

SPECIAL PACKAGING INSTRUCTION

Form Approved
OMB No. 0704-0188

-BK
AK

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1. PART OR DRAWING NO. (CAGE) NOMENCLATURE 3329510 (11083) ENGINE, DIESEL			2. CAGE 19207		3. SPI NO. AK15789429	
4. NATIONAL STOCK NO. 2805-01-578-9429			5. DATE 3/30/2010		6. REVISION -	
7. QUP 1 EACH	8. ICQ NONE	9. UNIT PACK WT (LB.) 1855.0	10. UNIT PACK CU (CU. FT.) 71.529		11. UNIT PACK SIZE (INCHES) 58.0 X 41.3 X 51.6	
12. MILITARY PRESERVATION MIL-STD-2073-1D, METHOD 53			18. STEPS	19. REQD	20. DESCRIPTION	
13. CLEANING MIL-STD-2073-1D, & NOTE B			1	A/R	PRESERVATION: SEE NOTES FOR ENGINE PROCESSING.	
			2-C	A/R	SPECIAL EQUIPMENT	
14. DRYING MIL-STD-2073-1D, & NOTE B			3-D	A/R	CAPS/PLUGS: NAS-847	
			4-E		BLOCKING AND BRACING: ASTM D-6199	
15. PACKING			5-F	144 SQ FEET	WRAP: MIL-PRF-121, TY II	
			6-G	200 SQ FEET	CUSHIONING: A-A59135, CL1, GR A,	
a. LEVEL A MIL-STD-2073-1D, & NOTE J			7-H	144	DESICCANT: MIL-D-3464, TYPE II,	
			8-I	1	ENVELOPE: MIL-DTL-6060E, SIZE: 100 X 180	
b. LEVEL B NOT APPLICABLE			9	1	CONTAINER: MIL-C-104, TY II, CL 2, ST A	
					SIZE: 55-1/2 X 39 X 41	
16. MARKING MIL-STD-129 AND NOTE K						

- A. PRESERVATION AND PACKING SHALL BE INSPECTED IN ACCORDANCE WITH MIL-STD-2073-1D AND ANY APPLICABLE CONTAINER SPECIFICATIONS.
- B. CLEAN AND DRY ITEM BY ANY SUITABLE PROCESS BEFORE APPLICATION OF PRESERVATIVE AND PACKAGING MATERIALS.
- C. SPECIAL EQUIPMENT NEED FOR ENGINE PRESERVATION:
 - 1. TWO (2) PRESERVATIVE SUPPLY HOSES, APPROXIMATELY 24" IN LENGTH, ONE (1) SHALL BE EQUIPPED WITH A FITTING THAT WILL MATE WITH THE FUEL INLET FITTING AND THE OTHER SHALL HAVE A FITTING TO MATE WITH THE FUEL RETURN LINE FITTING.
 - 2. A 24 VOLT D.C. POWER SUPPLY TO POWER THE STARTER MOTOR WITH SWITCH TO ENGAGE/DISENGAGE THE STARTER SOLENOID.
 - 3. A SLAVE STARTER (CATERPILLAR P/N 330-3123).
 - 4. A SLAVE FUEL FILTER (CATERPILLAR P/N 271-9385)
 - 5. A SLAVE OIL FILTER (CATERPILLAR P/N 269-8325)
 - 6. A FUEL FLOW CHECKING TOOL GROUP(CATERPILLAR P/N 331-3626) OR AN AIR COMPRESSOR, MAX 15 PSI, WITH A SPRAYER ATTACHMENT ABLE TO PROVIDE SPRAY AND FOG PATTERNS.
 - 7. 5 GALLON PAIL OR EQUIVALENT FOR PRESERVATIVE DRAINAGE.
- D. CAPS/PLUGS: SEAL OPENINGS TO THE INTERIOR OF ENGINE WITH CAPS/PLUGS OF APPROPRIATE SIZE, VENDOR CAPS/PLUGS ARE ACCEPTABLE.
- E. BLOCKING/BRACING: ALL LUMBER SIZES ARE NOMINAL UNLESS OTHERWISE SPECIFIED.
- F. WRAP ENGINE ENTIRELY, SECURE WITH TAPE ASTM-D6123.
- G. DOUBLE WRAP PRESERVED ENGINE USING CUSHIONING A-A-59135, CL1, GR A, THICKNESS 1/4" (APPROX 200 SQUARE FEET), SECURE WITH TAPE ASTM-6123.

