Invoice To Account No: 30103

Deliver To:

SERVICE INVOICE

Invoice Number: 11218063
Invoice Date: 7/24/2021
Location:
Work Order Number:
Payment Type:
DUC 8/31/21
Page: 1 of 6

Make/Model:	Meter:	Serial Number:	Eq ID:	Fleet No:
JOHN DEERE 7130 Premium	6305	RW7130H004586	SS004586	

R+M 7 - LSE

ALL/DIAG120 Retail
COMPLAINT:
01 DIAGNOSE - NO PTO FUNCTION

CAUSE:
Voltage at pto solenoid was not correct, due to an intermediate faulty PTO speed sensor.

CORRECTION:
Tech verified customer complaint of no PTO function. Tech checked for voltage at PTO solenoid, tech found it to only be 6.5v. Tech checked PTO solenoid correct voltage in manual, should be between 9-15 volts. Tech checked for 12v at the PTO switch in and out to the BCU voltage was at 10.5v tech checked battery voltage and it was at 12.3v. Tech removed battery cables and cleaned them, as well as the engine grounds, frame ground, and cab ground connections. Tech then rechecked switch and 12v were now present, tech checked the related fuses after checking a wiring diagram for the correct fuse and location. Tech checked that 12v was going in to the BCU but only 6.5 was coming out for the PTO circuit harness, after checking all of the solenoids in the PTO system for power and ground it was found that both the diff lock and PTO did not receive 12v. All of the connection points were checked for damaged connections and corrosion, that was causing the voltage drop. Nothing could be found the individual components were then singled out and checked for function, and for the correct resistance reading as stated in the manual. The PTO solenoid resistance was not correct and was replaced to achieve the correct reading but still did not function when attempted to operate the PTO. After several more test and re reading the manual for the operation of the PTO it was found that the PTO speed sensor was not giving the correct resistance reading. There for was not allowing the correct voltage to pass thought it to energize the PTO solenoid. This sensor was removed and replaced with a used sensor from another tractor in the shop to test, PTO now functioned. A new sensor was ordered and installed and the PTO was then reverified for function and it worked.

Part Number	Description	Quantity	List Price	Net Price	Extended Price	Taxed Ind
AL177192	SOLENOID V	1.00				N
AL204621	SENSOR	1.00				N

Labor: **Parts:** **OL&M:** $0.00 **Misc:** $0.00 **Sub-Total:** $1,106.98

7130/7559/MFP/10 Retail
COMPLAINT:

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7130/7550/MFP/10 Retail
02 BUSHING MFWD PIVOT PIN - REMOVE & INSTALL

REMOVE & INSTALL MFWD PIVOT PIN BUSHING

Remove MFWD drive shaft shield.

Remove snap ring from rear of MFWD drive shaft.

Slide shaft forward away from MFWD clutch.

Raise and support front of tractor with suitable stands.

Remove front wheels and fenders.

Disconnect steering cylinder hoses.

Attach suitable lifting device to front axle assembly.

Remove bolts from front and rear MFWD axle supports.

Remove MFWD axle assembly.

Remove MFWD axle supports.

Press bushings from axle supports.

Reassemble in reverse order.

Grease bushings.

CAUSE:
Customer requested that the bushings and pins be replaced due to slop, and wear.

CORRECTION:

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JOHN DEERE 7130	6305	RW7130H004586	SS004586	

7130/7559/MFP/10 Retail
REMOVED & INSTALLED MFWD PIVOT PIN BUSHING

Removed MFWD drive shaft shield.
Removed snap ring from rear of MFWD drive shaft.
Slid shaft forward away from MFWD clutch.
Raised and supported front of tractor with suitable stands.
Removed front wheels and fenders.
Disconnected steering cylinder hoses.
Attached suitable lifting device to front axle assembly.
Removed bolts from front and rear MFWD axle supports.
Removed MFWD axle assembly.
Removed MFWD axle supports.
Pressed bushings from axle supports.
Reassembled in reverse order
Greased bushings.

Tech jacked up and supported tractor, removed both front wheel and tire assemblys. Tech unhooked steering hyd hoses from tractor, and used the overhead hoist to support the MFWD. Tech was then able to removed the pivot point bolts and slide the axel to the rear until it came off of the pivot pins. the axel was lower to the ground and removed from under the tractor. The eyelets were cleaned out with a wheel, and a new bushing was fast fit. it was found very quickly that there was extensive damage to both the front and rear eyelet on the MFWD, to the point that there was an 1/8" or larger gap under the bushings. Tech is unable to install bushings into this housing, a new housing will have to be located.

