

Rantoul Village Board of Trustees
Regular Study Session
May 5, 2009

Order of Business

Board Packet Page(s)

- 1. Call to Order – Mayor Williams**
Roll Call
- 2. Public Participation**
Citizens wishing to address the Village Board with respect to any pending item of business listed upon the agenda or any matter not appearing on the agenda are asked to complete a public participation form and submit it to the Village Clerk prior to the meeting. Public comments will be limited to three minutes for each speaker.
- 3. Items from the Mayor**
- 4. Items from Trustees**
- 5. Items from the Village Clerk**
 - A) Presentation of any Addendum Items for the Agenda
- 6. Items from the Administrator**
- 7. Monthly Department Reports**
- 8. Items for the Consent Agenda**
Items placed upon the Consent Agenda for the Regular Board Meeting are considered by the Board of Trustees to be routine and non-controversial in nature, and are to be enacted by a single motion and subsequent roll call vote.
 - A) Approval of Minutes, Regular Study Session, April 7, 2009
 - B) Approval of Minutes, Regular Board Meeting, April 14, 2009
 - C) Approval of Minutes, Public Hearing, April 7, 2009
- 9. Items from the Comptroller**
 - A) Budget Amendment – Airport 1
- 10. Items from Public Works**
 - A) Repair of Second Turbocharger for Generator No. 8 2-14

11. Items from Human Resources

A) Pay Plan – FY 2009-10

15

12. Items from Counsel

Next Meeting Date:
Regular Monthly Meeting, May 12, 2009

The Rantoul Village Board of Trustees meets in Study Session on the first Tuesday of each month at 6:15pm and in Regular Session on the second Tuesday of each month at 6:15pm. Unless otherwise noted, all proceedings are held in the Louis B. Schelling Memorial Board Room of the Rantoul Municipal Building, 333 S. Tanner Street, Rantoul, Illinois.

Statement Regarding the Americans with Disabilities Act (ADA)

The Village of Rantoul wishes to ensure that its programs, services, and activities are accessible to individuals with disabilities. All Village Board meetings are wheelchair accessible. Persons with hearing difficulties may obtain auxiliary hearing aids available at each meeting upon request. Persons requiring additional assistance regarding accessibility issues should contact the Village Administrator's office at (217) 893-1661, x. 202. TTY users should call the Illinois Relay Center at 1-800-526-0844.

Citizens may visit our website at www.village.rantoul.il.us to view live and archived video of all Village Board meetings. Citizens may also download complete Board packets containing information on all ordinances, resolutions and departmental requests under consideration by the Village Board each month.

