

City of Fayetteville Staff Review Form

2019-0117

Legistar File ID

3/5/2019

City Council Meeting Date - Agenda Item Only
N/A for Non-Agenda Item

Tim Nyander

2/13/2019

WASTEWATER TREATMENT (730)

Submitted By

Submitted Date

Division / Department

Action Recommendation:

Staff recommends repair of one (1) large and three (3) medium Lightnin brand agitator gearboxes for the Paul R. Noland Treatment Facility by Automatic Engineering in the amount of \$140,452.33 plus estimated applicable taxes of \$13,694.11 for a total of \$154,146.44.

Budget Impact:

5400.730.5800-5414.00

Water and Sewer

Account Number

Fund

02069.1

Plant, Pumps and Equipment - WWTP

Project Number

Project Title

Budgeted Item? Yes

Current Budget \$ 785,080.00

Funds Obligated \$ 202,635.39

Current Balance \$ 582,444.61

Does item have a cost? Yes

Item Cost \$ 154,146.44

Budget Adjustment Attached? No

Budget Adjustment \$ -

Remaining Budget \$ 428,298.17

V20180321

Purchase Order Number: _____

Previous Ordinance or Resolution # _____

Change Order Number: _____

Approval Date: _____

Original Contract Number: _____

Comments:



MEETING OF MARCH 5, 2019

TO: Mayor and City Council

THRU: Don Marr, Chief of Staff
Water & Sewer Committee
Tim Nyander, Utilities Director

FROM: Greg Weeks, Wastewater Treatment

DATE: February 13, 2019

SUBJECT: Approval of the repair of one (1) large and three (3) medium Lightnin brand agitator gearboxes for the Noland Treatment Facility

RECOMMENDATION:

Staff recommends repair of one (1) large and three (3) medium Lightnin brand agitator gearboxes for the Paul R. Noland Treatment Facility by Automatic Engineering in the amount of \$140,452.33 plus applicable taxes.

BACKGROUND:

The Noland Treatment Facility utilizes a series of eight agitator mixers per the EAST and WEST basin-trains for supplying dissolved oxygen to the biological nutrient removal reactors. The eight units operate in series using a combination of four large (100 hp) and four medium (50 hp) Lightnin brand agitator mixers. In recent years these 30+yr old mixers have required over-haul rebuild corrective maintenance.

DISCUSSION:

Recently, one (1) large and three (3) medium agitator mixers were pulled for disassembly, inspection and repair proposals. The gearbox units were shipped to Automatic Engineering for the disassembly and repair inspections. Automatic Engineering has been used to perform previous gearbox rebuilds in recent years. Return freight for the repaired units is included in the repair estimates. Staff recommends completion of the repairs of the four gearboxes in the amount of \$140,452.33 plus applicable taxes.

Because it was necessary to have the repair facility disassemble the units to determine the extent of hidden and unknown damage to equipment already purchased, a bid waiver and/or formal sealed bidding is not necessary according to **Arkansas Procurement Law R6:19-11-203, Subsection 14 (EE) "hidden or unknown damages"**.

BUDGET/STAFF IMPACT:

Funds are available within the Wastewater Treatment - Plant Pumps and Equipment project.

Attachments:

Quotes from Automatic Engineering


COGENT
**Automatic Engineering
Service Center**

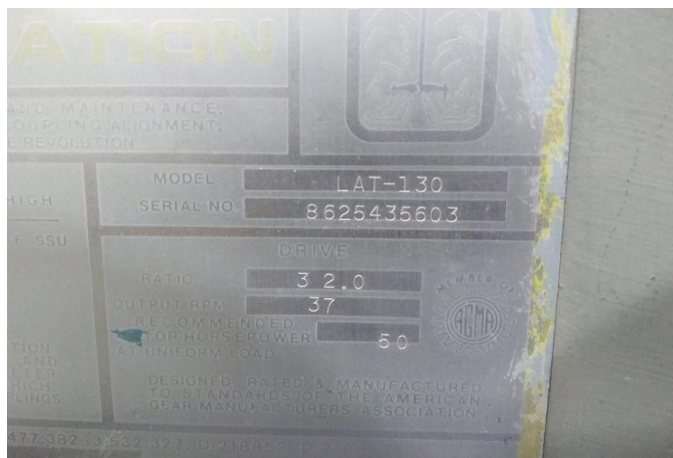
Service Order #	7013631	Date	1/3/2018
SUID #	Q-36426	Salesman	Keith Lvett
Customer	City of Fayetteville	Customer Stock #	
Contact Name, First	Brian	Service Type	Service
Contact Name, Last	Daniels	Brand	Automatic Engineering
Contact Phone	479-575-8386	Market	Municipal
Contact Cell		Fluid Being Pumped	N/A Gearbox
Contact Email		Equipment Location/Station	13

Manufacturer	Lightnin
Model	LAT-130
Serial #	8625435603
Item Type / Description	Mixer Gear Box
Additional Items	Coupling Hub, Auto Lubricater, Piping
Level of Repair	L2 - Full DCI with Clearances Noted, Sandblasting, Estimate with Pictures, and Repair Report

DCI Technician	KC	DCI Date	
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Pump As Found/Received
Notes:

Gearbox as received for DCI. Lower front & rear cover panels were missing when gearbox was received. Since all 4 gearboxes were missing the panels, we are assuming that the panels are with the customer, and were not quoted for replacement.



Input Assembly**Inspection Notes**

Input shaft bevel gear is chipped, causing the assembly rotate rough.

