

GENERAL INFORMATION

- SEE SHEET 2 FOR ALLOWABLE RESULTANT FORCES AND MOMENTS.
- MINIMUM PIPE SIZES RECOMMENDED FOR SHORT DIRECT RUNS OF PIPE ARE: STEAM INLET 8 INCHES DIA; STEAM EXHAUST 75 INCH DIAMETER; EXACT SIZES TO MAINTAIN CONTRACT CONDITIONS AT THE TURBINE CONNECTIONS TO BE DETERMINED BY CUSTOMER.
- CUSTOMER TO CHECK RATING, STEAM INFORMATION, ROTATION AND DIRECTION OF EXHAUST.
- TTV ABOVE SEAT DRAIN SHOULD BE RUN THROUGH INDEPENDENT PIPE LINE AND CONNECTED TO ATMOSPHERE (OR CONDENSER) INDEPENDENT OF ALL OTHER PIPING WITH A SHUT OFF VALVE IN EACH LINE.
 - TTV BELOW SEAT DRAIN SHOULD BE RUN THROUGH AN INDEPENDENT PIPE LINE AND CONNECTED TO MAIN CONDENSER INDEPENDENT OF ALL OTHER PIPING WITH A SHUT OFF VALVE IN THE LINE.
 - THE INLET TRIP THROTTLE VALVE STEM LEAKOFFS (QTY. 2) SHOULD BE CONNECTED TO SEWER OR ATMOSPHERE WITHOUT POSITIVE HEAD OR SHUT OFF VALVES. LINES CAN BE MANIFOLDED PROVIDED THE TOTAL AREA IS EQUAL TO THE SUM OF INDIVIDUAL LEAKOFF AREAS. LEAKAGE ONLY OCCURS WHEN THE VALVE IS THROTTLING.
 - ALL OTHER DRAINS SHOULD BE INDEPENDENTLY RUN AND SHOULD BE CONNECTED TO CONDENSER WITH A SHUT OFF VALVE IN LINE.

- UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.
- CUSTOMER PIPING CONNECTION LOCATIONS ARE WITHIN ±.00 INCH, UNLESS OTHERWISE SPECIFIED.
- OPTICAL ALIGNMENT PADS ARE PROVIDED ON THE TOP RAIL OF THE BASE FOR INSTALLATION, LEVELING AND ALIGNMENT. SEE INSTRUCTION BOOK FOR DETAILS.
- THE LUBRICATION AND HYDRAULIC OIL REQUIRED IS A PREMIUM GRADE MINERAL BASED INHIBITED LIGHT TURBINE OIL, ISO SSU # 100°F. SEE INSTRUCTION BOOK FOR DETAILS.
- OIL TANK CAPACITY IS APPROXIMATELY 1250 GALLONS.
- IF THIS OUTLINE IS COMBINED WITH OTHER DRAWINGS ALL NOTES MUST BE INCLUDED ON COMBINED DRAWINGS AS THESE COMMENTS ARE VITAL TO THE PROPER AND SAFE OPERATION OF THE TURBINE AND DRIVEN EQUIPMENT.

II. FOR ADDITIONAL DATA, REFERENCE THE FOLLOWING DRAWINGS:

GENERATOR ELECTRICAL OUTLINE	4003CH30KJ
GENERATOR OUTLINE	4004DIO74LS
P&ID OF MATERIAL	B777A540155030
ELECTRICAL OUTLINE TURBINE	B777A23A155030
LIFTING ARRANGEMENT	B777A37E155030
GLAND CONDENSER OUTLINE	509E3R8A
NON-RETURN VALVES	BASCO 91JYV065 A & M 18293-04/05/06

- DOWEL HOLES SHOULD BE REAMED AND ALIGNMENT DOWELS FITTED AFTER FINAL ALIGNMENT (WHERE APPLICABLE).
- GE TO FURNISH SHIMS, HOLD DOWN BOLTS, DOWELS AND JACKING SCREWS FOR HORIZONTAL AND VERTICAL POSITIONING OF THE TURBINE ON THE BASEPLATE.
- THE NOTES FOR CONSTRUCTION OF FOUNDATION ARE GE'S STANDARD RECOMMENDATION FOR FOUNDATION CONSTRUCTION. IT IS THE PURCHASER'S RESPONSIBILITY TO ASSURE ADEQUACY OF DESIGN.
- PURCHASER TO PROVIDE THE FOLLOWING:
 - A RIGID AND SUBSTANTIAL FOUNDATION, FOUNDATION BOLTS AND NUTS.
 - ALL PIPING, VALVES, FITTINGS, BOLTS, STUDS, NUTS, GASKETS AND FLANGES TO CONNECTIONS SHOWN WITH ALL DRAIN PIPING ARRANGED TO AVOID FORMATION OF POCKETS OR WATER LEGS.
 - (UNCONTROLLED EXTRACTIONS)
 - NON RETURN VALVES MUST BE INSTALLED PER THE P&ID IN THE CUSTOMER'S PIPING. THE FIRST NON RETURN VALVE MUST BE INSTALLED IN A HORIZONTAL POSITION LOCATED WITHIN 15 FEET OF THE TURBINE EXTRACTION FLANGE. THE SECOND NON RETURN VALVE MUST BE LOCATED NO MORE THAN 3 FEET DOWNSTREAM OF THE FIRST.
 - THE CUSTOMER PIPE SUPPORT SYSTEM IS TO INCLUDE SUPPORTS DESIGNED FOR THE WEIGHT OF THE NON RETURN VALVES.
 - NON-RETURN VALVES REFER TO GEK-27073 FOR REQUIREMENTS RELATED TO NON-RETURN VALVE APPLICATION.
 - TOTAL ENTRAINED ENERGY LIMITATION.
ITEM A 1200 BTU ITEM B 12000 BTU
 - THE FOLLOWING AVAILABLE ENERGIES OF ENTRAINED STEAM AND WATER TO BE USED IN DETERMINING TOTAL ENERGY.

EXTRACTION CONNECTION	STEAM BTU/FT3	WATER BTU/FT3
AF	140	3750
AG	57	2600
AH	13	1250
AJ	2	500

- TOTAL ENTRAINED ENERGY LIMITATION.
ITEM A 1200 BTU ITEM B 12000 BTU
- THE FOLLOWING AVAILABLE ENERGIES OF ENTRAINED STEAM AND WATER TO BE USED IN DETERMINING TOTAL ENERGY.

EXTRACTION CONNECTION	STEAM BTU/FT3	WATER BTU/FT3
AF	140	3750
AG	57	2600
AH	13	1250
AJ	2	500

- AN EXHAUST RELIEF VALVE ADJUSTED TO START RELIEVING AT NOT MORE THAN 5 PSIG, AND GIVE FULL RELIEF TO 164985 LBS. PER HOUR AT NOT MORE THAN 10 PSIG. THIS VALVE MUST BE INSTALLED BETWEEN THE TURBINE AND THE FIRST SHUT OFF VALVE IN THE EXHAUST LINE. (NO EXHAUST RELIEF VALVE FURNISHED).
- ACCESS HOLES CUT IN THE NEMA 4 ELECTRICAL BOXES FOR CUSTOMER RUN WIRING, CONDUIT AND FITTINGS.
- UNCONTROLLED EXTRACTIONS:
 - TWO NON RETURN VALVES MUST BE INSTALLED IN SERIES IN THE CUSTOMER'S PIPING TO OPEN FEED WATER HEATER DEAERATOR OR PROCESS. THE FIRST NON RETURN VALVE MUST BE INSTALLED IN A HORIZONTAL POSITION LOCATED WITHIN 15 FT OF THE TURBINE EXTRACTION FLANGE. THE SECOND NON RETURN VALVE MUST BE LOCATED NO MORE THAN 3 FT. DOWNSTREAM OF THE FIRST.
 - HEAT RETENTION MATERIAL (BLANKET TYPE) IS SUPPLIED FOR THE TURBINE CASING (EXCLUDING THE EXHAUST) ONLY. INSULATION IS NOT PROVIDED FOR TTV, NRV, STEAM SEAL OR DRAIN PIPING.

