

North American Truck Industry Part Submission Warrant

Part Name Base Casting, Cutter Part Number 50365967

Safety and/or Government Regulation Yes No Engineering Drawing Change Level 4 Dated 25-Mar-13

Additional Engineering Changes N/A Dated N/A

Shown on Drawing Number N/A Purchase Order No. [REDACTED] Weight (IBS) 5.50 lbs

Checking Aid Number N/A Engineering Change Level N/A Dated N/A

Supplier Manufacturing Information

Submission Information

[REDACTED]

Supplier Name & Supplier Code [REDACTED]

Street Address [REDACTED]

[REDACTED] [REDACTED] [REDACTED]

City State Zip

Dimensional Materials/Functional Appearance

Customer Name/Division Greenlee [REDACTED]

Buyer/Buyer Code JoAnne Burgener

Application _____

Note: Does this part contain any restricted or reportable substances Yes No

Are plastic parts identified with appropriate ISO marking codes Yes No N/A

REASON FOR SUBMISSION

- Initial Submission
- Engineering Change(s)
- Tooling: Transfer, Replacement, Refurbishment, or additional
- Correction of Discrepancy
- Tooling Inactive > 1 year
- Change to Optional Construction or Material
- Sub-Supplier or Material Source Change
- Change in Part Process
- Parts Produced at Additional Location
- Other - please specify

REQUESTED SUBMISSION LEVEL (Check One)

- Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
 - Level 2 - Warrant with product samples and limited supporting data submitted to customer.
 - Level 3 - Warrant with product samples and completed supporting data submitted to customer.
 - Level 4 - Warrant and other requirements as defined by customer.
 - Level 5 - Warrant with product samples and completed supporting data reviewed at supplier's manufacturing location.
- (Circle)
- | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|

SUBMISSION RESULTS

The results for dimensional measurements material and functional test appearance criteria statistical process package

These results meet all drawing and specification requirements: Yes No (If "NO" - Explanation Required)

Mold /Cavity / Production Process (2)-on 20" X 24" Disamatch 130 W/1 Core Box, Green Sand

DECLARATION

I hereby affirm that the samples represented by this certification are representative of our parts, have been made to the applicable customer drawings and specifications, and are made from the specified materials on regular production tooling with no operations other than the regular production process. I also certify that documented evidence of such compliance is on file and available for review.

EXPLANATION/COMMENTS: This initial submission is for existing takeover tooling. There are (6) items marked as being out of specification on the dimensional layout. Everything looked good for soundness and metallurgical.

Print Name [REDACTED] Title Quality Manager Phone No. [REDACTED] FAX No. [REDACTED]

Supplier Authorized Signature [REDACTED] Date 12/5/2013

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: Approved Rejected Interim Approval

Part Functional Approval: Approved Waived

Customer Name _____ Customer Signature _____ Date _____

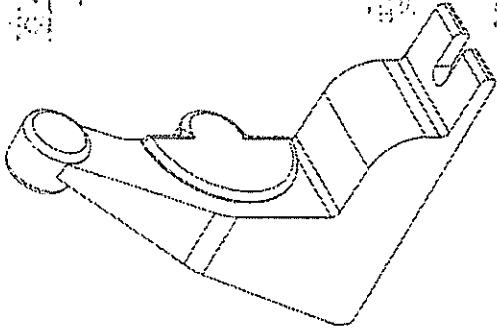
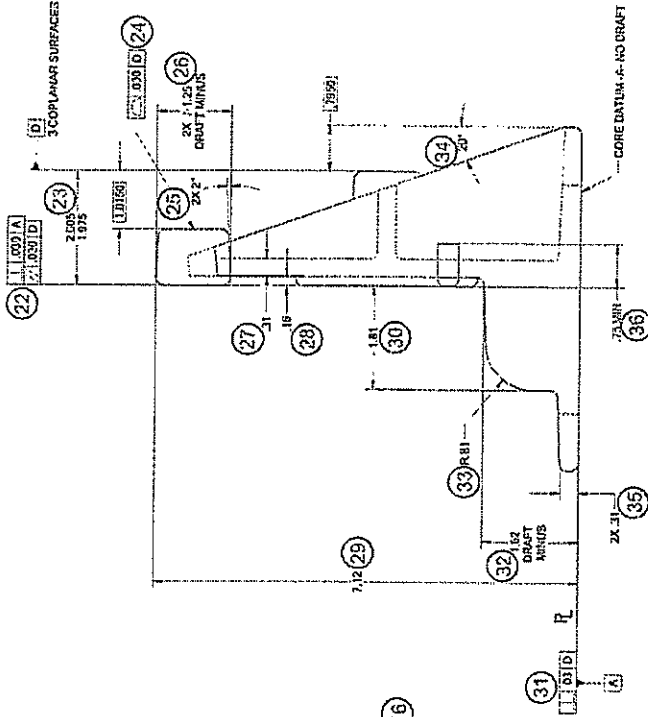
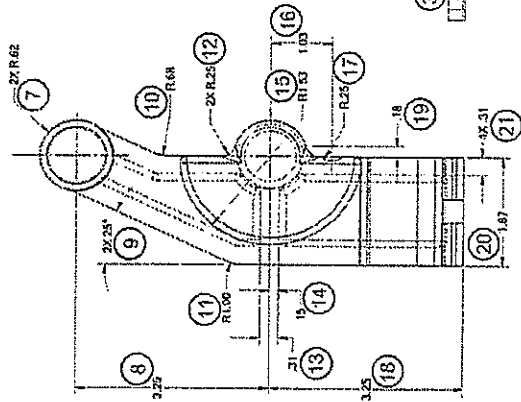
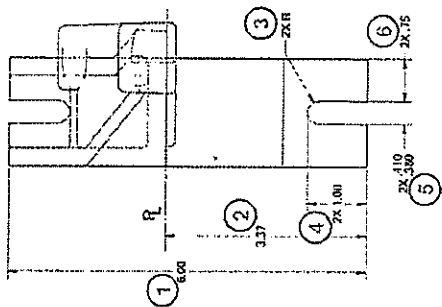
July TAG-1001
1999

