



MODEL 78160 3 TON CAPACITY DIESEL ENGINE STAND

SETUP • OPERATING • MAINTENANCE INSTRUCTIONS

Note: Revision letters (A, B, C, D etc.) after model numbers have been omitted as they do not affect the setup, operating and maintenance instructions of a particular jack unless otherwise noted.

IMPORTANT: READ THESE INSTRUCTIONS BEFORE OPERATING

BEFORE USING THIS DEVICE, READ THIS MANUAL COMPLETELY AND THOROUGHLY, UNDERSTAND ITS OPERATING PROCEDURES, SAFETY WARNINGS AND MAINTENANCE REQUIREMENTS. FAILURE TO DO SO COULD CAUSE ACCIDENTS RESULTING IN SERIOUS OR FATAL PERSONAL INJURY AND/OR PROPERTY DAMAGE.

The use of portable automotive lifting and support devices is subject to certain hazards that cannot be prevented by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have owners and personnel involved in the use and operation of equipment who are careful, competent, trained, and qualified in the safe operation of the equipment and its proper use. Examples of hazards are dropping, tipping, or slipping of engines or their components caused primarily by improperly securing loads, overloading, off-centered loads, use on other than

hard level surfaces, and using equipment for a purpose for which it was not designed.

It is the responsibility of the owner to make sure all personnel read this manual prior to using this device. It is also the responsibility of the device owner to keep this manual intact and in a convenient location for all to see and read. If the manual is lost or not legible, contact Norco Industries, Inc. for a free replacement. If the operator is not fluent in English, the product and safety instructions shall be read to and discussed with the operator in the operator's native language by the purchaser/ owner or his designee, making sure that the operator comprehends its contents.

WARRANTY

This product is covered by a Limited Lifetime Warranty. For details see the back cover of Norco's product catalog.

⚠ WARNING

- Inspect the engine stand before each use. Do not use the engine stand if it is damaged, altered, modified, in poor condition, leaking hydraulic fluid, or has loose or missing hardware or components. Take corrective action before using the engine stand.
- Do not use the engine stand beyond its rated capacity. The maximum capacity (6000 lbs.) is determined at a point where the center of the engine is located no more than 13" from the mounting hub surface. The engine stand is equipped with a universal adapter that bolts to the mounting hub surface. Center lines of engines weighing 5000 lbs. can be mounted no more than 20" from the mounting hub surface and center lines of engines weighing 4000 lbs. can be mounted no more than 25" from the mounting hub surface.
- Use only on a hard level surface.
- Wear approved eye protection.
- Assure load is centered and secured to mounting adapters. Consult the engine manufacturer for the proper engine mounting hole locations.
- Use only grade 8 bolts in all adapter and engine mounting applications. Before handling and/or starting repairs, make sure all hardware is tight and secure.
- Threaded holes in adapters and engine blocks must be clean and not damaged to insure thread engagement. A bolt thread engagement must be equal to 1-1/2 times the bolt thread diameter in order to maintain strength requirements.
- Lock the rotating gear drive by engaging the crank handle with the locking fork before applying a load to the engine stand and working on the engine.
- Avoid unsafe, off-balance loads by aligning the engine's center of balance (rotational axis of the engine) with the rotational axis of the engine stand's gear drive shaft. The center of balance is generally a few inches above the crankshaft. The alignment should not be off more than two inches. Consult the engine manufacturer to determine the exact center of balance.
- Keep body from underneath engine when being lifted or suspended.
- The engine stand's hydraulic jack is only used to gain engine clearance when rotating the engine. Keep the jack at its lowest possible position when working on an engine in order to avoid tipping. Always release the jack slowly and carefully when lowering a load.
- No alterations should be made to this product.
- Only attachments and/or adapters supplied by Norco shall be used.

SETUP

1. This engine stand is equipped with a universal adapter which can be configured to fit certain engines or certain optional engine adapters. Determine the correct adapter for the engine you are working on and tighten all hardware that attaches the adapter to the engine stand's mounting hub.
2. Sometimes air gets trapped in the hydraulic jack that controls the angle of the mounting hub. An air bound hydraulic system feels spongy when pumped and sometimes the jack will not pump in full incremental strokes.

