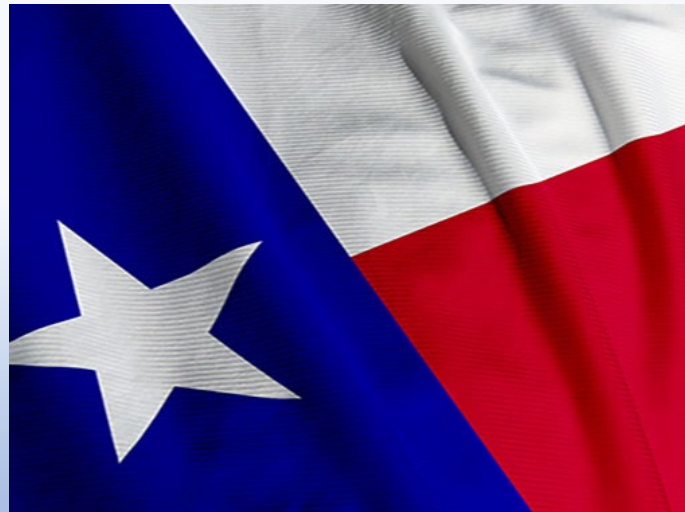


**CRANE BOOM DOLLIES.....  
THE NECESSARY EVIL.  
What you should consider.**

TEXAS CRANE OWNER'S ASSOCIATION





# *The Basic Intent Of A Crane Dolly*

- Used to spread the weight of the crane out over a broader footprint and get weight per axle down to an acceptable range.
- Different states = different ranges/rules = different dolly layouts
- Dolly a boom in one state, may need to launch it in another.
- Some states have lower GVW caps than others = Forces you to plan for the “lowest common denominator” when laying out a crane/dolly set up.



# *Different Types Of Dollies*

- Tag Axles
- 2 Tight
- 3 Tight
- 4 Tight
- 2+1 Spread
- 2+2 Spread



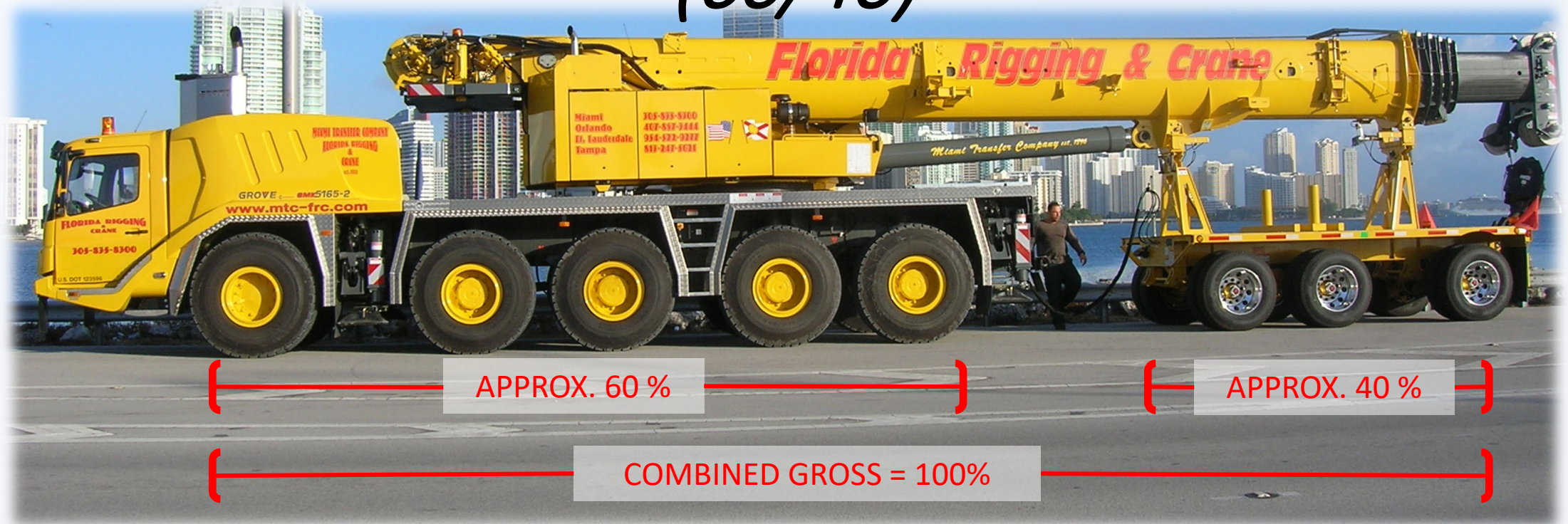
## *How to choose the right dolly layout...*

- Where is “home”, or where do I do most of my day to day work with this machine?
- How often do I go away from “home” and where is that?
- Consider the axle weight/spacing laws based on these answers. (“LCD”)
- Equip the crane as efficiently as possible within allowable weights (jib, aux hoist, cw?)
- Can we/do we want to haul cw on the dolly to make more convenient fall off loads?
- Do dolly provisions on the machine allow for that? (See next slide)

# Counterweight - Do dolly provisions on the machine allow for that?



# *Dolly Safety - Maintain A Good GVW Balance (60/40)*



- If dollying a machine, we recommend a 60/40 split of the combined GVW with at least 60% of the combined GVW on the machine, and 40% of the combined GVW on the dolly.
- This way the machine is the “lead dog” and the tail (dolly) is not “wagging the dog”.
- When looking at the crane or dolly individually, you want to keep the axle weights as closely distributed as possible.

