

DCA06FA058
Airworthiness Group Factual Report Addendum 7
Main Landing Gear Loads

Attachment 3
LMLG Braking Spectrum
(7 pages)

FedEx MD-10-10 In-Service Evaluation
 LMLG Braking Spectrum
 Air Filler Valve Bore Stress
 (Includes 47 ksi Residual Tension Stress)

Flight ID	ISE Measured		Without Nickel						With 0.008" Nickel					
	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
1.01	-166.1	-11.3	35.7	-119.1	-3.339	1	10000000	0.0000001	35.7	-119.1	-3.339	1	10000000	0.0000001
1.02	-198.8	-1.9	45.1	-151.8	-3.366	1	10000000	0.0000001	45.1	-151.8	-3.366	1	10000000	0.0000001
1.03	-145.2	19.2	66.2	-98.2	-1.485	1	10000000	0.0000001	72.9	-98.2	-1.348	1	10000000	0.0000001
1.04	-301.3	-6.1	40.9	-254.3	-6.225	1	4586062	2.18052E-07	40.9	-254.3	-6.225	1	4586062	2.18052E-07
1.05	-141.5	-2.8	44.2	-94.5	-2.139	1	10000000	0.0000001	44.2	-94.5	-2.139	1	10000000	0.0000001
1.06	-205.7	29.3	76.3	-158.7	-2.079	1	3664324	2.72902E-07	86.6	-158.7	-1.832	1	1236155	8.0896E-07
1.07	-181.3	20.8	67.8	-134.3	-1.982	1	10000000	0.0000001	75.1	-134.3	-1.790	1	10000000	0.0000001
1.08	-197.1	2.0	49.0	-150.1	-3.061	1	10000000	0.0000001	49.8	-150.1	-3.017	1	10000000	0.0000001
1.09	-152.3	-15.5	31.5	-105.3	-3.348	1	10000000	0.0000001	31.5	-105.3	-3.348	1	10000000	0.0000001
1.10	-218.9	-18.4	28.6	-171.9	-6.006	1	10000000	0.0000001	28.6	-171.9	-6.006	1	10000000	0.0000001
1.11	-179.4	-16.6	30.4	-132.4	-4.354	1	10000000	0.0000001	30.4	-132.4	-4.354	1	10000000	0.0000001
1.12	-161.3	6.0	53.0	-114.3	-2.158	1	10000000	0.0000001	55.0	-114.3	-2.076	1	10000000	0.0000001
1.13	-122.9	-16.8	30.2	-75.9	-2.513	1	10000000	0.0000001	30.2	-75.9	-2.513	1	10000000	0.0000001
2.01	-204.5	17.3	64.3	-157.5	-2.449	1	10000000	0.0000001	70.4	-157.5	-2.238	1	8238578	1.2138E-07
2.02	-200.7	44.4	91.4	-153.7	-1.681	1	929699	1.07562E-06	107.0	-153.7	-1.436	1	265124	3.77182E-06
2.03	-158.6	-4.0	43.0	-111.6	-2.596	1	10000000	0.0000001	43.0	-111.6	-2.596	1	10000000	0.0000001
2.04	-135.4	17.5	64.5	-88.4	-1.371	1	10000000	0.0000001	70.6	-88.4	-1.252	1	10000000	0.0000001
2.05	-225.7	-7.8	39.2	-178.7	-4.554	1	10000000	0.0000001	39.2	-178.7	-4.554	1	10000000	0.0000001
2.06	-139.3	-6.3	40.7	-92.3	-2.265	1	10000000	0.0000001	40.7	-92.3	-2.265	1	10000000	0.0000001
2.07	-148.9	30.0	77.0	-101.9	-1.323	1	10000000	0.0000001	87.5	-101.9	-1.164	1	10000000	0.0000001
2.08	-264.4	-1.3	45.7	-217.4	-4.759	1	10000000	0.0000001	45.7	-217.4	-4.759	1	10000000	0.0000001
2.09	-118.3	-20.4	26.6	-71.3	-2.675	1	10000000	0.0000001	26.6	-71.3	-2.675	1	10000000	0.0000001
2.10	-197.3	-17.0	30.0	-150.3	-5.015	1	10000000	0.0000001	30.0	-150.3	-5.015	1	10000000	0.0000001
2.11	-202.2	-9.5	37.5	-155.2	-4.144	1	10000000	0.0000001	37.5	-155.2	-4.144	1	10000000	0.0000001
2.12	-171.7	21.5	68.5	-124.7	-1.821	1	10000000	0.0000001	76.0	-124.7	-1.641	1	10000000	0.0000001
2.13	-171.7	-14.3	32.7	-124.7	-3.811	1	10000000	0.0000001	32.7	-124.7	-3.811	1	10000000	0.0000001
2.14	-136.3	14.3	61.3	-89.3	-1.457	1	10000000	0.0000001	66.3	-89.3	-1.347	1	10000000	0.0000001
3.01	-141.5	1.8	48.8	-94.5	-1.935	1	10000000	0.0000001	49.5	-94.5	-1.910	1	10000000	0.0000001
3.02	-144.9	-6.9	40.1	-97.9	-2.442	1	10000000	0.0000001	40.1	-97.9	-2.442	1	10000000	0.0000001
3.03	-152.1	-11.2	35.8	-105.1	-2.936	1	10000000	0.0000001	35.8	-105.1	-2.936	1	10000000	0.0000001
3.04	-169.2	-4.3	42.7	-122.2	-2.859	1	10000000	0.0000001	42.7	-122.2	-2.859	1	10000000	0.0000001
3.05	-140.9	-1.0	46.0	-93.9	-2.040	1	10000000	0.0000001	46.0	-93.9	-2.040	1	10000000	0.0000001
