



# Flex PLI

## Drawing Review

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Project Engineer

Issue 4 (updated by Patrick Gay) – 29/05/2013





# Index

- Materials
- Drawings
- Assemblies
- Missing drawings



# Materials





- Aluminium parts:

Alloy / temper should be more specific

Is it the same alloy for all parts?

Drawing numbers:

133-5103	133-5104	133-5106	133-5302	133-5306	133-5308
133-5310	133-5311	133-5314	133-5315	133-5318	133-5320
133-5330	133-5502	133-5503	133-5506	133-5508	133-5511
133-5514	133-5515	133-5522	133-5523	133-5108	



- Nylon parts:

Material properties should be more specific

Is it the same grade for all parts?

Drawing numbers:

133-5107	133-5301	133-5304	133-5305	133-5513	133-5517
133-5518	133-5519				



- Steel parts + cables:

Material properties should be more specific

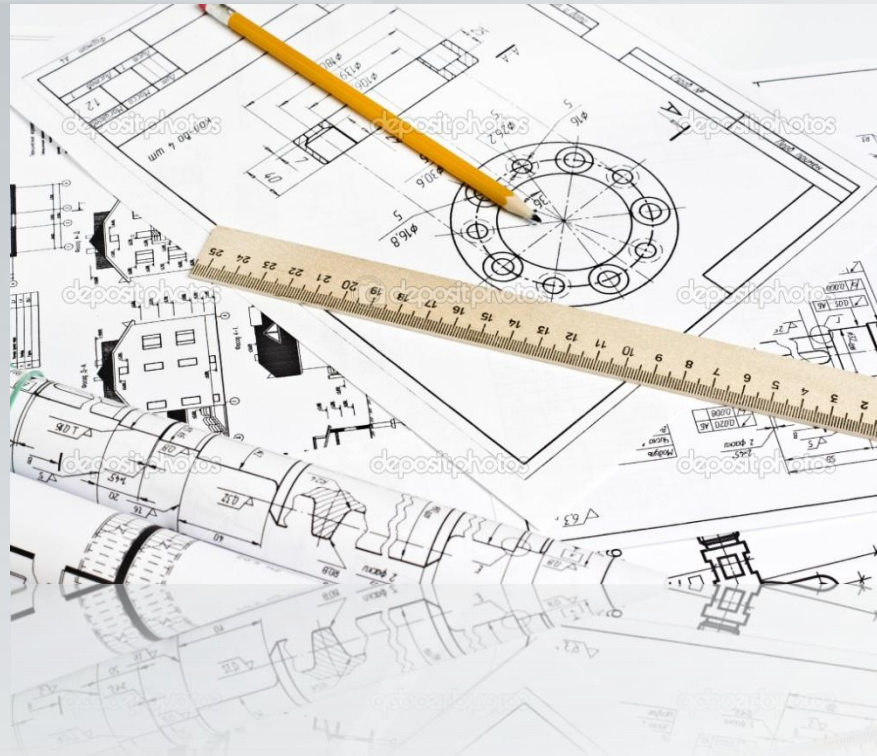
Is it the same type for all parts?

Drawing numbers:

133-5001	133-5002	133-5003	133-5004	133-5005	133-5012
133-5029	133-5030	133-5031	133-5110	133-5350	133-5360
133-5504	133-5509	133-5521	133-5525	133-5102	