# *Dolly Specs*

- IS DOLLY WEIGHT GOING TO BE AN ISSUE?
- Air Ride vs. Spring
- Air Pins vs. Manual
- Tire size? 20K#/axle or more?
- Self Steer Axles?
- Room for Options – Towing Drawbar, Pad Racks?



# *Boom Dolly Safety Is A MUST!!*

- ✓ New Dollies go through a typical DOT inspection and diagnostics test before leaving the finishing shop.
- ✓ Recently added an option for ABS/EBS valve with roll stability sensors.
- ✓ Within the past 10-12 years we have incorporated parking brake interlock valves to keep dollies from inadvertently rolling when not connected to the boom.
- ✓ Important to know and understand how the dolly and features are intended to work with your machine. (self steer axle, hook block provisions, suspension, etc...)



# *Boom Dolly Safety Is A MUST!!*

*A unsecured block can contribute to loss of control*



# *Boom Dolly Safety Is A MUST!!*

## *General guideline for hook blocks and dollies*

On dollies that are attached to the boom and towed by the boom attachment, the block can be suspended from the boom head and tethered to the dolly.



For dollies that are either wide spread or have a rolling tower, if there is a hook block hanging from the boom head it can not be tethered to the dolly. If it's unable to be tethered elsewhere independent of the dolly then the block should be removed

# *Mobile cranes in Texas*

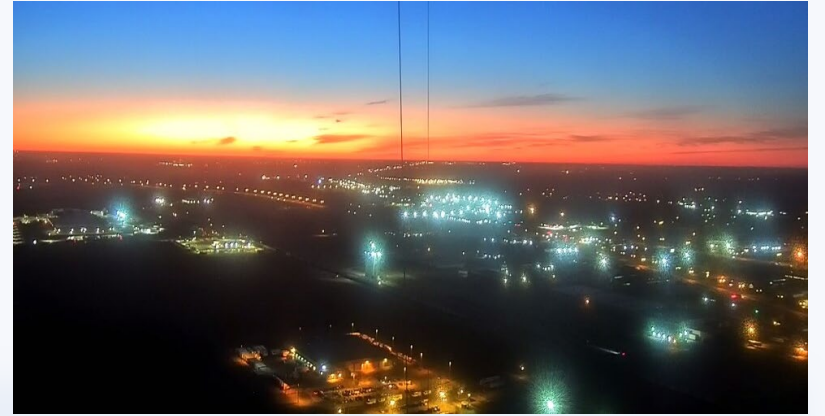


## Classification

- Texas classifies a crane as any unladen lift equipment motor vehicle designed for the sole purpose of raising, shifting, or lowering heavy weights.
- Cranes are considered nondivisible in Texas and may carry properly secured equipment such as outriggers, booms, counterweights, jib, blocks, balls, cribbing, outrigger pads and outrigger mats.
- The VIN is used for permitting purposes.
- Should a mobile crane/self-propelled equipment be owned in a state that does not require it to have a license plate, a permit may still be obtained. The crane would be required to be registered so at a minimum it would need a temp registration. Once the temp registration is obtained, it limits the available permits to single trip (**will not be able to get a quarterly or annual permit**).

# *Mobile cranes in Texas*

Times of travel  
Hours of operation



Travel is permitted beginning one-half hour before sunrise and ending one-half hour after sunset

A permitted vehicle may only be moved during daylight hours unless:

1. The permitted vehicle is overweight only;
2. The permitted vehicle is traveling on an interstate highway and does not exceed 10' wide or 100' long, and has legal front and rear overhangs;
3. A mobile crane or self-propelled well servicing unit not exceeding 9 feet wide

# *Permit types*

There are two different permit types that cover the majority of the cranes in service today

## Annual permit

## Quarterly Hubometer Permit

### Mobile Crane (Annual)

- Unladen lift equipment
- Valid for one year



### Quarterly Hubometer

- Drive or transport hubometer-equipped fixed-load machinery and cranes
- Mileage based fees
- Valid for 91 days



# Annual Permit

*Cranes operating under annual permit may not exceed*

*Annual permit expires one year from the "Movement to begin" date*

## Dimensions:

Width – 10'

Height – 13' 6"

Length – Legal



## Weight:

**120,000** pounds gross weight

25,000 pounds single axle

46,000 pounds tandem axle group

60,000 pounds 3-axle group

The annual permit fee is \$100.

