ZIEGLER CAT

901 West 94th Street
Minneapolis MN 55420-4236

ZIEGLER CAT Rental Store

MINNESOTA	952-888-4121	800-352-2812
IOWA	515-957-3800	800-342-7002
MISSOURI	515-957-3800	800-342-7002
WISCONSIN	515-957-3800	800-342-7002

Sold To: [redacted]
56619-0040

Invoice Number: GB04445
Date: 2/28/20
Account No.: 6668900

Ship To:

MUST HAVE PO # IN ORDER TO GET

Invoice Information

WO Number:	GB04445	Make:	CATERPILLAR
WO Date:	12/06/19	Model:	980K
		Serial:	0W7K01112
Store:	BEMIDJI	PIN:	
Payment Terms:	CHARGE	Id No:	L5163
P/O Number:		Cust Unit:	35603
Ship Via:			
Invoice Type:	101010	Meter:	17179.0

Invoice Summary

Parts:	41,125.33
Labor:	35,882.80
Misc:	5,551.86-
Taxes:	2,649.90
Invoice Total:	74,106.17

Amount Due: $74,106.17

Credit card payments are only accepted at Point of Sale.
A service charge of 1 1/2 % per month will be assessed on all past due accounts.

To ensure proper credit, please detach this portion, at the perforation, and return with remittance.

[redacted]

Account Number: [redacted]
Invoice Number:
Invoice Date: 2/28/20

PROFORMA INVOICE

Please remit to:
ZIEGLER INC.
SDS 12-0436
PO BOX 86
MINNEAPOLIS,MN 55486-0436

Amount Due: $74,106.17

Amount Enclosed:

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* * * PROFORMA INVOICE * * *

MISCELLANEOUS

****

10 YEAR/10,000 HOUR WARRANTY EFFECTIVE: 02/10/2020
CUSTOMER MUST PERFORM SCHEDULED MAINTENANCE
(INCLUDING 500 HR VALVE ADJUSTMENT) AND SCHEDULED
OIL SAMPLING. SOS MUST BE TAKEN 1 HOUR AFTER
INSTALLATION AND EVERY 250 HOURS THEREAFTER IN
ORDER TO VALIDATE WARRANTY. FAILURE TO DO SO MAY
VOID WARRANTY.

****

SEGMENT ++ TOTAL .00 T

REMOVE & INSTALL HOOD
CUSTOMER COMPLAINT:
REMOVE AND INSTALL ENGINE HOOD.
AT THE BEMIDJI SHOP OUTSIDE OF THE CITY LIMITS IN
BELTRAMI COUNTY, MN.
CAUSE OF FAILURE:
THE HOOD NEEDED TO BE REMOVED TO REMOVE THE ENGINE
BECAUSE OF THE LIMITED SPACE IN THE SHOP.
RESULTANT DAMAGE:
THE HOOD NEEDED TO BE REMOVED TO REMOVED THE
ENGINE BECAUSE OF THE LIMITS SPACE IN THE SHOP.
REPAIR PROCESS COMMENTS:
REMOVED THE WIRING HARNESS FROM THE WORK LIGHT.
REMOVED THE MOUNTING BOLTS. USED THE SERVICE
TRUCK TO PICK UP THE HOOD. DROVE THE MACHINE OUT
FROM UNDER THE HOOD AND THEN SET DOWN ON THE
GROUND. INSTALLED IN REVERSE ORDER.

2	125-7037	INSERT	N	4.16	8.32
2	339-8810	INSERT	N	.71	1.42

TOTAL PARTS SEG. 01 9.74 *

TOTAL LABOR SEG. 01 1246.25 *

1.00- LABOR 1246.25-

TOTAL MISC CHGS SEG. 01 1246.25-*

SEGMENT 01 TOTAL 9.74 T

REMOVE & INSTALL ENGINE
CUSTOMER COMPLAINT:
REMOVE AND INSTALL THE ENGINE.
CAUSE OF FAILURE:
THE CUSTOMER WANTED THE ENGINE RECONDITIONED.
RESULTANT DAMAGE:
CUSTOMER WANTED THE ENGINE RECONDITIONED.
REPAIR PROCESS COMMENTS:
DRAINED THE ENGINE COOLANT. DRAINED THE
TRANSMISSION OIL. DRAINED THE ENGINE OIL. DRAINED
THE HYDRAULIC OIL. MARKED LINES AND HOSES GOING
TO THE CEM. REMOVED CEM. MARKED AND REMOVED FUEL
LINES. REMOVED THE WATER SEPARATOR HOUSING.
MARKED AND REMOVED LINES GOING TO THE COOLING
FAN. MARKED AND REMOVE COOLING LINES GOING TO THE
TO ENGINE AND COOLING PACKAGE. REMOVED THE ENGINE
SHIELD. REMOVED THE LINES AND GROUND STRAPS
ATTACHED THE TO THE CEM MOUNTING BRACKETS AND
THEN REMOVED THE BRACKETS. REMOVED THE WIRES AND

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* * * PROFORMA INVOICE * * *

PLUG-INS GOING TO THE STARTER AND ENGINE. REMOVED THE STEEL LINES FROM THE SIDE OF THE ENGINE FOR THE COOLING FAN. REMOVED THE LINES GOING TO THE STEERING PUMP. REMOVED THE STEERING PUMP. MARKED AND REMOVED THE LINES GOING TO THE TORQUE CONVERTER. RECOVERED THE A/C REFRIGERANT. REMOVED THE A/C LINES GOING TO THE COMPRESSOR. USED A COME ALONG TO HOLD THE TRANSMISSION UP. REMOVED THE TRANSMISSION TO FLYWHEEL HOUSING BOLTS. INSTALLED OVERHEAD CRANE. REMOVED THE FRONT MOUNTING BOLTS. LIFTED THE ENGINE UP AND REMOVED THE ENGINE FROM THE MACHINE. CLEANED THE AIR INTAKE TUBES AND OTHER PARTS THAT WERE REMOVED. INSTALLED IN REVERSE ORDER. REPLACE SEALS AND RUBBER BOOTS AS NEEDED. INSTALLED NEW FRONT ENGINE MOUNTS AND TORQUED BOLTS TO 664 LB-FT. TORQUED FLYWHEEL HOUSING BOLTS TO 41 LB-FT. FILLED COOLANT SYSTEM UP AND HYDRAULIC SYSTEM. FILLED THE TRANSMISSION WITH NEW OIL. OPERATED THE MACHINE AND THE ENGINE WORKED AS IT SHOULD.

1	2S-3440	CLAMP	S
100	3S-2093	TIE	S
2	4J-0520	SEAL-O-RING	S
3	4J-0524	SEAL-O-RING	S
4	5D-1026	CLAMP	S
21	5P-1291	CM-HOSE STK	S
13	5P-1295	CM-HOSE STK	S
1	5P-5630	M-TUBE STK	N
2	5P-9299	CLIP	S
2	5R-0939	CLIP	N
2	5R-0940	CLIP	N
2	6J-2680	SEAL O RING	S
1	6V-8397	SEAL	S
1	6V-9746	SEAL-O-RING-	S
2	6Y-9960	MOUNT AS	N
43	7K-1181	STRAP CABLE	S
2	7S-8920	CLIP	N
2	7S-8921	CLIP	N
1	7X-7958	CLAMP	N
1	8C-3089	SEAL-O-RING	S
32	8T-4121	WASHER-HARD	S
2	8T-4167	WASHER	S
4	8T-4183	BOLT	S
24	8T-4195	BOLT	S
12	8T-4196	BOLT	S
4	8T-4223	WASHER	S
2	8T-4649	BOLT	N
2	8T-6703	CLAMP	S
1	9H-0846	SEAL O RING	S
2	9W-7385	SLEEVE	N
2	9X-8257	WASHER	S
2	124-6265	CLAMP-HOSE	N
2	144-0367	CLAMP	N
1	175-7904	SEAL-O-RING	S
2	178-3336	NUT-HEX FLAN	S
5	209-4573	CLAMP-T'BOLT	S
7	212-6932	CLAMP-T'BOLT	S
2	228-7091	SEAL-O-RING	S
2	228-7092	SEAL-O-RING	N
2	235-2476	SEAL-O-RING	N
5	238-8648	COOLANT-ELC	S
1	284-0671	CLAMP-V-BAND	S
2	296-5807	CLAMP T BOLT	N
1	324-8127	HOSE	N

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* * * PROFORMA INVOICE * * *

3	325-9616	HOSE-HUMP	N	
1	325-9627	HOSE	N	
2	327-0282	SEAL-INTEGRA	S	
1	327-0283	SEAL-INTEGRA	S	
1	331-8111	ELEMENT SEC	S	
2	332-4022	HOSE	N	
1	337-9891	HOSE	N	
1	342-9511	CLAMP-BAND	N	
1	346-0334	CLAMP-BAND	S	
3	346-4792	CLAMP-BAND	N	
130	349-6239	CM BULK HOSE	N	
152	351-9047	CM HOSE BULK	N	
420	351-9048	CM HOSE BULK	N	
1	364-9799	HOSE	N	
1	371-1431	HOSE-MOLDED	N	
1	374-9679	ELBOW	N	
1	374-9680	HOSE	N	
1	396-2122	ELEMENT PRI	S	
1	444-7551	HOSE-MOLDED	N	
1	456-2587	HOSE	S	
1	524-3126	HOSE	N	
2	4627710	CAT HYDO ADV 10W	S	

F/R ALL 10741.95 *

SEGMENT 02 TOTAL 10741.95 T

REPLACE TRANSFER GEAR
PLUG(S)
CUSTOMER COMPLAINT:
WHEN TRYING TO DRAIN THE TRANSMISSION OIL WE FOUND THAT THE DRAIN PLUG HAD BEEN STRIPPED.
CAUSE OF FAILURE:
THE DRAIN PLUG WAS EITHER CROSS THREADED OR OVER TIGHTENED.
RESULTANT DAMAGE:
THE DRAIN PLUG AND BODY ASSEMBLY NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
TRIED USING A HAMMER AND CHISEL TO GET THE PLUG TO START COMING LOSE BUT IT WOULD NOT. LOOSENED THE DRAIN PLUG BODY BOLTS AND LET THE OIL DRAIN. AFTER THE OIL WAS DRAINED REMOVED THE REST OF THE WAY AND INSPECTED AND FOUND THAT THE PLUG AND BODY WAS TO STRIPPED OUT TO BE REUSED. ORDERED AND INSTALL NEW BODY AND PLUG ALONG WITH NEW SEALS.

1	5M-2057	SEAL	S	1.64	1.64
1	8J-8782	BODY	N	52.75	52.75
1	8T-3298	SEAL	N	3.16	3.16
1	9J-7031	PLUG	S	12.95	
		DISCOUNT 15.00%		1.94-	11.01

TOTAL PARTS SEG. 03 68.56 *

TOTAL LABOR SEG. 03 251.50 *

SEGMENT 03 TOTAL 320.06 T

WASH MACHINE
CUSTOMER COMPLAINT:
WASH THE ENGINE COMPARTMENT.

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* * * PROFORMA INVOICE * * *

CAUSE OF FAILURE:
THE MACHINE WAS DIRTY AND NEEDED TO BE WASH.
RESULTANT DAMAGE:
THE MACHINE NEEDED TO BE WASHED.
REPAIR PROCESS COMMENTS:
WASHED THE ENGINE COMPARTMENT AND LOWER AXLE AND
THEN CLEANED THE WASH BAY FROM THE MESS THAT WAS
MADE.

1	5P-7468	CLIP	N	8.11	
			DISCOUNT 15.00%	1.22-	6.89
1	5P-7469	CLIP	N	6.82	
			DISCOUNT 15.00%	1.02-	5.80
1	8T-4139	BOLT	S	.98	
			DISCOUNT 20.00%	.20-	.78
1	8T-4223	WASHER	S	.74	
			DISCOUNT 20.00%	.15-	.59

TOTAL PARTS SEG. 04 14.06 *

TOTAL LABOR SEG. 04 749.50 *

SEGMENT 04 TOTAL 763.56 T

CLEAN PRECLEANER
CUSTOMER COMPLAINT:
CLEAN AIR INTAKE PRE CLEANER.
CAUSE OF FAILURE:
THE AIR INTAKE PRE CLEAR WAS DIRTY.
RESULTANT DAMAGE:
THE AIR INTAKE PRE CLEANER NEEDED TO BE CLEANED
REPAIR PROCESS COMMENTS:
WHEN CEM WAS REMOVED AND THE AIR FILTERS REMOVED,
USED COMPRESSED AIR TO BLOW OUT THE AIR FILTER
HOUSING AND PRE CLEANER.