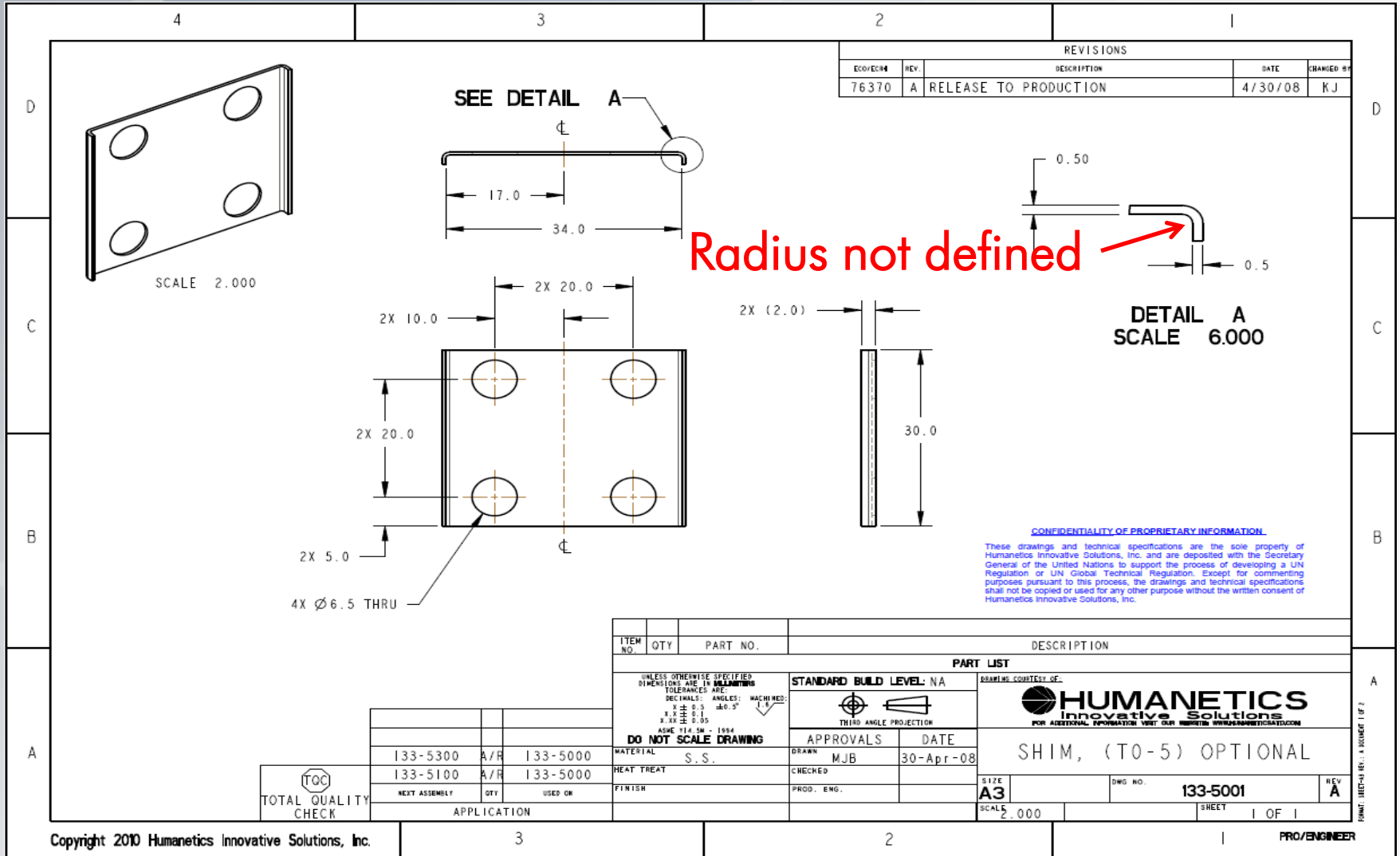


# Drawings








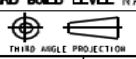

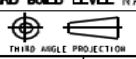


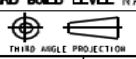

# 133-5001, 133-5005, 133-5509





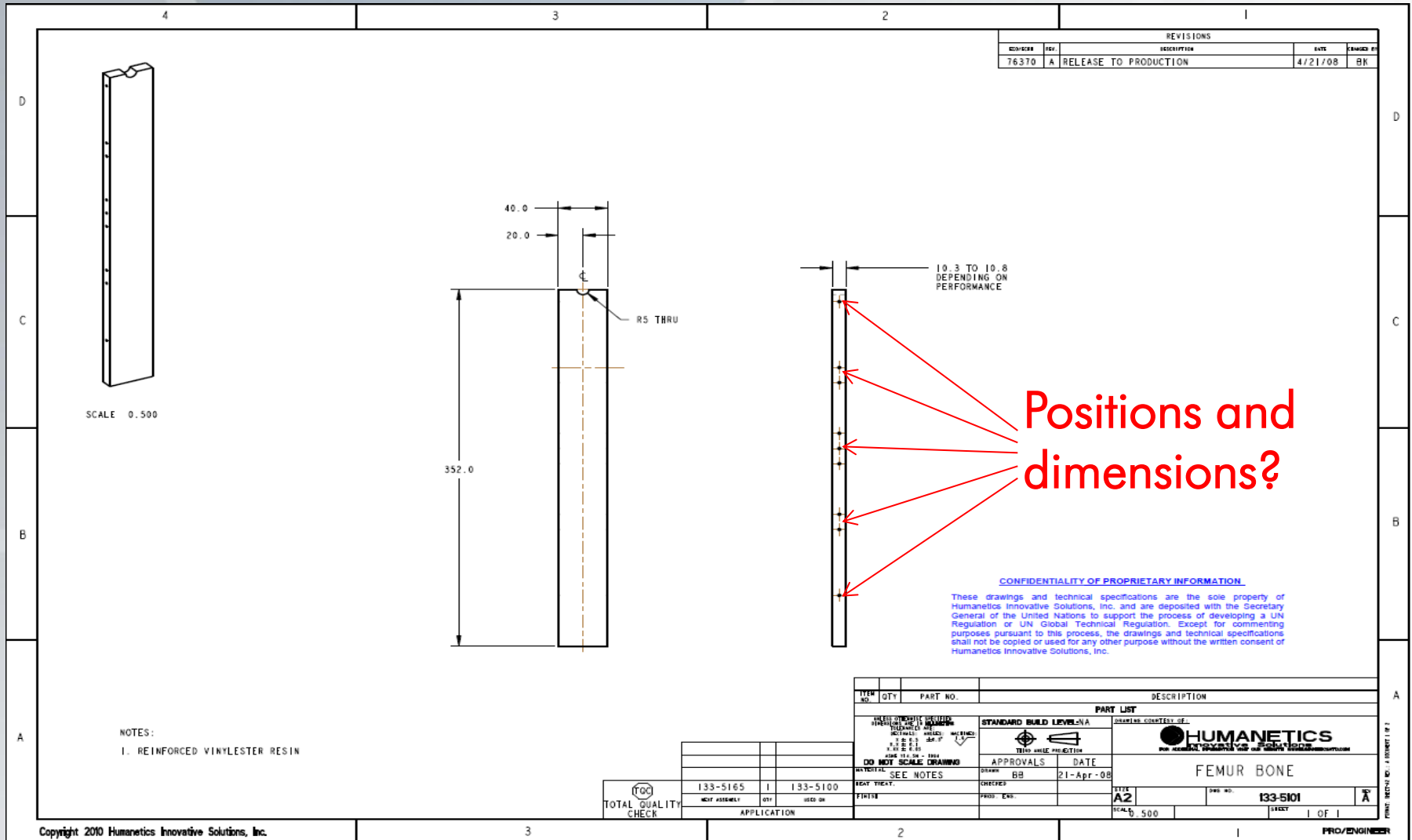
# 133-5009



4	3	2	1																					
		REVISIONS																						
		ECO/ECR#	REV.	DESCRIPTION	DATE	CHANGED BY																		
		76488	A	RELEASE TO PRODUCTION	6/26/08	JPM																		
D			D																					
C	<p>NOTES:</p> <p>1. CUT 25mm WIDE HOOK AND LOOP FASTENER BUNDLE TIE TO 500mm LONG.</p>		C																					
B	<p style="color:blue; text-align:center;"><u>CONFIDENTIALITY OF PROPRIETARY INFORMATION</u></p> <p style="font-size:small; color:blue;">These drawings and technical specifications are the sole property of Humanetics Innovative Solutions, Inc. and are deposited with the Secretary General of the United Nations to support the process of developing a UN Regulation or UN Global Technical Regulation. Except for commenting purposes pursuant to this process, the drawings and technical specifications shall not be copied or used for any other purpose without the written consent of Humanetics Innovative Solutions, Inc.</p>		B																					
A	<table border="1" style="width:100%; border-collapse: collapse; font-size:small;"> <tr> <th>ITEM NO.</th> <th>QTY</th> <th>PART NO.</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>		ITEM NO.	QTY	PART NO.	DESCRIPTION					A													
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<table border="1" style="width:100%; border-collapse: collapse; font-size:small;"> <tr> <td style="text-align:center;">                   TOTAL QUALITY CHECK             </td> <td style="width:20%; text-align:center;">133-5000</td> <td style="width:5%; text-align:center;">6</td> <td style="width:20%; text-align:center;">133-5000</td> <td style="width:20%; text-align:center;">                 HEAT TREAT                  FINISH             </td> <td style="width:10%; text-align:center;">                 APPLICATION                  DIT      USED ON             </td> </tr> </table>		 TOTAL QUALITY CHECK	133-5000	6	133-5000	HEAT TREAT FINISH	APPLICATION DIT      USED ON	<table border="1" style="width:100%; border-collapse: collapse; font-size:small;"> <tr> <td style="width:20%; text-align:center;">                 UNLESS OTHERWISE SPECIFIED                  DIMENSIONS ARE IN MILLIMETERS                  TOLERANCES ARE:                  DECIMALS: ANGLES: MACHINED:                  0.1 ± 0.3 ± 0.5                  0.5 ± 0.1 ± 0.5                  ASME #12.5B - 1984                  DO NOT SCALE DRAWING             </td> <td style="width:20%; text-align:center;">                 STANDARD BUILD LEVEL NA                    THIRD ANGLE PROJECTION             </td> <td style="width:20%; text-align:center;">                 DRAWING COURTESY OF:                    HUMANETICS Innovative Solutions                  FOR ADDITIONAL INFORMATION VISIT OUR WEBSITE HUMANETICS.COM             </td> <td style="width:20%; text-align:center;">                 APPROVALS      DATE                  DRAWN BY: J. MCINNIS      26-Jun-08             </td> <td style="width:20%; text-align:center;">                 HOOK &amp; LOOP BUNDLE TIE, 500mm LONG             </td> </tr> <tr> <td style="text-align:center;">MATERIAL: SEE NOTES</td> <td style="text-align:center;">CHECKED:      PROD. ENG.</td> <td style="text-align:center;">SIZE: A3</td> <td style="text-align:center;">DWG NO. 133-5019</td> <td style="text-align:center;">REV: A</td> </tr> <tr> <td colspan="2" style="text-align:center;">SCALE: N/A</td> <td colspan="2" style="text-align:center;">SHEET 1 OF 1</td> <td style="text-align:center;">FORM: SHEET-03 (REV. 1) (MAY 2007) 1 OF 2</td> </tr> </table>		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMALS: ANGLES: MACHINED: 0.1 ± 0.3 ± 0.5 0.5 ± 0.1 ± 0.5 ASME #12.5B - 1984 DO NOT SCALE DRAWING	STANDARD BUILD LEVEL NA  THIRD ANGLE PROJECTION	DRAWING COURTESY OF:  HUMANETICS Innovative Solutions FOR ADDITIONAL INFORMATION VISIT OUR WEBSITE HUMANETICS.COM	APPROVALS      DATE DRAWN BY: J. MCINNIS      26-Jun-08	HOOK & LOOP BUNDLE TIE, 500mm LONG	MATERIAL: SEE NOTES	CHECKED:      PROD. ENG.	SIZE: A3	DWG NO. 133-5019	REV: A	SCALE: N/A		SHEET 1 OF 1		FORM: SHEET-03 (REV. 1) (MAY 2007) 1 OF 2
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Copyright 2010 Humanetics Innovative Solutions, Inc		3	2	1																				
		PRO/ENGINEER																						

The Velcro length is the same for tibia and femur?

