



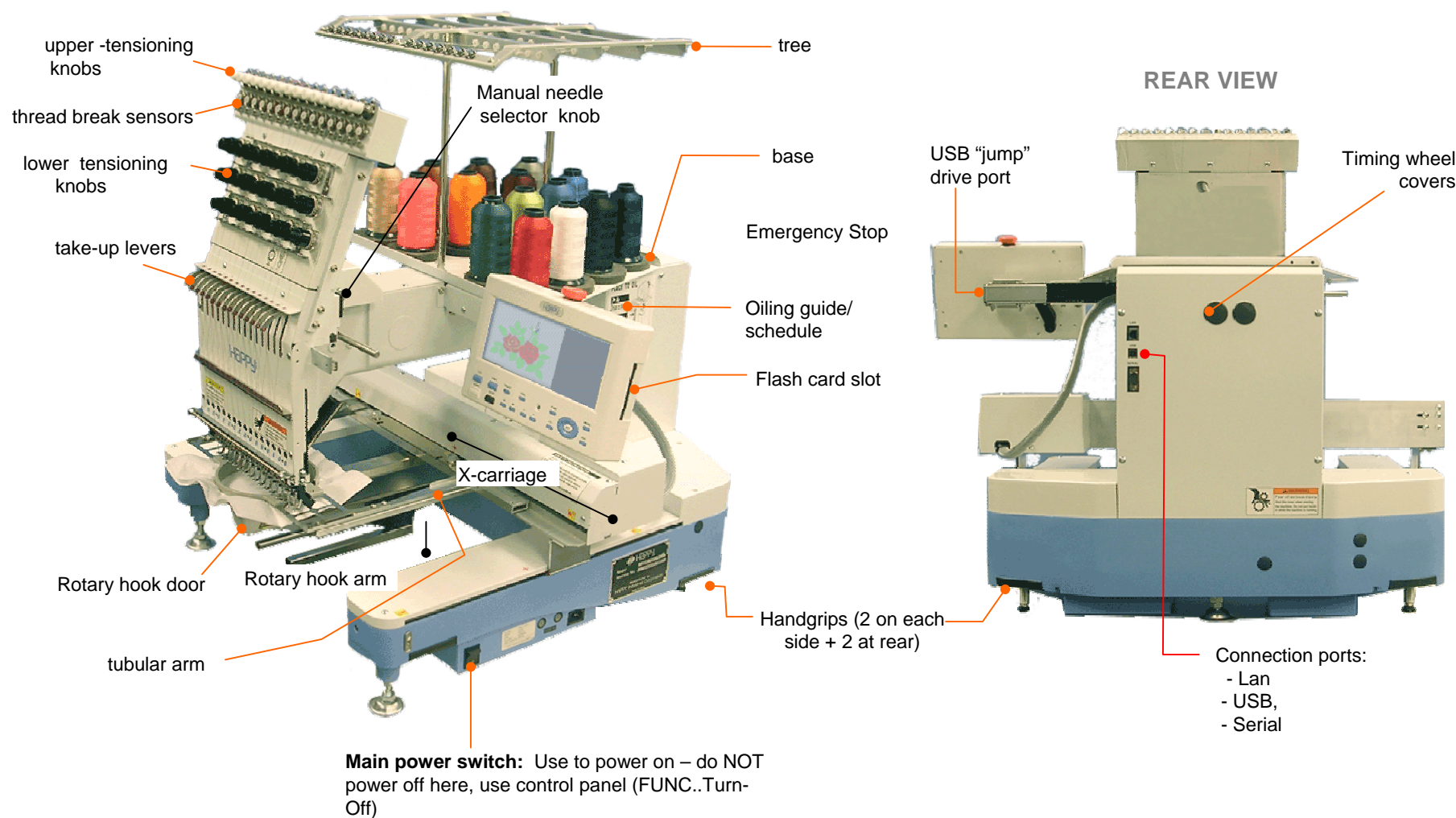
Training:

HAPPY HCD-1501 Operations & Maintenance Current to Firmware Version 1.24

Chapter 1: Introduction & Embroidery Theory

- **Overview of your HCD Machine p.2**
 - Diagram of major parts
- **Overview of major mechanical systems p.3**
 - Color change system, sewing system, X-Y pantograph
- **Control Panel Introduction & Orientation p.4**
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 - Main menu, pages 1 and 2
- **Embroidery basics & theory p.12**
 - About stitches, sewing quality, stitch file formats, the embroidery needle

