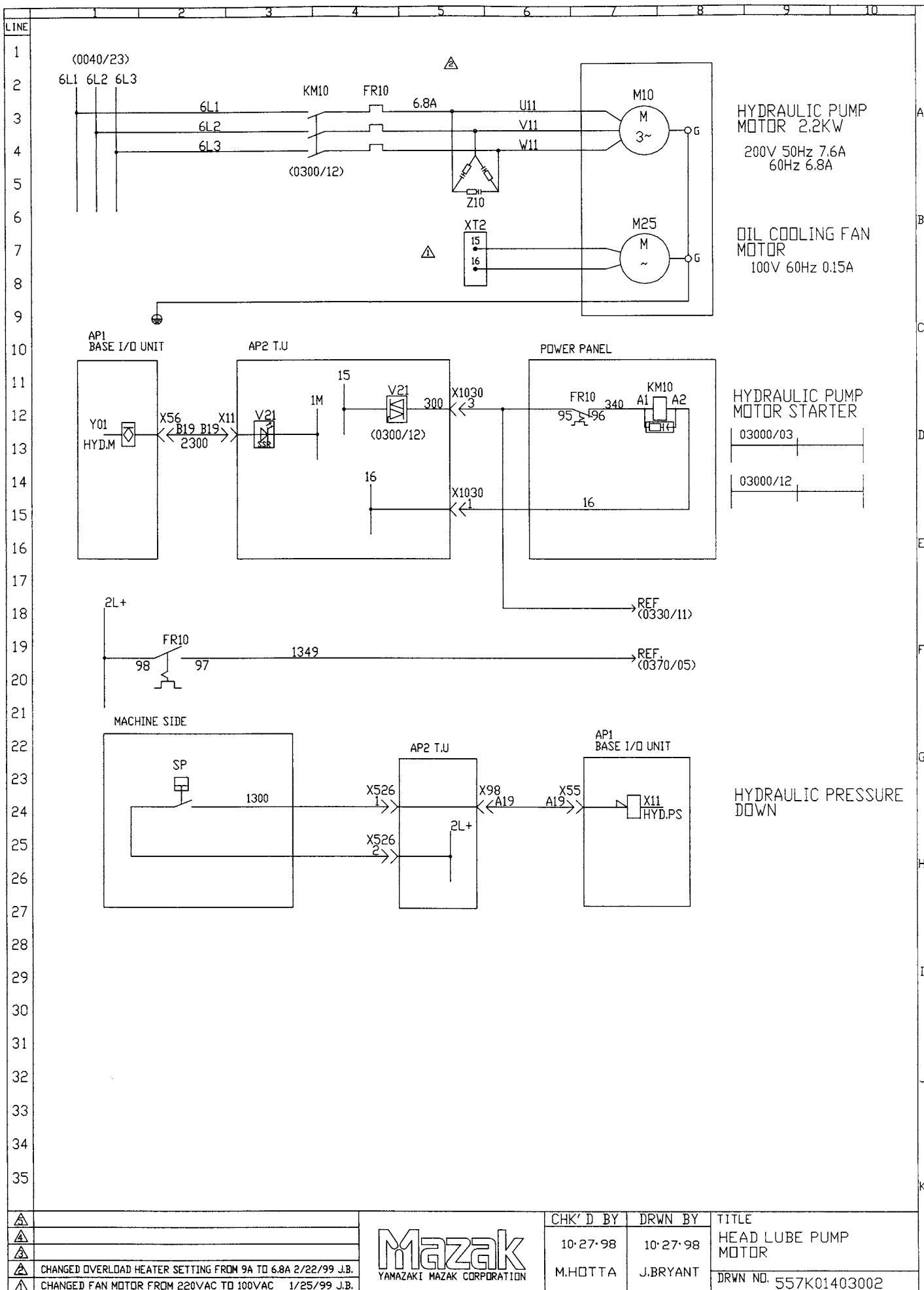
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



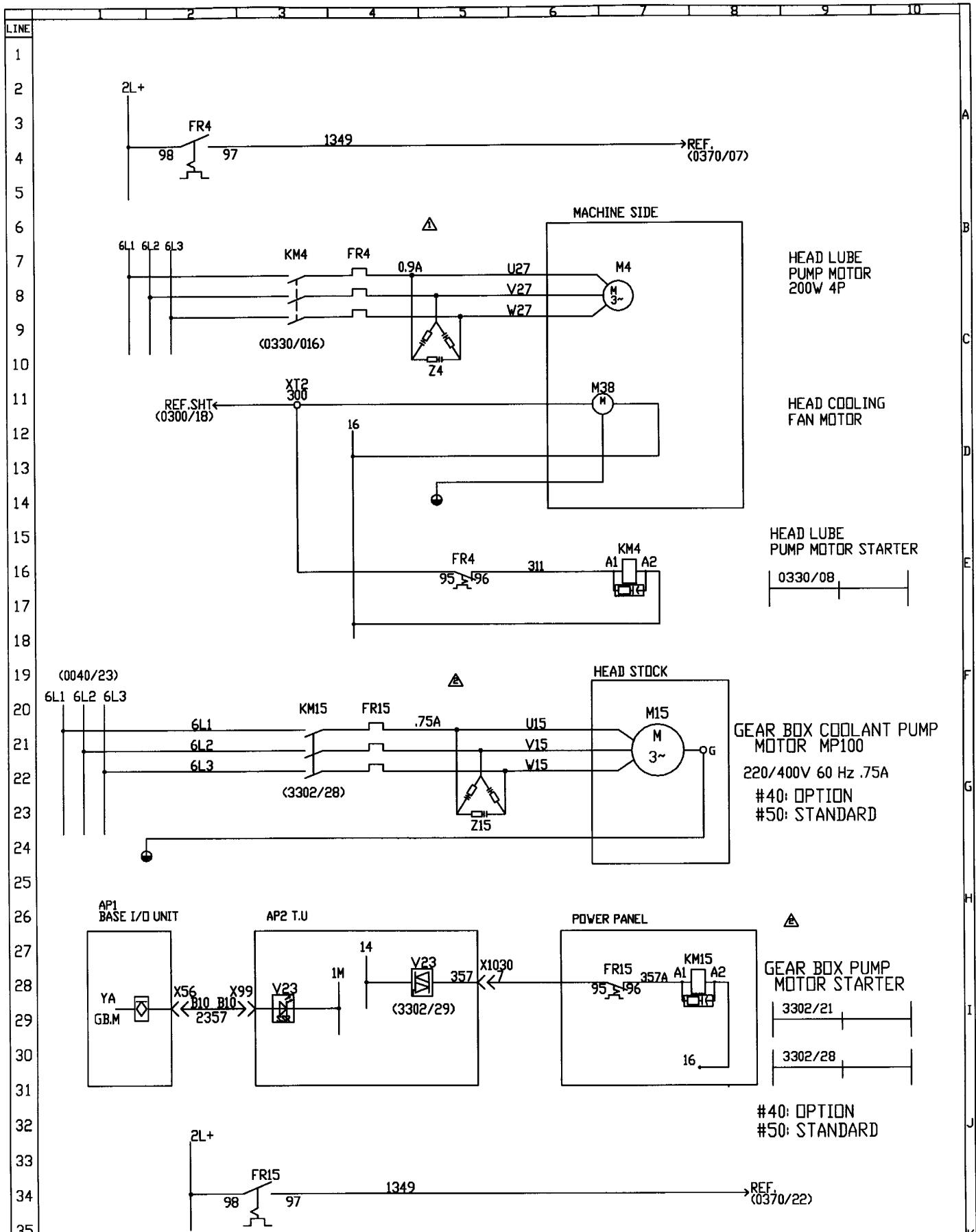
This product is subject to all applicable export control laws and regulations by Japanese Government.

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This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY  
10-27-98  
M.HOTTA

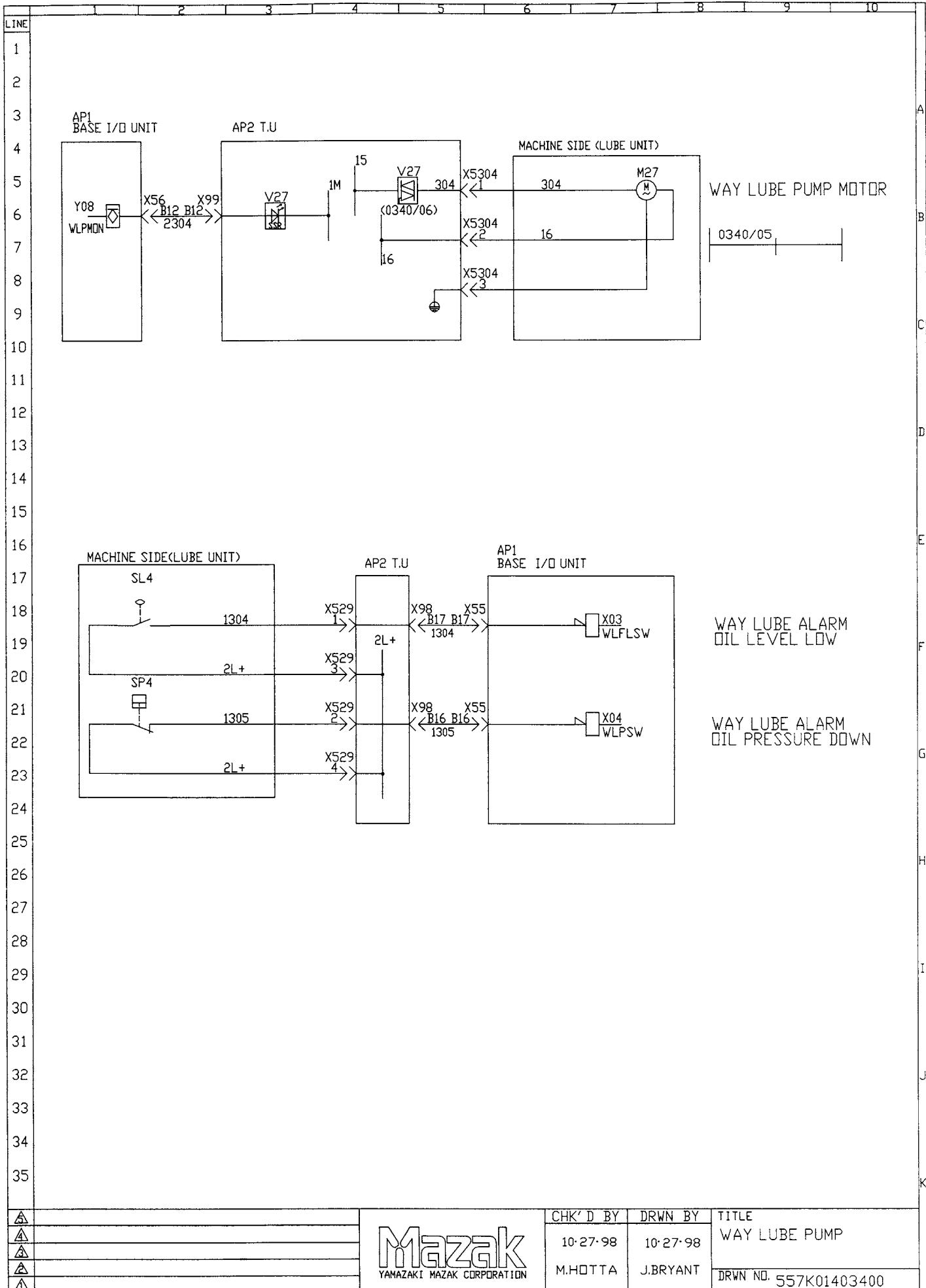
DRWN BY  
10-27-98  
J.BRYANT

TITLE  
HEAD LUBE PUMP & GEARBOX PUMP MOTORS

DRWN NO. 557K01403302

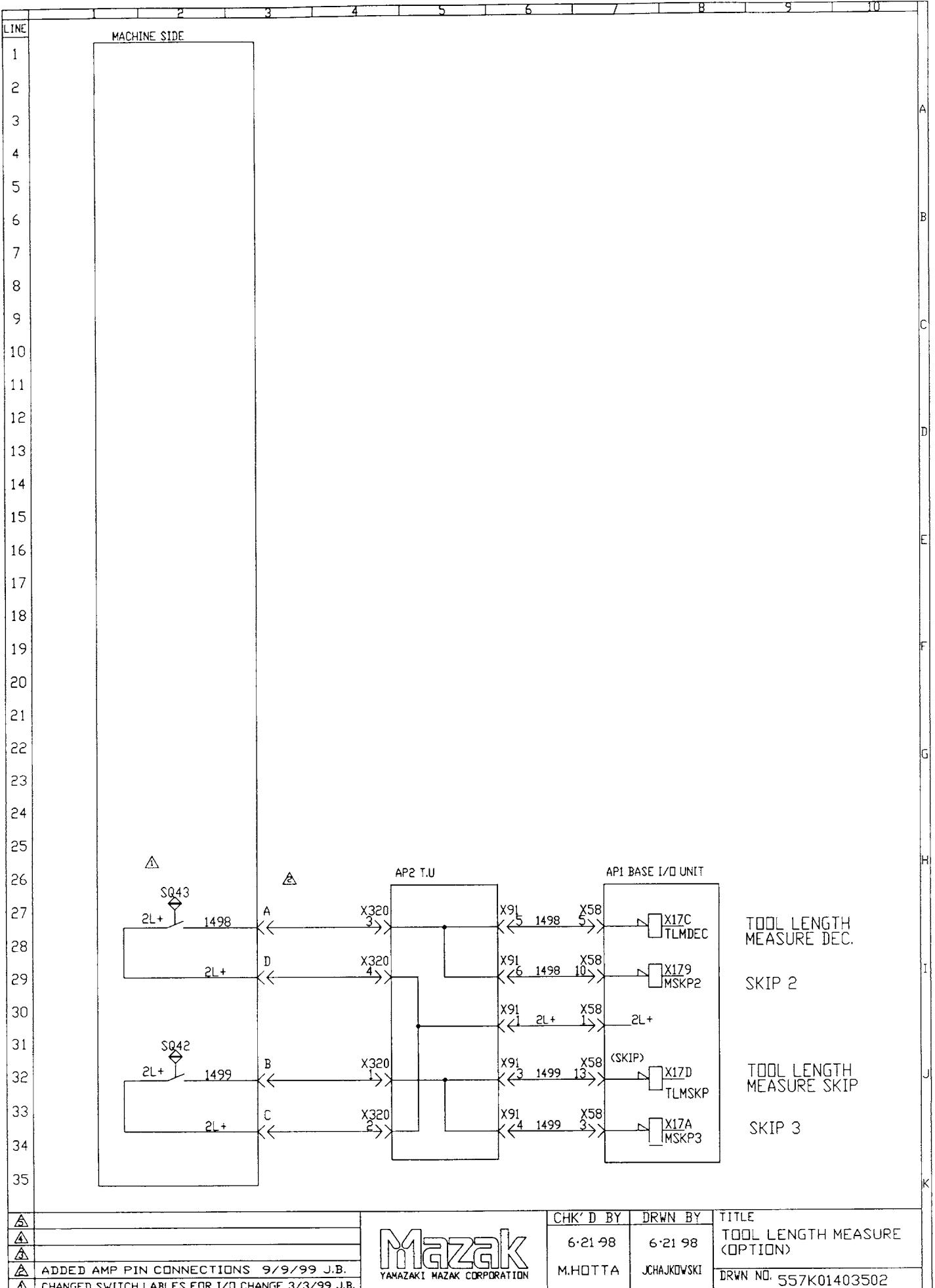
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



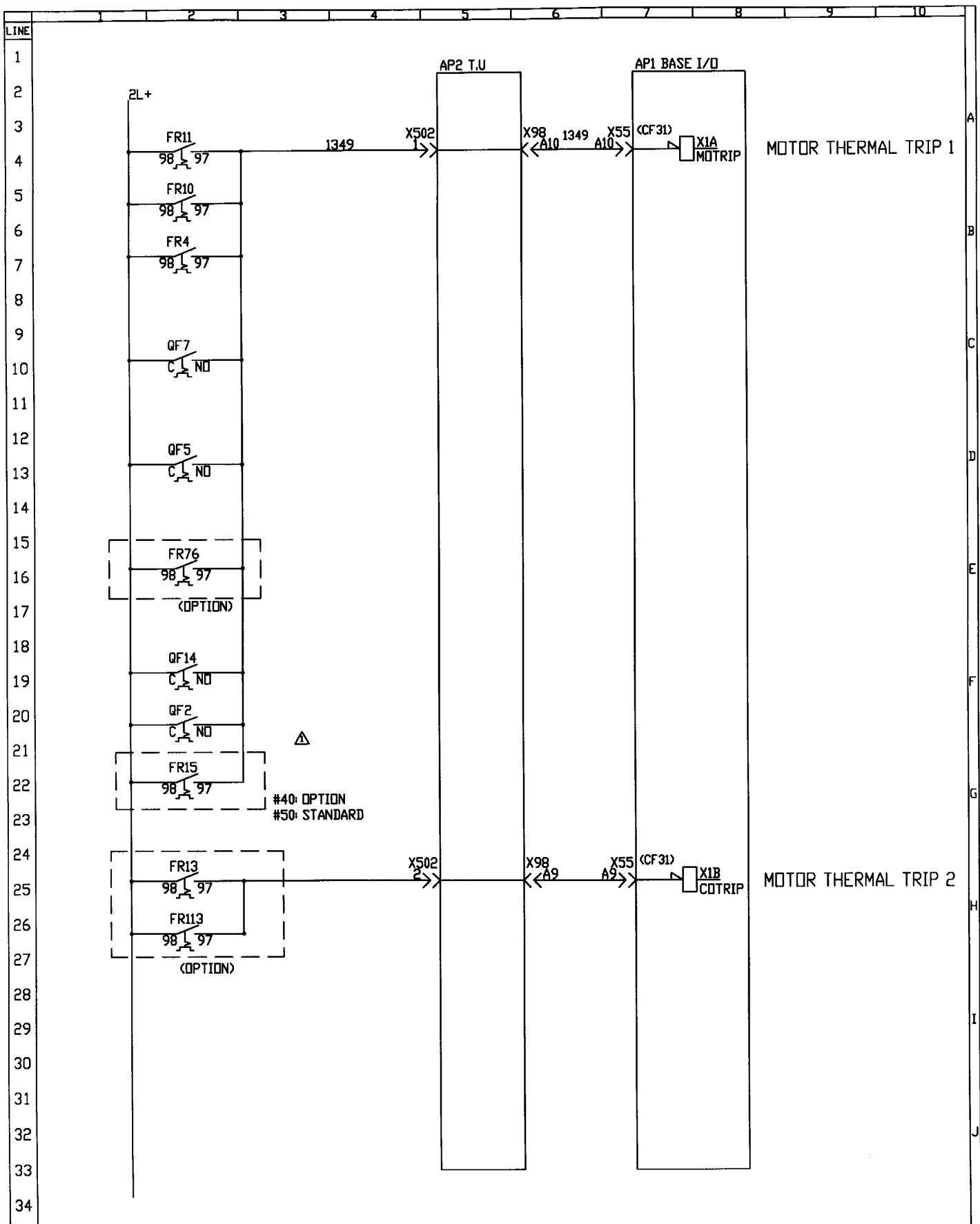
ADDED AMP PIN CONNECTIONS 9/9/99 J.B.  
 CHANGED SWITCH LABLES FOR I/O CHANGE 3/3/99 J.B.

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
6-21-98 M.HOTTA	6-21-98 J.CHAJKOWSKI	TOOL LENGTH MEASURE (OPTION)
		DRWN NO. 557K01403502

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



▲  
▲  
▲  
▲  
▲ ADDDED OVERLOAD HEATER FOR GEARBOX PUMP MOTOR 1/27/00 J.B.

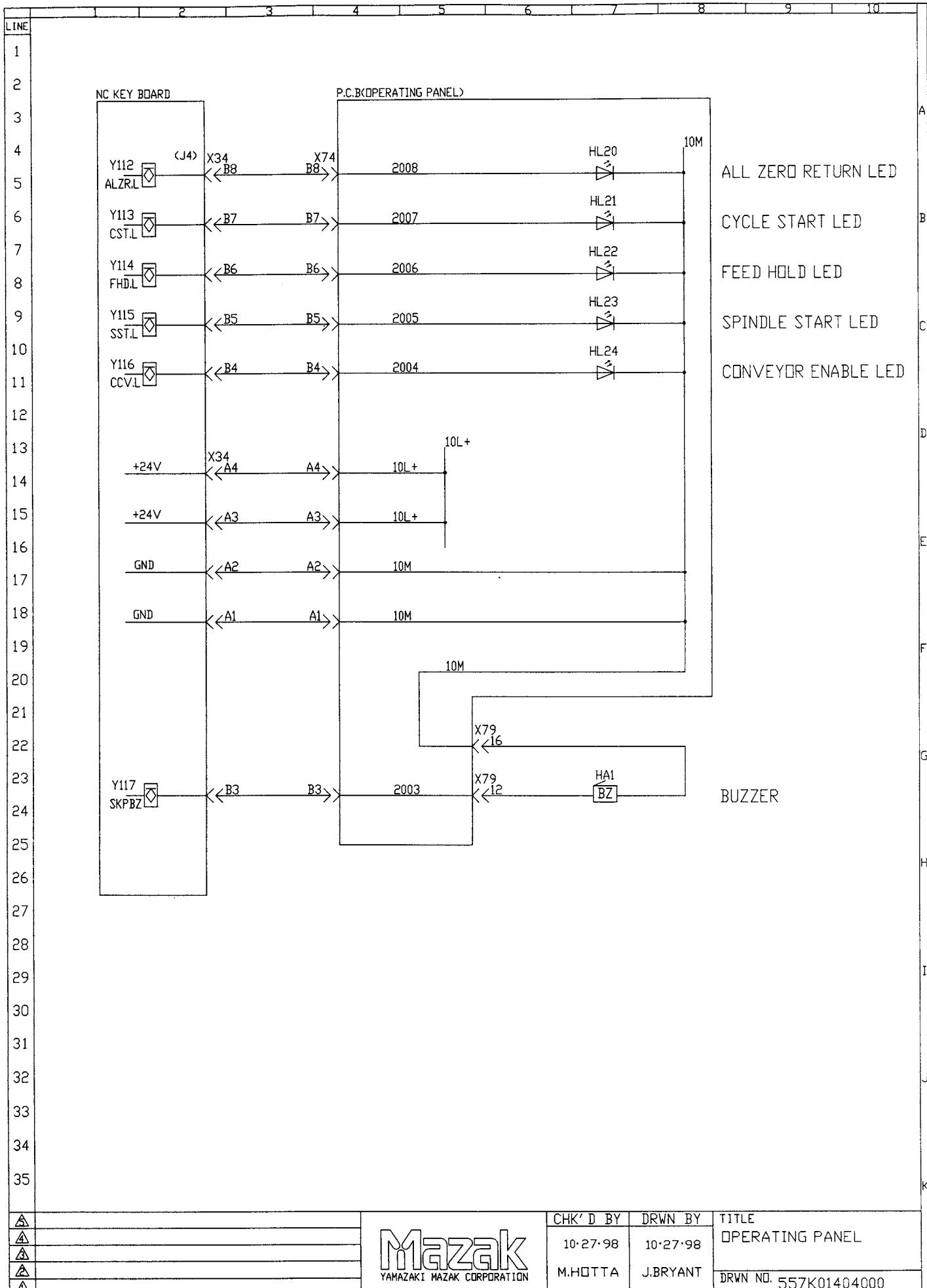
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY 10-27-98  
DRWN BY 10-27-98  
M.HOTTA J.BRYANT

TITLE THERMAL TRIP  
DRWN NO. 557K01403701

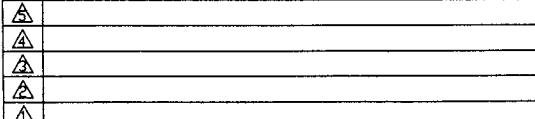
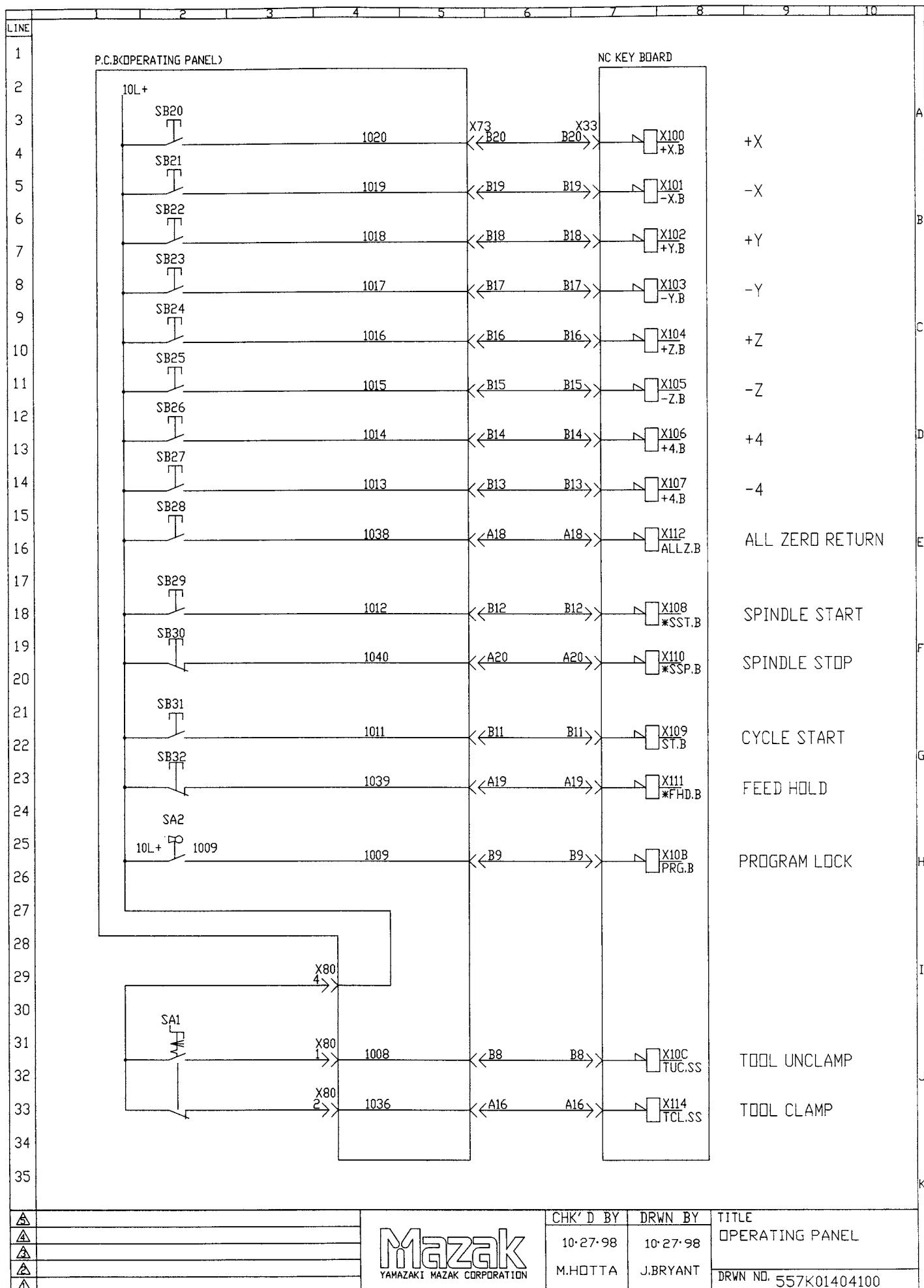
This product is subject to all applicable export control laws and regulations by Japanese Government.

