# AMANO®

# TCX-45

## Atomic Time Clock

## Operation Manual

## Proprietary Notice

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## *Thank You….*
For purchasing another fine product from
Amano Cincinnati, Inc.

*Important!* Do not return this clock to the retailer. If you have any questions or need assistance, please call us toll free at 1-800-253-9836

> Need Ribbons, Keys and Accessories?
> Visit
> ### www.amano.com
> Or call 1-800-253-9836

## Warranty Notice

Any claim for warranty, express or implied, due to the clock's failure to properly receive the radio signal because of interference, whatever may be the source of this interference, are hereby expressly excluded.

For more information about the WWVB-Radio signal visit NIST's website at: **www.boulder.nist.gov**

For actual signal coverage in North America visit: **www.boulder.nist.gov/timefreq/stations/wwvbcoverage.htm**

## Specifications

**Power Requirements**

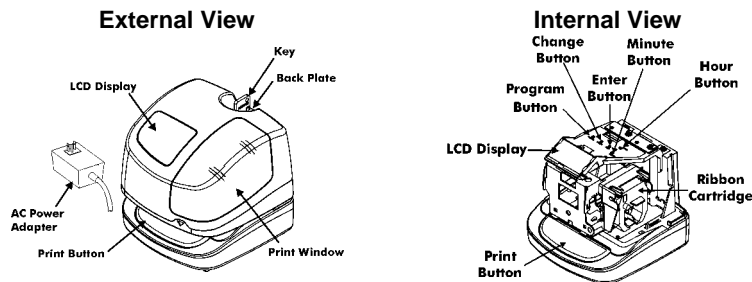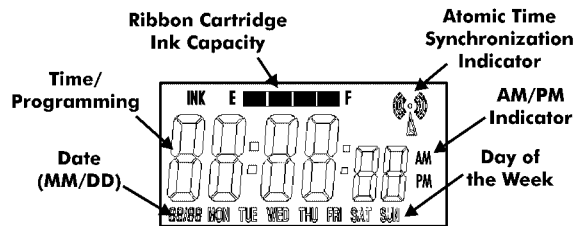| | |
|---|---|
| • **For Clock Input:** | 16.5 VDC, 60Hz, 0.6A (Max.) |
| • **For AC Adapter:** | 100 VAC ± 10%, 50/60Hz |
| | 120 VAC ± 10%, 60Hz |
| | 230 VAC ± 10%, 50/60Hz |
| • **Battery:** | Lithium Battery for Memory Backup in case of power failure. |
| **Ambient Temperature:** | -10°C to 45°C (14°F to 113°F) |
| **Ambient Humidity:** | 10% to 90% (non-condensing) |
| **Dimensions:** | 6-11/16"(170 mm) Wide X 6- 7/16"(163 mm) High X 6-5/8"(168 mm) Deep. |
| **Weight:** | Approximately 3.6 lbs. (1.63 kg) |
| **Environment:** | Indoor use only; dust-free environment. Keep out of direct sunlight. |

**External View**



**Internal View**



- The **PROGRAM** button is used to enter and exit the Program Mode.
- The **CHANGE** button is used to change the information on the display.
- The **ENTER** button is used to accept the information shown on the display and save it in memory.
- The **HOUR** button advances the hour in the display by increments of 1.
- The **MINUTE** button advances the minutes in the display by increments of 1.
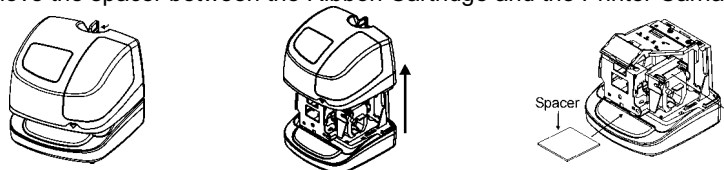


The LCD Display contains an Ink Capacity gauge. This gauge indicates the amount of ink remaining in the ribbon cartridge using four bar segments, from E (Empty) to F (Full).

The TCX-45 calculates the ink capacity of the ribbon cartridge from the number of imprints made. As the ink capacity decreases, the bars in the gauge will disappear. If the ribbon reaches below 25% capacity, the word "INK" will appear. The "E", "F" and "INK" characters will blink until the ribbon is replaced and the ink counter is reset.

## Removing the Cover & Packing Material

1. Insert the key provided and turn clockwise to unlock the cover.
2. Lift the cover to remove.
3. Remove the spacer between the Ribbon Cartridge and the Printer Carriage.