Work Scope

Replace bearings, shims, and other wear parts.

**Input Shaft (Bevel Gear)****Inspection Notes**

Teeth are chipped and not repairable.

Work Scope

Replace input shaft.



Upper Bearing

Inspection Notes

Bearing showed normal wear.

Work Scope

Replace with new bearing.



Upper Bearing Housing

Inspection Notes

Housing in good condition, bearing fit was within tolerance.

Work Scope

Cleanup, degrease, and reuse.



Shaft Coupling

Inspection Notes

Shaft hubs and element in good condition.

Work Scope

Clean, degrease, & reuse.



Low Speed Shaft

Inspection Notes

Groove cut into shaft at lip seal fit.

Work Scope

Repair groove in shaft, clean & reuse shaft.



Intermediary Gearing

Inspection Notes

Gearing in good condition.

Work Scope

Clean, degrease, and rebuild.



Intermediate Bearings

Inspection Notes

Bearings are showing wear, but have not failed.
Bearing fits are within tolerance.

Work Scope

Clean and degrease shafts and housings. Replace bearings, shims, and bearing locknuts/lock washers.



Low Speed Shaft Bearing Housing

Inspection Notes

Bearing fits are within tolerance.

Work Scope

Clean and degrease housing. Rebuild with new shims, oil seals, and retaining rings.



Main Housing

Inspection Notes

Housing is in good condition. No stripped holes found.

Work Scope

Clean and degrease housing. Rebuild with new wear parts and gaskets.



Conclusions

Paint Type and Color	Vista green	Bin Location	storage container outside
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Primary Cause of Failure

Normal wear from extended use of the gearbox. Damage to was limited to damage input shaft and groove in low speed shaft. Gearbox will be rebuilt with new wear parts, including bearings, bearing locknuts/lock washers, oil seals, shims, retaining rings, and gaskets (complete parts list below). The oil level sensor and oil temperature sensor will be replaced with new units, matching the units installed on previous gearbox repairs. After assembly, the gearboxes will be painted and shipped back to the customer.

Additional Notes & Suggestions


Input shaft need replace(Bevel Gear & pinion) Yellow color code

Parts Required

Packing Ring	Gasket	Seal Ring
Gasket - Cover Plate	Retaining Ring	Bearing
Tapered Adapter Sleeve - Split	Adapter Sleeve - Solid	Locknut & Lockwasher
Oil Seal	Bearing	Gasket
Oil Seal	Locknut	Washer
Bearing	Nose Bearing	Hex Head Capscrew
Hex Head Capscrew	Bevel Pinion	Bearing
Bearing	Bearing	Gasket
Gasket	Oil Seal	Oil Seal
Oil Seal	Shaft Repair on Low Speed Shaft	Need to check and see if the customer has the bott
Hex Head Cap Screw	Breather Assembly	Shim Set
Shim Set	Shim Set	Oil Slinger
Shim Set	5/8x3 allen screw	Oil Level Sensor
Oil Temp Sensor	Shipping	Description

Inspection Reviewed By	KC	Date	1/14/2019
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SERVICE ESTIMATE

Customer: City of Fayetteville, AR Contact : Brian Daniels Date: 01/03/2019 Phone: 479-575-8386 Fax: 479-684-4730 Project: Quote #: 7013631 Opp #: OP-474527	Automatic Engineering 412 N. Redbud Ave. Broken Arrow, OK 74012 Phone: 918-585-5703 Fax: 918-585-5707  AUTOMATIC ENGINEERING <small>A COGENT COMPANY</small>
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Dear Brian,

We are pleased to offer the following estimate for your review.

Line No	Quantity	Description of Unit	Net Each	Net Ext.
1	1.00	LAT-130 Serial Number - 8625435603		
			Materials	\$28,761.72
			Labor	\$11,160.00
			Total	\$39,921.72

Disassembly, Cleaning, Inspection and Estimating Charge

\$3,720.00

Amount due if this unit is not repaired. An invoice for this charge will automatically generate within 90 days of this estimate. This charge is for DCI (Disassembly, Clean and Inspect). All units left at our facility for more than 6 months will be scrapped unless written notification is received.

Delivery: 9 - 11 week(s) after receipt of P.O.
FOB Point: Shipping Point
Terms of Payment: Net 30
Quote Validity: 30 Days

Thank you for the opportunity to provide you with this estimate. Please let us know how you would like to proceed.

Quoted By:
Bryant Peterson
bpeterson@cogentcompanies.com
816-460-1635

Salesrep:
Tim Hunt
thunt@aei-inc.com

STANDARD TERMS AND CONDITIONS

Price is FOB factory. Price does not include any freight charges. Price does not include any applicable duties or sales tax, use tax, excise tax, value-added or other similar taxes that may apply to this equipment and/or project. Unless specifically stated, price does not include manual or automatic controls, starters, protective or signal devices, wiring, anchor bolts, gauges, vibration isolation devices, installation, startup or testing.

If the price is included in a proposal, the price is firm for receipt of an order within 30 days of the date shown on the proposal. Any additional terms and conditions included in the proposal are specifically included in these terms and conditions.

Payment terms are net 30 days with approved credit. An interest charge of 1-1/2% per month will be added to balances over 30 days. Retainage of any invoiced amount is unacceptable unless specifically agreed to by Company at the time of order, and shall in no case exceed a period of 120 days. If payments are not timely received by Company, and this account is turned over to an attorney for collections, Customer agrees to pay all reasonable costs and attorney fees incurred in collection of the past due amounts.