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PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

10-27-98  
M.HOTTA

DRWN BY

10-27-98  
J.BRYANT

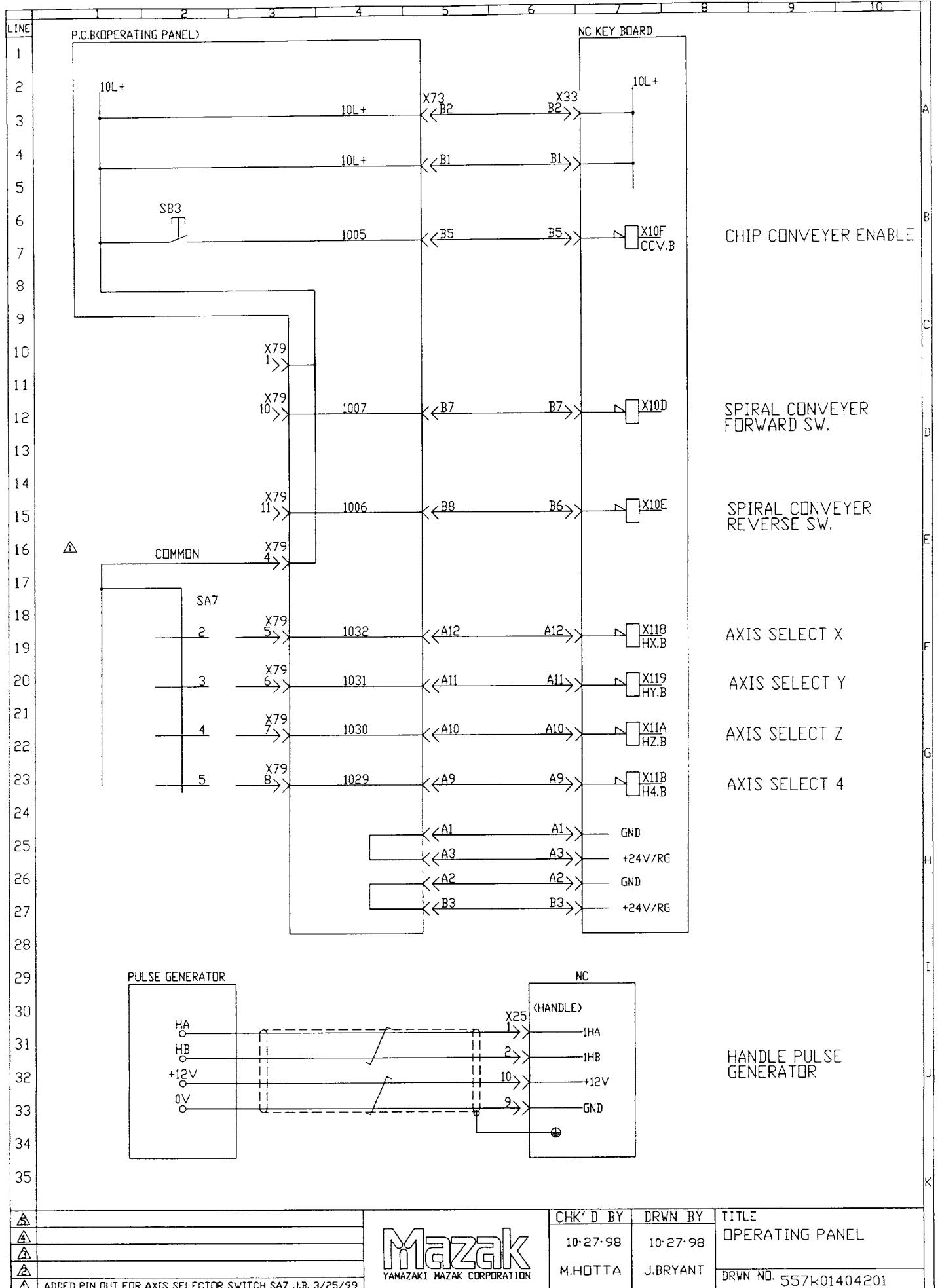
TITLE

OPERATING PANEL

DRWN NO. 557K01404100

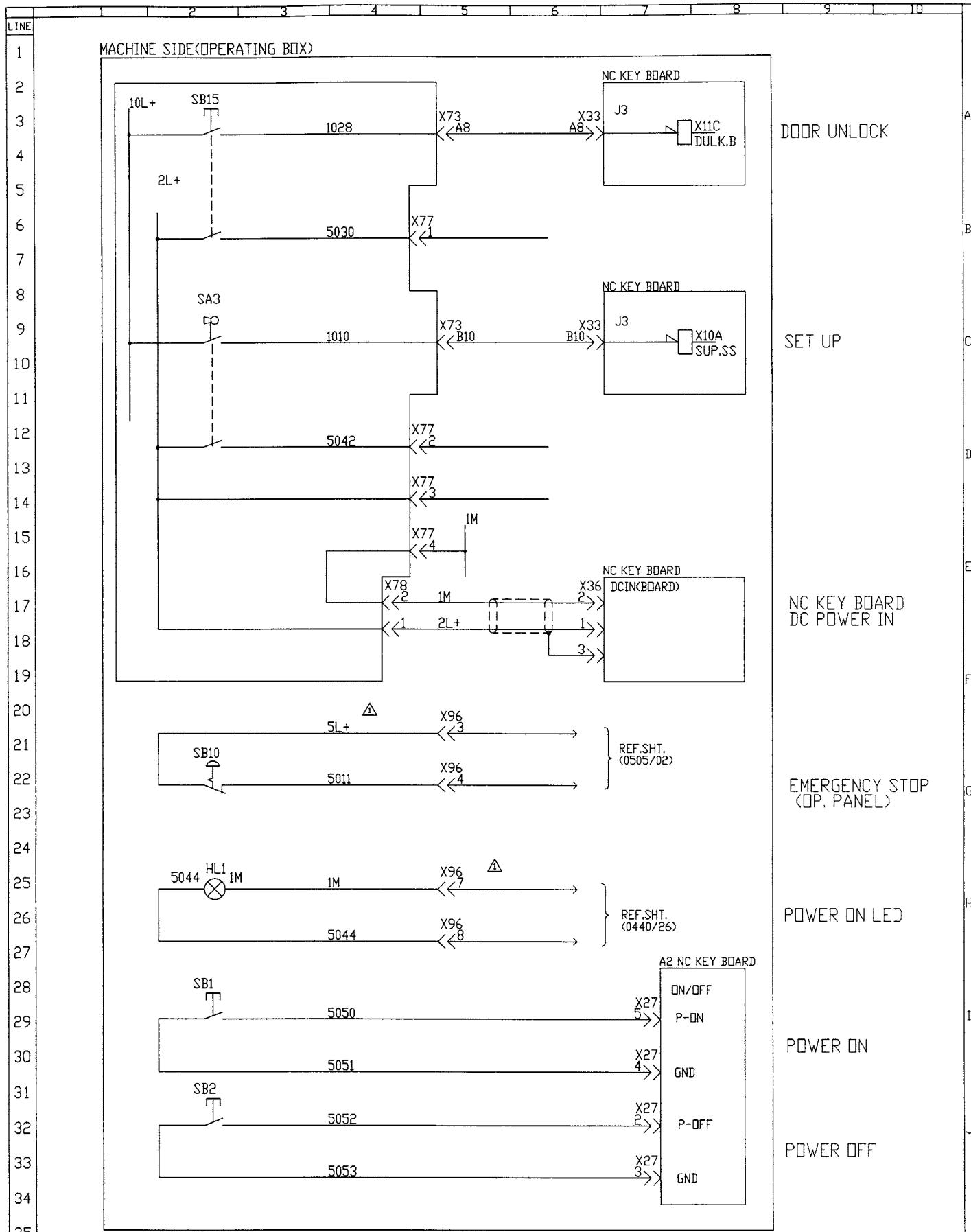
This product is subject to all applicable export control laws and regulations by Japanese Government.

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This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



CHANGED WIRE LABEL SL+, POWER ON LED PINS, AND REMOVED WIRE 5021 1/25/99 J.B.  
 This product is subject to all applicable export control laws and regulations by Japanese Government.

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

10-27-98  
M.HOTTA

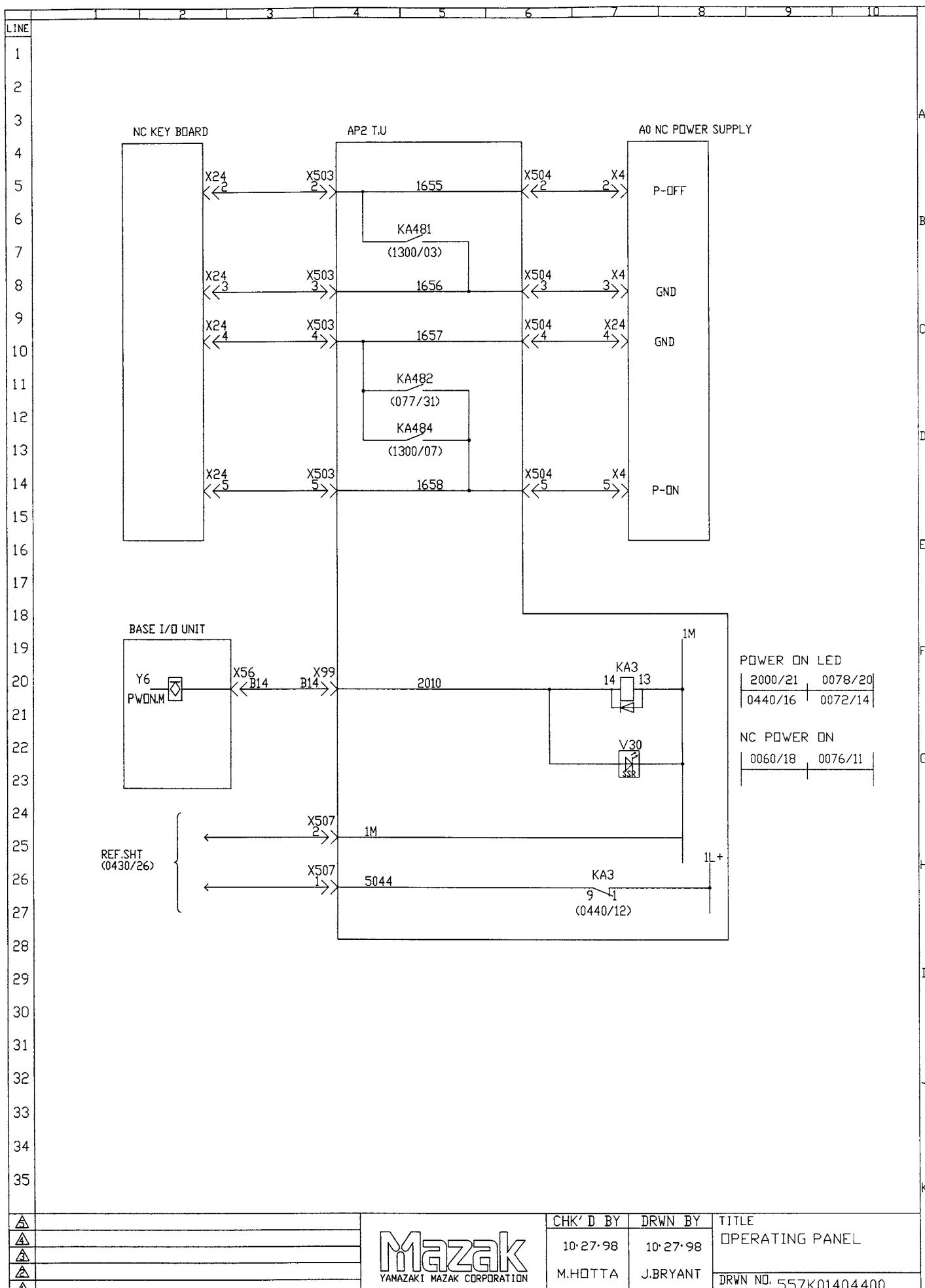
DRWN BY

10-27-98  
J.BRYANT

TITLE

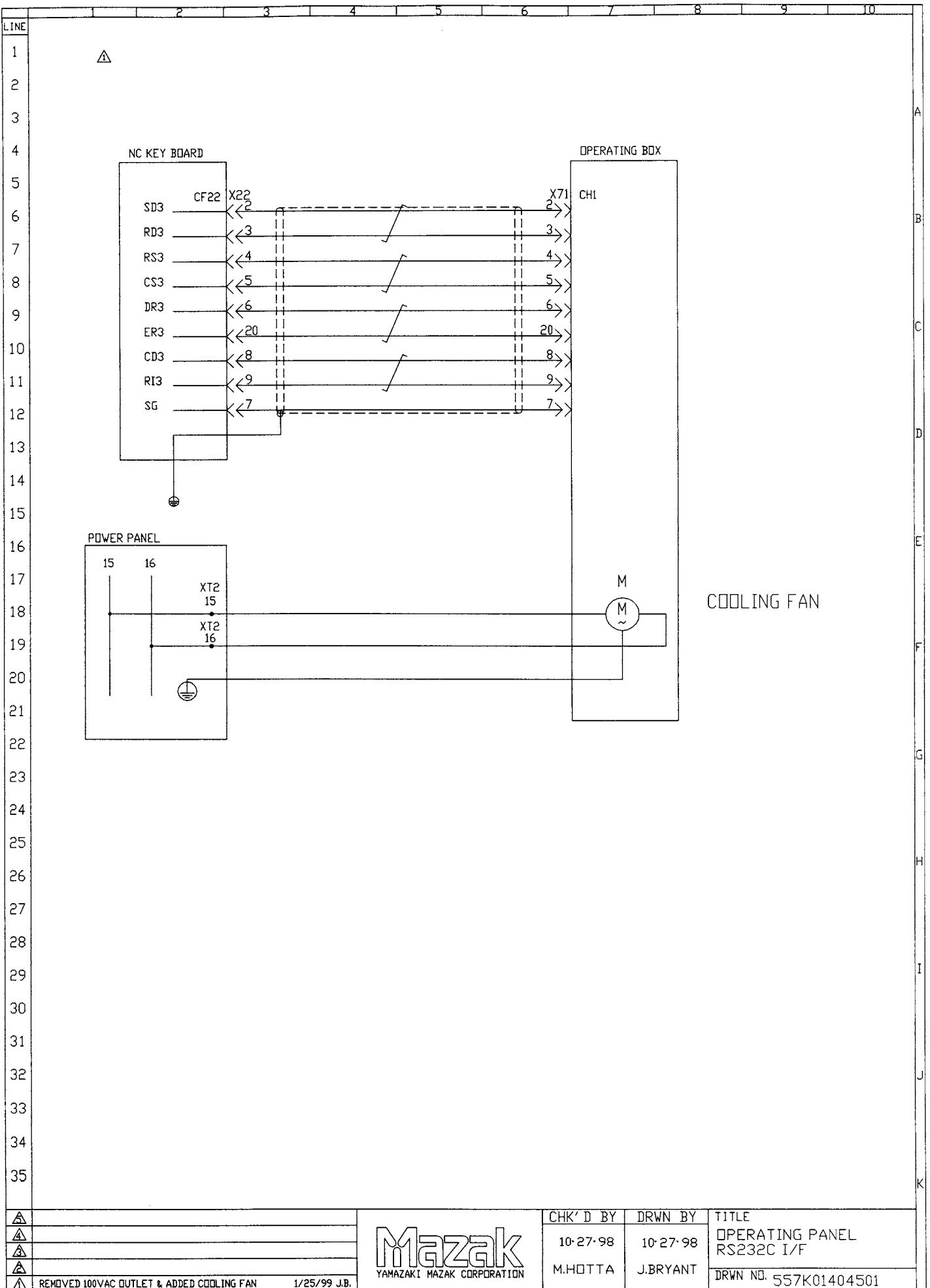
OPERATING PANEL

DRWN NO. 557K01404301



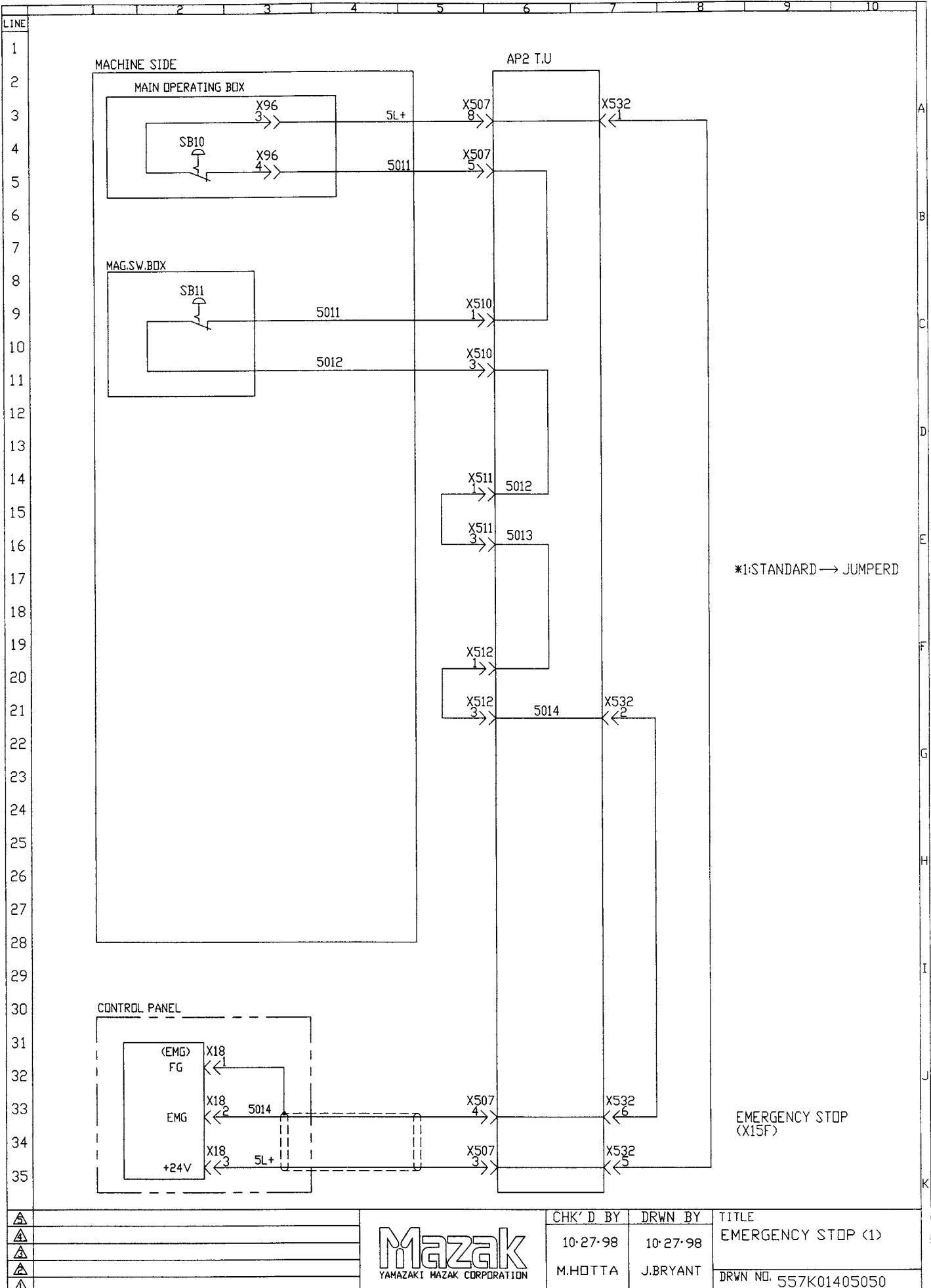
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