3.06	-205.1	10.5	57.5	-158.1	-2.747	1	10000000	0.0000001	61.2	-158.1	-2.581	1	10000000	0.0000001
3.07			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
3.08	-219.5	33.1	80.1	-172.5	-2.154	1	1456483	6.86585E-07	91.7	-172.5	-1.882	1	516301	1.93685E-06
3.09	-157.1	-9.6	37.4	-110.1	-2.941	1	10000000	0.0000001	37.4	-110.1	-2.941	1	10000000	0.0000001
3.10	-116.3	-12.8	34.2	-69.3	-2.029	1	10000000	0.0000001	34.2	-69.3	-2.029	1	10000000	0.0000001
3.11	-249.9	39.8	86.8	-202.9	-2.339	1	328342	3.04561E-06	100.7	-202.9	-2.016	1	126663	7.89496E-06
3.12	-175.8	-4.8	42.2	-128.8	-3.051	1	10000000	0.0000001	42.2	-128.8	-3.051	1	10000000	0.0000001
3.13	-182.4	17.5	64.5	-135.4	-2.098	1	10000000	0.0000001	70.7	-135.4	-1.916	1	10000000	0.0000001
3.14	-115.2	-5.8	41.2	-68.2	-1.657	1	10000000	0.0000001	41.2	-68.2	-1.657	1	10000000	0.0000001
3.15			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0

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Flight ID	ISE Measured		Without Nickel						With 0.008" Nickel					
	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
3.16	-263.0	-1.9	45.1	-216.0	-4.794	1	10000000	0.0000001	45.1	-216.0	-4.794	1	10000000	0.0000001
3.17	-182.5	-10.0	37.0	-135.5	-3.660	1	10000000	0.0000001	37.0	-135.5	-3.660	1	10000000	0.0000001
3.18	-200.6	-4.5	42.5	-153.6	-3.618	1	10000000	0.0000001	42.5	-153.6	-3.618	1	10000000	0.0000001
3.19	-159.4	2.6	49.6	-112.4	-2.268	1	10000000	0.0000001	50.5	-112.4	-2.227	1	10000000	0.0000001
3.20	-152.3	-1.7	45.3	-105.3	-2.323	1	10000000	0.0000001	45.3	-105.3	-2.323	1	10000000	0.0000001
3.21	-112.0	-9.7	37.3	-65.0	-1.743	1	10000000	0.0000001	37.3	-65.0	-1.743	1	10000000	0.0000001
4.01	-107.8	6.4	53.4	-60.8	-1.138	1	10000000	0.0000001	55.7	-60.8	-1.092	1	10000000	0.0000001
4.02	-121.6	7.3	54.3	-74.6	-1.374	1	10000000	0.0000001	56.8	-74.6	-1.312	1	10000000	0.0000001
4.03	-238.9	-12.0	35.0	-191.9	-5.484	1	10000000	0.0000001	35.0	-191.9	-5.484	1	10000000	0.0000001
4.04	-153.8	-16.3	30.7	-106.8	-3.483	1	10000000	0.0000001	30.7	-106.8	-3.483	1	10000000	0.0000001
4.05	-162.2	-7.8	39.2	-115.2	-2.937	1	10000000	0.0000001	39.2	-115.2	-2.937	1	10000000	0.0000001
4.06	-136.1	12.6	59.6	-89.1	-1.495	1	10000000	0.0000001	64.0	-89.1	-1.392	1	10000000	0.0000001
4.07	-206.8	7.1	54.1	-159.8	-2.955	1	10000000	0.0000001	56.6	-159.8	-2.825	1	10000000	0.0000001
4.08	-148.6	-0.1	46.9	-101.6	-2.166	1	10000000	0.0000001	46.9	-101.6	-2.166	1	10000000	0.0000001
4.09	-176.9	1.7	48.7	-129.9	-2.665	1	10000000	0.0000001	49.4	-129.9	-2.632	1	10000000	0.0000001
4.10	-228.3	-1.1	45.9	-181.3	-3.948	1	10000000	0.0000001	45.9	-181.3	-3.948	1	10000000	0.0000001
4.11	-223.7	35.4	82.4	-176.7	-2.143	1	1010595	9.89516E-07	94.8	-176.7	-1.863	1	358005	2.79326E-06
4.12	-170.6	-18.9	28.1	-123.6	-4.406	1	10000000	0.0000001	28.1	-123.6	-4.406	1	10000000	0.0000001
4.13	-135.1	-5.7	41.3	-88.1	-2.136	1	10000000	0.0000001	41.3	-88.1	-2.136	1	10000000	0.0000001
5.01	-174.7	3.3	50.3	-127.7	-2.541	1	10000000	0.0000001	51.4	-127.7	-2.485	1	10000000	0.0000001
5.02	-205.8	10.3	57.3	-158.8	-2.769	1	10000000	0.0000001	61.0	-158.8	-2.605	1	10000000	0.0000001
5.03	-194.5	20.3	67.3	-147.5	-2.194	1	10000000	0.0000001	74.4	-147.5	-1.985	1	7689800	1.30042E-07
5.04	-251.2	-0.3	46.7	-204.2	-4.368	1	10000000	0.0000001	46.7	-204.2	-4.368	1	10000000	0.0000001
5.05	-139.6	-2.7	44.3	-92.6	-2.092	1	10000000	0.0000001	44.3	-92.6	-2.092	1	10000000	0.0000001
5.06	-209.2	43.3	90.3	-162.2	-1.797	1	789579	1.2665E-06	105.4	-162.2	-1.538	1	239612	4.17342E-06
5.07	-204.6	17.0	64.0	-157.6	-2.462	1	10000000	0.0000001	70.0	-157.6	-2.253	1	8632994	1.15835E-07