DIMENSIONAL INSPECTION REPORT

Rig Existing Pattern for
2 on 20X24 Disa

#	DWG LOC	PART NO. 50365967	ENG. CHG. NO. 4	MATERIAL SPEC D 80-55-06	CONFORM TO PRINT? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	REASON FOR REPORT					LAYOUT INSPECTOR / DATE	QUALITY MGR / DATE	
						NEW TOOLING	MAJOR PROCESS CHG.	RERIGGED TOOLING	AUDIT	OTHER			
		CAST DATE 11/15/2013		MATERIAL SPEC		REASON FOR REPORT					REMARKS / CORRECTIONS?		
						2_Pos	3	4	5	LL		MEAN	UL
1	E7	6.00 ±.08				5.958	5.992						
2	D7	3.37 ±.07				3.373	3.371						
3	D6	2 x R				0.219	0.219						
4	D7	2 X 1.00 ±.05				1.012	1.018						
5	D7	2 X .380 / .410				0.460	0.453						
6	D6	2 X .75 ±.05				0.732	0.727						
7	C6	2 X R .62 ±.05				0.608	0.609						
8	C7	3.25 ±.07				3.211	3.219						
9	C6	2 X 25° ±1°				25.26°	25.16°						
10	C6	R .68 ±.05				0.688	0.688						
11	B7	R 1.00 ±.05				1.000	1.000						
12	B6	2 X R .25 ±.04				0.250	0.250						
13	B7	.31 ±.04				0.359	0.342						
14	B7	.15 ±.04				0.180	0.171						
15	B6	R 1.53 ±.05				1.562	1.557						
16	B6	1.03 ±.05				1.020	1.018						
17	B6	R .25 ±.04				0.252	0.256						
18	B7	3.25 ±.07				3.283	3.271						
19	B6	.18 ±.04				0.177	0.179						
20	A6	1.87 ±.06				1.883	1.861						
21	A6	4 X .31 ±.04				0.351	0.360						
22	D4	Perpendicular to A .030 Parallel to D .030				0.024	0.015						
23	D3	1.975 / 2.005				1.942	1.953						
24	C3	Profile (of a Surface) to D .030				0.107	0.110						
25	C3	2 X 2° ±1°				2.00°	2.00°						
26	C3	2 X Ø 1.25 ±.05 Draft Minus				1.277	1.262						
27	C4	.31 ±.04				0.306	0.302						
28	C4	.16 ±.04				0.155	0.162						
29	B5	7.12 ±.08				7.126	7.118						
30	B4	1.81 ±.06				1.808	1.829						
31	B5	Perpendicular to D .03				0.024	0.019						

Parallel Cstg 1 = .008 CSTG 2 = .012



- NOTES: UNLESS OTHERWISE SPECIFIED
1. NO CAST CHARACTERS OR MARKINGS ARE ALLOWED
 2. ALL RADIUS R.12
 3. ALL FILLETS R.12
 - 4.

