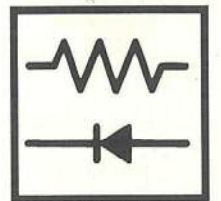


Mazak

# **ELECTRIC WIRING DIAGRAM**



# Mazak

## **ELECTRICAL CIRCUIT DIAGRAMS**

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SET NO. DD540011000

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# ELEMENTARY DIAGRAM LIST

PAGE 1/6

SET No.: DD 540011000

Drawn By: K.SUGIURA

Checked By: H.SHIBATA

Approved By: H.SHIBATA

| No. | ITEM          | SPECIFICATION     |
|-----|---------------|-------------------|
| 1   | MACHINE TYPE  | MAZATECH MTV-655N |
| 2   | MACHINE No.   | STANDARD          |
| 3   | CNC TYPE      | M-PLUS A/B        |
| 4   | SPINDLE TYPE  | 18.5KW            |
| 5   | PLC ROM No.   | 40VW539-0508~     |
| 6   | AUX.1 ROM No. |                   |
| 7   | AUX.2 ROM No. |                   |
| 8   |               |                   |

## Remarks

SET FOR 'DD540' WITHOUT '0' MARK  
 "\*" MARK INDICATES TO BE THE DRAWING FOR  
 DESIGN MODIFICATION

## Option

HIGH PRESSURE THROUGH COOLANT, LARGE CAPACITY COOLANT,  
 COOLANT GUN, OIL SKIMMER, ATC COVER, 2 PALLET CHANGER,  
 SPIRAL CONVEYOR, CHIP CONVEYOR, 4th, MAGNE SCALE etc.

| No. | DRAWING NUMBER | TITLE                                             |
|-----|----------------|---------------------------------------------------|
| 1   | 5400110100.0   | PARAMETER LIST (1)                                |
| 2   | 5400110110.0   | PARAMETER LIST (2)                                |
| 3   | 5400110120.0   | PARAMETER LIST (3)                                |
| 4   | 5400110130.0   | PARAMETER LIST (4)                                |
| 5   | 5400110140.0   | PARAMETER LIST (5)                                |
| 6   | 5400110150.0   | PARAMETER LIST (6)                                |
| 7   | 5400110160.0   | PARAMETER LIST (7)                                |
| 8   | 5400110170.0   | PARAMETER LIST (8)                                |
| 9   | 5400110180.0   | PARAMETER LIST (9)                                |
| 10  | 54001130010.0  | TOTAL CONNECTION DIAGRAM (MAIN POWER)             |
| 11  | 54001130020.0  | TOTAL CONNECTION DIAGRAM (2)                      |
| 12  | 54001130030.0  | {OPTION:2PC} TOTAL CONNECTION DIAGRAM             |
| 13  | 54001130060.0  | XT51 LAYOUT                                       |
| 14  | 54001130070.0  | XT42 LAYOUT                                       |
| 15  | 54001130080.0  | XT41 LAYOUT                                       |
| 16  | 54001130090.0  | ELECTRIC CABINET FRONT & BACK PANEL               |
| 17  | 54001130100.0  | ELECTRIC CABINET LEFT & OPTION PANEL              |
| 18  | 54001130100.1  | {OPTION:2PC} ELECTRIC CABINET LEFT & OPTION PANEL |
| 19  | 54001130110.0  | {OPTION:2PC} XT91 BOX LAYOUT                      |
| 20  | 54001130120.0  | {OPTION:2PC} XT95 BOX LAYOUT                      |
| 21  | 54001130240.0  | NC (M-PLUS) CONNECTION DIAGRAM                    |
| 22  | 54001130240.1  | TOTAL CONNECTION DIAGRAM                          |
| 23  | 54001130250.0  | NC OPERATING PANEL CONNECTION DIAGRAM             |
| 24  | 54001130300.0  | COMPONENTS LAYOUT (1)                             |
| 25  | 54001130310.0  | COMPONENTS LAYOUT (2)                             |

