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AUG 18 1999

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
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				Sample Truck Grapple Hoist				
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Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
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(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Design Authority GP Janicek	<i>[Signature]</i>	8/12/99	S7-12	1	1	CE Mgr. RM Boger	<i>[Signature]</i>	8/17/99	S7-12
1	1	Design Agent HF Shumake Jr.	<i>[Signature]</i>	8/17/99	S7-12	1	1	Proj. Mgr. JL Smalley	<i>[Signature]</i>	8/19/99	S7-12
1	1	Cog. Eng. - RN Dale	<i>[Signature]</i>	8/12/99	S7-12						
1	1	Cog. Mgr. JS Schofield	<i>[Signature]</i>	8/10/99	S7-12						
1	1	QA - JS Sparks	<i>[Signature]</i>	8-9-99	S7-07						
1	1	Safety JA Ranschau	<i>[Signature]</i>	8/10/99	S7-07						
1	1	Env. DL Dyekman	<i>[Signature]</i>	8-9-99	S7-03						

18. <i>[Signature]</i> HF Shumake Jr. Signature of EDT Originator Date: 8/22/99	19. <i>[Signature]</i> RM Boger Authorized Representative For Receiving Organization Date: 8/17/99	20. <i>[Signature]</i> JS Schofield Design Authority/Cognizant Manager Date: 8/10/99	21. DOE APPROVAL (if required) Ctrl No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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S

Test Plan for Rotary Mode Core Sample Truck Grapple Hoist Level Wind System

RM Boger

Prepared by Lockheed Martin Hanford, Inc.

Richland, WA 99352

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Abstract: This test plan describes the acceptance criteria, test parameters, test apparatus, test procedures, and testing personnel for the qualification testing of the Grapple Hoist Level Wind System.

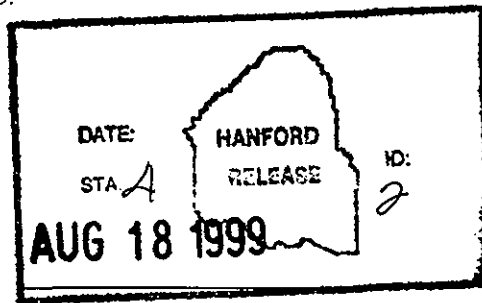
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Date



Release Stamp

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**TEST PLAN FOR ROTARY MODE CORE
SAMPLE TRUCK GRAPPLE HOIST
LEVEL WIND SYSTEM**

Prepared for
River Protection Project
Characterization Engineering
Lockheed Martin Hanford Corporation
Richland, Washington

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August 1999

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1.0 INTRODUCTION

A Grapple Hoist Assembly is currently used on the Rotary Mode Core Sampling Trucks (RM CSTs) to actuate the sampler and retrieve the pintle rod during sampling operations. The hoist assembly includes a driven drum approximately two inches wide and six inches in diameter that rotates to pay out or reel in the 5/32-in. cable. The current Grapple Hoist Assembly, detailed on drawing H-2-690057, is prone to "bird nesting" the cable on the drum. "Bird nesting" is a condition in which the cable does not wind onto the drum in a uniformly layered manner, but winds in a random fashion where the cable essentially "piles up" inappropriately on the drum and, on some occasions, winds on the drum drive shaft. A system to help control this "bird nesting" problem has been designed as an addition to the existing components of the Grapple Hoist Assembly. The new design consists of a mechanism that is timed with, and driven by, the shaft that drives the drum. This mechanism traverses back and forth across the width of the drum to lay the cable on the drum in a uniformly layered manner.

This test plan will be approved, released, revised, and accounted for according to the provisions of Supporting Document Requirements (LMHC 1999a).

2.0 SCOPE AND PURPOSE

This test plan establishes the acceptance criteria, test procedure and test conditions. It also describes the test apparatus necessary to verify the adequacy of the level wind system design. The test is defined as qualification testing (LMHC 1999b) and as such will be performed at conditions beyond the parameters that the Grapple Hoist Assembly is allowed to operate by the Safety Equipment List (SEL)(LMHC 1998).

3.0 OBJECTIVES

The objectives of this test are to establish whether the Grapple Hoist Level Wind Assembly will eliminate the likelihood of "bird nesting" to an acceptable level under a variety of loading conditions, and to determine if the components are capable of carrying the required loads.

3.1 TEST PARAMETERS

The operating parameters of the Grapple Hoist Level Wind Assembly are limited by the SEL (LMHC 1998). Specifically the shaft connected to the cable drum shall not rotate at a rate greater than 27 revolutions/minute. A rate of 27 rev/min will prevent the drum, shaft and roll pins, inside the grapple hoist box, from attaining a relative motion greater than 30 cm/sec. In addition, the maximum allowable operating load of the Grapple Hoist Assembly is 1112 N (250 lbf). The cable is 24.38m (80 ft.) long, a minimum of 3 wraps of the cable on the drum will yield a testable length of approximately 22m (72ft.). The test(s) shall be performed using the maximum useful/testable length of cable.

3.2 ACCEPTANCE CRITERIA

The loads used for testing, as well as the load approximation/description, are shown in Table 1. Each of the loads shall be repeated 25 times for the effective cable length of approximately 22m (72 ft.).

- 3.2.1 The Grapple Hoist Level Wind Assembly shall prevent the condition of “bird nesting” under the loads shown in Table 1.

NOTE: Cable alone test is for information only—this load condition is not to be used for acceptance/rejection.

- 3.2.2 The Grapple Hoist Level Wind Assembly shall not show damage or excessive wear of its parts nor any signs that the components have malfunctioned.

Table 1—Load Conditions

<i>Intended Load (N/(lbf))</i>	<i>Condition/Load approximation/Description</i>
Cable Alone	Self-explanatory—this load condition being tested for information only.
111/(25)*	Approximate weight of the grapple
445/(100)*	Approximate weight of the grapple + approximate release force of pintle rod
890/(200)*	2 X (approximated grapple weight + release force)
1112/(250)*	Slightly greater than the maximum force allowed by the SEL.
The actual loads suspended are to be +/- 5% of the intended loads.	
* The weight of the cable is additive to these loads.	

3.3 ACCEPTANCE DETERMINATION

The acceptance criteria that are noted in section 3.2 require further definition to prevent the qualitative nature of this test from potential corruption due to potential differing interpretation of the criteria. The following definitions apply, respectively, to the acceptance criteria in section 3.2. The following definitions apply in the context of this document and the test report that will be released after this test has been performed.

- 3.3.1 “Bird Nesting”—will have occurred when the cable piles up on the drum three layers higher than the lowest uncovered wrap of cable on the drum.
- 3.3.2 The judgement of the engineer, as well as that of the Characterization Project Operations (CPO) assigned Quality Assurance (QA) personnel, will be used to determine if excessive wear, damage, or component failure has occurred after the series of loads have been applied. If desired, the cognizant engineer and design

authority can inspect the components for excessive wear, damage, and component failure.

3.4 TEST APPARATUS DESCRIPTION

The test apparatus will consist of a mock-up grapple hoist box, an electric motor, gear reduction unit, brake, and peripherals necessary for operation. The mock-up will be functionally equivalent to the setup detailed on the unreleased Grapple Hoist Assembly (Development Control) drawing and the Grapple Hoist Installation drawing. The majority of the electrical drive components used in the test will be retrieved from spares located in building 2101HV/200E (warehouse). The electrical details can be found on the Electrical Connection Diagrams drawing. The rotational rate of the drum will be approximately 27 rpm. The motor will actuate the drum and timed level wind assembly. The load cell will be replaced by a fastener that will maintain a similar position in the "teeter-totter" assembly. The load will be applied to the cable by hanging a prescribed amount of weight from the cable body via a tool that will be re-positioned along its length without causing cable damage. A "suspension tool" is necessary to grip the body of the cable because the 22m (72 ft.) length of cable can't be tested without being repositioned due to the height of available test facilities. Sketches of the test apparatus are contained in Appendix A.

3.5 TEST LOCATION, EQUIPMENT AND PERSONNEL

The test of the Grapple Hoist Level Wind Assembly is to be performed onsite, most likely, at the Engineering Testing Laboratory (ETL). The auxiliary test equipment necessary to perform the test will be supplied by the ETL. The auxiliary equipment/facilities that are needed for the test are a suitable area to mount and operate the hoist, to include safety railing, with a minimum height from the bottom of the hoist to the "floor" of 3.88m (12 ft.); 110 VAC grounded power and extension cords, if required; calibrated, or verifiable, scale (minimum range of 0 to 1556 N (0 to 350 lbf)) to determine the actual suspended weight; and material to be suspended for the purpose of applying a load to the hoist assembly. Necessary safety equipment, including barriers, shall be provided by the ETL. The personnel performing the test shall consist of a qualified mechanical engineer from Characterization Engineering, with the support of ETL personnel familiar with the operating procedures of test equipment in the ETL.

3.6 TEST DOCUMENTATION

A simple table will be prepared for recording the data that is collected during the test, an example of the table is included in Appendix B. The data table will contain, as a minimum, the intended load, the actual suspended weight, a checklist for pass/fail of "bird nesting" criteria and the "section" of cable being tested. Because the entire length of cable cannot be tested without repositioning the load, the test will be performed over sections of cable. The "sections" of cable will be described by their starting and ending distance from the eye-end of the cable. The original data table, or a copy of it, will be released as an appendix to the test report.

4.0 TEST

The engineer performing this test may interrupt the testing at any time if it is determined that design rework is necessary. If design rework is necessary the test will be re-accomplished in its entirety. If a minor adjustment is necessary during the test, the discretion of the engineer, with concurrence from the design authority or cognizant engineer, will be employed to determine whether the test can continue from the stoppage point, or whether further re-accomplishment of test sections is necessary.

4.1 PRE-TEST SETUP

- 4.1.1 The test apparatus, described in Section 3.4, shall be securely mounted in a location with a minimum distance below the hoist of 3.66m (12 ft).
- 4.1.2 Prior to loading, the cable shall be hand-wound onto the drum, spooled out, and rewound with the motor, ensuring that no "bird nesting" conditions exist prior to actual performance of tests under the defined conditions found in Table 3.2.1.
- 4.1.3 The area below the hoist will be appropriately marked and barricaded to prevent unauthorized entry of personnel.
- 4.1.4 The specimens that provide the load are to be weighed and marked to streamline the actual testing.
- 4.1.5 The entire 22m (72 ft.) length of cable cannot be tested without re-positioning the suspension tool, and therefore the load. The length of cable will be "sectioned" into lengths that are testable. The sections of cable shall be chosen to ensure that the transition from layer to layer of cable on the drum occur while testing a particular section (ie. the transition from layer to layer on the drum shall not occur at an extreme of a particular cable section). The section lengths will be determined prior to starting the tests and are dependent on the distance from the bottom of the hoist to the floor.

4.2 TEST PROCEDURE

The following procedure is to be performed over the full, testable length of the cable and at each of the intended loads described in Table 1. The length of the sections will be recorded on the test data form. The order in which the sections are tested is irrelevant. Furthermore, it is irrelevant whether the test is performed for a given load over all of the cable sections or whether each cable section is tested over all of the loads. In other words, all sections of the cable shall be tested with all of the loading conditions defined in Table 1, test order is not important.

4.2.1 For each defined section and loading condition:

- 4.2.1.1 Spool cable out from the drum so that the end of a cable test section is at the correct height to attach the load. At this section boundary, attach the suspension tool.
- 4.2.1.2 Secure the appropriate load to the suspension tool.

- 4.2.1.3 Operate the Grapple Hoist to wind the cable onto the drum. While the cable is being wound, the cable and the level wind assembly shall be monitored for bird nesting or failure/deformation of the level wind components. Stop the hoist when the suspended load is one foot below the bottom of the hoist assembly.
 - 4.2.1.4 Lower the load back to the starting position.
 - 4.2.1.5 Repeat steps 4.2.1.2 and 4.2.1.3 for a total of 25 trials per section/load combination OR until bird nesting or failure/malfunction of the level wind components occurs. If bird nesting or malfunction occur, correct the situation and continue with the test. Each trial shall be logged on the test data table.
- 4.2.2 Repeat 4.2.1.1 through 4.2.1.5 for each loading condition/cable test section combination.
- 4.2.3 For the Cable Alone loading condition, the suspension tool is not necessary, but the test will still need to be performed in sections—a loop of cable will be secured and repositioned, as necessary, to ensure that the entire weight of the cable is suspended under the hoist. Substitute 4.2.1.1 and 4.2.1.2, respectively, with:
- Spool 22m (72 ft.) of cable off of the drum.
 - Roll the cable and secure to the section boundary closest to the hoist.