# 133-5101, 133-5520



REVISIONS				
REV. NO.	REV.	DESCRIPTION	DATE	DRAWN BY
76370	A	RELEASE TO PRODUCTION	4/21/08	BR

SCALE 0.500

- NOTES:
1. REINFORCED VINYLESTER RESIN

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ITEM NO.	QTY	PART NO.	DESCRIPTION
<b>PART LIST</b>			
CHECKED BY: [ ] DESIGNED BY: [ ] DRAWN BY: [ ] DATE: [ ] DO NOT SCALE DRAWING		STANDARD BUILD LEVEL: A HUMANETICS INNOVATIVE SOLUTIONS 3RD FLOOR, 1000 W. 10TH AVENUE, DENVER, CO 80202	
APPROVALS: [ ] DATE: 21-Apr-08		PART: FEMUR BONE	
TOTAL QTY: 1 TOTAL ASSEMBLY: 1		TOTAL: A2 SCALE: 0.500 SHEET: 1 OF 1	

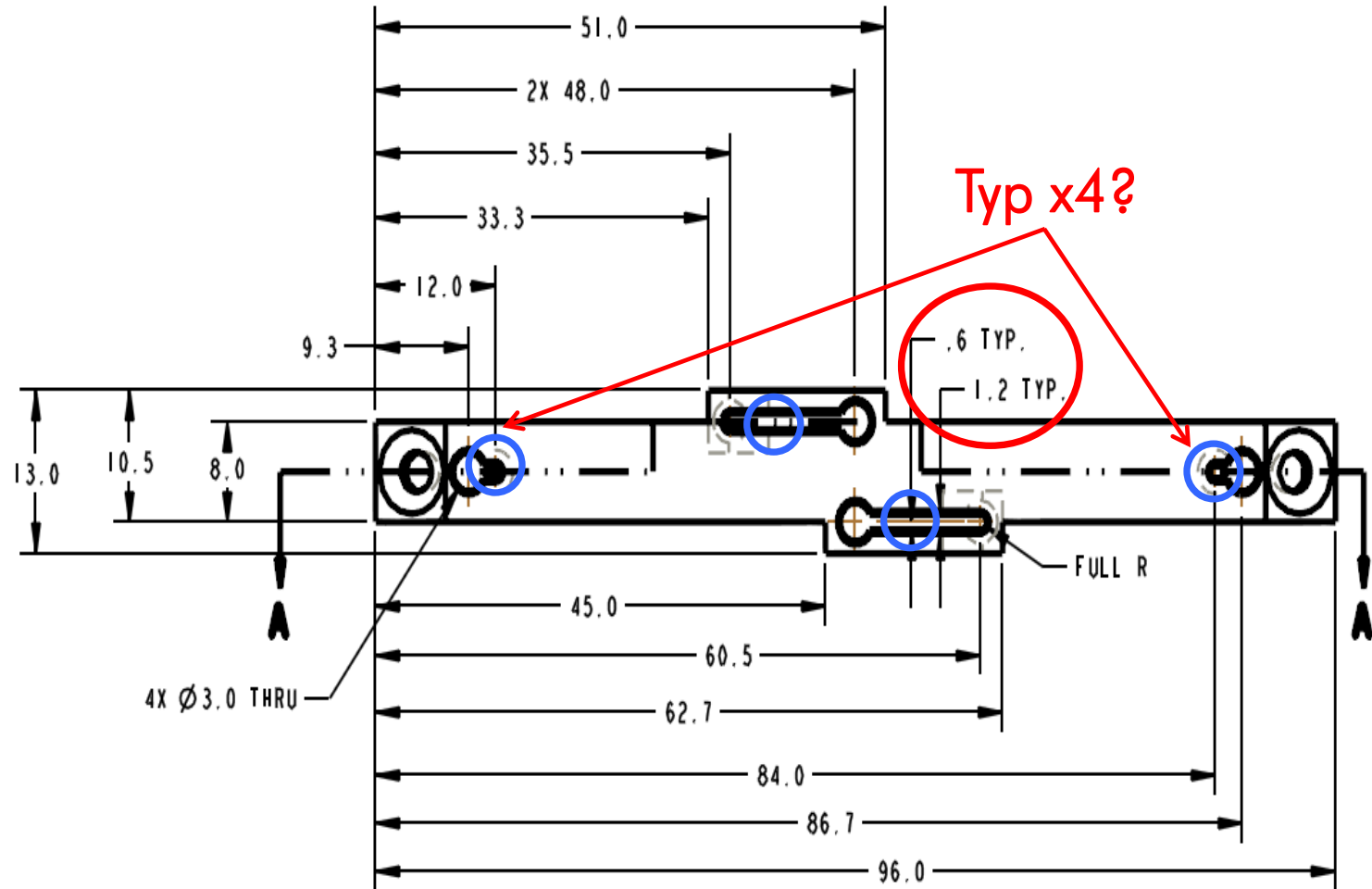


REV. NO.	REV.	DESCRIPTION	DATE