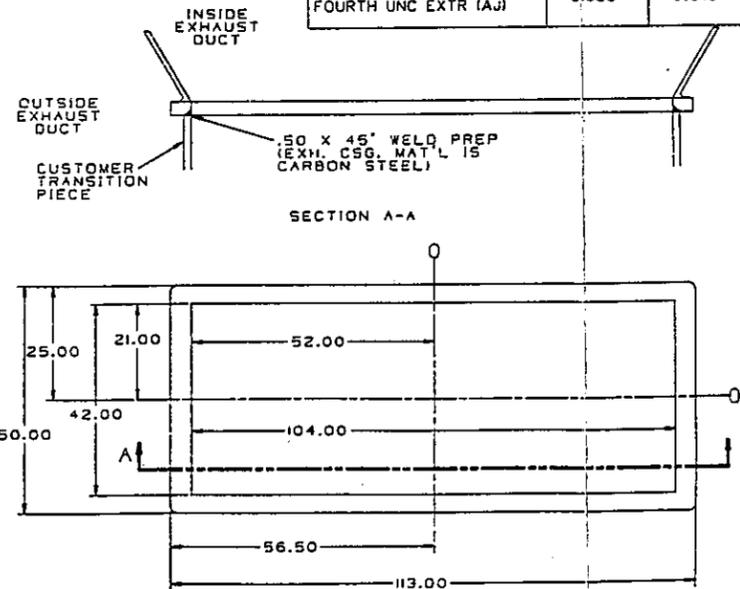
FOR USE ONLY
NOTE - THIS DRAWING MAINTAINED ON MICROVAP DATA BASE.
FILE NAME B777A01E155030-2 DATE 22-08-11

TURBINE WEIGHTS		POUNDS
SHIPPED WEIGHTS	TOTAL WEIGHT OF ASSEMBLED TURBINE: INCLUDING - CASINGS, DIAPHRAGMS, ROTOR, FRONT STANDARD, VALVE GEAR, PIPING, BASE, GEAR, OIL TANK	164198
	STOP/TRIP THROTTLE VALVE	4000
FOR MAINTENANCE PURPOSES	UPPER HALF, H.P. HEAD, EXHAUST CASING, INCLUDING DIAPHRAGMS, VALVE GEAR(S)	34534
	ROTOR (INCLUDING NOZZLE BOX)	13107
	GEAR	24000

TABLE OF FREE TURBINE EXPANSION

	X	Y	Z
L.P. SHAFT STEADY STATE	0.028	-0.001	0.000
TRANSIENT	-0.030 TO 0.207	0.000 TO 0.000	0.000 TO 0.000
INLET (CONN AA)	-0.274	0.230	0.492
EXHAUST (CONN AB)	-0.004	-0.029	0.000
1ST UNC EXTR (CONN AF)	-0.274	-0.154	0.000
SECOND UNC EXTR (AG)	-0.060	-0.107	0.000
THIRD UNC EXTR (AH)	-0.042	-0.041	0.018
FOURTH UNC EXTR (AJ)	-0.030	-0.019	0.013

TURBINE STEAM INFORMATION	
LOAD (KW)	19700.0
INLET PRESSURE (PSIG)	1250.0
INLET TEMPERATURE (°F)	950.0
EXHAUST PRESSURE ("HGA)	2.0
R.P.M.	5596.0
1ST UNC EXTR PRESSURE (CONN AF) (PSIG)	0.0



CUSTOMER: CNF CONSTRUCTORS, INC.
PROJECT: KES CHATEAUGAY
SITE: CHATEAUGAY, NY
CUSTOMER P.O. NO.:
G.E. S.O.: 155030

REV STATUS	REV	C	B	B	B	B	B	B	B
OF SHEETS	SH	1	2	3	4	5	6	7	

IDENTIFICATION AND MARKING TO BE IN ACCORDANCE WITH P2-10-13 FOR STEEL MANUFACTURING TO CHANGE AND PRACTICE SEE DWG. NO. 101701AA

PROPRIETARY INFORMATION THIS DOCUMENT INCLUDES PROPRIETARY INFORMATION OF THE GENERAL ELECTRIC COMPANY AND MAY NOT BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN PERMISSION FROM THE TECHNICAL SERVICES DEPARTMENT, GENERAL ELECTRIC COMPANY.

SIGNATURES	DATE
DESIGNED BY P. S. TRANK	9-04-79
DRAWN BY P. S. TRANK	9-04-79
CHECKED BY F. H. H. P.S.S.	9-04-79

GENERAL ELECTRIC COMPANY
FITCHBURG, MA

OUTLINE

REV: 03502
FILE: B777A01E155030

SHEET 1 OF 7

FOR USE ONLY
 NOTE - THIS DRAWING MAINTAINED ON MICROVAX DATA BASE.
 FILE NAME: B777A0155030-1 PLOT DATE: 11-04-88

REV.	DESCRIPTION	DATE	APPROVED
A	D.S. IWANK ADDED FORCES AND MOMENTS CHARTS. UPDATED CUST. DATA BLOCK.	11-04-88	P.B.J.
B	ADDED ALL CUSTOMER CONNECTIONS EXCEPT AA, AB, AF, AG, AH AND AJ.	11-04-88	A.F.G.

CUSTOMER CONNECTIONS				LOCATION OF CONNECTIONS			REMARKS	
STEAM	NPT	FLG SIZE	ANSI LBS	X	Y	Z		
AA	TRIP THROTTLE VALVE INLET		8.0	1500	-85.06	45.25	71.75	
AB	EXHAUST		75.0		0.00	-60.00	0.00	SEE DETAIL SH. 1
AF	FIRST EXTRACTION		4.0	300	-56.20	-37.56	0.00	
AG	SECOND EXTRACTION		4.0	300	-44.69	-39.06	0.00	
AH	THIRD EXTRACTION		6.0	150	-38.56	-35.00	12.50	
AJ	FOURTH EXTRACTION		12.0	150	-32.00	-45.00	-19.50	
AK	TRIP THROTTLE VALVE HP STEM LEAKOFF		1.5	1500	-66.56	28.13	68.69	
AL	TRIP THROTTLE VALVE LP STEM LEAKOFF		1.0	1500	-66.56	24.38	52.75	
AM	TRIP THROTTLE VALVE ABOVE SEAT DRAIN		1.0	900	-54.50	41.00	53.25	
AN	TRIP THROTTLE VALVE BELOW SEAT DRAIN		1.0	900	-54.56	27.50	45.75	
CF	FIRST STAGE CASING DRAIN		1.0	1500	-75.00	-34.50	0.00	
CM	STEAM SEAL SUPPLY/MAKEUP		1.0	300	-116.00	-31.00	70.00	
DA	STEAM SEAL PIPING TO GLAND CONDENSER		4.0	150	-58.00	-39.00	-38.00	
WC	PRESSURE TEST CONN AT EXHAUST	0.75			23.00	-47.00	-30.00	PLUGGED
WD	PRESSURE TEST CONN AT EXHAUST	0.75			23.00	-47.00	30.00	PLUGGED
OIL								
JJ1	GENERATOR LUBE OIL SUPPLY		1.0	150	113.00	-36.00	-68.50	
JJ2	GENERATOR LUBE OIL SUPPLY		1.0	150	156.75	-20.75	-54.50	
JK1	GENERATOR DRAIN		2.0	150	113.00	-27.00	-68.50	
JK2	GENERATOR DRAIN		2.0	150	152.75	-16.00	-55.00	
KC	CONDITIONER/PURIFIER SUPPLY		1.5	150	-249.13	-66.75	-20.50	
KD	CONDITIONER/PURIFIER RETURN		1.5	150	-249.13	-41.25	-54.00	
KK	TANK FILL	3.00			-219.75	-29.88	43.00	
KL	TANK DRAIN		2.0	150	-252.63	-68.94	0.00	
KN	PURGE	1.00			-247.06	-36.25	-60.75	PLUGGED
KO	PURGE	1.00			-155.13	-36.25	60.75	PLUGGED
AIR								
GD	TRIP SIGNAL TO NON-RETURN VALVES	0.75			-111.00	-18.00	42.00	
GL	SUPPLY TO TRIP RELAY	0.75			-111.00	-18.00	42.00	
GM	SUPPLY TO STEAM SEAL SUPPLY AND DUMP VALVE	0.25			-96.00	-18.00	70.00	
GN	OIL TANK VAPOR EXTRACTOR BLOWER OUTLET		4.0	150	-220.00	-13.50	-4.50	
WATER								
EC	OIL COOLER COOLING WATER INLET	4.00			-200.00	25.00	61.25	
ED	OIL COOLER COOLING WATER OUTLET	4.00			-205.25	19.75	61.25	PLUGGED
EE	OIL COOLER COOLING WATER INLET	4.00			-205.25	-16.38	61.25	PLUGGED
EF	OIL COOLER COOLING WATER OUTLET	4.00			-200.00	-21.38	61.25	PLUGGED
ELECTRICAL								
MA	MAIN OIL PUMP (MOP A)				-249.00	-21.50	22.38	HOLE FOR 2.00 CONDUIT
MB	AUXILIARY OIL PUMP (MOP B)				-249.00	-21.50	50.38	HOLE FOR 2.00 CONDUIT
MC	EMERGENCY OIL PUMP				-246.00	-12.63	-31.63	HOLE FOR .75 CONDUIT
MO	VAPOR EXTRACTOR BLOWER, OIL TANK				-245.00	-14.00	12.00	HOLE FOR .75 CONDUIT
MS	OIL TANK HEATER	1.50			-194.50	-59.19	70.00	
MX	TRIP THROTTLE (STOP) VALVE TERMINAL BOX				-78.06	-9.88	63.94	+ (2) Ø 1.38 HOLES
PV	EXHAUST END TERMINAL BOX				26.25	-22.63	42.88	+
PW1	MAIN TERMINAL BOX				SEE SHEETS 4 AND 5 FOR SIZE AND LOCATION			
PW2	MAIN TERMINAL BOX				SEE SHEETS 4 AND 5 FOR SIZE AND LOCATION			
SC	TURNING GEAR MOTOR	1.50			128.75	21.94	15.38	
SG	TURNING GEAR AND LP END ACCESSORIES				-42.00	-35.00	-73.00	+
SH	GEAR PROXIMATOR PROBES/INSTRUMENTATION				85.25	3.00	-63.50	+ (2) CONNS.)
SJ	GEAR RTDT BOX/INSTRUMENTATION	1.50			85.25	3.00	24.13	+ (2) CONNS.)
VM	H.P. BRG. R.T.D.	0.50			-123.00	-25.00	-51.00	
VN	L.P. BRG. R.T.D.	0.50			37.00	-27.00	-57.00	
VO	GEAR DRAIN R.T.D.	0.50			85.00	-19.00	-62.00	
VP	OIL COOLER DISCHARGE R.T.D.	0.50			-223.13	24.00	-28.00	
VR	OIL SYSTEM POWER LEVEL	2.00			-251.38	-29.50	-69.25	
VS	OIL SYSTEM POWER LEVEL	2.00			-251.38	-29.25	-64.00	
VT	OIL SYSTEM SIGNAL LEVEL	1.00			-251.38	-29.25	-48.50	