# Cranes operating under annual permit may not exceed **120,000** pounds gross weight

Weights based on manufacturers standard design All Terrain Cranes Boom Over Front							
Tadano		Liebherr		Link Belt		Grove	
Model	GVW (lbs)	Model	GVW (lbs)	Model	GVW (lbs)	Model	GVW (lbs)
AC 2.040-1	52,900	LTM 1030-2.1	52,900	175 AT	<b>132,000</b>	GMK3050-3	79,370
AC 3.055-1	79,400	LTM 1040-2.1	52,900	ATC-3210	<b>132,000</b>	GMK3060-2	79,370
AC 3.060-1	79,400	LTM 1050-3.1	79,200	ATC-3275	<b>135,000</b>	GMK3060L-1	79,370
AC 4.070-2	105,800	LTM 1055-3.2	79,200	300AT	<b>132,600</b>	GMK4070L	105,820
AC 4.080-1	106,000	LTM 1060-3.1	79,200			GMK4080-3	105,820
AC 4.100L-1	106,000	LTM 1070-4.2	105,600			GMK4090-1	105,820
AC 4.110-1	105,800	LTM 1090-4.2	105,600			GMK4100L-2	105,820
AC 5.120-1	<b>132,277</b>	LTM 1120-4.1	105,600			GMK5120L	<b>132,280</b>
AC 5.130-1	<b>132,300</b>	LTM 1100-5.3	<b>132,000</b>			GMK5150-1	<b>132,280</b>
AC 5.140-1	<b>132,300</b>	LTM 1110-5.1	<b>132,000</b>			GMK5150L-1	<b>132,280</b>
AC 5.160-1	<b>132,300</b>	LTM 1110-5.2	<b>132,000</b>			GMK5150XL	<b>132,280</b>
AC 5.220-1	<b>132,300</b>	LTM 1150-5.3	<b>132,000</b>			GMK5180-1	<b>132,280</b>
AC 5.220L-1	<b>132,300</b>	LTM 1160-5.2	<b>132,000</b>			GMK5200-1	<b>132,280</b>
AC 5.250-1	<b>132,300</b>	LTM 1230-5.1	<b>132,000</b>			GMK5250L-1	<b>132,280</b>
AC 6.300-1	<b>158,800</b>	LTM 1250-5.1	<b>132,000</b>			GMK5250XL-1	<b>132,280</b>
ATF 400G-6	<b>155,903</b>	LTM 1300-6.2	<b>158,400</b>			GMK6300L-1	<b>158,733</b>
AC 7.450-1	<b>185,200</b>	LTM 1300-6.3	<b>158,400</b>			GMK6400-1	<b>158,730</b>
AC 8.500-1	<b>209,400</b>	LTM 1350-6.1	<b>158,400</b>			GMK7550	<b>185,190</b>
AC 9.700-1	<b>238,100</b>	LTM 1450-8.1	<b>211,200</b>				
		LTM 1650-8.1	<b>211,200</b>				

63.3% of the All Terrain Cranes will not qualify for annual permit without changes in the configurations

Many of the 5 axle and above cranes outfitted with 525 tires are wider than the allowed 10' width

# *Appropriate Permit types for specific cranes*

## Boom over front configurations (Annual permit)

- 2 – 4 axle are most suited for the annual permit
- They fit well for annual permit with one exception the tandem axles are only allowed 46,000 lbs.  
You will need to reduce the configuration to achieve this requirement
- Reduced configuration means more falloff loads
- Other options such as boom dolly may serve you better





# *Appropriate Permit types for specific cranes*

## Boom dolly configurations (Annual permit)

Using a dolly will leave between 111,000 to 113,000 lbs. for the cranes configuration

Possibly achieve 20 – 50 % of the counterweight without carrying any counterweight on the dolly (dependent of crane model)

Carrying counterweight on the dolly may increase the overall to 70% (dependent of crane model)

5 Axle cranes (10' wide and under): If this approach is taken you will achieve only a minimal configuration



## *Quarterly Hubometer permits*

TxDMV issues quarterly hubometer permits for the following vehicle types:

Self-propelled oil well servicing units, **Self-propelled mobile cranes**, Self-propelled concrete pumps, Trailer-mounted oil well servicing units, Coiled tubing units, Swabbing units Self-propelled bundle extractors



# *Quarterly Hubometer permits*

Permit expires after 91 days.

Units operating under this permit may not exceed:

12' wide

14' 6" height

95' length

30,000 pounds per axle based upon results of weight analysis



Self-propelled cranes moving with this permit that are 10' 6" wide or less are allowed night movement with front and rear escorts.

