

INTEGRAL-MOUNTING OPTION

PROGRAMMING OPERATOR

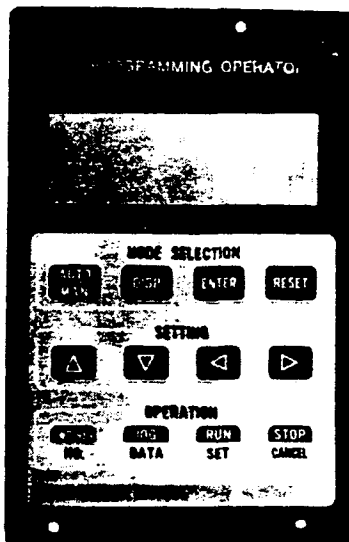


Figure 1. Programming Operator, Front View

IMPORTANT

Before installing this option, a **TECHNICALLY QUALIFIED INDIVIDUAL**, who is familiar with this type of equipment and hazards involved, should **READ** this **ENTIRE INSTRUCTION SHEET**.

A. DESCRIPTION

The Programming Operator mounts within the GPD 602 enclosure. Its front panel (display and keyboard) is accessible with the Drive front cover in place.

When a control expansion option, also added to the Drive, has its SET/DRIVE switch placed to the SET position, the Programming Operator is used to set

customer's alternate values of constants in the EEPROM memory of the module.

When the control expansion option's switch is placed to the DRIVE position, or if no control expansion option is present, the Programming Operator functions the same as a Digital Operator to control Drive operation, set or display output frequency, and display faults.

Table 1. Programming Operator Specifications

| | |
|-------------------------------------|---|
| Storage Temperature Range | -20°C to +70°C (-4°F to +158°F) |
| Operating Temperature Range | -10°C to +60°C (14°F to +140°F) |
| Operating Humidity | 90% max relative (No condensation) |
| Environmental Conditions | - Protected from direct sunlight - Protected from corrosive gases or liquids |
| Operating Voltage | 5 VDC ±5% |
| Power Consumption | 40 ±10mA |
| Vibration | 1G at frequency less than 20 HZ 0.2G at 20 to 50 HZ |
| Approx Weight | 0.49 lbs |
| Dimensions (Width x Height x Depth) | 3.86 in. x 5.91 in x 1.1 in. |

CHANGE RECORD

| | | |
|---|----------|----------|
| 1 | STD-3002 | 3/15/88 |
| 2 | STD-3067 | 5/26/88 |
| 3 | STD-3278 | 10/18/88 |

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B. RECEIVING

All equipment is tested against defect at the factory. Any damages or shortages evident when the equipment is received must be reported immediately to the commercial carrier who transported the equipment. Assistance, if required, is available from the nearest MagneTek Sales Office.

C. INSTALLATION

WARNING

HAZARDOUS VOLTAGE CAN CAUSE SEVERE INJURY OR DEATH.

LOCK ALL POWER SOURCES FEEDING DRIVE IN "OFF" POSITIONS.

1. Turn off all electrical power to the GPD 602.

2. Verify that the "CHARGE" lamp is out. Then loosen mounting screws and remove the front cover.

3. See Figure 2. Remove the indicator lamp plate from the Drive by removing three mounting screws.

4. Position the Programming Operator on the three standoffs on the Control PCB. Secure with mounting screws.

5. Align connector 8CN of the ribbon cable with the pins of header 8CN on the Control PCB. Push downward to seat the connector, then squeeze two lock levers inward until they click in place.

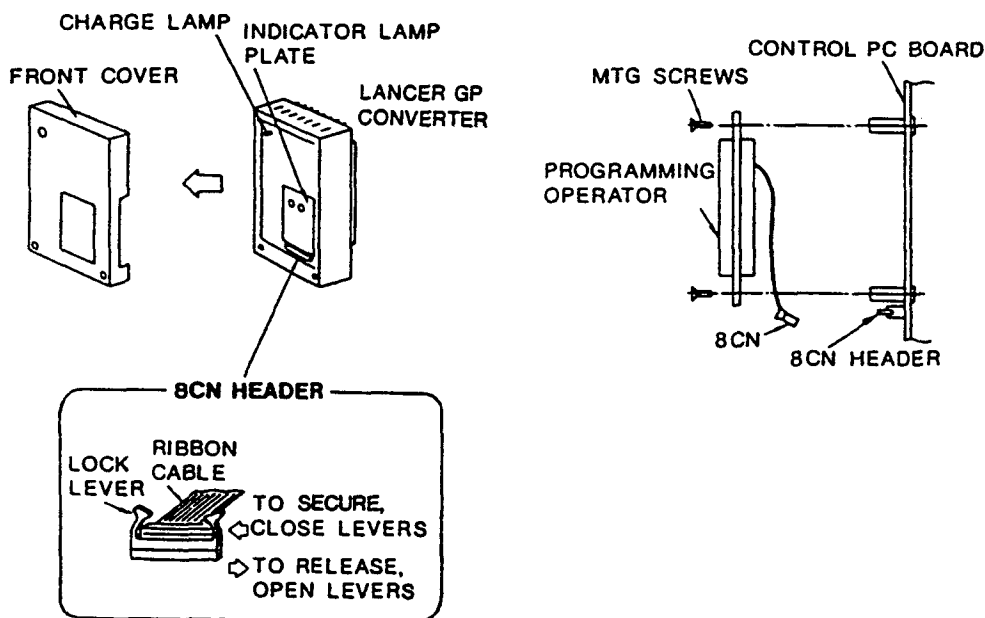


Figure 2. Installation

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6. Replace and secure the GPD 602 front cover.

