

Bennett Marine V351HPU1

Bennett V351HPU1 Hydraulic Power Unit - 12 Volt Instruction Manual

Model: V351HPU1 | Brand: Bennett Marine

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of your Bennett V351HPU1 Hydraulic Power Unit. This unit is designed to generate hydraulic pressure for marine trim tab systems, enabling precise control over vessel trim. Please read this manual thoroughly before installation and use to ensure safe and efficient operation.

2. SAFETY INFORMATION

Always observe the following safety precautions:

- Disconnect all power to the unit before performing any installation, maintenance, or troubleshooting.
- Ensure proper ventilation when working with hydraulic fluids.
- Wear appropriate personal protective equipment, including eye protection and gloves.
- Verify all electrical connections are secure and correctly insulated to prevent short circuits or electrical hazards.
- Use only recommended hydraulic fluid (automatic transmission fluid, ATF) as specified in the maintenance section.

3. COMPONENTS OVERVIEW

The Bennett V351HPU1 Hydraulic Power Unit consists of the following primary components:

- **Electric Motor:** Powers the hydraulic pump.
- **Hydraulic Pump:** Generates fluid pressure.
- **Solenoid Valves:** Two valves control the direction of fluid flow to the trim tab actuators.
- **Reservoir:** Holds the hydraulic fluid. Features a translucent design for easy fluid level checks.
- **Lexan Cover:** Protects internal components from environmental elements and occasional washdown.



Figure 1: Bennett V351HPU1 Hydraulic Power Unit. This image displays the Bennett V351HPU1 Hydraulic Power Unit. It features a translucent Lexan cover, allowing visual inspection of internal components and fluid levels. The lower section is a white reservoir with a 'Fluid Level Fill Range' indicator. The unit's compact design is evident, with the motor and solenoid valves visible under the cover.

4. SETUP AND INSTALLATION

Proper installation is crucial for the performance and longevity of the hydraulic power unit. Follow these steps carefully:

4.1 Mounting Location

- Mount the unit in a dry, protected area, away from direct exposure to saltwater spray or excessive heat.
- Ensure the unit is mounted vertically with the reservoir at the bottom to maintain proper fluid levels and prevent airlocks.
- Allow sufficient space around the unit for maintenance access, especially for checking fluid levels and electrical connections.

4.2 Electrical Connections

- The unit operates on a 12-volt DC power supply.
- Connect the positive (+) wire from the vessel's 12V power source to the designated positive terminal on the unit.

- Connect the negative (-) wire to a reliable ground point on the vessel.
- Ensure all wiring is of appropriate gauge for the current draw and protected by a fuse or circuit breaker as recommended by marine electrical standards.
- Connect the control wires from your trim tab switch to the corresponding solenoid terminals on the power unit. Refer to your trim tab switch wiring diagram for specific connections.

4.3 Hydraulic Connections

- Connect the hydraulic lines from the trim tab actuators to the appropriate ports on the power unit. Typically, one line connects to the 'Up' port and the other to the 'Down' port for each tab.
- Ensure all hydraulic fittings are tightened securely to prevent leaks. Do not overtighten.

4.4 Initial Fluid Fill and Bleeding

- Before operating, fill the reservoir with automatic transmission fluid (ATF). The fluid level should be within the 'Fluid Level Fill Range' indicated on the reservoir.
- To bleed the system, cycle the trim tabs fully up and down several times. This will help remove any trapped air from the hydraulic lines and actuators.
- Monitor the fluid level during bleeding and top off as necessary.

Video 1: 12V Marine Hydraulic Power Unit Replacement. This video demonstrates the replacement process for a 12V marine hydraulic power unit, similar to the Bennett V351HPU1. It provides visual guidance on installation and connection procedures, which can be helpful during setup.

5. OPERATING INSTRUCTIONS

Once installed and filled, the Bennett V351HPU1 Hydraulic Power Unit operates in conjunction with your vessel's trim tab control switch.

- Use the trim tab switch to extend or retract the trim tabs.
- Pressing the 'Bow Down' or 'Down' button will extend the tabs, pushing the bow of the vessel down.
- Pressing the 'Bow Up' or 'Up' button will retract the tabs, allowing the bow of the vessel to rise.
- Adjust the tabs incrementally to achieve the desired vessel trim and optimize performance and fuel efficiency.

6. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of your hydraulic power unit.

6.1 Fluid Level Check

- Periodically check the fluid level in the translucent reservoir. The fluid level should be visible within the 'Fluid Level Fill Range' when the trim tabs are fully retracted (up position).
- If the fluid level is low, add automatic transmission fluid (ATF). Do not overfill.

6.2 Reservoir Cleaning

- If the fluid appears discolored or contaminated, the reservoir may need to be drained and refilled.
- To drain, disconnect the hydraulic lines and carefully invert the unit, or use a pump to extract the fluid.
- Clean the reservoir interior with a lint-free cloth if necessary, then refill with fresh ATF.

6.3 General Inspection

- Inspect all electrical connections for corrosion or looseness. Clean and tighten as needed.

- Check hydraulic lines and fittings for any signs of leaks or damage. Replace damaged components immediately.
- Ensure the Lexan cover is securely in place to protect the internal components.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your hydraulic power unit.

Problem	Possible Cause	Solution
Unit does not operate	No power; Blown fuse/tripped breaker; Faulty wiring; Defective switch	Check power supply; Replace fuse/reset breaker; Inspect and repair wiring; Test and replace switch if necessary
Tabs move slowly or not fully	Low fluid level; Air in system; Restricted hydraulic lines; Weak motor	Check and refill fluid; Bleed the system; Inspect lines for kinks/blockages; Consult a technician for motor issues
Fluid leaks	Loose fittings; Damaged hydraulic lines; Cracked reservoir	Tighten fittings; Replace damaged lines; Replace reservoir if cracked
Tabs drift down	Faulty solenoid valve; Internal leak in actuator	Consult a technician for solenoid or actuator repair/replacement

8. SPECIFICATIONS

Feature	Specification
Model Number	V351HPU1
Voltage	12 Volt DC
Dimensions (L x W x H)	Approximately 14 x 14 x 5 inches
Item Weight	Approximately 5.94 pounds
Reservoir Material	Translucent Lexan
Fluid Type	Automatic Transmission Fluid (ATF)
Manufacturer Part Number	3004.0116
OEM Part Number	BENV351HPU

9. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the official Bennett Marine website or contact their customer service department. Keep your purchase receipt as proof of purchase for any warranty claims.

Website: www.bennetttrimtabs.com

Contact: Refer to the website for current contact information.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question