

TO:
 ATTN:
 SUBJECT: HF Hitch Improvements for 3320 and 3720 drills

FIX ON FAILURE (Failure Code 21.19)

BACKGROUND:

3320 and 3720 drills have been equipped with the High Floatation hitch option since 2012. Since then there have been design changes implemented to improve functionality, eliminate pre-mature wear and improve durability of the HF hitch components. Many of these changes have been implemented as running changes therefore it is not easy to establish a serial number range for each. Inspection of the affected areas documented in the following pages will provide easy verification of what improvements any particular drill have or may need. It is strongly recommended to inspect drills equipped with the HF hitch for any pre-mature wear and apply the design changes itemized on the following pages as part of a regular maintenance routine.

#1 - HF Cylinder – Orifice Removal

In the high floatation hitch design the hitch cylinders extend during opener operation to keep the hitch centered and prevent skewing or side-drafting and are retracted when the openers are raised to allow turns to be made. To prevent the depth circuit raise and lower times from being increased when using a HF hitch - orifices were added to the cylinders to sequence the oil to the lift circuit first thereby building a slight delay into cylinder retraction. Back in 2012 there were more tractors that were flow limited however today very few tractors used on 3320/3720 drills are flow limited. These orifices should be removed to prevent bending of the HF cylinders when negotiating quick/tight turns where the orifice will restrict how fast the oil can leave the cylinder and retract.

CORRECTIVE ACTION:

- Remove the orifice if present and replace with a standard fitting
- To confirm presence of orifice you may need to remove the hose and look for the 1/8” hole



Part Number	Qty. required	Description	Dealer Cost	List Price
3345-17	2	Adapter STL 9/16MJICx3/4MORB		

Contact your local Bourgault dealer for parts pricing



#2 - HF Cylinder – Change to Gr 8 bolts and anti-turns

The bolts that attach the HF cylinder to the rest of the hitch components have been upgraded to a GR8 bolt. The GR8 bolt has a longer shank that keeps threads out of the load bearing area and its “harder” material resists wear much better than a gr5 bolt. In addition to the gr8 bolt an anti-turn has been added to each bolt to prevent it from turning during normal hitch movement thereby preventing wear to the cylinder lugs.

CORRECTIVE ACTION:

- Replace Gr5 bolts with Gr8 bolts and add the associated anti-turn device to each.



Anti-turn
Base end of
cylinder shown

Part Number	Qty. required	Description	Dealer Cost	List Price
1015-68	4	1x5 UNC GR8 bolt		
1209-07	4	1” nut		
1325-45	4	1” SAE plated washer		
9327-32	4	Anti-turn		
2130-16	if required	Connex bushing inside the lug		

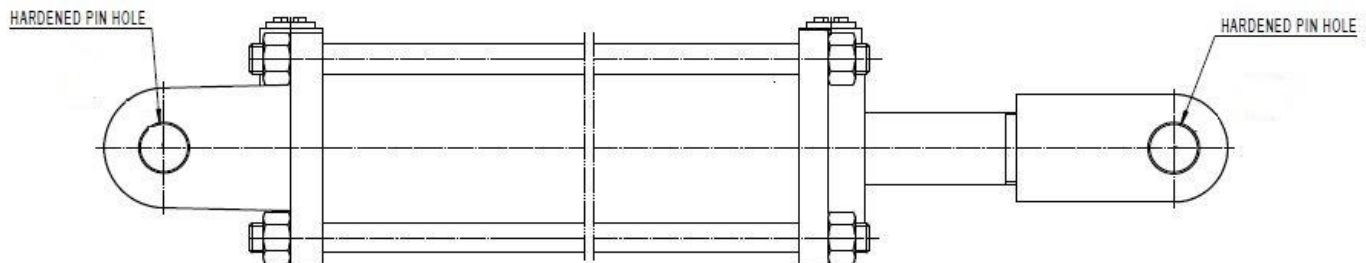
Contact your local Bourgault dealer for parts pricing

#3 - HF Cylinder – Change to cylinder with hardened clevises

To further improve durability and prevent wear in this HF hitch area the cylinder used now has hardened clevises. IF cylinder lugs show wear then the new style cylinder should be used in its place.

CORRECTIVE ACTION:

- Replace existing worn cylinders with ones with hardened clevises.



