

CHAPTER 5 - START-UP OPERATIONS

5-1 POWER UP SEQUENCE

A) Startup for Programming and Set-up

- 1) Turn on Video Terminal or PC. If using ROBCOMM, enter the TERMINAL EMULATE mode.
- 2) Turn on Robot system controller. Observe the Sign-on message. If it does not appear, follow the trouble-shooting flow-chart in APPENDIX H.
- 3) Manually move robot into the upright position and hold in position. For models equipped with brakes (A151 or A251), the arm power must be on to release the brakes. Therefore, to move the arm into position, the system must be in MANUAL or LIMP mode. Refer to the RAPL-II Reference manual or the Tutorial manual for further details.
- 4) Turn on arm power.
- 5) You are now ready for the Homing sequence (SECTION 5-2).

B) Auto-Startup (after programming is complete).

- 1) Ensure the arm is in its correct starting position. Generally it will be nested in a homing bracket. If it is not, place it correctly before proceeding.
- 2) Press and hold the Auto-start push-button.
- 3) Turn on the main power, continuing to hold the AUTO-START push-button until the green light in the push-button comes on. This is an indication that the AUTO_ST program is running. If it fails to come on and the light on the teach pendant goes out, no AUTO_ST program was found by the controller.
- 4) Turn on the ARM POWER. The arm should now proceed to its homing sequence as programmed in the AUTO_ST routine.

5-2 HOMING SEQUENCE

- 1) Do the start-up sequence listed above (section 5-1 A).
- 2) Type >>MANUAL<cr> at keyboard to enter manual mode.

*Future instructions which define commands to be entered list the letters required to make a unique command in **BOLD** and show the remainder of the complete command in normal text. For example: ?*

>>STATUS<cr>

Indicates that the user must type the "STA" and RAPL-II completes it with the "US" before the user types the <cr>. In this way, users who prefer to turn off the HELP mode can see the complete command and others know how many letters to type.

- 3) Starting with Joint #1, move all five joints to the homing mark positions. Position each joint such that the homing marks are as shown in Figure 5-1 (the arrow point is within the homing range).
- 4) Enter >>HOME at keyboard. The controller will ask you to confirm that you have moved the robot arm into the starting home range.
- 5) Re-check the marks as above and enter Y<cr>.
- 6) The arm will move joint by joint into its reference position and display on your screen the status as each joint homes successfully. If a error occurs in any of the joints return to step 1) and repeat the complete procedure. If a error occurs in three (3) consecutive attempts contact your local distributor or CRS Plus.
- 7) Visually inspect each homing marker. After successful completion of the HOME sequence all markers should point directly at each other as shown in Figure 5-3. If the arm did not home correctly return to step 1) and repeat the complete procedure.
- 8) If the arm did HOME correctly and you are now ready to start developing and executing programs.

For more detail on the programming and start up of the robot system refer to the Tutorial and RAPL-II Programming manuals.

5-2 HOMING SEQUENCE (continued)

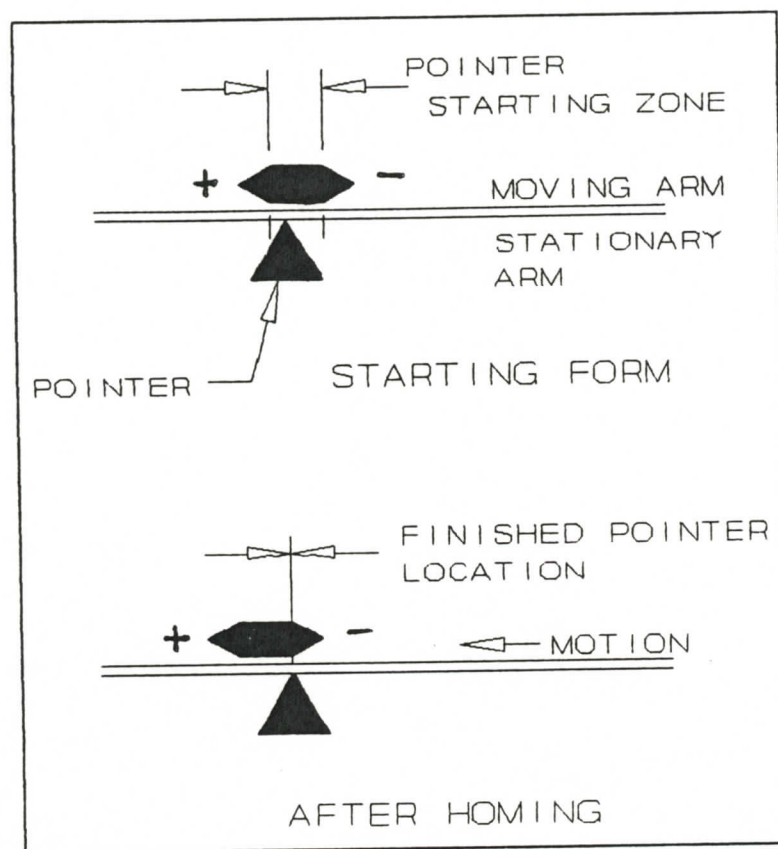


FIGURE 5-1 Homing Marks