

DATE: 10/6/98
BY: SKD

CUSTOMER: GENERAL ELECTRIC MOT-650
P.O.R.: 400 GPM @ 105/120 psi (289/330 FT)
P.O.R.: 715 GPM @ 105/120 psi (289/330 FT)
LUBE OIL: 90 SSU-.84 S.G. (130 F)
MAIN AC PUMP

CHARACTERISTIC CURVES

7011 VCRE

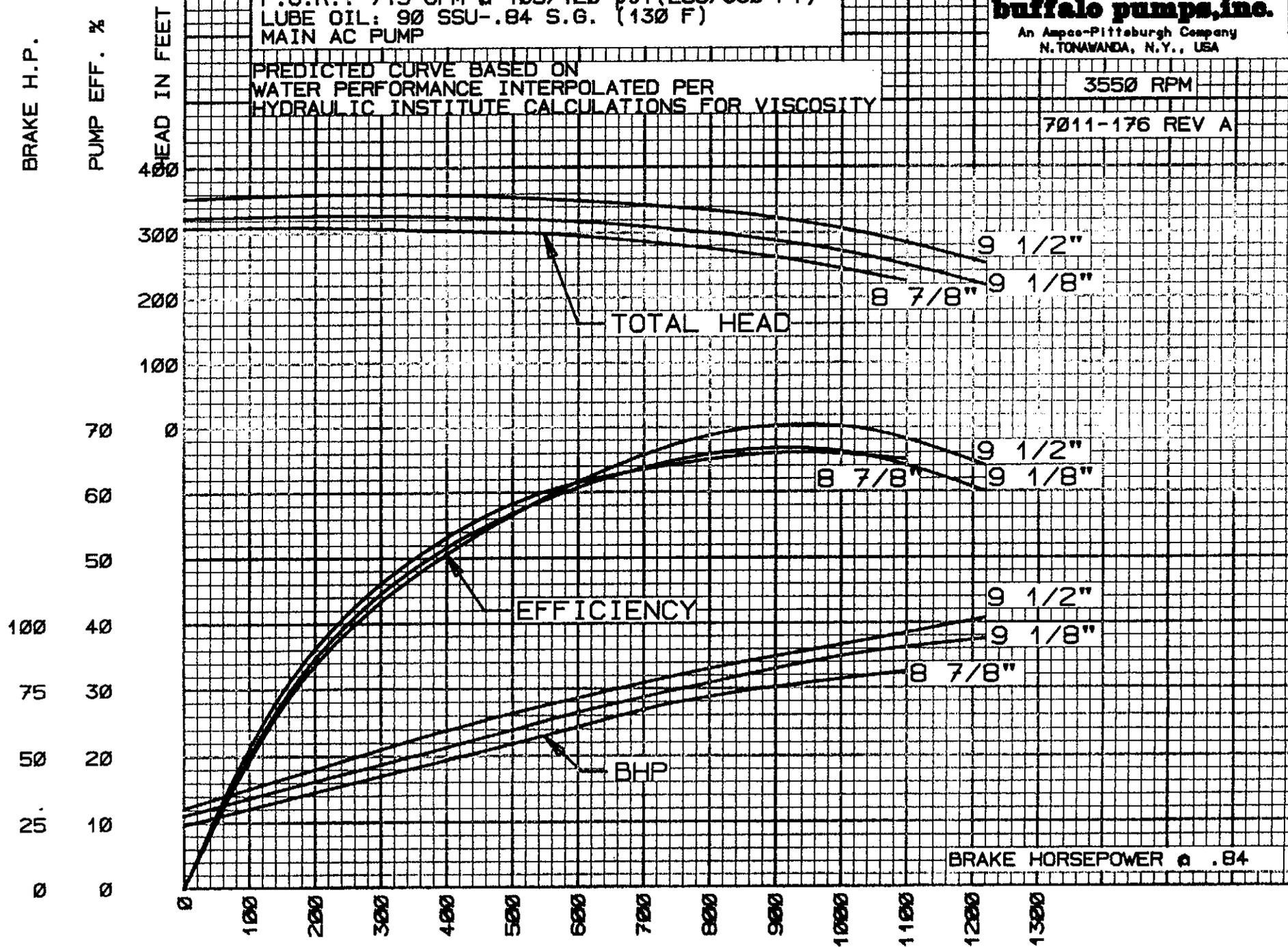
buffalo pumps, inc.

An Ameco-Pittsburgh Company
N. TONAWANDA, N.Y., USA

3550 RPM

7011-176 REV A

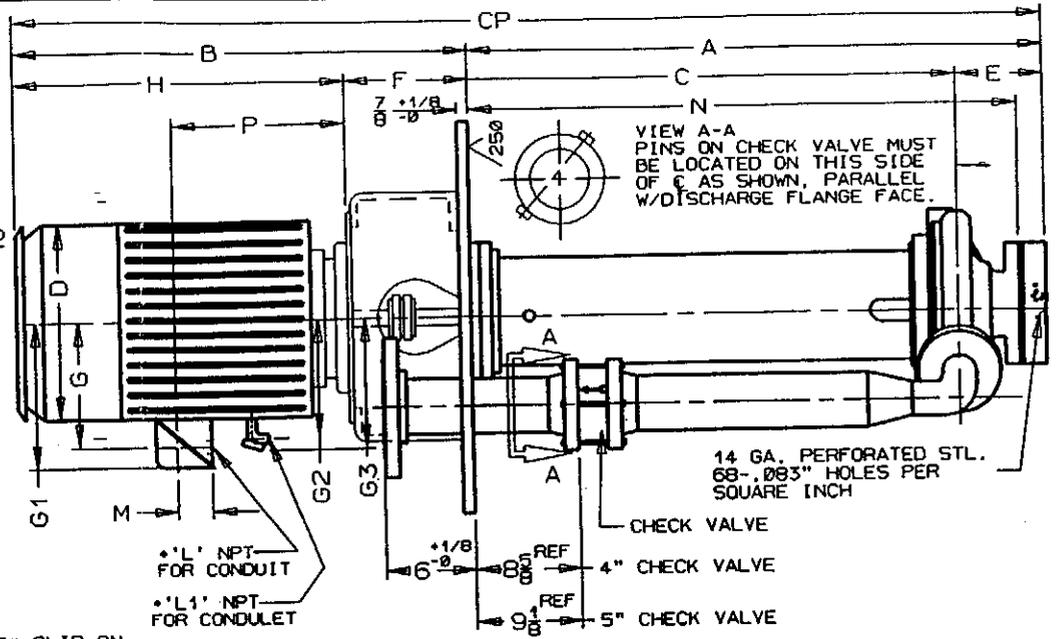
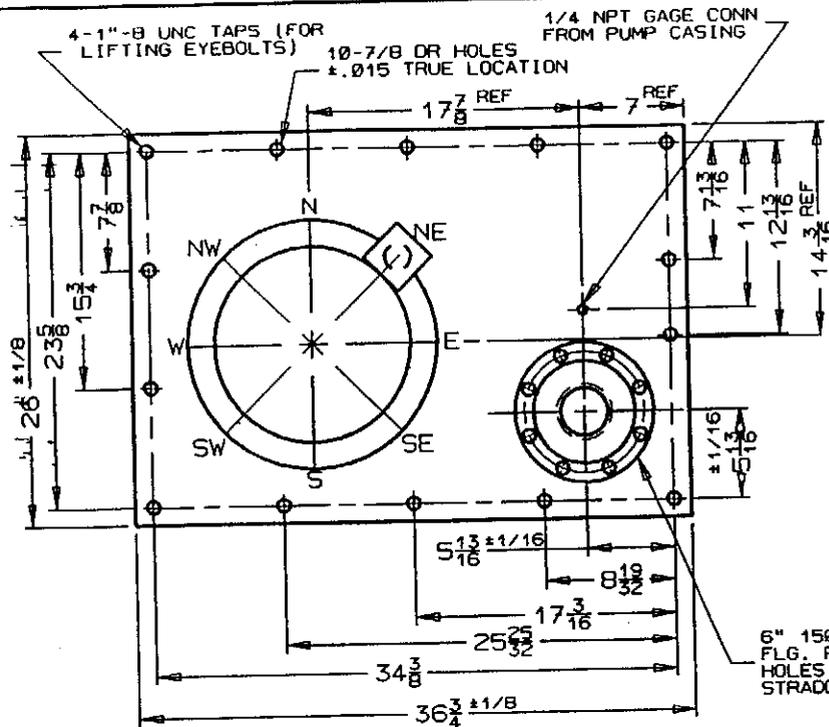
PREDICTED CURVE BASED ON
WATER PERFORMANCE INTERPOLATED PER
HYDRAULIC INSTITUTE CALCULATIONS FOR VISCOSITY