133-5165	I	133-5100	

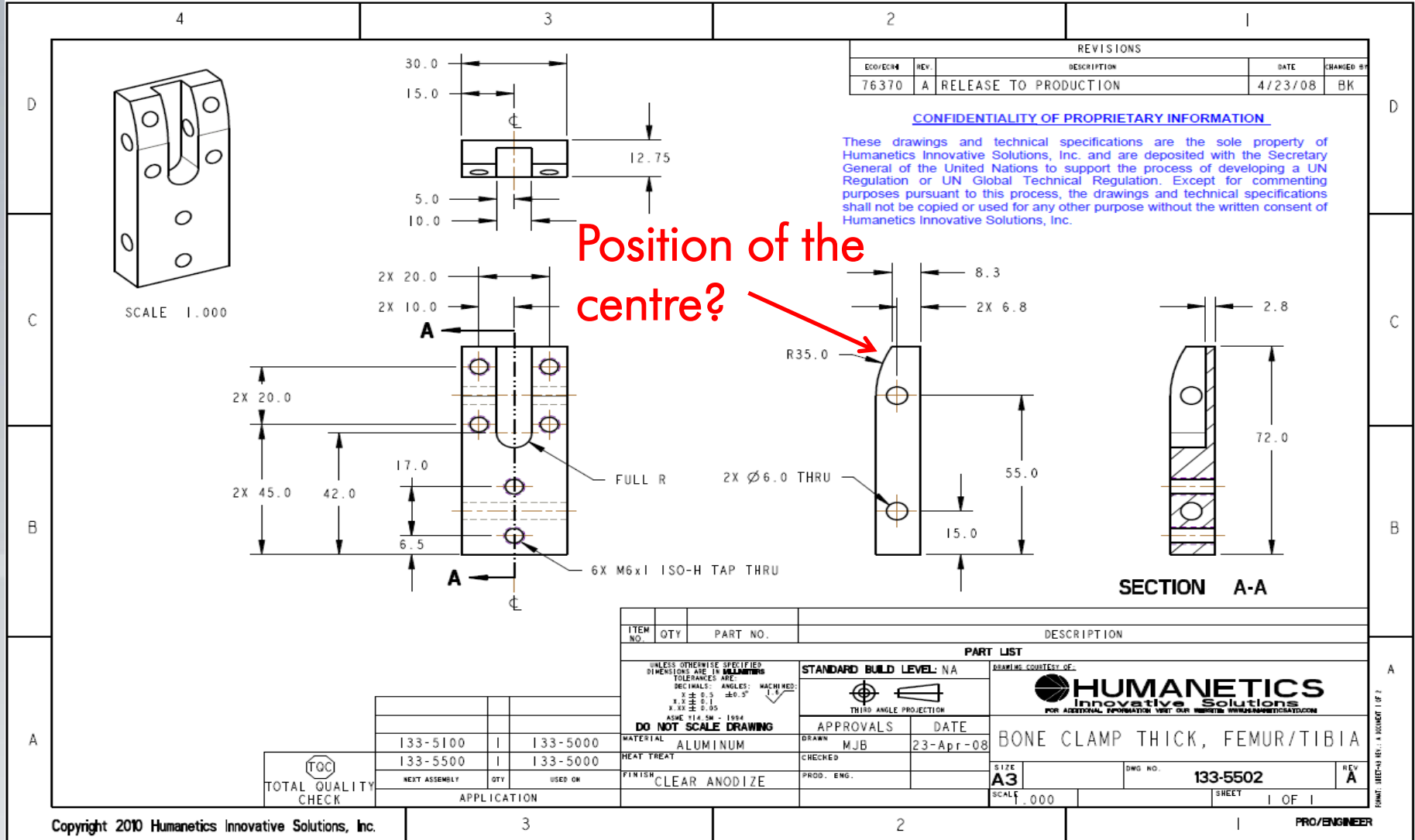




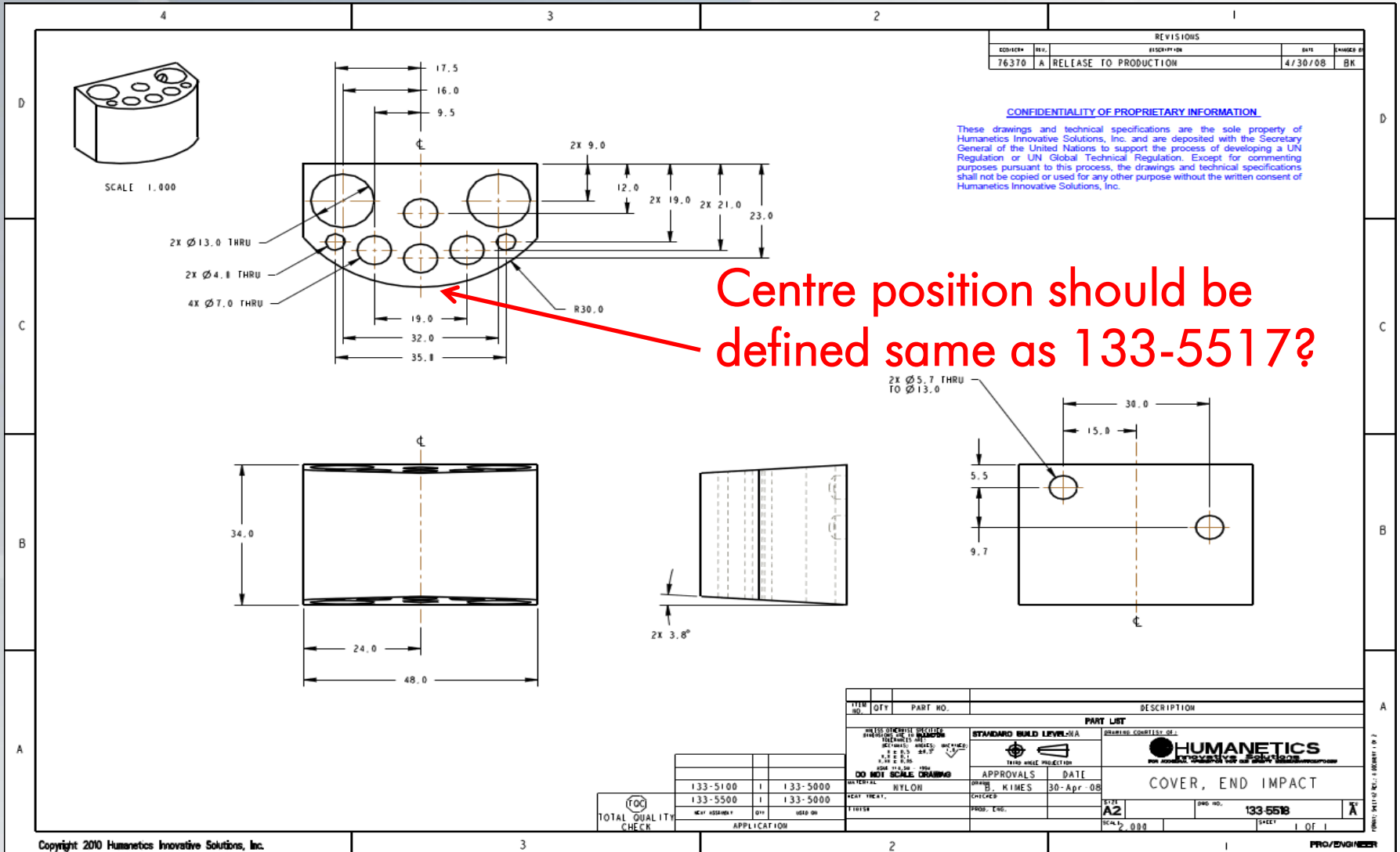
# 133-5302



# 133-5502, 133-5503

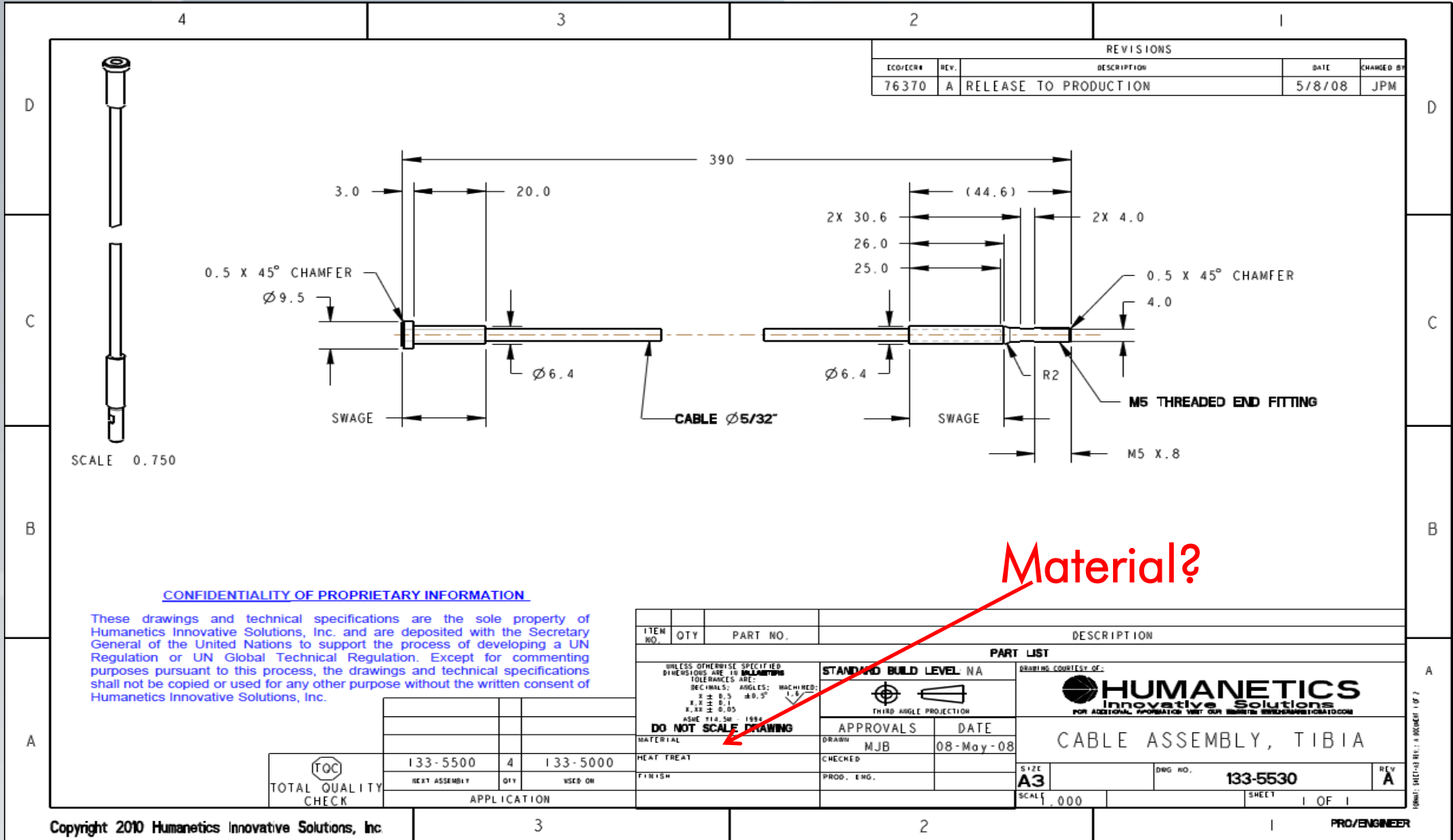


# 133-5518, 133-5519



TITLE	QTY	PART NO.	DESCRIPTION
<b>PART LIST</b>			
HUMANETICS INNOVATIVE SOLUTIONS 133-5100 1 133-5000 133-5500 1 133-5000		