

INVOICE NUMBER	INVOICE DATE	CUSTOMER NO.	CUSTOMER PURCHASE ORDER NUMBER	STORE	DIV	SALESMAN	TERMS	PAGE
SS270010244	04-30-18	014652	HYUNDIA	27	G	034	2	1
PSO/WO NO.	DOC. DATE	PC	LC	MC	SHIP VIA			INVOICE SEQ. NO.
2712557	11-21-17	1C	1C	1C				601041
MAKE	MODEL	SERIAL NUMBER			EQUIPMENT NUMBER	METER READING	MACH. ID NO.	
HI	ROBEX360LC	NA0110108				9885.0		
QUANTITY	ITEM	*N/R	DESCRIPTION			UNIT PRICE	EXTENSION	

#### TROUBLESHOOT FUEL SYSTEM

COMPLAINT: MACHINE WILL NOT START WHEN IT IS COLD OUT.

CORRECTION: WHEN TRYING TO START MACHINE, MACHINE IS NOT SMOKING OUT OF THE EXHAUST PIPE. LET LIFT PUMP PRIME FUEL SYSTEM THERE TIMES AND MACHINE IS STILL NOT SMOKING OUT THE EXHAUST PIPE. LOGGED IN TO CUMMINS QUICKSERVE TO FIND THE FUEL PRESSURE SPECS. CONNECTED PRESSURE GAUGE TO FUEL INJECTION PUMP TEST PORT, TURNED KEY ON FUEL PRESSURE IS ABOUT 5 PSI WITH LIFT PUMP RUNNING, CRANKED ENGINE AND FUEL PRESSURE IS 70 PSI. THIS IS WELL ABOVE MINIMUM SPEC

F/R LBR

SEGMENT 02 TOTAL

#### TROUBLESHOOT STARTING SYSTEM

COMPLAINT: MACHINE WILL NOT START WHEN IT IS COLD OUT.

CORRECTION: TRIED TO START MACHINE, MACHINE WOULD NOT CRANK. CHECKED BATTERY CONNECTIONS AND CLEANED CONNECTIONS MACHINE WOULD CRANK REAL SLOW. LOAD TESTED BATTERIES, BATTERIES WILL NOT PASS LOAD TEST. MACHINE NEEDS NEW BATTERIES. AFTER

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INSTALLING BATTERIES MACHINE CRANKS FINE BUT WILL NOT START. CHECKED CONNECTIONS ON GRID HEATER FOR COLD START, CONNECTIONS ARE GOOD. CHECKED FOR POWER GOING TO GRID HEATER, THERE IS POWER GOING TO GRID HEATER SOLENOID AND NOT COMING OUT OF GRID HEATER SOLENOID. CHECKED FOR POWER GOING TO GRID HEATER ACTIVATION WIRE AND THERE IS NO POWER ON THE ACTIVATION TERMINAL. CHECKED CONNECTION AT GRID HEATER RELAY, TERMINALS ARE CLEAN AND TIGHT, CHECKED FOR POWER GOING TO RELAY ON POWER TERMINAL AND THERE IS. SWAPPED RELAY WITH HORN RELAY, HORN WORKS SO RELAY IS GOOD. OHMED WIRE FROM RELAY TO GRID HEATER SOLENOID AND WIRE IS GOOD. GAVE THE GRID HEATER SOLENOID POWER AND THE SOLENOID WORKS. CHECKED POWER GOING TO GRID HEATER CONNECTION ON INTAKE MANIFOLD AND THERE IS 24.5 VOLTS AT THE CONNECTION. OHMED BETWEEN GRID HEATER CONNECTION AND INTAKE MANIFOLD, IT SHOWED OPEN MEANING THAT THE GRID HEATER IS NOT SHORTED OUT. CYCLED GRID HEATER FOR 30 SECONDS AND INTAKE IS WARM, GRID HEATER IS WORKING. THERE IS NO POWER COMING OUT OF PRE HEAT RELAY IN FUSE BOX. CAN NOT GET A WIRING SCHEMATIC. OHMED ALL THE WIRES TO THE AIR AND COOLANT SWITCHES ON THE ENGINE TO TRY AND FIND WHERE THE WIRE GOES, DID NOT FIND ANY OF THE WIRES THAT HAD CONTINUITY. CUT THE WIRING HARNESS OPEN AND TRACED THE WIRE THAT ACTIVATES THE PRE HEAT RELAY, WIRE GOES INTO THE MACHINE ECM. DO NOT KNOW WHAT IS TELLING THE GRID HEATER TO WORK IN THE

