MOD-U-BLAST®

# INTERNAL PIPE CLEANING TOOL

TWISTER HD




# OPERATION & MAINTENANCE MANUAL

Manual # Twister2108

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# IMPORTANT NOTICE

TO DISTRIBUTORS, PURCHASERS AND END USERS OF MOD-U-BLAST PRODUCTS

The information provided described and illustrated in this material is intended for experienced, knowledgeable users of abrasive blasting equipment and supplies (products).

The products described in this material may be combined as determined solely by the user in a variety of ways and purposes. However no representations are made as to intended use, performance standards, engineering suitability, safe practices or compliance with government regulations and laws that apply to these products, products of others or a combination of various products, products of third parties, and a combination of various products, to exercise caution and familiarize themselves with all applicable laws, government regulations and safety requirements.

Nor are representations made or intended as to the useful life, maintenance cycles, efficiency or performance of the referenced products of any combination of products. This material must not be used for estimating purposes. Production rates, labour performance or surface finishes are the sole responsibility of the user based on the user's expertise, experience and knowledge of industry variables.

It is the responsibility of the user to insure that proper and comprehensive training of operators has been performed and all environmental and safety precautions observed.

Mod-U-Blast Inc. provides a variety of excellent products to the surface preparation industry, and we are confident that all proficient users, operators and contractors in this industry will continue to use our products in a safe and knowledgeable manner.

**Before using this product, read all instructions, literature, labels, specifications and warnings sent with and affixed to the unit.**

If operation of the unit is unclear after reading this manual, contact your supervisor for instructions. It is the responsibility of the employer to read the following instructions to users of this equipment. Periodic inspection at the work site should be made by supervisory personnel to ensure the unit is being properly used and maintained. A copy of this owners manual must be kept with the unit and readily accessible to the operators at all times.

MOD-U-BLAST®

# INTRODUCTION:

The TWISTER HD is a rugged, portable, high production tool for blast cleaning the internal surface of steel pipe. The carriage adjusts for cleaning pipe from 12” (300mm) to 36” (900mm).

The TWISTER HD is a pneumatic tool that is used as an accessory to a standard blast machine. Compressed air powers the air motor for control of the blast head rotation speed allowing infinite flexibility for varying degrees of contamination of the steel surface.

# SPECIFICATIONS:

| | |
|---|---|
| Minimum Pipe Internal Diameter | 12” (300 mm) |
| Maximum Pipe Internal Diameter | 36” (900 mm) |
| Maximum Blast Pressure | 145 PSI |
| Air Motor Maximum Pressure | 100 PSI |
| Air Motor Operating Pressure | 85 - 100 PSI (70 - 80 rpm) |
| Weight (in the crate) | 17.6 lbs. (8 kg) |

# AIR MOTOR REQUIREMENTS:

The pneumatic drive air motor requires 18 CFM of dry, clean air for proper operation. The recommended size of air hose required to run the air motor is 1/2” I.D..

# BLAST AIR REQUIREMENTS:

The table shows compressed air consumption Cubic Feet per Minute (CFM) at 110 psi working pressure when the nozzles are new.

| Nozzle | Leg Set | Compressor Capacity CFM @ 110 PSI | I.D. of Blast Hose or Lance |
|---|---|---|---|
| 31074 | Short set: 12” (300 mm) - 20” (500 mm) | 215 | 1-1/4” |
| 31075 | Short set: 12” (300 mm) - 20” (500 mm) | 282 | 1-1/4” |
| 31076 | Long set: 24” (600 mm) - 36” (900 mm) | 424 | 1-1/2” |

# TWISTER ASSEMBLY

Remove the main Twister body from the crate as shown.




Remove the blast hose coupler.