# ELEMENTARY DIAGRAM LIST

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SET No.: DD 540011000

| No. | DRAWING NUMBER | TITLE                                           |
|-----|----------------|-------------------------------------------------|
| 26  | 54001130320.0  | COMPONENTS LAYOUT (3)                           |
| 27  | 54001130330.0  | COMPONENTS LAYOUT (4)                           |
| 28  | 54001130340.0  | COMPONENTS LAYOUT (5)                           |
| 29  | 54001130350.0  | COMPONENTS LAYOUT (6)                           |
| 30  | 54001130400.0  | (OPTION:2PC) COMPONENT LAYOUT (7)               |
| 31  | 54001140010.0  | MAIN TRANS ELECTRIC CONTROL (JAPAN,TRANSF.LESS) |
| 32  | 54001140010.1  | EARTH LEAKAGE BREAKER TYPE (OP.)                |
| 33  | 54001140010.2  | MAIN TRANS ELECTRIC CONTROL (EXPORT)            |
| 34  | 54001140020.0  | DOOR INTERLOCK BYPASS SW                        |
| 35  | 54001140030.0  | LINE POWER SUPPLY SPINDLE AMP                   |
| 36  | 54001140040.0  | LINE POWER SUPPLY SERVO AMP                     |
| 37  | 54001140050.0  | LINE POWER SUPPLY AC LINE                       |
| 38  | 54001140050.1  | SHOW LIGHT 100V 300W*4 (OPTION)                 |
| 39  | 54001140050.2  | WORK LIGHT (OPTION)                             |
| 40  | 54001140060.0  | LINE POWER SUPPLY NC POWER                      |
| 41  | 54001140070.0  | CMT/ID INTERFACE                                |
| 42  | 54001140070.1  | DNC INTERFACE (OPTION)                          |
| 43  | 54001140080.0  | LINE POWER SUPPLY MOTOR POWER (1)               |
| 44  | 54001140090.0  | LINE POWER SUPPLY MOTOR POWER (2)               |
| 45  | 54001140100.0  | SPINDLE DRIVE                                   |
| 46  | 54001140160.0  | X AXIS ENCODER                                  |
| 47  | 54001140160.1  | X AXIS SERVO & MAGNE SCALE CONNECTION           |
| 48  | 54001140170.0  | Y AXIS ENCODER                                  |
| 49  | 54001140170.1  | Y AXIS SERVO & MAGNE SCALE CONNECTION           |
| 50  | 54001140180.0  | Z AXIS ENCODER                                  |
| 51  | 54001140180.1  | Z AXIS SERVO & MAGNE SCALE CONNECTION           |
| 52  | 54001140190.0  | Z AXIS BRAKE SOL                                |
| 53  | 54001140200.0  | EMERGENCY STOP CIRCUIT                          |
| 54  | 54001140220.0  | MOTION SWITCH INPUT ALARM 1                     |
| 55  | 54001140230.0  | MOTION SWITCH INPUT ALARM 2                     |
| 56  | 54001140250.0  | MOTION SWITCH INPUT1 (HEAD,ATC)                 |
| 57  | 54001140270.0  | MOTION SWITCH INPUT2 (MAGAZINE)                 |
| 58  | 54001140280.0  | MOTION SWITCH INPUT3 (MAGAZINE)                 |
| 59  | 54001140290.0  | MOTION SWITCH INPUT4 (TABLE)                    |
| 60  | 54001140300.0  | MAGAZINE OPERATING PANEL 1/F (1) (STANDARD)     |

