

White paper:

# ANSI 92.20 White Paper Part 2

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## Introduction

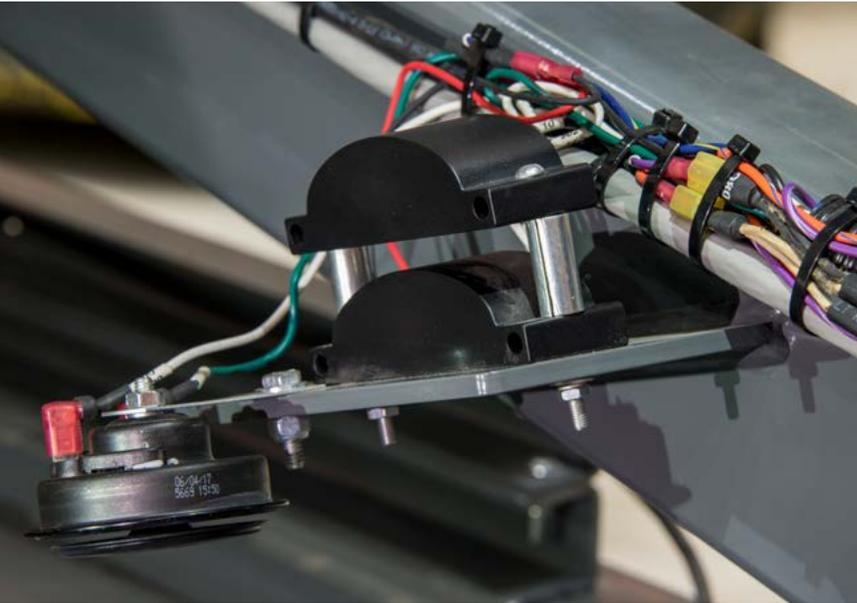
This white paper will guide you through Skyjack's solution to the challenges that face the access market in North America with the introduction of ANSI 92.20 standards in the United States and CSA B354.6 in Canada.

At this point, most owners and users of self-propelled Aerial Work Platforms (AWP) are aware of changes to the ANSI and CSA standards these machines adhere to. Moving forward, these machines will now be recognized as Mobile Elevating Work Platforms (MEWP) and ANSI 92.20 and CSA B354.6 are the new standards that they are designed towards. These new standards are much more similar to current standards used in other parts of the world, all of which are similar to the ISO 16368 design standard.

# More than just ANSI

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There have been numerous discussions and articles written about what these changes entail. Before discussing how the design of Skyjack's machines is changing to meet these new standards let us first recap at a high level what the core changes are:



- Changes to stability testing requirements eliminate pneumatic tires on most models. Foam filled or solid rubber tires become standard on most rough terrain scissor lifts and booms;
- Load sensing systems added to all scissor lifts and booms, which will prevent normal machine operation when platform capacities exceed their rated load;
- Wind force calculations are expanded with additional criteria, providing a more stringent application for testing. Along with the aforementioned capacity changes, some machines will now see their personnel and wind ratings change;
- Guardrail systems must be at least 3.61 ft (1.1 m) tall. Solid rails are replaced with hinged rails on some smaller scissor lifts due to the increased stowed height;
- Chain gates are no longer be used as guardrails or entrances. Half-height gated entrances with a 6" toe board will become standard;
- Controls must be protected against sustained involuntary operation. Added protection for both boom and scissor platform controls will be standard.

What do these changes mean for equipment owners? Outside of the impact to performance and product specifications, it is true that some of these design changes will add a slight increase to the initial acquisition cost. However, Skyjack recognizes that its customers likely will not have the benefit of increasing their rental rates to offset these changes. Skyjack understands that while some of these changes may be cumbersome from both a cost and operational standpoint, these changes have also provided the opportunity to touch on product improvements. Apart from new features that were standards driven, there are several changes to Skyjack models that were identified as an opportunity to offset those increases or to promote reduced operating costs to maintain or increase the rental companies ROIC.

Skyjack has continued with a design philosophy that's simple and reliable, easy to service while reducing maintenance and repair turnaround times. This approach aligns with Skyjack's core values of lowering rental companies' overall cost of ownership and rebalances our customers' ROI equation with the introduction of the new standards. Some of the main design changes that are included on Skyjack's DC scissor lifts are:

# BEYOND COMPLIANCE



## CONTROL BOX

Newly designed upper control box with integrated shroud and service friendly components.