Part Number	Qty. required	Description	Dealer Cost	List Price
3303-58	2	4x8x1 ½” cylinder with hardened clevises		

Contact your local Bourgault dealer for parts pricing



#4 - HF Steering box / lug replacement – (units after sn: 43320PH-01 have new QT100 lug)

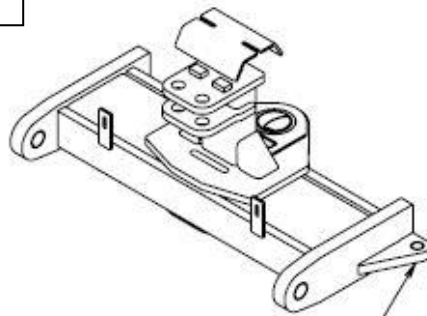
An area of concern is the lug to which the base end of each HF cylinder attaches. This lug is part of what we call the steering box. It is common to see significant wear or damage to the hole in this lug, therefore in order to achieve a lasting repair this lug must be replaced or the entire steering box replaced.

CORRECTIVE ACTION:

- Remove existing worn lugs and weld on the newer version made from QT 100 material which is much harder and resists wear and damage better than the original.

ANALYZE, IDENTIFY LUG

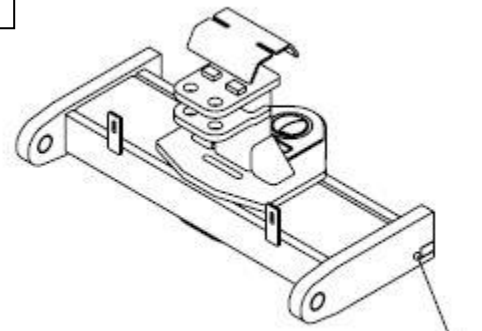
STEP 1



AFFECTED CYLINDER LUG

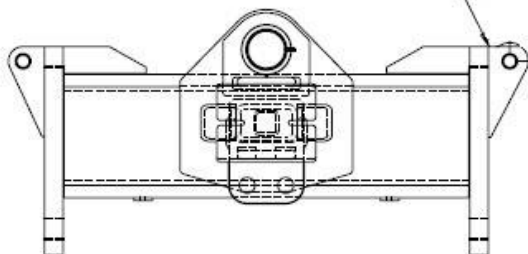
PREPARE SURFACE

STEP 2



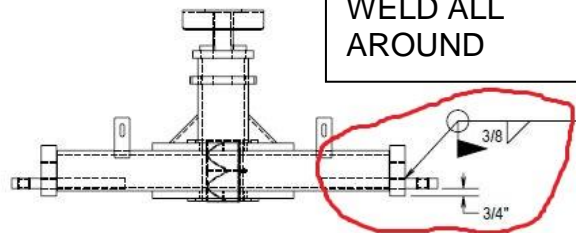
CUT OFF LUG, MAKE FLUSH WITH PLATE SURFACE
CLEAN UP, PREP TO WELD

STEP 3



THIS EDGE FLUSH
REFERENCE POINT

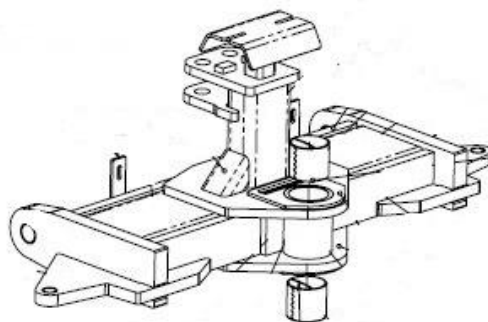
STEP 4 – 3/8”
WELD ALL
AROUND



Part Number	Qty. required	Description	Dealer Cost	List Price
9321-31-17	2	Qt100 lug – with bushing installed		

Contact your local Bourgault dealer for parts pricing

- If welding is not an option the entire steering box can be replaced as an assembly

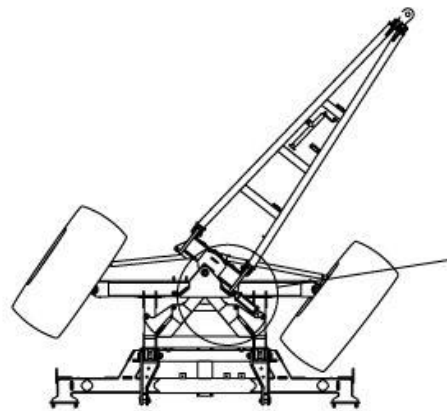


Part Number	Qty. required	Description	Dealer Cost	List Price
9321-31	1	Steering box		