Overview: A Quick Tour of the Machine

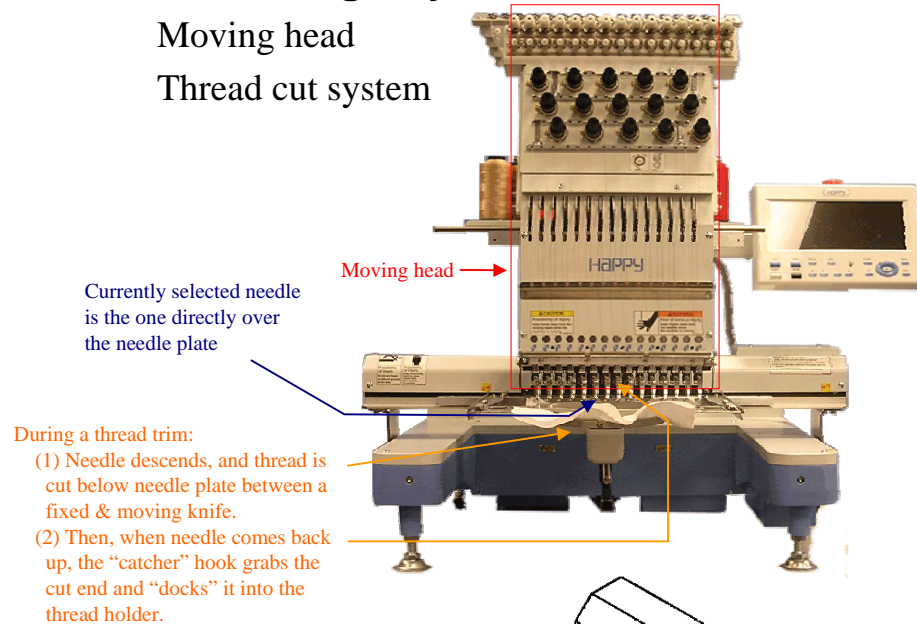


Overview: 3 key mechanical systems

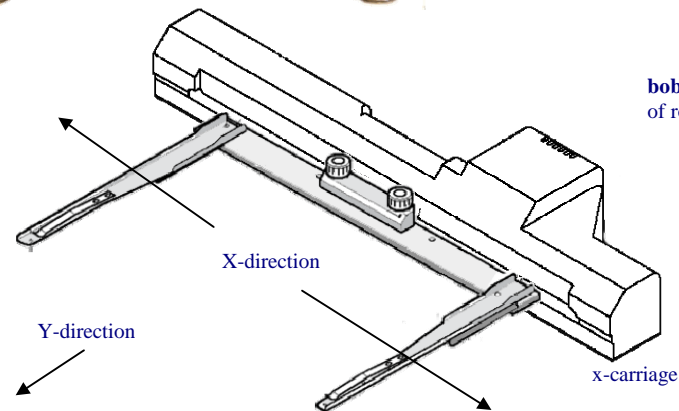
1. Color Change System

Moving head

Thread cut system



3. X-Y Pantograph

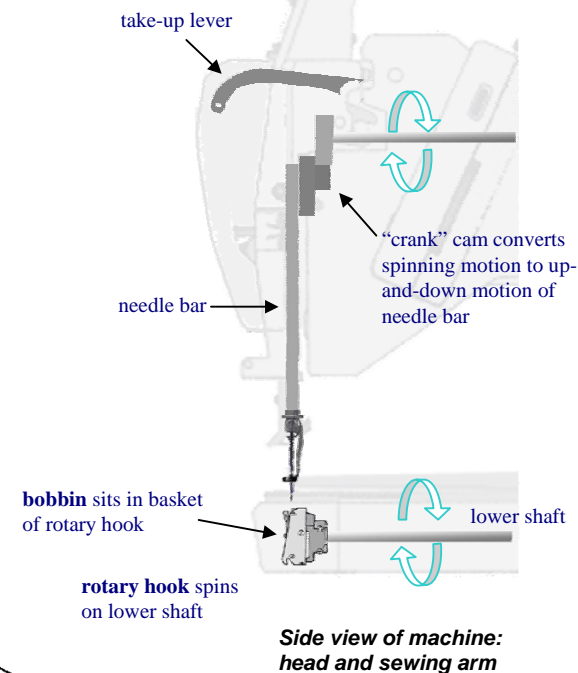


2. Sewing System

Take-Up Lever

Needle bar

Rotary hook / bobbin

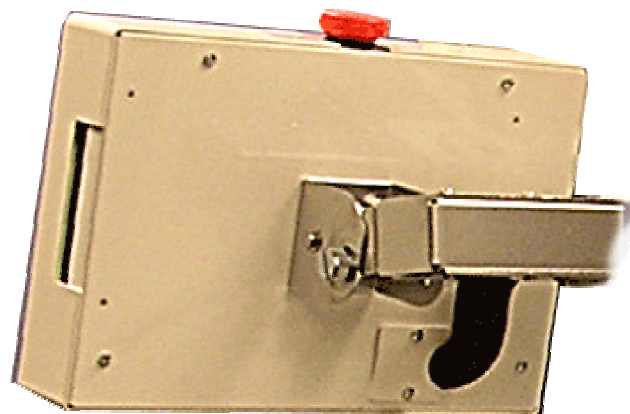


Timing wheel
covers

Control Panel Intro: Quick Orientation

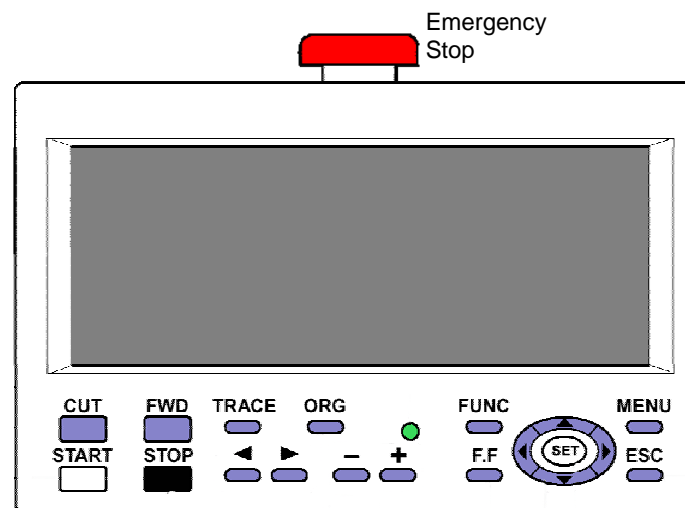
Control Panel Angle

Adjust display angle using knob behind control panel. Set to match a comfortable viewing height



