

The Morehouse Universal Calibrating Machine is designed to use a compression force standard, proving ring or load cell to calibrate units under test in compression and tension. The reference standard and unit under test (UUT) are positioned in the machine and loaded in series with a mechanical force. The force is produced by a hydraulic jack activated by a precision, manually operated, two speed hand pump and auxiliary screw pump.

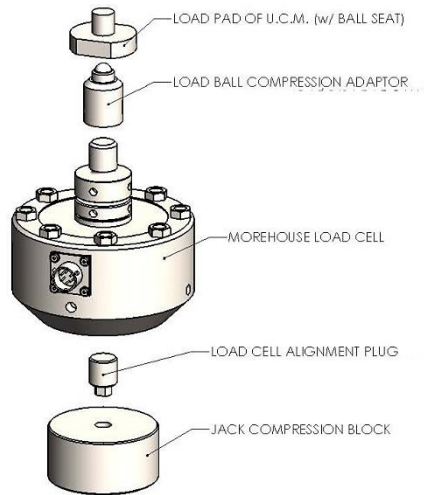
The entire design of the machine has one purpose – ultimate accuracy. Friction between the calibration standard (proving ring or load cell) and the unit under test has been completely eliminated. This is essential as even slight friction found in some types of calibrating machines results in gross errors in measurement. Non-axial loading, another factor contributing to imprecise calibrations, is minimized by the use of the proper accessories and adaptors.

Universal Calibrating Machines are used with secondary force standards. These machines are capable of generating forces to better than 0.02 -0.05 % of applied force. Capable of calibrating secondary and working standards to ASTM Class A and ISO 376 Class 0.5

Performance of accurate force calibrations may require the following kits:

- Morehouse Reference Standard Kit – This kit consists of Morehouse Reference Standards, typically load cells and the adaptors to necessary to ensure proper force application
- Morehouse Load Cell Indicator Kit - This kit will contain an indicator, cable assemblies, software and an optional computer
- Morehouse Unit Under Test (UUT) Kit – This kit includes tension and compression adaptors to properly align the UUT on the primary force axis during calibration.

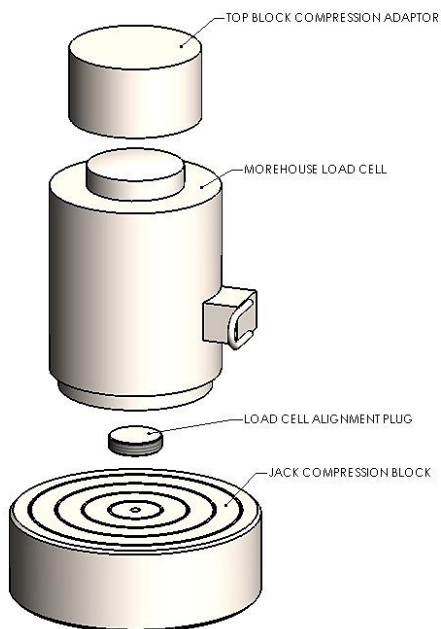
Morehouse Reference Standard Kit – This kit consists of Morehouse Reference Standards, typically load cells and the adapters necessary to ensure proper force application



The kit on the left is the typically configuration on mounting reference standard load cells in a 10,000 LBF (50 kN) to 150,000 LBF(670 kN) Machine.

The kit contains the following:

- Load Pad
- Load Ball Compression Adapter
- Reference Load Cell
- Alignment Plug
- Load Cell Alignment Adaptor
- Jack Compression Block