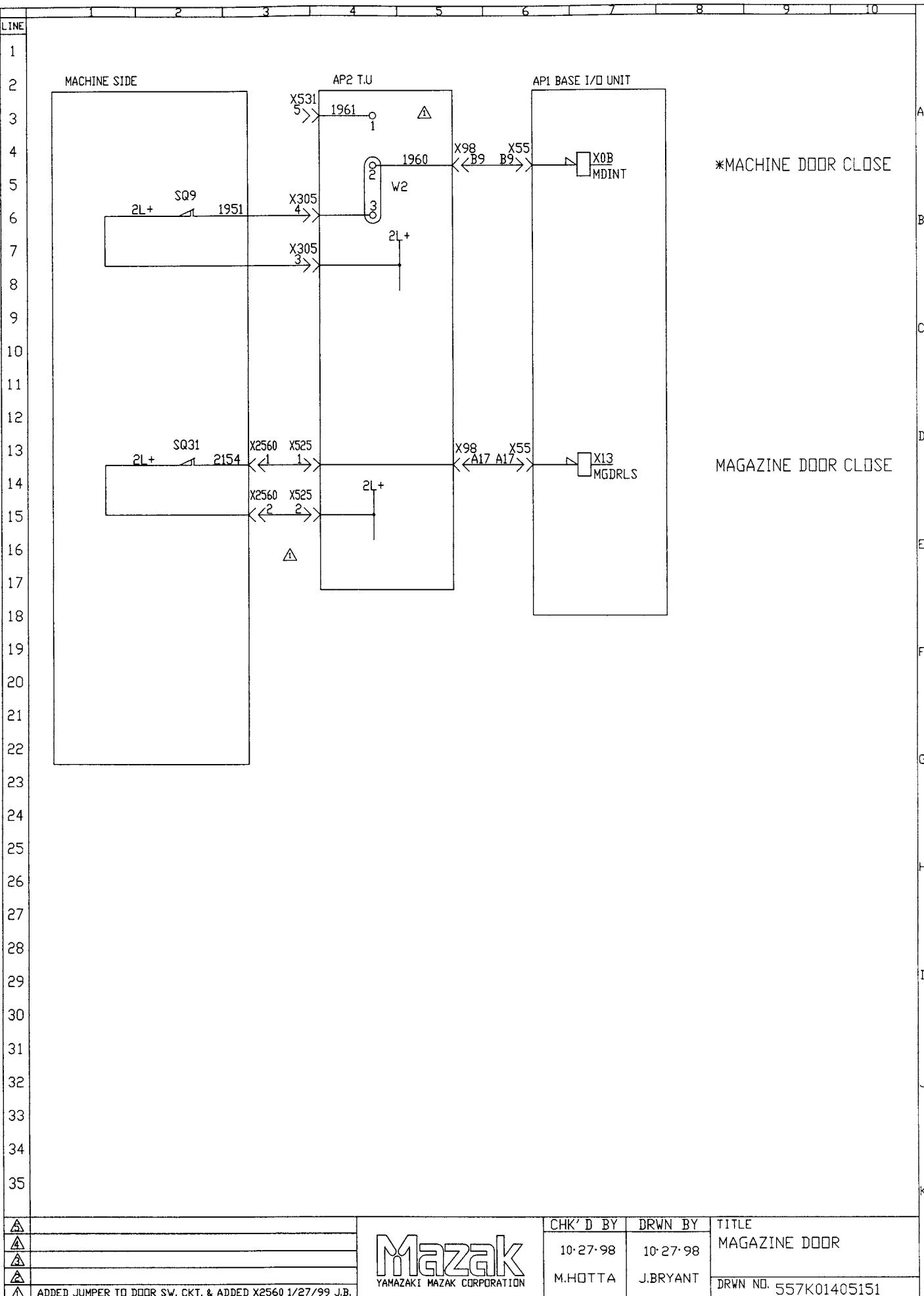


This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



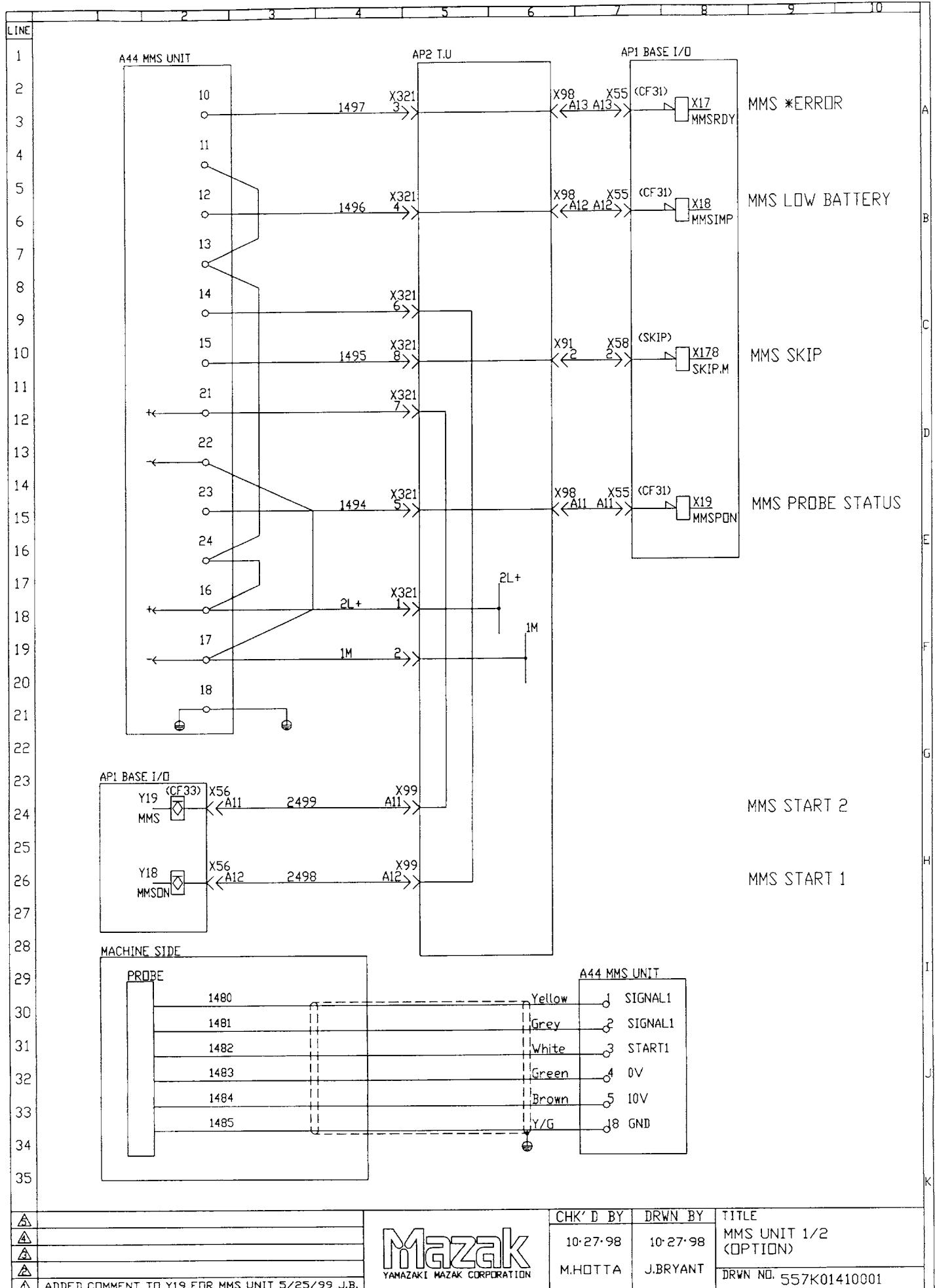
**Mazak**  
YAMAZAKI MAZAK CORPORATION



A	CHK'D BY	DRWN BY	TITLE
A	10-27-98	10-27-98	MAGAZINE DOOR
A	M.HOTTA	J.BRYANT	
A			DRWN NO. 557K01405151
A	ADDED JUMPER TO DOOR SW. CKT. & ADDED X2560 1/27/99 J.B.		

This product is subject to all applicable export control laws and regulations by Japanese Government.

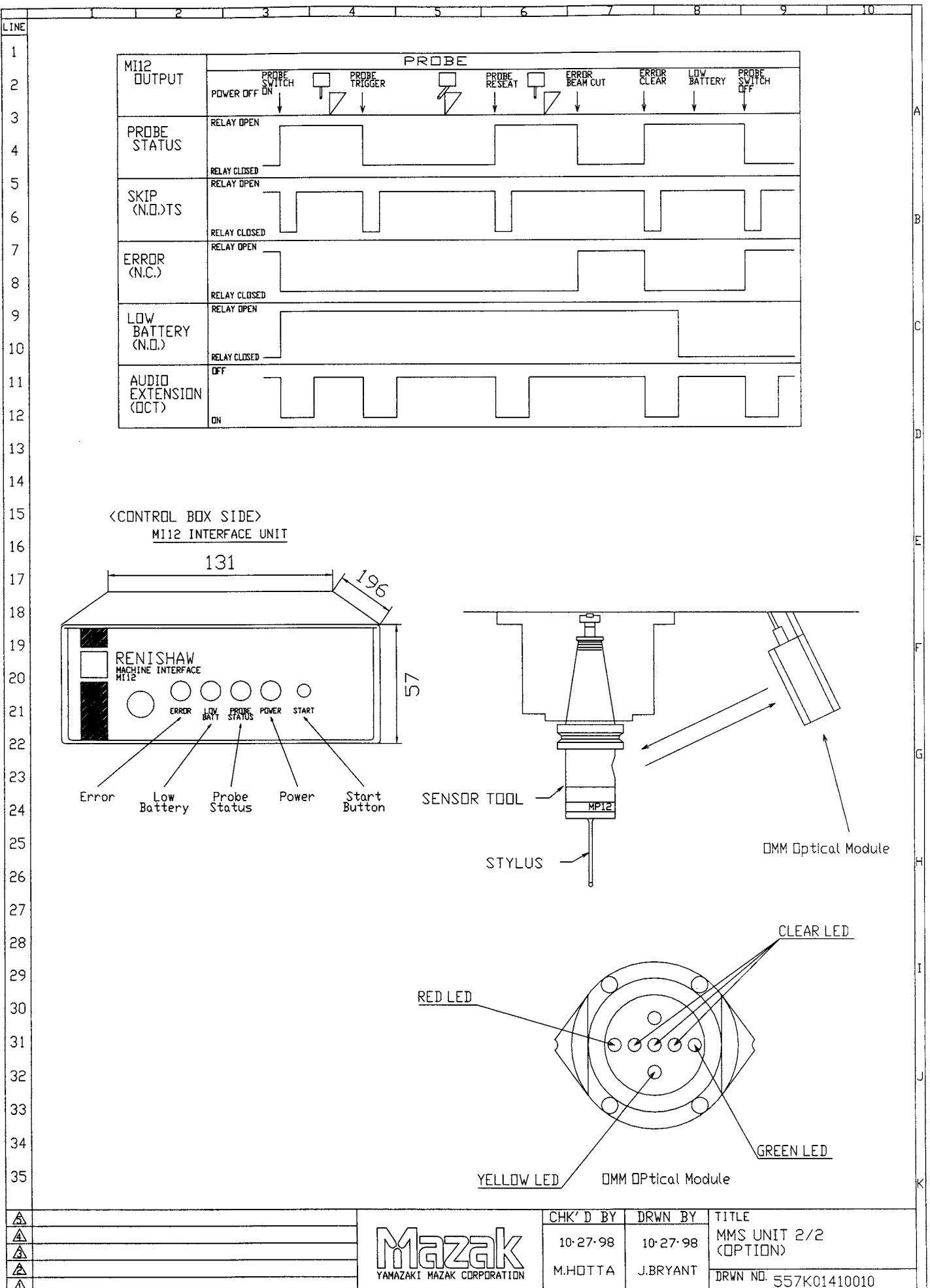
PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.  
x PED-ELD001

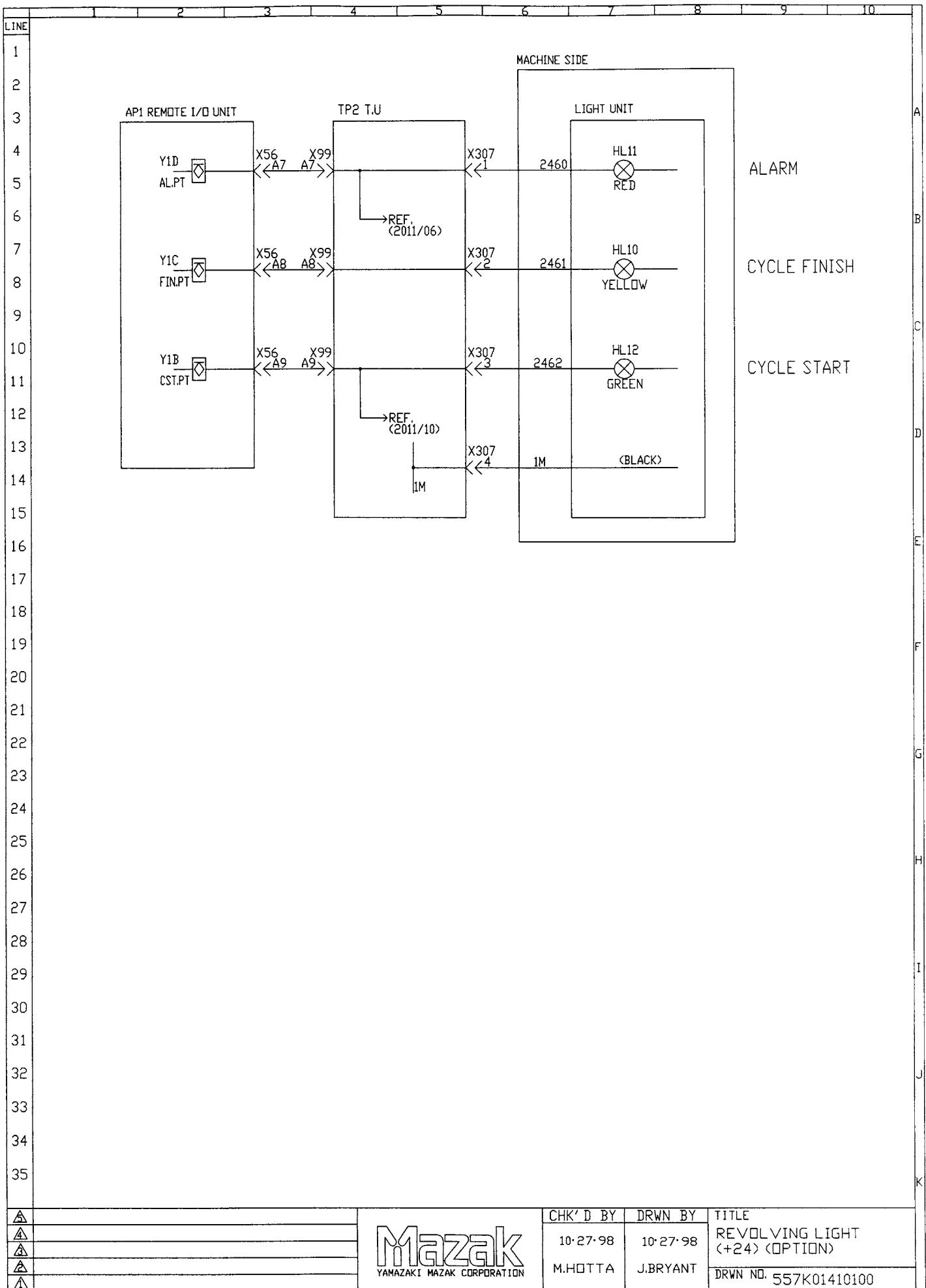
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY DRWN BY TITLE  
10-27-98 10-27-98 M.MOTTA J.BRYANT MMS UNIT 1/2  
(OPTION)  
DRWN NO. 557K01410001



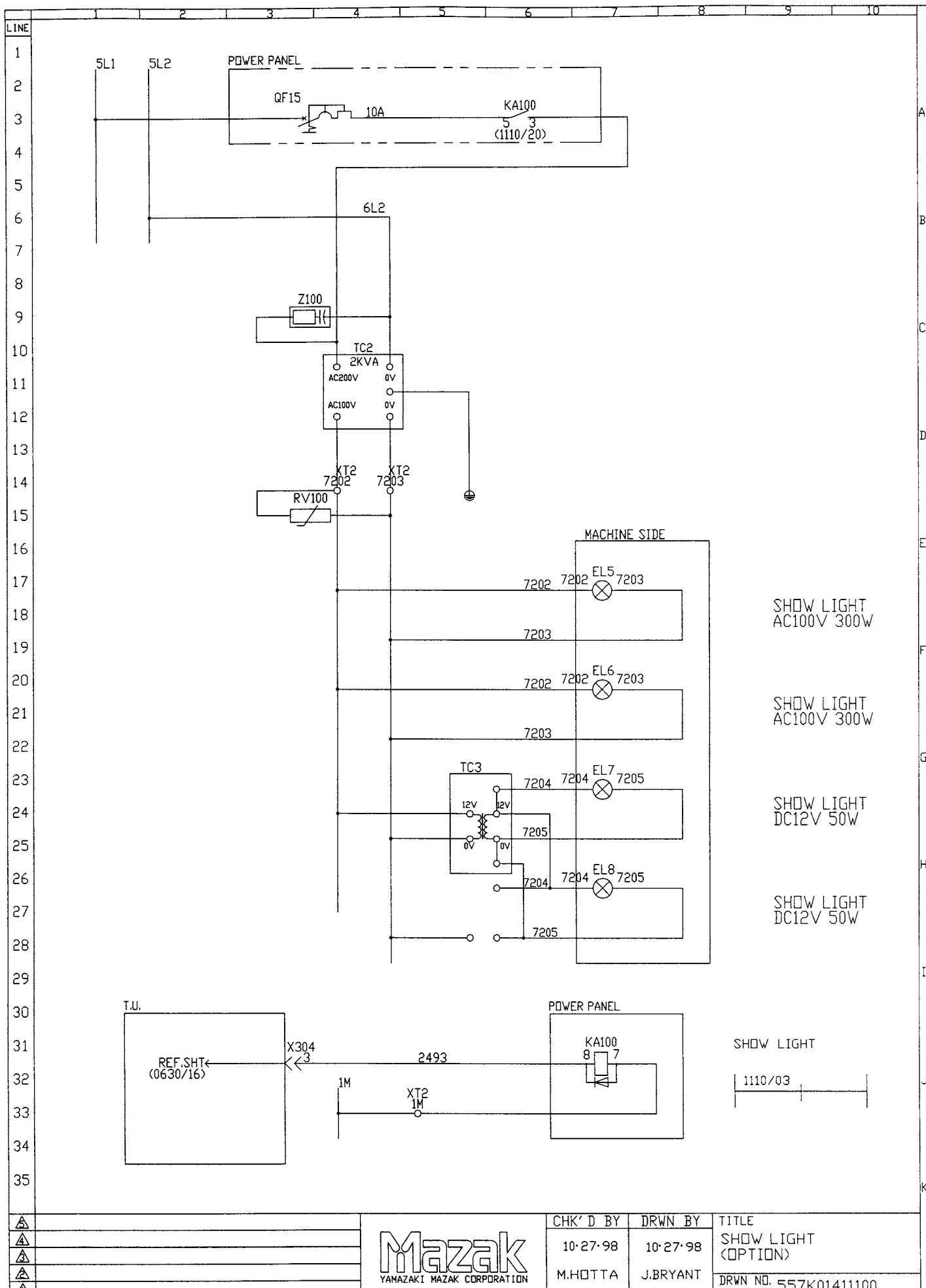
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



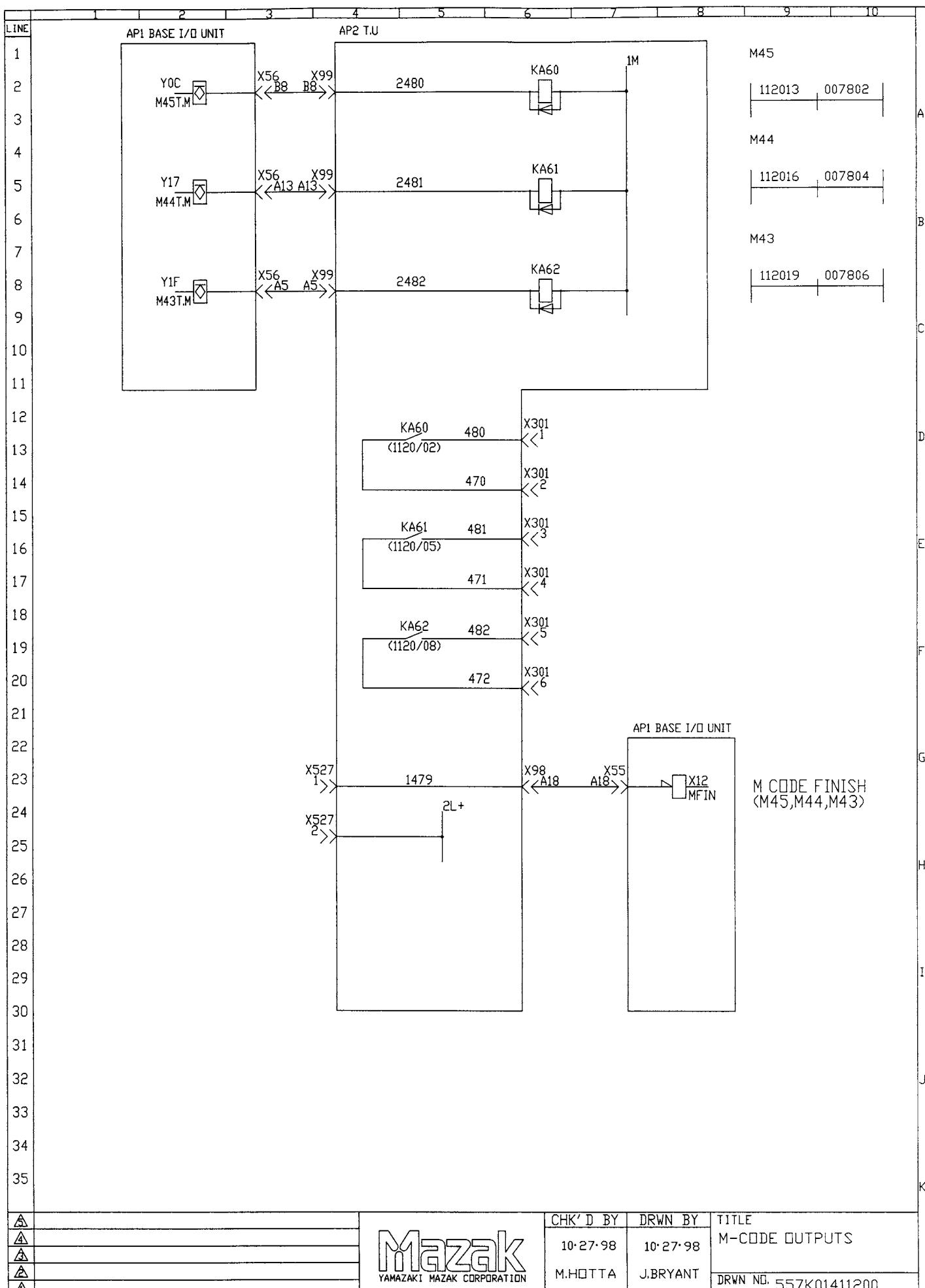
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



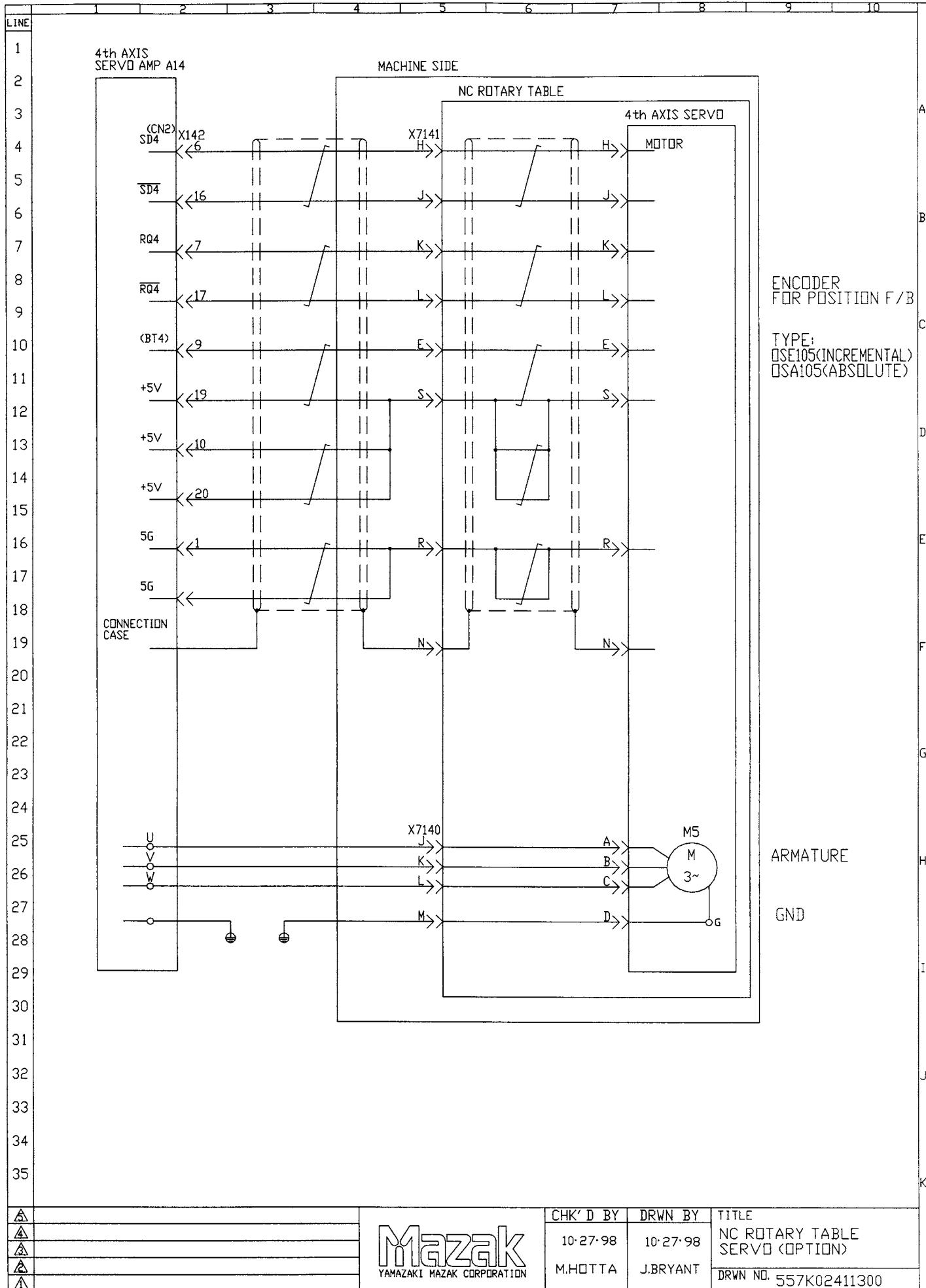
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