## SCISSOR STACK

Standard welded cross bracing for increased rigidity and operator comfort.



## SKYCODED™ CONTROL SYSTEM & LOAD SENSING

Integrates the functionality of the motor controller, relays, and load sense into one system that requires less maintenance and service. Color coded numbered wiring system still applies.



## SKYCODED™ DIAGNOSTIC DISPLAY

Provides plain language with diagnostic prompts for simple machine troubleshooting. Also removes requirement for separate handheld calibration units to interface with the machine.



## ELEVATE

### TELEMATICS READY

Advanced SKYCODED™ output capability.



## E-LOWERING

Single location emergency lowering control integrated in hydraulic swing out tray. No more access rod required.



## POTHOLE PROTECTION

Directly mounted to the chassis with a simplified mechanical design. Ground clearance has been improved by up to 45%.



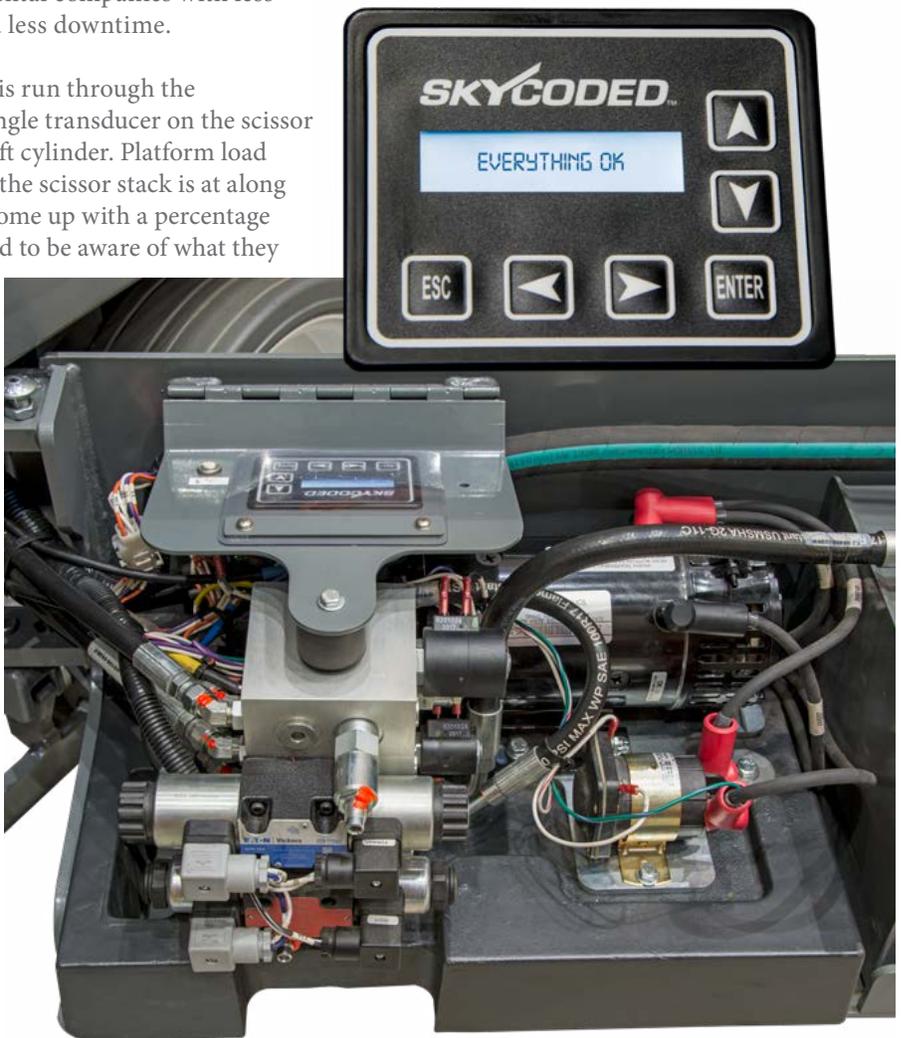
# Design Changes

One of the biggest changes for the North American market is the introduction of load sensing systems to scissor and boom lifts. Although Skyjack has been using load sensing systems on a number of its machines throughout Europe and Australia for over 10 years, the changes in North America have provided an opportunity to improve this existing control system. Not only will load sensing be added to comply with new standards but it will also be integrated with the motor controller and logic previously performed by relays – utilizing one compact control module. The module itself is still run through Skyjack’s color coded and numbered wiring system, however it now allows you to troubleshoot on-the-fly with an added onboard interface, so no need for additional handheld devices or connectors. Having all of these components integrated together will be more cost effective to rental companies with less replacement parts, less service calls and less downtime.

