

BPR/Rico Equipment, Inc.
Innovative Solutions for Material Handling



DIE HANDLER TRUCKS

**A supplement Guide for Use with the
Walkie or Rider Operator Information Manual**

**FOR DRIVER'S USE.
DO NOT REMOVE MANUAL FROM TRUCK.**

Foreword

Industries throughout the United States utilize powered industrial trucks daily. The Occupational Safety & Health Administration (OSHA) estimates that almost 95,000 injuries occur annually and it is estimated that 20 – 25% of the incidents and injuries are, in at least, caused by inadequate training and/or careless operators. It concluded that allowing an untrained or poorly trained employee to use a powered industrial truck poses significant risks, both to the operator and to other workers in the vicinity of the truck. To protect employees from those risks, it is necessary to require that only properly trained employees operate these vehicles.

On December 1, 1998 the Occupational Safety and Health Administration (OSHA) released new regulations regarding the training of powered industrial truck operators. These new regulations became effective on March 1, 1999 and can be accessed on the OSHA web site at: http://www.osha-slc.gov/FedReg_osh_data/FED19981201.html

BPR/Rico Equipment, in compliance with the new OSHA standards, has prepared this guide as part of the development and implementation of their training program. Covering the fundamentals of die handling with a BPR/Rico industrial truck, this guide will assist employers in the reduction of incidents and injuries associated with powered industrial trucks through operator training. It explains the fundamentals of die handling which include the correct loading and unloading procedures and functions that are specific to die handlers. **This guide must be used along with either the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only.**

This operator's information manual is not an instructional manual or a substitute for hands-on training. It is a guide to help trained and authorized operators to safely operate their lift truck by emphasizing correct procedures. However, it cannot cover every possible situation that may result in an incident or injury and on-going safety training is recommended. Employees must take reasonable care to ensure their own safety and health and that of others in the workplace, use protective equipment as instructed, and comply with agreed safety and health work procedures.

Industrial trucks manufactured by BPR/Rico Equipment shall not be altered, modified or any parts added or eliminated without written approval by BPR/Rico Equipment.

Only trained and authorized persons shall be permitted to operate a powered industrial truck. Operators of powered industrial trucks shall be qualified as to visual, auditory, physical and mental ability to operate the equipment safely according to the information within this manual.

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Truck Operation and Features

DIE HANDLER TRUCKS

General Overview of Truck Operation

The trucks are designed for use on smooth, relatively level surfaces such as warehouse and factory floors, loading docks, and paved areas. Due to the various options available, refer to the data plate attached to the truck for information regarding:

- Truck Model.
- Serial Number.
- Truck Weight (including battery)
- Truck Capacity.
- Battery Type.
- System Voltage.

Die handlers may be “walkie” or “rider trucks and are designed for operation with the operator standing. The walkie version has the operator walking at the “back end” of the truck (behind the drive transmission), and controlling the truck via the tiller control handle. No provision is made for the operator to ride on any part of these trucks. The rider version has the operator standing in the operator compartment of the truck (near the drive transmission), and controlling the truck via the steering wheel or lever and the control “T” handle. No provision is made for the operator to ride on any other part of these trucks.