+ : DIMENSIONS GIVEN ARE TO BOTTOM CENTER OF TERMINAL BOX

MAXIMUM ALLOWABLE RESULTANT PIPING FORCES (LBS.) & MOMENTS (LB-FT) RESOLVED TO THE HIGH PRESSURE BEARING	
FX : TOTAL AXIAL FORCES	: 7600
FY : TOTAL VERTICAL FORCES	: 5700
FZ : TOTAL TRANSVERSE FORCES	: 5700
MX : TOTAL MOMENT ABOUT THE X AXIS	: 9300
MY : TOTAL MOMENT ABOUT THE Y AXIS	: 69300
MZ : TOTAL MOMENT ABOUT THE Z AXIS	: 50100

ALLOWABLE PIPE FORCES AND MOMENTS AT EACH CONNECTION

CONNECTION	SIZE	FR + MR/3
AA	8.0	5350
AB	75.0	10150
AF	4.0	3500
AG	4.0	3500
AH	6.0	6000
AJ	12.0	30000

CUSTOMER: CNF CONSTRUCTORS, INC.
 PROJECT: KES CHATEAUGAY
 SITE: CHATEAUGAY, NY
 CUSTOMER P.O. NO.:
 G.E. S.O.: 155030



IDENTIFICATION AND MARKING TO BE IN ACCORDANCE WITH PS38-A-83
 FOR STD. USE ONLY - ENG TELETYPE AND PRACTICE SEE DWG NO. 1014701A

DATE	DESCRIPTION	BY	CHKD
11-04-88	ISSUED FOR P.B.J.	P.B.J.	
11-04-88	ISSUED FOR A.F.G.	A.F.G.	
11-04-88	ISSUED FOR P.B.J.	P.B.J.	

GENERAL ELECTRIC COMPANY
 FITZBURGH, VA

N&SST

OUTLINE

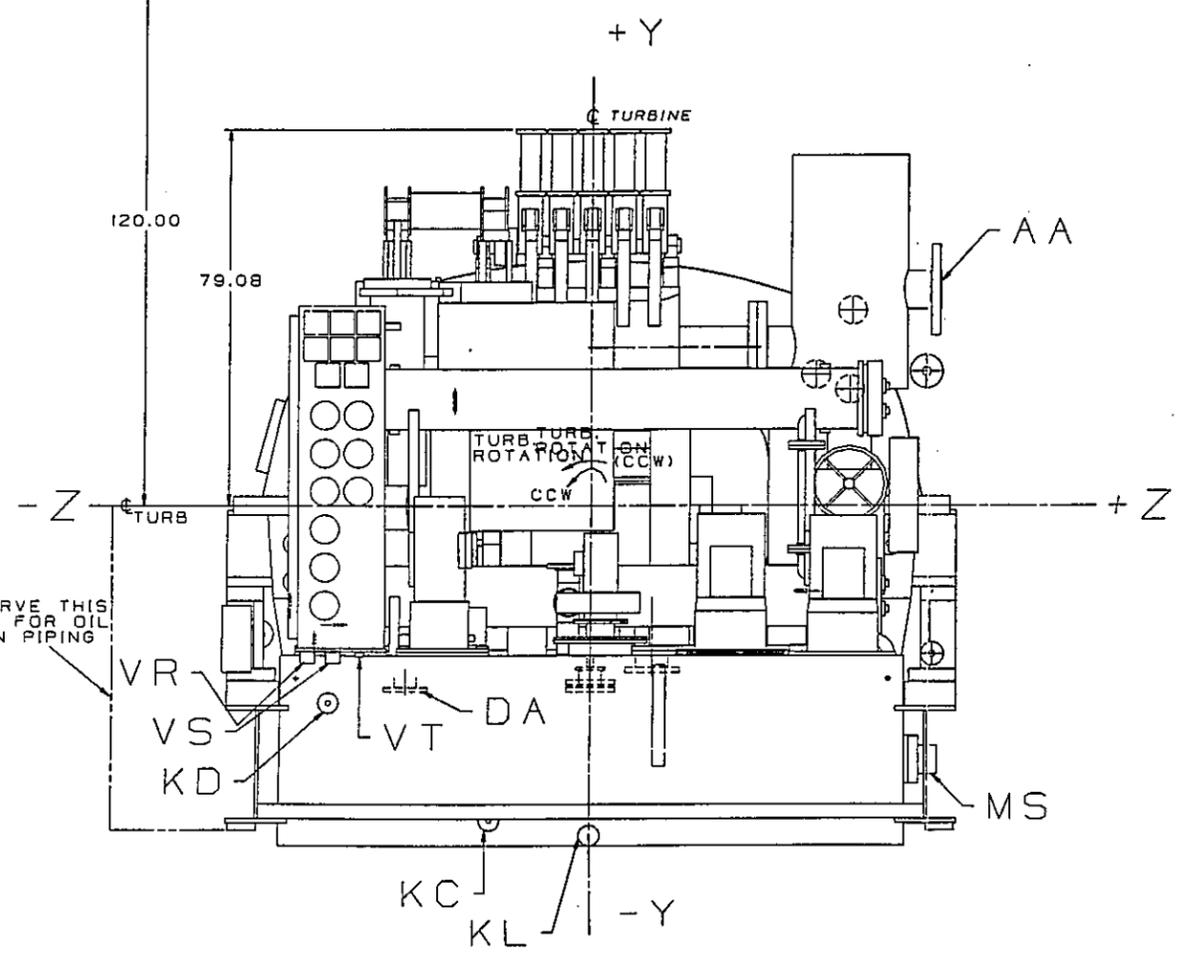
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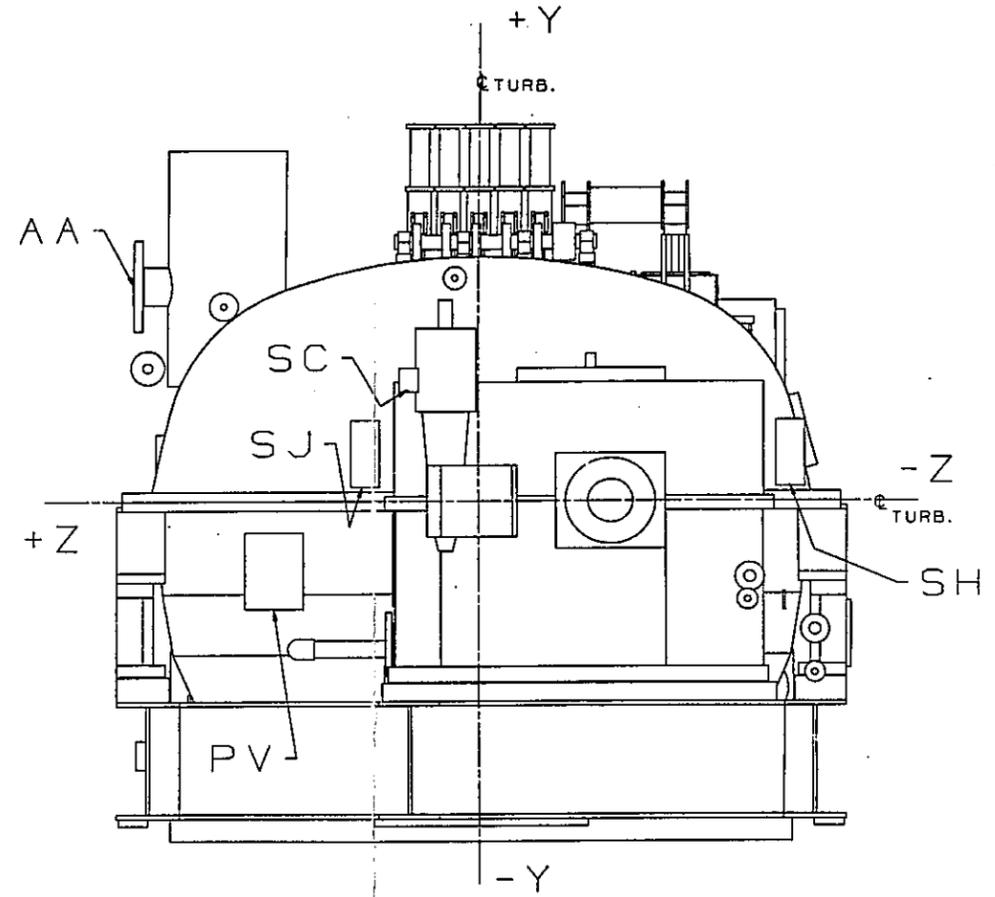
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 NOTE - THIS DRAWING MAINTAINED ON MICROVAX DATA BASE.
 FILE NAME B777A01E155030-6 PLOT DATE 91-02-20

REV	DESCRIPTION	DATE	APPROVED
A	P.S. IWANK UPDATED CUST. DATA BLOCK.	91-04-20	P.S.I.
B	P.S. IWANK ADDED CUST. CONNS. DELETED ADVANCE FROM TITLE.	91-04-24	P.S.I.