# ELEMENTARY DIAGRAM LIST

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SET No.: DD 540011000

| No. | DRAWING NUMBER | TITLE                                      |
|-----|----------------|--------------------------------------------|
| 61  | 54001140310.0  | MAGAZINE OPERATING PANEL 1/F (1)' (OPTION) |
| 62  | 54001140310.1  | MAGAZINE OPERATING PANEL 1/F (2)' (OPTION) |
| 63  | 54001140310.2  | MAGAZINE OPERATING PANEL 1/F (3)' (OPTION) |
| 64  | 54001140330.0  | AXIS ZERO RETURN DECELERATION              |
| 65  | 54001140350.0  | PENDANT OPERATING BOX                      |
| 66  | 54001140360.0  | AC SOLENOID OUTPUT                         |
| 67  | 54001140400.0  | SOLENOID DRIVER SSR BOARD INPUT (1)        |
| 68  | 54001140400.1  | SOLENOID DRIVER SSR BOARD INPUT (2)        |
| 69  | 54001140400.2  | SOLENOID DRIVER SSR BOARD INPUT (3)        |
| 70  | 54001140410.0  | SSR BOARD OUTPUT (1)                       |
| 71  | 54001140410.1  | SSR BOARD OUTPUT (2)                       |
| 72  | 54001140410.2  | SSR BOARD OUTPUT (3)                       |
| 73  | 54001140450.0  | AC MOTOR CONTROL                           |
| 74  | 54001140450.1  | AC MOTOR CONTROL (1)' (OPTION)             |
| 75  | 54001140500.0  | RELAY DRIVE OUTPUT (STANDARD)              |
| 76  | 54001140530.0  | M41-M45 OPTIONAL M CODE (1)                |
| 77  | 54001140540.0  | M43-M45 OPTIONAL M CODE (2)                |
| 78  | 54001140550.0  | NC TABLE (OPTION) TSUDAKOMA etc. (1)       |
| 79  | 54001140550.1  | NC TABLE (OPTION) TSUDAKOMA etc. (2)       |
| 80  | 54001140550.2  | NC TABLE (OPTION) TSUDAKOMA etc. (3)       |
| 81  | 54001140550.3  | NC TABLE (OPTION) + 2PC TSUDAKOMA etc.     |
| 82  | 54001140550.4  | M CODE INDEX TABLE SAKAMAKI SNC.           |
| 83  | 54001140560.0  | M CODE OUTPUT (OPTION)                     |
| 84  | 54001140700.0  | SPARE INPUT (X31,X33)                      |
| 85  | 54001140710.0  | SPARE OUTPUT (X34)                         |
| 86  | 54001140720.0  | 2PC & SPARE INPUT (X42)                    |
| 87  | 54001140730.0  | SPARE INPUT (X42)                          |
| 88  | 54001140740.0  | SPARE OUTPUT (X32)                         |
| 89  | 54001140750.0  | SPARE OUTPUT (X43)                         |
| 90  | 54001140760.0  | 2PC & SPARE OUTPUT (X43)                   |
| 91  | 54001140770.0  | SPARE DC LINE                              |
| 92  | 54001141000.0  | MACHINE DOOR INTERLOCK (OPTION)            |
| 93  | 54001141050.0  | CHIP CONVEYOR (OPTION)                     |
| 94  | 54001141060.0  | CHIP SPIRAL CONVEYOR                       |
| 95  | 54001141070.0  | LARGE CAPACITY COOLANT (OPTION)            |