Emergency Stop

On shutdown, the machine will remember the last sewn stitch but may be slightly off alignment when re-started. To recover from emergency stop, clear any problem, un-twist the button to re-set it and power on normally. The machine will not power on unless the button is re-set to the “on” position.



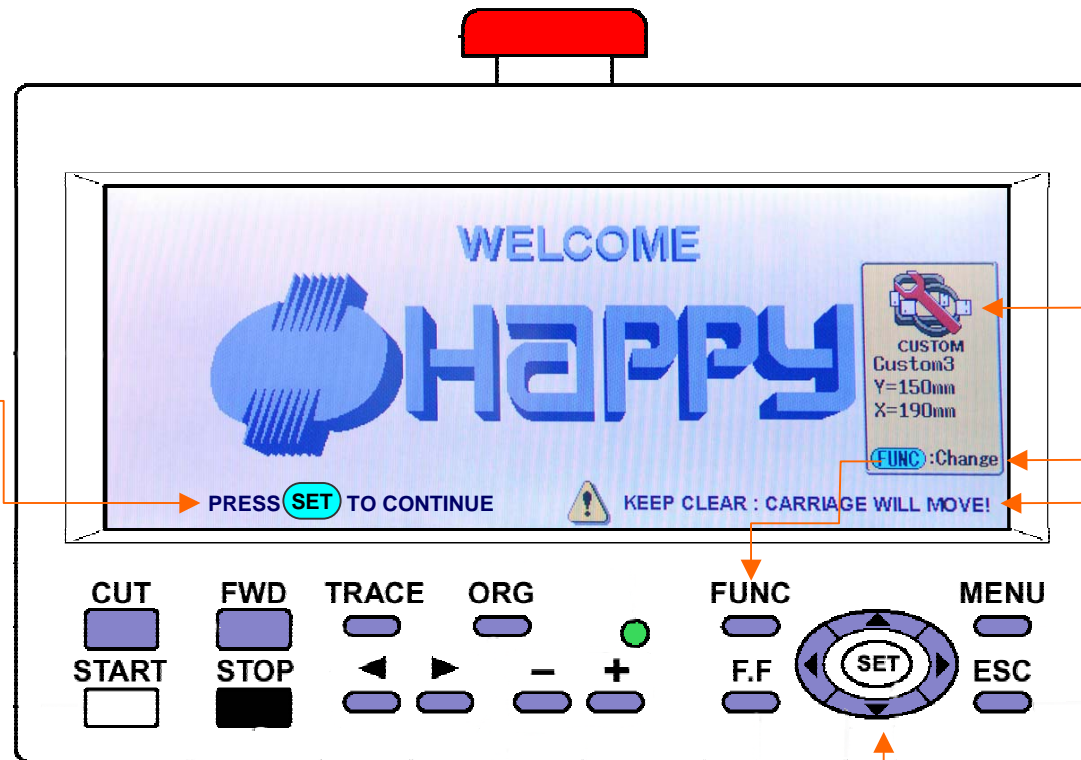
Control Panel Intro: Power On to the Main (Drive) Screen

Initial Power-On

Power on your machine with the black switch located on the right side of the machine. The screen below appears.

