



Panasonic Factory Automation PerformArc Robotic Welding System

System Operation

Brake Release Procedure (Table) :

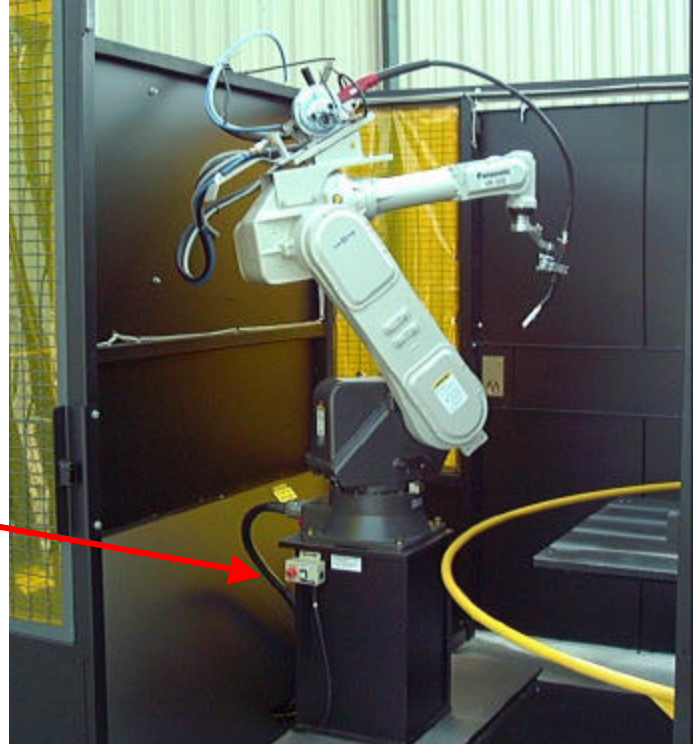
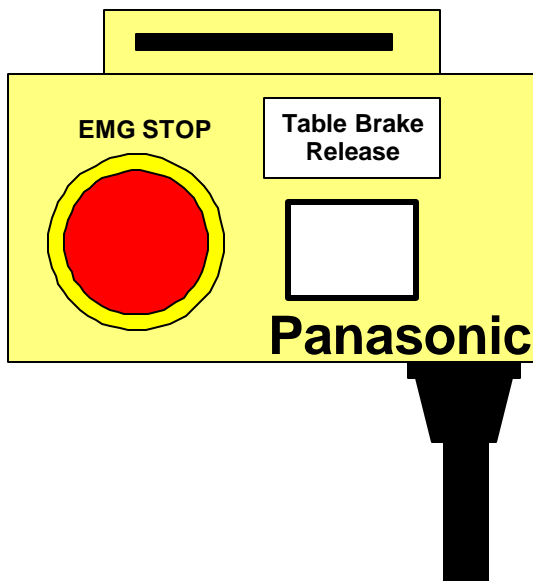
Below is the procedure for releasing the brake on the positioner in case the positioner has accidentally pinched someone during rotation.

IMPORTANT: Please make sure that all personnel operating this system are aware of this procedure prior to operating or maintaining this system.

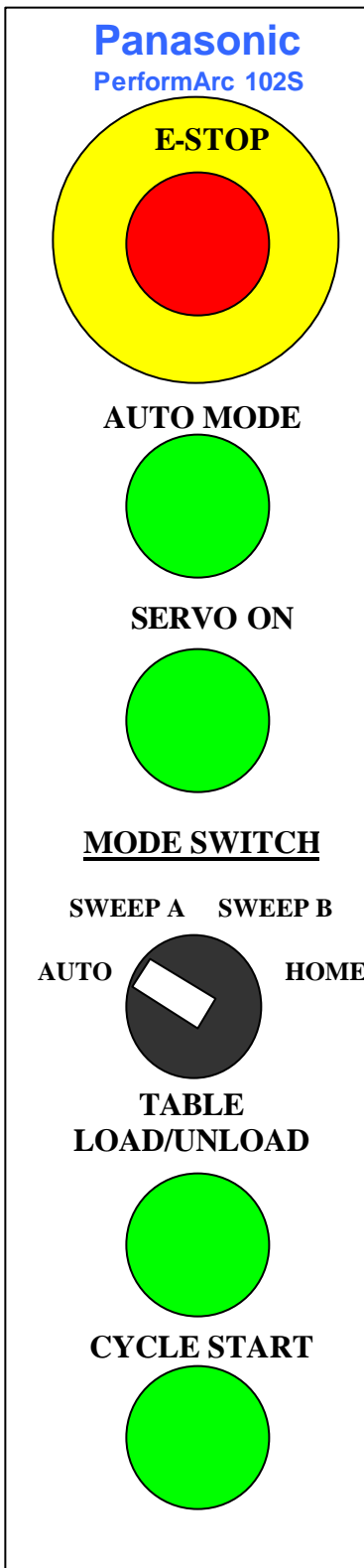
The table brake release is mounted to the robot riser at the back of the robot on the left side of the cell. Please locate the table brake release in your cell using the pictures below as a guideline. The procedure is stated below as well as on the table brake release box mounted on the cell