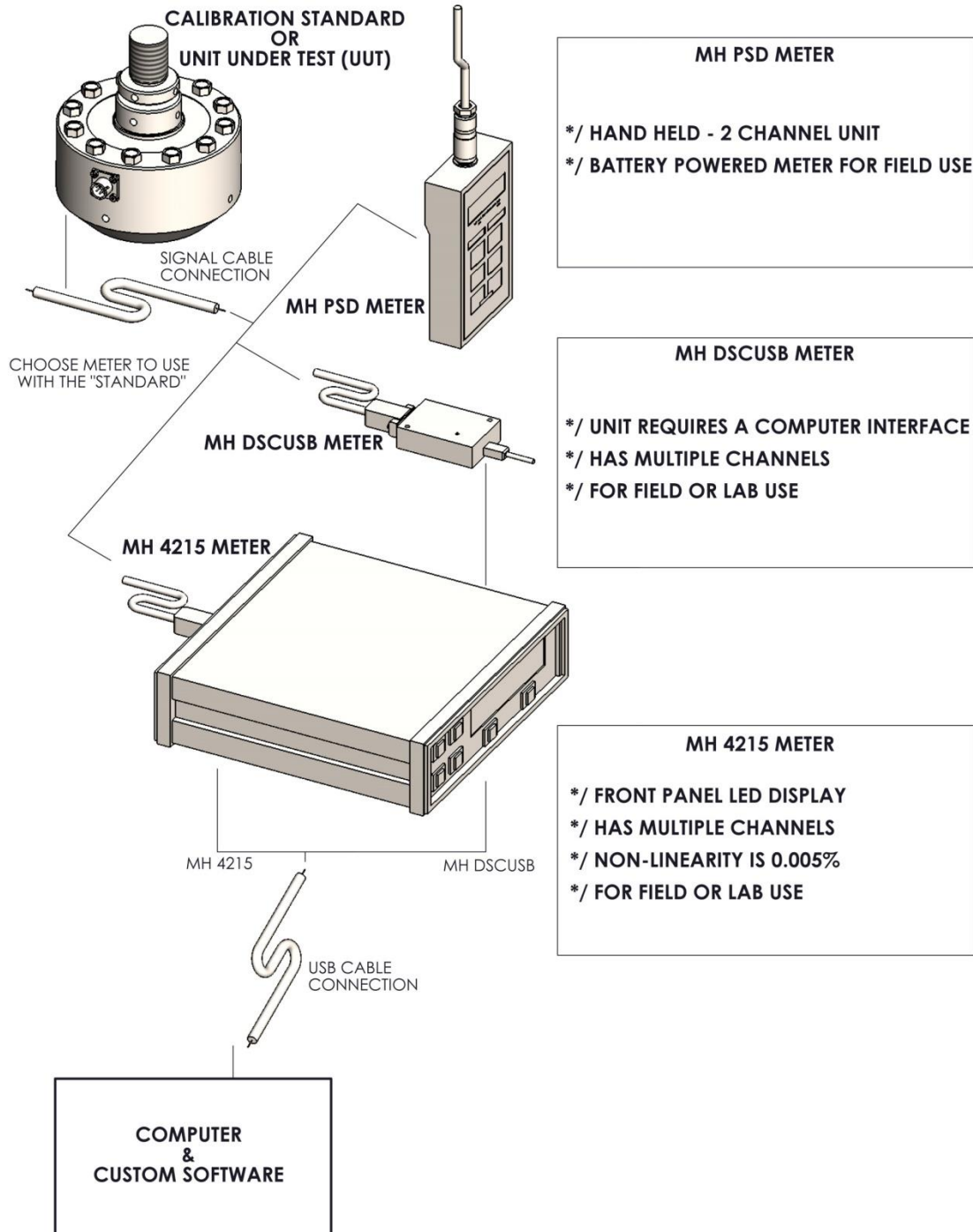


The kit on the left is the typically configuration on mounting reference standard load cells in a 200,000 LBF (900kN) to 2,250,000 LBF (10,000 kN) Machine.

