CALSER CORPORATION

302 N. Belt East, Swansea, IL 62226 (618) 277-0329

TESTING MACHINE CALIBRATION DATA AND REPORT

Report #: **VN# 10300-001**

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Customer	University of Arkansas		
Location	Civil Engineering	**Date of Service**	01/05/16
	Fayetteville, AR 72701	**Customer Order No.**	Verbal
Manufacturer	TMI **Model** CM-5000GB2	**Order Date**	11/17/15
Serial No.	100317 **Capacity** 500,000 lbf	**Temp.**	67˚ F
Resolution	10 lbf / DIV	**Date Last Done**	12/22/14
Customer Asset No.	264440	**Calibration Next Due**	01/05/17
Auxiliary Equipment:	w/ Admet GB2 Digital R/O #GB2-1004302	**Method of Verification**	Set the Force
	w/ Dynisco P/T #04-08-10323273		

Applied Force	*	Indicated Force	Error	%	Applied Force	*	Indicated Force	Error	%
Run #1		"As Found" Condition			Run #2		"As Left" Condition		
500,000lbf Range	*	10lbf / DIV			500,000lbf Range	*	10lbf / DIV		
0	16	0	0	0.00	0	16	0	0	0.00
5,000	16	5,000	0	0.00	5,000	16	5,000	0	0.00
10,000	17	9,990	-10	0.10	10,000	17	9,990	-10	0.10
20,000	17	20,000	0	0.00	20,000	17	20,020	20	0.10
40,000	17	40,100	100	0.25	40,000	17	40,070	70	0.18
60,000	17	60,110	110	0.18	60,000	17	60,090	90	0.15
80,000	17	80,150	150	0.19	80,000	17	80,110	110	0.14
100,000	17	100,030	30	0.03	100,000	17	100,060	60	0.06
150,000	18	149,980	-20	0.01	150,000	18	150,020	20	0.01
200,000	18	200,020	20	0.01	200,000	18	199,990	-10	0.01
250,000	18	249,990	-10	0.00	250,000	18	250,030	30	0.01
300,000	18	299,980	-20	0.01	300,000	18	300,040	40	0.01
350,000	14	350,030	30	0.01	350,000	14	350,060	60	0.02
400,000	14	400,080	80	0.02	400,000	14	400,100	100	0.03
450,000	14	450,160	160	0.04	450,000	14	450,190	190	0.04
500,000	14	500,210	210	0.04	500,000	14	500,240	240	0.05
0	14	0	-20	0.00	0	14	0	10	0.00

Notes:

Calibration in accordance with ASTM E4,
and Calser Corporation Procedure # 1-01, Rev 1.

***CALIBRATION EQUIPMENT**

All verification equipment-including dead weights, proving rings, load cells, etc, is calibrated and traceable to the latest procedures stipulated by the National Institute of Standards and Technology (NIST) and ASTM E74-06. All equipment is traceable under guidelines set forth in ISO/IEC 17025 . All instrument readings have been corrected for temperature where necessary.

ACCURACY SUMMARY

Capacity Range	Loading Range	Max. Error
Run 1		
500,000lbf Range	5,000 - 500,000	0.25 %
Run 2		
500,000lbf Range	5,000 - 500,000	0.18 %

Verification Equipment

Manufacturer and Serial #	* L/C	Range and uncertainty	Verification Agency and Date
Strainsense	16	1179.18 - 12,000 lbf	Morehouse
880610C		2.948	11/13/14
Morehouse	17	8,862.79 - 100,000 lbf	Morehouse
C-8160 (LO)		22.157	11/20/14
Morehouse	18	21,926.31 - 300,000 lbf	Morehouse
C-8160 (HI)		54.816	11/20/14
Strainsense	14	109,029.53 - 1,000,000 lbf	Morehouse
870815A		228.2	08/27/14

Calibration Technician Jerry Parker

This report shall not be copied except in its entirety without express written approval of Calser Corp.