D. DISPLAY

Figure 3 shows all indications that may appear on the LCD display screen. Each indication is described below.

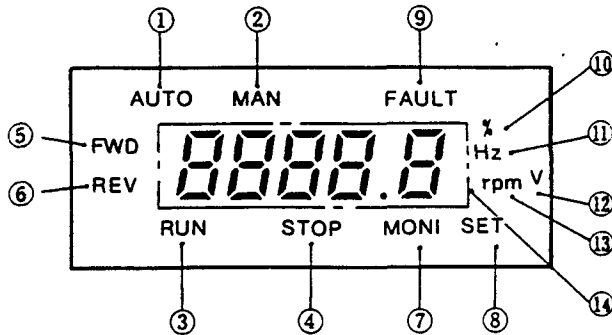


Figure 3. Display Indicators

1. **AUTO.** Drive is set to operate in the Auto mode (responding to external control signal inputs).

2. **MAN.** Drive is set to operate in the Manual mode (frequency reference set at Programming Operator).

3. **RUN.** Run command has been inputted to control circuit.

4. **STOP.** Stop command has been inputted to the control circuit (or no Run command has been received since application of power).

5. **FWD.** Control circuit is set to run motor in "forward" direction.

6. **REV.** Control circuit is set to run motor in "reverse" direction.

7. **MONI.** Numerical display represents the current (actual) output frequency of the Drive.

8. **SET.** Numerical display shows the value of the Manual mode frequency reference as set by the Programming Operator keyboard.

9. **FAULT.** Indicates the Drive has shut down in response to a fault condition (see section I of this document).

10. **%*.** Indicates that the numerical value displayed is a percentage value.

11. **HZ.** Indicates unit of measure for numerical value displayed.

12. **V*.** Indicates unit of measure for numerical value displayed.

13. **rpm.** Indicates unit of measure for numerical value displayed.

* These displays only occur during the Constant Setting mode.

14. **Numerical Display.** The five position, eight-segment display field will show numeric or alphabetic characters according to the operating mode.

E. KEYBOARD

Figure 4 shows the layout of the keyboard. The function of each key is as follows:

1. **AUTO/MAN.** Pressed to select operation of the Drive from the Programming Operator (MAN indicator on the display turns on) or from external control signal inputs (AUTO indicator on numerical display turns on). While the Drive is stopped, each press of the key will change the Auto/Manual mode status; the key is disabled while the Drive is operating.

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2. DISP. Pressed to select whether the set frequency reference value is displayed (SET indicator on the display turns on) or the current Drive output frequency is displayed (MONI indicator on the display turns on). Each press of the key will change the Set/Monitor status, regardless of whether the Drive is running or stopped.

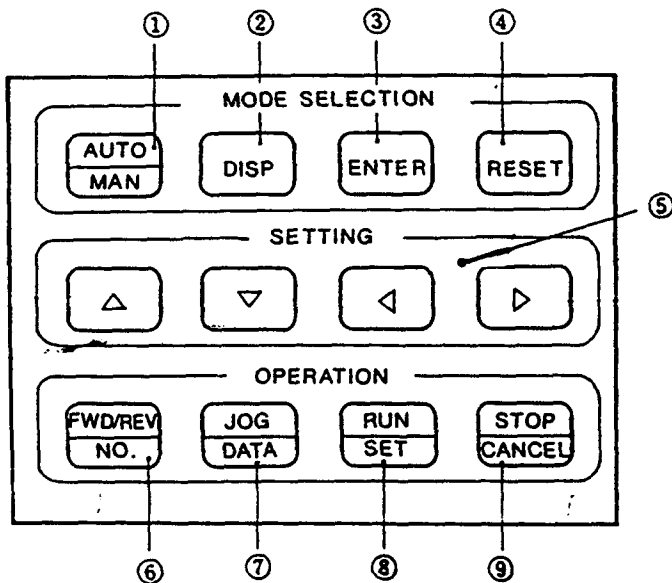


Figure 4. Keyboard

3. ENTER.

a. In Operation mode. While the SET indicator is on, pressing this key will enter the frequency value shown on the numerical display as the frequency reference for the Drive. When the key is pressed, the blinking digit on the display lights steadily for 5 seconds, then resumes blinking again. If the Drive is running, the output will change to the newly set frequency. If the Drive is stopped, it will run at the set frequency the next time the RUN key is pressed.

b. In Constant Setting mode.

- (1) If the FAULT indicator comes on and DF appears on the numerical display when entering the Constant Setting mode, this key is pressed to clear the FAULT condition; then pressing the RESET key clears the DF display and enters initial constant values into the EEPROM.
- (2) After a new setting value for a constant has been SET into temporary storage in internal RAM, pressing the ENTER key will initiate writing of the new value into the EEPROM.