Payment of "commercial transaction" invoices by credit card will be charged a fee based upon Cogent's average discount rate for credit card transactions for the prior calendar year. This fee will change annually and is currently 2.55%.

All equipment either rented from or through Company is subject to all of the terms and conditions listed on the back of the rental contract. Pricing does not include any overtime running of power equipment.

In no event shall Company's obligations and liabilities under this Agreement include any direct, indirect, punitive, special, incidental or consequential damages or losses that Customer may suffer or incur in connection with this sale, service or rental, including, but not limited to, loss of revenue or profits, damages or losses as a result of Customer's inability to operate, perform its obligations to third persons or injuries to goodwill; nor shall Company's liability extend to damages or losses Customer may suffer or incur as a result of such claims, suits or other proceedings made or instituted against Customer by third parties. Customer remises, releases and discharges Company from any and all liability or damages which might be caused by failure to deliver any equipment within the agreed time by Company.

Customer shall be responsible for determining the good operating condition of all materials and equipment prior to accepting the materials and equipment. NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE IS MADE UNLESS THE SAME IS SPECIFICALLY SET FORTH IN WRITING AND ACCEPTED IN WRITING BY COMPANY, BUT IN SUCH CASE THE WARRANTY OR GUARANTEE IS LIMITED AS ABOVE PROVIDED. Notwithstanding the foregoing, Company will pass through to the Customer any warranty provided by the manufacturer of any equipment supplied by Company.

Customer covenants and agrees to defend, indemnify and hold Company harmless from any claims, damages or liability arising out of the use, maintenance or delivery of the equipment or materials purchased or rented hereunder. Customer shall further defend, indemnify and hold Company harmless from any and all damages to third persons or to property caused by Customer's use or possession of the equipment or materials, to the fullest extent allowable by law.

In connection with a proposal, if Customer has any further questions or comments regarding the proposal, please feel free to contact Company. If the proposal meets with Customer's approval, please sign, date and mail or fax a copy of the proposal back to Company's office, and the identified equipment will be ordered and/or scheduled for delivery.

This agreement shall be governed by the laws of the state where the Company's branch office is located from which the equipment is rented or purchased. Customer further agrees that venue and jurisdiction shall be appropriate in the county in which Company's branch office is located from which the equipment was rented or purchased. Any provisions hereof which may prove unenforceable under any law shall not affect the validity of any other provision hereof.

Revised January 2015


COGENT
**Automatic Engineering
Service Center**

Service Order #	7013004	Date	1/3/2018
SUID #	Q-34368	Salesman	Keith Lvett
Customer	City of Fayetteville	Customer Stock #	
Contact Name, First	Brian	Service Type	Service
Contact Name, Last	Daniels	Brand	Automatic Engineering
Contact Phone	479-575-8386	Market	Municipal
Contact Cell		Fluid Being Pumped	N/A Gearbox
Contact Email		Equipment Location/Station	12

Manufacturer	Lightnin
Model	LAT-160
Serial #	8625435708
Item Type / Description	Mixer Gear Box
Additional Items	Coupling Hub, Auto Lubricater, Piping
Level of Repair	L2 - Full DCI with Clearances Noted, Sandblasting, Estimate with Pictures, and Repair Report

DCI Technician	Chris J	DCI Date	1/11/2019
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Pump As Found/Received
Notes:

Gearbox as received for DCI. Lower front & rear cover panels were missing when gearbox was received. Since all 4 gearboxes were missing the panels, we are assuming that the panels are with the customer, and were not quoted for replacement.



Input Assembly**Inspection Notes**

No major teeth damage. Assembly spun freely.

Work Scope

Replace bearings, shims, and other wear parts.

**Input Shaft****Inspection Notes**

Bearing fit is worn out of tolerance.

Work Scope

Repair bearing fit.



Upper Bearing

Inspection Notes

Bearing showed normal wear.

Work Scope

Replace with new bearing.



Upper Bearing Housing

Inspection Notes

Housing in good condition, bearing fit was within tolerance.

Work Scope

Cleanup, degrease, and reuse.



Shaft Coupling

Inspection Notes

Shaft hubs and element in good condition.

Work Scope

Clean, degrease, & reuse.



Low Speed Shaft

Inspection Notes

Shaft is in good condition, with one bearing fit being out of tolerance.

Work Scope

Repair out of tolerance bearing fit, clean & reuse shaft.



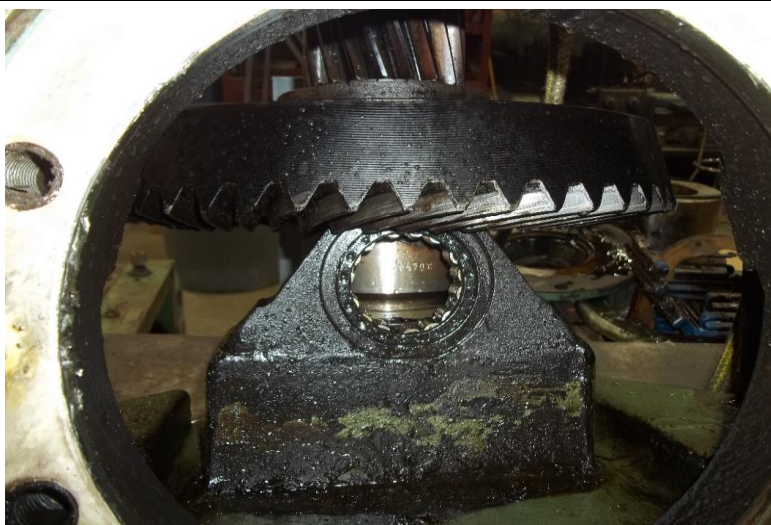
Intermediary Gearing

Inspection Notes

Gearing showing some wear to the teeth, but is in overall good condition.

