

**Sold To:**

|                     |                                          |                  |                   |
|---------------------|------------------------------------------|------------------|-------------------|
| <b>Invoice #:</b>   | 1435815 CL                               | <b>Make:</b>     | NEW HOLLAND       |
| <b>Sold by:</b>     |                                          | <b>Model:</b>    | LW190             |
| <b>Cust PO:</b>     |                                          | <b>Serial #:</b> | ZEF00W19100945108 |
| <b>Cust Fleet#:</b> |                                          | <b>Tag:</b>      | 3164060           |
| <b>Job Desc:</b>    | UNIT DIES WHEN PUTTING LOAD ON<br>BUCKET | <b>Hours:</b>    | 9424.0            |

**Service Order Summary**

**WO #**

|            |                             |
|------------|-----------------------------|
| 2531450 SV | UNIT DIES WHEN UNDER LOAD   |
| 2531451 SV | TRAVEL                      |
| 2561953 SV | INJECTORS, FUEL PUMP, TUBES |
| 2561954 SV | DIAG FNR CODE               |
| 2564600 SV | TOWING                      |
| 2581952 SV | FUSE BOARD, WIRING          |

**TOTAL INVOICE**

**\$23,780.25**

**Payment Information**

Trans ID: (

Client ID:

X

Customer Signature

**Phone:**

**Cell Phone:**

I hereby authorize the repair work to be done as described above on the machine(s) named hereon. All repair parts are to be billed at your regular price.  
I agreed to pay cash for such repair parts and labor on delivery of machine(s) or on terms satisfactory to you and until paid in full any unpaid balance  
shall constitute a lien on this machinery.  
I further agree that you will not be held responsible for loss or damage to said machinery from fire, theft, or other causes beyond your control.  
A service charge will be assessed equal to the lesser of 1.5% per month or the maximum rate permitted by law on all delinquent accounts, until paid in full.

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**Sold To:**  
**SERVICE ORDER:**

**WO#:** 2531450 SV UNIT DIES WHEN UNDER LOAD

**Comments:**

Talked to customer.  
Started trouble shooting no crank.  
Checked voltage at start post on key switch, found 25V when in start.  
Went through schematics for start circuit.  
Found wire 907 goes from start switch to Neutral start relay pin 87, found voltage there when cranking.  
Also found voltage out of neutral start relay on pin 30 wire 802.  
Wire 802 goes to ECM pin 20, found 25V at pin 20 while in start position.  
Moved wire around at damaged ECM connector, found unit starts now, but still has limited rpm and will not move.  
Connector on ECM is beyond repair, will need engine chassis harness to continue diag.  
Talked to Brian he wants us to get a harness.  
Look up and order harness

Removed and tagged engine harness connectors.  
Removed panels under cab to access zip ties and connectors.  
Removed harness. Installed new harness. Started unit found unit starts but is still D-rated.  
Hooked up EST, found code in EASY for positive deviation of fuel rail pressure.  
Checked fuel supply pressure and suction, found 65psi fuel pressure then drops to 0psi under load, and 15 inHg while under load.  
Customer has already replace fuel filters and blow through supply line.  
Checked rail pressure relief for leakage found 0ml. Performed injector return test, 450ml/min is over spec.  
Performed high pressure pump return test, found it at 635ml/min is over spec.  
Unit will need injectors and a high pressure pump.

Found unit will not move forward or reverse. Hooked up to TCM found 255 counts of shift logic error.  
Checked FNR lever found no issues with lever. Monitored TCM inputs and out puts, found park brake working, but when park brake released and move FNR lever to forward or reverse neutral voltage drops from 28V to 24V should drop to 0v. Went through service manual and checked neutral relay, declutch relay, and found all good.  
Brian said that moving was not an issue until John started to work on unit.

Unit will not start. Removed pin from ecu connector.  
Went to shop and find new pin for ecu connector. Installed new pin in ecu connector.  
Connect wire. Reinstall ecu connector. Unit still will not crank over. Checked fuses in cab.  
Checked good. Start relay in cab working. Followed starter exciter wire to box in rear of engine compartment.  
Checked fuses. Found blown 20 amp stop fuse. Replaced fuse with new fuse.  
Started unit. Unit idles at 850 rpm. Once throttle pedal is touched the engine rpm's go up to 1250 rpm and throttle does not work.  
Put in an assist on foot throttle. Get quote on parts for customer. Checked foot throttle cannot find wiring schematic for this unit.  
Need schematic for foot throttle wiring.