**BOARD OF TRUSTEES
VILLAGE OF RANTOUL**

AGENDA ITEM

PAGE ____ OF ____

ITEM: Additional Funds to Repair Unit 8 Second Turbocharger	DEPARTMENT: Public Works																												
AGENDA SECTION:	AMOUNT: \$10,550.63																												
ATTACHMENTS: () ORDINANCE () RESOLUTION (X) OTHER (See Summary Highlights) (X) SUPPORTING DOCUMENTS	DATE: April 23, 2009																												
<p>SUMMARY HIGHLIGHTS:</p> <p>This Agenda Item requests additional funds to complete the repair of the second turbo charger of Generator #8. The initial focus of repair was the damage found in the first turbo charger, but during discussions involving the overall maintenance to the generator, it was agreed that investing additional funds to inspect and repair the second turbocharger was a prudent investment. Exline, Inc. had provided an initial inspection and refurbishment cost of \$6,400.00 for the second unit. There was to be no additional cost for its removal and shipping as their crew would already be on site and Village staff had prepared much of the breakdown for the unit's removal.</p> <p>Upon breakdown and inspection, the magnitude of the damage of the second turbocharger was similar to the first unit and will require major repair. This includes re-fabricating and replacing the 66 turbine blades, balancing, seals, bushing replacements, etc.</p> <p>The initial repair quote was \$47,345.00 with authorization given to spend up to \$50,000.00. The final expected repair cost stands at \$59,050.63. The cost difference between the initial quote and the final expected repair cost is \$11,705.63, with the cost differential shown below.</p> <table border="1" data-bbox="186 1365 1422 1634"> <thead> <tr> <th></th> <th>Initial Quote</th> <th>Revised Cost</th> <th>Difference</th> </tr> </thead> <tbody> <tr> <td>Removal & Reinstallation (both units)</td> <td>\$13,740.00</td> <td>\$13,740.00</td> <td>- 0</td> </tr> <tr> <td>Turbo Charger #1 Inspection & Repair</td> <td>\$21,705.00</td> <td>\$20,185.00</td> <td>(\$1,520.00)</td> </tr> <tr> <td>Turbo Charger #2 Inspection & Repair</td> <td>\$6,400.00</td> <td>\$19,285.00</td> <td>\$12,885.00</td> </tr> <tr> <td>Shipping / Loading</td> <td>\$4,000.00</td> <td>- 0 -</td> <td>(\$4,000.00)</td> </tr> <tr> <td>Materials</td> <td>\$1,500.00</td> <td>\$5,840.63</td> <td>\$4,340.63</td> </tr> <tr> <td>Totals</td> <td>\$47,345.00</td> <td>\$59,050.63</td> <td>\$11,705.63</td> </tr> </tbody> </table>			Initial Quote	Revised Cost	Difference	Removal & Reinstallation (both units)	\$13,740.00	\$13,740.00	- 0	Turbo Charger #1 Inspection & Repair	\$21,705.00	\$20,185.00	(\$1,520.00)	Turbo Charger #2 Inspection & Repair	\$6,400.00	\$19,285.00	\$12,885.00	Shipping / Loading	\$4,000.00	- 0 -	(\$4,000.00)	Materials	\$1,500.00	\$5,840.63	\$4,340.63	Totals	\$47,345.00	\$59,050.63	\$11,705.63
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Materials	\$1,500.00	\$5,840.63	\$4,340.63																										
Totals	\$47,345.00	\$59,050.63	\$11,705.63																										
<p>RECOMMENDED ACTION: Authorize the approval of additional funds in the amount of \$11,705.63 to complete the refurbishment and repair of Unit #8's second turbo charger.</p>																													
<p>DEPARTMENT HEAD APPROVAL: G. Gregory Hazel, P.E. <i>gh</i></p>	<p>VILLAGE ADMINISTRATOR: <i>[Signature]</i></p>																												
<p>AGENDA PAGE NUMBER:</p>																													

**BOARD OF TRUSTEES
VILLAGE OF RANTOUL**

AGENDA ITEM

PAGE ____ OF ____

SUBJECT:	DEPARTMENT:
BACKGROUND/DISCUSSION: <p>The cost difference between the authorized repair dollars and the final expected repair cost is \$9,050.63. While no additional costs are anticipated, it may be prudent to provide an additional \$1,500 in this approval for any unforeseen situation or expense associated with the reinstallation of the turbochargers at the plant that might occur (Total request of \$10,550.63).</p> <p>These additional repair costs will be covered in the 2009-2010 budget from the equipment repair account (541-1142-430-60-24).</p> <p>The capacity credit payment for the maintenance of the Unit #8 is \$9,920 each month, so the pay back on the repair investment is now roughly six months.</p> <p>This situation with Unit #8's turbo chargers raises concerns with the internal condition of Unit #7's turbochargers. Plans call for taking Unit #7 off-line and performing an internal inspection and evaluation of the unit this fall.</p>	
AGENDA PAGE NUMBER:	



PO BOX 1487 * 3256 E. COUNTRY CLUB ROAD
 SALINA, KANSAS 67402-1487
 800-255-0111 * 786-826-4883 * FAX 786-826-4425

City of Rantoul - Municipal
 Attn: Coash, Ken
 200 West Grove Avenue
 P.O. Box 38
 Rantoul, IL 61866

PRICE QUOTATION
09-010557-2

PLEASE INDICATE THIS
 NUMBER WHEN ORDERING

DATE 04-17-2009	Page 1 of 3
YOUR INQUIRY DATED	
AVAILABILITY	
TERMS Net 30	FOB Salina, KS
CUSTOMER REPRESENTATIVE Howard Terrell - Midwest	