Work Scope

Clean, degrease, and rebuild.



Intermediate Bearings

Inspection Notes

Bearings are showing wear, but have not failed.
Bearing fits are within tolerance.

Work Scope

Clean and degrease shafts and housings. Replace bearings, shims, and bearing locknuts/lock washers.



Low Speed Shaft Bearing Housing

Inspection Notes

Bearing fits are within tolerance.

Work Scope

Clean and degrease housing. Rebuild with new shims, oil seals, and retaining rings.



Main Housing

Inspection Notes

Housing is in good condition. No stripped holes found.

Work Scope

Clean and degrease housing. Rebuild with new wear parts and gaskets.



Conclusions

Paint Type and Color		Bin Location	Storage Container (Silver Marker)
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Primary Cause of Failure

Normal wear from extended use of the gearbox. Damage to was limited to fits on input and low speed shaft, which will be repaired. Gearbox will be rebuilt with new wear parts, including bearings, bearing locknuts/lock washers, oil seals, shims, retaining rings, and gaskets (complete parts list below). The oil level sensor and oil temperature sensor will be replaced with new units, matching the units installed on previous gearbox repairs. After assembly, the gearboxes will be painted and shipped back to the customer.

Additional Notes & Suggestions


All gears are in good condition and will be reused.

Parts Required

PACKING RING	GASKET	SEAL RING
GASKET-COVER PLATE	RETAINING RING	BEARING W33
TAPERED ADAPTER SLEEVE-SPLIT	LOCKNUT & WASHER	OIL SEAL
BEARING W33	RETAINING RING	OIL SEAL
OIL SEAL	SHIM SET	OIL SEAL
GASKET	BEARING	BEARING
RETAINING RING	RETAINING RING	BEARING
THRUST PLATE	SHIM SET	SHIM SET
SHIM SET	NOSE BEARING	BEARING
WASHER	LOCKNUT	OIL SEAL
GASKET	SOCKET HEAD SET SCREW	REPAIR SEAL FIT ON SLOW SPEED SHAFT
REPAIR SEAL FIT INPUT SHAFT	OIL LEVEL SENSOR	OIL TEMP SENSOR
HEX HEAD CAP SCREW		

Inspection Reviewed By	Greg Hoggard	Date	1/15/2019
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SERVICE ESTIMATE

Customer: City of Fayetteville, AR Contact : Brian Daniels Date: 12/05/2018 Phone: 479-575-8386 Fax: 479-684-4730 Project: Quote #: 7013004 Opp #:	Automatic Engineering 412 N. Redbud Ave. Broken Arrow, OK 74012 Phone: 918-585-5703 Fax: 918-585-5707  AUTOMATIC ENGINEERING <small>A COGENT COMPANY</small>
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Dear Brian,

We are pleased to offer the following estimate for your review.

Line No	Quantity	Description of Unit	Net Each	Net Ext.
1		LAT-160 Serial Number - 8625435708		
			Materials	\$25,303.09
			Labor	\$11,160.00
			Total	\$36,463.09

Disassembly, Cleaning, Inspection and Estimating Charge

\$3,720.00

Amount due if this unit is not repaired. An invoice for this charge will automatically generate within 90 days of this estimate. This charge is for DCI (Disassembly, Clean and Inspect). All units left at our facility for more than 6 months will be scrapped unless written notification is received.

Delivery: 9 - 11 week(s) after receipt of P.O.
FOB Point: Shipping Point
Terms of Payment: Net 30
Quote Validity: 30 Days

Thank you for the opportunity to provide you with this estimate. Please let us know how you would like to proceed.

Quoted By:
Bryant Peterson
bpeterson@cogentcompanies.com
816-460-1635

Salesrep:
Tim Hunt
thunt@aei-inc.com

STANDARD TERMS AND CONDITIONS

Price is FOB factory. Price does not include any freight charges. Price does not include any applicable duties or sales tax, use tax, excise tax, value-added or other similar taxes that may apply to this equipment and/or project. Unless specifically stated, price does not include manual or automatic controls, starters, protective or signal devices, wiring, anchor bolts, gauges, vibration isolation devices, installation, startup or testing.

If the price is included in a proposal, the price is firm for receipt of an order within 30 days of the date shown on the proposal. Any additional terms and conditions included in the proposal are specifically included in these terms and conditions.

Payment terms are net 30 days with approved credit. An interest charge of 1-1/2% per month will be added to balances over 30 days. Retainage of any invoiced amount is unacceptable unless specifically agreed to by Company at the time of order, and shall in no case exceed a period of 120 days. If payments are not timely received by Company, and this account is turned over to an attorney for collections, Customer agrees to pay all reasonable costs and attorney fees incurred in collection of the past due amounts.

Payment of "commercial transaction" invoices by credit card will be charged a fee based upon Cogent's average discount rate for credit card transactions for the prior calendar year. This fee will change annually and is currently 2.55%.

All equipment either rented from or through Company is subject to all of the terms and conditions listed on the back of the rental contract. Pricing does not include any overtime running of power equipment.

