

Lab Report T15022

SAMPLE IDENTIFICATION:

	<u>Item no.</u>	<u>Qty.</u>	<u>Identification</u>
Dutro 8" x 1-5/8 hand truck wheel w/ 5/8" flange type ball bearings.	1	1	This wheel was a soft TPR rubber (black 60A) bonded to an aluminum core, with centered hub design and twin 5/8" flange type ball bearings. (see picture)
Colson 8" x2" round tread hand truck wheel. 5.0008.592.2 w/ 3/4" precision flange ball bearing	2	1	This wheel was a Colson black round tread design (55A) bonded to a gray poly core with offset hub design. The wheel bearing were precision type ball bearing with 3/4" ID. (see attached picture)

PURPOSE OF TEST:

The purpose of this test was to determine the durability and impact strength at stated loads. Samples were submitted by George Rife.

TEST REQUIREMENT AND CONDITIONS

The caster assembly was mounted by its normal attachment to the load arm of our 36" dia turntable type test machine. The caster assembly was tested until a failure occurred or exceeded allotted time. The caster assembly was run for 3 minute "on" cycle and a 2 minute "off" cycle to prevent excessive heat build up. The test was conducted per ICWM/ANSI-2012 testing standards.

TEST CONDITIONS:

Test Speed	1.5 MPH
Test Surface	Smooth Steel with 1 obstacle. (3/16" x 1")
Test Cycle	3 minutes ON and 2 minute OFF
Test Load(lb.)	500 lbs.

RESULTS:

	<u>Item no.</u>	<u>Miles</u>	<u>Remarks</u>
Dutro 8" x 1-5/8 hand truck wheel w/ 5/8" flange type bearings	1	3	At the end of 3 miles of travel and traversing the obstacle 2340 times wheel was inoperable. Test was discontinued at this point in time.
Colson 8" x2" round tread hand truck wheel. 5.0008.592.2 w/ 3/4" BB	2	9	The wheel was removed from the tester at the end of 9 miles and 7020 obstacles due to the start of a flat spot on the tread surface.

CONCLUSION:

The durability test at 500 lbs resulted in failure of the Dutro wheel at 3 miles and a tread flat spot at end of 9 miles in the Colson wheel..

The impact test was conducted at 2X rated load (1000 in-lb) and no evidence of structural failure was noted. On either wheel, but under severe impact entering the 2000 in-lb impact the Dutro wheel core deformed severely while no evidence of structural issues were noted on Colson wheel.

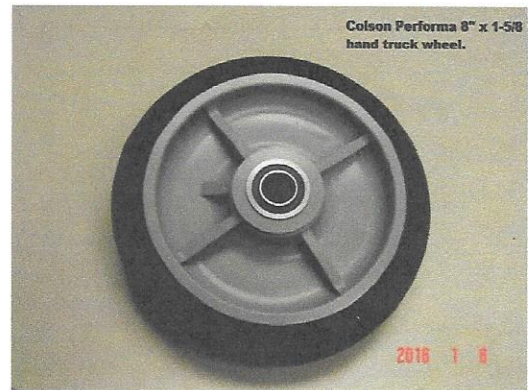
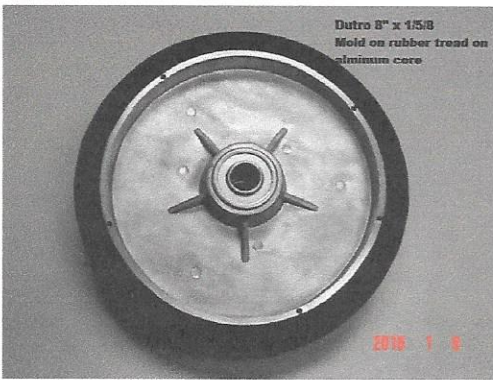
Listed below is a comparative rolling a swivel comparison under various loads.

SET UP BY: Chuck Harris
 REPORT BY: Chuck Harris

TESTED BY: CH

D. Johnson/ G. Rife

Form 73-01-4
 Rev. C: 01/01/06



Comparative Rolling and Swivel Forces					
Dutro versus Colson 8" x 2" hand truck wheels					
Wheel	Part #		Load/ whl.	Initiate Rolling	Swivel 90°
Dutro	N/A		200	7	36
Dutro	N/A		400	13.7	60
Dutro	N/A		500	15.1	74
Colson	5.0008.592.2		200	4.4	23
Colson	5.0008.592.2		400	9	32
Colson	5.0008.592.2		500	12	39.5