DISTANCE REQUIRED TO REMOVE
 TURBINE UPPER HALF



VIEW FROM OIL
 TANK END



VIEW FROM GEAR END

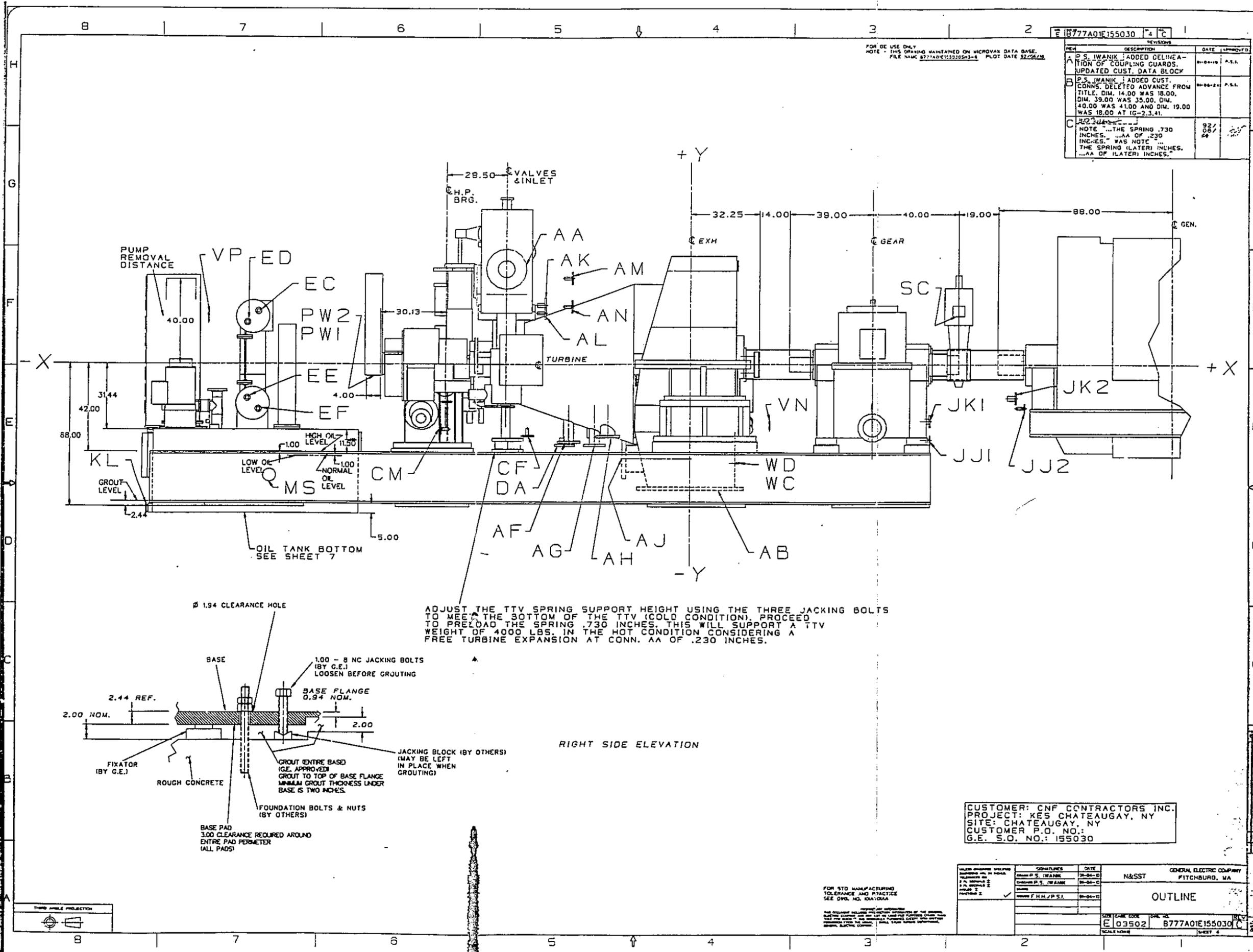
RESERVE THIS
 AREA FOR OIL
 DRAIN PIPING

CUSTOMER: CNF CONSTRUCTORS INC.
 PROJECT: KES CHATEAUGAY
 SITE: CHATEAUGAY, NY
 CUSTOMER P.O. NO.:
 G.E. S.O. 155030

FOR STD MANUFACTURING
 TOLERANCE AND PRACTICE
 SEE DWG. NO. 10A700A

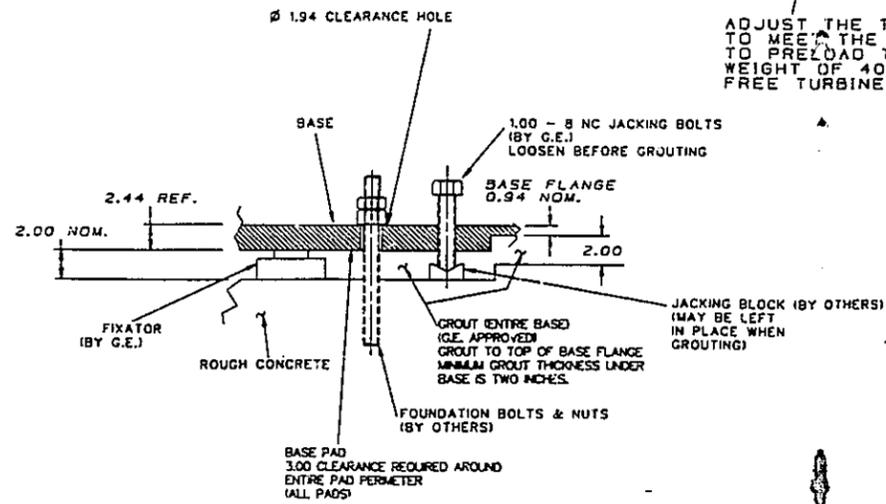
SIGNATURE	DATE	GENERAL ELECTRIC COMPANY FITCHBURG, VA
DRUM P. S. IWANK	91-04-20	N&SST
LUCAS P. S. IWANK	91-04-20	
DAVID F. H. H. P. S. I.	91-04-20	OUTLINE

STANDARD LOG
 E 03502 B777A01E155030
 REV 1



REV.	DESCRIPTION	DATE	APPROVED
A	P. S. IWANIK : ADDED DELINEATION OF COUPLING GUARDS. UPDATED CUST. DATA BLOCK	01-08-10	P.S.I.
B	P. S. IWANIK : ADDED CUST. CONNS. DELETED ADVANCE FROM TITLE. DIM. 14.00 WAS 18.00. DIM. 39.00 WAS 35.00. DIM. 40.00 WAS 41.00 AND DIM. 19.00 WAS 18.00 AT IG-2,3,4.	01-08-10	P.S.I.
C	NOTE ...THE SPRING .730 INCHES. ...AA OF .230 INCHES. WAS NOTE ...THE SPRING (LATER) INCHES. ...AA OF (LATER) INCHES.	02/08/10	

ADJUST THE TTV SPRING SUPPORT HEIGHT USING THE THREE JACKING BOLTS TO MEET THE BOTTOM OF THE TTV (COLD CONDITION). PROCEED TO PRELOAD THE SPRING .730 INCHES. THIS WILL SUPPORT A TTV WEIGHT OF 4000 LBS. IN THE HOT CONDITION CONSIDERING A FREE TURBINE EXPANSION AT CONN. AA OF .230 INCHES.



RIGHT SIDE ELEVATION

CUSTOMER: CNF CONTRACTORS INC.
 PROJECT: KES CHATEAUGAY, NY
 SITE: CHATEAUGAY, NY
 CUSTOMER P.O. NO.:
 G.E. S.O. NO.: 155030