In no event shall Company's obligations and liabilities under this Agreement include any direct, indirect, punitive, special, incidental or consequential damages or losses that Customer may suffer or incur in connection with this sale, service or rental, including, but not limited to, loss of revenue or profits, damages or losses as a result of Customer's inability to operate, perform its obligations to third persons or injuries to goodwill; nor shall Company's liability extend to damages or losses Customer may suffer or incur as a result of such claims, suits or other proceedings made or instituted against Customer by third parties. Customer remises, releases and discharges Company from any and all liability or damages which might be caused by failure to deliver any equipment within the agreed time by Company.

Customer shall be responsible for determining the good operating condition of all materials and equipment prior to accepting the materials and equipment. NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE IS MADE UNLESS THE SAME IS SPECIFICALLY SET FORTH IN WRITING AND ACCEPTED IN WRITING BY COMPANY, BUT IN SUCH CASE THE WARRANTY OR GUARANTEE IS LIMITED AS ABOVE PROVIDED. Notwithstanding the foregoing, Company will pass through to the Customer any warranty provided by the manufacturer of any equipment supplied by Company.

Customer covenants and agrees to defend, indemnify and hold Company harmless from any claims, damages or liability arising out of the use, maintenance or delivery of the equipment or materials purchased or rented hereunder. Customer shall further defend, indemnify and hold Company harmless from any and all damages to third persons or to property caused by Customer's use or possession of the equipment or materials, to the fullest extent allowable by law.

In connection with a proposal, if Customer has any further questions or comments regarding the proposal, please feel free to contact Company. If the proposal meets with Customer's approval, please sign, date and mail or fax a copy of the proposal back to Company's office, and the identified equipment will be ordered and/or scheduled for delivery.

This agreement shall be governed by the laws of the state where the Company's branch office is located from which the equipment is rented or purchased. Customer further agrees that venue and jurisdiction shall be appropriate in the county in which Company's branch office is located from which the equipment was rented or purchased. Any provisions hereof which may prove unenforceable under any law shall not affect the validity of any other provision hereof.

Revised January 2015


COGENT

Automatic Engineering Service Center

Service Order #	7013634	Date	1/3/2018
SUID #	Q-36430	Salesman	Keith Lovett
Customer	City of Fayetteville	Customer Stock #	
Contact Name, First	Brian	Service Type	Service
Contact Name, Last	Daniels	Brand	Automatic Engineering
Contact Phone	479-575-8386	Market	Municipal
Contact Cell		Fluid Being Pumped	N/A Gearbox
Contact Email		Equipment Location/Station	19

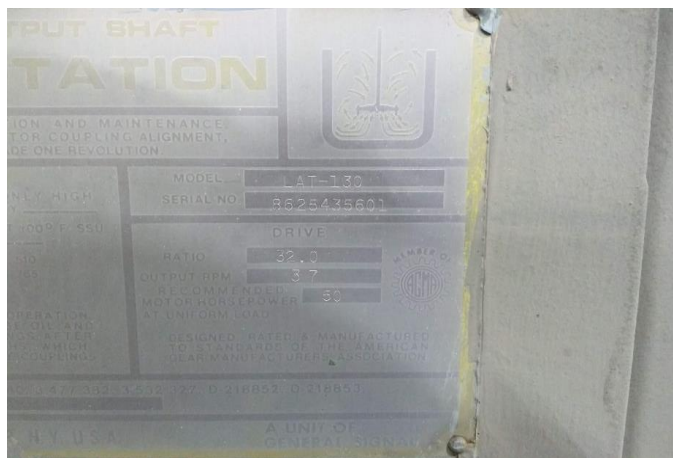
Manufacturer	Lightnin
Model	LAT-130
Serial #	8625435601
Item Type / Description	Mixer Gear Box
Additional Items	Coupling Hub, Auto Lubricater, Piping
Level of Repair	L2 - Full DCI with Clearances Noted, Sandblasting, Estimate with Pictures, and Repair Report

DCI Technician	Chris J	DCI Date	1/22/2019
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Pump As Found/Received

Notes:

Gearbox as received for DCI. Lower front & rear cover panels were missing when gearbox was received. Since all 4 gearboxes were missing the panels, we are assuming that the panels are with the customer, and were not quoted for replacement.



Input Assembly**Inspection Notes**

No major teeth damage. Assembly spun freely.

Work Scope

Replace bearings, shims, and other wear parts.

**Input Shaft****Inspection Notes**

Groove worn into shaft at lip seal fit.

Work Scope

Repair lip seal fit.



Upper Bearing

Inspection Notes

Bearing showed normal wear.

Work Scope

Replace with new bearing.



Upper Bearing Housing

Inspection Notes

Housing in good condition, bearing fit was within tolerance.

Work Scope

Cleanup, degrease, and reuse.



Shaft Coupling

Inspection Notes

Shaft hubs and element in good condition.

Work Scope

Clean, degrease, & reuse.



Low Speed Shaft

Inspection Notes

Shaft is in good condition.

Work Scope

Clean & reuse shaft.



Intermediary Gearing

Inspection Notes

Gearing showing some wear to the teeth, but is in overall good condition.

Work Scope

Clean, degrease, and rebuild.



