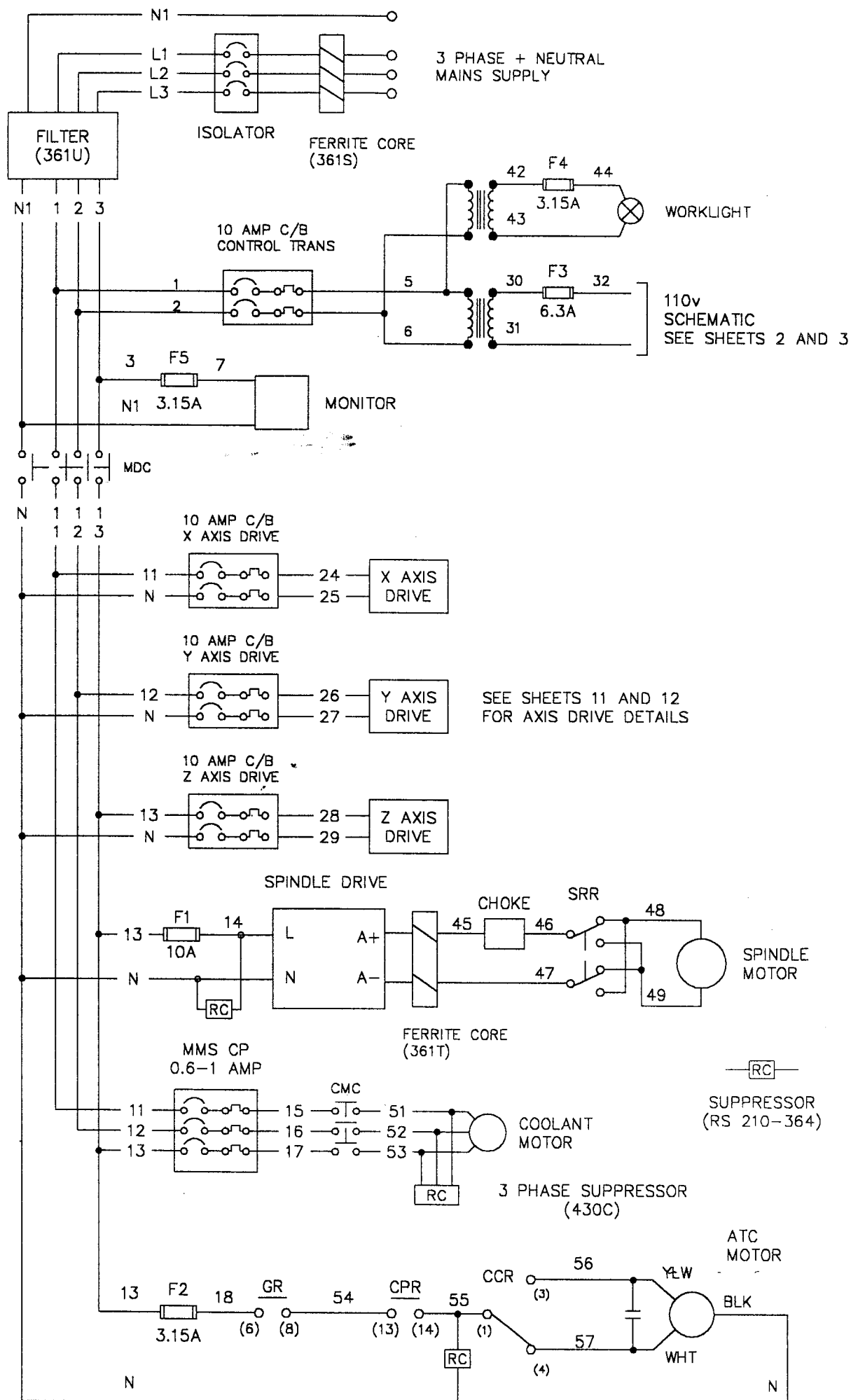


TRIAC VMC SERVO
22-5-97

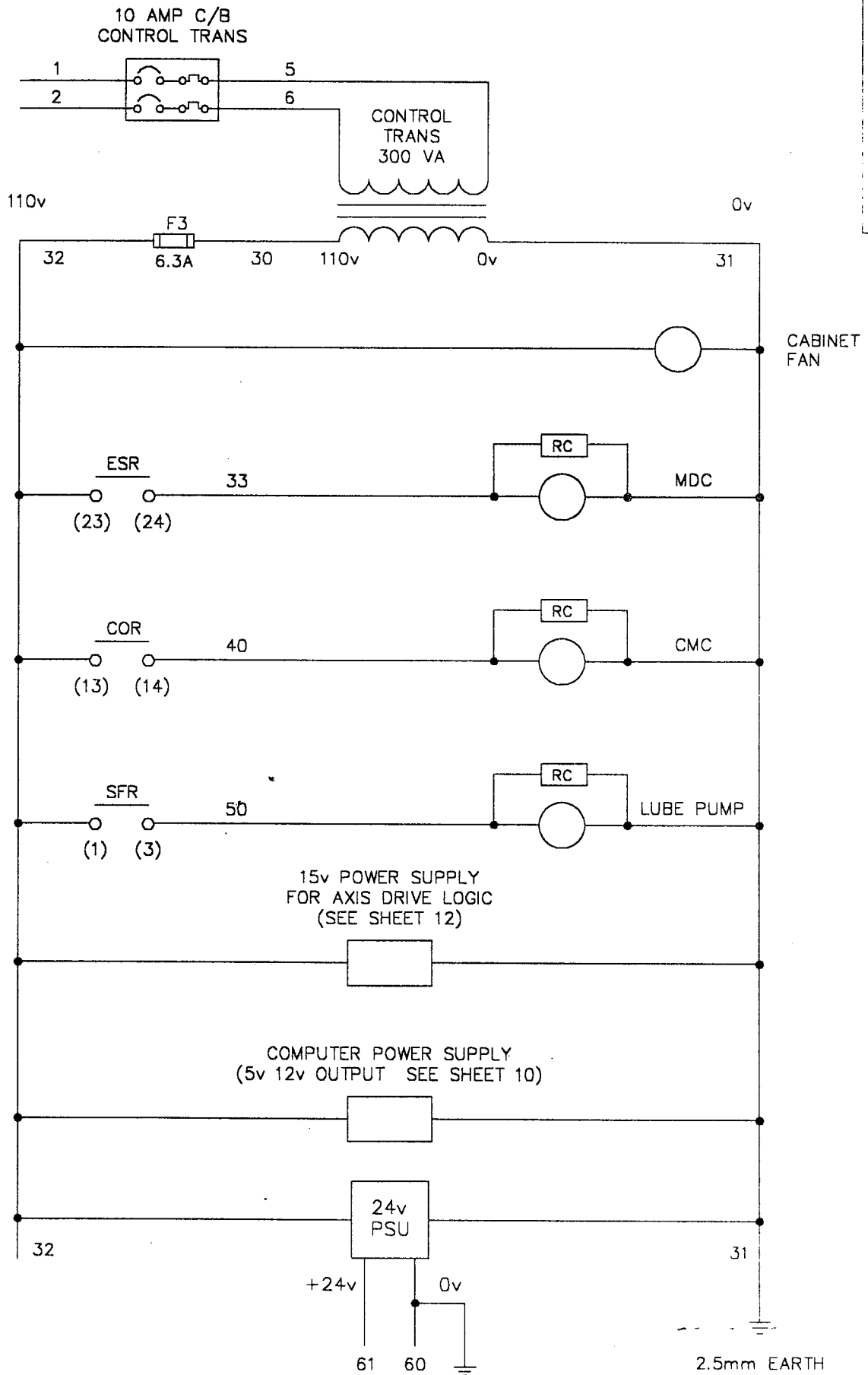
<u>SHEET No</u>	<u>DRAWING No</u>	<u>DRAWING TITLE</u>
SHEET 1	TVS-01	MAIN POWER SCHEMATIC
SHEET 2	TVS-02	110v SCHEMATIC
SHEET 3	TVS-03	110v SCHEMATIC - SOLENOIDS
SHEET 4	TVS-04	STANDARD I/O UNIT PINS 1 TO 25
SHEET 5	TVS-05	STANDARD I/O UNIT PINS 26 TO 50
SHEET 6	TVS-06	PANEL LAYOUT
SHEET 7	TVS-07	TERMINAL AND RELAY WIRING
SHEET 8	TVS-08	CONTACTOR AND TRANSFORMER WIRING
SHEET 9	TVS-09	EMERGENCY STOP CIRCUIT
SHEET 10	TVS-10	OPTIMISED RACK DETAILS
SHEET 11	TVS-11	HMK AXIS DRIVE CONNECTIONS
SHEET 12	TVS-12	RACK TO AXIS DRIVE SIGNALS
SHEET 13	TVS-13	SPINDLE DRIVE DETAILS
SHEET 14	TVS-14	ADDITIONAL I/O FOR OPTIONS
SHEET 15	TVS-15	COMPUTER CONNECTIONS
SHEET 16	TVS-16	OPERATORS PANEL DIAGRAM
SHEET 17	TVS-17	SPINDLE MOTOR AND SWITCH WIRING
SHEET 18	TVS-18	ATC WIRING
SHEET 19	TVS-19	GUARD INTERLOCK WIRING

