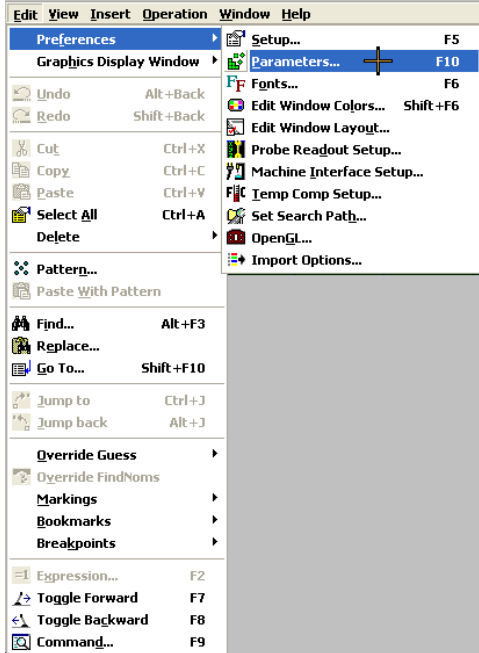


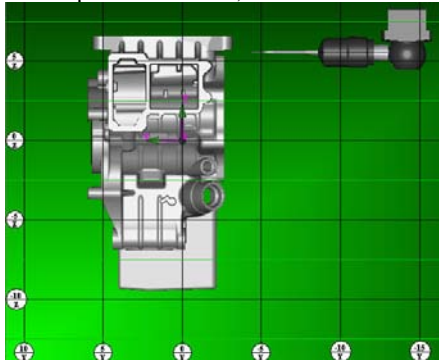
The clearplane function found within PC-DMIS is a very useful tool for the programmer. It takes only a few practice sessions for the programmer to be able to use this function with confidence. Below is an example of how to use the clearplane function.

After setting up the part to be measured(set up and manual alignment), The clearplane function is then turned on. This can be found at...



F1.1

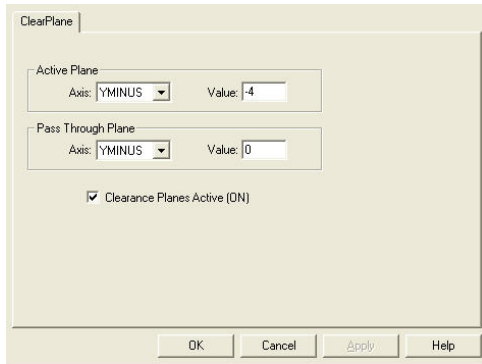
At this point you will be turning on the clearplane functionality of PC-DMIS (F1.1). This is accessed with the mouse via the pulldown menus, EDIT>>Preferences>>Parameters>>Clearplane.



F2.1

As the picture above (F2.1) shows, the programmer wants the probe to be a safe distance away from the part in the -Y axis.

Notice that the Active Plane is set to YMINUS (F3.1) with a value of -4, and the Pass Through Plane is also set to YMINUS but with a value of 0. This value negates the Pass Through portion of the Clearplane option.



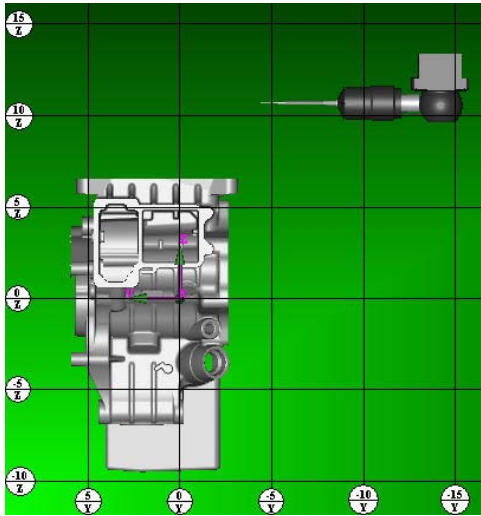
F3.1

This is the code copied from the edit window of this program...

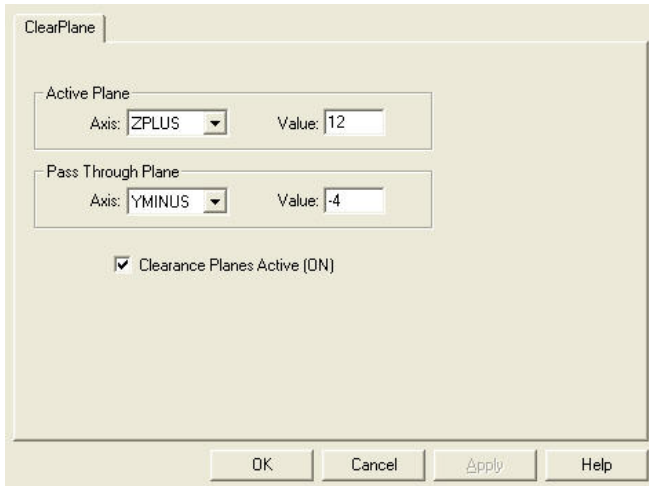
```
RECALL/ALIGNMENT,INTERNAL,MAN_ALIGN  
CLEARP/YMINUS,-4,YMINUS,0  
MOVE/CLEARPLANE  
PNT7 =AUTO/VECTOR POINT,SHOWALLPARAMS = NO  
THEO/-2.3183,-2.09,4.8725,0,-1,0  
ACTL/-2.3171,-2.0903,4.8734,0.0014478,-0.9999989,0.0004179  
TARG/-2.3183,-2.09,4.8725,0,-1,0
```