Table Brake Release Procedure

1. Press E-Stop button.
2. Lift cover on table brake release button.
3. Press and hold table brake release button while moving the table.



Standard Operation Box Layout:



E-STOP

This is a "red" push button that when pressed will cause the system to enter an emergency stop state.

AUTO MODE

This is a lighted push button indicating "green" when AUTO mode is the current state of the robot.

SERVO ON

This is a lighted push button indicating "green" when servo power is on the system (robot and positioner).

MODE SWITCH

The mode switch selector is used to select the type of operation that the cell will perform

AUTO: Full operation of the system

SWEEP A: Sweeps the A side to the robot

SWEEP B: Sweeps the B side to the robot

HOME: Sends the robot to home if all conditions are met

TABLE LOAD/UNLOAD

This is a lamp indicating "green" when the table is in position with the sensor made with either A or B at the robot.

CYCLE START

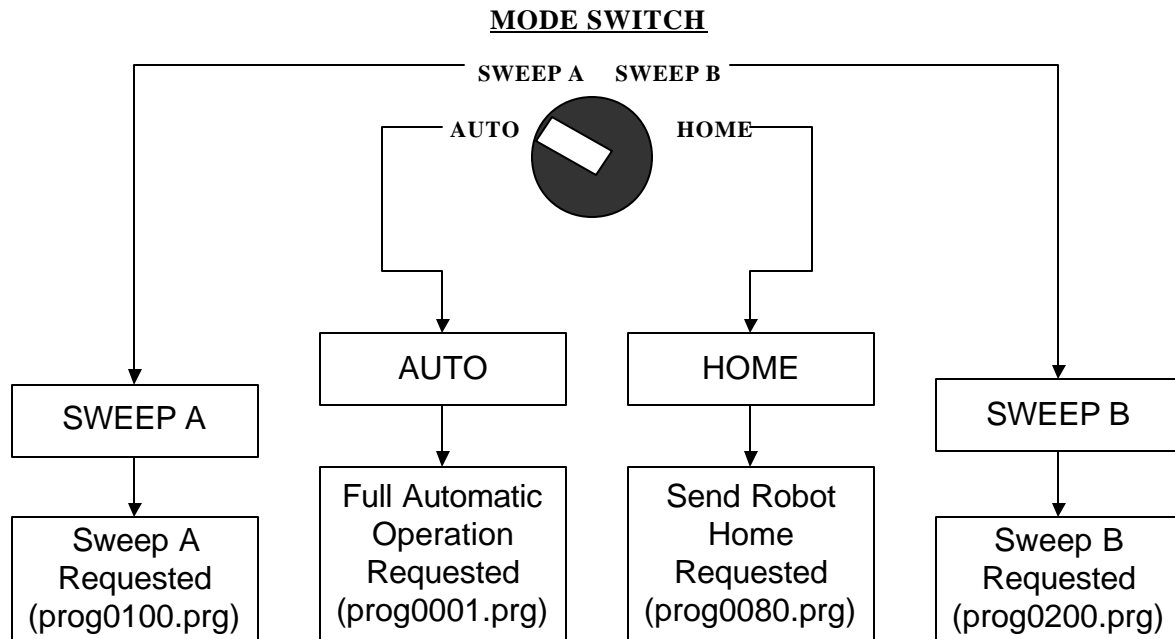
The cycle start button is used for two main purposes

1. To start the system during full operation and
2. To restart the system after hold or e-stop.

System Operation Overview:

The PerformArc 112S System is in general a very simple system to run in day to day operation. The systems programs to be run are called from Prog0001.prg. Inside this program the robot decides which table is at the robot and then calls the appropriate welding program for that side. These welding programs are located inside programs Sweep A and Weld A (for side A) and Sweep B and Weld B (for side B). Changes to these two programs can call different programs if for example production numbers require the addition of more and different parts to the system. This can be handled easily through additions or subtraction of programs in the appropriate location.

