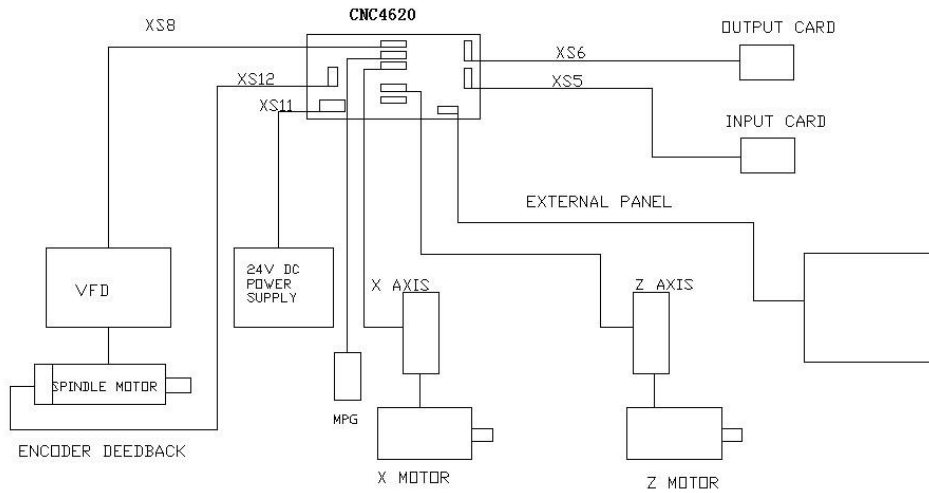


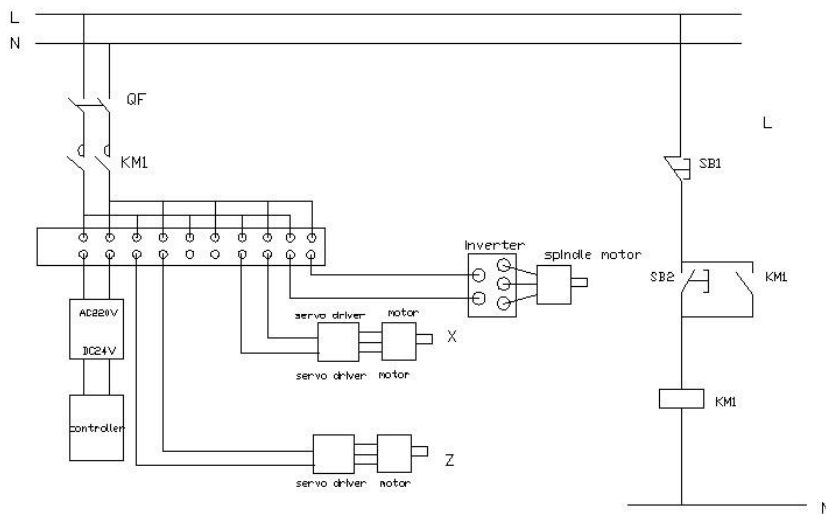
cnc4620 service manual

chapter 1-----diagram

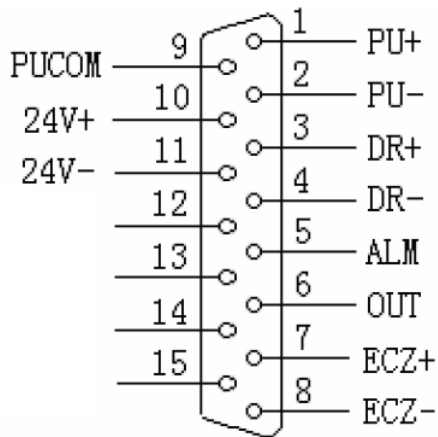
1:configuration



2: main circuit

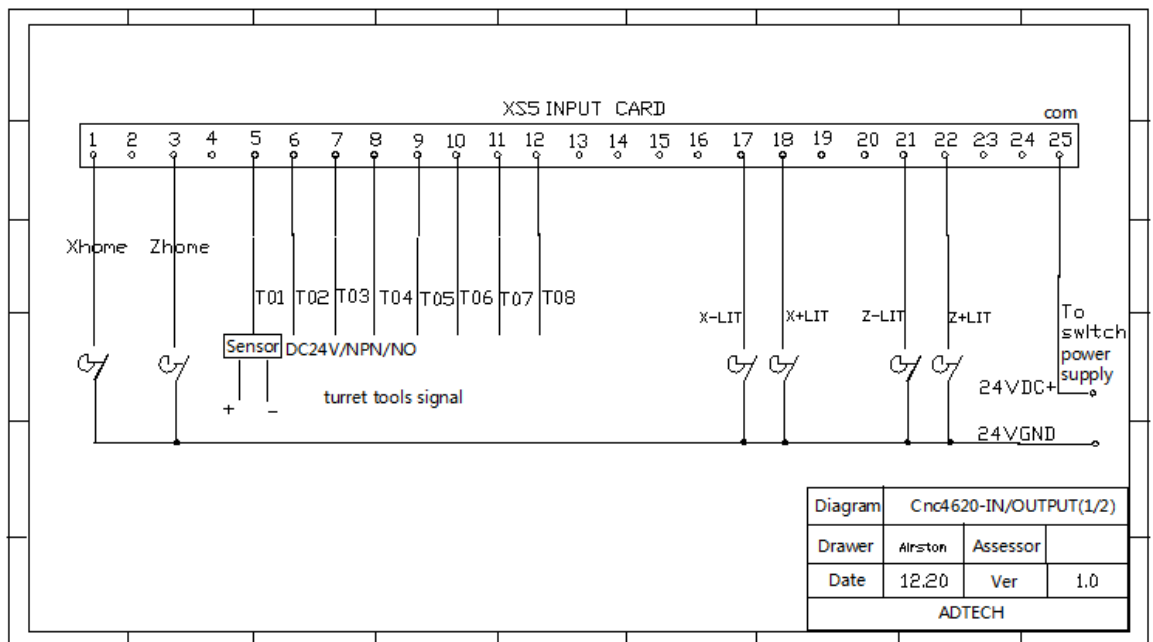


3: pulse wire connection (xs1—xs6)



