

CIRCUIT DIAGRAM

diagr. no.71.006904

machine

MAHOMAT

series 553

electrical dates

diagramm statement

MACHINE CONNECT. RATINGS	EQUIPMENT			
	1	2	3	4
MAIN SUPPLY	3/380V 50/60Hz			
POWER CONSUMPTION	34 KVA	42 KVA		
IN MAX.	51 A	64 A		
MAX. BACK-UP FUSE	80 A			
CONTROL CIRCUIT				
DC-CONTROL VOLTAGE	24V			
AC-CONTROL VOLTAGE	110V 50/60Hz			
AC-POWER SUPPLY	220V 50/60Hz			
EQUIPMENT	MACHINE WITH			
1	coolant unit 120l			
2	coolant unit 540l			
3				
4				

STANDARD	WHEN REQUIRED
main drive	pallet changer
feed drives	NC-dividing apparatus
tool magazine	tool breakage control
tool changer	measuring probe
coolant unit	remote control unit
hydraulic	cooling unit
pneumatic	airing plant
control station	

cord.	alterat.	date	name	room	date	05 JUL 1990	check	SIC	MAHO	BASE SHEET	MAHOMAT/553	ENG/CSA	71.006904/DB.AA	page 1
									ATTEN GEMEINSCHAFT					1. Pg.

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71.006904/003.AA	rot.cur.economy transf.	power inject	cooling unit
71.006904/004.AA	power inject	power supply unit	feed drive
71.006904/005.AA	main drive		
71.006904/006.AA	feed drive	X-axis	Z-axis
71.006904/007.AA	feed drive	Y-axis	4th axis
71.006904/008.AA	chip conveyor	coolant unit 120L	
71.006904/009.AA	coolant unit 540L		
71.006904/010.AA	pump	hydraulic	drive
71.006904/011.AA	control transformer	DC-control voltage	rectifier
71.006904/012.AA	control transformer	AC-control voltage	machine light
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71.006904/014.AA	error indicator		heat exchanger
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71.006904/016.AA	control circuit		power inject
71.006904/017.AA	control circuit	fuse protection	cabin doors
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71.006904/023.AA	emergency stop unit	position switch	end of axis
71.006904/024.AA	control	pressure control	chip rinsing
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71.006904/028.AA	CNC-outputs card 1	coolant	temperature transmitter
71.006904/029.AA	CNC-outputs card 1	lubrication pump	manual
71.006904/030.AA	CNC-outputs card 1	address M	
71.006904/031.AA	CNC-outputs card 2		
71.006904/032.AA	CNC-outputs card 2	measuring probe	tool breakage control
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71.006904/050.AA	coolant unit 540L				
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71.006904/068.AA	connection plan	CNC-control	CNC-input-output card 1	adapter	

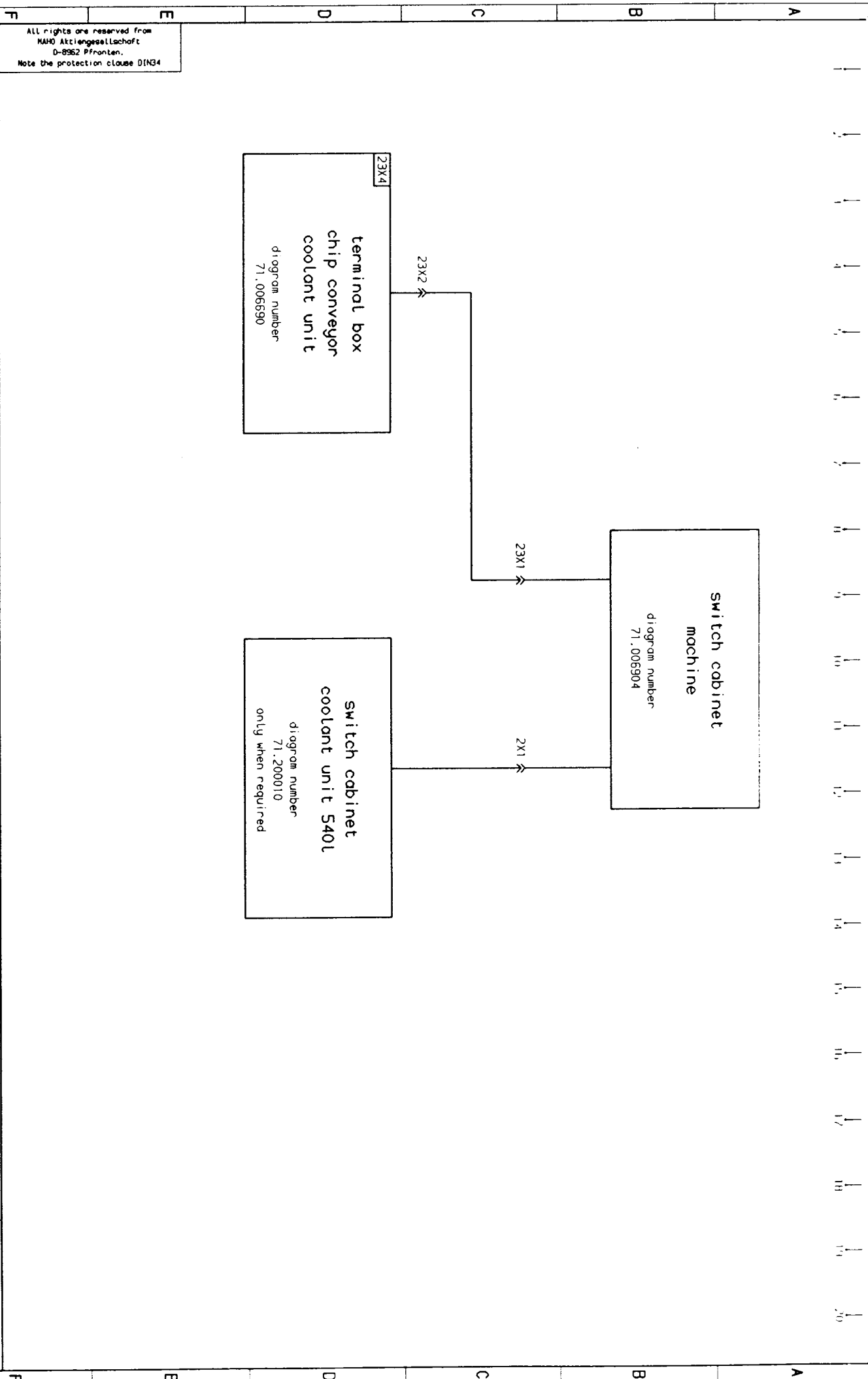
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71.006904/094.AA	layout of equipment	machine		

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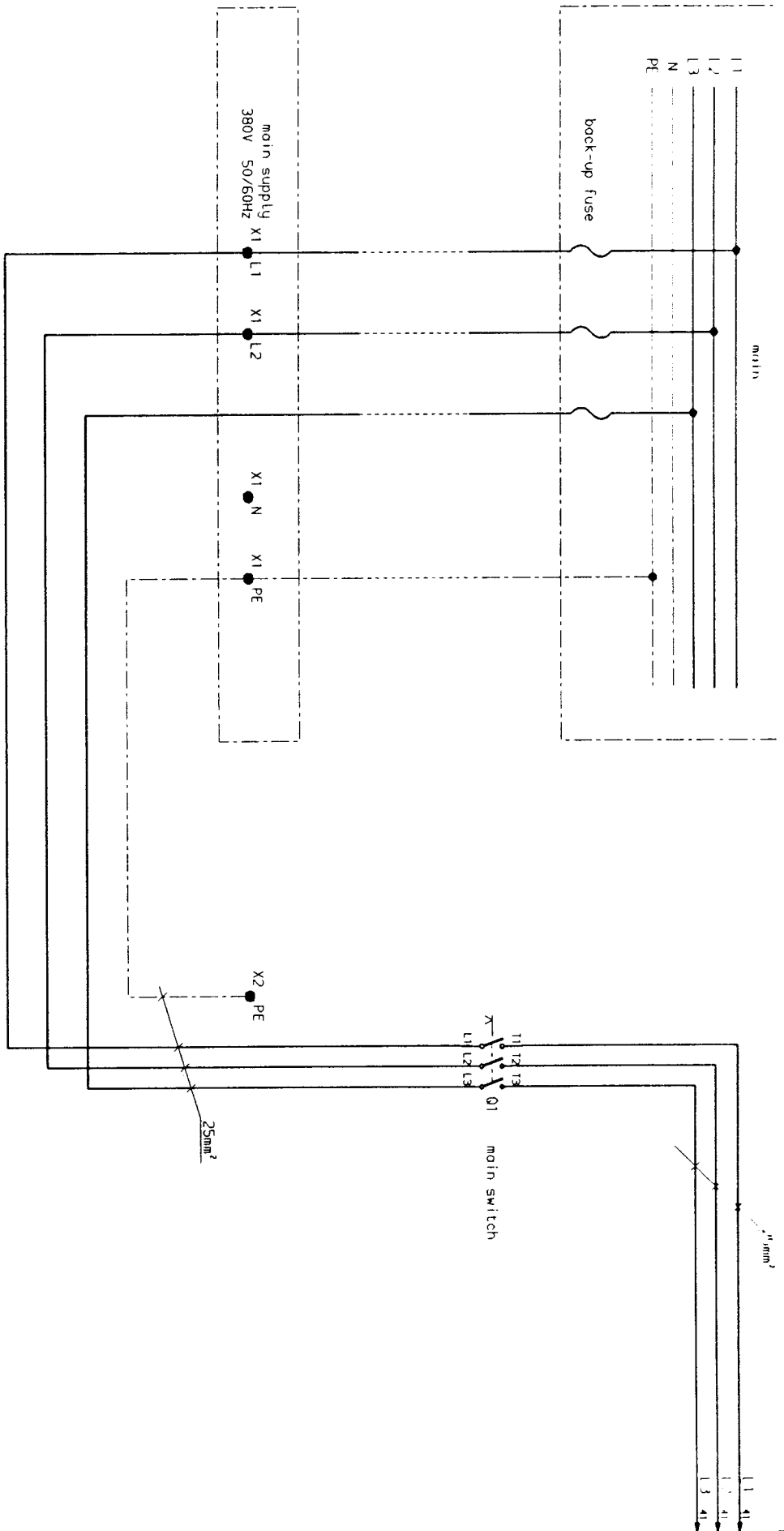
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cond. Änderung		date	date	drawn	check	source	rep. of	rep. by	block diagram machine-components circuit diagrams		MAHOMAT/553		ENG/CSA	71.006904/001.AA	page 01 of 94 Pg
1		date	05 FEB 1990	WBR	WBR				5	6	7	8			

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cond.	Änderung	date	home	norm	date	05 FEB 1990	drawn	MBR	check	MBR	source	rep. of	rep. by	MAHO AKTIENGESELLSCHAFT	main supply machine	MAHOMAT/553	ENG/CSA	71.006904/002.AA	page 02 94 Pg.
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			

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date 05 FEB 1990

drawn WBR

check WBR

name/norm

source

rep. of

rep. by

rot. cur. economy transf.
power inject
power supply unit
cooling unit

MAHOMAT/SS3

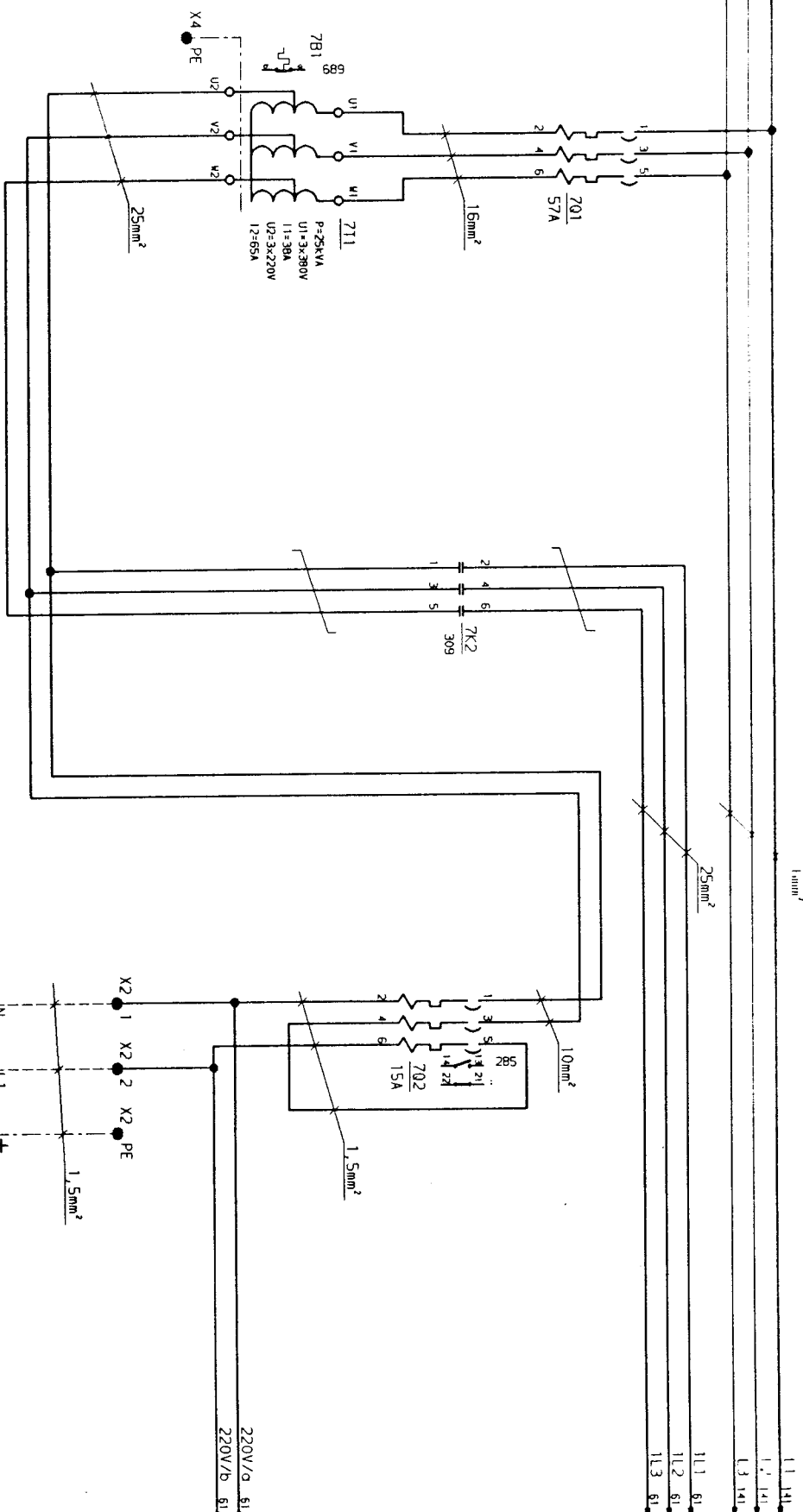
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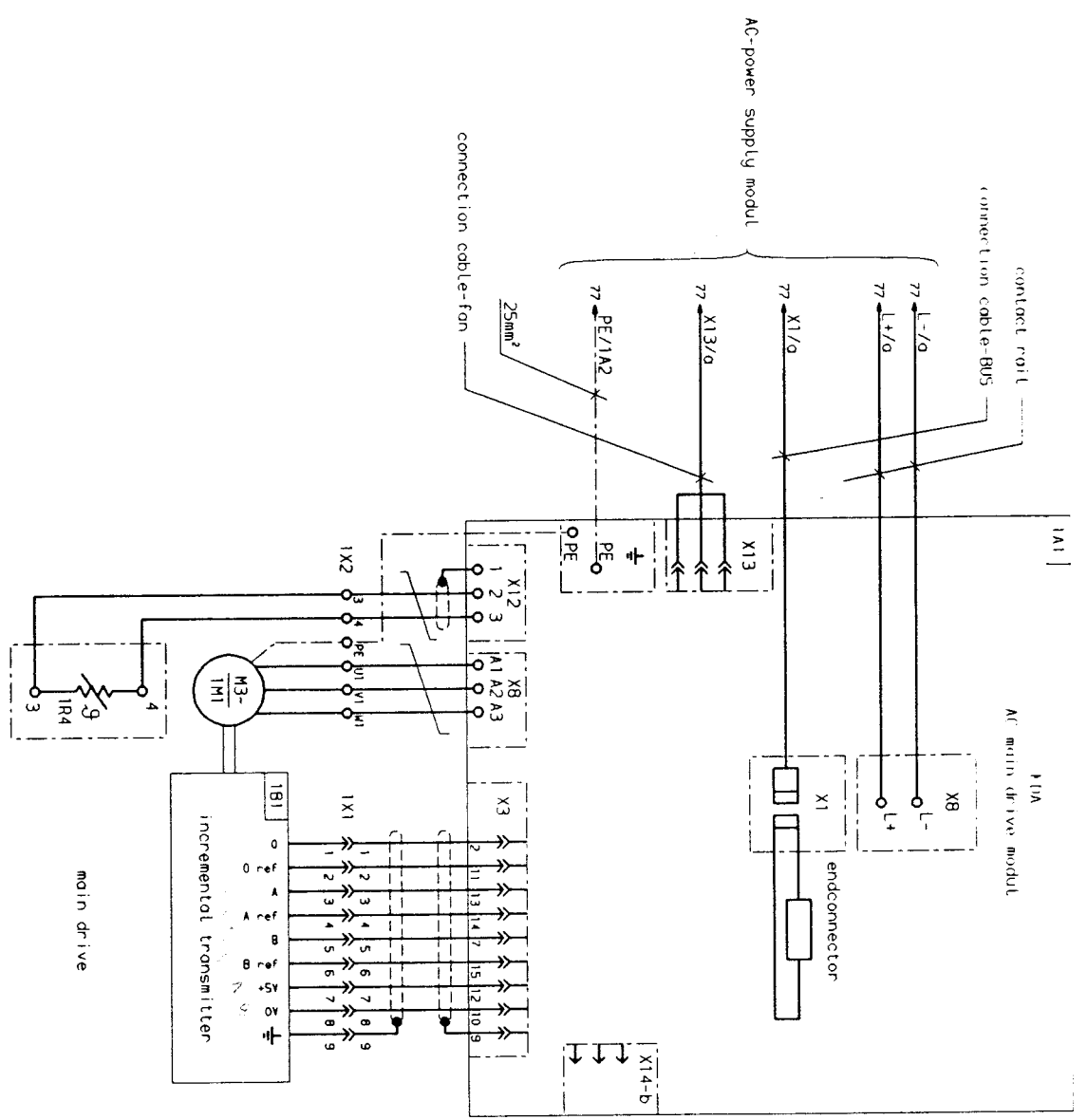
ENG/CSA 71.006904/003.AA



cooling unit
switch cabinet
220V 50/60Hz
1-3, 2-4, 5A
P=480W b. 55*
0=900W b. 55*
only when required

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cond.	1	2	3	4	5	6	7	8
Änderung	date	name	norm	source	rep. of	rep. by	main drive	
	05 FEB 1990	MBR	MBR				MAHOMAT/553	
		check	MBR				ENG/CSA	71.006904/005.AA
								page 05
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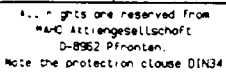
main drive

$I = 70A$
 $n = 7500 \text{ min}^{-1}$
 $100\% \text{ ED}$ $P = 15kW$ from $1500-6000 \text{ min}^{-1}$
 $P = 11kW$ at 7500 min^{-1}
 $M_d = 96Nm$ from $0-1500 \text{ min}^{-1}$
 $P = 22.5kW$ from $1500-6000 \text{ min}^{-1}$
 $P = 15kW$ at 7500 min^{-1}
 $M_d = 143Nm$ from $0-1500 \text{ min}^{-1}$

44% ED

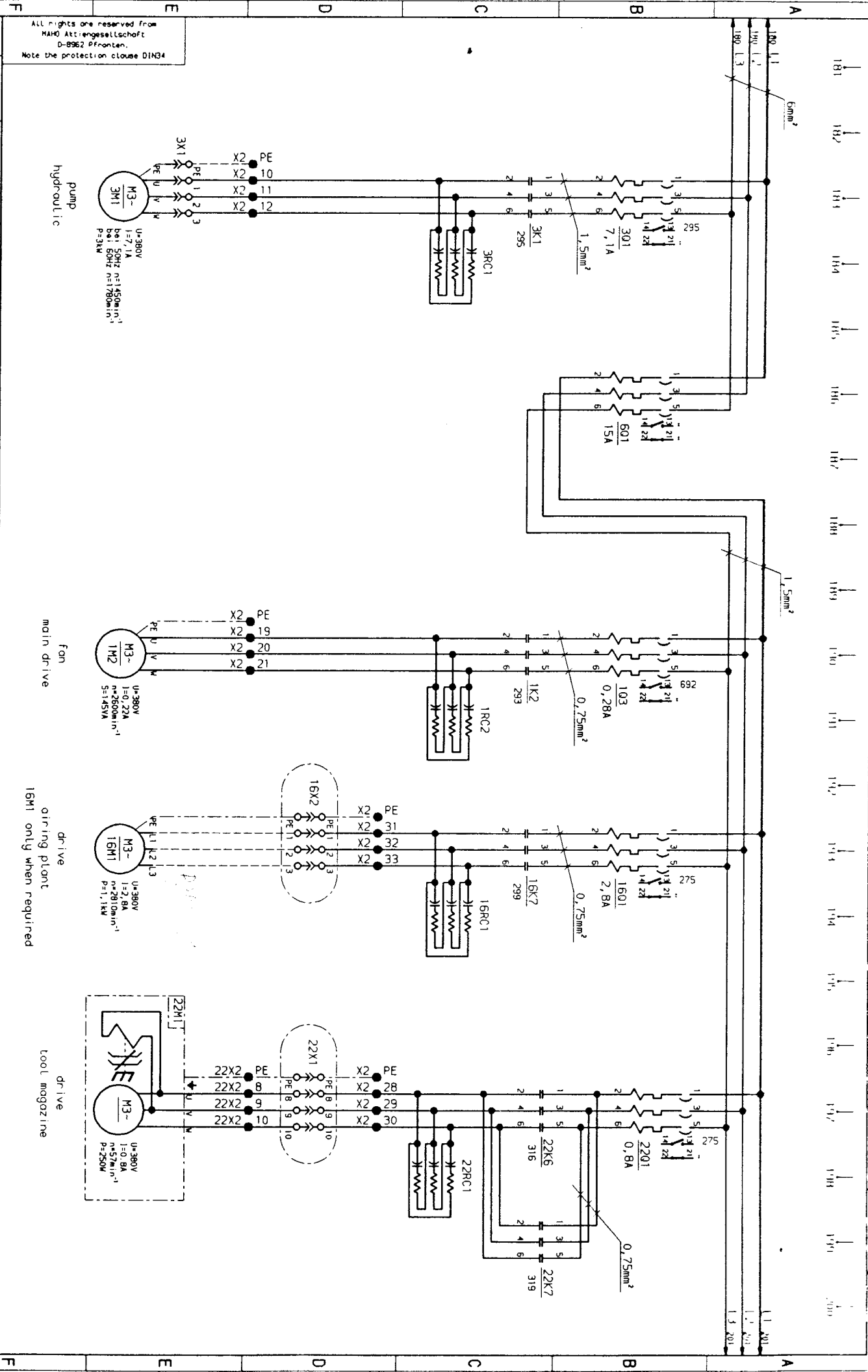
circuit Δ

U1 V1 W1
 U2 V2 W2



only when
coolant unit 120L

+	
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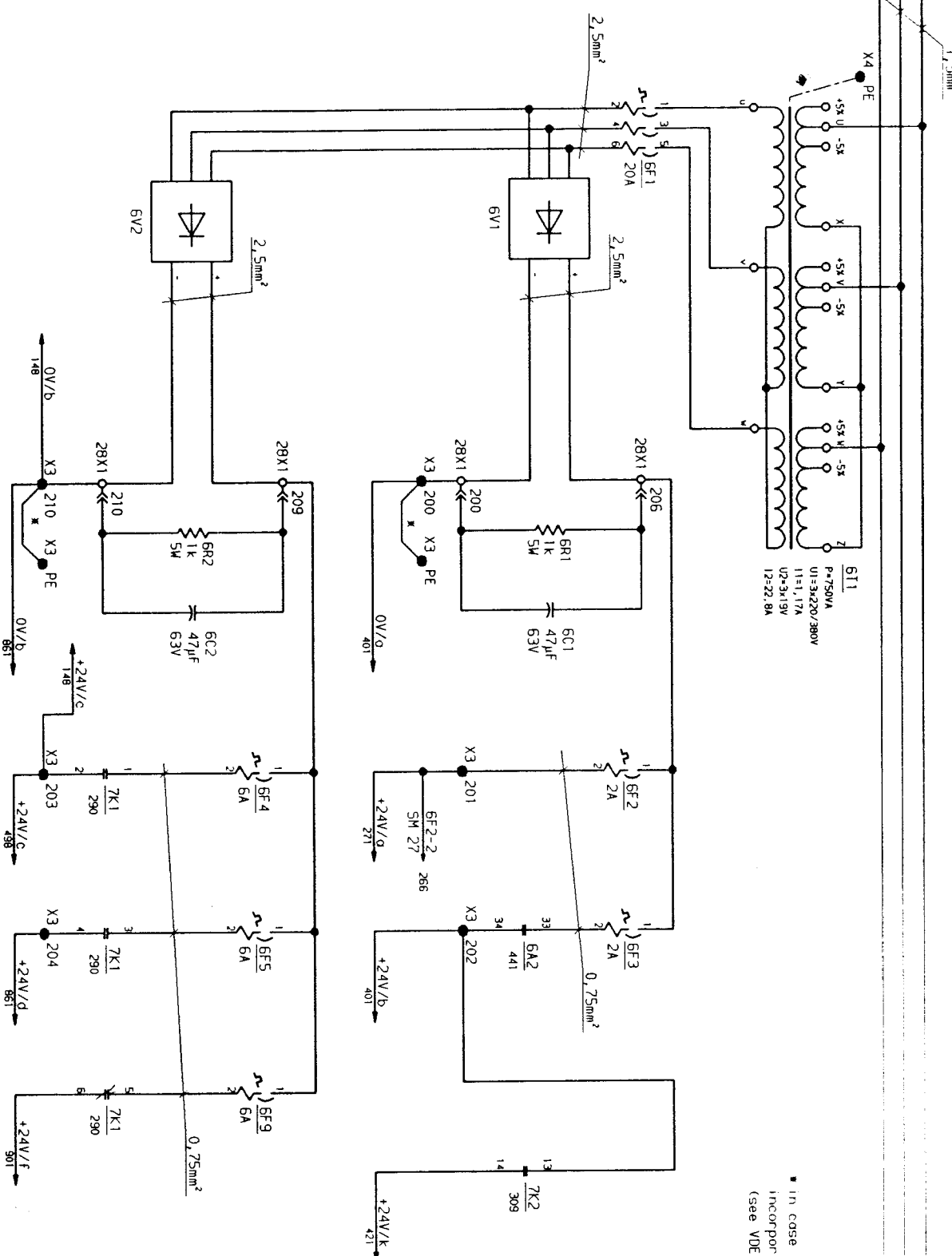
pump hydraulic drive

MAHOMAT/SS3

ENG/CSA 71.006904/010.AA

cond.	1	date	05 FEB 1990	drawn	WBR	check	WBR	source	3	rep. of	4	rep. by	5	6	7	8
Änderung	1	date		drawn		check		source		rep. of		rep. by				
cond.	1	date		drawn		check		source		rep. of		rep. by				

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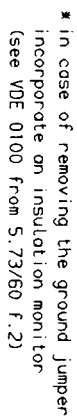


* in case of removing the ground jumper
incorporate an insulation monitor
(see VDE 0100 from 5.73/60 f. 2)

Cond.	Änderung	date	05 FEB 1990	drawn	MBR	source	3	rep. of	4	rep. by	5	6	7	8
name	norm	check	MBR	check	MBR	source	3	rep. of	4	rep. by	5	6	7	8
12.12.90														

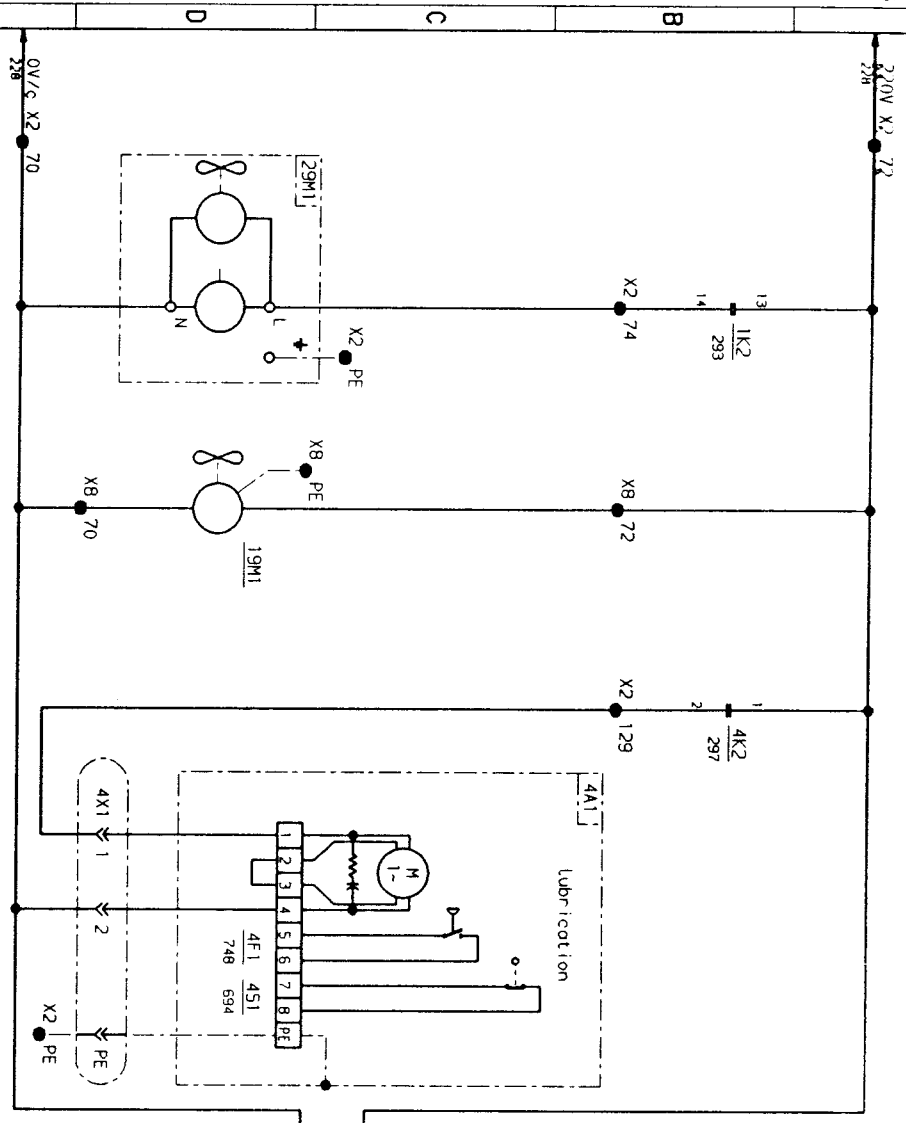
MAHO
Aktiengesellschaft
control transformer
DC-control voltage
rectifier