EXLINE, Inc., is pleased to offer the following quotation:

Item	Quantity	Description	Unit Price	Amount
1	1	Brown Boveri VTR500 Turbocharger: S/N M23237 Disassemble, clean/inspect unit Clean and inspect turbine rotor Clean and inspect impeller Liquid penetrant impeller Balance rotating assembly Clean, polish and inspect shaft Check shaft for straightness Install new seal glands in shaft Weld and machine nipples Clean, inspect and check nozzle ring area Straighten 24 nozzle ring blades Weld 24 nozzle ring blades Resize square inch on nozzle ring Clean, inspect and paint heat shield Install new guide bushing in heat shield Clean and inspect diffuser Clean and inspect exhaust inlet Machine exhaust inlet-inlet flange only Water test exhaust inlet Clean and inspect turbine case Machine turbine case-outlet flange only Water test turbine case Install customers new parts Install new parts Reassemble and paint unit Prepare to ship	19,285.00	19,285.00
2	1	Brown Boveri VTR500 Turbocharger: S/N M22883 Disassemble, clean/inspect unit Clean and inspect turbine rotor Rebuild 66 turbine blades-major Install 2 new damping wires Clean and inspect impeller Liquid penetrant impeller Balance rotating assembly Clean, polish and inspect shaft Check shaft for straightness Install new seal glands in shaft Weld and machine nipples Chrome plate turbine shaft Clean, inspect and check nozzle ring area Straighten 24 nozzle ring blades	20,185.00	20,185.00



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YOUR INQUIRY DATED			
AVAILABILITY			
TERMS	Net 30	FOB	Salina, KS
CUSTOMER REPRESENTATIVE	Howard Terrell - Midwest		

EXLINE, Inc., is pleased to offer the following quotation:

		Weld 24 nozzle ring blades Reelze square inch on nozzle ring Clean, inspect and paint heat shield Install new guide bushing in heat shield Clean and inspect diffuser Clean and inspect exhaust inlet Machine exhaust inlet-inlet flange only Water test exhaust inlet Clean and inspect turbine case Machine turbine case-outlet flange only Water test turbine case Install customers new parts Install new parts Reassemble and paint unit Prepare to ship		
3	2	Bushing, sealing P/N TCBBR500-725	330.90	661.80
4	2	Bushing, sealing P/N TCBBR500-726	299.66	599.12
5	2	Bushing, guide P/N TCBBR500-705	422.00	844.00
6	2	Bushing, sealing P/N TCBBR500-505	369.26	718.52
7	1	Wire, caulking P/N TCBBR500-2534	47.52	47.52
8	2	Ring, sealing P/N TCBBR500-2087	110.31	220.62
9	2	Wire, damping P/N TCBBR500-216	629.47	1,258.94
10	1	Ring, shrink P/N TCBBR500-22	355.21	355.21
11	2	Gasket, bearing cover P/N TCBBR500-585	47.67	95.14
12	14	Gasket, cover plate, large P/N TCBBR500-101EX	5.01	70.14



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DATE	Page
04-17-2009	3 of 3
YOUR INQUIRY DATED	
AVAILABILITY	
TERMS	FOB
Net 30	Salina, KS
CUSTOMER REPRESENTATIVE	
Howard Terrell - Midwest	

EXLINE, Inc., is pleased to offer the following quotation:

Item	Quantity	Description	Unit Price	Amount
13	4	Gasket, cover plate P/N TCBBR500-102EX	4.55	18.20
14	2	Gasket, blower outlet P/N TCBBR500-103EX	9.63	19.26
15	2	Gasket, blower inlet P/N TCBBR500-104EX	22.18	44.36
16	8	Gasket, water jumper TCBBR500-100EX	1.04	8.32
17	2	Gasket, exhaust inlet P/N TCBBR500-105EX	93.25	186.50
18	2	Gasket, exhaust outlet P/N TCBBR500-106EX	62.85	125.70
19	4	Gasket, exhaust adapter P/N TCBBR500-107EX	141.82	567.28
			Total	\$45,310.63

Freight and Sales/Use Taxes are not included in the price quotation.
 Additional charges, if any, will be added to the invoice upon completion of
 work. Exline, Inc. Terms and Conditions apply to all work and services
 provided by the Company.