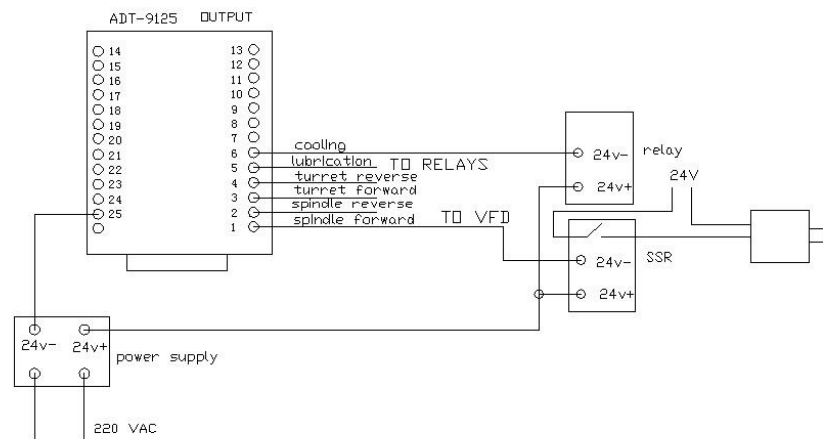
Note :this controller is open loop ,so no need connect encoder feedback signal .ECZ+ ,ECZ- are feedback of servo encoder ,which are used for home position accurate .

4:input diagram (xs5)



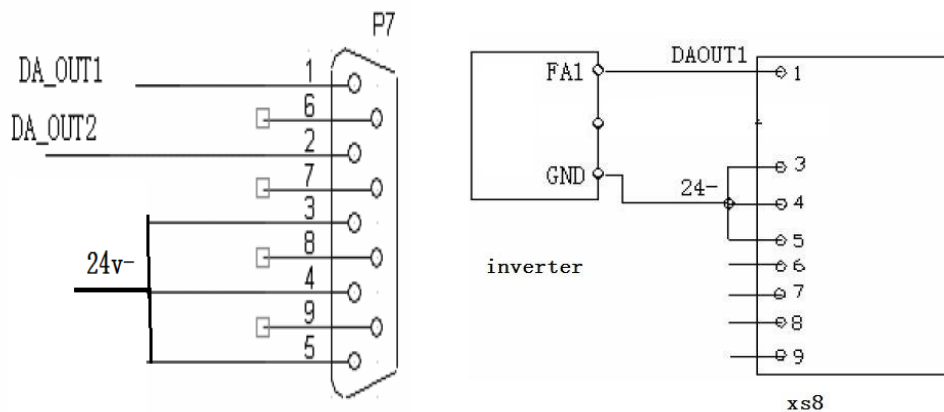
Note :the input pin5---pin12 are the turret tool sensor ,all sensors (include home sensor ,limit sensor) are NPN model (normal open)

5: output diagram (xs6)



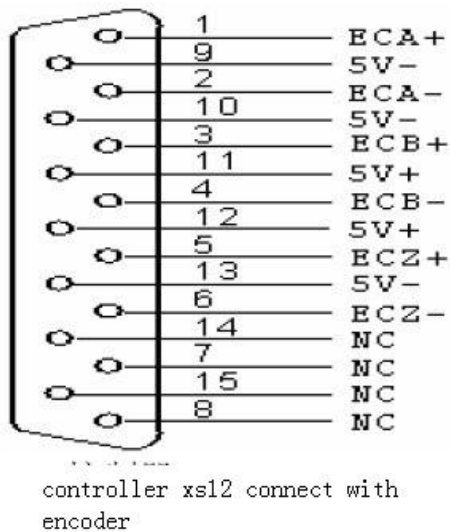
Note: output pin1 and pin2 are connected to inverter .pin1 is spindle forward signal ,pin2 is spindle reverse signal .pin 5 lubrication out signal and pin6 cooling out signal are connected to relays which control the cooling and lubrication AC motor .the relay should be 24V DC.

6:spindle analogue signal output xs8



Note: there are 2 analogue signal outputs,DA-out1 and DA-out2.that not means the controller can control two spindles .that because both of signal are same ,the DA-out2 is for standby ,normally ,we just connect DA-out1to inverter ,you can refer the above right diagram .

7:spindle encoder diagram xs12



Note: if the application is threading ,an encoder should be installed ,the connection is above diagram .(other applications no need encoder)

chapter 2 Operation

1:go home point

Note: there are two home points ,one is program home point ,the other is machine home point .

1) program home point :the steps as below

a:under main interface ,press home button

b:press SBK button ,then controller will show mode :program

c:press x and z button ,the x and z coordinate will flash , then press CAN button ,the x and z coordinate will be 0

2) machine home point :

a:connect home point sensor follow the input diagram

b:at the main interface ,press home

c:press SBK button ,select home mode is machine

d:press start (for all axis go home together),press x- or z-,only x axis go home
or z axis go home

2: MDI -----MDI just for test

A:at the main interface ,press MDI(F3)

B:press edit button

C:at the MDI interface ,make the program ,for example

M03 s1000

G01 x100 z200

X300

T0101

X10 z10

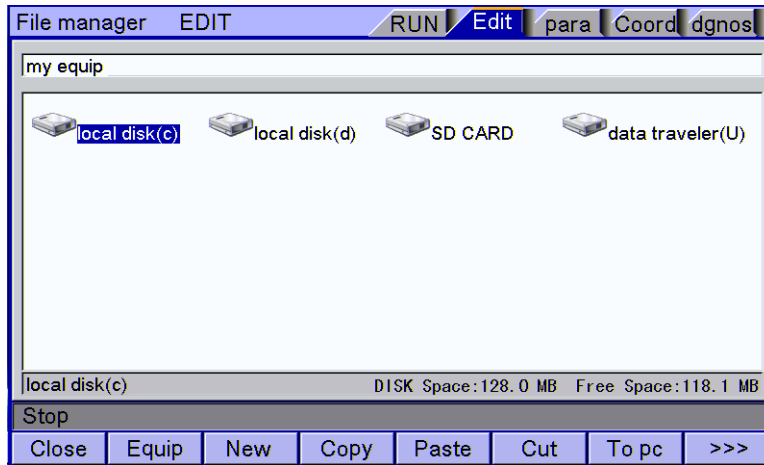
M30

D:after making program ,press start button ,the controller will work

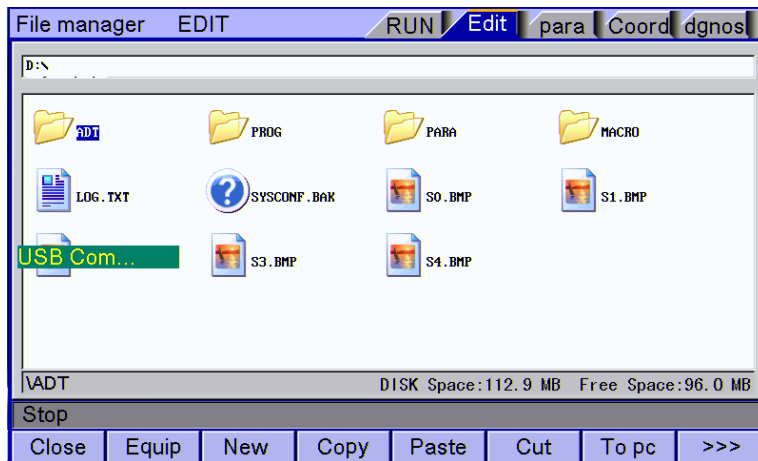
chapter 3: how to load program (CNC OR NC file)

1) by usb line (connect pc with controller by usb line –the back of controller usb port xs11) ,the steps as follow

a:press FILE button ,it will show as below



B:then press TO PC—F6 button



C:open you pc ,then you can find a u disk in your pc



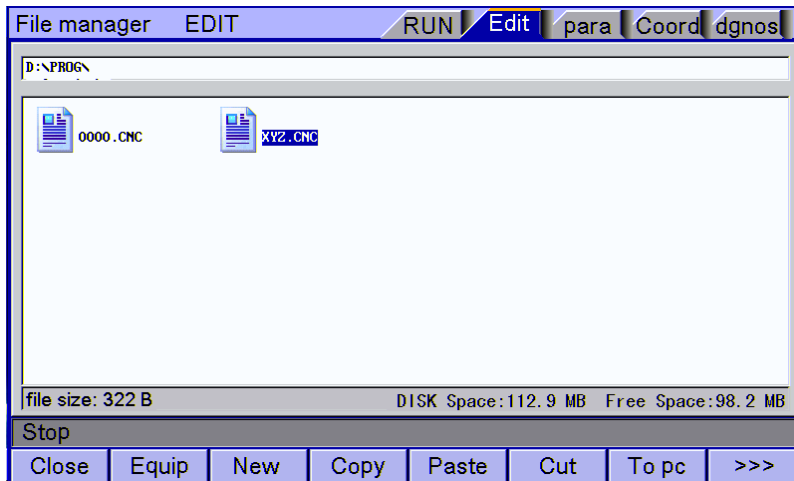
D:open the u disk (H)

名称	修改日期	类型	大小
SYSCONF.BAK	2013/6/18 11:35	BAK 文件	241
S0.BMP	2006/1/10 0:39	ACDSee 10.0 B...	1,126
LOG.TXT	2006/1/3 18:59	文本文档	21
MACRO	2013/6/8 18:02	文件夹	
ADT	2006/1/3 4:16	文件夹	
PARA	2006/1/3 4:16	文件夹	
PROG	2006/1/3 4:16	文件夹	

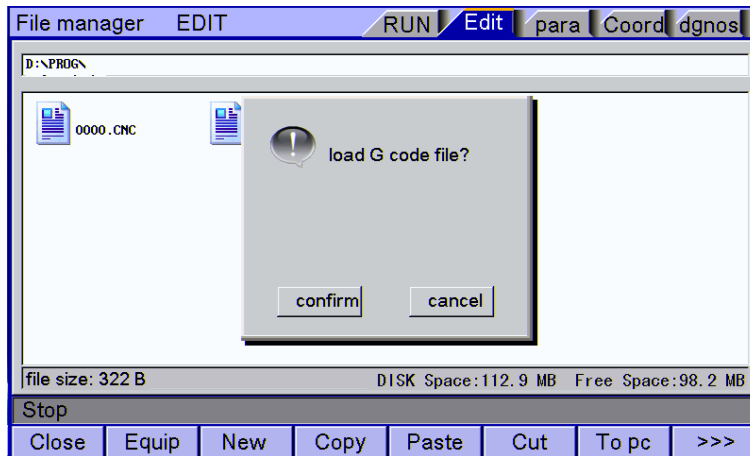
E:open the PROG folder ,and copy the NC OR CNC file to this folder