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- H. DESICCANT BAGS SHALL BE PLACED WITHIN FOIL ENVELOPE, STEP 6-I, BEFORE SEALING ENVELOPE.
- I. ENVELOPE FABRICATION SHALL BE IAW SPECIFICATION MIL-DTL-6060. MATERIAL USED FOR FABRICATION OF GASKETS SHALL CONFORM TO SPECIFICATION ASTM F 104. GASKETS SHALL BE CEMENTED TO EACH SIDE OF THE BARRIER AT THE MOUNTING LOCATION USING MMM-A-260 ADHESIVE OR COMMERCIAL EQUIVALENT. AFTER POSITIONING BARRIER OVER BOLTS, A SUFFICIENT QUNATITY OF ADHESIVE SHALL BE APPLIED AROUND BOLT AND GASKET TO PROVIDE AIRTIGHT SEAL.
- J. THE UNIT CONTAINER IS THE SHIPPING CONTAINER.
- K. SPECIAL MARKING SHALL BE APPLIED AS FOLLOWS:
1. IN ADDITION TO MIL-STD-129 MARKINGS, THE UNIT CONTAINER SHALL BE MARKED ON THE TOP AND SIDES WITH MINIMUM 1/2 INCH HIGH BLACK LETTERS "**REUSABLE CONTAINER, DO NOT DESTROY**". IN ADDITION, THE TOP AND ENDS SHALL BE MARKED "**REMOVE LAG SCREWS TO OPEN CONTAINER**" USING 1/2 INCH HIGH BLACK LETTERS.
 2. SECURE WARNING TAG (S) IN A CONSPICUOUS LOCATION ON THE ENGINE TO STATE, "**ENGINE OIL SYSTEM PRESERVED. ENGINE FUEL SYSTEM AND CYLINDERS PRESERVED. BEFORE CRANKING, REMOVE ALL CAP/PLUGS AND TAPE AND ADD PROPER OPERATIONAL LUBRICANT TO CRANKCASE.**"
- L. THIS PROCEDURE DESCRIBES THE PROPER METHOD FOR PRESERVATION OF THE ENGINE:
1. REPLACE FUEL FILTER (P/N 271-9385) AND OIL FILTER (P/N 269-8325) WITH SLAVE FILTERS FROM SPECIAL EQUIPMENT LIST (NOTE C.4 AND C.5). SET INITIAL FILTERS ASIDE TO BE RE-INSTALLED AFTER PRESERVATION PROCESS IS COMPLETE (SEE DWG 1).
 2. FILL PRESERVATIVE PUMP FROM SPECIAL EQUIPMENT LIST (NOTE C.6) WITH 1 GALLON OF PRESERVATIVE MIL-PRF-21260, PE-10, ATTACH SUPPLY HOSE EQUIPED WITH FUEL INLET FITTING.
 3. REMOVE QUICK DISCONNECT CAP FROM FUEL PUMP INLET HOUSING, INSTALL PRESERVATIVE SUPPLY HOSE FROM PRESERVATIVE PUMP (SEE DWG 2 AND 2.1).
 4. REMOVE CAP FROM RETURN LINE, ATTACH SUPPLY HOSE, POSITION HOSE OVER DRAINAGE CONTAINER (SEE DWG 2 AND 2.1).
 5. PUMP 1 GALLON OF PRESERVATIVE MIL-PRF-21260, PE-10, THROUGH FUEL SYSTEM ALLOWING EXCESS TO DRAIN INTO DRAINAGE CONTAINER, DO NOT REUSE PRESERVATIVE.
 6. REMOVE SUPPLY LINES AND RE-CAP BOTH THE FUEL PUMP INLET AND THE RETURN LINE.
 7. FILL ENGINE CRANK CASE TO PROPER LEVEL ON OIL LEVEL GAUGE USING OF VCI OIL MIXTURE (50 PERCENT VCI OIL CONFORMING TO MIL-P-46002A AND 50 PERCENT ENGINE OIL) SEE DWG 1.

