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Tuhorse TCB30M230R

Tuhorse TCB30M230R 3HP Deep Well Pump Control Box Instruction Manual

Model: TCB30M230R

Compatible with Franklin Part# 2823028110

1. Introduction

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Tuhorse TCB30M230R 3HP Deep Well Pump Control Box. This control box is specifically designed to work with 4-inch Franklin 3HP deep well pumps and other pumps equipped with 3HP 4-inch Franklin motors. It serves as a direct and compatible replacement for the Franklin STD control box, part number 2823028110. Please read this manual thoroughly before proceeding with installation or operation.

2. Safety Information

WARNING: Electrical shock hazard. Improper installation or maintenance can result in serious injury or death. All electrical work should be performed by a qualified electrician in accordance with local and national electrical codes.

- **Always disconnect the electrical power source before opening the control box cover or performing any service.**
- Ensure the control box is properly grounded to prevent electrical shock.
- Verify that the power supply voltage matches the requirements of the control box and pump (230 Volts).
- Do not operate the control box if it is damaged or if any wires are exposed.
- Keep the control box cover securely closed to maintain its weather resistance (IP54 rating).



Figure 1: Front view of the Tuhorse TCB30M230R control box, showing the product label with technical specifications and the Tuhorse logo. Note the prominent safety warning on the label.

3. Product Overview

The Tuhorse TCB30M230R control box is designed to provide reliable starting and running for 3HP deep well submersible pumps. Its robust metal casing ensures durability and weather resistance (IP54 rated), making it suitable for various installation environments.

Key Features:

- **Compatibility:** Directly compatible with Franklin 3HP Standard Control Box 2823028110.
- **Overload Protection:** Equipped with a manual reset switch to protect the pump motor from overcurrent conditions.
- **Durable Construction:** Features a metal casing for enhanced weather resistance and longevity.
- **Capacitors:** Includes a 208-250µF start capacitor and a 45µF run capacitor for efficient motor operation.
- **Wire Connectors:** Terminal connectors accept wire diameters from 14 AWG to 6 AWG.



Figure 2: Angled exterior view of the Tuhorse TCB30M230R control box, highlighting its robust metal casing and entry points for wiring.

4. Setup and Installation

Installation of the control box requires careful attention to electrical wiring. It is strongly recommended that installation be performed by a certified electrician.

Installation Steps:

1. **Power Disconnection:** Ensure all power to the pump system is disconnected at the main breaker before beginning any work.
2. **Mounting:** Mount the control box in a dry, accessible location, preferably wall-mounted, away from direct sunlight

and excessive moisture.

3. **Wiring Connections:** Open the control box cover. The internal wiring diagram and color-coded terminals facilitate straightforward connection. Connect the power supply wires, pump motor wires, and ground wire according to the diagram provided inside the control box and your pump's specific wiring instructions.
4. **Wire Gauge:** Ensure that the wire gauge used for connections is appropriate for the pump's amperage and run length, and fits within the 14 to 6 AWG capacity of the connectors.
5. **Grounding:** Connect the system ground wire to the designated ground terminal within the control box.
6. **Secure Connections:** Double-check all connections to ensure they are tight and secure.
7. **Close Cover:** Once wiring is complete and verified, securely close the control box cover to maintain its weather resistance.
8. **Power Restoration:** Restore power to the system and test the pump operation.