名称	修改日期	类型	大小
0000.CNC	2006/1/4 0:45	CNC 文件	1
xyz.CNC	2013/6/26 16:30	CNC 文件	1

F:select NC or CNC file in controller



G:then press EOB button

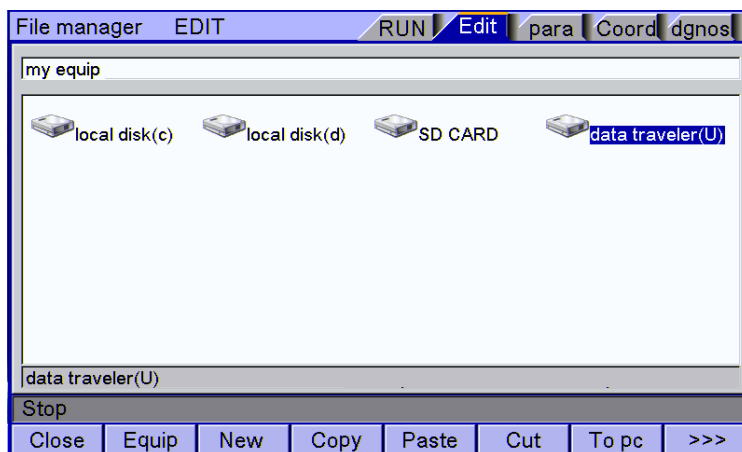


H:after pressing EOB button ,the program loading is finished

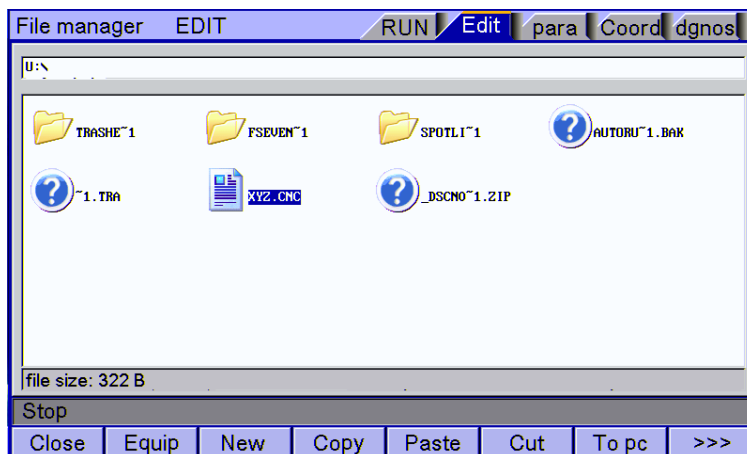
2) copy program by flash drive

A:insert the flash drive to usb port that at the front of controller

B:press file button ,then select data traveler



C:then you can find the cnc file in controller



D:press F3-copy ,then press CAN button ,back to lock disk ,and enter prog folder ,then press paste –F4 button

chapter 4 normal parameters setting

A:genl parameters setting list

001---008 Gear Numerator and Gear Denominator

This is gear ratio setting

The formula is that $CMR/CMD = P / (L \times 1000)$

CMR: gear ratio numerator

CMD: gear ratio denominator

P: Pulses corresponding to one rotation of the motor

L: the ballscrew pitch

For example :x axis ,the mechanical gear ratio is 1:1,the pitch is 5mm,the servo motor pulse /round is 10000,then

$CMR/CMD = 10000 / 5 \times 1000 = 2/1$,so the x Gear Numerator setting value is 2,the Gear Denominator setting value is 1,if the the mechanical gear ratio is 1:3,then $CMR/CMD = 10000 \times 3 / 5 \times 1000 = 6/1$,so the x Gear Numerator setting value is 6,the Gear Denominator setting value is 1

Other sample :Y axis ,the pitch is 8mm,the step motor pulse/round is 5000,then $CMR/CMD = 5000 / 8 \times 1000 = 5/8$,so the x Gear Numerator setting value is 5,the Gear Denominator setting value is 8

009—012 X---4 Fast speed

These setting are the speed of G0,the Max setting is 200000

021---027 x---4 software limit

These settings are according to the real distance of each axis ,for protecting the machine

029---inp speed

This setting is the speed of G1/G2/G3,the max setting is 200000

032---035 x---4 backlash expiate

These settings are the backlash compensation of each axis

036 zero return mode

It is going home mode, the normal setting is machine mode. Actually, at the home mode, **press SBK button can shift the home mode**

059 G code pre-treatment

The normal setting is “preprocess”

B:axis parameters setting

001---004 servo Alarmin elevel

These settings are 0

C:spindle parameters setting

013 spi encode bits

This is the setting of spindle encoder resolution ,for instance :1024

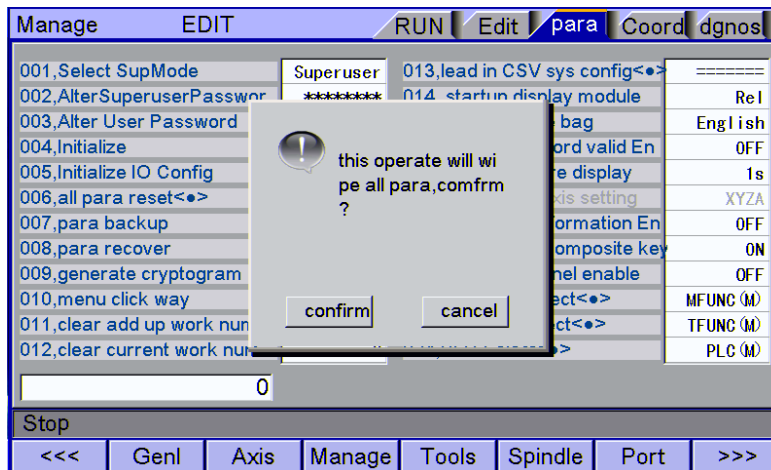
020 spi max speed

This setting is spindle motor rated speed

chapter 5 how to backup 、 recover and initialize parameter

1) initialize parameter (back to default value)