TOTAL LABOR SEG. 05 190.50 *

SEGMENT 05 TOTAL 190.50 T

CLEAN BATTERY BOX/SUPPORT
CUSTOMER COMPLAINT:
BOTH THE RIGHT AND LEFT BATTERY BOXES WERE FULL OF
DIRT.
CAUSE OF FAILURE:
THE BATTERY BOXES HAD NOT BEEN CLEANED OUT IN A
WHILE.
RESULTANT DAMAGE:
THE BATTERY BOXES NEEDED TO BE CLEANED OUT TO
PREVENT DAMAGE TO THE BATTERY'S AND CABLES.
REPAIR PROCESS COMMENTS:
USED SCRAPER AND BUCKET TO SCRAPE OUT AS MUCH OF
THE DIRTY AS POSSIBLE. THEN USED THE PRESSURE
WASHER TO STEAM CLEAN THE BATTERIES. WHEN TRYING
REMOVED THE BATTERY HOLD DOWNS, WE FOUND THAT
MOST OF THE STUDS WERE RUSTED AND DAMAGED AND HAD
TO BE REPLACED ALONG WITH A COUPLE OF CABLES.
THIS WAS DONE ON SEGMENT 17.

F/R LBR 635.00 *

SEGMENT 06 TOTAL 635.00 T

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REPAIR LIGHT(S)
CUSTOMER COMPLAINT:
REPAIR THE WORK LIGHTS THAT ARE NOT WORKING.
CAUSE OF FAILURE:
THE BULBS WERE BURNT OUT AND LIGHTS.
RESULTANT DAMAGE:
THE BULB THAT WERE BURNT OUT OR MISSING.
REPAIR PROCESS COMMENTS:
REPLACED THE BURNT OUT BULBS. REPLACED THE MISSING
LIGHT FIXTURES.

2	9X-3465	BULB 24V	S	8.14	16.28
1-	9X-3465	BULB 24V	S	8.14	8.14-
1	219-6487	LAMP GP-FLOO	N	44.09	44.09
2	290-8160	BULB-HID	N	139.88	279.76
4	351-9918	LAMP-HALOGEN	S	7.90	31.60
3-	351-9918	LAMP-HALOGEN	S	7.90	23.70-

TOTAL PARTS SEG. 08 339.89 *

TOTAL LABOR SEG. 08 185.50 *

SEGMENT 08 TOTAL 525.39 T

REPAIR WINDOW WASHER
CUSTOMER COMPLAINT:
REPLACE DAMAGED WASHER NOZZLE.
CAUSE OF FAILURE:
DOES NOT SPRAY PROPERLY
RESULTANT DAMAGE:
THE NOZZLE NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
THE WASHER NOZZLE DID NOT SPRAY PROPERLY. REMOVED
AND REPLACED WITH THE NEW ONE.

1	228-6428	NOZZLE AS-WA	N	14.62	14.62

TOTAL PARTS SEG. 09 14.62 *

TOTAL LABOR SEG. 09 153.75 *

SEGMENT 09 TOTAL 168.37 T

REPAIR PUMP DRIVE
CUSTOMER COMPLAINT:
THE LINES ON TOP OF THE PUMP DRIVE IS LEAKING
OIL.
CAUSE OF FAILURE:
THE LINES WAS WORN AND LEAKING.
RESULTANT DAMAGE:
THE LINE NEEDED TO BE REMOVED.
REPAIR PROCESS COMMENTS:
REMOVED THE LINES FROM THE PUMP DRIVE AND RESEALED
THE FITTING. GAINING ACCESS TO THE OTHER SIDE OF
THE PUMP DRIVE ON TOP OF THE PUMP WAS DIFFICULT
BECAUSE THE CAT WALK ON THE RIGHT SIDE OF THE
MACHINE COULD NOT BE REMOVED. AFTER REMOVING THE
LINES AND REPLACED THE FITTING AND RESEALED IT.
INSTALLED THE NEW FITTING. INSTALLED THE HOSE AND
TIGHTENED THE FITTINGS.

3	3J-1907	SEAL	S	.99	2.97
2	6V-8397	SEAL	S	1.01	2.02
1	6V-8636	CONNECTOR	S	4.85	

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			* * * PROFORMA INVOICE * * *		
			DISCOUNT 15.00%	.73-	4.12
1	351-5749		HOSE AS N	43.58	
			DISCOUNT 15.00%	6.54-	37.04
			TOTAL PARTS SEG. 10		46.15 *
			TOTAL LABOR SEG. 10		666.75 *
			SEGMENT 10 TOTAL		712.90 T
			PERFORM MAINTENANCE ON MACHINE		
			CUSTOMER COMPLAINT:		
			REPLACE FILTERS AS NEEDED.		
			CAUSE OF FAILURE:		
			FILTERS NEEDED TO BE REPLACED.		
			RESULTANT DAMAGE:		
			REPLACE FILTERS AS NEEDED.		
			REPAIR PROCESS COMMENTS:		
			REPLACE HYDRAULIC FAN FILTER AND		
			TRANSMISSION/TORQUE CONVERTER FILTER.		
1	8L-2786	O	RING S	4.57	4.57
1	290-2287		FILTER AIR S	51.79	
			DISCOUNT 50.00%	25.90-	25.89
1	290-2288		FILTER - AIR S	40.60	
			DISCOUNT 50.00%	20.30-	20.30
1	337-5270		ELEMENT AS-X S	69.14	
			DISCOUNT 50.00%	34.23-	34.91
1	371-5170		ELEMENT AS N	73.59	
			DISCOUNT 50.00%	36.80-	36.79
			TOTAL PARTS SEG. 11		122.46 *
			TOTAL LABOR SEG. 11		251.50 *
			SEGMENT 11 TOTAL		373.96 T
			REPLACE MIRROR		
			CUSTOMER COMPLAINT:		
			THE RIGHT SIDE MIRROR IS BROKEN.		
			CAUSE OF FAILURE:		
			THE MIRROR IS DAMAGED.		
			RESULTANT DAMAGE:		
			THE MIRROR NEEDED TO BE REPLACED.		
			REPAIR PROCESS COMMENTS:		
			REMOVED THE OLD DAMAGED MIRROR AND REPLACE WITH A		
			NEW ONE.		
1	361-7616		MIRROR AS. N	115.55	115.55
			TOTAL PARTS SEG. 12		115.55 *
			TOTAL LABOR SEG. 12		124.50 *
			SEGMENT 12 TOTAL		240.05 T
			RESEAL TRANS OIL FILTER BASE		
			CUSTOMER COMPLAINT:		
			THE TRANSMISSION FILTER HOUSING IS LEAKING OIL.		
			CAUSE OF FAILURE:		
			THE HOUSING NEEDED TO BE RESEALED.		
			RESULTANT DAMAGE:		
			THE HOUSING NEEDED TO BE RESEALED.		

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REPAIR PROCESS COMMENTS:
TO GAIN ACCESS THE BE ABLE TO REMOVE THE LINES GOING TO THE HOUSING THE HYDRAULIC FILTER NEEDED TO BE REMOVED. REMOVED THE HOUSING FROM THE MACHINE. REMOVED THE FITTING AND PLUGS. CLEANED THE HOUSING UP AND REPLACED THE SEALS AND INSTALLED THE FITTINGS AND PLUGS. INSTALLED A NEW FILTER. FOUND THAT THE LINES GOING TO AND FROM WERE DAMAGED AND HAD WIRES SHOWING. REPLACED ON SEGMENT 16. INSTALLED THE FILTER HOUSING.

1	3J-1907	SEAL	S		.98	.98
2	5P-7701	SEAL	N		7.12	14.24
2	206-9295	SEAL O RING	N		4.71	9.42
1	214-7568	SEAL-O RING	S		3.88	3.88
		TOTAL PARTS	SEG. 13			28.52 *
		TOTAL LABOR	SEG. 13			683.50 *
		SEGMENT 13 TOTAL				712.02 T

REPLACE HYDRAULIC FAN MOTOR LINES GROUP
CUSTOMER COMPLAINT:
THE SUPPLY LINE FOR THE HYDRAULIC FAN MOTOR IS LEAKING OIL AND HAS RUBBED THROUGH.
CAUSE OF FAILURE:
THE HOSE HAD RUBBED THROUGH AND WAS LEAKING.
RESULTANT DAMAGE:
THE HOSE NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
REMOVED THE OLD HOSE AND INSTALLED THE NEW ONE WITH NEW SEALS.

2	2S-4078	SEAL	S		1.97	3.94
4	3D-2824	SEAL O RING	S		1.53	6.12
1	5D-0718	CLIP	N		7.80	
		DISCOUNT		20.00%	1.56-	6.24
1	366-6955	HOSE AS	N		171.97	
		DISCOUNT		15.00%	25.80-	146.17
		TOTAL PARTS	SEG. 14			162.47 *
		TOTAL LABOR	SEG. 14			185.50 *
		SEGMENT 14 TOTAL				347.97 T

REPLACE PILOT SYSTEM HYD FILTER INDICATOR
CUSTOMER COMPLAINT:
WHEN REMOVING THE FILTER HOUSING WE FOUND THAT THE INDICTOR WIRES WERE DAMAGED.
CAUSE OF FAILURE:
AGE AND BEING BURIED IN DIRT.
RESULTANT DAMAGE:
THE SENSOR NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
REMOVED THE SENSOR AND INSTALLED THE NEW ONE. THE HARNESS ON THE MACHINE WAS DAMAGED AND NEEDED TO BE REPINED. REMOVED THE DAMAGED PINS AND INSTALLED NEW ONES ALONG WITH A NEW CONNECTOR.

4	126-1768	SOCKET	S	1.87	7.48
2	155-2270	PLUG KIT	S	4.09	8.18

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			* * * PROFORMA INVOICE * * *		
1	490-0662		INDICATOR-PR	N 153.53	153.53
			TOTAL PARTS SEG. 15		169.19 *
			TOTAL LABOR SEG. 15		185.50 *
			SEGMENT 15 TOTAL		354.69 T
			REPLACE DRIVETRAIN OIL LINES		
			CUSTOMER COMPLAINT:		
			REPLACE DRIVE LINES GOING TO THE FILTER HOUSING.		
			CAUSE OF FAILURE:		
			THE HOSES WERE RUBBED DOWN THE WIRES.		
			RESULTANT DAMAGE:		
			THE HOSES NEEDED TO BE REPLACED.		
			REPAIR PROCESS COMMENTS:		
			REMOVED THE OLD DAMAGED LINES AND INSTALLED THE NEW ONES.		
2	366-7076		HOSE AS.	N 210.08	
			DISCOUNT 15.00%	31.26-	357.64
2	366-7077		HOSE AS.	N 215.46	
			DISCOUNT 15.00%	32.07-	366.78
			TOTAL PARTS SEG. 16		724.42 *
			TOTAL LABOR SEG. 16		254.00 *
			SEGMENT 16 TOTAL		978.42 T
			REPLACE BATTERY BOX/SUPPORT HOLDER		
			CUSTOMER COMPLAINT:		
			WHEN CLEANING OUT THE BATTERY BOX WE FOUND ALL OF THE HOLD DOWN BOLTS WERE RUSTED AND THE NUTS WOULD NOT COME LOSE.		
			CAUSE OF FAILURE:		
			THE BATTERIES WERE COVERED IN DIRT.		
			RESULTANT DAMAGE:		
			THE MOUNTING BOLTS AND DAMAGED CABLES NEED TO BE REPLACED.		
			REPAIR PROCESS COMMENTS:		
			REMOVED THE DAMAGED HOLD DOWN BOLTS AND REPLACED WITH NEW ONES. TWO OF THEM BROKE OFF AND HAD TO REMOVED WITH A DRILL AND AN EXTRACTOR TOOL.		
			REPLACED THE DAMAGED BATTERY CABLES.		
2	1M-6119		BOLT	N 3.07	
			DISCOUNT 20.00%	.61-	4.92
2	1M-6120		NUT	N .25	
			DISCOUNT 20.00%	.05-	.40
4	7X-7729		WASHER	S .78	
			DISCOUNT 20.00%	.16-	2.48
4	8T-0389		NUT	S 1.38	
			DISCOUNT 20.00%	.28-	4.40
4	8T-4133		NUT	S .34	
			DISCOUNT 20.00%	.07-	1.08
4	9R-6414		ROD	N 9.63	38.52
1	355-6695		CABLE AS	N 267.26	267.26
1	416-0628		CABLE AS	N 360.04	360.04
			TOTAL PARTS SEG. 17		679.10 *
			TOTAL LABOR SEG. 17		508.00 *

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Invoice Number: GB04445 **Date:** 2/28/20 **Account No.:** 6668900

Quantity	Item	N/R	Description	Unit Price	Extended

* * * PROFORMA INVOICE * * *

SEGMENT 17 TOTAL 1187.10 T

REPLACE BRAKE/AXLE OIL COOLER
LINES GROUP
CUSTOMER COMPLAINT:
THE AXLE COOLER LINES GOING FROM THE COOLER TO THE PUMP WERE DAMAGED AND HAD WIRES SHOWING.
CAUSE OF FAILURE:
THE HOSES WERE RUBBING.
RESULTANT DAMAGE:
THE HOSES NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
REMOVED THE OLD DAMAGED HOSES AND REPLACE WITH NEW ONES. RESEALED THE FITTING AND LINES GOING TO THE COOLER.