REF. CURVE - Z-403 REV B

US GALLONS PER MINUTE

REV A SKD 11/14/98



6" 150# SLIP-ON
FLG. R.F. 8-7/8 DR.
HOLES ON 9 1/2 B.C.
STRADDLE CENTERLINE

*BOXES SHOWN HERE FOR
DIMENSIONAL CLARITY ONLY

CLOCKWISE ROTATION

PUMP DATA					MOTOR DATA							A	B	C	D	E	F	G	G1	G2	G3	H	L	L1	M	N	C	P	COND. BOX LOC.	REMARKS
PT	SIZE	IMP DIA	GPM	HD-FT	S.G.	HP	RPM	HZ	PH	FRAME	ENCL																			
001	7011	8 5/8	550	289	.84	75	3550	60	3	365HP16	TEFC-SD	48 1/2	43 1/2	41	23	7 1/2	10	13	16 1/2	12	-	33	3	3/4	6 1/2	45	91 1/2	14 3/8	NE	4" CHECK VALVE
003	7011	9 1/8	715	289	.84	100	3550	60	3	405HP16	TEFC-SD	48 1/2	48 1/2	41	25 1/8	7 1/2	10	16 7/8	20 1/2	12 1/2	-	38 1/2	3	3/4	7	45	96 1/2	21 9/16	NE	5" CHECK VALVE

REVISION			
LTR	DESCRIPTION	DATE	APPROVED

CERTIFIED CORRECT FOR
CONSTRUCTION PURPOSES
ONLY WHEN FILLED & SIGNED
CUSTOMER ORDER 1697
BRANCH OFFICE ORDER 992
SHOP ORDER 44431401 (2 UNITS)
DATE 11/15/99 PER Sied Karasole

PER	DATE
DWN. BK	8/25/99
CHKD. <u>SK</u>	<u>8/25/99</u>

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AND VOID OUR EQUIPMENT WARRANTY.

BUFFALO PUMPS INC.
AN AMPCO-PITTSBURGH COMPANY
N. TONAWANDA, N.Y., USA

**GE STEAM TURBINE A.C.
L.O. PUMP W/CHECK VALVE
G.E. PT#363A7451**

SIZE	CODE IDENT.	DRAWING NO.	REV.
B	83130	CC16047-80X	
SCALE	NTS (.125)	SHEET	ANVIL



GE Industrial Control Systems

November 04, 1999

Customer Service Dept
Fort Wayne, IN 46802
(219) 439-2000

Customer: BUFFALO PUMPS INC
874 OLIVER ST
NORTH TONAWANDA NY 14120

Customer Order: 40347A
Customer Part: 99431397,1399,1401

GEICS Reqn / Item: 69217417 / 1
GEICS Job Number: 991101525

MODEL NUMBER: 5KS405ST130D1
Outline Drawing: 225B5660AJ
Connection Diagram: GEM2034E-FIG7
Installation Manual: GEK-95655
Design Code: 40DS0476A
Type: KS
Frame: LA05HP16
Phases: 3
Poles: 2
Horsepower: 100
RPM: 3570
Voltage: 460
Hertz: 60
Amps - FL: 109.0
Service Factor: 1.15

ESTIMATED WEIGHT: 1480 Lbs (671.33Kg)
Time Rating: CONT
Enclosure: TEFC
Encl Construction: SD
Ambient: 40
Insulation Class: F
NEMA Design: B
Nominal Efficiency: 93.6
Guaranteed Efficiency: 93.0
KVA Code: G
Max KVAR: 13.1
Power Factor: 91.5
Bearing - DE: 6312ZZC3
Bearing - ODE: 6212ZZC3

Enclosure is Totally Enclosed Fan-Cooled Severe Duty

Additional Motor Data:

VIBRATION LIMIT = 0.0005 INCHES
HTR LDS H 115V 100W
GREASE: MOBIL #28
65 DEG C AMBIENT AT 1.0 SF
2P, VSS-NT, 115V HTR LDS TO CONDULET,
SPL GREASE MOBIL #28 - SPL BALANCE
REFRESH 6-21-99

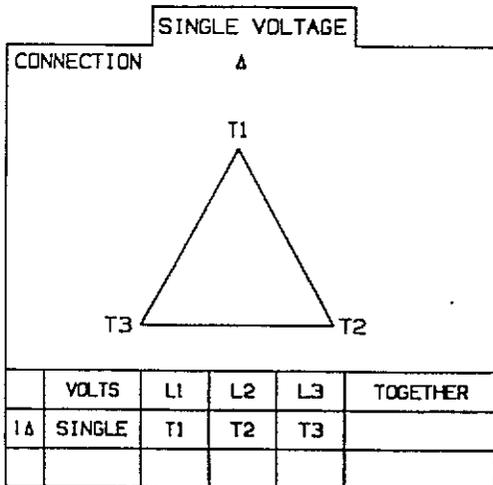
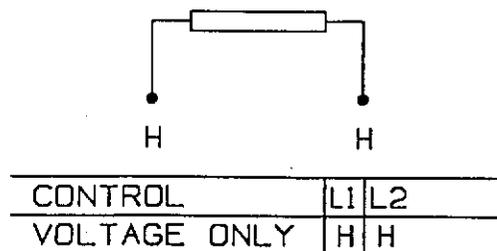


FIG. 1
HEATER CONN.