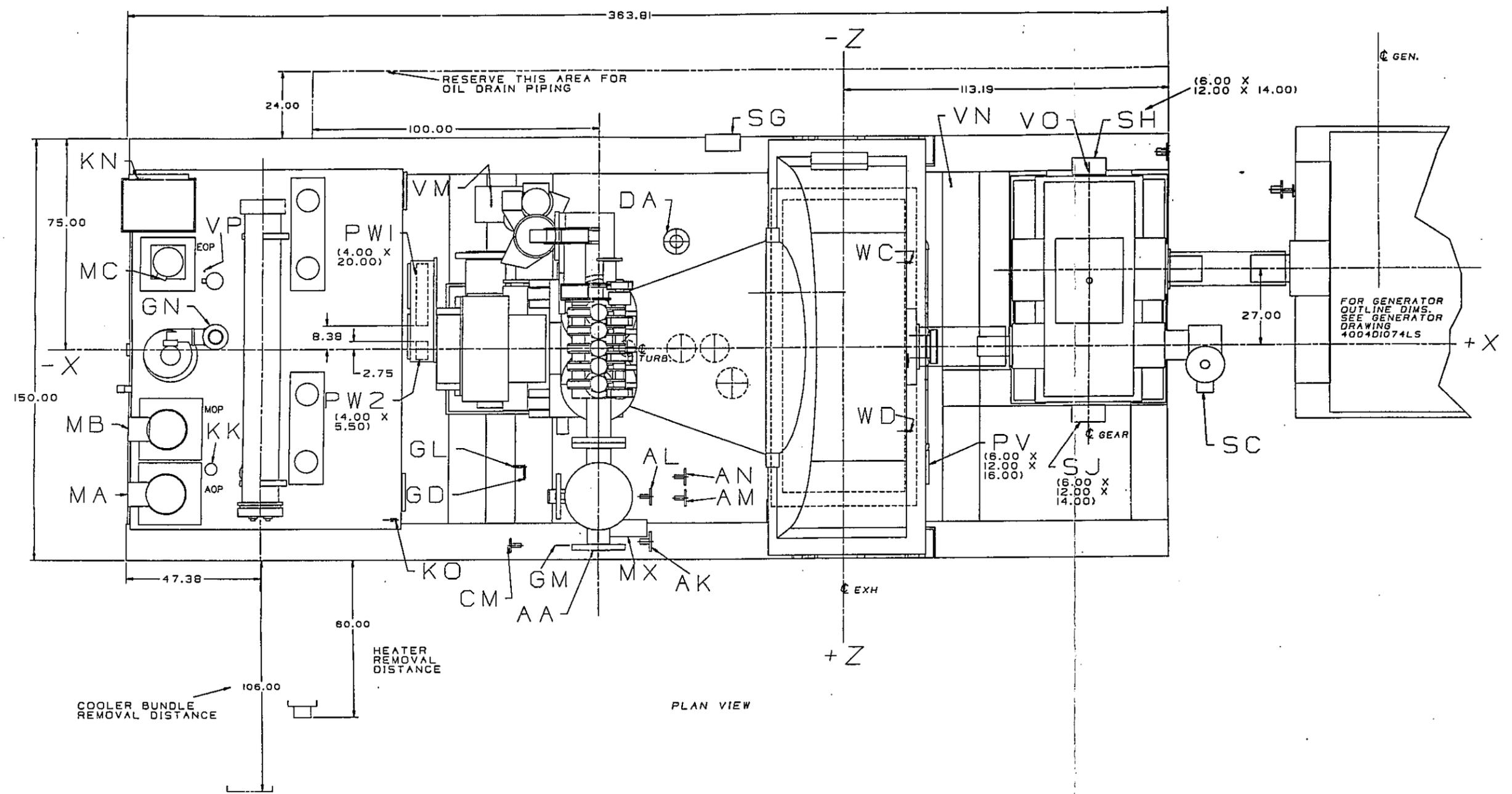
FOR STD MANUFACTURING TOLERANCE AND PRACTICE SEE DPG. NO. 1001/00A

SIGNATURES	DATE	GENERAL ELECTRIC COMPANY
DESIGNED BY P. S. IWANIK	01-08-10	FITCHBURG, MA
CHECKED BY P. S. IWANIK	01-08-10	
DATE CODE	01-08-10	
SCALE		
PROJECT NO.	B777A01E155030	
DWG. NO.	E 03502	
SCALE		

OUTLINE

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 NOTE - THIS DRAWING MAINTAINED ON MICROVAX DATA BASE.
 FILE NAME 8777A01E155030-2 PLOT DATE 01-02-88

REV	DESCRIPTION	DATE	APPROVED
A	P.S. IWANK ADDED CPLGS. UPDATED CUST DATA BLOCK. ADDED HEATER REMOVAL.	01-04-88	P.S.I.
B	ADDED CUST. CONNS. AND AREA FOR OIL DRAIN PIPING.	01-04-88	A.E.E.



CUSTOMER: CNF CONSTRUCTORS INC.
 PROJECT: KEG CHATEAUGAY
 SITE: CHATEAUGAY, NY
 CUSTOMER B.D. NO.:
 G.E. S.O. 155030

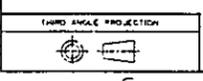
SIGNATURES	DATE	GENERAL ELECTRIC COMPANY
DESIGNED BY P.S. IWANK	01-04-88	FITCHBURG, MA
CHECKED BY P.S. IWANK	01-04-88	
ENGINEER F.H.H./P.S.I.	01-04-88	

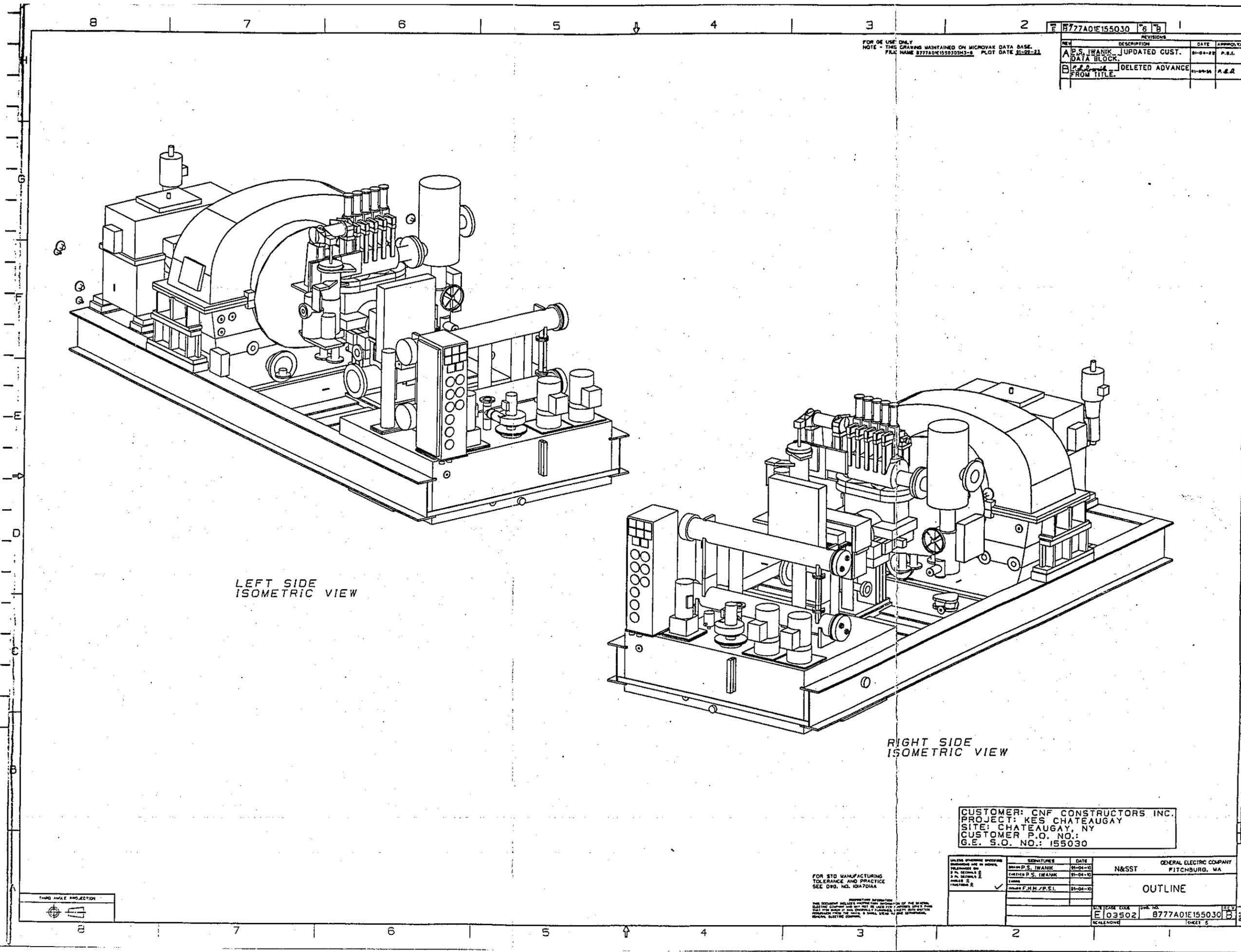
OUTLINE

ITEM CHECK CODE 03502 8777A01E155030

SCALE NONE

FOR STD MANUFACTURING TOLERANCE AND PRACTICE SEE DWG. NO. 00A700A





FOR USE ONLY
 NOTE - THIS DRAWING MAINTAINED ON MICROVAX DATA BASE.
 FILE NAME B777A01E155030-8 PLOT DATE 81-02-21

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	P.S. IWANK, UPDATED CUST. DATA BLOCK.	81-04-28	P.S.L.
B	DELETED ADVANCE FROM TITLE.	81-04-28	A.E.R.