CONDITIONS: Prices and delivery are based on costs and conditions existing on the date of quotation and are subject to change. Typographical and photographic errors subject to correction. Purchaser assumes liability for patent and copyright infringements when goods are made to Purchaser's specifications. Conditions are specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein which may appear on Purchaser's formal order will not be binding on the Seller.

Quote valid Until 05-17-2009 _____ Signed _____
 P.O. # _____ Date Accepted _____ Approved By _____

**ACTION REPORT
VILLAGE BOARD OF TRUSTEES
SPECIAL MEETING OF MARCH 26, 2009**

ITEM	ACTION TAKEN	RESPONSIBLE DEPT.
Waive the bidding procedures and authorize the emergency repair of the turbo charger for the Generator Unit No. 8 by Exline, Inc., for an amount not to exceed \$50,000.00	Approved (6/0)	Public Works
Revise Annual Budget	Approved (6/0) Ordinance No. 2180	Comptroller

**BOARD OF TRUSTEES
VILLAGE OF RANTOUL**

AGENDA ITEM

PAGE ____ OF ____

ITEM: Emergency Repairs to Generator #8 Turbocharger	DEPARTMENT: Public Works
AGENDA SECTION:	AMOUNT: \$42,000.00
ATTACHMENTS: () ORDINANCE () RESOLUTION (X) OTHER (See Summary Highlights) (X) SUPPORTING DOCUMENTS	DATE: March 19, 2009
<p>SUMMARY HIGHLIGHTS:</p> <p>This Agenda Item provides for the emergency repair of Unit #8's turbocharger. During the scheduled quarterly exercise of the unit in late March, the crew noticed an oil pump not operating and took the unit off-line. During inspection, metal shavings and pieces were found in the oil reserve apparently as a result of the combination of a bearing failure and the disintegration of the metal fan blades. PW employees have disassembled the majority of the unit but cannot perform the final removal or repair.</p> <p>As this is a specialized service, quotes have been sought during the past few weeks and PW has been able to find two representatives that would conduct a site visit to evaluate and quote the potential repair costs. The Salina, Kansas firm of Exline Inc. has provided the most comprehensive, repair costs. The basic costs are for the onsite removal and re-installation of the turbocharger (\$13,740) and the estimated overhaul cost (\$21,705). Additional costs for shipping are estimated at \$4,000 and materials not available from inventory could approach \$1,500. These items total \$40,945.</p> <p>Consideration was given to the rehabilitation of the second portion of the turbocharger (\$6,400), but the availability of funds limited this additional maintenance.</p> <p>The Village loses a monthly capacity credit of \$9,920 each month that the unit is out of service, so roughly a four month pay back on the repair investment is anticipated.</p> <p>Portions of the repair costs will be covered by a budget amendment transfer of funds (\$40,000) from the fuel account (541-1142-430-40-35) into the equipment repair account (541-1142-430-60-24). The remaining dollars will come from the equipment repair account itself.</p>	
<p>RECOMMENDED ACTION: Authorize the approval of the emergency repair of Unit # 8's turbo charger in the not to exceed amount of \$42,000.</p>	
<p>DEPARTMENT HEAD APPROVAL: G. Gregory Hazel, P.E.</p>	<p>VILLAGE ADMINISTRATOR:</p>
<p>AGENDA PAGE NUMBER:</p>	



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PRICE QUOTATION
09-010557-1

PLEASE INDICATE THIS
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DATE 03-04-2009	Page 1 of 2
YOUR INQUIRY DATED	
AVAILABILITY	
TERMS Net 30	FOB Salina, KS
CUSTOMER REPRESENTATIVE Howard Terrell - Midwest	

EXLINE, Inc., is pleased to offer the following quotation:

Item	Quantity	Description	Unit Price	Amount
1	1	Estimated overhaul cost for Brown Boveri VTR500 rotating assembly: Partial disassemble of unit Clean and inspect rotor Clean, polish and inspect shaft Check shaft for straightness Clean heat shield Clean and inspect blower impeller Liquid penetrant test blower impeller Match mark and balance rotating assembly Install new parts Reassemble rotor assembly	1,525.00	1,525.00
1.1	1	Labor, transportation & expenses for one (1) mechanic to remove and reinstall rotating assembly from Brown Boveri VTR500 turbocharger located at the Municipal Power plant in Rantoul, IL	7,250.00	7,250.00
2	1	Labor, mileage, and expenses for two (2) mechanics to remove and reinstall two (2) Brown Boveri VTR500 turbocharger on a Nordberg located at the City of Rantoul IL Customer to furnish: All replacement parts and repairs. Air for tools. Power for tools and lighting. Any special OEM tooling. Solvents and disposable. restroom/break room facilities. All overhead lifting equipment required.	13,740.00	13,740.00
3	1	Estimated overhaul cost for Brown Boveri VTR500 Turbocharger: Disassemble unit/clean and inspect all cases Clean and inspect rotor Clean, inspect and polish shaft Check shaft for straightness Clean heat shield Clean and inspect blower impeller Liquid penetrant blower impeller Match mark and balance rotating assembly Clean and inspect diffuser Machine turbine case outlet mating surface Machine Inlet case-exhaust inlet mating surface Clean, inspect and check area of nozzle ring Water test turbine case install new parts Reassemble and paint unit Prepare to ship	6,400.00	6,400.00



**PRICE QUOTATION
09-010557-1**

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DATE	Page
03-04-2009	2 of 2
YOUR INQUIRY DATED	
AVAILABILITY	
TERMS	FOB
Net 30	Salina, KS
CUSTOMER REPRESENTATIVE	
Howard Terrell - Midwest	

EXLINE, Inc., is pleased to offer the following quotation:

Item	Quantity	Description	Unit Price	Amount
3.1		Parts: Bearings, oil pumps, seals and gaskets Total estimated parts: Obtainable		
4	1	Estimated cost to overhaul Brown Boveri VTR500 Turbocharger with Foreign Object Damage: Disassemble unit/clean and inspect all cases Clean and inspect rotor Rebuild (53) turbine blades-major Liquid penetrant (53) turbine blades Install new wires Clean, inspect and polish shaft Check shaft for straightness Install new seal glands in shaft Rebuild nipples on shaft for pumps Clean/paint heat shield Install new seal glands in heat shield Clean and inspect blower impeller Rebuild impeller assembly-major Liquid penetrant blower impeller Match mark and balance rotating assembly Clean, inspect and check area of nozzle ring Rebuild nozzle ring blades Resize square inch on nozzle ring Clean and inspect diffuser Rebuild turbine exhaust shroud Machine turbine case outlet mating surface Machine Inlet case-exhaust inlet mating surface Water test turbine case Install new parts Reassemble and paint unit Prepare to ship	21,705.00	21,705.00
4.1		Parts: Bearings, oil pumps, seals and gaskets Total estimated parts: Obtainable * Prices are estimates. Firm prices will be provided upon inspection in our shop. * Exterior gaskets available upon request. Freight and Sales/Use Taxes are not included in the price quotation. Additional charges, if any, will be added to the invoice upon completion of work. Exline, Inc. Terms and Conditions apply to all work and services provided by the Company.		

CONDITIONS: Prices and delivery are based on costs and conditions existing on the date of quotation and are subject to change. Typographical and nomenclature errors subject to correction. Purchaser assumes liability for patent and copyright infringements when goods are made to Purchaser's specifications. Conditions are specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein which may appear on Purchaser's formal order will not be binding on the Seller.