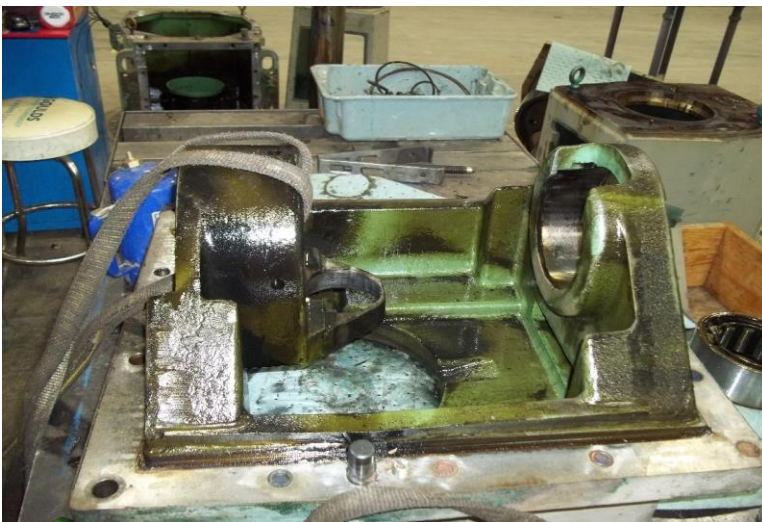
Intermediate Bearings

Inspection Notes

Bearings are showing wear, but have not failed.
Bearing fits are within tolerance.

Work Scope

Clean and degrease shafts and housings. Replace bearings, shims, and bearing locknuts/lock washers.



Low Speed Shaft Bearing Housing

Inspection Notes

Bearing fits are within tolerance.

Work Scope

Clean and degrease housing. Rebuild with new shims, oil seals, and retaining rings.



Main Housing

Inspection Notes

Low speed shaft lower bearing fit will need to be repaired, due to spinning of the outer bearing race. Clearance is at 0.0035", and should be no more than 0.002".

Work Scope

Repair bearing fit. Clean and degrease housing. Rebuild with new wear parts and gaskets.



Conclusions

Paint Type and Color	Green	Bin Location	Storage Container/Light Blue Dot
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Primary Cause of Failure

Normal wear from extended use of the gearbox. Damage to was limited to groove on low speed shaft and oversize bearing fit on housing, which will both be repaired. Gearbox will be rebuilt with new wear parts, including bearings, bearing locknuts/lock washers, oil seals, shims, retaining rings, and gaskets (complete parts list below). The oil level sensor and oil temperature sensor will be replaced with new units, matching the units installed on previous gearbox repairs. After assembly, the gearboxes will be painted and shipped back to the customer.

Additional Notes & Suggestions


All gears are in good condition and will be reused.

Parts Required

REPAIR ID BORE ON SLOW SPEED SHAFT LOWER BE	SANDBLASTING	PACKING RING
GASKET	SEAL RING	GASKET-COVER PLATE
GREASE RETAINER	RETAINING RING	BEARING
TAPERED ADAPTER SLEEVE-SPLIT	ADAPTER SLEEVE-SOLID	LOCKNUT AND WASHER
OIL SEAL	BEARING	RETAINING RING
OIL SEAL	OIL SEAL	OIL SEAL
GASKET	BEARING	BEARING
RETAINING RING	RETAING RING	BEARING
NOSE BEARING	BEARING	WASHER
LOCKNUT	OIL SEAL-C/R 22361	GASKET
SHIM SET	SHIM SET	SHIM SET
SHIM SET	OIL TEMPERATURE SENSOR	OIL LEVEL CONTROL SWITCH
TUBING	CONNECTOR	REPAIR SEAL FIT ON INPUT SHAFT

Inspection Reviewed By	Greg Hoggard	Date	1/22/2019
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SERVICE ESTIMATE

Customer: City of Fayetteville, AR Contact : Brian Daniels Date: 01/03/2019 Phone: 479-575-8386 Fax: 479-684-4730 Project: Quote #: 7013634 Opp #: OP-474531	Automatic Engineering 412 N. Redbud Ave. Broken Arrow, OK 74012 Phone: 918-585-5703 Fax: 918-585-5707  AUTOMATIC ENGINEERING <small>A COGENT COMPANY</small>
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Dear Brian,

We are pleased to offer the following estimate for your review.

Line No	Quantity	Description of Unit	Net Each	Net Ext.
1	1.00	LAT-130 Serial Number - 8625435601		
			Materials	\$19,419.21
			Labor	\$11,160.00
			Total	\$30,579.21

Disassembly, Cleaning, Inspection and Estimating Charge

\$3,720.00

Amount due if this unit is not repaired. An invoice for this charge will automatically generate within 90 days of this estimate. This charge is for DCI (Disassembly, Clean and Inspect). All units left at our facility for more than 6 months will be scrapped unless written notification is received.

Delivery: 9 - 11 week(s) after receipt of P.O.
FOB Point: Shipping Point
Terms of Payment: Net 30
Quote Validity: 30 Days

Thank you for the opportunity to provide you with this estimate. Please let us know how you would like to proceed.

Quoted By:
Bryant Peterson
bpeterson@cogentcompanies.com
816-460-1635

Salesrep:
Tim Hunt
thunt@aei-inc.com

STANDARD TERMS AND CONDITIONS

Price is FOB factory. Price does not include any freight charges. Price does not include any applicable duties or sales tax, use tax, excise tax, value-added or other similar taxes that may apply to this equipment and/or project. Unless specifically stated, price does not include manual or automatic controls, starters, protective or signal devices, wiring, anchor bolts, gauges, vibration isolation devices, installation, startup or testing.

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In no event shall Company's obligations and liabilities under this Agreement include any direct, indirect, punitive, special, incidental or consequential damages or losses that Customer may suffer or incur in connection with this sale, service or rental, including, but not limited to, loss of revenue or profits, damages or losses as a result of Customer's inability to operate, perform its obligations to third persons or injuries to goodwill; nor shall Company's liability extend to damages or losses Customer may suffer or incur as a result of such claims, suits or other proceedings made or instituted against Customer by third parties. Customer remises, releases and discharges Company from any and all liability or damages which might be caused by failure to deliver any equipment within the agreed time by Company.