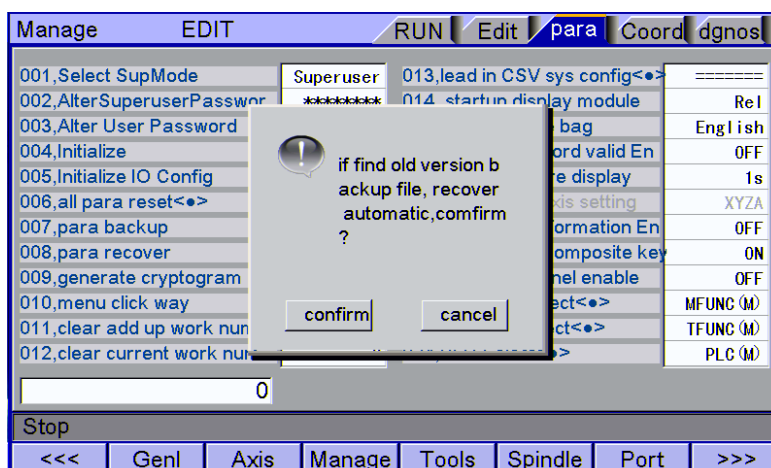
A: firstly ,press SYSTEM button ,then press F3—manage ,select 006—all para reset ,then press EOB button ,the pic as below



B: then press EOB, after that ,the parameters will be default value

2) the process of back up parameter

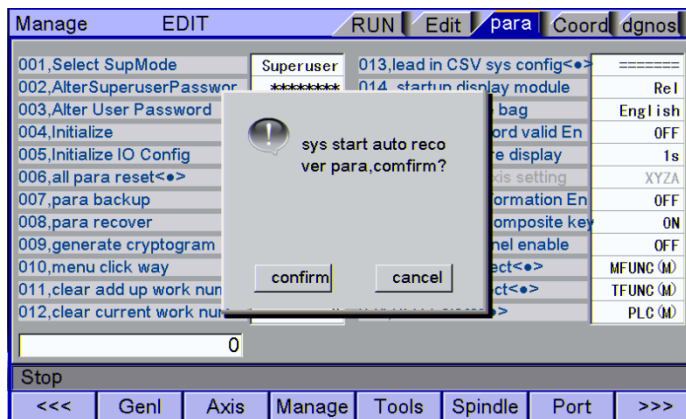
select manage parameter 007—para back up ,and press EOB, after showing as below dialog, press EOB



3) the process of recover parameter

select manage parameter 008—para recover ,and press EOB, after showing

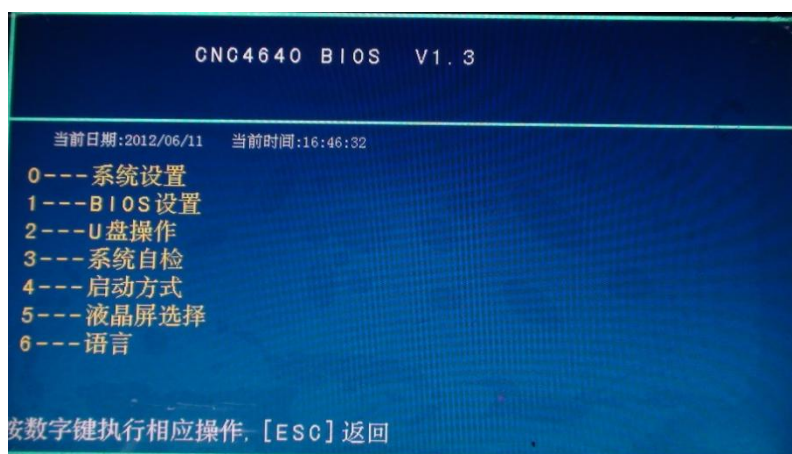
as below dialog, press EOB



chapter 6 how to update software

Update software with pc

- 1) connect pc with controller by usb line
- 2) press "CAN" button (keep it) and power on the controller, when hear a buzzing, then loose the button,
- 3) input the password **26722719**
- 4) the controller will display the picture as follow



- 5) select 6 (press 6), change the language \
- 6) then will show

```
CNC4640 BIOS V1.3

CurDate:2012/06/111 CurTime:16:46:511

0---System Set
1---BIOS Set
2---U Disk
3---System Check
4---Run Mode
5---LCD Select
6---language

Press num key start opt. [ESC]Quit
```

7) select "2 u disk " then will show

```
CNC4640 BIOS V1.3

CurDate:2012/06/111 CurTime:16:47:081

0---USB communication
1---Format U disk
2---U disk Data Copy
3---Format YAFFS2

Press num key start opt. [ESC]Quit
```

7)select 0 –USB communication ,if connect successfully, will show

```
CNC4640 BIOS V1.3

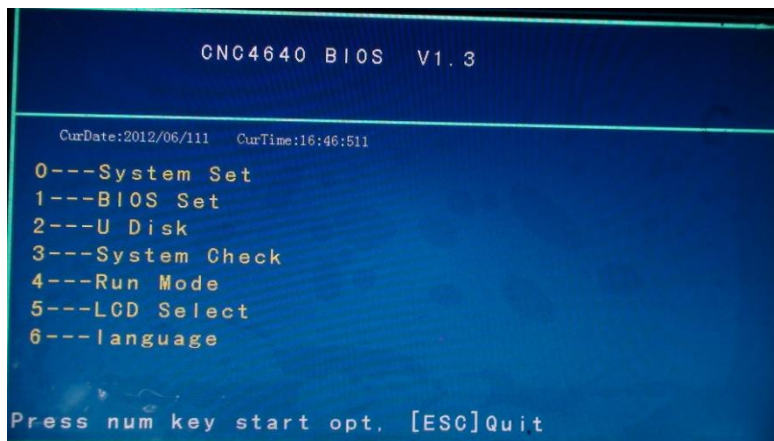
CurDate:2012/06/111 CurTime:16:47:121

0---USB communication
1---Format U disk
2---U disk Data Copy
3---Format YAFFS2
USB transmitting....

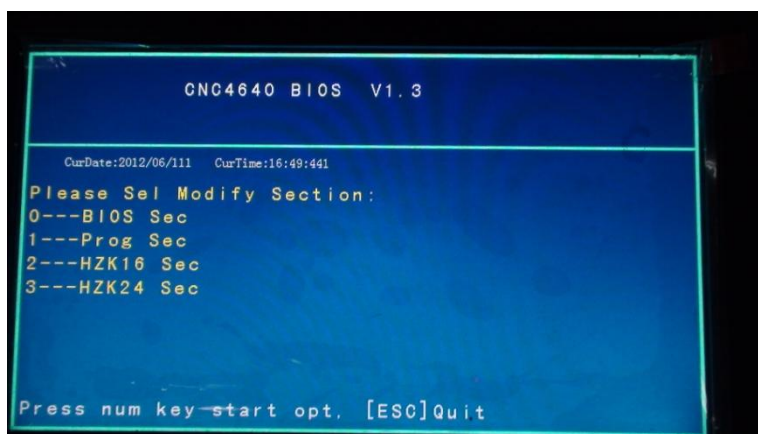
Press num key start opt. [ESC]Quit
```