14	6V-9746	SEAL-O-RING-	S		1.16	16.24
6	7M-8485	SEAL	S		1.71	10.26
1	348-5251	HOSE AS.	N		66.31	
			DISCOUNT	15.00%	9.95-	56.36
1	351-8123	HOSE AS.	N		162.98	
			DISCOUNT	15.00%	24.45-	138.53
1	366-6968	HOSE AS.	N		99.25	
			DISCOUNT	15.00%	14.89-	84.36
2	366-6970	HOSE AS	N		100.43	
			DISCOUNT	15.00%	15.06-	170.74

TOTAL PARTS SEG. 18 476.49 *

TOTAL LABOR SEG. 18 571.50 *

SEGMENT 18 TOTAL 1047.99 T

PERFORM MAINTENANCE ON TRANSMISSION
CUSTOMER COMPLAINT:
PERFORM MAINTENANCE ON THE TRANSMISSION.
CAUSE OF FAILURE:
THE TRANSMISSION OIL NEEDED TO BE DRAINED TO REMOVED THE ENGINE.
RESULTANT DAMAGE:
DRAIN TRANSMISSION OIL AND REPLACE WITH NEW.
REPAIR PROCESS COMMENTS:
DRAINED THE TRANSMISSION TO REMOVED THE ENGINE. NEW FILTER WAS INSTALLED. FILLED TRANSMISSION WITH TDTO30 TILL IT WAS IN THE SAFE OPERATION RANGE. OPERATED THE MACHINE UP TO OPERATION TEMPERATURE AND ADJUST THE LEVEL TO BRING IT INTO THE SAFE OPERATION RANGE.

4	4627708	CAT TDTO 30	S		47.55	190.20
2	8T9572	CAT TDTO 30	S		93.65	187.30

TOTAL PARTS SEG. 19 377.50 *

TOTAL LABOR SEG. 19 127.00 *

SEGMENT 19 TOTAL 504.50 T

RECONDITION ENGINE
MAJOR
DISASSEMBLED ENGINE, CLEANED AND INSPECTED ALL PARTS IN ACCORDANCE WITH REUSABILITY GUIDELINES.

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Invoice Number: GB04445 **Date:** 2/28/20 **Account No.:** 6668900

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* * * PROFORMA INVOICE * * *

ORDERED EXTRA PARTS TO BE INSTALLED WITH THE REUSABLE AND RECONDITIONED PARTS. ASSEMBLED ENGINE FOLLOWING CATERPILLAR SPECIFICATIONS AND PROCEDURES WITH ALL NEW GASKETS AND SEALS. INSTALLED CRANKSHAFT WITH NEW MAIN BEARINGS; INSTALLED CYLINDER PACKS ALONG WITH BLOCK INSERTS AND NEW ROD BEARINGS. THE ROD AND MAIN BOLTS WERE THEN TORQUED TO CATERPILLAR SPECIFICATIONS. INSTALLED THE FRONT GEAR TRAIN ALONG WITH THE CAMSHAFT AND LIFTERS. THE FRONT AND REAR HOUSINGS WERE INSTALLED ALONG WITH DAMPER AND FLYWHEEL. THE CYLINDER HEAD WAS INSTALLED AS WERE THE PUSH TUBES AND ROCKER SHAFT ASSEMBLIES. THE VALVES WERE ADJUSTED AT ASSEMBLY AS WELL AS FOLLOWING THE DYNO RUN. INSTALLED OIL PUMP, OIL PAN, WATER PUMP, EXHAUST MANIFOLD, INTAKE MANIFOLD AND TURBOCHARGER. INSTALLED THE ENGINE OIL COOLER ASSEMBLY, INSTALLED FUEL PUMP AND NOZZLES. THE ENGINE WAS DYNAMOMETER TESTED TO VERIFY PERFORMANCE AND FACILITATE PROPER BREAK IN. OIL SAMPLE WAS TAKEN AND THE FILTER WAS CUT AND INSPECTED. THE ENGINE WAS ACCESSORIZED, PAINTED, AND SHIPPED WITH ENGINE OIL FILLED TO CAPACITY.
REPAIR PROCESS COMMENTS:
DISASSEMBLED ENGINE, CLEANED AND INSPECTED ALL PARTS. ASSEMBLED ENGINE AS TO CATERPILLAR PROCEDURES WITH ALL NEW GASKETS AND SEALS. INSTALLED CRANKSHAFT (STD/STD) WITH MAIN BEARINGS PN# 211-0587 AND 211-0588. INSTALLED CYLINDER PACKS PN# 20R-0930 ALONG WITH ROD BEARINGS PN# 292-0484. THE ROD AND MAIN BEARINGS WERE THEN TORQUED. INSTALLED THE FRONT GEAR TRAIN ALONG WITH THE CAMSHAFT AND LIFTERS. THE FRONT AND REAR HOUSINGS WERE INSTALLED ALONG WITH DAMPER AND FLYWHEEL. THE CYLINDER HEAD WAS INSTALLED AS WERE THE PUSH TUBES AND ROCKER SHAFT ASSEMBLIES. THE VALVES WERE ADJUSTED 0.015" IN. 0.030" EX. INSTALLED OIL PUMP, OIL PAN, WATER PUMP, EXHAUST MANIFOLD, INTAKE MANIFOLD AND TURBO. INSTALLED THE ENGINE OIL COOLER ASSEMBLY PN# 20R-0996. INSTALLED FUEL PUMP ALONG WITH 6 NOZZLES PN# 20R-1299. THE ENGINE WAS DYNAMOMETER TESTED TO VERIFY PERFORMANCE AND FACILITATE PROPER BREAK IN. THE ENGINE PRODUCED 399 HP @ 2100 RPM. HP SPEC IS 389 HP @ 2100 RPM. THE ENGINE WAS ACCESSORIZED AND PAINTED.

TM

1	1A-2170	SPRING	S
1	1A-5350	CLIP	S
1	1P-3703	SEAL	S
4	1P-4278	CLAMP	S
2	1R-0749	FILTER	S
2	1R-1808	FILTER AS-LU	S
1	1W-5455	CLAMP	S
2	1W-5923	BOOT	S
12	2Y-5829	NUT	S
4	3B-0623	PLUG	S
9	3E-4352	WASHER	S
1	3E-8016	BOLT LOCK	S
1	3J-1907	SEAL	S
2	3J-7354	SEAL O RING	S
21	3S-2093	TIE	S
6	3T-3434	PLUG	S
2	4N-8150	SPRING	S

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* * * PROFORMA INVOICE * * *

Quantity	Item	N/R	Description	Unit Price	Extended
12	4P-4369		SPACER	S	
2	4P-7233		GROMMET	S	
1	4P-7428		CLIP	S	
1-	4P-7428		CLIP	S	
1	4P-7581		CLIP	S	
2	4S-1962		CLIP	S	
3	5D-1026		CLAMP	S	
3	5D-6523		CLIP	S	
1	5K-9660		CLIP	S	
1	5P-0598		CLAMP	S	
21	5P-0767		CM-HOSE STK	N	
1	5P-5756		SEAL O RING	S	
1	5P-5757		O RING	S	
1	5P-6727		BEARING A	S	
1	5P-8939		GROMMET	S	
1	6V-0852		CAP	S	
1	6V-3834		SEAL O RING	S	
1	6V-3965		NIPPLE A	S	
2	6V-5063		SEAL O RING	S	
12	6V-5839		WASHER-HARD	S	
1	6V-7238		VALVE	S	
3	6V-8397		SEAL	S	
1	6V-8636		CONNECTOR	S	
2	6V-9746		SEAL-O-RING-	S	
1	6V-9769		SEAL	S	
1	6V-9830		PLUG AS	S	
2	6V-9831		PLUG AS	S	
1	7C-1821		COUPLING	S	
1	7C-3954		SPRING AS	S	
1	7C-7852		BEARING	S	
1	7E-9898		CONNECTOR	S	
25	7K-1181		STRAP CABLE	S	
1	7N-4247		BOOT	S	
1	7X-4744		SEAL	S	
25	7X-7702		CM-CONDUIT	N	
1	8C-3445		CAP DUST	S	
1	8C-3446		VALVE	S	
1	8H-9789		BEARING	S	
1	8K-5440		CLIP	S	
6	8L-2777		O RING	S	
1	8L-2786		O RING	S	
2	8N-1663		BOOT	S	
2	8S-4951		CAP	S	
1	8S-8820		CLIP	S	
8	8T-0100		BOLT	S	
1	8T-1117		CLAMP-HOSE	S	
1	8T-4121		WASHER-HARD	S	
1	8T-4172		BOLT	S	
4	8T-4224		WASHER	S	
8	8T-9655		MOUNT	S	
1	9M-7958		CLAMP	S	
4	9N-5085		CLAMP	S	
1	9N-6377		BOOT	S	
1	9N-6379		BOOT	S	
2	9S-8004		PLUG	S	
20	9X-2133		CM HOSE STK	N	
12	9X-6620		LOCK NUT	S	
6	9X-7430		SEAL O RING	S	
1	9Y-0810		SLEEVE	S	
1	9Y-0821		SLEEVE	S	
1	9Y-6089		GASKET	S	
1	030-7947		ELBOW	S	
1	10R-2129		PUMP AS WATE	S	
1			CORE CHARGE	S	

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Invoice Number: GB04445 **Date:** 2/28/20 **Account No.:** 6668900