# ELEMENTARY DIAGRAM LIST

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SET No.: DD 540011000

| No. | DRAWING NUMBER | TITLE                                        |
|-----|----------------|----------------------------------------------|
| 96  | 54001141150.0  | MMS INTERFACE (1) (OPTION)                   |
| 97  | 54001141150.1  | MMS INTERFACE (2) (OPTION)                   |
| 98  | 54001141170.0  | THERMOMETER ANALOG INPUT                     |
| 99  | 54001141200.0  | REVOLVING LIGHT (OPTION)                     |
| 100 | 54001141210.0  | WARNING LIGHT (OPTION)                       |
| 101 | 54001141300.0  | HANDLE BOX (1) (OPTION)                      |
| 102 | 54001141300.1  | HANDLE BOX (2) (OPTION)                      |
| 103 | 54001141310.0  | 3-MANUAL PULSE GENERATOR (OPTION)            |
| 104 | 54001141350.0  | 2 PALLET CHANGER INPUT (1) (OPTION)          |
| 105 | 54001141360.0  | 2 PALLET CHANGER INPUT (2) (OPTION)          |
| 106 | 54001141370.0  | 2 PALLET CHANGER INPUT (3) (OPTION)          |
| 107 | 54001141380.0  | 2 PALLET CHANGER OUTPUT (1) (OPTION)         |
| 108 | 54001141400.0  | 2 PALLET CHANGER SWITCH BOX INPUT            |
| 109 | 54001141410.0  | 2PC SWITCH BOX OUTPUT (OPTION)               |
| 110 | 54001141420.0  | 2 PALLET CHANGER DRIVER (1) (OPTION)         |
| 111 | 54001141430.0  | 2 PALLET CHANGER DRIVER (2) (OPTION)         |
| 112 | 54001141440.0  | 2 PALLET CHANGER DRIVER (3) (OPTION)         |
| 113 | 54001141440.1  | 2 PALLET CHANGER DRIVER (4) (OPTION)         |
| 114 | 54001141500.0  | AUTO POWER OFF (OPTION)                      |
| 115 | 54001141510.0  | AUTO POWER ON/OFF (OPTION)                   |
| 116 | 54001141520.0  | AUTO POWER ON (OPTION)                       |
| 117 | 54001141530.0  | AUTO POWER ON/OFF WARM-UP FUNCTION (OPTION)  |
| 118 | 54001141600.0  | ATC COVER RS & SOL.                          |
| 119 | 54001150010.0  | ELECTRIC CABINET LAYOUT (1)                  |
| 120 | 54001150010.1  | ELECTRIC CABINET PARTS LIST (1)              |
| 121 | 54001150010.2  | ELECTRIC CABINET LAYOUT (2) (OPTION:2PC)     |
| 122 | 54001150010.3  | ELECTRIC CABINET PARTS LIST (2) (OPTION:2PC) |
| 123 | 54001150020.0  | POWER UNIT PANEL LAYOUT (1)                  |
| 124 | 54001150020.1  | TERMINAL BLOCK LAYOUT XT3.4 (1)              |
| 125 | 54001150020.2  | POWER UNIT PANEL PARTS LIST (1)              |
| 126 | 54001150020.3  | POWER UNIT PANEL LAYOUT (2) (OPTION:2PC)     |
| 127 | 54001150020.4  | TERMINAL BLOCK LAYOUT XT3.4 (2) (OPTION:2PC) |
| 128 | 54001150020.5  | POWER UNIT PANEL PARTS LIST (2) (OPTION:2PC) |
| 129 | 54001150020.6  | POWER UNIT PANEL PARTS LIST (3) (OPTION:2PC) |
| 130 | 54001150050.0  | OPTION UNIT PANEL LAYOUT (1)                 |

# ELEMENTARY DIAGRAM LIST

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SET No.: DD 540011000

| No. | DRAWING NUMBER | TITLE                                                      |
|-----|----------------|------------------------------------------------------------|
| 131 | 54001150050.1  | OPTION UNIT PANEL PARTS LIST (1)                           |
| 132 | 54001150100.0  | ELECTRIC CABINET TOP PLATE LAYOUT                          |
| 133 | 54001150110.0  | ELECTRIC CABINET BACK & LEFT PLATE LAYOUT (1)              |
| 134 | 54001150110.1  | ELECTRIC CABINET BACK & LEFT PLATE LAYOUT (2) (OPTION:2PC) |
| 135 | 54001150120.0  | ELECTRIC CABINET FLOOR PLATE LAYOUT (OPTION)               |
| 136 | 54001150120.1  | ELECTRIC CABINET FLOOR PLATE LAYOUT (OPTION) (OPTION:2PC)  |
| 137 | 54001150200.0  | XT51 BOX LAYOUT                                            |
| 138 | 54001150210.0  | XT42 BOX LAYOUT                                            |
| 139 | 54001150220.0  | XT41 BOX LAYOUT                                            |
| 140 | 54001150260.0  | X,Y,Z AXIS LAYOUT (MS CONNECTOR)                           |
| 141 | 54001150300.0  | XT91 BOX LAYOUT (1) (OPTION:2PC) (TYPE:V655/60N)           |
| 142 | 54001150300.1  | XT91 BOX PARTS LIST (1) (OPTION:2PC) (TYPE:V655/60N)       |
| 143 | 54001150300.2  | XT91 BOX CABLE LAYOUT (1) (OPTION:2PC) (TYPE:V655/60N)     |
| 144 | 54001150300.3  | XT91 BOX LAYOUT (2) (OPTION:2PC) (TYPE:V655/80N)           |
| 145 | 54001150300.4  | XT91 BOX PARTS LIST (2) (OPTION:2PC) (TYPE:V655/80N)       |
| 146 | 54001150300.5  | XT91 BOX CABLE LAYOUT (2) (OPTION:2PC) (TYPE:V655/80N)     |
| 147 | 54001150310.0  | XT95 BOX LAYOUT (1) (OPTION:2PC)                           |
| 148 | 54001150320.0  | XT92 BOX LAYOUT (1) (OPTION:2PC)                           |
| 149 | 54001160010.0  | RELAY UNIT LAYOUT                                          |
| 150 | 54001160010.1  | RELAY UNIT PARTS LIST                                      |
| 151 | 54001160050.0  | SSR BOARD 1                                                |
| 152 | 54001160050.1  | SSR BOARD 1 PARTS LIST                                     |
| 153 | 54001160110.0  | X401~X408                                                  |
| 154 | 54001160120.0  | X409~X414                                                  |
| 155 | 54001160130.0  | X415~X419                                                  |
| 156 | 54001160140.0  | X431~X438                                                  |
| 157 | 54001160150.0  | X439                                                       |
| 158 | 54001160160.0  | X423~X428 (SSR BOARD)                                      |
| 159 | 54001160200.0  | T.U CONNECTION X331,X332,X333                              |
| 160 | 54001160210.0  | T.U CONNECTION X334,X342                                   |
| 161 | 54001160220.0  | T.U CONNECTION X343,X314,X310                              |
| 162 | 54001160230.0  | T.U CONNECTION X304,X305,X306                              |
| 163 | 54001160240.0  | T.U CONNECTION X307,X308                                   |
| 164 | 54001160250.0  | T.U CONNECTION X309,X311                                   |
| 165 | 54001160260.0  | T.U CONNECTION X313,X315                                   |