MAHOMAT/SS3
ENG/CSA 71.006904/011.AA



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[illegible]



U=220V U=220V
I=0.36A I=0.36A
P=77W P=77W
f=50/60Hz f=50/60Hz

U=220V U=220V
I=0.12A I=0.12A
P=20W P=20W
f=50/60Hz f=50/60Hz

U=220V U=220V
I=1.1A I=1.1A
P=100W P=100W
f=50/60Hz f=50/60Hz

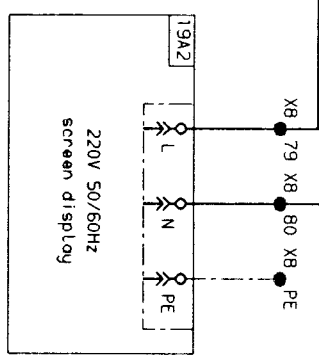
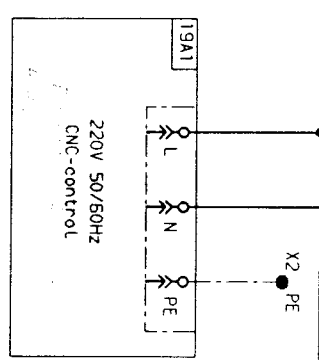
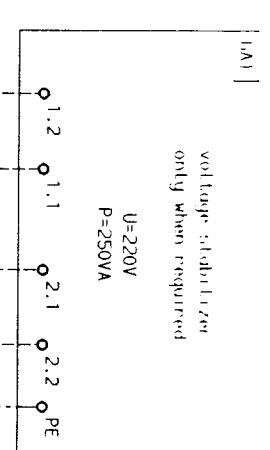
heat exchanger
switch cabinet

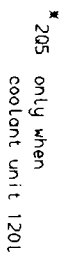
fan
control station

lubrication
machine

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Cond.	Änderung	date	05 FEB 1990	drawn	MBR	check	MBR	source	rep. of	rep. by	main supply	lubrication	heat exchanger	MAHOMAT/SS3	ENG/CSA	71.006904/013.AA	Page 13	94 Pg.
12.12.90	2	3	4	5	6	7	8											





МАНОМАТ/553

ENG/CSA 71.006904/014 AA

		date	05 feb 1990	
		drawn	WRB	
		check	WRB	
cond.	Änderung	date	name	norm
12.12.90	1		2	Source

rep. of

rep. by	
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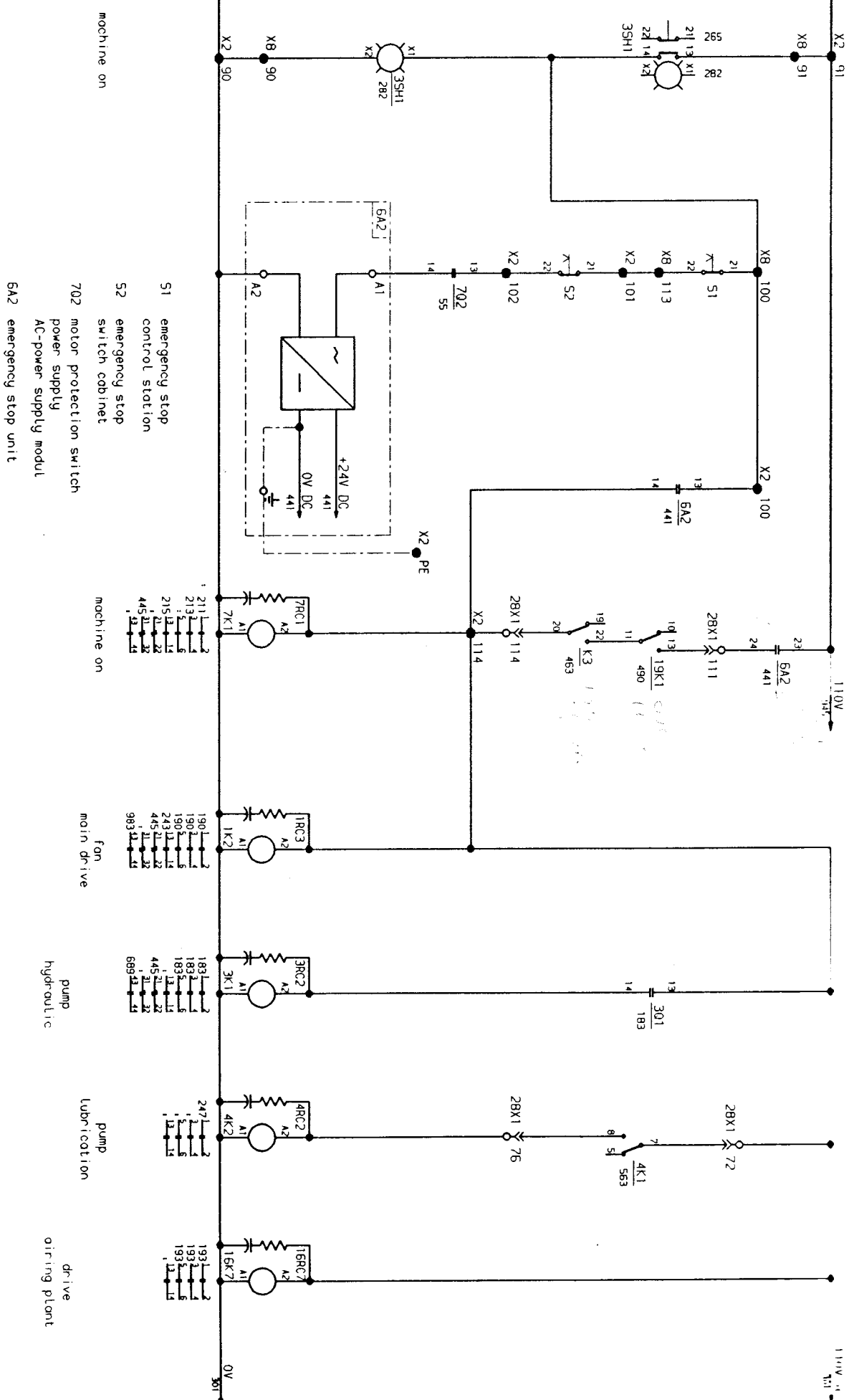
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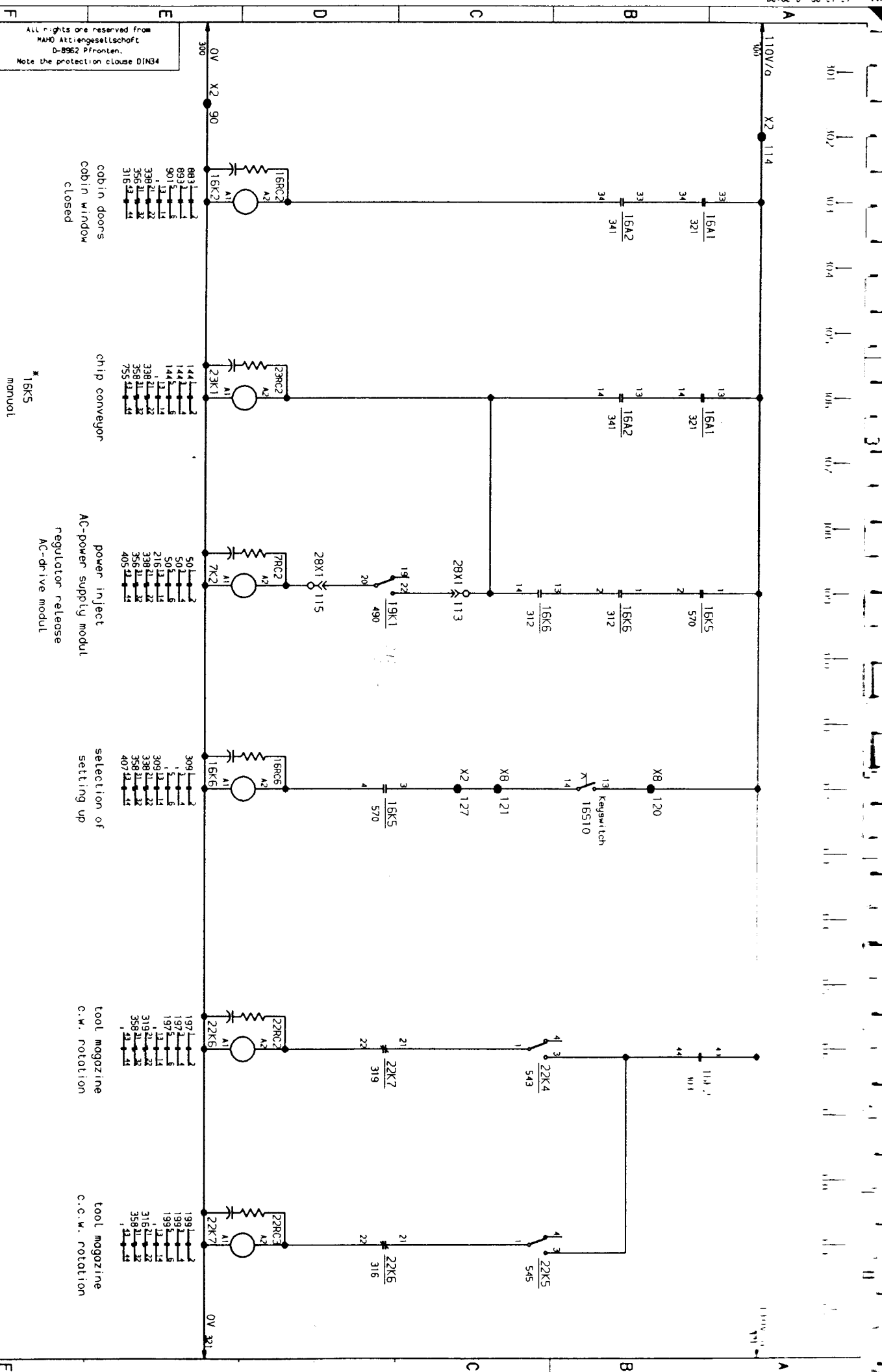
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71.

AA

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[illegible]

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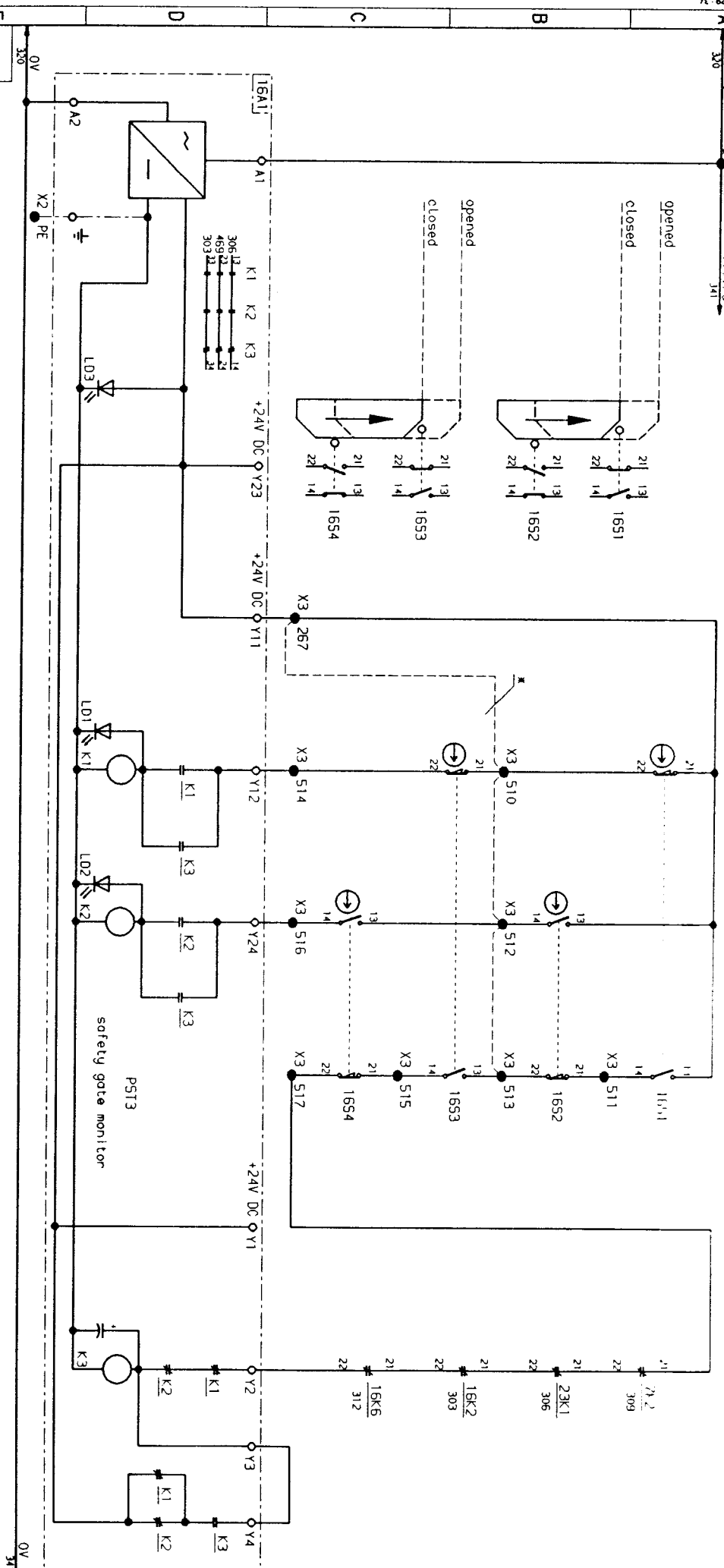
* only when
pellet changer

1651, 1652 position switch
cabin door
vorne

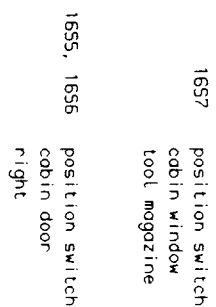
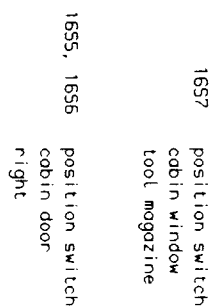
1653, 1654 position switch
cabin door
left

function control

not used with
pellet changer

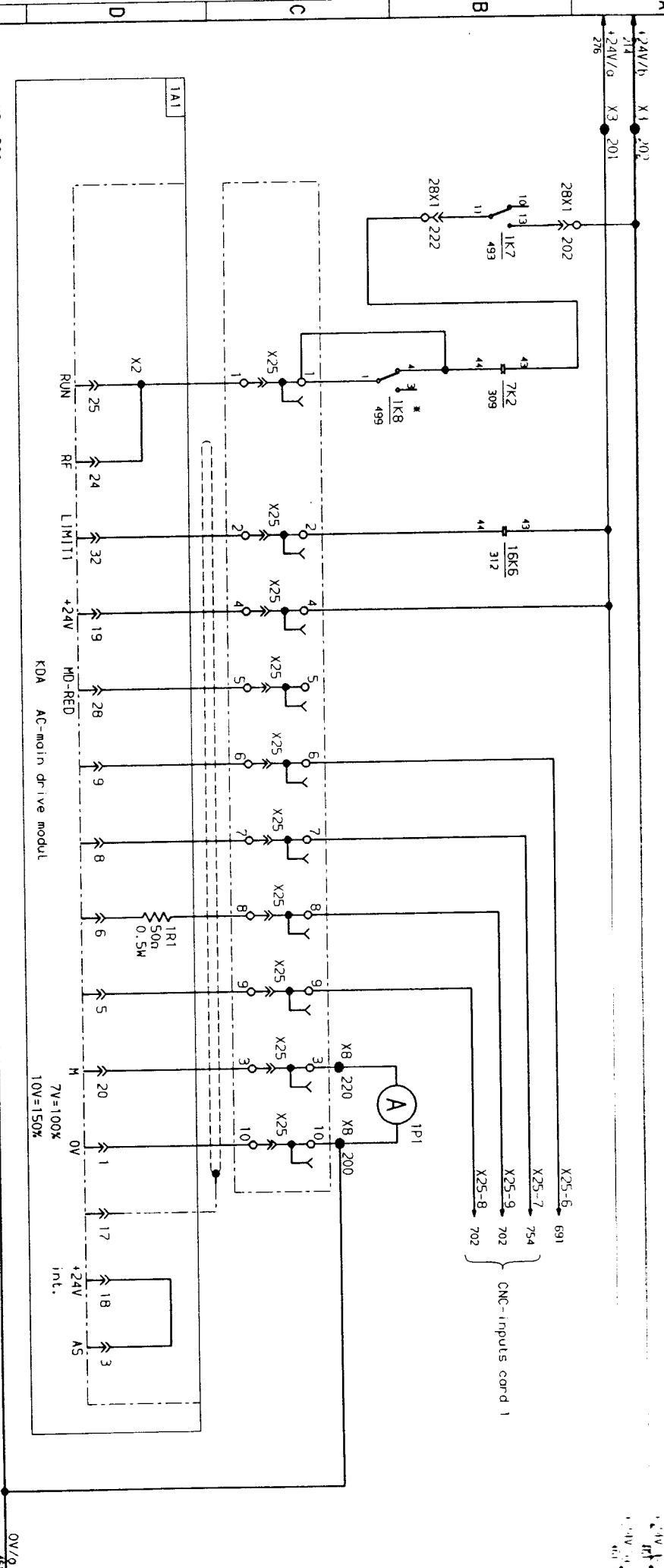


cond.	Andienung	date	05 FEB 1990	drawn	WBR	check	WBR	source	rep. of	rep. by	control circuit fuse protection cabin doors	MAHOMAT/553	ENG/CSA	71.006904/017.AA	page 17
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

[illegible]

[illegible]

401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500



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only when
coolant unit 5401

X2-1 0V ext.
X2-3 start blocking
X2-5 n actual = n command
X2-6 n actual < n minimum
X2-8 90% Load
X2-9 release of feed
temperature control
motor
AC-main drive modul

X2-17 shield
X2-18 +24V int
X2-19 +24V ext.
X2-20 load indicator
X2-22 0V int
X2-24 regulator release
X2-25 RUN
X2-28 limitation of torque
X2-32 limitation on speed

MAHOMAT/553

71.006904/021.AA

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regulator release
nominal value
X-axis

regulator release
nominal value
Y-axis

regulator release
nominal value
Z-axis

nominal value	main drive
1000	1000
2000	2000
3000	3000
4000	4000
5000	5000
6000	6000
7000	7000
8000	8000
9000	9000
10000	10000

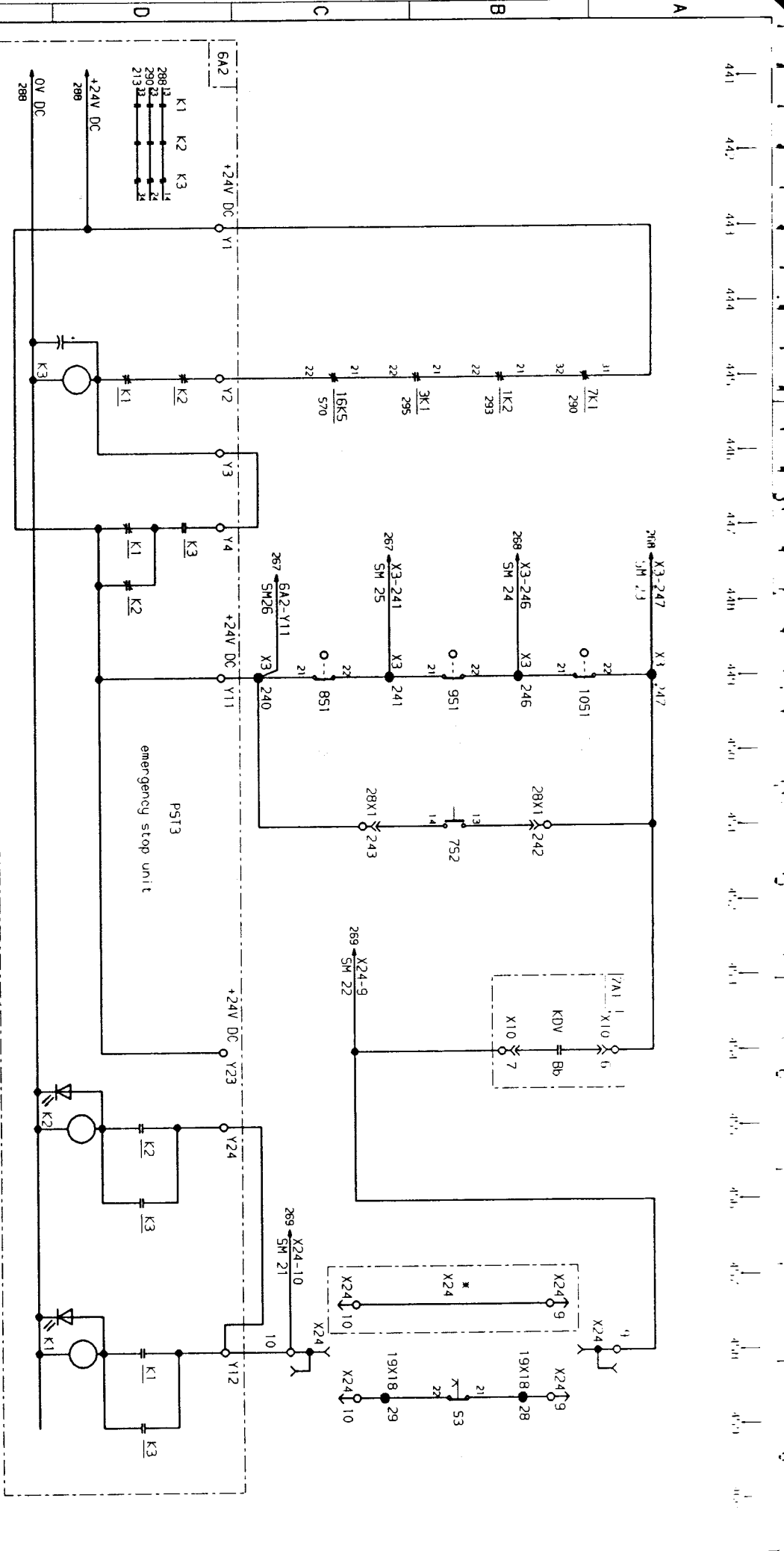
regulator release
nominal value
4th axis
NC-dividing apparatus

MAHO
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main drive
feed drives
nominal value
regulator release

MAHOMAT/553

71.006904/022.AA



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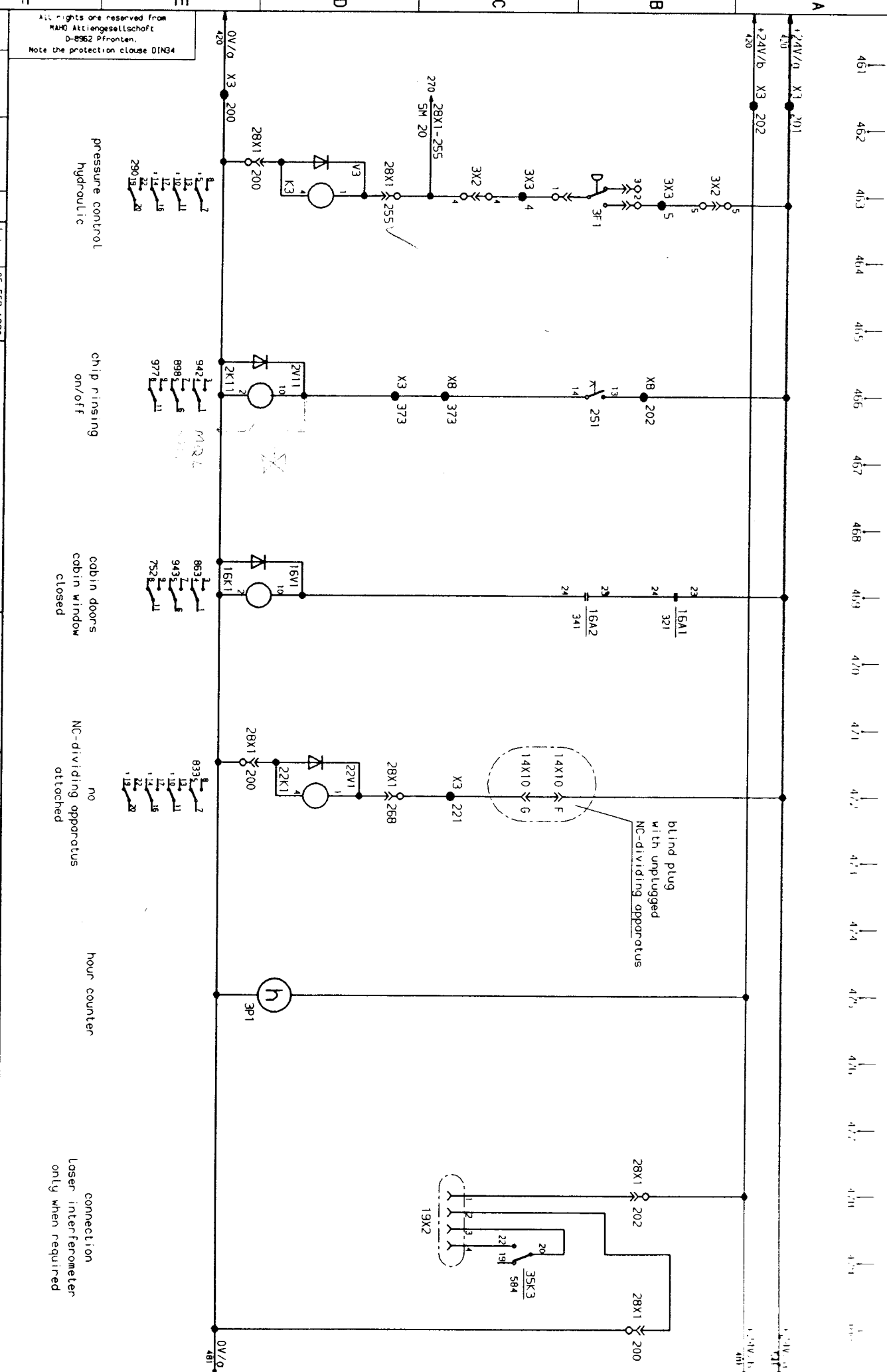
function control

position switch
end of axis

752 bypass
position switch
end of axis

53 emergency stop
remote control unit
only when required
* blind plug
X24

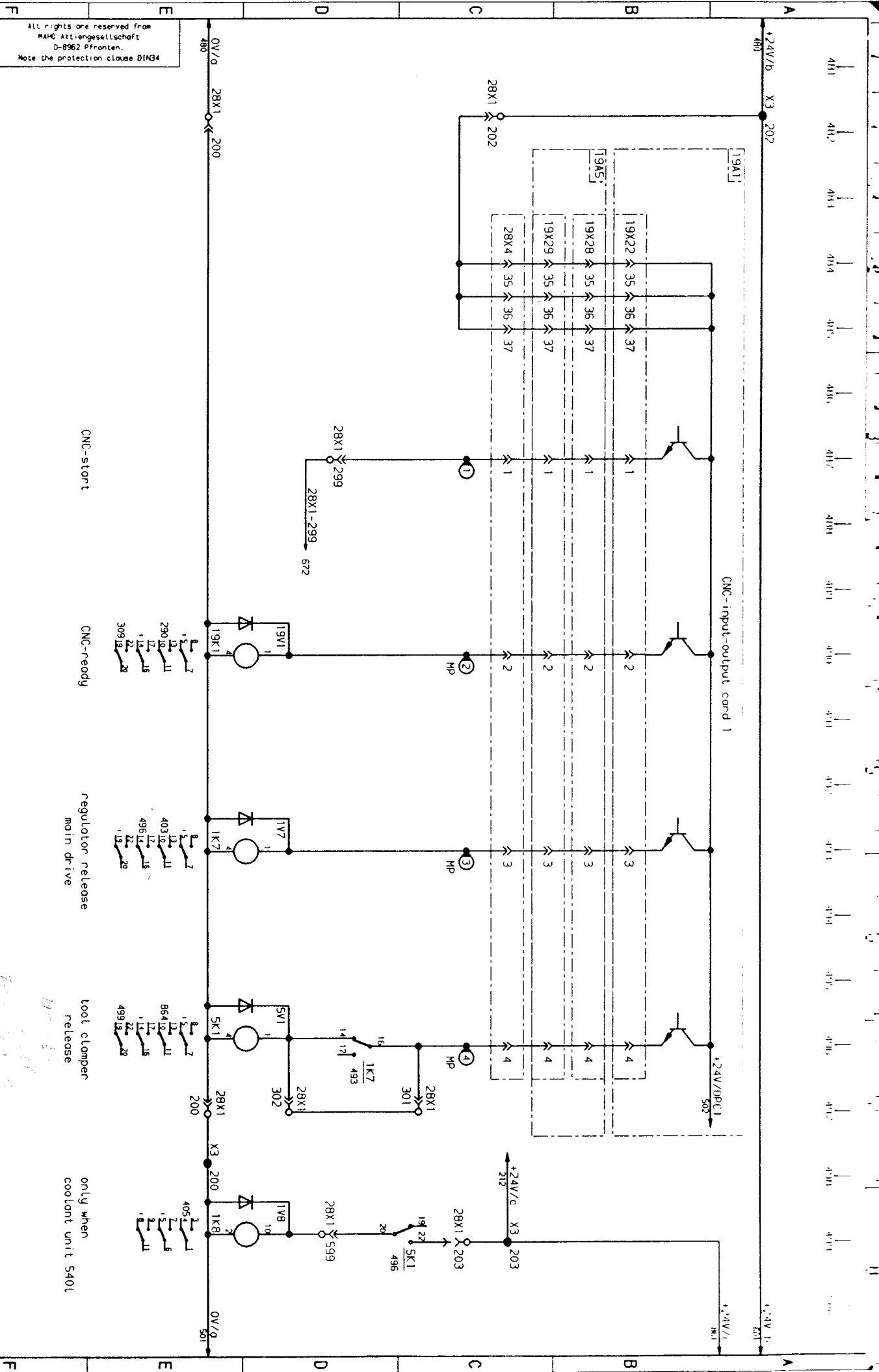
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drawn		WBR	drawn		WBR	drawn		WBR	drawn		WBR
check		WBR	check		WBR	check		WBR	check		WBR
source			source			source			source		
rep. of			rep. of			rep. of			rep. of		
rep. by			rep. by			rep. by			rep. by		
emergency stop unit			emergency stop unit			emergency stop unit			emergency stop unit		
position switch			position switch			position switch			position switch		
end of axis			end of axis			end of axis			end of axis		
remote control unit			remote control unit			remote control unit			remote control unit		
MAHOMAT/553			MAHOMAT/553			MAHOMAT/553			MAHOMAT/553		
ENG/CSA			ENG/CSA			ENG/CSA			ENG/CSA		
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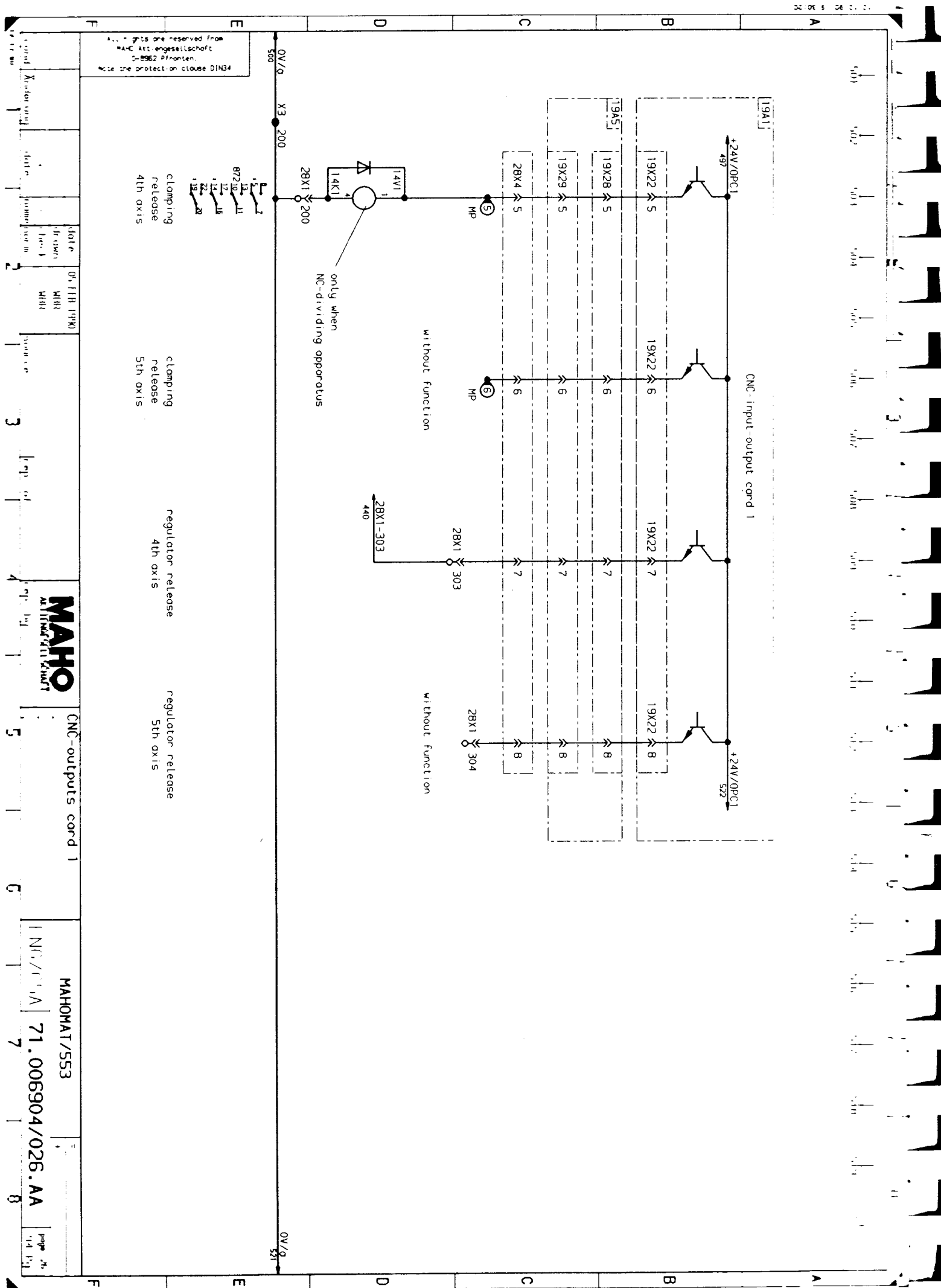


