

OPERATOR'S MANUAL

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SUPER PREPOINT & CHAMFER MACHINE OWNERS MANUAL

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OPERATOR'S MANUAL

SCREEN #1, HOME SCREEN

"SUPER PREPOINT & CHAMFER"	MAIN MENU				
F1 = OPERATOR SETUP	No Faults				
F2 = MODES OF OPERATION					
F3 = FAULTS if Flashing--> FAULTS !!					
SETUP	MODES	FAULT	_____	_____	ALARM
F1	F2	F3	F4	F5	F6

This is the **Main Menu** Screen for the **Super Prepoint & Chamfer machine**. When the machine is powered up either by choice or power failure, the "**FAULTS !!**" prompt will be flashing. The Operator then needs to press the '**FAULT**' **Button** (F3) and follow the prompts from the **FAULT** Screen. See page #33. When ALL Faults have been solved, the Operator will return back to this Screen. The "**FAULTS !!**" prompt will be gone and "**No Faults**" prompt will be seen.

Next the Operator will be able to select:

F1 SETUP -- OPERATOR SETUP (See page 3)

F2 MODES -- MODES OF OPERATION (See page 20)

F3 FAULT -- VIEW AND CLEAR ANY FAULTS(See page 33)

F4 MASKED -- Special Engineering Setup.(See page 53)

F5 MASKED -- Exit Operator Run Mode.

F6 ALARM -- Clear any Input Over Limits Value made by Operator.

Press IF any Inverted (dark) Message is
Flashing at the very top of the Operator Screen.

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SCREEN #2, OPERATOR SETUP SCREENS, F1 FROM MAIN MENU

OPERATOR SETUP FUNCTIONS					
PREPOINT ;Diameter & Angle (From List)					
45 Deg.CHAMFER ; Long and Short					
MANUAL ENTRY ; PREPOINT OR CHAMFER					
MORE ; FUNCTIONS					
MENU	POINT	45-CF	MAN-E	_____	MORE

F1 F2 F3 F4 F5 F6

F1 : MENU -- Return to Main Menu.

F2 : PREPOINT -- This function uses pre-loaded Angles from a "look up" table in the PLC logic and calculates the Trig. for the Cross Slide Infeed Travel. Diameter and Angle Required.
(see page 4).

F3 : 45 DEG. CHAMFER -- This function uses a constant Trig value in the PLC logic and calculates the Cross Slide Infeed Travel. Diameter and Chamfer Leg Distance required. (see page 5).

F4 : MANUAL ENTRY -- This function does not calculate and therefore requires an Operator to provide the Cross Slide Infeed Travel Distance. (see page 8).

F5 : Not Used

F6 : MORE -- More Operator Setup Parameters to be made. (see page 9).

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SCREEN #3, PREPOINT, F2 FROM OPERATOR SETUP SCREEN

```
"PREPOINT FUNCTION"   Old ANGLE= RRR Deg
Angle List: 90,118, 135, 140, 145,
& 150 Deg.---->Enter New ANGLE:   xxx Deg
                        Rod DIAMETER:  x.xxx Dia
Rough Cut:x.xxxxIn.   Fine Cut: x.xxxxIn.
```

```
SETUP   MENU   ANGLE   DIA.   ROUGH   FINE
```

```
F1      F2      F3      F4      F5      F6
```

F1 : SETUP -- Return to Operator Setup.

F1 : MENU -- Return to Main Menu.

F3 : ANGLE -- Press this Button to enter a New Angle. This Angle must be from the pre-loaded "Angle List" to be able to calculate the Cross Infeed.

F4 : DIAMETER -- Press this Button to enter the Rod Diameter. The Diameter is Required for all functions.

F5 : ROUGH-- Press this Button to enter the value of how aggressively the Cross Slide will start to grind the material from the Rod. Value range is 0.0030" to 0.0400".

F6 : FINE -- Press this Button to enter the value of least amount of material that the Cross Slide will grind from the Rod. Value range is 0.0001" to 0.0100".

Note: The **PREPOINT FUNCTION** will make the Cross Slide Infeed Progressions will become less each grind stroke, until it reaches the "FINE Value", because the PLC will using the percentage of the *Remaining Total Infeed Distance* to calculate each Infeed Index Move.

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SCREEN #4, CHAMFER, F3 FROM OPERATOR SETUP SCREEN

"45 DEG. CHAMFER FUNCTIONS"					
LONG	Chamfer	--	Leg & Diameter		
SHORT	Chamfer	--	Leg & Diameter & Number of Cuts		
SETUP	MENU	_____	LONG	_____	SHORT

F1 F2 F3 F4 F5 F6

F1 : SETUP -- Return to Operator Setup.

F2 : MENU --- Return to Main Menu.

F4 : LONG --- Select Long Chamfer.

F6 : SHORT -- Select Short Chamfer.

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SCREEN #5, LONG CHAMFER, F4 from Chamfer Functions.

"LONG 45 DEG. CHAMFER FUNCTION"					
Enter Chamfer LEG Distance: x.xxx In.					
Rod DIAMETER: x.xxx Dia.					
Rough Cut: x.xxxxIn. Fine Cut: x.xxxxIn.					
BACK	MENU	LEG	DIA.	ROUGH	FINE

F1 F2 F3 F4 F5 F6

F1 : BACK -- Return to Chamfer Setup Functions.

F1 : MENU -- Return to Main Menu.

F3 : LEG ---- Press this Button to enter the *Chamfer Leg Distance* of the Rod.

F4 : DIAMETER -- Press this Button to enter the Rod Diameter.

The Diameter is Required for all functions.

F5 : ROUGH-- Press this Button to enter the value of how aggressively the Cross Slide will start to grind the material from the Rod. Value range is 0.0030" to 0.0400".

F6 : FINE -- Press this Button to enter the value of least amount of material that the Cross Slide will grind from the Rod. Value range is 0.0001" to 0.0100".

Note: The **45DEG. CHAMFER FUNCTION** will make the Cross Slide Infeed Progressions will become less each grind stroke, until it reaches the "FINE Value", because the PLC will using the percentage of the *Remaining Total Infeed Distance* to calculate each Infeed Index Move.

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SCREEN #6, SHORT CHAMFER, F4 from Chamfer Functions.

```
"SHORT 45 DEG. CHAMFER FUNCTION"
Enter Chamfer LEG Distance:  x.xxx In.
                        Rod DIAMETER:  x.xxx Dia.
Infeed= x.xxxIn.          Chamfer CUTS: xx
BACK   MENU   _____  LEG   DIA   CUTS
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Return to Chamfer Setup Functions.

F1 : MENU -- Return to Main Menu.

F3 : NO FUNCTION -- Infeed= (Reads calculated Infeed Distance)

F4 : LEG ---- Press this Button to enter the *Chamfer Leg Distance* of the Rod.

F5 : DIAMETER -- Press this Button to enter the Rod Diameter.

The Diameter is Required for all functions.

F6 : CUTS -- Press this Button to enter the number of CUTS to do the complete chamfer. The "Infeed=" will be divided into equal parts by the CUTS number.

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SCREEN #7, MANUAL ENTRY, F4 FROM OPERATOR SETUP SCREEN

```
"MANUAL ENTRY FUNCTION"
Enter Coss Side   INFEEED:  x.xxx In.
                  Rod DIAMETER:  x.xxx Dia.
Rough Cut: x.xxxxIn. Fine Cut: x.xxxxIn.
SETUP  MENU    INFEE  DIA.    ROUGH  FINE
```

F1 F2 F3 F4 F5 F6

Note: This Function **requires** the **Operator** to *provide* the Cross Slide Infeed Distance. Use this Function only if the Angles are not Listed in the Angle Table for convenience.

F1 : SETUP -- Return to Operator Setup.

F1 : MENU --- Return to Main Menu.

F3 : INFEEED -- Press this Button to enter the Amount of *CROSS SLIDE INFEEED* of the Rod.

F4 : DIAMETER -- Press this Button to enter the Rod Diameter.

The Diameter is Required for all functions.

F5 : ROUGH-- Press this Button to enter the value of how aggressively the Cross Slide will start to grind the material from the Rod. Value range is 0.0030" to 0.0400".

F6 : FINE -- Press this Button to enter the value of least amount of material that the Cross Slide will grind from the Rod. Value range is 0.0001" to 0.0100".

Note: The **MANUAL ENTRY FUNCTION** will make the Cross Slide Infeed Progressions will become less each grind stroke, until it reaches the "FINE Value", because the PLC will using the percentage of the *Remaining Total Infeed Distance* to calculate each Infeed Index Move.

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SCREEN #8, MORE OPERATOR FUNCTIONS, F5 FROM OPERATOR SETUP SCREEN

"OPERATOR SETUP CONTINUED"					
F3 = ROD Diameter / WHEEL Wear & Dia.					
F4 = Count Down Function					
F5 = COUNTERS					
F6 = AXIS -- Set Positions					
SETUP	MENU	R / W	C-D-F	COUNT	AXIS

F1	F2	F3	F4	F5	F6
----	----	----	----	----	----

F1 : SETUP -- Return to OPERATOR SETUP (see page 3).

F2 : MENU --- Return to MAIN MENU (see page 2).

F3 : R / W -- ROD Diameter and Wheel Wear Comp. and Select Wheel Dia.
(see page 10).

F4 : C-D-F -- Cycle COUNT DOWN Function. (see page 10).

F5 : COUNT -- PRODUCTION COUNT and Machine OILER ON & OILER RUN TIME
(see page 11).

F6 : AXIS --- SET AXIS POSITIONS Functions (see page 12).

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SCREEN #9 , F3 FROM 2'ND OPERATOR SETUP SCREEN

```
ROD DIAMETER = x.xxx Dia.  
  