This startup screen appears at power-on.

Reminder tells you to press "SET".



With firmware 1.24, the machine now shows the selected hoop right away. If you wish to load a different hoop, you can do so before continuing by pressing the FUNC button.

On pressing SET, the carriage will move, and the machine advances to the next screen.

Next: The screen will then show the on-board help/guide, which you can choose to show or hide on startup.

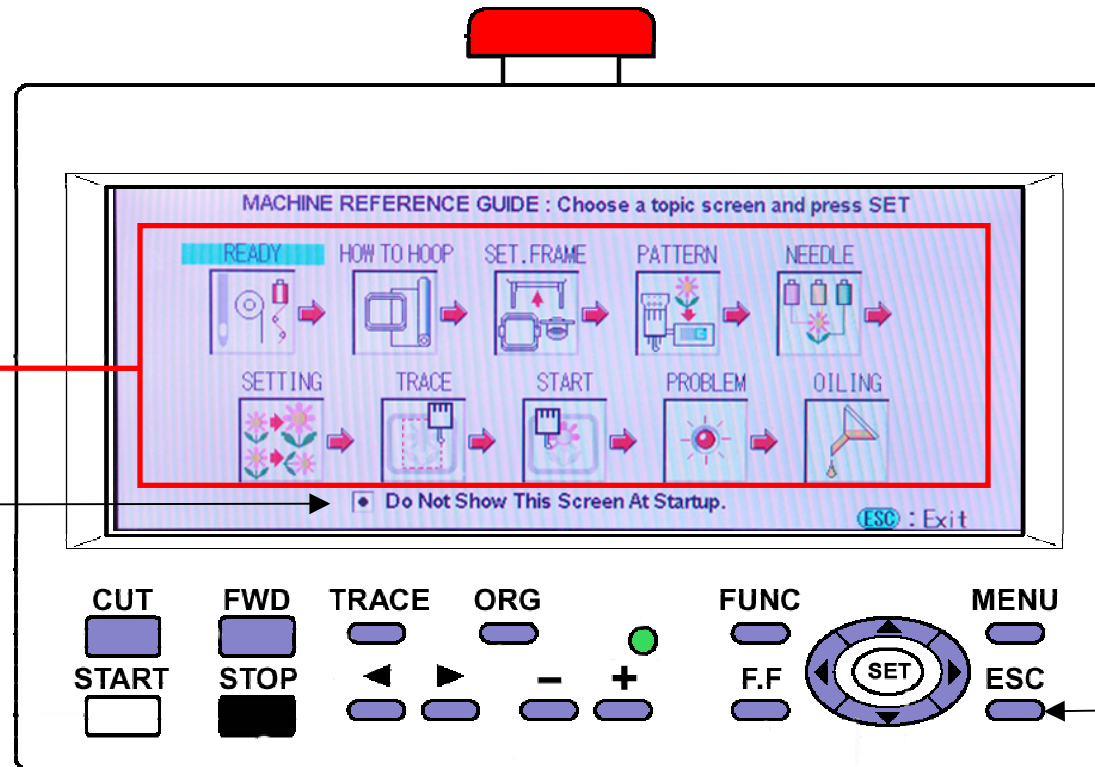
Control Panel Intro: Power On to the Main (Drive) Screen

Getting to the Main Screen: On-board help screen

On a new machine, the Guide (shown below) or on-board help function appears by default when pressing SET to continue. You can disable this feature as shown below to go instead directly to the main “drive” screen. (the Guide is available any time through the main menu)

The “guide”, or on-board help screen appears by default.

Check here if you don't need to view the guide next time you start the machine.