control		MAHOMAT/553		=	
pressure control		71.006904/024.AA		page 24	
chip rinsing		ENG/CSA		94 Pg	
tool magazine		7		8	
rep. by		6		7	
rep. of		5		8	
source		4		5	
date		3		6	
check		2		7	
name		1		8	
norm		05 FEB 1990		9	
drawn		WBR		10	
WBR		1		11	
date		1		12	
check		1		13	
name		1		14	
norm		1		15	
date		1		16	
check		1		17	
name		1		18	
norm		1		19	
date		1		20	
check		1		21	
name		1		22	
norm		1		23	
date		1		24	
check		1		25	
name		1		26	
norm		1		27	
date		1		28	
check		1		29	
name		1		30	
norm		1		31	
date		1		32	
check		1		33	
name		1		34	
norm		1		35	
date		1		36	
check		1		37	
name		1		38	
norm		1		39	
date		1		40	
check		1		41	
name		1		42	
norm		1		43	
date		1		44	
check		1		45	
name		1		46	
norm		1		47	
date		1		48	
check		1		49	
name		1		50	
norm		1		51	
date		1		52	
check		1		53	
name		1		54	
norm		1		55	
date		1		56	
check		1		57	
name		1		58	
norm		1		59	
date		1		60	
check		1		61	
name		1		62	
norm		1		63	
date		1		64	
check		1		65	
name		1		66	
norm		1		67	
date		1		68	
check		1		69	
name		1		70	
norm		1		71	
date		1		72	
check		1		73	
name		1		74	
norm		1		75	
date		1		76	
check		1		77	
name		1		78	
norm		1		79	
date		1		80	
check		1		81	
name		1		82	
norm		1		83	
date		1		84	
check		1		85	
name		1		86	
norm		1		87	
date		1		88	
check		1		89	
name		1		90	
norm		1		91	
date		1		92	
check		1		93	
name		1		94	
norm		1		95	
date		1		96	
check		1		97	
name		1		98	
norm		1		99	
date		1		100	
check		1		101	
name		1		102	
norm		1		103	
date		1		104	
check		1			

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Note the protection clause DIN34

Cond.	Anderung	date	name/norm	check	MBR	source	rep. of	rep. by	CNC-outputs cord 1	MAHOMAT/553	ENG/CSA	71.006904/025.AA	page 25 94 Pg.
1		05 FEB 1990							CNC-ready regulator release tool clamber				
2													
3													
4													
5													
6													
7													
8													





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Note the protection clause DIN34

clamping
release
4th axis

clamping
release
5th axis

regulator release
4th axis

regulator release
5th axis

MAHO
MILITÄRFAHRT

CNC-outputs card 1

MAHOMAT/553

1 NC/10A 71.006904/026.AA

imp 25
100 Hz

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Note the protection clause DIN34

tool clamber
clamp
tool gripper
open

change arm
rotate
left

change arm
rotate
right

tool changer
move out

tool changer
move in

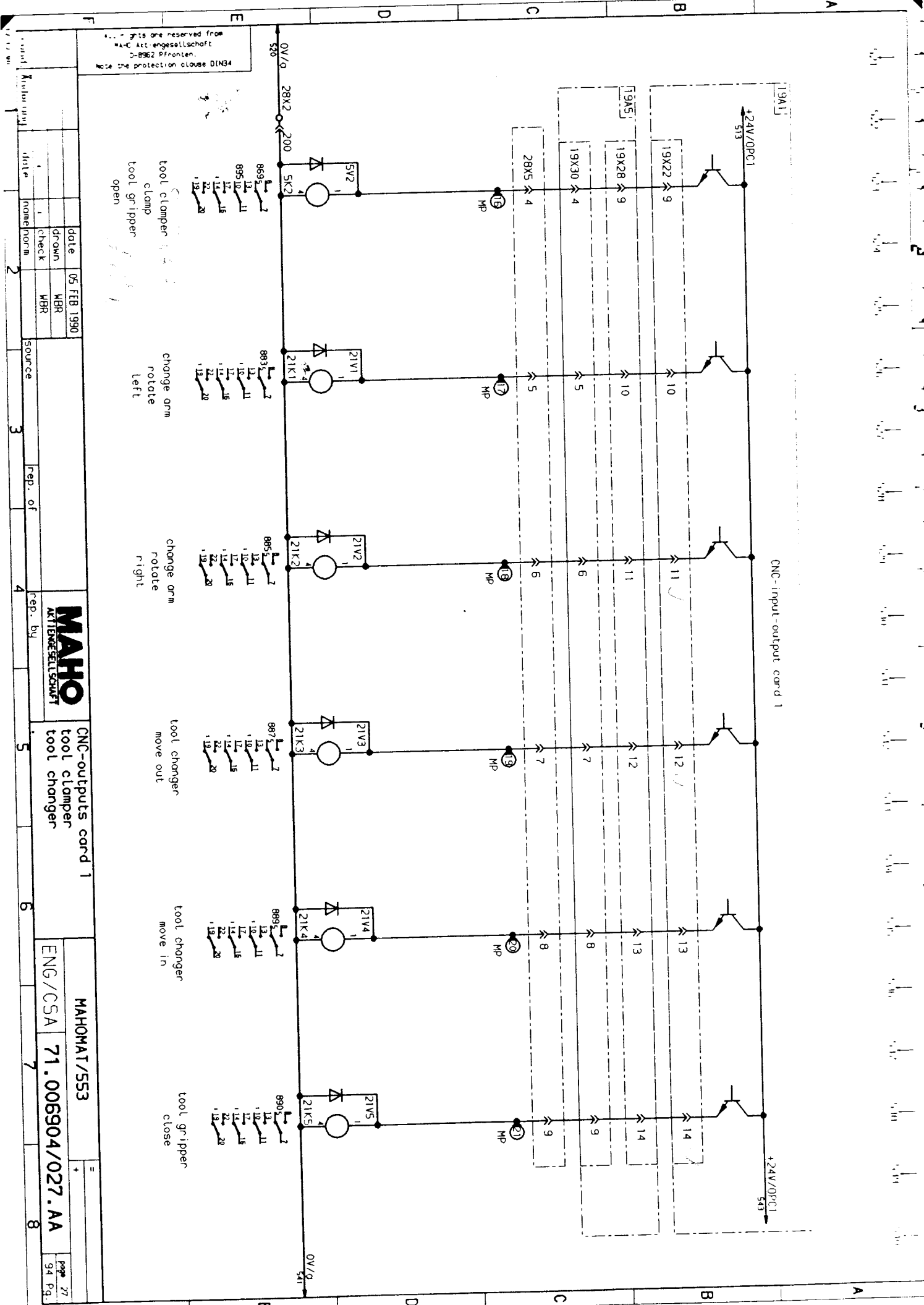
tool gripper
close

CNC-input-output cord 1

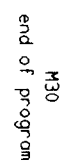
MAHOMAT/553

ENG/CSA 71.006904/027.AA

page 27
94 Pg.

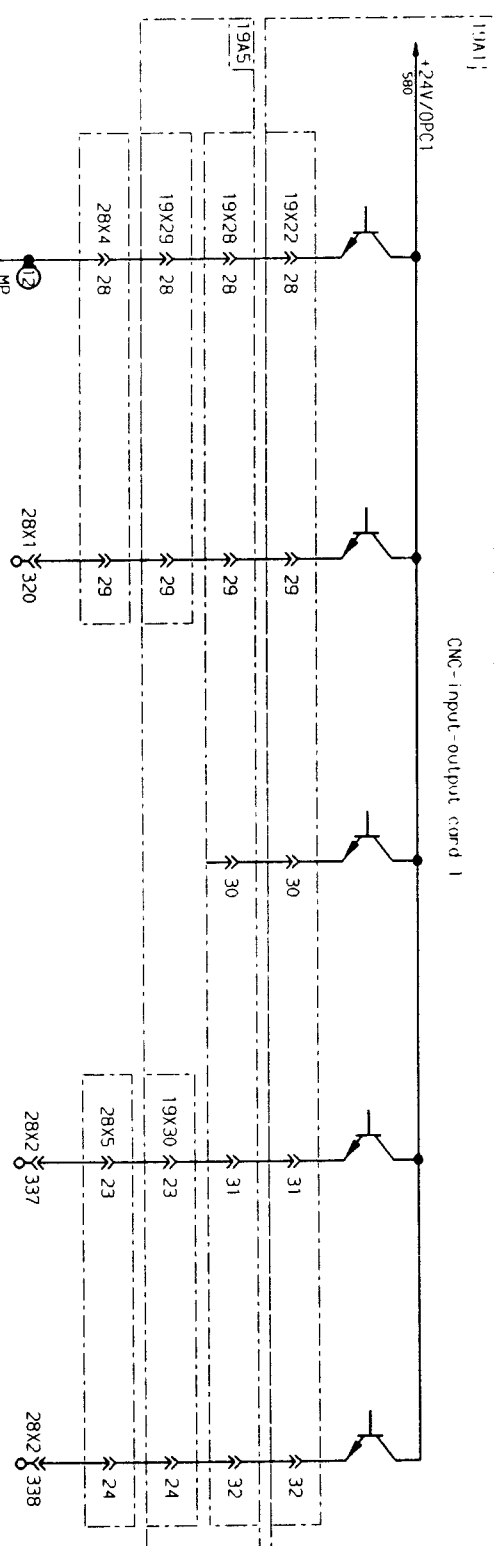


date	05 FEB 1990	drawn	WBR	check	WBR	source	3	rep. of	4	rep. by	5	6	7	8
MAHO Aktiengesellschaft														
CNC-outputs cord 1														
tool clamber														
tool changer														
MAHOMAT/553														
ENG/CSA 71.006904/027.AA														
page 27 94 Pg.														



7

12.12.90



without function

address M
only when required

M20

limitation of torque

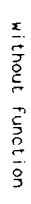
chip rinsing
M17

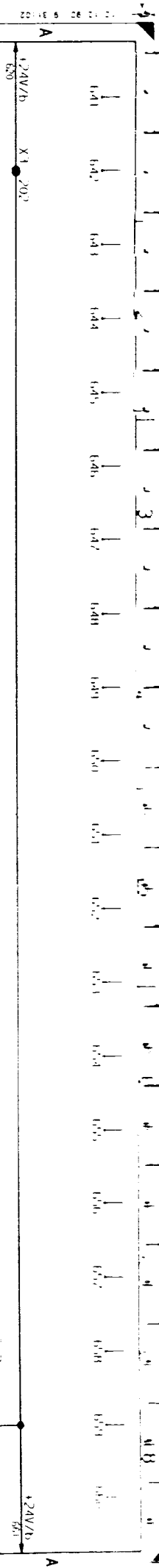
workpiece cleaning
M18

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Note the protection clause DIN34

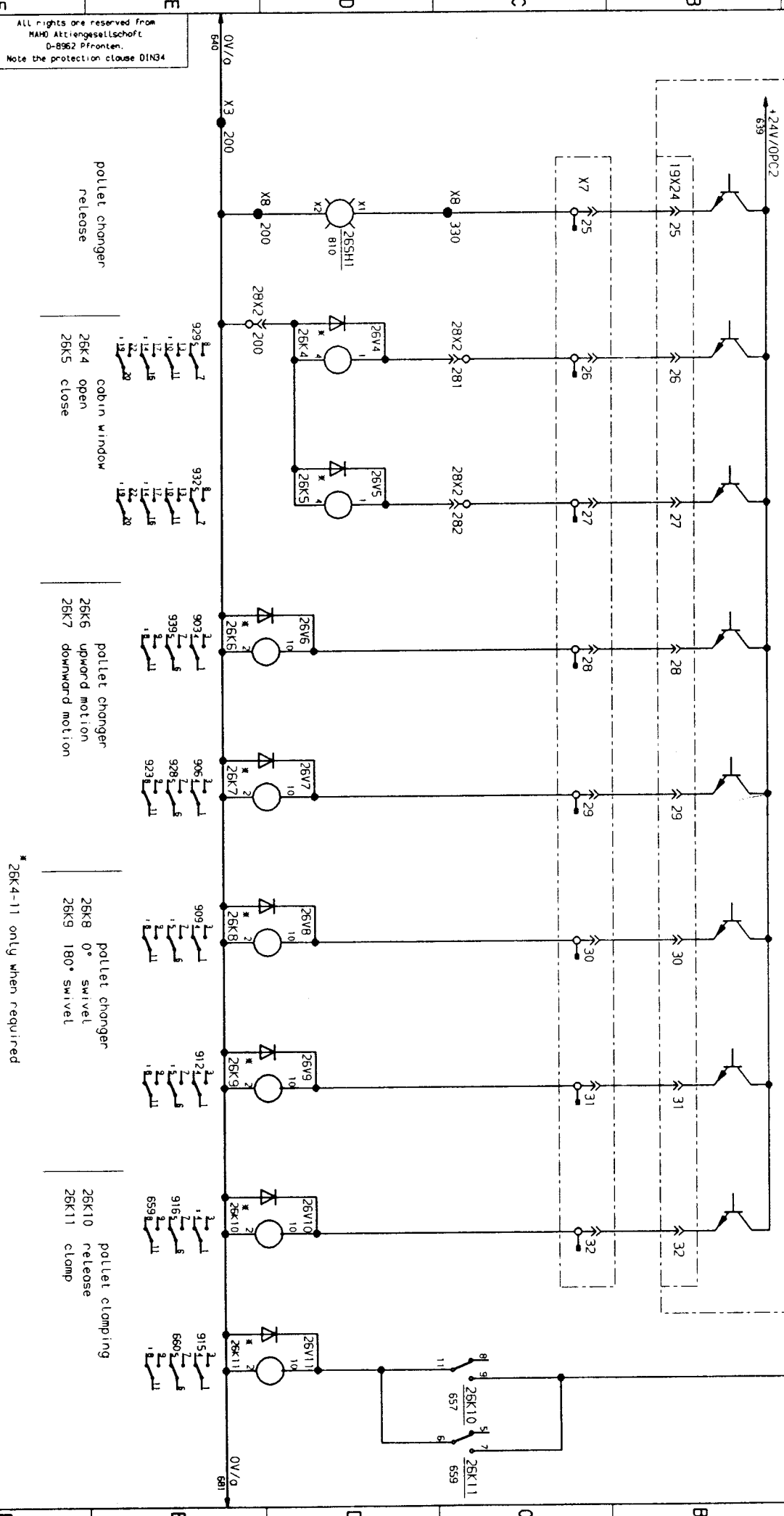
[illegible]

measuring probe
pneumatic
on

71.006904/032.AA



CNC-input-output card 2



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D-8962 Pfaffenlofen.
Note the protection clause DIN34

pollet changer
release

cabin window
open
close

pollet changer
upward motion
downward motion

pollet changer
0° swivel
180° swivel

pollet clamping
release

* 26K4-11 only when required

Cond. Änderung		date		date		drawn		check		name		norm		source		rep. of		rep. by		CNC-outputs card 2		MAHOMAT/553		ENG/CSA		71.006904/033.AA		Page 33	
				05 FEB 1990		WBR		WBR																				94 Pg.	
12.12.90		1		2		3		4		5		6		7		8													

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Note the protection clause DIN34

temperature control
feed drives
882 X-axis
982 Y-axis
1082 Z-axis
1482 4th axis

781 temperature control
transformer

681 temperature control
switch cabinet

emergency stop
no

spindle/feed stop
no

2K-6 temperature control
main drive
K5 ready
AC-drive modules
motor protection switch
fan

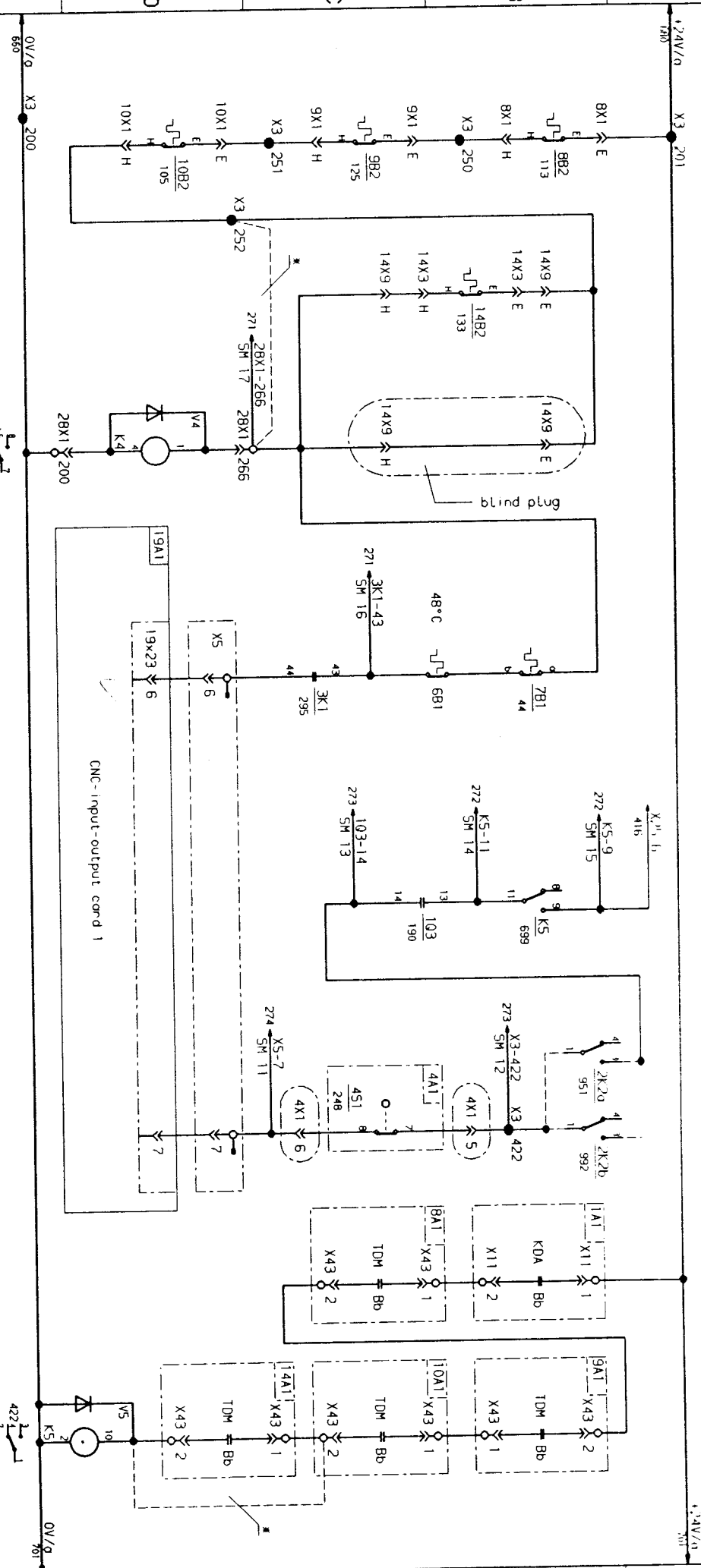
2K-2a coolant unit
2K-2b coolant unit 5401
4A1 float switch
lubrication

1A1 main drive
8A1 X-axis
9A1 Y-axis
10A1 Z-axis
14A1 4th axis

MAHOMAT/553

AC-drive modules
ready

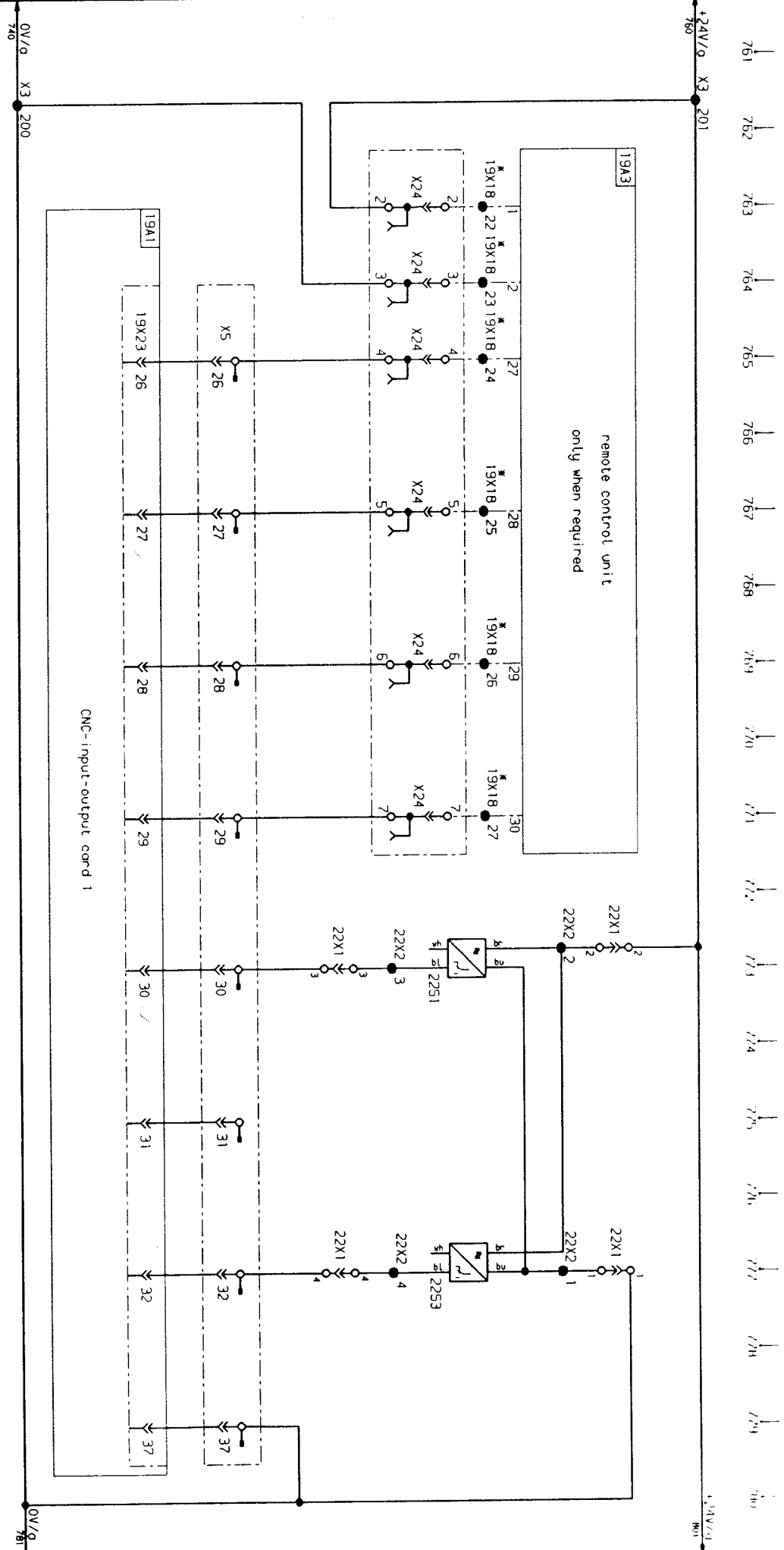
MAHOMAT/553
emergency stop
spindle/feed stop



MAHOMAT/553
emergency stop
spindle/feed stop

MAHOMAT/553
emergency stop
spindle/feed stop

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Note the protection clause DIN 34



19X18 only when required

remote control unit
only when required

CNC-input-output card

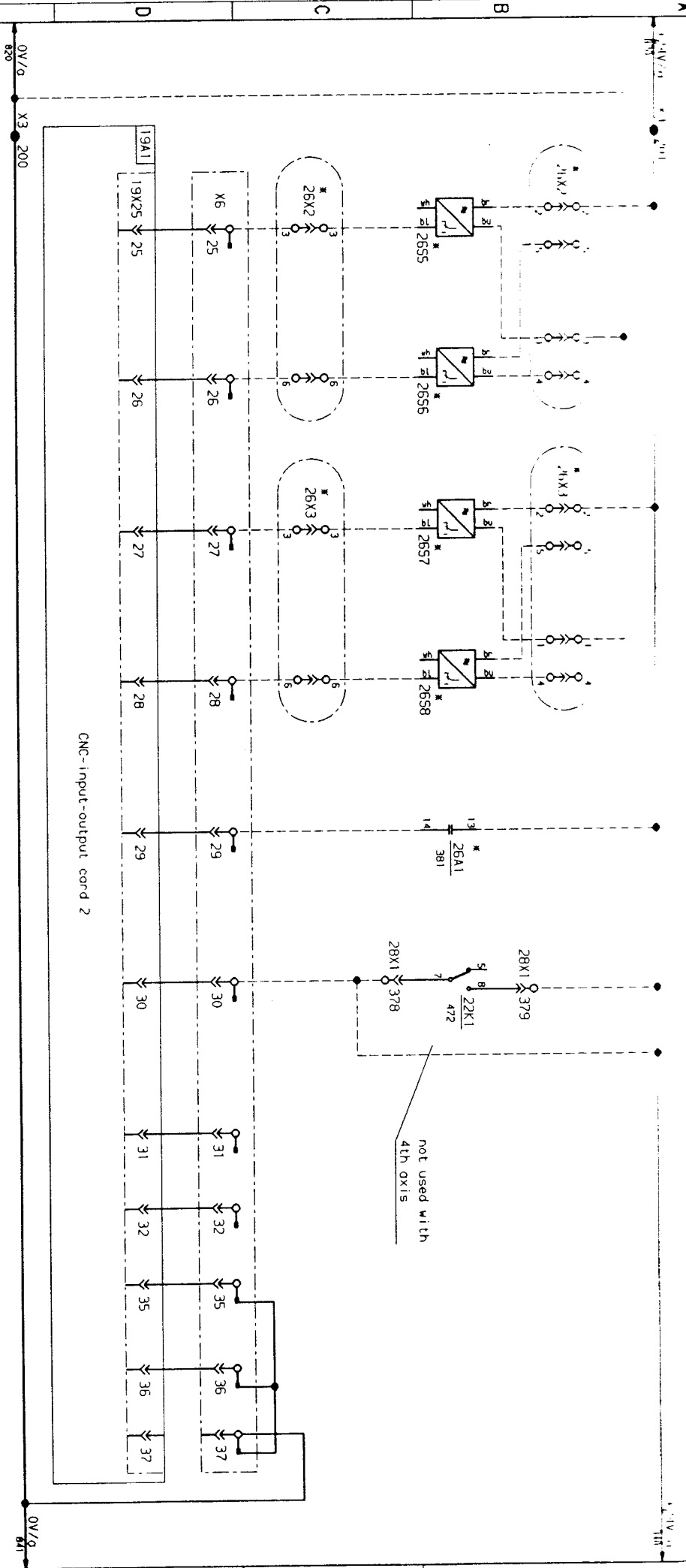
override

	without function	tool magazine reference pulse
tool magazine counting pulse		

CNC-inputs card 1
remote control unit
tool magazine

MAHOMAT/553

ENG/CSA	71.006904/039.AA
---------	------------------



CNC-input-output cord 2

not used with 4th axis

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* 26A1, 2655-8, 26X2-3 only when required

2655 pallet changer
at 0 degree position
2656 at 180 degree position

2657 pallet clamping
released
2658 clamped

26A1 safety gate monitor
barrier grid
pallet changer
22K1 no
NC-dividing apparatus
attached

without function

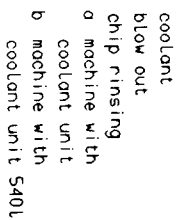
Cond.		Anderung		date		05 FEB 1990		drawn		WBR		source		rep. of		rep. by		CNC-inputs cord 2		MAHOMAT/553		ENG/CSA		71.006904/042.AA		94 Pg.	
12.12.90		1		2		3		4		5		6		7		8											

→



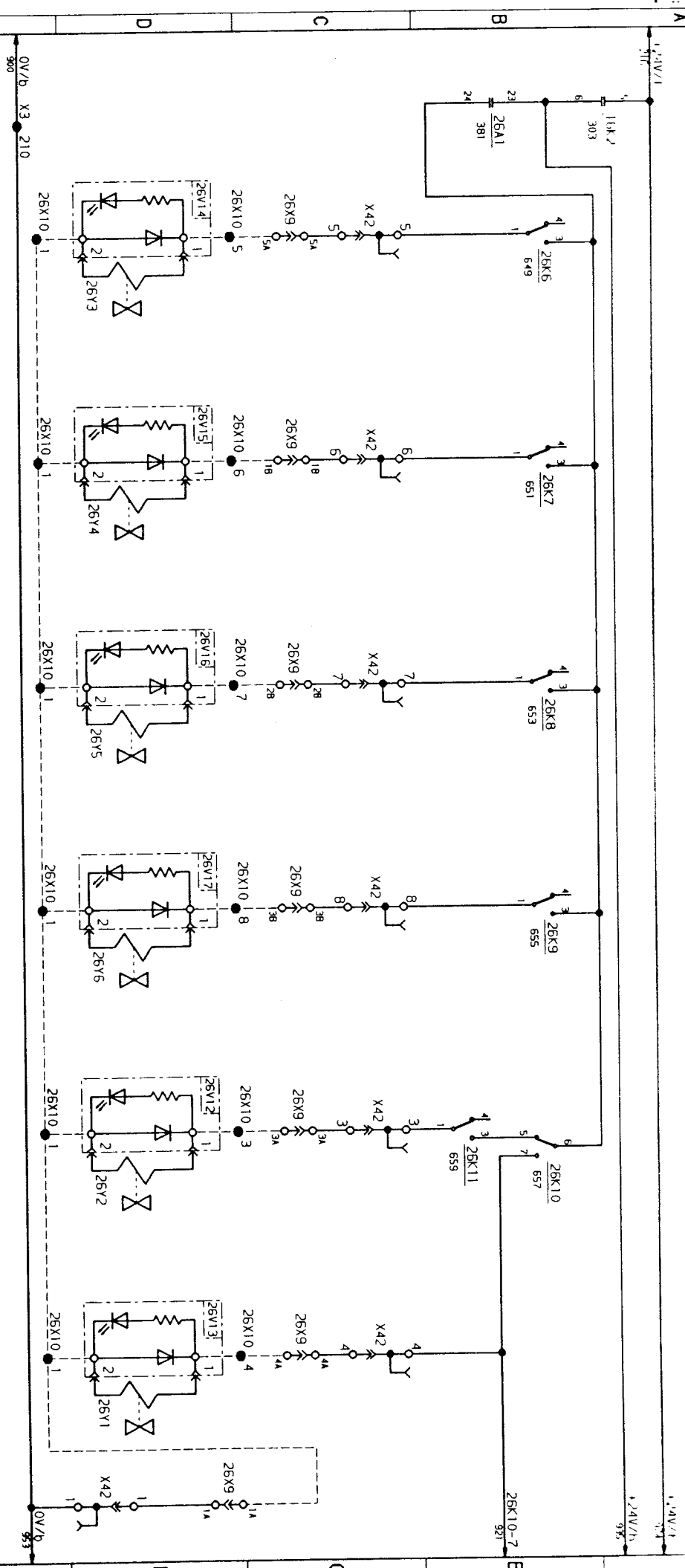
* 38K1 only when required

5



coolant
blow out
chip rinsing
a machine with
coolant unit
b machine with
coolant unit S40L

page	45
94 Pg.	