Wheel WEAR Compensation = x.xxx In.  
  
SELECT Wheel Dia. 8" or 10" = xx" Wheel  
BACK      MENU      ROD      WEAR      SEL      _____
```

F1 F2 F3 F4 F5 F6

F1 : BACK --- Return to OPERATOR SETUP CONTINUED (See page 9)

F2 : MENU --- Return to MAIN MENU

F3 : ROD ---- Press this to enter Rod Diameter.

F4 : WEAR --- Press this to enter a Wheel Wear Compensation.

F5 : SEL ---- Press this to Select the Wheel Diameter. Then adjust
the CROSS+OT Value. (see Engineering page 48)

SCREEN #10

```
SELECT Cycle Count Down Function?: OFF  
  
Starting Count Down VALUE = xxx  
  
                  RESET Count Down : RRR  
BACK      MENU      _____  SELCT  VALUE  RESET
```

F1 F2 F3 F4 F5 F6

F1 : BACK --- Return to OPERATOR SETUP CONTINUED (See page 9)

F2 : MENU --- Return to MAIN MENU

F4 : SELCT -- Press this to Toggle Count Down Function "OFF or ON"

F5 : VALUE -- Press this to enter the Starting Count Down Value.

F6 : RESET -- Press this to Reset the Count Down Counter to Starting
Value.

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SCREEN #11, PRODUCTION COUNTER, F5 FROM 2'ND OPERATOR SETUP SCREEN

```
PRODUCTION COUNTER = xxxxx
F3 = To ADJUST Count;  F4 = RESET Count

Start OILER after ? Cycles :  xxx Cycles
Number of Oiler SHOTS (1-5):  xx Shots

BACK      MENU      ADJUS      RESET      OILER      SHOTS
```

F1 F2 F3 F4 F5 F6

F1 : BACK --- Return to OPERATOR SETUP CONTINUED (See page 9)

F2 : MENU --- Return to MAIN MENU

F3 : ADJUS -- Press this to Adjust the Production Count if needed.

F4 : RESET -- Press this to Reset the Production Count to Zero.

F5 : OILER -- Press this to enter the Number of Run Cycles needed to start the Machine Oiler.

F6 : SHOTS -- Press this to enter the number of Shots the Machine Oiler will make to lube the moving parts.

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SCREEN #12 ,F6 FROM 2'ND OPERATOR SETUP

"OPERATOR SETUP AXIS FUNCTIONS"					
CROSS	Axis - Set Touch Off				
SHUTTLE	Axis - Rod Extension	No Faults			
LOADER	Axis - Start Position	FAULTS!!			
UNLOADER	Axis - Start Position				
BACK	FAULT	CROSS	SHUTL	LOAD	UNLOD
F1	F2	F3	F4	F5	F6

- F1 : BACK** ---- Return to OPERATOR SETUP CONTINUED (See page 9)
- F2 : FAULTS** -- Press this if the "**FAULTS !!**" prompt is flashing
- F3 : CROSS** --- Press this to Select the Cross Slide Axis Setup Touch Off.
- F4 : SHUTL** --- Press this to Select the SHUTTLE Axis Rod Extension value and Loading Position.
- F5 : LOAD** ---- Press this to Select the LOADER Axis.
- F6 : UNLOD** --- Press this to Select the UNLOADER Axis.

OPERATOR'S MANUAL

SCREEN#56, F4 From Operator Setup AXIS Functions

```
"CROSS SLIDE SETUP"  FAULTS!! No Faults
This Page Will Guide The Operator thru
Shuttle Loading the Rod in the Collet.
```

```
Press: [MESSAGE PROMPT]
```

```
BACK   _____  STEP   _____  _____  MORE
```

```
F1      F2      F3      F4      F5      F6
```

F1 : BACK --- Return to Operator Setup Jog Functions (See page 12)

F3 : STEP --- Press this to STEP thru the semi auto loading of the rod to the collet and start the Work Head.

[MESSAGE PROMPT] will inform the operator of what will happen and which key to press.

F6 : MORE --- Press this to Select the next process.

SCREEN#57

```
"CROSS SLIDE SETUP"  FAULTS!! No Faults
Wheel Head  STOP:
Wheel Head  START:
Wheel Head Speed = xxxx FPM
```

```
BACK   STOP   START   _____  FPM   MORE
```

```
F1      F2      F3      F4      F5      F6
```

F1 : BACK --- Return to Back 1 Screen

F2 : STOP --- STOP the Wheel Head Motor.

F3 : START -- START the Wheel Head Motor.

F4 : Not Used.

F5 : FPM ---- Press this to enter the Wheel Head "Feet/Per/Minute".

F6 : MORE --- Press this to Select the next process. (see page 14)

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SCREEN#58

```
"CROSS SLIDE SETUP"  FAULTS!! No Faults
Main Table           OUT:
Main Table  IN & OSCILLATE:  Table-OUT

BACK      OUT      IN      _____  _____  MORE
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Return to Back 1 Screen (see page 13)

F2 : OUT --- Main Table Out to Home.

F3 : IN --- Main Table In & Oscillate from the End Limit to the Repeat Limit.

F4 : Not Used.

F5 : Not Used.

F6 : MORE --- Press this to Select the next process. (see page 15)

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SCREEN#59

```
SETUP CROSS SLIDE AXIS"      ABS=  RR.RRRR
F2 = Pick Feed & Set Start Position
Jog Feed Rate: SLOW          OVER TRAVELS
Faults:  None
BACK    PICK    SLOW    RAPID    IN    OUT
```

F1 F2 F3 F4 F5 F6

- F1 : BACK** ---- Back 1 Screen (See page 14)
- F2 : PICK** -- Press this to go to the next process.
- F3 : SLOW** -- Select Slow Jog Travel
- F4 : RAPID** - Select Rapid Jog Travel
- F5 : IN** --- Jog In
- F5 : OUT** -- Jog Out

SCREEN #60

```
Setup Cross Slide Axis      ABS=  RR.RRRR
SET Axis Touch Off Position: x.xxx In.
Faults:  None      Pick RATE= x.xxx In.
BACK    SET    RATE    PKOUT    PK-IN    GOHOM
```

F1 F2 F3 F4 F5 F6

- F1 : BACK** -- Back 1 screen (see page 15)
- F2 : SET** -- Push this to enter the value of the Touch Off Position.
- F3 : RATE** -- Push this to enter the value of the Pick Feed Rate.
- F4 : PKOUT** - Pick Out direction of the Axis.
- F5 : PK-IN** - Pick In direction of the Axis.
- F6 : GOHOM** - Send Axis to Home Position (ABS 0.0000).

OPERATOR'S MANUAL

SCREEN#14, F4 From Operator Setup AXIS Functions

"Setup SHUTTLE AXIS" ABS= RR.RRR	
F2 = Rod Extension & Load Position	
Jog Feed Rate: SLOW	OVER TRAVELS
Faults: None	
BACK F2 SLOW RAPID IN OUT	

F1 F2 F3 F4 F5 F6

F1 : BACK -- Return to Operator Setup Functions (See page 12)

F2 : F2 ---- Select to Go to next screens to Set Rod Extension or Shuttle Load Position.

F3 : SLOW -- Select Slow Jog Travel

F4 : RAPID - Select Rapid Jog Travel

F5 : IN --- Jog In

F5 : OUT -- Jog Out

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SCREEN #15

```
"Rod Extension" ;Shuttle Axis ABS= RR.RRR
      Shuttle approx. Position = 12.125"
      Rod avr. Extension = 0.875 In.
Faults:  None      F3 = SET Ext: x.xxx In.
BACK    MORE      SET    GOHOM   IN      OUT
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 Screen (see page 16)

F2 : MORE -- Go to Next Screen.

F3 : SET --- Select to Enter Value of Rod Extension.

F4 : GOHOM - Send Axis to Home Position (ABS 0.000").

F5 : IN ---- Jog Axis IN

F6 : OUT --- Jog Axis OUT

SCREEN #16

```
Setup Shuttle Axis            ABS=  RR.RRR
F2 = Store ABS Position to
      Loading Position: RR.RRR In.
Faults:  None
BACK    STORE    _____  GOHOM   IN      OUT
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 2 Screens (see page 16)

F2 : STORE - Select to Store ABS Value for Loading Position.

F3 : Not Used

F4 : GOHOM - Send Axis to Home Position (ABS 0.000").

F5 : IN ---- Jog Axis IN

F6 : OUT --- Jog Axis OUT

OPERATOR'S MANUAL

SCREEN#17, F5 From Operator Setup AXIS Functions

"Setup LOADER AXIS" ABS= RR.RRR					
F2 : for Start and Full Load Position					
Jog Feed Rate: SLOW	OVER TRAVELS				
Faults: None					
BACK	F2	SLOW	RAPID	IN	OUT

F1 F2 F3 F4 F5 F6

F1 : BACK -- Return to Operator Setup Functions (See page 12)

F2 : F2 ---- Select to to Set the Loader Starting Position.

F3 : SLOW -- Select Slow Jog Travel

F4 : RAPID - Select Rapid Jog Travel

F5 : IN --- Jog In

F5 : OUT -- Jog Out

SCREEN #18,

Setup Loader Axis ABS= RR.RRR					
F2 :STORE ABS to Start Position: RR.RRR					
F4 : Go To Full Load Position					
Faults: None					
BACK	STORE	_____	GOTO	IN	OUT

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 Screen

F2 : STORE - Select to Store ABS Value for Starting Position.

F4 : GOTO -- Select to GOTO Full Load Position.

