

**2006 Sterling L9500
NR9308**

Engine Replacement

CUST PO #	FLEET NUMBER	VIN	SERVICE ADVISOR	PAYMENT CODE	
012521-11	41	2FZHAZCV86AV35086		SRET	
YEAR	MAKE	MODEL	ODOMETER	START DATE	COMPLETION DATE
2006	STERLING	L9500	111807	1/5/2021 9:05:48AM	2/9/2021 2:47:50PM

JOB #1 0000002

SRET EXPRESS ASSESSMENT

CONDITION: CEL LIGHT IS ON, OIL LIGHT IS ON, OIL PRESSURE IS AT 26. CHECK AND ADVISE.

CAUSE:

PAID

Initials

CORRECTION: 0398

BROUGHT UNIT IN SHOP, CONNECTED DDL AND FOUND 4 STORD CODES P 158/1 WITH 3 COUNTS FOR SWITCHED BATTERY VOLTAGE.

P 100/1 LOW OIL PSI 255 COUNTS

P 100/14 VERY LOW OIL PSI 255 COUNTS

P 105/0 1 COUNT INTAKE MANIFOLD TEMP

CHECKED ENGINE OIL, HAS PROPER LEVEL AND NO SIGN OF CONTAMINATION. COMPARED GAUGE WITH READING IN DDDL AND THEY MATCH. CHECKED OIL PSI, SPEC MIN OF 7 PSI AT IDLE AND 36 PSI MIN AT RATED AT OPERATING TEMPERATURE. OIL PSI AT IDLE IS IN SPEC, OIL PSI AT RATED IS ONLY 35 PSI. ADVISED NEXT STEP IN TROUBLE SHOOTING IS TO CHECK FOR CRACKED SUCTION TUBE.

3641

PULLED UNIT IN SHOP. DRAINED OIL AND REMOVED OIL FILTER. FOUND OIL WAS BEING PUSHED OUT OF THE OIL FILTER HOUSING. REMOVED OIL PAN AND REMOVED OIL SUCTION TUBE. INSTALLED NEW SUCTION TUBE AND O-RINGS/GASKET. CLEANED OIL PAN AND INSTALLED NEW GASKET. GO GASKET AND INSTALLED PAN, TIGHTENED ALL THE BOLT. INSTALLED DIPSTICK TUBE AND FILLED WITH OIL. INSTALLED NEW OIL FILTER AND ORING. STEAM CLEAENED UNIT AND RAN UNIT UP TO TEMPERATURE TO CHECK FOR LEAKS AND OIL PRESSURE. PULLED UNIT BACK IN BAY AND FOUND CHECK ENGINE LIGHT ON, ENGINE PROTECTION LIGHT, AND OIL PRESSURE LIGHT. UNIT IDLED WITH OIL PRESSURE IN SPEC, BUT WHEN IDELED UP IT DOES HAVE ENOUGH OIL PRESSURE.

0334

NO MANUAL GAUGE HAS BEEN INSTALLED TO VERFY. INSTALLED MANUAL GAUGE. VERIFIED OIL PRESSURE AT IDLE-23. OIL PRESSURE AT HI IDLE 29. FILTER AND PICK UP TUBE HAVE BEEN REPLACED. GOT QUOTE FOR PUMP AND RELIEF VALVE. ADVISED, ALSO NEED TO CHECK PISTON COOLERS BEFORE REPLACING OIL PUMP.

3693

DRAINED OIL, REMOVED DIPSTICK TUBE, FILL TUBE, AND OIL HEATER CONNECTOR FROM PAN. UNBOLTED PAN AND REMOVED IT. REMOVED PICKUP TUBE, PRESSURE RELIEF VALVE, AND PUMP. CLEANED OFF SILICONE FROM OIL PAN GASKET SURFACE. CHECKED PISTON COOLERS, NO DAMAGE. INSTALLED NEW PUMP AND VALVE. REINSTALLED PICK UP TUBE WITH NEW GASKET, TORQUED ALL BOLTS. APPLIED SILICONE TO BLOCK CORNERS. INSTALLED OIL PAN WITH NEW GASKET, TORQUED BOLTS. REFILLED WITH THE OIL THAT WAS TAKEN OUT. RAN ENGINE, IN MID 20s AT IDLE, ABOUT 28 PSI HIGH IDLE, CAUSING CHECK ENGINE LIGHT, STOP ENGINE LIGHT, AND OIL PRESSURE LIGHT TO COME ON AT HIGH RPMS LIKE BEFORE. REMOVED OIL FILTER, FOUND SOME METAL IN OIL ALREADY. JUST HAD NEW FILTER AND OIL VERY RECENTLY. WILL NEED TO CHECK ROD AND CRANK BEARINGS FOR WEAR.