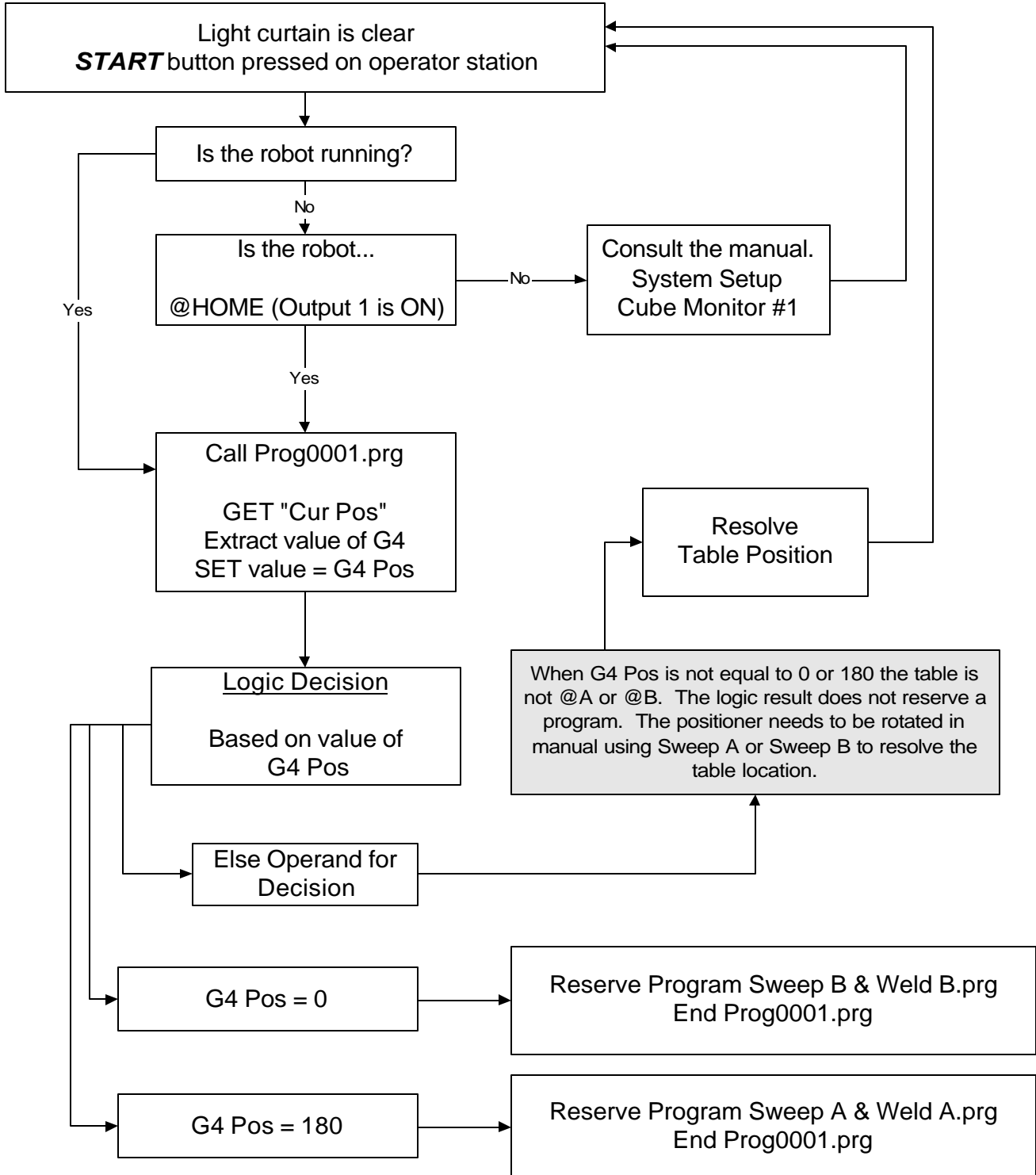
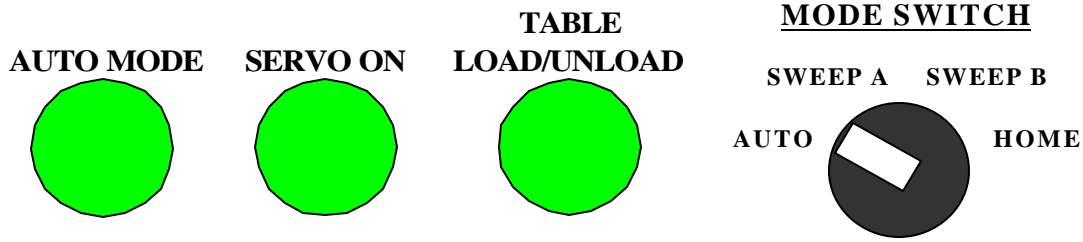
The system has a four-position switch located on the front operation panel. This switch allows for the system to be run in AUTO (Prog0001.prg) or be run in a Manual Mode which calls the other corresponding positions on the switch...Sweep A (sweep the positioner side A to the robot if the robot is home), Sweep B (sweep the positioner side B to the robot if the robot is home) or Home (sends the robot home if certain conditions are met). See the figure below for more information.