# ELEMENTARY DIAGRAM LIST

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SET No.: DD 540011000

| No. | DRAWING NUMBER | TITLE                                                  |
|-----|----------------|--------------------------------------------------------|
| 166 | 54001160270.0  | T.U CONNECTION X316,X321                               |
| 167 | 54001160300.0  | RELAY CONNECTION(1) KA1~KA4,KA6,7                      |
| 168 | 54001160310.0  | RELAY CONNECTION(2) KA12,13,15,16,17,19,20,21          |
| 169 | 54001160320.0  | RELAY CONNECTION(3) KA21~24,KA27~30,KT18               |
| 170 | 54001170010.0  | NC OPERATING PANEL LAYOUT (1) 「M-PLUS」 (A-TYPE/B-TYPE) |
| 171 | 54001170010.1  | NC OPERATING PANEL LAYOUT (2) 「M-PLUS」                 |
| 172 | 54001170010.2  | NC OPERATING PANEL PARTS LIST                          |
| 173 | 54001170030.0  | MAGAZINE OPERATING PANEL LAYOUT (1) (STANDARD)         |
| 174 | 54001170030.1  | MAGAZINE OPERATING PANEL LAYOUT (2) (OPTION)           |
| 175 | 54001170040.0  | 2PC OPERATING PANEL LAYOUT (OPTION:2PC)                |
| 176 | 54001170050.0  | DOOR PANEL LAYOUT & PARTS LIST (OPTION)                |
| 177 | 53900180015.0  | SEQUENCE LADDER (ELEMENT SHEET 18)                     |
| 178 | 53900180025.0  | SEQUENCE LADDER (LADDER SHEET 290)                     |
| 179 |                |                                                        |
| 180 |                |                                                        |
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# LADDER ELEMENTARY LIST

FILE NAME :CHT0508

X 0 ~ X 6F MACHINE INPUT  
X 100 ~ X 13F OPERATION PANEL SW. INPUT  
X 170 ~ X 17F  
X 180 ~ X 24F NC --> PLC  
  
Y 0 ~ Y 6F MACHINE OUTPUT  
Y 100 ~ Y 14F OPERATION PANEL LED OUTPUT  
Y 180 ~ Y 207 PLC --> NC  
(Y 480)  
M 0 ~ M5119 1 BIT MEMORY  
T 0 ~ T 103 TIMER  
F 0 ~ F 255 1 BIT MEMORY  
  
L 0 ~ L 255 16 BIT/32 BIT RESISTOR  
(D RESISTOR 0~1023)  
(R RESISTOR 0~4095 PLC<-->NC I/F)  
(P 0~511 POINTER)

