AERIAL FRONT AXLE RATINGS

OVERVIEW

With the introduction of the Cummins ISX 15 liter engine (which weighs approximately 325 pounds more than the 12 liter), the request for more seating and storage capacity in the cab, the use of larger front bumper extensions and troughs for storage of more hose and tools, and the use of large light towers, we have seen the in-service front axle weights on our larger (tandem axle) aerial products creep up over the past couple of years.

To ensure that we do not create a configuration that would result in an overweight in-service unit, we will need to review any apparatus that has the following configuration prior to quoting it to a customer:

- SPH100 with 73" cab **AND any of the following**: 6 crew seats, rescue bumper, light tower, large custom storage cabinet (IE tall transverse behind crew doors)
- SP95/100 with 73" cab **OR** a 56"/62" cab with any of the following: 6 crew seats, rescue bumper, light tower, large custom storage cabinet
- Any tandem axle industrial aerial regardless of cab size or options.

To determine if your configuration will need an upgraded front axle/suspension/tire setup, we will use the NFPA provided calculation sheet found in NFPA 1901 Annex B (see sample on next page).

If it is determined that your requested configuration would result in an overweight in-service unit, we will offer a Dana axle with a 25,500 pound rating which is coupled with a front suspension package that is rated to match and 445 front tires w/13" wide wheels. This package carries a cost of $6,611 more than the standard 23,000 pound aerial configuration. Please note that this configuration will result in a reduced cramp angle due to the larger tires and will raise the height of the unit 2" (will require the additional of auxiliary cab steps). Also, this front axle is NOT available with disc brakes (S-CAM only).

As we better define the various configurations and how each combination affects the in-service weights, we will be able to write rules into the configurator to force this larger front axle configuration based on the options selected. Until then, please reach out to your SAE for configuration review prior to proposing any unit that meets these requirements.

AERIAL FRONT AXLE RATINGS

Sample Calculation Sheet:

ANNEX B 1901-193

HS-5790 HICKSVILLE, NY

AS-DELIVERED WEIGHT ANALYSIS CALCULATION WORKSHEET

Axle Rating Reserve Capacity Determination

	1	2	3	4	5	6	7	8	9	10
							Total Vehicle	Front Axle	Rear Axle or Tandem	Tiller Axle
a	Weight at delivery (with water)						65,520	21,340	44,180	—
			Hose Length (ft or m)		Weight per Unit Length (lb or kg)				(100%)	
b	Hose allowance	Main hose bed	800'5"	(x)	1.10	(=)	880	—	880	—
c	Hose allowance	Main hose bed	—	(x)	—	(=)	—	—	—	—
d	Hose allowance	Main hose bed	—	(x)	—	(=)	—	—	—	—
								(50%)	(50%)	
e	Hose allowance	Cross lay	FRONT BOX	(x)	—	(=)	110	26	84	—
f	Hose allowance	Cross lay	REAR BOX	(x)	—	(=)	49	8.5	40.5	—
g	Hose allowance	Cross lay	—	(x)	—	(=)	—	—	—	—
								(100%)		
h	Hose allowance	Front bumper	125'2.5"	(x)	.70	(=)	87.5	87.5	—	—
i	Hose allowance	Suction hose	—	(x)	—	(=)	—	—	—	—
j	Hose allowance	Other	—	(x)	—	(=)	—	—	—	—
k	Hose allowance	Other	—	(x)	—	(=)	—	—	—	—
			Seating Capacity (people)		Weight per person			(100%)		
l	Personnel allowance		8	(x)	250 lb (113 kg)	(=)	1,750	1,750	—	—
					(-250 for driver)				(100%)	
m	Miscellaneous equipment allowance [from 12.1.2(7)]						2,500	—	2,500	—
n	Total expected in-service weight (sum of rows a through m)						70,897	23,212	47,685	—
o	Axle weight ratings (from chassis manufacturer's data label)						—	25,500	52,000	—
p	Expected reserve capacity						—	2,288	4,315	—

FIGURE B.5.1(b) As-Delivered Weight Analysis Calculation Worksheet.

PROJECTED OVERWEIGHT CONDITION

REQUIRES DANA 25,500 AXLE CONFIGURATION