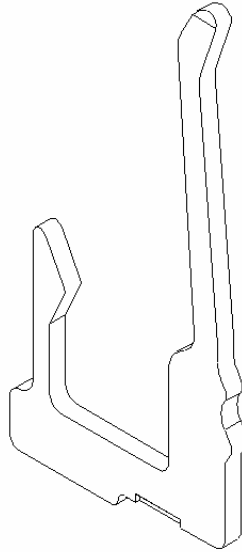




Project Number:		Tracking Code: TC0251--0061			
Requested by: Ed Messer		Date: 12/18/2002		Product Rev: 4	
Part #: C-181-01-X		Lot #: N/A		Tech: Troy Cook	Eng: John Tozier
Part description: QFSS					Qty to test: 5
Test Start: 12/23/2002		Test Completed: 12/23/2002			



**QFSS Series / C-181-01-X
Normal Force Report**

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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SCOPE

To perform the following tests: Check normal force on both the Contact beam and shielded beam. Check small beam at .004" and .006". Check contact beam at .006,.008,.010.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

- 1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
- 2) The contacts shall be tested in the loose state, *not* inserted in connector housing.
- 3) The contacts shall be prepared to allow access to the spring member at the same attitude and deflection level as would occur in actual use.
- 4) In the event that portions of the contact prevent insertion of the test probe and/or deflection of the spring member under evaluation, said material shall be removed leaving the appropriate contact surfaces exposed.
- 5) In the case of multi-tine contacts, each tine shall be tested independently on separate samples as required.
- 6) The connector housing shall be simulated, if required, in order to provide an accurate representation of the actual contact system performance.
- 7) A holding fixture shall be fashioned to allow the contact to be properly deflected.
- 8) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the Dillon TC², computer controlled test stand with a deflection measurement system accuracy of 5 μm (0.0002").
- 9) The probe shall be attached to a Dillon P/N 49761-0105, 5 N (1.1 Lb) load cell providing an accuracy of $\pm 0.2\%$.
- 10) The nominal deflection rate shall be 5 mm (0.2")/minute.
- 11) Unless otherwise noted a minimum of five contacts shall be tested.
- 12) The force/deflection characteristic to load and unload each contact shall be repeated five times.
- 13) The system shall utilize the TC² software in order to acquire and record the test data.
- 14) The permanent set of each contact shall be measured within the TC² software.
- 15) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis and a print out will be stored with the Tracking Code paperwork.

RESULTS**Normal Force at .010" deflection**

- **Min**-----57.7 grams **Set** -----.0004"
- **Max**-----70.3 grams **Set** -----.0017"