5.0 REFERENCES

Drawing, Hanford Document Control, H-2-690057 Sheet 1-7, *Grapple Hoist Assembly*, RMCST, Hanford Site; Richland, WA

Drawing, Hanford Document Control (unreleased, Development Control), H-2-690057 Sheet 1-6 and 8, *Grapple Hoist Assembly*, RMCST, Hanford Site; Richland, WA
(Included in the Appendix)

Drawing, Hanford Document Control, H-2-690055 Sheet 1-5, *Grapple Hoist Installation*, RMCST, Hanford Site; Richland, WA

Drawing, Hanford Document Control, H-2-690071 Sheet 1-17, *Electrical Connection Diagrams*, RMCST, Hanford Site; Richland, WA

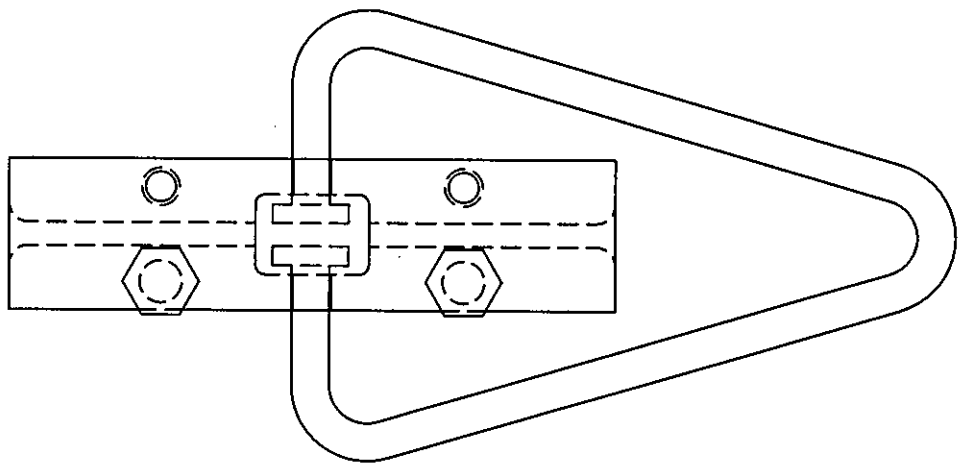
LMHC 1998, HNF-SD-WM-SEL-044, Rev. 2, *A Safety Equipment List for Rotary Mode Core Sampling Systems Operation in Single Shell Flammable Gas Tanks*, COGEMA Engineering Corporation; Richland, WA

LMHC 1999a, HNF-IP-0842, Vol. IV, TWRS Engineering, Sec. 4.26, Rev. 0, *Supporting Document Requirements*, Lockheed Martin Hanford Corporation; Richland, WA

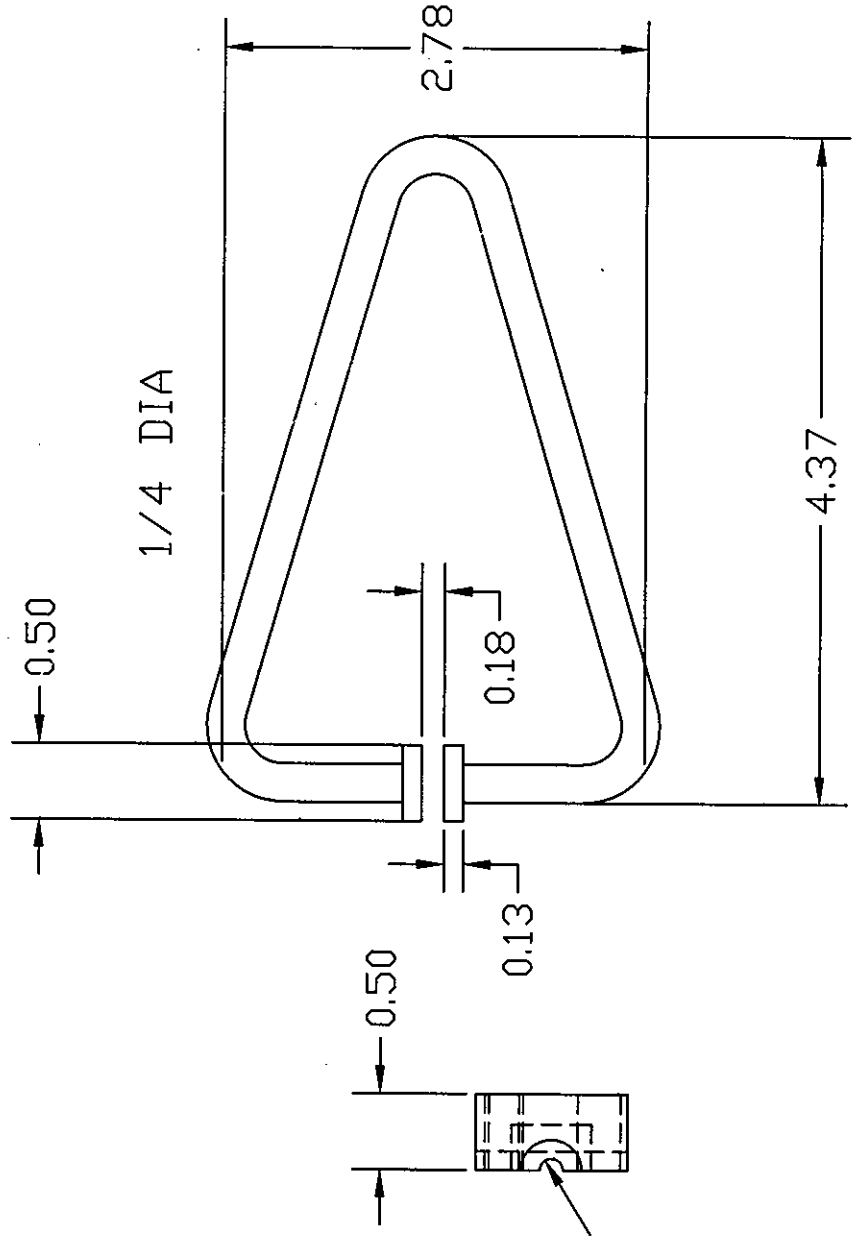
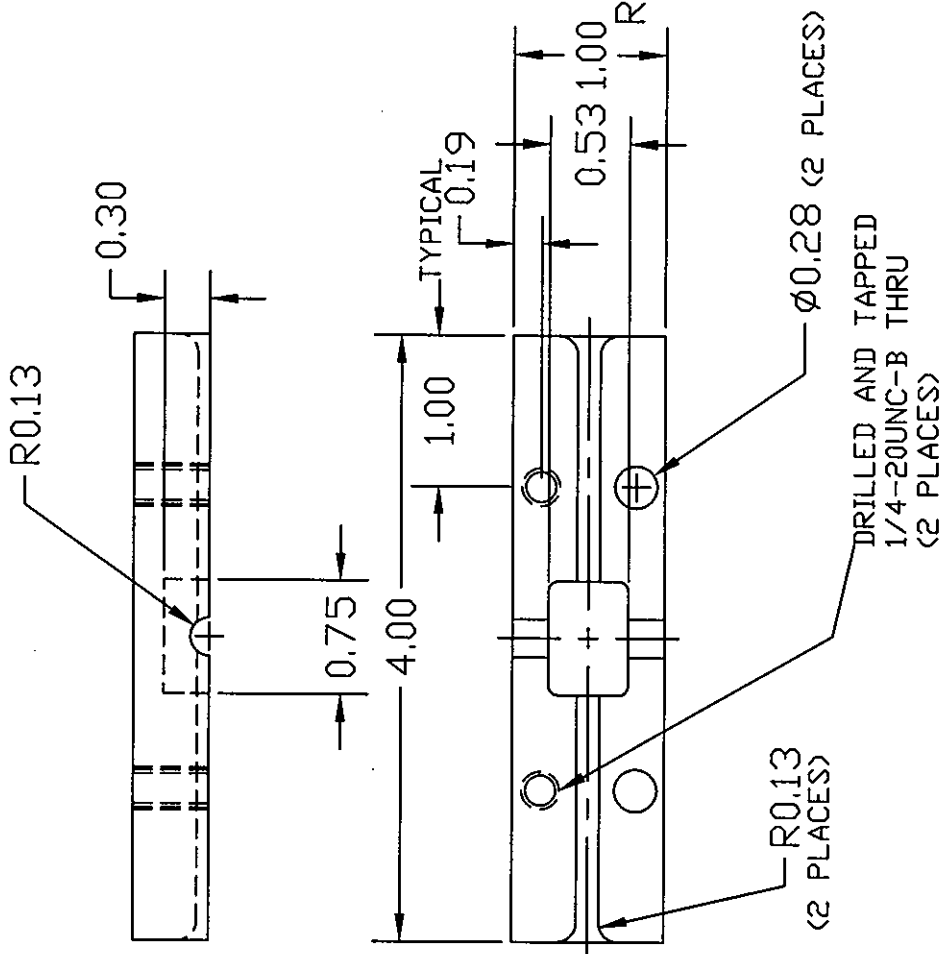
LMHC 1999b, HNF-IP-0842, Vol. IV, TWRS Engineering, Sec. 4.28, Rev. 0, *Testing Practices Requirements*, Lockheed Martin Hanford Corporation; Richland, WA

APPENDIX A

TEST APPARATUS AND
LEVEL WIND ASSEMBLY



ASSEMBLED SUSPENSION TOOL
FOR 5/32" CABLE

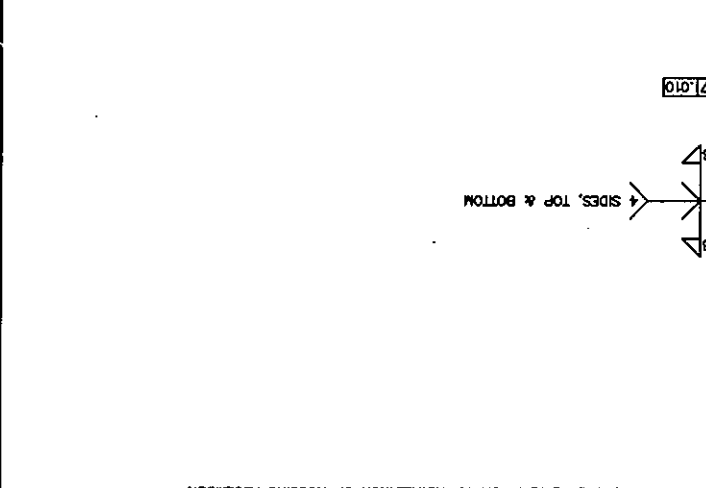


SUSPENSION TOOL BAIL

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H-2-690058	GRAPPLE HOIST HOUSING ASSEMBLY (RMCS)	1	2/7/94	U.S. DEPARTMENT OF ENERGY			2/7/94	U.S. DEPARTMENT OF ENERGY			