# *Quarterly Hubometer permits*

(C) Total rate per mile. The total rate per mile is the combined mileage rates for width, height, and weight for the crane

(4) Special fee provisions. A crane with two or more axle groups that do not have a spacing of at least 12 feet between the closest axles of the opposing groups must have the permit fee calculated



[https://www.txdmv.gov/sites/default/files/body-files/Motor\\_Carrier\\_Handbook.pdf](https://www.txdmv.gov/sites/default/files/body-files/Motor_Carrier_Handbook.pdf)

# Appropriate Permit types for specific cranes

## Boom over front configurations (Quarterly Hubometer permit)

Quarterly Hubometer permit allows for higher axle loads than manufacturers intended design 26,455 lbs axle weights.


Dependent of model you can achieve a well equipped crane without exceeding manufacturers design targets


Choosing higher weights approaching the 30,000 lbs per axle, please consult manufacturers published data for weight/speed

5 Driving

5.3.1.7 Michelin X-Crane + 525/80 R 25

- Identification 176F
- Tyre pressure 7.0 bar (102 psi)

 Tyre is not allowed in the United Kingdom (UK) within the range of validity of the STGO (Special Type General Order).

 Area of application restricted to central European climatic conditions (+25°C to +40°C).

Maximum speed		Axle loads			
km/h	mph	On road		Off Road	
		t	kip	t	kip
85	53	13.5	29.8	-	-
80	50	14.0	30.9	-	-
70	44	14.9	32.9	-	-
60	37	15.6	34.4	-	-
50	31	15.9	35.1	-	-
40	25	16.3	35.9	-	-
30	18	17.8	39.2	-	-
20	12	21.2	46.7	21.3	47.0
10	6	25.6	56.4	26.8	59.1
5	3	29.8	65.7	30.4	67.0
2	1	33.2	73.2	38.0	83.8

# *Appropriate Permit types for specific cranes*

## Boom Dolly configurations (Quarterly Hubometer permit)

Using a Boom Dolly will help maximize the configuration of your crane under the Quarterly Hubometer permit.

For the 3 – 4 axle cranes with the correct dolly it can be possible to achieve a nearly fully dressed crane

For 5 axle and up cranes with the correct dolly it can be possible to achieve up to 50% of the counterweight travelling with the crane.

Properly configured setups under the Hubometer permit has potential of reducing your fall off loads significantly

# Mobile cranes in Texas

What does the difference between permit types mean to your business?

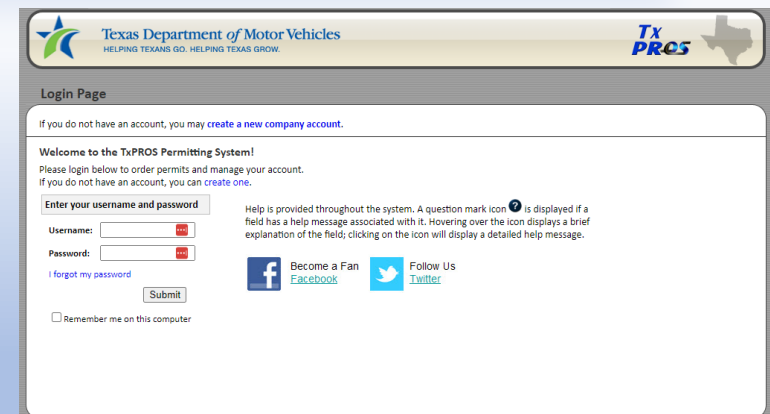
Find the balance between what the manufacturer allows for on road travel for axle weights and the best permitting type.

Target your configurations for the largest percentage of the work you perform

Quarterly Hubometer permit allows for better configurations, however it comes at a higher cost than the Annual permit.

A full analysis between permit types and overall costs will help to decide best approach for your business

<https://txpros.txdmv.gov/>



The screenshot shows the login page for the TxPROS Permitting System. At the top, there is a header with the Texas Department of Motor Vehicles logo and the slogan "HELPING TEXANS GO. HELPING TEXAS GROW." On the right side of the header, there is a "TxPROS" logo with a map of Texas. Below the header, the page is titled "Login Page". The main content area contains a welcome message: "Welcome to the TxPROS Permitting System! Please login below to order permits and manage your account. If you do not have an account, you can create one." There are two input fields for "Username" and "Password", both with red "X" icons indicating errors. A "Submit" button is located below the password field. To the right of the input fields, there is a help message: "Help is provided throughout the system. A question mark icon (?) is displayed if a field has a help message associated with it. Hovering over the icon displays a brief explanation of the field; clicking on the icon will display a detailed help message." Below the help message, there are social media links for Facebook and Twitter. At the bottom left, there is a "Remember me on this computer" checkbox.

Thank you!

Q&A