TRIAC VMC SERVO
POWER SCHEMATIC
HMK DRIVES

SHEET 1

VMCSERVO

IF IN DOUBT ASK



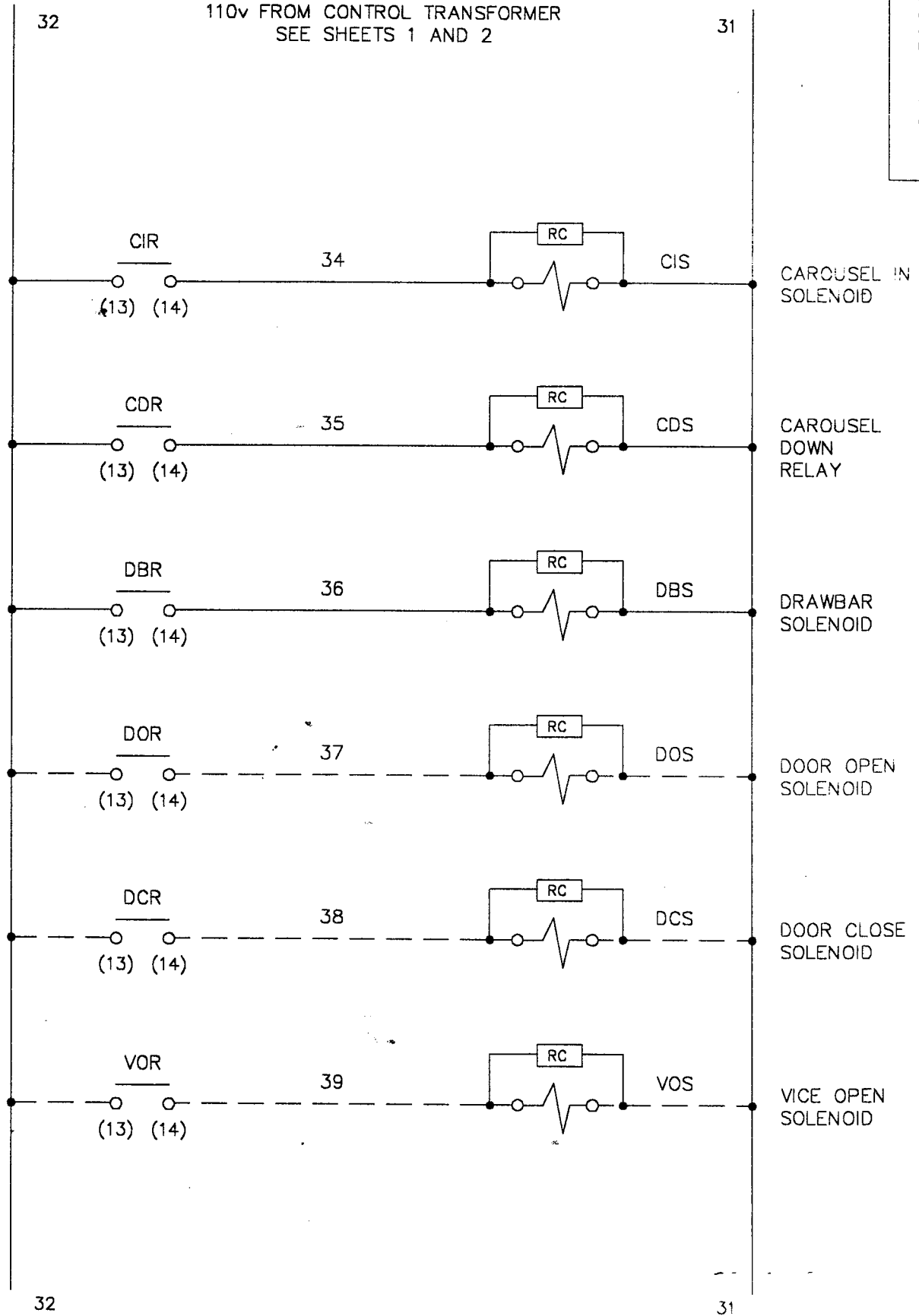
SEE SHEET 3 FOR
SOLENOID WIRING

IF IN DOUBT ASK

110v

0v

110v FROM CONTROL TRANSFORMER
SEE SHEETS 1 AND 2

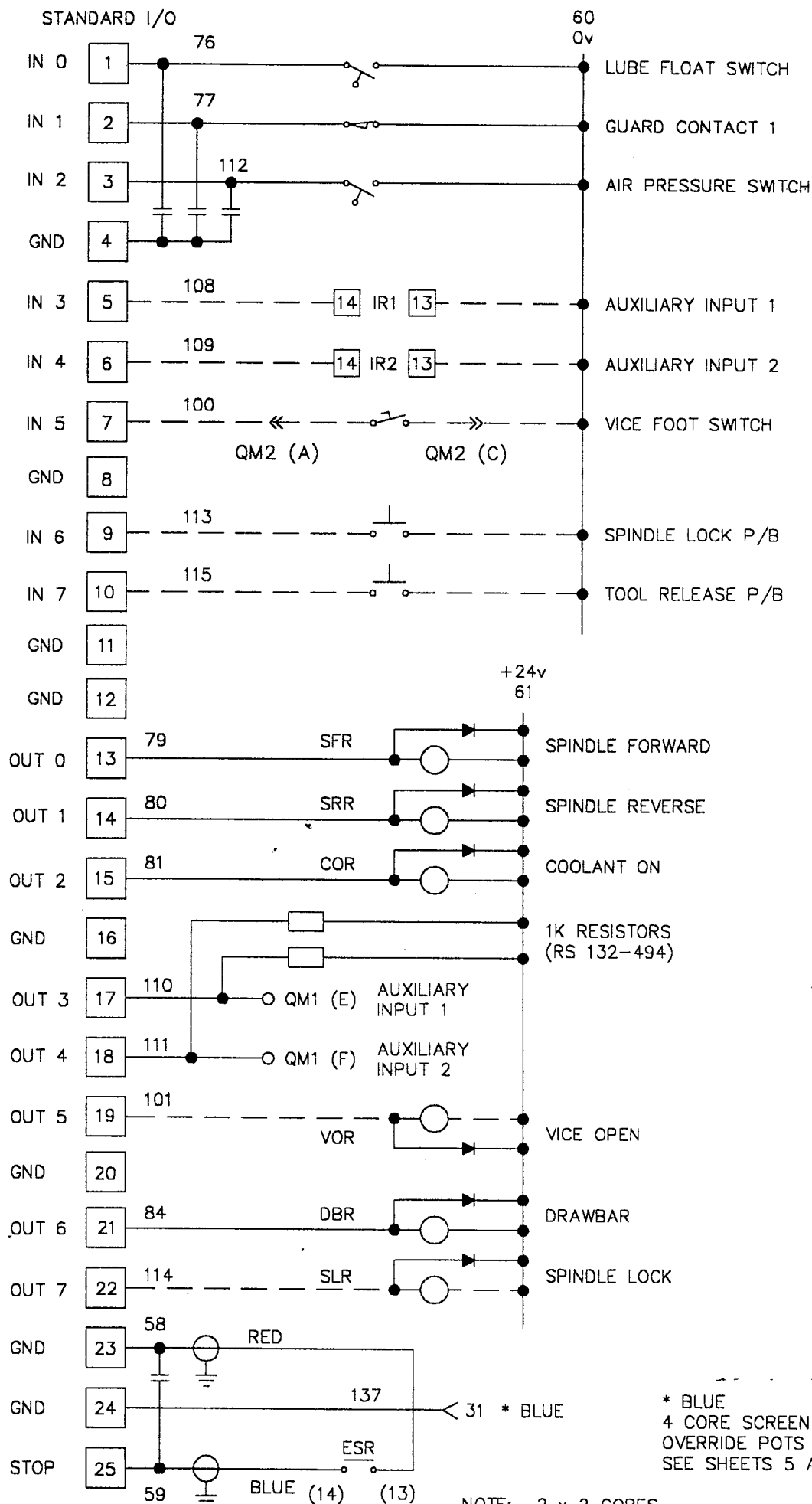


TRIAC VMC SERVO
110v SCHEMATIC
SOLENOIDS

SHEET 3
VMCSERVO

IF IN DOUBT ASK

42 WAY CONNECTOR
TO MONITOR HOUSING
SEE SHEET 16



NOTE: 2 x 2 CORES
FROM ESR

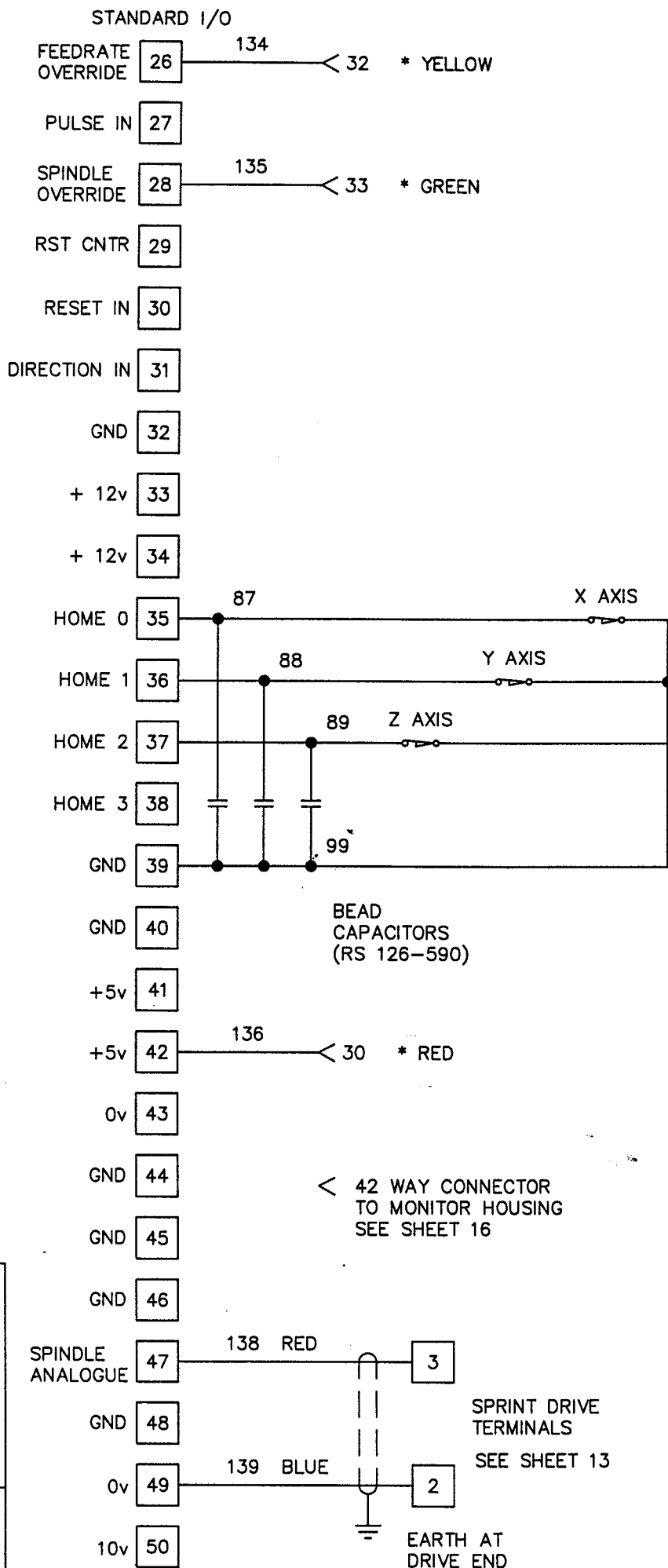
* BLUE
4 CORE SCREEN FROM
OVERRIDE POTS
SEE SHEETS 5 AND 16

BEAD CAPACITORS
(RS 126-590)

TRIAC VMC SERVO
STANDARD I/O
PINS 1-25

SHEET 4
VMCSERVO

IF IN DOUBT ASK




* RED
* GREEN
* YELLOW
4 CORE SCREEN FROM
OVERRIDE POTS
SEE SHEETS 4 AND 16

GR	SRR	SFR	DER	ESR
----	-----	-----	-----	-----

RELAYS	CCR	6 1 R	5 FUSES	TERMINALS