**Labor:**

Description  
Labor

Amount

Total Labor

**Parts:**

| Qty   | Vendor | Part Number | Description          | Bin    | Price | Ext. Price |
|-------|--------|-------------|----------------------|--------|-------|------------|
| 3.00  | CAS    | 5802168789  | HARNES, WIRE         | B03B01 |       |            |
| 10.00 | CAS    | 504066132   | ANNEAU ELASTIQU      | 16F02A |       |            |
| 1.00  | CAS    | 504260501   | WIRE/CABLE           |        |       |            |
| 1.00  |        | FREIGHT     | FREIGHT              |        |       |            |
| 1.00  | NHL    | 76079887    | SWITCH PARKING BRACK | 14C03B |       |            |
| 1.00  | NHL    | 87346378    | RELAYS BOX           |        |       |            |

**To:**  
**SERVICE ORDER:**

Remove breather from rocker cover.  
Found breather broken. Looked part. Order part.  
Remove rocker cover. Remove injector wires. Remove all exhaust rocker arms. Remove injector hold down bolts.  
Found two broken fuel tubes. Look up parts. Order parts. Disconnected fuel lines. Removed three mounting nuts  
Pulled Injection pump. Broke drive gear loose off old pump  
Cleaned flange plate off old pump to be reused on new pump  
Ordered 2 fuel pipes  
Ordered new oring for flange plate  
Ordered oring, breather, and fuel water separator  
Remove fuel injectors.  
Remove feed tubes.  
Install new fuel injectors. install new feed tubes. install new feed tube nuts.  
Reinstall injector wiring harnesses. Pulled fill tubes, retainer nuts and injectors  
Installed new fill tubes, retainer nuts and injectors  
Torque injector feed tubes to 37 ft. lbs.  
Torque injector hold downs to 31 in. lbs.  
Retorque Injector hold downs three times to 25 degrees.  
Install new rocker cover gasket. Clean rocker cover mating surfaces.  
Reinstall rocker cover. Install new reman injection pump. Install new injection pump seal.  
Install two new fuel lines that were broke. Reinstall fuel tube mounts.  
Reinstall injector lines from rail to injector feed tubes. Removed old fuel filters.  
Installed new fuel filters. Tried to prime fuel filters. Hand primer pump is not working.  
Removed filters and filled with new diesel. Reinstall new fuel filters.

Hours- 9424

Complaint- Unit will not go into gear.

Cause- ?

Correction- Checked fuses. Checked good.

Swapped relays. No change. Monitor shift lever on Jason's EST.

Shift lever works normal with park brake on. When park brake is released the voltage does not drop off the neutral wire.

Checked wires. Checked good. Checking park brake electrical circuit. Found unit will go into gear with park brake on.

Hooked gauge to 1st gear test port on transmission. With park brake on put unit in forward.

Gauge read 232 psi. With park brake off and in forward 1st gear no pressure on test port 1st gear.

**Labor:**

**Amount**

**Description**  
**Labor**

**Total Labor**

**Parts:**

| Qty   | Vendor | Part Number | Description                    | Bin           | Price | Ext. Price |
|-------|--------|-------------|--------------------------------|---------------|-------|------------|
| 1.00  | CAS    | 5801382396R | FUEL INJECTION PUMP            |               |       |            |
| 6.00  | CAS    | 2830957R    | REMAN-INJECT                   | 03B03A-03A03A |       |            |
| 6.00  | CAS    | 504100835   | FITTING                        | 18H04B        |       |            |
| 6.00  | CAS    | 4893739     | NUT                            | A03E01        |       |            |
| 1.00  | CAS    | 84412164    | PKG-FILTER,                    |               |       |            |
| 1.00  |        | FREIGHT     | FREIGHT                        | 16H02B        |       |            |
| 1.00  | CAS    | 17285381    | O-RING                         | B04E01        |       |            |
| 1.00  | CAS    | 504034214   | TUBE,RIGID                     | B05E03        |       |            |
| 1.00  | CAS    | 504034215   | TUBE,RIGID                     |               |       |            |
| 1.00  | CAS    | 4897534     | TUBE,RIGID                     | A02B03        |       |            |
| 1.00  | CAS    | 84348883    | FILTER, FUEL                   | F02F01/X02C01 |       |            |
| 3.00  | MIS    | 234941      | LOCTITE SF7611 PRO STRENGTH CL | FUEL ISLAND   |       |            |
| 5.00  | MIS    | DIESEL      | FUEL-DIESEL                    | 2101B         |       |            |
| 4.00  | CAS    | 4899689     | PKG-WASHER,                    |               |       |            |
| -1.00 | CAS    | 5801382396C | FUEL INJECTION PUMP            |               |       |            |
| -6.00 | CAS    | 2830957C    | CORE FUEL INJECTOR             |               |       |            |

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