F5 : IN ---- Jog Axis IN

F6 : OUT --- Jog Axis OUT

Note: After filling Loader Axis table, then Jog Axis In until the Rod falls into the Rod Bushing of the Shuttle.

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SCREEN#19, F6 From Operator Setup AXIS Functions

```
"Setup UNLOADER AXIS"      ABS=  RR.RRR
F2 = Next; Unloader Start Position
Jog Feed Rate: SLOW          OVER TRAVELS
Faults:  None
BACK      F2      SLOW      RAPID      IN      OUT
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Return to Operator Setup Functions (See page 12)

F2 : F2 ---- Go to next screen for Unloader Starting Position.

F3 : SLOW -- Select Slow Jog Travel

F4 : RAPID - Select Rapid Jog Travel

F5 : IN --- Jog In

F5 : OUT -- Jog Out

SCREEN #20, PLC LOGIC CALCULATES THIS VALUE

```
Setup Unloader Axis      ABS=  RR.RRR
See Engineer: Unloader Start Position =
(+OverTavel - Rod Diameter)= RR.RRR In.
Faults:  None
BACK      _____      _____      _____      IN      OUT
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 Screen

Engineering Value:

Starting Position = (+Unloader Over Travel - Rod Diameter)

F2 : Not Used

F3 : Not Used

F4 : Not Used

F5 : IN ---- Jog Axis IN

F6 : OUT --- Jog Axis OUT

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SCREEN #21 OPERATOR MODES

"OPERATOR MODES"		No Faults			
Select Modes:		MANUAL			
FAULTS!!		JOG Axis			
		HAND / SINGLE / AUTO			
MENU	FAULT	_____	MAN	JOG	H/S/A

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to Main Menu (see page 2)

F2 : FAULT -- Select this Key if the "FAULTS!!" prompt is Flashing.
(see page 33)

F3 : Not Used.

F4 : MAN ---- Select this Key to Manually Operate the Machine. This is
used to check out moving parts of the machine.(see page 21)

F5 : JOG ---- Select this Key to Jog the Servo Axis. (see page 24)

F6 : H/S/A -- Select this Key to go to HAND / SINGLE / AUTO Cycle.
(see page 28)

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SCREEN #22 OPERATOR MANUAL MODE SCREEN 1

"MANUAL MODE PAGE#1"		No Faults			
CLOSE	Collet:				
OPEN	Collet:	CLOSED			
	Rod Pusher	OUT:			
	Rod Pusher	IN:	OUT		
BACK	CLOSE	OPEN	OUT	IN	MORE

F1 F2 F3 F4 F5 F6

F1 : BACK --- Return to Modes Screen, or "FAULTS!!" (see page 20)

F2 : CLOSE -- Close Collet

F3 : OPEN --- Open Collet ; [status CLOSED, OPEN]

F4 : OUT ---- Move Rod Pusher Out

F5 : IN ----- Move Rod Pusher In ; [status OUT, IN]

F6 : MORE --- Go to next Manual screen.

SCREEN #23

"MANUAL MODE PAGE#2"		No Faults			
Rod Catcher	UP/DOWN:	UP			
	TIMING :	Catcher to Swing= x.x Sec			
Rod Swing	OUT ;	If Catcher is UP:			
Rod Swing	IN and	Catcher Down: OUT			
BACK	UP/DN	TMR	OUT	IN	MORE

F1 F2 F3 F4 F5 F6

F1 : BACK --- Back 1 Screen or "FAULTS!!".

F2 : UP/DN -- Rod Catcher Up or Down : [Status UP, DOWN]

F3 : TMR ---- Timing between Rod Swing In and Rod Catcher Down

F4 : OUT ---- Move Rod Swing Out

F5 : IN ----- Move Rod Swing In and Rod Catcher Down. [Status OUT, IN]

F6 : MORE --- Go to next Manual screen. (see page 22)

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SCREEN #24 OPERATOR MANUAL MODE SCREEN 3

```
"MANUAL MODE PAGE#3"                No Faults
Ejector LOW Pressure:
Ejector Hi Pressure:  EJECT-LOW
Ejector RETRACT:
Ejector  EXTEND:  RETEACT

BACK      LOW      HI      RET      EXT      MORE
```

F1 F2 F3 F4 F5 F6

- F1 : BACK** --- Back 1 Screen or "FAULTS!!". (see page 21)
- F2 : LOW** ---- Rod Ejector LOW Pressure.
- F3 : HI** ----- Rod Ejector HI Pressure: [Status EJECT-LOW, EJECT-HI]
- F4 : RET** ---- Retract Rod Ejector.
- F5 : EXT** ---- Extend Rod Ejector. [status RETRACT, EXTEND]
- F6 : MORE** --- Go to next Manual screen.

SCREEN #25

```
"MANUAL MODE PAGE#4"                No Faults
Work Head      OFF:
Work Head  MANUAL:  Work Head-OFF

Work Head ROD Speed = RRRRR RPM

BACK      OFF      MAN      _____      MORE
```

F1 F2 F3 F4 F5 F6

- F1 : BACK** --- Back 1 Screen or "FAULTS!!".
- F2 : OFF** ---- Work Head OFF. [Status Work Head-OFF, Work Head-MAN]
- F3 : MAN** ---- Work Head Manually On:
- Work Head Speed is Calculated from Rod Diameter.
- F4 : Not Used** **F5 : Not Used**
- F6 : MORE** --- Go to next Manual screen. (see page 23)

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SCREEN #26 OPERATOR MANUAL MODE SCREEN 5

```
"MANUAL MODE PAGE#5"                No Faults
Wheel Head  STOP:
Wheel Head  START:  Wheel Head-OFF

      Wheel Head Speed = xxxx FPM

BACK      STOP      START      _____      FPM      MORE
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 Screen or "FAULTS!!". (see page 21)

F2 : STOP -- Stop Wheel Head.

F3 : START - Start Wheel Head: [Status Wheel Head-OFF, Wheel Head-ON]

F4 : Not Used

F5 : FPM --- Select to enter Wheel Head "Feet Per Minute"

F6 : MORE -- Go to next Manual screen.

SCREEN #27

```
"MANUAL MODE PAGE#1"                No Faults
Main Table Move  OUT:
Main Table Move  IN:  Table-OUT
      COOLANT Solenoid Off/Man: Coolant-OFF
      JOG Axis

BACK      MENU      OUT      IN      COOL      JOG
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 Screen or "FAULTS!!".

F2 : MENU -- Back to MODE Menu screen. (see page 20)

F3 : OUT --- Move Main Table Out to Home.

F4 : IN ---- Move Main Table In; [Status Table-OUT, Table-IN]

F5 : COOL -- Toggle Coolant Solenoid; [Status Coolant-OFF, Coolant-ON]

F6 : JOG --- Go to next Manual screen. (see page 24)

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SCREEN #28 OPERATOR MANUAL MODE - JOG

"JOG FUNCTIONS"			No Faults		
CROSS	Slide Axis	FAULTS!!			
SHUTTLE	Axis	Axis Fault			
LOADER	Axis	Axis Fault			
UNLOADER	Axis	Axis Fault			
BACK	FAULT	CROSS	SHUTL	LOAD	UNLOD

F1 F2 F3 F4 F5 F6

- F1 : BACK** -- Back 1 Screen. (see page 23)
- F2 : FAULT** - Select if "FAULTS!!" or "Axis Fault" prompt is Flashing.
- F3 : CROSS** - Select Manual Cross Axis. (see page 25)
- F4 : SHUTL** - Select Manual Shuttle Axis. (see page 25)
- F5 : LOAD** -- Select Manual Loader Axis. (see page 26)
- F6 : UNLOD** - Select Manual Unloader Axis. (see page 26)

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SCREEN #29 OPERATOR MANUAL MODE - JOG

```
"JOG CROSS SLIDE AXIS"  ABS=  RR.RRRR
      FAULTS!!
Jog Feed Rate: SLOW      OVER TRAVELS
Faults:  None
BACK      SLOW      RAPID      GOHOM      IN      OUT
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Jog Screen or if "FAULTS!!". (see page 24)

F2 : SLOW -- Select for Slow Jog Rate of 0.050" per Sec.

F3 : RAPID - Select for Rapid Jog Rate of 1.000" per Sec.

F4 : GOHOM - Select to Send Axis to Home Position ABS 0.0000"

F5 : IN ---- Select to Jog Axis In.

F6 : OUT --- Select to Jog Axis Out.

SCREEN #30

```
"JOG SHUTTLE AXIS"      ABS=  RR.RRR
      FAULTS!!
Jog Feed Rate: SLOW      OVER TRAVELS
Faults:  None
BACK      SLOW      RAPID      GOHOM      IN      OUT
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Jog Screen or if "FAULTS!!". (see page 24)

F2 : SLOW -- Select for Slow Jog Rate of 0.050" per Sec.

F3 : RAPID - Select for Rapid Jog Rate of 1.000" per Sec.

F4 : GOHOM - Select to Send Axis to Home Position ABS 0.0000"

F5 : IN ---- Select to Jog Axis In.

F6 : OUT --- Select to Jog Axis Out.

OPERATOR'S MANUAL

SCREEN #31 OPERATOR MANUAL MODE - JOG

"JOG LOADER AXIS" ABS= RR.RRR	
FAULTS!!	
Jog Feed Rate: SLOW	OVER TRAVELS
Faults: None	
BACK SLOW RAPID _____	IN OUT
F1 F2 F3 F4	F5 F6

F1 : BACK -- Back to Jog Screen or if "FAULTS!!". (see page 24)

F2 : SLOW -- Select for Slow Jog Rate of 0.050" per Sec.

F3 : RAPID - Select for Rapid Jog Rate of 1.000" per Sec.