CHANGE VERSION:980312KS  
CHANGE VERSION:980202KS  
CHANGE VERSION:970620KS  
CHANGE VERSION:970321KS  
CHANGE VERSION:970212KS

**Mazak**  
YAMAZAKI MAZAK CORPORATION

CHK'D BY Feb. 12.'97  
DRWN BY Feb. 12.'97  
H.SHIBATA K.SUGIURA

TITLE  
SEQUENCE LADDER  
(ELEMENT SHEET 18)  
DRWN NO. 53900180015.0

This product is subject to all applicable export control laws and regulations by Japanese Government.  
本品は「外国為替及び外国貿易管理法」に該当しますので外国に輸出する場合には同法に基づく許可を必要とします。

| LINE |      | SEQUENCE LADDER DIAGRAM                      | LADDER FILE :<br>LDR0508                  |
|------|------|----------------------------------------------|-------------------------------------------|
|      |      | TABLE OF CONTENTS                            | (PLC Version 40VW539-0508)                |
|      | PAGE | TITLE                                        | PAGE TITLE                                |
| 1    |      | (INTERRUPT LEVEL)P250                        | (SUB ROUTINE)                             |
| 2    |      | GAP ELMINATER                                | 133 P11 M CODE DECODE                     |
| 3    |      | (HI LEVEL)P251                               | 134 P12 M CODE DATA MOVE                  |
| 4    | 1    | PLC CMN HIGH LEVEL                           | 135 P13 M CODE DATA CLEAR                 |
| 5    |      | TLH HIGH LEVEL                               | 135 P14 M CODE MEMORY (COOLANT)           |
| 6    |      | TBR & TLH HIGH LEVEL                         | 136 P16 MENU NUMBER                       |
| 7    | 1    | MAGAZINE CONTROL                             | 137 P15 MENU KEY DATA                     |
| 8    |      | MANUAL ROTATE                                | 143 P17 PTP DATA SET                      |
| 9    |      | MAGAZINE NO. READ & DEC.                     | 148 P18 MAGAZINE DATA SET                 |
| 10   | 3    | TIME COUNT                                   | 148 P55 MAGAZINE ROTATE FLAG              |
| 11   | 3    | PALLET CONTROL                               | 149 P19 JOG FEED SET (inch)               |
| 12   |      | LOAD/UNLOAD,SHIFT HIGH SPEED                 | 150 P20 JOG FEED SET (mm)                 |
| 13   |      | 2PC DOOR OPEN DEC                            | 152 P21 LADDER INITIALIZE                 |
| 14   |      | 2PC MENU OFF DEC                             | 163 P23 ALARM DISPLAY                     |
| 15   |      | (MIDDLE LEVEL)P252                           | 164 P30 TIME CLAER (TRACE TIME)           |
| 16   | 5    | INITIALIZE                                   | 164 P31 M CODE (M CODE --> BUFFER)        |
| 17   |      | PLC CMN INITIALIZE                           | 165 P32 M CODE (M0,199 --> IMAGE.RELAY)   |
| 18   |      | NC STATUS, SPECIAL TOOL                      | 166 P33 M CODE (M9** --> M7*)             |
| 19   |      | ZERO POSITION                                | P34 M CODE (M9** --> M8*)                 |
| 20   |      | HYD. & SERVO ON                              | 166 P35 M CODE (OTHER M-->OUTPUT)         |
| 21   | 8    | VFC CONTROL                                  | 167 P36 M CODE MISS OPERATION             |
| 22   | 9    | MF, TF, SF CONTROL                           | 173 P37 MODE SET                          |
| 23   |      | M CODE CHECK, TF, SF                         | 174 P38 JOG FEED % DATA SET               |
| 24   | 11   | AUTO/MANUAL MODE                             | 175 P39 SPINDLE % DATA SET                |
| 25   |      | AUTO/MANUAL MODE, CYCLE START/FEED HOLD      | 175 P40 SPINDLE rpm DATA SET              |
| 26   | 20   | WARMING UP                                   | 176 P42 inch --> mm DATA CHANGE           |
| 27   | 20   | ATC CONTROL                                  | 177 P45 ATC DATA SET                      |
| 28   |      | LS CONF., T DATA SEARCH (EIA)                | 177 P46 DNC INTERFACE                     |
| 29   |      | TBR START & TPF, T DATA SET                  | 179 P47 MACHINE POSITION +, -             |
| 30   |      | ATC STEP P50, P51, P52, P54                  | 180 P49 ZERO RETURN MEMORY                |
| 31   |      | TOOL SELECT                                  | 181 P51 POCKET NO.SEARCH                  |
| 32   |      | TOOL CLAMP/UNCLAMP                           | 181 P52 TOOL NO.SEARCH                    |