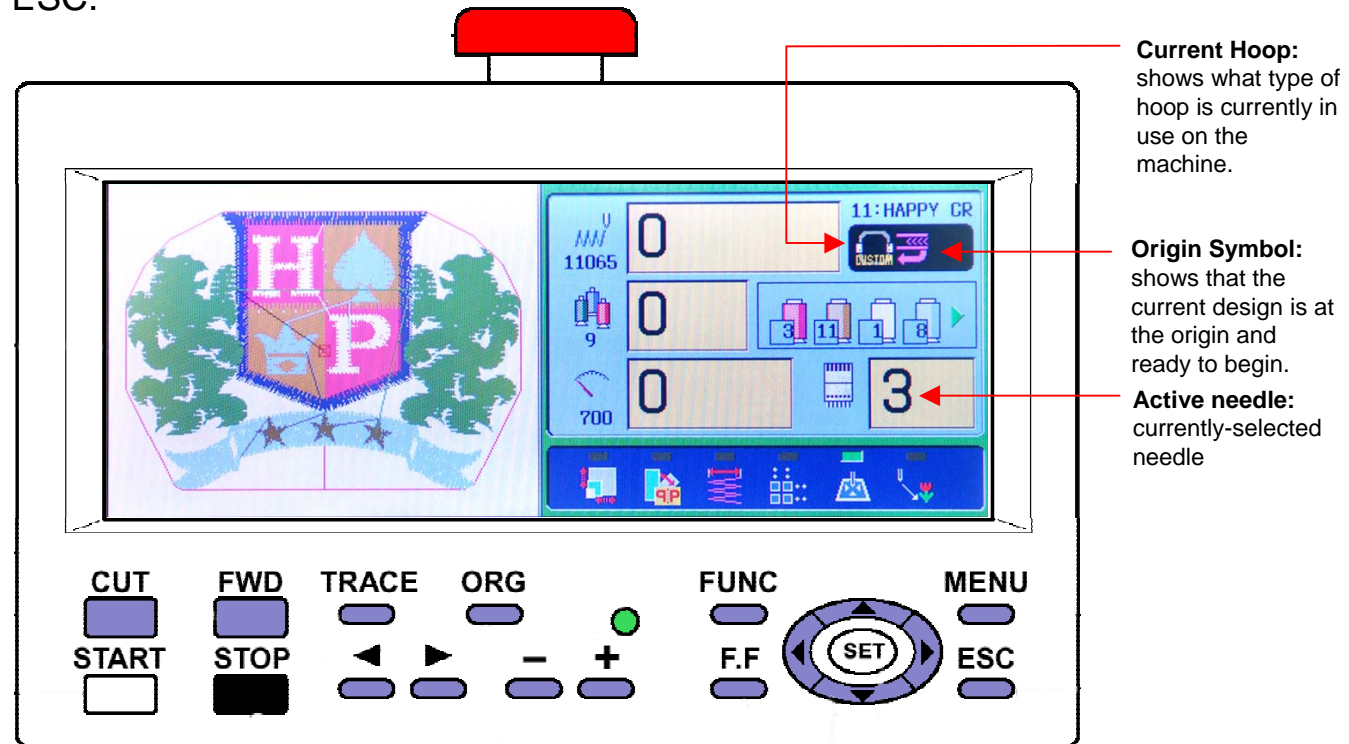


Press ESC from here to get to the main “drive” screen.

Control Panel Intro: Power On to the Main (Drive) Screen

Getting to the Main Screen

This is the main “drive” screen. The machine will not sew or accept design transfers via cable unless it is in this mode. Learn how to get to this screen either from power-on or by pressing ESC.