Normal Force at .008" deflection

- **Min**-----46.9 grams
- **Max**-----57.3 grams

Normal Force at .006" deflection

- **Min**-----35.6 grams
- **Max**-----43.4 grams

Normal Force at .004" deflection

- **Min**-----23.8 grams
- **Max**-----29.3 grams

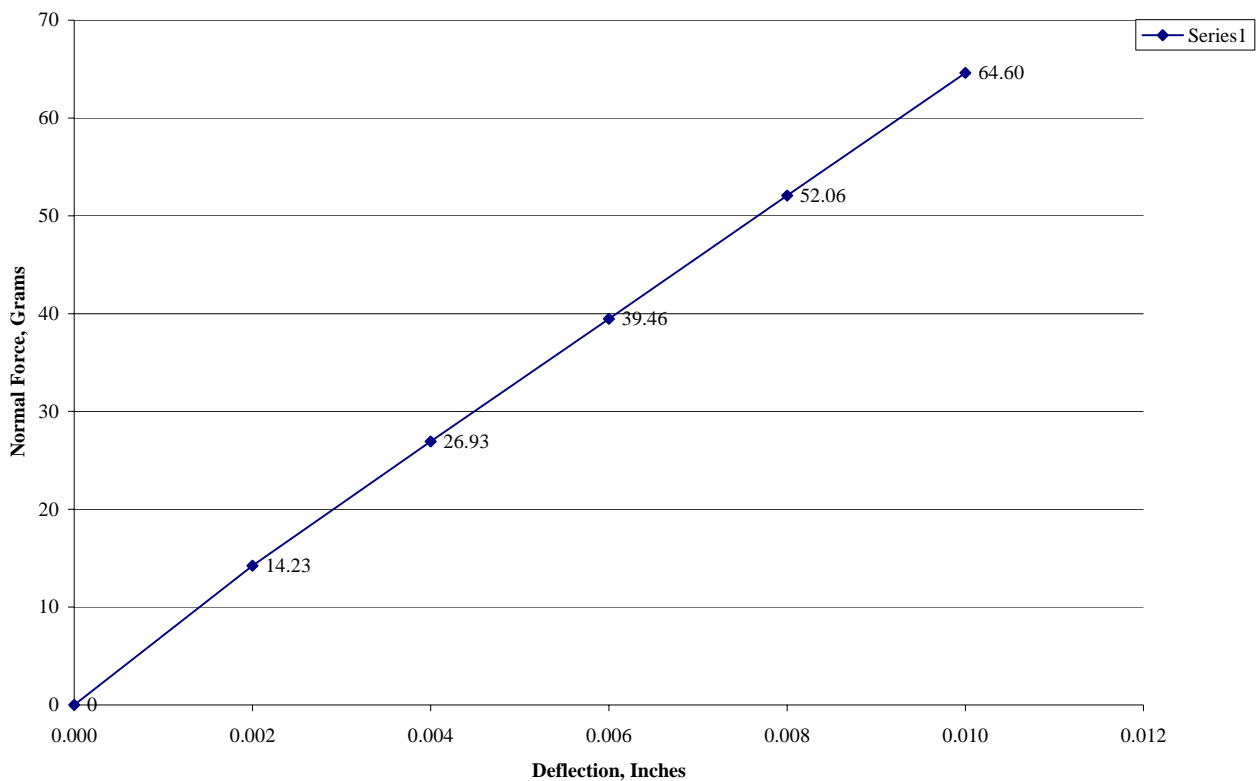
Normal Force at .002" deflection

- **Min**-----12.9 grams
- **Max**-----16.5 grams

DATA SUMMARIES**NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):**

- 1) Calibrated force gauges are used along with computer controlled positioning equipment.
- 2) Typically, 8-10 readings are taken and the averages reported.

	N.F.@ 0.002	N.F.@ 0.004	N.F.@ 0.006	N.F.@ 0.008	N.F.@ 0.010	SET
Averages	14.23	26.93	39.46	52.06	64.60	0.0010
Min	12.90	23.82	35.64	46.93	57.67	0.0004
Max	16.48	29.33	43.43	57.31	70.30	0.0017
St. Dev	1.06	1.59	2.02	2.77	3.50	0.0003
Count	12	12	12	12	12	12