| 33   |      | TOOL HOLDER UP/DOWN, ATC UNIT MAG./SP.       | 181 P53 SP.&PK.TOOL CHANGE                |
| 34   |      | ARM CHANGE(60,180)                           | 183 P54 INTERFERENCE OF TOOL              |
| 35   | 52   | COOLANT CONTROL                              | 185 P56 ATC COVER                         |
| 36   | 54   | INDEX/ROTARY TABLE                           | 187 P60 PALLET CHANGE CONTROL (V515N)     |
| 37   | 58   | TOOL MEASURE CONTROL                         | 211 P61 PALLET CHANGE CONTROL (V414,V655) |
| 38   | 61   | POINT TO POINT CONTROL                       | 228 P91 MG. CRT                           |
| 39   | 61   | MONITOR SYSTEM CONTROL                       | 231 P92 MG. CRT                           |
| 40   |      | TPS, TLM                                     | 234 P93 MG. CRT                           |
| 41   |      | PTP BLOCK MEMORY                             | 236 P94 MG. CRT                           |
| 42   |      | TBR, TOOL LIFE                               | 239 P95 MG. CRT                           |
| 43   |      | AFC, MMSC AXIS MOVE                          | 249 P96 MG. CRT                           |
| 44   | 69   | SPINDLE CONTROL                              | 250 P97 MG. CRT                           |
| 45   |      | GEAR SHIFT                                   | 250 P98 MG. CRT                           |
| 46   |      | SPINDLE ORIENT                               | 259 P99 MG. CRT                           |
| 47   |      | SPINDLE FORWARD/REVERSE                      | 262 P100 MG. CRT                          |
| 48   | 76   | OPERATING PANEL CONTROL                      | 271 P101 MG. CRT                          |
| 49   |      | ALL ZERO RETURN,MANUAL AXIS MOVE SW.         | 282 P102 MG. CRT                          |
| 50   |      | JOG FEED SET, SPINDLE OVERRIDE               | 284 P120 WARM UP                          |
| 51   |      | AXIS INTERLOCK                               | 289 P131 OUTPUT (OPTION)                  |
| 52   |      | RAPID OVERRIDE, PROGRAM KEY                  | 290 ( END ) (SUB END)                     |
| 53   |      | HANDLE SELECT                                |                                           |
| 54   |      | MENU CONTROL, MODE CHANGE & LAMP             |                                           |
| 55   | 100  | EXTERNAL M CODE CONTROL                      |                                           |
| 56   | 101  | ALARM                                        |                                           |
| 57   | 124  | M, S, T FINISH                               |                                           |
| 58   |      | SCAN TIME COUNT, M S T FINISH, PRG.END LIGHT |                                           |
| 59   | 128  | MG. PANEL CONTROL                            |                                           |
| 60   | 133  | ( FEND ) (MAIN END)                          |                                           |

|                         |                                                                                                                   |             |             |                        |
|-------------------------|-------------------------------------------------------------------------------------------------------------------|-------------|-------------|------------------------|
| CHANGE VERSION:980312KS | <br>YAMAZAKI MAZAK CORPORATION | CHK'D BY    | DRWN BY     | TITLE                  |
| CHANGE VERSION:980202KS |                                                                                                                   | Feb. 12 '97 | Feb. 12 '97 | SEQUENCE LADDER        |
| CHANGE VERSION:970620KS |                                                                                                                   |             |             | (LADDER SHEET 290)     |
| CHANGE VERSION:970321KS |                                                                                                                   | H.SHIBATA   | K.SUGIURA   | DRWN NO. 53900180025.0 |
| CHANGE VERSION:970212KS |                                                                                                                   |             |             |                        |

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