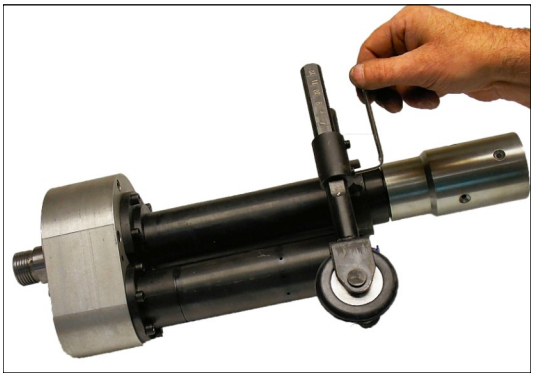
Install back wheel bracket (the back bracket has a collar) and position the indent to clear the air inlet of the air motor as shown.



Tighten the set screws in the bracket to the collar and replace the hose coupler.

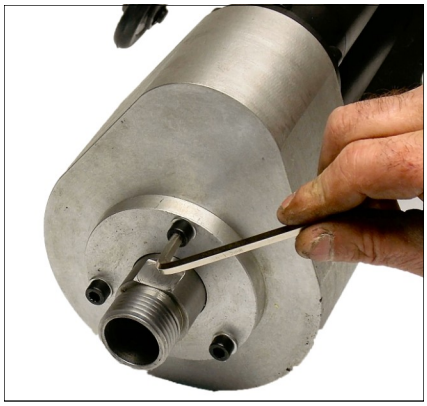


Install all three wheel assemblies to desired depth.



# TWISTER ASSEMBLY Cont'd

Remove the 3 screws at the front end of the Twister



Install the front wheel bracket and replace the screws as shown. Do not tighten the screws yet.



Install wheels the same as the back bracket and line the front and back wheels up on the same angle then tighten the front screws.



Install the dual nozzle holder as tight as you can by hand and install the nozzles with the gaskets and tighten them using a wrench. Good and snug is preferable.



# SAFETY:



## WARNING!

**IMPORTANT WARNINGS FOR SAFER BLAST CLEANING**

- The Twister operator and anyone within 50 feet of the work area must wear NIOSH approved respirator.
- Do not use abrasive containing free silica.
- Do not blast with damaged or worn equipment.
- Point nozzles only at area being cleaned.
- Use only proper, dry and well screened abrasives specifically intended for blasting. Do not use silica sand.
- Keep unprotected workers out of the blast area.
- Before blasting check fittings and hose for wear.
- Do not substitute for parts from other manufacturers or modified equipment in any way.

# SET-UP:

The Twister HD Blast tool attaches to the end of a pipe lance or blast hose in place of a standard nozzle. The compressor, blast hose/lance and air supply line for the air motor must be sized to support the blast operation at the pressure and air capacity shown on page 4 of this manual.

Additional requirements: (see page 15 for options)

- A ball valve or regulator is required to adjust the pressure to the Twister air motor.
- 1/2" I.D. air hose is required to connect compressed air to the air motor.

Install the carriage legs and adjust the legs so that the tool is approximately centered in the pipe.

Connect the pipe lance or blast hose to the Twister HD Blast tool.

Add 2-3 drops of air tool oil or Automatic Transmission Fluid (ATF) to the inlet on the air motor and connect the 1/2" I.D. air line to the in-line filter on the air motor.



## WARNING!

**Hose disconnection while under pressure could cause serious injury or death. Use safety lock-pins and safety cables on all coupling connections in case of accidental disconnection.**

# OPERATION:

Connect the air and blast lines to the blast equipment as described in the applicable operation manuals.

Push the Twister tool through the pipe until the blast head almost exits the opposite end.

Open the air supply to the air motor. Adjust the air pressure to rotate the blast head (85 -100 psi). **Note: Exceeding this pressure will overheat the air motor.**

Pressurize the blast machine and adjust the abrasive flow to the Twister tool.

Pull the Twister tool back through the pipe at a constant speed to achieve the desired degree of blast cleanliness.

When the tool starts to exit the pipe, turn off the abrasive supply from the blast machine.

**NOTE: To avoid damage to the Twister, provide an exit ramp, platform or structural support at the exit end of the pipe.**

Turn off the air supply to the Twister air motor.

Care should be taken to cover the vent holes on the air motor when not in use to avoid any debris entering.