4. RESET.

a. In Operating mode. When running in the Manual mode (MAN indicator is on) and the motor is accelerating or decelerating to the set frequency, pressing the RESET key will interrupt output ramping and maintain frequency output at the value at the moment the key is pressed (hold state). The hold state is cleared when the RUN key is pressed (normal acceleration or deceleration resumes) or the STOP key is pressed. However, when deceleration has been initiated by the STOP key, the hold function is disabled.

b. In Fault mode. When Drive shutdown has occurred in response to a fault condition, and the fault display has been noted, pressing the RESET key will clear the numerical display and reset the Drive's Fault relay (if the fault condition has cleared).

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5. SETTING Keys. These four keys are used to change the value of numeric information shown on the numerical display. A blinking digit in the displayed number indicates that these keys are enabled; the value of the blinking digit can be changed.

a. ◀ Key. Pressing this key shifts the blinking position one place to the left, without changing digit values.

b. ▶ Key. Pressing this key shifts the blinking position one place to the right, without changing digit values.

c. ▲ Key. Pressing this key increases the value of the blinking digit by 1. If the key is held for more than 1 second, the value will continue to increase. If the displayed value for the digit is 9 and this key is pressed, the blinking digit will become a 0 and the next digit to the left will increase by 1. Thus, upward "scrolling" of the display value can continue without having to shift the blinking position to the left.

d. ▼ Key. Pressing this key decreases the value of the blinking digit by 1. If the key is held for more than 1 second, the value will continue to decrease. However, when the displayed value of the digit is 0, additional pressing of the key will have no further effect.

NOTE

Each of the following OPERATION keys is marked with two functions, one for Operation mode and one for Constant Setting mode.

6. FWD/REV; NO.

a. In Operation mode (FWD/REV). When in the Manual mode (MAN indicator is on), each time this key is pressed it changes the forward/reverse status of motor operation. If pressed while the motor is running, the Drive output will decelerate to zero, then accelerate to set speed in the opposite direction. In the Auto mode (AUTO indicator is on), this key is disabled.

b. In Constant Setting mode (NO.). When this key is pressed, the numerical display indicates the number of the constant which is being addressed in the EEPROM.

7. JOG; DATA.

a. In Operation mode (JOG). When in the Manual mode (MAN indicator is on), pressing and holding this key will start the Drive in Jog mode; the motor will run in the jog condition selected by switch 6S notch 7 in the Drive. When the key is released, the motor will stop. When in the Auto mode (AUTO indicator is on), this key is disabled.

b. In Constant Setting mode (DATA). When this key is pressed, the numerical display shows the set value of the currently selected constant.

8. RUN; SET.

a. In Operation mode (RUN). This key is used to start system operation. If the system is in the hold state, pressing this key clears the hold state.

b. In Constant Setting mode (SET). After the value for the selected constant has been changed on the numerical display, pressing this key will temporarily write the new value into internal RAM, in preparation for entering it into EEPROM memory.

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9. STOP; CANCEL.

a. In Operation mode (STOP). This key is used to stop system operation, regardless of whether operation is in the Auto or Manual mode. The Stop signal takes priority over any other control command signal..

b. In Constant Setting mode (CANCEL). When this key is pressed, the value temporarily stored in RAM for the selected constant is erased.

F. CONSTANT SETTING MODE PROCEDURES

When a control expansion option is present on the Drive, the Programming Operator enables the user to set values of constants in the option's memory.

To activate the Constant Setting mode, remove AC input power or place Drive in stopped condition. Place the SET/ DRIVE switch on the front of the control expansion option to the SET position.

The control expansion option is shipped with preset constant values already factory set in the EEPROM.

IMPORTANT

If the value of any constant in the EEPROM has inadvertently changed, the self-diagnostic function of the Drive will detect a BCC (Block Character Check) error and produce a CPF fault shutdown. To correct this condition, the memory must be initialized before performing the constant setting procedure.

1. Initializing Constant Values

a. With AC input power off, loosen both front panel mounting screws on the control expansion option. Pull the front panel/bracket/PCB assembly forward until switch 1S on the PCB is accessible (see Figure 5).

IMPORTANT

Switch 1S notch 1 is for factory constant setting. DO NOT CHANGE.