F4 : Not Used

F5 : IN ---- Select to Jog Axis In.

F6 : OUT --- Select to Jog Axis Out.

SCREEN #32

"JOG UNLOADER AXIS" ABS= RR.RRR	
FAULTS!!	
Jog Feed Rate: SLOW	OVER TRAVELS
Faults: None	
BACK SLOW RAPID _____	IN OUT
F1 F2 F3 F4	F5 F6

F1 : BACK -- Back to Jog Screen or if "FAULTS!!". (see page 24)

F2 : SLOW -- Select for Slow Jog Rate of 0.050" per Sec.

F3 : RAPID - Select for Rapid Jog Rate of 1.000" per Sec.

F4 : Not Used

F5 : IN ---- Select to Jog Axis In.

F6 : OUT --- Select to Jog Axis Out.

OPERATOR'S MANUAL

SCREEN #33 OPERATOR SELECT HAND & SINGLE/AUTO CYCLE OPTIONS

HAND & Single/Auto Cycle -- OPTIONS					
STOP - ALL Cycles & Menu					
F2 : Dwell Collet Close = x.x Sec					
Wheel Head Speed = xxxx FPM					
Number of DWELL Cuts: x DWELLS					
STOP	COLET	FPM	DWELL	HAND	S/A-C

F1	F2	F3	F4	F5	F6
----	----	----	----	----	----

F1 : STOP -- STOP ANY CYCLE and back to MODE Menu screen.

(see page 24)

F2 : COLET - Enter Time to Dwell the Collet Closing.

F3 : FPM --- Change the Wheel Head Speed in "Feet Per Minute".

F4 : DWELL - To enter the Number of no Infeed cuts; value 0 to 5.

F5 : HAND -- Select HAND Load Cycle. (see page 29)

F6 : S/A-C - Select SINGLE and AUTO Cycle. (see page 28)

OPERATOR'S MANUAL

SCREEN #34 OPERATOR SELECT SINGLE/AUTO CYCLE OPTIONS

```
-- Single / Auto Cycle -- OPTIONS
BACK :to Options; Stop & Mode Menu
  LOADER --- Return to Start Position
    UNLOADER - Return to Start Position
      F6 = MORE Single/Auto Options
BACK   _____ LOAD   UNLOD   _____ MORE
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 screen for Options. (see page 27)

F2 : Not Used.

F3 : LOAD -- Select to send Loader Axis to previous Start Position.

F4 : UNLOD - Select to send Unloader Axis to previous Start Position.

F5 : Not Used.

F6 : MORE -- Select for More SINGLE and AUTO Cycle Options.

SCREEN #35

```
-- Single / Auto Cycle -- OPTIONS
BACK :to Options;
  SELECT - Cycle Count Down: OFF
    RESET - Count Down VALUE: RRR
      F6 = Goto Single Cycle
BACK   _____ SELCT  RESET   _____ SINGL
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back 1 screen for Options.

F2 : Not Used.

F3 : SELCT - Toggles "Cycle Count Down" Off or On. [Status OFF, ON]

F4 : RESET - Reset "Cycle Count Down" to Preset Value to use again.

F5 : Not Used.

F6 : SINGL - Select SINGLE and AUTO Cycle. (see page 30)

OPERATOR'S MANUAL

SCREEN #36 OPERATOR MODE - HAND LOAD CYCLE

```
-HAND LOAD CYCLE--> [MESSAGE PROMPT]
Point Angle=000      Chamfer Leg=  0.000
Rod Dia.  = 0.000    Cross Infeed= 0.000
Coolant:Off/Auto= OFF  FAULTS!! No Faults
Cross ABS= 0.0000In.   Start Pos= 0.000

STOP      START    COOL    _____  BACK    FAULT
```

F1 F2 F3 F4 F5 F6

F1 : STOP --- STOP Hand Load Cycle.

F2 : START -- START Hand Load Cycle.

F3 : COOL --- Toggle the Coolant Solenoid Off/On. [Status OFF, ON]

F4 : Not Used.

F5 : BACK --- Back to Hand / Single/Auto Options screen. (see page 27)

F6 : FAULT -- Select this if the "FAULTS!!" prompt is flashing.

[MESSAGE PROMPT] prompts to:

Open Collet, Load Rod, Close Collet, Start Cycle;

by pressing F2 Cycle Start.

Point Angle: displays the Rod Angle selected by Setup if used.

Rod Dia. : displays the Rod Diameter selected by Setup.

Coolant : displays the status of the coolant solenoid.

Chamfer Leg: displays the Length of the Chamfer Leg if used.

Cross Infeed: displays the calculated or entered Cross Infeed distance.

Start Pos : displays the Cross Axis Starting (Touch off) Value.

Cross ABS : displays the Cross Axis ABS Position.

Faults status : displays either "No Faults" or "FAULTS!!" flashing.

OPERATOR'S MANUAL

SCREEN #37 OPERATOR MODE - SINGLE CYCLE

```
--SINGLE CYCLE--> "[MESSAGE PROMPT]"
Point Angle=000      Chamfer Leg= 0.000
Rod Dia. = 0.000     Cross Infeed= 0.000
Coolant:Off/Auto= OFF FAULTS!! No Faults
Cross ABS=00.0000In. Start Pos=0.000

STOP      START    COOL     AUTO     BACK     FAULT
```

F1 F2 F3 F4 F5 F6

F1 : STOP --- STOP Hand Load Cycle.

F2 : START -- START Hand Load Cycle.

F3 : COOL --- Toggle the Coolant Solenoid Off/On. [Status OFF, ON]

F4 : AUTO --- Select Full Auto Cycle. (see page 31)

F5 : BACK --- Back to Single/Auto Options screen. (see page 28)

F6 : FAULT -- Select this if the "FAULTS!!" prompt is flashing.

[MESSAGE PROMPT] displays either:

POINT OPERATION , CHAMFER OPERATION, SHORT CHAMFER,

MANUAL ENTRY

Point Angle: displays the Rod Angle selected by Setup if used.

Rod Dia. : displays the Rod Diameter selected by Setup.

Coolant : displays the status of the coolant solenoid.

Chamfer Leg: displays the Length of the Chamfer Leg if used.

Cross Infeed: displays the calculated or entered Cross Infeed distance.

Start Pos : displays the Cross Axis Starting (Touch off) Value.

Cross ABS : displays the Cross Axis ABS Position.

Faults status : displays either "No Faults" or "FAULTS!!" flashing.

OPERATOR'S MANUAL

SCREEN #38 OPERATOR MODE - AUTO CYCLE

```
--AUTO CYCLE---> "[MESSSAGE PROMPT]"
Point Angle=000      Chamfer Leg=  0.000
Rod Dia.  = 0.000    Cross Infeed= 0.000
Coolant:Off/Auto= OFF  FAULTS!! No Faults
Cross ABS= 0.0000In.   Start Pos= 0.000

STOP      START    COOL     SINGL    _____    FAULT
```

F1 F2 F3 F4 F5 F6

F1 : STOP --- STOP Hand Load Cycle.

F2 : START -- START Hand Load Cycle.

F3 : COOL --- Toggle the Coolant Solenoid Off/On. [Status OFF, ON]

F4 : SINGL -- Select Single Auto Cycle. (see page 30)

F5 : Not Used.

F6 : FAULT -- Select this if the "FAULTS!!" prompt is flashing.

[MESSAGE PROMPT] displays either:

POINT OPERATION , CHAMFER OPERATION, SHORT CHAMFER,

MANUAL ENTRY

Point Angle: displays the Rod Angle selected by Setup if used.

Rod Dia. : displays the Rod Diameter selected by Setup.

Coolant : displays the status of the coolant solenoid.

Chamfer Leg: displays the Length of the Chamfer Leg if used.

Cross Infeed: displays the calculated or entered Cross Infeed distance.

Start Pos : displays the Cross Axis Starting (Touch off) Value.

Cross ABS : displays the Cross Axis ABS Position.

Faults status : displays either "No Faults" or "FAULTS!!" flashing.

OPERATOR'S MANUAL

SCREEN #39 OPERATOR MODE - SPARE

PAGE#39 SPARE					
LINE2					
LINE3					
LINE4					
LINE5					

F1	F2	F3	F4	F5	F6

SCREEN #40 OPERATOR MODE - SPARE

PAGE#40 SPARE					
LINE2					
LINE3					
LINE4					
LINE5					

F1	F2	F3	F4	F5	F6

OPERATOR'S MANUAL

SCREEN #41 FAULTS - SCREENS

AXIS	Fault = None	Axis Faults			
OVER Load	Fault = None	M.S. Over Loads			
AIR	Fault = None	Check Air Limits			
E-STOP	Error = None	E-Stop DOWN			
POWER UP	Error = None	POWER UP Error			
MENU	AXIS	OVERL	AIR	POWER	ALARM

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

Fault status: [None] = No faults, take no action.

[Fault Type Flashing] = Fault active, select proper Key.

Fault status is in order of priority.

F2 : AXIS --- Select this Key when "Axis Faults" if flashing.

(see page 34)

F3 : OVERL -- Select this Key when "M.S. Over Loads" is flashing.

(see page 39)

F4 : AIR ---- Select this Key when "Check Air Limits" is flashing.

(see page 39)

F5 : POWER -- Select this Key when "POWER UP ERROR" is flashing.

F6 : ALARM -- Select this Key If Alarm Tag is Flashing in upper screen area.

TURN E-STOP -- When "E-Stop DOWN" is Flashing.

