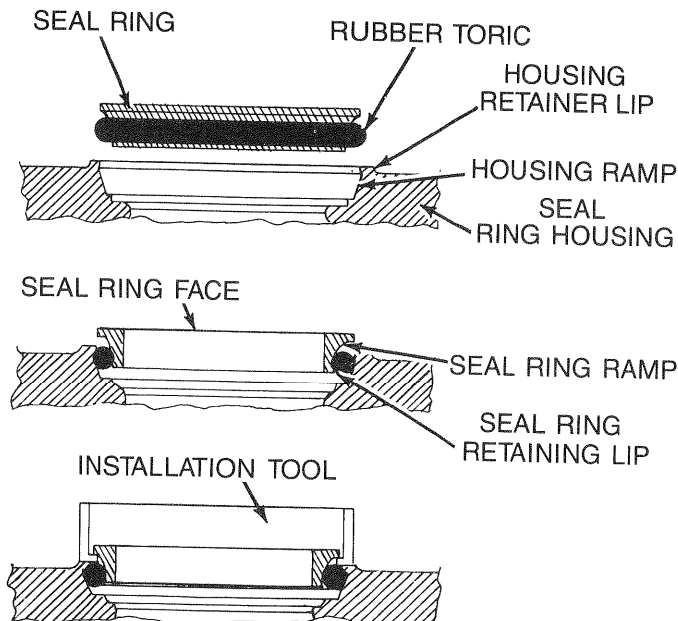


## **DUO-CONE SEAL INSTALLATION**

## TERMINOLOGY



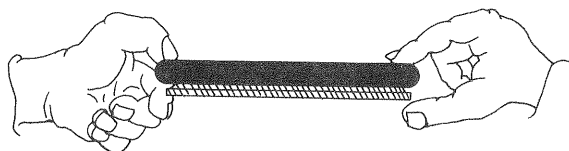
## THERE ARE FIVE FAILURE MODES

1. Oil Leakage
2. Galling
3. Pumping Mud Past The Toric
4. Toric Failure
5. Seal Ring Breakage

Failures are caused by combinations of factors rather than one single cause, but all have one common denominator contributing to failure—**ASSEMBLY ERROR.**

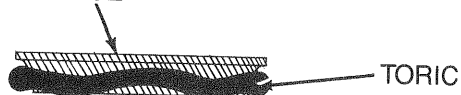
### STEP -1-

INSTALL THE RUBBER TORIC ON THE SEAL RING



Toric must be on the bottom of the seal ring ramp. Make sure it is—**STRAIGHT.**

SEAL RING FACE



### DON'T TWIST THE TORIC

Handle seal ring carefully. Nicks and scratches on the seal ring face—**CAUSE LEAKS.**

### STEP -2-

**REMOVE ANY OILY FILM FROM HOUSING AND SEAL RING RAMP, AND FROM THE TORIC**

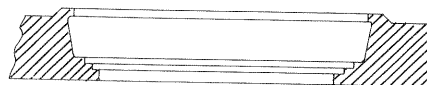
Both ramps must be dry.

Under no circumstances should oil from adjacent bearing installations or seal ring face lubrication get on the ramp or toric—**UNTIL AFTER BOTH SEAL RINGS ARE TOGETHER IN THEIR FINAL ASSEMBLED POSITION.**

### STEP -3-



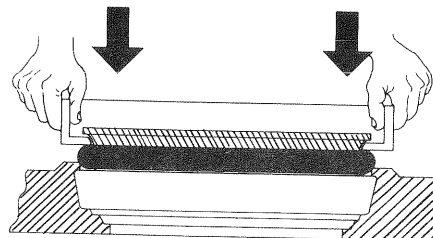
Wet toric in Tri-Chloroethane to let it slip easily under the housing retainer lip.



**DON'T USE STANOSOL OR ANY OTHER LIQUID THAT LEAVES AN OILY FILM OR DOES NOT EVAPORATE QUICKLY.**

### STEP -4-

Set seal ring with toric squarely on the seal housing. **APPLY** sudden pressure to pop toric under housing retaining lip.



Toric can twist if it is dry on one spot or if there are burrs or fins on the housing retaining lip.

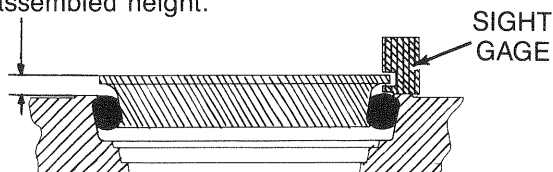


A bulging toric or cocked seal can contribute to eventual failure.

### STEP -5-

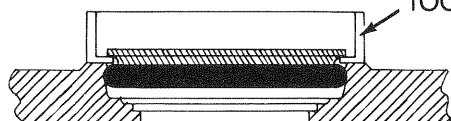
#### CHECK WITH SIGHT GAGE

Sight gage used to check variation in seal ring "assembled height."



Height variation around the assembled ring should not exceed .040" (1.0 MM).