REV	DATE	BY	CHKD	DESCRIPTION
1				
2				
3				
4				
5				
6				

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 10. DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF MASS UNLESS OTHERWISE SPECIFIED.
 11. DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF BUOYANCY UNLESS OTHERWISE SPECIFIED.
 12. DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF PRESSURE UNLESS OTHERWISE SPECIFIED.

REV	DATE	BY	CHKD	DESCRIPTION
1				
2				
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 WWW.GREENLEE.COM

**METALLURGICAL
INSPECTION REPORT**

SUPPLIER ██████████		SUPPLIER CODE	PART NAME Base Casting, Cutter	WGT.# 5.5	PART NO. 50365967
ADDRESS ██████████		RECEIVING PLANT Greenlee	IMPRESSIONS PER MOLD 2	ENG. CHG. NO. ON P.O. 4	MAT'L SPEC ASTM A536 80-55-06
TOOLING PURCHASE ORDER NO. DRD0119077		NUMERAL/ DATE CODE 11/15/2013	REASON FOR REPORT		
MELTING UNIT 6 - Ton Induction		HOLDING UNIT None	TOOLING P.O. NOTE(S)#		
MOLDING UNIT Disamatch 130		<input type="checkbox"/> ENG. CHG. <input type="checkbox"/> MAJOR PROCESS CHANGE <input type="checkbox"/> CAR <input checked="" type="checkbox"/> PRODUCTION VERIFICATION <input type="checkbox"/> OTHER 1 NO. ATTEMPTS BEFORE SUCCESSFUL SAMPLE			<input checked="" type="checkbox"/> NEW TOOLING <input type="checkbox"/> RERIGGED TOOLING <input checked="" type="checkbox"/> INITIAL SAMPLE
SPECIFY WHETHER "AS CAST" OR HEAT TREATMENT DESCRIPTION As Cast					
NAME OF PERSONNEL WHO AUTHORIZED NONCONFORMANCE			SIGNATURE OF SUPPLIER ██████████	TITLE Eng Mgr	DATE 12/5/2013

When producing initial sample castings for verifying metallurgical compliance, ladle chemistry must be in that target range that represents the same conditions which will be experienced in production.

CHEMISTRY: *Actual ladle chemistry from which casting was poured

	C	Si	Mn	S	P	Cu	Cr	Ni	Mo	V	Ti	Al	Sb	Sn	Ce	Mg	Pb	B	
Target	3.62	2.50		0.01	0.02						0.01	0.01			0.01	0.046	<.005		
*Actual	3.6	2.5	0.42	0.01	0.02	0.50	0.04	0.172	0.04	0.001	0.001	0.01		0.012	0.01	0.038	0.016	0.0021	
CUSTOMER SPEC																			
Min																			
Max																			

MECHANICAL PROPERTIES:

Tensile bar is from casting
 Cstg too small for a bar
 Print location(s) 1. _____
 2. _____

Print Location
 Section Thickness (mm)
 Ultimate
 Yield
 Elongation
 Brinell (MM)

	Actual		Specification	
	1	2	1	2
Ultimate	113,045 psi		80,000 psi	
Yield	64,968 psi		55,000 psi	
Elongation	7%		6%	
Brinell (MM)	269		217-269	

Tensile bar attached to casting
 Separately cast tensile bar

Surface Hardness Brinell: 1 241 2 255

MICROSTRUCTURE

Micro is from tensile bar taken from casting
 Micro is from casting section at print location _____

Micro evaluation must be an average of 10 fields at 100x.

GRAY IRON

Graphite Type	A	B	C	D	E
% Of Each Type					
Flake Size					
% Ferrite					
% Pearlite		COARSE	MEDIUM	FINE	
% Carbide					
% Steadite					
TiN (Particles/MM2)					

DUCTILE IRON

% Nodularity	96%
Nodule Count (#/MM2)	215-255
% Pearlite	65%
% Ferrite	35%
MICRO HAS BEEN EVALUATED FOR	
Carbides	Chunk Graphite
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Inclusions	
<input checked="" type="checkbox"/>	

Gray Iron Cast Test Bars - ASTM A48/A48M Latest Rev "B Bar"
 Ductile Cast Test Bars - ASTM A 536 Latest Rev Standard Keel Blocks
 Test Bars From Castings - Sent to an accredited Test Lab - Method used ASTM E8-11
 ASTM E 8 - Test Methods for Tensile Testing of Metallic Materials

NOTE: Use back of form for additional remarks