The kit contains the following:

- Top Block Compression Adapter
- Reference Load Cell
- Alignment Plug
- Load Cell Alignment Adaptor
- Jack Compression Block

Morehouse Load Cell Indicator Kit - This kit will contain an indicator, cable assemblies, software and an optional computer

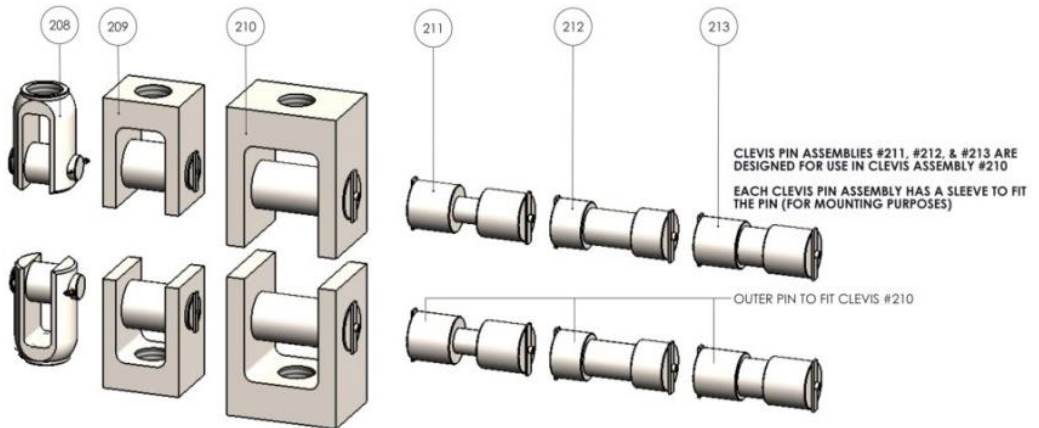
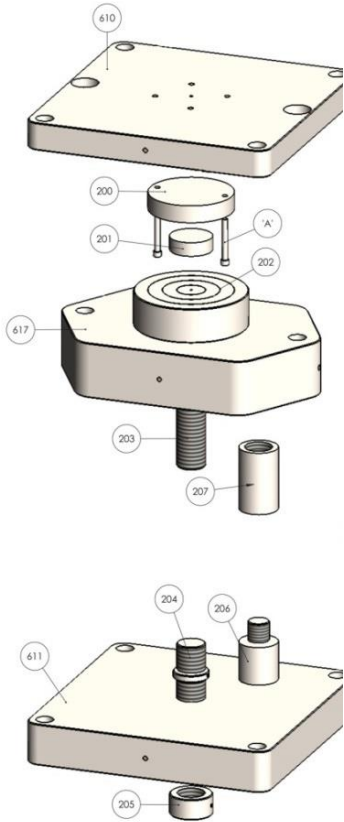


Morehouse Unit Under Test (UUT) Kit – This kit includes tension and compression adapters to properly align the UUT on the primary force axis during calibration. There are adapters available for calibration of tension links and other lifting transducers.