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PSO/WO NO.	DOC. DATE	PC	LC	MC	SHIP VIA			INVOICE SEQ. NO.
2712557	11-21-17	1C	1C	1C				601041
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HI	ROBEX360LC	NA0110108				9885.0		
QUANTITY	ITEM	*N/R	DESCRIPTION			UNIT PRICE	EXTENSION	

ECM.

1 PB10

BRACKET KIT N

TOTAL PARTS SEG. 03

F/R LBR

SEGMENT 03 TOTAL

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REMOVE & INSTALL BATTERY

COMPLAINT: ENGINE WILL NOT TURN OVER.

CAUSE: BATTERIES DID NOT HAVE ENOUGH CCA'S AND  
NEEDED REPLACED.

CORRECTION: DISCONNECTED BATTERY CABLES, SPRAYED  
THEM WITH BATTERY CLEANER, RINSED WITH WATER.  
REMOVED BATTERIES. INSTALLED 2 NEW D4 BATTERIES,  
FINISHED CLEANING CABLES WITH WIRE BRUSH, AND  
TIGHTENED THEM DOWN ON BATTERIES.

2 153-5700

BATTERY-4D S

TOTAL PARTS SEG. 04

F/R LBR

SEGMENT 04 TOTAL  
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SS270010244	04-30-18	014652	HYUNDIA	27	G	034	2	4
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2712557	11-21-17	1C	1C	1C				601041
MAKE	MODEL	SERIAL NUMBER			EQUIPMENT NUMBER	METER READING	MACH. ID NO.	
HI	ROBEX360LC	NA0110108				9885.0		
QUANTITY	ITEM	*N/R	DESCRIPTION			UNIT PRICE	EXTENSION	

REMOVE & INSTALL SIGHT GAUGE  
HYDRAULIC

COMPLAINT: HYDRAULIC SIGHT GLASS IS LEAKING  
CAUSE: O-RINGS HAVE FAILED  
CORRECTION: REMOVED SIGHT GLASS FROM MACHINE AND  
REPLACED O-RINGS, REINSTALLED SIGHT GLASS

F/R PTS  
F/R LBR

SEGMENT 06 TOTAL

INSTALL HYDRAULIC TANK  
BOLTS

COMPLAINT: HYDRAULIC TANK IS MISSING BOLTS  
CAUSE: BOLTS ARE MISSING.  
CORRECTION: LOOSENED REMAINING BOLT, MOVED TANK TO  
INSTALL NEW BOLTS, INSTALLED NEW BOLTS IN TANK  
MOUNTING.

F/R PTS  
F/R LBR

SEGMENT 07 TOTAL

REMOVE & INSTALL HOSES & LINES

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PSO/WO NO.	DOC. DATE	PC	LC	MC	SHIP VIA			INVOICE SEQ. NO.
2712557	11-21-17	1C	1C	1C				601041
MAKE	MODEL	SERIAL NUMBER			EQUIPMENT NUMBER	METER READING	MACH. ID NO.	
HI	ROBEX360LC	NA0110108				9885.0		
QUANTITY	ITEM	*N/R	DESCRIPTION			UNIT PRICE	EXTENSION	