5.08	-175.3	3.1	50.1	-128.3	-2.562	1	10000000	0.0000001	51.1	-128.3	-2.509	1	10000000	0.0000001
5.09	-191.1	24.1	71.1	-144.1	-2.027	1	10000000	0.0000001	79.6	-144.1	-1.812	1	4600211	2.17381E-07
5.10	-217.6	3.4	50.4	-170.6	-3.386	1	10000000	0.0000001	51.6	-170.6	-3.309	1	10000000	0.0000001
5.11	-179.4	4.3	51.3	-132.4	-2.579	1	10000000	0.0000001	52.8	-132.4	-2.505	1	10000000	0.0000001
5.12	-150.2	-1.2	45.8	-103.2	-2.255	1	10000000	0.0000001	45.8	-103.2	-2.255	1	10000000	0.0000001
6.01	-142.9	-3.0	44.0	-95.9	-2.182	1	10000000	0.0000001	44.0	-95.9	-2.182	1	10000000	0.0000001
6.02	-206.6	13.2	60.2	-159.6	-2.654	1	10000000	0.0000001	64.8	-159.6	-2.465	1	10000000	0.0000001
6.03	-250.9	-9.7	37.3	-203.9	-5.459	1	10000000	0.0000001	37.3	-203.9	-5.459	1	10000000	0.0000001
6.04	-163.7	-9.9	37.1	-116.7	-3.147	1	10000000	0.0000001	37.1	-116.7	-3.147	1	10000000	0.0000001
6.05	-205.1	-1.3	45.7	-158.1	-3.460	1	10000000	0.0000001	45.7	-158.1	-3.460	1	10000000	0.0000001
6.06	-223.7	-14.1	32.9	-176.7	-5.365	1	10000000	0.0000001	32.9	-176.7	-5.365	1	10000000	0.0000001
6.07	-173.4	30.7	77.7	-126.4	-1.627	1	10000000	0.0000001	88.4	-126.4	-1.429	1	3348772	2.98617E-07
6.08	-125.9	17.9	64.9	-78.9	-1.217	1	10000000	0.0000001	71.1	-78.9	-1.110	1	10000000	0.0000001
6.09	-198.1	-6.3	40.7	-151.1	-3.714	1	10000000	0.0000001	40.7	-151.1	-3.714	1	10000000	0.0000001
6.10	-236.0	18.0	65.0	-189.0	-2.908	1	3980967	2.51195E-07	71.3	-189.0	-2.651	1	1972563	5.06955E-07
6.11	-219.7	10.5	57.5	-172.7	-3.001	1	10000000	0.0000001	61.2	-172.7	-2.821	1	10000000	0.0000001

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	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
6.12	-192.3	-2.6	44.4	-145.3	-3.272	1	10000000	0.0000001	44.4	-145.3	-3.272	1	10000000	0.0000001
6.13	-185.1	-5.9	41.1	-138.1	-3.355	1	10000000	0.0000001	41.1	-138.1	-3.355	1	10000000	0.0000001
6.14	-133.2	3.8	50.8	-86.2	-1.698	1	10000000	0.0000001	52.1	-86.2	-1.655	1	10000000	0.0000001
6.15	-52.6	-7.5	39.5	-5.6	-0.142	1	10000000	0.0000001	39.5	-5.6	-0.142	1	10000000	0.0000001
6.16	-173.2	13.2	60.2	-126.2	-2.097	1	10000000	0.0000001	64.8	-126.2	-1.948	1	10000000	0.0000001
6.17	-124.9	15.2	62.2	-77.9	-1.252	1	10000000	0.0000001	67.6	-77.9	-1.153	1	10000000	0.0000001
6.18	-156.9	12.2	59.2	-109.9	-1.858	1	10000000	0.0000001	63.4	-109.9	-1.734	1	10000000	0.0000001
6.19	-150.2	2.9	49.9	-103.2	-2.067	1	10000000	0.0000001	50.9	-103.2	-2.026	1	10000000	0.0000001
6.20	-184.8	6.3	53.3	-137.8	-2.587	1	10000000	0.0000001	55.5	-137.8	-2.484	1	10000000	0.0000001
6.21			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
6.22	-134.7	1.5	48.5	-87.7	-1.808	1	10000000	0.0000001	49.0	-87.7	-1.789	1	10000000	0.0000001
6.23	-142.6	-5.0	42.0	-95.6	-2.277	1	10000000	0.0000001	42.0	-95.6	-2.277	1	10000000	0.0000001
6.24	-131.9	46.5	93.5	-84.9	-0.908	1	10000000	0.0000001	109.8	-84.9	-0.773	1	1618964	6.17679E-07
6.25	-116.8	18.4	65.4	-69.8	-1.068	1	10000000	0.0000001	71.8	-69.8	-0.972	1	10000000	0.0000001
6.26	-141.3	-4.3	42.7	-94.3	-2.211	1	10000000	0.0000001	42.7	-94.3	-2.211	1	10000000	0.0000001
6.27	-157.5	22.8	69.8	-110.5	-1.583	1	10000000	0.0000001	77.8	-110.5	-1.421	1	10000000	0.0000001
6.28	-210.7	8.8	55.8	-163.7	-2.934	1	10000000	0.0000001	58.8	-163.7	-2.781	1	10000000	0.0000001
7.01	-150.3	15.2	62.2	-103.3	-1.662	1	10000000	0.0000001	67.5	-103.3	-1.531	1	10000000	0.0000001
7.02	-177.2	-0.2	46.8	-130.2	-2.780	1	10000000	0.0000001	46.8	-130.2	-2.780	1	10000000	0.0000001
7.03	-161.2	-1.8	45.2	-114.2	-2.528	1	10000000	0.0000001	45.2	-114.2	-2.528	1	10000000	0.0000001
