

QUANTUM DRIVE SYSTEM

OPERATIONS MANUAL



B BAZOOKA
FARMSTAR

OVERVIEW

The Quantum Drive System (QDS) combines high speed technology with precise control features to wind and unwind hose faster than ever before. The QDS is the fastest hydraulic wind and unwind system on the market, allowing you to move faster with controlled speed settings for both winding and unwinding hose from the reel. QDS also has the fastest controlled freewheel on the market. With precise tension control, you can drive at your desired speed to unwind hose and adjust tension up and down, as needed. The QDS is able to accomplish all this with a minimum hydraulic flow of 30 GPM.

QUANTUM DRIVE SYSTEM REQUIREMENTS

	SINGLE DRIVE	DUAL DRIVE
Hydraulic Flow Required	30 GPM	30 GPM – 50 GPM (High Flow Recommended)
Hydraulic Ports	2 Pioneer Couplers	2 Pioneer Couplers (3 rd Optional)
Case Drain (Low Pressure Return)	1 (See Below)	1 (See Below)
In Cab Power Outlet	1 (See Below)	1 (See Below)

CASE DRAIN FITTINGS



Tractor End



Hose Reel End

POWER OUTLET



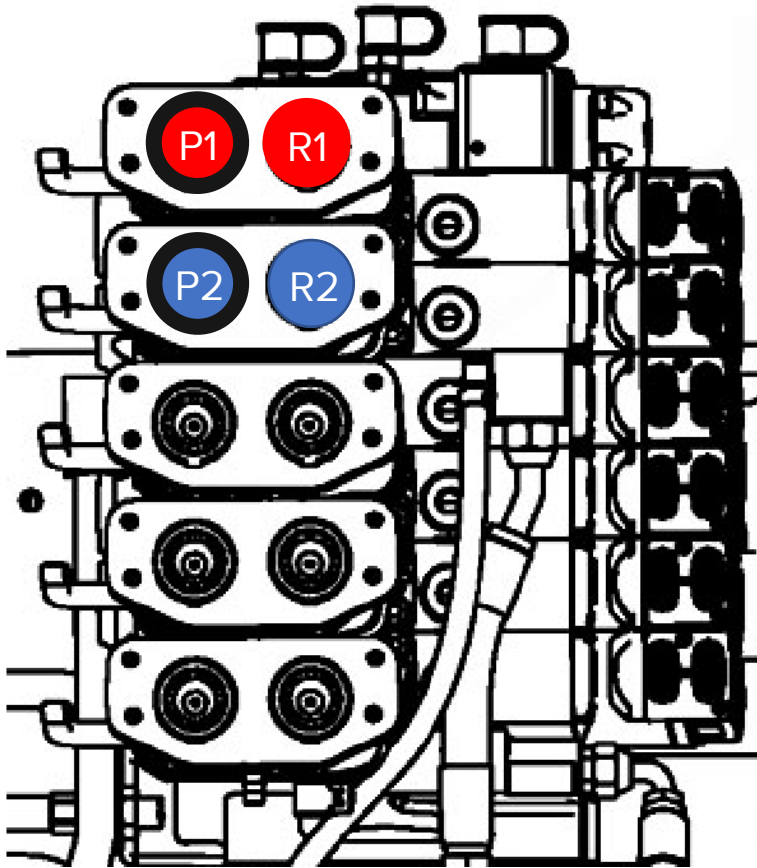
In Tractor Cab

SETUP INSTRUCTIONS AND NOTES

1. **Connect Hydraulic lines to tractor** – Ensure “Supply” line and “Return” lines of both sets of hoses are installed in corresponding ports on tractor; they are labeled on the yellow block near the hitch.
 - a. At 30 GPM to 50 GPM hydraulic flow, 2 lines are required to minimize backpressure/pressure loss in the hydraulic system, which will cause a decrease in torque for pulling in hose.
 - b. If you only need to spin the reel using low speed or power, one hydraulic line will work. Operating this way for too long may generate excess heat in the hydraulic system.
2. **Connect Case Drain line to tractor** – **MUST CONNECT EVERY TIME REEL IS USED**
 - a. **WARNING** – Failure to connect the motor case drain line to a zero pressure return port can cause motor seal failure and will void motor warranty. Coupler must be ISO 16028 to allow seepage due to thermal expansion (correct male coupler included with Hose Reel).
3. **Connect Electronics (see next page for wire harness description):**
 - a. Connect tractor harness plug to reel harness plug near reel hitch.
 - b. Connect tractor power plug to power outlet inside tractor cab (usually behind tractor seat)
 - c. Connect remote harness and remote to tractor harness inside cab
 1. Turn ignition to standby or turn on tractor to verify remote lights turn on
 2. If lights do not turn on, verify plugs are fully seated and power outlet fuse is good.
4. **See subsequent pages regarding remote and reel functions before step 5**
 - a. Operate the remote functions prior to running the hydraulics to become familiar with how it works. The lights will indicate mode and speed settings.
5. **Turn on drive system hydraulic flow:**
 - a. Manifold accepts flow in one direction only, if wind or unwind modes do not work, reverse hydraulic flow.
 - b. **WARNING** – Failure to turn on hydraulic flow for all functions, including Freewheel mode, will likely result in motor damage caused by cavitation.
6. **See Gearbox Maintenance page for timing of initial oil change.**