Performance Characteristics for: 5KS405ST130D1

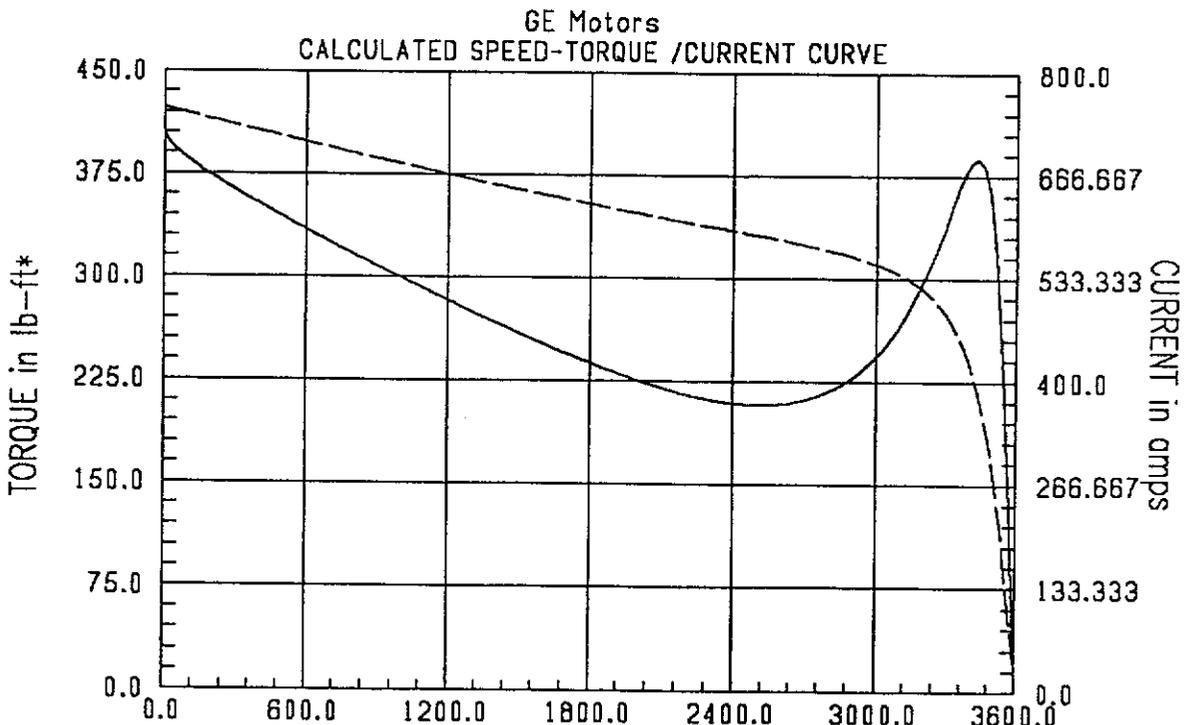
Design: 40DS0476A

LOAD%	125.0	115.0	100.0	75.0	50.0	25.0	0.0
%EFF	93.6	93.8	93.6	94.0	93.2	89.4	0.0
%PF	91.0	91.5	91.5	91.0	88.0	75.0	12.7
AMPS	137.5	125.8	109.0	82.1	57.2	35.0	19.7

TORQ(FL)#FT: 147.12 TORQ(LR)%FL: 275 TORQ(BD)%FL: 263
 AMPS(LR): 752.3 PF@START: 0.413

This motor is capable of two cold or one hot start with a maximum connected load inertia not to exceed 186.1 Lb-Ft Sq (7.8Kgs-Meter Sq) at 100% V. Acceleration time with maximum inertia is 10.3 sec. Safe stall time at 100% volts is 17.5 seconds cold 13.1 seconds hot. Rotor inertia is 17.22 Lb-Ft Sq (0.73Kgs-Meter Sq).

Open Circuit A-C: 1.767 Short Circuit D-C: 0.022
 Short Circuit A-C: 0.044 X/R Ratio: 8.1



Design: 40DS0476A KEY: Torque —
 Model/Type: 5KS405S Current - -
 Horsepower: 100.00
 Voltage: 460.
 Frequency: 60.

The values are calculated data and not to be used to guarantee performance
 *Divide Torque by .7375 to convert to N-m
 BREAK