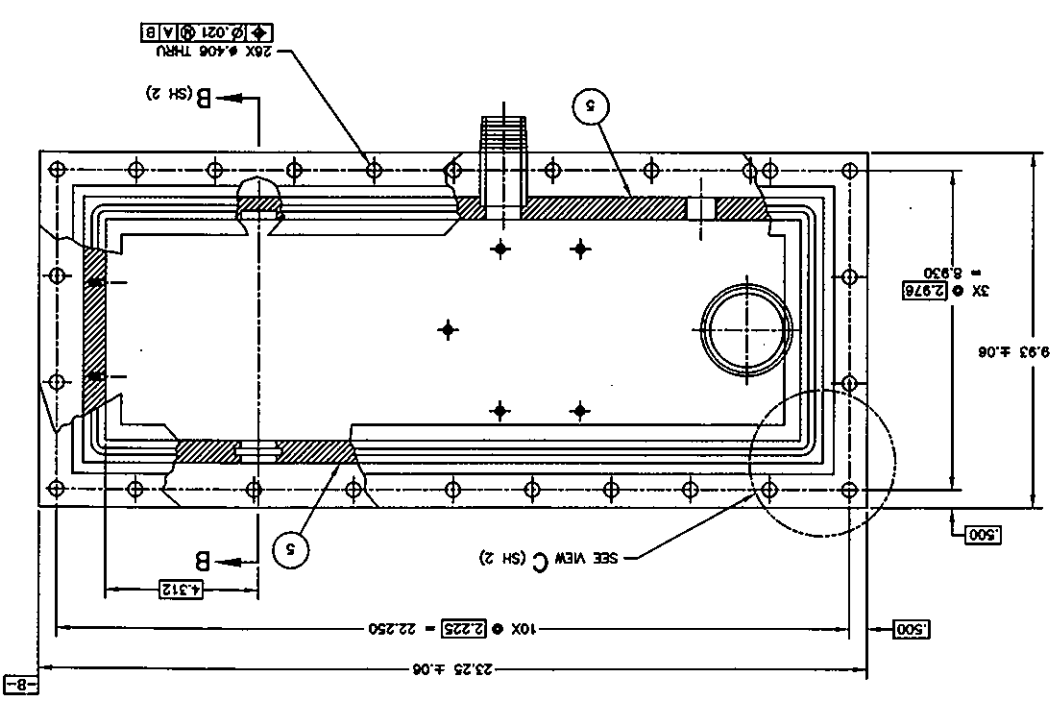
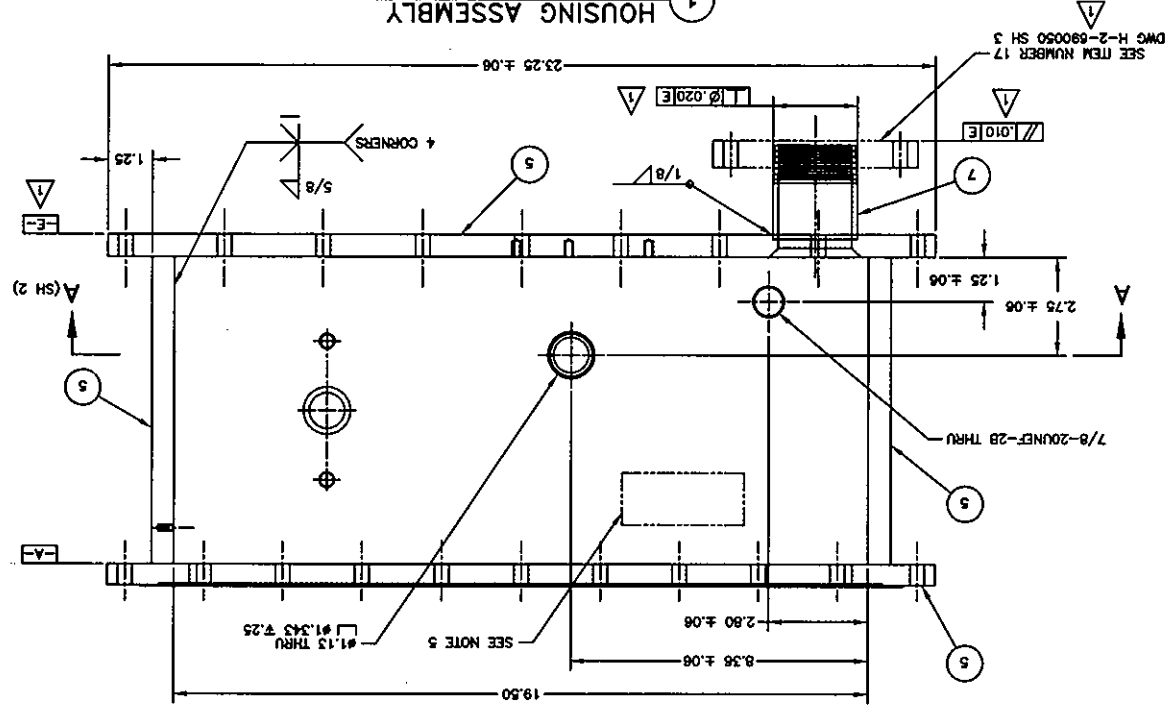
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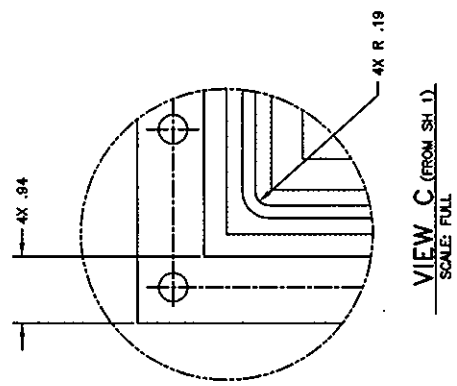
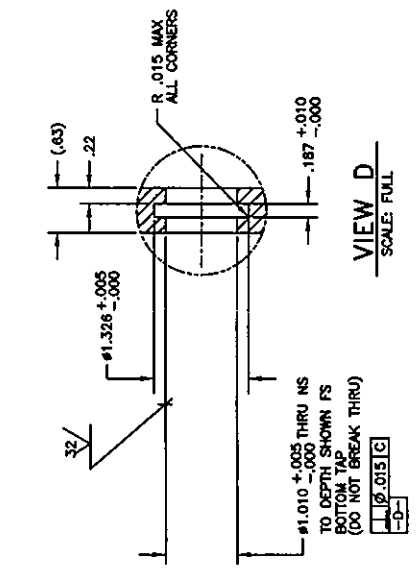
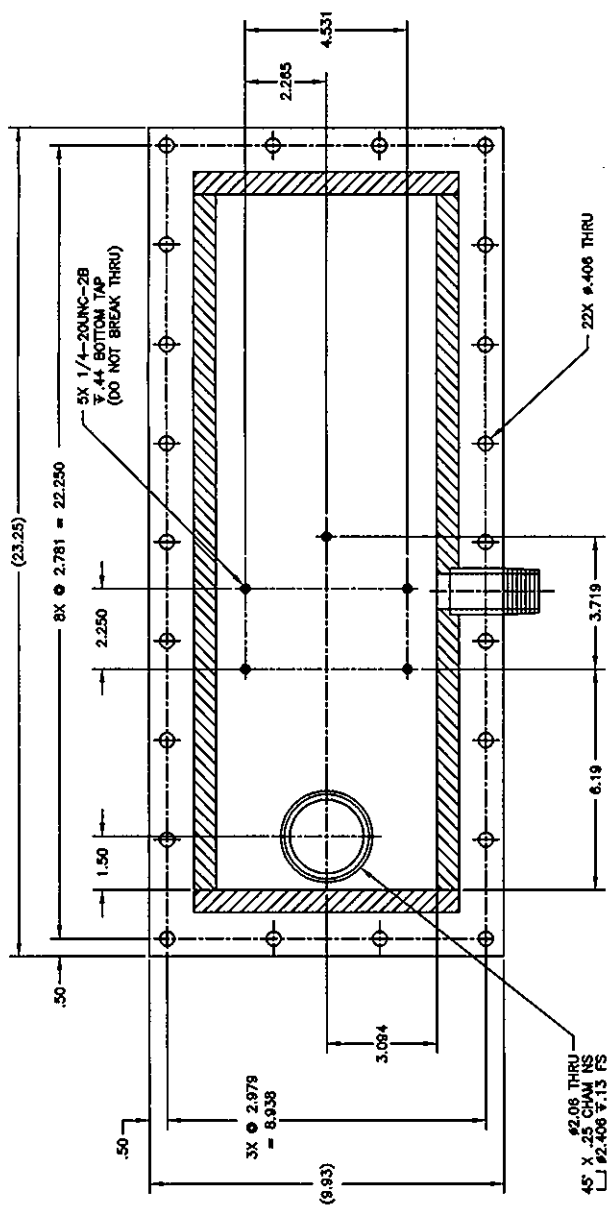
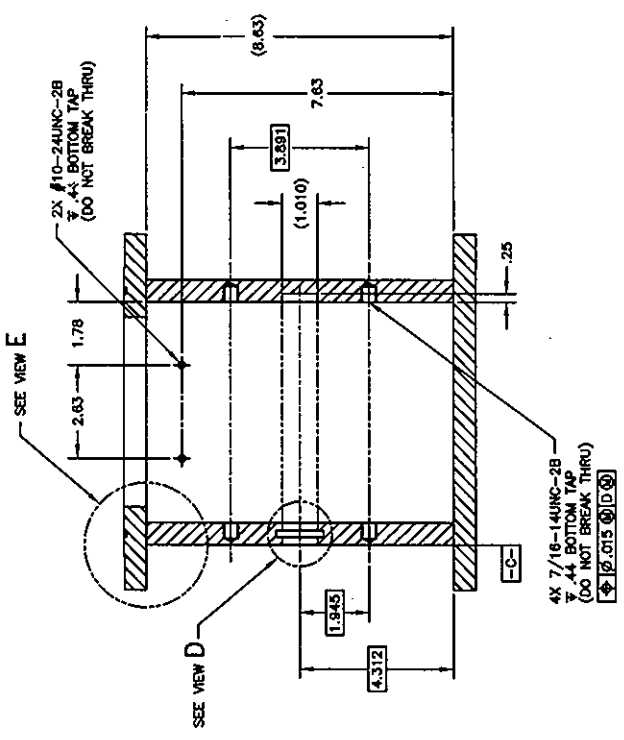
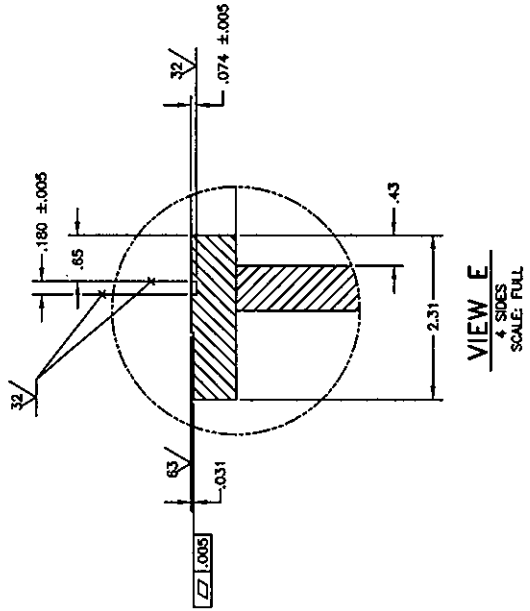
GENERAL NOTES: (UNLESS OTHERWISE SPECIFIED)

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982. ALL DIMENSIONS ARE IN INCHES. TOLERANCES: X ± .1; .00X ± .005; .00X ± .010; ANGULAR ± 1°.
2. ALL MACHINED SURFACES SHALL BE 125 OR BETTER IN ACCORDANCE WITH ANSI B46.1.
3. BREAK ALL SHARP EDGES, REMOVE ALL BURNS.
4. MACHINED RADIUS .03 MAX.
5. IDENTIFY ASSEMBLY ITEM NO 1 PER HS-BS-0015, TYPE B WITH DWG NO. ITEM NO AND DWG REV NO AT LOCATION INDICATED. USE 1/2 INCH HIGH BLACK CHARACTERS. PAINT TO BE VALSPAR 76 SERIES OR AMERONAT #234. RUSTOLEUM #479 MAY BE SUBSTITUTED FOR THE ABOVE PAINT.
6. FABRICATE, WELD, PRESSURE TEST AND INSPECT PER ASME 1992 BOILER AND PRESSURE VESSEL CODE, SECTION VIII, DIVISION 1.
7. OPERATING TEMPERATURE FOR ASSEMBLY ITEM NO 1 IS 110 PSI. PT AND VT FINAL PASS ON ALL WELDS, ASME STAMP IS REQUIRED.
8. SUPPORT PLATE (REF H-2-690050-17) TO BE TIGHTENED TO HOUSING ASSY TO ACHIEVE FULL THREAD ENGAGEMENT (3/4"). INDEX AND MATCH MARK PLATE WITH NIPPLE. MACHINE SURFACE OF PLATE PER DRAWING. REMOVE PLATE PRIOR TO INSTALLATION OF HOUSING ASSEMBLY.

1 HOUSING ASSEMBLY
SCALE 1/2



ITEM NO.	QTY	PART/DRAWING NUMBER	MATERIAL/DESCRIPTION
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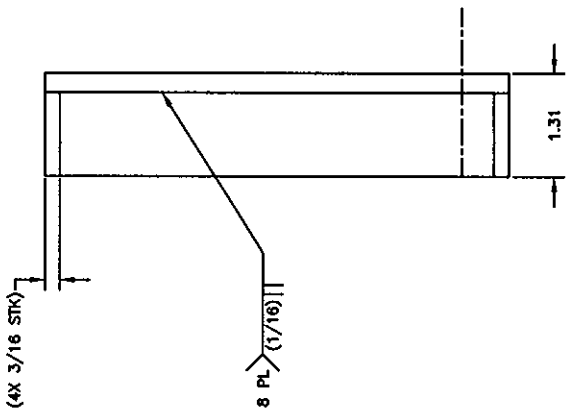
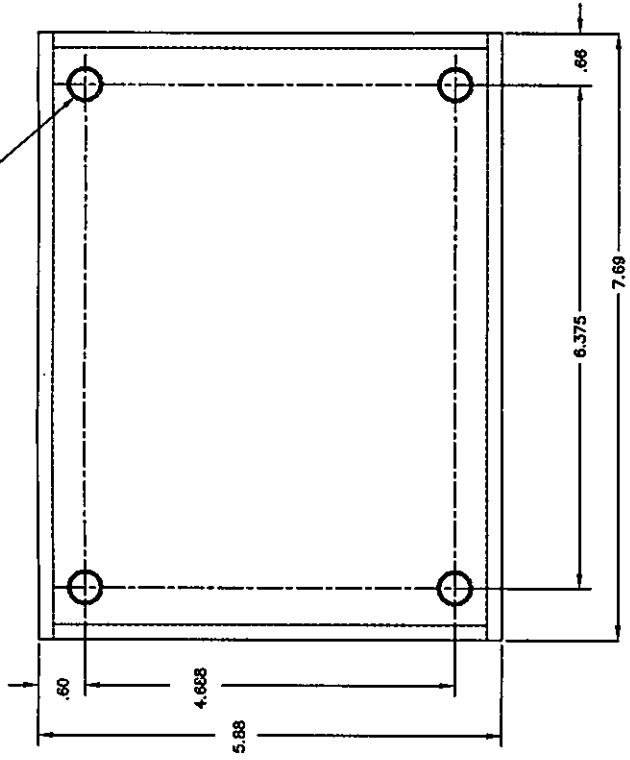