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Note the protection clause DIN24

26K6-11, 26V1-6 only when required

pallet changer
upward motion

pallet changer
downward motion

pallet changer
0°
swivel

pallet changer
180°
swivel

pallet clamping
clamp

pallet clamping
release

cond.		Änderung		date		05 FEB 1990		WBR		MAHO		volves		pallet changer		MAHOMAT/553		ENG/CSA		71.006904/046.AA		page 46	
		date		name		norm		check		WBR		source		rep. of		rep. by						94 pg.	
		2		3		4		5		6		7		8									

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Note the protection clause DIN94

① not used with
measuring probe

2K10, 2K30, 2K7, 38Y1
only when
measuring probe

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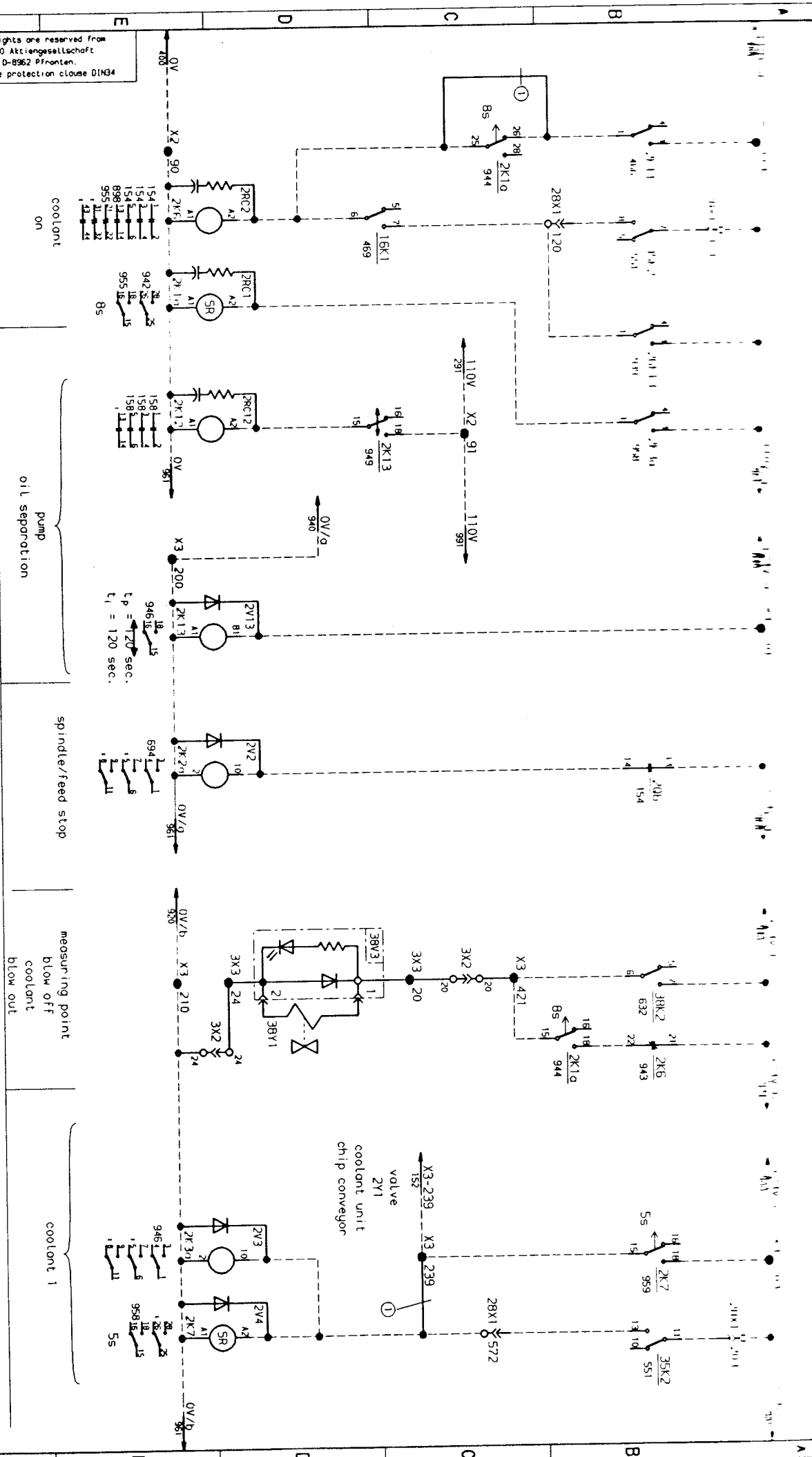
coolant unit

MAHOMAT/553

ENG/CSA 71.006904/048.AA

page 48
94 pg.

cond.	Aenderung	date	name	norm	source	rep. of	rep. by	5	6	7	8
		05 FEB 1990	MHR								
			check								
			MHR								



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Note the protection clause DIN84

control
pneumatic
rotary transmission

2X1-10 0V AC control voltage
2X1-11 110V AC control voltage
2X1-12 coolant
table
pallet changer
2X1-13 M7 coolant 2
2X1-14 M8 coolant 1
2X1-15 0V DC control voltage

2X1-16 0V DC control voltage
2X1-19 +24V DC control voltage
switching relay
2X1-21 +24V DC control voltage
valves
2X1-22 chip rinsing
on
2X1-23 cabin door
closed

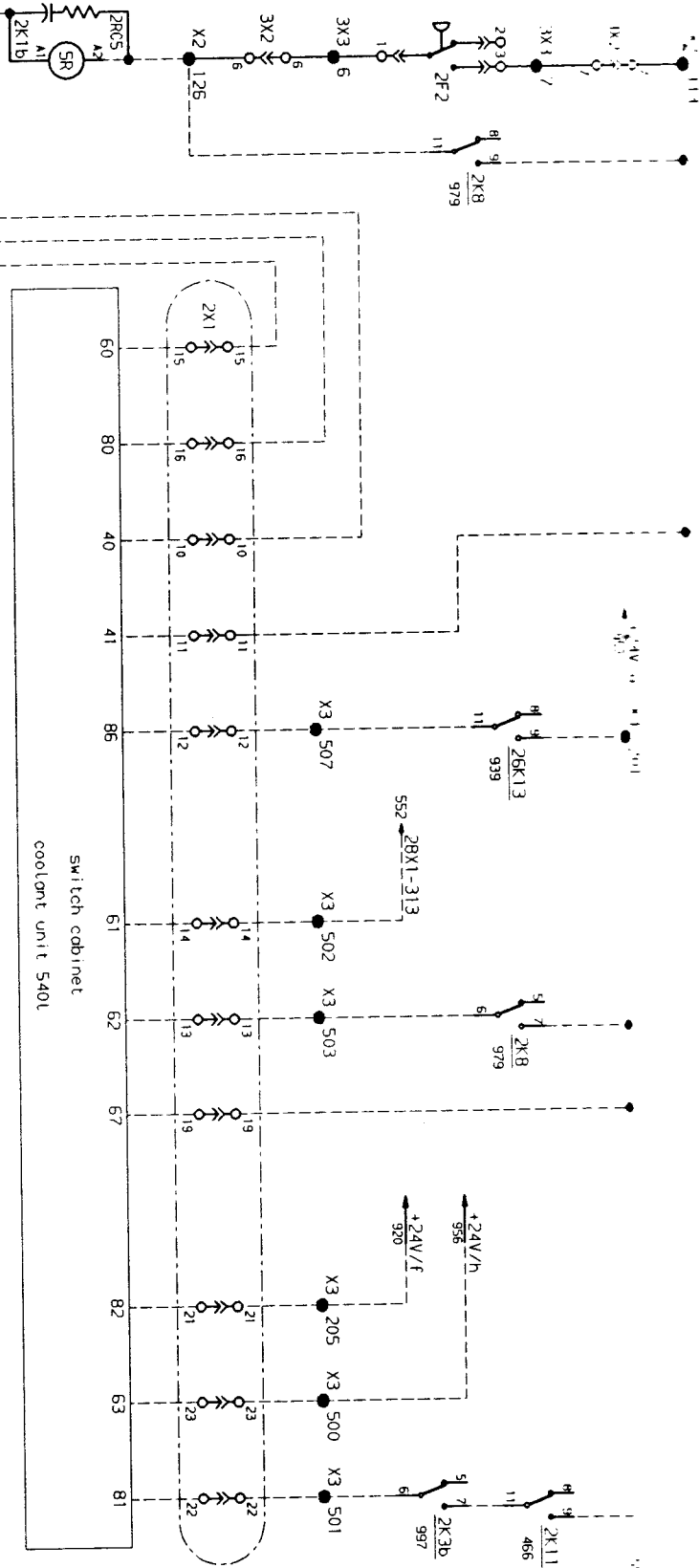
MAHOMAT/553

+

ENG/CSA

71.006904/049.AA C

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94 Pg.



switch cabinet
coolant unit 540L

coolant
M7
on

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Note the protection clause DIN34

release
rotary transmission

measuring point
blow off
coolant
blow out
only when required

2F3 pressure control
tool clammer
2K1b control
rotary transmission
coolant tank

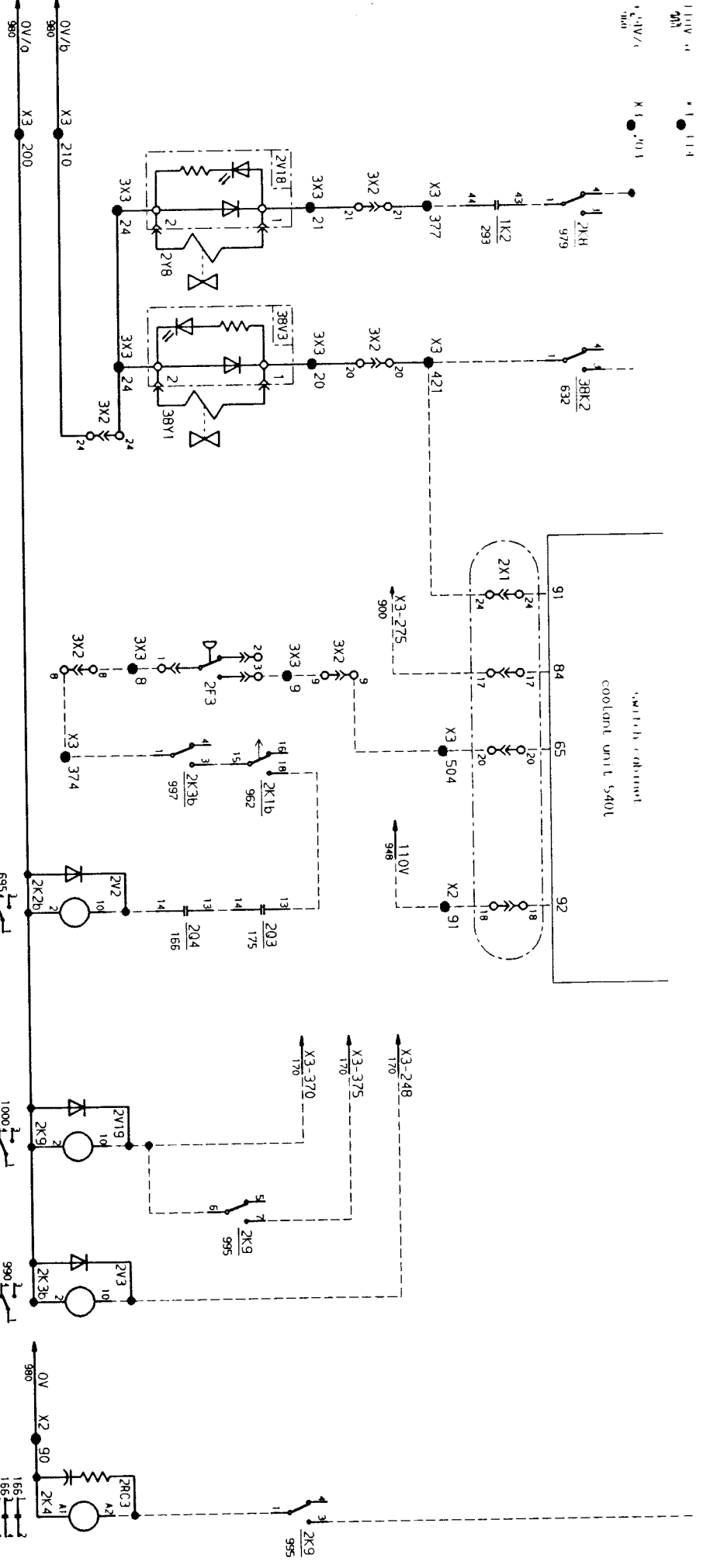
error signal
spindle/feed stop
203 motor protection switch
coolant unit 540L
204 motor protection switch
fuel pump

coolant unit 540L

MAHOMAT/553

ENG/CSA 71.006904/050.AA C

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94 Pg.



cond.	Änderung	date	05 FEB 1990	source	rep. of	rep. by	coolant unit 540L	MAHOMAT/553	ENG/CSA 71.006904/050.AA C	Page 50 94 Pg.
	check	drawn	WBR							
	date	name	norm							
	2			3	4	5	6	7	8	

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Note the protection clause DIN34

switch cabinet

coding bolt

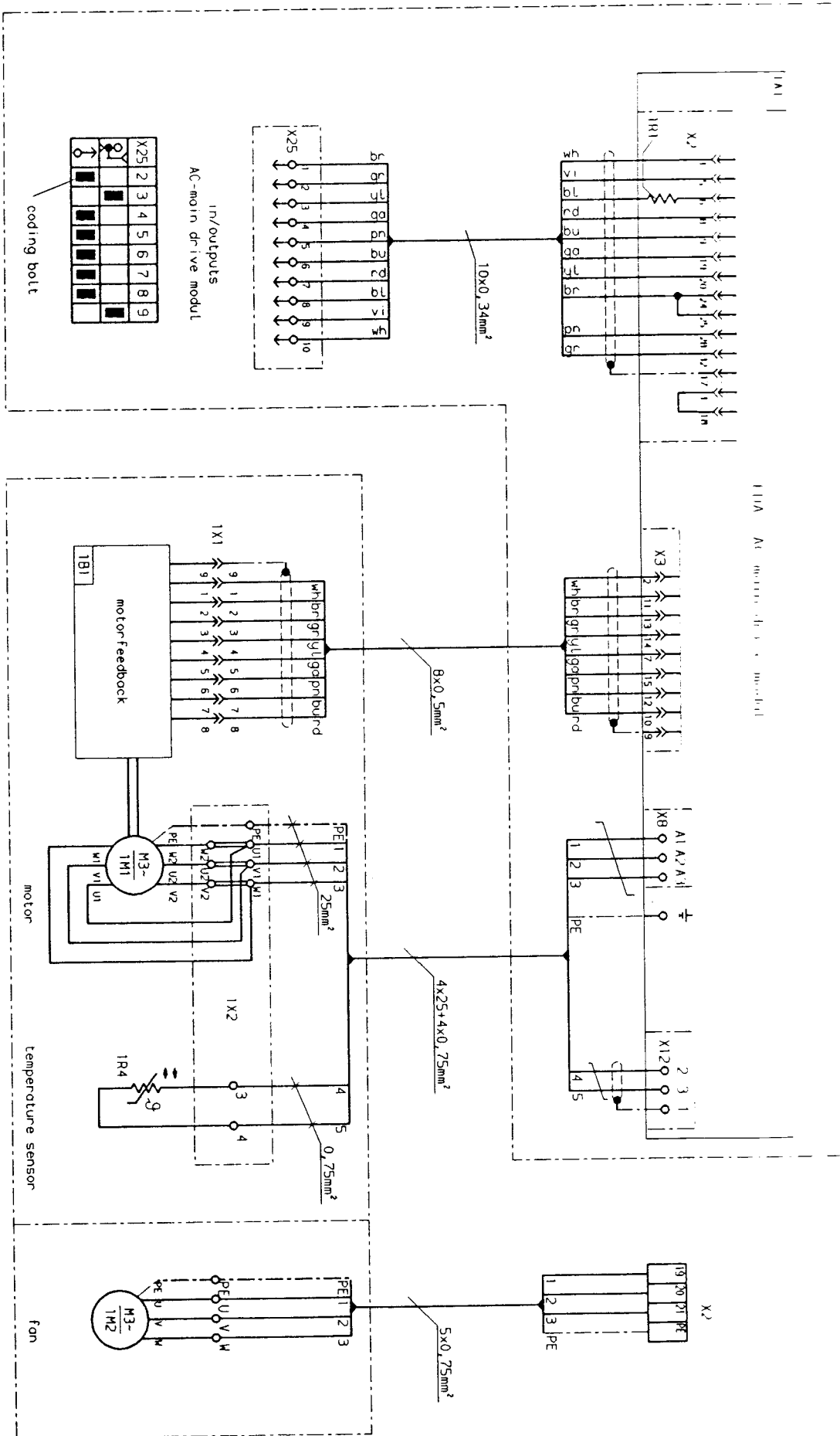
in/outputs
AC-main drive modul

main drive

temperature sensor

fan

111A AC main drive module



date 05 FEB 1990
drawn HBR
check HBR

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AKTIENGESELLSCHAFT

connection plan
main drive

MAHOMAT/553

ENG/CSA 71.006904/051.AA

page 51
94 Pg.

cond. Änderung

date

name

norm

2

source

3

rep. of

4

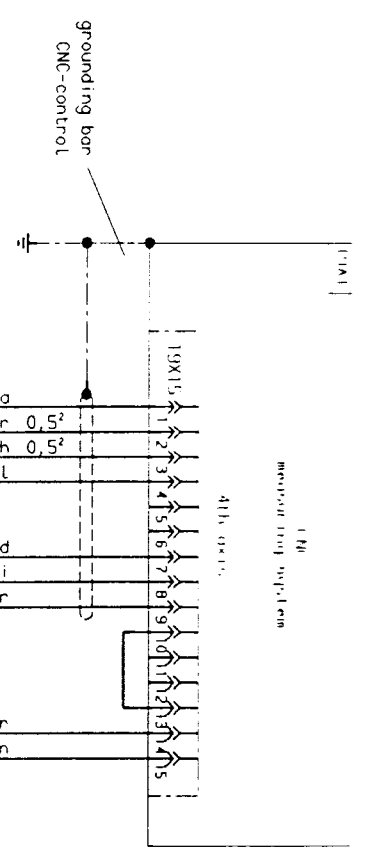
rep. by

5

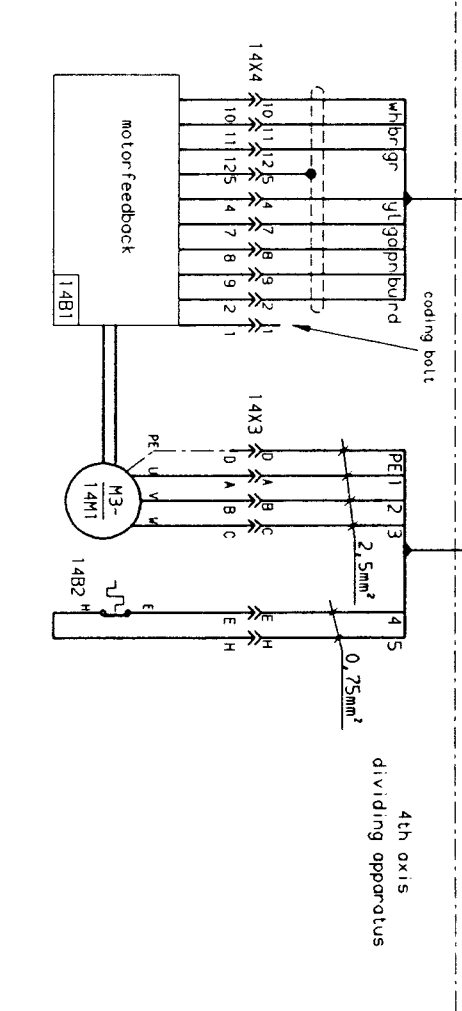
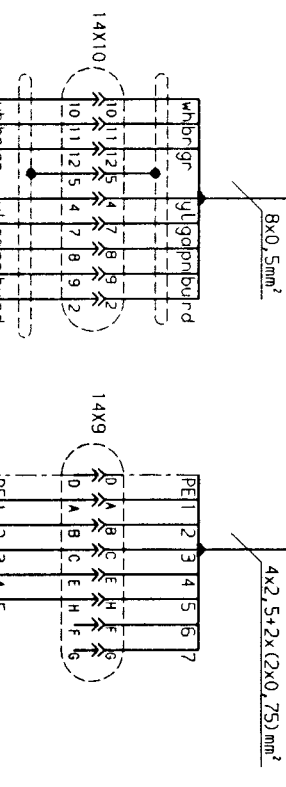
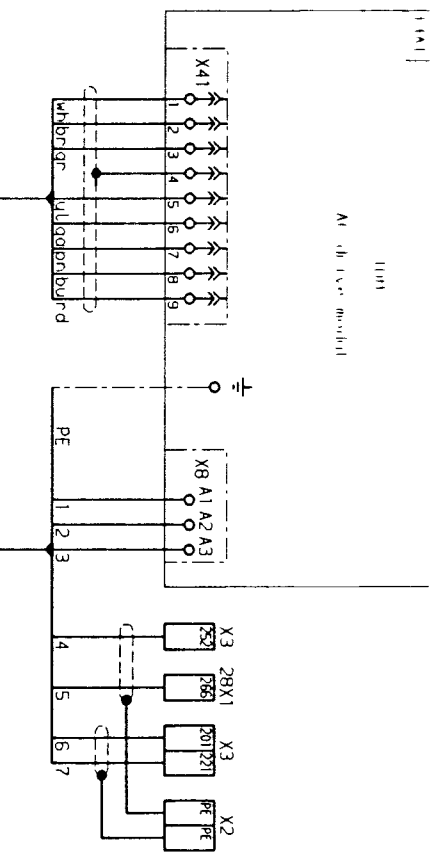
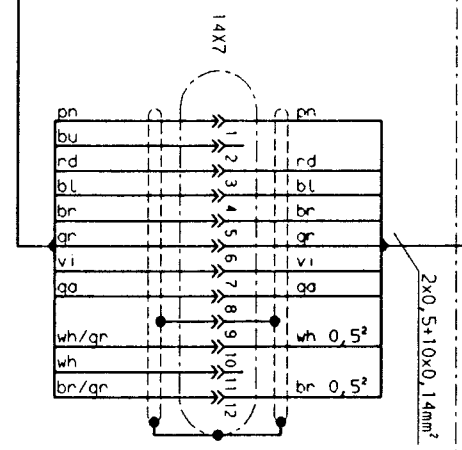
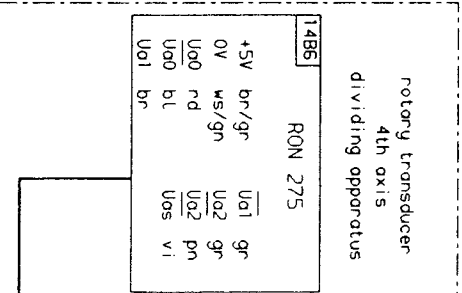
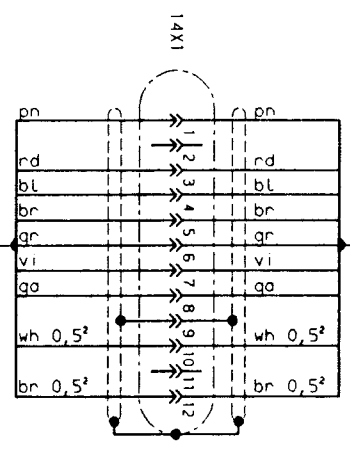
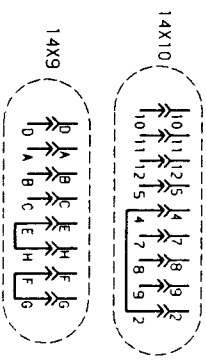
6

7

8



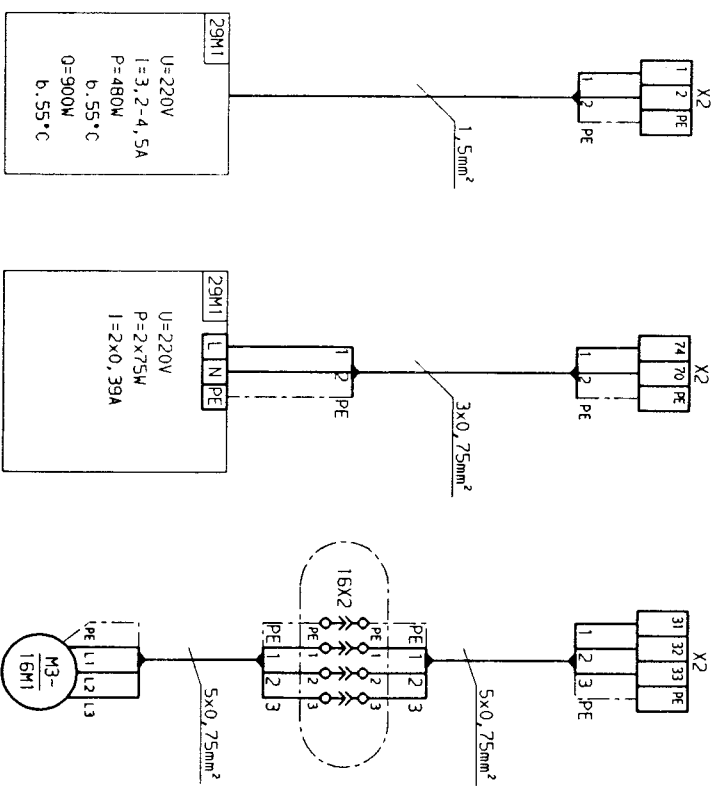
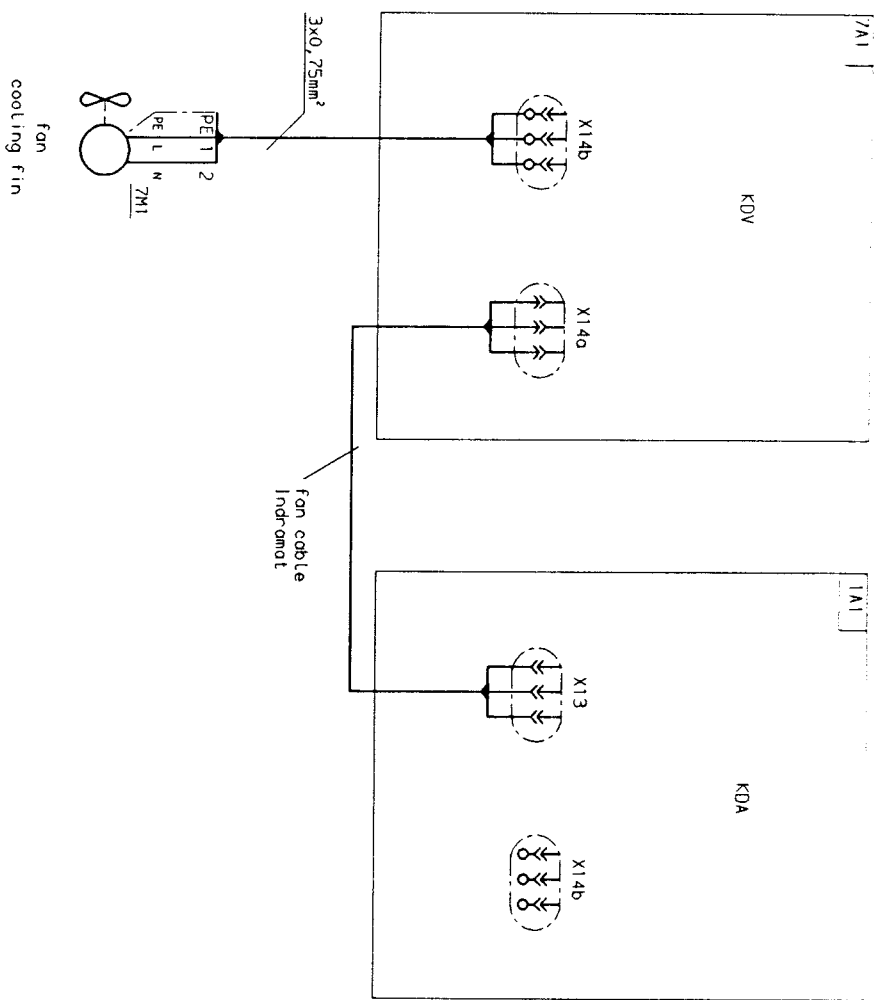
blind plug
with unplugged
dividing apparatus



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Note the protection clause DIN34

cond.	Änderung	date	05 FEB 1990	drawn	MBR	check	MBR	source	3	rep. of	4	rep. by	5	6	7	8
MAHO AKTIENGESellschaft connection plan 4th axis dividing apparatus MAHOMAT/553 ENG/CSA 71.006904/053.AA page 53 94 Pg.																