8)then copy the file(ADTROM.BIN and nc_res.ncp) I send you to ADT file of controller

9)when finish ,press CAN button(2 times) ,back to the main interface



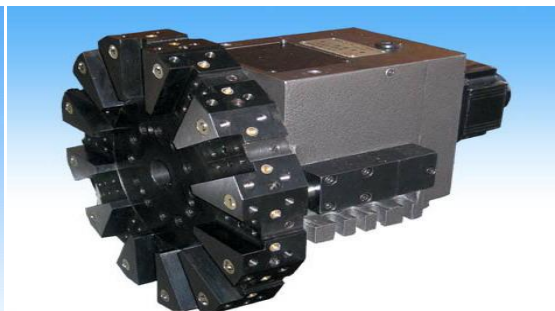
1)then select 1 prog sec and press Y,then finish



12)restart controller

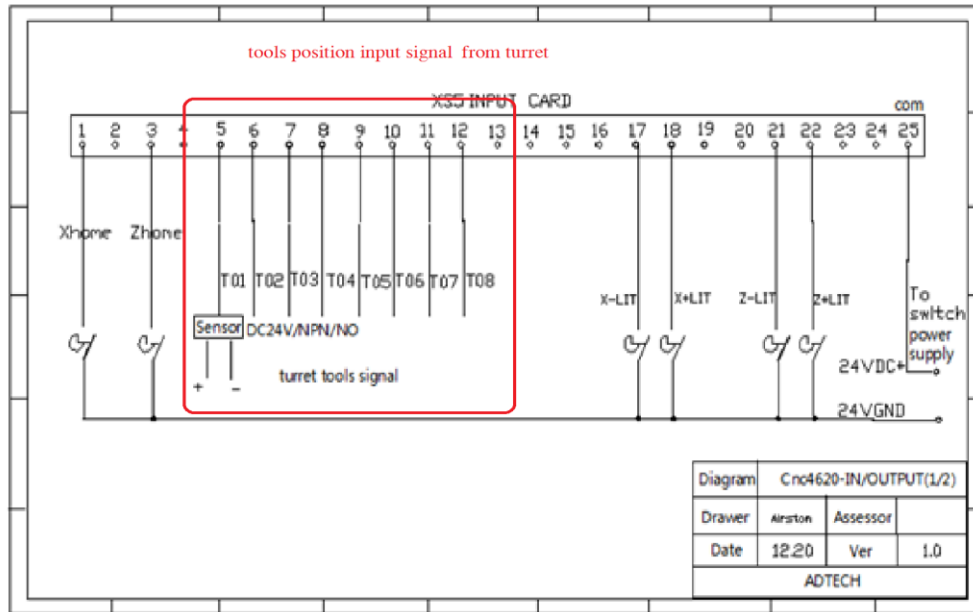
chapter 7 Auto Tool Change (ATC function)

A: turret

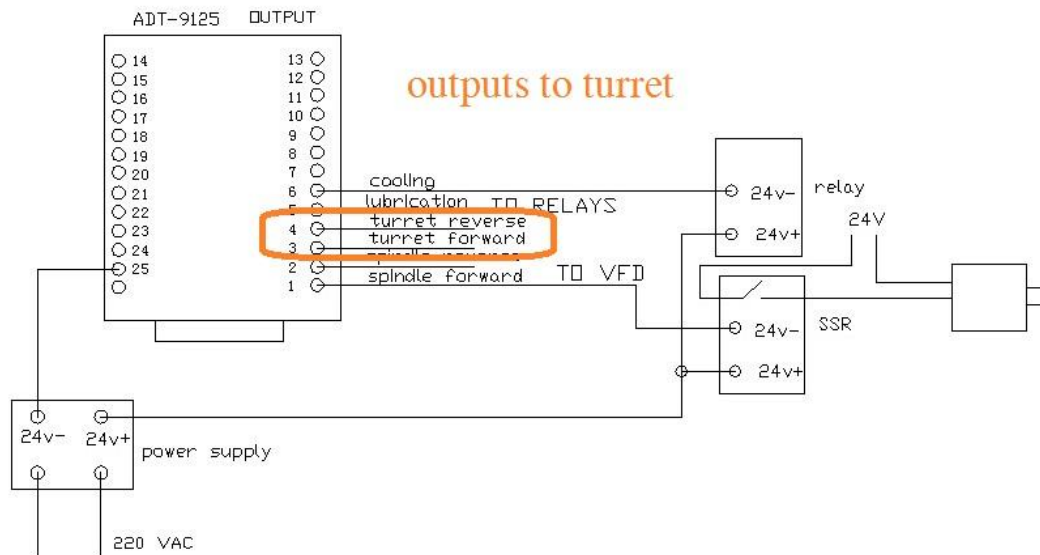


B:diagram

Input signals



Output signals



C:I/O definition

Inputs

IN/ port	Definition
IN4(port5)	T01
IN5(port6)	T02

IN6(port7)	T03
IN7(port8)	T04
IN8(port9)	T05
IN9(port10)	T06
IN10(port11)	T07
IN11(port12)	T08