FOR PARTS LIST AND GENERAL NOTES SEE SHEET 1

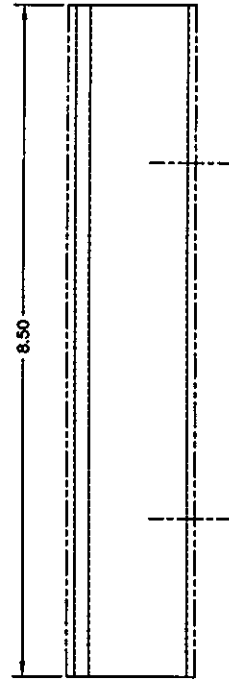
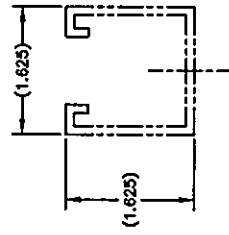
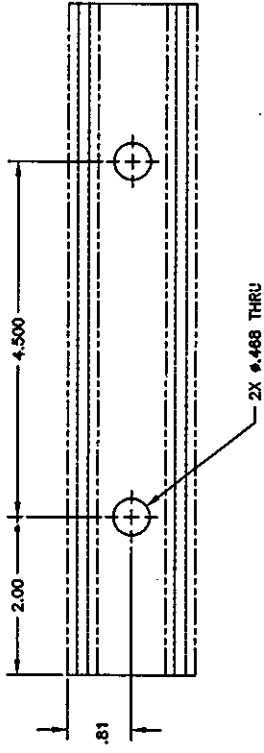
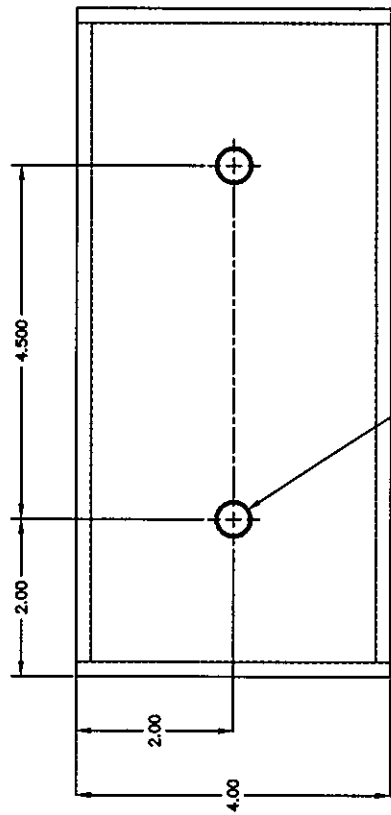
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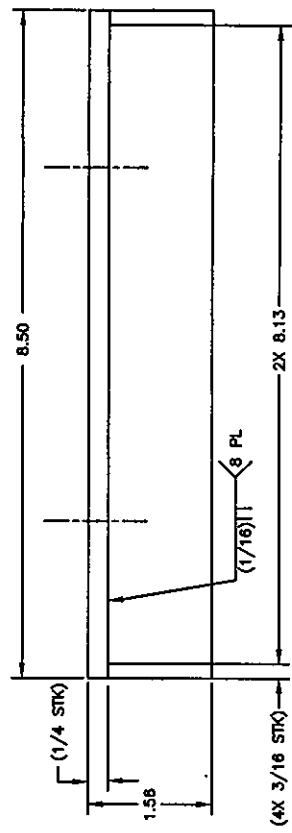
4X 5/16-18UNC-2B THRU



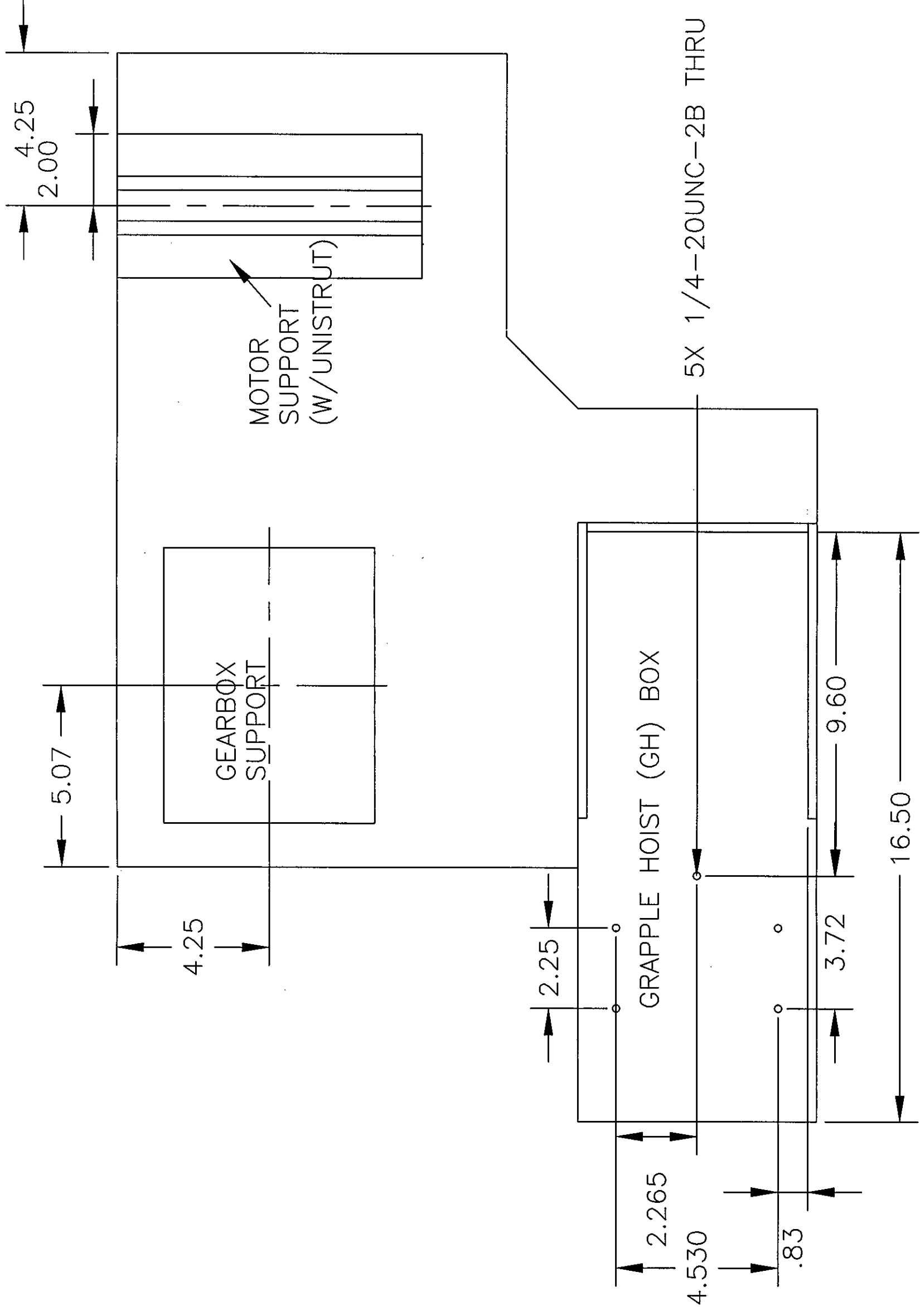
GEAR REDUCER SUPPORT ASSY



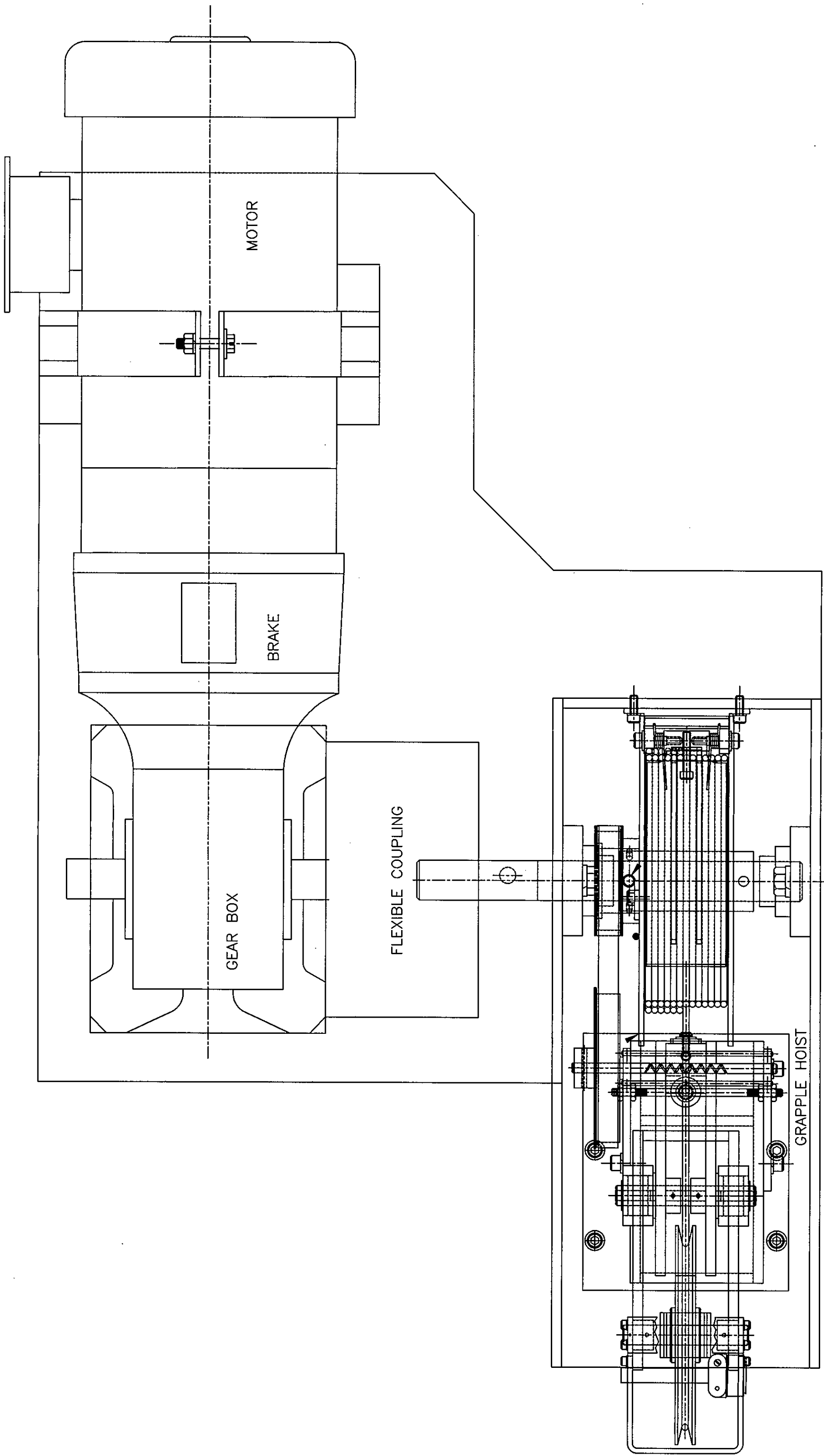
UNISTRUT (ALTERED)



MOTOR SUPPORT ASSY



LOCATION OF GH BOX,
 GEARBOX SUPPORT & MOTOR
 SUPPORT
 A5



GRAPPLE HOIST LEVEL WIND TEST APPARATUS
 GENERAL SET-UP
 A6

PARTS/MATERIAL LIST

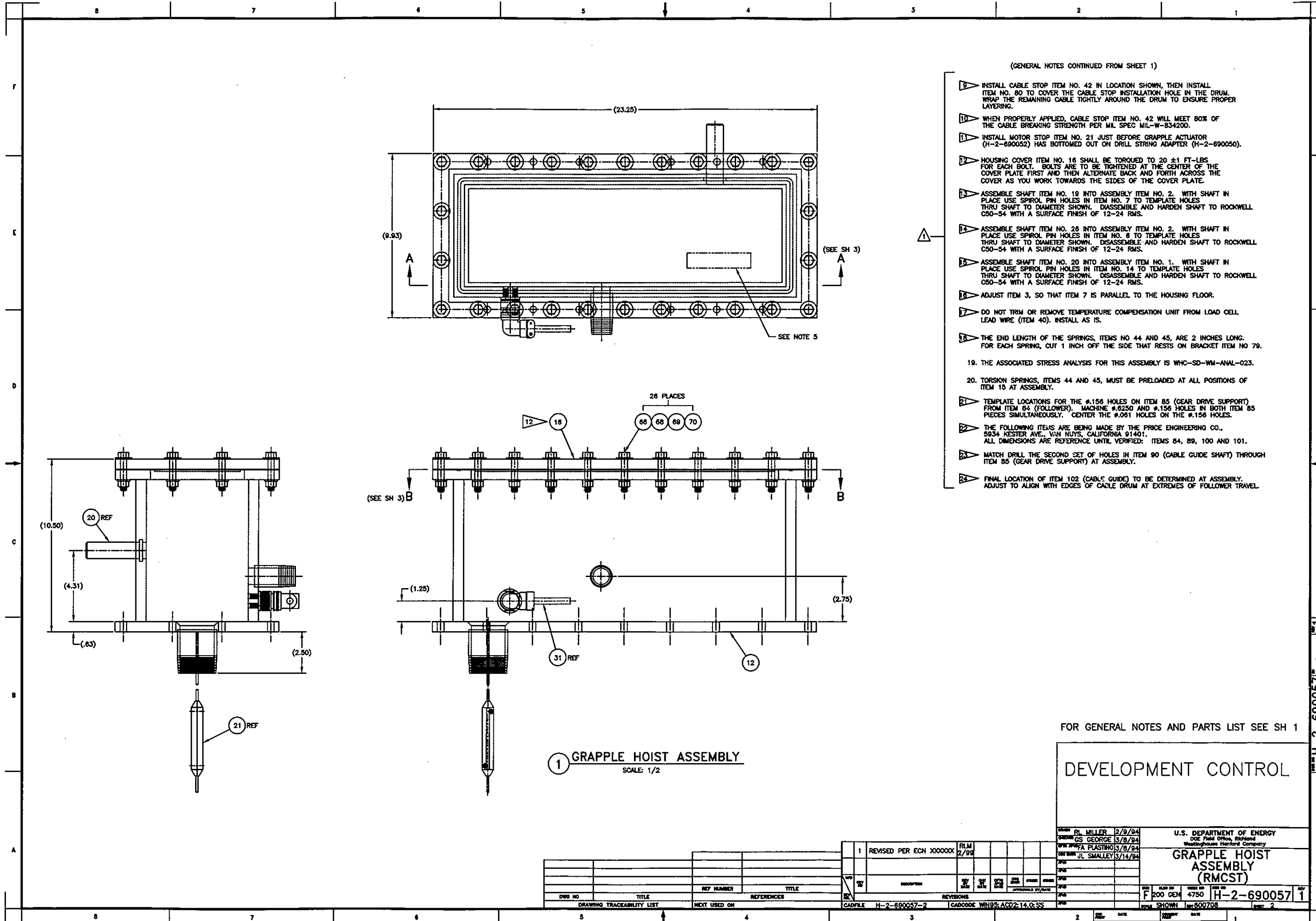
PARTS/MATERIAL LIST

Table with columns: QTY, PART/FINISH NUMBER, MATERIAL/REFERENCE, SHEET NO, ITEM NO, DESCRIPTION, and various other identifiers. Contains parts 1 through 54.