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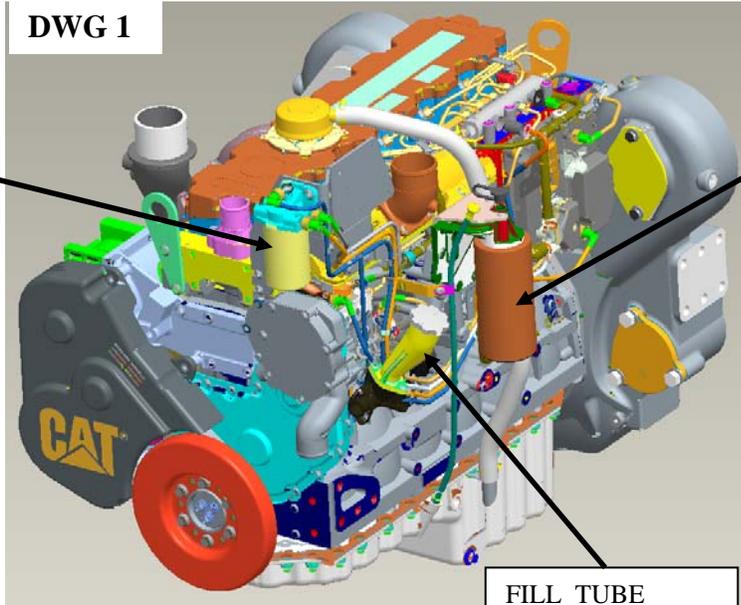
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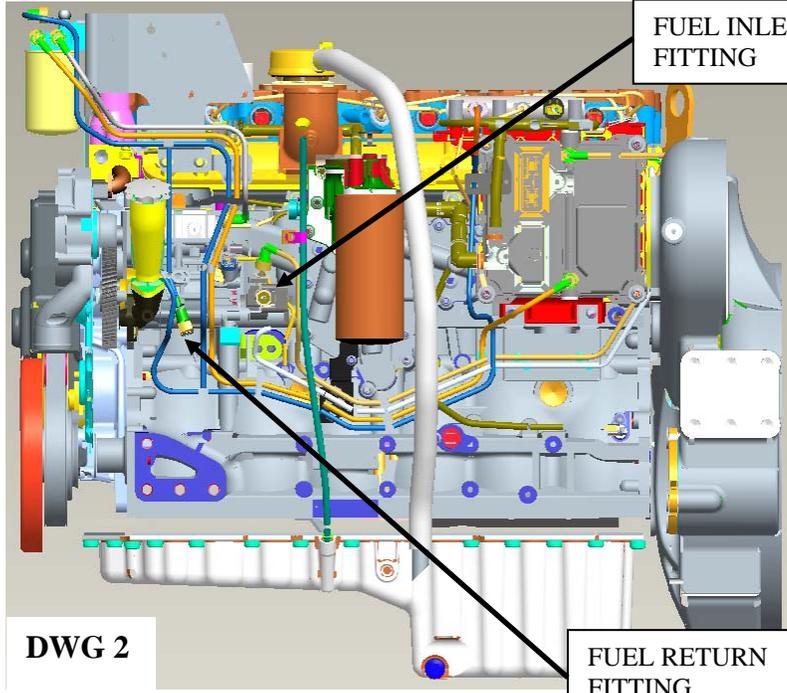
DWG 1