7.04	-268.4	64.7	111.7	-221.4	-1.982	1	46611	2.14541E-05	134.4	-221.4	-1.648	1	16039	6.23461E-05
7.05	-163.8	11.4	58.4	-116.8	-2.001	1	10000000	0.0000001	62.3	-116.8	-1.874	1	10000000	0.0000001
7.06	-161.4	4.6	51.6	-114.4	-2.218	1	10000000	0.0000001	53.2	-114.4	-2.151	1	10000000	0.0000001
7.07	-154.5	12.5	59.5	-107.5	-1.806	1	10000000	0.0000001	63.9	-107.5	-1.683	1	10000000	0.0000001
7.08	-257.1	8.2	55.2	-210.1	-3.808	1	5356918	1.86675E-07	58.0	-210.1	-3.621	1	3782683	2.64363E-07
7.09	-159.0	10.4	57.4	-112.0	-1.951	1	10000000	0.0000001	61.1	-112.0	-1.834	1	10000000	0.0000001
7.10	-153.9	-3.7	43.3	-106.9	-2.471	1	10000000	0.0000001	43.3	-106.9	-2.471	1	10000000	0.0000001
7.11	-136.0	-3.5	43.5	-89.0	-2.045	1	10000000	0.0000001	43.5	-89.0	-2.045	1	10000000	0.0000001
7.12	-217.7	-2.0	45.0	-170.7	-3.795	1	10000000	0.0000001	45.0	-170.7	-3.795	1	10000000	0.0000001
7.13	-166.7	-1.5	45.5	-119.7	-2.630	1	10000000	0.0000001	45.5	-119.7	-2.630	1	10000000	0.0000001
7.14	-145.2	3.2	50.2	-98.2	-1.957	1	10000000	0.0000001	51.3	-98.2	-1.915	1	10000000	0.0000001
7.15			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
7.16	-159.0	14.6	61.6	-112.0	-1.818	1	10000000	0.0000001	66.7	-112.0	-1.679	1	10000000	0.0000001
7.17	-135.8	28.4	75.4	-88.8	-1.179	1	10000000	0.0000001	85.3	-88.8	-1.042	1	10000000	0.0000001
7.18	-174.0	-3.5	43.5	-127.0	-2.918	1	10000000	0.0000001	43.5	-127.0	-2.918	1	10000000	0.0000001
7.19	-177.8	1.3	48.3	-130.8	-2.708	1	10000000	0.0000001	48.8	-130.8	-2.683	1	10000000	0.0000001
7.20	-178.1	-4.3	42.7	-131.1	-3.067	1	10000000	0.0000001	42.7	-131.1	-3.067	1	10000000	0.0000001
7.21	-109.9	-7.4	39.6	-62.9	-1.588	1	10000000	0.0000001	39.6	-62.9	-1.588	1	10000000	0.0000001
8.01	-242.6	33.9	80.9	-195.6	-2.417	1	642088	1.55742E-06	92.8	-195.6	-2.107	1	255043	3.92091E-06
8.02	-168.1	-0.5	46.5	-121.1	-2.604	1	10000000	0.0000001	46.5	-121.1	-2.604	1	10000000	0.0000001
8.03	-183.6	20.0	67.0	-136.6	-2.039	1	10000000	0.0000001	74.0	-136.6	-1.846	1	10000000	0.0000001
8.04			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0

FedEx MD-10-10 In-Service Evaluation
 LMLG Braking Spectrum
 Air Filler Valve Bore Stress
 (Includes 47 ksi Residual Tension Stress)

Flight ID	ISE Measured		Without Nickel						With 0.008" Nickel					
	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
8.05	-135.4	17.1	64.1	-88.4	-1.379	1	10000000	0.0000001	70.0	-88.4	-1.262	1	10000000	0.0000001
8.06	-241.4	34.4	81.4	-194.4	-2.389	1	639020	1.5649E-06	93.4	-194.4	-2.081	1	251088	3.98267E-06
8.07	-174.4	-9.4	37.6	-127.4	-3.390	1	10000000	0.0000001	37.6	-127.4	-3.390	1	10000000	0.0000001
8.08			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
8.09	-163.9	-4.2	42.8	-116.9	-2.730	1	10000000	0.0000001	42.8	-116.9	-2.730	1	10000000	0.0000001
8.10	-193.7	8.6	55.6	-146.7	-2.640	1	10000000	0.0000001	58.6	-146.7	-2.505	1	10000000	0.0000001
8.11	-126.4	2.5	49.5	-79.4	-1.605	1	10000000	0.0000001	50.3	-79.4	-1.578	1	10000000	0.0000001
8.12	-157.4	19.0	66.0	-110.4	-1.674	1	10000000	0.0000001	72.6	-110.4	-1.521	1	10000000	0.0000001
8.13	-134.3	-2.2	44.8	-87.3	-1.950	1	10000000	0.0000001	44.8	-87.3	-1.950	1	10000000	0.0000001
8.14	-170.8	-1.1	45.9	-123.8	-2.696	1	10000000	0.0000001	45.9	-123.8	-2.696	1	10000000	0.0000001
8.15	-191.3	-6.1	40.9	-144.3	-3.528	1	10000000	0.0000001	40.9	-144.3	-3.528	1	10000000	0.0000001
8.16	-181.5	5.9	52.9	-134.5	-2.544	1	10000000	0.0000001	55.0	-134.5	-2.448	1	10000000	0.0000001