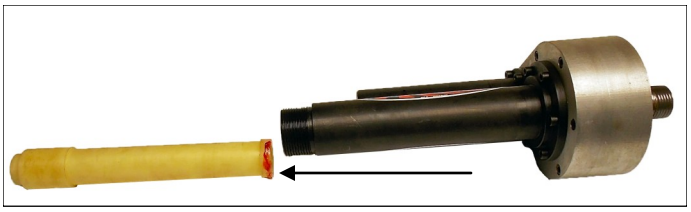
# DAILY MAINTENANCE:

The daily and every 100 hr. maintenance must be performed to achieve maximum blasting performance of this tool. The instructions shown on next few pages are the most crucial for keeping the tool working at its best.

NOTE: 2-3 drops of air tool oil or automatic transmission fluid (ATF) should be added to the air inlet port on the pneumatic air motor before and after each daily use. (5-6 hrs)

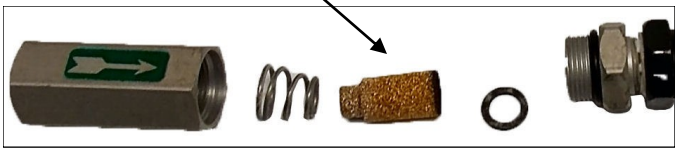


Remove the Interior Nylon Liner from the tool and inspect for wear. There should not be any holes in the tube and the outer collar should not be worn (shown) - if so replace. This piece protects the rest of the tool from the media.



Use lithium grease lightly on the outside of the collar on the tube (shown) and return.



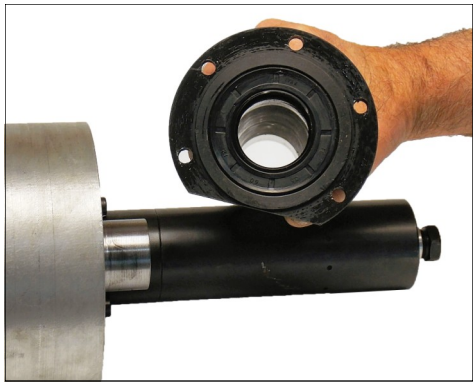



Disassemble the in-line air filter (shown below left) and clean the brass filter of any dust or debris. (shown)

# 100 HOUR MAINTENANCE:



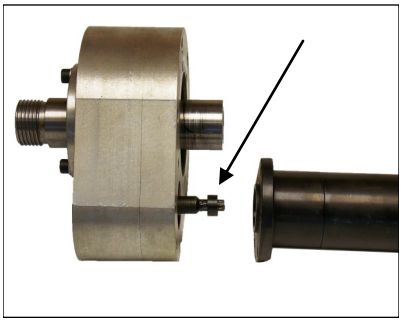

Remove the abrasive tube using the tool provided.



Inspect the lip seal & the felt seal under it. Very important that this seal is in good shape so that the gear box won't fill with media.
NOTE: This seal will get damaged if the nylon tube wears out.



If the seal is in good shape then put a light coating of lithium grease on the inside edge and fasten back on the tool.

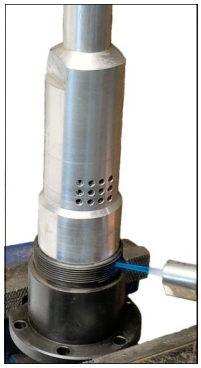


Remove the air motor from the gearbox. Be careful not to lose the collar on the splined shaft. As shown.

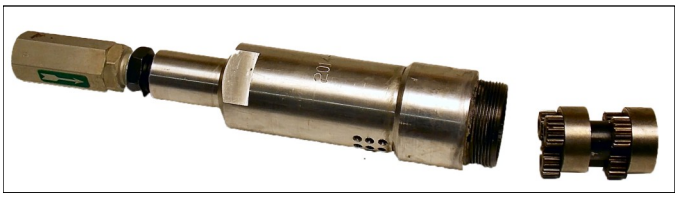
# 100 HOUR MAINTENANCE cont'd:



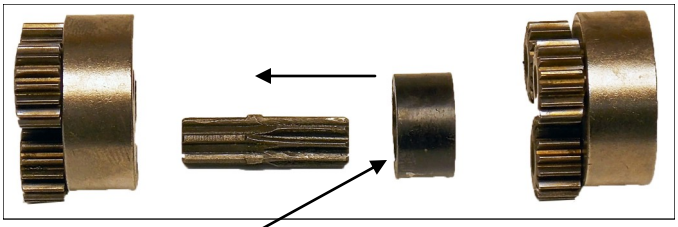
Unscrew the housing from the air motor



To inspect or change the drive gears in the air motor it needs to be placed in a vise as shown and lightly heat the collar in order to break the loctite. Once it is broken free then let it cool before continuing onto the next step.
Be sure to add blue loctite to the threads when reassembling.

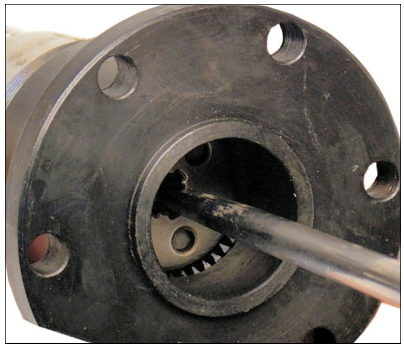


Remove the gear set as shown





Inspect the gears & spline for wear. The collar has a recessed bevel internally and needs to be placed with the bevel side as shown. The splines on the shaft are different on each side so watch for proper placement.