5KS405ST130D1 CERTIFIED PRINT



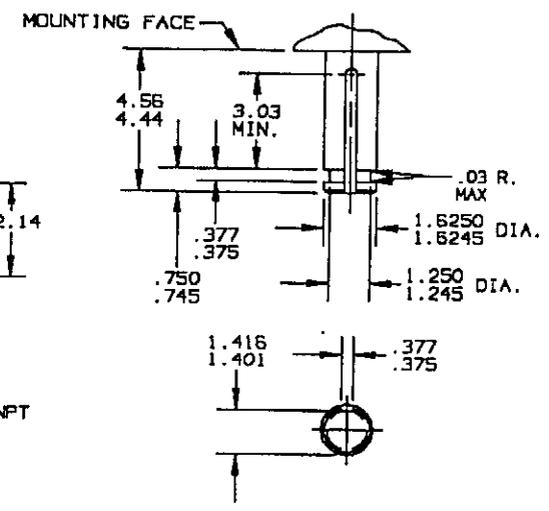
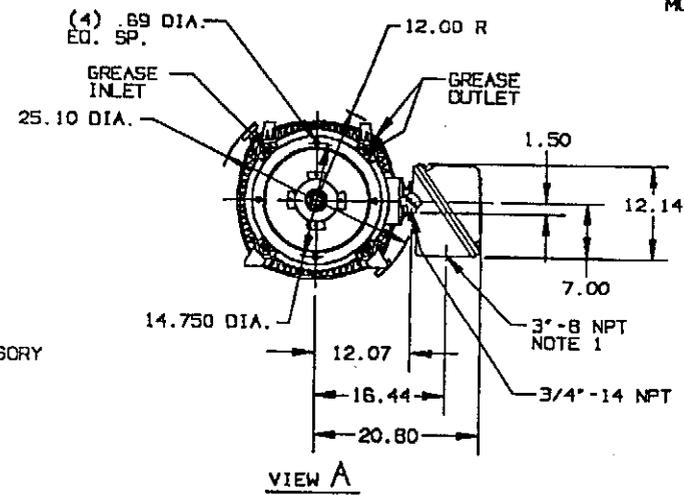
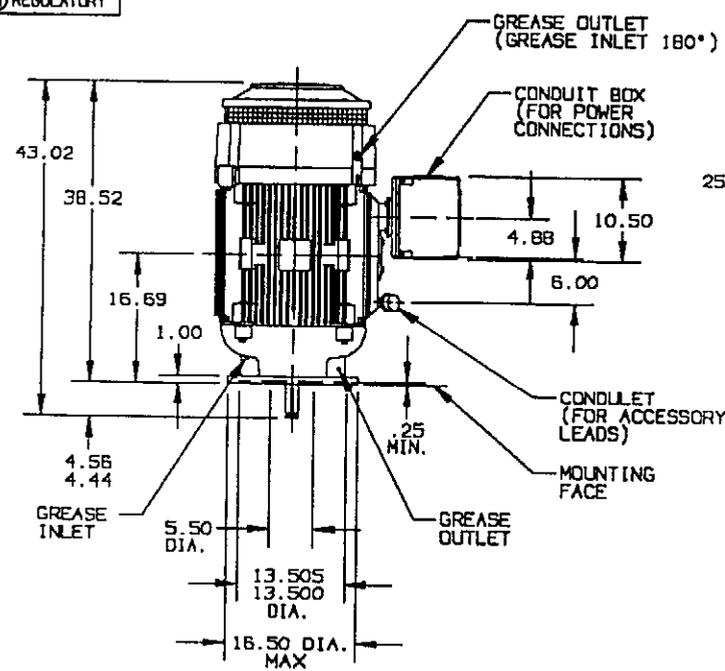
225B5660AJ
REV. 1

225B5660AJ
REV. 1

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:			REV. 4
APPLIED PRACTICES	SURFACES	TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED	225B5660AJ
	✓	FRACTIONS DECIMALS ANGLES	CONF. ON SHEET - IN NO. 1

TITLE
OUTLINE TEFC
FIRST MADE FOR NEMA 400 CAST IRON FRAME CONSTR.
VERTICAL SOLID SHAFT-NORMAL THRUST-16.50 BD
DIMENSIONS IN INCHES NEMA TYPE P BASE
5KS405ST119

- CONTROL SURFACES & DIMENSIONS
- (P) PROCESS
 - (E) ENGINEERING
 - (A) APPLICATION
 - (R) REGULATORY



PRINTS ARE:
 FOR APPROVAL
 APPROVED FOR CONSTRUCTION

CAD NO. F400:225B5660AJ PLOT SCALE .0668

CAD REVISIONS ONLY		PRINTS TO	
1	M. LILLING REDRAWN ON CAD 4-29-83		
2	M. R. B. REDRAWN ON CAD 02/24/83		
3	M. R. B. REVISED C'BOX FOR LOGO 02/14/84		
4	M. R. B. UPDATED 12/19/85		

NOTES:
 1. PROVIDED MOUNTING CONDITIONS PERMIT, CONDUIT BOX MAY BE TURNED SO THAT ENTRANCE CAN BE MADE UPWARD OR FROM EITHER SIDE.

DESIGNED BY	J. TRAYLOR 7-6-83	APPROVED BY	J.W.T.	GEMIS	225B5660AJ
DATE	7-6-83			FORT WAYNE, IN.	

DATE: 10/1/98
 BY: SKD

CUSTOMER: MITTEN FLUIDPOWER INC
 P.O.R.: 405 GPM @ 80 psi (220 FT)
 LUBE OIL: 76 SSU-.84 S.G.
 IMPELLER DIA.: 10 7/8"

CHARACTERISTIC CURVES

3013 VCRE

buffalo pumps, inc.