Outputs

Out/port	definition
Out2(port3)	Turret forward
Out3(port4)	Turret backward

D: parameter of macro-variable

Parameter definition	Macro address
Current tool	#200
Sys tool NO.	#400
Max tool change time (ms)	#401
Tool reset locking time (ms)	#403
Delay of re-locking	#402
Tool bit signal level	#404

E: macro program

O0001

IF[#400==0] M30

IF [[#400 <= 0] || [#400>12]]

THEN #3000=1(the setting of max tool is error)

IF [[#200 > #400] || [#200 <=0]]

THEN #3000=1(T CODE TOOL NO. IS ERROR)

M89 P3 L0 Q150

M89 P2 L1 (THE CW SIGNAL IS ACTIVE)

IF [#200==1] M88 P4 L#404 Q#401

```
IF [#200==2] M88 P5 L#404 Q#401
IF [#200==3] M88 P6 L#404 Q#401
IF [#200==4] M88 P7 L#404 Q#401
IF [#200==5] M88 P8 L#404 Q#401
IF [#200==6] M88 P9 L#404 Q#401
IF [#200==7] M88 P10 L#404 Q#401
IF [#200==8] M88 P11 L#404 Q#401
M89 P2 L0 (THE CW SIGNAL IS INACTIVE)
G04 P#403
M89 P3 L1
G04 P#402
M89 P3 L0
M30
%
```

F program Description

```
O0001
```

```
IF[#400==0] M30
```

If the sys tool NO. setting is 0 ,the program end

```
IF [[#400 <= 0] || [#400>8]]
```

If the sys sys tool NO. setting is less than 0 or more than 8,the controller show alarm

```
THEN #3000=1(the setting of max tool is error )
```

Alarm information is that the setting of max tool is error

```
IF [#200 > #400] || [#200 <=0 ]
```

If the Current tool setting(T code in the program ,like T0109) is more than sys tool NO. or it is less than 0 ,the controller show alarm

```
THEN #3000=1(T CODE TOOL NO. IS ERROR )
```

The alarm information is that T CODE TOOL NO. IS ERROR

```
M89 P3 L0 Q150
```

Making the reverse signal inactive (making the reverse motor stop) and delay 150ms

```
M89 P2 L1
```

THE forward SIGNAL IS ACTIVE (THE forward motor start working)

```
IF [#200==1] M88 P4 L#404 Q#401
```

If the current tool is NO.1 (THE program is T01**),THE controller will detect prot 5 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

```
IF [#200==2] M88 P5 L#404 Q#401
```

If the current tool is NO.2 (THE program is T02**),THE controller will detect prot 6 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

IF [#200==3] M88 P6 L#404 Q#401

If the current tool is NO.3 (THE program is T03**),THE controller will detect prot 7 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

IF [#200==4] M88 P7 L#404 Q#401

If the current tool is NO.4 (THE program is T04**),THE controller will detect prot 8 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

IF [#200==5] M88 P8 L#404 Q#401

If the current tool is NO.5 (THE program is T05**),THE controller will detect prot 9 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

IF [#200==6] M88 P9 L#404 Q#401

If the current tool is NO.6 (THE program is T06**),THE controller will detect prot 10 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

IF [#200==7] M88 P10 L#404 Q#401

If the current tool is NO.7 (THE program is T07**),THE controller will

detect prot 11 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

IF [#200==8] M88 P11 L#404 Q#401

If the current tool is NO.8 (THE program is T08**),THE controller will detect prot 12 signal and wait (the time is parameter Max tool change time (ms) setting),only the controller get the in position signal ,then the forward motor stop)

M89 P2 L0

THE forward SIGNAL IS INACTIVE(the forward motor stop)

G04 P#403

Delay

M89 P3 L1

The reverse motor start working

G04 P#402

Delay (enough time for locking)

M89 P3 L0

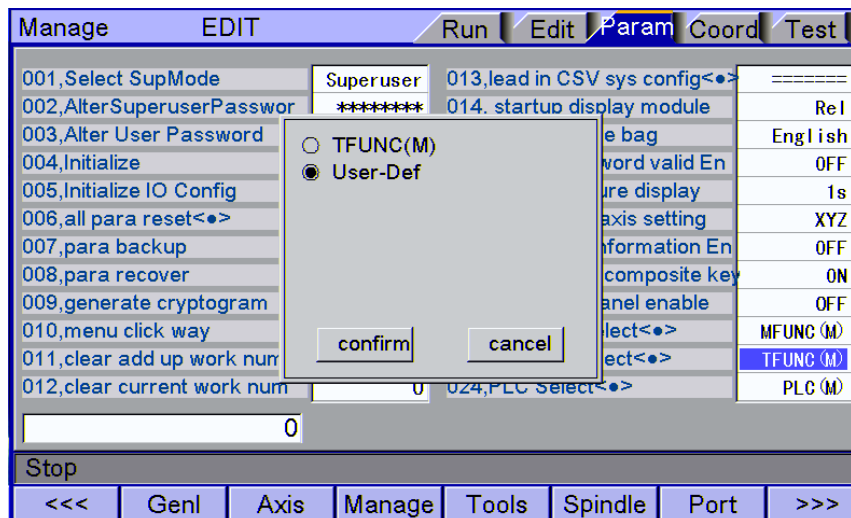
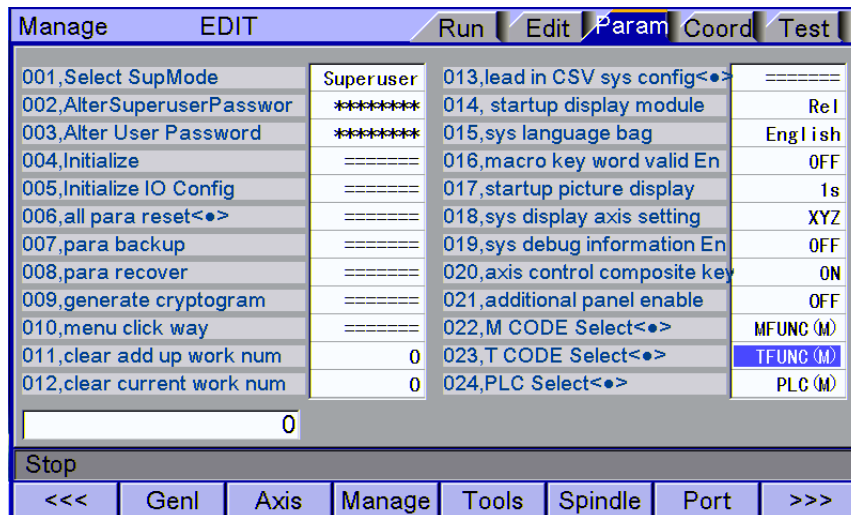
The reverse motor stop