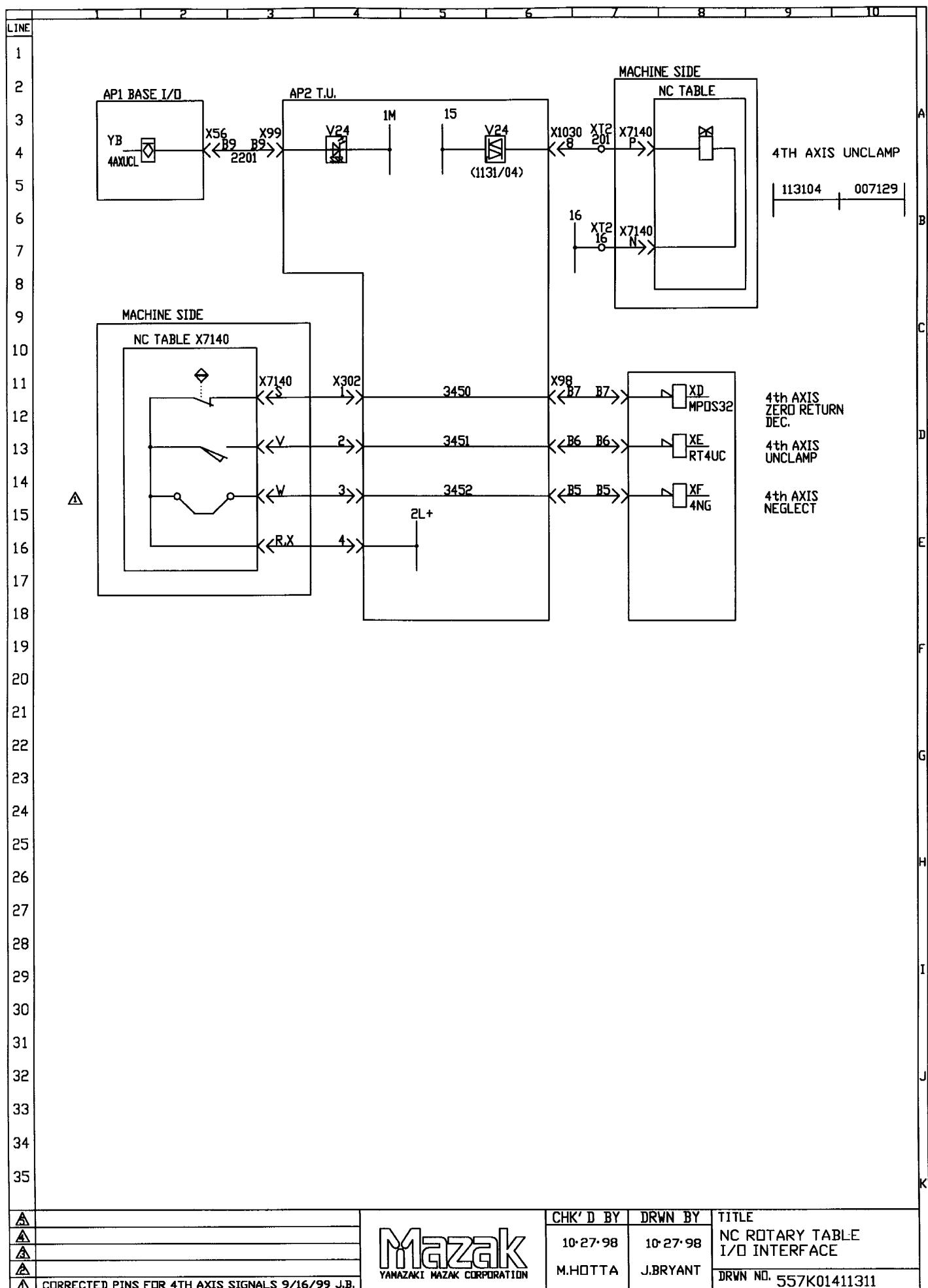
This product is subject to all applicable export control laws and regulations by Japanese Government.

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This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY  
10-27-98  
M.HOTTA

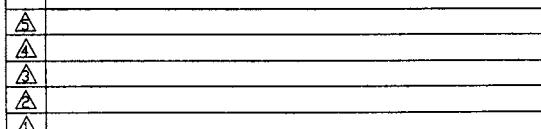
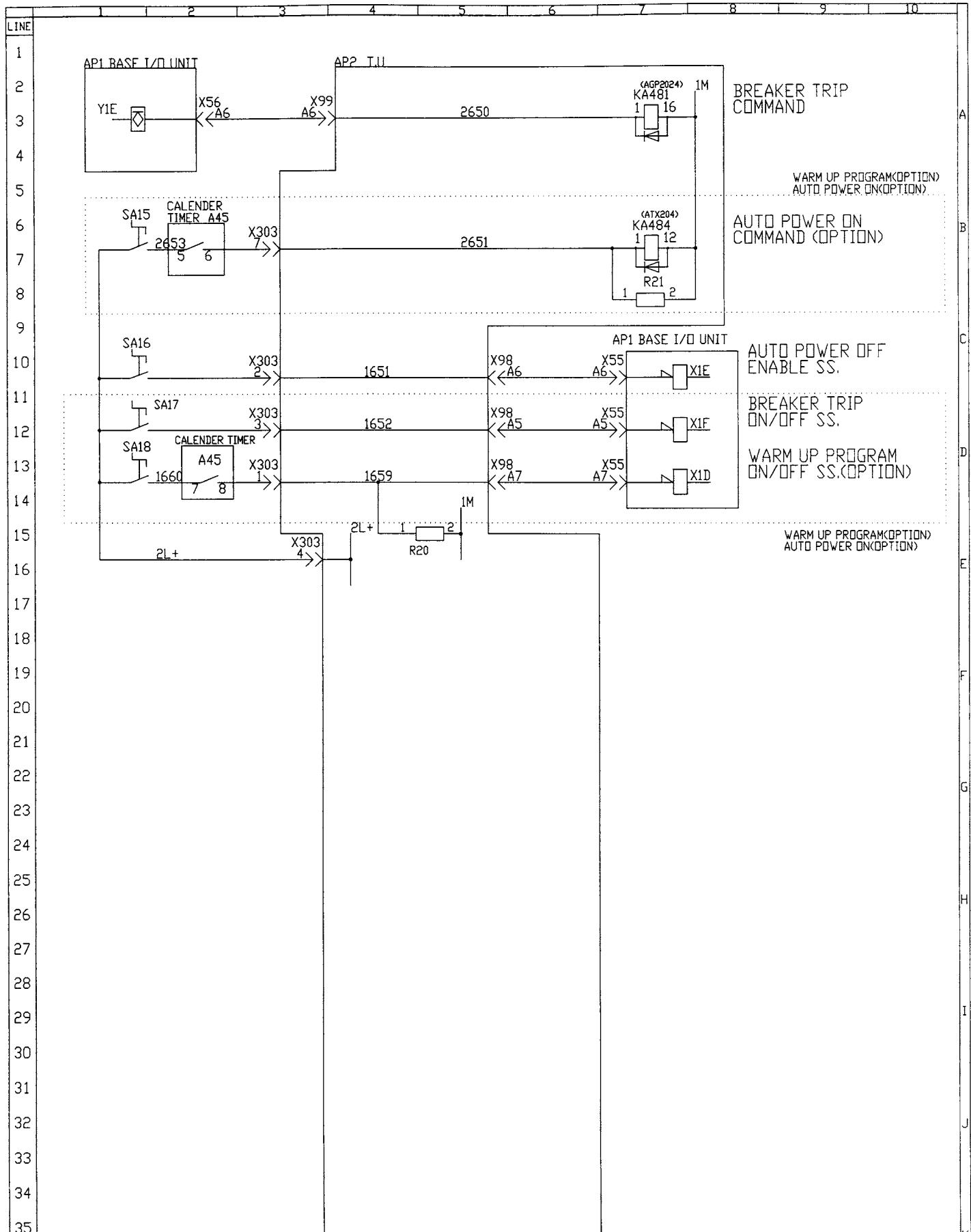
DRWN BY  
10-27-98  
J.BRYANT

TITLE  
NC ROTARY TABLE  
I/O INTERFACE  
DRWN NO. 557K01411311

CORRECTED PINS FOR 4TH AXIS SIGNALS 9/16/99 J.B.

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

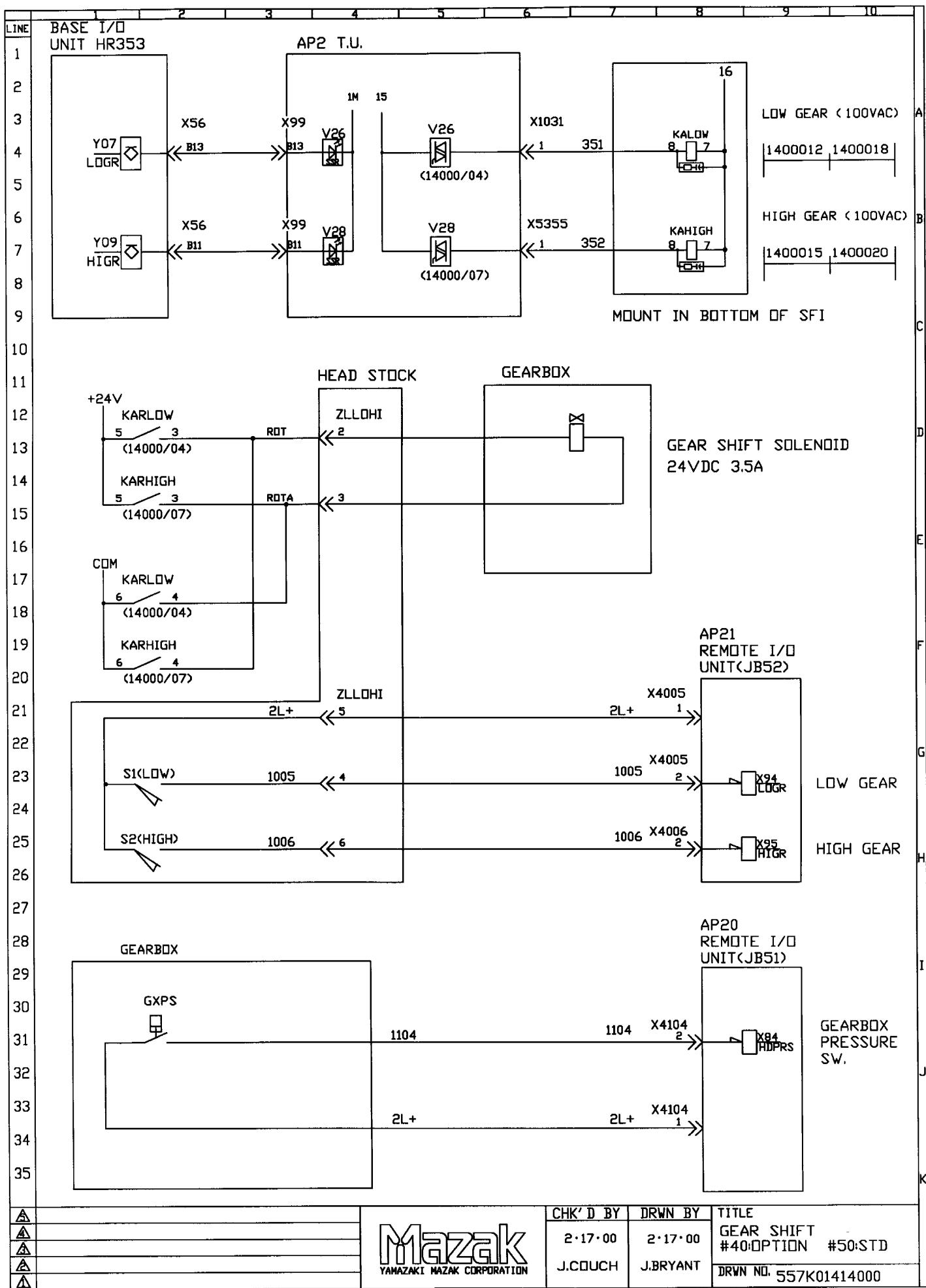


**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
12-29-98 M.HOTTA	12-29-98 J.BRYANT	AUTO POWER ON/OFF (1) (OPTION)
		DRWN NO. 557K001413000

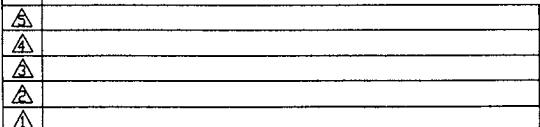
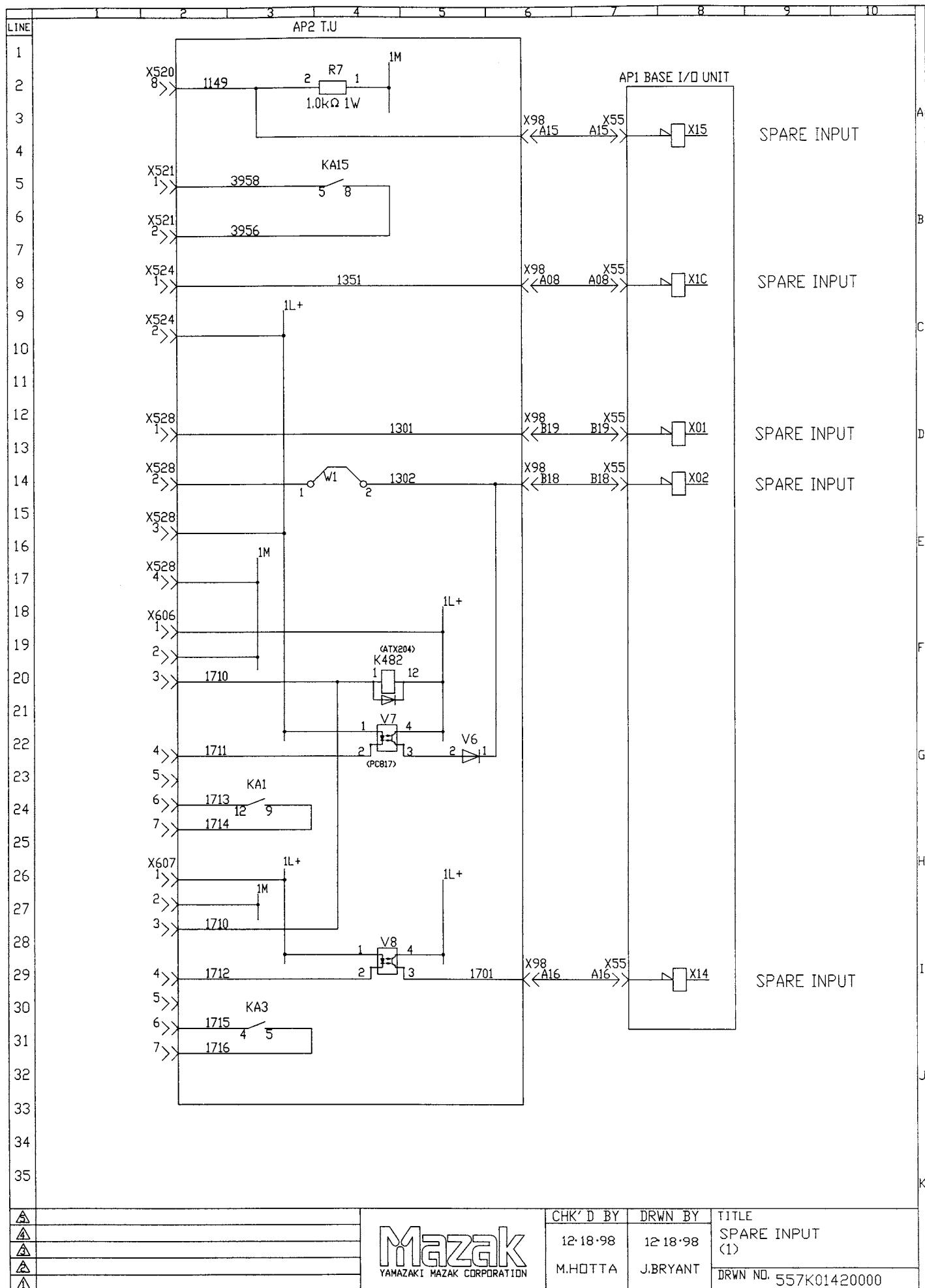
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

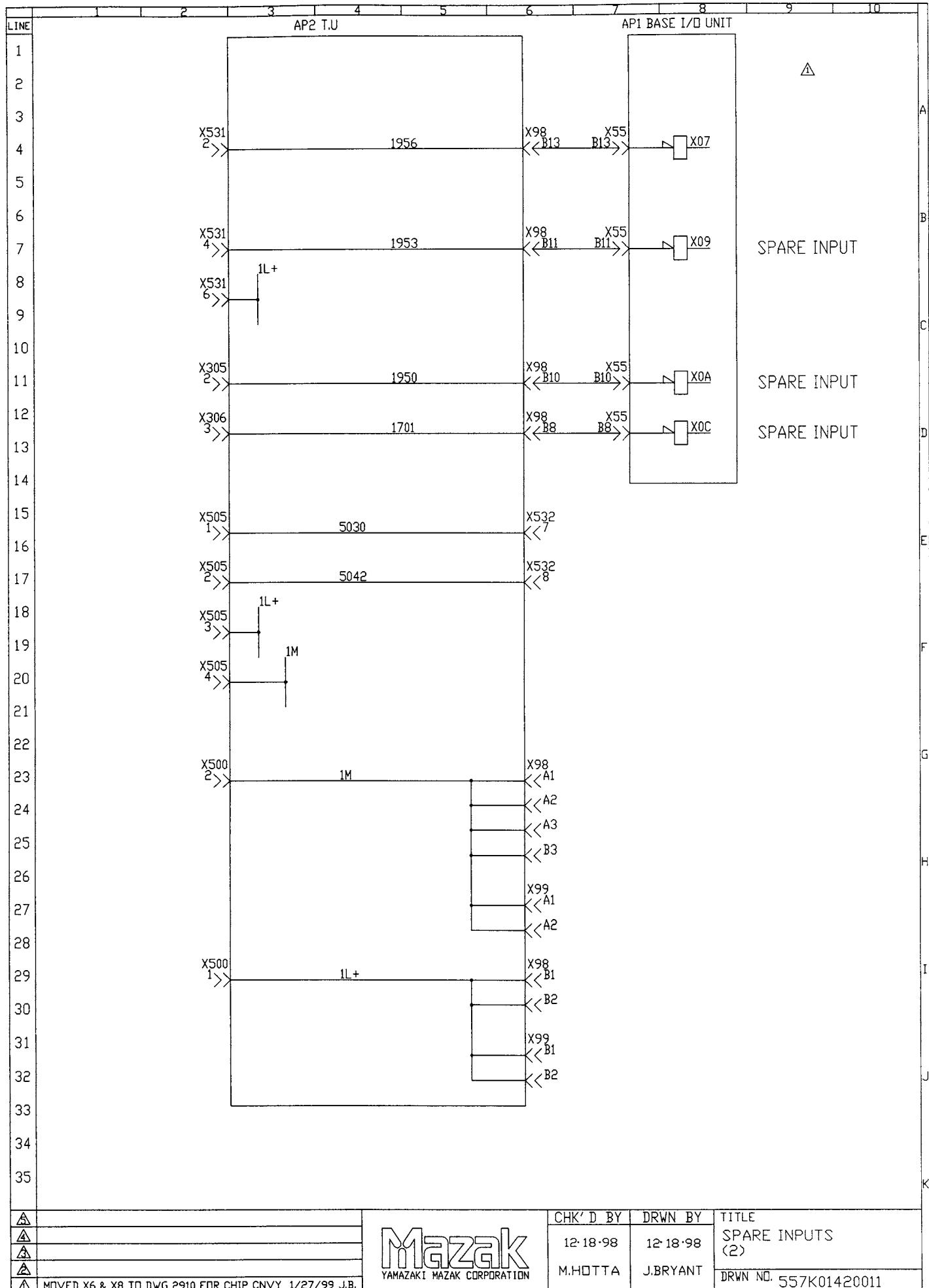
PED-ELD001



CHK'D BY	DRWN BY	TITLE
12-18-98 M.HOTTA	12-18-98 J.BRYANT	SPARE INPUT (1)
		DRWN NO. 557K01420000

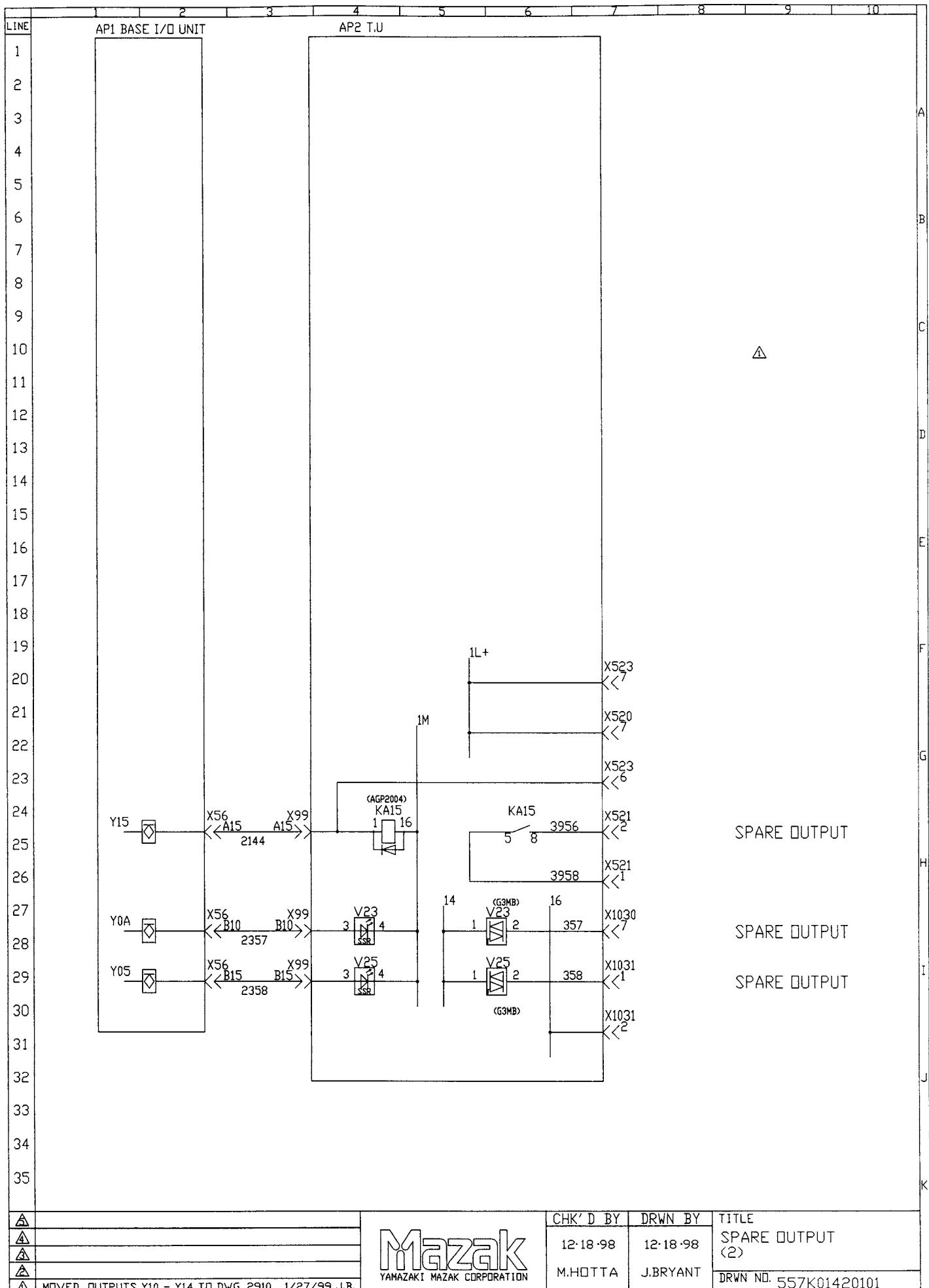
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



