

TESTLINK SERVICES, INC.
903 Guthrie St.
P.O. Box 221
De Soto, IA 50069

Report of Hitch Testing
Performed on one **Dual Hitch Extender Design**
in Accordance with SAE J684
Class 4 – 10,000 lbs. Weight Carrying
Model/Part Nos.: **DHB-10**

Prepared for:
RIGID HITCH, INC.
Attn: Blane Wirth
3301 West Burnsville Parkway
Burnsville, MN 55337-9150

This Report prepared by:

Carl C. Andreasen
Project Engineer
Product Evaluation Dept.
Phone: 515-834-9050

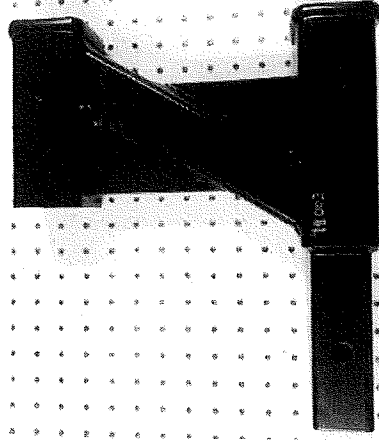
Introduction:

This report presents the results of testing performed on one dual tube hitch extender design in accordance with the latest version of SAE J684 (Reaf. MAY2014), Table 3. This work was requested by Blane Wirth of Rigid Hitch Inc. and will be invoiced per purchase order number 010518BW (TSI proposal # 1005). The product was received on January 8, 2018 with the work conducted on January 10 through February 2, 2018.

Summary of Results:

| Specimen No. / Part No. / Application | SAE J684 Table 3 Weight Carry, GVWR | Cargo Carrier Load on Accessory Tube, Pounds | Complies with SAE J684 Table 3 Yes/No |
|--|-------------------------------------|---|---|
| 1 / DHB-10 /Dual Hitch Extender | Class 4 - 10,000 | 750 / 500 (total change in tube axis 1.9°) | Yes (total change in ball axis 4.5° with test loads in accessory tube) |
| <i>Performance is expected to be lower when hitch is mounted onto actual vehicle applications.</i> | | | |

Note: For any projected ratings in excess of the 10,000-pound limit of this SAE standard, extrapolated values were used to calculate test loads.



As Received

Sample Description:

Type of Device: Hitch component; class 4 extender w/dual tubes, for nominal 2" receiver hitches.

Test Procedure:

Per SAE J684, Table 3; The test specimens are secured in an essentially non-yielding receiver hitch simulation according to the manufacturers recommended installation instructions. All forces are then applied through an essentially non-yielding ball and ball mount with an onset rate of not more than 150 lbs./sec. Main receiver tube tested with a lab supplied ball mount having 0 lift and a 6.0" extension from the ball platform centerline to the receiver lip. A preload of 400 lbs. is used for initial axis readings in degrees.

This report is subject to the adequacy and representative character of the sample provided, and to the comprehensiveness of the tests requested and performed. In the interests of accuracy, and avoidance of misunderstanding, quotations from or citations of this report are authorized only subject to our review and written approval. This report is the confidential property of the client and shall not be used for advertising purposes.

Carrier Loads per Customer: The test specimens are secured as above. All forces are then applied through an essentially non-yielding Cargo carrier/tray with an onset rate of not more than 150 lbs./sec. The first load is applied to the extreme center (rearmost) of the tray and a second load to an extreme corner (rearmost). A preload of 50 lbs. is used for initial axis readings in degrees.

Instrumentation:

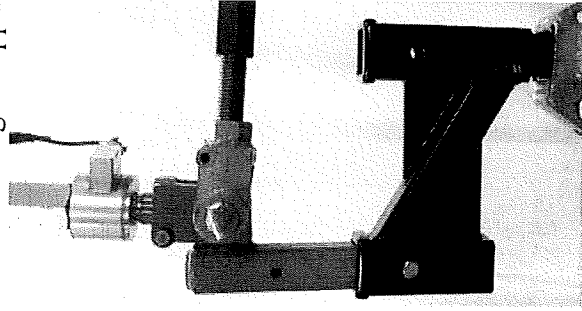
The verification of load cell accuracy used for this project is by an Instron Model 3385H, serial #3217 with an NIST traceable calibration due date of December 7, 2018.

