

INSTRUCTION BOOKLET FOR

ROLL FEEDS



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ATTENTION: PLANT MANAGER

Thank you for purchasing Durant equipment. Enclosed are very important safety instructions, operating instructions, and setup procedures.

Read all these materials completely and carefully. Please distribute copies to your SAFETY MANAGER, PRODUCTION MANAGER, and MACHINE OPERATORS.

If there is any help required in setup or operation, we will be readily available for your assistance.

Thank you again and we look forward to developing and maintaining a fine relationship with your company.

Sincerely,

DURANT TOOL COMPANY

SAFETY INSTRUCTIONS FOR ALL DURANT EQUIPMENT

The enclosed information and instructions must be forwarded and distributed to the Plant Safety Director, Plant Manager, Production Manager, and all Operators of Durant equipment.

Operators of Durant equipment must have a minimum of (3) three years operating experience with similar Durant press room equipment or a minimum of (3) three years experience with identical equipment manufactured by other press room equipment manufacturers.

WARNING

Never operate, install, or maintain this machine without understanding the complete and safe operation thereof.

It is the employer's responsibility to provide proper safety devices and equipment to safeguard the operator from harm and to safeguard this machine at all times to meet all current government safety codes and standards.

CAUTION

All Durant equipment must be securely fastened to the floor. This will prevent the machine from tipping. Failure to follow the above instructions could cause harm to the operator or machine.

ATTENTION

If any danger points are observed:

1. Immediately stop machine.
2. Do not run machine until danger point is eliminated.
3. Report danger point in writing to your employer.
4. Keep a copy of your report for your records.
5. Do not run machine again until danger point has been corrected.
6. It is your employer's responsibility to safeguard this machine to meet all government safety codes and standards.
7. There are U.S. companies that specifically specialize in safe guarding machines to plant requirements and government codes. The safe guarding companies are located throughout the United States, Canada, and foreign countries. Representatives will visit your site to advise and recommend safe guarding procedures for your company.

IMPORTANT

Before the first use and monthly thereafter, all nuts, screws, and bolts should be checked for tightness. Gears, sprockets, chains, and belts should also be checked for tightness.

Grease and oil fittings and reducers monthly.

ROLL FEEDS

All Durant Roll Feeds are supplied with roll release levers to release the top roll of the feed so that piloted dies can be used for accurate feeding.

Connections are not supplied between the press ram and the roll release lever. Because of the variation in the mounting position of the feed and the design and construction of press rams, it is not practical to build an all purpose connection. Also, many times the toolmaker prefers to have this connection from the top of his die set to the roll release lever so this is left to the customer to fabricate this connection.

The timing of the operation of the roll release is important to effect accurate feeding of piloted dies. The top roll should be released to free the material just at the point that the pilot starts to enter the strip of material. The pilot should be bullet nosed to allow for a slight variation in the feed length and also to correct any misfeeding that might occur.

Piloted dies are necessary for progressive feeding where there is more than one station or where there is distortion or forming in the die. On straight blanking pilot pins in the dies are not normally required except where the web between blanks is critical.

A roll feed is designed to feed material only and not pull through a non-motorized stock straightener or an unmotorized stock reel.

The drag is not consistent on either of these pieces of equipment. Also, where motorized units are used, it is important to insure that the material does not back up in the dies when the top roll of the feed is released.

It is always easier and better to pull on continuous scrap rather than push material into the die. By feeding in this manner, you eliminate the possibility of thin material buckling and causing misfeeding.

MOUNTING AND INSTALLING A ROLL FEED

Durant Roll Feeds are normally designed for mounting on the left side of an OBI Power Press. They will either push material from left to right or pull on scrap material from right to left.

These feeds can be either mounted directly on the bolster plate or on a fixed bracket with a specified die height or an adjustable mounting bracket.

In mounting any of our feeds it is first necessary to securely mount the feed to the bolster plate with the stockline of the material being in a direct line with the centerline of the rolls. If a mounting bracket is used then the bracket should be securely mounted to the press, maintaining the stockline, and the feed attached to the mounting bracket.