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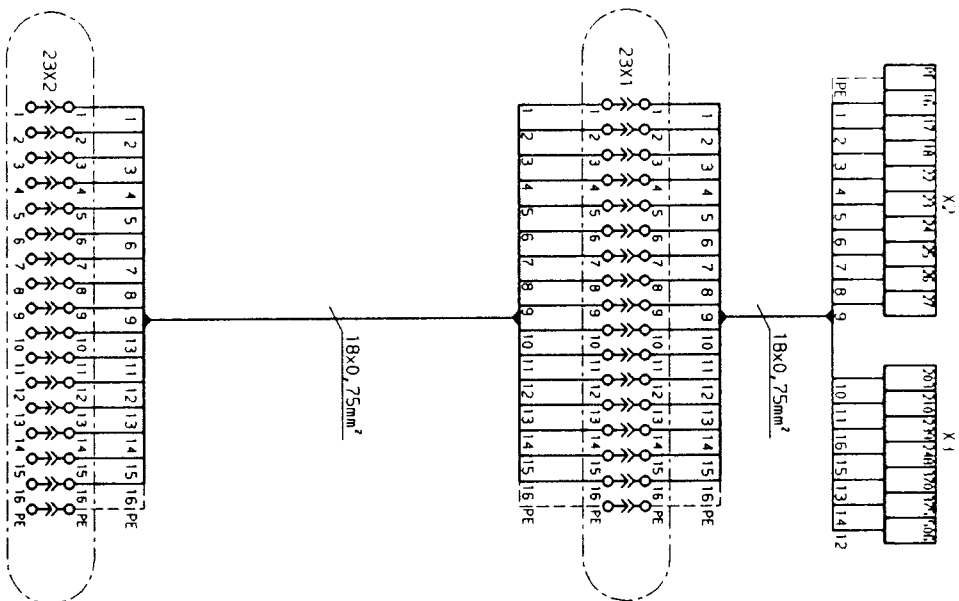


cooling unit
only when required
cooling
switch cabinet

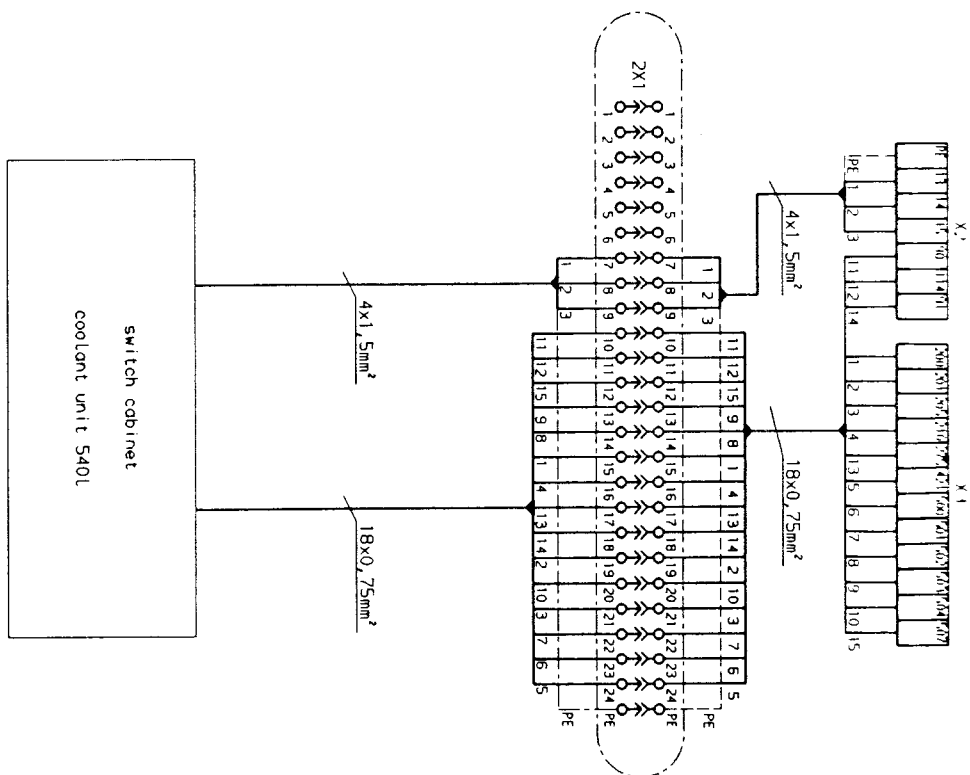
heat exchanger
standard
drive
only when required

Cond.	Anderung	date	05 FEB 1990	drawn	MBR	check	MBR	source	3	rep. of	4	rep. by	5	connection plan	heat exchanger	MAHOMAT/553	ENG/CSA	71.006904/055.AA C	page 55
		date												AC-drive modul				94 Pg.	

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AKTIENGESellschaft



chip conveyor
with
coolant tank



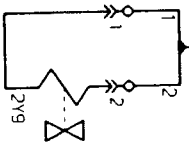
coolant unit 540L
only when required

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Note the protection clause DIN34

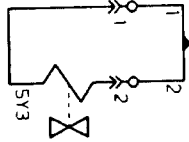
Cond.	12.12.90	date	05 FEB 1990	MAHO	connection plan	MAHOMAT/553	ENG/CSA	71.006904/056.AA C	page 56
Aenderung	date	norm	check	WBR	rep. of	chip conveyor			94 Pg.
2					5	coolant unit			
3					6				
4					7				
5					8				

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Note the protection clause DIN34

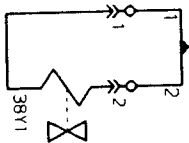
coolant
blow out
chip rinsing



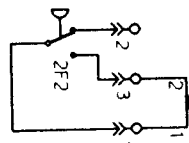
tool cone
blow out



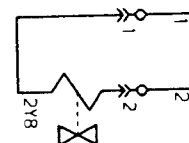
measuring point
blow off



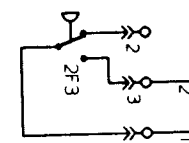
pressure control
pneumatic
rotary transmission



release
rotary transmission



pressure control
pneumatic
tool clamping



only when required

MAHO
AKTIENGESELLSCHAFT

connection plan
pneumatic

MAHOMAT/553

ENG/CSA

71.006904/057.AA

page 57
94 Pq.

12.12.80

cond. Änderung

date

name

norm

source

rep. of

rep. by

5

6

7

8

=

+

page 57
94 Pq.

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Note the protection clause DIN 94

2151 tool gripper
opened
2152 tool gripper
closed

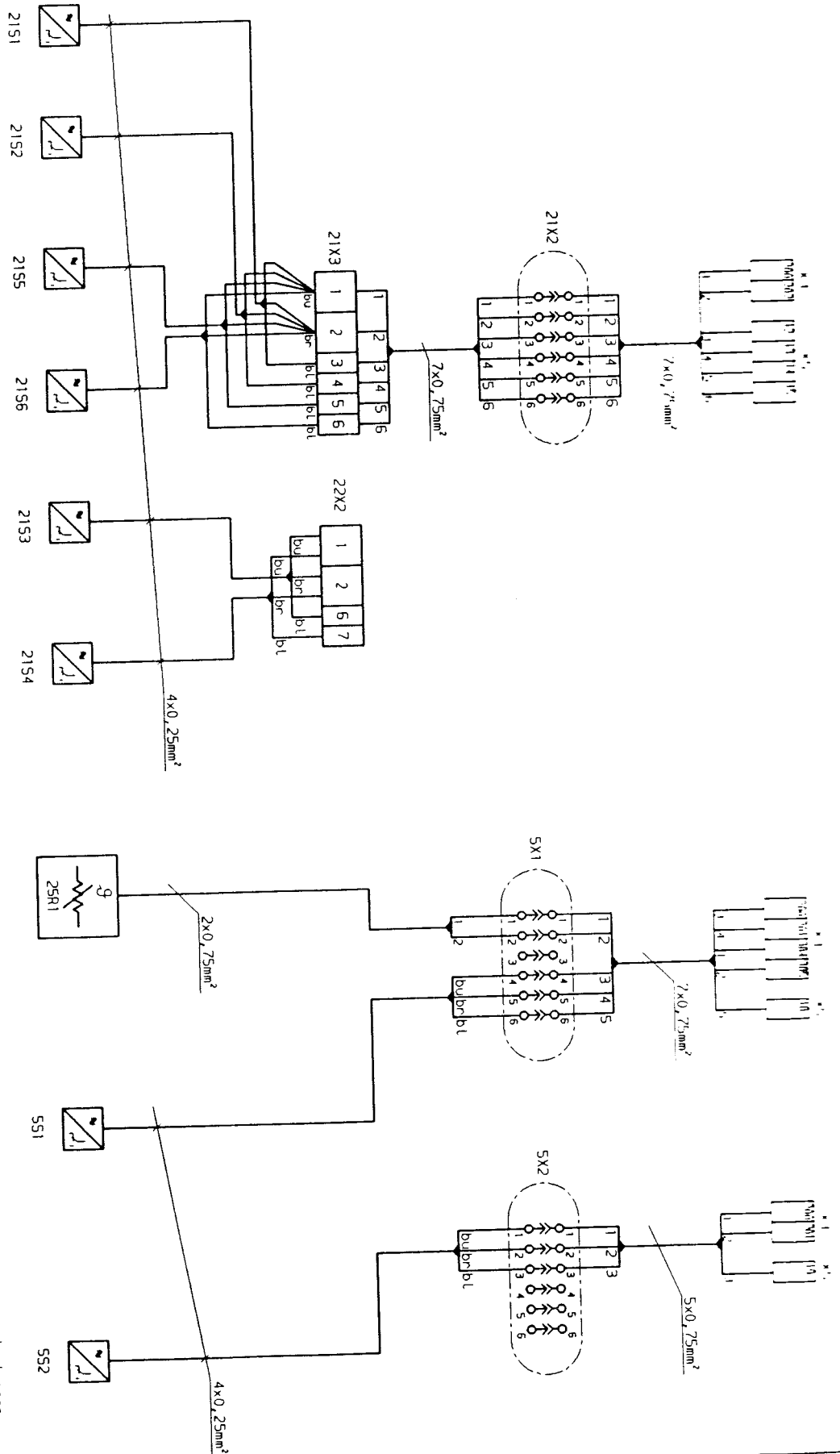
2155 change arm
left
2156 change arm
right

2153 change arm
moved out
2154 change arm
moved in

temperature sensor
spindle head

tool clamping
released

tool clamping
clamped



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AKTIEGESELLSCHAFT

connection plan
position switch
tool changer
tool clamping

MAHOMAT/553

ENG/CSA 71.006904/059.AA

page 59
74 P. 94

cond.	Änderung	date	name	norm
1		05 FEB 1990	WBR	
2			WBR	

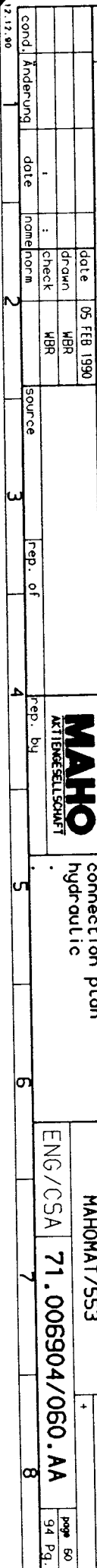
source	rep. of	rep. by
3		
4		

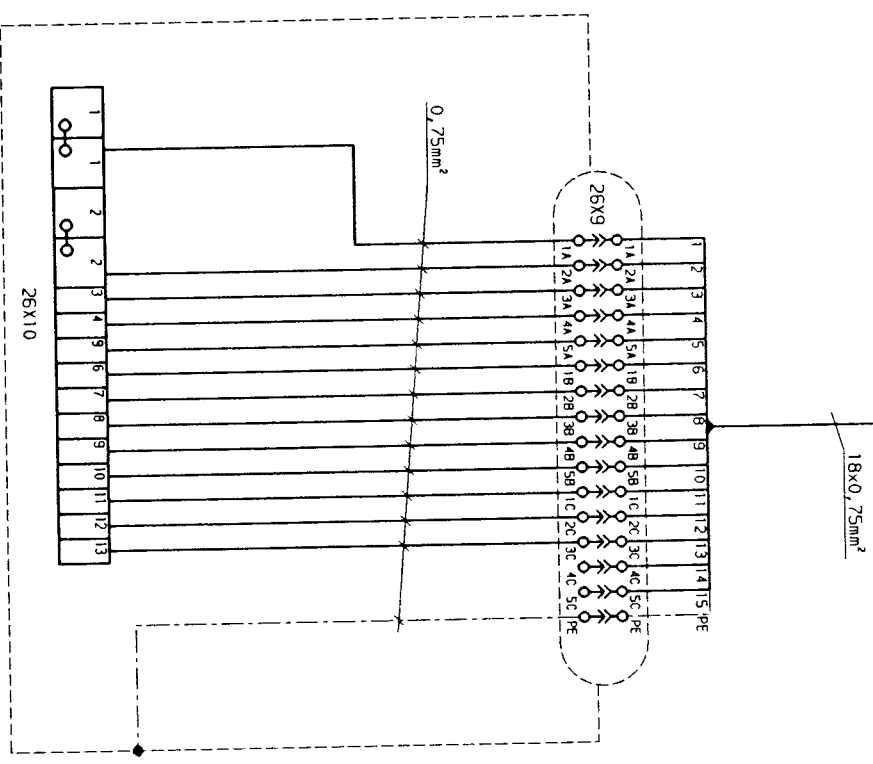
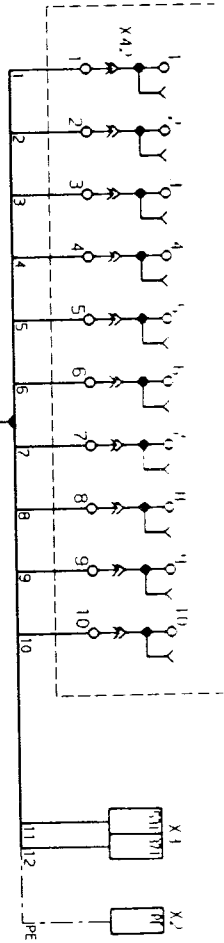
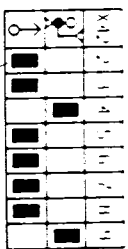
5	6	7	8

cond.	Änderung	date	name	norm
1		05 FEB 1990	WBR	
2			WBR	

cond.	Änderung	date	name	norm
1		05 FEB 1990	WBR	
2			WBR	

cond.	Änderung	date	name	norm
1		05 FEB 1990	WBR	
2			WBR	





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Note the protection clause DIN34

cond.	1	date	05 FEB 1990	source	3	rep. of	4	rep. by	5	6	7	8
Änderung	1	date	05 FEB 1990	source	3	rep. of	4	rep. by	5	6	7	8
		drawn	MBR									
		check	MBR									
MAHO Aktiengesellschaft connection plan hydraulic pallet changer MAHOMAT/553 ENG/CSA 71.006904/062.AA page 62 94 Pg.												

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D-8962 Pfronten.
Note the protection clause DIN34

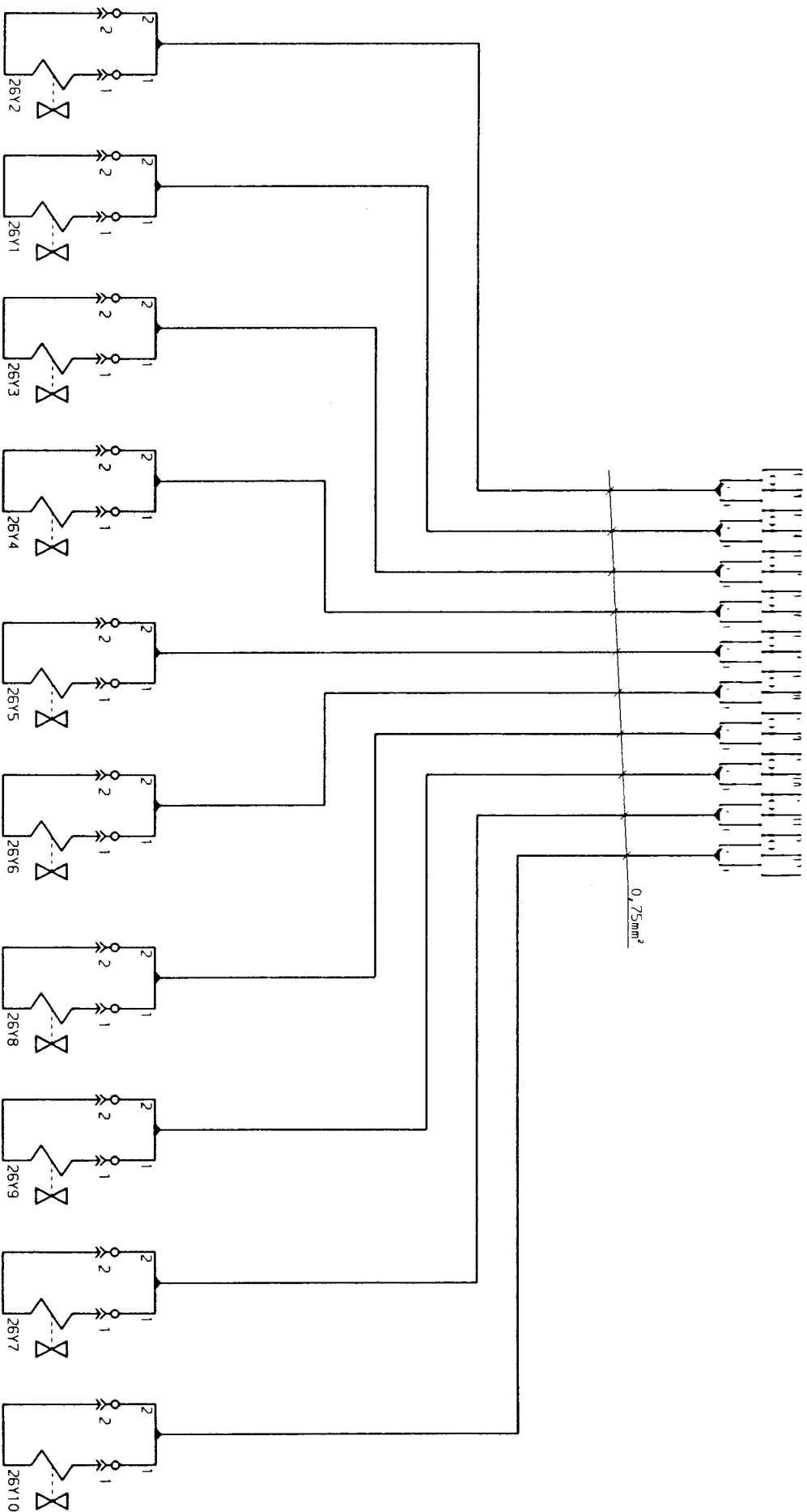
26Y1 release
26Y2 clamp

26Y3 upward motion
26Y4 downward motion

26Y5 0° swivel
26Y6 180° swivel

26Y8 open
26Y9 close

26Y7 table
blow off
26Y10 pallet changer
blow off



0,75mm²

date	05 FEB 1990
drawn	WBR
check	WBR

cond. Änderung

1

date

1

name/norm

2

source

3

rep. of

4

rep. by

5

connection plan

6

ENG/CSA

7

71.006904/063.AA

8

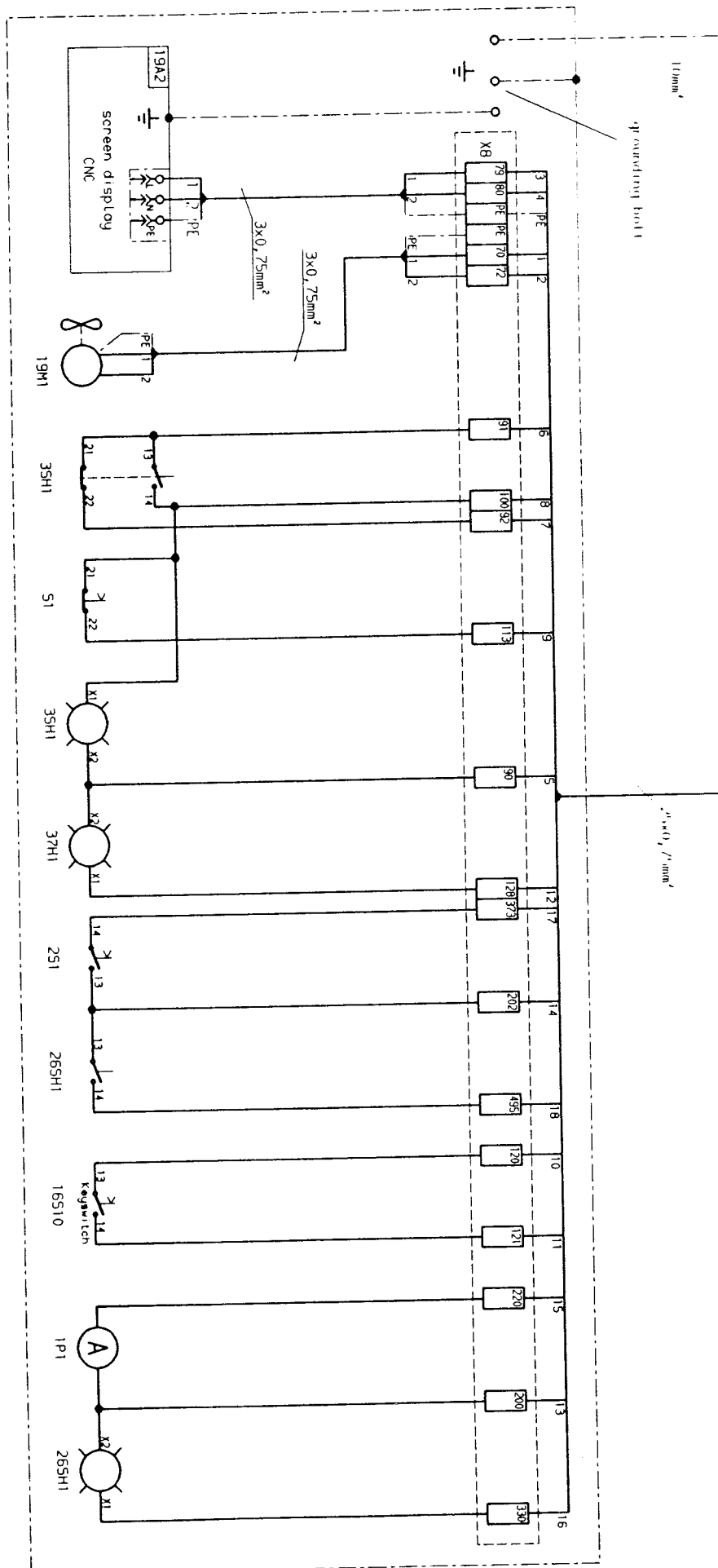
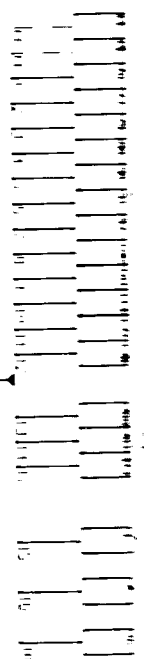
MAHOMAT/SS3

9

page 63

94 pg.

12.12.90



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Note the protection clause DIN34

51 emergency stop
3SH1 machine on
251 chip rinsing
37H1 on/off
26SH1 error message
19M1 pallet changer

1P1 load indicator
main drive
16510 selection of
setting up
19M1 for

MAHO
AKTIENGESELLSCHAFT

connection plan
control station

MAHOMAT/553

ENG/CSA 71.006904/065.AA

page 65
94 PJ

cond.	Änderung	date	name	norm
		05 FEB 1990	drawn	MBR
			check	MBR

source

rep. of

rep. by

5

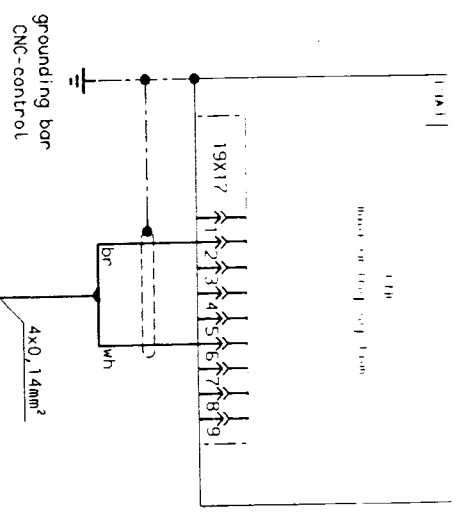
6

7

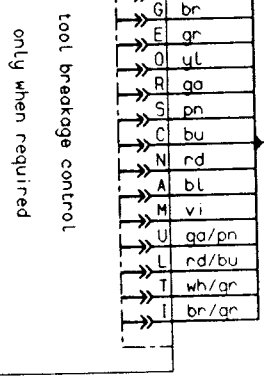
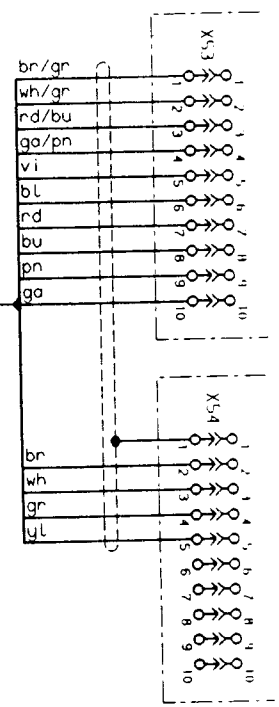
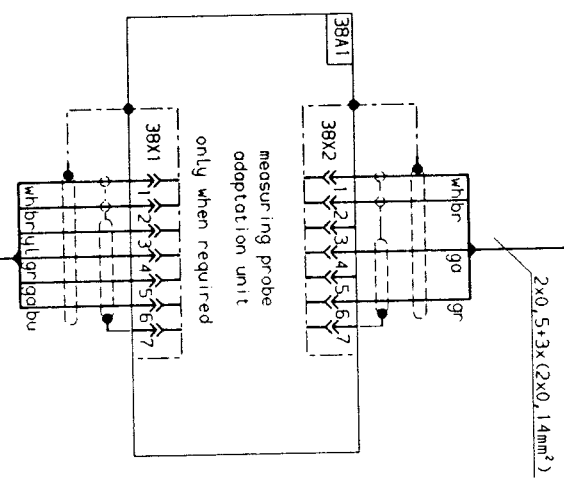
8

12.12.80

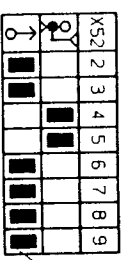
Based on DIN 11811



only when required



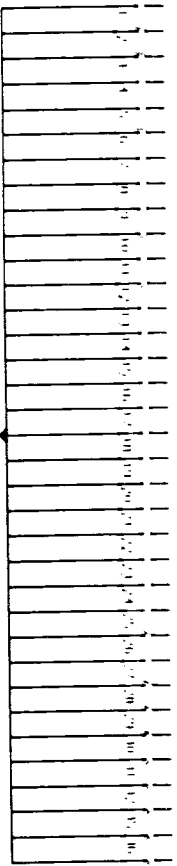
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Note the protection clause DIN 94



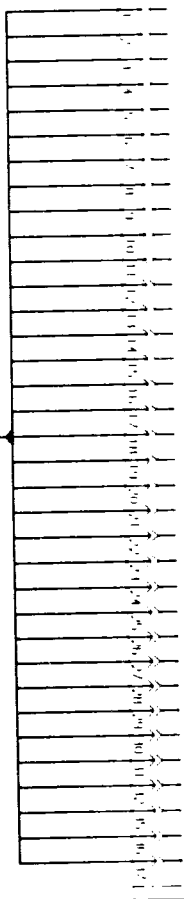
coding bolt

cond. Änderung		date	05 FEB 1990	MAHO AKTIENGESELLSCHAFT		connection plan		MAHOMAT/553		page 56		
date		1		check		WBR	measuring probe		ENG/CSA		page 56	
name/norm		2		check		WBR	tool breakage control		71.006904/066.AA		page 56	
rep. of		3		rep. by		5			7		page 56	
rep. of		4		rep. by		6			8		page 56	
rep. of		5		rep. by		7			9		page 56	
rep. of		6		rep. by		8			10		page 56	
rep. of		7		rep. by		9			11		page 56	
rep. of		8		rep. by		10			12		page 56	
rep. of		9		rep. by		11			13		page 56	
rep. of		10		rep. by		12			14		page 56	