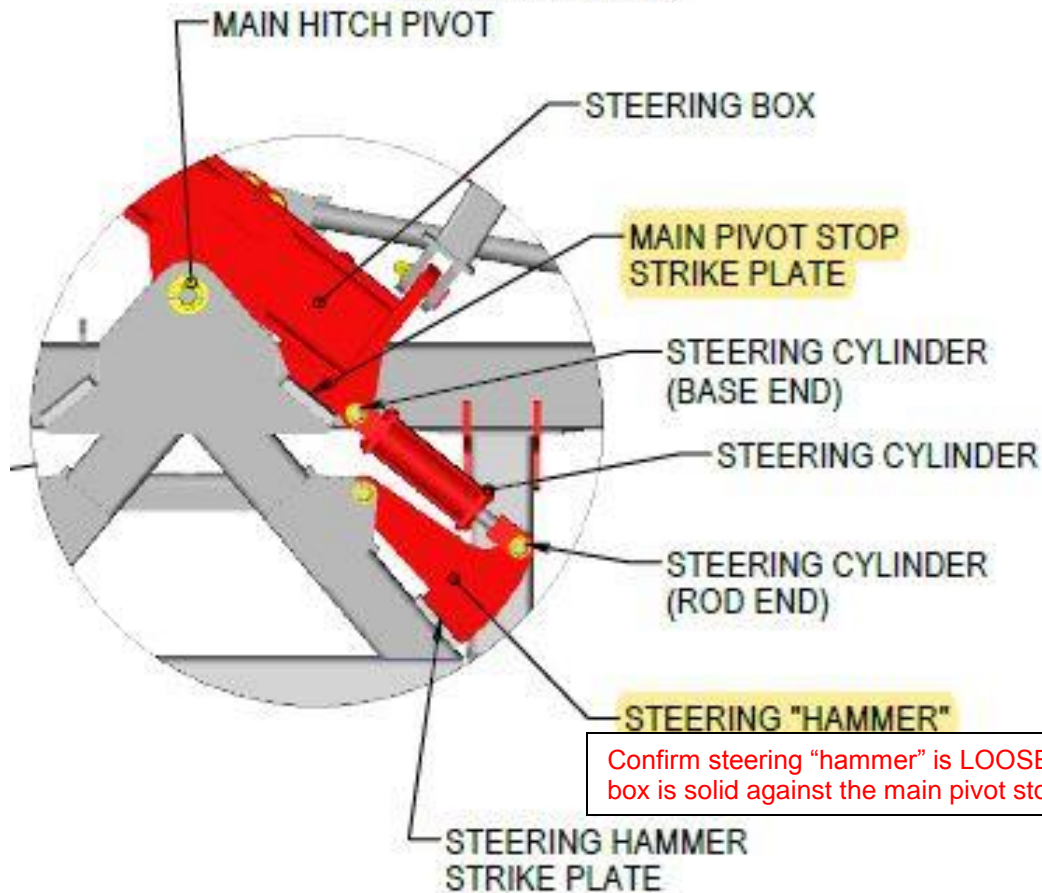
Contact your local Bourgault dealer for parts pricing

#5 - HF Cylinder – confirm HF cylinder is not crushed when hitch is fully articulated
CORRECTIVE ACTION:

- Due to the relatively high number of pivot points and the ability to have tolerances stack up it needs to be confirmed that the HF cylinder is not being crushed when the hitch is being fully articulated.
 - When the steering box is solid up against the **main pivot stop strike plate** the **steering hammer** needs to be “loose”
 - If the steering hammer is not loose then the cylinder clevis needs to be adjusted shorter to provide adequate clearance for the steering hammer
 - Adjust and repeat as required.