Part Number	Description	Quantity	List Price	Net Price	Extended Price	Taxed Ind
L111817	Pin Fastener	2.00				N
L76471	Bushing	-2.00				N

Labor: **Parts:** **OL&M:** **$0.00** **Misc:** **$0.00** **Sub-Total:** **$858.44**

7130/4060/MFWD/C/20 Retail
COMPLAINT:

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7130/4060/MFWD/C/20 Retail
03 AXLE ASSEMBLY MFWD - RECONDITION (Complete)

RECONDITION MFWD AXLE ASSEMBLY

Recondition as necessary

Record in description

CAUSE:
Pivot bushings had worn thought bushings and into the housing causing the old housing to be unusable.

CORRECTION:
Reconditioned MFWD Axle Assembly

The tech dissembled the original MFWD front axel down the bare housing, tech cleaned all surfaces and replaced all seals, bearings, and bushings in the " new used" housing after it was stripped down and cleaned, as well as the other housing half that was reused that was not damaged. All bearings, seals, bushing, shims, and hardware was installed and adjusted with the John Deere needed special tools per the axel service manuals instructions. All internal parts were cleaned and inspected and reused as no damage could be seen to any of the internals, including the differential and ring gear assembly. The pinion shaft had to be re-shimmed and adjusted as bearings were removed and changed. In addition the differential had to be also shimmed and adjusted, these adjustments both took time. After these adjustments were finalized, the two housings were re-assembled after all of the measurements and adjustments were made. The axel was rehung under the tractor on the new pivot pins, and bushings that were installed. The reconditioned hubs, knuckle's, and final drives could then be installed on each side all with new seals and new axel bearings. The knuckle's were then re-shimmed and adjusted accordingly as needed. The tires and wheels could than be re-installed along with the fenders that were removed. The MFWD and the finals were then refilled to their proper levels, the steering cylinder was then reinstalled, the lines were reconnected, the air was bled from the steering cylinder, and the tractor was drove around the lot to check for leaks and proper operation. The tractor was then parked and the fluid in the MFWD was left to settle. The MFWD levels were then re-checked once more, the finals were also rechecked.

Part Number	Description	Quantity	List Price	Net Price	Extended Price	Taxed Ind
19M5039	Screw	1.00				N
40M1872	Snap Ring	2.00				N
51M7042	O-Ring	2.00				N
AL159591	SEAL	2.00				N
AL159594	Seal	2.00				N

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7130/4060/MFWD/C/20 Retail

AL159599	Bearing	2.00				N
AL160118	SHIM KIT	2.00				N
AL160178	Shim Kit	1.00				N
AL160535	Seal	2.00				N
AL161289	BEARING	4.00				N
AL162112	Shim Kit	1.00				N
AL166518	Tapered Roller Bearing	1.00				N
AL174434	Shim Kit	1.00				N
AL221272	SEAL	4.00				N
AL227049	Seal	2.00				N
AL81844	TAPERED ROLLER BEARING	4.00				N
JD37219	BEARING	2.00				N
L113937	Ring	1.00				N
L113950	O-Ring	2.00				N
L113966	Bushing	2.00				N
L114652	Bushing	2.00				N
L156850	O-Ring	1.00				N
T77857	O-RING	4.00				Y
TH109094	Tapered Roller Bearing	1.00				N
TY22028	HY-GARD BULK OIL	14.00				N

Miscellaneous	Description	Quantity	List Price	Net Price	Extended Price	Taxed Ind
FREIGHT	FREIGHT	1.00				N

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7130/4060/MFWD/C/20 Retail

REWORK	REWORK	1.00	N

Comments: PARTS

OL&M Charges:

Description	Value
MFWD AXLE HALF	

Labor: **Parts:** **OL&M:** **Misc:** **Sub-Total:**

INVOICE CONTAINS $8.82 DISCOUNT

Finance Information

Customer PO No
Tax Exempt No:
Advisor:

Type: Multi-use Acct US **Auth. No:**
Merchant No:
Card No: 7
Bill Code: 704
Credit Plan: 22066

Labor:	
Parts:	
OL&M:	
Misc:	
Sales Tax:	
Grand Total:	$5,512.83

*** DOCUMENT COPY ***

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Received by: ..... **Date:** .....