This clearplane setting will be in effect until another axis is needed or when the programmer needs to go “up and over” the part.

“UP AND OVER” Clearplanes



F4.1



F5.1

Notice that in figure F5.1 the Active Plane has been changed to the ZPLUS Axis with a value of 12 inches, and the Pass Through Plane has been changed to the value that had been found in the Active Plane window -4 inches. This allows the probe to move backward to the safe -Y value (Pass Through) and then move upward to the Active Plane value. At that point the probe will then rotate to the next attitude called (see code below)

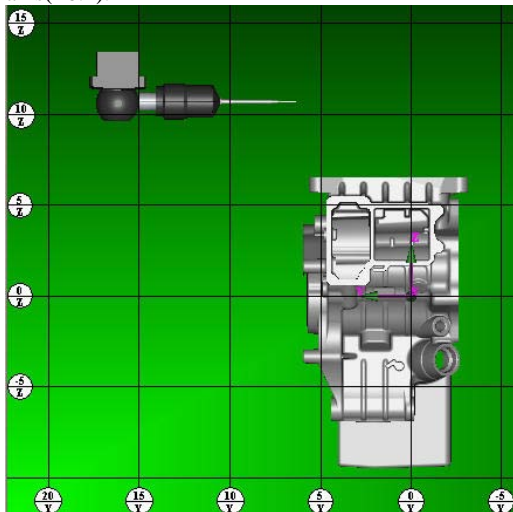
This is the code from this program in order to go “up and over” the part.

```

THEO_K_ALIGN=ALIGNMENT/START,RECALL:ABC_ALIGN,LIST=YES
      ALIGNMENT/TRANS_OFFSET,ZAXIS,6.195
      ALIGNMENT/TRANS_OFFSET,XAXIS,0.043
      ALIGNMENT/END
      CLEARP/ZPLUS,12,YMINUS,-4
      MOVE/CLEARPLANE
      TIP/T1A90B0,SHANKIJK=-0.0116,0.9999,-0.0047,ANGLE=179.7107
      WORKPLANE/YPLUS
      CLEARP/YPLUS,8,YPLUS,0
      MOVE/CLEARPLANE
DAT_K      =AUTO/CIRCLE,SHOWALLPARAMS = NO,SHOWHITS = NO
      THEO/0,5.659,0,0,1,0,3.284
      ACTL/0.0068,5.7139,-0.0131,0.0003318,0.9999986,-0.0016363,3.2852
      TARG/0,5.659,0,0,1,0
  
```

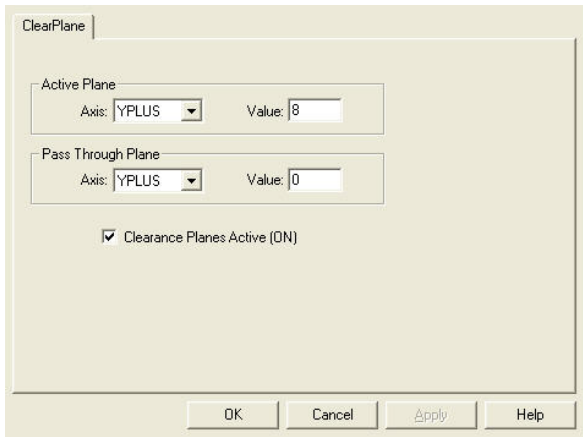
Follow the code that is marked in blue word for word and you should not have any problem with the “up and over” use of clearplanes.

After the “up and over” code has been inserted it is now time to have the probe move to a safe place in the +Y axis(F6.1).



F6.1

Accessing the Clearplane dialog box, the programmer simply changes his/her settings back to look almost as they did when on the -Y axis side of the part except for the fact that the Active Plane and Pass Through Plane will now be the YPLUS workplane. See F7.1



F7.1

At this point you have successfully moved “up and over” the part. Congratulations.

In order to move from the YPLUS or YMINUS clearplanes to the XPLUS or XMINUS, simply change your tip attitude first, then change your workplane, and then make the adjustments for the X axis just like example F7.1 shows for the completion of the “up and over” movement.