

Invoice To Account No:

Deliver To:

SERVICE INVOICE

Bus Phone: Prv Phone:	Bus Phone: Prv Phone:	Invoice Number:	
		Invoice Date:	06/22/2020
		Location:	
		Work Order Number:	
		Payment Type:	
		Page:	1 of 4
Make/Model:	Meter	Serial Number:	EQ Id:
JOHN DEERE 4450	10692	RW4450P028657	Fleet No:

Gen1- Retail**COMPLAINT:**

Shifting issue

CORRECTION:

Washed the tractor off as best as possible. Replaced the port plugs on the shift valve body to set up the gauges. Removed the hi-lo clutch and brake plugs to inspect, having glitter like metal material and dark graphite colored oil coming from the ports. Plugged in a main pressure gauge off the trans pump. Heated up the hydraulic oil with the tractor in tow. After warming the oil up for 30 min the transmission was tested. Showed no pressure in any forward gears. Tested the tractor in reverse which indicated pressure. Took the tractor out of tow to see if it would move on its own which it failed to do so. Allowing the oil to cool down after an hour it was able to move. Bringing the tractor into the shop removing the loader to begin removing the cab and splitting to inspect the condition of the internals. Checked the sump screen after draining the oil finding lots of clutch and brake material. Disconnected terminal plugs, hydraulic lines, scv linkage, shift linkage and heater lines while evacuating the A/C. Disconnected the A/C lines before unbolting the cab from its mounts and lifting off. Set the cab on a stand and cleaned the rest of the debris and dirt that was left on the top of the transmission housing before attempting to split. Removed the trans pump and disconnected all the hydraulic lines connected to the front. Rigged up the hoist to the transmission with a jack supporting underneath. Unbolted and split, rolling the back half away. Removed C1 and C2 clutches, inspecting for damage with none found, other than some slippage. Checked the hi-lo clutch only finding some unusual wear patterns but no significant damage. The housing leading to the output planetaries bushings showed some wear of needing to be repaired. Pushed the tractor back together in order to split the clutch housing from the rear. After separating the clutch housing from the rear, the drive pinion was removed to pull the brake assembly pack from the rear. After removal the brake assembly was dismantled to inspect finding some friction plates showing break down of the material. Found C3 to be the main issue with most of the friction plates missing the material being burnt from spinning metal to metal. Prepared a quote for the customer of all parts needing to be replaced. Proceeded with cleaning off old gasket material and searching for a pin that had fallen from the draft arm during operation. Dragged a magnet everywhere possible with the housing with it not being found seeing it could have easily dropped near the drain hole and likely exited when the oil had been changed in the past. After receiving all the parts to rebuild the C1 and C2 along with hi-lo clutch. Replaced all seals in the pistons. Well lubricated during assembly. Updated the hi-lo clutch piston and drum. Replaced the kevlar bushing/washers. Replaced the worn input planetary drum. Replaced all friction disc's with in the output planetary/brake packs. Well lubricated during assembly to avoid dry spots of friction disc's. Replaced the bushing with in the output planetary manifold. Replaced the metal seal/snap rings of input/output shafts, hubs and hi-lo shaft. Replaced the seal at the end of the out put shaft. Replaced the o-rings at the bottom of the brake assembly. With the clutch and brake assemblies completed, reassembly of the tractor was able to begin. Assembled the transmission and pushed the tractor back together. Reconnected all the hydraulic lines and mounted the 3 pt back on. Remounted the cab and connected the wiring harness. Had to look up which terminals plugged together correctly. Reconnected the batteries and throttle. The throttle had to be readjusted. Filled the tractor with oil to start and function, after doing so the fluid level was checked and topped off. Topped off the coolant. Test drove the tractor to assure it was operable. Shift linkage needed some adjustment being it would move in neutral likely due to replacing the isolators for the shift tower. After the adjustments the tractor would operate safely as should. Shifting was still to firm or hard especially during certain down shifts. Addressed this issue by checking the system accumulator pressure which was empty. Removed and recharged the accumulator to the specified pressure of 90psi +/-5psi. Remounted the accumulator and connected the hydraulic line. The threads needed to be cleaned up due to being cross threaded from the past. Test drove the tractor again with it shifting much smoother up gears and down. Recharged the A/C with 3.2 lbs of refrigerant, recovered less than 2 lbs before work started. While recharging the A/C had issues with charging. While running the A/C to test it was only able to blow cool air in the mid 60's while it was 100 degrees outside. Likely has an issue with the A/C in need of work done to it. Remounted the drive line and the loader. Ran the tractor again to check and top off fluids, if needed before finishing its work. Told customer about the A/C and diesel leak and chose to get the tractor back.