DRAINED OIL. REMOVED OIL FILL TUBE, DIPSTICK TUBE, AND OIL HEATER CONNECTOR. REMOVED OIL PAN, ALL ROD CAPS, AND ALL MAIN CAPS. EXCEPT FOR 1 BLOCKED BY OIL PUMP. FOUND THAT THE ROD BEARINGS ARE SCRAPPED UP SOME, ESPECIALLY #1 BEARING, ALL MAIN BEARINGS HAVE SOME MINOR SCUFFING AS WELL. CHECKED ENGINE COMPONENTS AGAIN, NO SIGNS OF DAMAGED COMPONENTS THAT WOULD CAUSE METAL SHAVINGS TO BE IN THE OIL.

2188

CHECKED TURBO, HAS PLAY AND HAS TIGHT SPOT IN IT. REMOVED OIL PUMP TO SEE GEAR TRAIN, DONT SEE ANY DAMAGE. CHECKED CAMSHAFT, NO DAMAGE. REMOVED PISTON COOLERS, NO DAMAGE. CALLED CSC AND GOT REF # 36885303. NEED TO SEND PICTURES OF BEARINGS. SENT INFO TO THEM. CALLED CSC, IT IS BEING REVIEWED BY ENGINEERING, THEY WILL CALL BACK.

REMOVED VALVE COVERS AND ROCKER ASSEMBLY. DISASSEMBLED ROCKER ARMS, ALL HAVE WEAR. DONT THINK THIS IS THE ROOT CAUSE, SENT PICTURES TO CSC.

DRAINED COOLANT. REMOVED HOOD AND EVACUATED A/C. REMOVED RADIATOR ASSEMBLY, AIR FILTER ASSEMBLY, COOLANT RESERVOIR, STARTER, WIRING, BRACKETS, TORQUE CONVERTER BOLTS, PASSENGER SEAT, DOG HOUSE, S-PIPE, FRONT AND REAR MOTOR MOUNT BOLTS, POWER STEERING PUMP, DISCHARGE LINE, ALTERNATOR BATTERY CABLES, AND BELL HOUSING BOLTS. REMOVED FRONT PULLY, FAN HUB, AND COOLANT OUTLET CONNECTION. REMOVED ENGINE AND SET ON STANDS.

QTY	ITEM	TECH NO.	DESCRIPTION	BIN 1	NET PRICE	EXTD PRICE
	LABOR					
1	150X/DDEA4601800701		OIL PUMP			0
1	150D/PEX 24200		MEDIUM STRENGTH THRE			0
2	150X/CRM10M-1108		8MM 10.9 FLAT WASHER ZC			2
1	150F/DDE R23534766		ENGINE	RVTCA3		8
1	150F/DDE EA4601420679		EGR COOLER			6
1	150F/DDE RA4601420419		EGR VALVE	W230		2
1	150F/DDE RA4601420319		EGR VALVE	01W1		5
1	150F/DDE EA0100960199		TURBOCHARGER	01W1		8
1	150F/DDE RA4571306715		AIR COMP	NOLOC		8
6	150F/DDE A4570980380		GASKET			3
8	150X/CRX8-610		3/8-16X1 FT USS GD8 HEX CAP ZY	13A2		5
8	150X/CRX8-158-TK		3/8 SAE GD8 THICK FLAT WASHER	BB2D		5
1	150F/ZFT 063431344001		O-RING D46XD3 FPM70			8
12	150F/DDE N000000001069		SEAL RING (20mm O.D. x 14mm I	RED04E		2
1	150F/DDE A4602000058		BREATH. LINE	VID3G		1
3	150F/DDE A4601422180		SEAL/EXHAUST	14A3		1
1	150F/DDE A4571421080		GASKET	13A3		
1	150F/DDE A4571310180		GASKET	13A2		
1	150F/DDE A4570102364		OILFILL PIPE	13A2		
1	150F/DDE A3649900063		HOLLOW SCREW	14BEND		
4	150F/DDE A0009906005		STUD	13A2		
4	150F/DDE A0009902852		NUT	13A1		
1	150F/01-27716-000		GASKET-CHARGE AIR COOLR,MBE400	13A1		
				16H		

See last page for total

1	150F/DDE A4570910180	GASKET	13A2	5
1	150F/DDE A4601422880	GASKET	GB05	3
4	150F/DDE A0001427857	SEAL RING	13A1	2
2	150F/DDE A4602030015	PIPE EGR	13A3	8
2	150F/DDE A0009941718	SPRG/SEALRNG	13A1	6
3	150F/23-13112-112	NUT-HEX,LOCKING,M12-1.5,ZINC A		9
6	150F/DDE A0009902852	NUT	13A1	6
6	150F/DDE A0019904605	STUD	14B3	4
1	150X/CRX306-PT	1/4-20 STOVER ALL METAL GDC L	BB2B	7
2	150X/CRX8-156-TK	1/4 SAE GD8 THICK FLAT WASHER	BB2B	4
1	150X/CRX8-410	1/4-20X1 FT USS GD8 HEX CAP ZY	BB2B	3
-1	150F/DDE EA0100960199-CORE	TURBOCHARGER	CORE	3
-1	150F/DDE RA4601420319-CORE	EGR VALVE	CORE	3
1	150F/BCD 27651 3	ISOLATOR - ENG MNT	16F	3
1	150F/BCD 28945 1	ISOLATOR-ENG SUPPORT,FR,LOWER	16F	3
44	150D/MBL 105816	M-DEL 1300S 15W40, BULK	shop	3
13	150D/OWI AMAB53	ALLIANCE OAT ELC 50/50 GAL	15BFLR	2
1	150F/ABP N35 50PLAG	CLAMP-BAND,AUMINIZED STL,5IN,P	04B3	1
1	150F/BRZ B9224 0425FRU	CLAMP-HD SPRING T BOLT,HOSE,4.	16J	1
10	150F/TYC DCT110HIR	TIE STRAP	BB2A	1
12	150X/CRX7750	14 INCH BLACK STANDARD 50 LB C	BB4A	1
12	150X/CRX7840	14IN BLACK 120LB HEAVY DUTY C	BB4A	1
1	150X/ZCB460-4	1/4 SLEEVE A/B NYLON TUBE	BB4B	1
-1	150X/ZCB461-4	1/4 AIR BRAKE NYLON NUT	BB4B	1
1	150F/DDE A5411870080	GASKET	14B5	1
1	150F/BUS AMG250	FUSE 250AMP AMG SER	10A1	1
1	150X/CRX312-PT	5/8-11 STOVER ALL METAL GDC LO	BB2H	1
1	150X/FUSE	BLADE TYPE FUSE		
1	150X/784667	FUSE HOLDER		
2	150X/LPTSETERM	TERM	BB1E	1
-1	150F/DDE RA4571306715-CORE	AIR COMP		
2	150F/BRZ CT 300 L SS	CLAMP-CT,HOSE,2 1/4-3 1/8,5/8	16J	1
2	150F/23-13211-411	CONNECTOR-TERM,MALE,M1.6,1-2(1	BB1A	1
-1	150F/DDE R23534766-CORE	ENGINE		
-1	150F/DDE EA4601420679-CORE	EGR COOLER	CORE	1
-1	150F/DDE RA4601420419-CORE	EGR VALVE	CORE	1
1	150F/DDE R23534766-CORE	ENGINE		
1	150F/DDE EA4601420679-CORE	EGR COOLER	CORE	1

See last page for total

1	150F/DDE RA4601420419-CORE	EGR VALVE	CORE
1	150F/DDE RA4601420319-CORE	EGR VALVE	CORE
1	150F/DDE EA0100960199-CORE	TURBOCHARGER	CORE
1	150F/DDE RA4571306715-CORE	AIR COMP	
1	*FRT	FREIGHT IN	
C		MUST ALSO SELL DDE A4571310180 WHEN	
C		REPLACING DDE RA4571302415	

Job# 1

JOB #2 0100000 SRET A/C-HEATER SYSTEM

CONDITION: A/C IS BLOWING HOT AIR, CHECK AND ADVISE.