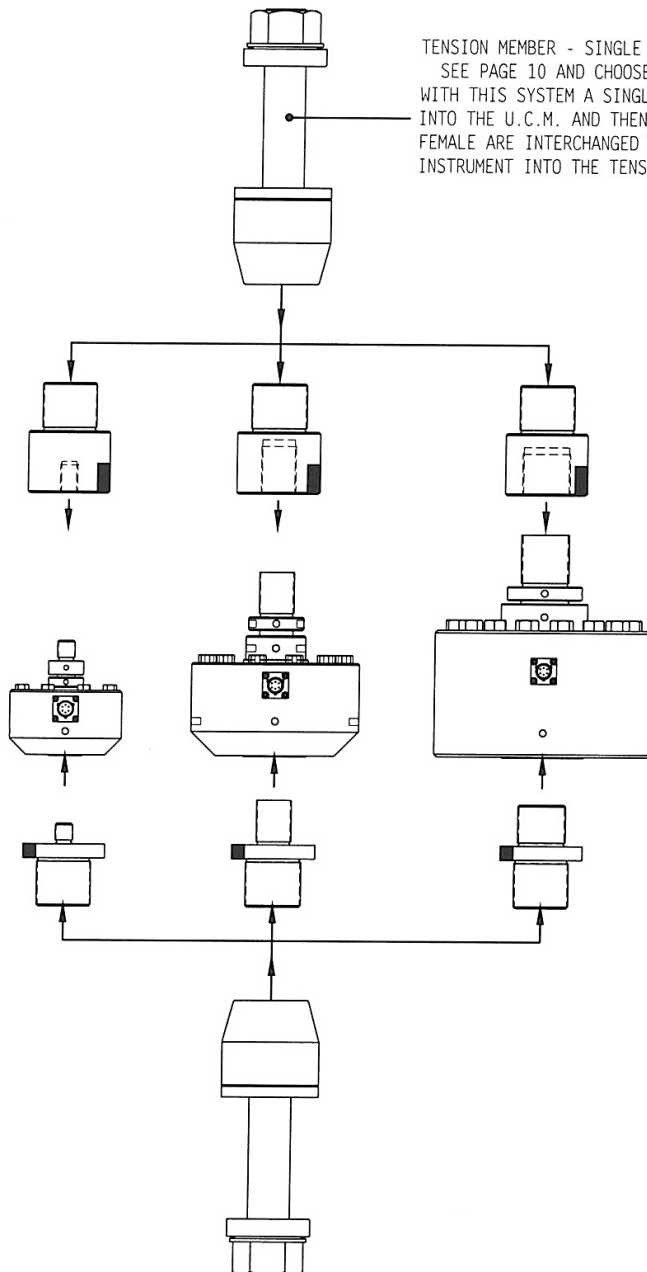
The Figure Above is a typical setup for Tension in a 200K plus Morehouse Universal Calibrating Machine.

COMPRESSION / TENSION ADAPTOR KIT

ITEM NO.	QUANTITY	DESCRIPTION	MANUF.	NOTES
200	1	UPPER PLATEN COMPRESSION BLOCK	MOREHOUSE	MOUNT TO UPPER PLATEN
201	1	COMPRESSION LOAD PAD	MOREHOUSE	
202	1	LOWER YOKE COMPRESSION BLOCK	MOREHOUSE	
203	1	UPPER TENSION ROD w/ "COMMON THR'D."	MOREHOUSE	MOUNTS INTO ITEM #202
204	1	LOWER TENSION ROD w/ "COMMON THR'D."	MOREHOUSE	
205	1	LOWER TENSION ROD NUT	MOREHOUSE	
206	SEE QUOTE	'MALE' TENSION ADAPTORS	MOREHOUSE	'MALE' TENSION ADAPTOR SET
207	SEE QUOTE	'FEMALE' TENSION ADAPTORS	MOREHOUSE	'FEMALE' TENSION ADAPTOR SET
208	1 PAIR (2 ASSMB.)	TENSION MEMBER ASSEMBLY	MOREHOUSE	"SMALL" DESIGN
209	1 PAIR (2 ASSMB.)	TENSION MEMBER ASSEMBLY	MOREHOUSE	"MEDIUM" DESIGN
210	1 PAIR (2 ASSMB.)	TENSION MEMBER ASSEMBLY	MOREHOUSE	"LARGE" DESIGN
211	1 PAIR (2 ASSMB.)	CLEVIS PIN ASSEMBLY, "SMALL" DESIGN	MOREHOUSE	
212	1 PAIR (2 ASSMB.)	CLEVIS PIN ASSEMBLY, "MEDIUM" DESIGN	MOREHOUSE	
213	1 PAIR (2 ASSMB.)	CLEVIS PIN ASSEMBLY, "LARGE" DESIGN	MOREHOUSE	
'A'	2	SOC. HD. CAP SCREWS - FOR MOUNTING	MOREHOUSE	REPLACES (2) JACK MOUNTING BOLTS OF U.C.M.
610	1	UPPER PLATEN - U.C.M.	MOREHOUSE	PART OF EXISTING U.C.M.
611	1	LOWER PLATEN - U.C.M.	MOREHOUSE	PART OF EXISTING U.C.M.
617	1	LOWER YOKE - U.C.M.	MOREHOUSE	PART OF EXISTING U.C.M.