8.17	-135.7	-4.0	43.0	-88.7	-2.064	1	10000000	0.0000001	43.0	-88.7	-2.064	1	10000000	0.0000001
8.18	-246.7	-1.2	45.8	-199.7	-4.355	1	10000000	0.0000001	45.8	-199.7	-4.355	1	10000000	0.0000001
8.19	-207.9	25.0	72.0	-160.9	-2.234	1	5658431	1.76727E-07	80.8	-160.9	-1.992	1	2057360	4.8606E-07
8.20	-163.1	28.9	75.9	-116.1	-1.529	1	10000000	0.0000001	86.1	-116.1	-1.349	1	7040219	1.42041E-07
8.21	-216.5	8.9	55.9	-169.5	-3.032	1	10000000	0.0000001	59.0	-169.5	-2.871	1	10000000	0.0000001
8.22	-222.3	2.0	49.0	-175.3	-3.574	1	10000000	0.0000001	49.8	-175.3	-3.523	1	10000000	0.0000001
8.23	-196.3	3.5	50.5	-149.3	-2.959	1	10000000	0.0000001	51.7	-149.3	-2.890	1	10000000	0.0000001
10.01	-152.8	-3.2	43.8	-105.8	-2.418	1	10000000	0.0000001	43.8	-105.8	-2.418	1	10000000	0.0000001
10.02	-129.3	-4.7	42.3	-82.3	-1.948	1	10000000	0.0000001	42.3	-82.3	-1.948	1	10000000	0.0000001
10.03	-158.3	0.0	47.0	-111.3	-2.367	1	10000000	0.0000001	47.0	-111.3	-2.366	1	10000000	0.0000001
10.04	-153.4	3.4	50.4	-106.4	-2.112	1	10000000	0.0000001	51.6	-106.4	-2.063	1	10000000	0.0000001
10.05	-232.4	-7.4	39.6	-185.4	-4.685	1	10000000	0.0000001	39.6	-185.4	-4.685	1	10000000	0.0000001
10.06	-181.1	12.1	59.1	-134.1	-2.268	1	10000000	0.0000001	63.3	-134.1	-2.116	1	10000000	0.0000001
10.07	-259.6	21.1	68.1	-212.6	-3.123	1	1189633	8.40595E-07	75.4	-212.6	-2.818	1	615172	1.62556E-06
10.08	-209.8	14.2	61.2	-162.8	-2.660	1	10000000	0.0000001	66.2	-162.8	-2.460	1	10000000	0.0000001
10.09	-138.9	-7.4	39.6	-91.9	-2.319	1	10000000	0.0000001	39.6	-91.9	-2.319	1	10000000	0.0000001
10.10	-118.4	3.4	50.4	-71.4	-1.418	1	10000000	0.0000001	51.6	-71.4	-1.385	1	10000000	0.0000001
10.11			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
10.12	-156.7	47.8	94.8	-109.7	-1.156	1	3155467	3.1691E-07	111.6	-109.7	-0.983	1	615453	1.62482E-06
10.13	-170.2	34.6	81.6	-123.2	-1.510	1	9199931	1.08696E-07	93.7	-123.2	-1.315	1	2124679	4.70659E-07
10.14	-470.4	33.5	80.5	-423.4	-5.262	1	8089	0.000123619	92.2	-423.4	-4.593	1	5297	0.000188801
10.15	-258.9	64.9	111.9	-211.9	-1.894	1	55154	1.81312E-05	134.5	-211.9	-1.575	1	18365	5.4451E-05
10.16	-189.4	34.0	81.0	-142.4	-1.757	1	4145581	2.41221E-07	93.0	-142.4	-1.531	1	1166918	8.56958E-07
10.17	-114.5	-6.5	40.5	-67.5	-1.669	1	10000000	0.0000001	40.5	-67.5	-1.669	1	10000000	0.0000001
10.18	-125.9	-6.5	40.5	-78.9	-1.948	1	10000000	0.0000001	40.5	-78.9	-1.948	1	10000000	0.0000001
10.19	-190.3	46.5	93.5	-143.3	-1.533	1	1074284	9.30852E-07	109.8	-143.3	-1.306	1	281917	3.54714E-06
10.20	-192.4	20.4	67.4	-145.4	-2.157	1	10000000	0.0000001	74.5	-145.4	-1.950	1	8295704	1.20544E-07
10.21	-241.7	16.2	63.2	-194.7	-3.079	1	3875014	2.58064E-07	68.9	-194.7	-2.825	1	2055493	4.86501E-07
10.22	-140.5	-9.3	37.7	-93.5	-2.481	1	10000000	0.0000001	37.7	-93.5	-2.481	1	10000000	0.0000001
10.23	-302.2	26.8	73.8	-255.2	-3.460	1	222920	4.48591E-06	83.1	-255.2	-3.070	1	120398	8.30575E-06

FedEx MD-10-10 In-Service Evaluation
 LMLG Braking Spectrum
 Air Filler Valve Bore Stress
 (Includes 47 ksi Residual Tension Stress)

Flight ID	ISE Measured		Without Nickel						With 0.008" Nickel					
	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
10.24	-239.2	60.2	107.2	-192.2	-1.793	1	106499	9.38975E-06	128.3	-192.2	-1.498	1	33759	2.96217E-05
10.25	-214.2	0.4	47.4	-167.2	-3.528	1	1000000	0.0000001	47.5	-167.2	-3.518	1	1000000	0.0000001
10.26	-255.5	5.4	52.4	-208.5	-3.981	1	8281829	1.20746E-07	54.3	-208.5	-3.843	1	6444641	1.55168E-07
10.27	-202.6	20.1	67.1	-155.6	-2.319	1	1000000	0.0000001	74.1	-155.6	-2.099	1	5486482	1.82266E-07