* * * PROFORMA INVOICE * * *

Quantity	Item	N/R	Description	Unit Price	Extended
1-			CORE CREDIT	S	
1	10R-2130		PUMP GP OIL	N	
1			CORE CHARGE	N	
1-			CORE CREDIT	N	
1	101-3129		STUD	S	
2	109-1145		CLAMP HOSE	S	
4	109-1393		BOLT-SOCKET	S	
2	109-2332		SEAL O RING	S	
2	113-5304		SEAL	S	
12	116-3715		STUD	S	
1	121-0173		PLATE INFO	S	
1	130-5300		CLIP	S	
1	131-6645		HOSE	S	
1	132-5789		CLIP	S	
4	132-5789		CLIP	S	
1	133-7084		BEARING-SLEE	S	
1	139-1398		CLIP	S	
24	163-2478		SEAL-VALVE	S	
6	166-2903		SEAL-O-RING-	S	
6	166-2904		SEAL-O-RING-	S	
2	178-1781		CLIP	S	
7	187-8969		BEARING	S	
1	198-2820		SEAL	S	
6	20R-0930		CYL PACK AS	S	
6			CORE CHARGE	S	
6-			CORE CREDIT	S	
1	20R-1015		HEAD G CYL	S	
1			CORE CHARGE	S	
1-			CORE CREDIT	N	
6	20R-1299		INJ GP FUEL	S	
6			CORE CHARGE	S	
6-			CORE CREDIT	S	
1	20R-1527		PUMP GP F	S	
1			CORE CHARGE	S	
1-			CORE CREDIT	S	
1	20R-4505		ARM G INJ RK	S	
1			CORE CHARGE	S	
1-			CORE CREDIT	S	
3	206-1345		STRAP-CABLE	S	
2	206-1346		STRAP-CABLE	S	
1	207-8118		IDLER AS - F	S	
4	211-0587		BEARING - MA	S	
3	211-0588		BEARING - MA	S	
4	211-8071		CAP-CLAMP	S	
1	213-0677		SWITCH AS	S	
11	214-7566		SEAL-O-RING	S	
22	214-7568		SEAL-O RING	S	
2	224-4418		SHAFT AS-RKR	S	
3	228-4947		SEAL-O-RING	S	
10	228-7089		SEAL-O-RING	S	
11	228-7091		SEAL-O-RING	S	
4	228-7092		SEAL-O-RING	S	
1	228-7100		SEAL-O RING	S	
23	238-5080		SEAL-O-RING	S	
11	238-5081		SEAL-O-RING	S	
5	238-5082		SEAL-O-RING	S	
10	238-5084		SEAL-O-RING	S	
1	239-8135		VALVE AS	S	
1	241-0542		STUD-BOLT	S	
3	243-2310		COVER	S	
6	245-6095		NUT-HEX THIN	S	
1	246-2686		ELEMENT AS-J	S	
2	246-3144		PLATE-THRUST	S	
1	248-4841		CLAMP-V-BAND	S	

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* * * PROFORMA INVOICE * * *

Quantity	Item	Description	N/R
2	248-5513	REGULATOR-TE	S
1	251-3268	VALVE GP-SOL	S
1	255-1281	BOLT-FLANGE	S
3	256-6453	SENSOR GP-TE	S
6	258-8721	BUTTON	S
1	263-4920	SLEEVE-INJEC	S
1	277-1873	CLIP-LADDER	S
1	279-9828	SENSOR GP	S
1	279-9829	SENSOR GP-SP	S
1	285-6395	CLIP	S
1	289-3107	GASKET	S
3	290-1993	STRAP-CABLE	S
5	290-5562	MOUNT-DUAL	S
1	290-8568	BREATHER AS	S
6	292-0484	BEARING-ROD	S
1	293-5535	SENSOR GP-PR	S
2	293-9659	FILM-WARN UN	S
1	294-6119	SENSOR GP-PR	S
2	295-8454	FILM-WARN HA	S
4	297-1003	BOLT-HEX SKT	S
4	314-7599	CLAMP-BAND	S
2	317-7012	CLAMP-SPR BA	S
1	320-3060	SENSOR GP	S
1	320-3061	SENSOR GP	S
1	320-3063	SENSOR GP-PR	S
1	324-9290	BELLOWS AS.-	S
1	325-7472	SENSOR GP-PR	S
1	327-0377	VALVE-CHECK	S
1	327-4448	VALVE GP-CHE	S
2	328-7546	HOSE	S
23	330-4374	SLEEVE BK	N
4	332-0013	CLIP-LOOP	S
3	333-1207	IDLER AS	S
1	334-1465	HOSE AS-FUEL	S
1	335-2526	VALVE AS-CHE	S
1	335-4019	FILTER AS	S
2	335-9214	CLAMP-BAND	S
1	336-8692	HOSE AS	N
13	337-4178	CM HOSE BULK	N
1	337-4339	BELT	N
2	337-9075	CLIP-LOOP	S
1	338-1913	ACTUATOR GP-	S
1	339-8822	SENSOR AS-TE	S
1	340-7220	RING-WAVE	S
2	341-1429	SEAL-PIP	S
2	342-2134	CLIP-LOOP	S
1	344-0641	ATOMIZER GP	S
2	345-3350	CLIP-LOOP	S
1	345-7589	HOSE AS.	N
1	349-1209	CLIP-LOOP	S
1	351-1954	HARNESS AS-F	S
1	351-6636	TENSIONER-BE	S
152	351-9047	CM HOSE BULK	N
1	353-0288	BRACKET AS	S
1	353-8696	HOSE AS-FUEL	S
1	354-4257	TUBE AS	N
1	355-3865	HOSE-FILTER	S
1	357-7078	HOSE AS.	N
1	359-4892	RING-RETAINI	S
1	359-4893	RING-RETAINI	S
1	361-0671	LINE AS-HYBR	N
1	362-1505	HARNESS AS	S
1	366-1479	TUBE AS-O GA	N
1	366-7080	HOSE AS.	N

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			* * * PROFORMA INVOICE * * *		
1	368-3052		HOSE AS-FUEL	S	
1	385-1173		SENSOR GP-PR	S	
2	392-9208		PLUNGER-RELI	S	
1	399-3391		TURBO GP-BAS	S	
1	418-2031		HARNESS AS-E	S	
1	419-8867		PLATE-CAT (P	S	
1	421-8565		BRACKET	S	
37	423-1983		IN HOSE-BLK	N	
1	426-3719		HARNESS AS-E	S	
1	449-3068		COOLER GP-EX	S	
1	450-3123		FLANGE	N	
1	450-3124		TUBE-AIR	N	
1	473-2191		KIT GASKET	S	
1	473-2192		KIT GASKET	S	
1	473-2193		KIT GASKET	S	
1	473-2194		KIT GASKET	S	
1	473-2195		KIT GASKET	S	
1	483-7224		RETAINER	N	
1	514-7447		DIFFUSER	N	
1	549-0534		VALVE GP-AIR	S	
1	SOS001		ZIEG000 SOS 1 PACKS		
				F/R ALL	38055.47 *
			SEGMENT 20 TOTAL		38055.47 T

EXTRA PARTS/LABOR/MIS FOR ENGINE
REPAIR PROCESS COMMENTS:
DURING ENGINE RECONDITION THE FOLLOWING PARTS AND/OR COMPONENTS WERE REPLACED AT AN EXTRA COST AND NOT NORMALLY INCLUDED IN THE OVERHAUL PRICING: 1) ALTERNATOR 2) STARTER MOTOR 3) REFRIGERANT COMPRESSOR 4) AXLE OIL COOLER PUMP 5) ENGINE OIL COOLER 6) TRANSMISSION OIL COOLER 7) ONE INJECTOR ROCKER ARM 8) ECM 9) ALL 3 ROCKER SHAFTS 10) OIL SUCTION BELL 11) NRS VALVE AND ACTUATOR 12) THERMOSTAT HOUSING 13) EXHAUST HEAT SHIELD 14) ENGINE WIRING HARNESSES 15) ALL SWITCHES AND SENSORS.

			TM			
4	4S-1962	CLIP	S	6.51	26.04
1	8Y-9603	CABLE A	S	34.89	34.89
1	173-1498	PULLEY AS-ID	S	124.62	124.62
1	20R-0053	ALTERNATOR G	S	684.15	684.15
1		CORE CHARGE	S	684.15	684.15
1-		CORE CREDIT	S	684.15	684.15-
1	20R-0996	CORE A OIL C	S	1463.97	1463.97
1		CORE CHARGE	S	597.96	597.96
1-		CORE CREDIT	N	597.96	597.96-
1	20R-3250	MOTOR G ELEC	S	640.74	640.74
1		CORE CHARGE	S	640.74	640.74
1-		CORE CREDIT	S	640.74	640.74-
1	20R-8186	CONT GP -E	N	1805.56	1805.56
1		CORE CHARGE	N	601.85	601.85
1-		CORE CREDIT	N	601.85	601.85-
1	224-4418	SHAFT AS-RKR	S	221.48	221.48
1	240-7192	RESISTOR AS	S	42.59	42.59
4	318-0820	GROMMET	S	7.81	31.24
1	320-1291	COMPRESSOR G	N	750.31	750.31
1	326-6293	STRAP AS	S	56.93	56.93
1	336-7231	BELL AS	S	110.49	110.49
1	340-7208	VALVE AS	S	924.17	924.17
1	353-5339	CABLE AS	S	224.98	224.98

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1	354-6963		HARNESS AS	N 1045.72	1045.72
1	357-2302		TUBE AS	S 106.57	106.57
1	369-3663		PULLEY-ALT	S 74.21	74.21
1	440-2907		ELBOW	N 171.45	171.45
1	443-8471		HOUSING AS-R	N 322.06	322.06
1	514-6555		SHIELD AS	N 161.87	161.87
			TOTAL PARTS SEG. 21		9024.04 *
			SEGMENT 21 TOTAL		9024.04 T

			INSPECT HYDRAULIC FAN MOTOR		
			CUSTOMER COMPLAINT:		
			REBUILD HYDRAULIC FAN MOTOR		
			CAUSE OF FAILURE:		
			NO FAILURE		
			RESULTANT DAMAGE:		
			NO RESULTANT DAMAGE		
			REPAIR PROCESS COMMENTS:		
			DISASSEMBLED AND INSPECTED FAN MOTOR AND FOUND		
			GENERAL WEAR, BUT AT SWASH PLAY FOUND CAVITATION.		
			COST OF PARTS AND LABOR TO REBUILD EXCEEDED COST		
			OF REMAN MOTOR. ORDERED REMAN MOTOR AND		
			INSTALLED FITTINGS WITH NEW ORINGS AND INCLUDED A		
			NEW MOUNTING ORING. ALSO REPLACED DRIVE GEAR		
			BEARING AND LOCK NUT AND WASHER. PUMP CAME WITH		
			A NEW SHAFT KEY INCLUDED.		
			OLD PUMP: P/N: 339-7808		
			S/N: 42605876		
			NEW PUMP: 339-7808		
			S/N: 44307495		
			A REMAN, 20R-8882 WAS ORDERED AND APPEARS ON		
			DOCUMENT 44S063258A, BUT THE NEW PUMP, 339-7808		
			WAS SENT AS A REPLACEMENT.		
			CORE TAG: CR231508		
1	2K-0337	TM	NUT	S 3.18	
			DISCOUNT 20.00%	.64-	2.54
1	3D-0053		BEARING	S 31.09	31.09
1	6V-1197		SEAL	S 19.41	19.41
1	6V-6353		SEAL O RING	S 19.60	19.60
1	8T-4994		WASHER	S 1.19	
			DISCOUNT 20.00%	.24-	.95
1	20R-8882		PUMP GP-BSC	N 1494.87	1494.87
1			CORE CHARGE	N 804.92	804.92
1-			CORE CREDIT	N 804.92	804.92-
			TOTAL PARTS SEG. 22		1568.46 *
			TOTAL LABOR SEG. 22		572.00 *
			SEGMENT 22 TOTAL		2140.46 T

			REPLACE TC/TRANS OIL COOLER		
			REPLACED TRANSMISSION OIL COOLER AS PER REPAIR		
			ESTIMATE WITH A CATERPILLAR REMAN 20R-0990.		
1	20R-0990		CORE A OIL C	S 1749.63	1749.63
1			CORE CHARGE	S 714.64	714.64
1-			CORE CREDIT	S 714.64	714.64-
			TOTAL PARTS SEG. 23		1749.63 *
			SEGMENT 23 TOTAL		1749.63 T

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IOWA	515-957-3800	800-342-7002
MISSOURI	515-957-3800	800-342-7002
WISCONSIN	515-957-3800	800-342-7002

Invoice Number: GB04445 **Date:** 2/28/20 **Account No.:** 6668900

Quantity	Item	N/R	Description	Unit Price	Extended

* * * PROFORMA INVOICE * * *

REPAIR GEAR PUMP
CAUSE OF FAILURE:
ENGINE MOF. AXLE OIL COOLER PUMP
REPAIR PROCESS COMMENTS:
- ORDERED NEW AXLE OIL COOLER PUMP AND CLUTCH ASSEMBLY
- CLEANED AND INSTALLED FITTINGS
- CHECKED FOR CORRECT ROTATION AND OPERATION
- BAGGED AND DELIVERED TO ASSEMBLY BAY TO AWAIT INSTALLATION

			TM			
2	2M-9780	SEAL O RING	S	1.22		2.44
2	5K-9090	SEAL O RING	S	1.26		2.52
1	6V-3960	BOLT	S	.25		
		DISCOUNT 20.00%		.05-		.20
2	6V-9746	SEAL-O-RING-	S	1.15		2.30
2	7M-8485	SEAL	S	1.69		3.38
1	8T-4205	WASHER	S	.28		
		DISCOUNT 20.00%		.06-		.22
1	273-1807	PUMP GP-GR A	N	1112.88		1112.88
1	297-1860	CLUTCH GP	S	834.10		834.10

TOTAL PARTS SEG. 24 1958.04 *

TOTAL LABOR SEG. 24 143.00 *

SEGMENT 24 TOTAL 2101.04 T

RESEAL BRAKE/AXLE OIL COOLER
CUSTOMER COMPLAINT:
REPLACE THE SEAL ON THE LEFT REAR AXLE FITTING FOR THE COOLER.
CAUSE OF FAILURE:
THE SEAL WAS LEAKING OIL.
RESULTANT DAMAGE:
THE SEAL NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
THE AXLE COOLER LINES WAS LEAKING OIL FROM THE FITTING. CLEANED THE FITTING UP AND REPLACED THE SEAL. OPERATED THE MACHINE AND IT WAS NOW LONGER LEAKING.