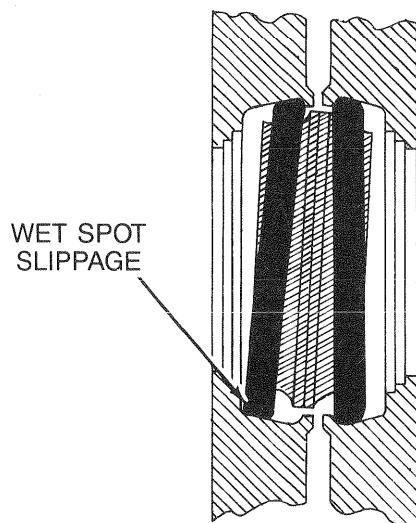
#### INSTALLMENT TOOL



Make any required adjustments with installment tool—  
**DO NOT PUSH DIRECTLY ON THE SEAL RING.**

#### BEFORE ASSEMBLING BOTH SEALS AND HOUSING TOGETHER...

**WAIT**—at least two minutes to let all Tri-Chloroethane evaporate (some may still be trapped between toric and housing ramp).



1. A wet spot between housing and ramp can cause sliding and cock the seal.
2. Cocked seals cause uneven pressure on the seal face and it can cause the seal to wobble.
3. Uneven pressure causes leakage or scoring.
4. Wobbling seals can cause dirt entry problems in the field.

### STEP -6-

#### WIPE SEAL FACES

No foreign particles should be on the seal ring faces. Something as small as a **PAPER TOWEL RAVELING** will hold the seal faces apart and cause leakage.

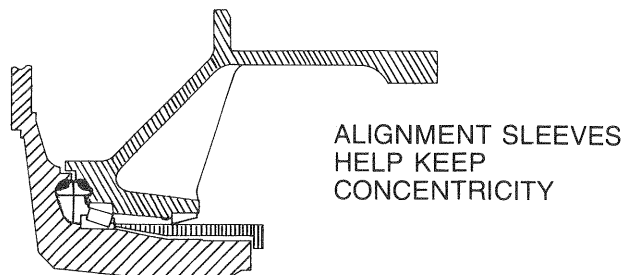
**APPLY** a thin film of clean oil on the seal faces by using an applicator, disposable tissue, or a clean finger.

### STEP -7-

#### FINALLY!

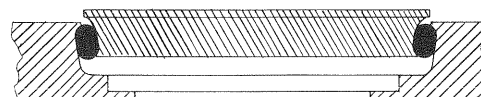
Assemble both housings and seal rings together. **MAKE SURE THEY ARE SQUARE AND CONCENTRIC.**

Bring seals together slowly and carefully. Slamming can damage or break seal on impact.

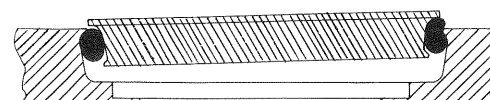
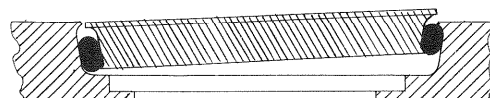
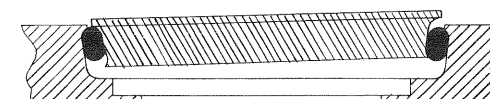


#### EXAMPLES

##### CORRECT ASSEMBLY

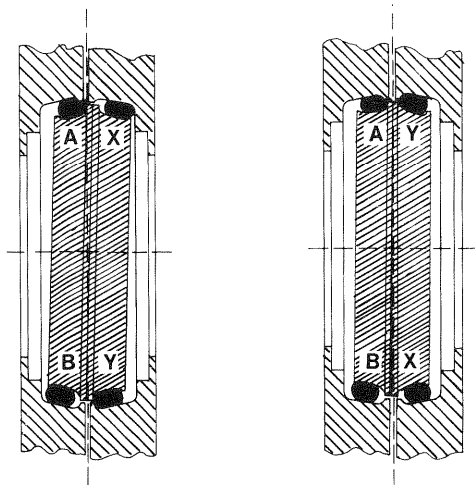


##### INCORRECT ASSEMBLIES



## RESULTS OF INCORRECT ASSEMBLY

Points "A" and "B" remain stationary. Points "X" and "Y" rotate 180°. This causes high pressure at "A" and "Y" and possible galling.



ORIGINAL  
"AS ASSEMBLED"  
POSITION

ROTATED 180° FROM  
"ORIGINAL" POSITION

Whereas at "B" and "X" there is low pressure and possible leakage.

## FACE SEAL BREAK-IN PERIOD AND RECOMMENDED LIQUID COOLED BRAKE COOLING OILS

WHEN MACHINE IS IMMEDIATELY DRIVEN FROM PRODUCTION FLOOR OR AFTER FACE SEAL HAS BEEN REBUILT OR REPLACED, IT IS IMPERATIVE THAT A 15 MINUTE BREAK-IN PERIOD BE CONDUCTED AT NOT MORE THAN 25 RPM WHEEL SPEED, WHICH IS 5 MPH MAX. AND IN 1ST GEAR OPERATION ONLY. THIS IS TO ALLOW THE SEAL RUBBERS AND METAL RINGS TO PROPERLY SEAT.

IT IS RECOMMENDED THAT AXLES WITH EXTERNAL COOLED LIQUID COOLED BRAKES (LCB) USE "TRACTOR HYDRAULIC FLUIDS" MEETING ALLISON C4 DESIGNATION FOR COOLING OIL. THIS FLUID HAS E.P. ADDITIVE FOR IMPROVED FACE SEAL LIFE AND FRICTION MODIFIERS FOR HIGH TORQUE AND QUIET BRAKE OPERATION.