Customer shall be responsible for determining the good operating condition of all materials and equipment prior to accepting the materials and equipment. NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE IS MADE UNLESS THE SAME IS SPECIFICALLY SET FORTH IN WRITING AND ACCEPTED IN WRITING BY COMPANY, BUT IN SUCH CASE THE WARRANTY OR GUARANTEE IS LIMITED AS ABOVE PROVIDED. Notwithstanding the foregoing, Company will pass through to the Customer any warranty provided by the manufacturer of any equipment supplied by Company.

Customer covenants and agrees to defend, indemnify and hold Company harmless from any claims, damages or liability arising out of the use, maintenance or delivery of the equipment or materials purchased or rented hereunder. Customer shall further defend, indemnify and hold Company harmless from any and all damages to third persons or to property caused by Customer's use or possession of the equipment or materials, to the fullest extent allowable by law.

In connection with a proposal, if Customer has any further questions or comments regarding the proposal, please feel free to contact Company. If the proposal meets with Customer's approval, please sign, date and mail or fax a copy of the proposal back to Company's office, and the identified equipment will be ordered and/or scheduled for delivery.

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Revised January 2015


COGENT

Automatic Engineering Service Center

Service Order #	7013636	Date	1/3/2018
SUID #	Q-36432	Salesman	Keith Lovett
Customer	City of Fayetteville	Customer Stock #	
Contact Name, First	Brian	Service Type	Service
Contact Name, Last	Daniels	Brand	Automatic Engineering
Contact Phone	479-575-8386	Market	Municipal
Contact Cell		Fluid Being Pumped	N/A Gearbox
Contact Email		Equipment Location/Station	14

Manufacturer	Lightnin
Model	LAT-130
Serial #	8625435604
Item Type / Description	Mixer Gear Box
Additional Items	Coupling Hub, Auto Lubricater, Piping
Level of Repair	L2 - Full DCI with Clearances Noted, Sandblasting, Estimate with Pictures, and Repair Report

DCI Technician	Luke Steinhauser	DCI Date	1/10/2019
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Pump As Found/Received

Notes:

Gearbox as received for DCI. Lower front & rear cover panels were missing when gearbox was received. Since all 4 gearboxes were missing the panels, we are assuming that the panels are with the customer, and were not quoted for replacement.



Input Assembly

Inspection Notes

No major teeth damage. Assembly spun freely.

Work Scope

Replace bearings, shims, and other wear parts.



Input Shaft

Inspection Notes

Oil seal has worn a groove into the shaft which will need to be repaired. Teeth are in good condition.

Work Scope

Repair seal fit.



Upper Bearing

Inspection Notes

Bearing showed normal wear.

Work Scope

Replace with new bearing.



Upper Bearing Housing

Inspection Notes

Housing in good condition, bearing fit was within tolerance.

Work Scope

Cleanup, degrease, and reuse.



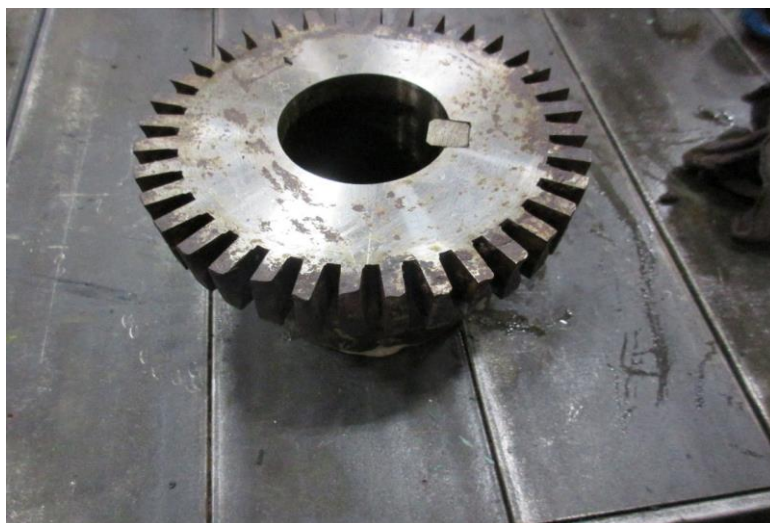
Shaft Coupling

Inspection Notes

One of the hubs is damaged at the outer slots and is not repairable.

Work Scope

Replace one hub. Clean, degrease, & reuse other hubs.



Low Speed Shaft

Inspection Notes

Shaft is in good condition.

Work Scope

Clean & reuse shaft.



Intermediary Gearing

Inspection Notes

Oil seal has worn a groove into the shaft that will need repaired. Gearing showing some wear to the teeth, but is in overall good condition.

Work Scope

Repair oil seal groove. Clean, degrease, and rebuild.



Intermediate Bearings

Inspection Notes

Bearings are showing wear, but have not failed. Bearing fits are within tolerance.

Work Scope

Clean and degrease shafts and housings. Replace bearings, shims, and bearing locknuts/lock washers.