LEFT SIDE ISOMETRIC VIEW

RIGHT SIDE ISOMETRIC VIEW

CUSTOMER: CNF CONSTRUCTORS INC.
 PROJECT: KES CHATEAUGAY
 SITE: CHATEAUGAY, NY
 CUSTOMER P.O. NO.:
 G.E. S.O. NO.: 155030

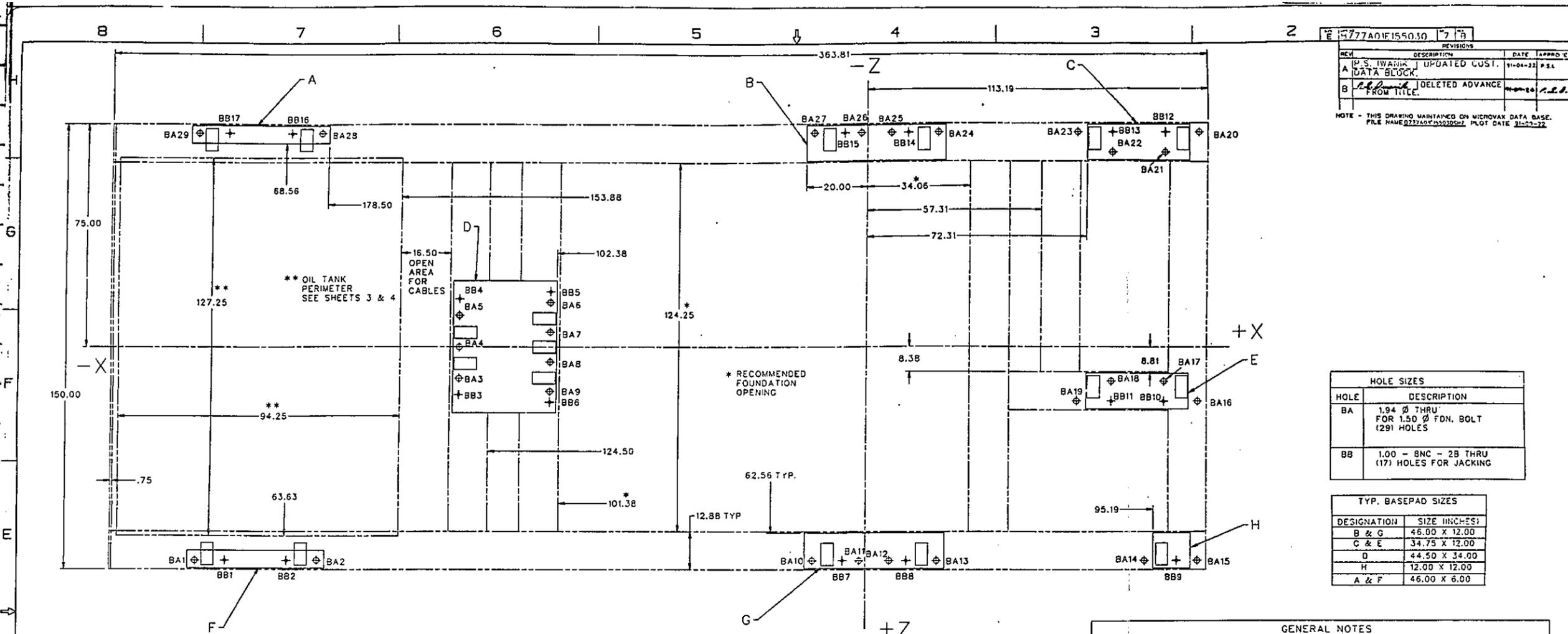
SIGNATURES		DATE	GENERAL ELECTRIC COMPANY	
DESIGNED BY	WALTER P. S. IWANK	81-04-10	N&ST	FITCHBURG, MA
CHECKED BY	WALTER P. S. IWANK	81-04-10	OUTLINE	
APPROVED BY	FRANK F. H. H. / P.S.I.	81-04-10		

FOR STD MANUFACTURING
 TOLERANCE AND PRACTICE
 SEE DFG, NO. 10A701A

THIS DRAWING INCLUDES THE INFORMATION OF THE BUREAU OF ELECTRIC CABLES AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF THE BUREAU OF ELECTRIC CABLES.

THIRD ANGLE PROJECTION

SCALE NONE
 SHEET 5



REV.	DESCRIPTION	DATE	APPROVED
A	P.S. IWANKI UPDATED CUST. DATA BLOCK	11-04-22	P.S.I.
B	DELETED ADVANCE FROM TITLE	11-04-22	P.S.I.

NOTE - THIS DRAWING MAINTAINED ON MICROVAX DATA BASE. FILE NAME: 2277A01F155030.PLOT DATE: 11-04-22

HOLE SIZES	
HOLE	DESCRIPTION
BA	1.94 Ø THRU FOR 1.50 Ø FDN. BOLT (29) HOLES
BB	1.00 - BNC - 2B THRU (17) HOLES FOR JACKING

TYP. BASEPAD SIZES	
DESIGNATION	SIZE INCHES
B & C	46.00 X 12.00
C & E	34.75 X 12.00
D	44.50 X 34.00
H	12.00 X 12.00
A & F	46.00 X 6.00

PLAN VIEW - BASE PAD ARRANGEMENT

□ DENOTES RECOMMENDED FIXATOR LOCATIONS
 □ DENOTES FIXATORS REQUIRED FOR GENERATOR INSTALLATION

NAME	X	Z
BA1	-222.00	71.94
BA2	-191.00	71.94
BA3	-134.33	10.63
BA4	-134.33	10.00
BA5	-134.33	-10.63
BA6	-104.44	-15.00
BA7	-104.44	-5.00
BA8	-104.44	5.00
BA9	-104.44	15.00
BA10	-17.50	71.94
BA11	-2.00	71.94
BA12	2.00	71.94
BA13	13.50	71.94
BA14	92.19	71.94
BA15	110.19	71.94
BA16	110.19	18.25
BA17	198.69	11.50
BA18	198.69	11.50
BA19	198.69	11.50
BA20	110.19	11.50
BA21	92.19	-65.19
BA22	198.69	-65.19
BA23	23.19	-71.94
BA24	123.50	-71.94
BA25	8.00	-71.94
BA26	-2.00	-71.94
BA27	-17.50	-71.94
BA28	-17.50	-71.94
BA29	-222.00	-71.94

NAME	X	Z
BB1	-212.00	71.94
BB2	-191.00	71.94
BB3	-134.33	16.13
BB4	-134.33	-16.13
BB5	-104.44	-19.63
BB6	-104.44	18.63
BB7	-7.50	71.94
BB8	13.50	71.94
BB9	103.19	71.94
BB10	198.69	18.25
BB11	198.69	18.25
BB12	198.69	-71.94
BB13	198.69	-71.94
BB14	113.50	-71.94
BB15	-7.50	-71.94
BB16	-191.00	-71.94
BB17	-212.00	-71.94

LOAD DESCRIPTION	AXIAL REACTIONS (X - DIRECTION)							
	LOAD LOCATION AT PAD (SEE OUTLINE)							
(FORCE IN POUNDS)	A	B	C	D	E	F	G	H
DEAD WEIGHT	15248	30713	15357	21357	5057	16581	32046	2748
IMPACT & DYNAMIC	---	---	---	---	---	---	---	---
THERMAL EXPANSION	4574	19155	9159	14452	4517	4974	19555	824
PIPING	---	3426	---	3426	---	---	3426	---
CONDENSER	---	---	---	---	---	---	---	---
TOTAL	4574	22581	9159	17378	4517	4974	22981	824

LOAD DESCRIPTION	VERTICAL REACTIONS (Y - DIRECTION)							
	LOAD LOCATION AT PAD (SEE OUTLINE)							
(FORCE IN POUNDS)	A	B	C	D	E	F	G	H
DEAD WEIGHT	15248	30713	15357	21357	5057	16581	32046	2748
IMPACT & DYNAMIC	---	---	---	---	---	---	---	---
TORQUE	---	---	163368	18393	---	---	4953	---
PIPING	---	3426	---	3426	---	---	3426	---
CONDENSER	---	2970	---	---	---	---	2970	---
TOTAL	15248	37080	163368	21002	18057	16581	77128	2748

LOAD DESCRIPTION	TRANSVERSE REACTIONS (Z - DIRECTION)							
	LOAD LOCATION AT PAD (SEE OUTLINE)							
(FORCE IN POUNDS)	A	B	C	D	E	F	G	H
DEAD WEIGHT	---	---	---	---	---	---	---	---
IMPACT & DYNAMIC	---	---	---	---	---	---	---	---
THERMAL EXPANSION	4574	19155	9159	14452	4517	4974	19555	824
PIPING	---	3426	---	3426	---	---	3426	---
CONDENSER	---	---	---	---	---	---	---	---
TOTAL	4574	22581	9159	17378	4517	4974	22981	824

NOTES: 1) THE STEADY STATE LOADS ARE A SUMMATION OF DEAD WEIGHTS, STEADY STATE TORQUE, PIPING, FRICTION AND VACUUM LOADS. THE DYNAMIC LOADS ARE LOADS DUE TO UNBALANCE. THE DYNAMIC LOADS ON PADS B, D & G ARE A FREQUENCY OF 93.3 HZ. THE DYNAMIC LOADS ON PADS C & E ARE A FREQUENCY OF 93.3 HZ. 2) DYNAMIC LOADS ON PAD D ACT UPWARDS ON THE A AND B SIDE, AND DOWNWARDS ON THE F AND G SIDE. TOTAL PAD LOAD DO NOT INCLUDE ANY UPWARDS FORCES. THEY INCLUDE DOWNWARD FORCES ONLY IN ORDER TO SHOW MAXIMUM EARTHWARD LOADS, AND TO GIVE SYMMETRICAL LOADING OF THE FOUNDATION.

GENERAL NOTES
 NOTES FOR CONSTRUCTION OF FOUNDATION

A) THE PROPER QUALITY OF CONCRETE FOR THIS WORK HAS TO BE USED.

B) STEEL REINFORCEMENT BURIED IN CONCRETE MUST BE PROVIDED IN ACCORDANCE WITH REINFORCED CONCRETE PRACTICE.