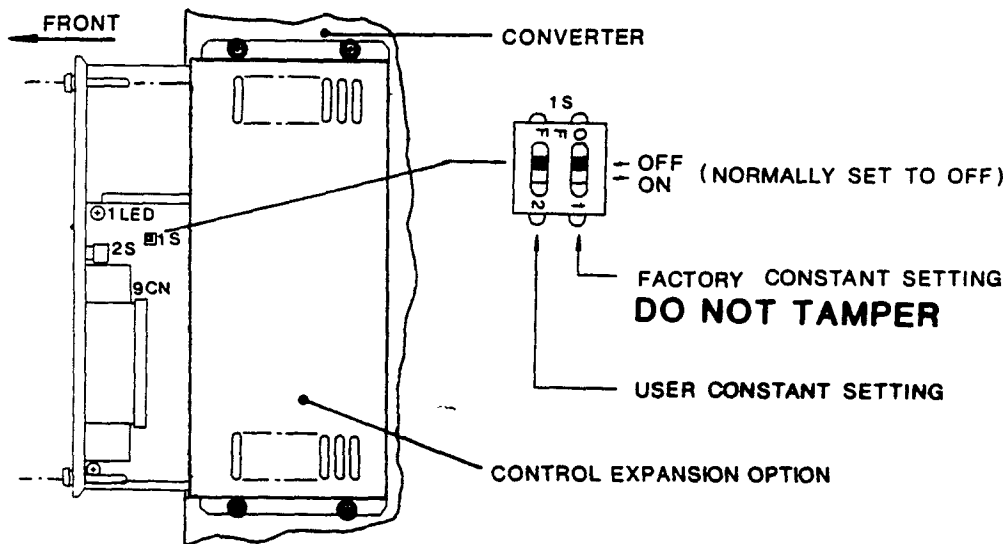


Figure 5. Initializing

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b. Set switch 1S notch 2 to ON.

c. Ensure that SET/DRIVE switch is in SET position.

d. Apply AC input power. The SET lamp on the front of the option should light.

NOTE

When the EEPROM is initialized, all constants revert to the initial values listed in Table 4.

e. If no display appears, proceed to step g.

f. If Err is displayed, a writing failure has occurred in the EEPROM, and the control expansion option must be replaced.

g. Turn off AC input power.

h. Set switch 1S notch 2 to OFF. Then close the control expansion option and secure front panel.

2. Constant Setting Procedure

a. Ensure that SET/DRIVE switch is in SET position.

b. Turn on AC input power. The SET lamp on the front of the option should light.

c. If no display appears, proceed to step f.

d. If Err is displayed, a writing failure has occurred in the EEPROM, and the control expansion option must be replaced.

e. If FAULT indicator lights and DF is displayed:

(1) Press the ENTER key. FAULT indicator goes out.

(2) Press the RESET key. DF display is cleared.

f. Press the NO. key. The display will indicate the currently selected constant:



g. To select a different constant, use the SETTING increment (Δ) or decrement (∇) key to change the displayed number, in increments of one.

NOTE

The constant counter operates in a continuous loop: incrementing from no. 15 returns to no. 1, and decrementing from no. 1 returns to no. 15.

h. When the desired constant is selected, press the DATA key to display its current setting. The far right digit will be blinking.



The decimal point will only be displayed if the selected constant can be set in increments of one-tenth.

i. If the value of the selected constant will not be changed, return to step f.

j. To set a new value for the selected constant, use the SETTING keys to change the display (see description of SETTING keys in section E.5 of this document).

k. Press the SET key to temporarily store the displayed setting in internal RAM.

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NOTE

If the displayed value is outside the allowable setting range for the selected constant, the entire display will blink for 5 seconds, indicating that the value has not been accepted. Return to step j.

l. Verify that the displayed value is the desired setting. If not, press the CANCEL key to erase the data from internal RAM. Then return to step j.

m. Press the ENTER key to write the data from RAM into the EEPROM. When the writing function is completed, End will be displayed.

NOTE

If Err is displayed, a fault has occurred in the writing function, and the EEPROM must be initialized again.

n. If other constants are to be checked or changed, return to step f.

o. After all constants have been set to desired values, turn off input AC power.

p. Place the SET/DRIVE switch on the control expansion option to DRIVE position.

3. Description of Control Expansion Option Constants

NOTE

For constants No. 01 thru No. 04, see Figure 6.

No. 01 - Maximum Frequency (Fo). This constant is the upper limit of Drive output frequency. It can be set in increments of 0.1 HZ.

No. 02 - Maximum Voltage (Vo). This constant is the upper limit of Drive output voltage. It can be set in increments of 1V. It is set per the formula:

$$Vo(\text{Setting}) = V_{\text{max}} \times (200V \text{ or } 400V) / V_{\text{IN}}$$

200V = multiplier for 208 to 230V units

400V = multiplier for 380 to 460V units

No. 03 - Maximum Voltage Frequency (A). This constant is the Drive output frequency at which output voltage reaches maximum value (Vo). It can be set in increments of 0.1 HZ.

No. 04 - 1/40 Frequency Voltage (D). This constant is the level of output voltage when output frequency is at its minimum value (1/40 of maximum frequency). It can be set in increments of 1V.

No. 05 - Torque Compensation Gain (KT). This constant is a gain factor used to match the Drive to the actual motor used (see Figure 7). It can be set in increments of 0.1. When the HP rating of the Drive is equal to the rating of the motor, the gain is 1.0. When a motor of lower HP is used, the gain can be set to a value greater than 1.0.