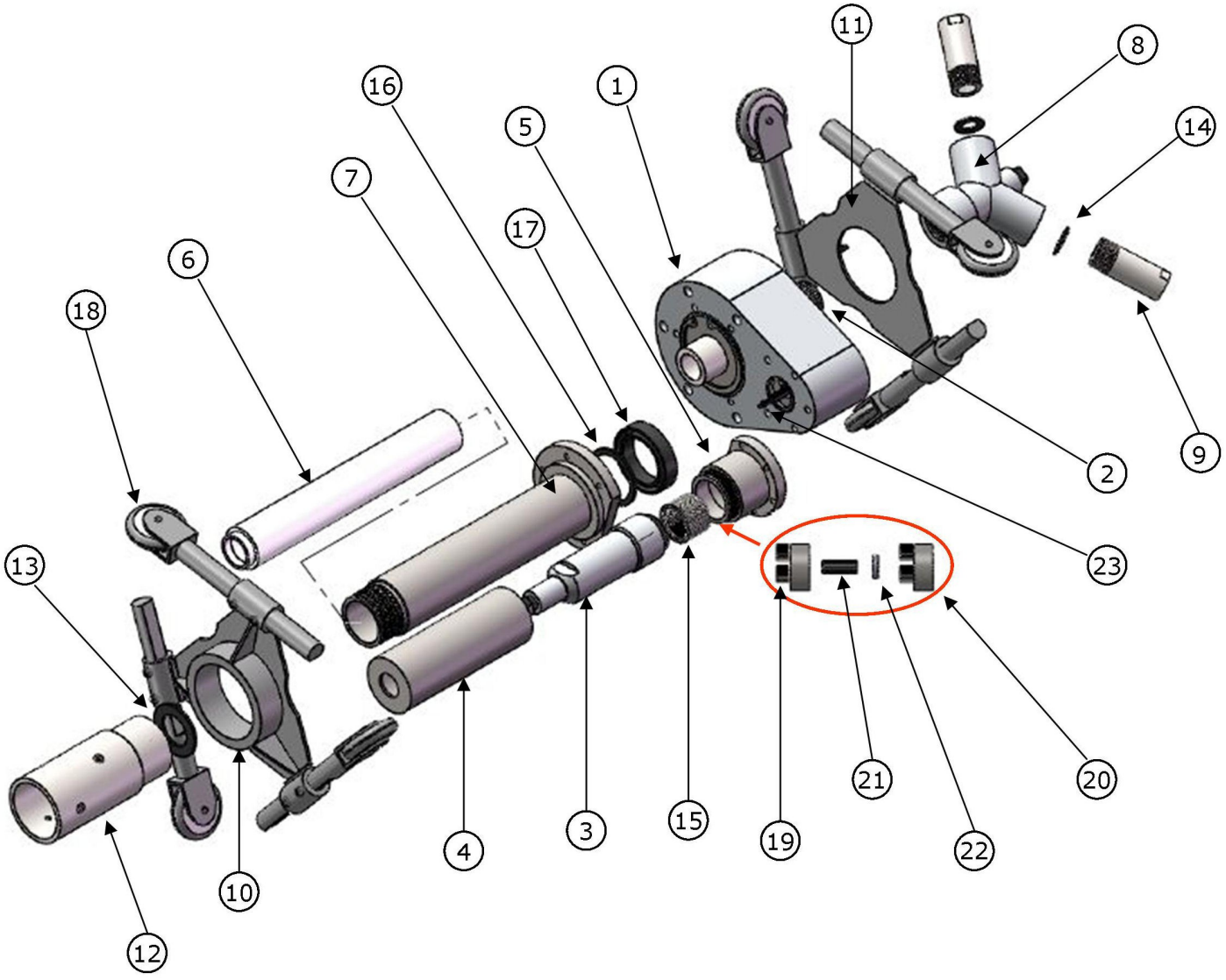


When reinstalling the first set of gears into the end of the air motor a flat head screw driver should be lightly inserted as shown and then slightly turn the gears to seat the them properly.

**Daily & 100 Hr. maintenance are the most crucial to a long productive life of the Twister Tool. The following pages show schematics of the tool and the gearbox. Should the nylon tube wear out and allow media into the gearbox then further steps will need to be taken to remove all the foreign particles from the Twister.**