C) THE FOUNDATION SHOULD BE SUFFICIENTLY STIFF SO THAT THE MACHINE ERECTION MAY BE EXPEDITIOUSLY AND SATISFACTORILY PERFORMED, AND THE MACHINE ALIGNMENT PERMANENTLY HELD WITHOUT PEAK RESONANT VIBRATION AT OPERATIONAL SPEED. THIS REQUIRES CONSIDERATION OF THE DEFLECTION OF THE FOUNDATION IN THE VERTICAL AND HORIZONTAL DIRECTIONS, AS WELL AS THE STRESSES IN THE MATERIALS. THE FOUNDATION SHOULD HAVE SUFFICIENT RIGIDITY TO MINIMIZE THE POSSIBILITY OF LOCAL SETTLEMENT. LOCAL SETTLEMENT OF ANY PART OF THE FOUNDATION WHICH PRODUCES A WARP IN THE TURBINE BASE MAY SERIOUSLY EFFECT THE OPERATION AND MAINTENANCE OF THE MACHINE.

GENERAL ELECTRIC CO. NAVAL AND SMALL STEAM TURBINE DEPT. DOES NOT IMPOSE SPECIFIC DESIGN CRITERIA FOR FOUNDATIONS. GENERAL ELECTRIC CO. INSTRUCTION, "FOUNDATION DESIGN & CONSTRUCTION RECOMMENDATIONS" GEN-13331, ISSUED BY THE MEDIUM STEAM TURBINE DEPT. MAY BE USED AS A GUIDELINE AS IT COVERS THE REQUIREMENTS FOR FOUNDATION DESIGN INCLUDING CRITERIA FOR FOUNDATION STIFFNESS, DEFLECTIONS, RESONANCE AND THE OTHER DESIGN CONSIDERATIONS.

RESONANT VIBRATION OF THE FOUNDATION AS A WHOLE OR ANY OF ITS PARTS SHOULD BE AVOIDED AS FAR AS POSSIBLE TO PREVENT DAMAGE TO THE STRUCTURE OR EQUIPMENT AND LOSS OF OPERATING EFFICIENCY.

D) THE DEPTH OF EXCAVATION FOR THE FOUNDATION BLOCK MUST BE DECIDED IN RELATION TO THE SOIL CHARACTERISTICS. THE BLOCK MUST BE UPON GROUND SUITABLE FOR FOUNDATION.

E) THE FOUNDATION BLOCK MUST NOT BE JOINED TO ANY OTHER STRUCTURE. THIS IS TO AVOID VIBRATION TRANSMISSION.

F) ADEQUATE FOUNDATION SUPPORT MUST BE PROVIDED UNDER ALL BASEPLATE PADS.

G) NON-SHRINKING GROUT TO BE POURED AFTER PLACEMENT OF ALL SUPPORTED MACHINERY.

CUSTOMER: CHF CONSTRUCTORS INC.
 PROJECT: RES. CHATEAUGAY
 SITE: CHATEAUGAY, NY
 CUSTOMER PO NO.:
 GE S.O.: 155039

IDENTIFICATION AND MARKING TO BE IN ACCORDANCE WITH P22A-AF3	FOR STD MANUFACTURING TOLERANCE AND PRACTICE SEE DETAIL NO. 10410AA	<table border="1"> <tr> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td>11-04-22</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> </table>	DATE	DESCRIPTION	11-04-22	ISSUED FOR CONSTRUCTION	<table border="1"> <tr> <td>N&SST</td> <td> <table border="1"> <tr> <td>OUTLINE INSTALLATION TURBINE/GEAR GENERATOR</td> </tr> </table> </td> </tr> </table>	N&SST	<table border="1"> <tr> <td>OUTLINE INSTALLATION TURBINE/GEAR GENERATOR</td> </tr> </table>	OUTLINE INSTALLATION TURBINE/GEAR GENERATOR
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OUTLINE INSTALLATION TURBINE/GEAR GENERATOR										

4002B1178 LW

CONT. ON SHT. SHT. NO.

			LEVEL
			STOCK
			ORIGIN
			STO/SPC

G.E. CANADA
AC MACHINES
PETERBOROUGH PLANT

PROD
PARTS LIST FOR

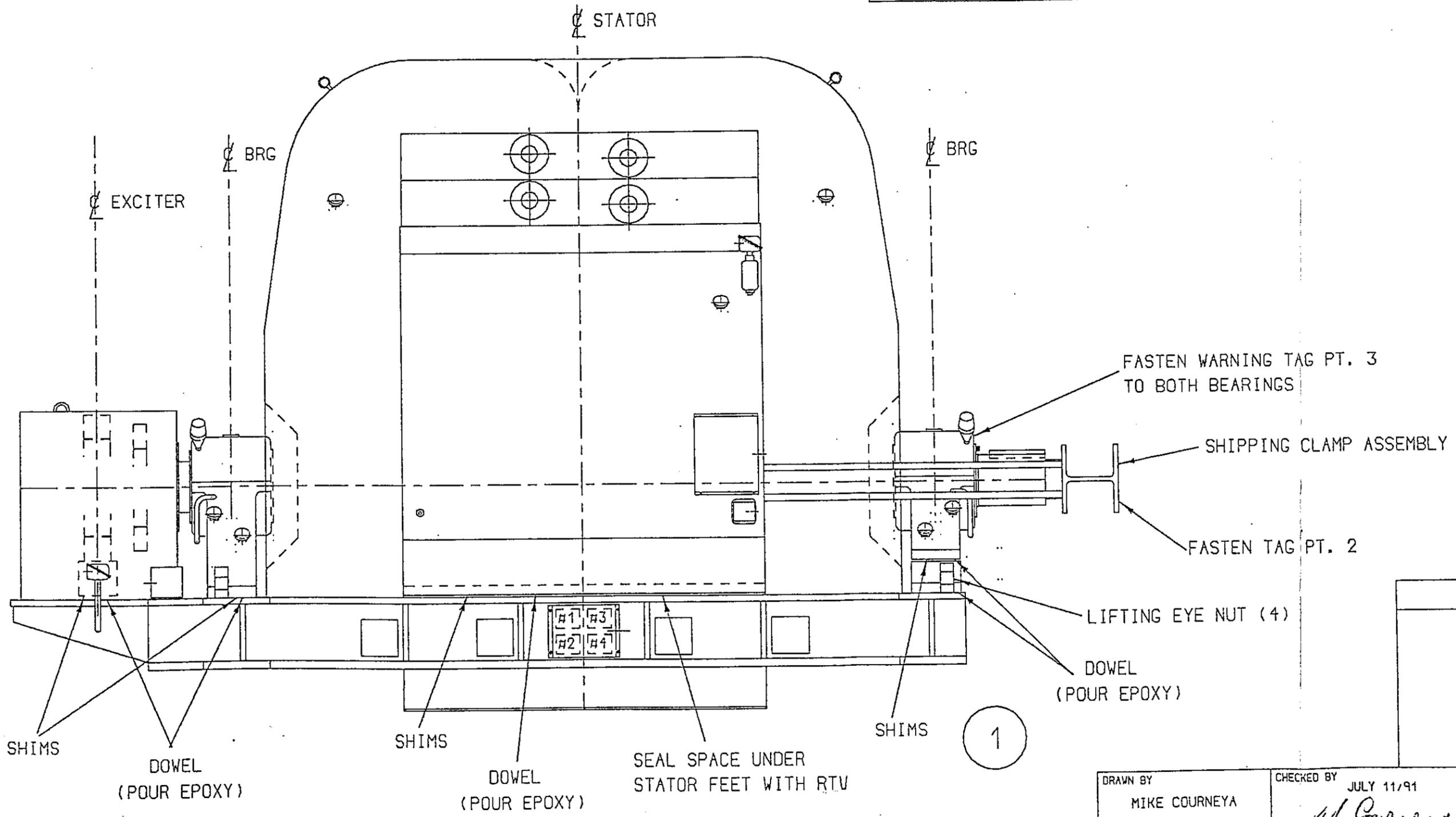
DRAWING
4002B1178 LW

TITLE
SHIPPING ASSEMBLY

FIRST MADE FOR EN-139863

F.C.F.