1000 Input cord 1



1000 Input cord 2



37x0,12mm²
float cable

37x0,12mm²
float cable

soldering point



- ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

transfer modul

soldering point



- ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

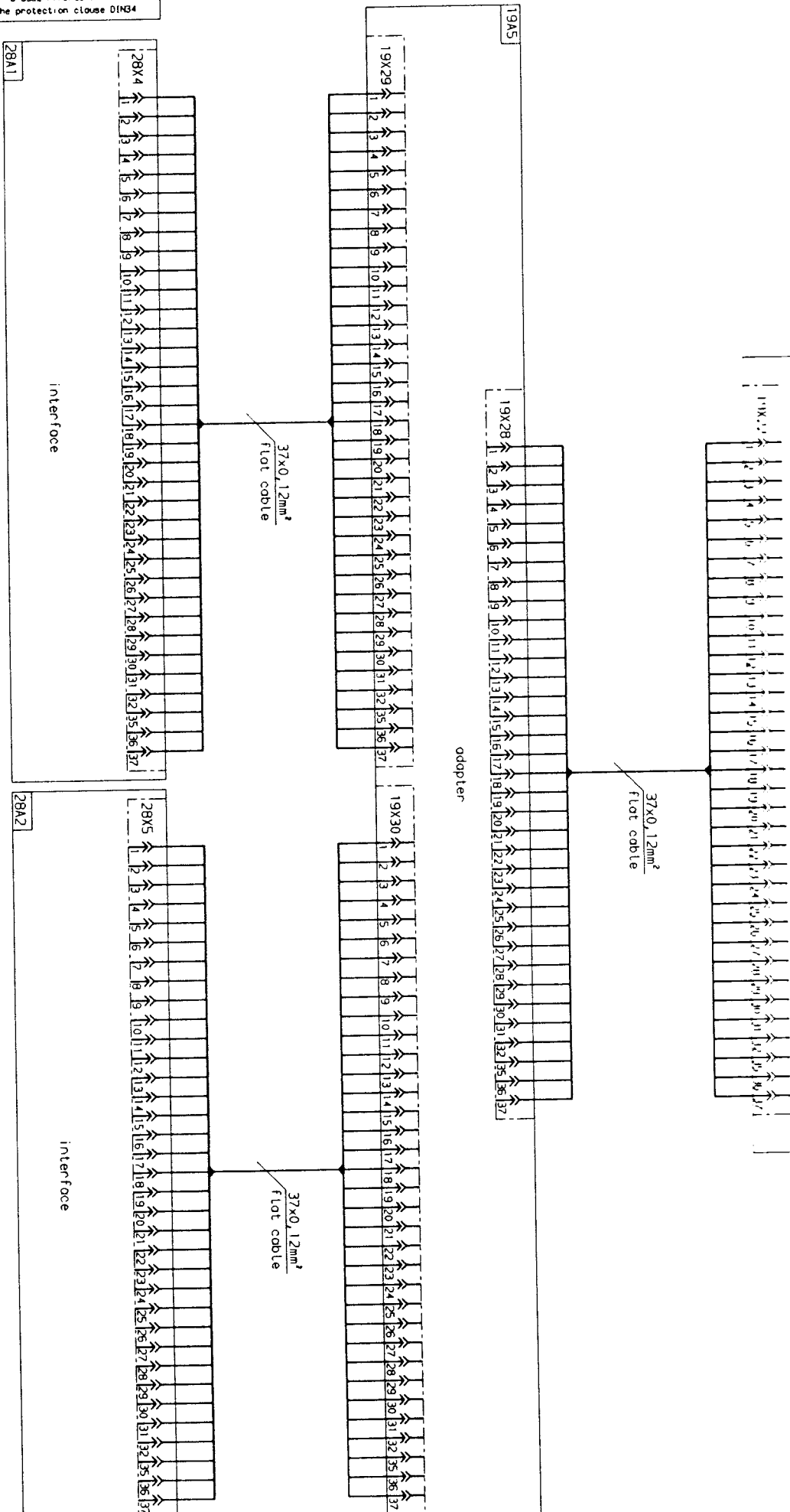
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

transfer modul

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Note the protection clause 01M34

cond.	Änderung	date	name/norm	date	05 FEB 1990	drawn	WBR	check	WBR	source	3	rep. of	4	rep. by	5	connection plan	MAHOMAT/553	ENG/CSA	71.006904/067.AA	page 67
-------	----------	------	-----------	------	-------------	-------	-----	-------	-----	--------	---	---------	---	---------	---	-----------------	-------------	---------	------------------	---------

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Note the protection clause DIN34



MAHO
AKTIENGESELLSCHAFT

connection plan
CNC-control
CNC-input-output card 1
adapter

MAHOMAT/SS3

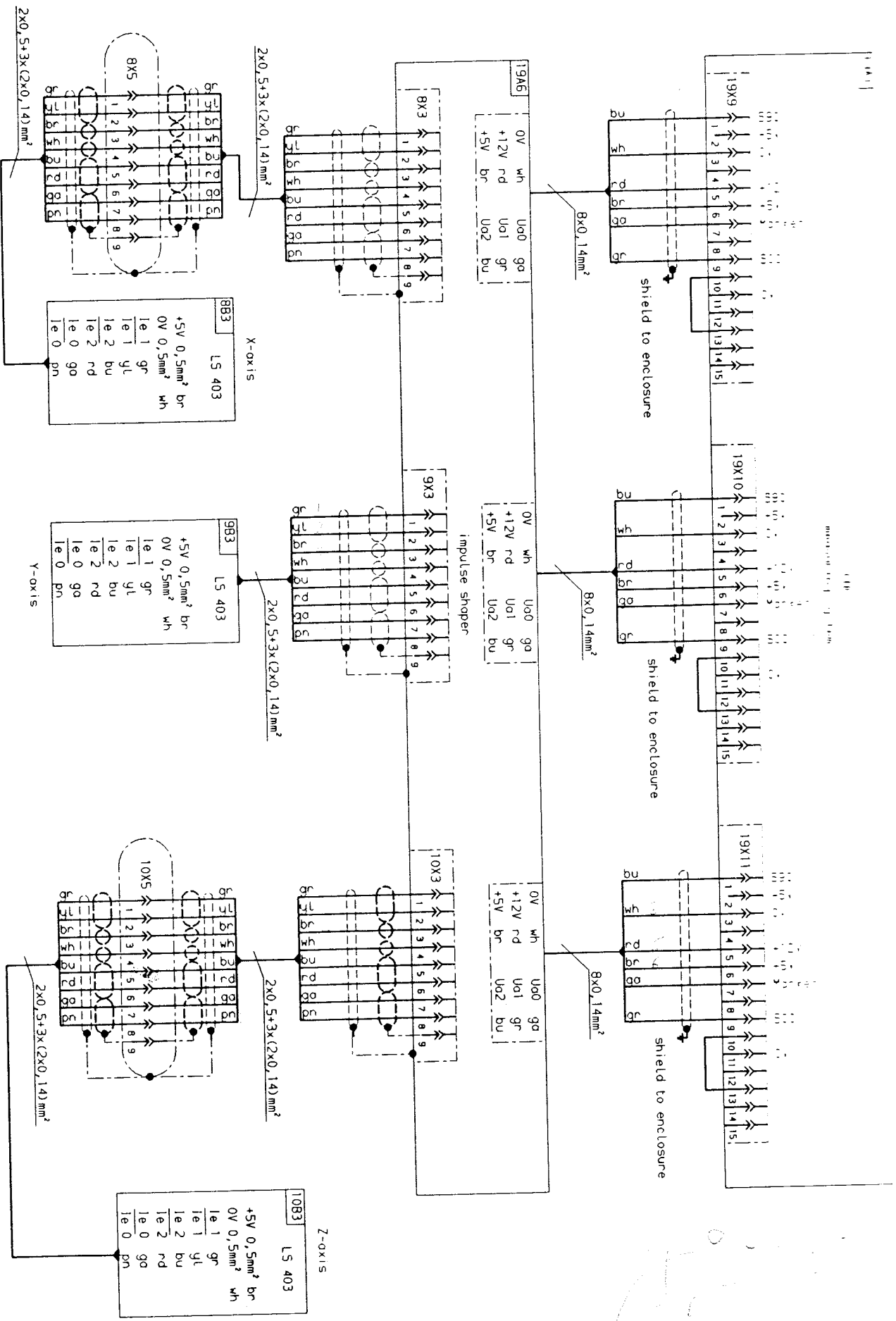
ENG/CSA 71.006904/068.AA

page 68
94 Pg.

Cond.	Änderung	date	name	norm	2	3	4	5	6	7	8
		05 FEB 1990	MBR	MBR							
		check	MBR								
		source									
		rep. of									
		rep. by									

12.17.90

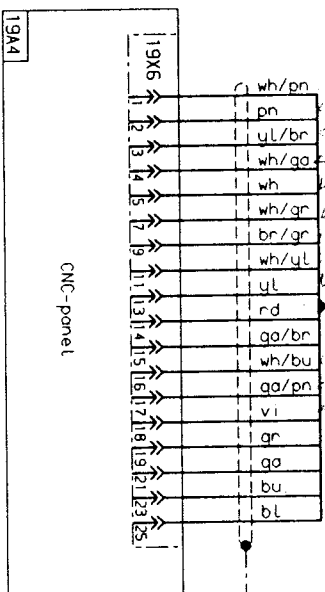
ALL rights are reserved from
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D-8962 Pfaffenhofen.
Note the protection clause DIN94



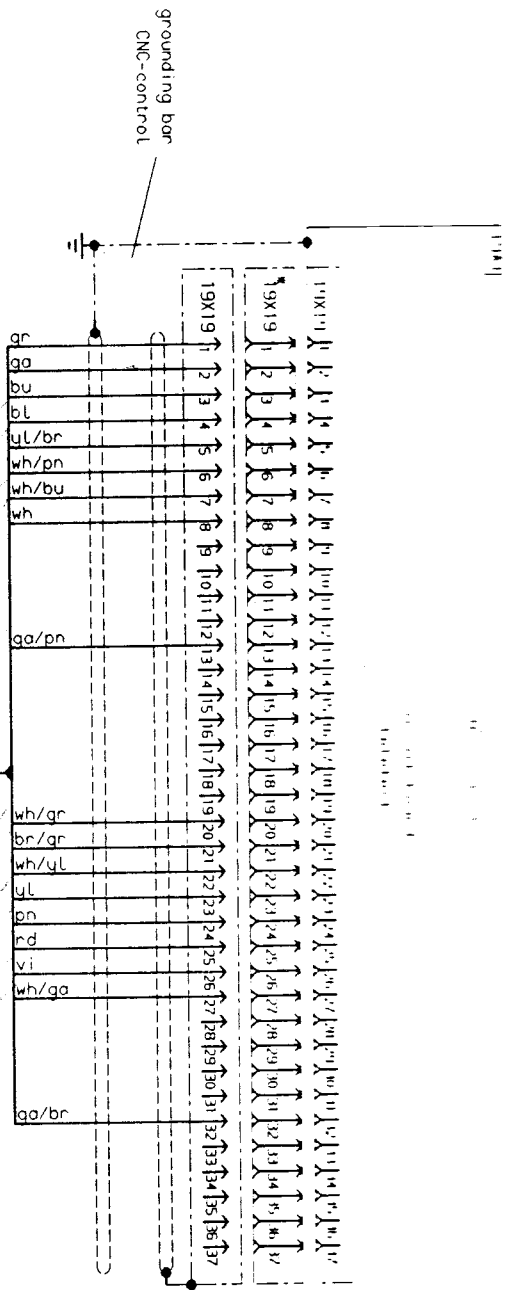
Cond.	1	2	3	4	5	6	7	8
Anderung	date	05 FEB 1990	drawn	WBR	check	WBR	Source	rep. of
MAHO	connection plan	CNC-control	measuring system	MAHOMAT/553	ENG/CSA	71.006904/070.AA C	page 70	94 Pg.

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D-8952 Pfronten.
Note the protection clause 01N34

* 19X19 adapter plug
only when
remote control unit



shield to enclosure
control station



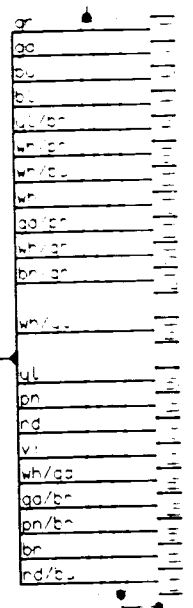
grounding bar
CNC-control

21x0,14mm²

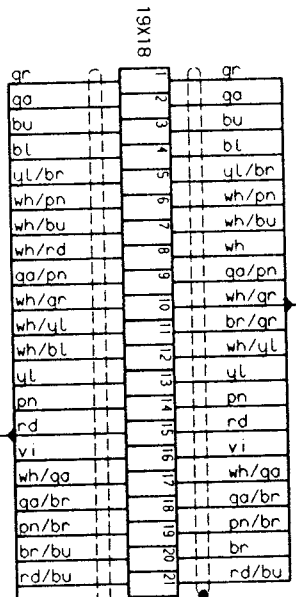
cond.	1	2	3	4	5	6	7	8
Änderung	date	05 FEB 1990	dr-own	MBR	check	MBR	source	rep. of
12.12.90	1	2	3	4	5	6	7	8
MAHO			connection plan			MAHOMAT/553		
AKTIENGESELLSCHAFT			CNC-control			ENG/CSA		
CNC-panel			71.006904/071.AA C			page 71		
						94 Pg.		

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D-8962 Pfaffenhofen
Note the protection clause DIN34

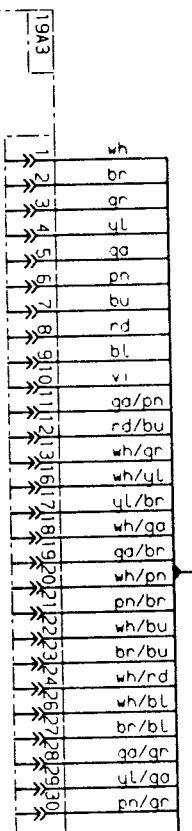
grounding bar
CNC-control



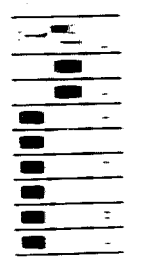
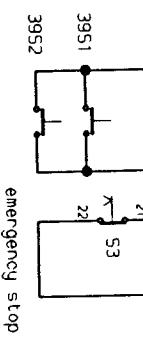
21x0,14mm²



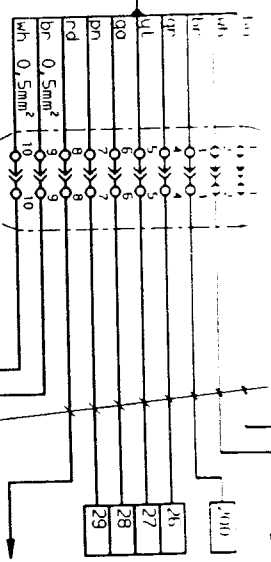
30x0,14+3x0,75mm²



remote control unit

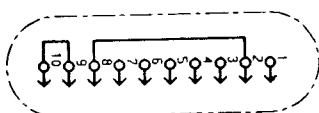


2x0,5+10x0,14mm²



0,75mm²

16K5-A2
7A1 X10-7
6A2 Y12



blind plug
X24
without
remote control unit

MAHO
AKTIENGESELLSCHAFT

connection plan
remote control unit

MAHOMAT/553

ENG/CSA 71.006904/072.AA

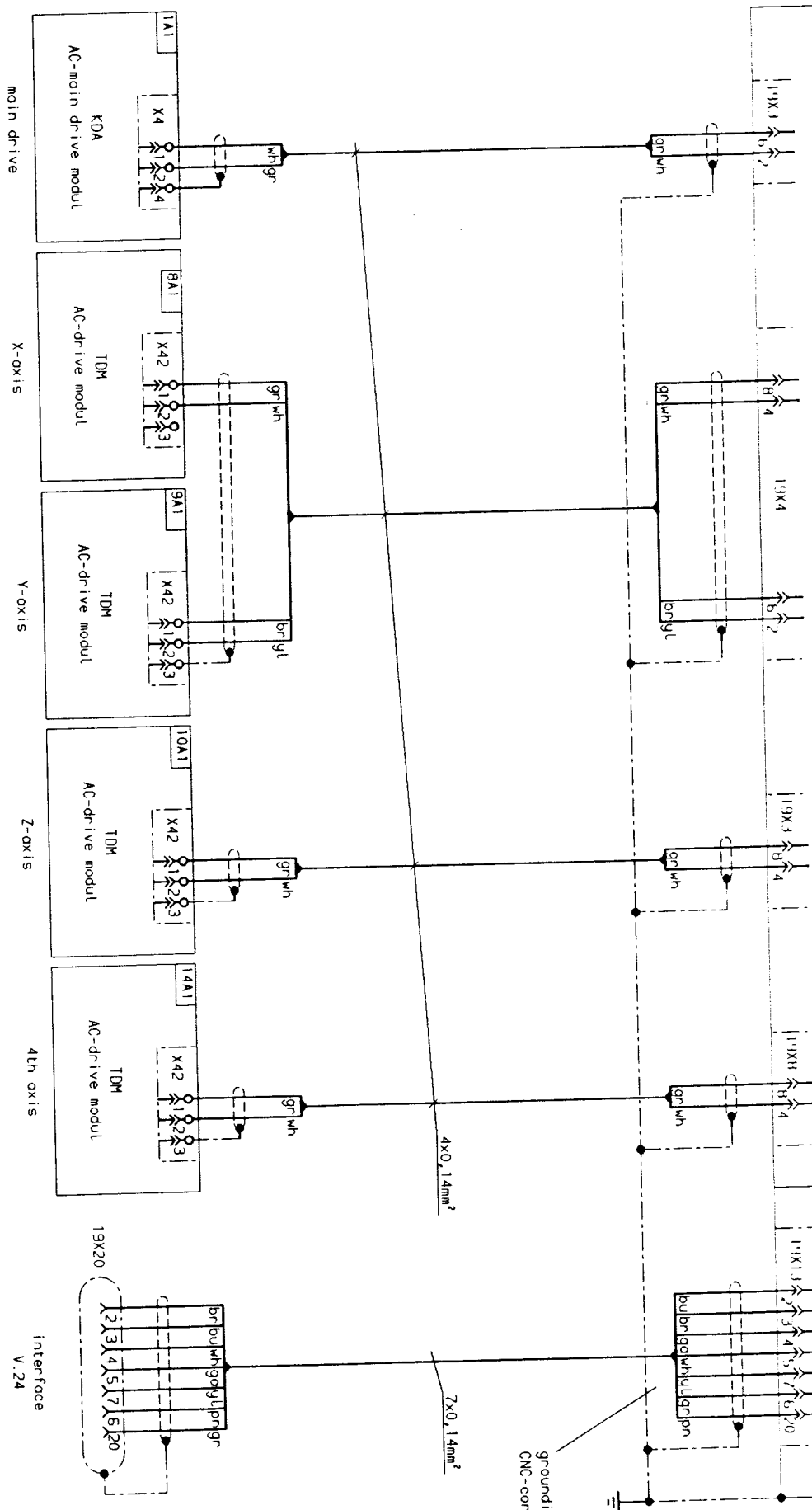
page 72
94 Pg.

cond.	1	2	3	4	5	6	7	8
numbering	1	2	3	4	5	6	7	8
date	05 FEB 1990							
drawn	WBR							
check	WBR							
name	norm							
source								
rep. of								
rep. by								

12.17.90

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D-8962 Pfaffenhofen

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Note the protection clause DIN 34

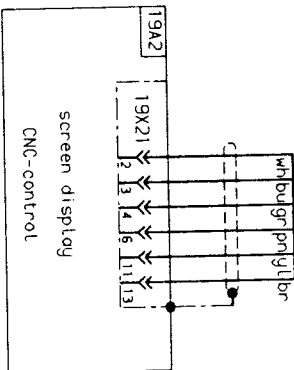
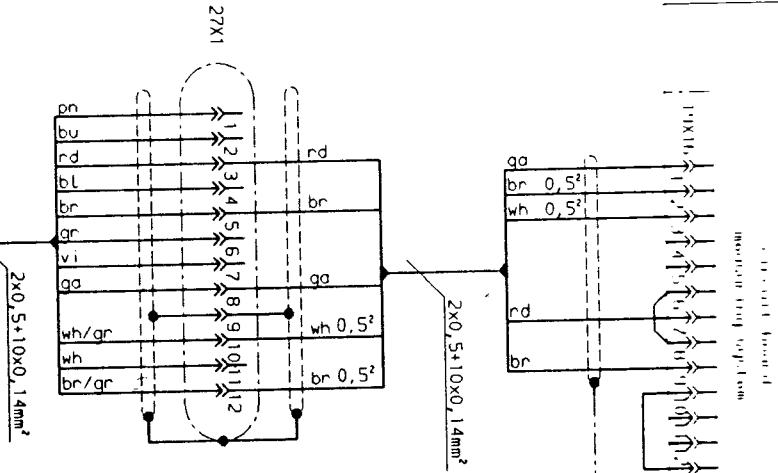


cond.		Änderung		date		05 FEB 1990		drawn		MBR		check		MBR		source		rep. of		rep. by		connection plan		MAHOMAT/553		ENG/CSA		71.006904/073.AA		page 73	
12.12.90		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16	

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Note the protection clause DING4

rotary transducer
spindle orientation

2781	ROD 426
+5V	br/gr
0V	wh/gr
Uo1	br
Uo2	go
Uo0	rd



MAHO
AKTIENGESELLSCHAFT

connection plan
CNC-control
screen display
spindle orientation

MAHOMAT/553

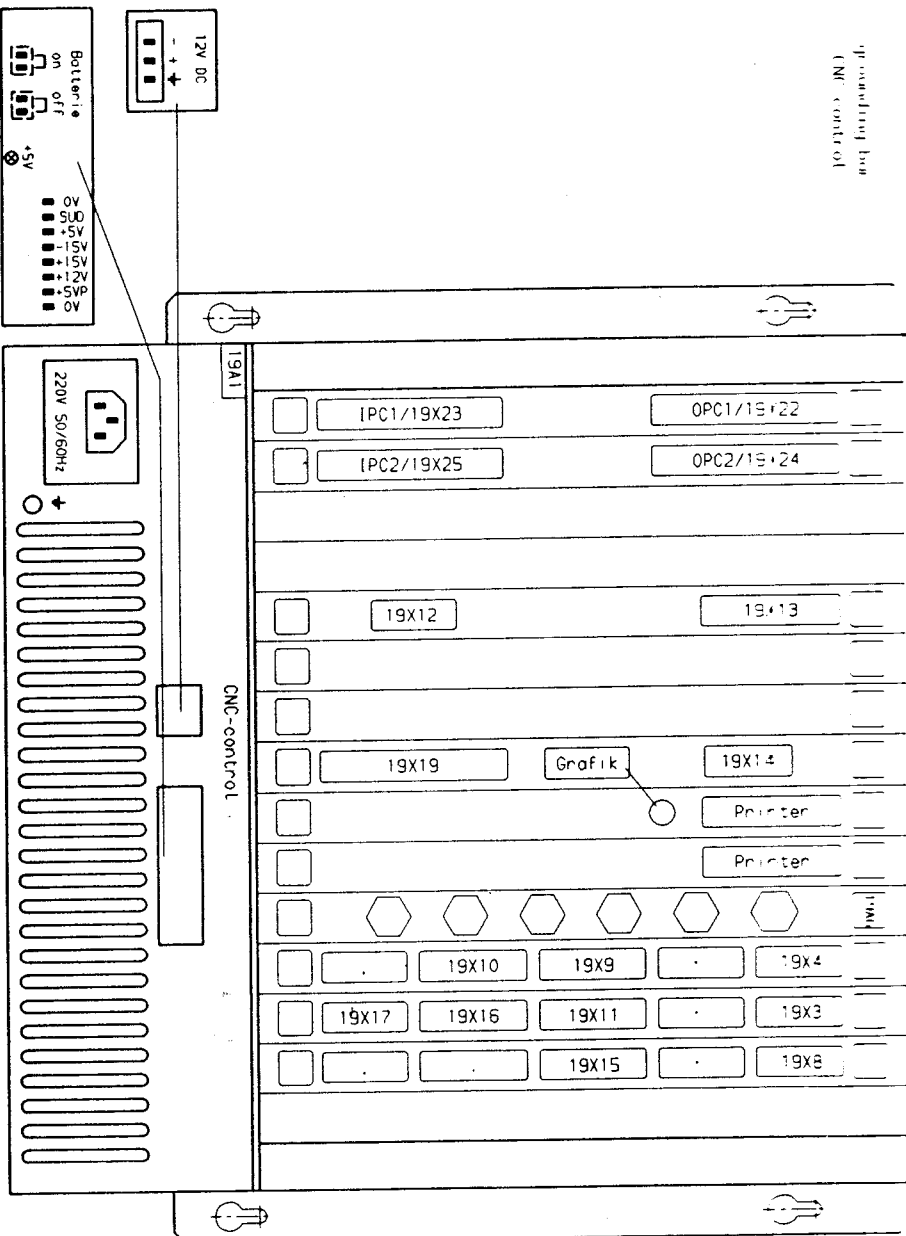
ENG/CSA 71.006904/074.AA

page 74
94 Pg.

cond.	Änderung	date	name/norm	source	rep. of	rep. by
		05 FEB 1990	MBR			
			check			
			MBR			

12.12.90	2	3	4	5	6	7	8
----------	---	---	---	---	---	---	---

grounding bar
(NF control)



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Note the protection clause DIN34

no. circuit board		
1	32 1/0	when required
2	32 1/0	when required
5	CPU	
6	memory expansion MOD-A	when required
7	memory expansion MOD-B	
8	teletext	
9	graphic MOD-C	simulation graph. MOD-B
10		simulation graph. MOD-A
11	impulse shaper	19A6
12	measuring system RMS/RMS	
13	measuring system RMS/RMS	
14	measuring system RMS/RMS	when required

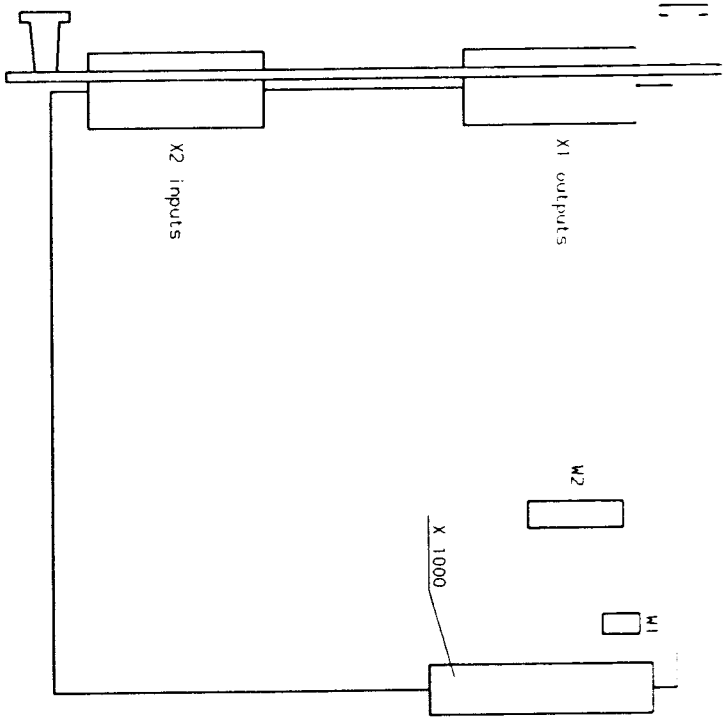
plug	
19X3	nominal value Z-axis main drive
19X4	nominal value X-axis Y-axis
19X8	nominal value dividing apparatus
19X9	measuring system X-axis
19X10	measuring system Y-axis
19X11	measuring system Z-axis
19X12	interface V.11
19X13	interface V.24
19X14	video
19X15	measuring system dividing apparatus
19X16	measuring system main drive
19X17	measuring probe only when required
19X19	CNC-panel remote control unit
19X22	CNC-outputs cord 1
19X23	CNC-inputs cord 1
19X24	CNC-outputs cord 2
19X25	CNC-inputs cord 2

cond.	1	date	05 FEB 1990	drawn	WBR	check	WBR	source	3	rep. of	4	rep. by	5	6	7	8
MAHO Aktiengesellschaft																
Layout of equipment CNC-control plug attachments																
MAHOMAT/553																
ENG/CSA 71.006904/075.AA C																
Page 75 94 Pg.																

