SEALING SYSTEM LEAKAGE ANALYSIS CHECKLIST PART 1.

An examination of the sealing system and immediate environment with the seal in place.

Seal Application: Equipment Identification:

Miles/Hours of Operation: Complaint:

Before removal, carefully inspect the seal, the shaft and the immediate area around the leakage site. Follow this check list.

Amount of Leakage Present

☐ Slight ☐ Immediate Area Damp ☐ Heavy Leakage

Source of Leakage

Check	Location	Reference Code
☐	Between Shaft & Seal Lip	____
☐	Between O.D. of Seal and Bore	B.2.5
☐	At Retainer Bolt Holes	B.3.1
☐	At Retainer Gasket	B.3.2
☐	Between Wear Sleeve & Shaft	B.3.7
☐	Through Seal on Assembled Seals	B.3.8

Condition of Immediate Environment

☐	Seal Area Clean ☐ Mud or Dust packed in Seal Area	B.2.1

Wipe Immediate Area Clean & Inspect

Check	Condition	Reference Code
☐	Nicks on Bore Chamfer	B.1.1
☐	Seal Loose in Bore	B.1.2
☐	Paint Spray on Seal Lip	B.2.2
☐	Seal Cocked in Bore (amount)_____	B.2.3
☐	Seal Installed in Incorrect Orientation (backwards)	B.2.4
☐	Seal Case Deformed	B.2.6
☐	Shaft to Bore Misalignment	B.3.5

Rotate Shaft if Possible Check for Radial & Axial Play

☐	Excessive Shaft End Play (amount)_____	B.3.3
☐	Excessive Shaft Runout (amount)_____	B.3.4

NOTE: If location of leakage cannot be confirmed at this point, either introduce ultraviolet dye into the sump or spray area with white powder, operate for 15 minutes and check for leakage with ultraviolet or regular light.

When above analysis is complete, mark the seal at the 12 o'clock position & remove carefully from the application.

☐	Oil Sample Obtained	B.3.6

Completed By: _____ Date: _____

SEALING SYSTEM LEAKAGE ANALYSIS CHECKLIST PART 2.

An examination of the seal after removal.

Clean the removed seal in a mild solvent. Do not attempt to scrape away carbon, etc. Inspect the seal using this checklist.

Primary Lip Area

Check	Condition	Reference Code
☐	Normal Wear	C.2.1.1
☐	No Wear	C.2.1.1
☐	Excessive Wear	C.2.1.2
☐	Eccentric Wear	C.2.1.3
☐	Inverted Lip Due to Poor Installation	C.2.1.10
☐	Nicks, Scratches or Cuts at Lip Contact Area	C.2.1.4
☐	Hardened or Cracked Rubber	C.2.1.6
☐	Coked Oil on Lip	C.2.1.8
☐	Softening or Swelling	C.2.1.9

Seal Outside Diameter

Check	Condition	Reference Code
☐	Normal	———
☐	Severe Axial Scratches	C.2.2.2
☐	Peeled Rubber	C.2.2.3
☐	Hardened Rubber	C.2.2.4
☐	Nonfills or Cuts	C.2.2.5

Spring and Spring Groove Area

Check	Condition	Reference Code
☐	Spring Normal & In Place	———
☐	Spring Missing	C.2.3.1
☐	Spring Corroded	C.2.3.2
☐	More Than One Spring	C.2.3.4
☐	Separated Spring	C.2.3.5

Make the Following Measurements

		Reference Code
Primary Lip Inside Diameter?	(_____)	C.2.1.7
Primary Lip Radial Force?	(_____)	C.2.1.7
Seal Outside Diameter?	(_____)	C.2.2.1
Spring Inside Diameter?	(_____)	C.2.3.3
Spring Tension?	(_____)	C.2.3.3
Primary Lip Wear Band Width?		
Min.	(_____)	
Max.	(_____)	

Comments:

Completed By: _____ Date: _____

SEALING SYSTEM LEAKAGE ANALYSIS CHECKLIST PART 3.

An examination of the housing, shaft, and lubricant (after seal removal).

Inspect the Housing Bore Area		
Check	**Condition**	**Reference Code**
☐	Measure Bore Diameter: (_____)	C.1.1
☐	Bore Chamfer Damaged	C.1.2
☐	Flaws or Voids in Housing	C.1.3
☐	Tool Withdrawal Marks in Bore	C.1.4
☐	Bore Surface Scratched or galled	C.1.5

Inspect the Shaft in the Seal Contact Area		
Check	**Condition**	**Reference Code**
☐	Measure Shaft Diameter: (_____)	C.3.1
☐	Shaft Surface Corroded	C.3.3
☐	Seal Wear Path in Wrong Location	C.3.4
☐	Scratches or Nicks at Lip Contact Area	C.3.5
☐	Measure Wear Path Width: (_____)	C.3.7
☐	Discoloration on Shaft Surface	C.3.8
☐	Coked Lubricant Present	C.3.8
☐	Shaft Chamfer Damaged or Missing	C.3.11
☐	Wear Sleeve Loose on Shaft (if applicable)	C.3.13

Remove Shaft From Application for Further Inspection	
Characteristic	**Reference Code**
Measure Surface Roughness: (_____Ra)	C.3.2
Measure Depth of Wear Path: (_____)	C.3.6
Measure Shaft Lead: (_____Deg)	C.3.9
Measure Shaft Hardness: (_____Rc)	C.3.10
Check for Proper Shaft Material	C.3.12

Inspect the Lubricant		
Check		**Reference Code**
☐	Contaminates (particulates) in Filtered Lube	C.4.1

Compare Lubricant from Application with New Lubricant for Proper Type		
Check	**Condition**	**Reference Code**
☐	Color Different	C.4.2
☐	Viscosity Different	C.4.2
☐	Odor Different	C.4.2

Completed By: _____ Date: _____