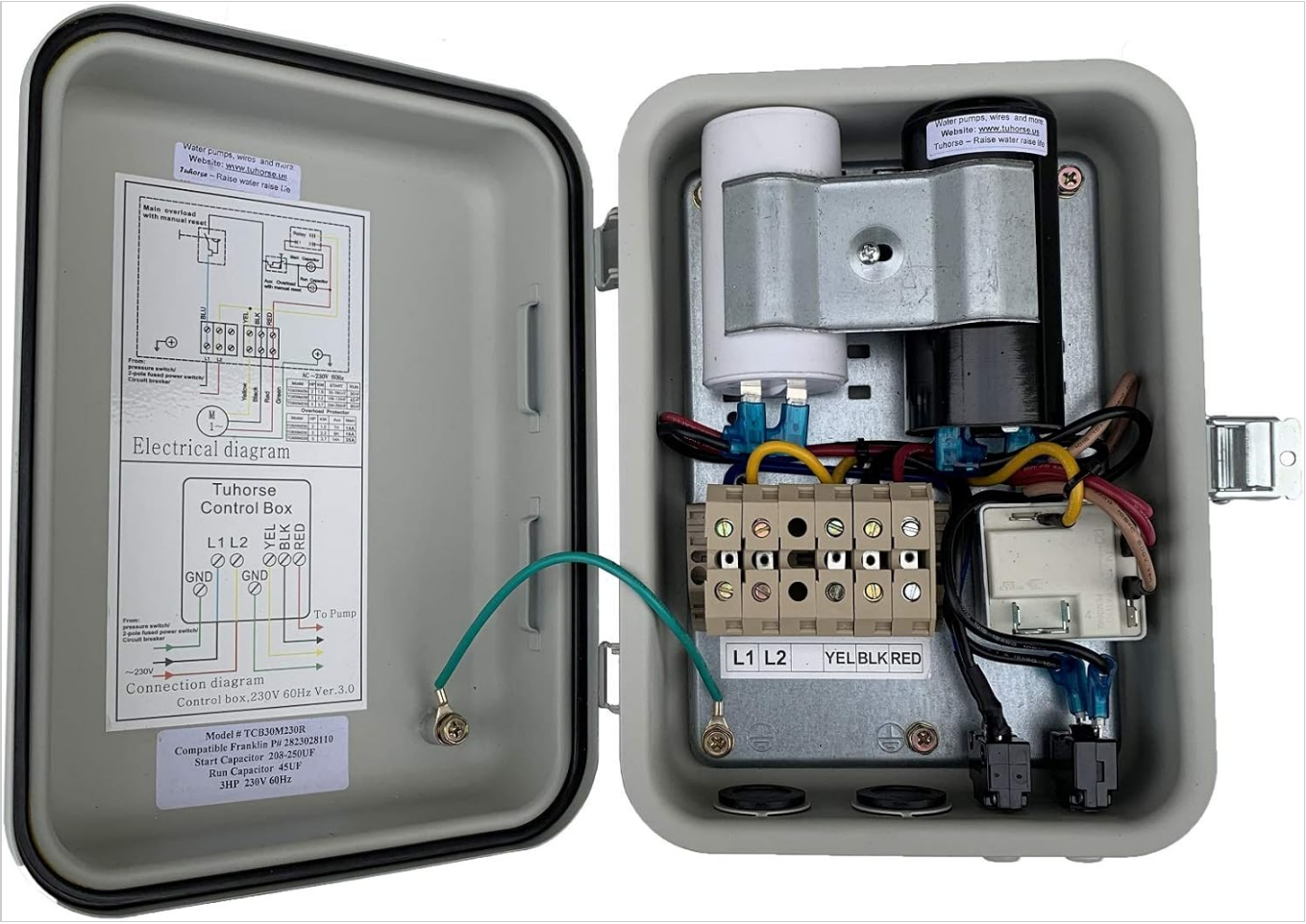

Figure 3: Interior view of the Tuhorse TCB30M230R control box, displaying the internal components, wiring diagram, capacitors, and terminal block. Refer to this diagram for correct wiring.

5. Operating Instructions

Once properly installed, the Tuhorse TCB30M230R control box operates automatically to manage your deep well pump. It provides the necessary starting current and maintains optimal running conditions for the 3HP motor.

Normal Operation:

- The control box will engage the pump motor when power is supplied (e.g., by a pressure switch or manual switch).
- The start capacitor provides a boost for motor startup, then the run capacitor maintains efficient operation.
- The internal overload protection continuously monitors the motor's current draw.

6. Maintenance

The Tuhorse TCB30M230R control box is designed for minimal maintenance. However, periodic inspection can help ensure long-term reliability.

Maintenance Tips:

- **Annual Inspection:** At least once a year, with power disconnected, open the control box and visually inspect all wiring connections for tightness and signs of corrosion or damage.
- **Cleanliness:** Keep the exterior of the control box clean and free from dust, dirt, and debris.
- **Environmental Protection:** Ensure the control box remains protected from direct water spray or prolonged exposure to extreme weather conditions, despite its weather-resistant design.
- **Capacitor Check:** If the pump exhibits difficulty starting or reduced performance, a qualified technician may need to check the capacitors for degradation.

7. Troubleshooting

If your pump system is not operating correctly, refer to the following troubleshooting guide. Always disconnect power before inspecting the control box.

Problem	Possible Cause	Solution
Pump does not start or runs intermittently.	Overload protection tripped.	Locate the manual reset switch on the control box and press it to reset. If it trips again, investigate for pump motor issues or excessive load.
Pump starts but runs weakly or hums.	Faulty start or run capacitor.	Consult a qualified electrician to test and replace capacitors if necessary.
No power to the control box.	Blown fuse or tripped circuit breaker in main electrical panel.	Check and replace fuses or reset circuit breakers. Ensure proper voltage supply.
Control box gets excessively hot.	Overload, improper wiring, or internal component failure.	Immediately disconnect power. Consult a qualified electrician to diagnose the issue. Do not operate if overheating occurs.
Pump runs continuously.	External control issue (e.g., faulty pressure switch).	Inspect external control devices connected to the control box.

If troubleshooting steps do not resolve the issue, contact a qualified pump technician or electrician for further assistance.

8. Specifications

Feature	Specification
Brand	Tuhorse
Model Number	TCB30M230R
Compatible Franklin Part#	2823028110
Horsepower (HP)	3 HP

Feature	Specification
Voltage	230 Volts (V220-V230)
Frequency	50/60 Hz
Wattage	2.2 KW
Amperage Capacity	17 Amps
Start Capacitor	208-250 µF
Run Capacitor	45 µF
Overload Protection (Main)	14-18 Amps (depending on specific HP/voltage)
Overload Protection (Start)	14-17 Amps (depending on specific HP/voltage)
Material	Metal
Color	Black
Item Weight	5 Pounds
Product Dimensions	10.5 x 8 x 4.25 inches
Power Source	AC power supply
Installation Method	Wall-Mounted
Ingress Protection (IP) Rating	IP54
Connector Wire Diameter	14 to 6 AWG
UPC	722301638200

9. Warranty and Support

Specific warranty terms and conditions for the Tuhorse TCB30M230R control box are typically provided at the point of purchase or by the manufacturer. Please retain your proof of purchase for warranty claims.

For technical support, warranty inquiries, or replacement parts, please contact your authorized Tuhorse dealer or the manufacturer directly. Contact information can usually be found on the product packaging or the manufacturer's official website.

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