The next step is to mount the eccentric to the crankshaft extension on the left side of the power press. This eccentric, whether it is one-piece or two-piece, should be securely pressed on to the crankshaft extension so that there is no movement whatsoever. After pressing, it is locked in position with set screws. On the two-piece eccentric, the hub of the eccentric can be keyed to the shaft inasmuch as the faceplate may be rotated for timing. On the one-piece eccentric the entire unit must be turned to provide the correct timing.

The third step in mounting a roll feed is to connect the feed to the eccentric with the connecting rod which is supplied with the feed. Normally the eccentric and the feed are not in a direct line. We supply an offset connecting rod with an average bend so that one end of the rod will fit in the ball joint on the eccentric and the other end in the ball joint on the clutch or indexer. The rod may have to be bent slightly to accommodate individual applications. To be shortened, it is imperative that the connecting rod can be moved freely without binding. In determining the proper length connecting rod, rotate the eccentric so that the upper ball joint is in a vertical position and the adjustment of the Tee-Bolt is all the way out. The ball joint on the clutch or indexer is at a 10 o'clock position. The connecting rod is cut accordingly and installed. After installation, rotate the press by hand to be sure that the connecting is not binding at any time.

Timing of a roll feed can vary. We normally suggest that the feed cycle of 180 degrees be started after the punches leave the die and are clear. On many jobs, the feeding cycle can be accomplished on the last half of the up-stroke, or while the entire last half of the up-stroke and first half of the down-stroke may be required. This is dependent upon the tool in the press.

On a standard feed, the brake adjustment is most important. This is a slipping brake and not a grabbing brake. The band of the brake should be well-oiled so that it will slip consistently. On high speed feeds with an air-brake the air-brake is self-adjusting and will maintain its rated torque through its wear cycle without adjustment.

PRE-INSTALLATION CHECK

Before installing check:

1. Shaft to Bore Fit	<u>Clutch Bore</u>	<u>Shaft Fit Guide*</u>
	to 2 inches dia.	line fit to .002" loose
	2 to 4 inches dia.	line fit to .0025" loose
	4 to 7 inches dia.	line fit to .003" loose

(*if a press fit is necessary under special circumstances, do not exceed .001" interference.)

In some cases builders of equipment in which DURANT TOOL clutch is used specify other shaft fit limits than those listed. In this event, direct questions concerning fit limits to the equipment manufacturer.

2. Key and Keyseat

Hardness: Use a hardened key, from 30 to 40 Rockwell "C" scale. Use material AISI 1141, 1045, or 4130

Length: The key must be equal to the length of the inner race for proper engagement.

Fit: The key must be closely fitted to prevent loosening under indexing services. Break edges of the key before installing to prevent any bearing at these points. Be sure the key seats squarely. Fit the key up to .001" interference on the WIDTH dimension to prevent loosening. Do not exceed .001" interference.

3. Rotation:

Check the clutch for the proper rotation in each application. Turn the inner race to check over-running direction.

INSTALLING

1. Mount the clutch and key on the shaft.

Note: Oil lubricated clutches should be mounted on horizontal shafts only. For vertical shaft mountings of oil lubricated clutches, contact DURANT TOOL.

2. Apply pressure to end face of the clutch inner race only.

Application of pressure to the outer race could damage the bearing from excessive loading. For oil lubrication clutches, to simplify mounting, if a .001" interference fit is required (this is the tightest allowable) immerse the clutch in hot, clean oil (not to exceed 200°F/93°C) for ten to fifteen minutes before mounting.

3. Secure the clutch in position on the shaft.

Use a lock washer and nut, a flat washer fastened to the shaft end with a screw, snap rings, collar, etc., to keep the clutch in position on the shaft.

4. Mount attached parts of the clutch outer race as required by the application. Tapped mounting holes are provided in each end of the outer race. Center the gear, pulley or sheave on the outer race. Avoid excessive over-hung loads.
5. All DURANT TOOL clutches are lubricated before leaving the factory. However, check the following lubricant table for the proper lubricant, fill level and ambient operating temperature range. Change the lubricant or add oil to proper level, if required.
6. Check for proper installation by over-running (free wheeling) the clutch by hand.

LUBRICATION

Proper lubrication and lubricant maintenance are the most important single maintenance factors for long, effective, trouble-free clutch operation. Read the following instructions and follow them carefully for maximum performance and utilization of DURANT TOOL over-running clutches.