STANDARD BUILD LEVEL-A HUMANETICS INNOVATIVE SOLUTIONS COVER, END IMPACT	
APPROVALS DRAWN: K.MIMS CHECKED:		DATE 30-Apr-08	
TOTAL QUALITY CHECK		SCALE: 2:000 SHEET 1 OF 1	

# 133-5530



Material?





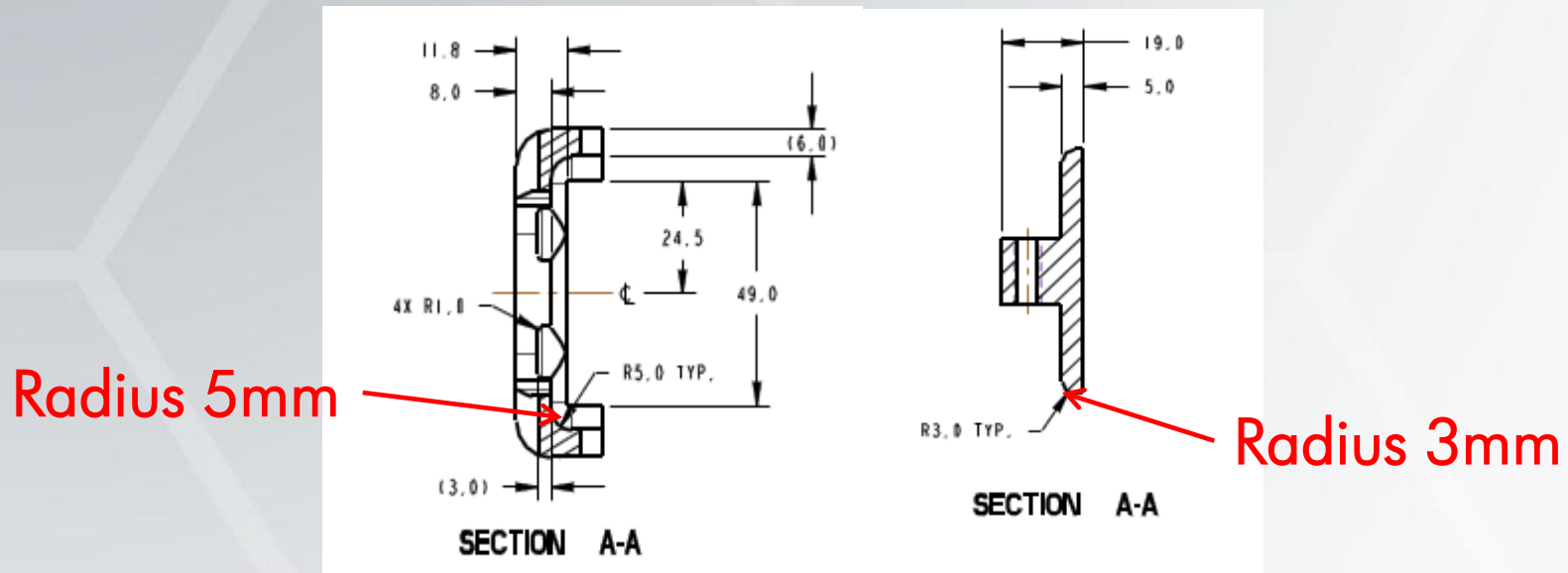
# Assemblies





# 133-5100

Parts 28 (133-5516) and 17 (133-5102) cannot fit properly.