OPERATOR'S MANUAL

SCREEN #42 FAULTS - SCREENS

AXIS FAULTS: Select When "ACTIVE"					
CROSS	Axis Fault=	None	ACTIVE		
SHUTTLE	Axis Fault=	None	ACTIVE		
LOADER	Axis Fault=	None	ACTIVE		
UNLOADER	Axis Fault=	None	ACTIVE		
BACK	_____	CROSS	SHUTL	LOAD	UNLOD

F1 F2 F3 F4 F5 F6

F1 : BACK --- Back to Main Fault Screen. (see page 33)

F2 : Not Used.

Status : None - No Fault, check Axis only if "Faults!!" flashing will not clear. Then check each Axis for Fault code number present.

ACTIVE - Select proper Key

F3 : CROSS -- Select this Key is "ACTIVE" is flashing. (see page 35)

F4 : SHUTL -- Select this Key is "ACTIVE" is flashing. (see page 36)

F5 : LOAD --- Select this Key is "ACTIVE" is flashing. (see page 37)

F6 : UNLOD -- Select this Key is "ACTIVE" is flashing. (see page 38)

OPERATOR'S MANUAL

SCREEN #43 FAULTS - SCREENS

```
CROSS AXIS FAULT:                    Axis Not Ready
Error Code = 0000                    Servo Not Enabled
Drive Not Enabled> F3                |Over Travel Stat:
                                      |-->
LOST Position> F4                    Axis Not Home
BACK       CLEAR    ENABL    HOME        _____
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Axis Fault screen. (see page 34)

F2 : CLEAR - If number is not 0000, Clears any Error for this Axis.

F3 : ENABL - Select this Key if "Drive Not Enabled> F3" is flashing.
"Drive Not Enabled> F3" changes to "None" when Key is accepted.

F4 : HOME -- Select this Key if "LOST POSITION> F4" is flashing.
Causes Axis to Find Home Limit and Zero Axis Position.
"LOST POSITION> F4" changes to "None" when Key is accepted.

F5 : Not Used.

F6 : Not Used.

[ERROR CODE = XXXX] Convert number base to HEX then see Section Error Codes.

OPERATOR'S MANUAL

SCREEN #44 FAULTS - SCREENS

```
SHUTTLE AXIS FAULT:      Axis Not Ready
Error Code = 0000      Servo Not Enabled
Drive Not Enabled> F3   |Over Travel Stat:
                        |-->
LOST Position> F4      Axis Not Home
BACK   CLEAR   ENABL  HOME   _____
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Axis Fault screen. (see page 34)

F2 : CLEAR - If number is not 0000, Clears any Error for this Axis.

F3 : ENABL - Select this Key if "Drive Not Enabled> F3" is flashing.
"Drive Not Enabled> F3" changes to "None" when Key is
accepted.

F4 : HOME -- Select this Key if "LOST POSITION> F4" is flashing.
Causes Axis to Find Home Limit and Zero Axis Position.
"LOST POSITION> F4" changes to "None" when Key is accepted.

F5 : Not Used.

F6 : Not Used.

[ERROR CODE = XXXX] Convert number base to HEX then see Section Error
Codes.

OPERATOR'S MANUAL

SCREEN #45 FAULTS - SCREENS

LOADER AXIS FAULT:	Axis Not Ready
Error Code = 0000	Servo Not Enabled
Drive Not Enabled> F3	Over Travel Stat:
LOST Position> F4	-->
	JOG VELOCITY: STAT
BACK CLEAR ENABL SET IN OUT	

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Axis Fault screen. (see page 34)

F2 : CLEAR - If number is not 0000, Clears any Error for this Axis.

F3 : ENABL - Select this Key if "Drive Not Enabled> F3" is flashing.
"Drive Not Enabled> F3" changes to "None" when Key is accepted.

F4 : SET --- Select this Key if "LOST POSITION> F4" is flashing.

IMPORTANT!! Jog Loader Axis IN until the Rod Wiper is at the Forward Edge of the Loader Table.

This will set the Axis Position to the Value of "LOAD+OT" in the Engineering section.

"LOST POSITION> F4" changes to "None" when Key is accepted.

F5 : IN ---- Jogs Axis IN; forward direction.

F6 : OUT --- Jogs Axis OUT; backward direction.

JOG VELOCITY:[STAT] -- Displays either **SLOW** or **RAPID**.

Important: Velocity changes after every release of the **IN** or **OUT** Key.

[ERROR CODE = XXXX] Convert number base to HEX then see Section Error Codes.

OPERATOR'S MANUAL

SCREEN #46 FAULTS - SCREENS

UNLOADER AXIS FAULT:	Axis Not Ready				
Error Code = 0000	Servo Not Enabled				
Drive Not Enabled> F3	Over Travel Stat:				
LOST Position> F4	-->				
	JOG VELOCITY: STAT				
BACK	CLEAR	ENABL	SET	IN	OUT

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Axis Fault screen. (see page 34)

F2 : CLEAR - If number is not 0000, Clears any Error for this Axis.

F3 : ENABL - Select this Key if "Drive Not Enabled> F3" is flashing.
"Drive Not Enabled> F3" changes to "None" when Key is accepted.

F4 : SET --- Select this Key if "LOST POSITION> F4" is flashing.

IMPORTANT!! Jog Unloader Axis IN until the Rod Wiper is at the Forward Edge of the Unloader Table less 1-1/2" +/-1/16".

This will set the Axis Position to the Value of "UNLOAD+OT" in the Engineering section.

"LOST POSITION> F4" changes to "None" when Key is accepted.

F5 : IN ---- Jogs Axis IN; forward direction.

F6 : OUT --- Jogs Axis OUT; backward direction.

JOG VELOCITY:[STAT] -- Displays either **SLOW** or **RAPID**.

Important: Velocity changes after every release of the **IN** or **OUT** Key.

[ERROR CODE = XXXX] Convert number base to HEX then see Section Error Codes.

OPERATOR'S MANUAL

SCREEN #47 FAULTS - SCREENS Continued

```
AC MOTOR OVER LOAD STATUS
CONTACTORS-Woods Drives: OK NOT ENGAGED
RELAY OUT--Woods Drives: OK NOT ACTIVE
CONTACTOR Coolant Motor: OK TRIPED
BACK _____
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Main Fault screen. (see page 33)

CONTACTORS-Woods Drives: - "OK" or if "NOT ENGAGED" then check Drives.

RELAY OUT--Woods Drives: - "OK" or if "NOT ACTIVE" then check Drives.

CONTACTOR Coolant Motor: - "OK" or if "TRIPPED" then check Coolant
Overload Relay.

SCREEN #48 FAULTS - SCREENS

```
AIR SYSTEM STATUS -- Check If Not "OK"
Main Table -- Home Limit: OK Not Home
Collet Closed-Air Switch: OK Not Closed
spare
Rod Swing ---- Out Limit: OK Not Out
BACK _____
```

F1 F2 F3 F4 F5 F6

F1 : BACK -- Back to Main Fault screen. (see page 33)

Main Table -- Home Limit: - If "NOT HOME" then check Main Table.

Collet Closed-Air Switch: - If "NOT CLOSED" then check Air Switch.

spare: -

Rod Swing ---- OUT Limit: - If "NOT OUT" then check Rod Swing or
Limit Switch.

OPERATOR'S MANUAL

SCREEN #49 FAULTS - SCREENS

SPARE FAULT PAGE#49					
LINE2					
LINE3					
LINE4					
LINE5					
_____	_____	_____	_____	_____	_____
F1	F2	F3	F4	F5	F6

SCREEN #50 FAULTS - SCREENS

SPARE FAULT PAGE#50					
LINE2					
LINE3					
LINE4					
LINE5					
_____	_____	_____	_____	_____	_____
F1	F2	F3	F4	F5	F6

OPERATOR'S MANUAL

SCREEN #61 ENGINEERING SCREENS

"ENGINEERING SETUP FUNCTIONS"					
RESET ALL Registers to DEFAULT Values !					
MORE-Change Resister Values					
STEP Thru Auto Sequencer Function					
MENU	_____	RESET	ALARM	STEP	MORE
F1	F2	F3	F4	F5	F6

This screen and the following screens are to be accessed by a
SUPERVISOR or ENGINEERING ONLY!!

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : Not Used.

F3 : RESET -- Reset All Register Values to PLC CONSTANT (Default)
Values.

F4 : ALARM -- Reset Any Alarm Tag that Exceeds an Over or Under Value.

F5 : STEP --- Engineering Step Thru Auto Cycle, one by one to check
system.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 42)

OPERATOR'S MANUAL

SCREEN #62 ENGINEERING SCREENS

OVER LOAD RELAY DWELL1 TIMER

Constant = 1.0 Sec ; Preset = x.x Sec

HOLD EJECTOR ON TIMER

Constant = 5.0 Sec ; Preset = x.x Sec

BACK ENG'R _____ O-L-R EJECT MORE

F1

F2

F3

F4

F5

F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : O-L-R -- Select to Write New Value.

F5 : EJECT -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 43)

OPERATOR'S MANUAL

SCREEN #63 ENGINEERING SCREENS

FLASHER HOLD ON TIMER

Constant = 1.5 Sec ; Preset = x.x Sec

FLASHER HOLD OFF TIMER

Constant = 1.5 Sec ; Preset = x.x Sec

BACK ENG'R _____ F_ON F_OFF MORE

F1

F2

F3

F4

F5

F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : F_ON --- Select to Write New Value.

F5 : F_OFF -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 44)

OPERATOR'S MANUAL

SCREEN #64 ENGINEERING SCREENS

Timing Between Catcher Up & Eject Rod
Default = 2.0 Sec ; Preset = x.x Sec
Range is 1.0 Sec to 3.0 Sec.

LINE4

BACK ENG'R _____ CU_ER _____ MORE

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : CU_ER -- Select to Write New Value for Time Delay between Catcher
Up and Rod Ejector Extend. This replaces the Magnetic Switch.

F5 : SPARE -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 45)

OPERATOR'S MANUAL

SCREEN #65 ENGINEERING SCREENS

```
ENGINEERING SCREEN PAGE#65  
LINE2  
LINE3  
LINE4  
BACK    ENG'R    _____    _____    _____    MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : SPARE -- Select to Write New Value.