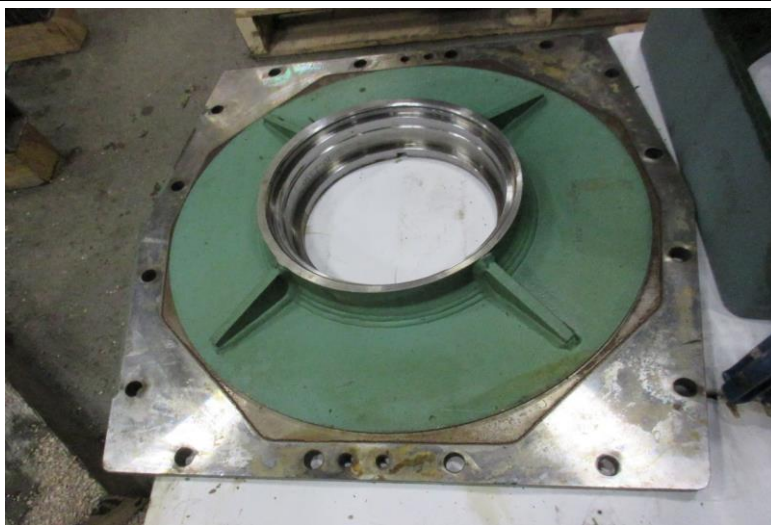
Low Speed Shaft Bearing Housing

Inspection Notes

Bearing fits are within tolerance.

Work Scope

Clean and degrease housing. Rebuild with new shims, oil seals, and retaining rings.



Main Housing

Inspection Notes

Lower bearing spun in bearing fit.

Work Scope

Repair lower bearing fit to restore clearances. Clean and degrease housing. Rebuild with new wear parts and gaskets.



Conclusions

Paint Type and Color	vista green ameralock	Bin Location	Conex box - Red Code
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Primary Cause of Failure

Normal wear from extended use of the gearbox. Damage to was limited to fits on input and low speed shaft, which will be repaired. Gearbox will be rebuilt with new wear parts, including bearings, bearing locknuts/lock washers, oil seals, shims, retaining rings, and gaskets (complete parts list below). The oil level sensor and oil temperature sensor will be replaced with new units, matching the units installed on previous gearbox repairs. The top cover assembly which covers the head bearing was severely rusted, and will be replaced. After assembly, the gearboxes will be painted and shipped back to the customer.

Additional Notes & Suggestions


All gears are in good condition and will be reused.

Parts Required

Coupling Half	Oil Seal	Oil Seal
Oil Seal	Gasket	Breather Assembly
Bearing	Bearing	Bearing
Hex Head Capscrew	Hex Head Capscrew	Nose Bearing
Bearing	Locknut	Oil Seal
Gasket	Shim Set	Shim Set
Shim Set	Shim Set	Packing Ring
Gasket	Seal Ring	Gasket - Cover Plate
Retaining Ring	Top Cover Assembly	Bearing
Tapered Adapter Sleeve - Split	Adapter Sleeve -Solid	Locknut & Lockwasher
Oil Seal	Bearing	Repair Bearing Housing Fit
Low Speed Shaft Fit Repair	Input Shaft Repair	Sandblasting
Freight	Oil Temperature Sensor	Oil Level Sensor

Inspection Reviewed By	Greg Hoggard	Date	1/15/2019
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SERVICE ESTIMATE

Customer: City of Fayetteville, AR Contact : Brian Daniels Date: 01/03/2019 Phone: 479-575-8386 Fax: 479-684-4730 Project: Quote #: 7013636 Opp #: OP-474534	Automatic Engineering 412 N. Redbud Ave. Broken Arrow, OK 74012 Phone: 918-585-5703 Fax: 918-585-5707  AUTOMATIC ENGINEERING <small>A COGENT COMPANY</small>
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Dear Brian,

We are pleased to offer the following estimate for your review.

Line No	Quantity	Description of Unit	Net Each	Net Ext.
1	1.00	LAT-130 Serial Number - 8625435604		
			Materials	\$22,328.31
			Labor	\$11,160.00
			Total	\$33,488.31

Disassembly, Cleaning, Inspection and Estimating Charge

\$3,720.00

Amount due if this unit is not repaired. An invoice for this charge will automatically generate within 90 days of this estimate. This charge is for DCI (Disassembly, Clean and Inspect). All units left at our facility for more than 6 months will be scrapped unless written notification is received.

Delivery: 9 - 11 week(s) after receipt of P.O.
FOB Point: Shipping Point
Terms of Payment: Net 30
Quote Validity: 30 Days

Thank you for the opportunity to provide you with this estimate. Please let us know how you would like to proceed.

Quoted By:
Bryant Peterson
bpeterson@cogentcompanies.com
816-460-1635

Salesrep:
Tim Hunt
thunt@aei-inc.com

STANDARD TERMS AND CONDITIONS

Price is FOB factory. Price does not include any freight charges. Price does not include any applicable duties or sales tax, use tax, excise tax, value-added or other similar taxes that may apply to this equipment and/or project. Unless specifically stated, price does not include manual or automatic controls, starters, protective or signal devices, wiring, anchor bolts, gauges, vibration isolation devices, installation, startup or testing.

If the price is included in a proposal, the price is firm for receipt of an order within 30 days of the date shown on the proposal. Any additional terms and conditions included in the proposal are specifically included in these terms and conditions.

Payment terms are net 30 days with approved credit. An interest charge of 1-1/2% per month will be added to balances over 30 days. Retainage of any invoiced amount is unacceptable unless specifically agreed to by Company at the time of order, and shall in no case exceed a period of 120 days. If payments are not timely received by Company, and this account is turned over to an attorney for collections, Customer agrees to pay all reasonable costs and attorney fees incurred in collection of the past due amounts.

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