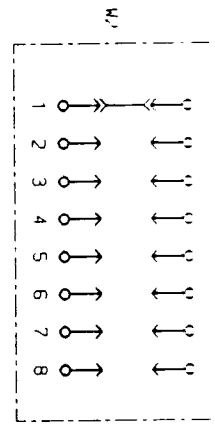
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Note the protection clause DIN 34

[illegible]

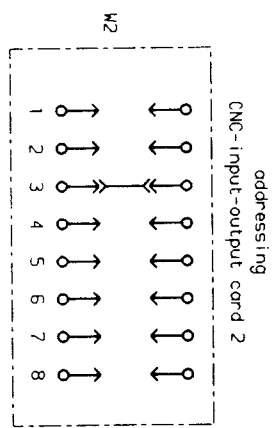
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Note the protection clause DIN34



CNC input-output card 1



CNC input-output card 1



CNC input-output card 2

cond. Änderung		date	name/norm	source	rep. of	rep. by	MAHOMAT/SS3		ENG/CSA	71.006904/077.AA	page 77 94 Pg.
1		05 FEB 1990	MBR				AKTIENGESellschaft		7		
2			check				Layout of equipment		8		
3			MBR				CNC-control				
4			MBR				addressing				
5							CNC-input/output card				
6											
7											
8											

12.12.90

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Note the protection clause DIN34

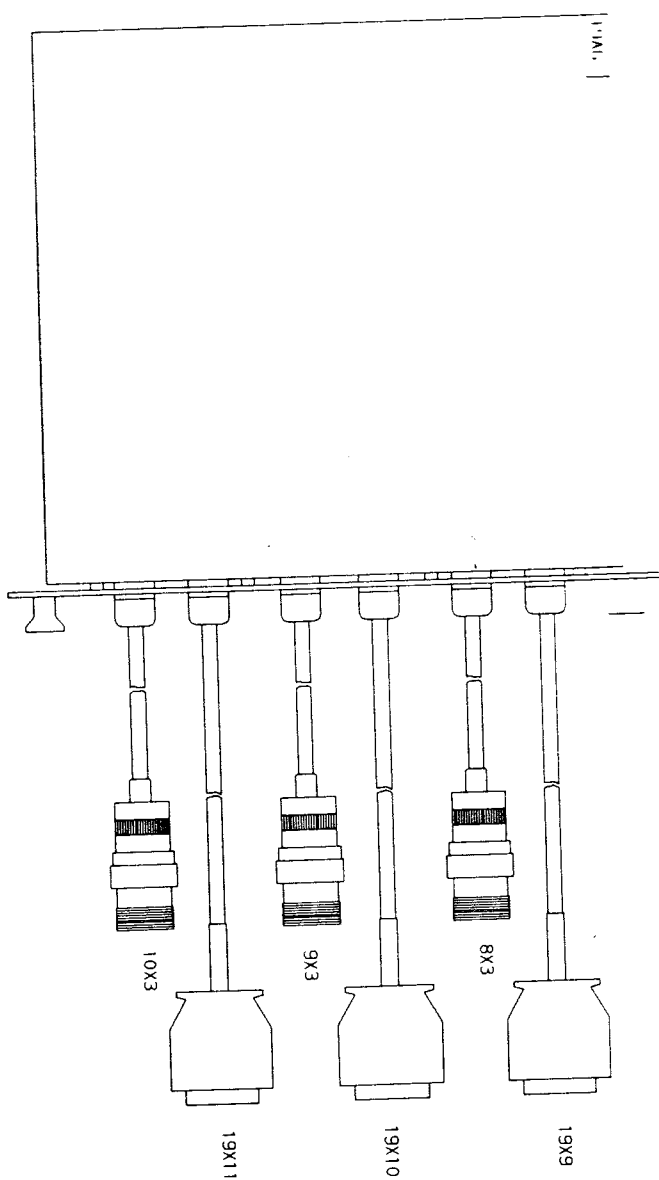
date	05 FEB 1990
drawn	MBR
check	MBR
name	
date	
name	
date	
name	

source	
rep. of	
rep. by	

MAHO
AKTIENGESellschaft

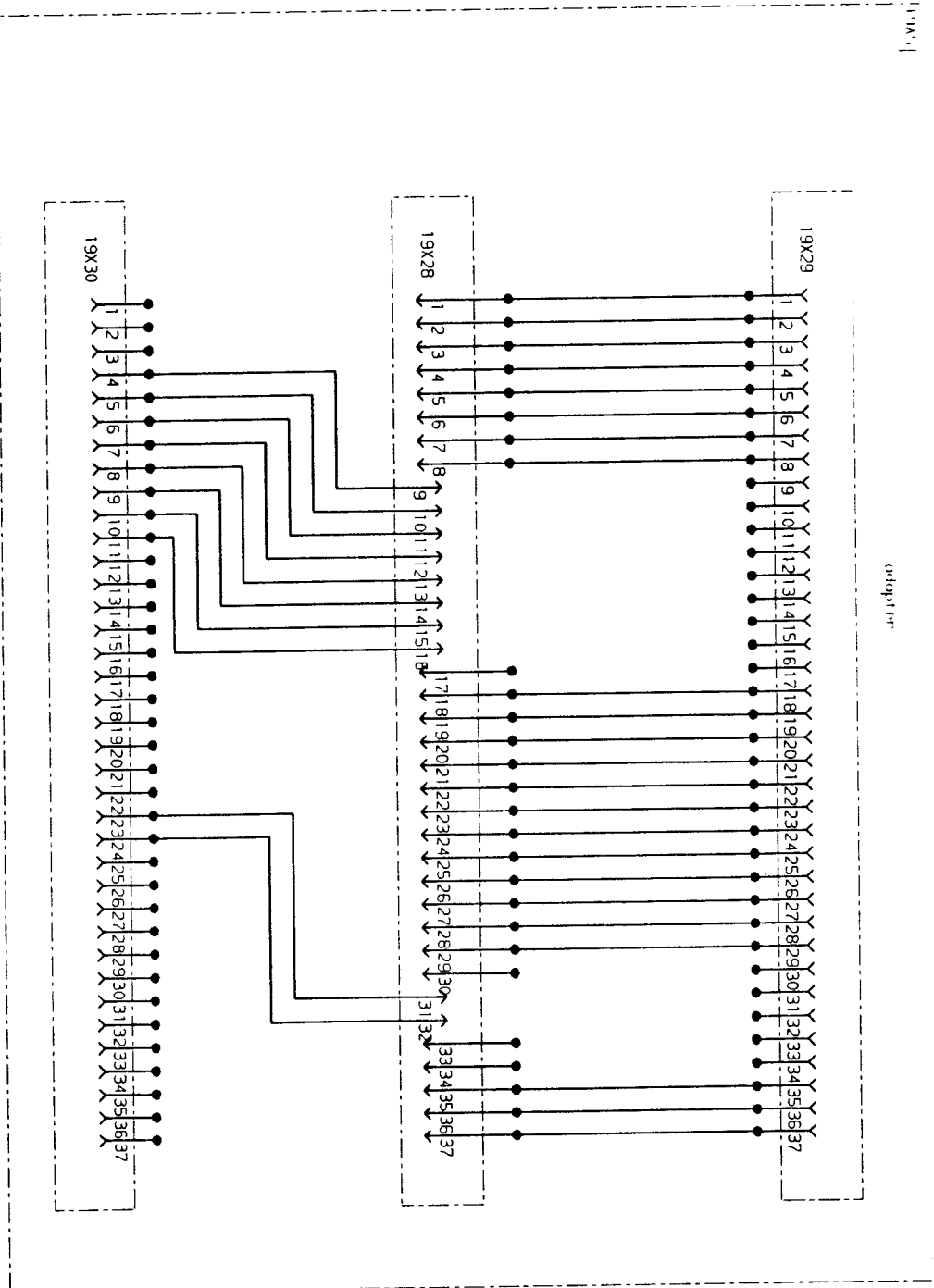
Layout of equipment
impulse shoper

MAHOMAT/553
ENG/CSA 71.006904/078.AA



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Note the protection clause DIN34

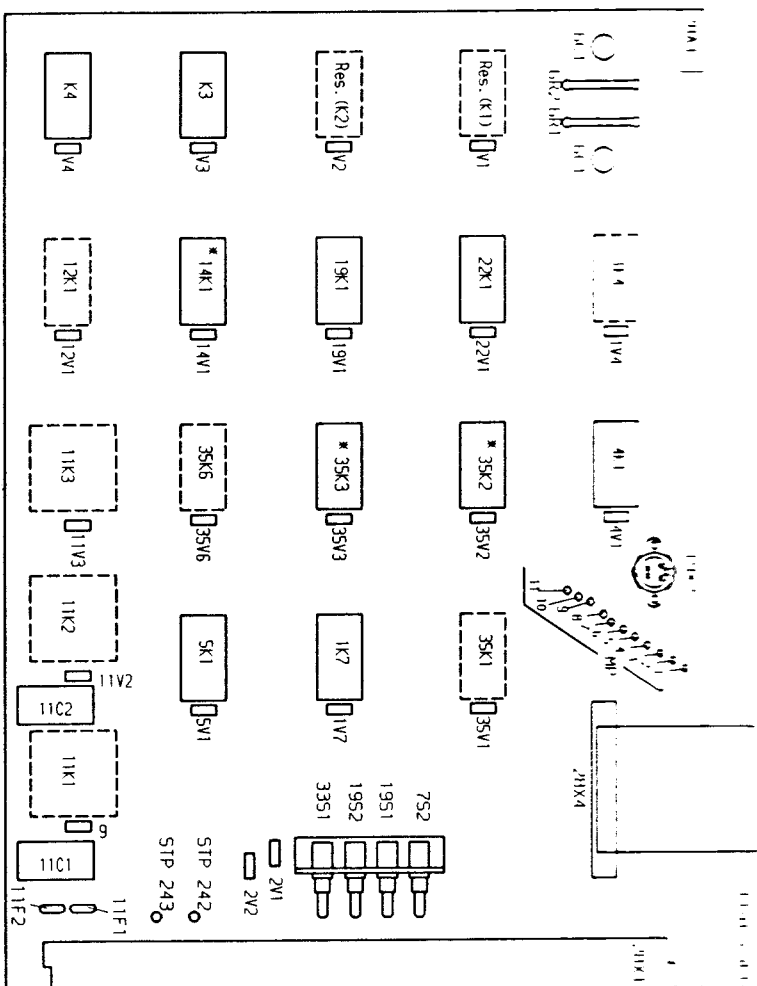
original



cond.		Änderung		date		05 FEB 1990		drawn		MBR		check		WBR		source		rep. of		rep. by		Layout of equipment		MAHOMAT/553		+ =		ENG/CSA		71.006904/079.AA C		page 79	
12.12.90		2																3		4		5		6		7		8					

- MP measuring point
- STP soldering point
- ★ 35K3 only when M₁T-H-address
- 35K2 only when coolant unit
- 14K1, 22K1 only when NC-dividing apparatus

752	bypass emergency stop position switch X-axis Y-axis Z-axis
1951	MC-memory open
1952	diagnosis on
3351	measured value-interrupt only when required



layout of equipment interface

MAHOMAT/553

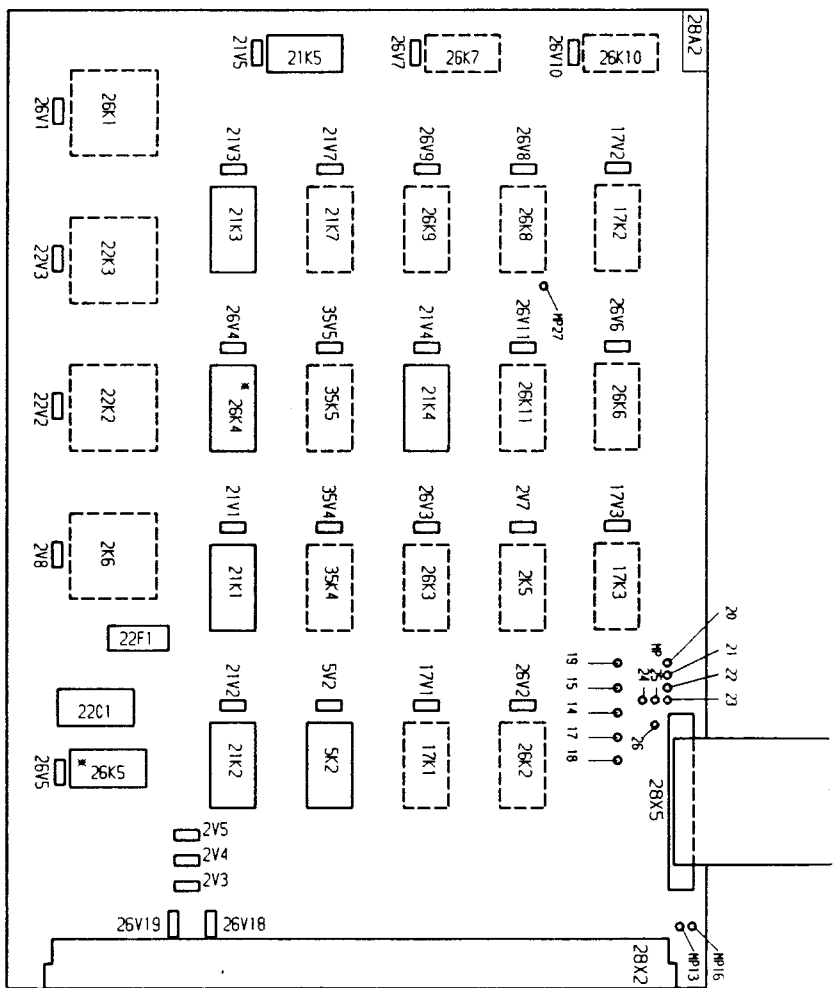
ENG/CSA

71.006904/080.AA C

page 80
94 Pg

[illegible]

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Note the protection clause DIN34



MP measuring point

* 26K4-5 only when
pallet changer

207	423	423
208	423	423
210	424	424
210	424	424
210	433	433
210	433	433
210	435	435
210	435	435
210	436	436
210	436	436
210	497	497
210	573	573
210	573	573
210	575	575
210	577	577
210	578	578
210	579	579
210	581	581
210	587	587
210	588	588
210	589	589
210	591	591
210	592	592
210	593	593
210	594	594
210	595	595
210	597	597
210	598	598
210	600	600
210	600	600
210	601	601
210	601	601
210	602	602
210	603	603
210	604	604
210	606	606
210	615	615
210	616	616
210	620	620
210	632	632
210	633	633
210	634	634

28X2

28X2

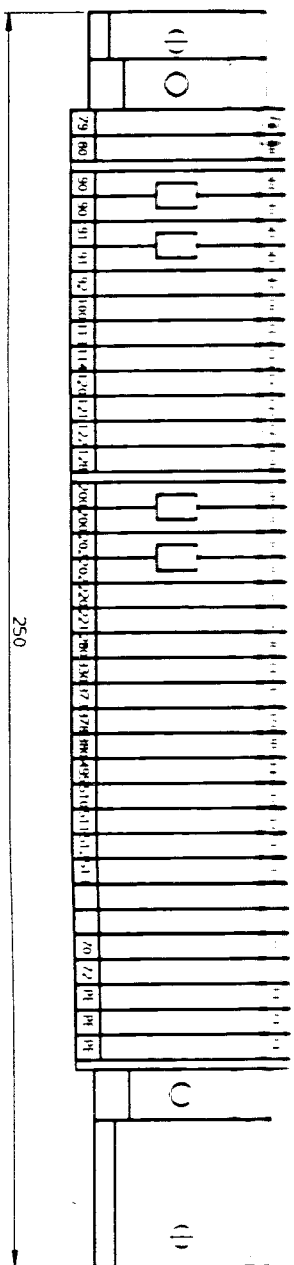
Layout of equipment
interface

MAHOMAT/SS3

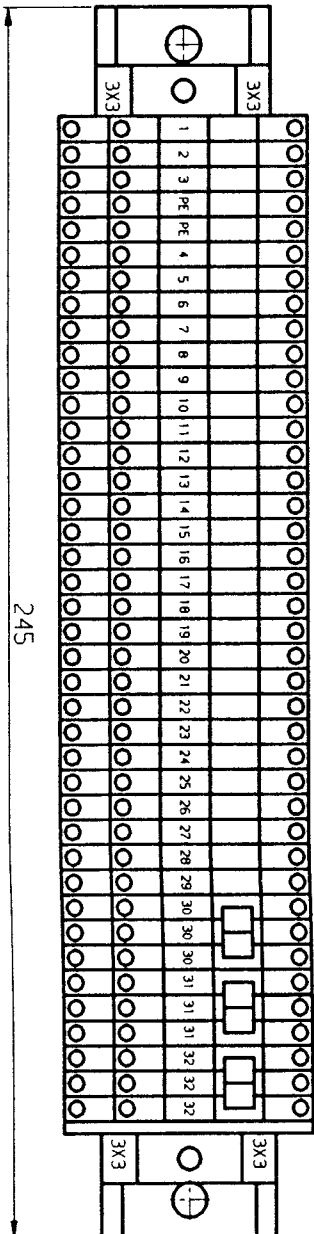
ENG/CSA 71.006904/081.AA C

Page 81
94 Pg.

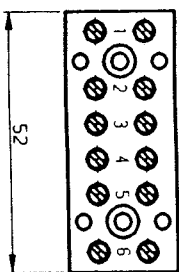
Cond.	Änderung	date	name/norm	2	3	4	5	6	7	8
		05 FEB 1990	WBR							
			check							
			WBR							
			source							
			rep. of							
			rep. by							



terminal board 3X3 hydraulic
pneumatic



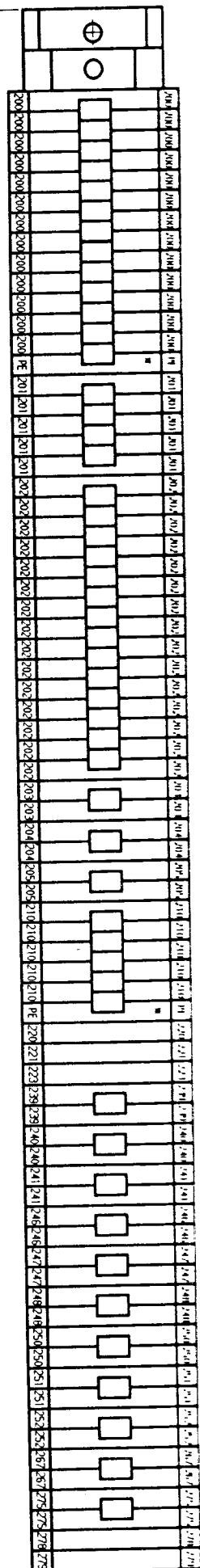
terminal board 22X2 tool magazine
terminal board 26X10 hydraulic
pallet changer



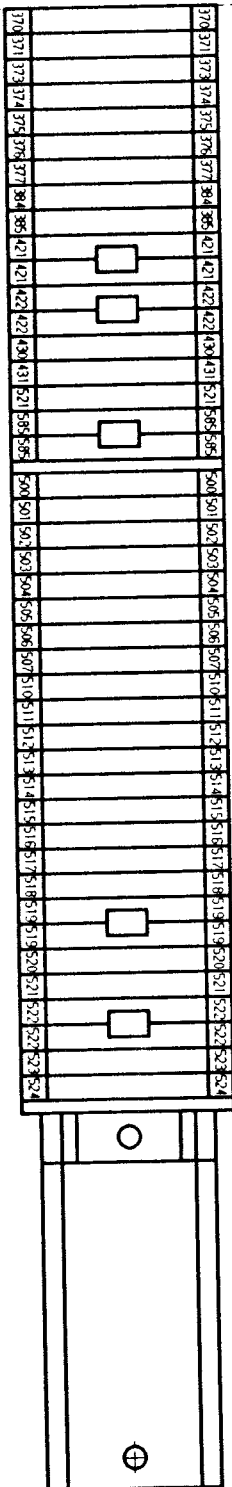
terminal board
21X3
tool changer

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Note the protection clause DIN34

cond. Andienung		date		date		05 FEB 1990		MBR		MBR		source		rep. of		rep. by		MAHOMAT/SS3		ENG/CSA		71.006904/082.AA		94 Pg.	
1		2		3		4		5		6		7		8		9		10		11		12		13	



X3



* in case of removing the ground jumper
incorporate an insulation monitor
(see VDE 0100 0 from 0 5.73/50 f.2)

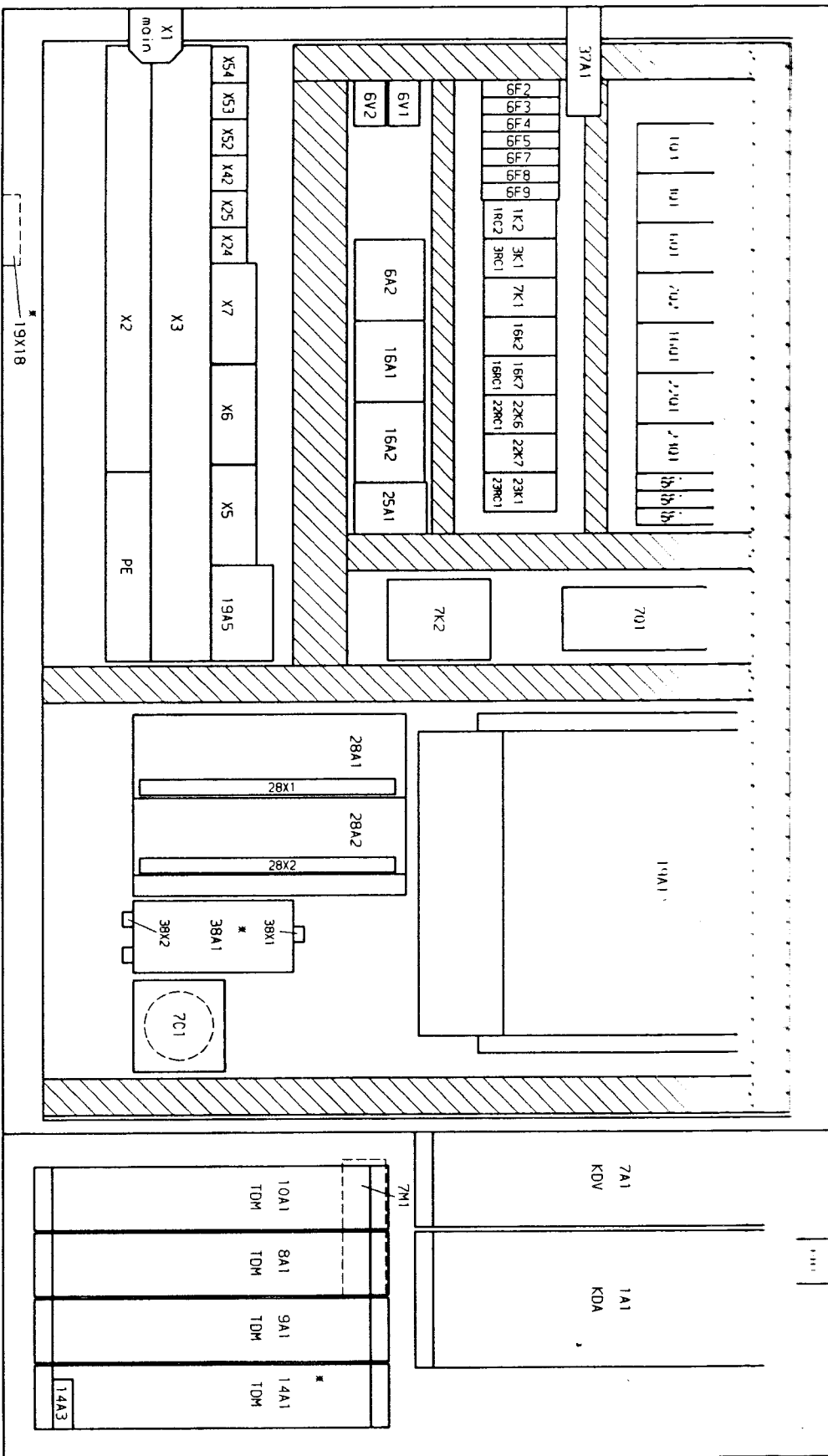
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D-8962 Pfronten.
Note the protection clause DIN 34

Cond. Änderung		date	05 FEB 1990	MAHO AKTIENGESELLSCHAFT		Layout of equipment terminal board switch cabinet		MAHOMAT/SS3		ENG/CSA 71.006904/084.AA		page 84 94 Pg.
date	drawn	check	MBR	source	rep. of	rep. by						
1	2	3	4	5	6	7	8					

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Note the protection clause DIN34

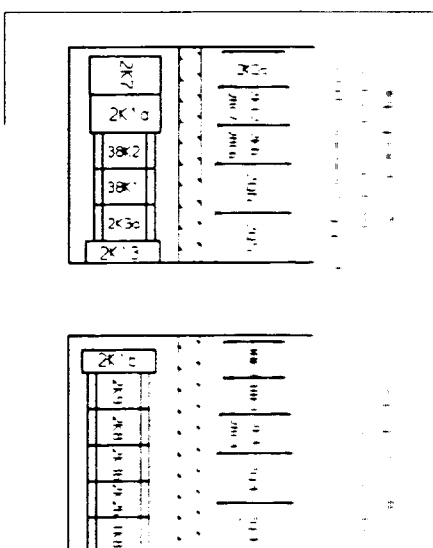
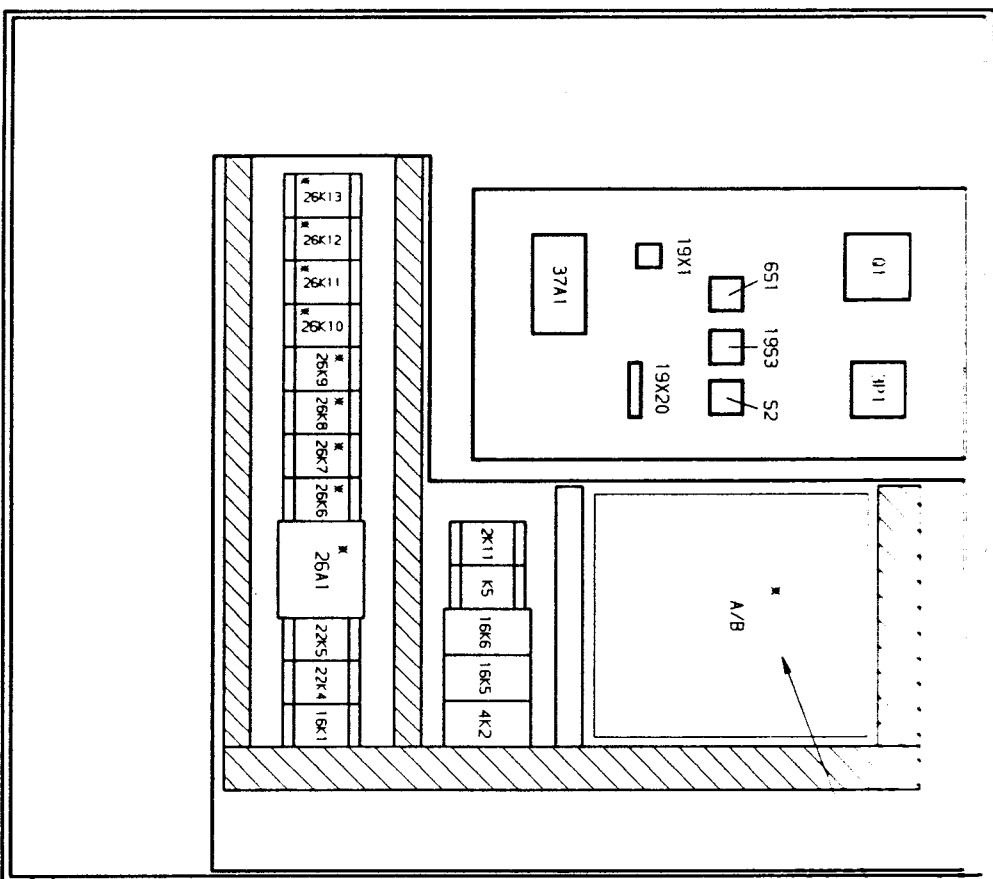
* 19X18 only when
remote control unit
3BA1 only when
measuring probe

* 14A1, 14A3 only when
NC-dividing apparatus



cond.	Änderung	date	home	norm	2	3	4	5	6	7	8
		date	drawn	check	05 FEB 1990	MBR	MBR	source	rep. of	rep. by	
MAHO AKTIENGESELLSCHAFT Layout of equipment switch cabinet											
MAHOMAT/553 = + ENG/CSA 71.006904/085.AA										page 95 94 Pg.	

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Note the protection clause DIN34



* only when pallet changer	equipment switch cabinet equip.
coolant unit 120L	2K2a, 2K6, 2K12, 2K13, 2RC6, 2RC7 205, 206
coolant unit 540L	2K1b, 2K2b, 2K3b, 2K4, 2K8 203, 204, 2RC4, 1KB, 2K9
measuring probe with coolant unit 120L	2K10, 2K30, 2K7, 3BK1, 3BK2 3BA1
measuring probe with coolant unit 540L	3BK1, 3BK2

Layout of equipment switch cabinet door

MAHOMAT/553

ENG/CSA

71.006904/086.AA

Page	86
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12.12.90

date	name	norm
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2

source	
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rep. of

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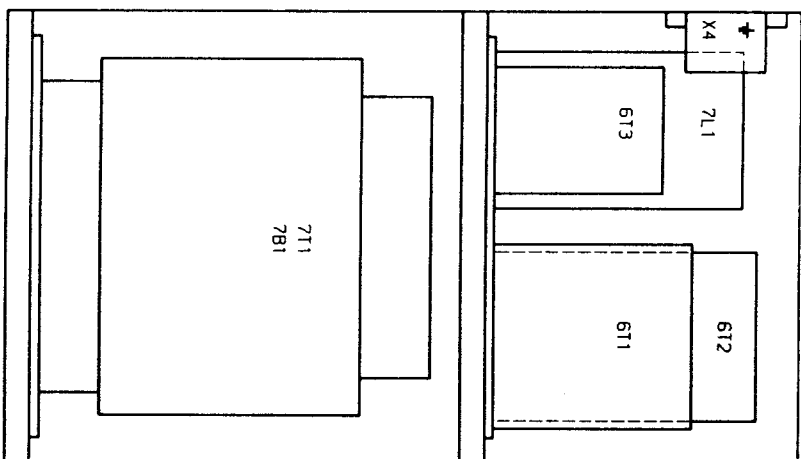
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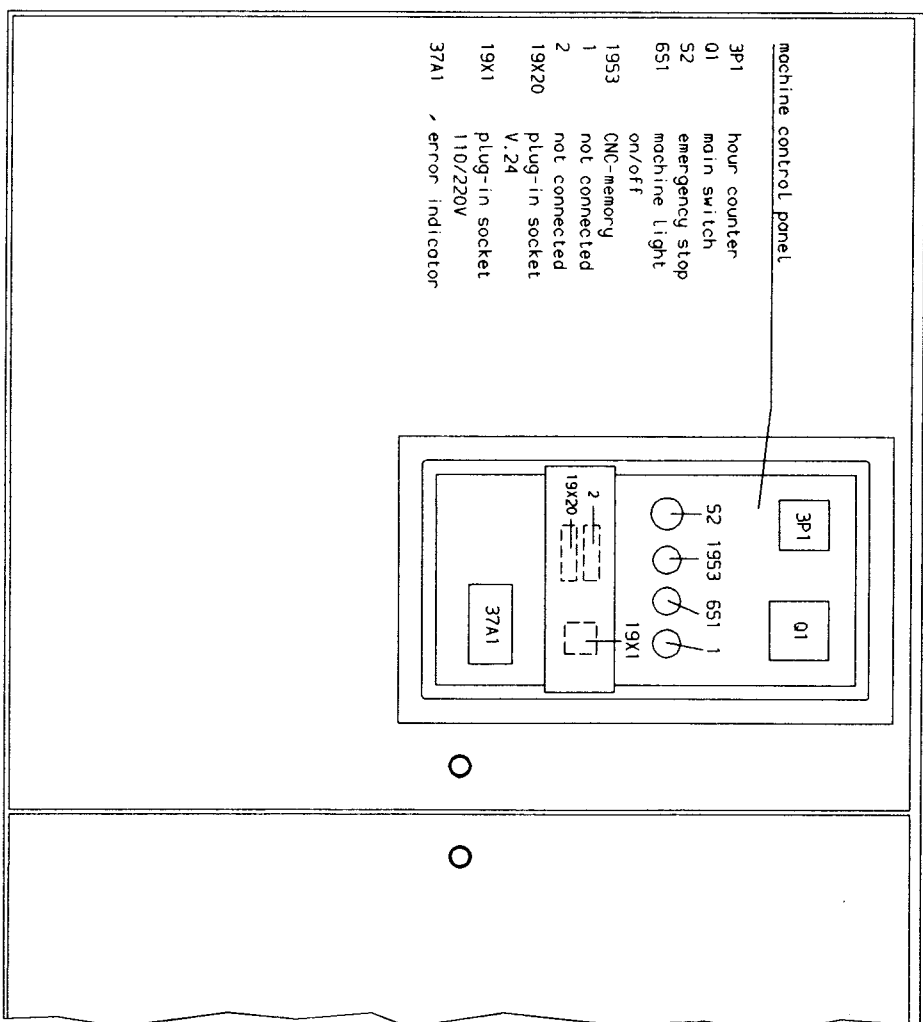
transformer room
740/400/400



transformer room
711 25kVA transformer
611 750VA transformer
612 1500VA transformer
613 500VA transformer
7L1 GLD11 smoothing choke

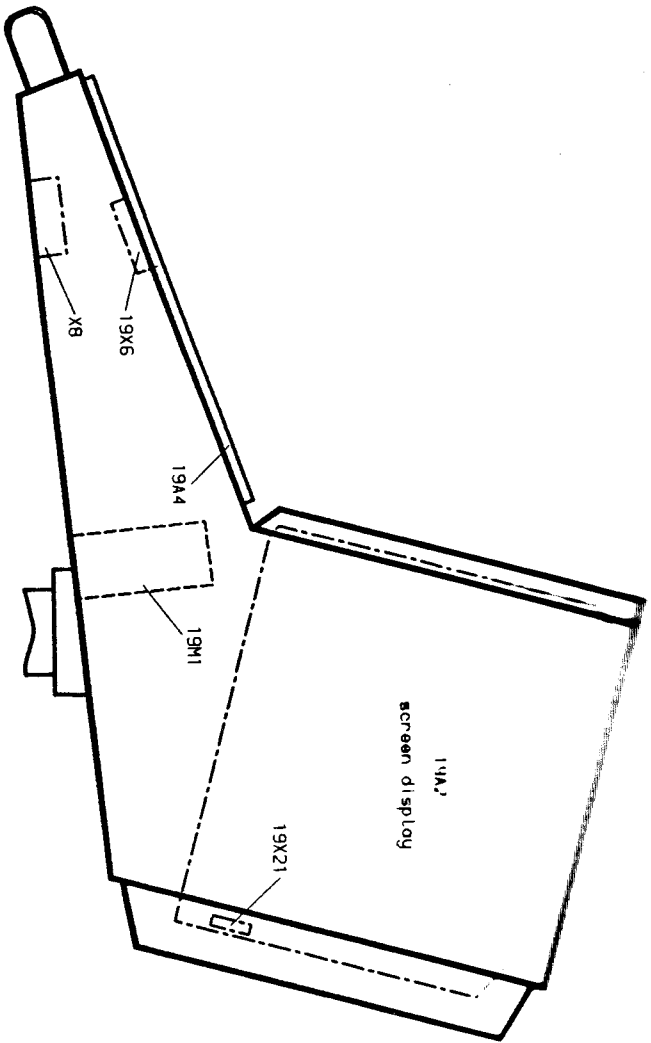
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D-8962 Pfaffenhofen.
Note the protection clause DIN34

switch cabinet
1600/920/650

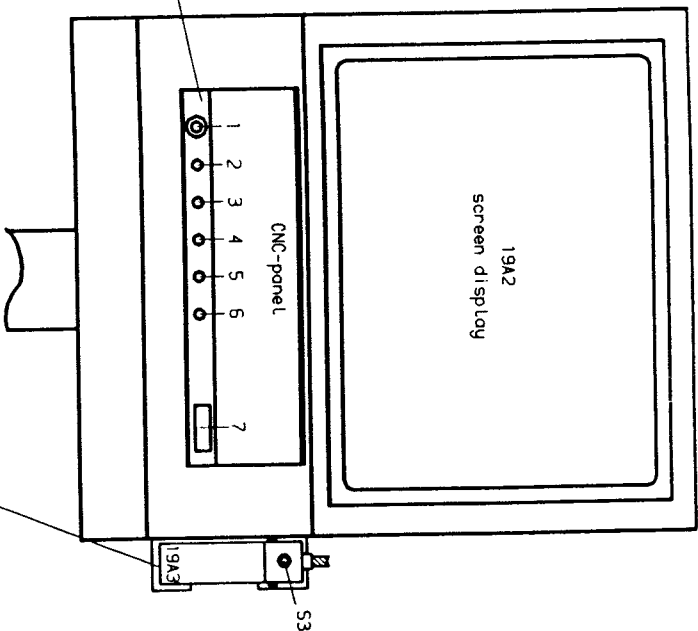


machine control panel
3P1 hour counter
01 main switch
52 emergency stop
651 machine light
1953 on/off
1 CNC-memory
2 not connected
19X20 not connected
19X1 plug-in socket
V.24
110/220V
37A1 error indicator

cond.	Änderung	date	name/norm	2	3	4	5	6	7	8
		date	drawn	05 FEB 1990						
		check	MBR							
		check	MBR							
		source								
		rep. of								
		rep. by								
		layout of equipment								
		transformer room								
		machine control panel								
		switch cabinet								
		MAHOMAT/553								
		ENG/CSA								
		71.006904/087.AA								
		page 87								
		94 Pg.								