An Ameco-Pittsburgh Company
 N. TONAWANDA, N.Y., USA

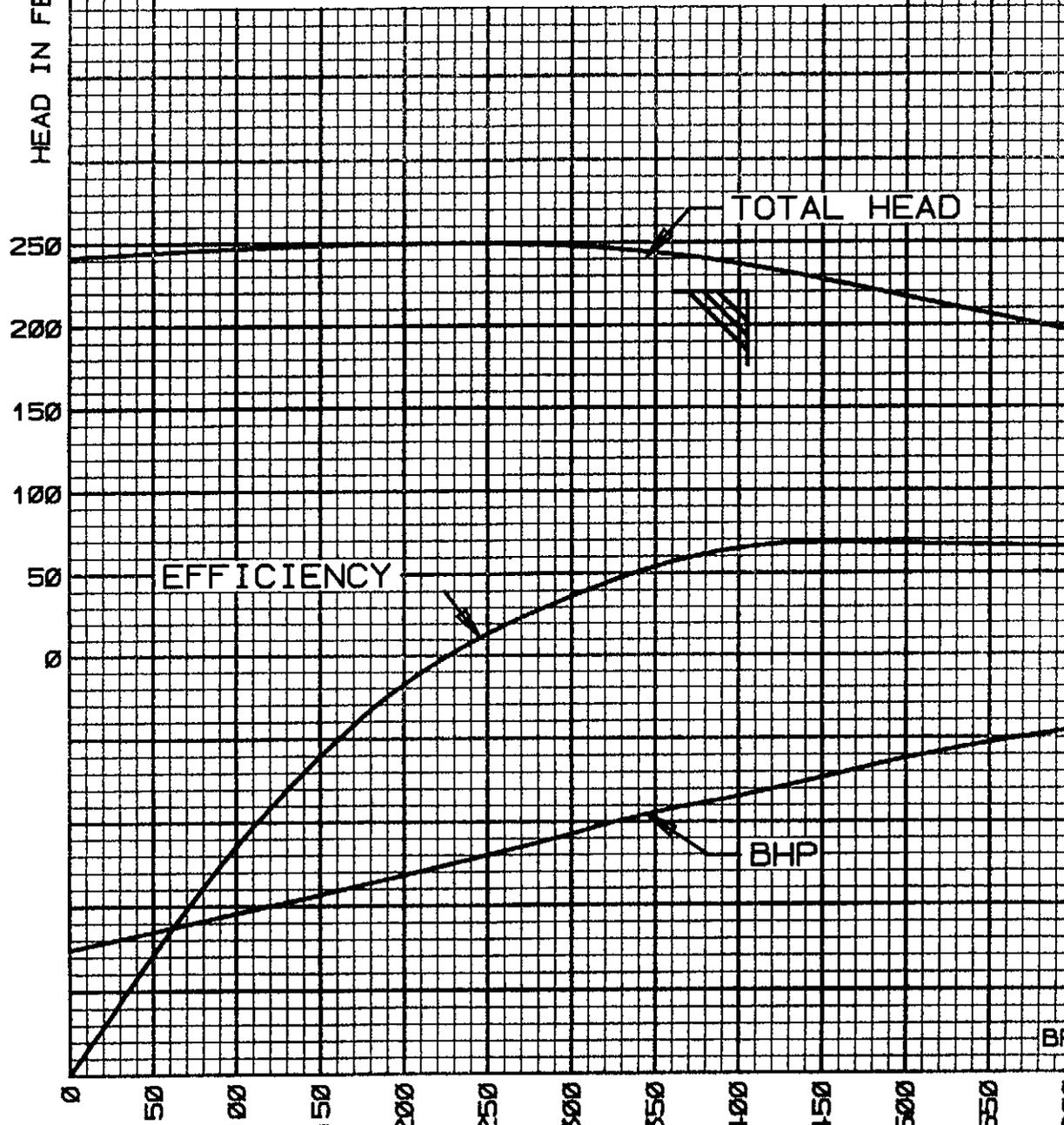
2500 RPM

3013-100 REV A

VIBRATION (MILS PK-PK)

	MOTOR		PUMP
	I.B.	O.B.	I.B.
H	---	---	---
V	---	---	---
A	---	---	---

BRAKE H.P.
 PUMP EFF. %
 HEAD IN FEET



ACTUAL TEST
 150 SSU-.87 S.G.

BRAKE HORSEPOWER @ .87



Friday, November 05, 1999

Technical Data Center
PO Box 2205
Fort Wayne, IN 46802-2205

Customer: BUFFALO PUMPS INC
874 OLIVER ST
NORTH TONAWANDA NY 14120

Contact: Technical Data Center

Phone: 219-439-2000

Model Number: 5CD193ZD802A800

GE Requisition: 69217422\3

Customer Order: 40347A

GE Job Number: 991102281

Customer Part: 99431402

Instruction Manual: GEH-3967

Outline Drawing: 36B467536CS004

Connection Diagram: 36A167900AB502

Mounting Assembly: 36A167777ED005

Other Drawings:

886A611AB001

Description:

SUPPLEMENTARY OUTLINE FOR CONDUIT BOX.

Distribution Information

Quantity

Recipient

1 CHARGE, ATTN: BEV WITKOP

1 BERNITA STEVENS, 4-6



Friday, November 05, 1999

Technical Data Center
PO Box 2205
Fort Wayne, IN 46802-2205

Customer: BUFFALO PUMPS INC
874 OLIVER ST
NORTH TONAWANDA NY 14120

Customer Order: 40347A
Customer Part: 99431402

GE Requisition: 69217422
GE Job Number: 991102281

MODEL NUMBER: 5CD193ZD802A800

Outline Drawing: 36B467536CS004
Connection Diagram: 36A167900AB502
Horsepower: 40
Armature Volts: 120
Wound: SHUNT
Series Field:
Enclosure: TEFC
Duty: CONT
Rating Code: 193Z1370-00
K(V): .444 CEMF VOLTS/RADIAN/SEC
K(T): .306 LB. FT./AMP

Enclosure Mtg Assem: 36A167777ED005
Instruction Book: GEH-3967
RPM: 2500
Armature Amps: 275
Type: CD366APY
Power Supply Code: A
Insulation Class: F
Ambient Max: 40 C
Field Volts: 120
WK²: 18.3 LB. FT.²

Resistances at 25 Degrees C:

Shunt Field: 18.5 OHMS
Armature: .0036 OHMS
Commutator Field: .0011 OHMS

Inductance's:

Armature Circuit Total: .100 mH Saturated
Shunt Field: 13 Henries Sat

Shunt Field Data:

Shunt Field Current(1): 4.81 AMPS at Rated Load and 2500 RPM

Additional Drawings:

886A611AB001

Description:

SUPPLEMENTARY OUTLINE FOR CONDUIT BOX.

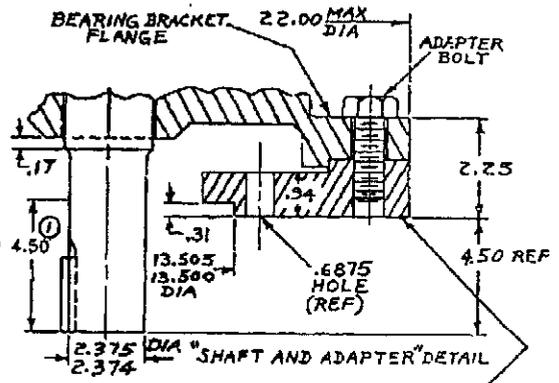
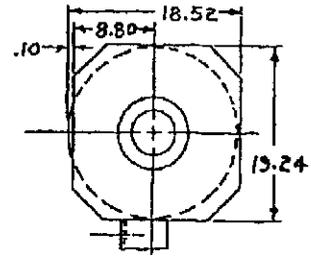
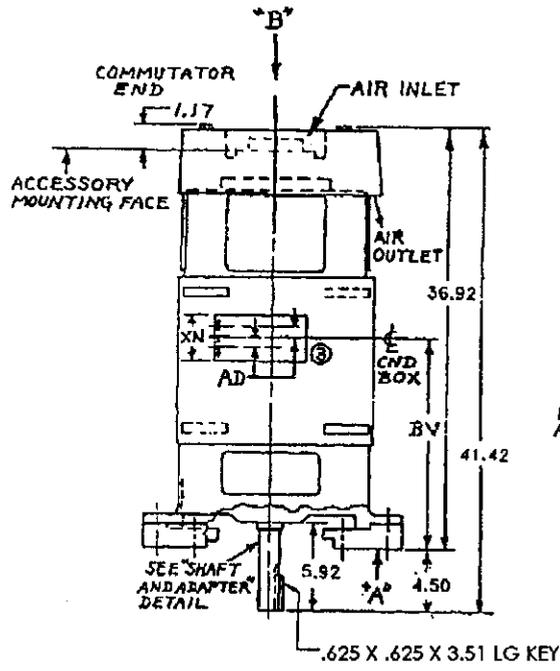
Additional Notes:

TOTALLY ENCLOSED FAN COOLED - BALL BEARINGS
CONDUIT BOX ON RIGHT HAND SIDE FACING COMMUTATOR END
STANDARD SHAFT DRIVE END ONLY - WITHOUT FEET
WITH:
SPACE HEATERS: 180 WATTS-120 VOLTS-1 PHASE