Also included in the general operation is an additional function known as tip change monitor. The robot is set at shipment based on the number of times that program Prog0001.prg is run that it should run the program called Tip Change. This program instructs the robot to go over to the right side door and await the operator to come over and change the welding tip. This increment is definable by the end user and also could monitor arc on time or the number of arc starts if those are preferred over the number of programs run. The robot once at its position will issue a hold command and send a message to the teaching pendant namely "HOLD: TIP CHG". At this point the operator should change the tip, close the door and then restart the system for normal operation. This feature can also be made invalid if it is not desired.

The flow chart on the next page will give an indication of the flow of Prog0001.prg and the decisions that are being made.

Prog0001.prg



Teach/Edit Programs:

ANSI/RIA 15.06-1999 is very stringent compared with previous standards with respect to technicians or operators working within the reachable area of the robot. To comply with these new standards modifications to the operation of the cell as well as the programming of the robot in the cell must be changed when compared to operation or teaching of systems based on older safety standards. The requirements of the new safety standard may at times seem inconvenient, but please be certain that the new standard was developed for **YOUR SAFETY!** Please make sure to read the safety section of this manual and all provided manuals prior to operation of this robotic arc welding system.

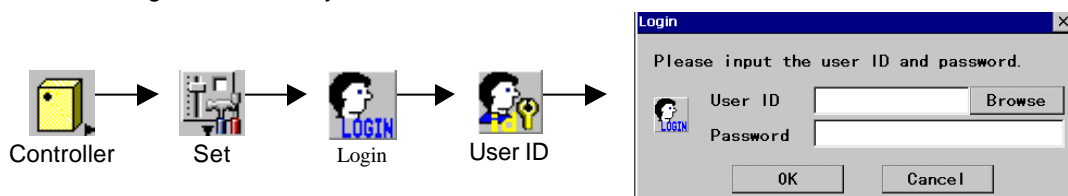
Below please find information regarding to the teaching or the editing of programs on the PerformArc system. The information contained below should act as a guideline for teaching and editing the robot path or structure.

IMPORTANT: Please make sure that the correct MECHANISM and TOOL # have been selected when teaching a new program. Incorrect selection could cause damage to the machine or possible unexpected motion within the system. Please consult the section IO & MECHANISM SETUP and SYSTEM SETTINGS in this manual for more information.

Teaching Note 1:

Only authorized users (correct username and password) can access the **TEACH** and **EDIT** functions in the Panasonic G2 robot. Please contact your engineering or maintenance department or your integration or distribution partner for more information.