# 133-5313



4	3	2	1																																				
<p style="text-align: center;">SCALE 1.000</p>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REVISED</th> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>76370</td> <td>A</td> <td>RELEASE TO PRODUCTION</td> <td>5/07/08</td> </tr> </tbody> </table>		REVISIONS				REVISED	REV.	DESCRIPTION	DATE	76370	A	RELEASE TO PRODUCTION	5/07/08																								
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<p style="text-align: center;">STRING POT LIGAMENTS IDENTIFICATION SCALE 1.000</p>		<p style="text-align: center; color: red; font-size: 24px; font-weight: bold;">Drawing (133-5303) not available</p>																																					
<p style="font-size: 10px;"><u>CONFIDENTIALITY OF PROPRIETARY INFORMATION</u></p> <p style="font-size: 8px;">These drawings and technical specifications are the sole property of Humanetics Innovative Solutions, Inc. and are deposited with the Secretary General of the United Nations to support the process of developing a UN Regulation or UN Global Technical Regulation. Except for commenting purposes pursuant to this process, the drawings and technical specifications shall not be copied or used for any other purpose without the written consent of Humanetics Innovative Solutions, Inc.</p>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">9</td> <td style="width:5%;">2</td> <td style="width:20%;">61-507-05-01-00</td> <td style="width:70%;">CABLE ASSEMBLY, LEFT STRING POT TO 7 PIN MALE W/LATCH, 150mm</td> </tr> <tr> <td>8</td> <td>2</td> <td>61-503-05-01-00</td> <td>CABLE ASSEMBLY, RIGHT STRING POT TO 7 PIN MALE W/LATCH, 150mm</td> </tr> <tr> <td>7</td> <td>2</td> <td>5000008</td> <td>SCREW, FHCS M3 X 0.5 X 6</td> </tr> <tr> <td>6</td> <td>2</td> <td>133-5308</td> <td>WIRE RETAINER, KNEE</td> </tr> <tr> <td>5</td> <td>2</td> <td>5000811</td> <td>M3 X .5 X 5.6 SHARP-SERT (YARDLEY # 300556-7)</td> </tr> <tr> <td>4</td> <td>4</td> <td>133-5309</td> <td>STRING GUIDE, AP LIGAMENT</td> </tr> <tr> <td>3</td> <td>2</td> <td>133-5307</td> <td>STRING GUIDE, AP</td> </tr> <tr> <td>2</td> <td>2</td> <td>133-5303</td> <td>STRING GUIDE, KNEE</td> </tr> <tr> <td>1</td> <td>1</td> <td>133-5301</td> <td>MENISCUS PLATE</td> </tr> </table>		9	2	61-507-05-01-00	CABLE ASSEMBLY, LEFT STRING POT TO 7 PIN MALE W/LATCH, 150mm	8	2	61-503-05-01-00	CABLE ASSEMBLY, RIGHT STRING POT TO 7 PIN MALE W/LATCH, 150mm	7	2	5000008	SCREW, FHCS M3 X 0.5 X 6	6	2	133-5308	WIRE RETAINER, KNEE	5	2	5000811	M3 X .5 X 5.6 SHARP-SERT (YARDLEY # 300556-7)	4	4	133-5309	STRING GUIDE, AP LIGAMENT	3	2	133-5307	STRING GUIDE, AP	2	2	133-5303	STRING GUIDE, KNEE	1	1	133-5301	MENISCUS PLATE
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<p style="font-size: 8px;">Copyright 2010 Humanetics Innovative Solutions, Inc.</p>		<p style="text-align: center;">APPLICATION</p>	<p style="text-align: center;">PRO/ENGINEER</p>																																				





# Missing drawings

Some drawings mentioned on the User Manual could not be reviewed because they were not included in the drawing package.



# Missing drawings

## Leg components:

133-5303 – String guide, Knee

133-5021 – PCB, Flex PLI

## Mentioned in User Manual:

133-5034	133-5105	133-5112	133-5113	133-5114	133-5710
133-5711	133-5712	133-5713	133-7502	133-7506	133-7507
133-7508	133-7514	133-7516	133-7530	133-7540	133-7600
133-8114	133-8200				

*Note: Some of these drawings are instrumentation related*



# Missing drawings

G

Should the reference of this drawing to be deleted (specific to one type of instrumentation?) or should be included in drawing package?

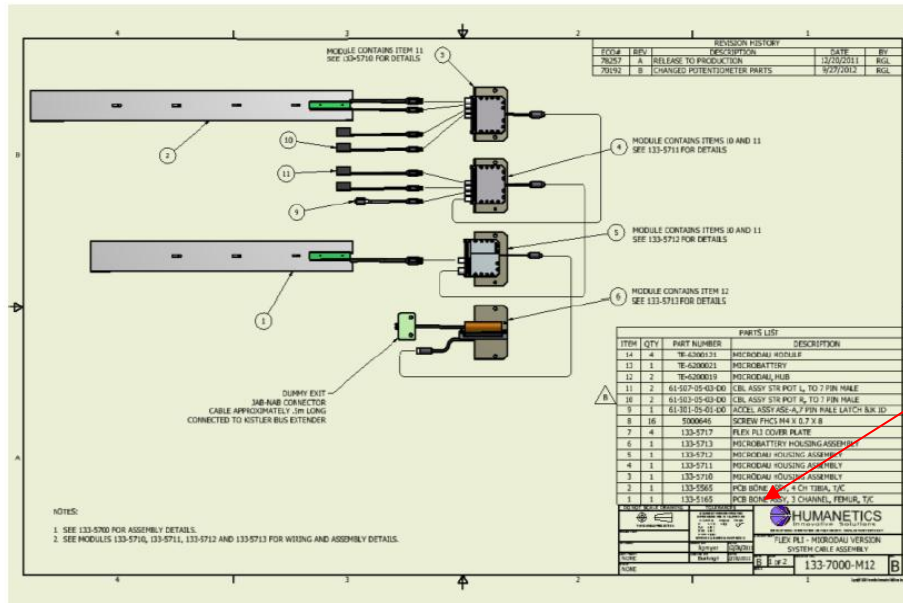


Figure 43 . Showing drawing of Micro Dau part numbers

Drawing incorporated in user manual but not appearing in drawing package (user manual p40 of 99).





# Missing drawings

Certification Test Rig:

(should be removed from User Manual?)

133-8400	133-8401	133-8402	133-8412	133-8415	133-8418
133-8419	133-8420	133-8423	133-8424	133-8429	133-8431
133-8432	133-8436	133-8438			



Thank you  
for your attention