--------	-----	-------------	------------	-----------

STD I/O UNIT	ADD I/O UNIT	24V PSU	COMPUTER PSU
-----------------	-----------------	------------	-----------------

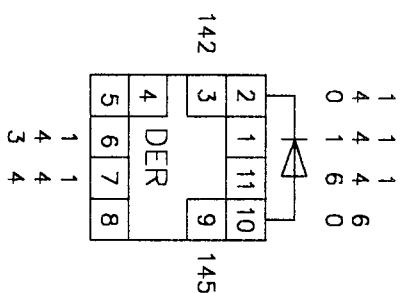
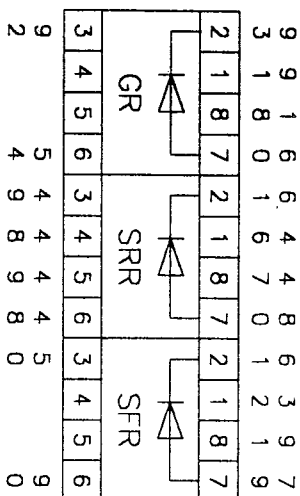
OPTIMISED RACK			
-------------------	--	--	--

MDC		CMC	CP MMS	CT C/B	X C/B	Y C/B	Z C/B
-----	---	-----	-----------	-----------	----------	----------	----------

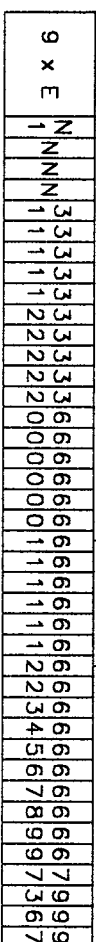
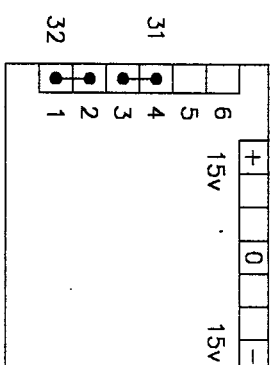
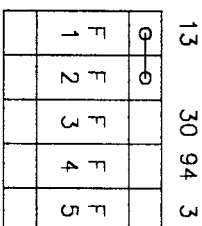
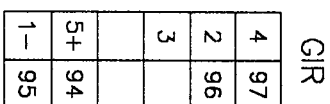
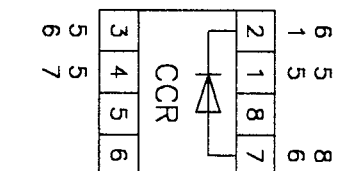
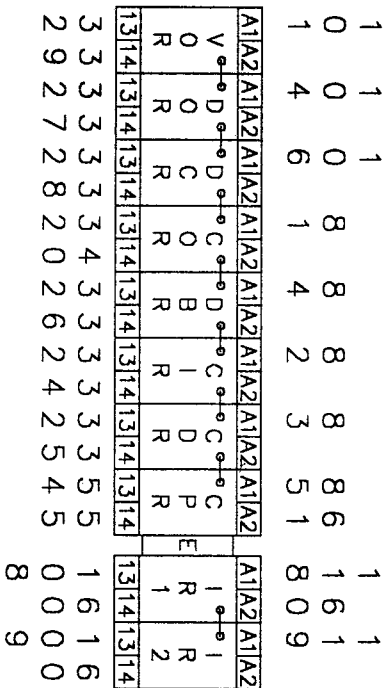
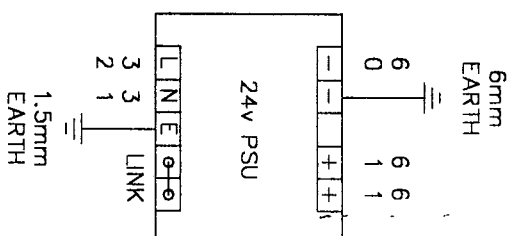
X A X I S	Y A X I S	Z A X I S
-----------------------	-----------------------	-----------------------