Morehouse Unit Under Test (UUT) Kit - Tension "Quick Change" Adapters. Saves time by making connections easier and more efficient. Faster testing and calibration turn-around can improve the bottom line in your operation.



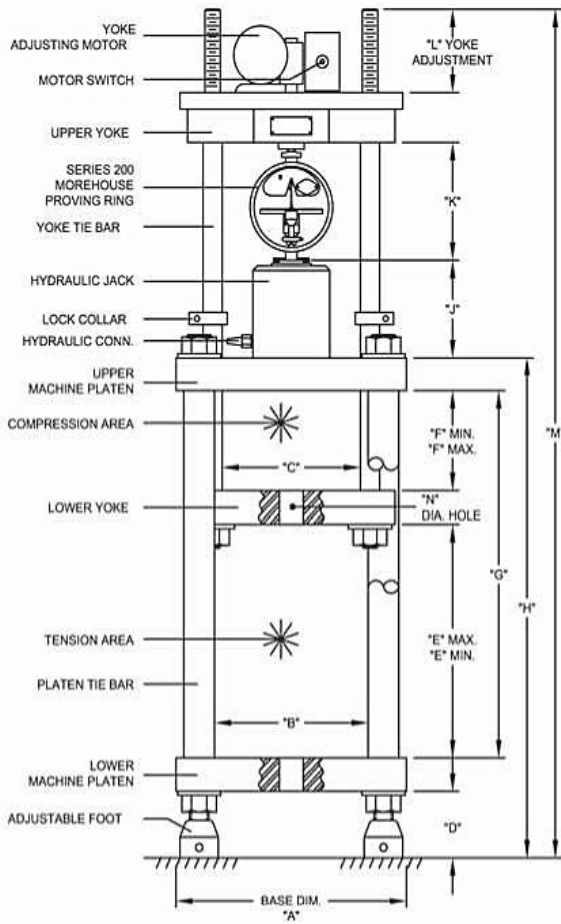
TENSION MEMBER - SINGLE PR. w/ SPHERICAL RADIUS ON TENSION ROD
SEE PAGE 10 AND CHOOSE TENSION MEMBER TO FIT U.C.M. IN USE
WITH THIS SYSTEM A SINGLE TENSION MEMBER ASSEMBLY IS INSTALLED
INTO THE U.C.M. AND THEN MULTIPLE TENSION ADAPTORS BOTH MALE &
FEMALE ARE INTERCHANGED TO ATTACH THE DESIRED SIZE LOAD CELL TEST
INSTRUMENT INTO THE TENSION SET-UP FOR CALIBRATION.

ILLUSTRATION IS SHOWING (3) CASE SITUATIONS
FOR TENSION SET-UP CALIBRATIONS.

AS SHOWN; A SINGLE PAIR OF TENSION MEMBERS CAN
REMAIN FIXED IN THE MACHINE & BY SWAPPING OUT
BOTH MALE & FEMALE TENSION ADAPTORS THREE
DIFFERENT LOAD CELL SIZES CAN BE CALIBRATED IN
THE U.C.M. BY THE USER.

ALSO AS SHOWN; ONE END OF THE TENSION ADAPTOR
ALWAYS HAS THE SAME SIZE THREAD ON IT. SO THAT,
ANY ADAPTOR CHOSEN WILL FIT THE MASTER SIZE
TENSION MEMBER ASSEMBLY.