COMPLAINT: MAIN SUCTION HYDRAULIC HOSE LEAKING AND  
A HOSE FOR THE QUICK COUPLER HAS A HOLE IN IT.  
CORRECTION: DRAINED HYDRAULIC TANK, REMOVED  
SUCTION HOSE AND REPLACED WITH NEW. FILLED  
HYDRAULIC TANK, REMOVED CASE DRAIN HOSES ON PUMP  
TO BLEED AIR FROM PUMP. REMOVED QUICK COUPLER HOSE  
AND REPLACED WITH NEW HOSE. STARTED MACHINE AND  
TEST RUN TO CHECK FOR LEAKS AND FOUND NONE AT THIS  
TIME.

F/R PTS  
F/R LBR

SEGMENT 08 TOTAL

#### REPAIR WIRE

COMPLAINT: FUEL GAUGE IS NOT WORKING. NEED TO WIRE  
UP PUSH BUTTON FOR ENGINE PRE HEATER.  
CAUSE: FUEL GAUGE WIRE IS BROKEN.  
CORRECTION: RAN WIRES FOR PUSH BUTTON FOR ENGINE  
PRE HEATER TO INSIDE OF CAB. INSTALLED PUSH BUTTON  
IN CAB AND WIRED UP. PRE HEAT SOLENOID IS  
ACTIVATING WHEN BUTTON IS PUSHED. SPICED FUEL  
GAUGE WIRES BACK TOGETHER AND FUEL GAUGE IS  
WORKING AT THIS TIME.

F/R LBR

SEGMENT 10 TOTAL

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PSO/WO NO.		DOC. DATE		PC	LC	MC	SHIP VIA					INVOICE SEQ. NO.	
2712557		11-21-17		1C	1C	1C						601041	
MAKE	MODEL		SERIAL NUMBER				EQUIPMENT NUMBER		METER READING			MACH. ID NO.	
HI	ROBEX360LC		NA0110108						9885.0				
QUANTITY	ITEM			*N/R	DESCRIPTION				UNIT PRICE			EXTENSION	

PAY THIS AMOUNT ➤	
AMOUNT CREDIT ➤	4391.92

HYUNDAI R360LC7 04 SN:NA0110108 HR 5613.0 W:99 C:  
 Sold By: TDM PO #: Date 3/09/11 WORK ORDER WT29740  
 Ship By: TOPSN Tax #: 12:01:20 PRT: 20

### Work Order Summary

01 UNIT RUNS ROUGH AND SMOKES	8327.64
02 REPLACE BROKEN CLAMPS	1260.34
03 REPLACE BENT STEPS	276.92
04 SERVICE UNIT	1687.33
05 CHECK R.H. CONSOLE OUT	731.85
06 CHECK OUT SWING MOTOR AND GEAR BOX	11040.99
** SALES TAX	2087.59
** TOTAL	25412.66

Tax	D	Qty	Description	Price	Amount
			GROUP :	01	



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 Sold By: TDM PO #: Date 3/09/11 WORK ORDER WT29740  
 Ship By: TOPSN Tax #: 12:01:20 PRT: 20

Tax	D	Qty	Description	Price	Amount
01 UNIT RUNS ROUGH AND SMOKES					
HYUNDAI LABOR					
				** TOTAL HYUNDAI LABOR	
PARTS FRT & HDL					
08950			LOCAL PARTS PHS		
08950			INJECTORS		
08950			ORING SEALS		
				** TOTAL LOCAL PARTS PH	
PARTS-SHOP					
08950		1	CM 4076442RX	REM. INJ.	
08950		1	CAS J939284	GASKET	
08950		5	CAS J990876	ISOLATOR	
08950		6	CAS J944833	CONNECTOR	
08950		2	CAS J919359	CLAMP	
08950		4	CAS J920854	SCREW	
08950		2	CAS J917746	CLAMP	
08950		1	CAS J917747	CLAMP	
08950		2	CAS J904519	SUPPORT	
08950		1	CAS J944699	CLAMP	
08950		2	CAS CASJ904711	SUPPORT	
08950		4	CAS J918192	SEALWASHER K 2 C 6A	
08950		6	CAS J867043	SEAL	
08950		1	CAS 87447963	GASKET	
08950		2	CAS 9804257	BOLT	
08950		3	CM 3940817	SCREW	
				** TOTAL PARTS-SHOP	