1	6V-8398	SEAL O RING	S	1.04		1.04

TOTAL PARTS SEG. 25 1.04 *

TOTAL LABOR SEG. 25 127.00 *

SEGMENT 25 TOTAL 128.04 T

TROUBLESHOOT WIRING HARNESS AFTERTREATMENT
CUSTOMER COMPLAINT:
THE MACHINE HAD AN ACTIVE FAULT DPF #1 INTAKE TEMPERATURE SENSOR : VOLTAGE BELOW NORMAL .
CAUSE OF FAILURE:
THE ENGINE WIRING HARNESS WAS DAMAGED AND THE WIRE WAS JUMPED.
RESULTANT DAMAGE:
THE WIRE HAD TO BE PLUGGED BACK INTO ITS SOCKET.
REPAIR PROCESS COMMENTS:
WHEN STARTING THE MACHINE UP AFTER INSTALLING THE

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Quantity	Item	N/R	Description	Unit Price	Extended

* * * PROFORMA INVOICE * * *

ENGINE IT HAD AN ACTIVE CODE DPF #1 INTAKE
TEMPERATURE SENSOR : VOLTAGE BELOW NORMAL.
INSPECTED THE HARNESS AND FOUND THAT THE SINGLE
RETURN WIRE HAD BEEN PULLED OUT OF THE CEM TO
ENGINE HARNESS CONNECTOR. OHMED THE WIRE AND IT
WAS GOOD. INSTALLED THE WIRE BACK INTO THE
CONNECTOR AND THE CODE WENT AWAY.

TOTAL LABOR SEG. 26 190.50 *

SEGMENT 26 TOTAL 190.50 T

TROUBLESHOOT FAULT CODE
CUSTOMER COMPLAINT:
THE MACHINE HAS AN ACTIVE FAULT 1250-9 REMOTE
COMMUNICATION MODULE AND CAUSING THE WARNING
LIGHT TO COME ON.
CAUSE OF FAILURE:
THE PRODUCT LINK 522 HAD FAILED AND WAS NOT
REPORTING THE LOCATION.
RESULTANT DAMAGE:
THE 522 HAD TO BE REPLACED AND THE SYSTEM
UPDATED.
REPAIR PROCESS COMMENTS:
WHEN TEST DRIVING THE MACHINE THE CODE 1250-9
REMOTE COMMUNICATION MODULE BECAME ACTIVE AND WAS
CAUSING THE WARRING LIGHT TO COME ON. TECHNICAL
SUPPORT TRIED TO FLASH THE SYSTEM OVER THE AIR TO
UPDATE THE SOFTWARE AND WAS NOT ABLE TO. THEY
THEN WANTED US TO UPDATE THE SOFTWARE AND NOT
ABLE TO GET THE MODULE TO TAKE THE SOFTWARE.
THEY HAD ME CALL THE CAT PRODUCT LINK SUPPORT AND
THEY WENT OVER THE SYSTEM AND COULD SEE THE TIME
DATE BUT COULD NOT SEE THE LOCATION AND IT WAS
SHOWING DIFFERENT LOCATIONS. CALLED TECHNICAL
SUPPORT AND THEY PUT A DSN IN AND THEY CAME BACK
WITH UENR3698 AND IN THERE IT STATES THAT " THIS
IS A 1250-9 CODE WHICH MEANS THERE IS A LACK OF
COMMUNICATION BETWEEN THE PL MODULE AND THE
REMOTE COMMUNICATIONS COMPONENTS. A -9 COULD MEAN
POOR ECM CONNECTORS ON THE DATA LINK, FAILED DATA
LINK HARNESS, FAILED ECM ON THE DATA LINK OR
FAILED COMPONENT ON THE DATA LINK. BUT YOU MAY
WANT TO CHECK TO SEE IF EVERYTHING IS PLUGGED IN
CORRECTLY.
INSPECTED THE WIRING HARNESS AND DID NOT FIND ANY
VISUAL DAMAGE TO IT AND EVERYTHING WAS PLUGGED IN
CORRECTLY. CALLED THE PRODUCT LINK SUPPORT AND
THEY RECOMMEND REPLACING THE 522 WITH THE PLE601.
INFORMED THE ZIEGLER SUPPORT TEAM AND THEY
AGREED. ORDERED THE 467-4163 INSTALL GROUP FIELD
KIT. REMOVED THE 522 AND REMOVED THE HARNESS AND
INSTALLED NEW ONE ON SEGMENT 32. AFTER FALLOWING
THE INSTALL DIRECTION IN THE REHS8850 FOR THE
LEGACY EDITION WAS NOT ABLE TO COMMUNICATE WITH
THE ECM ON EITHER THE ETHERNET CABLE OR CAT ET.
CHECKED THE WIRING ACCORDING THE DIRECTIONS AND
IT MATCHED. STILL WAS NOT ABLE TO COMMUNICATE
WITH THE ECM. TECHNICAL SUPPORT UPDATED THE DSN
THE CAME BACK WITH SPECIAL INSTRUCTIONS UENR6000
AND REHS8850. TALKED WITH THE TC AND WE WENT OVER
THE INSTRUCTIONS IN BOTH OF THE MACHINES AND WAS
NOT ABLE TO FIND A WIRING SCHEMATIC THAT MATCH UP

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Quantity	Item	N/R	Description	Unit Price	Extended

* * * PROFORMA INVOICE * * *

WITH THE MACHINE THAT WE WERE WORKING ON. HE SAID
HE WOULD DO SOME CALLING AND UPDATE THE TICKET.
THE TC WAS ABLE TO REACH A CAT TELEMATICS SERVICE
ENGINEER AND THEY WERE ABLE TO GIVE USE A WIRING
SCHEMATIC. WIRED THE PRODUCT LINK HARNESS ADAPTER
TO THE WAY THEY HAD INSTRUCTED AND STILL WAS NOT
ABLE TO COMMUNICATE WITH THE ECM. STARTED PULLING
AND PUSHING ON ALL THE WIRES IN THE PRODUCT LINK
HARNESS AND WAS ABLE TO FINALLY GET CONNECTED TO
THE ECM WITH THE EITHER NET CABLE. FLASHED THE
RECOMMENDED SOFTWARE INTO THE MACHINE. MOVED THE
MACHINE OUTSIDE AND HAD THE TC CONFIRMED THAT
THEY COULD SEE IN ON PRODUCT LINK ALONG WITH CAT
AND THEY WERE ABLE TOO.
DSN CRM-1287264-Z2W9
TICKET#260180

F/R LBR 508.00 *

SEGMENT 27 TOTAL 508.00 T

REPLACE STEERING LINES/HOSES
CUSTOMER COMPLAINT:
THE DISCHARGE LINE FOR THE STEERING PUMP IS
LEAKING OIL.
CAUSE OF FAILURE:
THE HOSE LEAKING AT THE CRIMP FITTING.
RESULTANT DAMAGE:
THE HOSE NEEDED TO BE REPLACE.
REPAIR PROCESS COMMENTS:
DRAINED THE HYDRAULIC OIL TANK. REMOVED THE OLD
HOSE AND INSTALLED THE NEW ONE. FILLED THE
HYDRAULIC TANK BACK UP WITH OIL.

1	5P-7468	CLIP	N	8.11		
			DISCOUNT 15.00%	1.22-		6.89
1	5P-7469	CLIP	N	6.82		
			DISCOUNT 15.00%	1.02-		5.80
1	348-5336	HOSE AS.	N	226.89		
			DISCOUNT 15.00%	34.03-		192.86
1	4627710	CAT HYDO ADV 10W S		45.90		45.90

TOTAL PARTS SEG. 28 251.45 *

TOTAL LABOR SEG. 28 635.00 *

SEGMENT 28 TOTAL 886.45 T

REPLACE AXLE
LINES GROUP
CUSTOMER COMPLAINT:
REPLACE AXLE COOLER LINES.
CAUSE OF FAILURE:
THE LINES WERE LEAKING OIL AT THE CRIMPS.
RESULTANT DAMAGE:
THE HOSES NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
REMOVED THE FRONT AND BACK BELL PANS. REMOVED THE
DAMAGED LINES AND INSTALLED THE NEW ONES. CHECKED
THE AXLE OILS AND THEY WERE IN THE SAFE OPERATION
RANGE. INSTALLED BELLY PANS.

1	323-4511	HOSE AS.	N	132.48		
			DISCOUNT 15.00%	19.87-		112.61

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WISCONSIN	515-957-3800	800-342-7002

Invoice Number: GB04445 **Date:** 2/28/20 **Account No.:** 6668900

Quantity	Item	N/R	Description	Unit Price	Extended
			* * * PROFORMA INVOICE * * *		
1	323-4515		HOSE AS	N 101.34	
			DISCOUNT 15.00%	15.20-	86.14
			TOTAL PARTS SEG. 29		198.75 *
			TOTAL LABOR SEG. 29		635.00 *
			SEGMENT 29 TOTAL		833.75 T

TEST/CHECK & ADJUST TRANSMISSION PRESSURE(S)
CUSTOMER COMPLAINT:
ON THE TA THE TRANSMISSION OIL PRESSURE TESTED AT 325 PSI AT OPERATION TEMPERATURE. SPEC IS 329 TO 363 PSI
CAUSE OF FAILURE:
OIL AND FILTER WERE CHANGED.
RESULTANT DAMAGE:
NO DAMAGE.
REPAIR PROCESS COMMENTS:
INSTALLED A TEST GAUGE AND RAN THE MACHINE UP TO OPERATION TEMPERATURE. TC WAS AT 198 (200+-31) DEGREES FAHRENHEIT, TRANSMISSION OIL TEMP WAS 179 (181 +- 12) DEGREES FAHRENHEIT, ENGINE COOLANT 181 DEGREES FAHRENHEIT. THE PRESSURE AT HIGH IDLE SWAT 341 PSI. SPEC IS 329 MIN, MAX IS 363, NOMINAL IS 341 PSI. THE OIL AND FILTER WAS CHANGED WHEN REMOVING THE ENGINE.

			TOTAL LABOR SEG. 30		127.00 *
			SEGMENT 30 TOTAL		127.00 T

REPLACE HOOD
CUSTOMER COMPLAINT:
THE BACK ACCESS DOOR TO THE COOLING PACKAGE WOULD NOT SHUT.
CAUSE OF FAILURE:
THE LATCH WAS DAMAGED AND BENT.
RESULTANT DAMAGE:
THE LATCH HAD TO BE REPLACED.
REPAIR PROCESS COMMENTS:
INSTALLED THE LATCH AND IT WOULD NOT CLOSE AND WHEN IT WOULD IT WAS VERY DIFFICULT TO GET IT OPEN.