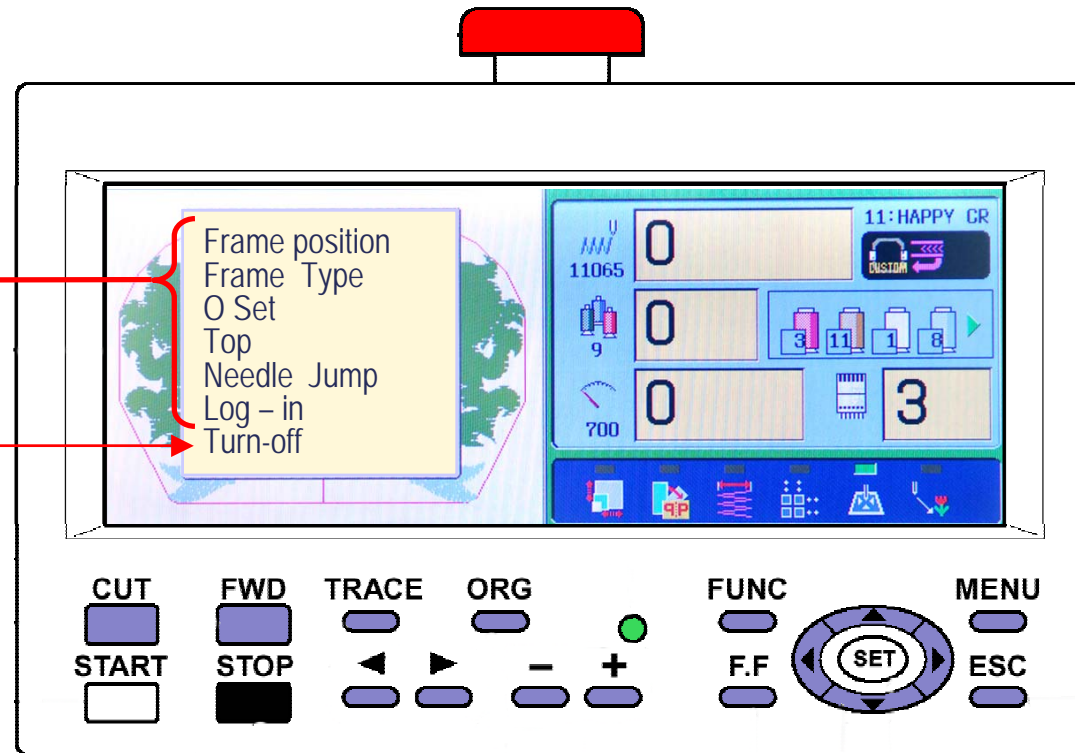


Control Panel Intro: Other Important Screens

The FUNC menu and shut-down

In addition to the main Drive screen, there are 2 other important menus to know: The Main Menu (shown on the next page) and the Function menu, shown below, which is accessed by pressing FUNC.

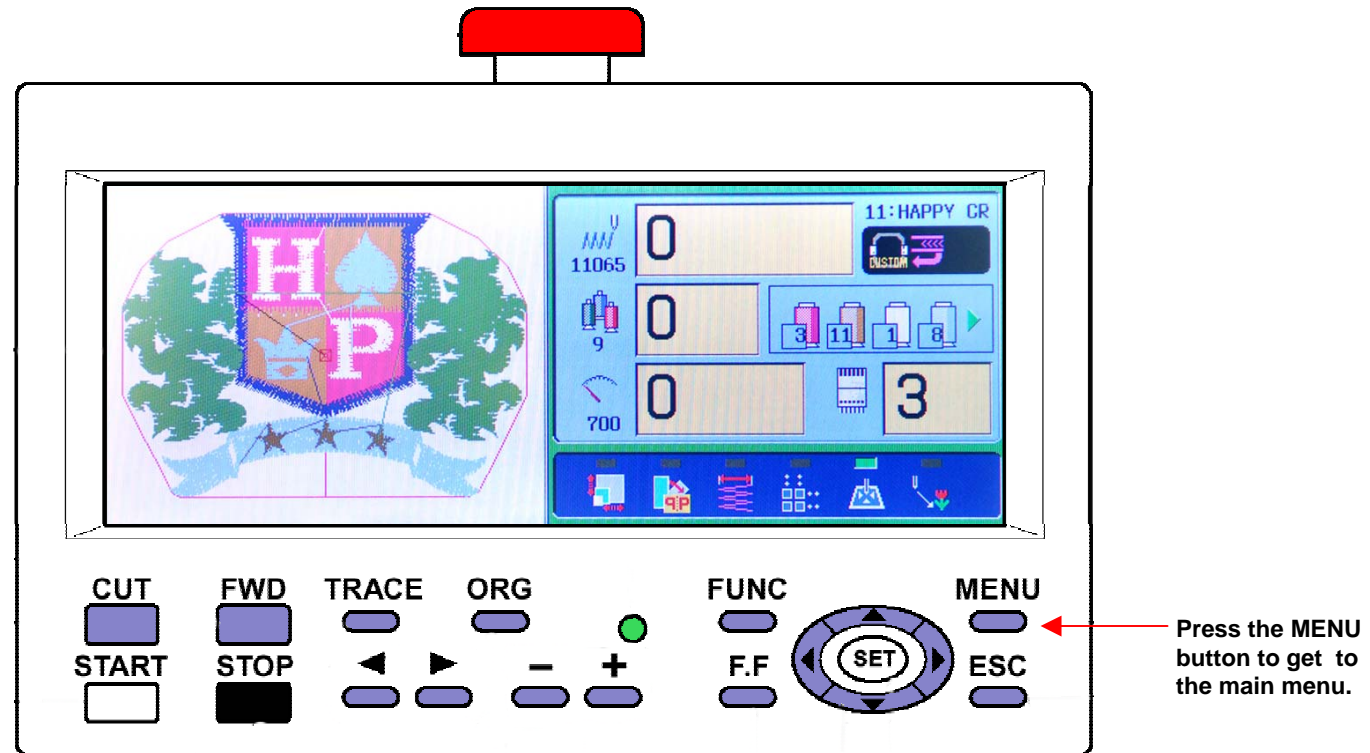
This is the **FUNC menu**. This menu will be discussed later in Chapter 2. For now, the most important item here is to learn to **turn off the machine using this option**. Avoid powering off the machine with the main (black) switch used to turn it on.