CUSTOMER SAID THE UNIT RUNS ROUGH AND SMOKES. CHECKED THE ENGINE FOR POWER LOSS. FOUND IT HAD CODES 276-277-611 IN THE ECM. TROUBLESHOOT THE CODES AND FOUND THE 276 AND 277 CODES ARE FROM THE INJECTION CONTROL VALVE INSIDE THE INJECTION PUMP. TALKED TO SEVERAL INJECTION PUMP HOUSES AND FOUND THAT THE BEST COURSE OF ACTION WAS TO REPLACE THE INJECTION PUMP. FOUND THAT THE 276 AND 277 CODES ARE DERATING THE ENGINE CAUSING IT TO BE LOW ON POWER. PULLED THE INJECTORS AND PUMP. SENT THE INJECTORS OVER TO BE CHECKED AND REBUILT. INSTALLED THEM BACK IN THE UNIT WITH A NEW INJECTION PUMP. REPLACED THE FUEL PUMP AND REINSTALLED THE VALVE COVERS WITH NEW SEALS AND ORINGS. BLED THE FUEL DOWN AND BLED THE AIR OUT OF THE SYSTEM



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Tax	D	Qty	Description	Price	Amount
			AND CHECKED THE OPERATIONS.		

\* SEGMENT SUBTOTAL

## 02 REPLACE BROKEN CLAMPS

### HYUNDAI LABOR

\*\* TOTAL HYUNDAI LABOR

### PARTS-SHOP

08950	1	HUN	31EG-91360	CLAMP-STOP
08950	4	HUN	31EG-91401	CLAMP-PIPE
08950	1	HUN	31NB-92301	BRACKET-PI
08950	2	HUN	S015-120302	BOLT
08950	4	HUN	S017-120702	BOLT
08950	6	HUN	S017-120802	BOLT
08950	20	HUN	S411-120006	WASHER
08950	8	HUN	S017-160554	BOLT
08950	8	HUN	S441-160004	WASHER-HAR
08950	8	HUN	S207-161002	NUT

\*\* TOTAL PARTS-SHOP

REMOVED AND REPLACED MISSING CLAMPS AND REPLACED ALL BROKEN BOLTS.  
 READJUSTED SOME OF THE HOSES AND REASSEMBLED THE CLAMPS. TIGHTENED UP ALL BOLTS.

\* SEGMENT SUBTOTAL



Tax	D	Qty	Description	Price	Amount
03 REPLACE BENT STEPS					
			HYUNDAI LABOR		
			PARTS-SHOP		
08950		2	HUN 51N8-20051GG	BOARD-FOOT	
REMOVED AND REPLACED THE BENT STEPS AND TIGHTENED ALL BOLTS.					
				* SEGMENT SUBTOTAL	



HYUNDAI R360LC7 04 SN:NA0110108 HR 5613 0 W:99 C:  
 Sold By: TDM PO #: Date 3/09/11 WORK ORDER WT29740  
 Ship By: TOPSN Tax #: 12:01:20 PRT: 20

Tax	D	Qty	Description	Price	Amount
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# 04 SERVICE UNIT

## HYUNDAI LABOR

\*\* TOTAL HYUNDAI LABOR

## PARTS-SHOP

08950	1	CAS FS1022	FILTER	F 3 B 4
08950	2	CAS 143949A1	15W40 2.5	T 2 B 1
08950	2	CAS 139034A1	15W40 1 GA	S 2 D 1
08950	1	CAS LF9009A	FILTER, EN	O 3 B 4
08950	1	CM 3939352	GASKET	
08950	1	CM 3930408	PAN GASKET	
08950	2	CAS 139034A1	15W40 1 GA	S 2 D 1
08950	3	CAS 43158	SCREW	
08950	1	CAS 132096A1	GREASE	S 3 C 5