PURGING AIR FROM THE HYDRAULIC SYSTEM

- a. Open the release valve by turning the handle in a counterclockwise direction two full turns.
- b. Pump the handle ten full strokes.
- c. Close the release valve by turning the handle in a clockwise direction until tight.
- d. Pump the jack until the ram is extended to maximum height.
- e. If the condition remains, repeat steps "a" through "d" until all air is purged from the system.

OPERATING INSTRUCTIONS

1. Become familiar with the operating features of the engine stand. The crank handle is used for turning the engine 360° if necessary. The crank handle locking fork should be used to lock the crank handle in position before moving the engine stand and/or working on an engine. The bottle jack is only used to elevate the engine's mounting hub if the engine cannot clear the engine stand's frame when the engine is rotated. After the engine is in its proper work position lock the crank handle in place and lower the mounting hub to its lowest possible position. You can raise the mounting hub by using the hydraulic jack's two piece handle to turn the jack's release valve in a clockwise direction until tight. Next, insert the two piece handle into the jack's pump receiver and pump the handle with an up and down motion in order to raise the mounting hub. Lowering the mounting hub can be accomplished by turning the jack's release valve in a counterclockwise direction very slowly. This engine stand is also equipped with a floor lock that keeps the stand from moving during repairs. To activate the floor lock, rotate the wing bolt in the engine stand's frame in a clockwise direction until it is tight against the shop floor. Turning the wing bolt in a counterclockwise direction releases the floor lock.

2. The universal adapter includes the backing plate which bolts to the mounting hub and two side plates which bolt to the sides of

the backing plate. When using the universal adapter in conjunction with an optional engine adapter it is necessary to:

- a. Support and lift the engine with the proper equipment. Install the optional adapter on the engine. Tighten the spacers, bolts and washers provided.
 - b. Remove the universal side plates from the backing plate and bolt them to the optional engine adapter. Do not tighten these bolts yet.
 - c. Align the universal adapter side plates on the engine with the universal adapter backing plate on the engine stand. Raise or lower the engine until its center of balance (usually about two inches above the center of the crankshaft) is in line with the rotating shaft of the engine stand.
 - d. Align the closest tapped holes in the sides of the universal adapter backing plate with the holes in the universal adapter side plates and secure them together with the hardware provided. Now tighten all bolts, spacers, and washers. Remove the support and lifting equipment from the engine.
3. Make sure the floor lock is engaged before operating the engine stand and/or repairing the engine.

PREVENTATIVE MAINTENANCE

1. Always store the engine stand in a well protected area where it will not be exposed to inclement weather, corrosive vapors, abrasive dust, or any other harmful elements. The engine stand must be cleaned of water, snow, sand, or grit before using.

2. Lubricate the wheels and casters periodically. There should be no need to check the fluid levels in the hydraulic jack or gear case. If you see an external leak from either the jack or gear case, the leak should be repaired by a qualified hydraulic repair person. Norco Authorized Service Centers are recommended.

3. Every engine stand owner is responsible for keeping the jack label clean and readable. Use a mild soap solution to wash external surfaces of the stand. Contact the Norco Customer Service Department for a replacement label if your stand label is not readable.

4. Inspect the stand before each use. Do not use the stand if any component is cracked, broken or bent. Do not use the stand if it has loose or missing hardware or components, or is modified in any way. Take corrective action before using the stand again.

REPAIR SERVICE

If your Norco product requires service or repair, contact the Norco Customer Service Department for the location of the nearest Norco Authorized Service Center.

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It will be necessary to provide the Norco Authorized Service Center with a copy of the bill of sale if requesting warranty repair. If the authorized service center determines your product is eligible for warranty repair, the repair will be made at no charge and returned freight prepaid. The cost of non-warrantable service, repair, and return freight is the customer's responsibility.