Control Panel Intro: Other Important Screens

The Main Menu

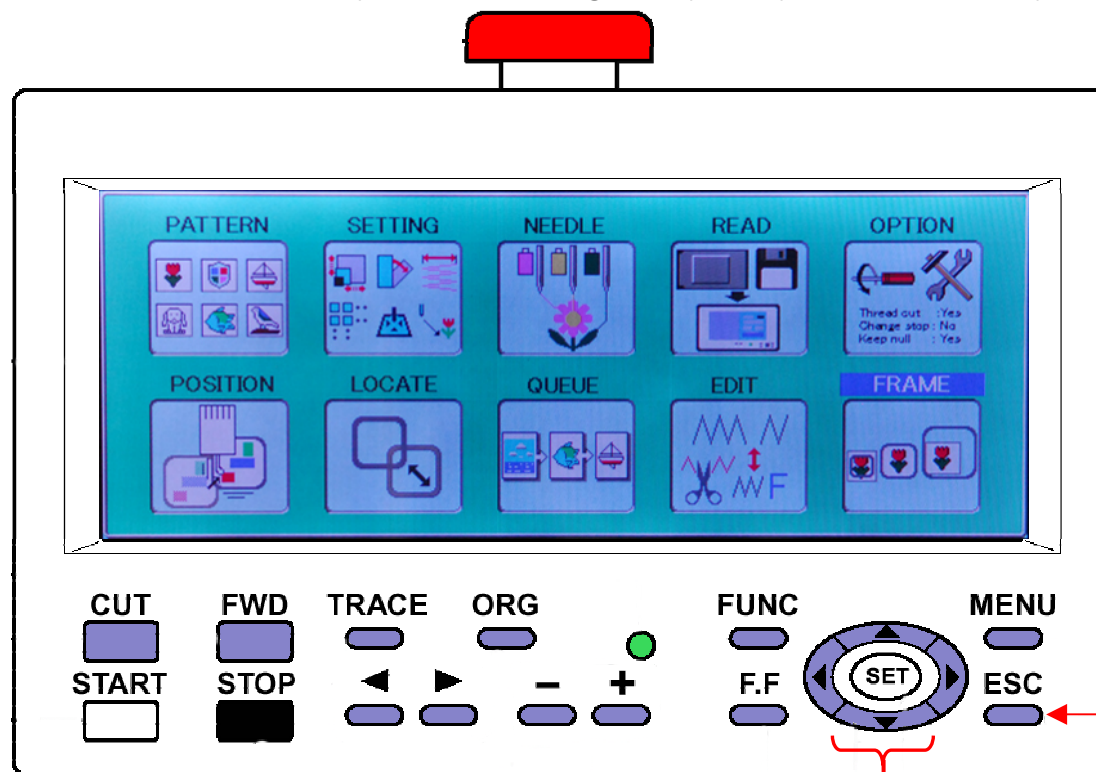
The other - and most important - menu is the Main Menu, accessed from the main Drive screen by pressing MENU as shown below.



Control Panel Intro: Other Important Screens

The Main Menu

This is page 1 of the main menu. In the next chapters we'll show the functions in-depth for 6 of its functions, which you'll use regularly as you sew with your machine.