FUEL FILTER
P/N 1R-1804



OIL FILTER
P/N 1R-0716

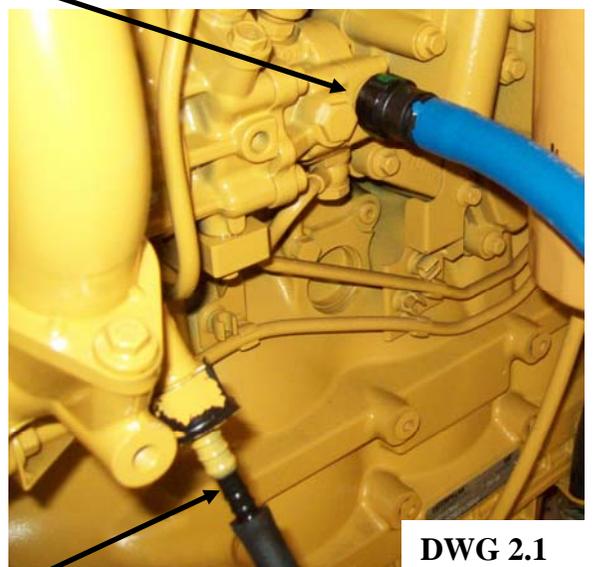
FILL TUBE
CRANKCASE OIL



FUEL INLET
FITTING

DWG 2

FUEL RETURN
FITTING



DWG 2.1

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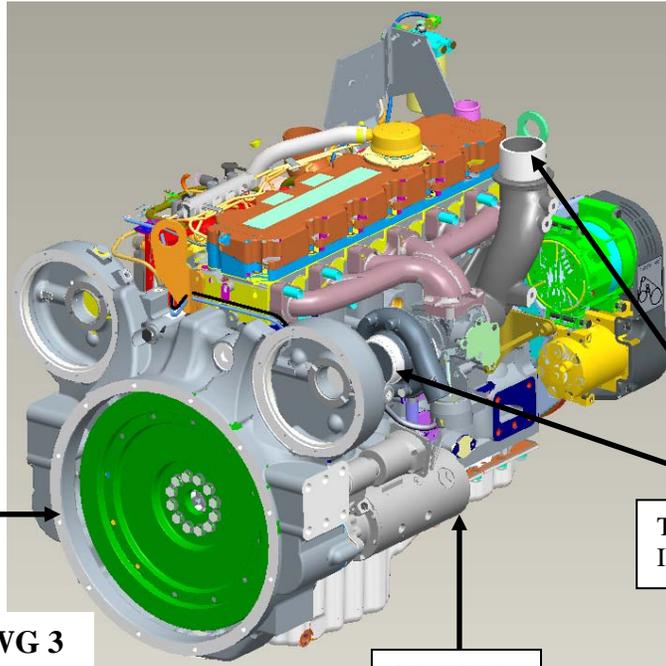
8. REMOVE STARTER PORT CAP, INSTALL STARTER (CATERPILLAR P/N 330-3123) USING THREE (3) M12-1.75 X 1 3/8 HEX HEAD BOLTS (CATERPILLAR P/N 8T-4956), CONNECT STARTER TO 24 VOLT POWER SUPPLY (SEE DWG 3).
9. REMOVE CAP FROM INTAKE AND EXHAUST PORTS OF TURBO CHARGER, FOG EACH PORT WITH 1ml OF VCI OIL MIXTURE (50 PERCENT VCI OIL CONFORMING TO MIL-P-46002A AND 50 PERCENT ENGINE OIL) SEE DWG 3.
10. REMOVE FLYWHEEL COVER AND FOG WITH A THIN AMOUNT OF VCI OIL MIXTURE (50 PERCENT VCI OIL CONFORMING TO MIL-P-46002A AND 50 PERCENT ENGINE OIL) ON THE FLYWHEEL AND RING GEAR TEETH (SEE DWG 3).
11. REMOVE CAP FROM INTAKE MANIFOLD, INJECT 12-15ml OF VCI OIL MIXTURE (50 PERCENT VCI OIL CONFORMING TO MIL-P-46002A AND 50 PERCENT ENGINE OIL) INTO PORT(SEE DWG 3.1).
12. CYCLE ENGINE USING STARTER, DO NOT CYCLE FOR MORE THAN 5 SECONDS ALLOWING THE STARTER TO REST 30 SECONDS BETWEEN CYCLES. CYCLE ENGINE UNTIL 36-40ml OF PRESERVATIVE OIL IS INJECTED INTO THE INTAKE MANIFOLD 12-15ml AT A TIME.
13. REMOVE STARTER AND POWER SUPPLY.
14. REPLACE SLAVE OIL AND FUEL FILTER WITH ORIGINAL FILTERS.
15. DRAIN OIL FROM CRANKCASE, REPLACE DRAIN PLUG TORQUE TO 25LB/FT.
16. REPLACE INLET PRESSURE TEST PORT PLUG, TORQUE TO 25LB/FT.
17. REPLACE ALL REMOVED CAPS AND PLUGS.
18. CAP BREATHER TUBE WITH 3 X 5 POLY BAG SECURE WITH TAPE ASTM-D6123 (SEE DWG 3.1).
19. COOLING SYSTEM: IT IS ASSUMED THIS ENGINE, IF NEW, HAS BEEN PREVIOUSLY RUN WITH COOLANT UTILIZING NON-CHROMATE INHIBITORS BY THE MANUFACTURER. THEREFORE, THE COOLING SYSTEM PRESERVATION IS NOT REQUIRED.

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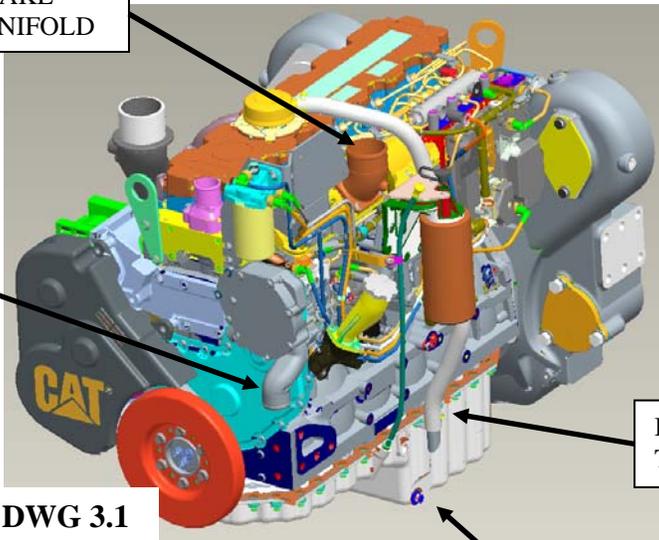
FLYWHEEL COVER

TURBO INTAKE/EXHAUST

DWG 3

STARTER

INTAKE MANIFOLD



WATER PUMP DOES NOT REQUIRE ADDITIONAL PRESERVATION, MANUFACTURER HAS ALREADY RUN FLUID WITH PRESERVATIVE QUALITIES THROUGH THE COOLING SYSTEM