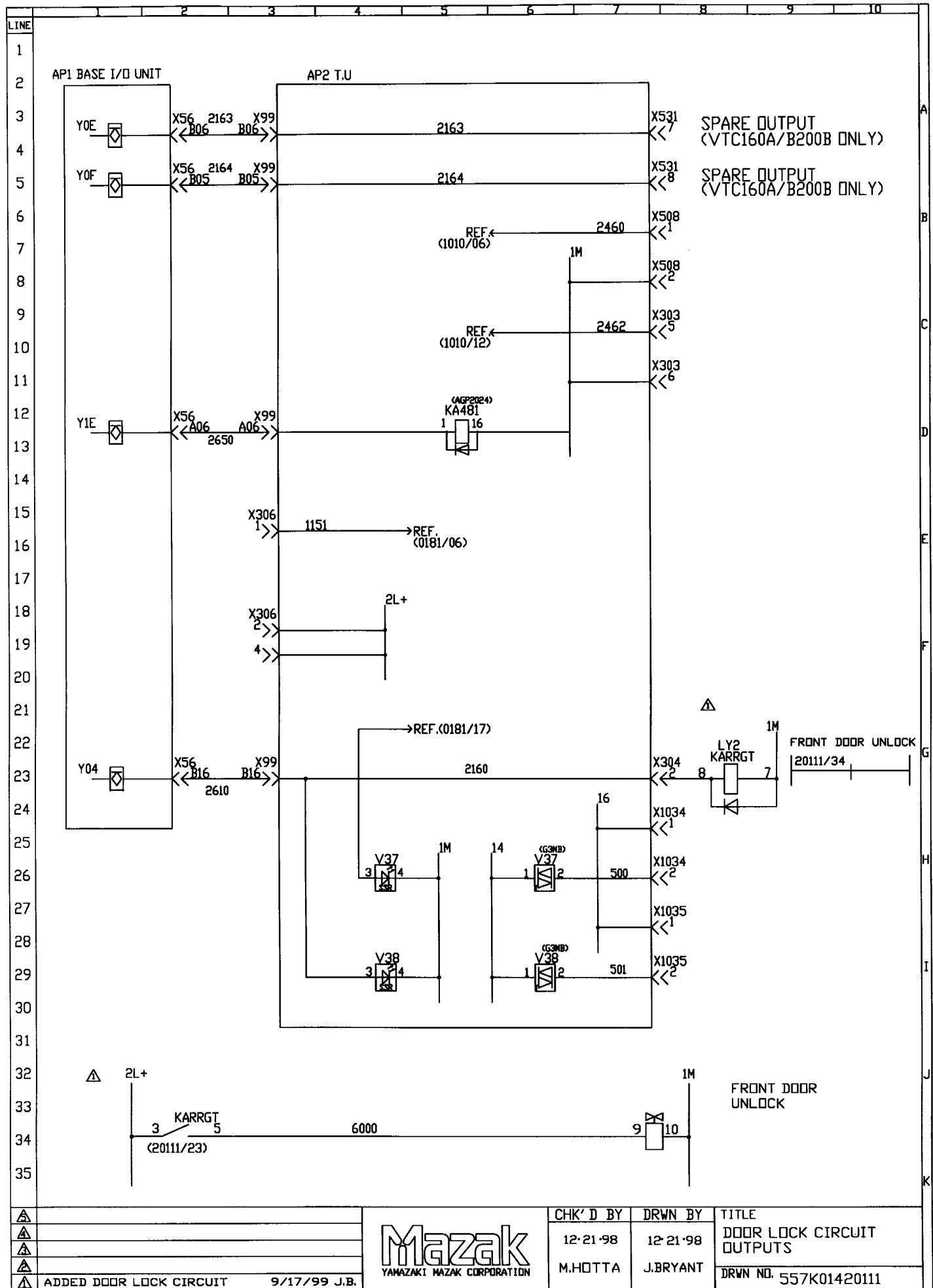
MOVED OUTPUTS Y10 - Y14 TO DWG. 2910 1/27/99 J.B.

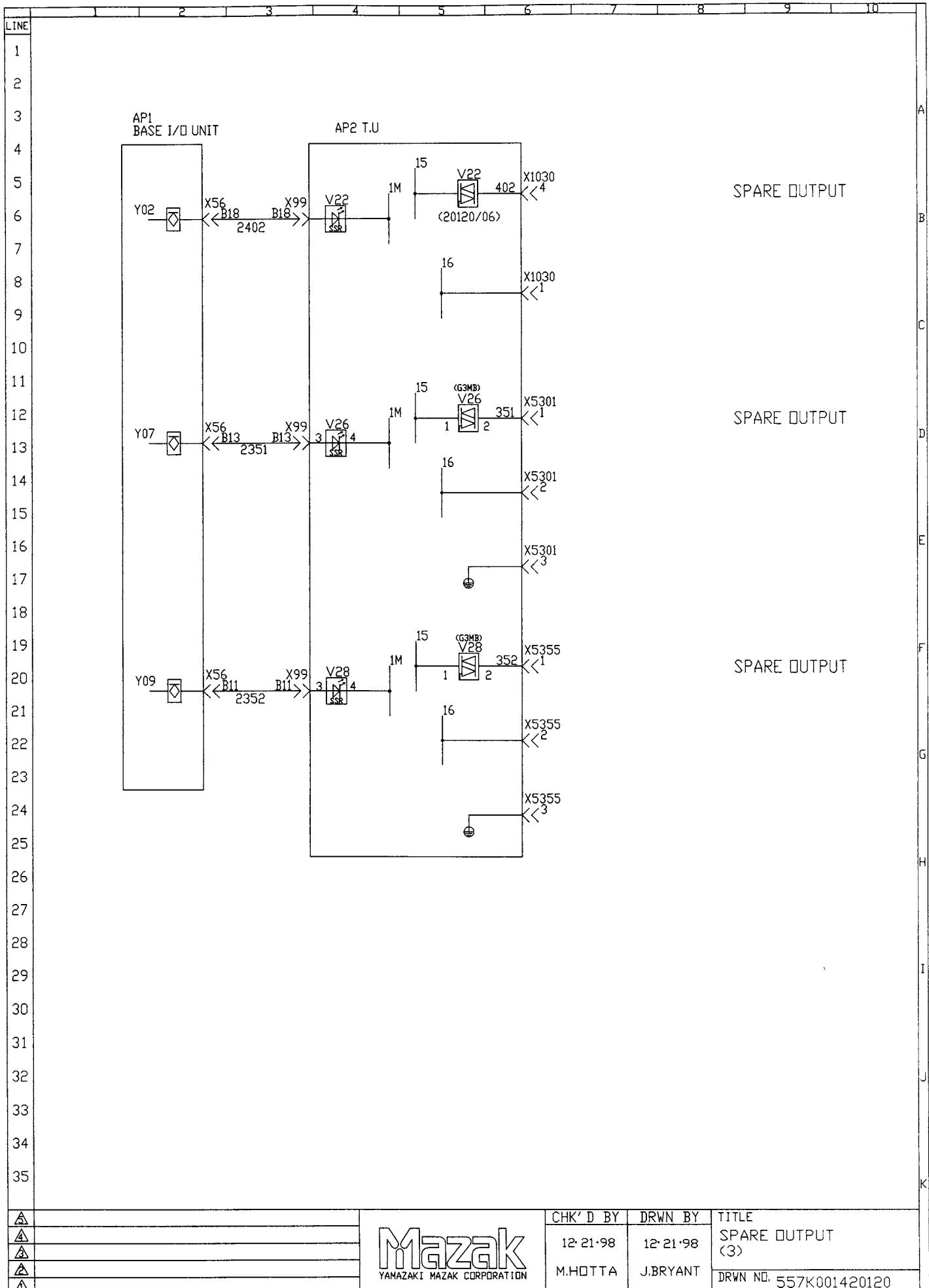
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
12-18-98 M.HOTTA	12-18-98 J.BRYANT	SPARE OUTPUT (2)
		DRWN NO. 557K01420101

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

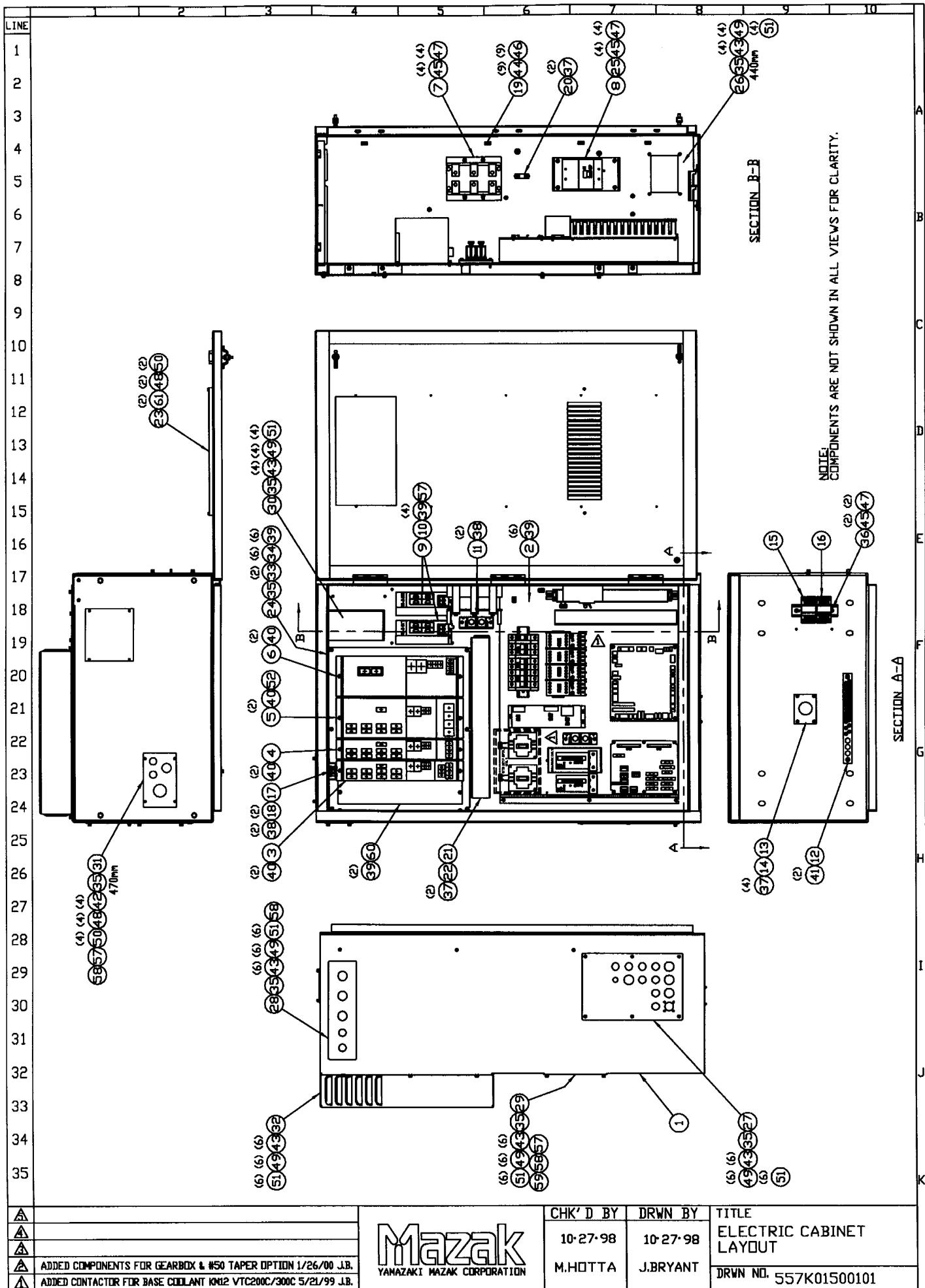




CHK'D BY	DRWN BY	TITLE
12-21-98 M.HOTTA	12-21-98 J.BRYANT	SPARE OUTPUT (3)
		DRWN NO. 557K001420120

This product is subject to all applicable export control laws and regulations by Japanese Government.

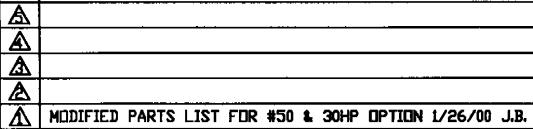
PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

LINE	ITEM NO.	QTY	PART NAME	DESCRIPTION	ITEM NO.	QTY	PART NAME	DESCRIPTION
1	1	1	HEAU/C2N505B586	CABINET ASSEMBLY	41	2	SP896M610	D.S. PHIL. M6 x 16mm (YELLOW)
2	2	1	HEAU/C2N505A596	POWER PANEL ASSEMBLY	42	4	SP906M40740	F.S. S.H.C.S. M4 x 10mm (SILVER)
3	3	1	???????????	MDS-B-V2-3520 DUAL SERVO DRIVE	43	32	SP906M50840	F.S. S.H.C.S. M5 x 12mm (SILVER)
4	4	1	D72MA004881	MDS-B-V1-20 or 45 SERVO DRIVE ASSEMBLY	44	9	SP910M400	COMB. M4 NUT/W STAR WASHER (YELLOW)
5	5	1	D72MA004801	MDS-B-SPI-150 or 300 SPINDLE DRIVE ASSEMBLY	45	10	SP910M500	COMB. M5 NUT/W STAR WASHER (YELLOW)
6	6	1	???????????	MDS-B-CV-220 or 300 COMM COV. ASSEMBLY	46	9	SP914M400	F.S. M4 FLAT WASHER (YELLOW)
7	7	1	D72MA006100	B-AL18.5K REACTOR	47	10	SP914M500	F.S. M5 FLAT WASHER (YELLOW)
8	8	1	DS1MA00190	CIRCUIT BREAKER ABB #SIN100TL-A/100A (OF2)	48	6	SP914M40040	F.S. M4 FLAT WASHER (SILVER)
9	9	2	D72MA008410	MR-J2-60CT	49	32	SP914M50040	F.S. M5 FLAT WASHER (SILVER)
10	10	2	SP280J007	MR-BAT	50	6	SP915M40040	F.S. M4 SPLIT LOCKWASHER (SILVER)
11	11	1	C2N505C084	GROUND PLATE ASSEMBLY	51	32	SP915M50040	F.S. M5 SPLIT LOCKWASHER (SILVER)
12	12	1	BN820C363A	EARTH BAR	52	3	C2N078C007	A-TM SERVO TERMINATOR
13	13	2	C2N751C449	SPONGE BRACKET	53	1	SP880U318	NP AXIS LABEL X L-SIZE
14	14	2	C2N808J176	SPONGE BRACKET PACKING	54	1	SP880U319	NP AXIS LABEL Y L-SIZE
15	15	1	SP401U004	G6B-4BND-DC24V RELAY/TERM. MODULE	55	1	SP880U320	NP AXIS LABEL Z L-SIZE
16	16	1	SP401U005	G6C-4BND-DC24V RELAY/TERM. MODULE	56	5	SP880U027	NP N993D006 GROUND LABEL
17	17	1	SP463U002	D2D-2000 PUSH BUTTON SWITCH	57	11	SP951U005	7/8" BUTTON PLUG
18	18	1	C2N751D236	LIMIT SWITCH MTG. PLATE	58	6	SP951U006	1-1/8" BUTTON PLUG
19	19	9	SP591U020	WHITE SINGLE TIE MOUNT	59	1	SP951U009	5/8" BUTTON PLUG
20	20	1	SP591U002	BLACK DOUBLE TIE MOUNT	60	1	C2N746B192	BLANK COVER PLATE
21	21	0.50M	SP570U027	WIRE DUCT 2" x 4" x 493mm	61	2	SP906M41040	F.S. S.H.C.S. M4 x 16mm (SILVER)
22	22	0.50M	SP570U019	WIRE DUCT COVER 2" x 493mm				
23	23	1	C2N505B174	HE-PB92 AIR FILTER				
24	24	1	C2N712A106	REAR AMP MOUNTING PLATE				
25	25	1	C2N751C426A	OF2 NFB PLATE				
26	26	1	C2N712C096	COVER PLATE: RIGHT BOTTOM				
27	27	1	C2N746A212A	LOWER LEFT SIDE PLATE				
28	28	1	C2N746C140A	UPPER LEFT SIDE PLATE				
29	29	1	C2N746B225	REAR CENTER CONNECTOR PLATE				
30	30	1	C2N751C495	REAR TOP CONNECTOR PLATE				
31	31	1	C2N746B209	TOP CONNECTOR PLATE				
32	32	1	C2N746A245	SERVO AMP ENCLOSURE				
33	33	2	C2N808C194	HORIZONTAL PACKING AMP PLATE				
34	34	6	C2N808D063	VERTICAL PACKING AMP PLATE				
35	35	6.00M	BN808D017A	COMMON ROLL PACKAGE				
36	36	0.140	SP432U101	DIN RAIL				
37	37	8	SP896M407	D.S. PHIL. M4 x 10mm (YELLOW)				
38	38	4	SP896M412	D.S. PHIL. M4 x 20mm (YELLOW)				
39	39	18	SP896M508	D.S. PHIL. M5 x 12mm (YELLOW)				
40	40	8	SP896M514	D.S. PHIL. M5 x 25mm (YELLOW)				

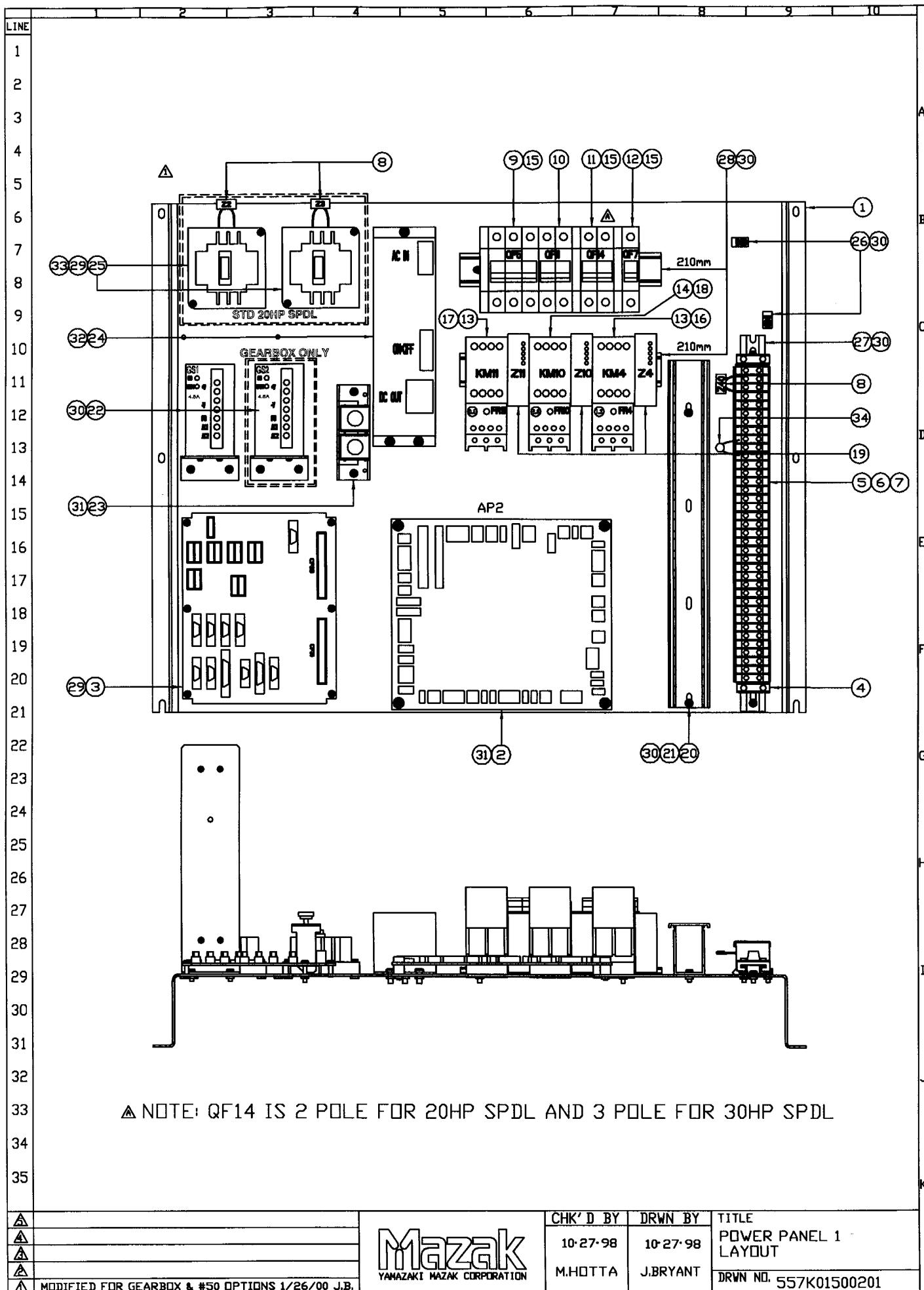


**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	ELECTRIC CABINET PARTS LIST
		DRWN NO. 557K01500111

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

LINE

1

2

3

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	C2N734A113	POWER PANEL
2	1	2N831A113	RELAY PCB
3	1	D72MA008480	HR353 PCB (INSTALL AT CABINET ASSEMBLY)
4	2	SP520U201	RDI FK-1 TERMINAL BRACKET
5	37	SP520U001	RDI F-15 TERMINAL BLOCK
6	2	SP520U101	RDI F-15E END BARRIER
7	0.34M	SP520U401	RDI CF-15 TERMINAL CVR 332mm (TOTAL CUT LENGTH)
8	3	SP186U009	SURGE SUPPRESSOR 240/120 VAC 1PH (SKZ21 & 30)
9	1	SP447U332	CIRCUIT BREAKER ABB #S283-K32 (QF5)
10	1	SP447U206	CIRCUIT BREAKER ABB #S282-K6 (QF11)
11	1	SP447U2R5	CIRCUIT BREAKER ABB #S282-K0.5 (QF14)
12	1	D51MAB00110	CIRCUIT BREAKER ABB #S261-B10 (QF7)
13	2	SP430U100A	CONTACTOR ABB #A9 (KM4 & KM11)
14	1	SP430U102A	CONTACTOR ABB #A12 (KM10)
15	3	SP447U001	CB AUX. CNTCT, 1-NO/1-NC, ABB# S2-H11
16	1	SP431U1R4	THERMAL OVERLOAD RELAY 1.4A (FR4)
17	1	SP431U2R0	THERMAL OVERLOAD RELAY 2.0A (FR11)
18	1	SP431U11R0	THERMAL OVERLOAD RELAY 11A (FR10)
19	3	SP186U021	SURGE SUPPRESSOR DIN RAIL MOUNT (Z4, Z10 & Z11)
20	0.40M	SP570U014	WIRE DUCT 1.5" X 2.0" X 364mm (TOTAL CUT LENGTH)
21	0.40M	SP570U018	WIRE DUCT COVER 1.5" X 364mm (TOTAL CUT LENGTH)
22	1	C2N505B540	AVR ASSEMBLY
23	1	C2N505C084	GROUND PLATE ASSEMBLY
24	1	D72MA008470	PJ25A BKO-NC5218 (INSTALL AT CABINET ASSEMBLY)
25	2	SP430U008	CONTACTOR MITSUBISHI SK80UL AC200V (KM2 & KM3)
26	2	SP591U020	WHITE TIE WRAP MOUNT
27	0.40M	SP520U501	BLF-1000 TERMINAL RAIL 394mm (TOTAL CUT LENGTH)
28	0.42M	SP432U101	DIN RAIL 420mm (TOTAL CUT LENGTH)
29	10	SP900M207	FS PHIL PHS M3 x 10mm
30	12	SP896M407L	FS DS PHIL PHS M4 x 10mm
31	6	SP896M412	FS DS PHIL PHS M4 x 20mm
32	3	SP896M508	FS DS PHIL PHS M5 x 12mm
33	2	C2N934C027	SAFETY COVER SK80/95 SERIES
34	1	D43MB000670	ERZ-C14DK221 METAL VAR.