F5 : SPARE -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 46)

OPERATOR'S MANUAL

SCREEN #66 ENGINEERING SCREENS

```
LOADER +Over Travel;  CONFIG= 26.750 In
Const= 26.625  >=  LOAD+OT =  xx.xxx In
UNLOADER +OverTravel; CONFIG= 26.000 In
Const= 25.437  >=  UNLOAD+OT= xx.xxx In
BACK    ENG'R    _____  LOAD    UNLOD    MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : LOAD --- Select to Write New Value for the Loader +Over Travel.
This Value Must be less than the CONFIG Value.

F5 : UNLOD -- Select to Write New Value for the Unloader +Over Travel.
This Value Must be less than the CONFIG Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 47)

OPERATOR'S MANUAL

SCREEN #67 ENGINEERING SCREENS

```
UNLOADER AT END OF TABLE (DONE)
Const= 0.125  In >=  DONE = x.xxx In
ShuttleToRodExt - Collet Pos = Rod Ext
  xxx.xxx In.      -  xx.xxx In = x.xxx In
BACK   ENG'R   _____  DONE   SHUTL   MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : DONE --- Select to Write New Value for Unloader DONE Position when at lower End of Table.

F5 : SHUTL -- Select to Write New Value for Shuttle to Rod Extension Position to calculate Rod Extension of 0.875". This Value corrects the actual Rod extension value. This value is approximately 13.000". Adjust if needed.

F6 : MORE --- Go to Change Register Values to customize for each Machine. (see page 48)

OPERATOR'S MANUAL

SCREEN #68 ENGINEERING SCREENS

```
SHUTTLE +OverTravel;  CONFIG= 12.375 In
Const= 12.250  >=  SHUTTLE+OT= xx.xxx In
CROSS +Over Travel ;  CONFIG = 2.750 In
Const= 2.500   >=  UNLOAD+OT=  x.xxx In
BACK  ENG'R  _____  SHUTL  CROSS  MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : SHUTL -- Select to Write New Value for the Shuttle +Over Travel.
This Value Must be less than the CONFIG Value.

F5 : CROSS -- Select to Write New Value for the Cross +Over Travel.
This Value Must be less than the CONFIG Value.

This value will need to be revised when changing Wheel Diameters
to provide over travel protection.

For an 8" Diameter Wheel, this value should be approximately
2.500".

For a 10" Diameter Wheel, this value should be approximately
1.500".

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 49)

OPERATOR'S MANUAL

SCREEN #69 ENGINEERING SCREENS

```
LOADER Calculated Start "POSITION":
PLC Calculates    LOADER +O.T.: xx.xxx In
                  MINUS UNLOADER +O.T.: xx.xxx In
Calculated Minimum Position =    x.xxx In
BACK    ENG'R    _____    _____    _____    MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : Not Used.

F5 : SPARE -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 50)

Calculated Minimum Position = x.xxx In; Represents the Minimum Value.

OPERATOR'S MANUAL

SCREEN #70 ENGINEERING SCREENS

```
Sets the minimum HZ for a 1" Dia. Rod.  
A 0.100" Dia. Rod will be 60 Hz  
  HZ is 10 HZ to 40 HZ; Default = 13  
    60 Hz -  xx HZ = Working Range Hz  
BACK  ENG'R  _____  HZ  _____  MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : HZ ----- Select to Write New HZ Minimum Value for a 1" Dia Rod.

F5 : SPARE -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 51)

OPERATOR'S MANUAL

SCREEN #71 ENGINEERING SCREENS

ENGINEERING	Set ABS to 0.000" if you cannot move axis to set poosition.				
LOADER	ABS = xxxx.xxx In.				
UNLOADER	ABS = xxxx.xxx In.				
BACK	ENG'R	_____	LOAD	UNLOD	MORE

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : LOAD --- Select to Set Loader Position Value to Zero.

F5 : UNLOD -- Select to Set Unloader Position Value to Zero.

F6 : MORE --- Go to Change Register Values to customize for each Machine. (see page 52)

OPERATOR'S MANUAL

SCREEN #72 ENGINEERING SCREENS

```
ENGINEERING SCREEN PAGE#72  
LINE2  
LINE3  
LINE4  
BACK    ENG'R    _____    _____    _____    MORE
```

F1 F2 F3 F4 F5 F6

F1 : MENU --- Return to the Main Menu. (see page 2)

F2 : ENG'R -- Back to Engineering Screen. (see page 41)

F3 : Not Used.

F4 : SPARE -- Select to Write New Value.

F5 : SPARE -- Select to Write New Value.

F6 : MORE --- Go to Change Register Values to customize for each
Machine. (see page 53)

OPERATOR'S MANUAL

SCREEN #73 ENGINEERING SCREENS

```
Engineer AUTO Cycle Step Thru:  OFF
SET - Auto LATCH: Latch OFF      Cycle OFF
START/STOP-Auto Cycle: Auto OFF

Cross ABS= 0.0000 Sequencer Stage = 00
ENG'R   TOGGL   SET   START   STOP   STEP
```

F1 F2 F3 F4 F5 F6

This is used to check the Auto Cycle Sequence for errors in the PLC program.

- F1 : ENG'R** -- Back to Engineering Screen. (see page 41)
- F2 : TOGGL** -- Toggle "Step Thru" ON. [Status OFF, ON]
- F3 : SET** -----Set "Auto Latch" ON. [Status OFF, ON]
- F4 : START** -- START Cycle.
- F5 : STOP** --- STOP Cycle. [Status Cycle OFF, Cycle ON]
- F6 : STEP** --- STEP Thru Auto Cycle Sequence, Stage by Stage.

Sequencer Stage (numbers 1 to 16)= [Status ##]

SCREEN #74 ENGINEERING SCREENS