BREATHER TUBE

DWG 3.1

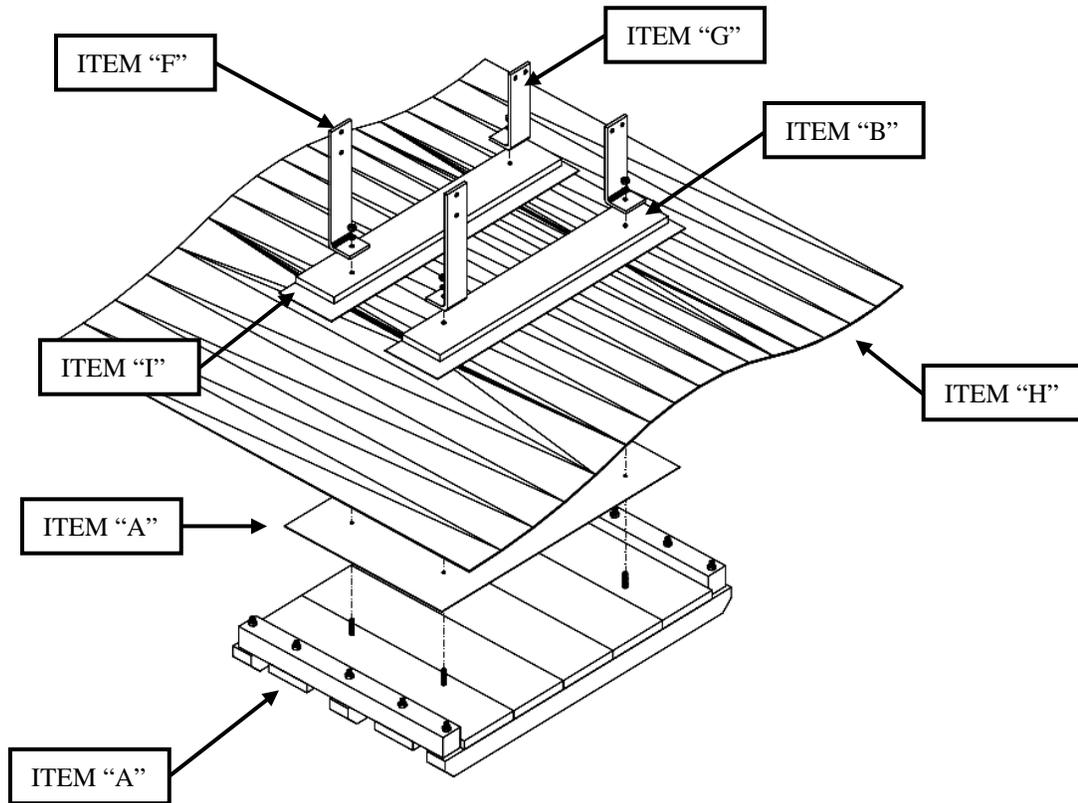
CRANKCASE DRAIN PLUG

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ITEM	SIZE	QTY	ADDITIONAL NOTES	REFERENCE
A	2 X 8 X 57	2	SLEEPER BOARD	PAGE 9
B	2 X 8 X 50	2	SUPPORT	PAGE 9
C	1/2 X 6 HARDWARE SET	8	HARDWARE SET CONSISTS OF: 1 PC 1/2 X 6" CARRIAGE BOLT, 1PC 1/2 FLAT & 1/2 LOCK WASHERS AND 1PC 1/2 NUT	PAGE 7
D	16MM HARDWARE SET	4	HARDWARE SET CONSISTS OF: 1PC M16 X 2.00 X 40MM HEX HEAD BOLT, 1 PC 16MM FLAT & 16MM LOCK WASHER	PAGE 7
E	20MM HARDWARE SET	4	HARDWARE SET CONSISTS OF: 1PC M20 X 2.50 X 50MM, 1PC 20MM FLAT & 20MM LOCK WASHER	PAGE 7
F	20 X 4 "L" BRACKET	2	COMMERCIAL GRADE 1/2" PLATE STOCK	PAGE 10
G	13 X 4 "L" BRACKET	2	COMMERCIAL GRADE 1/2" PLATE STOCK	PAGE 10
H	180 X 100 ENVELOPE	1	MIL-PRF-131 MATERIAL	PAGE 10
I	8 X 48 GASKET	2	IAW MIL-DTL-6060E	PAGES 6,7
J	30 X 48 GASKET	1	IAW MIL-DTL-6060E	PAGES 6,7
	DESICCANT	144	MIL-D-3464, TY II	