HOSE REEL HYDRAULIC CONNECTIONS

TRACTOR SVC BANK

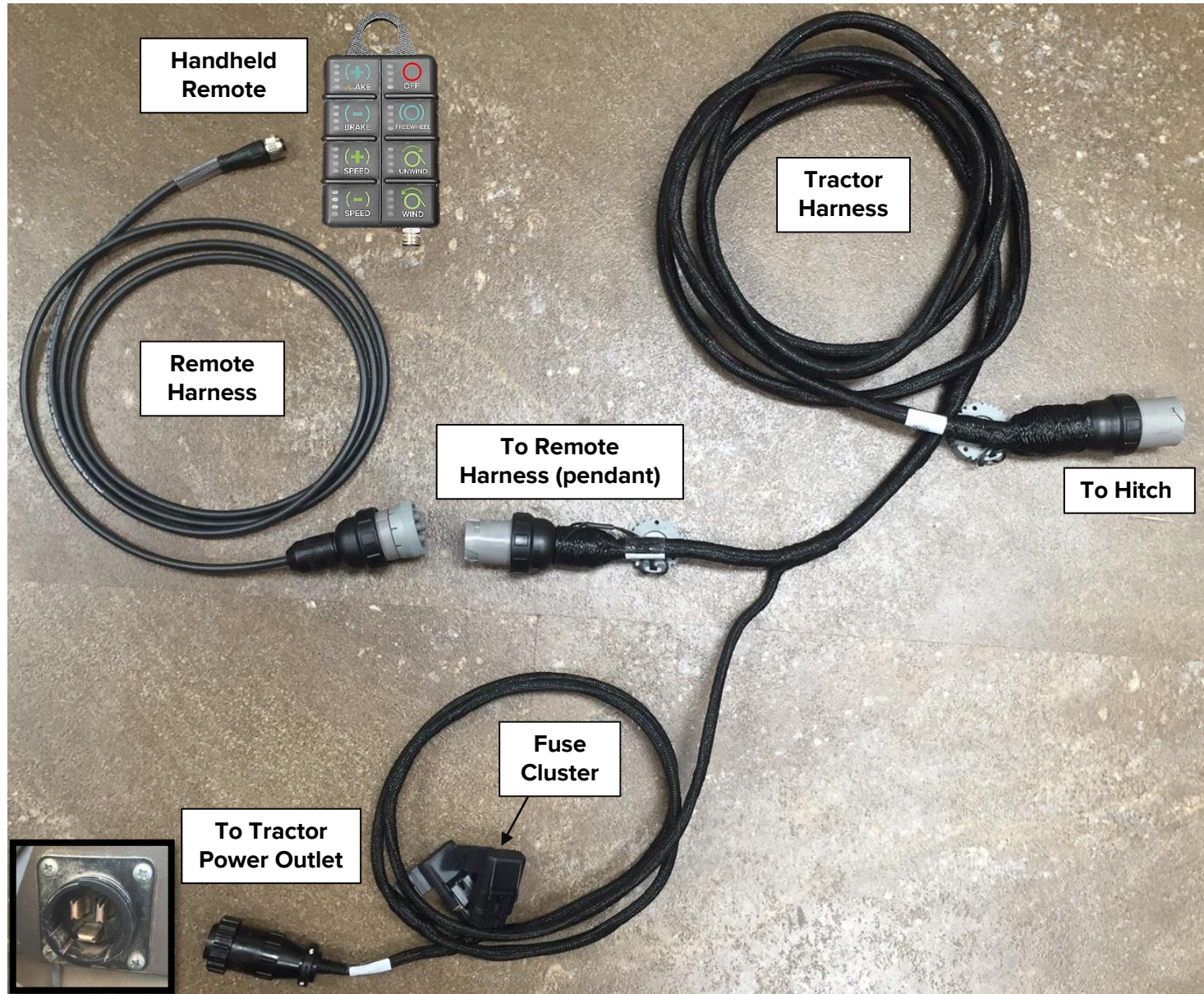


HOSE REEL HOSES



Each set/pair of hydraulic hoses are color coded with colored handles. The supply/pressure line (P1 & P2) of each pair have a ½ black and ½ red or black handle. The case drain hose has a green handle. Each set/pair of hoses are also zip tied together.

WIRE HARNESS DESCRIPTION



REMOTE

SPEED | BRAKE SELECTION

Brake Tension (+) More Tension

- There are 7 brake tension settings
- Applying brake tension to an empty reel will cause it to spin in wind direction.

Brake Tension (-) Less Tension

- Lowest brake tension setting turns brake off for true freewheel.

Speed (+) Faster (3 speed settings)

- Higher speed = lower torque
- Best used when reel is closer to empty or when last 1-2 sections are being pulled in from a longer pull.

Speed (-) Slower (3 speed settings)

- Lower speed = higher torque
- Use mid to low speed setting when pulling in multiple sections or if reel is filling up.
- Use trial and error to find which speeds work best for all scenarios (# of sections of hose being pulled vs. how full the reel is).



Status Lights

Power Cable Connection

MODE SELECTION

Off – Stops reel and engages locks. Do not turn off tractor hydraulics when trying to stop reel or it may not stop quickly. The stop and lock function requires hydraulic flow and pressure to stop the reel. Turn off hydraulics only after “Off” mode is selected.

Freewheel – Activates freewheel mode and the ability to increase/decrease brake tension when unwinding hose. **Hydraulics must be fully on to operate; spinning reel in freewheel mode without hydraulics may decrease motor life or cause permanent damage.**

- You can change from freewheel mode to power unwind mode seamlessly to deploy hose around corners, or if you need to deploy more hose in one place.

Unwind – Activates “Power Unwind” mode to hydraulically unwind the reel, and the ability to choose your unwind speed. When in unwind mode, pressing the button again will turn system off and stop the reel. Pressing wind will also force the system off first before allowing you to choose wind. You can switch between unwind and freewheel mode without interruption.

Wind – Activates “Power Wind” mode to hydraulically wind in hose, and the ability to choose your unwind speed. Choosing any other mode while in Wind mode will turn off the system and stop the reel before allowing you to choose another mode. Pressing the wind button again will also turn off the system and stop the reel.