No. 06 - Carrier Frequency Lower Limit (Fcll). This constant sets

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Table 2. List of Settable Constants

| CONSTANT | UNIT | SETTING RANGE | INITIAL VALUE | REMARKS |
|---|------|--|---------------|-----------------------|
| 01 Max Frequency (Fo) | HZ | 50.0 to 360.0 | 60.0 | V/f pattern selection |
| 02 Max Voltage (Vo) | V | 208 to 230V: 0 to 230 380 to 460V: 0 to 460 | 200 | |
| 03 Max Voltage Frequency (A) | HZ | 20.0 to Fo | 60.0 | |
| 04 1/40 Frequency Voltage (D) | V | 0 to Vo | 10 | |
| 05 Torque Compensation Gain (KT) | | 0 to 9.9 | 1.0 | - |
| 06 Carrier Frequency Lower Limit (Fcl1) | HZ | 380 to 2500 | 380 | - |
| 07 Min Output Frequency | HZ | 0.2 to 10.0 | 1.5 | - |
| 08 DB Time | (s)* | 0 to 20.0 | 1.0 | Motor stopping torque |
| 09 DB Voltage | V | 230V unit: 0 to 30 | 20 | |
| | | 460V unit: 0 to 60 | 40 | |
| 10 Input Frequency Upper Limit | % | 0 to 110 | 110 | - |
| 11 Input Frequency Lower Limit | % | 0 to 120 | 0 | - |
| 12 Setting Prohibited Frequency | % | 0 to 120 | 120 | - |
| 13 No. of Poles | | (0), 2, 4, 6, 8 10, 12, 14 | (0)** | RPM indication |
| 14*** Slip Compensation Gain (ks) | | 0.0 to 9.9 | 0 | - |
| 15*** Frequency Range | HZ | 0.0 to Fo | 60.0 | Frequency memory |

* Unit of s is not displayed.

** Setting No. of poles at 0, output frequency is displayed in Hz.

*** Constants 14 and 15 are optional, FACTORY ADJUSTED.

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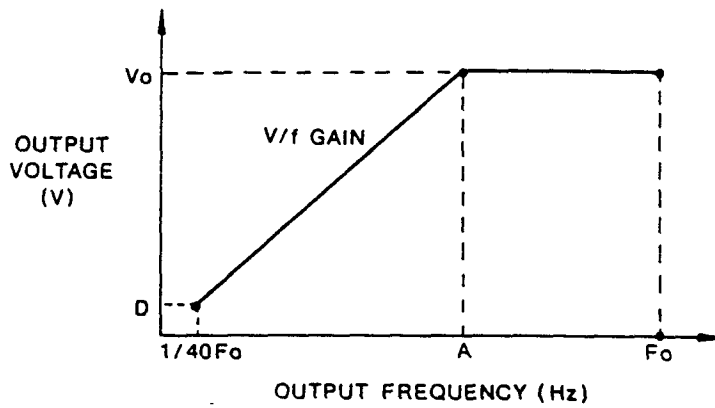


Figure 6. V/f Characteristics

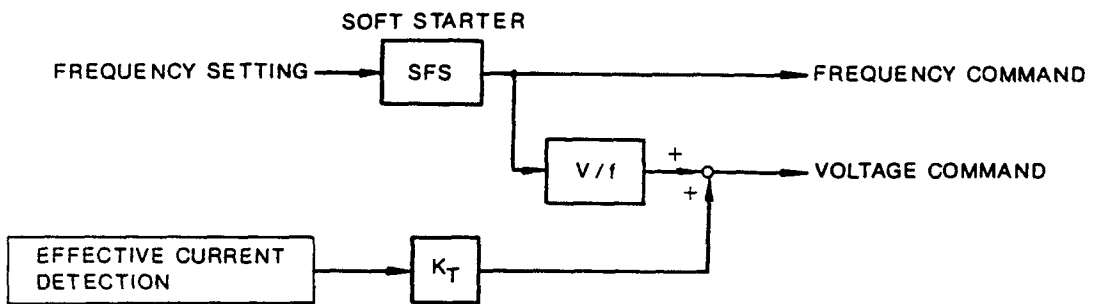


Figure 7. Torque Compensation Block Diagram

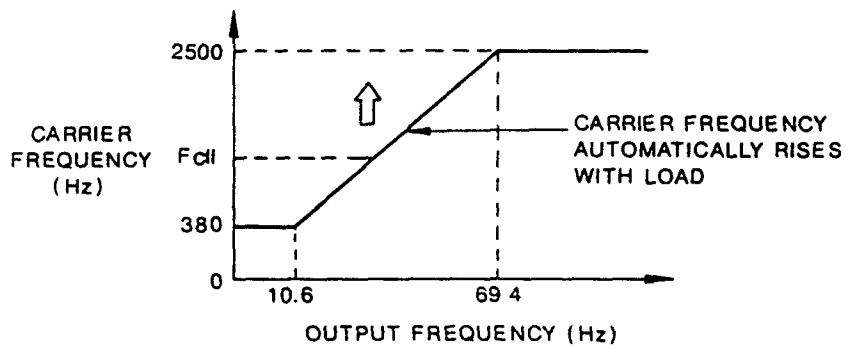


Figure 8. Output Frequency vs Carrier Frequency Characteristics

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the minimum value of the carrier frequency (Fc) (see Figure 8). It can be set in increments of 1HZ.

No. 07 - Minimum Output Frequency. This constant sets the minimum frequency at which the Drive will control the motor. Motor deceleration after Drive cut-off is determined by the setting of switch 6S notch 1:

OFF - Dynamic Braking (DB)

ON - Coast to stop

No. 08 - DB Time. This constant is the time interval, in seconds, that the DB circuit will be energized after output deceleration has reached the minimum output frequency set by constant No. 07 (see Figure 9). It can be set in increments of 0.1 s. (The unit, s, does not appear on the display.)