Table with columns: QTY, PART/FINISH NUMBER, MATERIAL/REFERENCE, SHEET NO, ITEM NO, DESCRIPTION, and various other identifiers. Contains parts 55 through 105.

GENERAL NOTES: (UNLESS OTHERWISE SPECIFIED)
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982. ALL DIMENSIONS ARE IN INCHES. TOLERANCES: X ± .1; .XX ± .03; .XXX ± .016; ANGULAR ± 1°.

GENERAL NOTES CONTINUED ON SHEET 2, ZONE E-7
6. FABRICATE, WELD, PRESSURE TEST AND INSPECT PER ASME 1992 BOILER & PRESSURE VESSEL CODE...



(GENERAL NOTES CONTINUED FROM SHEET 1)

- 9. INSTALL CABLE STOP ITEM NO. 42 IN LOCATION SHOWN, THEN INSTALL ITEM NO. 80 TO COVER THE CABLE STOP INSTALLATION HOLE IN THE DRUM. WRAP THE REMAINING CABLE TIGHTLY AROUND THE DRUM TO ENSURE PROPER LAYERING.
- 10. WHEN PROPERLY APPLIED, CABLE STOP ITEM NO. 42 WILL MEET 80% OF THE CABLE BREAKING STRENGTH PER MIL SPEC MIL-W-834200.
- 11. INSTALL MOTOR STOP ITEM NO. 21 JUST BEFORE GRAPPLE ACTUATOR (H-2-690052) HAS BOTTOMED OUT ON DRILL STRING ADAPTER (H-2-690050).
- 12. HOUSING COVER ITEM NO. 16 SHALL BE TORQUED TO 20 ±1 FT-LBS FOR EACH BOLT. BOLTS ARE TO BE TIGHTENED AT THE CENTER OF THE COVER PLATE FIRST AND THEN ALTERNATE BACK AND FORTH ACROSS THE COVER AS YOU WORK TOWARDS THE SIDES OF THE COVER PLATE.
- 13. ASSEMBLE SHAFT ITEM NO. 19 INTO ASSEMBLY ITEM NO. 2, WITH SHAFT IN PLACE USE SPIROL PIN HOLES IN ITEM NO. 7 TO TEMPLATE HOLES THRU SHAFT TO DIAMETER SHOWN. DISASSEMBLE AND HARDEN SHAFT TO ROCKWELL C50-54 WITH A SURFACE FINISH OF 12-24 RMS.
- 14. ASSEMBLE SHAFT ITEM NO. 28 INTO ASSEMBLY ITEM NO. 2, WITH SHAFT IN PLACE USE SPIROL PIN HOLES IN ITEM NO. 8 TO TEMPLATE HOLES THRU SHAFT TO DIAMETER SHOWN. DISASSEMBLE AND HARDEN SHAFT TO ROCKWELL C50-54 WITH A SURFACE FINISH OF 12-24 RMS.
- 15. ASSEMBLE SHAFT ITEM NO. 20 INTO ASSEMBLY ITEM NO. 1, WITH SHAFT IN PLACE USE SPIROL PIN HOLES IN ITEM NO. 14 TO TEMPLATE HOLES THRU SHAFT TO DIAMETER SHOWN. DISASSEMBLE AND HARDEN SHAFT TO ROCKWELL C50-54 WITH A SURFACE FINISH OF 12-24 RMS.
- 16. ADJUST ITEM 3, SO THAT ITEM 7 IS PARALLEL TO THE HOUSING FLOOR.
- 17. DO NOT TRIM OR REMOVE TEMPERATURE COMPENSATION UNIT FROM LOAD CELL LEAD WIRE (ITEM 40). INSTALL AS IS.
- 18. THE END LENGTH OF THE SPRINGS, ITEMS NO 44 AND 45, ARE 2 INCHES LONG. FOR EACH SPRING, CUT 1 INCH OFF THE SIDE THAT RESTS ON BRACKET ITEM NO 79.
- 19. THE ASSOCIATED STRESS ANALYSIS FOR THIS ASSEMBLY IS WHC-SD-WM-ANAL-023.
- 20. TORSION SPRINGS, ITEMS 44 AND 45, MUST BE PRELOADED AT ALL POSITIONS OF ITEM 15 AT ASSEMBLY.
- 21. TEMPLATE LOCATIONS FOR THE #.156 HOLES ON ITEM 85 (GEAR DRIVE SUPPORT) FROM ITEM 84 (FOLLOWER). MACHINE #.8250 AND #.156 HOLES IN BOTH ITEM 85 PIECES SIMULTANEOUSLY. CENTER THE #.081 HOLES ON THE #.156 HOLES.
- 22. THE FOLLOWING ITEMS ARE BEING MADE BY THE PRICE ENGINEERING CO., 5934 KESTER AVE., VAN NUYS, CALIFORNIA 91401. ALL DIMENSIONS ARE REFERENCE UNTIL VERIFIED: ITEMS 84, 89, 100 AND 101.
- 23. MATCH DRILL THE SECOND SET OF HOLES IN ITEM 90 (CABLE GUIDE SHAFT) THROUGH ITEM 85 (GEAR DRIVE SUPPORT) AT ASSEMBLY.
- 24. FINAL LOCATION OF ITEM 102 (CABLE GUIDE) TO BE DETERMINED AT ASSEMBLY. ADJUST TO ALIGN WITH EDGES OF CABLE DRUM AT EXTREMES OF FOLLOWER TRAVEL.

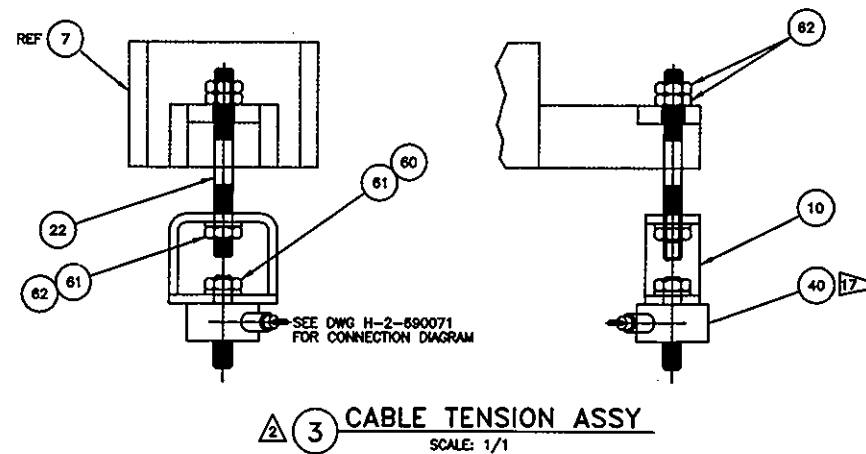
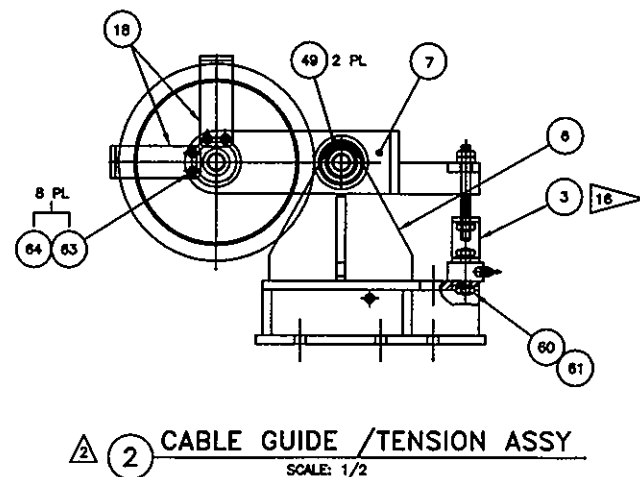
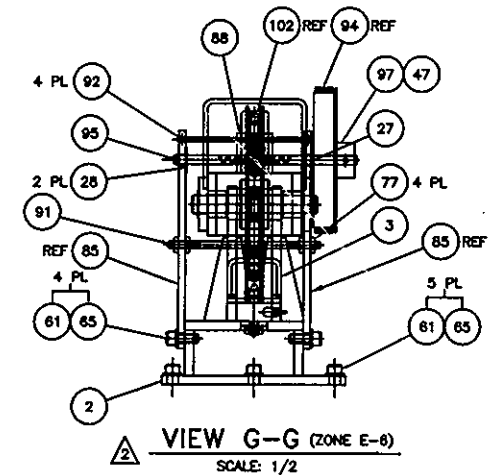
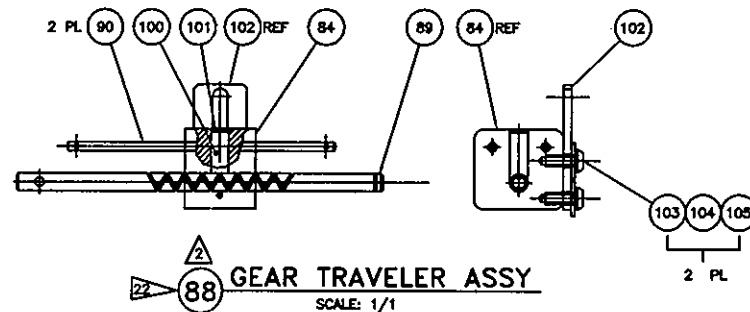
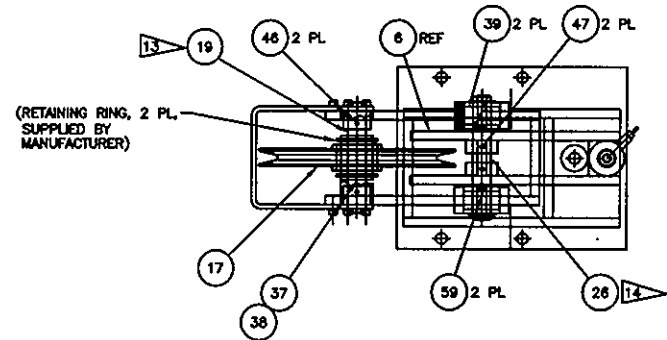
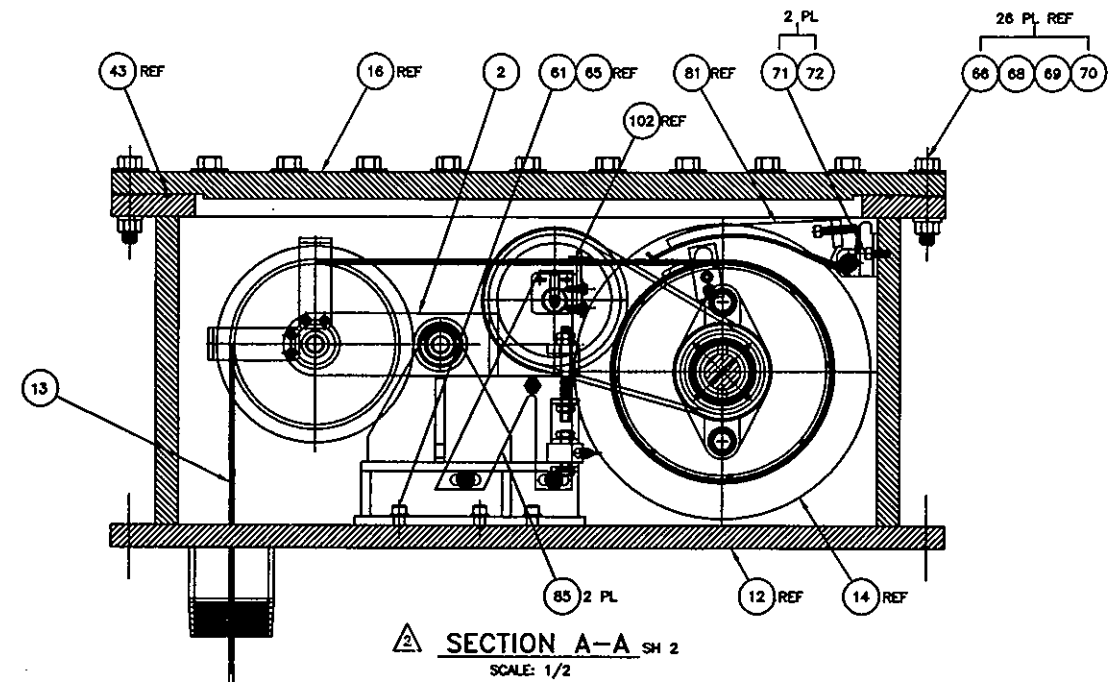
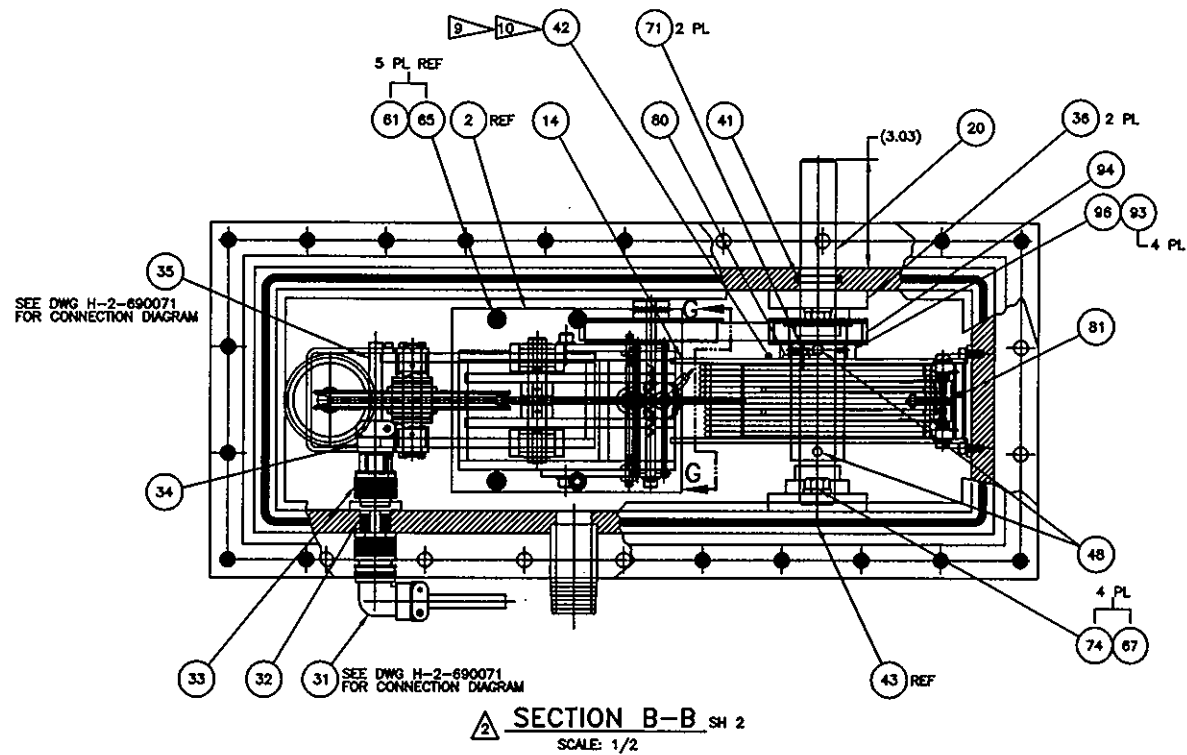
1 GRAPPLE HOIST ASSEMBLY
SCALE: 1/2