INSTRUCTIONS AND TIPS

WINDING HOSE

Start winding in low speed. After the hose is started on the reel 'shift' (Speed +) to medium and high speed as possible. It is not necessary to stop the reel in order to shift speeds up or down. During the winding process if the hose reel begins to slow or stall, simply shift down (Speed -) to the next lower speed which will increase torque to pull in hose.

- It's common to need a lower speed to start pulling multiple sections of hose, especially as the reel fills with hose, however you'll likely be able to shift to a higher speed at some point when the hose is winding in, speeding up the process. Every so often, try shifting to higher speeds to get familiar with what works.
- **WARNING** – Couplers move toward the hose reel very quickly when winding a nearly full reel in high speed mode. When couplers are at least 75' from reel, decrease the reel speed (-) to safely bring coupler into the reel at low speed. Decreasing hydraulic flow or tractor engine rpm will also slow the reel, but do not turn off hydraulic flow to reel at any point. Pushing any "mode" button or OFF button when in wind mode will turn off the system and quickly stop the reel.
- To fine tune the winding speed between the three available speeds the system offers, it is recommended to run hydraulic flow from tractor at 100% and use tractor engine RPM to fine tune hydraulic flow/reel speed.

UNWINDING HOSE

It is recommended that "Freewheel" mode be used as much as possible to unwind hose, however used in combination with the powered "Unwind" mode, greater control in placement and layout is achieved.

- With hydraulics running, it's possible to change from freewheel mode to power unwind mode as needed.
 - This is beneficial when starting the unwind process, power off hose to tie down for freewheel unwind, or power unwind enough hose until the weight of it allows a change to freewheel mode.
 - When rounding a tight corner while freewheeling, switch to power unwind mode, adjust speed (+,-) and unwind enough hose to round the corner. After enough hose is on the ground freewheel again, switch back to freewheel mode.
- If reel is empty or there's very little weight on it, increasing brake pressure (Brake +) too much may cause reel to spin forward. If this happens, simply decrease brake pressure.
- The brake can be adjusted up or down as needed during freewheel. Press OFF if you need the reel to stop entirely.

GEARBOX MAINTENANCE

- **Oil Type:**

Use an extreme pressure lubricant API-GL-5 approved. AGI recommends SAE 85W-90 when operating above a minimum outside temperature of 10° F. (Use 80W-90 when operating down to -15° F)

- **Change Interval:**

Initial lubrication change after 50 hours of operation. Subsequent changes every 1000 hours or yearly, whichever comes first.

- **Amount of Lube:**

The unit should be half full during operation. See diagram for filling information.

- **Lube Temperature:**

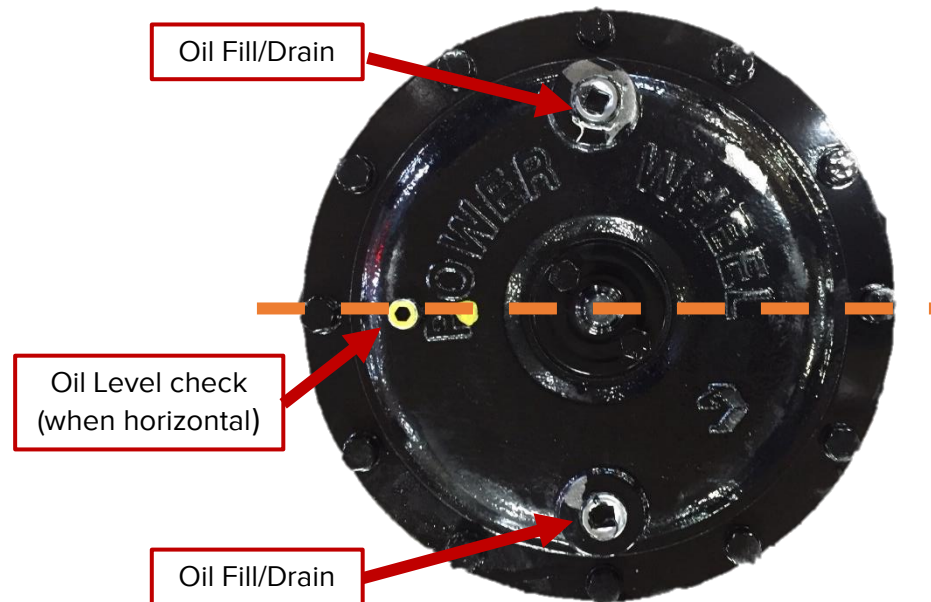
Continuous operating temperatures of 160° F are allowable. Maximum intermittent temperature recommended is 200° F.