NOTE

If this constant is set to 0, the motor will coast to stop without DB.

No. 09 - DB Voltage. This constant is the level of DC voltage output which the Drive applies to the motor during Dynamic Braking. It can be set in increments of 1V. The value must be set according to the motor rating, per the formula:

$$\text{DB Current} = \frac{\text{DB voltage} \times 2}{r_0 + r_1} \times \frac{2}{3}$$

where:

r0 = wire resistance

r1 = motor primary resistance

IMPORTANT

If an Overcurrent (OC) fault shutdown occurs during DB, this constant must be set to a lower value.

NOTE

For constants No. 10 thru 12, see Figure 10.

No. 10 - Input Frequency Upper Limit. This constant is the level of the external frequency (speed) setting signal that will command maximum output frequency. It can be set in increments of 1%.

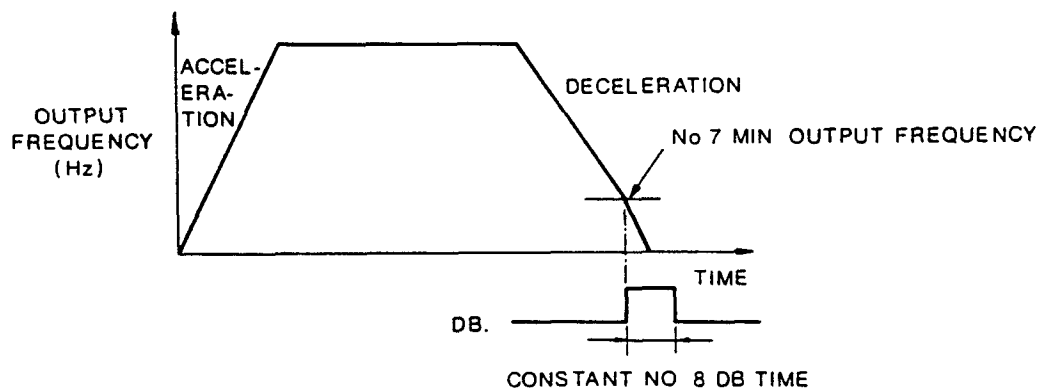


Figure 9. DB Start Frequency and DB Time

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No. 11 - Input Frequency Lower Limit. This constant is the level of the external frequency (speed) setting signal that will command the minimum output frequency. It can be set in increments of 1%.

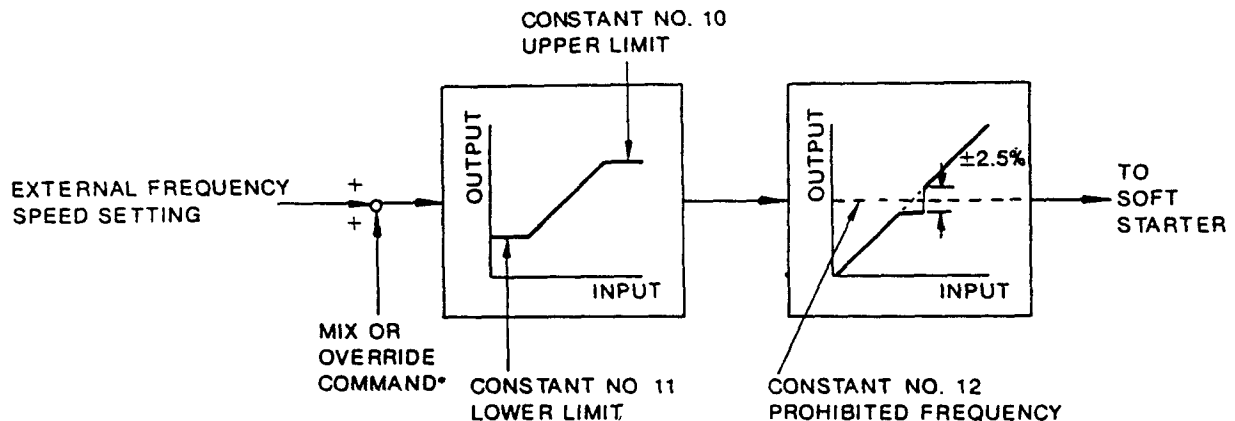
No. 12 - Setting Prohibited Frequency (frequency step-over). The user may find it necessary to have the Drive output ignore (step over) a particular frequency. This constant sets the value of the prohibited frequency, as a percentage of maximum frequency. It can be set in increments of 1%. When the speed setting signal is increasing, the output frequency increases according to the V/f pattern until it reaches a value 2.5% below the prohibited frequency. It will remain at that value while the speed setting signal continues to increase. When the signal reaches a point where the V/f pattern calls for an output frequency 2.5% above the prohibited frequency, the output then steps to that value and again

follows the V/f pattern. The reverse of this sequence occurs when the speed setting signal is decreasing. The step-over range of $\pm 2.5\%$ is constant, and CANNOT BE CHANGED by the user.