CONTINUED ON NEXT PAGE->

Invoice To Account No:

Deliver To:

SERVICE INVOICE

Bus Phone: Prv Phone:	Bus Phone: Prv Phone:	Invoice Number: Invoice Date: 06/22/2020 Location: Work Order Number: Payment Type:
		Page: 2 of 4
		Make/Model: JOHN DEERE 4450
		Meter: 10692 Serial Number: RW4450P028657 EQ Id: Fleet No:

<u>PartNumber</u>	<u>Description</u>	<u>Quantity</u>	<u>List Price</u>	<u>Net Price</u>	<u>Extended Price</u>	<u>Taxed Ind</u>
24H1287	Washer	1.00				
34H243	Spring Pin	2.00				
AR101654	Seal	1.00				
AR94510	FILTER ELE	2.00				
AT116162	Isolator	2.00				
HDW5	GRADE 5 HDW	6.00				
P47889	O-Ring	1.00				
R106638	Piston	1.00				
R120833	Seal	1.00				
R120835	Seal	1.00				
R120836	Seal	2.00				
R26286	O-Ring	1.00				
R33246	Seal	2.00				
R34733	Washer	2.00				
R375R	O-Ring	6.00				
R43273	Snap Ring	1.00				
R44815	Seal	2.00				
R44816	Seal	2.00				
R44817	Seal	4.00				
R46218	Seal	1.00				
R57046	Washer	1.00				
R64295	Spring Pin	1.00				
R70843	SHAFT	1.00				
R71925	Bushing	2.00				
R72168	Ring	2.00				
R72471	Plate	1.00				
R72653	Snap Ring	3.00				
R72654	Snap Ring	4.00				
R72934	Snap Ring	1.00				
R73090	Seal	1.00				

CONTINUED ON NEXT PAGE->

Invoice To Account No:

Deliver To:

SERVICE INVOICE

Bus Phone: Prv Phone:	Bus Phone: Prv Phone:	Invoice Number: Invoice Date: 06/22/2020 Location: Work Order Number: Payment Type:
		Page: 3 of 4
		Make/Model: JOHN DEERE 4450
		Meter: 10692 Serial Number: RW4450P028657 EQ Id: Fleet No:

R73284	Ring	4.00			
R76936	Washer	2.00			
R76937	Washer	1.00			
R77671	Plate	5.00			
R79421	Washer	1.00			
R92467	Gasket	1.00			
R94451	Gasket	1.00			
R99286	Gasket	1.00			
RE234303	GASKET KIT	1.00			
RE234305	Disk With Inner Spline	14.00			
RE25659	Hydr.Oil Temperature Sensor	1.00			
RE326609	Clutch Disk	4.00			
RE33706	Disk	1.00			
RE38367	Drum	1.00			
RE38368	Planet Pinion	1.00			
RE43947	Drum	1.00			
TY22028	HY-Gard	60.00			
TY26576	COOL-GARD	1.00			
<u>Miscellaneous</u>	<u>Description</u>	<u>Quantity</u>	<u>List Price</u>	<u>Net Price</u>	<u>Extended Price</u> <u>Taxed Ind</u>
3750	FREIGHT	1.00			

Miscellaneous Charges:

Service Accessories

Labor: **Parts:** **OL&M:** **Misc:** **Sub-Total:** \$17,627.30

Finance Information

Customer PO No:
 Tax Exempt No:
 Advisor:

Type: **Auth No:**
Merchant No:
Card No:
Bill Code:
Credit Plan:

Labor:
Parts:
OL&M:
Misc:
Sales Tax:
Total: \$17,627.30

CONTINUED ON NEXT PAGE->

Invoice To Account No: ----

Deliver To:

SERVICE INVOICE

Bus Phone: Prv Phone:	Bus Phone: Prv Phone:	Invoice Number:		
		Invoice Date	06/22/2020	
		Location:		
		Work Order Number:		
		Payment Type:		
		Page:	4 of 4	
Make/Model:	Meter	Serial Number:	EQ Id:	Fleet No:
JOHN DEERE 4450	10692	RW4450P028657		

Received by:

Date: