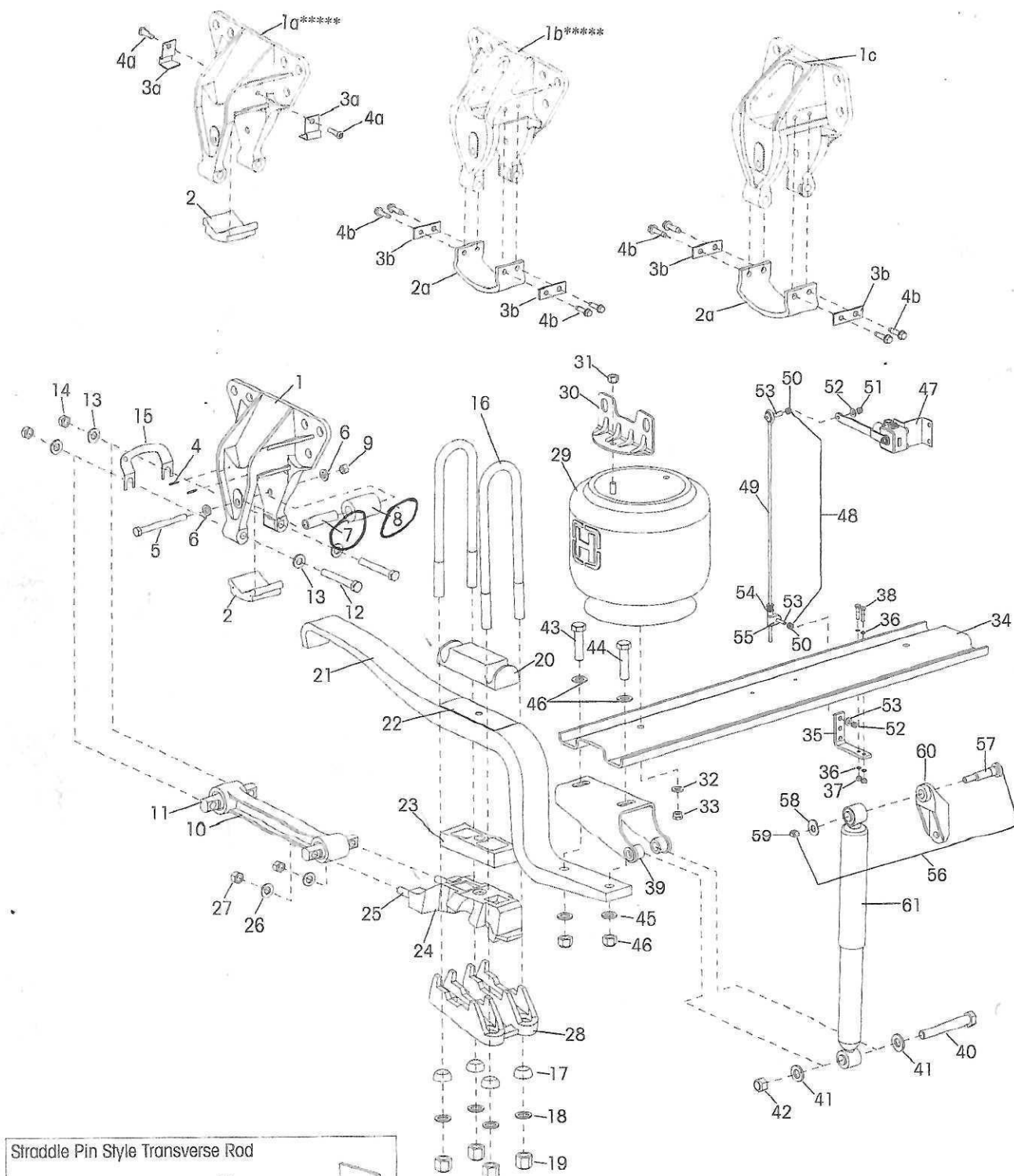


KEY NO.	PART NO.	DESCRIPTION	NO. REQ.	KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
1	58425-001	Front Frame Hanger Assembly Includes Key Nos. 2-4 HAS 210/230 Standard Frame Casting No. 57188-000 Replaces 57190-001 1/2 and 50752-001 1/2	2	20	57224-000	Top Pad HAS 120/150	2
1b	58688-001	HAS 210/230 Rein. Frame Casting No. 57476-000 Replaces 57478-001 1/2		21	56805-000	HAS 190/210/230 Main Support Member, Includes Key No. 22	2
1c	50753-001	HAS 120/150/190 Casting No. 49848-000 or 56666-000 HAS 120/150/190 Casting No. 60634-001			56925-000	HAS 120/150L	
	60636-001	Standard Frame Casting No. 59043-000			56937-000	HAS 120/150	
	59045-003	Rein. Frame Casting No. 59052-000			56928-000	HAS 190L	
	59052-000	Slipper Pad Service Kit, One Hanger, Includes Key Nos. 2-4 For Hangers 50753-001			56940-000	HAS 190	
	56557-002	For Hangers 57190-001			56931-000	HAS 210L	
	56557-004	For Hangers 58425-001 58688-001, 59045-003 59052-000			56943-000	HAS 210	
	56557-005	Slipper Pad	2		56934-000	HAS 230L	
2	56929-000	For Hangers 58425-001 58688-001, 59045-003 59052-000	2		56946-000	HAS 230	
2a	50612-000	For Hangers 50753-001 (1c), 50752-001 (1b)		22	47905-000	Liner	2
3a	57566-000	Retainer Clip	8	23	48531-009	Spring Seat Spacer 1", HAS 120/150 - 6 1/4" width	2
3b	50597-000	Retainer Plate, For Hangers 50753-001 (1c)	8		48902-000	1"	
4	58287-001	Retainer Lock Pin or Screw	4		48903-000	1 1/2"	
4a	57540-000	1" Lock Pin		24		Spring Seat Assembly, Includes Key Nos. 25-27 See Spring Seat Assembly Chart (Page 181)	
4b	57306-000	3/8" Button Head Screw				Left Front	1
	49175-014	Rebound Roller Kit, Axle Set, Includes Key Nos. 5-9				Right Front	1
5	24531-015	1/2"-13 UNC Rebound Bolt	2	25	50918-000	5/8"-11 UNC Stud	4
6	22962-014	1/2" Flat Hardened Washer	4	26	22962-004	5/8" Flat Hardened Washer	4
7	57988-000	Rebound Bolt Spacer, Replaces 47458-000	2	27	47764-000	5/8"-11 UNC Locknut	4
8	57989-000	Rebound Roller, Replaces 48883-000	2	28		Axle Bottom Cap (Meritor RS13-120, RS15-120, RS15-210) LHF/RHF 0-5° Pinion Angle (Meritor RS21-145, RS21-160, RS23-160/161; Dana 19060/21060/21080/ 21090/23090/26090, S21/23/26-170/190) LHF/RHF 0-9.5° Pinion Angle HAS 190/210/230	2
9	49846-000	1/2"-13 UNC Locknut	2		57024-000		
10		Torque Rod Assembly Shim Type Adjustable 14 3/8", Includes Key No. 11 HAS 120/150/190	2		50216-000		
	48411-006	HAS 230, Replaces Torque Rod 50376-001 and Bushing 57256-000		28		Axle Bottom Cap (Dana 23080/23105/26015) LHF 0-9.5° Pinion Angle RHF 0-9.5° Pinion Angle LHR 10-14° Pinion Angle RHR 10-14° Pinion Angle HAS 230	2
	62007-365				50085-000		
11	47691-000L	Torque Rod Bushing	4		50086-000		
12	32043-005	5/8"-11 UNC 4.5" Bolt	4		50095-000		
13	22962-004	5/8" Flat Hardened Washer	8		50094-000		
14	47764-000	5/8"-11 UNC Locknut	4	29	57920-002L	Air Spring, Includes Key Nos. 30-31 HAS 120L	2
15		Torque Rod Shim	As Req.		56917-002L	HAS 150L/190L/210L/230L	
	49689-000	1/16"			57122-002L	HAS 190/210/230	
	57856-000	1/32"		30	50804-002	Air Spring Frame Bracket	2
	48718-	U-bolt Fastener Kit, Axle Set, Includes Key Nos. 16-19		31	17700-010	1/2"-13 UNC Air Spring Locknut	2
16		U-bolt, Specify Length	4	32	22962-014	1/2" Flat Hardened Washer	2
	49684-	3/4"-16 UNF - HAS 120/150		33	17700-010	1/2"-13 UNC Nylocknut	2
	47417-	7/8"-14 UNF - HAS 190/210/230		34		Cross Channel, Specify Axle Dowel Pin Center	1
17		Spherical Washer	8		57855-	HAS 120	
	49947-000	3/4" - HAS 120/150			57317-	HAS 150/190/210/230	
	48574-000	7/8" - HAS 190/210/230			57430-000	Control Valve Linkage Bracket Kit, Includes Key Nos. 35-38	
18		Flat Hardened Washer	8	35	50769-000	Control Valve Linkage Bracket	1
	22962-001	3/4" - HAS 120/150		36	22962-028	1/4" Flat Hardened Washer	4
	22962-002	7/8" - HAS 190/210/230		37	49983-000	1/4"-20 UNC Locknut	2
19		U-bolt Nut	8	38	56935-002	1/4"-20 UNC 1.0" Bolt	2
	49685-000	3/4"-16 UNF Locknut - HAS 120/150				Lower Shock Bracket Assembly Includes Key Nos. 39-42 HAS 120L/150L/190L/210L/230L HAS 190/210/230	2
	50765-000	7/8"-14 UNF Locknut - HAS 190/210/230			49690-002		
	57347-000	7/8"-14 UNF Nylocknut - HAS 190/210/230			57356-000		
				39		Lower Shock Bracket	2
					49324-002	HAS 120L/150L/190L/210L/230L	
					57355-000	HAS 190/210/230	
				40	50764-002	3/4"-10 UNC 5.5" Bolt	2
				41	22962-001	3/4" Flat Hardened Washer	4
				42	49842-000	3/4"-10 UNC Locknut	2

568056 T-P
8QK4109 M-L
8QK4110 M-R

KEY NO.	PART NO.	DESCRIPTION	NO. REQ.	KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
43		3/4"-10 UNC Bolt	2	57	50368-000	1/2"-13 UNC Serrated Shank Bolt	2
	50764-005	HAS 120/150/190/210 - 3.0" Length		58	22962-031	1/2" Flat Hardened Washer	2
	50764-003	HAS 230 - 3.5" Length		59	49846-000	1/2"-13 UNC Locknut	2
44		3/4"-10 UNC Bolt	2	60		*Upper Shock Bracket	1
	50764-007	HAS 120/150/190/210 - 2.5" Length		61		Shock Absorber	2
	50764-005	HAS 230 - 3.0" Length			60670-005L	HAS 190/210/230 Standard	
45	22962-001	3/4" Flat Hardened Washer	8		60675-003L	HAS 190/210/230 High Torque	
46	49842-000	3/4"-10 UNC Locknut	4		60670-010L	HAS 120L	
47	57977-000	Height Control Valve	1		60670-003L	HAS 150L	
48	58994- L	HCV Linkage Assembly, Specify Length	1		60670-008L	HAS 190L/210L/230L	
		Includes Key Nos. 49-55		62	48914-000	***Air Dump Switch (Located In Cab)	1
49		*Linkage Rod, Specify Length	1	63	49193-001	***Synchro-Relay Valve	1
50		*5/16"-18 UNC Jam Nut	2	64	48940-000	***Air Switch Name Plate (Located In Cab)	1
51		*5/16"-18 UNC Locknut	2	65	30272-000	***Pressure Protection Valve	1
52		*5/16" Flat Hardened Washer	2	66	60218-000	**Transverse Rod Assembly	1
53		*5/16"-18 UNC Stud	2	67	22186-000	Transverse Rod Frame Bracket	1
54		*Linkage Rod Clamp	1	68	45045-003	Back up Plate	1
55		*Adjustable Linkage Rod Joint	1	69		***Transverse Rod Axle Bracket	1
56	57322-001	Upper Shock Bracket Assembly,	2			See Lit. No. 59310-004 for proper axle	
		Includes Key Nos. 57-60				bracket and Assembly Instructions	

NOTE: * Item included in assembly only, part not sold separately.

** Transverse Rods (Key No. 66) are mandatory with the HAS Series Suspension regardless of axle spacing and require rubber center bushings. See literature no. 59310-004 for mandatory use of transverse rods.

*** Brackets for drive axles are supplied by the axle manufacturer.

**** See Plumbing Diagram on page 182.

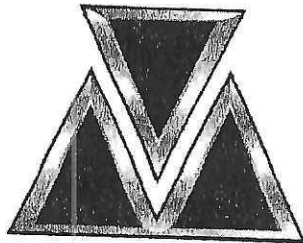
***** These frame hangers are obsolete, although replacement slipper pads and hardware are currently still available.

HENDRICKSON HAS RIDE HEIGHT GAUGE FOR UNLOADED VEHICLES: Literature number 45745-106
Height Gauge can be obtained on-line at www.hendrickson-intl.com/literature/lifform.asp

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	MAKE <u>Mack</u>	HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MODEL <u>12' T. Tr</u>	SERIAL # <u>1M1BDD246M001358</u>	REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
HOUR METER _____	MILES <u>287,988 mi</u>	PARTS _____ LABOR _____	COMPONENT LOCATION	
		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
			OTHER _____	
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: <u>11-20-22</u> DATE COMPLETED <u>4-8-23</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>Ben</u>	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER _____
PROBLEM: <u>Found broken crankshaft</u>				
<u>replaced longblock. Replaced parts as needed.</u>				
<u>hoses 67⁶⁰ Truck Pro</u>				
REPAIRED: <u>removed engine</u>				
<u>speed sensor</u>	<u>99.²²</u>	<u>McMahon Trucks</u>		
<u>belts</u>	<u>117.¹⁴</u>	<u>McMahon Trucks</u>		
<u>Fill Tube</u>	<u>144.⁵³</u>	<u>McMahon Trucks</u>		
<u>Air Comp.</u>	<u>1040.⁰⁰</u>	<u>McMahon Trucks</u>		
<u>Engine mounts</u>	<u>971.⁹²</u>	<u>McMahon Trucks</u>		
<u>Flange screws</u>	<u>364.⁶⁴</u>	<u>McMahon Trucks</u>		
PARTS: <u>Air supply hose</u>	<u>263.⁵¹</u>	<u>Cook's</u>		
<u>Engine mounts</u>	<u>311.⁰⁰</u>	<u>McMahon Trucks</u>		
<u>Gaskets & O-rings</u>	<u>2,089.⁶²</u>	<u>McMahon Trucks</u>		
<u>Engine</u>	<u>38,930.¹⁹</u>	<u>core 8125.⁰⁰</u>	<u>McMahon Trucks</u>	
<u>Fuel Filter</u>	<u>70.³⁵</u>	<u>Ten Filter</u>		
<u>Starter</u>	<u>349.⁰¹</u>	<u>Cook's</u>		
<u>Wing couplers</u>	<u>220.⁴⁹</u>	<u>IR+G</u>		



McMahon TRUCK CENTERS NASHVILLE



161 Charter Place · Lavergne TN, 37086

(615) 793-5600 Fax: (615) 793-5610

www.mcmahontrucks.com

THE SELLER, McMAHON TRUCK CENTERS HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, AND THE SELLER NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF ANY VEHICLE PART.

DATE ENTERED	YOUR ORDER NO.	DATE SHIPPED	INVOICE DATE	INVOICE NUMBER
21 NOV 23		11 JAN 24	11 JAN 24	146615PNV

S
O
L
D

T
O

ACCOUNT NO. F7711
468540
THORNES EXCAVATING CO LLC
468540 050
624 OLD HORN SPRINGS RD
LEBANON, TN 37087

S
H
I
P

T
O

PAGE 1 OF 1
THORNES EXCAVATING CO LLC
468540 010 O 624 OLD HORN SPRI
LEBANON,, TN 37087

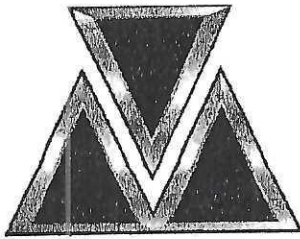
SHIP VIA DEL	SLSM. 209	B/L NO. ANDY C	TERMS IBS	F.O.B. POINT LAVERGNE TN	09:47		
QUANTITY 1	SHIP 1	P.O. 0	PART NO. 85003625	DESCRIPTION BASE ENGINE	LIST LOCATE	NET 7250.00	AMOUNT 27,250.00
				CORE DEPOSIT		8125.00	8,125.00
				IBS APPROVAL EP6847 PICKED BY DJC			
				#0111			
				12' Mack Titan			
				✓ James			
REMIT TO: INTERSTATE BILLING SERVICE P.O. BOX 2208 DECATUR, AL 35609				PARTS		35,375.00	
				SUBLET			
				FREIGHT		0.00	
				SALES TAX		3,555.19	
CUSTOMER'S SIGNATURE X				TOTAL		\$38,930.19	



TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME		COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____	DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>Mack</u>		REASON _____		POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>12' Titan</u>		PARTS _____	LABOR _____	COMPONENT LOCATION	
SERIAL # <u>TD713-1M1BDD246M001358</u>		OTHER _____		FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER <u>205k mi</u>				OTHER _____	
MILES _____					
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED				DATE: <u>7-25-23</u> DATE COMPLETED <u>8-24-23</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH				MECHANIC <u>Ben & Anthony</u>	
SMOKES SHORTED VIBRATE OTHER _____				JOB NAME/LOCATION <u>Shop</u> JOB NUMBER _____	
PROBLEM: <u>loose drive line yokes</u> <u>Trans gone bad</u>					
REPAIRED: <u>replaced rear transmission seal & Nut.</u> <u>replaced front seal in front diff.</u> <u>Mack replaced injectors & rockers</u>					
<u>rockers</u>		<u>4882.⁷⁷</u>		<u>Mc Mahon Trucks</u>	
<u>Det tank sending unit</u>		<u>599.⁷⁶</u>		<u>Mc Mahon Trucks</u>	
<u>cover</u>				<u>Mc Mahon Trucks</u>	
PARTS: <u>2 seals & Nut</u>		<u>56.⁶⁷</u>		<u>Weller Truck parts</u>	
<u>Injectors</u>		<u>\$3443.⁰² + Tax</u>		<u>Mc Mahon Trucks</u>	
<u>Transmission Exchange</u>				<u>Mc Mahon Trucks</u>	
<u>Cover gasket</u>		<u>286.⁵⁹</u>		<u>Mc Maha Trucks</u>	
<u>Oil & fuel Filter</u>		<u>112.⁵⁰</u>		<u>Tenn Filter sales</u>	
<u>PTO bearing kit</u>		<u>100.⁶⁴</u>		<u>Weller Truck parts</u>	
<u>spacer & sensor</u>		<u>328.⁷⁸</u>		<u>Mc Mahon Trucks</u>	
<u>End yoke & seal</u>		<u>447.⁰⁵</u>		<u>Mc Mahon Trucks</u>	



McMahon TRUCK CENTERS NASHVILLE



161 Charter Place · Lavergne TN, 37086

(615) 793-5600 Fax: (615) 793-5610

www.mcmahontrucks.com

THE SELLER, McMAHON TRUCK CENTERS HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, AND THE SELLER NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF ANY VEHICLE PART.

DATE ENTERED	YOUR ORDER NO.	DATE SHIPPED	INVOICE DATE	INVOICE NUMBER
01 AUG 23	TITAN	07 AUG 23	07 AUG 23	138573PNV

S
O
L
D

T
O

ACCOUNT NO. F7711
468540
THORNES EXCAVATING CO LLC
468540 050
624 OLD HORN SPRINGS RD
LEBANON, TN 37087

S
H
I
P

T
O

THORNES EXCAVATING CO LLC
468540 010 O 624 OLD HORN SPRI
LEBANON,, TN 37087

PAGE 1 OF 1

SHIP VIA	SLSM.	B/L NO.	TERMS	F.O.B. POINT	13:40		
DEL	7044	JOSH S	IBS	LAVERGNE TN			
QTY	SHIP	B.O.	PART NO.	DESCRIPTION	LIST	NET	AMOUNT
1	1	0	T318LR21MTC	TRANSMISSI		8750.00	8,750.00
			CORE DEPOSIT			7500.00	7,500.00
				IBS APP # LS8271			
				PICKED BY DJC			
				#0111			
				12' Mack Titan			
				James			
REMIT TO: INTERSTATE BILLING SERVICE							
P.O. BOX 2208				PARTS		16,250.00	
DECATUR, AL 35609				SUBLET			
				FREIGHT		0.00	
				SALES TAX		1,633.13	
CUSTOMER'S SIGNATURE							
X				TOTAL		\$17,883.13	



CUSTOMER COPY

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES																
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS																
MAKE <u>Mack</u>		REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED																
MODEL <u>12' Titan</u>		PARTS _____ LABOR _____	COMPONENT LOCATION																
SERIAL # _____		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER																
HOUR METER _____			OTHER _____																
MILES <u>220K</u>																			
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: <u>4-23-19</u> DATE COMPLETED <u>5-6-19</u>																
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>Charles</u>																
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER															
PROBLEM: <u>check over, service</u> <u>set up to pull lowboy trailer</u>																			
REPAIRED: <u>Installed wet kit, service, modified</u> <u>rear of truck to use with lowboy trailer.</u> <u>cleaned DPF. set truck up for wide loads</u>																			
<table border="0"> <tr> <td>Antennas</td> <td>22.⁵⁹</td> <td>McMahon Truck center</td> </tr> <tr> <td>Hoses & Fittings</td> <td>1458.⁴⁹</td> <td>IR & G</td> </tr> </table>					Antennas	22. ⁵⁹	McMahon Truck center	Hoses & Fittings	1458. ⁴⁹	IR & G									
Antennas	22. ⁵⁹	McMahon Truck center																	
Hoses & Fittings	1458. ⁴⁹	IR & G																	
<table border="0"> <tr> <td>Air Filters, Latch Panels</td> <td>782.⁰⁰</td> <td>McMahon Trucks</td> </tr> <tr> <td>Clean DPF</td> <td>200.⁰⁰</td> <td>Cumberland Int'l</td> </tr> <tr> <td>Tank, Pump, PTO Brackets</td> <td>2409.²⁵</td> <td>Welter Truck Parts</td> </tr> <tr> <td>Barware</td> <td>34.⁰⁰</td> <td>Truck Pro</td> </tr> <tr> <td>Basket Kit</td> <td>321.⁰⁰</td> <td>McMahon Mack</td> </tr> </table>					Air Filters, Latch Panels	782. ⁰⁰	McMahon Trucks	Clean DPF	200. ⁰⁰	Cumberland Int'l	Tank, Pump, PTO Brackets	2409. ²⁵	Welter Truck Parts	Barware	34. ⁰⁰	Truck Pro	Basket Kit	321. ⁰⁰	McMahon Mack
Air Filters, Latch Panels	782. ⁰⁰	McMahon Trucks																	
Clean DPF	200. ⁰⁰	Cumberland Int'l																	
Tank, Pump, PTO Brackets	2409. ²⁵	Welter Truck Parts																	
Barware	34. ⁰⁰	Truck Pro																	
Basket Kit	321. ⁰⁰	McMahon Mack																	

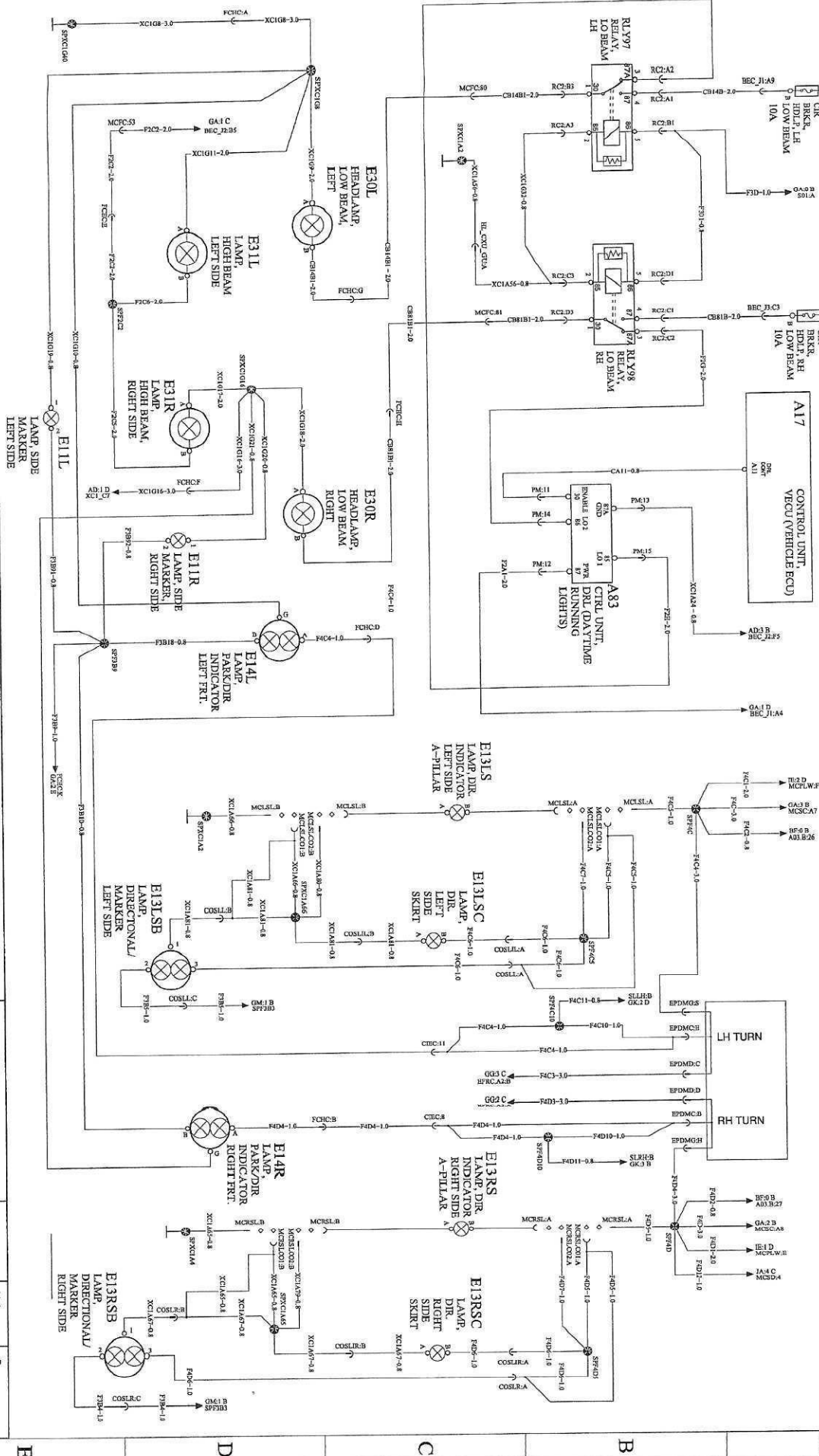
TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION EQUIP. # <u>111</u> MAKE <u>Mack</u> MODEL <u>12' Titan</u> SERIAL # _____ HOUR METER _____ MILES <u>220k mi.</u>	EQUIPMENT DOWNTIME HOURS _____ DAYS _____ REASON _____ PARTS _____ LABOR _____ OTHER _____	COMPONENT CODES BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED COMPONENT LOCATION FRONT REAR LEFT RIGHT UPPER LOWER OTHER _____									
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE: <u>5-9-19</u> DATE COMPLETED <u>5-14-19</u> MECHANIC <u>Charles</u> JOB NAME/LOCATION <u>Shop</u> JOB NUMBER _____									
PROBLEM: <u>loose u-bolts</u>											
REPAIRED: <u>replaced All u-bolts downell plates and</u> <u>1 Air bag on rear axles</u>											
<table border="0"> <tr> <td>PARTS: <u>U-bolts</u></td> <td><u>212.91</u></td> <td><u>All-Nite Spring Service</u></td> </tr> <tr> <td><u>Air bag</u></td> <td><u>181.53</u></td> <td><u>Truck Pro</u></td> </tr> <tr> <td><u>blocks</u></td> <td><u>668.71</u></td> <td><u>All-Nite Spring Service</u></td> </tr> </table>			PARTS: <u>U-bolts</u>	<u>212.91</u>	<u>All-Nite Spring Service</u>	<u>Air bag</u>	<u>181.53</u>	<u>Truck Pro</u>	<u>blocks</u>	<u>668.71</u>	<u>All-Nite Spring Service</u>
PARTS: <u>U-bolts</u>	<u>212.91</u>	<u>All-Nite Spring Service</u>									
<u>Air bag</u>	<u>181.53</u>	<u>Truck Pro</u>									
<u>blocks</u>	<u>668.71</u>	<u>All-Nite Spring Service</u>									

BATT
IGN
ENS
ILLUM

BATT
IGN
ENS
ILLUM



VOLVO Group Trucks Technology

Document title
WIRE DIAGRAM-CONVENTIONAL, 12V MACK, 2013BP
Document type
PRODUCT SCHEMATIC

Document No
21628497

Issue
09

Volume
1 (2)

Page
54 (91)

WIRING DIAGRAM: GE

- BATT
- IGN
- EMS
- ILLUM

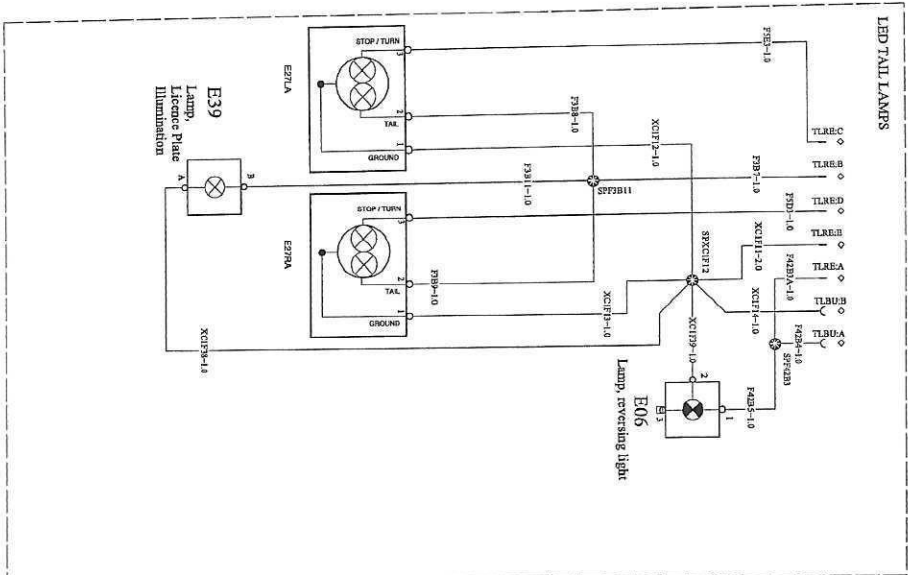
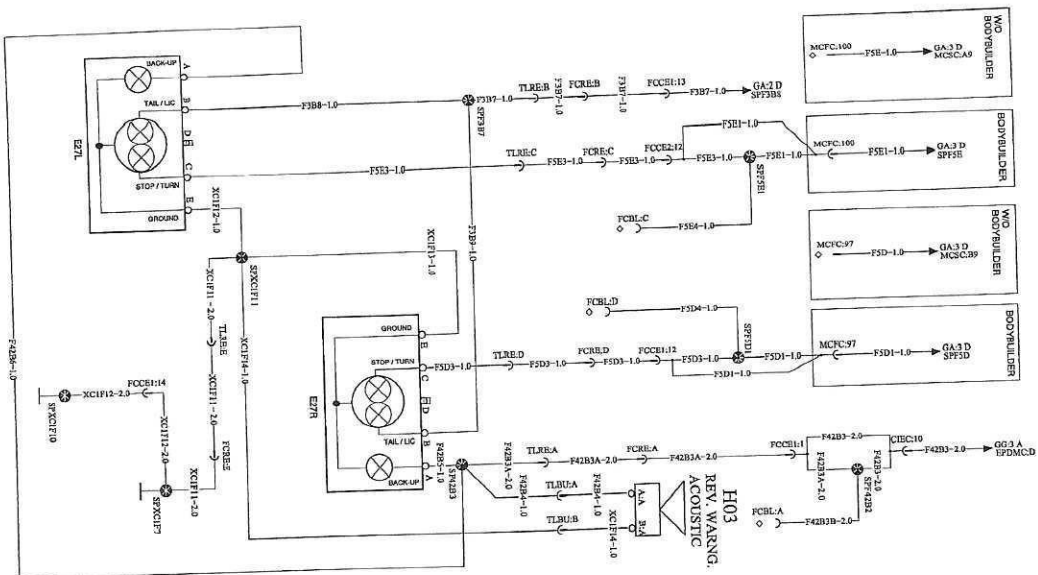


Group Trucks Technology

Document No
2162

Volume
1 (2)

Page
55 (91)

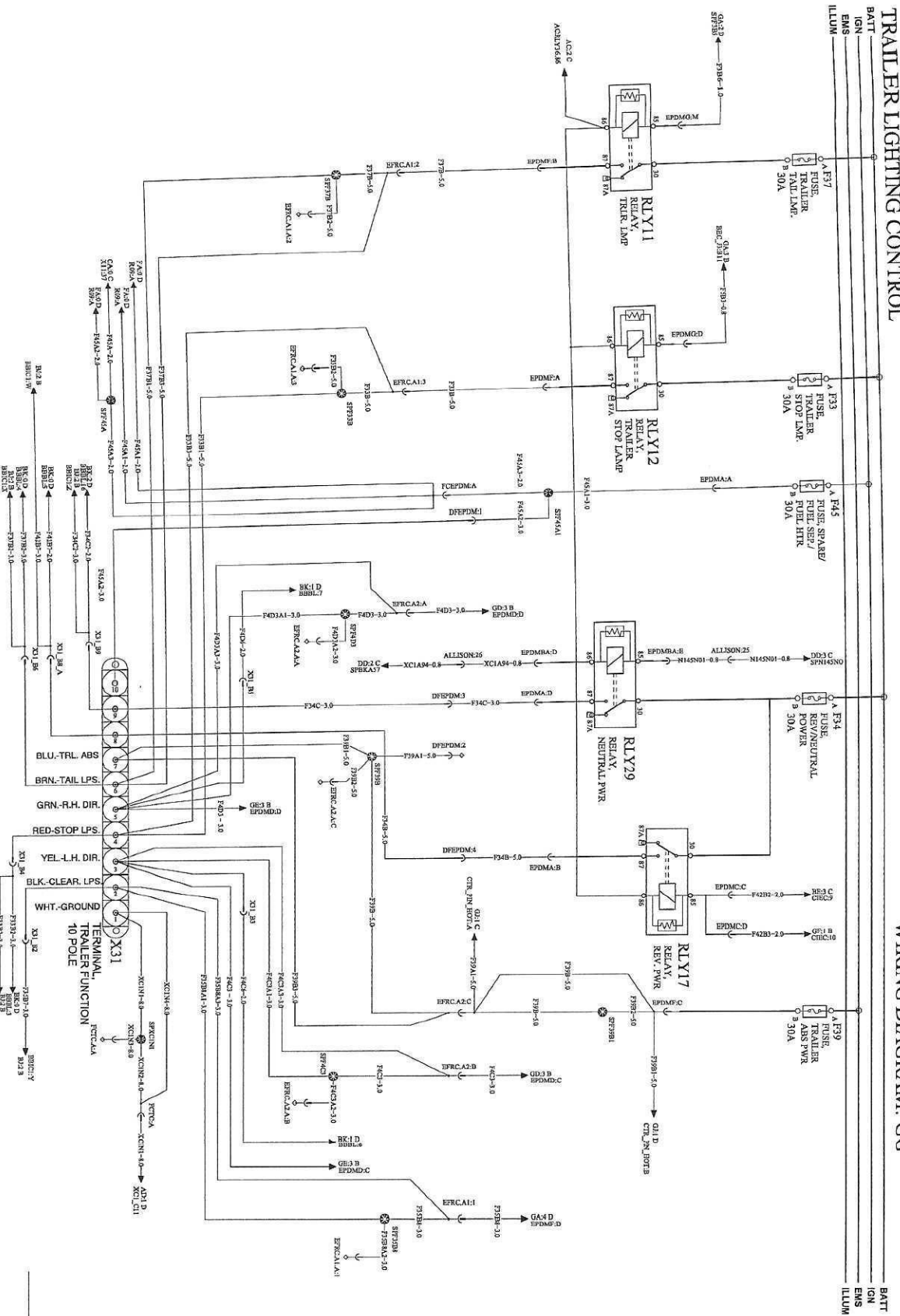


VOLVO Group Trucks Technology

Document title	Document No	Issue	Volume	Page
WIRE DIAGRAM-CONVENTIONAL, 12V MACK, 2013BP	21628497	09	1 (2)	56 (91)
PRODUCT SCHEMATIC				

TRAILER LIGHTING CONTROL

WIRING DIAGRAM: GG



VOLVO Group Trucks Technology

Document title
WIRE DIAGRAM-CONVENTIONAL, 12V MACK, 2013BP
Document type
PRODUCT SCHEMATIC