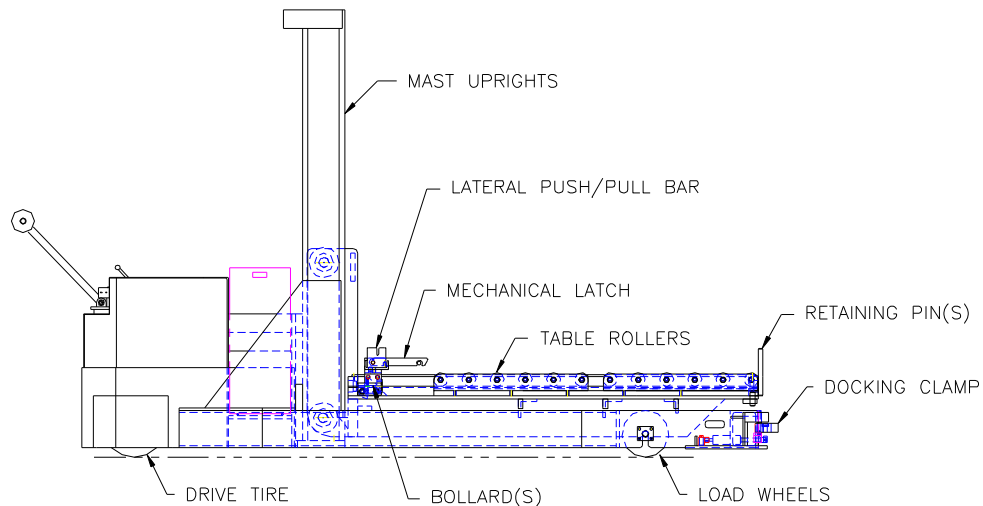
All trucks are battery powered for both lifting of loads and travel. Tractive effort is provided through a motor-driven wheel located at the back end of the truck. A separate electric motor drives the hydraulic pump that supplies hydraulic pressure for raising the load to be transported. The travel motor is typically controlled through a transistor control circuit, although certain trucks may require the use of a SCR. Steering is controlled by means of a tiller control handle on a walkie or a steering wheel and control “T” handle on a rider. The walkie tiller handle is used to swivel the drive wheel that is mounted to the transmission. The rider steering wheel or lever, mechanically connected via gears and/or chains and sprockets, is used to pivot the drive wheel(s) that is mounted to the transmission and controls turning. Travel may be in either the forward or reverse direction. A mechanical or electric brake mounted on the drive unit controls braking. A hydraulic system is used to raise the load. An electric motor driven pump applies pressure for this system. A single or dual hydraulic cylinder produces lift and raises through mechanical linkages. A solenoid valve or a manual hydraulic valve is used to control lifting and lowering of the load.

Features of Die Handler Trucks

Operators must understand each of the truck’s characteristics and hazards. Die handler trucks are built to efficiently load and unload dies and/or molds from a vertical press or mold machine. They are designed to operate in less area than conventional lift trucks due to their tight turning radius, which requires less space between presses. The vehicle's design allows operators to change dies faster than by overhead cranes. The operator also has more confidence when handling a massive die with a die-handling vehicle than when using a crane that suspends a die from overhead.

Die-handling vehicles can service a large area, freely traveling between press lines.

Die Handler trucks typically have one flat, solid platform that is used as a load surface. Depending on the application, the load surface may be equipped with wear strips or rollers. Wheel housings are typically rigid. Lift is in a vertical direction. Front loading and unloading is the standard design. An example is of a typical configuration (walkie style) is shown below. Some items shown are options.



A die handler truck may be a walkie or a rider version.
This guide must be used along with either the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only.

Die Handler Options

Each die handler truck built by BPR/Rico Equipment is designed based on the application and the customer's preference. With the variety of configurations of die handlers in use, the following "options" that may appear on a die handler truck are explained:

Bridging Bars - Hydraulically or manually activated bars that traverse a gap that may exist between the die table bed and the press bed in side loading systems. These bars support the die as it is pushed from the vehicle die table.

Die Table Rollers - Heavy-duty steel rollers mounted on the top of the die table allow for easy movement of dies on and off of the table.

Docking Clamp - Hydraulically operated clamps located at the front of the outrigger wheel housing and designed to clamp onto a mating part on the die press. The clamp helps the brakes keep the truck in place while the die is being transferred to or from the table.

Individually Controlled Bollard(s) - Individual pushbuttons or manual control valve levers control one of the two bollards. Full control over each bollard allows the operator to angle load a die or compensate for the truck not being square to the press.

Lateral Push/Pull Bar - A heavy-duty lateral push/pull bar that bridges the distance between the two bollards can be used in applications when one die is narrower than the bollard arm spacing.

Mechanical Die Latches - This system allows the operator to remain on the truck while engaging or disengaging the dies.

Pendant Control - An electric pushbutton pendant control conveniently located on either side of the vehicle can be used for the die table functions (lift, lower, push, pull). Because the control is located closer to the die table, operator confidence and control is increased.

Die Handler Application Consideration

Below are some of the most basic questions that need to be answered before operating this truck. These questions are important as the operator familiarizes themselves with the unit.