CAUSE: LOW CHARGE

CORRECTION: 3641

HOOKED A/C MACHINE UP AND RECOVERED 2LBS, SPEC IS 2.63LBS. CHARGED A/C SYSTEM AND A/C BLOWS 40 DEGREES OUT OF THE DASH, ADVISED.

QTY	ITEM	TECH NO.	DESCRIPTION	BIN 1	NET PRICE	EXTD PRICE
3	LABOR 150F/COS R134WA		ONE POUND R134A FREON			

Job# 2

JOB #3 4500000 SRET ENGINE POWER PLANT

CONDITION: CONTINUED STORIES FROM OPERATION 1.

CAUSE:

CORRECTION: 2188

REMOVED SIDE COVERS, INTAKE, FUEL LINES, AIR COMPRESSOR, BREATHER, FUEL PUMP, TURBO, EGR COOLER, EGR VALVE, AIR LINES, AND EGR COOLER BRACKET. INSTALLED CONSTANT THROTTLE VALVE. SWAPED REED VALVE TO NEW COOLER AND INSTALLED COOLANT BREATHER LINE. INSTALLED EGR COOLER BRACKET, EXHAUST MANIFOLD WITH NEW GASKETS, EGR COOLER, EGR VALVE, COOLANT CONNECTORS, INTAKE, FUEL LINES, AND PLD. INSTALLED NEW AIR COMPRESSOR AND SWAPPED FITTINGGS. SWAPPED FITTINGS AND EXHAUST FLAP TO NEW TURBO AND INSTALLED TURBO. HAD TO ORDER SEAL RINGS FOR EGR VALVE. INSTALLED ACCESSORY BRACKET, A/C COMPRESSOR, ALTERNATOR, AND A/C LINES. SECURED, WATER PUMP PULLY, BELT TENSIONERS. INSTALLED FLEX PLATE AND SET IN ENGINE. BOLTED UP CONVERTER, TRANSMISSION, WIRING, COOLANT LINES, RADIATOR ASSEMBLY, FAN HUB, FAN BLADE, AND STARTER. VACUUMED AND CHAGRED A/C. FILLED WITH COOLANT AND OIL. TRIED STARTING UNIT, DONT HAVE POWER TO ANYTHING.

CHECKED POWERS, FOUND MAX FUSE BLOWN. REMOVED AND REPLACED, STILL NO POWER. CHECKED CABLE AT STARTER TO RELAY. FOUND CABLE SHORTING OUT ON STUD ON FIRE WALL. ADVISED, THIS IS NOT FROM INSTALLING THE ENGINE. TOOK PICTURES AND REPAIRED CABLE. RECONNECTED CABLES AND CHECKED. NOW HAVE POWER AND UNIT CRANKS.

QTY	ITEM	TECH NO.	DESCRIPTION	BIN 1	NET PRICE	EXTD PRICE
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See last page for total

BILL TO

NORTHEAST PUBLIC SEWER DIST.
1041 GRAVOIS RD
FENTON, MO 63026

104335

SHIP TO

NORTHEAST PUBLIC SEWER DIST
1041 GRAVOIS RD
FENTON, MO 63026

104335

LABOR

Job# 3

IMPORTANT: If service work has been performed on wheel nuts or axle u-bolts, they must be re-torqued to specs 25 to 100 miles after the service work.

SERVICE INVOICE REPRINT

1

3

for

1

as.

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MISC CHARGES	
PARTS	
LABOR	
SUBLET	
SHOP SUPP / DIAG	
TAX	
TOTAL	35,054.27