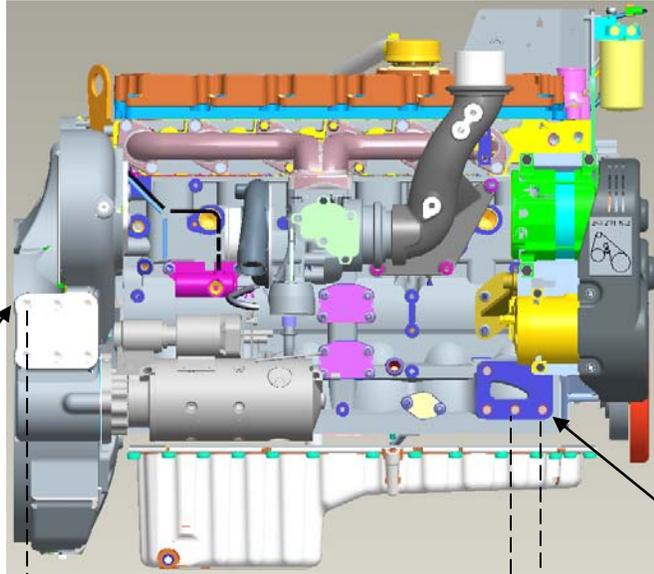
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PACKAGING (SIDE VIEW)



M20 X 2.50 X 50MM
HEX HEAD BOLTS
ITEM "E" 4 PLACES

M16 X 2.00 X 40MM
HEX HEAD BOLTS
ITEM "D" 4 PLACES

20 X 4 "L" BRACKET
ITEM "F"

13 X 4 "L" BRACKET
ITEM "G"

SUPPORT
2 X 8 X 48
ITEM "B"

8 X 48
GASKET
ITEM "I"

30 X 48
GASKET
ITEM "J"

ENVELOPE
ITEM "H"

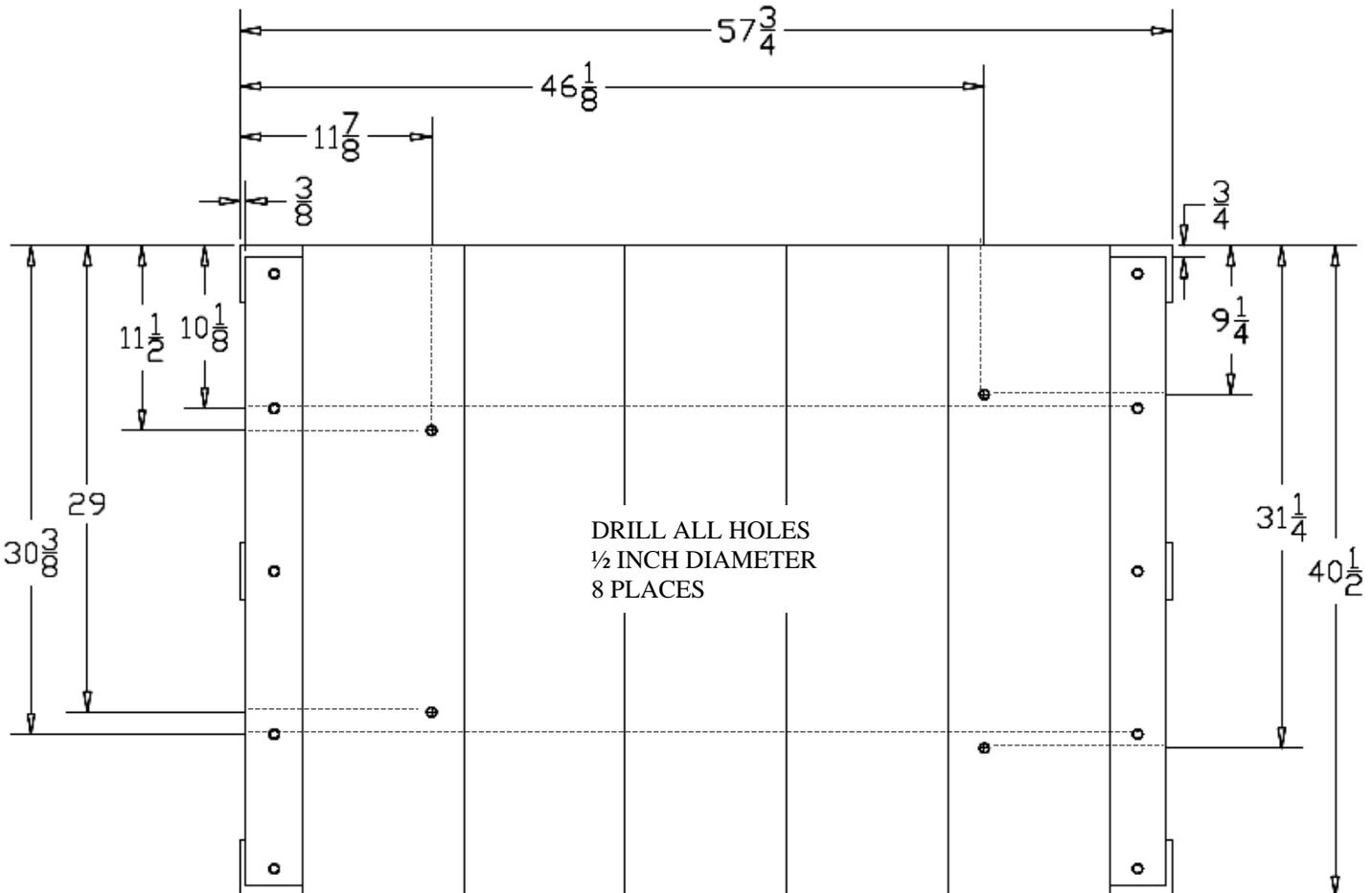
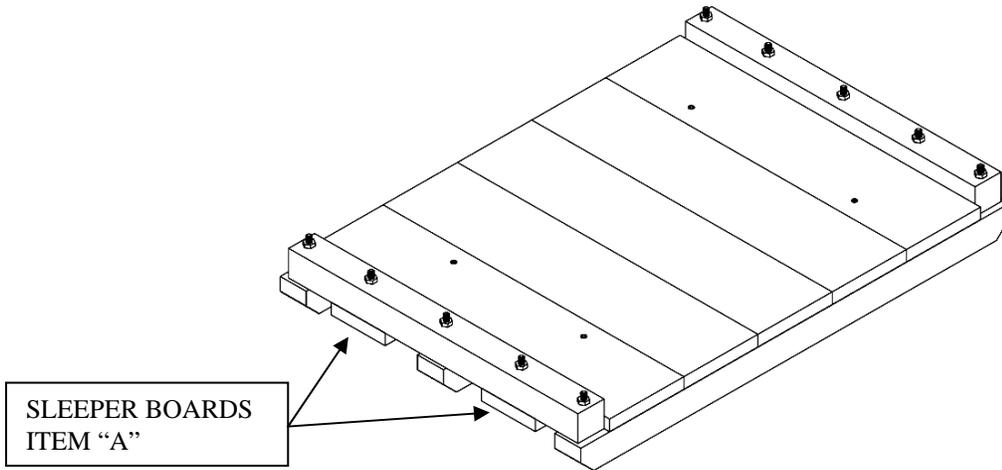
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BASE (TOP VIEW)