## Making a Test Print

1. Make sure the TCX-45 is plugged in.
2. Insert a piece of paper or time card into the TCX-45. The clock will automatically print YEAR, MONTH, DATE and TIME with AM or PM.
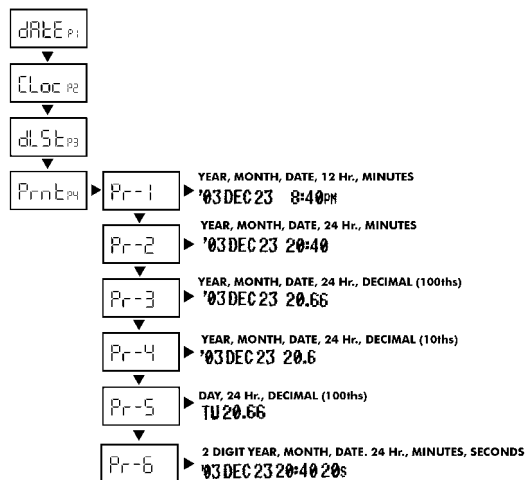


3. If the imprint is satisfactory, the TCX-45 is ready for use.

## Setting the Time (If Displayed Time is Incorrect or In Different Time Zone)

1. Unlock and remove the cover.
2. Press the HOUR advance button until the correct hour appears.
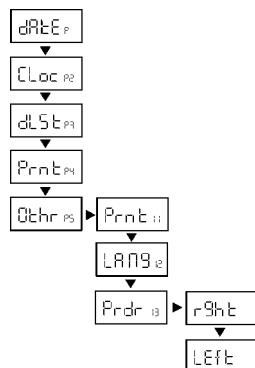3. Press the MINUTE advance button until the correct minute appears.

**Note:** You must follow this procedure if you are installing the TCX-45 in a different Time Zone from where it is currently located.

## Changing the Print Style

| dATE P1 |
| CLoc P2 |
| dLSt P3 |
| Prnt P4 | → | Pr-1 | → | YEAR, MONTH, DATE, 12 Hr., MINUTES '03 DEC 23 8:40PM |

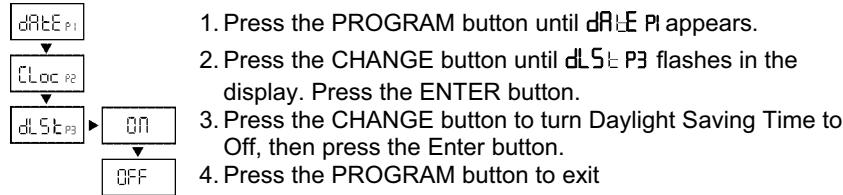| Pr-2 | → | YEAR, MONTH, DATE, 24 Hr., MINUTES '03 DEC 23 20:40 |
| Pr-3 | → | YEAR, MONTH, DATE, 24 Hr., DECIMAL (100ths) '03 DEC 23 20.66 |
| Pr-4 | → | YEAR, MONTH, DATE, 24 Hr., DECIMAL (10ths) '03 DEC 23 20.6 |
| Pr-5 | → | DAY, 24 Hr., DECIMAL (100ths) TU 20.66 |
| Pr-6 | → | 2 DIGIT YEAR, MONTH, DATE. 24 Hr., MINUTES, SECONDS '03 DEC 23 20:40 20s |

1. Press the PROGRAM button until dAtE P1 appears.
2. Press the CHANGE button until Prnt P4 flashes in the display. Press the ENTER button.
3. The display will flash the current setting. Press the CHANGE button until the desired print style code appears (see diagram).
4. When the display flashes the correct setting, press the ENTER button and press the PROGRAM button to exit.
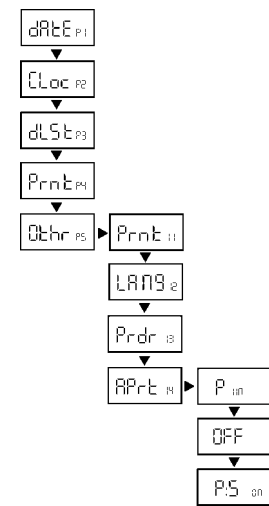
## Changing the Print Direction

| dAtE P |
| CLoc P2 |
| dLSt P3 |
| Prnt P4 |
| Othr P5 | → | Prnt 11 |
| | | LAN9 12 |
| | | Prdr 13 | → | r9ht |
| | | | | LEft |

1. Press the PROGRAM button until dAtE P1 appears.
2. Press the CHANGE button until Othr P5 flashes in the display. Press the ENTER button.
3. Press the CHANGE button until Prdr 13 flashes in the display. Press the ENTER button.
4. Press the CHANGE button until the correct print direction r9ht (Right Side) or LEft (Left Side) flashes in the display, then press the ENTER button.
5. Press the PROGRAM button to exit.