11.01	-171.4	30.1	77.1	-124.4	-1.613	1	1000000	0.0000001	87.7	-124.4	-1.419	1	3992021	2.505E-07
11.02	-117.9	2.6	49.6	-70.9	-1.430	1	1000000	0.0000001	50.5	-70.9	-1.404	1	1000000	0.0000001
11.03	-143.9	27.0	74.0	-96.9	-1.309	1	1000000	0.0000001	83.4	-96.9	-1.161	1	1000000	0.0000001
11.04	-168.3	-0.1	46.9	-121.3	-2.589	1	1000000	0.0000001	46.9	-121.3	-2.589	1	1000000	0.0000001
11.05	-197.2	25.6	72.6	-150.2	-2.068	1	8569268	1.16696E-07	81.6	-150.2	-1.841	1	2826724	3.53766E-07
11.06	-154.1	45.9	92.9	-107.1	-1.152	1	4397959	2.27378E-07	109.0	-107.1	-0.982	1	832724	1.20088E-06
11.07	-185.3	16.1	63.1	-138.3	-2.190	1	1000000	0.0000001	68.8	-138.3	-2.010	1	1000000	0.0000001
11.08	-150.2	40.2	87.2	-103.2	-1.184	1	1000000	0.0000001	101.3	-103.2	-1.019	1	1997977	5.00506E-07
11.09	-182.6	38.3	85.3	-135.6	-1.589	1	3323555	3.00883E-07	98.7	-135.6	-1.373	1	855358	1.1691E-06
11.10	-221.6	63.0	110.0	-174.6	-1.588	1	131888	7.58219E-06	132.0	-174.6	-1.323	1	38212	2.61699E-05
11.11	-215.4	0.3	47.3	-168.4	-3.558	1	1000000	0.0000001	47.4	-168.4	-3.550	1	1000000	0.0000001
11.12	-123.7	-1.3	45.7	-76.7	-1.679	1	1000000	0.0000001	45.7	-76.7	-1.679	1	1000000	0.0000001
11.13	-194.9	45.3	92.3	-147.9	-1.602	1	1034056	9.67065E-07	108.2	-147.9	-1.367	1	282043	3.54556E-06
11.14	-161.5	61.6	108.6	-114.5	-1.054	1	688156	1.45316E-06	130.2	-114.5	-0.879	1	140036	7.14101E-06
11.15	-160.7	21.9	68.9	-113.7	-1.650	1	1000000	0.0000001	76.6	-113.7	-1.484	1	1000000	0.0000001
11.16	-213.3	-1.9	45.1	-166.3	-3.689	1	1000000	0.0000001	45.1	-166.3	-3.689	1	1000000	0.0000001
11.17	-208.9	58.7	105.7	-161.9	-1.532	1	236713	4.22453E-06	126.2	-161.9	-1.283	1	65710	1.52185E-05
11.18	-147.4	-1.0	46.0	-100.4	-2.184	1	1000000	0.0000001	46.0	-100.4	-2.184	1	1000000	0.0000001
11.19	-179.7	23.2	70.2	-132.7	-1.890	1	1000000	0.0000001	78.3	-132.7	-1.694	1	9076425	1.10176E-07
11.20	-219.4	9.2	56.2	-172.4	-3.069	1	1000000	0.0000001	59.4	-172.4	-2.903	1	1000000	0.0000001
11.21	-168.1	29.7	76.7	-121.1	-1.578	1	1000000	0.0000001	87.2	-121.1	-1.389	1	4888833	2.04548E-07
11.22	-155.7	13.9	60.9	-108.7	-1.783	1	1000000	0.0000001	65.8	-108.7	-1.651	1	1000000	0.0000001
11.23	-150.1	12.7	59.7	-103.1	-1.726	1	1000000	0.0000001	64.2	-103.1	-1.606	1	1000000	0.0000001
11.24	-252.2	32.9	79.9	-205.2	-2.568	1	527071	1.89728E-06	91.4	-205.2	-2.244	1	221268	4.51941E-06
11.25	-204.4	29.6	76.6	-157.4	-2.055	1	3746491	2.66916E-07	87.0	-157.4	-1.810	1	1247726	8.01458E-07
11.26	-125.1	5.2	52.2	-78.1	-1.496	1	1000000	0.0000001	54.1	-78.1	-1.445	1	1000000	0.0000001
11.27	-177.4	70.5	117.5	-130.4	-1.110	1	224901	4.44641E-06	142.2	-130.4	-0.917	1	50486	1.98074E-05
11.28	-164.3	42.5	89.5	-117.3	-1.310	1	4316106	2.3169E-07	104.4	-117.3	-1.124	1	914516	1.09347E-06
11.29	-172.0	28.7	75.7	-125.0	-1.651	1	1000000	0.0000001	85.7	-125.0	-1.458	1	4909973	2.03667E-07
11.30	-183.6	7.7	54.7	-136.6	-2.498	1	1000000	0.0000001	57.4	-136.6	-2.382	1	1000000	0.0000001
11.31	-140.8	22.1	69.1	-93.8	-1.358	1	1000000	0.0000001	76.8	-93.8	-1.221	1	1000000	0.0000001
11.32	-157.0	40.0	87.0	-110.0	-1.265	1	8287866	1.20658E-07	101.0	-110.0	-1.089	1	1616497	6.18622E-07
11.33	-124.2	5.1	52.1	-77.2	-1.481	1	1000000	0.0000001	53.9	-77.2	-1.432	1	1000000	0.0000001
11.34	-158.3	31.9	78.9	-111.3	-1.411	1	1000000	0.0000001	90.0	-111.3	-1.237	1	5252903	1.90371E-07
11.35	-242.7	20.0	67.0	-195.7	-2.919	1	2419054	4.13385E-07	74.0	-195.7	-2.643	1	1187327	8.42228E-07
11.36	-182.4	0.2	47.2	-135.4	-2.871	1	1000000	0.0000001	47.2	-135.4	-2.867	1	1000000	0.0000001
12.01	-139.1	-0.5	46.5	-92.1	-1.981	1	1000000	0.0000001	46.5	-92.1	-1.981	1	1000000	0.0000001