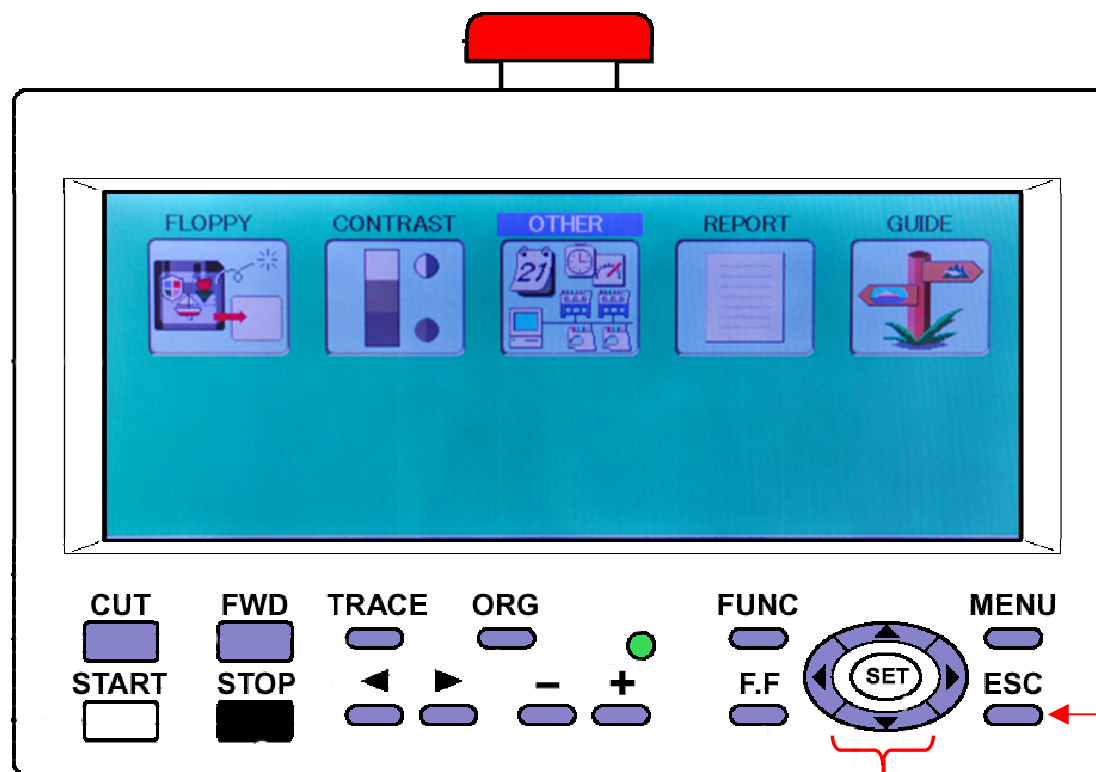
Navigate to a menu item using these 4 blue arrow keys, then press SET to enter the screen for that item.

Press the ESC key to exit to the main (drive) screen.

Control Panel Intro: Other Important Screens

The Main Menu

- This is page 2 of the main menu.



Navigate to a menu item using these 4 blue arrow keys, then press SET to enter the screen for that item.

Press the ESC key to exit to the main (drive) screen.



Key Embroidery Basics / Theory

- **About Stitches :**
 - **All stitches are formed** by a ½ loop of colored thread looped with ½ loop of bobbin thread.
 - **Max and minimum length:** Must be between 1mm (.04 inch) and 12.7mm (1/2 inch). Too short causes thread breaks. Too long, stitches are too loose.
- **3 Major Factors Affecting Sewing Quality that you can control:**
 - **Tension** – once properly set, should rarely require re-adjustment. We will cover this in class.
 - **Hooping** – proper hooping is a must. Not too tight, not too loose. We will cover this in class.
 - **Digitizing** – hire a digitizing service and/or learn how to digitize in digitizing classes.
- **Sewing file format used in embroidery: DST**
 - All commercial machines read this format
 - Does not have color information – must load the design into the machine AND tell it which colors to sew.
 - Limited in editability – the design must be sewn at the size it was digitized.
- **About Embroidery Thread**
 - Upper (colored) thread
 - **Can be polyester or rayon, usually polyester. Standard is 40 weight**
 - **Comes in several sizes: 5,000 meter cones to 1,000 meter cones.**
 - **Handle carefully: physical contact, oil/dirt, moisture can prevent it from unspooling smoothly and catch**
 - Bobbin thread
 - **L-type, approximately 350 yards per spool. Bobbin thread will have to be changed more frequently than upper thread**
 - **Lasts approximately 25,000 to 60,000 stitches, depending on fabric thickness, thread tension and other factors.**

Key Embroidery Basics (continued)

• Embroidery Needles:

- **Type DB-K5, standard size is 75/11 ballpoint for most applications.** Alternate needle for sewing caps and other tightly-woven goods (heavy canvas) is 80/12 sharp point for better penetration.
- **The width of the shaft of an embroidery needle limits the the finest possible detail (the smallest possible stitch).** Standard size (75/11) needles are .75 mm across, so stitches must be at least a little wider than the hole that the needle punches in the fabric (minimum distance 1mm)
- **Needles are subject to wear!** Over time, burred surfaces and other wear can cause problems. Be prepared to change needles frequently especially with heavy use.