2	9X-2045		SCREW	S .99	
			DISCOUNT 20.00%	.20-	1.58
1	118-3146		LATCH AS	S 122.43	
			DISCOUNT 20.00%	24.49-	97.94
1	155-2255		PLUG KIT-CON	S 14.96	14.96
1	272-0002		STRIKER AS	S 32.56	
			DISCOUNT 20.00%	6.51-	26.05
			TOTAL PARTS SEG. 31		140.53 *
			TOTAL LABOR SEG. 31		127.00 *
			SEGMENT 31 TOTAL		267.53 T

REPLACE PRODUCT LINK SYSTEM
CUSTOMER COMPLAINT:

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Quantity	Item	N/R	Description	Unit Price	Extended

* * * PROFORMA INVOICE * * *

REPLACE PRODUCT LINK SYSTEM.
.
CAUSE OF FAILURE:
THE 522 HAD FAILED AND WAS NOT REPORTING THE
LOCATION OF THE MACHINE.
RESULTANT DAMAGE:
THE 522 WAS UPDATED WITH A PLE601.
REPAIR PROCESS COMMENTS:
REMOVED THE HARNESS FROM THE 522. REMOVED THE
HARNESS GOING TO THE PL641. INSTALLED THE PLE601
AND HARNESS THAT CAME WITH IT. FALLOWED THE
INSTRUCTIONS IN THE REHS8850. THE WIRING DID NOT
WORK AND COULD NOT COMMUNICATE WITH THE PLE601.
SEE NOTES ON SEGMENT 27 FOR TROUBLESHOOTING.
AFTER TROUBLESHOOTING AND GETTING THE WIRING
CORRECT THE MACHINE IS REPORTING AS IT SHOULD.

1	467-4163	INSTL GP-FIE	N	462.06	462.06
		TOTAL PARTS	SEG. 32		462.06 *
		TOTAL LABOR	SEG. 32		444.50 *
		SEGMENT 32 TOTAL			906.56 T

APPLY DISCOUNTS ALLOWED

1.00-		TA REPAIRS			1500.00-
1.00-		FOCMLP1280@10%			4018.87-
		TOTAL MISC CHGS	SEG. 94		5518.87-*
		SEGMENT 94 TOTAL			5518.87-T

PROMOTION

1.00-		NATHYD3204 22			357.50-
		TOTAL MISC CHGS	SEG. 96		357.50-*
		SEGMENT 96 TOTAL			357.50-T

		TOTAL PARTS DISCOUNT		469.55-	
		SERVICE SUPPLIES AND ENVIRONMENTAL CHARGES			600.00 T
		MN SALES TAX-6.875%			2470.25 T
		BELTRAMI TRANSIT .5%			179.65 T
		INVOICE TOTAL			74,106.17

ZIEGLER CAT

901 West 94th Street
Minneapolis MN 55420-4236

ZIEGLER RENTAL — CAT Rental Store

MINNESOTA	952-888-4121	800-352-2812
IOWA	515-957-3800	800-342-7002
MISSOURI	515-957-3800	800-342-7002
WISCONSIN	515-957-3800	800-342-7002

Sold To: [redacted]

Invoice Number: SW010057423
Date: 9/13/16
Account No.: 6668900

Ship To: [redacted]

Invoice Information

WO Number:	WC55428
WO Date:	7/18/16
Store:	CROOKSTON
Payment Terms:	CHARGE
P/O Number:	555406/ [redacted]
Ship Via:	
Invoice Type:	101010

Make:	CATERPILLAR
Model:	980K
Serial:	0W7K01112
PIN:	
Id No:	L5163
Cust Unit:	35603
Meter:	10019.0

Invoice Summary

Parts:	26,998.93
Labor:	23,961.97
Misc:	2,482.22-
Taxes:	1,689.65
Invoice Total:	50,168.33

Amount Due: $50,168.33

DUE BY 10TH OF THE NEXT MONTH
A service charge of 1 1/2 % per month will be assessed on all past due accounts.

To ensure proper credit, please detach this portion, at the perforation, and return with remittance.

[redacted]

Account Number: 6668900
Invoice Number: SW010057423
Invoice Date: 9/13/16

Please remit to:
ZIEGLER INC.
SDS 12-0436
PO BOX 86
MINNEAPOLIS,MN 55486-0436

Amount Due: $50,168.33

Amount Enclosed:

ZIEGLER CAT
901 West 94th Street
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Invoice Number: SW010057423 Date: 9/13/16 Account No.: 6668900

Quantity	Item	N/R	Description	Unit Price	Extended

ALSO PERFORM UPDATE ON WC55262***
INSPECT MACHINE

			F/R LBR	60.00 *
1.00-		MACH INSPECTION		60.00-
		TOTAL MISC CHGS	SEG. AB	60.00-*
		SEGMENT AB TOTAL		.00 T

TROUBLESHOOT TRANSMISSION OIL PUMP
CUSTOMER COMPLAINT:
CUSTOMER STATED THAT THE TRANSMISSION PUMP IS NOISY. TROUBLESHOOT TRANSMISSION OIL PUMP.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
STUCK COLD START VALVE, 393-1595.
RESULTANT DAMAGE:
TRANSMISSION NOISE AND VIBRATION. COLD START VALVE NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
STARTED MACHINE AND TRANSMISSION PUMP WOULD MAKE NOISE AND VIBRATION THROUGH ALL RPM RANGES.
FOUND SERVICE LETTER PS52311 FOR CHANGES TO COLD START VALVE AND A TORQUE CONVERTER LINE. CAPPED OFF COLD START VALVE AND TRANSMISSION PUMP SOUNDED NORMAL. REPLACED COLD START VALVE ON SEGMENT 11.

	TOTAL LABOR	SEG. 01	444.00 *
	SEGMENT 01 TOTAL		444.00 T

REMOVE & INSTALL TRANSMISSION
CUSTOMER COMPLAINT:
REMOVE AND INSTALL TRANSMISSION.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
THE OUTPUT SHAFT BUSHING (9G-6744) SPUN IN THE CARRIER (352-5613).
RESULTANT DAMAGE:
METAL IN FILTER AND MAGNET. THE OUTPUT SHAFT WAS SCORED ON THE BUSHING SURFACE. TRANSFER GEAR (105-2486) HAD PITTING ON THE GEAR TEETH. THE FORWARD CLUTCH PISTON (321-5721) AND SEVEN CLUTCH PLATES HAD WALLOWED OUT REACTION PIN HOLES.
TRANSMISSION NEEDED TO BE GONE THROUGH.
REPAIR PROCESS COMMENTS:
PERFORMED ECM DOWNLOAD.
DRAINED TRANSMISSION AND HYDRAULIC FLUID.
REMOVED CAB AND HYDRAULIC TANK.
REMOVED ALL COMPONENTS IN ORDER TO FACILITATE TRANSMISSION REMOVAL.
REMOVED TRANSMISSION AND SENT TO MINNEAPOLIS FOR REPAIRS.
REPLACED REBUILT TRANSMISSION WITH ALL NEW SEALS.
ALL BOLTS TORQUED.
INSTALLED ALL COMPONENTS/HOSES AND LINES WITH NEW SEALS.
REINSTALLED HYDRAULIC TANK AND CAB.

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Quantity	Item	N/R	Description	Unit Price	Extended
			SERVICED HYDRAULIC SYSTEM ON SEGMENT 03. FILLED TRANSMISSION AND HYDRAULIC SYSTEMS. OPERATED MACHINE UP TO TEMPERATURE AND PERFORMED TRANSMISSION CALIBRATION AND MANUAL DPF REGENERATION. ALL WERE SUCCESSFUL. OPERATION OF MACHINE CHECKED GOOD. NO LEAKS FOUND.		
6	1P-3704		SEAL S	2.28	13.68
1	1P-3705		SEAL S	2.60	2.60
1	1P-3709		SEAL N	3.47	3.47
1	4J-0520		SEAL-O-RING S	1.81	1.81
1	4J-0522		SEAL-O-RING S	2.00	2.00
1	4J-0528		SEAL O RING S	2.87	2.87
2	5F-3106		SEAL S	4.53	9.06
1	6J-2680		SEAL O RING S	3.22	3.22
25	7K-1181		STRAP CABLE S	.31	7.75
1	7X-2563		BOLT N	5.21	
			DISCOUNT 20.00%	1.04-	4.17
1	8T-4123		WASHER S	.85	
			DISCOUNT 20.00%	.17-	.68
1	9G-9981		BREATHER S	10.77	10.77
1	337-5270		ELEMENT AS-X S	64.83	
			DISCOUNT 50.00%	32.42-	32.41
			TOTAL PARTS SEG. 02		94.49 *
			F/R LBR		9996.20 *
20.00			CAT TDTO TO4 30W		362.00
			TOTAL MISC CHGS SEG. 02		362.00 *
			SEGMENT 02 TOTAL		10452.69 T

			DRAIN & REFILL HYDRAULIC OIL CUSTOMER COMPLAINT: DRAIN AND REFILL HYDRAULIC SYSTEM. MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY. CAUSE OF FAILURE: HYDRAULIC TANK WAS REMOVED AND INSTALLED IN ORDER FOR TRANSMISSION REPAIRS ON SEGMENT 02. RESULTANT DAMAGE: CUSTOMER REQUESTED THAT THE HYDRAULIC OIL AND FILTERS BE CHANGED AT THAT TIME. REPAIR PROCESS COMMENTS: DRAINED HYDRAULIC FLUID. CHANGED ALL HYDRAULIC FILTERS. CHANGED TANK VENT FILTER. FILLED HYDRAULIC SYSTEM.		
1	5H-6733		SEAL-O-RING S5	6.34	6.34
1	139-1537		ELEMENT-FILT S5	52.29	
			DISCOUNT 50.00%	26.15-	26.14
1	206-8818		STRAINER S5	26.66	26.66
1	346-8340		ELEMENT S5	23.26	
			DISCOUNT 50.00%	11.63-	11.63
1	371-5170		ELEMENT AS S5	69.00	
			DISCOUNT 50.00%	34.50-	34.50
			TOTAL PARTS SEG. 03		105.27 *
			F/R LBR		206.70 *
46.00			CAT HYDO ADV 10W		853.30
1.00			OIL SAMPLE		16.00
			TOTAL MISC CHGS SEG. 03		869.30 *

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Quantity	Item	N/R	Description	Unit Price	Extended

SEGMENT 03 TOTAL 1181.27 T

REPLACE WITH CAT REMAN TC/TRANS OIL COOLER
CUSTOMER COMPLAINT:
REPLACE TRANSMISSION OIL COOLER.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
THE OUTPUT SHAFT BUSHING (9G-6744) SPUN IN THE CARRIER (352-5613).
RESULTANT DAMAGE:
TRANSMISSION WAS POSSIBLY CONTAMINATED WITH METAL DEBRIS.
REPAIR PROCESS COMMENTS:
DRAINED COOLANT.
REMOVED, CLEANED AND INSTALLED NEW TRANSMISSION OIL COOLER. ALL BOLTS TORQUED.
FILLED COOLING SYSTEM.

2	2N-5243	SEAL O RING	S5	3.74	7.48	
2	2S-0795	GASKET	S5	3.86	7.72	
1	20R-0990	CORE A OIL C	N5	1640.67	1640.67	
1		CORE CHARGE	N5	670.13	670.13	
1-		CORE CREDIT	N5	670.13	670.13-	
4	235-2476	SEAL-O-RING	N5	11.33	45.32	
1	341-1429	SEAL-PIP	S5	6.67	6.67	

TOTAL PARTS SEG. 04 1707.86 *

TOTAL LABOR SEG. 04 444.00 *

SEGMENT 04 TOTAL 2151.86 T

WASH MACHINE
CUSTOMER COMPLAINT:
WASH MACHINE.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
USAGE.
RESULTANT DAMAGE:
MACHINE NEEDED TO BE WASHED IN ORDER TO PREVENT CONTAMINATION DURING NECESSARY REPAIRS.
REPAIR PROCESS COMMENTS:
WASHED MACHINE AT VARIOUS STAGES OF REPAIR.
MACHINE WAS VERY DIRTY.