No. 13 - Number of Poles. When this constant is set to 0, the Drive output frequency (HZ) will be displayed. To display motor speed, in rpm, this constant is set to the number of poles in the motor. The CPU calculates the display value by the formula:

$$\text{rpm} = \frac{120 \times \text{frequency (HZ)}}{\text{No. of poles}}$$

No. 14 - Slip Compensation Gain (ks) (optional - factory-set). This constant is the compensation gain factor for slip by current value. It can be set in increments of 0.1. When the slip compensation gain is 1.0, the frequency compensation is increased by 1% with the Drive rated current. (See Figure 11.)



*The MIX or override function is optional.

Figure 10. Input Frequency Limits and Prohibited Frequency

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No. 15 - Frequency Setting (optional - factory-set). When sequence mode selector switch 3S on the Control PCB is set to notch 3, and external signal inputs for Reverse operation and Manual Frequency Reference are present, the frequency set for this constant is selected as Manual Mode Frequency Reference. It can be set in increments of 0.1HZ.

(The Drive is ready to receive external control commands for Auto mode operation.)

2. Press the AUTO/MAN key. AUTO indicator goes out and MAN indicator comes on. The Programming Operator is now in command, for Manual mode operation.

NOTE

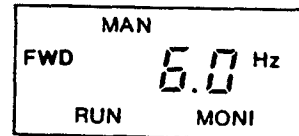
If jogging is not desired, proceed step 8.

3. Press and hold the JOG key. The Drive starts, and accelerates output to the Jog speed selected by switch 6S notch 7 on the Control PCB.

G. OPERATION MODE PROCEDURES

If a control expansion option is present, the SET/DRIVE switch on the front of the option module MUST BE in the DRIVE position for the Operation mode to be active. If no control expansion option is present, the Operation mode is always active.

1. Apply input power to the Drive. If no control expansion option is present to provide digital command backup, the display contents will be as shown below:



4. Release the JOG key. The Drive stops, and output returns to zero.

5. Press the FWD/REV key. FWD indicator goes out and REV indicator comes on.

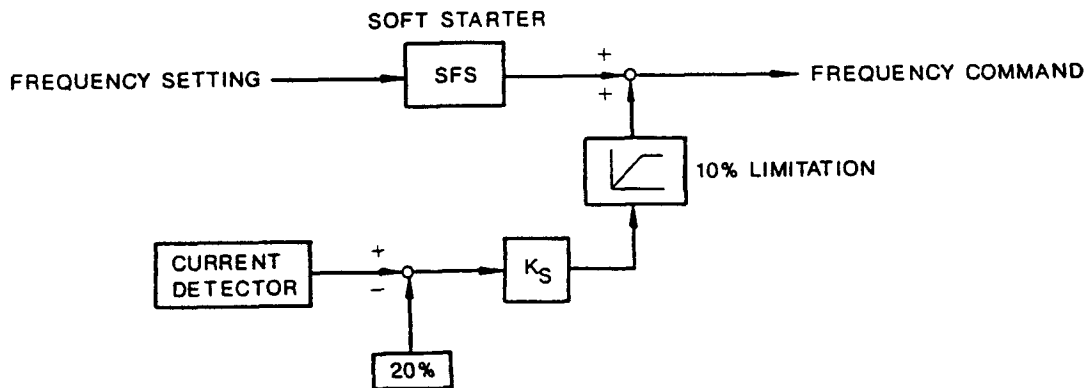
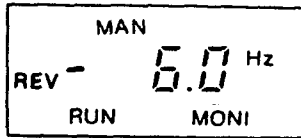


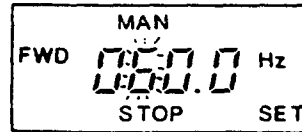
Figure 11. Slip Compensation Block Diagram

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6. Press and hold the JOG key. The Drive starts, and accelerates output to Jog speed, for "reverse" motor rotation.



b. Using Δ key, increase value of the blinking digit until display shows 060.0 HZ.



7. Release the JOG key. The Drive stops, and output returns to zero.

8. Press the FWD/REV key.

9. Press the DISP key. MONI indicator goes out, SET indicator comes on. The digit at far right on the display is blinking.



11. Press the ENTER key. The blinking digit remains steady for 5 seconds, then resumes blinking. The displayed value has been entered into the Drive as frequency reference.

IMPORTANT

If the frequency being entered exceeds the maximum frequency rating of the unit, all digits will blink for 5 seconds, then the display will return to the previous setting.

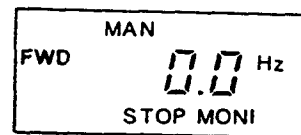
10. Use the SETTING keys to change display to show desired frequency.

EXAMPLE (for 60.0HZ output):

a. Using \triangleleft key, shift blinking position 2 places to the left.



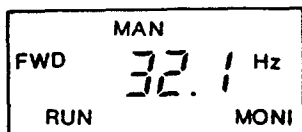
12. Press the DISP key.



13. Press the RUN key. The Drive starts and accelerates output (at the rate set by switch 2S and ACC pot on the Control PCB) toward the set frequency. The display will indicate the increasing output frequency.

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14. To stop the acceleration before output has reached the set frequency, press the RESET key. The Drive will maintain the output frequency at the value at the moment the key is pressed (hold state).