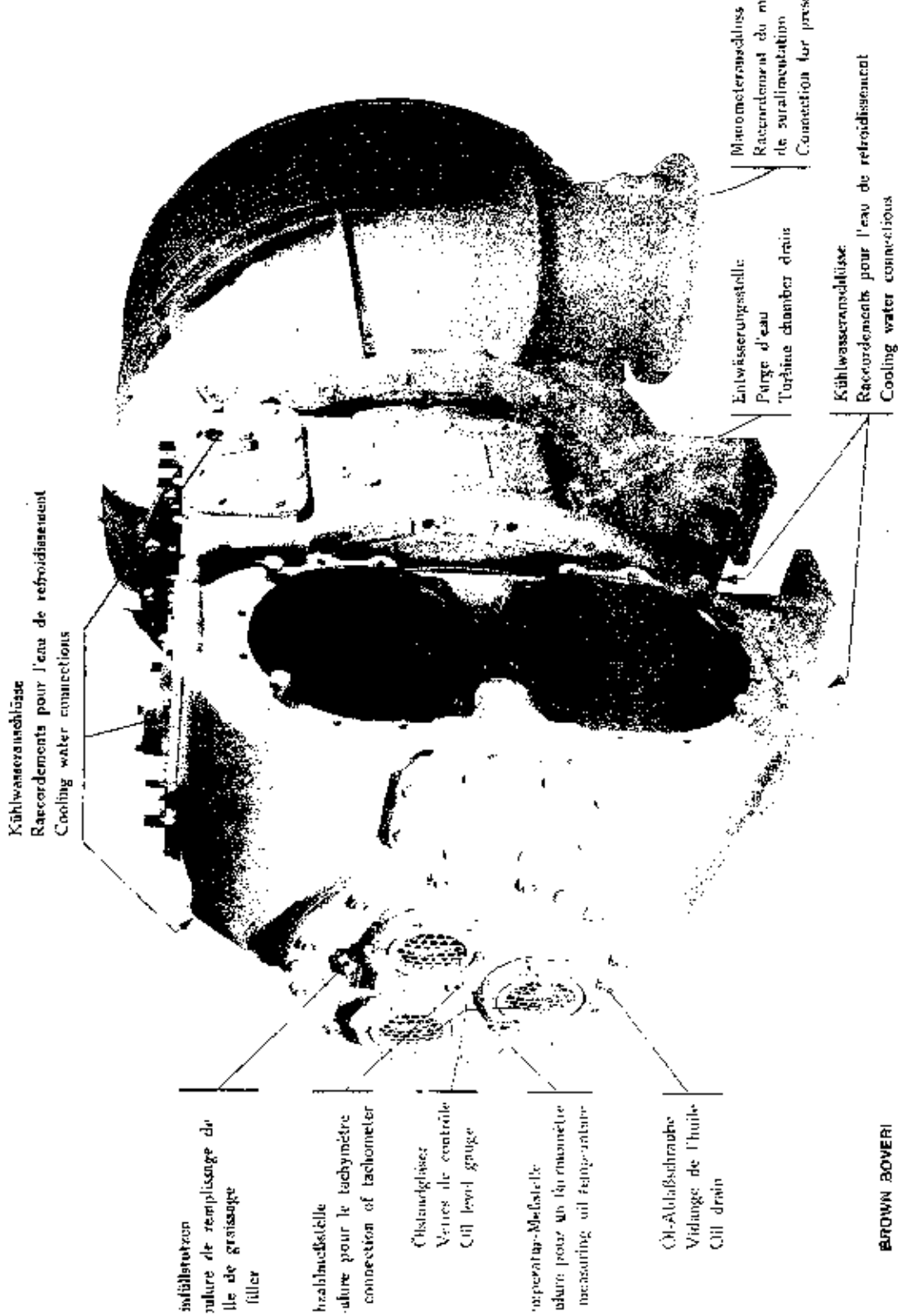
10

P.O. #

Date Accepted 4

Approved By

Die zu verwendenden Anschlüsse für die Kühlwasserleitungen sind von den Casingsstellungen abhängig. Hierüber orientiert das der Anlage entsprechende Massoché.
 Les raccords de l'eau de refroidissement varient avec les positions des casings. Voir plan d'encombrement.
 The positions of the cooling water connections depend upon the arrangement of the casings. The arrangements possible are indicated on the corresponding dimension drawing.