```
ENGINEERING SECTION
PRESS  F1
```

F1 F2 F3 F4 F5 F6

- F1 : MASKED** -- RETURN TO MAIN MENU
- F4 : MASKED** -- GOTO ENGINEERING (see page 41)

OPERATOR'S MANUAL

NEW ROD SETUP, DIAMETER OR ANGLE

A new Rod Diameter setup requires changing the collet and adjusting the Rod Catcher to just below the circumference of the new Rod.

The Rod Swing has been set by the manufacturer. If the Rod Swing needs adjusting, it needs to be parallel to the Rod in the Collet and also to be parallel the Unloader Table or slightly inward.

COLLET CHANGE

To Setup a new Rod Diameter the Operator will need to select the Modes Key to enter the Modes Menu, page 20. Next, from the Modes Menu select Manual and the first screen will contain manual control of the Collet and the Rod Pusher, page 21 of this manual.

1) Change the Collet if necessary by loosening the set screw located between the Collet Closer and the Work Head, but do not remove.

2) Next, Open the Collet, change Collet, and then adjust closing tension with a Rod in place by closing and opening the Collet.

3) Then position the Rod in the Collet with 3/4 of its length sticking out to setup the Rod Swing.

OPERATOR'S MANUAL

ROD SWING AND ROD CATCHER ADJUSTMENT

Next, push the NEXT Key to go to the screen containing the Rod Catcher and Rod Swing, page21 of this manual. Then move the Rod Swing IN and then Rod Catcher UP.

1) Now adjust the height of the Rod Catcher by loosening the two socket head cap screws, located just below the Rod Catcher Cylinder, and then snug them lightly.

2) Next, adjust the height adjustment socket head cap screw, located under the swing plate, to adjust the Rod Catcher for the proper fit under the Rod extending from the collet.

3) Then Tighten the two socket head cap screws and check the height to be sure that the Rod Catcher did not change do to tightening because of the angle involved.

4) If the clearance between the Rod Catcher and the Rod in the collet is proper, then lower the Rod Catcher DOWN and then the Rod Swing OUT.

OPERATOR'S MANUAL

SUPER PREPOINT & CHAMFER MACHINE SEQUENCE

AUTO/SINGLE CYCLE

- Stage 1) %M0081--CHECK CONDITIONS TO START
- Stage 2) %M0082--ROD CATCHER DOWN & INDEX LOADER TABLE IN
- Stage 3) %M0083--OPEN COLLET & [IF AFTER TOOL IS GROUND] INDEX UNLOADER
- Stage 4) %M0084--MOVE SHUTTLE IN TO COLLET POSITION
- Stage 5) %M0085--ROD PUSHER IN & EJECTOR IN--LOW PRESSURE
- Stage 6) %M0086--CLOSE COLLET & ROD CATCHER UP
- Stage 7) %M0087--SHUTTLE TO HOME POSITION & ROD PUSHER OUT
- Stage 8) %M0088--CROSS SLIDE TO START POSITION & WORK HEAD ON

- Stage 9) %M0089--AUTO - GO TO GRIND SEQUENCER

- Stage 10) %M0090--MAIN TABLE TO HOME LIMIT
- Stage 11) %M0091--ROD SWING IN & ROD CATCHER DOWN & CROSS SLIDE HOME
- Stage 12) %M0092--ROD CATCHER UP
- Stage 13) %M0093--OPEN COLLET & ROD EJECTOR IN--HIGH PRESSURE & DWELL
- Stage 14) %M0094--ROD SWING OUT
- Stage 15) %M0095--SHUTTLE TO LOAD POSITION
- Stage 16) %M0096--REPEAT AUTO SEQUENCE

HAND LOAD CYCLE--SEQUENCER

- Stage 1) %M0105--CHECK CONDITIONS TO START, [THEN SINGLE SHOT TO ADVANCE]
- Stage 2) %M0106--OPEN COLLET , [THEN SINGLE SHOT TO ADVANCE]
- Stage 3) %M0107--CLOSE COLLET, [THEN SINGLE SHOT TO ADVANCE]
- Stage 4) %M0108--CROSS SLIDE TO START POSITION & WORK HEAD ON

- Stage 5) %M0109--HAND - GO TO GRIND SEQUENCER

- Stage 6) %M0110--MAIN TABLE TO HOME LIMIT
- Stage 7) %M0111--REPEAT HAND LOAD SEQUENCE & CROSS SLIDE HOME
- Stage 8) %M0112--Hand Load Sequencer Stage8 (Spare)

GRIND SEQUENCER

- Stage 1) %M0113--CHECK CONDITIONS TO GRIND
- Stage 2) %M0114--MAIN TABLE TO END LIMIT SWITCH & CALCULATE CROSS SLIDE INDEX
- Stage 3) %M0115--MAIN TABLE TO REVERSE LIMIT SWITCH, LOAD CROSS SLIDE INDEX PARAMETERS,
OR END IF DONE

- Stage 4) %M0116--INDEX CROSS SLIDE
- Stage 5) %M0117--UPDATE CROSS SLIDE INDEX CALCULATIONS
- Stage 6) %M0118--REPEAT GRIND SEQUENCE IF NOT DONE
- Stage 7) %M0119--Grind Sequencer Stage7 (Spare)
- Stage 8) %M0120--Grind Sequencer Stage8 (Spare)

OPERATOR'S MANUAL

WOODS DRIVE SETUP

WORK HEAD - 2 HP

PROG: Parameter 21 MODE = 3
PROG: Parameter 31 FMIN = 00.0
PROG: Parameter 32 FMAX = 60.0
PROG: Parameter 42 ACC1 = 1.00
PROG: Parameter 43 DEC1 = 3.00
PROG: Parameter 65 SLIP = 7.10
PROG: Parameter 67 TOL = 58%
PROG: Parameter 75 STR = 1

WHEEL HEAD - 5 HP

PROG: Parameter 21 MODE = 3
PROG: Parameter 31 FMIN = 00.0
PROG: Parameter 32 FMAX = 120.0
PROG: Parameter 42 ACC1 = 2.00
PROG: Parameter 43 DEC1 = 3.00
PROG: Parameter 65 SLIP = 0.00
PROG: Parameter 67 TOL = 77%
PROG: Parameter 75 STR = 1

OPERATOR'S MANUAL

FLOW CHART OF OPERATOR INTERFACE SCREENS CONTINUED

FROM F2 OF MAIN MENU

MODES OF OPERATION

F4 = MANUAL MODE --> Air System & Wheel Head & Work Head & Jog

F5 = JOG AXIS -----> **JOG FUNCTIONS**

F1 = BACK --> Back to Modes of Operation

F3 = JOG CROSS SLIDE AXIS

F4 = JOG SHUTTLE AXIS

F5 = JOG LOADER AXIS

F6 = JOG UNLOADER AXIS

F6 = HAND/SINGLE/AUTO --> **HAND & SINGLE/AUTO CYCLE Options**

F1 = Stop Cycle and Back to Modes of Operation

F5 = HAND LOAD CYCLE --> To Hand Load Cycle

HAND LOAD CYCLE

F5 = BACK --> Back to Options

F6 = SINGLE/AUTO CYCLE -> *Single/Auto Options*

Single / Auto Cycle Options

F1 = BACK --> Back to Options

F6 = MORE --> *Single/Auto Cycle Options*

Single / Auto Cycle Options

F1 = BACK --> Back to Options

F6 = SINGLE --> To Single Cycle

SINGLE CYCLE

F5 = BACK --> Back to Options

F4 = AUTO --> To Auto Cycle

AUTO CYCLE

F4 = SINGLE --> To SINGLE Cycle

OPERATOR'S MANUAL

FLOW CHART OF OPERATOR INTERFACE SCREENS CONTINUED

FAULTS

[Accessed by FAULT Key from several Operator Screens]

F1 = MENU --> Return to MAIN MENU

F2 = AXIS FAULTS --> **AXIS FAULTS**

F1 = BACK To Main Fault Screen

F3 = CROSS AXIS FAULTS

F4 = SHUTTLE AXIS FAULTS

F5 = LOADER AXIS FAULTS

F6 = UNLOADER AXIS FAULTS

F3 = OVER LOAD FAULTS --> **AC MOTOR OVER LOAD STATUS**

Check Status and Solve Problem

F1 = BACK To Main Fault Screen

F4 = AIR LIMIT FAULTS --> **AIR SYSTEM STATUS**

Check Status and Solve Problem

F1 = BACK To Main Fault Screen

F5 = POWER UP ERROR --> Press Key to Reset and Clear

F6 = ALARM TAGS --> Press IF any Inverted (dark) Message is
Flashing at the very top of the Operator Screen.

OPERATOR'S MANUAL

Appendix B: Servo Axis Error Codes Section

Response Methods

1. **Status Only Errors:** Set the *Module Error Present* %I bit and *Module Status Code* or *Axis Error Code* %AI word, but do not affect motion.

Note

Unless otherwise noted, any command which causes a Status Only Error is ignored.

2. **Stop Normal Errors:** Perform an internal abort of any current motion using current **Jog Acceleration** and **Jog Acceleration Mode** (LINEAR or S-CURVE). The *Drive Enabled* and *Axis Enabled* %I bits are turned OFF after the configured **Drive Disable Delay**.

3. **Stop Fast Errors:** Instantly abort all motion by setting the servo velocity command to zero. The *Drive Enabled* and *Axis Enabled* %I bits are turned OFF after the configured **Drive Disable Delay**.

OPERATOR'S MANUAL

GFK-1464 Appendix B Error Reporting B-3

Table B-1. DSM302 Error Codes

Error Number

(Hexadecimal)

Response Description Error Type

00 None No Error All

Configuration Errors

02 Status Only -- Scaled data too big, maximum value in range used -- Axis

03 Status Only -- Home Position > Positive EOT, Positive EOT used -- Axis

04 Status Only -- Home Position < Negative EOT, Negative EOT used -- Axis

Configuration Parameter Errors

10 Status Only -- Position Loop Time Constant too large, Immediate command ignored -- Axis

11 Status Only -- Position Loop Time Constant too small, Immediate command ignored -- Axis

12 Status Only -- Position Loop Time Constant computation overflow, reduced to non-overflow value -- Axis

1E Status Only -- Immediate command Jog Velocity out of range, command ignored -- Axis

1F Status Only -- Immediate command Jog Acceleration out of range, command ignored -- Axis

Program Errors

20 Status Only -- Program Acceleration overrange, defaults to 16.7 million cts/sec/sec -- Axis

21 Status Only -- Program Acceleration too small, defaulted to 32 cts/sec/sec -- Axis

22 Status Only -- Scaled Velocity greater than 1 million cts/sec, 1 million cts/sec is used -- Axis

23 Status Only -- Program Velocity is zero, defaulted to 1 count/sec used -- Axis

24 Stop Normal -- Program Position too large -- Axis

25 Stop Normal -- Unconditional Jump Destination not found -- Axis

26 Stop Normal -- Jump Mask error -- Axis

27 Stop Normal -- Wait Mask error -- Axis

28 Stop Normal -- Parameter Position too large -- Axis

29 Status Only -- Dwell time greater than 60 seconds, 5 seconds used -- Axis

Position Increment Errors

2C Status Only -- Position Increment Overrange error, increment ignored -- Axis

Find Home Errors

30 Status Only -- Find Home while Drive Not Enabled error -- Axis

31 Status Only -- Find Home while Program Selected error -- Axis

32 Status Only -- Find Home while Force Digital Servo Velocity error -- Axis

33 Status Only -- Find Home while Jog error -- Axis

34 Status Only -- Find Home while Move at Velocity error -- Axis

36 Status Only -- Find Home while Abort bit set error -- Axis

Move at Velocity Errors

39 Status Only -- Move at Velocity while Drive Not Enabled error -- Axis

3A Status Only -- Move at Velocity while Program Selected error -- Axis

3B Status Only -- Move at Velocity while Home Cycle active error -- Axis

3C Status Only -- Move at Velocity while Jog error -- Axis

3D Status Only -- Move at Velocity while Abort All Moves bit is set error -- Axis

3E Status Only -- Move at Velocity Data greater than 8,388,607 user units/sec -- Axis

3F Status Only -- Move at Velocity Data greater than 1 million cts/sec error -- Axis

OPERATOR'S MANUAL

B-4 Motion Mate™ DSM302 for Series 90™-30 PLCs User's Manual – October 1997 GFK-1464

Table B-1. - Continued - DSM302 Error Codes