15. To clear the hold state, do either of the following:

a. Press the STOP key. The Drive stops, and output returns to zero.

b. Press the RUN key. The Drive resumes acceleration. After the set frequency is reached, display will remain steady.

16. While the Drive is running, the set frequency can be changed without stopping the Drive:

a. Press the DISP key. MONI indicator goes out, SET indicator comes on.

b. Use SETTING keys to change display to new desired set frequency.

c. Press the ENTER key. Blinking digit remains steady for 5 seconds, then resumes blinking.

As soon as the new frequency reference has been entered, the Drive output accelerates or decelerates to the new set frequency at a rate determined by the switch 2S and ACC and DEC pots on the Control PCB.

17. To stop the drive, press the STOP key. The Drive stops, and output returns to zero.

H. DIGITAL COMMAND BACKUP

When a control expansion option is present on the Drive, the following digital control commands will be stored in the option's memory when the input AC power is removed.

1. Frequency setting value
2. AUTO/MAN mode
3. MONI/SET Mode
4. FWD/REV setting

When input power is re-applied to the Drive, the above commands are automatically re-entered to the control circuit.

RUN and JOG commands are not stored.

I. FAULT MODE

Regardless of whether the Drive is running in the Auto or Manual mode, when fault shutdown occurs, the FAULT indicator will blink and an alphabetic fault code will appear on the numerical display. See Table 3.

Several faults may have been sensed by the Drive before the Fault relay tripped. However, fault codes can only be displayed one at a time. Fault signals are recorded in sequence in the internal memory, and can be individually displayed by the following fault trace procedure (see Figure 12):

1. Verify that the Drive is in Manual mode. If necessary, press the AUTO/MAN Key.

2. Press Δ key. The digit 1 appears in front of the display, indicating it was the first fault in sequence. Record the fault code.

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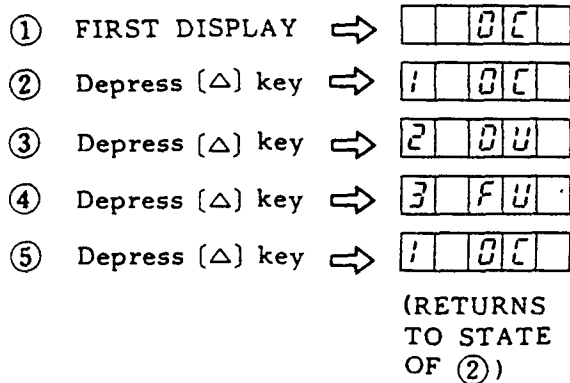


Figure 12. Fault Trace Procedure

3. Press Δ key again. The display now shows 2 followed by a fault code. This is the second fault that occurred before Fault relay trip. Record the fault code.

4. Continue pressing Δ key and recording fault codes, until the display again shows 1 and the first fault code.

Troubleshoot the drive system according to the fault code(s) displayed; refer to the TROUBLESHOOTING section of the Drive Reference Manual.

Perform the following procedure to see if fault conditions are still present:

NOTE

If power is removed and then reapplied, the Fault relay will be automatically reset.

a. If AUTO indicator is on, press the MAN/AUTO key to enter Manual mode.

b. Press the RESET key. If the fault signal is still present, the FAULT indicator will stop blinking and remain steady, and the fault code display will remain. If the fault signal is not present, the FAULT indicator will go out and a numerical display (0.0 HZ) will appear.

The Drive protective circuit also detects fault conditions which do not result in shutdown. An alarm display will occur, as listed in Table 4, but the Drive will continue to run.

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Table 3. Shutdown Fault Indications

| INDICATION | SYMPTOM |
|---------------------------------|--|
| OC (Overcurrent) | More than 200 percent of rated current flow in Drive output side. (Instantaneous operation) |
| OU (Overvoltage) | DC bus voltage higher than 790V for 460V units, 395V for 230V units. |
| OL (Overload) | Overload of motor and Drive detected by electronic thermal circuit. |
| Eb (External Failure) | External fault signal input at terminal 7 of Drive. |
| FU (Fuse blown) | Main circuit fuse blown. |
| UU (Undervoltage) | DC bus voltage lower than 450V for 460V units, 225V for 230V units. |
| OH (Heat Sink Overheat) | Thermoswitch on semiconductor heat sink detected excessive temperature. |
| CPF (Control Function Error) | Detection of the failure of CPU, EEPROM of control expansion option, or main control function by self-diagnostic function. |

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Table 4. Alarm Indications

| INDICATION | SYMPTOM AND ACTION REQUIRED |
|---|---|
| <p>UU (blinking) (Momentary Power Failure of 2 seconds or less)</p> | <p>(Only if switch 6S notch 5 is set to ON.) Power failure occurred momentarily, but power returned within 2 seconds; ride-thru prevented Drive shut-down. After blinking for 2 seconds, this display will clear and frequency display will return.</p> |
| <p>CPF (blinking) (Selection Error)</p> | <p>Switch 1SS to 6S settings have been changed while power is applied to the Drive. Do one of the following:</p> <ul style="list-style-type: none"> a. Set switch notches back to position before change. Fault indication will clear. b. Turn off power, then turn back on. New switch settings are now accepted by the control circuit. |

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