F/R LBR 444.00 *

SEGMENT 05 TOTAL 444.00 T

REPAIR RADIATOR GUARD
CUSTOMER COMPLAINT:
REPLACE LOCK ON RIGHT SIDE OF RADIATOR CLEANING DOOR.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
LOCK ASSEMBLY (226-0291) AND CAM (226-0321) WAS MISSING.
RESULTANT DAMAGE:
LOCK ASSEMBLY NEEDED TO BE REPLACED.

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WISCONSIN	515-957-3800	800-342-7002

Invoice Number: SW010057423 **Date:** 9/13/16 **Account No.:** 6668900

Quantity	Item	N/R	Description	Unit Price	Extended

REPAIR PROCESS COMMENTS:
REPLACED LOCK ASSEMBLY ON RIGHT RADIATOR CLEANING DOOR.
CLEANED AND LUBRICATED LEFT SIDE LOCK.
REPLACED BOTTOM RADIATOR GUARD (323-9502) THAT WAS CRACKED AND BROKEN.

1	226-0291	LOCK AS		N5	36.34	
			DISCOUNT	20.00%	7.27-	29.07
1	226-0321	CAM-LOCK		N5	21.35	21.35
1	323-9502	BAFFLE AS		N5	178.64	178.64

TOTAL PARTS SEG. 06 229.06 *
1.00 RADIATOR CORES 847.79
TOTAL MISC CHGS SEG. 06 847.79 *
SEGMENT 06 TOTAL 1076.85 T

REPAIR HOOD
LOCK/LATCH
CUSTOMER COMPLAINT:
REAR RADIATOR HOOD LATCH CORRODED UP.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
DIRT CORRODED REAR HOOD LATCH.
RESULTANT DAMAGE:
LATCH WAS NOT WORKING. LATCH NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
REMOVED AND REPLACED RADIATOR HOOD LATCH.
ADJUSTED STRIKER.
OPERATION CHECKED GOOD.

1	3E-8020	SCREW		S	2.06	
			DISCOUNT	20.00%	.41-	1.65
1	5C-2890	NUT		S	.11	
			DISCOUNT	20.00%	.02-	.09
1	8T-4223	WASHER		S	.54	
			DISCOUNT	20.00%	.11-	.43
5	9X-2045	SCREW		S	.85	
			DISCOUNT	20.00%	.17-	3.40
1	9X-6165	WASHER		S	.47	
			DISCOUNT	20.00%	.09-	.38
1	129-3180	LOCKNUT		N	2.54	
			DISCOUNT	20.00%	.51-	2.03
1	272-0002	STRIKER AS		N	30.22	
			DISCOUNT	20.00%	6.04-	24.18
1	327-4461	HANDLE AS		N	47.12	
			DISCOUNT	20.00%	9.42-	37.70
1	372-2340	LINKAGE AS		N	45.57	
			DISCOUNT	20.00%	9.11-	36.46

TOTAL PARTS SEG. 07 106.32 *
TOTAL LABOR SEG. 07 222.00 *
SEGMENT 07 TOTAL 328.32 T

WASH RADIATOR
CUSTOMER COMPLAINT:
WASH RADIATOR.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.

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Invoice Number: SW010057423 **Date:** 9/13/16 **Account No.:** 6668900

Quantity	Item	N/R	Description	Unit Price	Extended

CAUSE OF FAILURE:
BOTH RADIATORS WERE LEAKING.
RESULTANT DAMAGE:
COOLANT LEAKED COLLECTED EXCESSIVE DIRT BUILD UP.
RADIATORS NEEDED TO BE WASHED OFF.
REPAIR PROCESS COMMENTS:
WASHED OUT RADIATOR. IT WAS VERY DIRTY. SMELLED
A LOT OF COOLANT WHILE WASHING.

F/R LBR 111.00 *

SEGMENT 08 TOTAL 111.00 T

PRESSURE TEST RADIATOR
CUSTOMER COMPLAINT:
PRESSURE TEST RADIATORS.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF
CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
PRESSURE WASHED A LOT OF COOLANT OUT OF DIRTY
RADIATORS ON SEGMENT 08.
RESULTANT DAMAGE:
RADIATORS NEEDED TO BE PRESSURED CHECKED FOR
POSSIBLE LEAKS.
REPAIR PROCESS COMMENTS:
PRESSURE TESTED RADIATORS. FOUND BOTH RADIATORS
WERE LEAKING.

TOTAL LABOR SEG. 09 166.50 *

SEGMENT 09 TOTAL 166.50 T

REMOVE & INSTALL RADIATOR
CUSTOMER COMPLAINT:
RADIATORS ARE LEAKING. REMOVE AND INSTALL
RADIATORS.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF
CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
BOTH RADIATORS WERE LEAKING.
RESULTANT DAMAGE:
RADIATORS NEEDED TO BE REPAIRED.
REPAIR PROCESS COMMENTS:
REMOVED ALL COMPONENTS NECESSARY FOR RADIATOR
REMOVAL.
REMOVED RADIATORS AND SENT DOWN TO MINNEAPOLIS FOR
REPAIRS.
INSTALLED REBUILT RADIATORS.
REINSTALLED ALL COMPONENTS THAT WERE REMOVED. ALL
BOLTS TORQUED.
REPLACED COOLANT HOSES TO RADIATOR.
FILLED COOLING SYSTEM WITH AIR LIFT INSTALLATION
TOOL.
ALSO CHECKED FOR TRAPPED AIR AT TOP OF EGR (NRS)
COOLER.
CHECKED GOOD. NO LEAKS FOUND.

2	7X-0474	BOLT		N	4.79	
			DISCOUNT	20.00%	.96-	7.66
2	7X-1443	PROTECTOR		S	.25	.50
4	7X-7729	WASHER		S	.59	
			DISCOUNT	20.00%	.12-	1.88
2	8T-4133	NUT		S	.26	
			DISCOUNT	20.00%	.05-	.42

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WISCONSIN	515-957-3800	800-342-7002

Quantity	Item	N/R	Description	Unit Price	Extended
2	209-4573		CLAMP-T'BOLT	S 7.10	
			DISCOUNT	20.00% 1.42-	11.36
1	238-8648		COOLANT-ELC	S 12.56	12.56
4	332-4022		HOSE	N 24.34	97.36
1	364-9799		HOSE	N 16.40	16.40
12	AG554278		TIE/CABLE 11. .6-3S	.21	2.52
			TOTAL PARTS	SEG. 10	150.66 *
			F/R LBR		1221.00 *
			SEGMENT 10 TOTAL		1371.66 T

REPLACE SOLENOID VALVE
CUSTOMER COMPLAINT:
COLD START VALVE STUCK. REPLACE COLD START VALVE AS PER PS52311.
MACHINE WAS IN THE CROOKSTON MN SHOP, INSIDE OF CITY LIMITS. POLK COUNTY.
CAUSE OF FAILURE:
STUCK COLD START VALVE, 393-1595.
RESULTANT DAMAGE:
TRANSMISSION NOISE AND VIBRATION. COLD START VALVE NEEDED TO BE REPLACED.
REPAIR PROCESS COMMENTS:
COMPLETED PS52311. REMOVED AND INSTALLED NEW COLD START VALVE AND STEEL TUBE FROM TORQUE CONVERTER TO FLYWHEEL HOUSING.

1	1P-3704		SEAL	S 2.28	2.28
1	4J-0520		SEAL-O-RING	S 1.81	1.81
2	5K-9090		SEAL O RING	S 1.07	2.14
2	7M-8485		SEAL	S 1.50	3.00
6	8T-4121		WASHER-HARD	S .36	
			DISCOUNT	20.00% .07-	1.74
2	8T-4172		BOLT	S 1.78	
			DISCOUNT	20.00% .36-	2.84
4	8T-4196		BOLT	S .82	
			DISCOUNT	20.00% .16-	2.64
4	8T-4223		WASHER	S .54	
			DISCOUNT	20.00% .11-	1.72
1	389-9845		TUBE AS	N 290.54	290.54
1	393-1595		VALVE GP-MTG	N 341.46	341.46
			TOTAL PARTS	SEG. 11	650.17 *
			TOTAL LABOR	SEG. 11	612.00 *
			SEGMENT 11 TOTAL		1262.17 T

RCONDITION BEFORE FAILURE TRANSMISSION
****
10 YEAR/10,000 HOUR WARRANTY EFFECTIVE: 08/12/2016
CUSTOMER MUST PERFORM SCHEDULED MAINTENANCE AND SOS 1 HOUR AFTER INSTALLATION AND EVERY 500 HOURS THEREAFTER IN ORDER TO VALIDATE WARRANTY. FAILURE TO DO SO MAY VOID WARRANTY.
****

2	0L-1328	BOLT	S
1	1B-3867	BEARING	S
1	1H-4203	CONE	S
1	1H-9696	RING	S
1	1M-3937	RING	S
2	1N-5981	PIN	S

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Invoice Number: SW010057423 **Date:** 9/13/16 **Account No.:** 6668900

Quantity	Item	N/R	Description	Unit Price	Extended
2	1P-7834		CUP	S	
2	1P-7835		CONE	S	
1	1S-6515		RING	S	
1	1S-6595		GASKET	S	
1	1T-0577		BEARING	S	
1	1T-0655		BEARING	S	
1	1T-0657		PLATE	S	
11	1T-0679		ROLLER	S	
11	1T-0680		SPRING	S	
1	1T-0686		RACE	S	
8	1T-0738		WASHER	S	
1	1T-0762		RACE	S	
2	1T-1078		BEARING	S	
1	1T-1278		BEARING	S	
1	1T-1282		RACE	S	
1	1T-1639		RING	S	
1	2A-4576		CUP	S	
1	2D-5658		BEARING	S	
1	2D-8363		SEAL O RING	S	
2	2D-9457		CONE	S	
2	2H-2665		SEAL	S	
1	2H-6489		RACE	S	
1	2H-6490		ROLLER A	S	
1	2H-9247		RING	S	
2	2K-4472		O RING	S	
1	2M-0340		SEAL O RING	S	
1	2S-0679		BEARING A	S	
1	2S-1362		RING	S	
1	3D-2824		SEAL O RING	S	
1	3F-4479		PIN	S	
1	3F-5792		SEAL	S	
5	3J-1907		SEAL	S	
1	3K-0360		SEAL	S	
1	3P-2793		SEAL RING	S	
1	3P-2794		SEAL RING	S	
1	3S-1223		SEAL-O-RING	S	
14	3S-2093		TIE	S	
11	3S-2708		PIN	S	
1	4B-7255		CONE	S	
2	4F-2041		CUP	S	
1	4F-2129		BEARING	S	
1	4H-6112		BREATHER	S	
1	4J-5573		SEAL	S	
4	5D-2989		BEARING A	S	
1	5F-0149		RING	S	
1	5F-3092		RING	S	
1	5J-1086		SEAL O RING	S	
4	5J-2974		SEAL	S	
8	5M-2054		BEARING A	S	
1	5M-2057		SEAL	S	
4	5M-3038		SEAL O RING	S	
8	5M-6126		BEARING A	S	
2	5P-2587		SEAL O RING	S	
1	5P-3867		RACE	S	
3	5P-3930		BEARING	S	
12	5P-6718		SEAL-O-RING	S	
7	6D-7889		SEAL	S	
1	6F-0156		RING	S	
3	6I-8500		PLATE	S	
8	6V-0852		CAP	S	
1	6V-4365		SEAL-O-RING	S	
1	6V-8398		SEAL O RING	S	
1	6Y-3484		BEARING	S	
1	6Y-7652		CUP	S	
1	6Y-8864		GASKET	S	

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Invoice Number: SW010057423 **Date:** 9/13/16 **Account No.:** 6668900 **Page:** 9