## Disabling Daylight Saving Time

`dAtE P1`
▼
`CLoc P2`
▼
`dLSt P3` ► `On`
▼
`OFF`

1. Press the PROGRAM button until `dAtE P1` appears.
2. Press the CHANGE button until `dLSt P3` flashes in the display. Press the ENTER button.
3. Press the CHANGE button to turn Daylight Saving Time to Off, then press the Enter button.
4. Press the PROGRAM button to exit
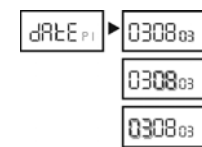
## Enabling or Disabling Auto Print

`dAtE P1`
▼
`CLoc P2`
▼
`dLSt P3`
▼
`Prnt P4`
▼
`Othr P5` ► `Prnt 11`
▼
`LAN9 2`
▼
`Prdr 13`
▼
`APrt 14` ► `P on`
▼
`OFF`
▼
`P:S on`

1. Press the PROGRAM button until `dAtE P1` appears.
2. Press the CHANGE button until `Othr P5` flashes in the display. Press the ENTER button.
3. Press the CHANGE button until `APrt 14` flashes in the display. Press the ENTER button.
4. Press the CHANGE button until the desired code appears on the display, then press the Enter button. The Auto Print codes are as follows:

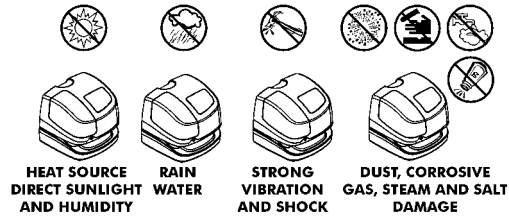| Code | Mode | Description |
| --- | --- | --- |
| `P on` | Auto Print | Will automatically print a single print when media is inserted. |
| `OFF` | Manual Print | Requires you to use the PRINT button when printing. |
| `P:S on` | DO NOT USE | |

5. Press the PROGRAM button to exit.
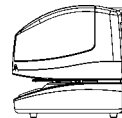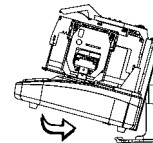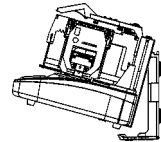
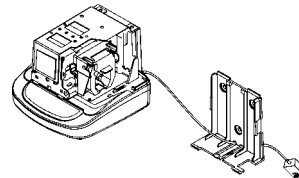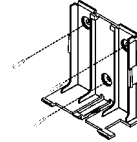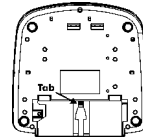## Setting the Month and Date

`dAtE P1` ► `0308 03`
`0308 03`
`0308 03`

1. Press the PROGRAM button until `dAtE P1` appears, and press the ENTER button.
2. Press the CHANGE button until the correct year appears, then press the ENTER button.
3. Press the CHANGE button until the correct day appears, then press the ENTER button.
4. Press the CHANGE button until the correct month appears, then press the ENTER button.
5. When the display flashes the correct month, date and year, press the ENTER button.
6. Press the PROGRAM button to exit.

## Wall Mounting

Placement considerations:



HEAT SOURCE DIRECT SUNLIGHT AND HUMIDITY    RAIN WATER    STRONG VIBRATION AND SHOCK    DUST, CORROSIVE GAS, STEAM AND SALT DAMAGE

1. Remove the Cover and remove the Back Plate by pressing the tab.



2. Using the Back Plate as a template, mark the lower mounting hole on the wall.
3. Mount the plate using a #10 wood screw (or equivalent).
4. Level the Back Plate and mark the location of the two upper mounting holes. Secure to the wall using #10 wood screws (or equivalent).
5. Feed the cable of AC Power Adapter through one of the holes in the Back Plate.



6. Align the clock with the two upper tabs on the back plate. Tilt the back of the clock upwards to fully insert the back plate tabs into the clock. Be careful not to pinch the power cord with the bracket.
7. Once the tabs are inserted, tilt the clock back down and push it against the wall. The tabs will snap into place.