FOR GENERAL NOTES AND PARTS LIST SEE SH 1

DEVELOPMENT CONTROL	
DRAWN: RL MILLER 2/9/94 CHECKED: GS GEORGE 3/8/94 DESIGNED: FA PLASTINO 3/8/94 APPROVED: JL SMALLEY 3/14/94	U.S. DEPARTMENT OF ENERGY DOE Field Office, Richland Westinghouse Hanford Company GRAPPLE HOIST ASSEMBLY (RMCST)
REV. NO. 1 REV. DESCRIPTION 1 REVISED PER ECH XXXXXX RLM 2/99	DRAWING NO. H-2-690057-1 SHEET NO. 1 TOTAL SHEETS 2

DWG NO	TITLE	REF NUMBER	TITLE	REV	DATE	BY	CHK	APP	DATE
H-2-690057-1	GRAPPLE HOIST ASSEMBLY								
DRAWING TRACEABILITY LIST		NEXT USED ON		REVISIONS					
				CADFILE H-2-690057-2 CADCODE WIN95:ACD2/14.0:SS					

AS



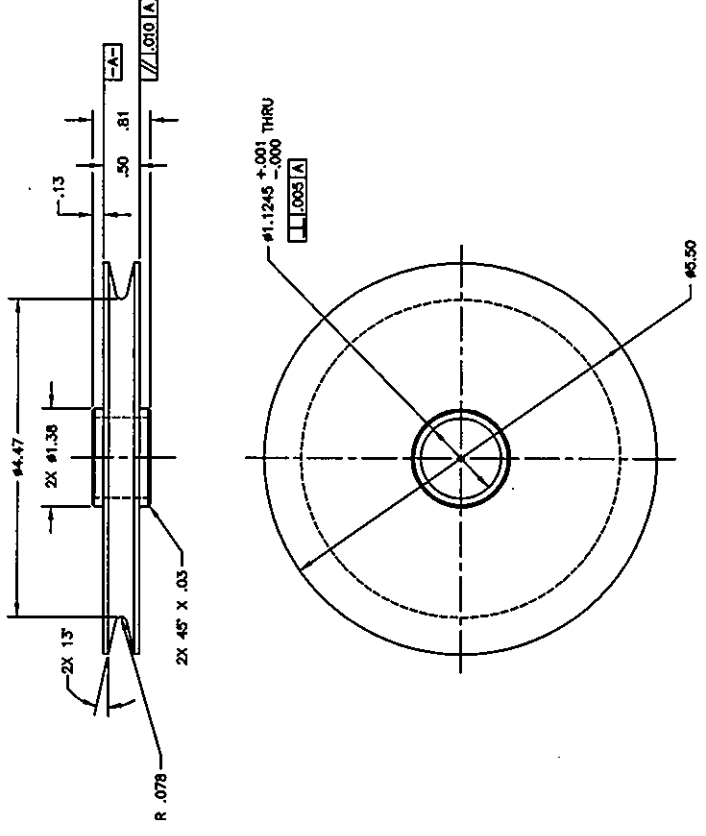
FOR GENERAL NOTES AND PARTS LIST SEE SH 1

DEVELOPMENT CONTROL

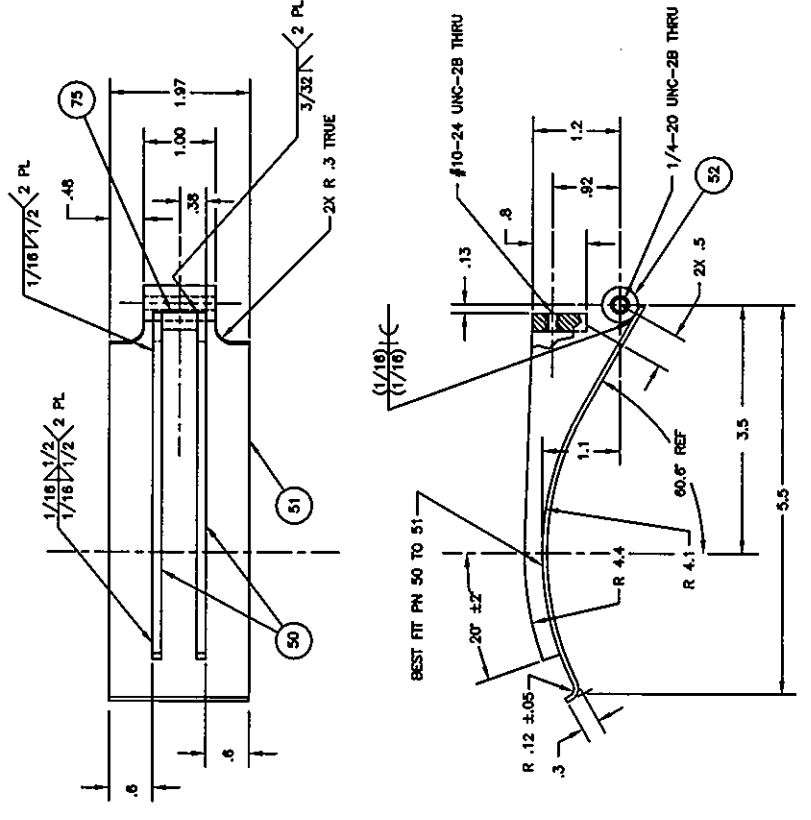
BY: R. MILLER	DATE: 2/9/94	U.S. DEPARTMENT OF ENERGY DOE Field Office, Richland Westinghouse Hanford Company GRAPPLE HOIST ASSEMBLY (RMCST)
BY: GS GEORGE	DATE: 3/5/94	
BY: FA PLASTING	DATE: 3/5/94	
BY: J.L. SMALLEY	DATE: 3/15/94	
REV: 2	REVISED PER ECN X0000X	F 200 GEN 4750 H-2-690057 2 DATE SHOWN: 600709

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		NEXT USED ON	
CADFILE H-2-690057-3		CADCODE WIN95; ACD2; 14.0; SS	

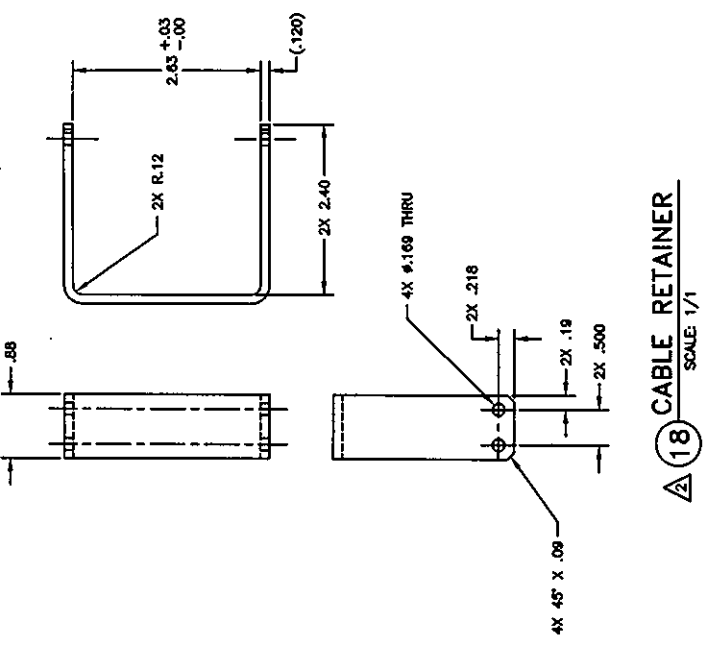
A9



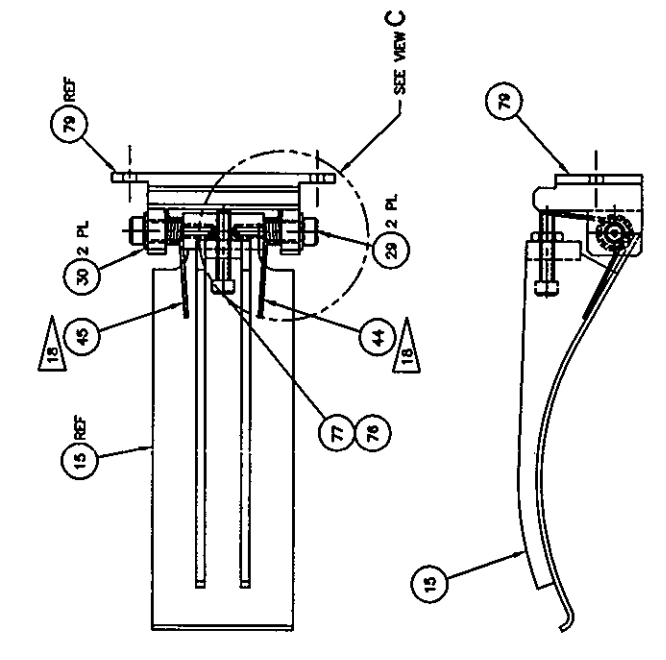
17 TRAVELING PULLEY
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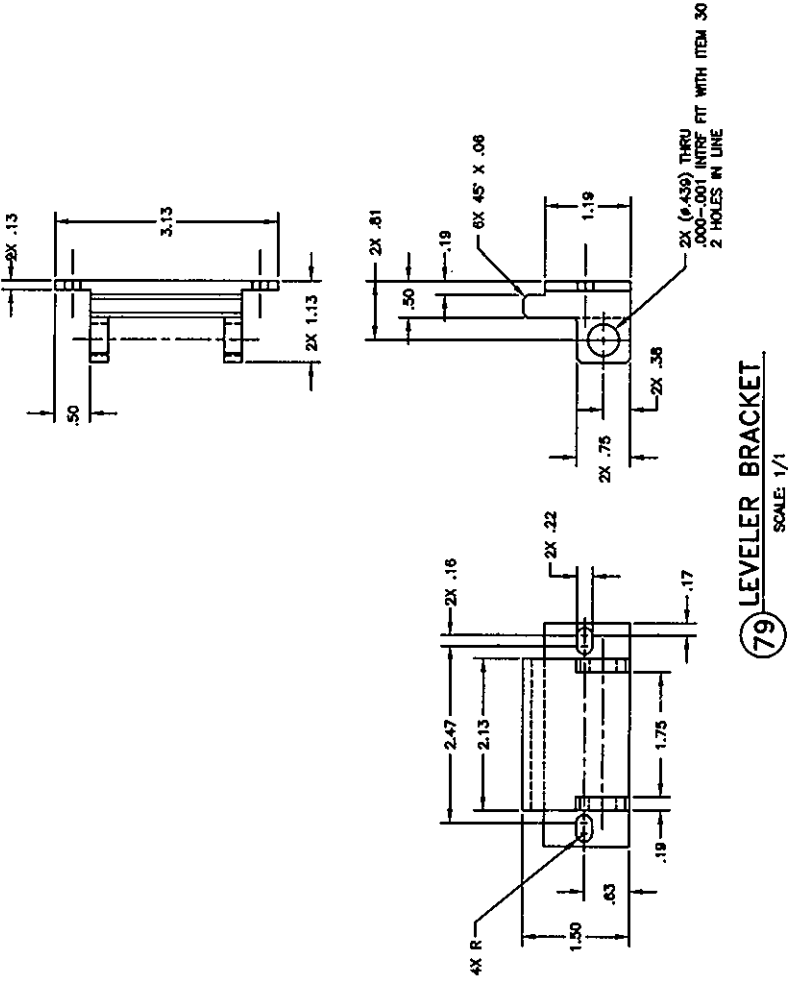
15 LEVEL PLATE ASSEMBLY
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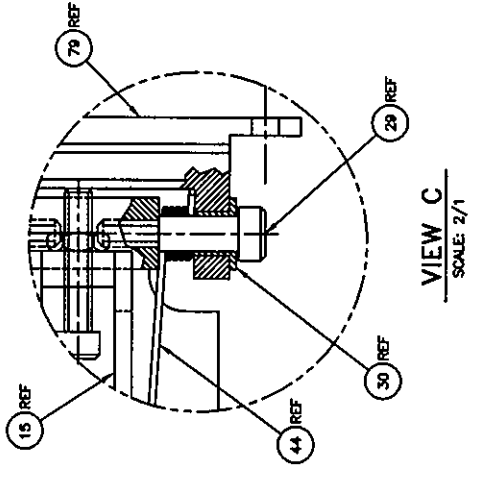
18 CABLE RETAINER
SCALE: 1/1



