

T205B 3
Shakedown

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Repeated loading of beam
supported at two points

Date of test
March 24, 1949

no restraint at ends.

PURPOSE

This test was merely to get some general idea of what would happen when repeated loading in the same direction was applied.

Attempt made to see if center deflection of beam remained constant or increased.

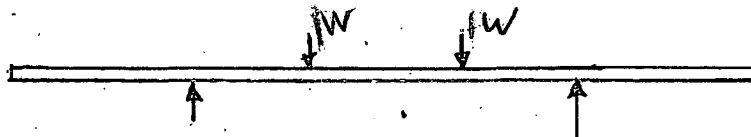
It was also desired to determine if the beam behaved elastically during repeated loading, when a previous load to collapse had been made.

APPARATUS

Used test specimen T205B-3 which had been loaded to failure as a part of the regular continuous beam investigation. Loading equipment same as on that test.

Beam had been rather completely strained at the central span. This plastically-yielded span in the same one that is now studied.

Two load points only are needed, since the beam is being tested as a simple beam:



TEST PROCEDURE

1. Slack off lateral support until touching on only one side at each location. (allow no restraint)
2. Select Zero load (3 kips). Apply it as the loads, P.
3. Take readings of deflection at points between the two support points.
4. Select a maximum load which will be above the load required to yield a previously undeformed member, but which will still be less than ultimate load (modified for loading condition shown above). This value selected is 23 kips.
5. Apply load alternately between maximum and minimum, taking deflection readings at each load.
6. Continue procedure until a distinct behavior pattern is realized.

403 407
19
388
4

Load	Dynamometer B				Dynamometer C				TIME
	No. Zero	Thrust	Increment	Reading Start End	Thrust	Increment	Reading start ending		
1.	3	60826	0	6144 ⁴ 6145	3	0	5798 5798	9:10	
2.	23		388	6532 6531	23	384	6182 6182	9:35	
3.	3			6144 6144			5798 5798	9:45	
4.	23			6532 6532			6182 6181	9:50	
5.	3			6144 6144			5798 5798	9:55	
6.	23			6532 6530			6182 6180	9:59	
7.	3			6144 6145			5798 5798	10:09	
8.	23			6532 6531			6182 6182	10:13	
9.	3			6144 6144 6144			5798 5798	10:19	
10.	23			6532 6531			6182 6182	10:29	
11.	3			6144 6144			5798 5798	10:35	
12.	23			6532 6530			6182 6182	10:40	
13.	3			6144 6144			5798 5798	10:49	
14.	23			6532 6530			6182 6182	10:54	
15.	3			6144 6145			5798 5798	11:01	
16.	23			6532 6530			6182 6182	11:08	
17.	3			6144 6144			5798 5798	11:16	
18.	23			6532 6530			6182 6182	11:30	
19.	3			6144 6144			5798 5798	11:39	

Dynamometer A				Dynamometer D			
Zero	Thrust	Increment	Start	Ending	Thrust	Increment	start ending
	3				3		
2	18				18		

3	20		6144	6144			5798	5798	12:00
4	21		6532	6530			6182	6182	12:10
5	22		6144	6144			5798	5798	12:19
6	23		6532	6531			6182	6182	12:26
7	24		6144	6144			5798	5798	12:29
8	25								
9	26		6144	5798			5798	5798	
10	Zero	6086			5735				

	4		5		6		7		8
+	2797		0215		0598		0228		-0011
1	2790		0215		0600		0233		+0100
2	6045	-	6013	-	9345	-	9264	9031	8820
3	3085	(16)	0750	(34)	1406	(62)	1045	(52)	0883
4	6061	16	6047	34	9407	62	9316	52 8271	8885
5	3111	(20)	0801	(12)	1487	(35)	1127	(32)	0965
6	6071	26	6065	52	9442	97	9348	84 8221	8915
7	3121	(10)	0821	(17)	1518	(50)	1162	(83)	1000
8	6081	46	6082	69	9472	127	9381	117 8219	8951
9	3131	(-3)	0840	(-1)	1552	(8)	1198	(-2)	1031
10	6078		6081		9475		9379	-2 8188	8951
11	3153	(-10)	0881	(-18)	1618	(-25)	1268	(-26)	1100
12	6088		6063		9450		9353	6 8085	8928
13	3149	(-5)	0871	(-5)	1603	(-12)	1250	(-5)	1084
14	6063		6058		9438		9348	8098	8923
15	3161	(+2)	0890	(+1)	1638	(+3)	1295	(+3)	1166
16	6065		6059		9441		9351	8056	8927
17	3170	+8	0908	(13)	1665	(+25)	1316	(+23)	1146
18	6073		6072		9466		9374	8058	8949
19	3186		0937		1707		1360		1188
20	3113		0805		1507		1146		0987
21	6125		6169	5364	9599	8092	9531	8385	9077
22	3127		0835		1544		1189		1025
23	6124		6169		9603		9534	8345	9082
24	3133		0846		1584		1211		1048
25	6146		6209		9664		9595	8384	9136
	3150		0877		1610		1260		1093

Increment
of Diff.

1	10872"
2	10894"
3	10929"
4	10965"
5	11035"
6	11017"
7	11062"
8	11083"
9	

	9		10							
#										
1	0553		2064							
2	6330	-	5173	-						
3	1110		2354							
4	6375	45	5193	20						
5	1165		2385							
6	6390	65	5205							
7	1192		2398							
8	6418		5218							
9	1218		2410							
10	6418		5216							
	1261		2432							
	6402		5208							
	1251	0	2428	0						
	6402		5208							
	1271		2438							
	6408		5208							
17	1289		2446							
18	6418		5215							
19	1319		2463							
20	1185		2390							
21	6508		5262							
22	7212		2401							
23	6513		5262							
24	1226		2410							
25	6546		5281							
26	1253		2423							