- Is this unit a Walkie or Rider type truck?
- What is the weight of the heaviest die? Refer to the data plates, is it within the truck's capacity?
- Length, width, and height of the smallest and largest dies to be handled by the truck?
- Will the truck service multiple presses?
- Front push or side push dies?
- Are bridge bars required between the die table and bolster? Do you know how to use them?
- If the unit has individual bollards, have you practiced moving them without a load?
- Is a pendant control present? If so, are the labels legible? Is it functioning properly?
- What is the lowest and highest bolster plate?
- Will truck be used to shelf dies?
- What is the lowest and highest shelf?
- What is the minimum overhead clearance at face of press, operating area, storage area, and aisles to and from the press?
- What is the floor type condition?
- What is the frequency of die changes?

Fundamentals of Die Handling

DIE HANDLER TRUCKS

Precautions for Proper Die Handling

No matter what size the dies are or what capacity the die handler is, the following precautions must be taken:

- 1 – The die must be positioned in the center of the die-handling table.
- 2 – The die must be secured to the table and the table must be in its lowest position prior to transportation.
- 3 – When pushing the die off or pulling the die onto the die table bed, the vehicle brakes must be set.
- 4 - It is also necessary to block the vehicle's wheels or secure the vehicle to the press.

Front Push/Pull Die Trucks

Before You Start

Check the data and capacity plates prior to operating any truck. These plates contain specific information regarding the specifications, restrictions, and capacities of the truck. Do the plates match the truck and the options that are installed? Are the loads you will be handling within the rated capacity at a given lift height? Some trucks will have reduced capacities at elevated lift heights. Information regarding maximum load center is especially important. If you are unsure about any of the specifications, do not take any chances, ask your supervisor!

Perform all the pre-operational checks, visual checks, and safety checks as described in the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only.

Press Loading

- 1 – Position the vehicle squarely in front of the press with the die platform as close as possible to the press bed and set the brakes. (For information on setting the brakes, refer to the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only).
- 2 – Position the die table slightly higher than the press bed by pushing and/or pulling on the designated manual control valve lever. If your unit is equipped with die table rollers, position the roller tops slightly higher than the press bed.

3 – To move the bollard(s) situated on either side of the die table, push the designated manual control valve lever(s) forward. This hydraulically moves the bollard(s), thereby pushing the die completely into the press. The longer you push the lever forward, the further the bollard(s) will travel in that direction. Letting go of the lever will stop the forward action.

4 – After the die is completely into the press, retract the bollard(s) so their extensions are completely within the confines of the die handler platform. Pulling back on the designated manual control valve lever(s) will hydraulically move the bollard(s) backward. The longer you pull the lever backward, the further the bollard(s) will travel in that direction. Letting go of the lever will stop the backward action.

Press Unloading

1 – Position the vehicle squarely in front of the press with the die platform as close as possible to the press bed and set the brakes. (For information on setting the brakes, refer to the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only).

2 – Position the die table slightly lower than the press bed by pushing and/or pulling on the designated manual control valve lever. If your unit is equipped with die table rollers, position the roller tops slightly lower than the press bed.

3 – Extend the bollard(s) to their maximum forward stroke by pushing the designated manual control valve lever. Anchor the die to the bollard(s) using mechanical latches, chains or cables as suitable for the die removal. Be sure the bollard(s) are still free to move in their tracks.

4 – Retract the bollard(s) to their maximum backward stroke by pulling the designated manual control valve lever, thereby pulling the die onto the platform bed. It may be necessary to repeat this removal operation to extract the die completely from the press.

5 – Disconnect the latches, chains or cables that were attached to anchor the die.

6 – Lower the die table to its lowest position and make certain that the die is secure on the table prior to transportation.

Side Push/Pull Die Trucks

Before You Start

Check the data and capacity plates prior to operating any truck. These plates contain specific information regarding the specifications, restrictions, and capacities of the truck. Do the plates match the truck and the options that are installed? Are the loads you will be handling within the rated capacity at a given lift height? Some trucks will have reduced capacities at elevated lift heights. Information regarding maximum load center is especially important. If you are unsure about any of the specifications, do not take any chances, ask your supervisor!