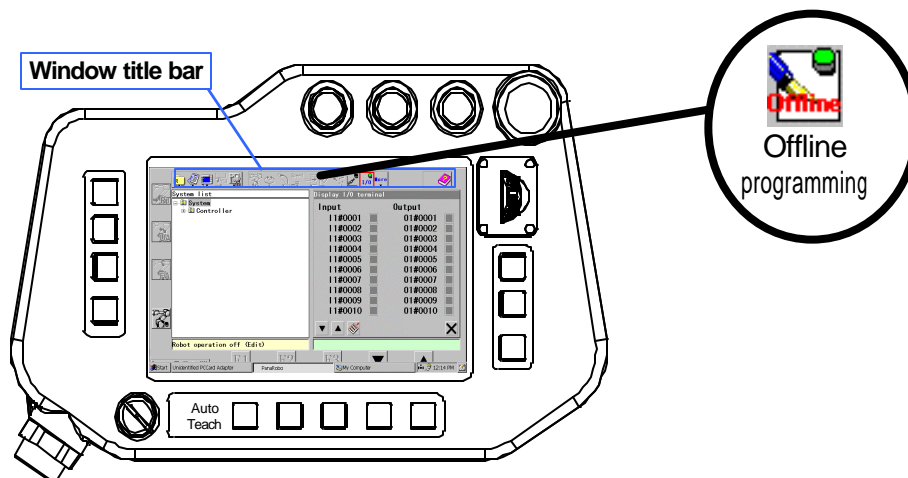
Below is the icon progression to access the Login screen in the G2 robot. Please use this as a guide if user login is necessary.



Teaching Note 2:

It is possible to **EDIT** programs in **AUTO MODE** using the offline programming function.

From the **AUTO** screen move the cursor using the scroll wheel to the offline programming icon located in the window title bar (see illustration below)...



When the icon is highlighted, click in the scroll wheel to turn on this function (green light turns on). This function allows for programs to be edited (even the currently running program) while the robot is running production.

Please consult your user manuals for more information on the operation of this function, as there are several stipulations with respect to the use of this function.

Teaching Note 3:

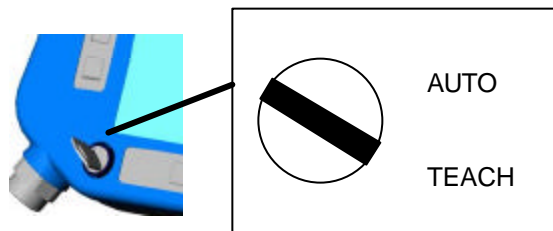
When teaching of the robot is desired and the robot is in **AUTO MODE** running the following progression of steps should be used to access **TEACH** properly.

IMPORTANT: When teaching it is important to remember that a **DOOR STOP** condition must be cleared prior to continuation of any additional steps. The **DOOR STOP** condition can be bypassed in **TEACH** but only when certain conditions are met in the robot dual channel redundant safety chain.

Step 1: If the robot is running press **HOLD** on the teaching pendant. If the robot is not running then this step may not be necessary.

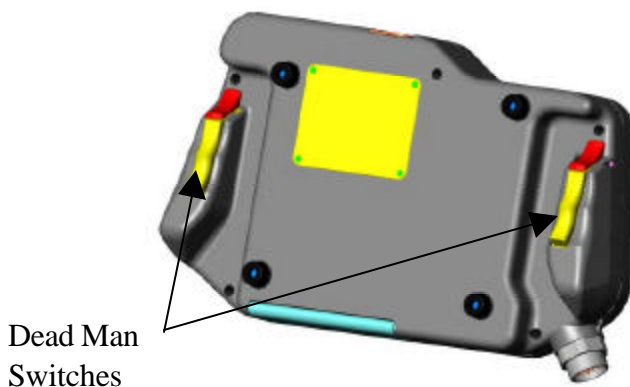
Note: Lack of robot motion does not denote, "ROBOT NOT RUNNING". Please be sure to check the teach pendant to see if any background programs are running or the robot is waiting, in which case the **HOLD** button should be pressed.

Step 2: Change the position of the key on the teach pendant to the position designating **TEACH** (see illustration below)



Step 3: Open both of the access doors to their fully opened position. Note that subsequent steps require that both doors be fully opened prior to continuation. Failure to perform this step will not permit teaching of the robot.

Step 4: Grip the "Dead Man Switch" at the rear of the teaching pendant with either hand (Note: Only 1 of the 2 switches must be made to permit servo power to be established with additional action).



Step 5: Press the **SERVO ON** button either at the operator station or on the teach pendant.

Step 6: If the running program is the program to be modified then continue. If a different program is to be modified or a program was not running then please open the appropriate file. Consult the robot operation manuals for more information.

Step 7: Begin teaching/editing the robot programs.