SPINDLE DRIVE	CHOKe	CONTROL TRANS 300VA	WORKLIGHT TRANS
------------------	-------	---------------------------	--------------------

IF IN DOUBT ASK



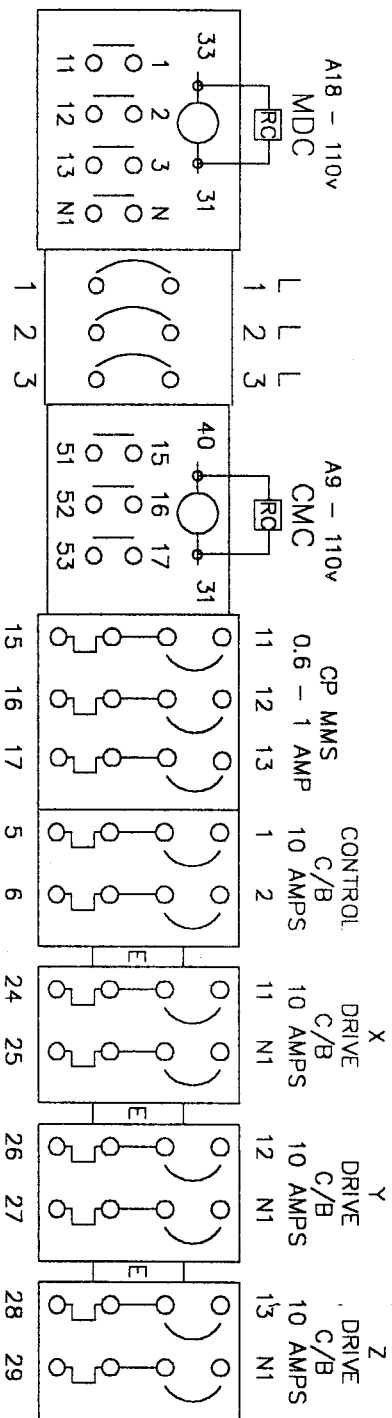
ESR
SEE
SHEET 9



LINK (0.5mm GREY)