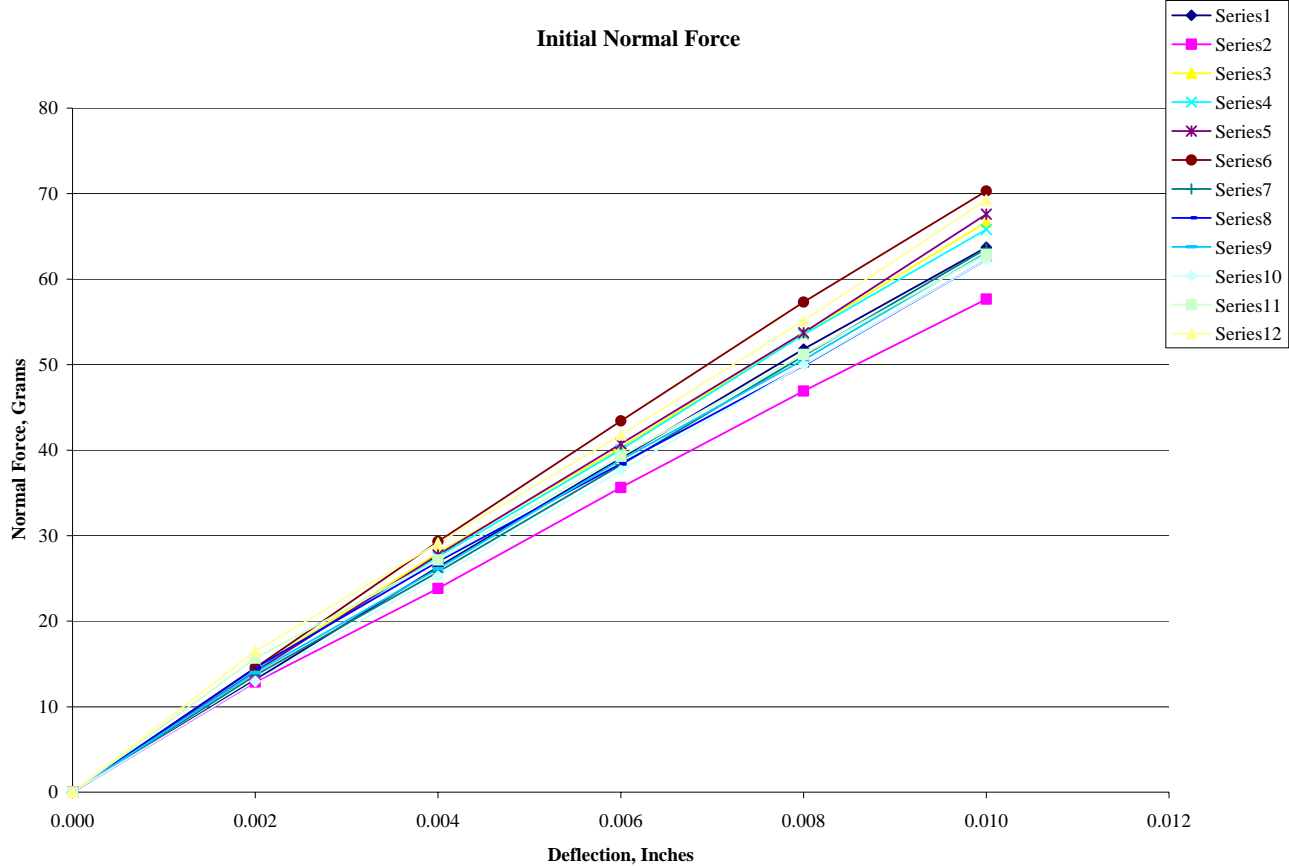
Average Normal Force Initial

DATA

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

Deflections in inches Forces in Grams

Sample #	N.F.@ 0.002	N.F.@ 0.004	N.F.@ 0.006	N.F.@ 0.008	N.F.@ 0.010	SET
1	13.16	26.33	39.07	51.82	63.73	0.00167
2	12.90	23.82	35.64	46.93	57.67	0.00111
3	14.42	28.00	40.33	53.70	66.66	0.00084
4	14.33	27.54	40.07	53.51	65.82	0.00094
5	14.10	27.76	40.75	53.73	67.61	0.00117
6	14.55	29.33	43.43	57.31	70.30	0.00115
7	13.66	25.75	38.28	51.04	63.58	0.00121
8	14.55	26.97	38.42	49.87	62.28	0.00044
9	14.00	26.12	38.87	50.57	63.10	0.00120
10	12.96	25.28	37.61	49.94	62.27	0.00119
11	15.67	27.16	39.28	51.19	62.90	0.00107
12	16.48	29.13	41.79	55.16	69.25	0.00054



EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** TCT-03**Description:** Dillon Quantrol TC2 Test Stand**Manufacturer:** Dillon Quantrol**Model:** TC2**Serial #:** 02-1033-03**Accuracy:** Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.

... Last Cal: 5/12/05, Next Cal: 5/12/06

Equipment #: LC-5N(icell)**Description:** 5 N Load Cell for Dillon Quantrol**Manufacturer:** Dillon Quantrol**Model:** icell**Serial #:** 02-0159-03**Accuracy:** .10% of capacity

... Last Cal: 5/17/05, Next Cal: 5/17/06