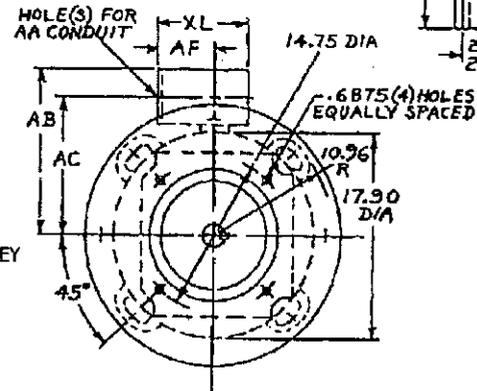
Marks

NONE

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



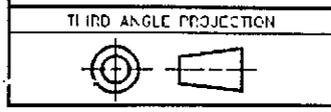
ADAPTER-REMOVE (4) ADAPTER BOLTS. ASSEMBLE ADAPTER TO CUSTOMER MOUNTING. THEN REASSEMBLE MOTOR TO ADAPTER.



- 1 REPRESENTS MINIMUM LENGTH OF SHAFT AVAILABLE FOR HUBS.
- 2 FOR ENCLOSURE TYPE AND MOUNTING POSITION, SEE ENCLOSURE AND MOUNTING ASSEMBLY.
- 3 CONDUIT BOX MAY BE TURNED SO THAT ENTRANCE CAN BE MADE UPWARD, DOWNWARD, OR FROM EITHER SIDE, PROVIDING MOUNTING CONDITIONS PERMIT. CONDUIT BOX WILL BE ASSEMBLED ON OPPOSITE SIDE OF FRAME IF SO SPECIFIED. [SEE ENCLOSURE AND MOUNTING ASSEMBLY].
- 4 MOUNTING FACE WILL BE SQUARE AND RABBIT DIAMETER CONCENTRIC WITH SHAFT WITHIN 0.007 INCH TOTAL INDICATOR READING. SHAFT RUNOUT NOT TO EXCEED 0.003 INCH TOTAL INDICATOR READING.
- 5 COMM END IS PREPARED FOR ACCESSORY MOUNTING. CONTACT FACTORY FOR DIMENSIONS.

APPROX NET WT = 1225 LBS

PT NO	AA	AB	AC	AD	AF	BV	XL	XN
001	3.00	16.08	2.50	—	6.62	21.35	10.50	8.58
002	4.00	17.82	13.20	—	8.50	21.35	13.50	8.62
003	24.00	18.72	14.97	3.00	6.75	18.97	13.50	13.50
004	SEE SUPPLEMENTARY OUTLINE							



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PL DECIMALS ± 3 PL DECIMALS ± FRACTIONS ±	SIGNATURES DRAWN: R. HARRIS CHECKED: ENGR: ISSUED: R. HARRIS	DATE 11/2/98 11/2/98
881028382002	✓	
FILE:36-18		

GENERAL ELECTRIC COMPANY
OF MOTORS
PITTSBURGH, PA

OUTLINE
"M" BASE-TEFC
FIRST MADE FOR CU366

DE-SPL EXT 4.5" BYND
P-BASE

SIZE: CAGE CODE B
DWG NO: 36B467536CS

SCALE: SHEET

4943(3)
DISTR TO

DAG21-2

36A167900AB 502

CONT ON SHEET

SH NO.

REV 0

TITLE

CONNECTION DIAGRAM

36A167900AB 502

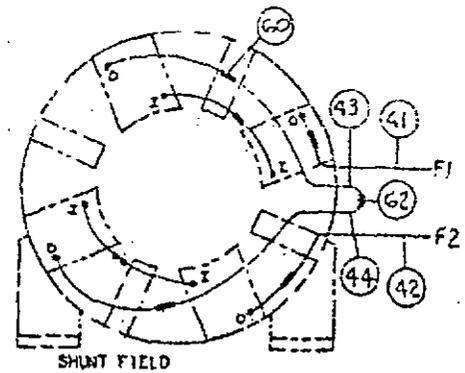
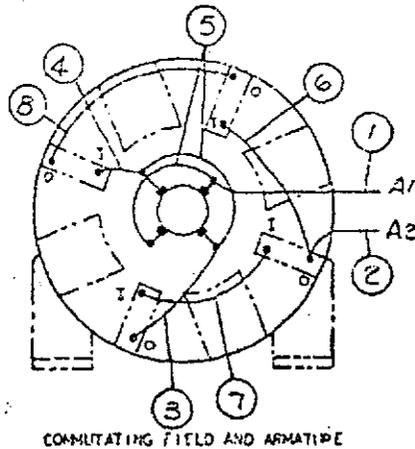
FIRST MADE FOR CD360AT (EW)

CONT ON SHEET

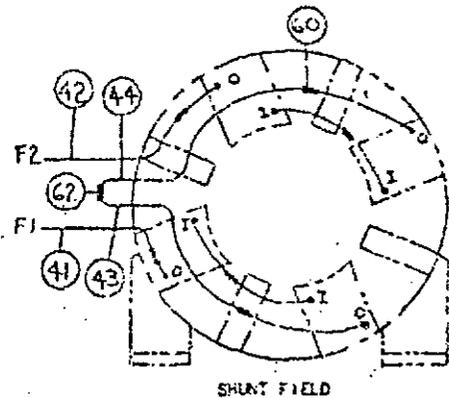
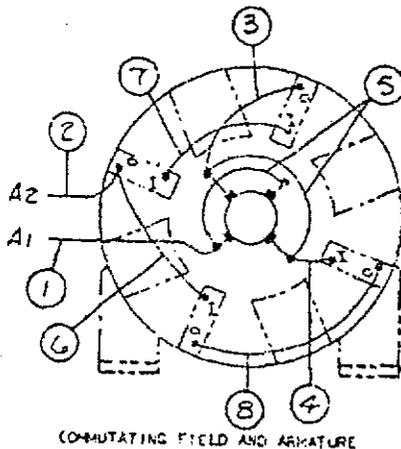
SH NO.