Perform all the pre-operational checks, visual checks, and safety checks as described in the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only.

Press Loading and Unloading

Space utilization is a critical factor for manufacturing in plants. When die presses are placed in narrow, confined rows, they usually require a side-loading die handling vehicle. The side loading design allows the vehicle to be positioned parallel to the press bed for loading and unloading the dies from either side.

The press loading and unloading procedure is similar to the front push/pull system. The side of the vehicle's die table (or roller tops) is positioned parallel to the front of the press bed. This positioning sometimes prevents the die table bed and the press bed from being butted together due to the press knee supports or perimeter structures that protrude beyond the face of the press bed. Due to the distance between the die table bed and the press bed, optional hydraulically or manually activated bridging bars may be required to traverse this gap. These bars support the die as it is pushed from the vehicle die table. You can now proceed with the same basic steps as the front loading system.

Planned Maintenance

DIE HANDLER TRUCKS

Die Handler Maintenance

Regular maintenance and care of your lift truck is not only important for full and efficient truck life, but also for your safety. The importance of maintaining your lift truck in a safe operating condition cannot be emphasized enough. Improperly used or maintained lift trucks can become hazardous and may lead to injury if neglected. The Occupational Safety and Health Act requires that truck users inspect their trucks before each shift to be sure they are in safe working order. Defects, when found, shall be immediately reported and corrected. The truck shall be taken out of service until it has been restored to safe operating condition.

Be sure to follow the maintenance guidelines described in Chapter 2 of the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment.

Lubrication of Ball Screws and Ball Nuts

The below information is not intended to be a thorough description of all lubrication procedures. Refer to the Walkie or Rider Operator Instruction Manual, supplied by BPR/Rico Equipment, for further information regarding lubrication and refer to your Operator/Parts Manual for specific information as it relates to your unit.

The following information pertains only to the ball screws and nuts that are on die handler trucks manufactured by BPR/Rico Equipment. As with ball bearings, ball screws also need to be lubricated. We highly recommend lubrication of the ball nuts and screws every 30 days. This will help prevent atmospheric corrosion and pitting of screw surface.

The initial “run-in” lubrication has been done at our facility, and is good for the first 30 days of use. Every 30 days there after, both the screws and the nuts must be re-lubricated using the spray lubricant Power Trac #E-900. We do not recommend the use of any other lubricating product for use on the ball screws and nuts that are on trucks. In order to distribute the lubrication evenly throughout the ball screw and ball nuts moving elements, we recommend that the ball nut be run three to five times over its complete operating stroke.

When re-lubricated with proper frequency, the ball screws and nuts should achieve their maximum rated fatigue life. Lubrication and bearing life will also be affected by high operating temperatures and over loading. Re-lubrication intervals can best be determined by experience.

A Final Word on Die Handler Trucks

Be sure you have read this manual in its entirety, as there are many safety notes and advisories throughout each section. You must be a trained and authorized operator in order to operate this vehicle. Operating a powered industrial truck is a very important responsibility. You are responsible for your own safety and that of those around you. Understand and practice the material presented in this manual. Make sure you receive hands-on training and practice operating the equipment you will use before using it with a load. Review the operator's manual for specific information about the safe operating procedures of your truck. Understand and abide by the safe operating guidelines for your facility.

Powered industrial trucks are designed and manufactured in accordance with the requirements of the OSHA Safety and Health Standards (29 CFR 1910.178) and recommendations of the American Society of Mechanical Engineers/American National Standards Institute (ASME/ANSI) B56.1. It is fully anticipated that the user will operate and maintain the truck in accordance with these same standards. **You should also be familiar with additional operating and maintenance safety instructions contained in the publications listed in the maintenance chapter of either the *Walkie or Rider Operator Instruction Manual*, supplied by BPR/Rico Equipment, as this manual covers die handling fundamentals only.** Learn and know these rules and regulations!

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The descriptions and specifications included in this guide were in effect at the time of printing. Refer to your Operator/Parts Manual for specific information relating to your truck. BPR/Rico Equipment reserves the right to make improvements and changes in specifications or design, without notice and without incurring obligation. Please check with your authorized BPR/Rico dealer for information on possible updates or revisions.
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