81 CABLE LEVELER ASSEMBLY
SCALE: 1/1



79 LEVELER BRACKET
SCALE: 1/1



19 PULLEY SHAFT
SCALE: 1/1

FOR PARTS LIST AND GENERAL NOTES SEE SH 1

DEVELOPMENT CONTROL

DATE	BY	DESCRIPTION
12/19/84	RL MILLER	REVISED PER ECH 000000
5/15/84	CS GEORGE	REVISED PER ECH 000000
5/15/84	PA PLASTINO	REVISED PER ECH 000000
5/14/84	ML SHALLEY	REVISED PER ECH 000000

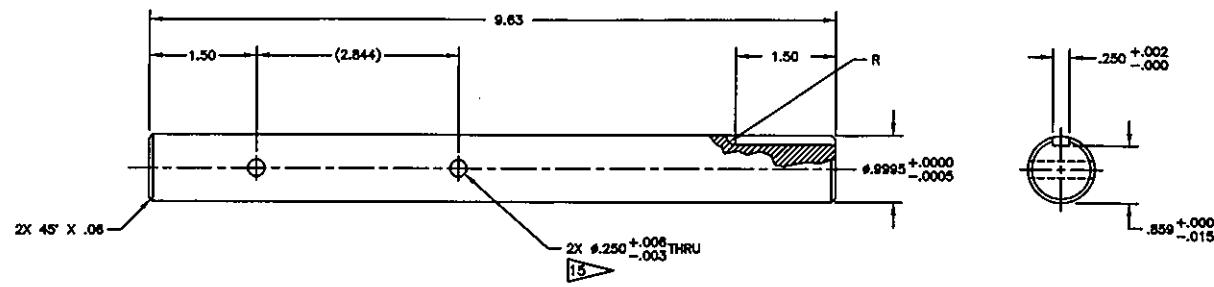
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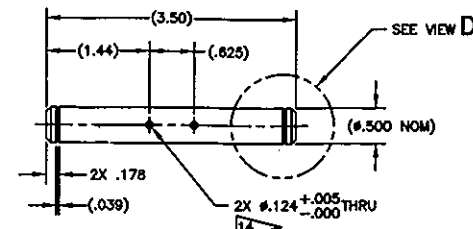
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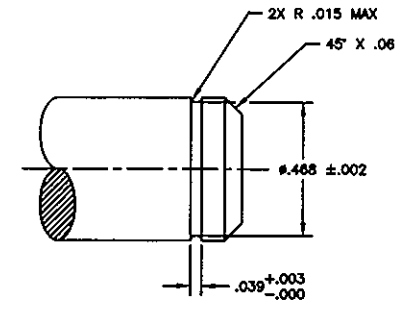
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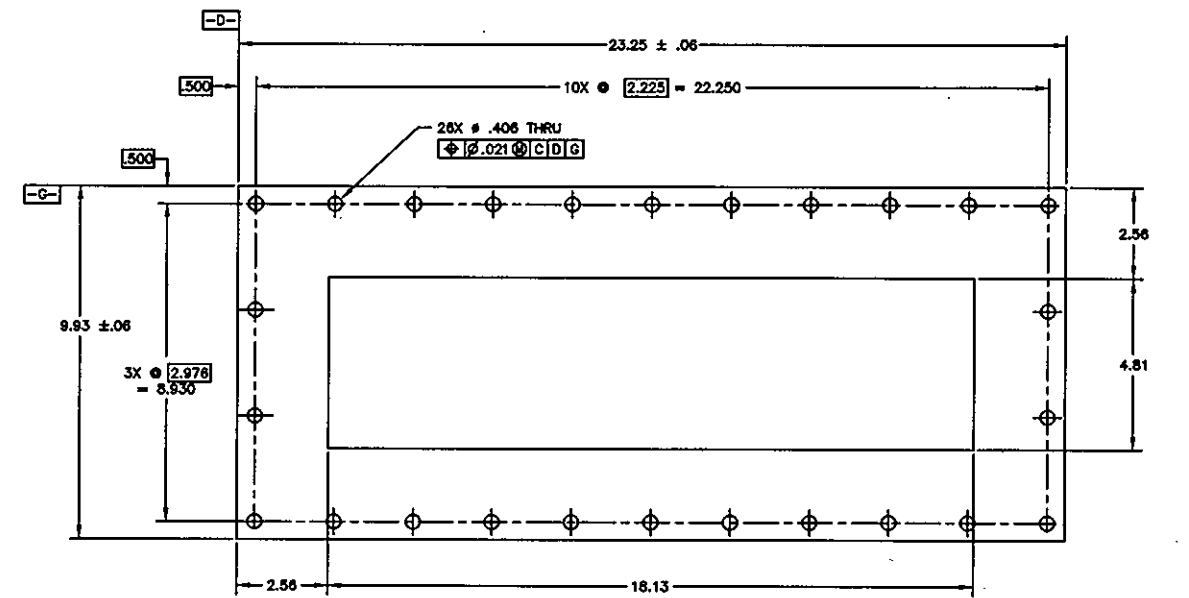
20 CABLE DRUM SHAFT
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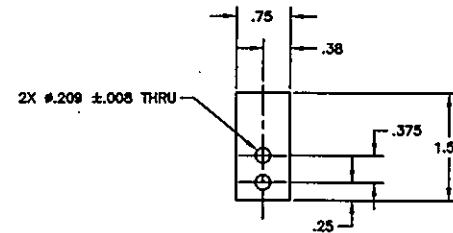
26 SHAFT
SCALE: 1/1



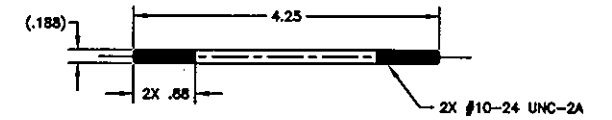
VIEW D
BOTH ENDS
SCALE: 4/1



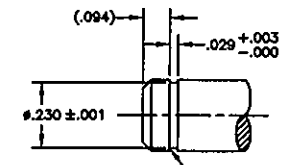
16 HOUSING COVER
SCALE: 1/2



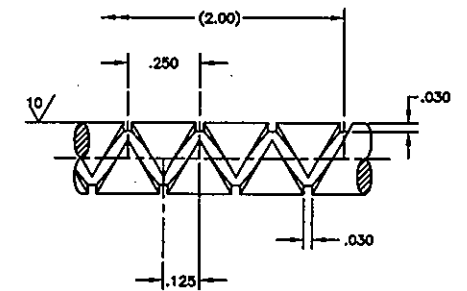
80 FLAP
SCALE: 1/1



91 THREADED ROD
SCALE: 1/1



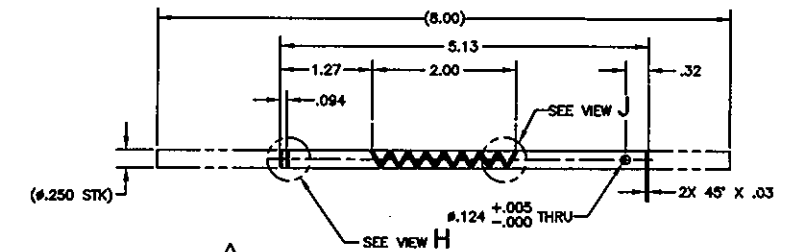
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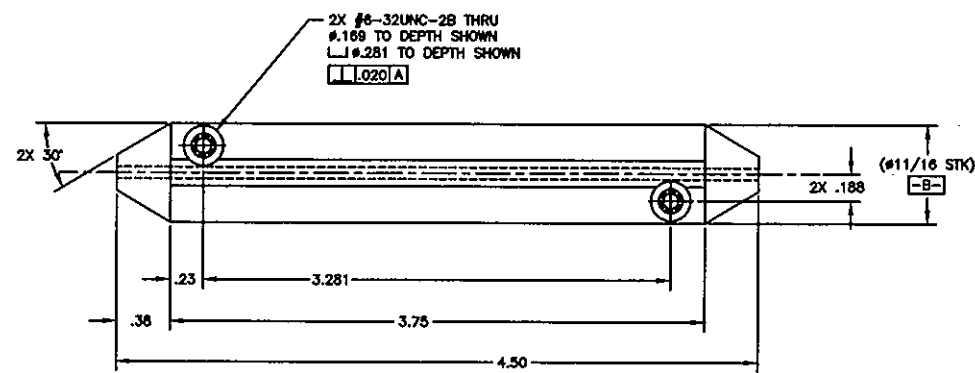
VIEW J
SCALE: 4/1



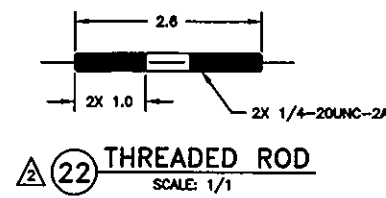
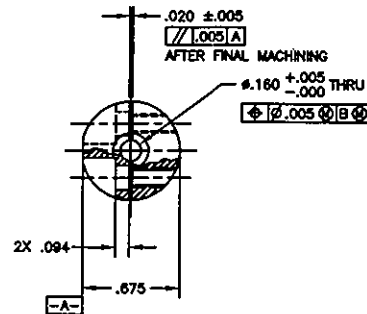
90 CABLE GUIDE SHAFT
SCALE: 1/1