GROUP	QUANTITY		DRAWING	P I G	NO	LEV	NAME AND DESCRIPTION	STK	ORIG
	X 1	PT	THIS DRAWING	P	001		ASSEMBLY		
	1 2		4001A1157ML	P	001		WARNING TAG		
	2 3		4001A1157MK	P	001		WARNING TAG		

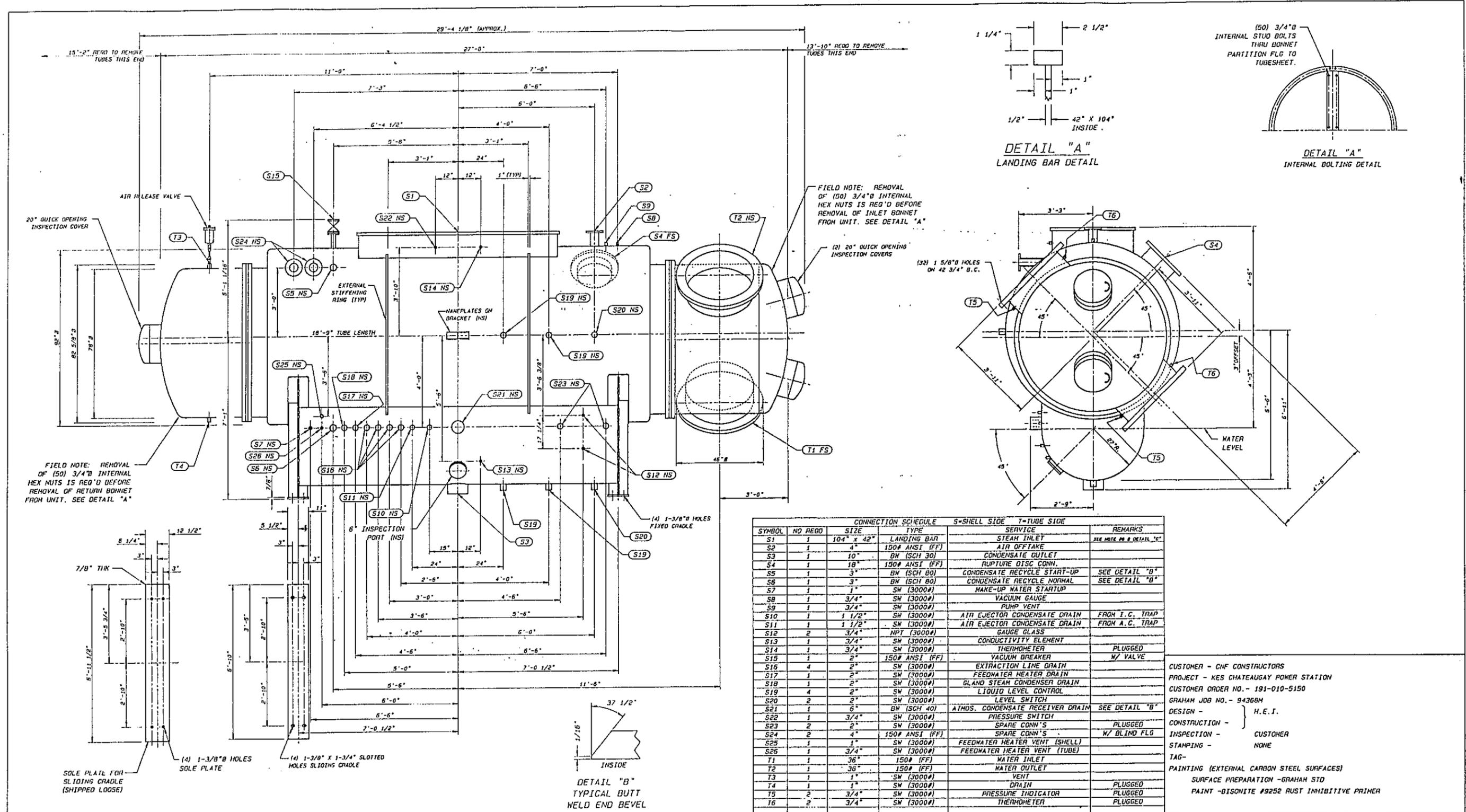


REVISION	PRINTS TO
	C
NOTE COPY ON MICROFILM AND CADD ONLY	

DRAWN BY
MIKE COURNEYA

CHECKED BY
JULY 11/91
M. Courneya

4002B1178 LW
CONT. ON SHT. SHT. NO.



SYMBOL		NO	REGD	SIZE	TYPE	S-SHELL SIDE	T-TUBE SIDE	SERVICE	REMARKS
S1	1	104"	1	42"	LANDING BAR			STEAM INLET	SEE NOTE #8 & DETAIL "C"
S2	1	4"	1		150# ANSI (FF)			AIR OFFTAKE	
S3	1	10"	1		BW (SCH 30)			CONDENSATE OUTLET	
S4	1	18"	1		150# ANSI (FF)			RUPTURE DISC CONN.	
S5	1	3"	1		BW (SCH 80)			CONDENSATE RECYCLE START-UP	SEE DETAIL "B"
S6	1	3"	1		BW (SCH 80)			CONDENSATE RECYCLE NORMAL	SEE DETAIL "B"
S7	1	1"	1		SW (3000#)			MAKE-UP WATER STARTUP	
S8	1	3/4"	1		SW (3000#)			VACUUM GAUGE	
S9	1	3/4"	1		SW (3000#)			PUMP VENT	
S10	1	1 1/2"	1		SW (3000#)			AIR EJECTOR CONDENSATE DRAIN	FROM I.C. TRAP
S11	1	1 1/2"	1		SW (3000#)			AIR EJECTOR CONDENSATE DRAIN	FROM A.C. TRAP
S12	2	3/4"	1		NPT (3000#)			GAUGE GLASS	
S13	1	3/4"	1		SW (3000#)			CONDUCTIVITY ELEMENT	
S14	1	3/4"	1		SW (3000#)			THERMOMETER	PLUGGED
S15	1	2"	1		150# ANSI (FF)			VACUUM BREAKER	W/ VALVE
S16	4	2"	1		SW (3000#)			EXTRACTION LINE DRAIN	
S17	1	2"	1		SW (3000#)			FEEDWATER HEATER DRAIN	
S18	1	2"	1		SW (3000#)			GLAND STEAM CONDENSER DRAIN	
S19	4	2"	1		SW (3000#)			LIQUID LEVEL CONTROL	
S20	2	2"	1		SW (3000#)			LEVEL SWITCH	
S21	1	6"	1		BW (SCH 40)			ATMOS. CONDENSATE RECEIVER DRAIN	SEE DETAIL "B"
S22	1	3/4"	1		SW (3000#)			PRESSURE SWITCH	
S23	2	2"	1		SW (3000#)			SPARE CONN'S	PLUGGED
S24	2	4"	1		150# ANSI (FF)			SPARE CONN'S	W/ BLIND FLG
S25	1	1"	1		SW (3000#)			FEEDWATER HEATER VENT (SHELL)	
S26	1	3/4"	1		SW (3000#)			FEEDWATER HEATER VENT (TUBE)	
T1	1	36"	1		150# (FF)			WATER INLET	
T2	1	36"	1		150# (FF)			WATER OUTLET	
T3	1	1"	1		SW (3000#)			VENT	
T4	1	1"	1		SW (3000#)			DRAIN	PLUGGED
T5	2	3/4"	1		SW (3000#)			PRESSURE INDICATOR	PLUGGED
T6	2	3/4"	1		SW (3000#)			THERMOMETER	PLUGGED

CUSTOMER - CNF CONSTRUCTORS
 PROJECT - KES CHATEAUGAY POWER STATION
 CUSTOMER ORDER NO. - 191-010-5150
 GRAHAM JOB NO. - 94368H
 DESIGN - H.E.I.
 CONSTRUCTION - H.E.I.
 INSPECTION - CUSTOMER
 STAMPING - NONE
 TAG -
 PAINTING (EXTERNAL CARBON STEEL SURFACES)
 SURFACE PREPARATION - GRAHAM STD
 PAINT - BISONITE #9252 RUST INHIBITIVE PRIMER

NOTES:
 1) BOLT HOLES STRADDLE CL'S.
 2) ALL N.P.T. CONNECTIONS ARE FEMALE TAPERED PIPE THREAD.
 3) CONNECTION FLANGES ARE ANSI STD. DRILLING & THICKNESS UNLESS OTHERWISE NOTED.
 4) SAFETY DEVICES OR OVER-PRESSURE PROTECTION SHALL BE PROVIDED PRIOR TO PLACING VESSEL IN SERVICE.
 5) DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED: TEMA STD.
 6) DESIGN ABSOLUTE PRESS IS ONLY GUARANTEED AT THE CONDENSER STEAM INLET. HIGH VELOCITY IN THE STEAM LINE WILL CAUSE A PRESSURE DROP RESULTING IN A HIGHER ABSOLUTE PRESSURE AT THE TURBINE DISCHARGE.

DRAWING LIST:
 EJECTOR PACKAGE ----- D-42270-11
 ACCESSORY LIST ----- A-42270-21
 PSI DIAGRAM ----- D-42270-31

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EST'D. WGTs. (LBS.)
 EMPTY----- 63800
 FLOODED--- 130000
 OPERATING- 100000

CERTIFIED CONNECT
 GRAHAM MFG. CO. INC.
 E.A. Jankowski

H.A.W.P. (P.S.I.G.)	DESIGN TEMP (°F)	HYDRO TEST PRESS. (P.S.I.G.)	CORR. ALLOW. (INCHES)
SHELL SIDE	FV 6 15	250	1/32
TUBE SIDE	75	150	1/16

DESIGN CONDITIONS
 TURBINE EXH. PRESS. 2.0" HgA
 CIRC. WATER FLOW 21.70 GPM
 CIRC. WATER TEMP INLET = 85° F
 CIRC. WATER TEMP RISE = 11° F

① CARBON STEEL PRESSURE PARTS.

REV.	DESCRIPTION	MADE	CHKD	DATE	SCALE	DSGN	DRWN	CHKD	APPRD	DATE	DWG. NO.	REV.
C	REV'D PER CUST FAX DATED 03/30/92		TYJW	SJS						04/03/92	D-42270-1	C
B	REV'D PER CUST PRINT DATED 01/20/92		TYJW	AJW						02/03/92	D-42270-1	C
A	WAS DWG B-42270-1		JCS	EJ						12/19/91	D-42270-1	C
O	ORIGINAL ISSUE										D-42270-1	C

GRAHAM MANUFACTURING CO., INC.
 20 FLORENCE AVE. BATAVIA, NEW YORK

SURFACE CONDENSER