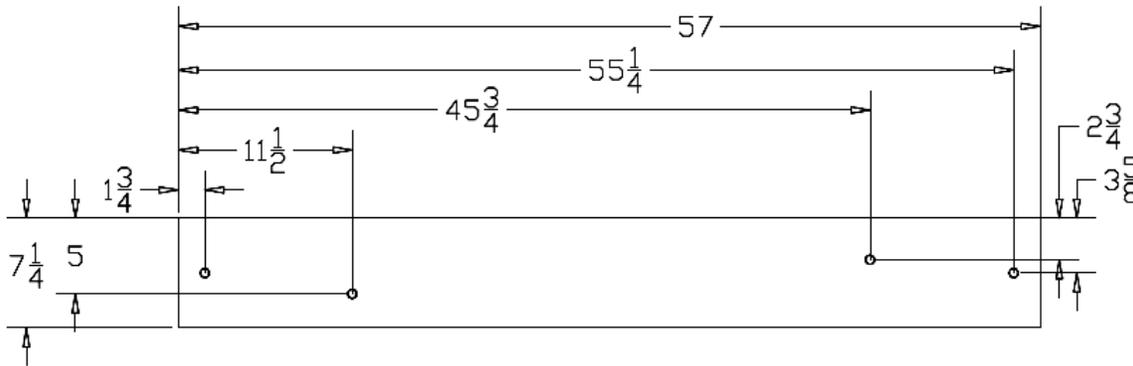
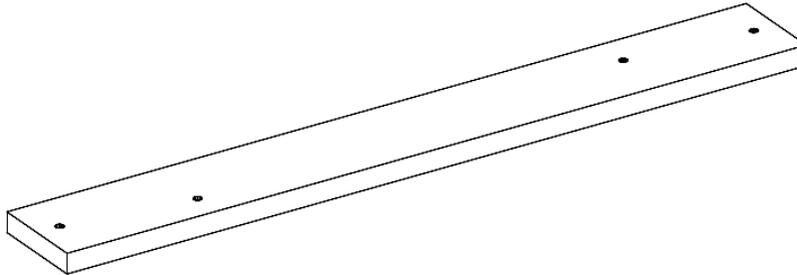
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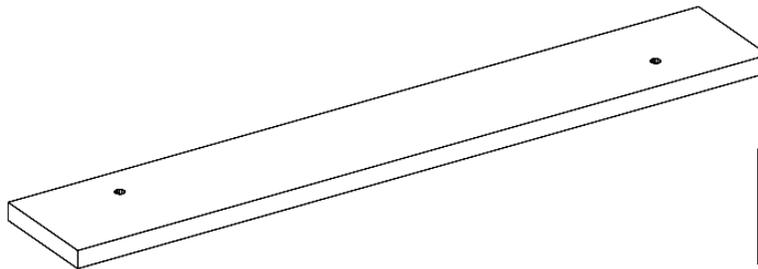
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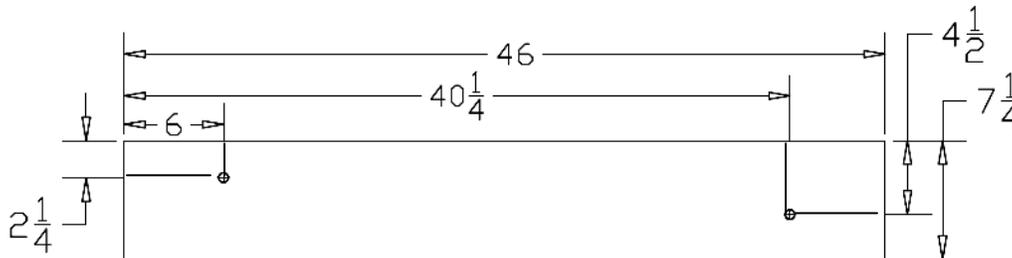
SLEEPER, ITEM "A"