DIRECT CURRENT MOTOR & GENERATOR - SHUNT WOUND 1 CIRCUIT SHUNT FIELD, 2 CIRCUIT COMMUTATING FIELD

VIEWS FACING COMMUTATOR END
LEADS OUT RIGHT SIDE

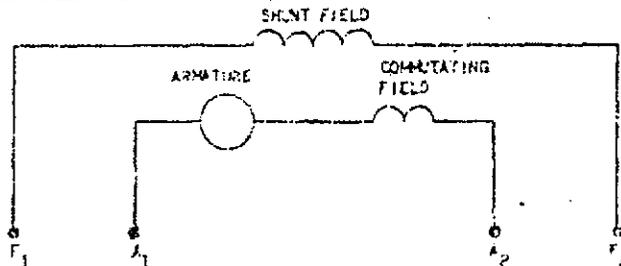


VIEWS FACING COMMUTATOR END
LEADS OUT LEFT SIDE



ALL EXTERNAL LEADS ARE MARKED. ALL CONNECTIONS AND TERMINATIONS EXTERNAL TO MAGNET FRAME MUST BE INSULATED PER NATIONAL ELECTRICAL CODE AND SOUND LOCAL PRACTICES.
SPACE HEATERS, WHEN SPECIFIED, WILL HAVE LEADS WITH TERMINAL MARKINGS H1 AND H2.
THERMOSTAT, WHEN SPECIFIED, WILL HAVE LEADS WITH TERMINAL MARKINGS P1 AND P2.

ENCIRCLED NUMBERS MAY BE USED FOR PART IDENTIFICATION.



MOTOR CONNECTIONS:
FOR CW ROTATION FACING COMM END, MAKE LEADS F1 AND A1 THE SAME POLARITY.
FOR CCW ROTATION FACING COMM END, MAKE LEADS F1 AND A2 THE SAME POLARITY.

GENERATOR CONNECTIONS:
FOR CW ROTATION FACING COMM END, F1 POSITIVE WILL MAKE A2 POSITIVE.
FOR CCW ROTATION FACING COMM END, F1 POSITIVE WILL MAKE A1 POSITIVE.

MADE BY

APPROVAL FILE

PROJECT CURRENT

BY OR

ISSUED

REVISION

DATE

DEPT

36A167900AB 502

CONT ON SHEET

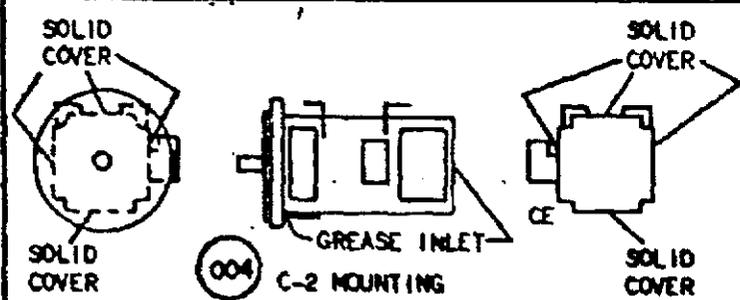
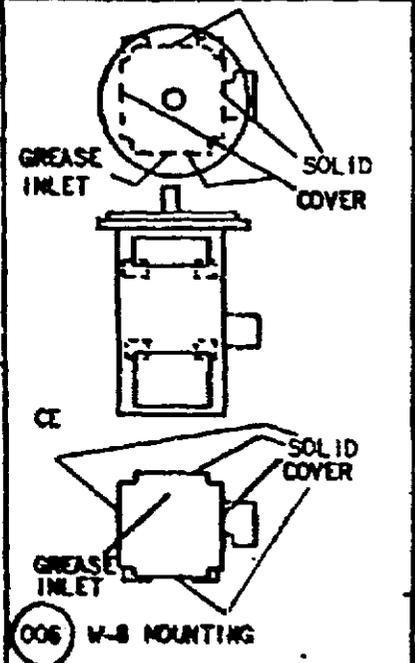
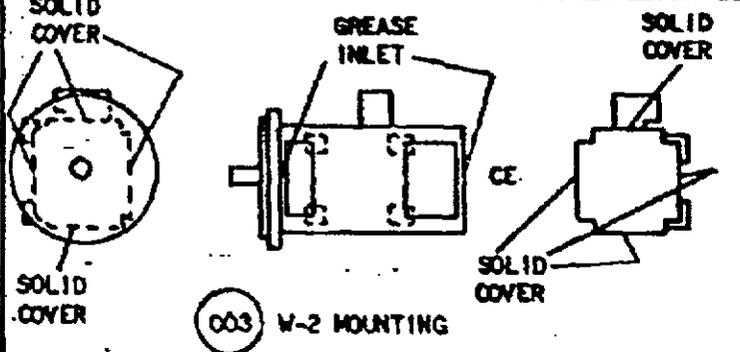
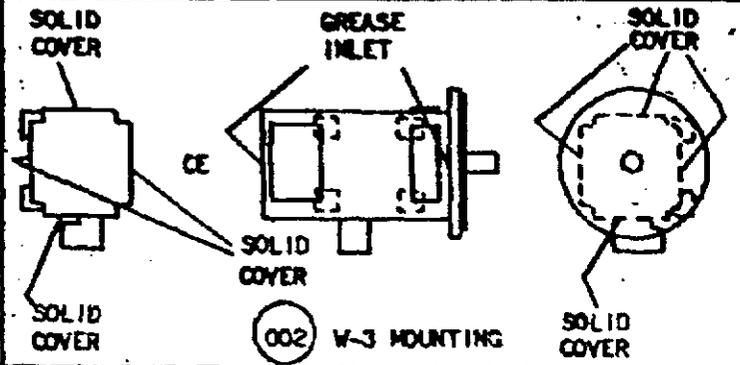
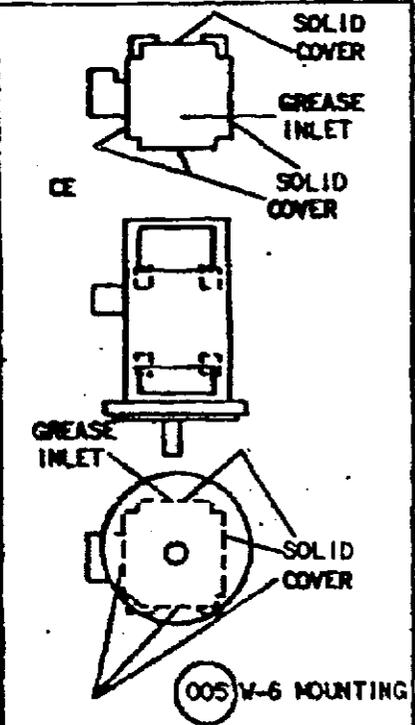
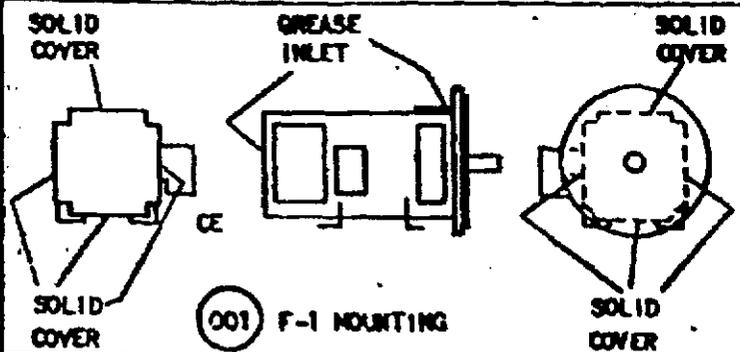
36A16777ED
001 THRU 006
CONT. ON SHEET

TITLE (ASSEMBLY)
ENCLOSURE & MOUNTING
"D" FLANGE & GEAR MOTOR*
FIRST MADE FOR TOTALLY ENCLOSED NON VENTILATED

END BOX R.H.S.