12.02	-245.7	32.3	79.3	-198.7	-2.505	1	669037	1.49469E-06	90.6	-198.7	-2.192	1	274884	3.63789E-06

FedEx MD-10-10 In-Service Evaluation
 LMLG Braking Spectrum
 Air Filler Valve Bore Stress
 (Includes 47 ksi Residual Tension Stress)

Flight ID	ISE Measured		Without Nickel						With 0.008" Nickel					
	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
12.03	-140.5	30.7	77.7	-93.5	-1.203	1	10000000	0.0000001	88.4	-93.5	-1.057	1	10000000	0.0000001
12.04	-151.8	16.4	63.4	-104.8	-1.654	1	10000000	0.0000001	69.1	-104.8	-1.516	1	10000000	0.0000001
12.05	-219.4	-1.8	45.2	-172.4	-3.812	1	10000000	0.0000001	45.2	-172.4	-3.812	1	10000000	0.0000001
12.06	-146.4	22.5	69.5	-99.4	-1.432	1	10000000	0.0000001	77.3	-99.4	-1.286	1	10000000	0.0000001
12.07	-154.4	0.6	47.6	-107.4	-2.256	1	10000000	0.0000001	47.8	-107.4	-2.246	1	10000000	0.0000001
12.08	-207.3	13.8	60.8	-160.3	-2.637	1	10000000	0.0000001	65.6	-160.3	-2.444	1	10000000	0.0000001
12.09	-164.4	9.1	56.1	-117.4	-2.094	1	10000000	0.0000001	59.3	-117.4	-1.981	1	10000000	0.0000001
12.10			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
12.11	-236.7	17.0	64.0	-189.7	-2.966	1	4377684	2.28431E-07	69.9	-189.7	-2.715	1	2229056	4.4862E-07
12.12	-178.4	24.0	71.0	-131.4	-1.851	1	10000000	0.0000001	79.4	-131.4	-1.656	1	8415008	1.18835E-07
12.13	-148.1	14.0	61.0	-101.1	-1.657	1	10000000	0.0000001	65.9	-101.1	-1.533	1	10000000	0.0000001
12.14	-134.4	34.7	81.7	-87.4	-1.070	1	10000000	0.0000001	93.9	-87.4	-0.932	1	9602653	1.04138E-07
12.15	-272.4	22.3	69.3	-225.4	-3.250	1	704738	1.41897E-06	77.2	-225.4	-2.921	1	373091	2.68031E-06
12.16	-87.1	4.2	51.2	-40.1	-0.783	1	10000000	0.0000001	52.7	-40.1	-0.761	1	10000000	0.0000001
12.17	-222.7	24.6	71.6	-175.7	-2.456	1	3186885	3.13786E-07	80.1	-175.7	-2.193	1	1293237	7.73254E-07
12.18	-190.1	9.4	56.4	-143.1	-2.539	1	10000000	0.0000001	59.6	-143.1	-2.399	1	10000000	0.0000001
12.19	-167.7	24.6	71.6	-120.7	-1.686	1	10000000	0.0000001	80.2	-120.7	-1.505	1	10000000	0.0000001
12.20	-221.6	2.5	49.5	-174.6	-3.528	1	10000000	0.0000001	50.4	-174.6	-3.467	1	10000000	0.0000001
12.21	-189.1	31.8	78.8	-142.1	-1.802	1	5506951	1.81589E-07	90.0	-142.1	-1.579	1	1575004	6.34919E-07
12.22	-211.6	6.9	53.9	-164.6	-3.055	1	10000000	0.0000001	56.3	-164.6	-2.925	1	10000000	0.0000001
12.23	-231.0	8.7	55.7	-184.0	-3.302	1	10000000	0.0000001	58.8	-184.0	-3.130	1	10000000	0.0000001
12.24	-96.2	8.3	55.3	-49.2	-0.891	1	10000000	0.0000001	58.2	-49.2	-0.846	1	10000000	0.0000001
12.25	-191.8	11.3	58.3	-144.8	-2.483	1	10000000	0.0000001	62.2	-144.8	-2.326	1	10000000	0.0000001
12.26	-180.2	20.7	67.7	-133.2	-1.968	1	10000000	0.0000001	74.9	-133.2	-1.778	1	10000000	0.0000001
12.27	-174.6	35.7	82.7	-127.6	-1.543	1	6438345	1.55319E-07	95.2	-127.6	-1.341	1	1554212	6.43413E-07
12.28			47.0	47.0	1.000	1	10000000	0	47.0	47.0	1.000	1	10000000	0
12.29	-175.5	7.8	54.8	-128.5	-2.348	1	10000000	0.0000001	57.5	-128.5	-2.237	1	10000000	0.0000001
12.30	-215.1	38.1	85.1	-168.1	-1.976	1	1045532	9.56451E-07	98.4	-168.1	-1.709	1	343208	2.91369E-06
12.31	-255.6	83.0	130.0	-208.6	-1.605	1	23755	4.20958E-05	159.0	-208.6	-1.311	1	7209	0.000138722
12.32	-145.5	-1.2	45.8	-98.5	-2.148	1	10000000	0.0000001	45.8	-98.5	-2.148	1	10000000	0.0000001
12.33	-141.4	44.3	91.3	-94.4	-1.034	1	9813950	1.01896E-07	106.7	-94.4	-0.884	1	1572700	6.35849E-07
12.34	-135.7	-0.4	46.6	-88.7	-1.903	1	10000000	0.0000001	46.6	-88.7	-1.903	1	10000000	0.0000001
12.35	-202.9	2.0	49.0	-155.9	-3.183	1	10000000	0.0000001	49.7	-155.9	-3.138	1	10000000	0.0000001