# TWISTER SCHEMATIC

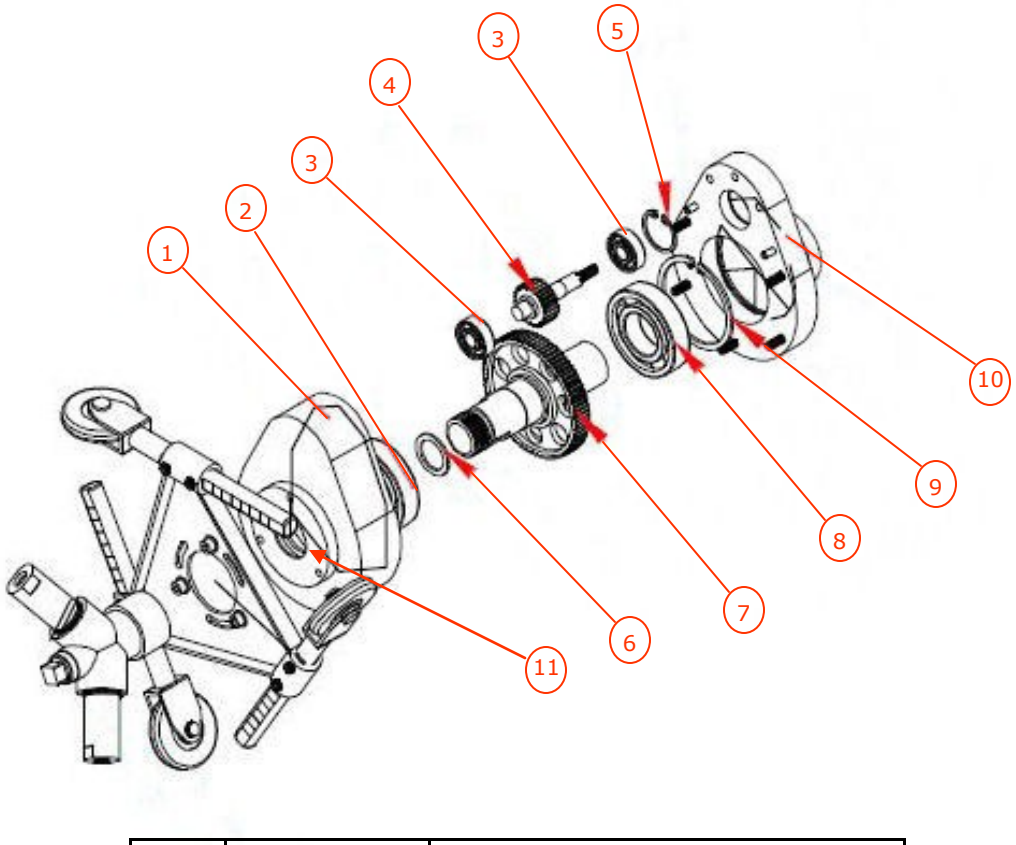
# PART # **221700**




| Item No. | Part # | Description |
|---|---|---|
| 1 | 221718 | Gear Box Housing Only |
| - | 221719 | Gear Box Complete |
| 2 | 2217051 | Nozzle Head Pipe |
| 3 | 221703 | Air Motor |
| 4 | 221702 | Air Motor Housing |
| 5 | 221701 | Air Motor Collar |
| 6 | 221710 | Nylon Tube Liner |
| 7 | 221706 | Abrasive Tube |
| 8 | 221705 | Nozzle Head |
| 9 | 31075 | Nozzle 5/16” |
| - | 31074 | Nozzle 1/4” |
| - | 31076 | Nozzle 3/8” |
| 10 | 221729 | Rear Wheel Bracket |
| 11 | 221728 | Front Wheel Bracket |
| 12 | 221707 | Blast Hose Adaptor |
| 13 | 221709 | Hose Adaptor Gasket |
| 14 | 221711 | Nozzle Gasket |
| 15 | 221704 | Gear / Closed Nipple |
| 16 | 221712 | Felt Seal |
| 17 | 221715 | Rubber Lip Seal |
| 18 | 221708 | Wheel Only |
| 19 | 221731 | 3 Gears Only |
| 20 | 221732 | Gear Support with 3 gears |
| 21 | 221721 | Gear Spline |
| 22 | 221721-1 | Gear Spline Beveled Collar |
| 23 | 221721-1-B | Gear Box Spline Spacer |
| - | 221720 | Small Leg & Wheel Kit |
| - | 221725 | Large Leg & Wheel Kit |

Gearbox Schematic on page 14

# GEAR BOX SCHEMATIC




| Item | Part Number | Description |
|---|---|---|
| 1 | 221719-1 | GEAR BOX FRONT COVER |
| 2 | 221714 | LARGE BEARING |
| 3 | 221713 | SMALL BEARING |
| 4 | 221719-2 | GEAR SHAFT |
| 5 | 221716 | SMALL RETAINING RING |
| 6 | 221722 | NOZZLE HEAD GASKET |
| 7 | 221719-3 | LARGE GEAR |
| 8 | 221714 | LARGE BEARING |
| 9 | 221717 | LARGE RETAINING RING |
| 10 | 221719-4 | GEAR BOX BACK COVER |
| 11 | 221712 | FELT SEAL |

# OPTIONAL AIR MOTOR CONNECTIONS




1


2


3


4


5


6

The parts listed here show a quick & easy method we suggest for connecting the air motor.

Our 1/2” push hose requires ‘no clamps’ and won’t let go.

Contact your local Representative for pricing

| No. | Part Number | Description |
|---|---|---|
| 1 | 448-8B | 1/4” NPT - Connect to air motor |
| 2 | 11723 | Swivel for Push Hose |
| 3 | 12-PUSH | 1/2” Push Hose (sold by the foot) |
| 4 | 11723 | Swivel for Push Hose |
| 5 | 448-8D | 1/2” NPT - Connect to ball valve |
| 6 | 65-750 | 1/2” Ball Valve |




# Warranty

Mod-U-Blast equipment is covered by a one (1) year warranty against defects in material and workmanship starting from the purchase date. This covers all mechanical components for normal wear.

This warranty does not apply to misuse, neglect or lack of maintenance of the equipment or parts. Parts subject to abrasive wear, such as nozzles, hoses, nylon tube, seals and gaskets are not covered by the warranty.

Claims will be honored only if the warranty card is returned within a period of two months from the factory shipping date.

The card can be returned to your Mod-U-Blast salesperson or mailed to the address below.

In the event of failure of this equipment
please contact a Mod-U-Blast service centre
or call (780) 425-5510.

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