25

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A

B

C

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D

E

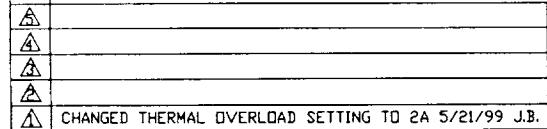
F

G

I

J

K



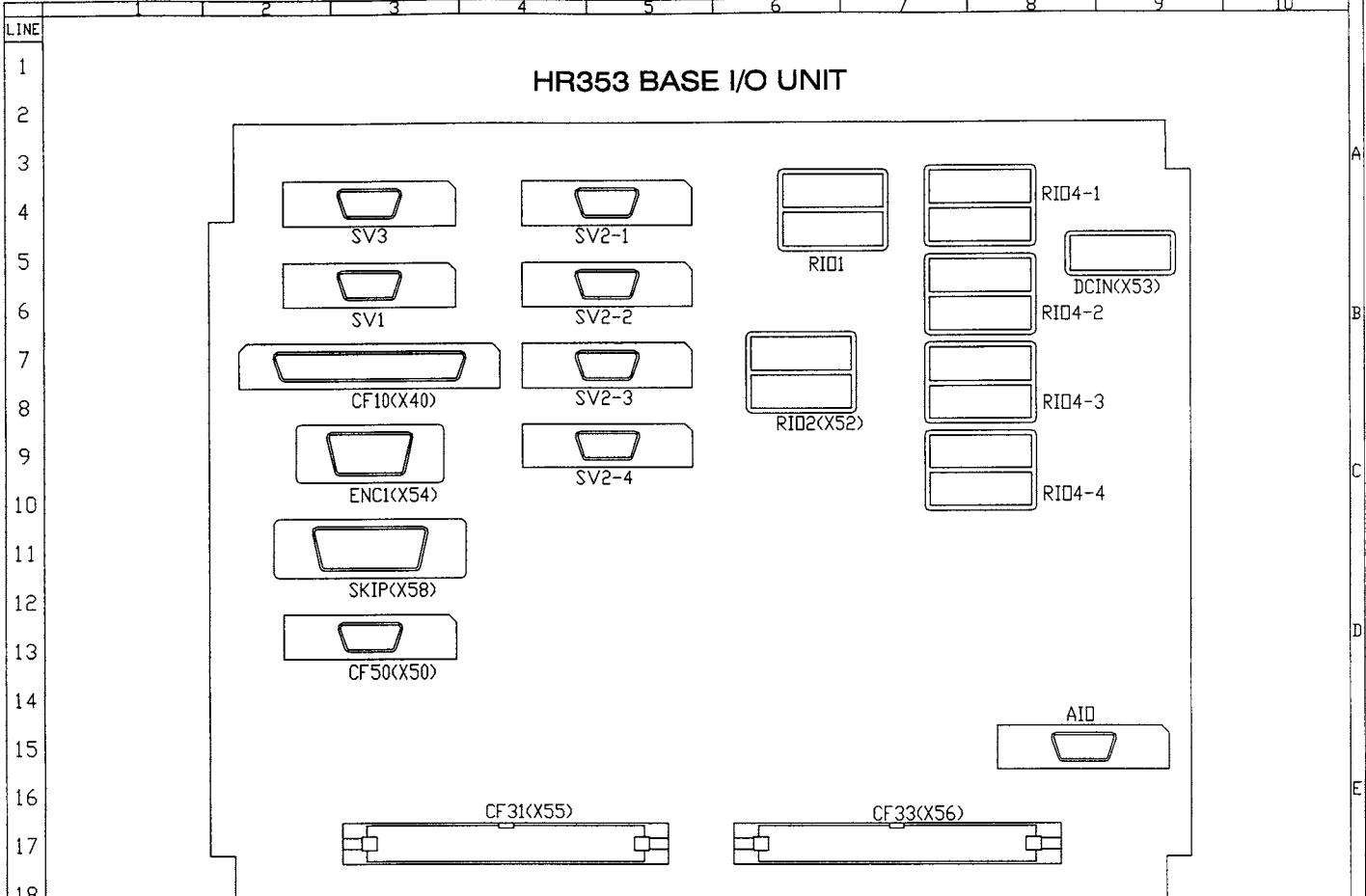
**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	ELECTRIC CABINET PARTS LIST
		DRWN NO. 557K01500211

CHANGED THERMAL OVERLOAD SETTING TO 2A 5/21/99 J.B.

This product is subject to all applicable export control laws and regulations by Japanese Government.

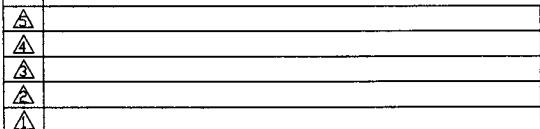
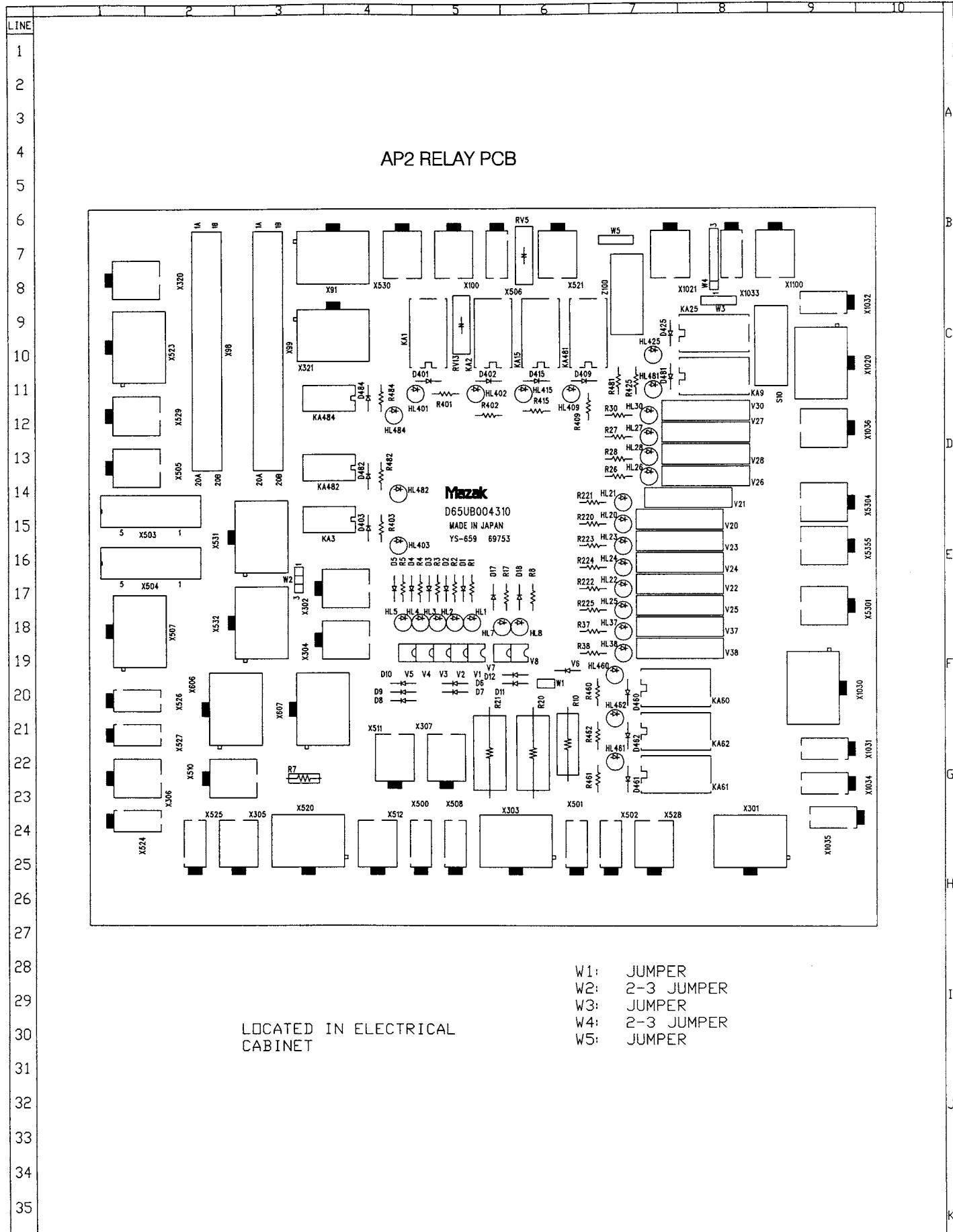
PED-ELD001



A	CHK'D BY	DRWN BY	TITLE
A	12-21-98	12-21-98	API BASE I/O
A	M.HOTTA	J.BRYANT	LAYOUT
A			DRWN NO. 557K01500600
A			

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

11-9-98  
M. Hotta

DRWN BY

11-9-98  
J. Bryant

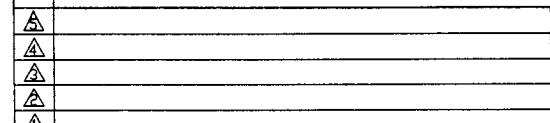
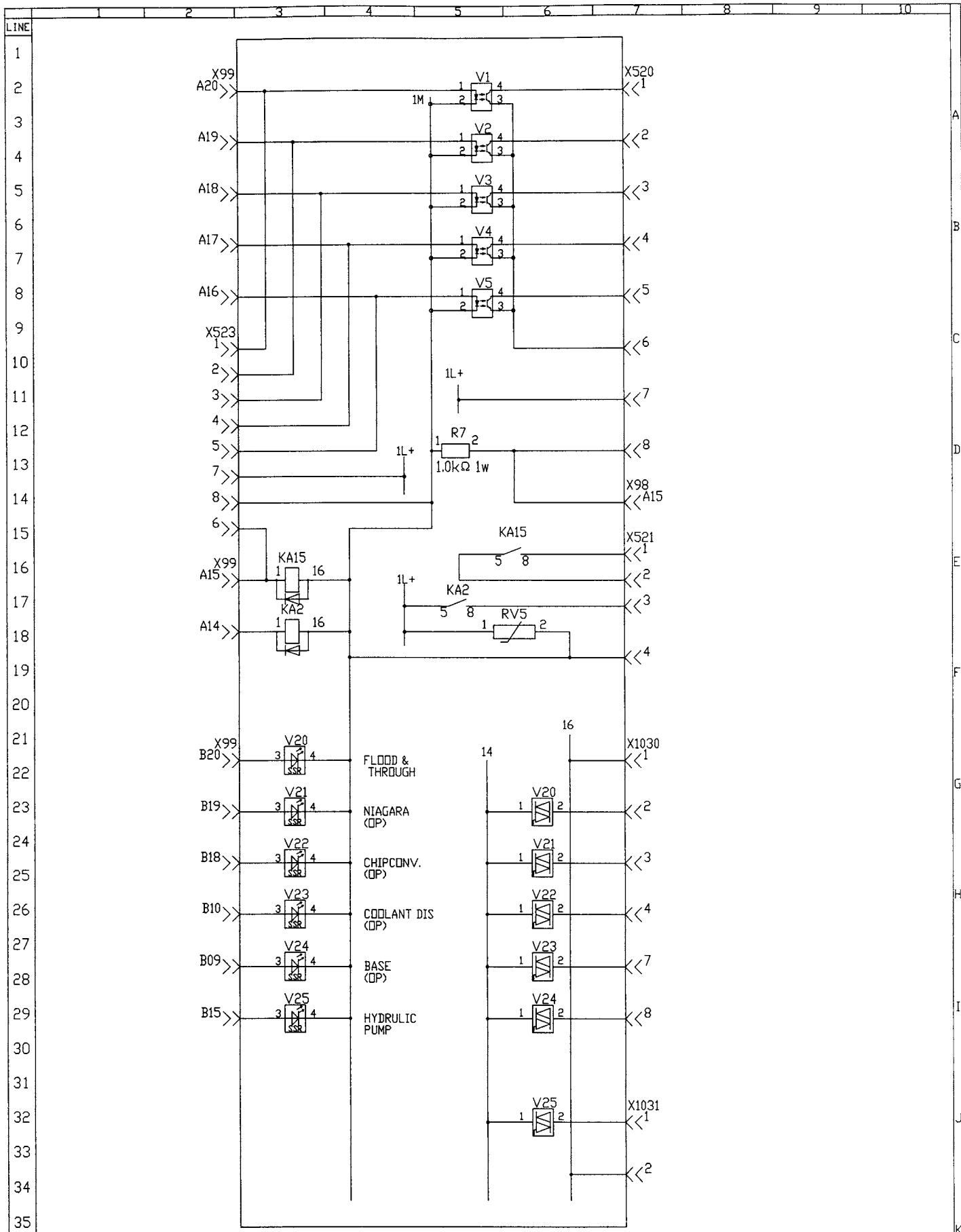
TITLE

AP2 T. U. PCB  
LAYOUT

DRWN NO. 557K01500700

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

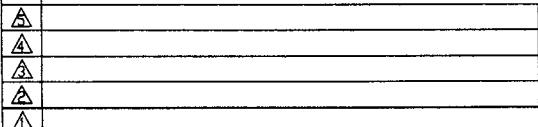
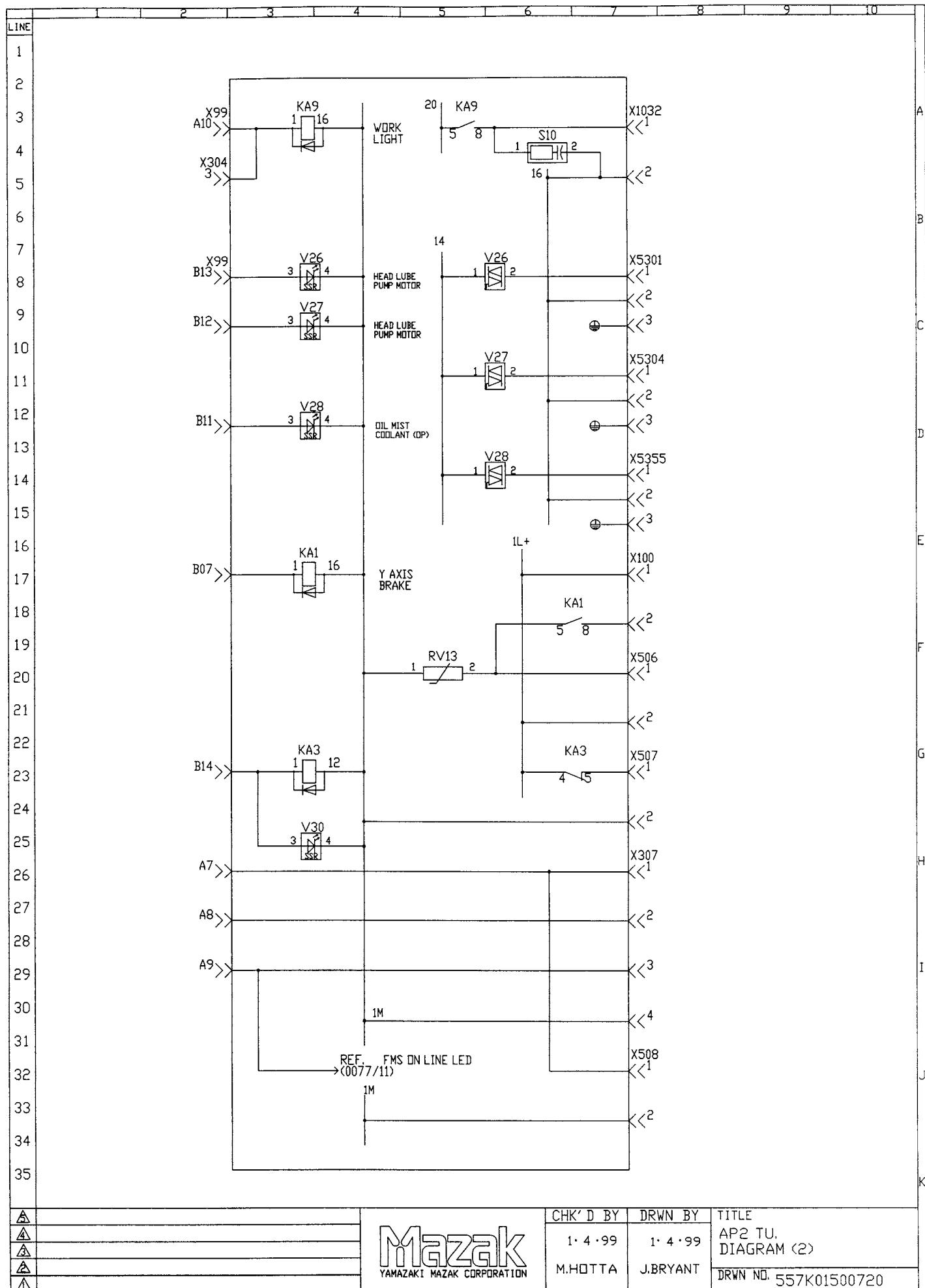


**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
12-21-98 M.HOTTA	12-21-98 J.BRYANT	AP2 TU. DIAGRAM (1)
		DRWN NO. 557K01500710

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY  
1-4-99  
M.HOTTA

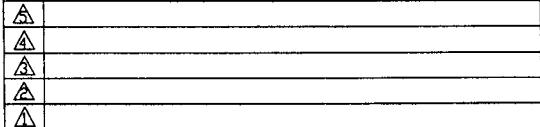
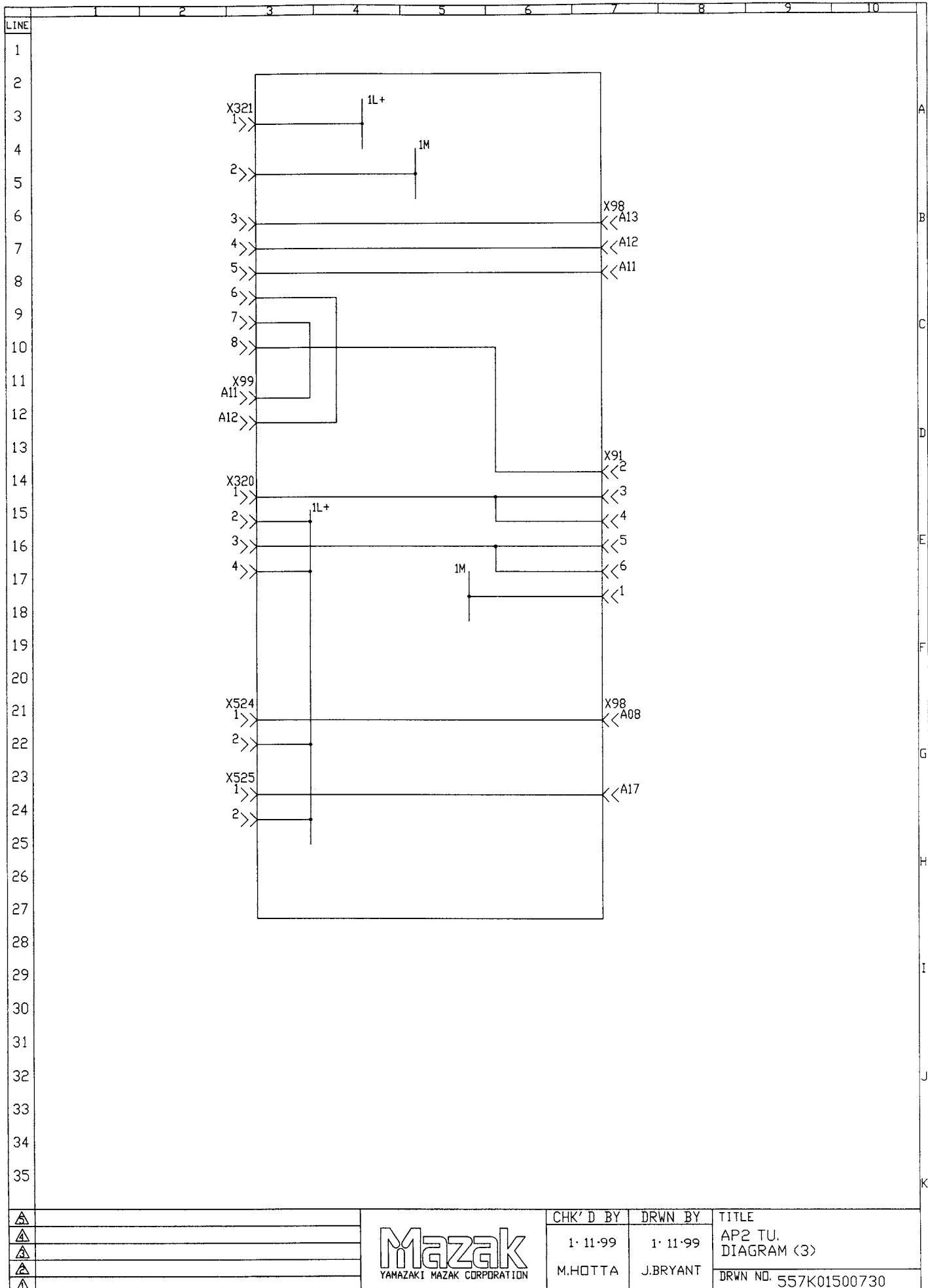
DRWN BY  
1-4-99  
J.BRYANT

TITLE  
AP2 TU,  
DIAGRAM (2)

DRWN NO. 557K01500720

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY  
1·11·99  
M.HOTTA

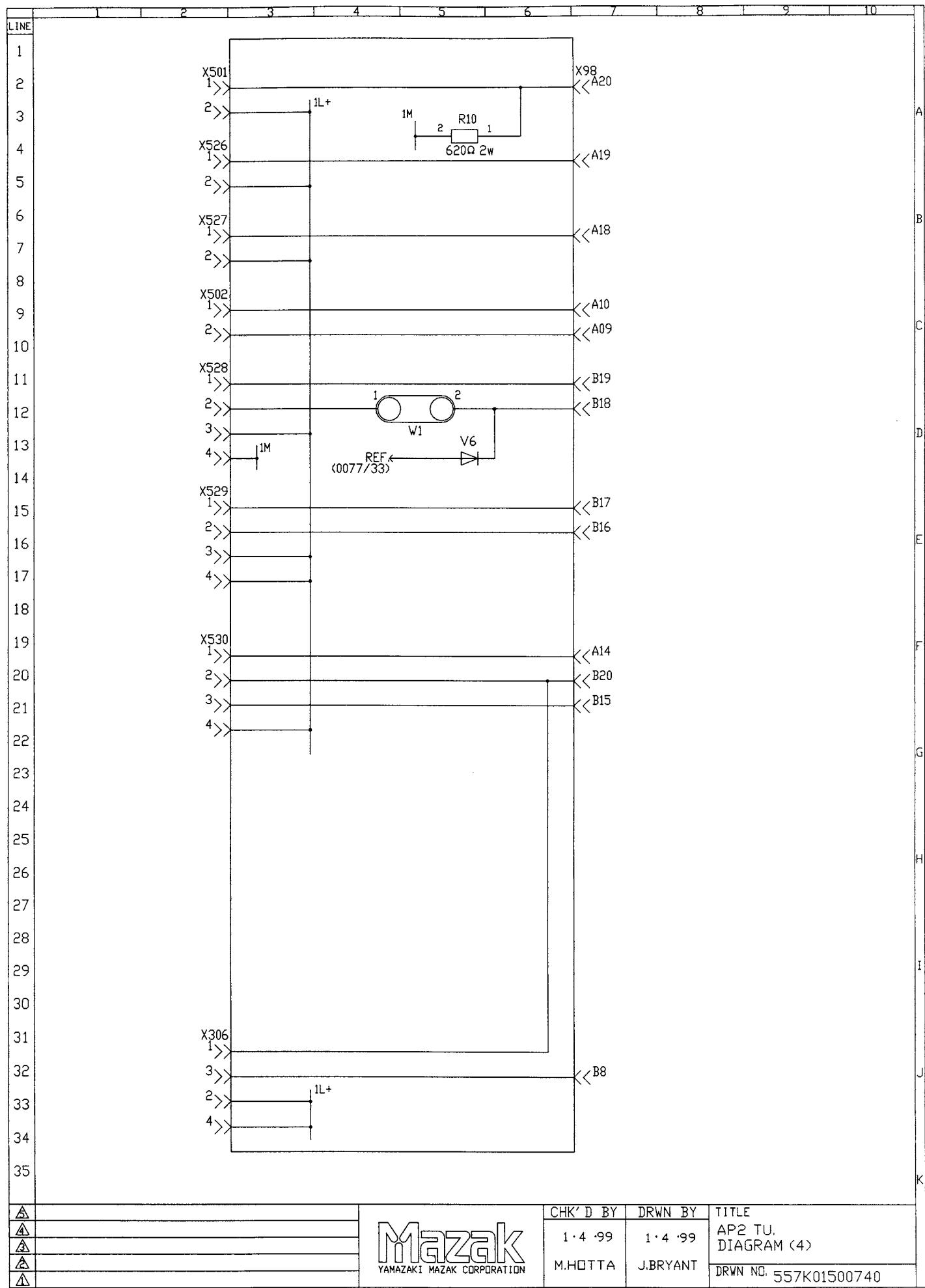
DRWN BY  
1·11·99  
J.BRYANT

TITLE  
AP2 TU,  
DIAGRAM (3)