OIL LUBRICATION

Use oils selected from the following table according to the index rate and ambient temperature existing at the clutch.

NOTE: Clutches shipped from DURANT TOOL 7/8 full of oil (Mobil DTE Light). Clutch should be 7/8 full of oil.

<u>Temperature Range</u>	<u>Recommended Lubricant</u>
+40°F to +150°F (+5°C to +65°C)	Mobil DTE Light Oil Texas Regal R & 32 Shell Turbo Oil 32 Exxon Terristic 32 Amoco Industrial 32 Gulf Harmony 32 Any Automatic Transmission Fluid (ATF)
150 stroke per minute or more +40°F to +150°F (+5°C to +65°C)	Chevron GST Oil 46 Sunoco Sunvis Oil 921 Any Automatic Transmission Fluid (ATF)

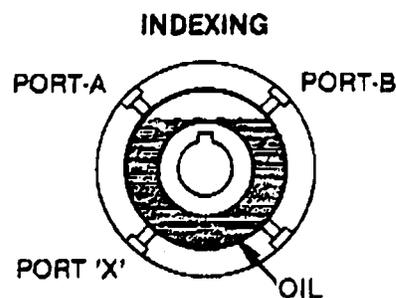
MAXIMUM PERMISSIBLE AMBIENT TEMPERATURE IS +150°F / +65°C. IF AMBIENT TEMPERATURE IS BELOW +40°F / +5°C CONSULT DURANT TOOL FOR LUBRICANT RECOMMENDATION.

CAUTION: DO NOT USE LUBRICANTS OF THE E.P. (EXTREME PRESSURE) TYPE OR THOSE CONTAINING SLIPPERY ADDITIVES. FOR ADDITIONAL LUBE INFORMATION SEE BROCHURE #A-4032.

OIL LUBRICATION MAINTENANCE

1. Check the oil level monthly or every 160 hours of operation, whichever occurs first. If the clutch is indexing in excess of 150 strokes a minute, oiling may be required at shorter intervals.
2. Add oil if necessary to maintain the clutch completely full of oil.
3. Flush the clutch every six months with mineral spirits.
Flushing will remove waxes and gums formed by vaporization of the oil and assure continued efficient of operation. See "Flushing Procedure" section.
4. Flush with mineral spirits and relubrication before use if clutch has been out of service or in storage for six months or more. USE RECOMMENDED OILS ONLY.

OIL LUBRICATING FILLING PROCEDURE



NOTE: Models HPI-300 through -600 do not have Port 'X'. Position as shown without Port 'X'

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1. Rotate the clutch outer race to locate two oil ports at positions (A) and (B) as shown in the illustration.
2. Remove oil plugs (A) and (B) and add oil through (A) until oil flows from (B). Use a pressure can for best results.
3. Install both plugs and tighten to prevent leakage.

FLUSHING PROCEDURE

1. Rotate the clutch outer race to locate on oil port at the lowest point of the outer race.
2. Remove the lowest plug and drain the clutch of oil. Remove to top plug to vent for better drainage.
3. Install the bottom drain plug and fill the clutch completely full with mineral spirits. Do not use carbon tetrachloride. Reinstall the top plug.
4. Operate the clutch for five to ten minutes to break up and dissolve the oils residue which may have formed.
5. Remove the lower plug and drain all mineral spirits from the clutch assembly. Remove the top plug to vent for better drainage.
6. Replace plugs.
7. Relubricate the clutch according to OIL LUBRICATION FILLING PROCEDURE.

GREASE LUBRICATION

Properly maintained, oil is most effective lubricant for HPI clutches. Grease lubricated clutches may be provided on special request, for indexing rates up to 250 strokes per minute, under the following conditions:

- The clutch is inaccessible for frequent maintenance.
- Conditions do not permit the type of maintenance required for oil lubricated clutches.
- The clutch is mounted on a vertical shaft.
- The clutch must be operated continuously.
- The clutch will be operated in the presence of severe abrasive dust.