12.36	-215.5	33.8	80.8	-168.5	-2.085	1	1558552	6.41621E-07	92.6	-168.5	-1.818	1	534659	1.87035E-06
12.37	-221.3	45.5	92.5	-174.3	-1.884	1	458565	2.18072E-06	108.4	-174.3	-1.607	1	146748	6.81442E-06
12.38	-139.1	1.5	48.5	-92.1	-1.900	1	10000000	0.0000001	49.0	-92.1	-1.879	1	10000000	0.0000001
12.39	-210.4	8.1	55.1	-163.4	-2.965	1	10000000	0.0000001	57.9	-163.4	-2.820	1	10000000	0.0000001
12.40	-202.2	34.8	81.8	-155.2	-1.898	1	2286902	4.37273E-07	93.9	-155.2	-1.652	1	709688	1.40907E-06
12.41	-163.7	3.1	50.1	-116.7	-2.331	1	10000000	0.0000001	51.2	-116.7	-2.282	1	10000000	0.0000001
12.42	-119.8	35.1	82.1	-72.8	-0.887	1	10000000	0.0000001	94.4	-72.8	-0.771	1	10000000	0.0000001
12.43	-179.1	41.1	88.1	-132.1	-1.500	1	2793715	3.57946E-07	102.4	-132.1	-1.289	1	687158	1.45527E-06
12.44	-148.3	8.3	55.3	-101.3	-1.833	1	10000000	0.0000001	58.2	-101.3	-1.741	1	10000000	0.0000001

FedEx MD-10-10 In-Service Evaluation
 LMLG Braking Spectrum
 Air Filler Valve Bore Stress
 (Includes 47 ksi Residual Tension Stress)

Flight ID	ISE Measured		Without Nickel						With 0.008" Nickel					
	Min Stress (ksi)	Max Stress (ksi)	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N	Max Stress (ksi)	Min Stress (ksi)	R	n	N	n/N
12.45	-138.4	30.4	77.4	-91.4	-1.181	1	10000000	0.0000001	88.0	-91.4	-1.038	1	10000000	0.0000001
12.46	-177.1	9.7	56.7	-130.1	-2.293	1	10000000	0.0000001	60.1	-130.1	-2.163	1	10000000	0.0000001
12.47	-164.6	47.7	94.7	-117.6	-1.242	1	2365127	4.2281E-07	111.4	-117.6	-1.056	1	499217	2.00313E-06
12.48	-79.0	-1.6	45.4	-32.0	-0.703	1	10000000	0.0000001	45.4	-32.0	-0.703	1	10000000	0.0000001
12.49	-170.1	24.5	71.5	-123.1	-1.722	1	10000000	0.0000001	80.1	-123.1	-1.537	1	10000000	0.0000001
12.50	-238.0	28.2	75.2	-191.0	-2.539	1	1238149	8.07657E-07	85.1	-191.0	-2.244	1	517424	1.93265E-06
12.51	-131.2	21.4	68.4	-84.2	-1.231	1	10000000	0.0000001	76.0	-84.2	-1.109	1	10000000	0.0000001
12.52	-327.7	38.3	85.3	-280.7	-3.292	1	62859	1.59085E-05	98.7	-280.7	-2.845	1	31483	3.17633E-05
12.53	-169.3	-1.4	45.6	-122.3	-2.684	1	10000000	0.0000001	45.6	-122.3	-2.684	1	10000000	0.0000001
12.54	-210.9	29.3	76.3	-163.9	-2.148	1	2981080	3.35449E-07	86.6	-163.9	-1.893	1	1044702	9.5721E-07
12.55	-283.6	22.8	69.8	-236.6	-3.389	1	488216	2.04827E-06	77.8	-236.6	-3.041	1	265800	3.76223E-06
12.56	-159.2	22.0	69.0	-112.2	-1.625	1	10000000	0.0000001	76.7	-112.2	-1.462	1	10000000	0.0000001
12.57	-109.3	-4.2	42.8	-62.3	-1.454	1	10000000	0.0000001	42.8	-62.3	-1.454	1	10000000	0.0000001
12.58	-216.8	42.9	89.9	-169.8	-1.888	1	643100	1.55497E-06	105.0	-169.8	-1.618	1	204721	4.8847E-06
12.59	-202.8	61.4	108.4	-155.8	-1.437	1	227043	4.40444E-06	129.9	-155.8	-1.199	1	60303	1.65831E-05
12.60	-204.4	-1.8	45.2	-157.4	-3.487	1	10000000	0.0000001	45.2	-157.4	-3.487	1	10000000	0.0000001
12.61	-115.5	12.7	59.7	-68.5	-1.147	1	10000000	0.0000001	64.1	-68.5	-1.068	1	10000000	0.0000001
12.62	-141.5	41.8	88.8	-94.5	-1.065	1	10000000	0.0000001	103.4	-94.5	-0.914	1	2219103	4.50633E-07
12.63	-189.3	-0.8	46.2	-142.3	-3.082	1	10000000	0.0000001	46.2	-142.3	-3.082	1	10000000	0.0000001
12.64	-129.9	-4.1	42.9	-82.9	-1.931	1	10000000	0.0000001	42.9	-82.9	-1.931	1	10000000	0.0000001
12.65	-185.6	41.7	88.7	-138.6	-1.562	1	2038536	4.90548E-07	103.3	-138.6	-1.341	1	528390	1.89254E-06
12.66	-128.5	-4.1	42.9	-81.5	-1.901	1	10000000	0.0000001	42.9	-81.5	-1.901	1	10000000	0.0000001
12.67	-174.1	13.9	60.9	-127.1	-2.085	1	10000000	0.0000001	65.8	-127.1	-1.931	1	10000000	0.0000001
							Total	0.000310774					Total	0.000715029