DRWN NO. 557K01500730

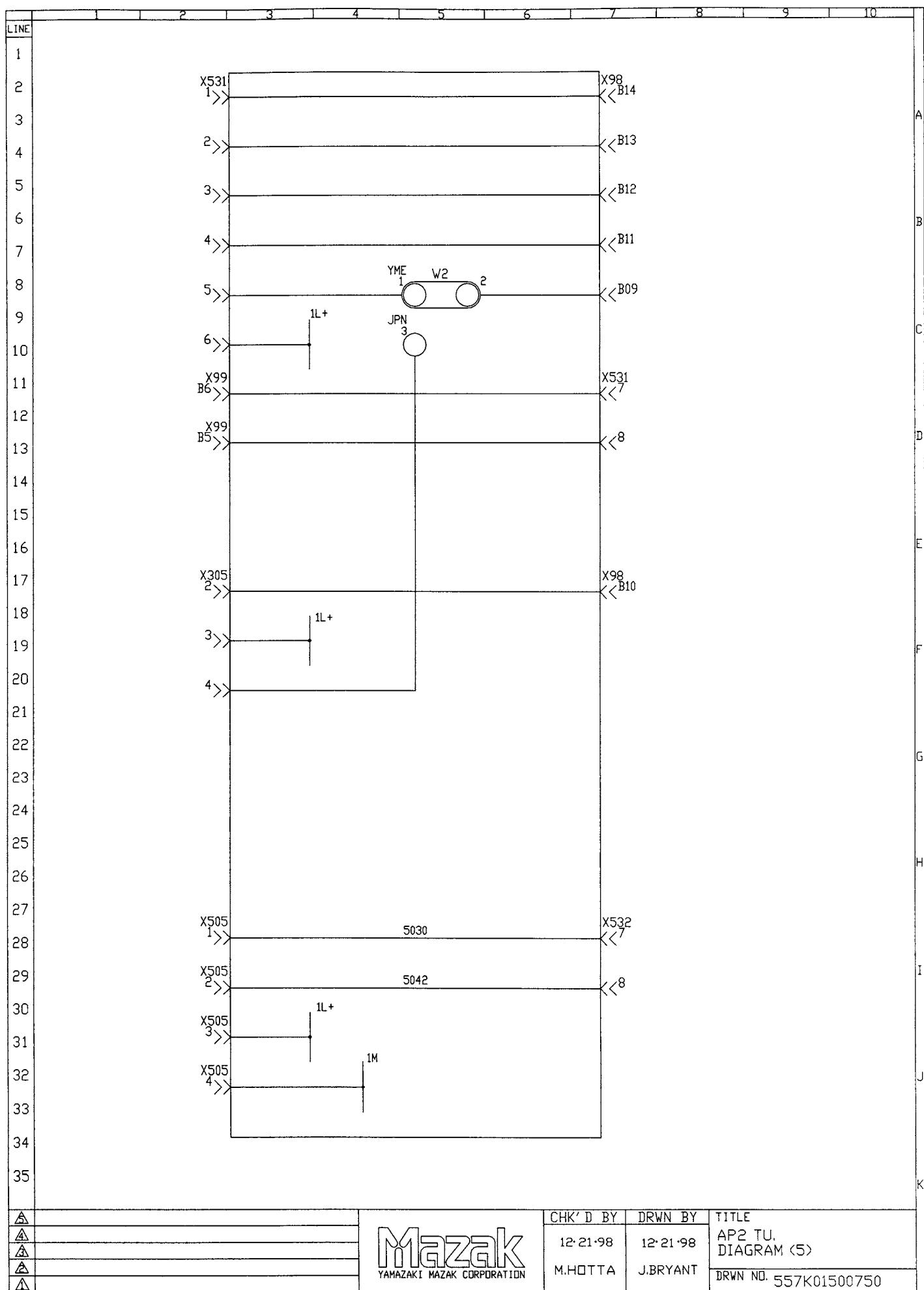
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PED-ELD001



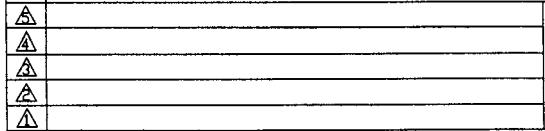
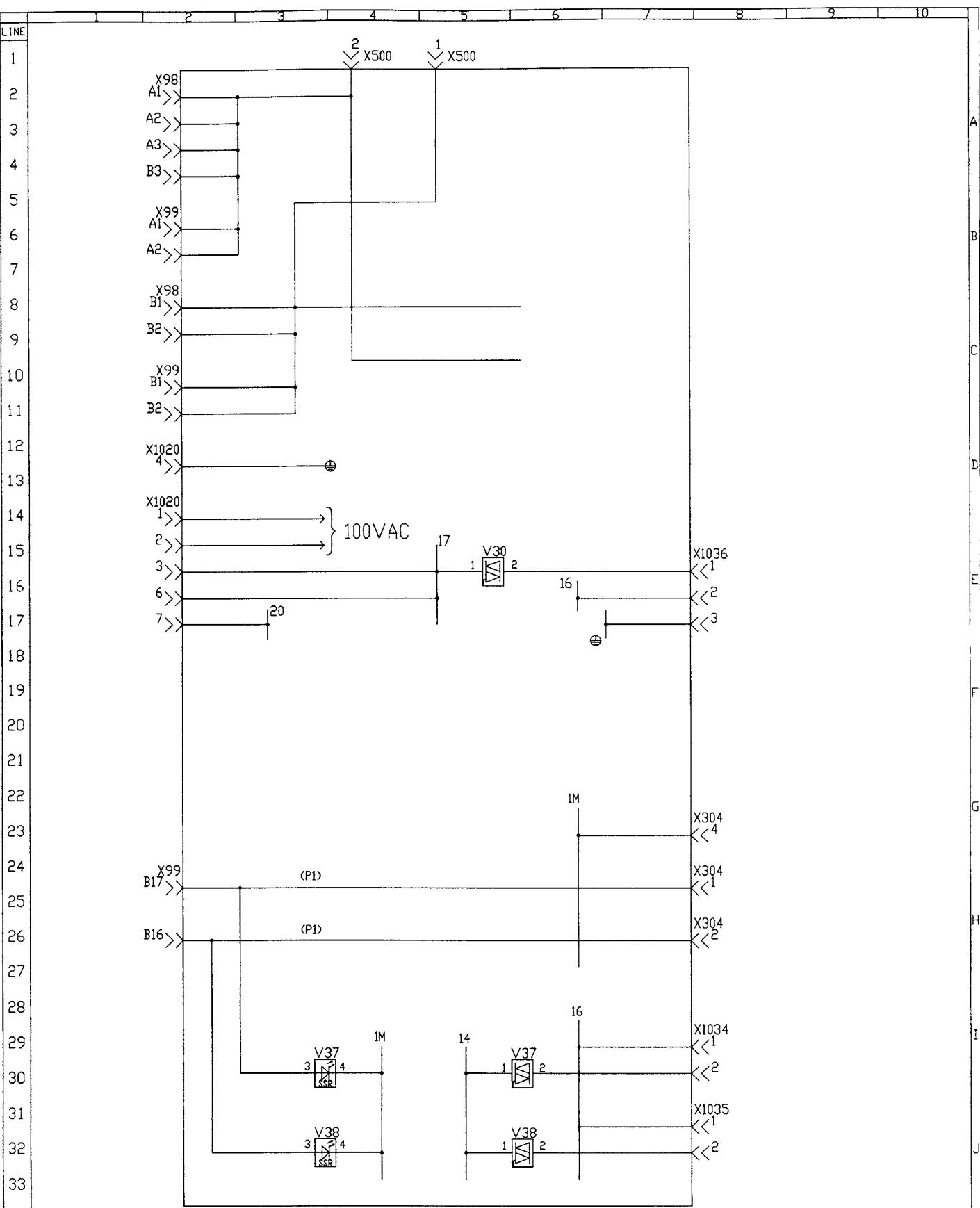
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

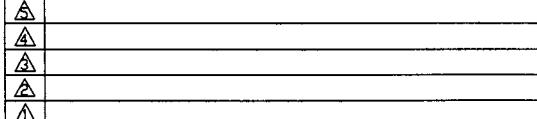
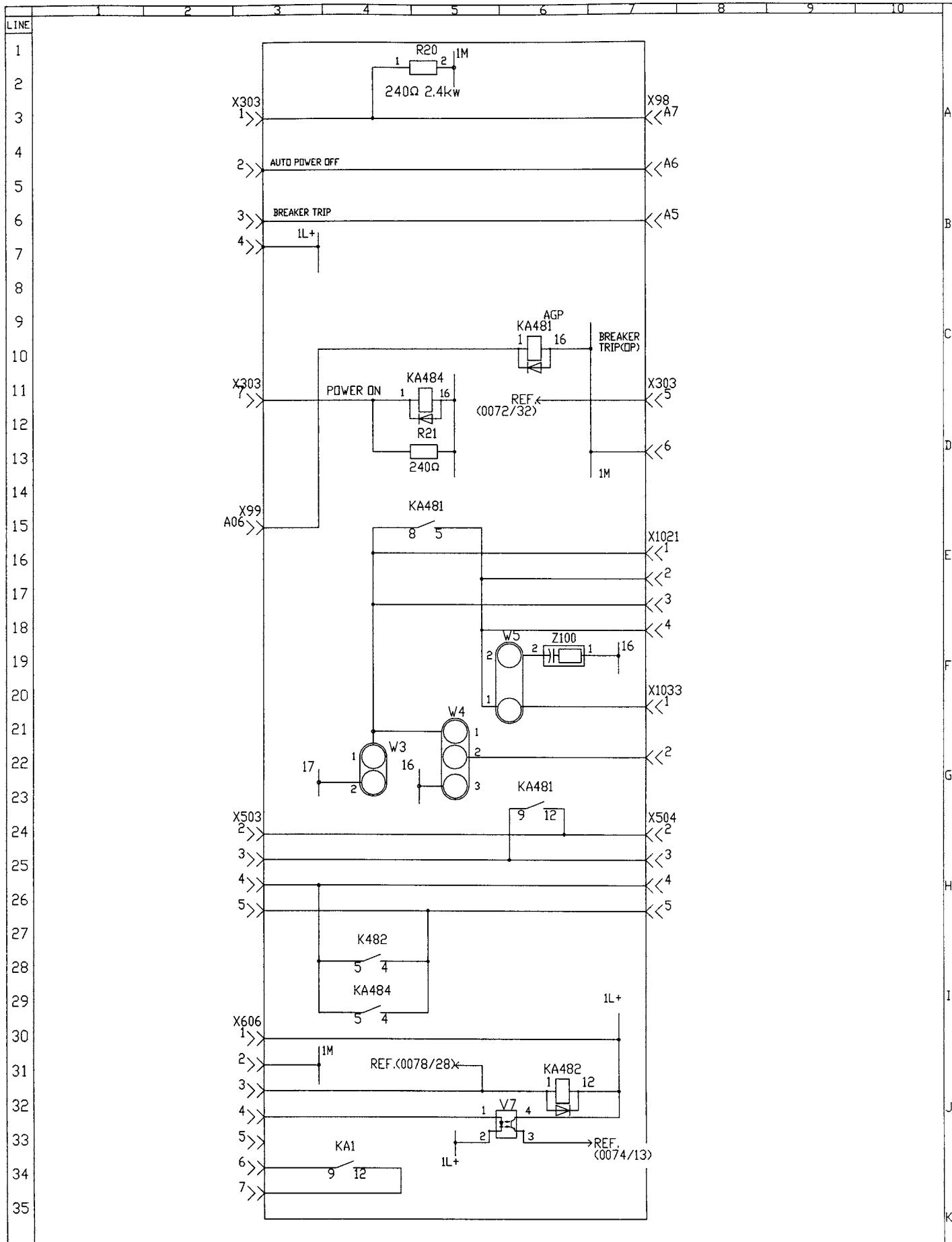


Mazak  
YAMAZAKI MAZAK CORPORATION

CHK'D BY   DRWN BY   TITLE  
12-21-98   12-21-98   AP2 TU,  
M.HOTTA   J.BRYANT   DIAGRAM (6)  
DRWN NO. 557K01500760

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY  
12-21-98  
M.HOTTA

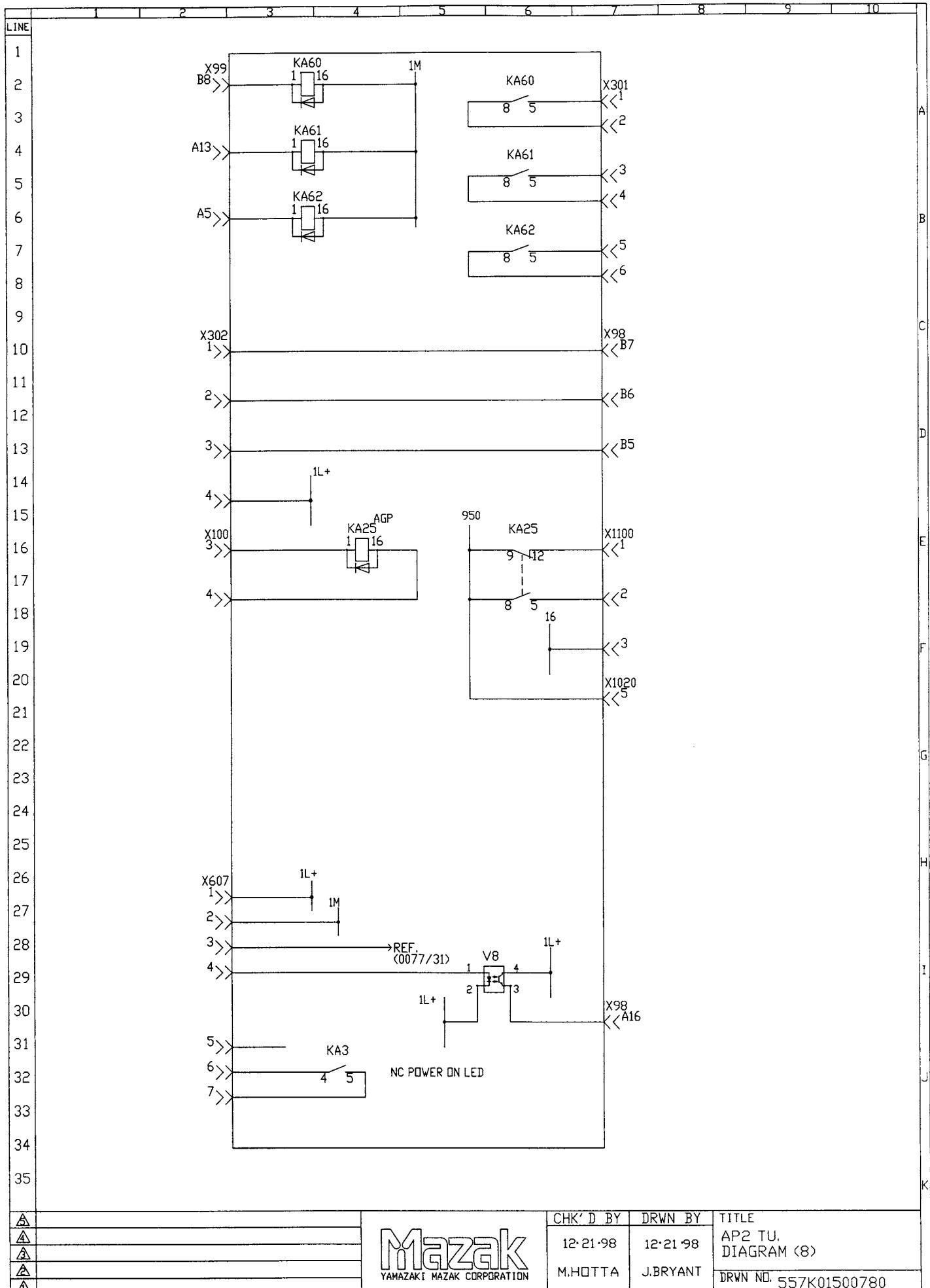
DRWN BY  
12-21-98  
J.BRYANT

TITLE  
AP2 TU,  
DIAGRAM (7)

DRWN NO. 557K01500770

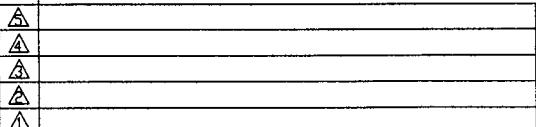
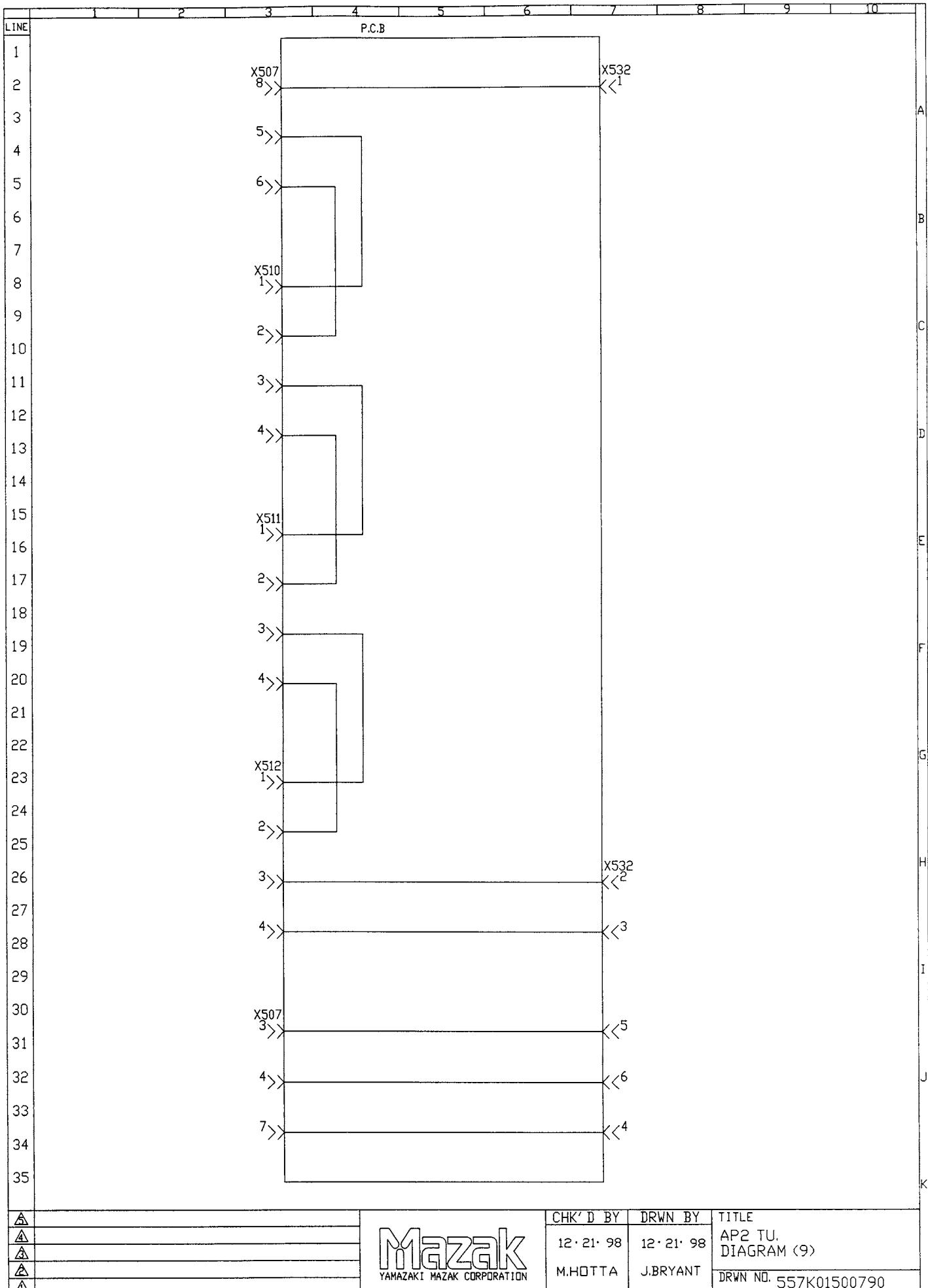
This product is subject to all applicable export control laws and regulations by Japanese Government.