15v POWER SUPPLY
FOR AXIS DRIVE LOGIC
SEE SHEET 12

IF IN DOUBT ASK

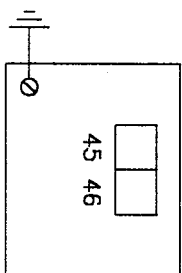


3 PHASE SUPPRESSOR (430C)

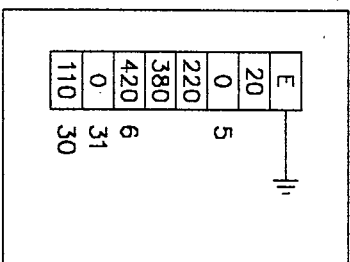
SUPPRESSOR

SPINDLE DRIVE
SEE SHEET 13 FOR DETAILS

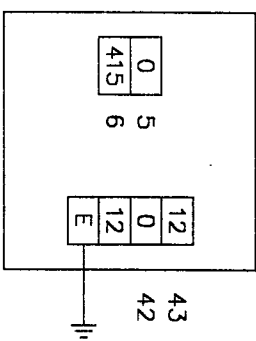
CHOKE



CONTROL TRANSFORMER
300 VA



WORKLIGHT TRANSFORMER
50 VA

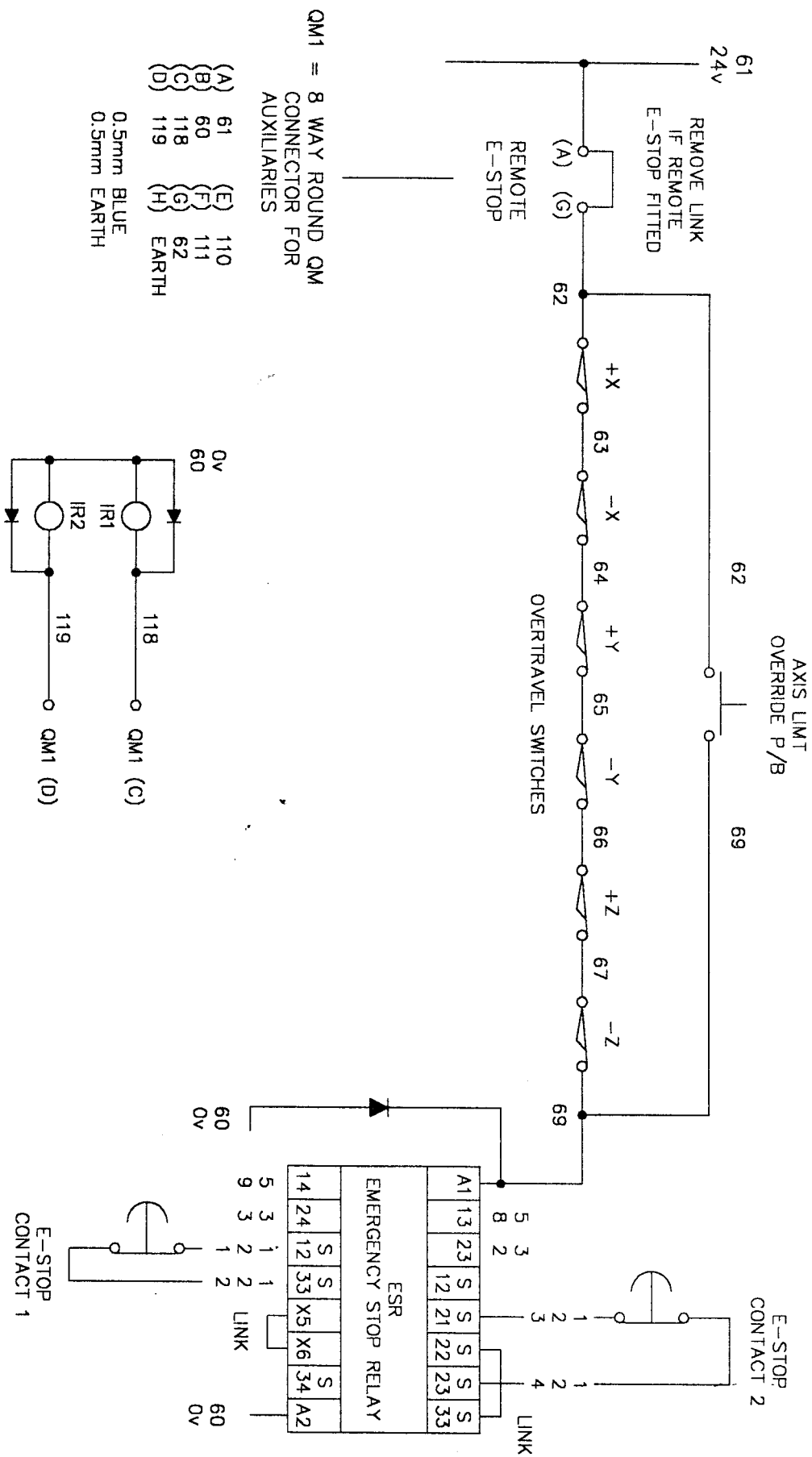


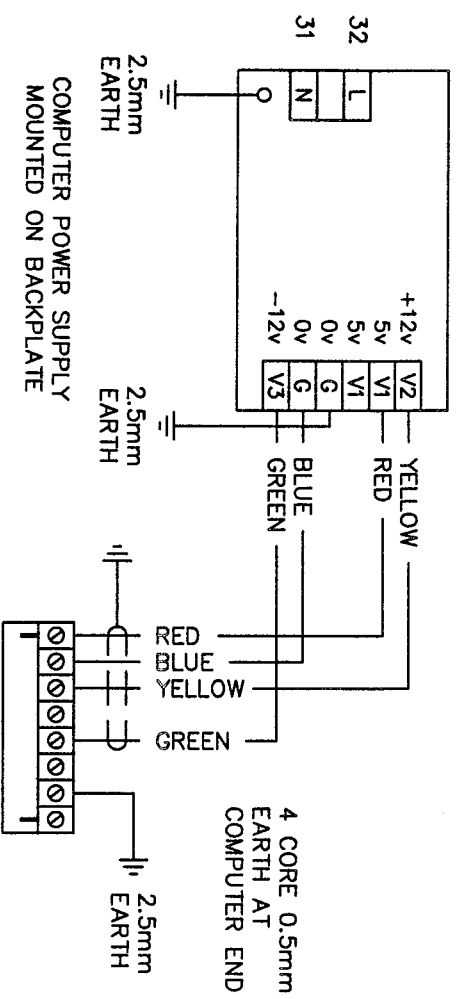
TRIAC VMC SERVO
CONTACTOR AND
TRANS. WIRING

SHEET 8

VMCSERVO

IF IN DOUBT ASK



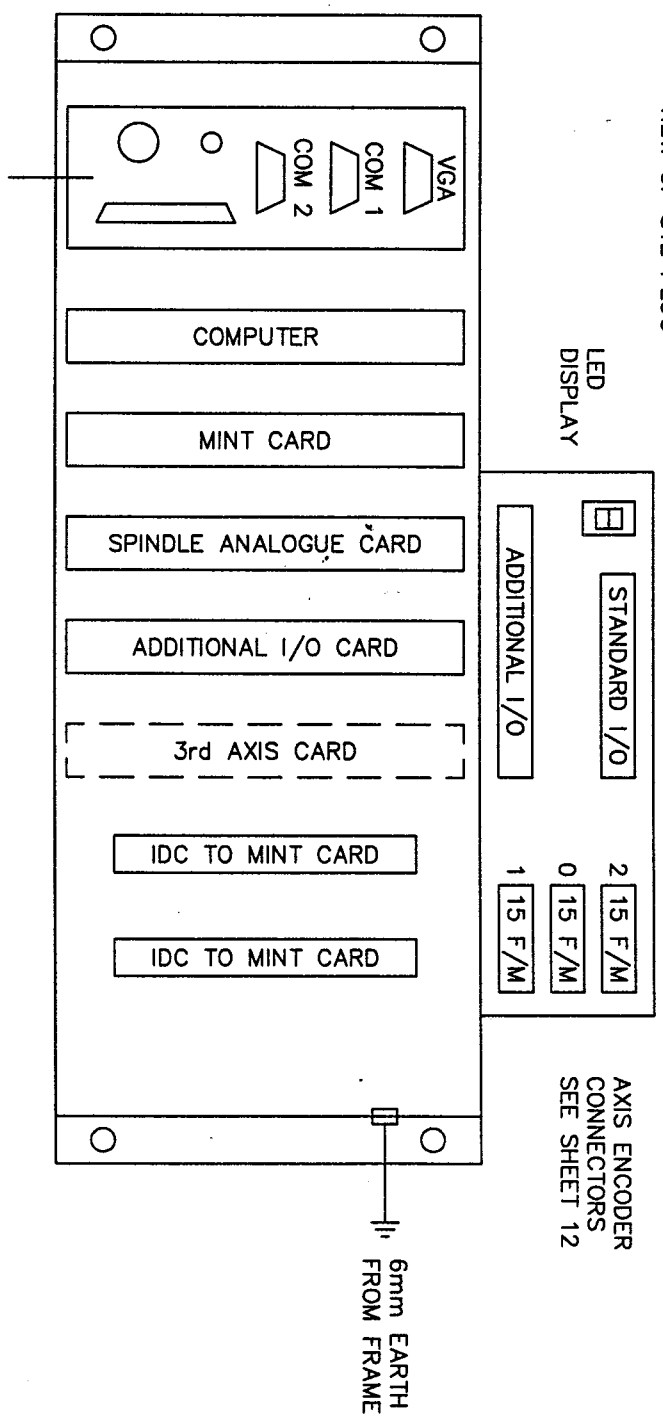


VIEW OF STE PLUG

STANDARD I/O UNIT
SEE SHEETS 4 AND 5

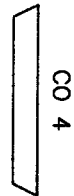
ADDITIONAL I/O UNIT
SEE SHEET 14

- PART NUMBERS**
- RACK
 - BI 433E
 - SPINDLE ANALOGUE CARD
 - BI 433D
 - MINT CARD
 - BI 433G
 - COMPUTER
 - BI 463
 - POWER SUPPLY UNIT
 - BI 463C
 - ADDITIONAL I/O CARD
 - BI 432M/24
 - 3rd AXIS CARD
 - BI 433B