TEST RESULTS: (using accessory tube)

Model/Part No.: **DHB-10**

| SAE J684 TABLE 3, Weight Carrying (Class 4 – 10,000 lbs. GVWR) | | | |
|--|---------------------|--|------------------|
| Direction | Required Load, lbs. | Permanent Change in Ball Axis, Degrees | Complies, Yes/No |
| a. Downward and Compressive (in deepest drop) | 5,180 & 5,180 | 4.5° | Yes |
| b. Tensile and Downward (in highest rise) | 3,830 & 1,500 | 0.6° | Yes |
| c. Compressive and Downward (in deepest drop) | 3,830 & 1,500 | 0.2° | Yes |
| d. & e. Transverse, Leftward/Rightward | 1,500 | 0° (0.1") | Yes |
| (in highest rise) | 2,500 | 0° (0.3") | Yes |

The final position of the ball axis **did not depart** more than 5° from the original, nominally vertical, position following the application of *the required* test loads. **Total – 4.5°.**

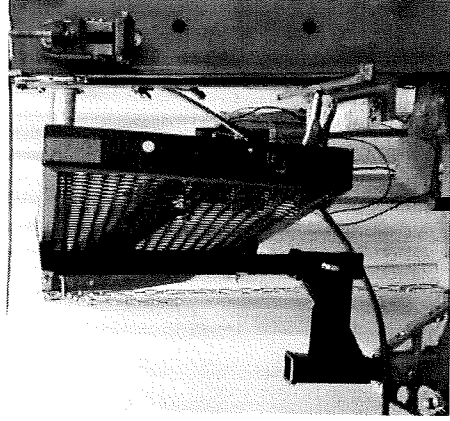


As Tested, with Accessory Tube, in Deepest Drop

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Additional test results:

| Accessory Tube – Static Loads per Client | | | |
|--|--|---|---|
| Direction | Center Line of Carrier, Rearmost Point (moment arm, 24 inches to receiver lip) | Extreme Corner of Carrier, Rearmost Point | Comments, Degrees (permanent change in accessory tube axis) |
| Downward | 750 Lbs. (0.6° under load) | 500 Lbs. (3.3° under load) | 1.9° following consecutive loads |



As Tested, with Accessory Tube, in Highest Rise for Cargo

Specimen Detail: DHB-10

Insert (shank): Nominal 2.0"sq. O.D., solid stock, 8.0" long. The 0.64" hole for a lock/pin is centered 2.5" from the insert end. **Permanent Markings:** None

Extended Receiver Tube: Nominal 2.0"sq. I.D. 0.24" wall, 8.0" long with crimped lip. The 0.64" hole for a lock/pin is centered 2.5" from the receiver end, with a full perimeter weld to the insert with 2.0" of overlap. **Permanent Marking:** None

Accessory Tube: Nominal 2.0"sq. I.D. 0.24" wall, 6.6" long, open ended, with crimped lip. The tube is centered, and butt welded on top of a 2.0"sq. O.D. 0.19" wall, 8.75" long at an angle (7.0" above main tube) in turn welded to top of the receiver tube. The 0.64" hole for a lock/pin is centered 2.5" from the receiver end. **Permanent Markings:** None

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Specimen Detail: DHB-10 (continued)

Possible

Offset/Extension:

0.5" drop and rise with an 8.9" extension, from anticipated location of the receiver lip (8.9" from hole to hole, 14.9" from insert hole to test ball centerline).

Sample Disposition:

The test specimen from this project will be returned, ground freight, via UPS, per clients' request.

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