Document No

21628497

Issue

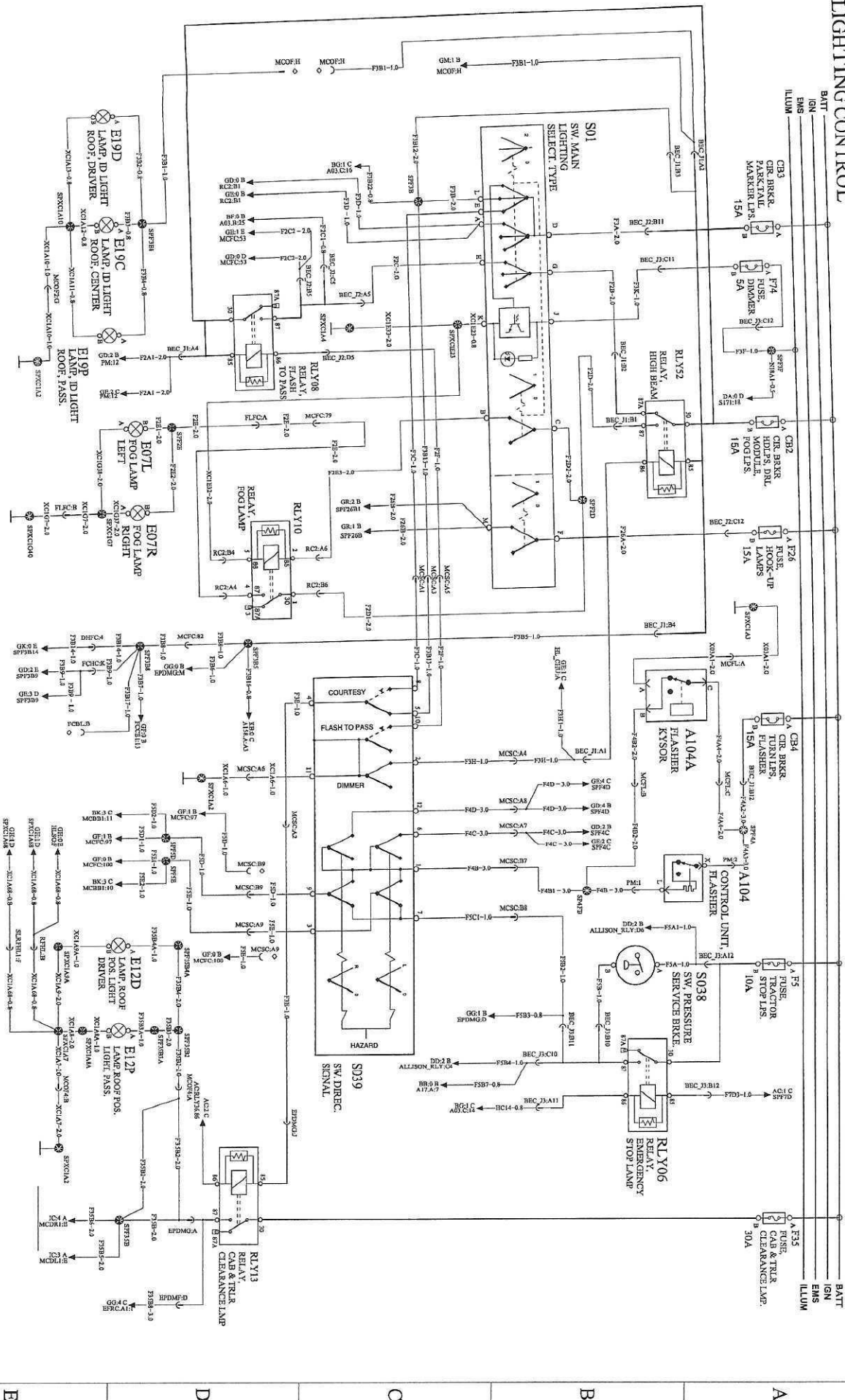
09

Volume

1 (2)

Page

57 (91)



VOLVO Group Trucks Technology

Document title	Document No	Issue	Volume	Page
WIRE DIAGRAM-CONVENTIONAL, 12V MACK, 2018BP	21628497	09	1 (2)	53 (91)
Document type	PRODUCT SCHEMATIC			

TEC

THORNE'S EXCAVATING COMPANY, LLC

SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>Mack</u>		REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>Titan</u>		PARTS _____ LABOR _____	COMPONENT LOCATION	
SERIAL # _____		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER _____			OTHER _____	
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: <u>6-5-19</u> DATE COMPLETED <u>6-7-19</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>James</u>	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER _____
PROBLEM: <u>needs turn mechanism</u>				
REPAIRED: <u>replaced turn signal mechanism</u>				
<u>and breakers</u>				
PARTS: <u>Turn mechanism 131.28</u> <u>McMahon Mack</u>				
<u>breakers 34.16</u> <u>Napa</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>MAK</u>		REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>12' Titan</u>		PARTS _____ LABOR _____	COMPONENT LOCATION	
SERIAL # _____		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER _____			OTHER _____	
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____			DATE: <u>7-15-19</u> DATE COMPLETED <u>7-16-19</u> MECHANIC <u>JAMES & MATT</u>	
			JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER
PROBLEM: <u>Front brakes loud</u>				
REPAIRED: <u>replaced front pads and shoes</u>				
PARTS: <u>Front shoes & Drums 530.00</u> <u>Fleet pride</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>MAK</u>		REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>Titan</u>		PARTS _____ LABOR _____	COMPONENT LOCATION	
SERIAL # _____		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER _____			OTHER _____	
MILES <u>225K mi</u>				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: <u>8-12-19</u> DATE COMPLETED <u>8-13-19</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>James</u>	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER
PROBLEM: <u>Service</u>				
<u>Air indicator broken</u>				
REPAIRED: <u>Serviced</u>				
PARTS: <u>All but Air Filter 104.25</u>				
<u>Air filter indicator</u>				
<u>Pen Filter sales</u>				
<u>McMahon Trucks</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____ REASON PARTS _____ LABOR _____ OTHER _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS		
MAKE <u>Mack</u>		POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED		
MODEL <u>12' Titan</u>		COMPONENT LOCATION		
SERIAL # _____		FRONT REAR LEFT RIGHT UPPER LOWER		
HOUR METER _____		OTHER _____		
MILES <u>222k mi</u>				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE: _____	DATE COMPLETED <u>8-29-19</u>	
		MECHANIC <u>Charles</u>		
		JOB NAME/LOCATION <u>Ship, Journey</u>	JOB NUMBER	
PROBLEM: <u>light out, next day water pump leaking</u>				
REPAIRED: <u>replaced headlight, replaced water pump</u>				
PARTS: <u>Head lamp bulbs 26.10</u> <u>Napa</u>				
<u>Water Pump 474.12</u> <u>McMahon Trucks</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>Mack</u>		REASON	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>12' Titan</u>		PARTS _____ LABOR _____	COMPONENT LOCATION	
SERIAL # _____		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER _____			OTHER _____	
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: <u>9-4-19</u> DATE COMPLETED _____	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC _____	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION	JOB NUMBER
PROBLEM: <u>Belts on standby</u>				
REPAIRED:				
PARTS: <u>Belts</u> <u>67.71</u> <u>McMahon Trucks</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS		
MAKE <u>MAK</u>	REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED		
MODEL <u>12 TD713</u>	PARTS _____ LABOR _____	COMPONENT LOCATION		
SERIAL # _____	OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER		
HOUR METER _____		OTHER _____		
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: _____ DATE COMPLETED <u>10-3-19</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>James</u>	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Shop</u> JOB NUMBER _____	
PROBLEM: _____				
REPAIRED: <u>changed power steering oil + filter</u> <u>greased front end</u>				
PARTS: <u>steering filter 15.00</u> <u>Napa</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____ REASON _____ PARTS _____ LABOR _____ OTHER _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS		
MAKE <u>MAK</u>		POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED		
MODEL <u>12' TD713</u>		COMPONENT LOCATION		
SERIAL # <u>Titan</u>		FRONT REAR LEFT RIGHT UPPER LOWER		
HOUR METER _____		OTHER _____		
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE: <u>10-14-19</u> DATE COMPLETED _____ MECHANIC _____		
		JOB NAME/LOCATION <u>Briley to McMahon</u>	JOB NUMBER	
PROBLEM: <u>Det dense operator inducement</u>				
REPAIRED: <u>replaced det pump, hauled to McMahon to finish repair</u> <u>McMahon Finished repair. saved invoice copies</u>				
PARTS: <u>Pump unit</u> \$ <u>1600.⁰⁰</u> <u>McMahon Trucks</u> <u>Mak repair</u> <u>3,460.²⁷</u> <u>Mak repair</u> <u>6,506.²⁰</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____ REASON _____ PARTS _____ LABOR _____ OTHER _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED COMPONENT LOCATION FRONT REAR LEFT RIGHT UPPER LOWER OTHER _____		
MAKE <u>Mack</u>				
MODEL <u>12' TD713</u>				
SERIAL # <u>Titan</u>				
HOUR METER _____				
MILES <u>222K mi</u>				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE <u>11-10-19</u> DATE COMPLETED <u>11-14-19</u> MECHANIC <u>Ali</u> JOB NAME/LOCATION <u>Shop</u> JOB NUMBER _____		
PROBLEM: <u>broken air cylinder on clutch cable</u> <u>broken air bag, taking coolant hose</u>				
REPAIRED: <u>replaced clutch cable with actuator, installed</u> <u>clutch air cylinder and adjusted. replaced broken</u> <u>air bag.</u> <u>Replaced wiper blades</u>				
570.32				
PARTS: <u>Air cylinder</u> <u>589.82</u> <u>McMahon Trucks</u>				
<u>coolant hose</u> <u>18.52</u> <u>McMahon Trucks</u>				
<u>Air bag</u> <u>153.98</u> <u>McMahon Trucks</u>				
<u>wiper blades 20" Flex</u> <u>31.00</u> <u>Advance Auto Parts</u>				
<u>Air cylinder</u> <u>484.11</u> <u>McMahon Trucks</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC

SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS		
MAKE <u>MAK</u>	REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED		
MODEL <u>12' TITAN</u>	PARTS _____ LABOR _____	COMPONENT LOCATION		
SERIAL # _____	OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER		
HOUR METER _____		OTHER _____		
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED		DATE: _____ DATE COMPLETED <u>12-17-19</u>		
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH		MECHANIC <u>ALL</u>		
SMOKES SHORTED VIBRATE OTHER _____		JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER	
PROBLEM: <u>Thermostat broken</u>				
REPAIRED: <u>replaced thermostat</u>				
PARTS: <u>Thermostat</u> <u>\$119.49</u> <u>McMahon Trucks</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC

SINCE 1963

EQUIPMENT INFORMATION EQUIP. # <u>0111</u> MAKE <u>MAK</u> MODEL <u>12' Titan</u> SERIAL # <u>TD713</u> HOUR METER _____ MILES <u>231K mi</u>	EQUIPMENT DOWNTIME HOURS _____ DAYS _____ REASON _____ PARTS _____ LABOR _____ OTHER _____	COMPONENT CODES BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED COMPONENT LOCATION FRONT REAR LEFT RIGHT UPPER LOWER OTHER _____
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE: _____ DATE COMPLETED <u>1-14-2020</u> MECHANIC <u>McMahon</u> JOB NAME/LOCATION <u>McMahon</u> JOB NUMBER _____
PROBLEM: <u>sent to Mack for analysis</u>		
REPAIRED: <u>could not find anything</u>		
PARTS: <u>Labor</u> <u>1014.25</u> <u>McMahon Trucks</u>		

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>Mack</u>		REASON	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>12' TD713</u>		PARTS LABOR	COMPONENT LOCATION	
SERIAL # <u>Titan</u>		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER _____			OTHER _____	
MILES <u>223k mi.</u>				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: <u>3-12-2020</u> DATE COMPLETED <u>3-16-2020</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>Charles</u>	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER
PROBLEM: <u>venturi cracked EGR cooler leaking</u>				
REPAIRED: <u>replaced EGR cooler and venturi</u>				
PARTS: <u>EGR cooler & gasket 2312.00</u> <u>McMahon Trucks</u>				
<u>venturi</u> <u>252.00</u> <u>Winrock Truck Parts</u>				
<u>Hoses</u> <u>111.47</u> <u>Industrial Rubber & Gasket</u>				
<u>clamps & hoses</u> <u>76.00</u> <u>Fleet pride</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>		HOURS _____ DAYS _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS	
MAKE <u>Mack</u>		REASON _____	POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED	
MODEL <u>Titan TD713</u>		PARTS _____ LABOR _____	COMPONENT LOCATION	
SERIAL # _____		OTHER _____	FRONT REAR LEFT RIGHT UPPER LOWER	
HOUR METER _____			OTHER _____	
MILES _____				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED			DATE: _____ DATE COMPLETED <u>5-FE-2020</u>	
OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH			MECHANIC <u>Charles</u>	
SMOKES SHORTED VIBRATE OTHER _____			JOB NAME/LOCATION <u>Stgo</u>	JOB NUMBER _____
PROBLEM: <u>Sensor & Fan</u>				
REPAIRED: <u>replace fan motor & sensor to DPF</u>				
PARTS <u>Fan & Filter</u> <u>168.26</u> <u>McC Mahon Trucks</u>				
<u>Sensor</u> <u>124.63</u> <u>McC Mahon Trucks</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____ REASON PARTS _____ LABOR _____ OTHER _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS		
MAKE <u>Mack</u>		POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED		
MODEL <u>12' Titan</u>		COMPONENT LOCATION		
SERIAL # _____		FRONT REAR LEFT RIGHT UPPER LOWER		
HOUR METER _____		OTHER _____		
MILES <u>237k mi</u>				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE: <u>7-8-20</u>	DATE COMPLETED: <u>7-16-20</u>	
		MECHANIC <u>All</u>		
		JOB NAME/LOCATION <u>Shops</u>	JOB NUMBER _____	
PROBLEM: <u>Service, PTO pump leaking</u>				
REPAIRED: <u>Tightened PTO, serviced</u>				
PARTS: <u>All Filters</u> <u>Tenn Filter Sales</u>				

TEC

THORNE'S EXCAVATING COMPANY, LLC
SINCE 1963

EQUIPMENT INFORMATION		EQUIPMENT DOWNTIME	COMPONENT CODES	
EQUIP. # <u>0111</u>	HOURS _____ DAYS _____ REASON PARTS _____ LABOR _____ OTHER _____	BASIC MACHINE HYDRAULIC ENGINE IMPLEMENTS		
MAKE <u>Mack</u>		POWER TRAIN ELECTRIC DRIVE TRAIN UNEXPLAINED		
MODEL <u>12' Titan</u>		COMPONENT LOCATION		
SERIAL # <u>TD713</u>		FRONT REAR LEFT RIGHT UPPER LOWER		
HOUR METER _____		OTHER _____		
MILES <u>238k mi</u>				
REASON FOR FAILURE: BROKEN WORN ABUSE LOOSE SEIZED OVERHEAT PLANNED CONTAM LEAKING NOISY SCRATCH SMOKES SHORTED VIBRATE OTHER _____		DATE: <u>8-4-20</u>	DATE COMPLETED <u>8-6-20</u>	
		MECHANIC <u>James</u>		
		JOB NAME/LOCATION <u>Shop</u>	JOB NUMBER	
PROBLEM: <u>new Diesel particulate filter</u>				
REPAIRED: <u>replaced DPF with new</u>				
PARTS: <u>DPF + kit</u> \$ <u>1,646.25</u> <u>Bush Truck center</u>				