CE DENOTES COMM END
*GEAR MOTOR LESS DE BRACKET

REVISIONS



4160
576
425A
16
408
411
410
410
PRINTS 20

APPROVED BY
MARCH 30, 1972

APPROVED FILE
KC15-1
DIRECT CURRENT
MOTOR AND GENERATOR
ERIE

36A16777ED
001 THRU 006
CONT. ON SHEET

REV NO. 3

TITLE

CURT OR SHEET

SH NO.

886A611AB

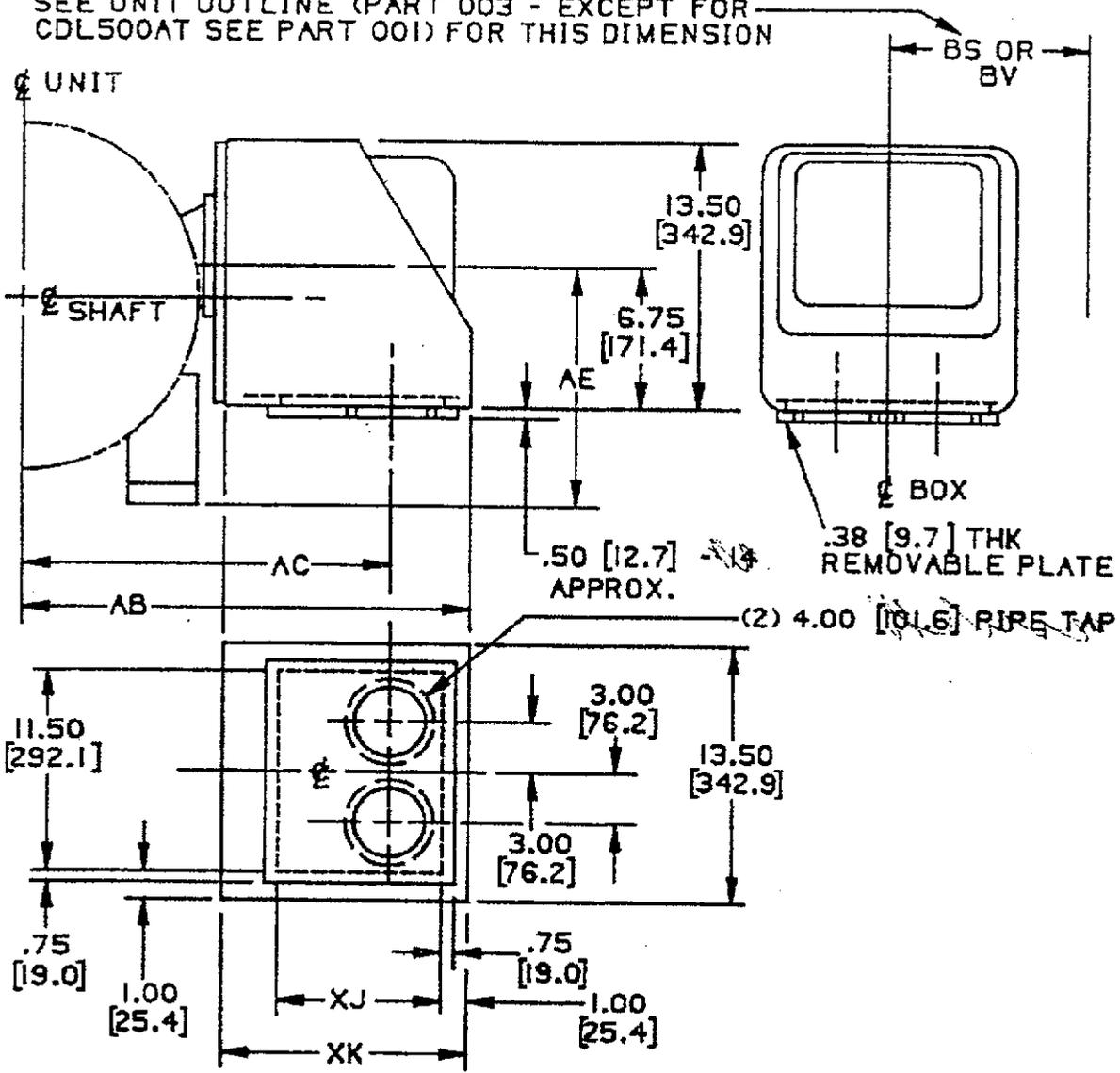
CURT OR SHEET

001 THRU 004
SH NO.

SUPPLEMENTARY OUTLINE
CONDUIT BOX

FIRST MADE FOR WATERPROOF - STD PIPE TAPS

SEE UNIT OUTLINE (PART 003 - EXCEPT FOR CDL500AT SEE PART 001) FOR THIS DIMENSION



REVISIONS

NO S.O.
FEB. 6, 1981
K. WIERCINSKI
RETR: CHG TO DUAL DIMENSIONING

PART NO.	FRAME	AB	AC	AE	XJ	XK
001	CD360AT	18.97 [481.8]	15.22 [386.6]	9.00 [228.6]	7.00 [177.8]	8.95 [227.3]
002	CD400AT	20.37 [517.4]	16.62 [422.1]	12.95 [328.9]	7.00 [177.8]	8.95 [227.3]
003	CD500AT	22.85 [580.4]	19.10 [485.1]	16.10 [408.9]	7.00 [177.8]	8.95 [227.3]
004	CDL500AT	27.43 [696.7]	23.68 [601.5]	15.70 [398.8]	11.50 [292.1]	13.59 [345.2]

CAD
4240 - 1V
4911 - 1V
4252 - 1V

PRINTS TO

MADE BY E.C. UNGER MAY 8, 1971

FILE KSA4

DIRECT CURRENT MOTOR & GENERATOR

DIV OR DEPT.

001 THRU 004
886A611AB

ERIE

LOCATION

CURT OR SHEET

SH NO.

BM-803-31

RE-