

After you have completely serviced a hoist and it is ready to ship out to the customer, the very last step before delivery is putting the hoist through a test procedure. This test procedure verifies the quality of the service performed and approximates how a particular hoist would function in the field. This process involves recording information that is specific to the overall performance of a particular hoist. Power Climber has bulletins that can record the type of information that is collected during testing. (Reference SI-034, SI-036, SI-037)

Final testing assures that the hoist and all of its safety features are working properly. The test stand is one of the most important tools in determining how well all of the features of a hoist operate.

Effectively matching field conditions on a test stand is a simple process with a well-designed stand. Simulating field conditions can save your company from having to respond to simple service calls that can be almost completely eliminated by thorough testing. This type of testing can also predict the remaining life span of certain components.

Information Gained from the Test Stand

Amperage readings gained from testing on a well-designed stand can predict the remaining life span of an electric motor and prevent problems before they occur in the field. Recording the amp draw reading for a given hoist over a long period of time will make it easy to see performance changes in the motor. When you see increased amperage draw that cannot be attributed to other components, it is likely that the motor windings are getting weaker.

Weak motor windings are very easy to identify when the voltage is lowered below -10% of the nameplate rating. Weak motor windings may work very well on a test stand when they are supplied with good voltage like 230V instead of 208V. When weak motor windings are used under low voltage conditions, they are visible in the hoist's decreased ability to lift a load. If your test stand approximates the worst-case field voltage conditions, it will be easy to spot this condition.

Using a multi-meter to look for a weak motor winding is tricky at best, because the resistance readings are subject to environmental conditions like temperature and humidity. They can be used as final confirmation of an already diagnosed condition. Use the test stand with the voltage set at -10% of the nameplate rating as the more reliable test procedure.

Unusual amperage draw readings can be a positive sign of certain bad components such as a run capacitor or a start capacitor. Knowing and using the information gained in testing a hoist is critical to your customer's satisfaction. It is much better to predict and correct a potential problem than it is to be notified by your customer that he has a problem.

Gearbox Performance

Gearbox performance can be checked with the proper test stand. Performance issues with a gearbox can have the following symptoms: increased operating noise, increased amperage draw, and no controlled descent under a light load.

Increased noise and amp draw related to a gearbox could be related to improper lubrication or not enough lubrication. It could be related to gearbox wear and backlash or improper service.

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The loss of controlled descent, as a gearbox problem, can be related to similar conditions already discussed. It will be exhibited by a hoist that will not descend with a light load such as bosun chair.

When Building a Test Stand, Consider the following:

- Is it safe for the people who have to operate it?
- Have you provided an effective way to change voltages easily?
- Have you provided an effective way to change loads easily?
- Do you have a meter, such as Amp and voltage meter, to show how the hoist is performing?
- Have you considered the mechanical advantages/disadvantages of the pulley arrangement that you are using?
- Has your test stand been calibrated?

Features of an Effective Test Stand

To be able to test and evaluate hoists effectively, you must have a test stand that is able to perform several tests safely and quickly. This is directly related to the design that you choose. I have seen very simple test stands or test stations that are as basic as a wire rope connected to a ceiling joist. This style would not give the technician the safest place to operate the hoist without injury. It would also not give the technician the ability to test the hoist's ability to lift a full load.

The first priority in doing any work in our industry is safety. We want our customers to be as safe as possible, and to help them live up to this, we must be the first example. This means that in all aspects of performing our work we must insure the safety of our personnel. Therefore the design of a proper test stand must provide adequate protection for those that must work with it should something go wrong during the testing process.

An effective test stand must also be able to simulate different field conditions such as varying loads and voltages. Varying loads can be achieved simply by adding or subtracting counterweights to a basket. Changing voltage at the hoist can be as simple as adding more power cord between the hoist and the power source, effectively dropping the voltage being supplied.

Many good designs are currently being used throughout the country. If you think that you have a good test stand, or you would just like to us to take a look at your test stand, send us a picture.

For questions or comments, contact Customer Service at 1-800-560-CLIMB (2546) or customerservice@safeworks.com.