Kühlwasseranschlüsse
Raccords pour l'eau de refroidissement
Cooling water connections

Einblößen
Nur für das Einfüllen des
Öls
Oil filler

Abblößen
Nur für das Ablassen des
Öls
Oil drain

Ölwanne
Nur für das Auffangen des
Öls
Oil sump

Ölwanne
Nur für das Auffangen des
Öls
Oil sump

Entwässerungsstelle
Fuge d'eau
Turbine chamber drain

Manometeranschlüsse
Raccords de manomètre pour la pression
de surveillance
Connection for pressure gauge

Kühlwasseranschlüsse
Raccords pour l'eau de refroidissement
Cooling water connections

BROWN BOVERI

97314

122,880

TURBO-CHARGER : VTR 500,630 Z

Key to sectional drawings 3-100002; and bearings 3/2889.
3-100035

20	shaft	5037	hexagon screw
2080	carrier	505	sealing bush
2081	ring nut	508	cover for pressure balance duct
2083	locking plate	5208	baffle plate
2087	gland strip	58	bearing cover, turbine side
⇒ 21	blade	582	sight glass cover complete
22	shrink ring	583	sight glass
25	blower impeller	584	packing for sight glass
26	pre-rotation wheel	585	packing for bearing cover
2534	caulking wire	5861	draining plug
28	diffuser	587	press ring
30	nozzle ring	5891	plug for oil filling tube
32	bearing assembly, blower side	5893	plug for tachometer drive TS
320	ball bearing	5899	plug for tachometer drive BS
321	inner bearing bush	60	gas outlet casing
322	outer bearing bush	6001	stud
323	radial damping springs	680	foot, blower side
324	axial damping springs	682	foot, turbine side
325	bearing flange	702	partition wall
3251	sunk screw	7021	gland stripe
3252	hexagon screw	7022	caulking wire
3253	locking wire	703	heat insulating ring
326	locking flange	704	protecting sleeve
3514	hexagon screw	705	guide bush
3515	wire locking	7211	stud
327	oil baffle plate	7212	stud
35	support	7213	hexagon screw
3511	hexagon screw	7230	stud
3513	pal locknut	7231	stud
36	supporting spring	7234	hexagon screw
38	bearing assembly, turbine side	725	sealing bush
381	roller bearing	726	sealing bush
382	inner bearing bush	74	air outlet casing
383	outer bearing bush	76	air inlet casing
384	damping springs	77	blower casing insert
41	locking flange	78	bearing cover, blower side
4111	hexagon screw	8081	circular frame
4112	wire locking	8084	tie-rod
42	distance bush	8085	inner suction nozzle with felt lining
45	holder	8087	strainer
4511	hexagon screw	8091	silencer casing
4513	Pal locknut	8095	outer suction nozzle with felt lining
46	holding spring	80814	Z-socket screw
47	oil pump, complete, for blower side	803	air filter
4723	cap nut	80319	filling
⇒ 48	oil pump, complete for turbine side	80320	hexagon screw
50	gas inlet casing	80321	Z-socket screw
5024	guiding bolt	82	air suction branch

GENERAL DESCRIPTION

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The Brown Boveri Exhaust Gas Turbo Charger consists of a single stage centrifugal blower and a single stage exhaust gas turbine which are built together as one unit.

The speed of the turbo charger depends entirely upon the load on the Diesel engine and its operating conditions, since the charger works without any mechanical control. The operation of a turbo charged engine is, therefore, the same as for an uncharged machine.

The rotor shaft (20) and the turbine disc are manufactured in one piece. The turbine blades, of heat resisting special steel, are secured into slots on the turbine disc. For the low pressure design (Specification Pa Pb), a shrouded blower impeller (25) is used and for the high pressure design (Specification Rc) an unshrouded impeller with a pre-rotation wheel (26) is used. In both cases the blower impellers are shrunk on to the rotor shaft (20).