\*\* TOTAL PARTS-SHOP

SERVICED THE UNIT COMPLETELY. CHANGED THE ENGINE OIL AND FILTERS AND AIR  
 FILTERS. CHANGED THE FINAL OILS ON BOTH SIDES AND REFILLED TO PROPER  
 LEVELS. DURING THE ENGINE OIL CHANGE, FOUND PIECES OF METAL ON THE PLUG  
 WHEN IT WAS REMOVED. INFORMED THE CUSTOMER AND THEY WANTED TO PULL THE PAN  
 OFF AND SEE IF WE COULD DETECT WHERE IT MIGHT HAVE COME FROM. REMOVED THE  
 COVERS AND REMOVED THE PAN. CLEANED OFF THE SURFACES ADN CHECKED ALL  
 CYLINDERS AND COULD NOT DETERMINE WHERE THE METAL COULD HAVE COME FROM.  
 FOUND NONE IN THE PAN OR SUMP. REASSEMBLED WITH NEW GASKET AND ORINGS AND  
 INSTALLED THE BELLY PANS ON THE UNIT. CLEANED THE UNIT AND GREASED.

\* SEGMENT SUBTOTAL



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Tax	D	Qty	Description	-----*	Price	Amount
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05 CHECK R.H. CONSOLE OUT

HYUNDAI LABOR

\*\* TOTAL HYUNDAI LABOR

PARTS-SHOP

08950 1 HUN 21N8-20504 SWITCH MEM

CHECKED THE ELECTRICAL SYSTEM GOING TO THE R.H. PANEL. FOUND SOME OF THE SWITCHES WERE NOT RESPONDING IN THE PANEL. REMOVED AND REPLACED THE PANEL AND REASSEMBLED AND CHECKED THE OPERATIONS.

\* SEGMENT SUBTOTAL



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Tax	D	Qty	Description	Price	Amount
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# 06 CHECK OUT SWING MOTOR AND GEAR BOX

## HYUNDAI LABOR

\*\* TOTAL HYUNDAI LABOR

## PARTS FRT & HDL

08950 TRUCK FREIGHT REDUCTION GEAR

## PARTS-SHOP

08950	4	CAS B85142	85-140 GLU	S 1 C 3
08950	1	HUN 31NA-10150	SWING RED.	
08950	1	HUN P010-430011	CONNECTOR	
08950	2	CAS D330421	O-RING	K 2 C 2B
08950	1	CAS 9824050	O-RING	K 2 C 2D
08950	1	CAS 570186	O-RING	K 2 D 1G
08950	1	CAS J924147	PLUG	K 4 H 1A
08950	1	CAS J920773	SEAL/WASHR	K 4 D 4C
08950	2	CAS B85142	85-140 GLU	S 1 C 3

\*\* TOTAL PARTS-SHOP

DURING THE OIL CHANGE, FOUND METAL IN THE OIL OF THE SWING BOX. REMOVED THE MOTOR AND BOX AND DISASSEMBLED. FOUND SEVERAL CHUNKS OF METAL MISSING FROM GEARS AND DRIVE RINGS. INFORMED THE CUSTOMER AND DECIDED TO REPLACE THE SWING GEAR ASSEMBLY. INSTALLED THE GEAR BOX AND OTHER NECESSARY PARTS AND REASSEMBLED WITH A NEW SWING GEAR. REINSTALLED IN THE UNIT AND FILLED OIL LUBE. CHECKED OPERATIONS AND CALLED THE CUSTOMER FOR PICK UP.

\*\* SUBTOTAL 23325.07

\*\* SALES TAX 2087.59

PAY THIS  
AMOUNT



\$25412.66