- machine control panel
- 1 S1 emergency stop
 - 2 3SH1 machine on
 - 3 37H1 error message
 - 4 16S10 selection of
 - 5 2S1 setting up
 - 6 26SH1 chip rinsing
 - 7 1P1 on/off
 - release
 - pallet changer
 - only when
 - pallet changer
 - load indicator
 - main drive



remote control unit
only when required

S3 emergency stop

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Note the protection clause DIN34

cond.	12.12.90	date	05 FEB 1990	MBR	MBR	source	3	rep. of	4	rep. by	5	MAHOMAT/553	ENG/CSA	71.006904/088.AA C	page 88	94 Pg.
Aenderung	2	date		check	MBR											

MAHO
AKTIENGESellschaft

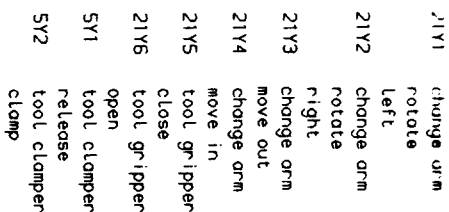
layout of equipment
control station
remote control unit

ENG/CSA

71.006904/088.AA C

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26Y1	only when required pallet clamping release
26Y2	pallet clamping clamp
26Y3	pallet changer upward motion
26Y4	pallet changer downward motion
26Y5	pallet changer 0° swivel
26Y6	pallet changer 180° swivel
26X9	plug pallet changer
26X10	terminal box pallet changer

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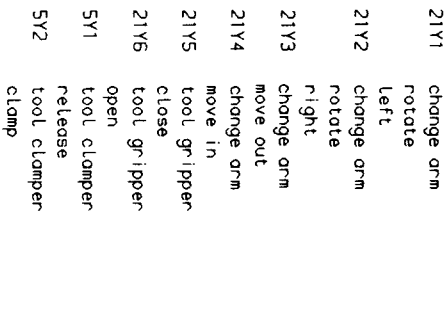
Layout of equipment hydraulic lubrication

МАНОМАТ/553

ENG/CSA	71.006904/089.AA
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valves hydraulic

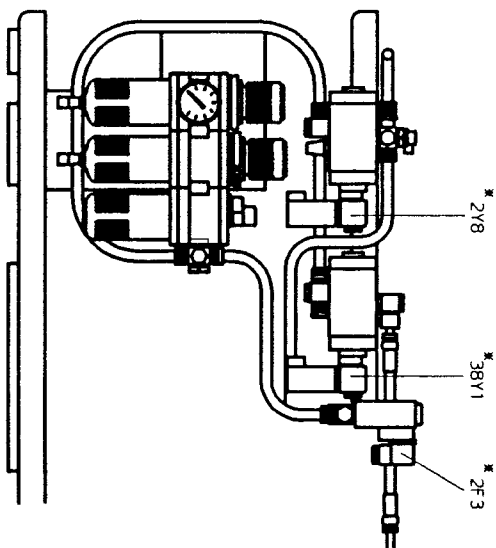
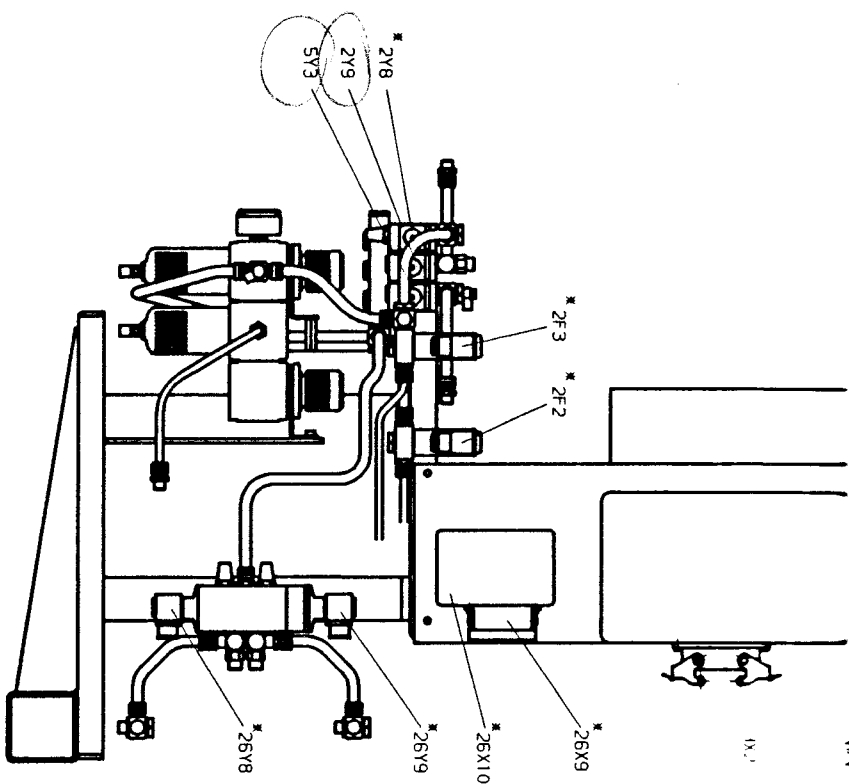


- * only when required

14Y1	NC-dividing apparatus clamping
14F1	release pressure control clamping
26X9	NC-dividing apparatus plug pallet changer
26X10	terminal box pallet changer

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Note the protection clause DIN 34



*only when required

2Y9	coolant
5Y3	chip rinsing blow out tool cone blow out

2Y8	release
26Y7	rotary transmission
26Y8	pollet cleaning
26Y9	cabin window
38Y1	open
	cabin window
	close
	measuring point
	blow off

2F2	pressure control pneumatic
2F3	rotary transmission pressure control pneumatic tool clamping
26X10	terminal box pallet changer

26X9 plug pallet changer

MAHO

layout of equipment
pneumatic

МАНОМАТ/553

ENG/CSA	71.006904/091.AA
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12.12.90

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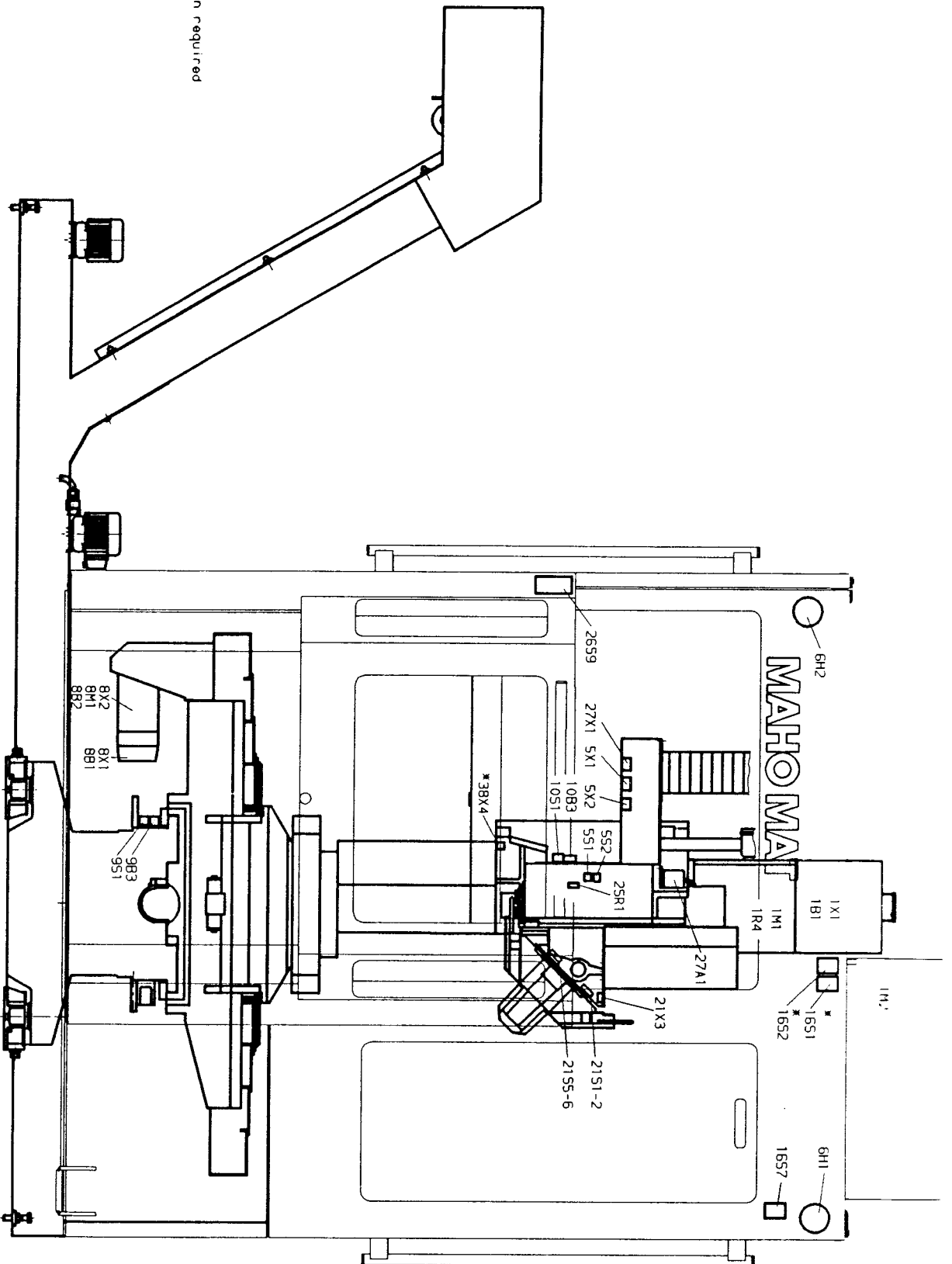
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D-8962 Pfaffenhofen
Note the protection clause DIN84

* only when required



MAHO
AKTIENGESELLSCHAFT

Layout of equipment
machine

MAHOMAT/553

ENG/CSA 71.006904/092.AA

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12.12.90

1

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name

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date

source

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rep. of

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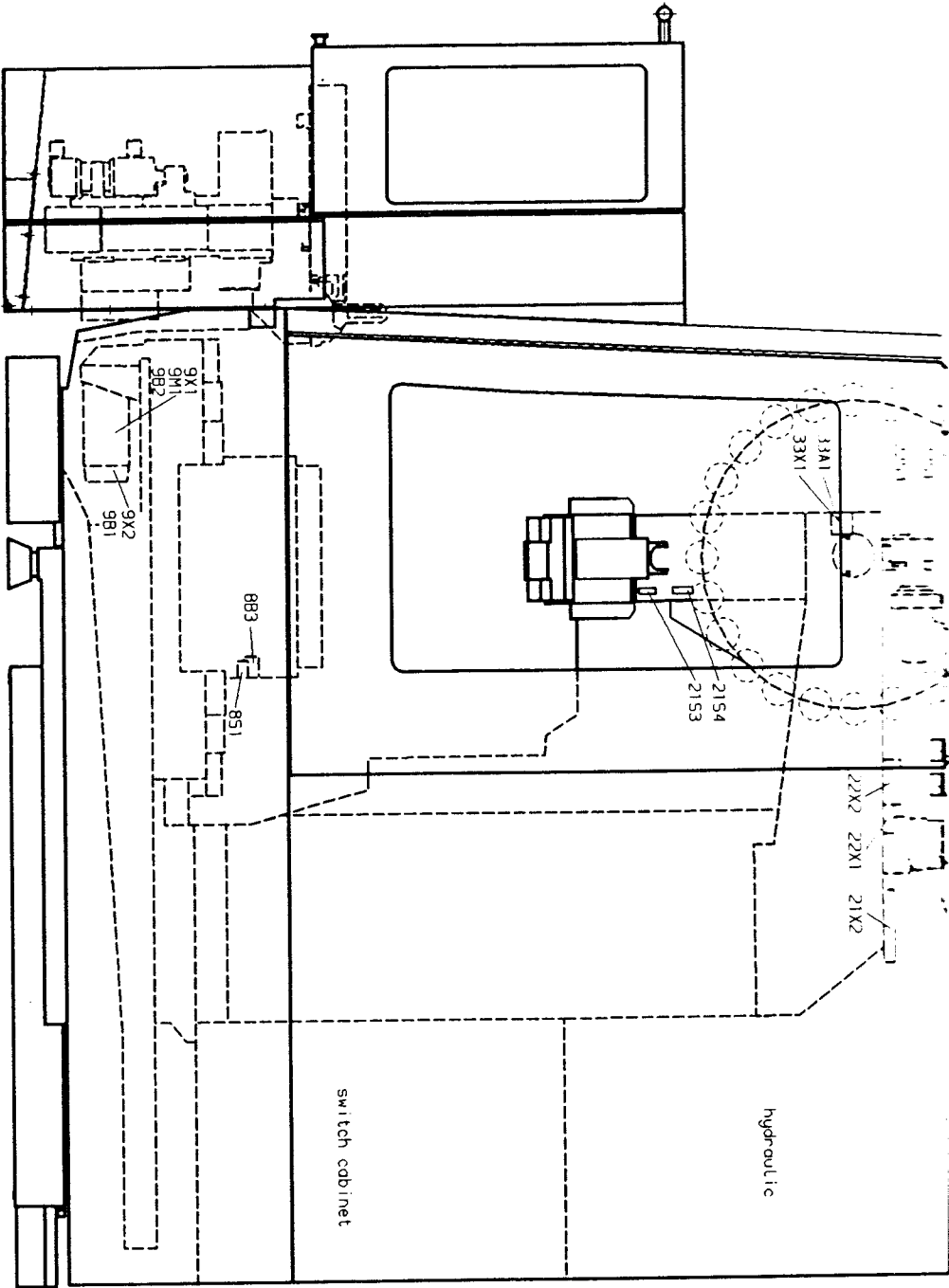
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D-8962 Pfronen.
Note the protection clause DIN34



cond	1	2	3	4	5	6	7	8
Änderung	date	name	norm	source	rep. of	rep. by		
	05 FEB 1990	WBR	WBR					
		drawn	check					
MAHO AKTIENGESELLSCHAFT				Layout of equipment machine				MAHOMAT/553
								ENG/CSA 71.006904/093.AA
								page 1/1

/CSA	71
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DATE 08-11-2009 BY 60322 UCBAW/BJS/STP

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Form

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MAHOMAT/553

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MAHOMAT

1

1A1	AC motor drive modulator	KVA 1.2 100 1 ACHS W1	Indramat	27.072002	only when required
1A1	modul	A911/010 001 2AD 132/KVA 1.2 100	Indramat	27.072006	
4A1	gear oil pump unit	122 066 303 110/220V 60/60Hz	Vogel	27.074003	
6A1	voltage stabilizer	220V 260VA 50Hz SD250	Kuhnke	27.070215	only when required
6A1	voltage stabilizer	220V 260VA 60Hz SD250	Kuhnke	27.070216	only when required
6A2	NOT-AUS Schaltergeraet	PST 3 110V WS	Pilz	27.073863	
7A1	AC-power supply modul	KDV 2.2-100-220/300-220	Indramat	27.073460	
8A1	AC-drive modul	TDM 3.2-20-300-WO	Indramat	27.071445	
	modul	MOD 14/1X 019-094	Indramat	27.071601	
9A1	AC-drive modul	TDM 3.2-20-300-WO	Indramat	27.071445	
	modul	MOD 14/1X 019-094	Indramat	27.071601	
10A1	AC-drive modul	TDM 3.2-20-300-WO	Indramat	27.071445	
	modul	MOD 14/1X 023-094	Indramat	27.071458	
14A1	AC-drive modul	MOD 3.2-20-300-WO	Indramat	27.071445	only when required
	modul	MOD 14/1X 019-092 71 A-O-ES-2/3.2	Indramat	27.071784	only when required
14A3	circuit board	RF-Achse 8407.115A	El.Product	27.069167	
16A1	safety gate monitor	PST 3 110V WS	Pilz	27.073863	
16A2	safety gate monitor	PST 3 110V WS	Pilz	27.073863	
19A1	CNC-control	CNC 432/15 I/PLC 3-Achsen RM/RM 1 I/O V700	Philips	82.133175	
19A1	CNC-control	CNC 432/15 I/PLC 3-Achsen RM/RM EXPORT	Philips	81.133715	
19A3	remote control unit	432/10 4022 226 38500 10M	Philips	27.070702	only when required
19A5	adapter	EP 264	El.Product	27.072450	
19A6	impulse shaper	EXE-Platine 3-Achsen Nr.255 455 01	Heidenhain	27.073576	
25A1	temp. measuring device	ADC 08S-1	El.Product	27.070611	
26A1	safety gate monitor	PST 3 110V WS	Pilz	27.073863	only when required
28A1	circuit board	8603.163B	El.Product	27.071748	
28A2	circuit board	8603.164B	El.Product	27.071749	
33A3	tool breakage control		Ott	27.070732	only when required
37A1	error indicator	SM-16 110V 16x24V	El.Product	27.071743	
38A1	adaptation unit	APE 511 237 586 01	Heidenhain	27.070890	only when required
38A2	modul	SE 520 ISO 40	Heidenhain	93.001021	only when required
6B1	temperature sensor	08602.160G OE 48Gr.	El.Product	27.070613	
27B1	rotary transducer	R0D 426-018 1024 Striche	Heidenhain	27.068016	

cond.	alterat.	date	name	room	source	rep. of	rep. by	MAHOMAT/553	ENG/CSA	71.006904/GL.AA	page 1
		05.11.1990	check	WER							9 Pt.

MAHO
AKTUELLISCHAF

EQUIPMENT LIST

Pos.	Bezeichnung	Technische Daten	Hersteller	Bestell-Nr.	Montagehinweise
1C1	Elektrolytischer Kondensator	1000 µF/100 V 50°C	Siemens	27.073102	
1C1	Kondensator	C2 02 2 millifarad	Indramat	27.070174	
2F2	Druckschalter	PEV-1/4	Fest	27.067270	
2F3	Druckschalter	PEV-1/4	Fest	27.067270	
6F1	Automatischer Auslassventil	E83 U 3 pol. 20A	AEG	27.068553	
6F2	Automatischer Auslassventil	E81 U 1 pol. 2A	AEG	27.068536	
6F3	Automatischer Auslassventil	E81 U 1 pol. 2A	AEG	27.068536	
6F4	Automatischer Auslassventil	E81 U 1 pol. 6A	AEG	27.068539	
6F5	Automatischer Auslassventil	E81 U 1 pol. 6A	AEG	27.068539	
6F7	Automatischer Auslassventil	E81 U 1 pol. 10A	AEG	27.068540	
6F8	Automatischer Auslassventil	E81 U 1 pol. 6A	AEG	27.068539	
6F9	Automatischer Auslassventil	E81 U 1 pol. 6A	AEG	27.068539	
6H1	Leuchte	220V 50/60Hz DWD V208 610063000	Waldmann	93.001031	
6H2	Leuchte	220V 50/60Hz DWD V208 610063000	Waldmann	93.001031	
37H1	Leuchte	rot 3SB 1001-68C 06	Siemens	27.066046	
37H1	Leuchte	Lampe 43mm 3SB14 30-2A	Siemens	27.071957	
37H1	Leuchte	110/130V 20mA		27.055550	
K3	Relais	24V GS 5A ZL 040 024	Schrack	27.059825	
K4	Relais	24V GS 5A ZL 040 024	Schrack	27.059825	
K5	Relais	24V GS 10A RL 900 512	Schrack	27.067423	
1K2	Relais	110V 50/60Hz 3TB 4017 0AG1	Siemens	27.059087	
1K7	Relais	24V GS 5A ZL 040 024	Schrack	27.059825	
1K8	Relais	24V GS 10A RL 900 512	Schrack	27.067423	
2K1a	Relais	0.5-10 sek. PF-1SK10 110V 2UZ	Pilz	27.061216	
2K1b	Relais	ZVS 10/110V 50/60Hz	Pilz	27.069629	
2K2a	Relais	24V GS 10A RL 900 512	Schrack	27.067423	
2K2b	Relais	24V GS 10A RL 900 512	Schrack	27.067423	
2K3a	Relais	24V GS 10A RL 900 512	Schrack	27.067423	
2K3b	Relais	24V GS 10A RL 900 512	Schrack	27.067423	
2K4	Relais	110V 50/60Hz 3TB 4017 0AG1	Siemens	27.059087	

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MAHO AIRCRAFT
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MAHO AIRCRAFT

ITEM	DESCRIPTION	INITIAL ACTION	MAHO AIRCRAFT	TURN IN NO.	REMARKS
2K6	air-break contactor	110V 60/60Hz 3TB 4017 OAG1	Siemens	27.069002	only when required
2K7	timing relay	0.6-10 sek. PI-1NK 24V DC 2U2	PLZ	27.069002	only when required
2K8	switching relay	24V GS 10A RL 900 512	Schrack	27.067423	only when required
2K9	switching relay	24V GS 10A RL 900 512	Schrack	27.067423	only when required
2K11	switching relay	24V GS 10A RL 900 512	Schrack	27.067423	only when required
2K12	air-break contactor	110V 50/60Hz 3TB 4010 OAG1	Siemens	27.070656	
2K13	impulse generator	15sec-640min SBT 24V= 220V 50/60Hz	Eberle	27.073626	
3K1	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
4K1	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
4K2	air-break contactor	110V 50/60Hz 3TB 4010 OAG1	Siemens	27.070656	
5K1	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
5K2	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
7K1	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
7K2	air-break contactor	110V 50/60Hz 3TF48 22-0AG2	Siemens	27.073700	
14K1	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
16K1	switching relay	24V GS 10A RL 900 512	Schrack	27.067423	
16K2	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
16K5	air-break contactor	3TF 2001 OFB4 24V GS/1,2W	Siemens	27.073597	
16K6	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
16K7	air-break contactor	110V 50/60Hz 3TB 4010 OAG1	Siemens	27.070656	
19K1	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
21K1	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
21K2	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
21K3	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
21K4	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
21K5	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
22K1	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	
22K4	switching relay	24V GS 10A RL 900 512	Schrack	27.067423	
22K5	switching relay	24V GS 10A RL 900 512	Schrack	27.067423	
22K6	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
22K7	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
23K1	air-break contactor	110V 50/60Hz 3TB 4017 OAG1	Siemens	27.059087	
26K4	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	only when required
26K5	cradle relay	24V GS 5A ZL 040 024	Schrack	27.059825	only when required

Coord. aircraft:	date	name	room	source	rep. of	rep. by	MAHO AUTOMATISCH	EQUIPMENT LIST	MAHOMAT/553	ENG/CSA	71.006904/GL.AA	1/1
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HAIR

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1		2		3		4		5		6		7	
ITEM		DESCRIPTION		INDICATION		MANUFACTURER		IDENT-NO.		REMARK			
11M1	quenching element	HRC 3/047-400	23002	Murr	27.069631								
11M2	quenching element	RC-S01/220	110/220V	Murr	27.059816								
11M3	quenching element	RC-S01/220	110/220V	Murr	27.059816								
23RC1	quenching element	HRC 3/047-400	23002	Murr	27.069631								
23RC2	quenching element	RC-S01/220	110/220V	Murr	27.059816								
S1	emergency stop	Pilzdrucktaster	3SB10-00-1AC01	Siemens	27.063798								
S1	circuit element	10E 43MM	3SB14-30-OC	Siemens	27.071956								
S2	emergency stop	Pilzdrucktaster	3SB10-00-1AC01	Siemens	27.063798								
S2	circuit element	10E 43MM	3SB14-30-OC	Siemens	27.071956								
2S1	push-button	3SB10	00-2AB01	Siemens	27.063802								
2S1	circuit element	1S	43MM 3SB14	30-08	Siemens	27.071955							
5S1	approximating switch	BES 516-133-SA3		Balluff	27.068535								
5S2	approximating switch	BES 516-133-SA3		Balluff	27.068535								
6S1	push-button	3SB10	00-2AB01	Siemens	27.063802								
6S1	circuit element	1S	43MM 3SB14	30-08	Siemens	27.071955							
8S1	position switch	N1 A	K502	Euchner	27.068395								
9S1	position switch	N1 A	K502	Euchner	27.068395								
10S1	position switch	N1 A	K502	Euchner	27.068395								
16S1	position switch	T4VH	336-11Z	Schmersal	27.073770								
16S2	position switch	T4VH	336-11Z	Schmersal	27.073770								
16S3	position switch	T4VH	336-11Z	Schmersal	27.073770								
16S4	position switch	T4VH	336-11Z	Schmersal	27.073770								
16S5	position switch	T4VH	336-11Z	Schmersal	27.073770								
16S6	position switch	T4VH	336-11Z	Schmersal	27.073770								
16S7	position switch	AZ 15	ZVR Spez. 1871	Schmersal	27.069021								
16S10	key switch	3SB10	00-4LA01	CES	27.066990								
16S10	circuit element	1S	43MM 3SB14	30-08	Siemens	27.071955							
19S3	key switch	3SB10	00-4LA01	CES	27.066990								
19S3	circuit element	10E 43MM	3SB14	30-OC	Siemens	27.071956							
21S1	approximating switch	BES 516-133-SA3		Balluff	27.068535								
21S2	approximating switch	BES 516-133-SA3		Balluff	27.068535								
21S3	approximating switch	BES 516-133-SA3		Balluff	27.068535								
21S4	approximating switch	BES 516-133-SA3		Balluff	27.068535								

Contd.	alterec.	date	name	room	source	rep. of	rep. by	MAHO	EQUIPMENT LIST	MAHOMAT/553	ENG/CSA	71.006904/OL.AA	page 6
		05 JUL 1990						ATTENTION: MAHO					

DESCRIPTION

INDICATION

MANUFACTURER

ITEM NO

REMARK

21S5	approximating switch	UES 616-133-SA3	Balluff	27.068535	nur bei Bedarf
21S6	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
22S1	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
22S3	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S3	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S4	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S5	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S6	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S7	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S8	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S9	safety switch	AZ 15 ZVR Spez. 1871	Schmersal	27.069021	nur bei Bedarf
26S10	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
26S11	approximating switch	BES 516-133-SA3	Balluff	27.068535	nur bei Bedarf
3SH1	lum. headed press button	3SB10 00-0AH01	Siemens	27.063804	only when required
3SH1	circuit element	Lampe 43MM 3SB14 30-2A	Siemens	27.071957	
3SH1	circuit element	10E 43MM 3SB14 30-0C	Siemens	27.071956	
3SH1	circuit element	1S 43MM 3SB14 30-0B	Siemens	27.071955	
3SH1	bulb	110/130V 20 mA		27.055550	
26SH1	lum. headed press button	3SB10 00-0AH01	Siemens	27.063804	
26SH1	circuit element	Lampe 43MM 3SB14 30-2A	Siemens	27.071957	
26SH1	circuit element	1S 43MM 3SB14 30-0B	Siemens	27.071955	
26SH1	lamp	42V BA 9S 2W		27.061663	
6T1	control transformer	750 VA 220/380V Sek.3x19V	Schuster	23.059047	
6T2	control transformer	1500 VA 380V Sek.110/220V	Schuster	23.063464	
6T3	control transformer	500 VA 380V Sek.110/220V	Schuster	23.068269	
7T1	rot.cur.economy transf.	25 KVA 380V Sek.220V	Schuster	23.063808	
2V4	quenching element	Dioden-Loeschglied LG-S 01 24-220V	Murr	27.064960	only when required
2V12	utensil socket	MSD 4 Nr.40R04.1511 M7A1	Klar&Beilschmidt	27.069902	
2V13	quenching element	Dioden-Loeschglied LG-S 01 24-220V	Murr	27.064960	
2V18	utensil socket	MSD 4 Nr.40R04.1511 M7A1	Klar&Beilschmidt	27.069902	only when required
5V3	utensil socket	MSD 4 Nr.40R04.1511 M7A1	Klar&Beilschmidt	27.069902	only when required
5V4	utensil socket	MSD 4 Nr.40R04.1511 M7A1	Klar&Beilschmidt	27.069902	only when required

Coord.	alterat.	date	name from	source	rep. of	rep. by	MAHO	EQUIPMENT LIST	MAHOMAT/553	ENG/CSA	71.006904/QL.AA	page 7
							ATZINGER/SCHAU					9