HIGH FLOTATION STEERING AS VIEWED FROM BELOW
 (HITCH IS FULLY ARTICULATED)



Confirm steering “hammer” is LOOSE when the steering box is solid against the main pivot stop strike plate



#6 - HF System Pressures – Lowering of the Initial break-out pressure settings

The HF hitch system utilizes a pressure relief valve to provide a “break-out” pressure when the HF cylinder is allowed to retract when making a corner while seeding. Seeding around the headland or perhaps around a power pole, rock pile or other obstruction is an example of this, furthermore it keeps the HF cylinders locked in the straight position up until this pressure is reached to keep the machine tracking directly behind the tractor, this is important on side-hills. Each size of machine has an initial pressure setting for which it is recommended to start. Investigation into these settings has revealed perhaps that our initial settings were on the high side of things for most operating conditions, therefore for model year 2019 the initial pressure settings have been reduced. For existing units it is recommended to “lower” the previously used pressures to the new recommendations – unless that is you have more extreme side-hill conditions where the higher pressures are required.

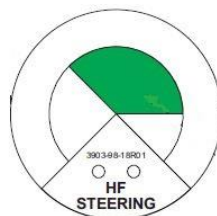
CORRECTIVE ACTION:

- Reduce operating pressures as per the new recommendations



Unit size	Pressure setting	
3320-60	1400psi	
3320-66	1600psi	
3320-76	1800psi	
3320-80	1900psi	before sn: 42773PH-01
3320-86	2000psi	before sn: 42773PH-01
3320-80	1500psi	after sn: 42773PH-01
3320-86	1500psi	after sn: 42773PH-01
3720-60	1400psi	
3720-70	1700psi	

- A new HF pressure gauge decal can be purchased to reflect the new “safe” operation pressure range that has been established for model year 2019.



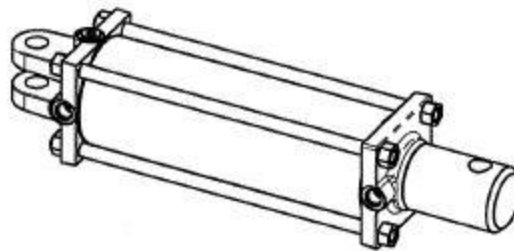
Part Number	Qty. required	Description	Dealer Cost	List Price
3903-98-18	1	HF Pressure Gauge decal		

Contact your local Bourgault dealer for parts pricing



Differences for 3320-86’ units

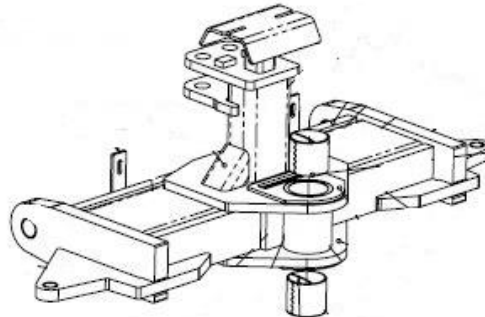
- 3320-86’ units built prior to sn: 42773PH-01 use many of the same components as what is listed in the previous pages and the areas of concern (#1 thru # 6) can be resolved as indicated on the previous pages.
- 3320-86’ units between sn: 42779PH-01 and sn: 43003PH-01 were built with a few differences
 - #1 – HF Cylinder – Orifice Removal - same as instruction indicated on previous pages.
 - #2 – HF Cylinder – Change to Gr 8 bolts and anti-turns - same as instruction indicated on previous pages but only applies to the base end of the cylinder since from new it used a Gr8 bolt and anti-turn device on the rod end.
 - #3 - HF Cylinder – Change to cylinder with hardened clevises - A different HF cylinder is used which has a “boss” style on the rod end.



Part Number	Qty. required	Description	Dealer Cost	List Price
3300-56	2	86’ HF cylinder with boss end		

Contact your local Bourgault dealer for parts pricing

- #4 – HF Steering box / lug replacement - the concern with lug wear has not been seen on 86’ units, so a weld-on lug has not been created – IF you require a weld-on lug please contact your service representative.
 - The complete steering box is available as an assembly



Part Number	Qty. required	Description	Dealer Cost	List Price
9327-31	1	Steering box – 86’ units		

Contact your local Bourgault dealer for parts pricing

- #5 – HF Cylinder – confirm HF cylinder is not crushed when hitch is fully articulated - same instruction as indicated on previous pages however the geometry is slightly different
- #6 – HF System Pressures – Lowering of the Initial break-out pressure settings - same instruction as indicated on previous pages

3320-86’ units built after SN# 43003PH-01 should have ALL the above improvements

WARRANTY DETAIL:

Contact your local Bourgault dealer for warranty details that may apply to your machine