CALSER CORPORATION 302 N. BELT EAST SWANSEA, IL 62226 (618)277-0329

TESTING MACHINE CERTIFICATE OF CALIBRATION

Owner : University of Arkansas
Location : Civil Engineering
Fayetteville, AR 72701

Report # : VN# 10300-001
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Date of Service: 01/05/16

Manufacturer: TMI **Model:** CM-5000GB2

Serial No. : 100317 **Capacity:** 500,000 lbf

Auxillary Equip: w/ Admet GB2 Digital R/O #GB2-1004302
w/ Dynisco P/T #04-08-10323273

This is to certify that the testing machine listed above has been calibrated by Calser Corporation personnel.
The method of verification and listed data are in accordance with ASTM E 4.
Accuracy of all calibration devices is traceable to the National Institute of Standards and Technology (NIST)
and all calculations have been corrected for temperature where applicable.

Capacity Range	Loading Range	Max. Error
Run 1 500,000lbf Range	5,000 - 500,000	0.25 %
Run 2 500,000lbf Range	5,000 - 500,000	0.18 %

VERIFICATION EQUIPMENT

Manufacturer & Serial #	Load Cell #	Range & Uncertainty	Verification Agency & Date	Digital Serial #
Strainsense 880610C	**16**	1179.18 - 12,000 lbf 2.948	Morehouse 11/13/14	GBC-0905061
Morehouse C-8160 (LO)	**17**	8,862.79 - 100,000 lbf 22.157	Morehouse 11/20/14	GBC-0905061
Morehouse C-8160 (HI)	**18**	21,926.31 - 300,000 lbf 54.816	Morehouse 11/20/14	GBC-0905061
Strainsense 870815A	**14**	109,029.53 - 1,000,000 lbf 228.2	Morehouse 08/27/14	GBC-0905061

This certificate is issued as a statement of the fact that on the above date the listed testing machine has an accuracy as indicated. It should not be construed or regarded as a Guarantee or Warranty of any kind (in favor of the client, the client's customers, or the public at large) that the testing machine will continue to retain the same percentage (%) of accuracy or efficiency as determined on the date when the calibration, and adjustments if required, was performed and reported by "Calser Corporation" since the calibrator has absolutely no control over the future operation, damage, maintenance, repairs, and overall condition of the testing machine and hereby expressly disclaims any and all liability for damage or loss sustained by all parties arising or resulting from the deterioration, obsolescence, malfunction or substandard performance of said testing machine; which shall remain the sole responsibility of the machine's regular custodian, owner, and/or user. This certificate shall not be reporoduced except in full, without the written approval of Calser Corporation.

CALSER CORPORATION

Quality Control Director

Thomas R. Gagen

CALSER CORPORATION

302 N. Belt East, Swansea, IL 62226 (618) 277-0329

TESTING MACHINE CALIBRATION DATA AND REPORT

Report #: **VN# 10300-002**

Customer	University of Arkansas	**Date of Service**	01/05/16
Location	Civil Engineering	**Customer Order No.**	Verbal
	Fayetteville, AR 72701	**Order Date**	11/17/15
Manufacturer	Forney **Model** F-400F-LC1	**Temperature**	68˚ F
Serial No.	95037 **Capacity** 400,000 lbf	**Date Last Done**	12/22/14
Resolution	10 lbf / DIV	**Calibration Next Due**	01/05/17
Customer Asset No.	231709	**Method of Verification**	Set the Force
Auxiliary Equipment:	w/ Admet GB2 Digital R/O #GB2-107721-2		