89 LEVEL WINDING SCREW, (ALTERED)
SCALE: 1/1



21 MOTOR STOP
SCALE: 2/1



22 THREADED ROD
SCALE: 1/1

FOR GENERAL NOTES AND PARTS LIST SEE SH 1

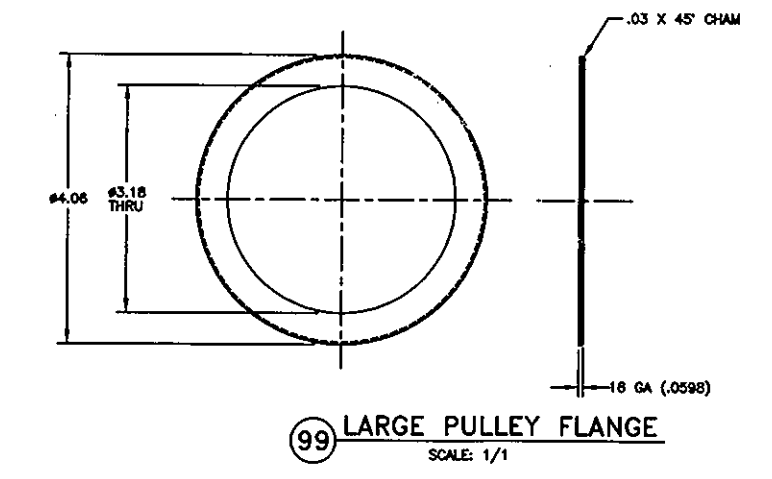
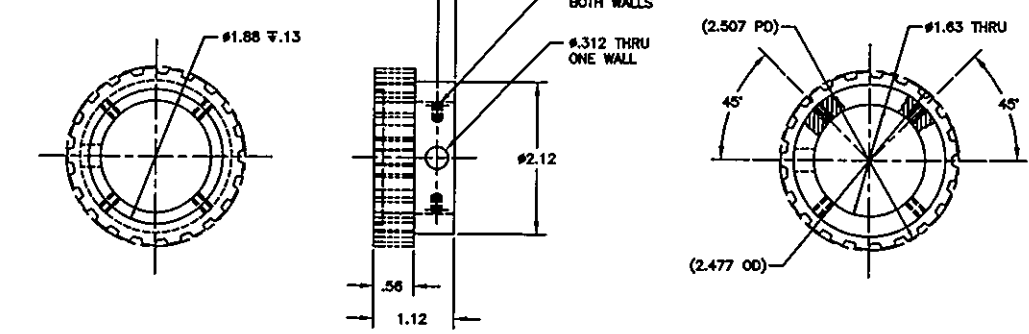
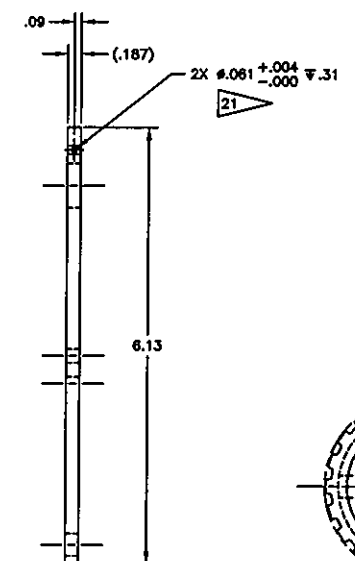
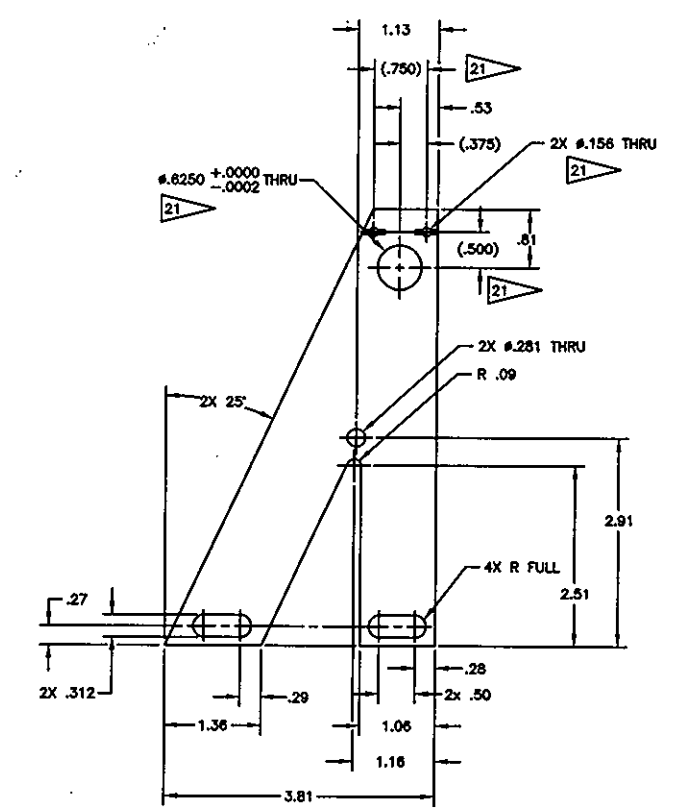
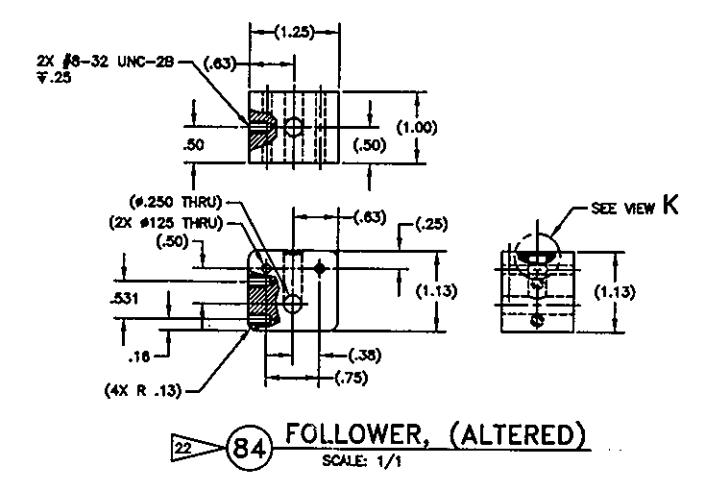
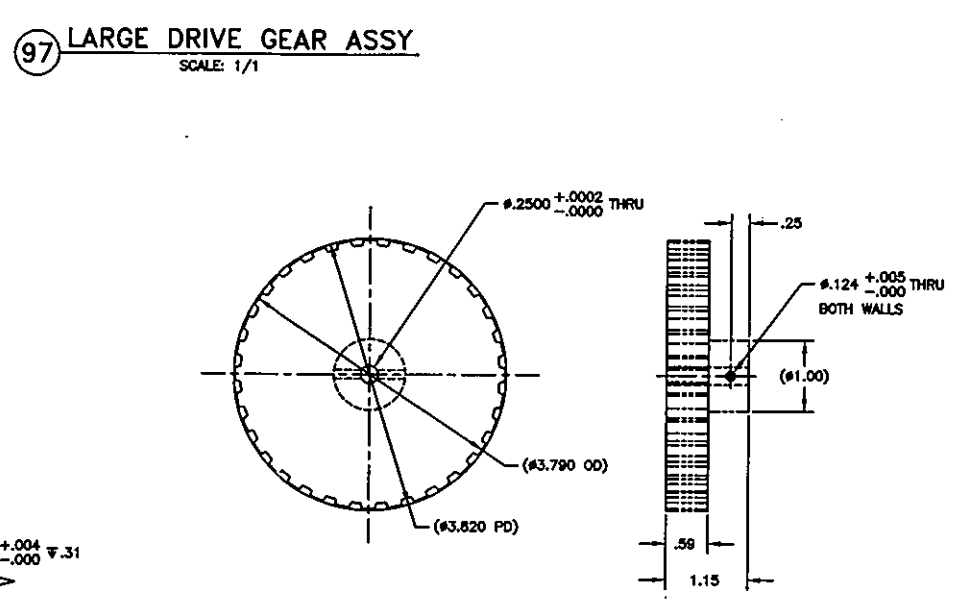
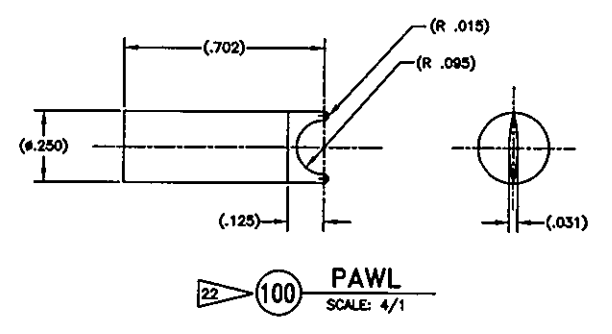
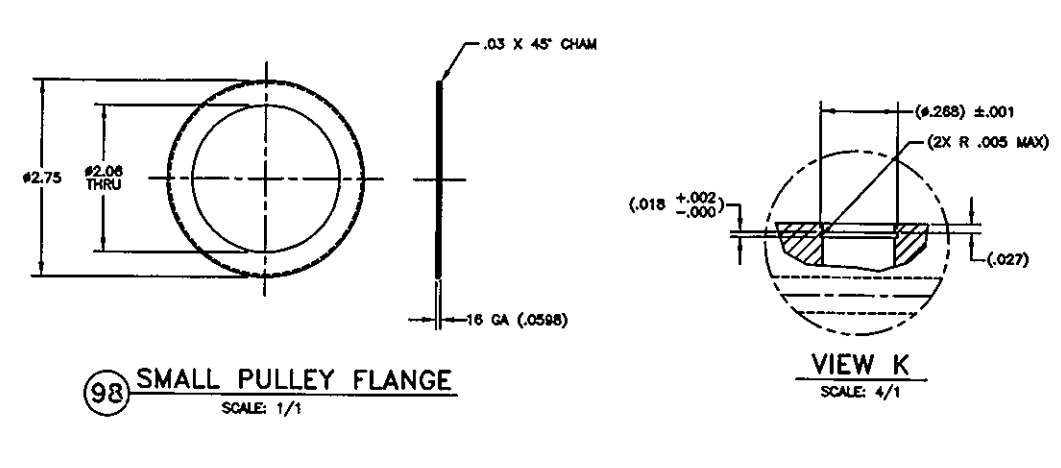
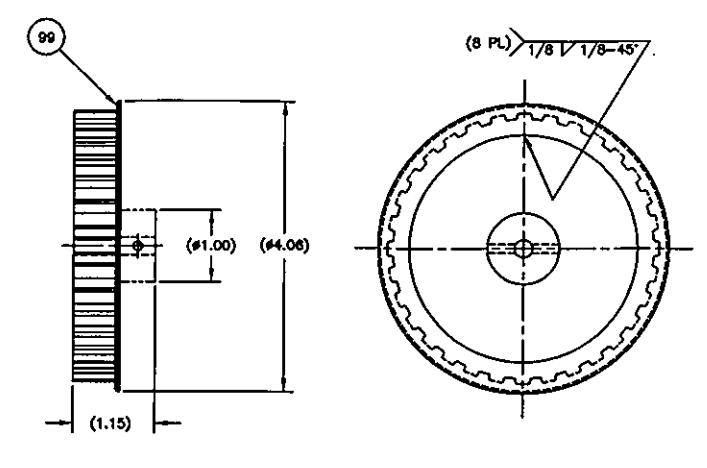
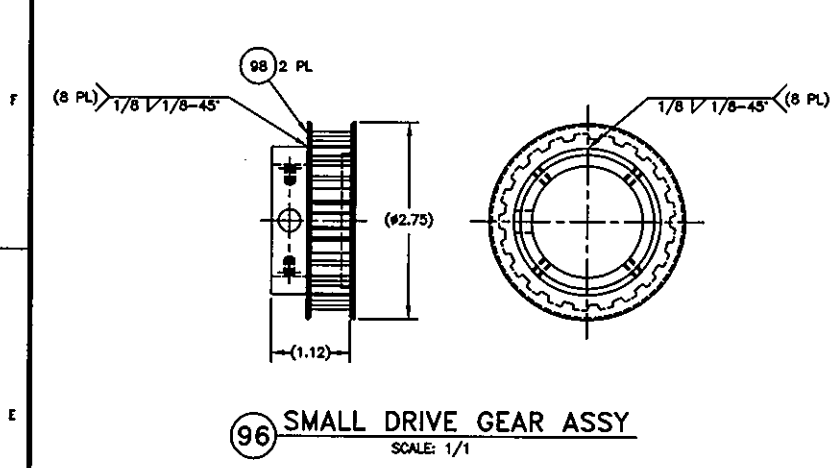
DEVELOPMENT CONTROL

DESIGNER RL MILLER 2/9/94	U.S. DEPARTMENT OF ENERGY
CHECKER GS GEORGE 3/6/94	DOE Field Office, Richland
DATE 5/6/94	Westinghouse Hanford Company
APPR. BY JL SMALLY 5/14/94	GRAPPLE HOIST ASSEMBLY (RMCST)
DWG NO F 200 GEN 4750	SCALE 1/1
REV H-2-690057-2	DATE 600708

DWG NO	TITLE	REV NUMBER	TITLE

REV	DESCRIPTION	BY	CHK	DATE
2	REVISED PER EGN XXXXXX	RLM	(N/A)	

A-12



FOR GENERAL NOTES AND PARTS LIST SEE SH 1

DEVELOPMENT CONTROL

DATE	BY	DESCRIPTION	APP. NO.	REV. NO.	REV. DATE	REV. DESCRIPTION
1/14/98	RL MILLER					
U.S. DEPARTMENT OF ENERGY DOE Field Office, Station Waltham/Hartford Company			GRAPPLE HOIST ASSEMBLY (RMCST)			
DATE	BY	DESCRIPTION	APP. NO.	REV. NO.	REV. DATE	REV. DESCRIPTION
1/14/98	DALE					
DATE	BY	DESCRIPTION	APP. NO.	REV. NO.	REV. DATE	REV. DESCRIPTION
1/14/98	DALE					
DATE	BY	DESCRIPTION	APP. NO.	REV. NO.	REV. DATE	REV. DESCRIPTION
1/14/98	DALE					
DATE	BY	DESCRIPTION	APP. NO.	REV. NO.	REV. DATE	REV. DESCRIPTION
1/14/98	DALE					
DATE	BY	DESCRIPTION	APP. NO.	REV. NO.	REV. DATE	REV. DESCRIPTION
1/14/98	DALE					

FIG. NO. 200 GEN 4750 H-2-690057 0
SCALE SHOWN ECN XXXXXX

DWG NO	TITLE	REV NUMBER	TITLE

DRAWING TRACEABILITY LIST NEXT USED ON CADFILE H-2-690057-8 CADCODE WIN95; ACD2-14.0; SS

A-13

Appendix B--GRAPPLE HOIST LEVEL WIND ASSEMBLY TEST DATA

Test Performed by:

Date and Location:

QC: (Printed Name, Signature, and Date)

CABLE SECTION = A			CABLE SECTION = B			CABLE SECTION = C			CABLE SECTION = D		
LENGTH =			LENGTH =			LENGTH =			LENGTH =		
LOCATION FROM CABLE END =			LOCATION FROM CABLE END =			LOCATION FROM CABLE END =			LOCATION FROM CABLE END =		
INTENDED LOAD =			INTENDED LOAD =			INTENDED LOAD =			INTENDED LOAD =		
ACTUAL WEIGHT =			ACTUAL WEIGHT =			ACTUAL WEIGHT =			ACTUAL WEIGHT =		
TRIAL #	PASS	FAIL	TRIAL #	PASS	FAIL	TRIAL #	PASS	FAIL	TRIAL #	PASS	FAIL
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