Access Gearbox oil ports through one or both coupler cavities (on dual drive setups)



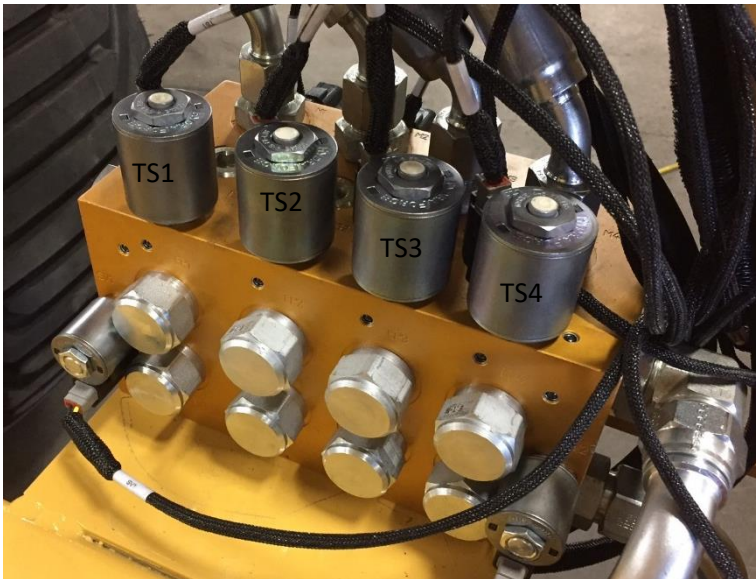
View inside Coupler Cavity

(Back side of gearbox)



TROUBLESHOOTING TIPS

- **Reel “Creep” when reel is full and hydraulics are off:**
 - If hose and couplers are wound onto the reel in a lopsided manner (meaning one area of the hose and reel will be heavier than another), the reel may creep as much as 180° until the heaviest part of the hose settles to the bottom. It is recommended that users expect this to happen and ensure the reel is fully settled before traveling down the road.
 - Can tie coupler to other hose so if reel does settle, hose isn’t unwound from reel.
 - When finished winding, press freewheel to see where the reel settles, and tie coupler down in place.
- **Electronic issues / failure:**
 - Ensure electronic plugs are fully engaged with one another and into tractor power plug
 - Ensure fuses for power plugs are in working order
 - If you experience an electronics issue or failure, contact Bazooka Farmstar immediately to troubleshoot and address. In a situation where hose must be immediately loaded or unloaded, it is possible to override the electronics and hydraulically wind/unwind the reel using only the tractor controls, though it is not recommended due to sensitivity in re-assembly process.



1. Remove inside cover to access hydraulic manifold (picture)
2. Find #8 ORB Plugs that came with the system (zip tied to manifold in a bag or in the original box of accessories).
3. Remove (2) TS cartridges depending on need:
 - Winding in hose: Remove TS2 and TS3 only (Labeled on block)
 - Unwinding hose: Plug TS1 and TS4 only (Labeled on block)
4. Replace (2) TS cartridges with plugs
5. Disengage reel locks (red buttons on side of manifold – push in and twist to pop out – unlocked when buttons are out).
6. Control hydraulics directly with Tractor – this allows low speed mode to work. If reverse is needed, see #3.
7. **CRITICAL – Reassembling TS valves requires minimal torque per stamping on top of solenoid. Over torquing will stretch the valve and cause permanent malfunctions.**