Applied Force	*	Indicated Force	Error	%	*	Indicated Force	Error	%	*	Indicated Force	Error	%
Run #1		Run #1	"As Found" Condition			Run #2	"As Left" Condition			Run #3	"As Left" Condition	
400,000lbf Range	*	10lbf / DIV			*				*			
0	16	0	0	0.00	16	0	0	0.00	16	0	0	0.00
5,000	16	4,990	-10	0.20	16	5,000	0	0.00	16	5,000	0	0.00
10,000	17	9,970	-30	0.30	17	9,980	-20	0.20	17	9,990	-10	0.10
20,000	17	19,960	-40	0.20	17	19,980	-20	0.10	17	19,980	-20	0.10
40,000	17	40,090	90	0.23	17	39,970	-30	0.08	17	39,970	-30	0.08
60,000	17	60,260	260	0.43	17	59,950	-50	0.08	17	59,960	-40	0.07
80,000	17	80,430	430	0.54	17	79,930	-70	0.09	17	79,940	-60	0.08
100,000	17	100,620	620	0.62	17	99,980	-20	0.02	17	99,990	-10	0.01
150,000	18	150,940	940	0.63	18	150,030	30	0.02	18	150,020	20	0.01
200,000	18	201,320	1320	0.66	18	200,020	20	0.01	18	200,010	10	0.01
250,000	18	251,650	1650	0.66	18	249,960	-40	0.02	18	249,950	-50	0.02
300,000	18	301,910	1910	0.64	18	299,860	-140	0.05	18	299,890	-110	0.04
350,000	14	352,240	2240	0.64	14	349,780	-220	0.06	14	349,800	-200	0.06
400,000	14	402,480	2480	0.62	14	399,740	-260	0.07	14	399,760	-240	0.06
0	14	0	-30	0.00	14	0	40	0.00	14	0	30	0.00

Notes:

Calibration in accordance with ASTM E4,
and Calser Corporation Procedure # 1-01, Rev 1.

***CALIBRATION EQUIPMENT**

All verification equipment-including dead weights, proving rings, load cells, etc, is calibrated and traceable to the latest procedures stipulated by the National Institute of Standards and Technology (NIST) and ASTM E74-06. All equipment is traceable under guidelines set forth in ISO/IEC 17025 . All instrument readings have been corrected for temperature where necessary.

ACCURACY SUMMARY

Capacity Range	Loading Range	Max. Error
Run 1		
400,000lbf Range	5,000 - 400,000	0.66 %
Run 2		
400,000lbf Range	5,000 - 400,000	0.20 %
Run 3		
400,000lbf Range	5,000 - 400,000	0.10 %

VERIFICATION EQUIPMENT

Manufacturer & Serial #	* L/C	Class A Range (in LBs) and Uncertainty (LBF)	Agency & Date
Strainsense	16	1179.18 - 12,000 lbf	Morehouse
880610C		2.948	11/13/14
Morehouse	17	8,862.79 - 100,000 lbf	Morehouse
C-8160 (LO)		22.157	11/20/14
Morehouse	18	21,926.31 - 300,000 lbf	Morehouse
C-8160 (HI)		54.816	11/20/14
Strainsense	14	109,029.53 - 1,000,000 lbf	Morehouse
870815A		228.2	08/27/14

Calibration Technician Jerry Parker

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TESTING MACHINE CERTIFICATE OF CALIBRATION

Owner : University of Arkansas
Location : Civil Engineering
Fayetteville, AR 72701

Report # : VN# 10300-002

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Manufacturer: Forney **Model:** F-400F-LC1 **Date of Service:** 01/05/16

Serial No. : 95037 **Capacity:** 400,000 lbf

Auxillary Equip : w/ Admet GB2 Digital R/O #GB2-107721-2

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and all calculations have been corrected for temperature where applicable.

Capacity Range	Loading Range	Max. Error
Run 1 400,000lbf Range	5,000 - 400,000	0.66 %
Run 2 400,000lbf Range	5,000 - 400,000	0.20 %
Run 3 400,000lbf Range	5,000 - 400,000	0.10 %

Verification Equipment Used:

Manufacturer & Serial #	Load Cell #	Range & Uncertainty	Verification Agency & Date	Digital Serial #
Strainsense 880610C	**16**	1179.18 - 12,000 lbf 2.948	Morehouse 11/13/14	GBC-0905061
Morehouse C-8160 (LO)	**17**	8,862.79 - 100,000 lbf 22.157	Morehouse 11/20/14	GBC-0905061
Morehouse C-8160 (HI)	**18**	21,926.31 - 300,000 lbf 54.816	Morehouse 11/20/14	GBC-0905061
Strainsense 870815A	**14**	109,029.53 - 1,000,000 lbf 228.2	Morehouse 08/27/14	GBC-0905061

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