SUPPORT, ITEM "B"



ALL HOLES PICTURED
ON THIS PAGE ARE
1/2" DIAMETER



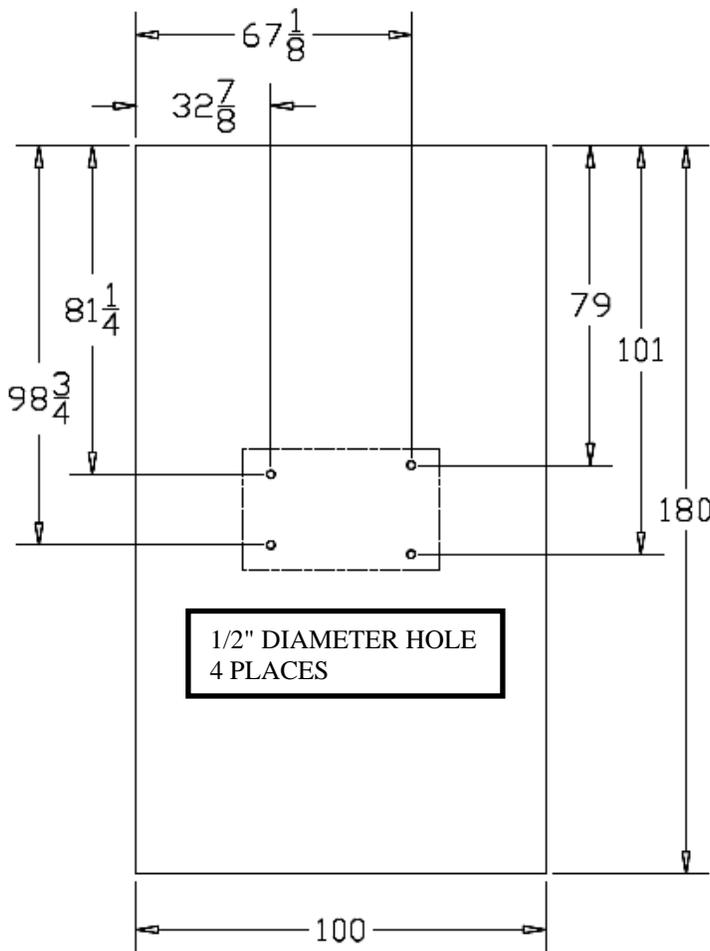
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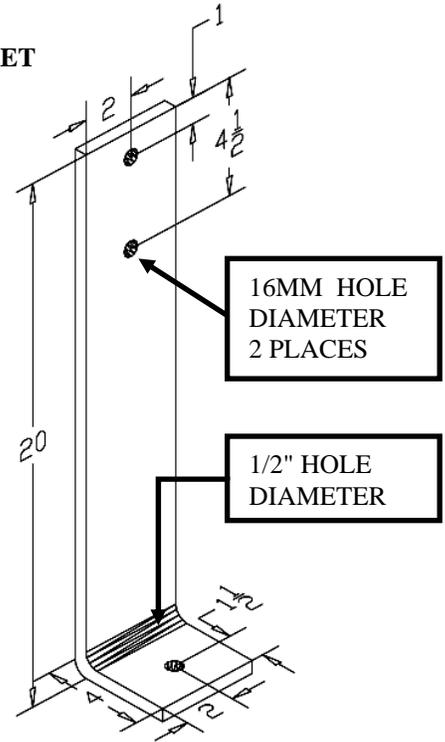
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**180 X 100
ENVELOPE
ITEM "H"**



BRACKETS ARE BENT NOT WELDED AND FORMED FROM 1/2 INCH COMMERCIAL GRADE PLATE STOCK..

**20 X 4
"L" BRACKET
ITEM "F"**



**13 X 4
"L" BRACKET
ITEM "G"**