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This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001



**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
12-21-98 M.HOTTA	12-21-98 J.BRYANT	AP2 TU, DIAGRAM (9)
		DRWN NO. 557K01500790

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

LINE	2	3	4	5	6	7	8	9	10
1									
2									
3									
4	X98						X99		
5	PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME	PIN No.	LINE NO.	INSIDE CONNECT
6	A20	1048	X501-1,R10-1		X10	TRF.OVER HEAT	A20	2149	X523-1,V1-1
7	A19	1300	X526-1		X11	HYDRAULIC PRSS.	A19	2148	X523-2,V2-1
8	A18	1479	X527-1		X12	M CODE FIN.	A18	2147	X523-3,V3-1
9	A17	2154	X525-1		X13	MG.DOOR CLOSE	A17	2146	X523-4,V4-1
10	A16	1701	V8-3		X14	SPARE	A16	2145	X523-5,V5-1
11	A15	1149	X520-8,R7-2		X15	TOOL UNCLAMP	A15	2144	X523-6,KA15-1
12	A14	1153	X530-1		X16	MG.MNL INTERRUPT	A14	2199	KA2-1
13	A13	1497	X321-3		X17	MMS.ERROR	A13	2481	KA61-1
14	A12	1496	X321-4		X18	MMS LOW BATTERY	A12	2498	X321-6
15	A11	1494	X321-5		X19	MMS.PROB STATUS	A11	2499	X321-7
16	A10	1349	X502-1		X1A	MOTOR THERMAL TRIP1	A10	2493	KA9-1,X304-3
17	A09	1348	X502-2		X1B	MOTOR THERMAL TRIP2	A09	2462	X307-3
18	A08	1351	X524-1		X1C	CYCLE START	A08	2461	X307-2
19	A07	1659	X303-1,R20-1		X1D	WARM UP SS	A07	2460	X307-1
20	A06	1651	X303-2		X1E	AUTO POWER OFF SS	A06	2650	KA481-1
21	A05	1652	X303-3		X1F	BRAKER TRIP SS	A05	2482	KA62-1
22	A04						A04		
23	A03	1M	X500-2			1M	A03		
24	A02	1M	X500-2			1M	A02	1M	X500-2
25	A01	1M	X500-2			1M	A01	1M	X500-2
26	B20	1151	X530-2		X00	TOOL SELECT CCW PB.	B20	2350	V20-3
27	B19	1301	X528-1		X01	X1 PULSE	B19	2300	V21-3
28	B18	1302	V1-2,V6-1		X02	FEED HOLD	B18	2402	V22-3
29	B17	1304	X529-1		X03	WAY LUBE LDW	B17	2150	X304-1
30	B16	1305	X529-2		X04	WAY LUBE PRESS	B16	2160	X304-2,V38-4
31	B15	1152	X530-3		X05	TOOL SRECT CW PB.	B15	2358	V25-3
32	B14	1952	X531-1	△	X06	CHIP CNVY DVLD	B14	2010	KA3-1,V30-3
33	B13	1956	X531-2	△	X07	X-AXIS INTERLOCK 1	B13	2351	V26-3
34	B12	1955	X531-3	△	X08	CHIP CNVY INV ALM	B12	2304	V27-3
35	B11	1953	X531-4		X09	X-AXIS INTERLOCK 2	B11	2352	V28-3
36	B10	1950	X305-2		X0A	CENTER COVER	B10	2357	V23-3
37	B09	1960	V2-2(JPN)		X0B	MACHINE DOOR CLOSE	B09	2201	V24-3
38	B08	1701	X306-3		X0C	X100 PULSE	B08	2480	KA60-1
39	B07	3450	X302-1		X0D	4TH AXIS ZERO RET.DEC	B07	2060	KA1-1
40	B06	3451	X302-2		X0E	4TH AXIS UNCLAMP	B06	2163	X531-7
41	B05	3452	X302-3		X0F	4TH AXIS NEGLECT	B05	2164	X531-8
42	B04						B04		
43	B03	1M	X500-2			1M	B03		
44	B02	1L+	X500-1			1L+	B02	1L+	X500-1
45	B01	1L+	X500-1			1L+	B01	1L+	X500-1

△ ADD ED I/O DESCRIPTION FOR CHIP CONVEYOR 5/25/99 J.B.  
 △ ADD ED I/O FOR VTC-300C YF, X7, X9, XC, XA, X1, X2, XIC & XIS J.B. 4/14/99

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	PCB CONNECTIONS AP2 (1)
DRWN NO. 557K01500801		

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-EL D001

LINE	1	2	3	4	5	6	7	8	9	10
1										
2	X91									
3		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
4	1	1M		X321-2,R10-2			1M			
5	2	1495		X321-8		X178	MMS SKIP			
6	3	1499		X320-1,X91-4		X17D	TOOL LENGTH MEASURE SKIP			
7	4	1499		X320-1,X91-3		X17A	SKIP 3			
8	5	1498		X320-3,X91-6		X17C	TOOL LENGTH MEASURE DEC.			
9	6	1498		X320-3,X91-5		X179	SKIP 2			
10	7									
11	8									
12	X100									
13		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
14	1	2L+								
15	2	3351		KA1-5						
16	3	2020		KA25-1						
17	4	2021		KA25-16						
18	X301									
19		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
20	1	480		KA60-8						
21	2	470		KA60-5						
22	3	481		KA61-8						
23	4	471		KA61-5						
24	5	482		KA62-8						
25	6	472		KA62-5						
26	7									
27	8									
28	X302									
29		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
30	1	3450		X98-B7						
31	2	3451		X98-B6						
32	3	3432		X98-B5						
33	4	2L+		2L+			2L+			
34	X303									
35		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
36	1	1659		X98-A7,R20-1						
37	2	1651		X98-A6						
38	3	1652		X98-A5						
39	4	2L+		2L+			2L+			
40	5	2462		X99-A09,X307-3						
41	6	1M		KA481-16			1M			
42	7	2651		R21-1,KA484-1						
43	8									
44	X321									
45		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
46	1	2L+		2L+						
47	2	1M		1M						
48	3	1497		X98-A13						
49	4	1496		X98-A12						
50	5	1494		X98-A11						
51	6	2498		X99-A12						
52	7	2499		X99-A11						
53	8	1495		X91-2						
54		CHK'D BY	DRWN BY	TITLE						
55										
56		10-27-98	10-27-98	PCB CONNECTIONS						
57				AP2 (2)						
58		M.HOTTA	J.BRYANT							
59				DRWN NO.	557K01500811					

REVISED WIRE LABEL FROM 2150 TO 460 1/25/99 J.B.

This product is subject to all applicable export control laws and regulations by Japanese Government.

**Mazak**  
YAMAZAKI MAZAK CORPORATION

PED-ELD001

LINE	1	2	3	4	5	6	7	8	9	10
1										
2	X500					X507				
3										
4										
5										
6	X501									
7										
8										
9	X502					X508				
10										
11										
12										
13	X503					X510				
14										
15										
16										
17										
18										
19										
20	X504					X511				
21										
22										
23										
24										
25										
26										
27	X505					X512				
28										
29										
30										
31										
32	X506									
33										
34										
35										
		CHK'D BY	DRWN BY	TITLE						
		10-27-98	10-27-98	PCB CONNECTIONS						
		M.HOTTA	J.BRYANT	AP2 (3)						
				DRWN NO.	557K01500820					

This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

LINE	1	2	3	4	5	6	7	8	9	10
1										
2										
3		X521				X529				
4										
5										
6										
7										
8										
9										
10		X523				X530				
11										
12										
13										
14										
15		X524				X531				
16										
17										
18		X525								
19										
20										
21										
22		X526				X532				
23										
24										
25										
26		X527								
27										
28										
29		X528				X606				
30										
31										
32										
33										
34										
35										
A										
A										
A										
A										
A										

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY	DRWN BY	TITLE
10-27-98 M.HOTTA	10-27-98 J.BRYANT	PCB CONNECTIONS AP2 (4)
DRWN NO. 557K01500830		

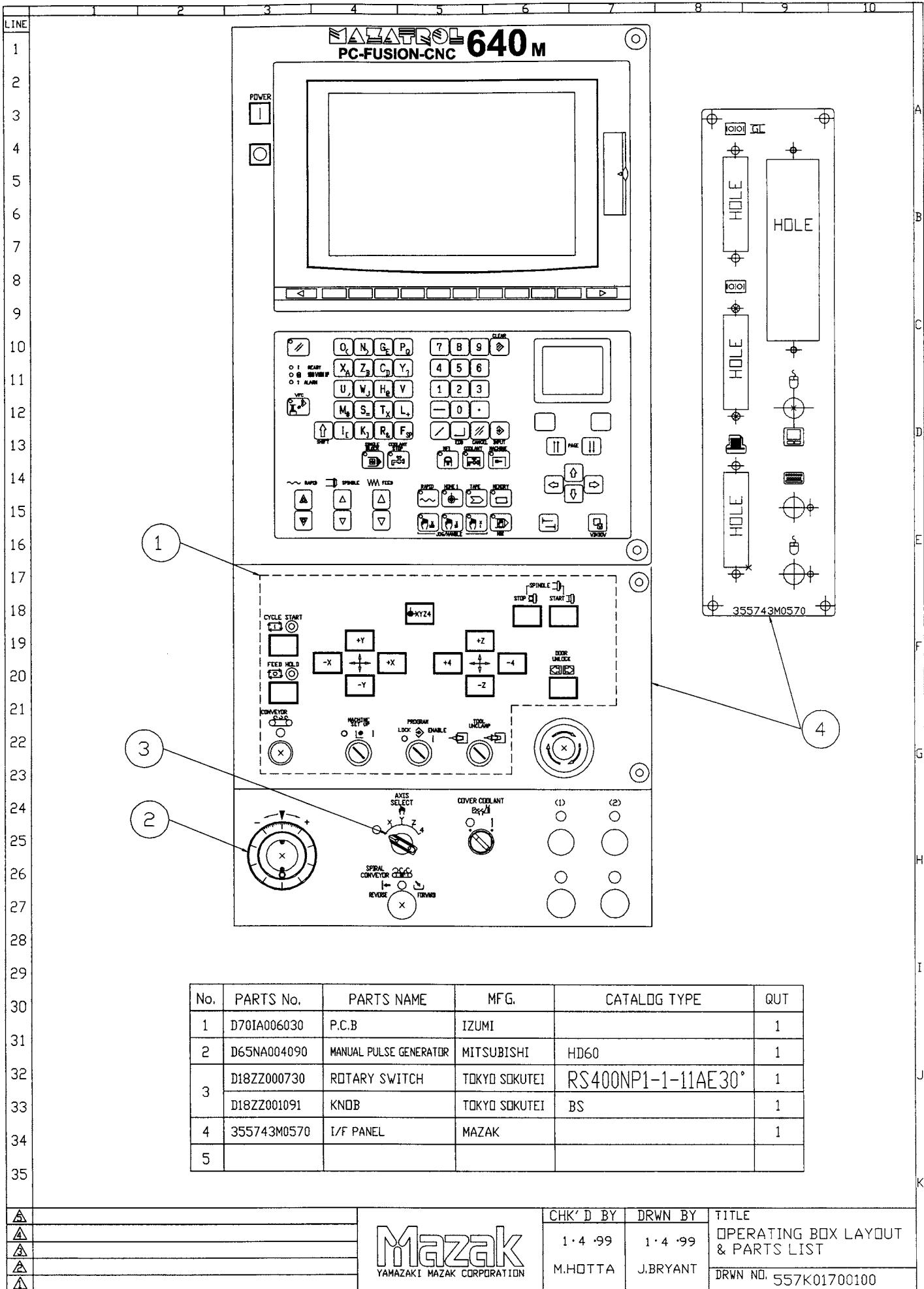
This product is subject to all applicable export control laws and regulations by Japanese Government.

PED-ELD001

LINE	1	2	3	4	5	6	7	8	9	10
1										
2	X607					X1033				
3		PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME			
4	1	1L+	1L+				1L+			
5	2	1M	1M				1M			
6	3	1710	X606-3,KA482							
7	4	1712	V8-2							
8	5									
9	6	1715	KA3-4							
10	7	1716	KA3-5							
11	8									
X1020										
10	PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME				
11	1	15								
12	2	16								
13	3	17	X1020-6							
14	4		⊕							
15	5	950	KA25-5,12							
16	6	17	X1020-3							
17	7	21								
18	8									
X1021										
17	PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME				
18	1	39	X1021-3,KA481-5 W3-1,W4-1							
19	2	49	X1021-4,KA481-8 W5-1							
20	3	39	X1021-1,KA481-5 W3-1,W4-1							
21	4	49	X1021-2,KA481-8 W15							
X1030										
21	PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME				
22	1	16								
23	2	350	V20-2							
24	3	300	V21-2							
25	4	402	V22-2							
26	5									
27	6									
28	7	357	V23-2							
29	8	201	V24							
X1031										
28	PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME				
29	1	358	V25-2							
30	2	16								
31	3		⊕							
32	4									
X1032										
33	PIN No.	LINE NO.	INSIDE CONNECT	OUT SIDE	PLC	SIGNAL NAME				
34	1	497	KA9-8,S10-1							
35	2	16								
△										
△										
△										
△										
△										
△										
Mazak YAMAZAKI MAZAK CORPORATION	CHK'D BY 10-27-98 M.HOTTA	DRWN BY 10-27-98 J.BRYANT	TITLE PCB CONNECTIONS AP2 (5) DRWN NO. 557K01500840							

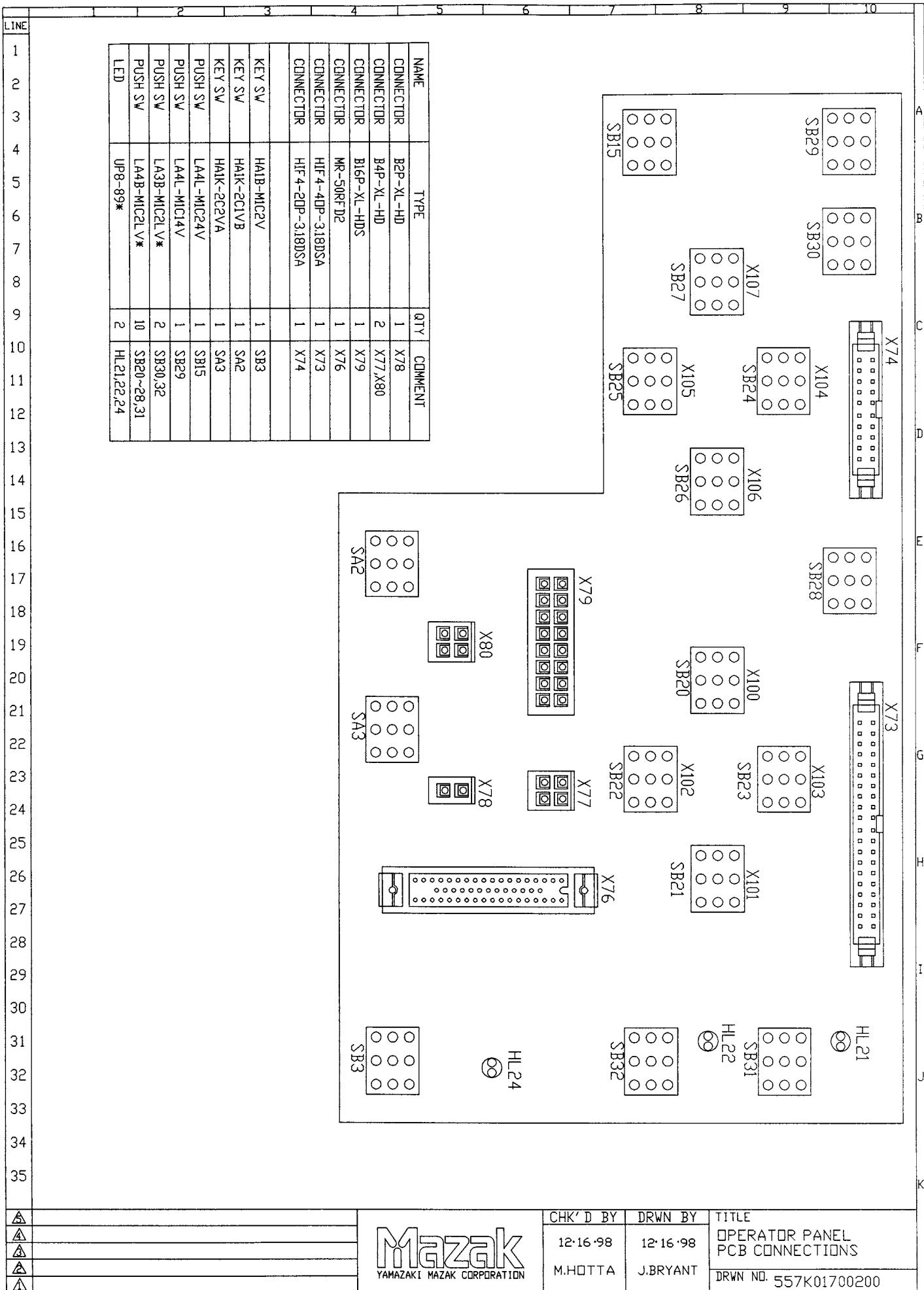
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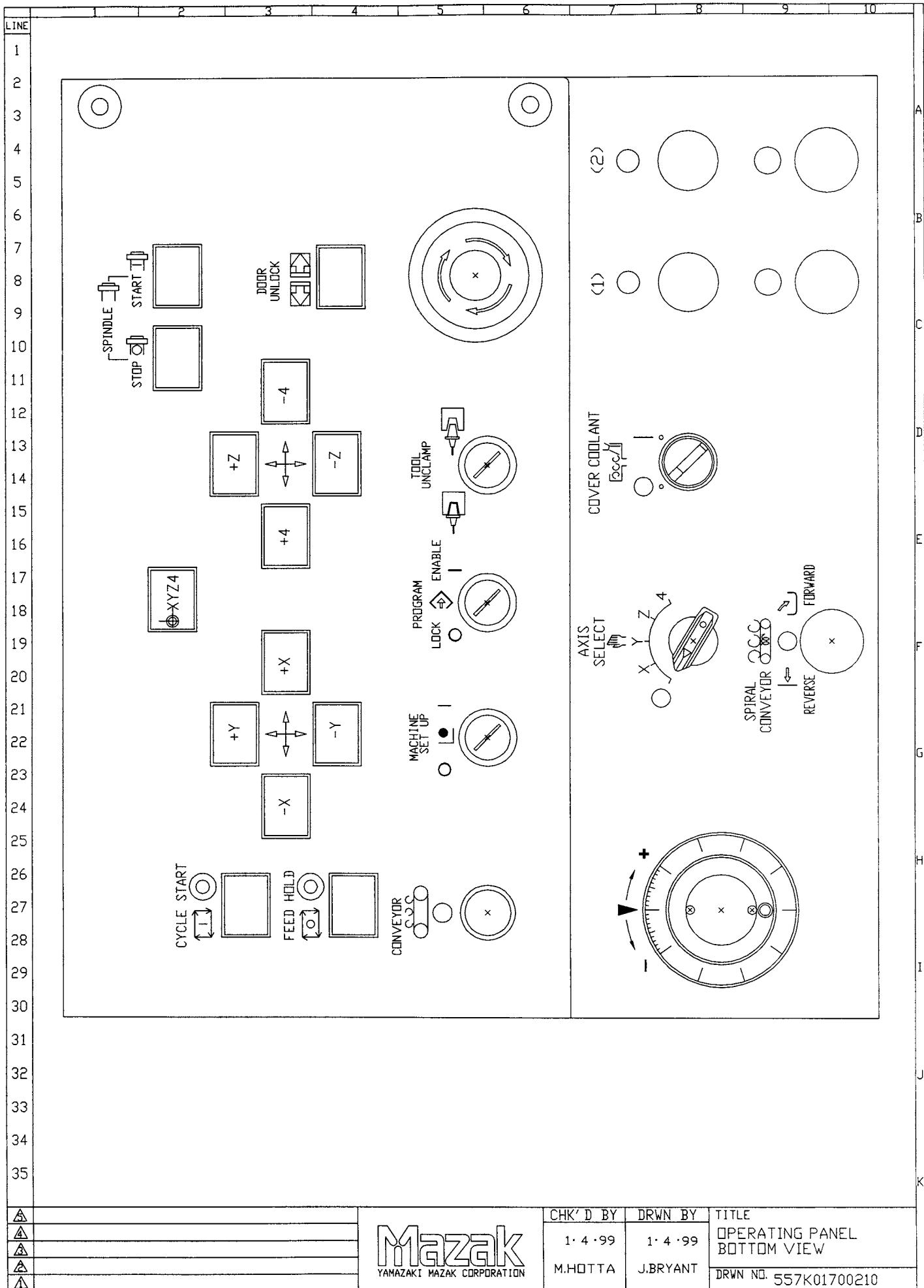
This product is subject to all applicable export control laws and regulations by Japanese Government.

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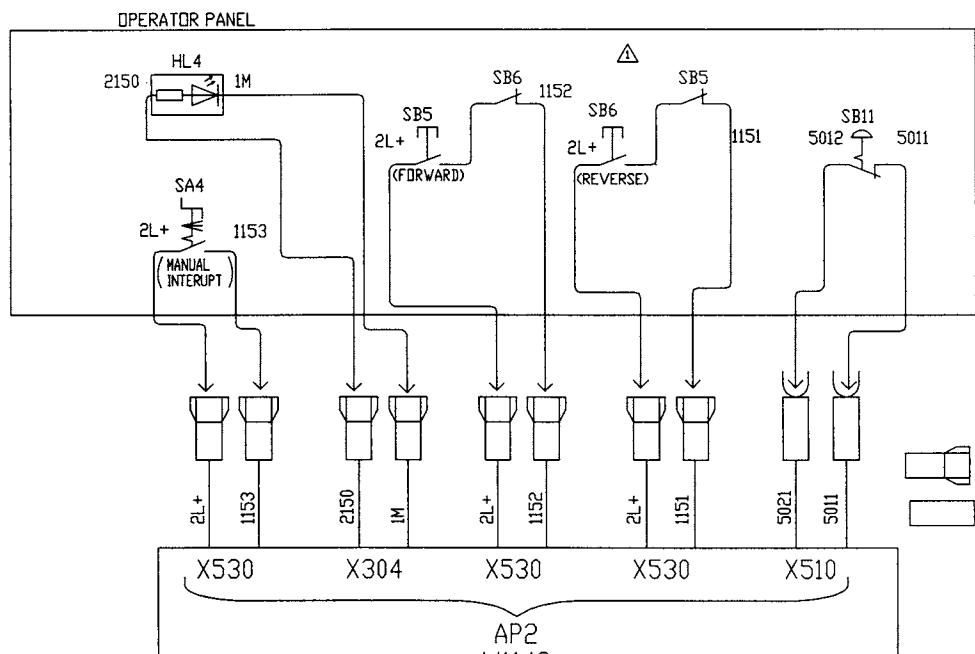
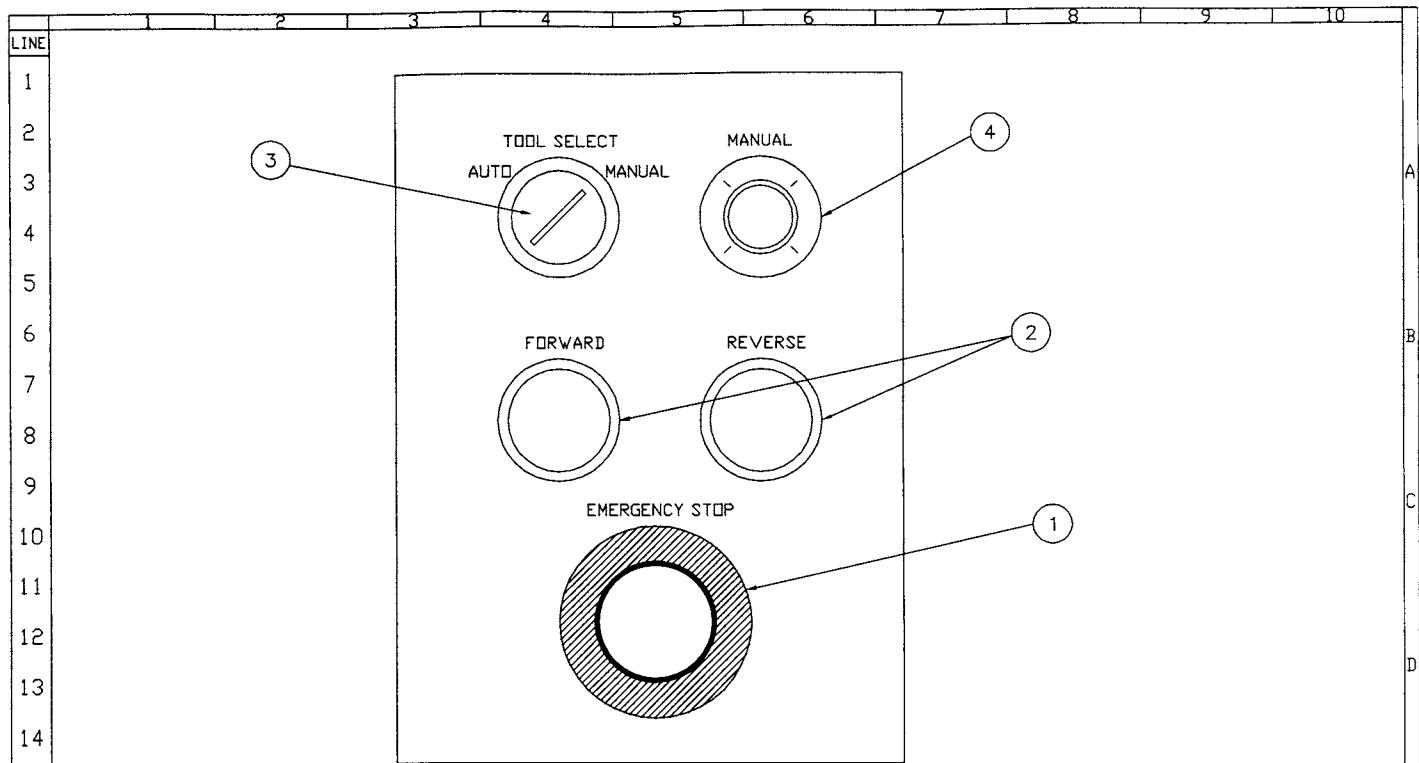


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YAMAZAKI MAZAK CORPORATION

CHK'D BY 1-4-99 M.HOTTA	DRWN BY 1-4-99 J.BRYANT	TITLE OPERATING PANEL BOTTOM VIEW DRWN NO. 557K01700210
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PARTS LIST

No.	DESCRIPTION	TYPE	PARTS No.	MAKER	QTY	REMAKES
1	PUSH BUTTON SWITCH	AVD302N-R-TK847	D15IA002890	IZUMI	1	
2	PUSH BUTTON SWITCH	AH253-FB11 1a1b	D15FA002930	FUJI	2	
3	SELECT SWITCH	AH253-P2B11 1a1b	D13FA001400	FUJI	1	
	PILOT LAMP	AH25-ZMWD	D20FA002760	FUJI	1	
4	BULB	BA9S/13 30V 1W	D20KC000250	KORITSU	1	
	COVER	DC-90		IZUMI	1	

K

MODIFIED PARTS LIST AND ADDED INTERLOCK SW. 1/27/99 J.B.

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY

1-4-99

DRWN BY

1-4-99

TITLE

MAG. PANEL (JB62)

DRWN NO. 557K01700301

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