Use greases selected from the following table:

Fiske Bros. Lubriplate Low-Temp
Fiske Bros. Aero Lubriplate
Mobil Mobilith 21
Mobil Aero - Low Temp.
Standard Rykon No. 1
Shell Alvania No. 1
Shell Aeroshell No. 7
Shell Aeroshell No. 16

NOTE: Grease lubricated HPI-300 thru HPI-700 are packed at the factory with Fiske Brothers Lubriplate Low-Temp and HPI-750 thru HPI-1027 are packed with Mobilith 21 grease.

- Use no other grease unless a specific recommendation has been made by DURANT TOOL.
- If operation at temperatures below 20°F / -7°C is required, consult DURANT TOOL for special lubricant recommendations.
- Do not attempt to substitute grease lubrication in a standard oil lubricated clutch. The use of grease lubrication in a clutch intended for oil could cause a malfunction.
- DURANT TOOL can convert in-service clutches from oil to grease lubrication. Changes in internal construction are usually required. Consult DURANT TOOL, giving complete model number.
- For indexing rates in excess of 250 strokes per minute, where grease lubrication is required, consult DURANT TOOL for lubricant recommendations.

ADD GREASE

Once a month

ADD GREASE UNDER RUGGED CONDITIONS*

Every two weeks

** 24 hours per day or operation in severe abrasive dust conditions.*

GREASE LUBRICATION PROCEDURE

1. Select one grease fitting on the clutch for regreasing and wipe it clean.
2. Pump grease into the clutch until clean grease flows out completely around the seals on both sides of the clutch.

PACKAGING

Your DURANT TOOL clutch, carefully wrapped in Vapor Inhibitor type activated paper for corrosion protection and packed in a shipped box conforming to the requirements of Rule 41, Uniform Freight Classification, may be stored for up to two (2) years and reshipped without added packaging. Models 300 through 700 are packed in corrugated board shipping boxes and models 750 through 1027 in wooden, style 4 shipping boxes with integral skids. (See Oil Lubrication Maintenance for Information about clutches which have been stored for extended periods).

To store in an unprotected area or if the original package is opened, wrap the box with a waterproof covering.

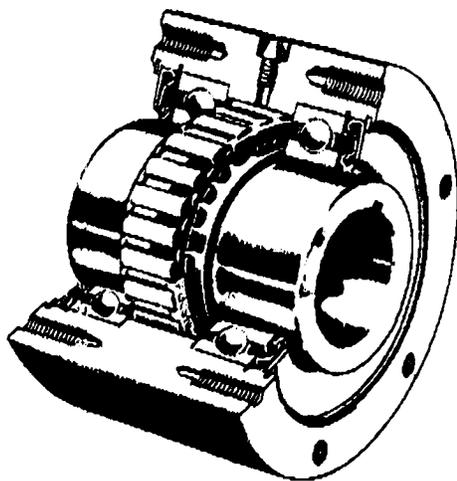
CLUTCH REBUILDING SERVICE

DISASSEMBLY AND REPAIR OF DURANT TOOL IN THE FIELD IS NOT RECOMMENDED. DURANT TOOL clutches are precision devices manufactured under careful controls to meet exacting standards. When reconditioning is required, clutches should be returned to the DURANT TOOL directly or through your local I.P.T.D. Distributor or through the Original Equipment Manufacturer.

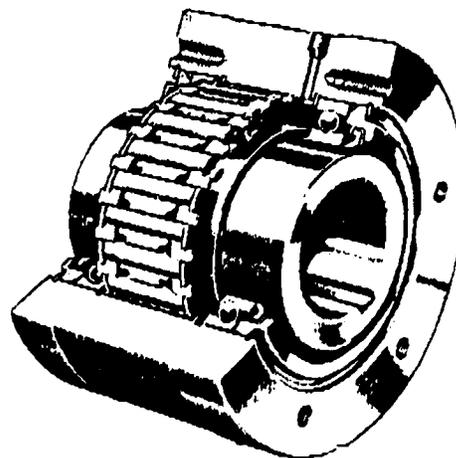
These instructions cannot cover all details or variations in equipment and applications not provide for every possible contingency which may be met in installation, operation or maintenance. Should further information be needed, contact the Durant Tool Company.

ROTATING EQUIPMENT

Rotating equipment is potentially dangerous and should be properly guarded. The user should check for all applicable safety codes in local area and provide a suitable guard.



HPI-300-700



HPI-750-1027