MOREHOUSE UNIVERSAL CALIBRATING MACHINES - STANDARD DIMENSIONS



DESIG.	MAXIMUM CAPACITY OF MACHINE IN LBF.									
	10,000	30,000	60,000	100,000	150,000	200,000	300,000	400,000	500,000	1,000,000
A	12 DIA.	14 DIA.	15.5 SQ.	15.5 SQ.	17.5 SQ.	18 SQ.	22 SQ.	24 SQ.	27 SQ.	36.5 SQ.
B	8.09	8.89	10.125	9.500	11.500	11.500	15.000	17.000	19.000	24.000
C	5.00	6.25	9.50	9.50	10.50	11.50	15.00	16.00	19.00	25.00
D	3.13	3.50	6.63	6.63	7.25	8.50	8.00	8.00	8.25	12.00
E MAX.	12.0	17.3	25.0	27.5	27.5	30.5	40.0	31.0	32.0	38.0
E MIN.	2.5	4.0	13	7.5	5.0	10.5	20.5	4.0	7.0	11.5
F MIN.	1.5	3.0	0.5	1.0	2.0	7.0	11.5	3.5	3.5	9.5
F MAX.	11.0	16.3	12.5	21.0	24.5	27.0	31.0	30.5	28.5	36.5
G	16.00	21.50	28.00	31.50	33.50	42.00	46.00	43.00	44.00	58.00
H	21.13	28.00	38.63	43.13	46.75	57.50	62.00	60.00	61.25	85.00
J	5.50	6.50	7.75	9.00	10.50	11.00	11.75	14.63	14.25	17.00
K	9.29	10.91	12.56	15.48	16.15	16.70	20.56	22.15	23.50	29.75
L	9.78	13.31	12.44	20.19	22.19	20.22	19.77	26.80	25.15	26.75
M	48.91	62.29	75.06	91.98	103.40	113.70	123.19	135.78	137.38	174.63
N DIA.	1.0	1.0	1 3/16	1 9/16	2 1/16	2 5/16	2 3/4	4 1/16	4.0	5 1/2
WGT.	75	265	540	910	1,310	1,800	3,500	5,800	6,500	13,775
TARE	33 1/2	57	194	206	378	530	1,270	1,873	2,462	5,200

DIMENSIONS ARE IN INCHES

DESIGN IS SUBJECT TO CHANGE WITHOUT NOTICE

NOTES:

1. MOTORIZED YOKE ADJUSTMENT SPEED IS APPROX. 2 INCHES PER MINUTE.
2. TARE = TARE WEIGHT OF YOKE ASSEMBLY IN POUNDS.
3. WGT. = APPROX. WEIGHT OF MACHINE LESS PROVING RING IN POUNDS.
4. DIMENSION "K" ASSUMES A SERIES 200 PROVING RING EQUIVILANT TO THE CALIBRATING MACHINE'S CAPACITY IS IN PLACE. FOR DIMENSIONS OF OTHER PROVING RINGS, SEE APPROPRIATE BULLETIN.
5. STANDARD POWER REQUIREMENTS:
 10K, 30K CAPACITIES - 115 VOLT/60 HZ. SINGLE PHASE
 60K, 100K, 150K CAPACITIES - 115 VOLT/60 HZ. SINGLE PHASE
 200K, 300K, 400K, 500K CAPACITIES - 115 VOLT OR 230 VOLT/60 HZ. SINGLE PHASE
 1000K CAPACITY - 230 VOLT OR 460 VOLT/60 HZ. THREE PHASE
 -ALL OF THE ABOVE ARE AVAILABLE FOR OPERATION ON 220 VOLT/50 HZ. - PLEASE SPECIFY WHEN ORDERING
6. OVER THE YEARS WE HAVE MADE MANY SPECIAL CONFIGURATIONS OF MOREHOUSE UNIVERSAL CALIBRATING MACHINES TO MEET OUR CUSTOMERS REQUIREMENTS. IF THE MACHINE YOU REQUIRE IS NOT STANDARD PLEASE CONTACT US DIRECTLY.
7. METRIC CAPACITY MACHINES ARE AVAILABLE; PLEASE CONTACT US DIRECTLY.

MOREHOUSE INSTRUMENT CO.

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SCALE: NONE
DRAWN BY: BRIAN K. APPLEBY
CHECKED BY: HARRY E. ZUMBRUN
DRAWING NO.: 99646 REV.: H (2/14/2001)

Listed above are standard dimensions and weights. We can build any machine to suit your needs.

Please Contact Us at info@mhforce.com

Or by phone at 717-843-0081

Morehouse Instrument Company

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