HMK DRIVE

CONTROL



CO 4

RS 232



DISPLAY

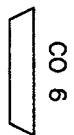


RESOLVER



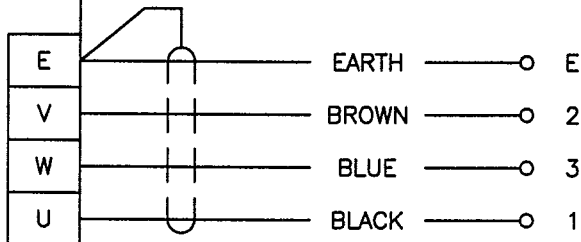
CO 5

ENCODER

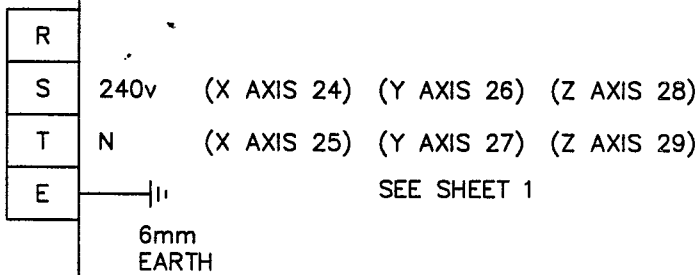


CO 6

CO 4 SIGNAL CONNECTOR
SEE SHEET 22

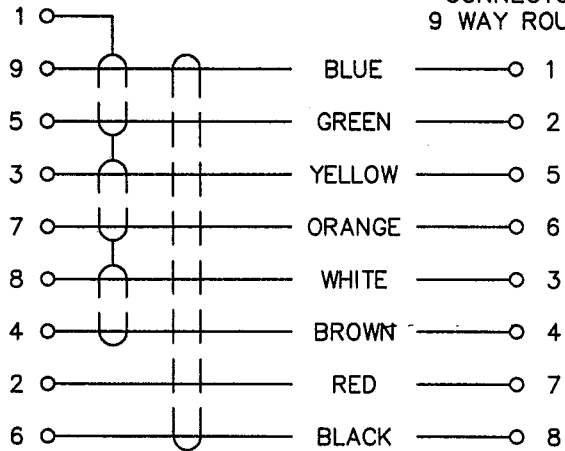


MOTOR
TERMINALS




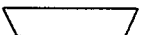
SEE SHEET 1

RESOLVER
CO 5
9 WAY MALE



MOTOR
CONNECTOR
9 WAY ROUND

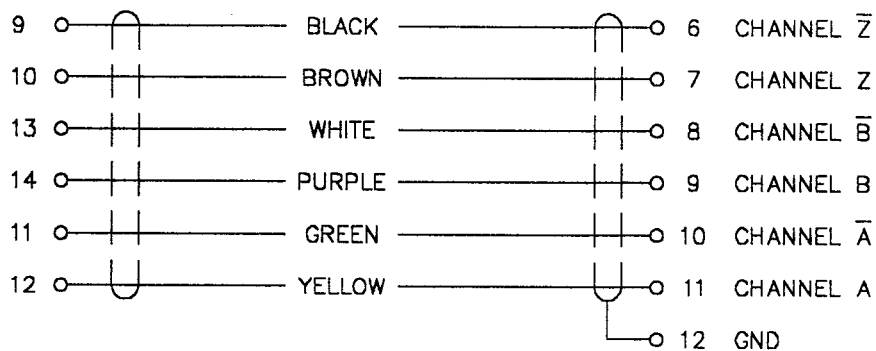
AXIS 2  Z AXIS

AXIS 0  X AXIS

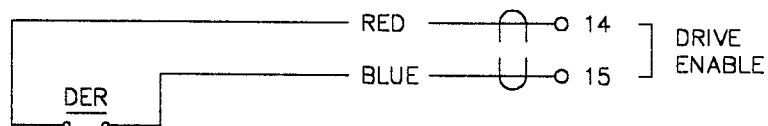
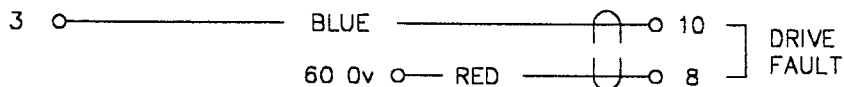
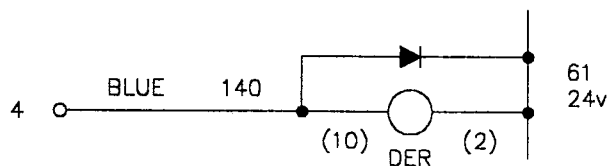
AXIS 1  Y AXIS

AXIS CONNECTOR ARRANGEMENT

RACK CONNECTOR 15 WAY D TYPE MALE PINS

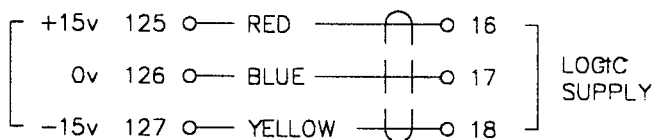


AXIS DRIVE
CONNECTOR CO-6
15 WAY D TYPE
MALE PINS



X AXIS 141 (1) (3) 142
Y AXIS 143 (5) (6) 144
Z AXIS 145 (9) (11) 146

SEPARATE
POWER SUPPLY
FOR AXIS DRIVES



AXIS DRIVE
CONNECTOR CO-4
25 WAY D TYPE
MALE PINS

NOTE
DER CONNECTED
TO X AXIS ONLY

TRIAC VMC SERVO
RACK TO AXIS
DRIVE SIGNALS

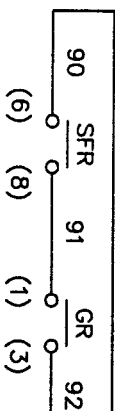
SHEET 12
VMCSERVO

IF IN DOUBT ASK

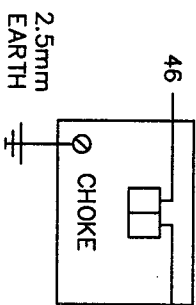
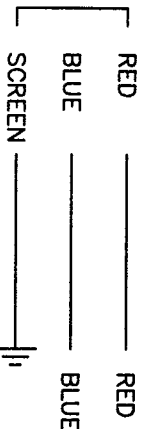
0 - 10v
ANALOGUE
FROM INTERFACE UNIT
SEE SHEET 5

SPINDLE DRIVE
SPRINT 1200

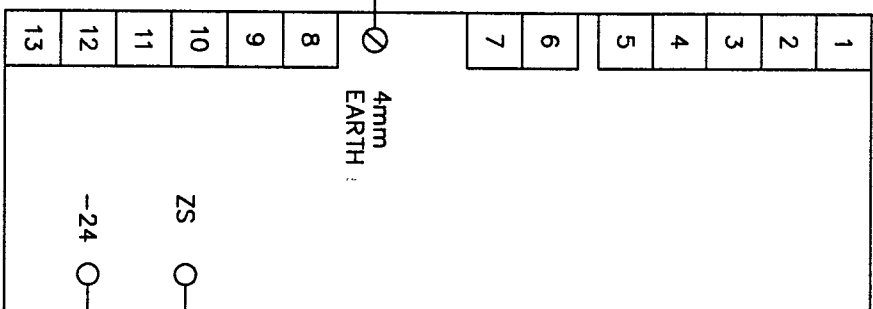
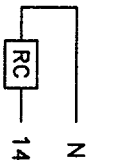
2 CORE SCREEN
EARTH AT DRIVE END



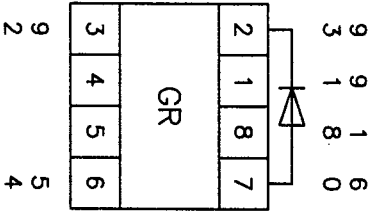
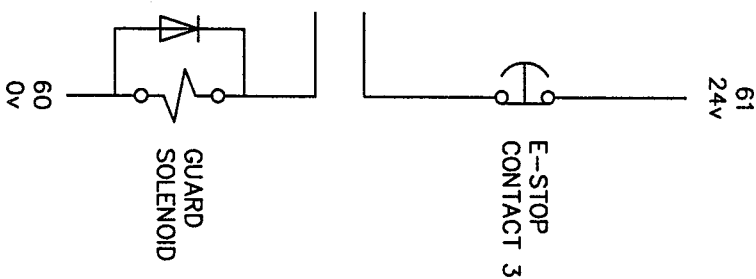
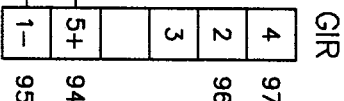
TACHO
SEE SHEET
16



SUPPRESSOR
(RS 210-364)