M30

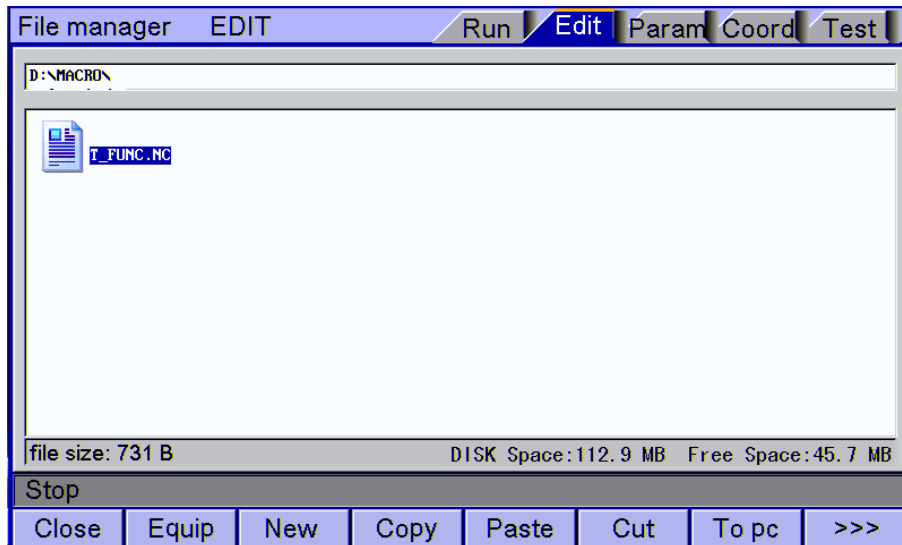
%

load tool changing macro program

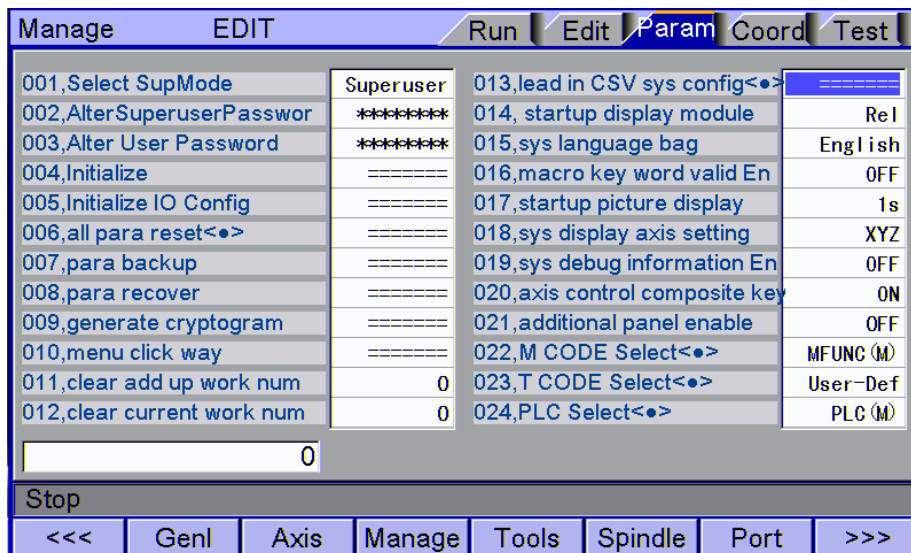
After making macro program ,you need to change parameters then make the program active,,change the manage parameter 023,set it to be User-Def. after changing ,pls restart con



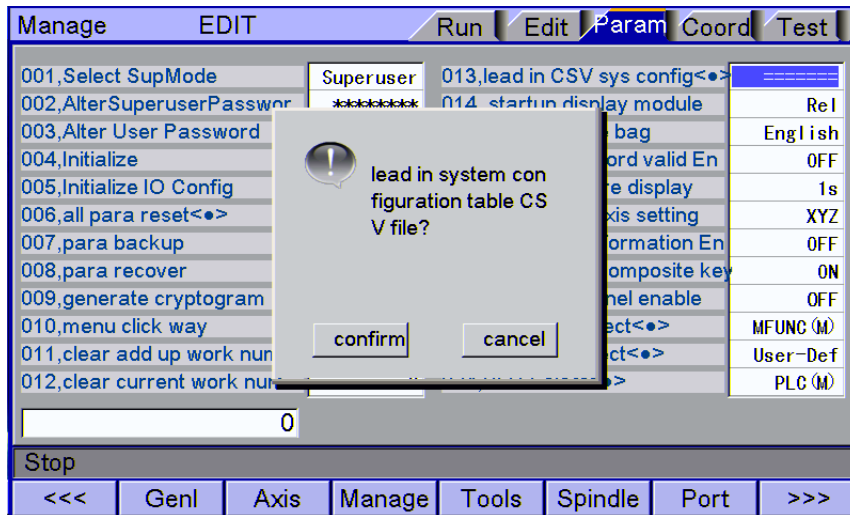
copy the program into Macro file



Lead in CSV system [configuration table](#)



When show this ,select parameter 013,and press EOB ,then will show that



Then press EOB, the controller will reboot