The load sensing system for DC scissors is run through the SKYCODED™ module with an added angle transducer on the scissor stack and a pressure transducer on the lift cylinder. Platform load is determined by calculating what angle the scissor stack is at along with the pressure of the lift cylinder to come up with a percentage of overall rated load. Customers will need to be aware of what they put into the lift at ground level as well as what they might be taking down and putting into the lift at height.

On Skyjack booms, a load cell located under the platform acts as a load bearing connection between the jib (or boom) and platform. Also, like their scissor lifts, it is a proven design utilized by Skyjack in other regions for over 10 years.

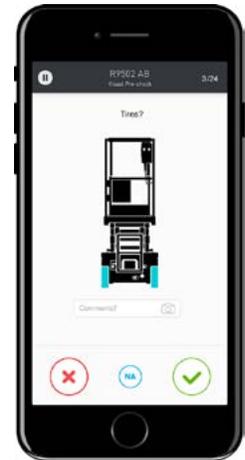
Skyjack recognizes that as the scope of work that booms are utilized for continues to grow, so too does the need for added functionality of the machine itself. The need to accommodate more tools, more material and more personnel in the basket has been addressed by increasing the platform capacities. Capacity ratings do vary by model, however each Skyjack boom will see an increase to its current capacity. Being able to accommodate more personnel, more tools and more material, will translate directly into higher efficiency and more time saved from fewer restocking trips.



The MEWP and off-highway rental industry has been slow to adopt telematics solutions offered by OEMs and third party providers. The lack of relevant data points offered by construction-oriented telematics products is a contributing factor to the slow adoption rate. Limiting data to just location, speed, and run hours has limited the potential benefit the industry sees from these telematics products. That limitation has been due in part to machine design, and in part to software design. The changes required by ANSI 92.20 provided Skyjack with an opportunity to deliver greater insights on MEWP usage and utilization by providing richer and industry-specific data. With ANSI 92.20 changes so comes the ability to track and analyze the majority of Skyjack’s machine functions. As a result, Skyjack introduced its ELEVATE telematics solution in early 2018.

Beyond the changes to the design standards covered in ANSI A92.20 and CSA B354.6, the requirements for training and familiarization will also be changing. This includes:

- ANSI A92.22 and CSA B354.7 covers the safe use of MEWPs, providing direction on what is required by owners of the equipment, operator familiarization, inspection requirements, supervisor training occupant knowledge, as well as job site risk assessment requirements.
- ANSI A92.24 and CSA B354.8 covers the training requirements of all MEWPs, and is not only limited to operators but also, for A92.24, the supervisors of operators. Anyone offering and providing training must be well versed in the requirements in the new standards and understand what is acceptable for both those being trained and those who supervise the operators of the equipment.



Part of Skyjack's approach to facilitate meeting these requirements is the launch of the ELEVATE ON app for operators and site managers. As components of the ELEVATE telematics suite, this app will help digitize and track familiarization, machine pre-checks, and make familiarization materials more easily available on-site.

With the implementation of the new ANSI and CSA standards, MEWPs are now more globally aligned, with the Americas and EMEA following each other more closely. Although there are perceived negatives to some features, there are many benefits that rental companies will also see with the implementation of these new standards. Skyjack's newly designed MEWPs address core customer concerns from previous models to further reduce rental companies' overall cost of ownership and ensure any burden of change is minimized. The global MEWP market has seen steady enhancement of features found on the equipment and safe practices for use, and these standards help to continue that progress. Skyjack understands that there may be questions concerning the implementation of these standards, and is committed to assisting their rental customer and their customers for a seamless integration into their fleet. To this end, material designed for use by rental houses (posters, fact sheets, web-based information) will all be available. Planned implementation for these Skyjack materials will start in the second half of 2019.





# ACCESSORYZERS™

Skyjack offers a full line of ACCESSORYZERS™ to improve your machine's versatility. These manufacturer-approved accessories are designed to add functionality to your machine and convenience for the operator. Whether it's helping you get materials to the work site, protecting equipment from the weather, or enhancing productivity, Skyjack has the right accessory for the job.



HEAVY DUTY PIPE RACK

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[www.skyjack.com/accessoryzers](http://www.skyjack.com/accessoryzers)