Quantity	Item	N/R	Description	Unit Price	Extended
2	7F-2122	S	SEAL-O-RING		
3	7G-2343	S	SPRING		
2	7G-2830	S	RING		
2	7G-8427	S	RING		
1	7L-2181	S	SEAL O RING		
1	7M-8485	S	SEAL		
1	7S-7018	S	SEAL O RING		
3	7T-8816	S	BEARING		
1	8D-9739	S	SEAL		
6	8E-8299	S	DISC		
24	8E-8304	S	DISC		
8	8E-8305	S	DISC		
1	8H-8257	S	SEAL-O-RING		
1	8J-4351	S	SEAL-O-RING		
4	8M-4986	S	SEAL O RING		
1	8M-5255	S	SEAL O RIN		
2	8M-5661	S	SEAL O RING		
2	8P-2019	S	RING-SEAL		
4	8P-2022	S	RING-SEAL		
1	8P-2023	S	RING-SEAL		
4	8P-2051	S	PLATE		
1	8P-2053	S	RING-SEAL		
1	8S-0768	S	SEAL-O-RING		
2	8T-0722	S	BOLT		
1	8T-3298	S	SEAL		
1	9G-0281	S	RING-SEAL		
2	9G-0286	S	RING-SEAL		
1	9G-6743	S	BEARING		
2	9G-6744	S	BEARING		
1	9H-0846	S	SEAL O RING		
10	9P-7390	S	DISC A		
1	9S-5279	S	RACE & RLR A		
1	9X-4609	S	SEAL		
8	031-4630	S	BOLT		
10	034-3557	S	BOLT		
4	112-4511	S	SPRING		
1	117-1385	S	SEAL-O-RING		
1	131-4091	S	SEAL-RING		
2	133-4292	S	SEAL		
1	166-6323	S	RACE-THRUST		
2	178-4640	S	CONE		
2	178-4641	S	CUP		
7	214-7568	S	SEAL-O RING		
2	228-7090	S	SEAL-O-RING		
1	232-1293	S	GASKET		
2	233-9748	S	DISC-FRICTIO		
2	238-5080	S	SEAL-O-RING		
1	274-4254	S	RING-SEAL		
1	275-5308	S	DISC-FRICTIO		
5	328-4374	S	DISC-FRICTIO		
4	328-4375	S	DISC-FRICTIO		
1	370-3812	S	PLATE		
1	372-0673	N	PLATE-SIDE		
1	372-7838	N	PLATE		
1	CH1U-8846	S	GASKET/MAKER LOCTI		
				F/R ALL	18095.07 *
			SEGMENT 30 TOTAL		18095.07 T

EXTRA PARTS/LABOR/MIS FOR TRANSMISSION
CUSTOMER COMPLAINT:
RECONDITION TRANSMISSION BEFORE FAILURE.
CAUSE OF FAILURE:

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Quantity	Item	N/R	Description	Unit Price	Extended

THE OUTPUT SHAFT BUSHING (9G-6744) SPUN IN THE CARRIER (352-5613).
RESULTANT DAMAGE:
THE OUTPUT SHAFT WAS SCORED ON THE BUSHING SURFACE. TRANSFER GEAR (105-2486) HAD PITTING ON THE GEAR TEETH. THE FORWARD CLUTCH PISTON (321-5721) AND QTY (7) CLUTCH PLATES HAD WALLOWED OUT REACTION PIN HOLES. PLEASE SEE ATTACHED PHOTOGRAPHS.
REPAIR PROCESS COMMENTS:
THE TRANSMISSION WAS DISASSEMBLED AND INSPECTED. ALL NECESSARY SURFACES WERE BUFFED. ALL PARTS WERE WASHED. ALL BEARINGS, SEALS AND ELECTRICAL WERE REPLACED WITH NEW. ALL PARTS MENTIONED ABOVE WERE REPLACED WITH NEW. ALL FREEWHEEL STATOR PARTS WERE REPLACED WITH NEW PER CAT GUIDELINES. A NEW IMPROVED TORSIONAL COUPLING (262-7071) WAS INSTALLED. THE PUMP DRIVE GEAR WAS SET TO .006" END PLAY (SPEC .006" +- .002"). THE OUTPUT TRANSFER GEARS WERE SET TO .005" END PLAY (SPEC .004" +- .002"). AFTER REASSEMBLY, THE TRANSMISSION WAS TESTED ON THE HYDRAULIC TEST BENCH. PLEASE SEE ATTACHED SPECIFICATION SHEET. THE TRANSMISSION WAS TAGGED NO OIL. S/N J9P00751. ARRANGEMENT 351-3576. CONVERTER S/N T2M01040.
JDM

2	0L-1328	BOLT		S	4.65	
			DISCOUNT	20.00%	.93-	7.44
1	1P-3709	SEAL		N	3.47	3.47
11	1T-0679	ROLLER		S	5.25	57.75
11	1T-0680	SPRING		S	4.99	
			DISCOUNT	20.00%	1.00-	43.89
1	4J-0528	SEAL O RING		N	2.87	2.87
1	4S-8598	SCREEN		S	11.16	
			DISCOUNT	50.00%	5.58-	5.58
16	5P-1294	CM-HOSE STK		S	1.20	
			DISCOUNT	15.00%	.18-	16.32
1	5P-8194	RINGORETAIN		S	60.81	60.81
1	8M-8627	SPRING		S	11.49	
			DISCOUNT	20.00%	2.30-	9.19
2	8T-0722	BOLT		S	.91	
			DISCOUNT	20.00%	.18-	1.46
2	8T-4984	CLAMP		S	12.74	
			DISCOUNT	20.00%	2.55-	20.38
8	031-4630	BOLT		S	1.58	
			DISCOUNT	20.00%	.32-	10.08
1	105-2486	GEAR		N	2118.06	2118.06
4	130-5300	CLIP		S	15.13	60.52
1	132-5789	CLIP		S	4.64	
			DISCOUNT	20.00%	.93-	3.71
1	148-1928	VAL.-RELIEF		S	67.63	67.63
1	191-8304	SENSOR G-SPD		S	129.19	129.19
1	204-2281	TIE-WRAP		S	1.43	1.43
1	204-8000	MOUNT-TIE WR		S	5.44	5.44
1	238-5080	SEAL-O-RING		S	4.09	4.09
7	244-3114	VALVE GP-MDL		S	210.94	1476.58
12	247-0866	SPRING		N	39.53	
			DISCOUNT	20.00%	7.91-	379.44
12-	247-0866	SPRING		N	39.53	
			DISCOUNT	20.00%	7.91-	379.44-
6	247-0867	SPRING		N	28.19	
			DISCOUNT	20.00%	5.64-	135.30
6-	247-0867	SPRING		N	28.19	
			DISCOUNT	20.00%	5.64-	135.30-
6	247-0868	SPRING		N	27.18	

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Invoice Number: SW010057423 **Date:** 9/13/16 **Account No.:** 6668900 **Page:** 11

Quantity	Item	N/R	Description	Unit Price	Extended
			DISCOUNT 20.00%	5.44-	130.44
6	247-0868		SPRING N	27.18	
			DISCOUNT 20.00%	5.44-	130.44-
1	262-7071		COUPLING AS. N	1285.04	1285.04
1	264-4297		SENSOR TEMP S	38.21	38.21
1	284-3599		CAM-FREEWHEE S	847.28	847.28
1	290-6056		SPRING S	11.53	
			DISCOUNT 20.00%	2.31-	9.22
2	318-1179		SENSOR GP-SP S	129.19	258.38
1	321-5721		PISTON-CLUTC N	628.41	628.41
1	328-4416		HARNESS AS-X N	473.79	473.79
1	352-1631		SHAFT-OUTPUT N	978.62	978.62
1	352-5613		RACE AS N	661.16	661.16
1	368-5063		TUBE AS.-MAG S	63.15	63.15
			TOTAL PARTS SEG. 31		9349.15 *
			SEGMENT 31 TOTAL		9349.15 T

REPAIR IMPLEMENT PUMP
CUSTOMER COMPLAINT:
REPAIR IMPLEMENT PUMP.
CAUSE OF FAILURE:
THERE WERE NO FAILURES.
RESULTANT DAMAGE:
THERE WERE NO DAMAGES.
REPAIR PROCESS COMMENTS:
THE PUMP WAS REMOVED FROM THE TRANSMISSION, DISASSEMBLED AND INSPECTED. ALL NECESSARY SURFACES WERE BUFFED. ALL PARTS WERE WASHED. ALL BEARINGS AND SEALS WERE REPLACED WITH NEW. THE BARRELS AND PISTONS WERE LAPPED. A NEW IMPROVED PUMP COMPENSATOR VALVE (445-6555) WAS INSTALLED PER TEBE2428. THE PUMP WAS TAGGED NO OIL. TYPE HPR105D-02R 2566. S/N H2X271C00201. P/N 274-8016.

JDM

2	1P-3703		SEAL S	1.98	3.96
1	2H-6338		SEAL S	3.86	3.86
1	4V-1878		HOSE S	25.43	
			DISCOUNT 15.00%	3.81-	21.62
2	5F-3106		SEAL S	4.53	9.06
2	7X-1553		SEAL N	65.33	130.66
8	8U-3297		BOLT N	2.37	
			DISCOUNT 20.00%	.47-	15.20
2	197-0076		BEARING N	87.42	174.84
1	197-0079		PISTON AS N	147.52	147.52
2	197-0089		BEARING N	43.43	86.86
1	241-1019		SEAL-O-RING N	12.48	12.48
3	286-1675		BOLT N	.38	1.14
1	286-1677		GUIDE N	144.17	144.17
2	333-8630		KIT SHIM N	38.68	77.36
9	333-8640		STRIP N	5.73	51.57
1	333-8642		KIT SEAL N	599.05	599.05
1	445-6555		VALVE GP-PUM S	2708.03	2708.03
			TOTAL PARTS SEG. 33		4187.38 *
			TOTAL LABOR SEG. 33		1780.00 *
			SEGMENT 33 TOTAL		5967.38 T

REPAIR TRANSMISSION OIL PUMP

ZIEGLER CAT

901 West 94th Street
Minneapolis MN 55420-4236

ZIEGLER RENTAL — CAT Rental Store

MINNESOTA	952-888-4121	800-352-2812
IOWA	515-957-3800	800-342-7002
MISSOURI	515-957-3800	800-342-7002
WISCONSIN	515-957-3800	800-342-7002

Invoice Number: SW010057423 **Date:** 9/13/16 **Account No.:** 6668900 **Page:** 12

Quantity	Item	N/R	Description	Unit Price	Extended

CUSTOMER COMPLAINT:
REPAIR TRANSMISSION OIL PUMP
CAUSE OF FAILURE:
HIGH HOURS
RESULTANT DAMAGE:
DISASSEMBLED TRANSMISSION OIL PUMP (352-7957) FOR INSPECTION. INSPECTED GEARS, BUSHINGS, HOUSINGS AND SEALS/O-RINGS. ALL WERE IN GOOD CONDITION. ORDERED NEW SEALS AND O-RINGS. POLISHED THE SHAFTS. BUFFED ALL MOUNTING SURFACES AND CLEANED ALL PARTS.
REPAIR PROCESS COMMENTS:
REBUILT THE TRANSMISSION OIL PUMP. INSTALLED ALL NEW O-RINGS AND SEALS. LUBRICATED THE BUSHINGS AND GEARS AND TORQUED ALL OF THE BOLTS. ATTACHED A NO OIL TAG AND SENT ALONG A NEW MOUNTING O-RING.

JDM

1	8C-3089	SEAL-O-RING	S		12.74	12.74
1	161-8068	SEAL	S		20.59	20.59
2	353-3679	SEAL-LIP TYP	S		36.62	73.24

TOTAL PARTS SEG. 35 106.57 *

TOTAL LABOR SEG. 35 587.50 *

SEGMENT 35 TOTAL 694.07 T

APPLY DISCOUNTS ALLOWED
1.00- NATMLP370@20% 5117.31-

TOTAL MISC CHGS SEG. 96 5117.31-*

SEGMENT 96 TOTAL 5117.31-T

TOTAL PARTS DISCOUNT 189.75-

SERVICE SUPPLIES AND ENVIRONMENTAL CHARGES 500.00 T

MN SALES TAX-6.875% 1689.65 T

DUE BY 10TH OF THE NEXT MONTH

INVOICE TOTAL 50,168.33