Maybe as desired, the turbo charger is supplied with a silencer (80,81), when the air is drawn in from the engine room and with an air suction branch when the air is drawn in from outside. The silencer serves to reduce the noise caused by the air flow. A diffusor (28) is built into the two-piece spiral casing (74) of the blower. Labyrinth glands seal the pressure chamber from the atmosphere and from the adjoining turbine portion. The duct (Y) serves to equalize the pressure between the glands (725, 726) and the blower bearing. The turbine and blower portions are separated by a partition wall (703) filled with an insulating material in order to prevent overheating of the blower portion.

A nozzle ring (30) is provided on the gas inlet side in order to impart the necessary velocity and direction to the exhaust gases from the engine before they enter the turbine. In order to prevent effectively an escape of exhaust gases along the shaft from the turbine bearing side the labyrinth gland on this side is provided with sealing air through the duct (X). The equalization duct (Z) with the filter (508) prevents pressure fluctuations and loss of oil from the oil well of the turbine bearing.

The casings for the gas inlet (50) and outlet (60) are both water cooled.

The shaft is supported by a double ball bearing (32) on the blower side and by a roller bearing (38) on the turbine side; the double ball bearing serves also for taking up any slight axial thrust from the rotor. The roller bearing on the turbine side allows the shaft to expand freely in the axial direction. Both bearings are flexibly supported by means of damping springs (See 323, 324 and 384 on Drawing Nr. 3/2889).

⇒ At each end of the shaft is mounted a gear type lubricating oil pump; these pumps operate at the same speed as the rotor shaft. Each pump draws from its own lubricating oil well and supplies oil to its respective bearing. There is no connection between the two oil

MOUNTING AND CONNECTIONS

The exhaust gas turbo charger is generally bolted on to the engine by means of feet which form part of our supply. Such mounting will then be free from any abnormal stresses.

The gas and air manifolds (which are usually fairly heavy) should never be connected rigidly to the charger. Because of the thermal expansion occuring due to heat, expansion pieces should be used.

The gas and air pipes should be so arranged to ensure good conditions of flow, and whenever possible, sharp bends should be avoided.

The charging air cooler which is required for high turbocharging (in special cases also for low turbo charging), can be mounted in any desired position : Care has to be taken here also to ensure good flow conditions.

For the design with a suction branch, the air inlet must be so arranged and protected, so that no matters, dust, and other foreign substances can be drawn in. Should these requirements not be fulfilled it would be necessary to use a filter or at least a strainer.

Ventilation of the Engine Crank Case

The blower may be used for ventilating the engine crank case, but only if the blower handles air which is quite free from dust. In such cases, the pipe from the engine crank case should be attached to connection (P) of the blower (see dimension drawing and photograph on page 6) and should have at least the following diameter :

Charger Type	VTR 160:	internal diameter of pipe:	17 mm	11/16 inch.
" "	VTR 200:	" "	20 mm	3/4 "
" "	VTR 250:	" "	20 mm	3/4 "
" "	VTR 320:	" "	32 mm	1 1/4 "
" "	VTR 400:	" "	40 mm	1 5/8 "
" "	VTR 500:	" "	50 mm	2 - "
" "	VTR 630:	" "	60 mm	2 3/8 "

An effecient oil separator should be built into the suction pipe from the crank case, in order to prevent the entry of drops of oil into the blower.

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AGENDA ITEM 1 OF 1

ITEM:	DEPARTMENT: Human Resources
AGENDA SECTION:	AMOUNT:
ATTACHMENTS: <input type="checkbox"/> ORDINANCE <input type="checkbox"/> RESOLUTION <input type="checkbox"/> OTHER (See Summary) <input checked="" type="checkbox"/> SUPPORTING DOCUMENTS	DATE: 22-Apr-09
SUMMARY HIGHLIGHTS: 2009 - 2010 Pay plan, Position information chart, Benefits program	
RECOMMENDED ACTION: Approval of 2009 - 2010 Pay plan, Position information chart, Benefits program within the general budget.	
DEPARTMENT HEAD APPROVAL	VILLAGE ADMINISTRATOR
AGENDA PAGE NUMBER:	