0.5mm BLUE
SOLDER TO
SPINDLE DRIVE

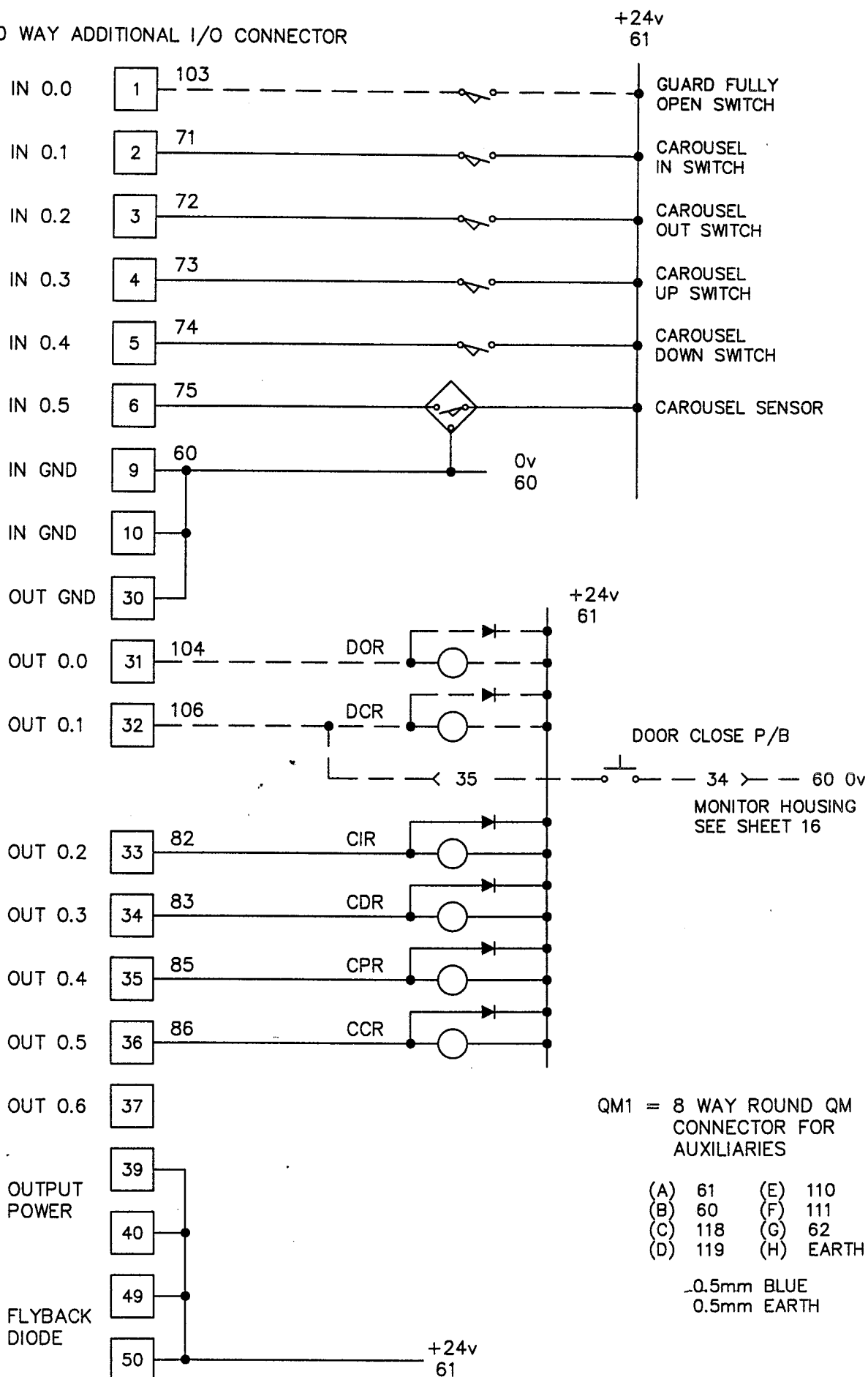


91 + 92
18 + 54
ADD LINKS IF
GUARD INTERLOCK
IS NOT FITTED

TRIAC VMC SERVO
SPINDLE DRIVE
DETAILS

SHEET 13
VMCSERVO

50 WAY ADDITIONAL I/O CONNECTOR

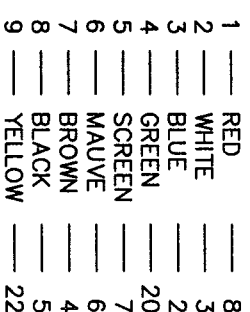
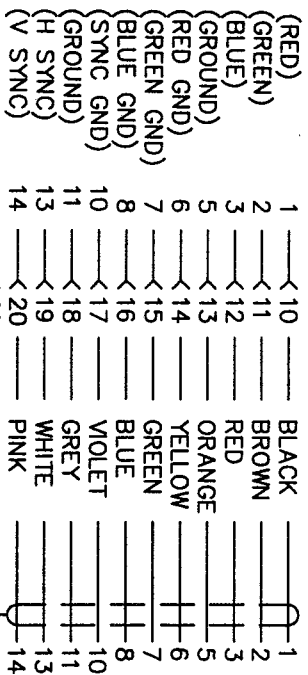
TRIAC VMC SERVO
ADDITIONAL I/O
CONNECTIONSSHEET 14
VMCSERVO

MONITOR
HIGH DENSITY
15 WAY D TYPE
FEMALE PINS

COMPUTER
HIGH DENSITY
15 WAY D TYPE
MALE PINS

COMPUTER
9 WAY D TYPE
FEMALE PINS

CABINET
25 WAY D TYPE
MALE PINS



TO SHELL

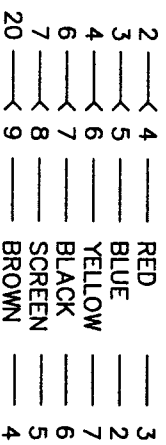
12 CORE SCREEN

< 42 WAY
CONNECTOR TO
MONITOR HOUSING
SEE SHEET 16

COM 1

KEYPAD
25 WAY D TYPE
MALE PINS

COMPUTER
9 WAY D TYPE
FEMALE PINS

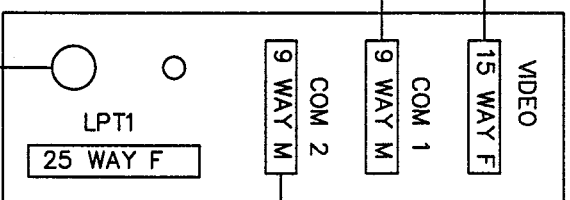
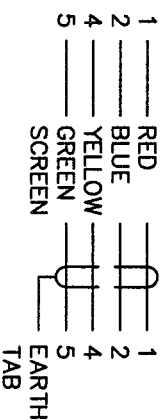


8 CORE SCREEN

KEYBOARD CONNECTOR

COMPUTER END
5 WAY DIN PLUG

CABINET END
5 WAY DIN SOCKET



TRIAC VMC SERVO
COMPUTER LEADS

SHEET 15
VMCSERVO

4mm EARTH

PIN	COLOUR	WIRE
1	BROWN	7
2	BLUE	N1
3	EARTH	E
4	RED	(2)
5	BLUE	(3)
6	YELLOW	(4)
7	BLACK	(6)
8	BROWN	(20)
9	SCREEN	(7)
10	BLACK	(1)
11	BROWN	(2)
12	RED	(3)
13	ORANGE	(5)
14	YELLOW	(6)
15	GREEN	(7)
16	BLUE	(8)
17	VIOLET	(10)
18	GREY	(11)
19	WHITE	(13)
20	PINK	(14)
21	SCREEN	

MONITOR
POWER

KEYPAD

MONITOR
SIGNALS

1mm
3 CORE
FLEX

8 CORE
SCREEN

12 CORE
SCREEN

* 8 CORE SCREEN 4 CORE AND 2 CORES
TO PUSHBUTTONS TO MAIN PANEL

PIN	COLOUR	WIRE
22	BLACK*	RED
23	BROWN*	BLUE
24	RED*	RED
25	YELLOW*	BLUE
26	GREEN*	RED
27	BLUE*	BLUE
28	VIOLET*	YELLOW
29	WHITE*	GREEN
30	RED	
31	BLUE	
32	YELLOW	
33	GREEN	
34	RED	
35	BLUE	