Error Number

(Hexadecimal)

Response Description Error Type

Jog Errors

40 Status Only -- Jog while Find Home error -- Axis

41 Status Only -- Jog while Move at Velocity error -- Axis

42 Status Only -- Jog while Force Digital Servo Velocity error -- Axis

43 Status Only -- Jog while Program Selected and not Feedholding error -- Axis

Force Digital Servo Velocity Errors

47 Status Only -- Force Digital Servo Velocity while Jog error -- Axis

48 Status Only -- Force Digital Servo Velocity while Move at Velocity error -- Axis

49 Status Only -- Force Digital Servo Velocity while Program Selected error -- Axis

4A Status Only -- Force Digital Servo Velocity while Follower Enabled error -- Axis

Set Position Errors

50 Status Only -- Set Position while Program Selected error -- Axis

51 Status Only -- Set Position Data overrange error -- Axis

52 Status Only -- Servo Axis 1,2: Set Position while not In Zone error Aux Axis 3: Set Position while ENC3 Velocity > 128 error-- Axis

53 Status Only -- Attempt to initialize position before digital encoder passes reference point. -- Axis

54 Status Only -- Digital encoder position invalid, must use Find Home or Set Position. -- Axis

End of Travel and Count Limit Errors

56 Status Only -- Commanded Position > Positive End of Travel or High Count Limit -- Axis

57 Status Only -- Commanded Position < Negative End of Travel or Low Count Limit -- Axis

58 Status Only -- (Absolute Position + Position offset) > Positive End of Travel or High Count Limit -- Axis

59 Status Only -- (Absolute Position + Position offset) < Negative End of travel or Low Count Limit -- Axis

Drive Disable Errors

5B Stop Normal -- Drive Disabled while Moving -- Axis

5C Stop Normal -- Drive Disabled while Program Active -- Axis

Software Errors

5F Status Only -- Software Error (Call GE Fanuc Field Service) -- Axis

Program and Subroutine Errors

60 Status Only -- Absolute Encoder Rotary Position Computation error -- Axis

61 Stop Normal -- Subroutine not in list -- Axis

62 Stop Normal -- Call Error (subroutine already active) -- Axis

63 Stop Normal -- Subroutine End command found in Program -- Axis

64 Stop Normal -- Program End command found in Subroutine -- Axis

65 Stop Normal -- Sync subroutine encountered by non-sync program -- Axis

Program Execution Errors

71 Status Only -- Too many programs requested in same PLC sweep -- Module

72 Status Only -- Request Program 0-10 with multi-axis program active -- Module

73 Status Only -- Request two programs on same sweep with program active -- Module

74 Status Only -- Request two programs for same axis, lower number program executed -- Module

75 Status Only -- Empty or Invalid Program requested -- Module

76 Status Only -- AQ Move Command Position Out of Range -- Axis

OPERATOR'S MANUAL

GFK-1464 Appendix B Error Reporting B-5

Table B-1. - Continued - DSM302 Error Codes

Error Number

(Hexadecimal)

Response Description Error Type

Program Execution Conditions Errors

80 Status Only -- Execute Program while Home Cycle active -- Axis

81 Status Only -- Execute Program while Jog -- Axis

82 Status Only -- Execute Program while Move at Velocity -- Axis

83 Status Only -- Execute Program while Force Digital Servo Velocity -- Axis

84 Status Only -- Execute Program while Program Selected -- Axis

85 Status Only -- Execute Program while Abort All Moves bit set -- Axis

86 Status Only -- Execute Program while Position Valid not set -- Axis

87 Status Only -- Execute Program while Drive Enabled not set -- Axis

88 Status Only -- Execute Program with active Error Stop (Axis Enabled off) -- Axis

Program Synchronous Block Errors

8C Status Only -- Sync Block Error during CMOVE -- Axis

8D Status Only -- Sync Block Error during Jump -- Axis

EEPROM Errors

90 Status Only -- Flash EEPROM memory programming failure -- Module

Hardware Limit Switch Errors

A0 Stop Fast -- Limit Switch (+) error -- Axis

A1 Stop Fast -- Limit Switch (-) error -- Axis

Hardware Errors

A8 Stop Fast -- Out of Sync error -- Axis

A9 Stop Fast -- Encoder Loss of Quadrature or Linear Feedback Loss of Signal error -- Axis

Digital Servo Alarms

B0 Stop Normal -- Main DC power supply overvoltage -- Axis

B1 Stop Normal -- Control power undervoltage -- Axis

B2 Stop Normal -- Dynamic brake failure Axis

B3 Stop Normal -- Main DC power supply undervoltage -- Axis

B4 Stop Normal -- CNV Overload -- Axis

B5 Stop Normal -- Cooling fan failure -- Axis

B6 Stop Normal -- Over current -- Axis

B7 Stop Normal -- Regenerative discharge energy error; resistor thermal switch open -- Axis

B9 Stop Normal -- Control power undervoltage -- Axis

BA Stop Normal -- Error detected by IPM circuit -- Axis

BB Stop Normal -- Main DC power supply undervoltage -- Axis

BD Stop Normal -- Cooling fan failure -- Axis

BE Stop Normal -- Over current -- Axis

OPERATOR'S MANUAL

B-6 Motion Mate™ DSM302 for Series 90™-30 PLCs User's Manual – October 1997 GFK-1464

Table B-1. - Continued - DSM302 Error Codes (Continued)

Error Number

(Hexadecimal)

Response Description Error Type

Encoder Alarms

C0 Stop Fast Servo not ready when MCON command is on - may be caused by E-STOP input to amplifier.

Axis

C1 Status Only -- Serial Encoder Battery Low -- Axis

C2 Stop Normal -- Serial Encoder Battery Failed -- Axis

C3 Stop Normal -- Servo Motor Over Temperature -- Axis

C4 Stop Fast -- Servo Motor Over Current -- Axis

C5 Stop Fast -- Loss of Encoder -- Axis

C6 Stop Fast -- Error in encoder pulse detection -- Axis

C7 Stop Fast -- Encoder counter error -- Axis

C8 Stop Fast -- -- Encoder LED is disconnected -- Axis

C9 Stop Fast -- Encoder CRC checksum failure -- Axis

CA Stop Fast -- Unsupported encoder, linear or Type A -- Axis

CB Stop Fast -- Unsupported encoder, Type C -- Axis

DSP Alarms

D1 Stop Fast -- Over current Detected -- Axis

D2 Stop Fast -- Loss of Analog Feedback -- Axis

D3 Stop Fast -- Over Acceleration Detected -- Axis

D4 Stop Fast -- Over Velocity Detected -- Axis

D5 Status Only -- KpVelFix Too Large -- Axis

D6 Status Only -- IntGainFix Too Large -- Axis

D7 Status Only -- Alpha Calculation Overflow -- Axis

D8 Status Only -- IntGain Calculation Overflow -- Axis

D9 Status Only -- Kp Calculation Overflow -- Axis

DA Stop Fast -- FPGA Error Detected -- Axis

Special Purpose Errors

E0 Status Only Custom Loop Type Mismatch Axis

E2 Stop Fast DSP Interrupt failure Module

Follower Errors

F1 Status Only -- Follower Position Error Limit Encountered -- Axis

F2 Status Only -- Follower Velocity Limit Condition Encountered -- Axis

F3 Status Only -- Follower Ratio B value = 0 -- Axis

F4 Status Only -- Follower Ratio B value < 0 -- Axis

F5 Status Only -- Follower Ratio A/B or B/A > 32 -- Axis

Winder Errors

F6 Status Only -- A/B Change Not Allowed in Winder Mode With Follower Enabled -- Axis

F7 Status Only -- Set Winder Position Immediate Command Out of Zone -- Axis

F8 Status Only -- Zone Length Out of Range or Zone Length Change Exceeded 25% -- Axis

F9 Status Only -- Zone Length Change Not Accepted; Previous Change Still in Effect -- Axis

Internal Errors

FD Stop Fast -- System software error -- Axis

FE Stop Fast -- Unrecognized encoder, not supported -- Axis

OPERATOR'S MANUAL

GFK-1464 Appendix B Error Reporting B-7

LED Indicators

There are seven LEDs on the DSM302 module which provide status indications. These LEDs are described below.

STAT Normally ON. FLASHES to provide an indication of operational errors. Flashes *slow* (four times/second) for Status-Only errors. Flashes *fast* (eight times/second) for errors which cause the servo to stop.

ON: When the LED is steady ON, the DSM302 is functioning properly. Normally, this LED should always be ON.

OFF: When the LED is OFF, the DSM302 is not functioning. This is the result of a hardware or software malfunction which will not allow the module to power up.

Flashing: When the LED is FLASHING, an error condition is being signaled.

Constant, CFG LED ON:

The LED flashes slow (four times / second for Status Only errors and fast (eight times / second for errors which cause the servo to stop. The operational error code will be placed in one of the first four %AI status words and the *Module Error Present %I* status bit will be ON.

Constant, CFG LED Flashing:

If the STAT and CFG LEDs both flash **together** at a constant rate, the DSM302 module is in boot mode waiting for a new firmware download. If the STAT and CFG LEDs both flash **alternately** at a constant rate, the DSM302 firmware has detected a software watchdog timeout due to a hardware or software malfunction.

Irregular, CFG LED OFF:

If this occurs immediately at power-up then a hardware or software malfunction has been detected. The module will blink the STAT LED to display two error numbers separated by a brief delay. The numbers are determined by counting the blinks in both sequences. Record the numbers and contact GE Fanuc for information on correcting the problem.

OK The OK LED indicates the current status of the DSM302 module.

ON: When the LED is steady ON, the DSM302 is functioning properly. Normally, this LED should always be ON.

OFF: When the LED is OFF, the DSM302 is not functioning. This is the result of a hardware or software malfunction which will not allow the module to power up.

CFG This LED is ON when a valid module configuration has been received from the PLC. Flashes *slow* (four times/second) during the Motion Program Store function. Flashes *fast* (eight times/second) during the Write User RAM to EEPROM operation.

EN1 When this LED is ON, the servo drive for Servo Axis 1 is enabled.

EN2 When this LED is ON, the servo drive for Servo Axis 2 is enabled.

EN3 When this LED is ON, the *Force Analog Output* command for Aux Axis 3 is active.

EN4 When this LED is ON, the *Force Analog Output* command for Aux Axis 4 is active.