8. Replace the cover and lock it in place.

## Atomic Clock Feature

The Amano atomic clock receives time signals on long wave radio (60 kHz) from the National Institute of Standards and Technology (NIST) operated WWVB time signal transmitter located in Fort Collins, Colorado and coupled with the atomic cesium clock in Boulder. It receives the WWVB time signal via its built-in antenna system. Your clock will try to find the signal on a daily basis.

**Searching for Signal**    **Found Signal**

The Atomic Time Synchronization Indicator in the LCD Display indicates the status of the signal. When you first receive the clock, it may be necessary to adjust the hour and minute. If your TCX-45 is located in an area that cannot receive the Atomic time signal, DO NOT be concerned.
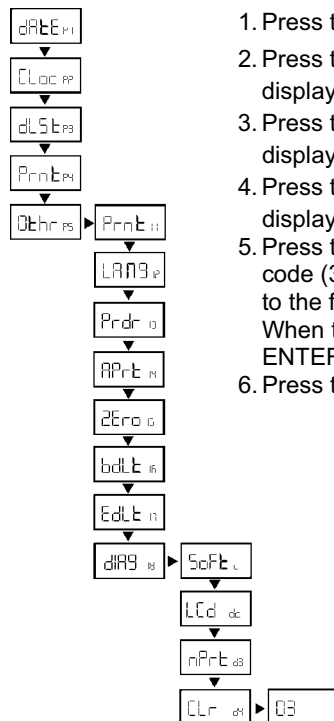
The TCX-45 will accurately keep the time using its Quartz mechanism (plus or minus three seconds per week).

Please visit to **www.boulder.nist.gov/timefreq/stations/radioclocks.htm** for more information about how radio-controlled clocks work, where they work, and what to do when they don't work.
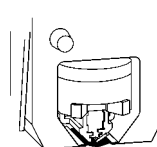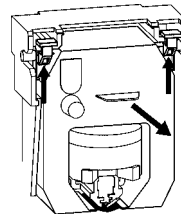
## Disabling the Atomic Clock

1. Press the PROGRAM button until dRtE P1 appears.
2. Press the CHANGE button until Othr P5 flashes in the display. Press the ENTER button.
3. Press the CHANGE button until dIR9 I8 flashes in the display. Press the ENTER button.
4. Press the CHANGE button until Clr d4 flashes in the display. Press the ENTER button.
5. Press the CHANGE button to enter the last digit of the code (3) and ENTER to accept it. The display will move to the first digit of the code (0). Press ENTER to accept it. When the display flashes the correct code (03), press ENTER.
6. Press the PROGRAM button to exit.

dRtE P1
CLoc PP
dLSt P3
Prnt P4
Othr P5 ► Prnt I1
LRN9 I2
Prdr I3
RPrt I4
2tro I5
bdLt I6
EdLt I7
dIR9 I8 ► SoFt C1
LCd dC
nPrt d3
CLr d4 ► 03

## Ribbon Cartridge Replacement

1. Remove the cover.
2. Pull the two ribbon release tabs upward.
3. While holding the release tabs in an upward position, pull the ribbon cassette out of the cradle.
4. If the print mechanism is down and a piece of paper cannot be inserted, unplug the clock, then plug it back in to move the carriage up. This will make the ribbon installation easier.
5. Insert a new ribbon underneath the printer head as shown.
6. Turn the knob on the cassette clockwise one turn to take up any slack in the ribbon.
7. Check the printing quality to confirm that you have installed the ribbon properly.
8. Reset the INK capacity gauge by pressing the CHANGE and ENTER buttons at the same time
9. Replace the cover.

## Error Messages

| Error Code | Cause |
|---|---|
| Prt E1 | Home sensor, motor carriage stuck |
| Prt E2 | Timing sensor, carriage stuck |
| Prt E3 | Home sensor |
| Prt E4 | Carriage stuck |
| Prt Er | General print error |
| dLt | Daylight Saving Time Program |

For error messages Prt E1 through Prt Er, unplug the clock before checking to see that the carriage is not stuck or jammed. Also, check to see that the ribbon cables are in good condition. After clearing any jams, unplug the clock, then plug it back in. Contact us at 1-800-253-9836 if you need assistance.

The dLt error message signifies that an attempt was made to get into the Program mode during the Daylight Saving changeover one-hour lockout. Wait one hour and you will be able to program the clock.

## Cleaning

Do not use any chemical solvents or oils to clean or lubricate your TCX-45. This will damage your clock.

To clean the inside of your clock, blow it out with air.