E-STOP
CONTACT 1

E-STOP
CONTACT 2

E-STOP
CONTACT 3

AXIS
OVERRIDE

SPINDLE AND
FEEDRATE
OVERRIDE
POTS

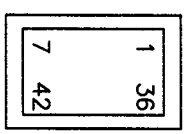
MANUAL DOOR
CLOSE P/B *

FEEDRATE
OVERRIDE POT.
RED
YELLOW
BLUE

SPINDLE SPEED
OVERRIDE POT.
RED
GREEN
BLUE

62 69
AXIS LIMIT
OVERRIDE P/B

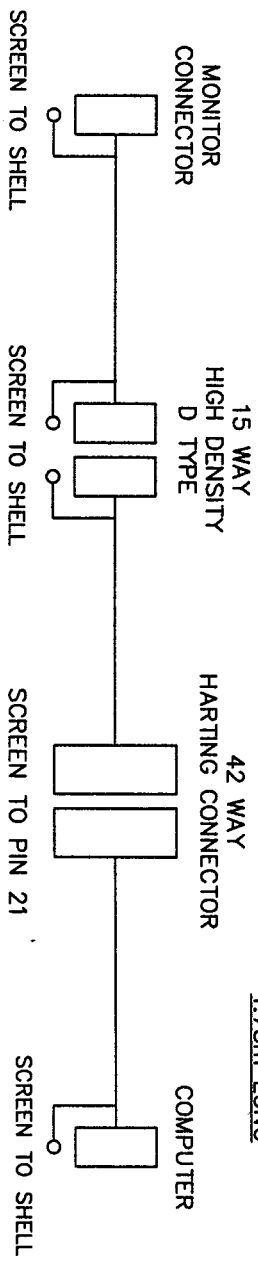
121 123 61
122 124 97
E-STOP P/B



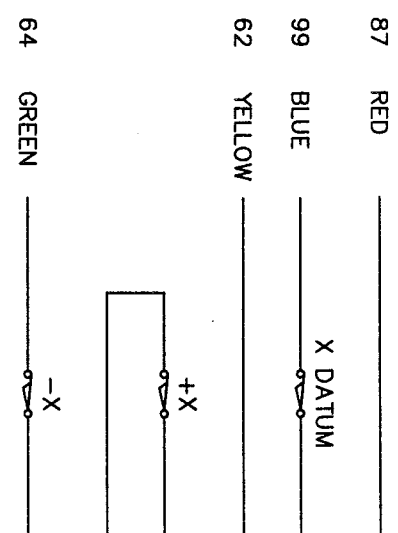
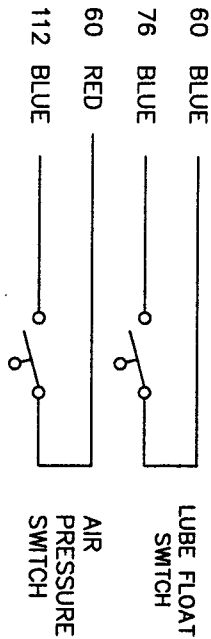
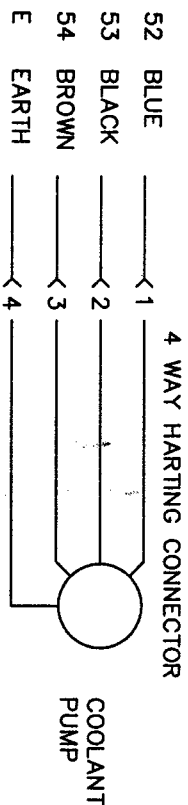
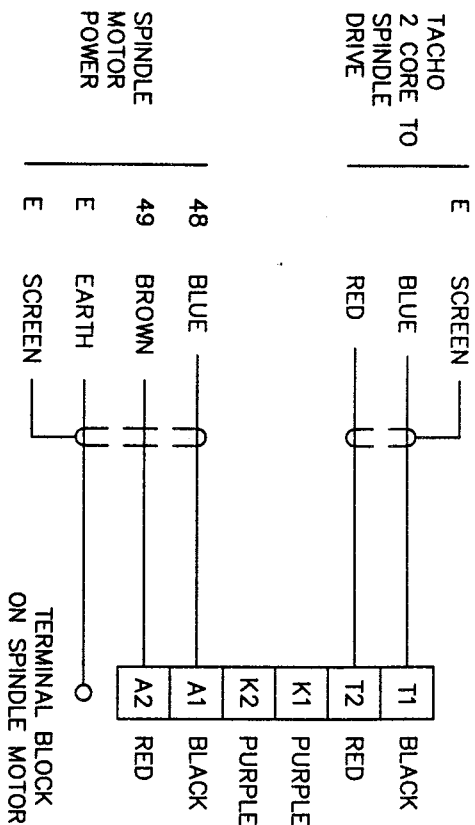
MALE PINS

PINS 36 - 42
ARE NOT USED
(* ONLY FITTED IF)
(MACHINE HAS POWER DOOR)

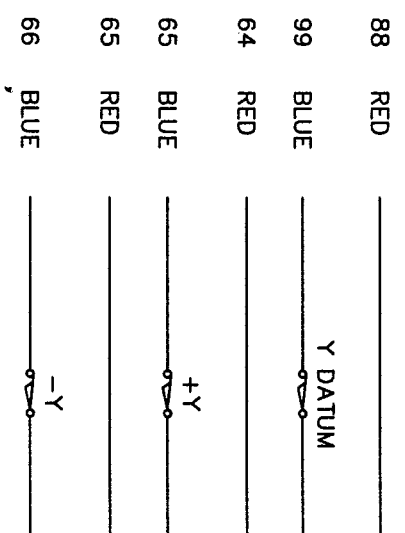
FLEX TO PANEL
1.75m LONG



SCREEN TO SHELL



4 CORE FROM X AXIS SWITCH ASSEMBLY



2 CORE SCREENS FROM Y AXIS SWITCHES

2 CORE SCREENS FROM Z AXIS SWITCHES

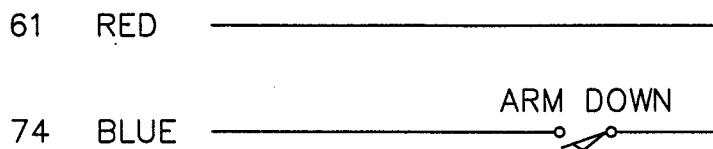
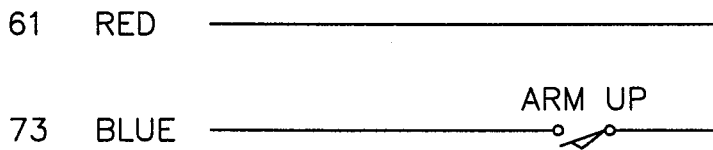
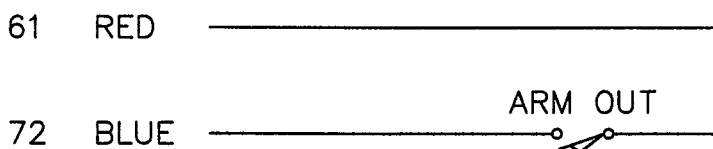
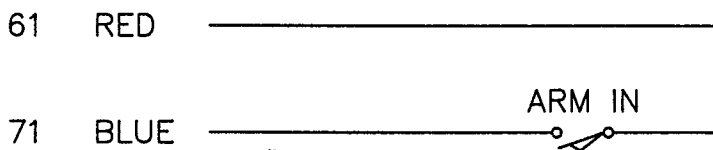
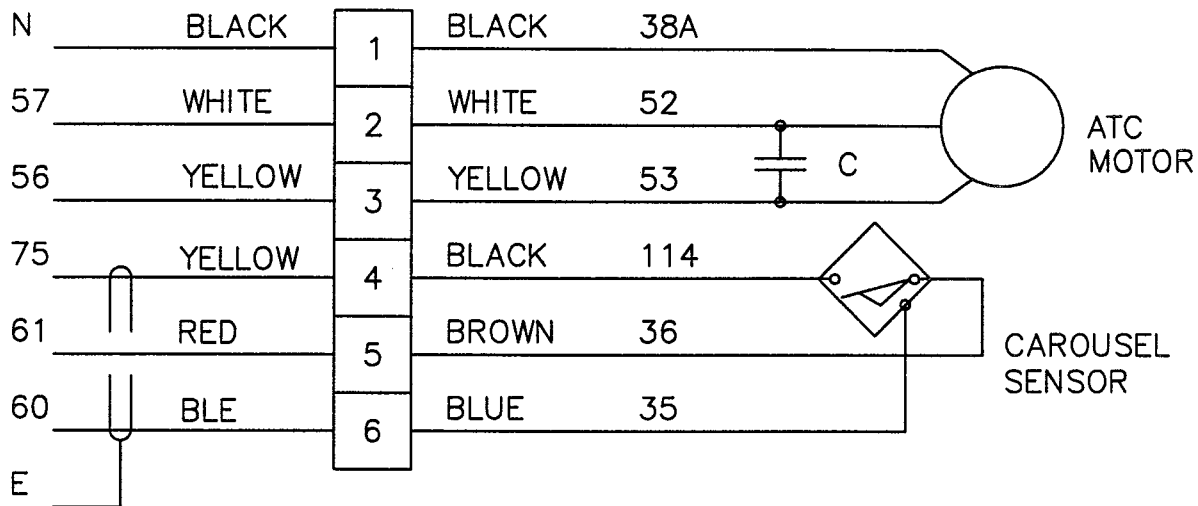
IF IN DOUBT ASK

TRIAC VMC SERVO SPINDLE MOTOR AND SWITCH WIRING

SHEET 17 VMC SERVO

6 WAY TERMINAL BLOCK
MOUNTED ON CAROUSEL

== CAPACITOR



IF IN DOUBT ASK

TRAC VMC SERVO
ATC WIRING

SHEET 18
VMCSERVO

IF IN DOUBT ASK

GUARD INTERLOCK
WITH SOLENOID

(REMOVE LINK 12 - 41)

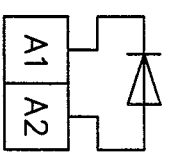
GUARD
SWITCH
CONTACTS

60 BLACK
61 RED

11	12
21	22
33	34

BROWN 77
YELLOW 93

GUARD
SOLENOID



96 60

WHITE VIOLET

TRIAC VMC SERVO
GUARD INTERLOCK

SHEET 19

VMCSERVO

DENFORD LIMITED

DATE 3-6-97

DRN BY A McHENRY

TVS-19