Superseded B376R1077-0

CHANCE MANUFACTURING CO., Inc.

Number: B61-0217-00

Date: 1-21-81

Supersedes:

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Numbers: ALL UNITS

Ride: YO YO

Subject: SWEEP CYLINDER

Chance Manufacturing Co., Inc. has determined that inspection of all Yo-Yo cylinders is necessary on a regular basis as follows:

Rides 74-3300 through 77-3347 inspected immediately, and under no circumstances later than December 31, 1981.

Rides 77-3348 through 78-3352 inspected no later than December 31, 1982.

Rides 80-3353 and on, inspected no later than five (5) years after ride was put in service.

We ask that all YO-YO owner/operators, remove the sweep cylinders from their rides as outlined in SECTION II of this bulletin. Upon removal, the cylinder shall be inspected by qualified third party hydraulics and non-destructive testing organizations, as in SECTION III of this bulletin and re-inspected each two years thereafter, until they are ten years old.

Should the owner/operator desire a longer period between inspections, return of the cylinder to Chance Manufacturing Co., Inc. for inspection and replacement of the rod, piston, piston nut, wear ring and seals, will allow the operation of the cylinder for five years before it is necessary to begin the two year inspection intervals. This reconditioning will be performed during 1981 for $1,572.00, which is our cost.

Inspections made by owner/operator selected third party organizations must be documented by these organizations with certified acceptance forms identifying the ride, and owner/operator as outlined in SECTION III, and forwarded to Chance Manufacturing Co., Inc. When certification is received by Chance, a metal tag will be sent to the owner/operator for attachment to the cylinder, indicating the certification of the cylinder for a period of two years, at which time the cylinder must be re-inspected or sent to Chance Manufacturing Co. for five (5) year reconditioning.

All YO-YO cylinders must be reconditioned by replacement of the rod, when the rod is ten years old.

SECTION II

REMOVAL OF SWEEP CYLINDER FROM THE RIDE

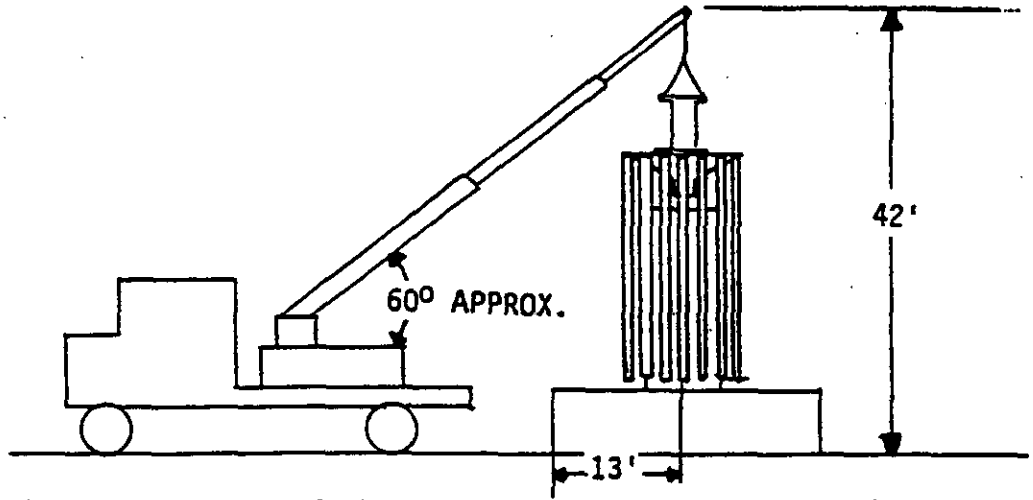
1. Starting with the ride erected and the sweeps folded against the tower, remove the seats and "T" bars.

2. Disconnect the bar linkage stripper bolts at the sweeps. Select two linkage bars 180° apart and connect them together at the top with a stripper bolt, for use as a pick up. Bundle the remaining bars together with a rope.

3. Remove the 1" bolts, nuts and lockwashers holding the cylinder in the ride. Retract the cylinder rod by engaging the raise switch, stopping the retraction about 6" short of full retract.

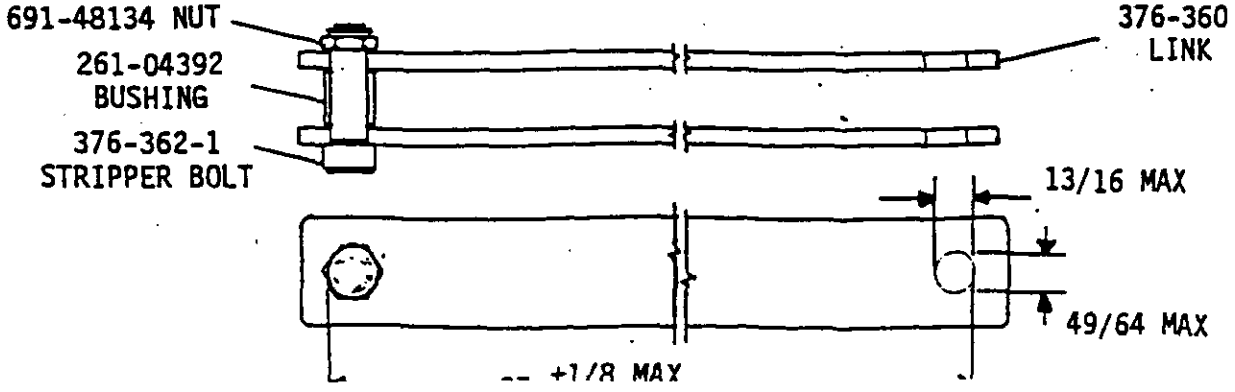
4. Remove hoses from cylinder,and cap all open hoses and fittings. Remove handle from valve at base of cylinder and turn all fittings against the side of the cylinder body for removal clearance through the mounting hole.

5. Select a mobile crane with a capacity of 1500 pounds at boom angle and elevation as illustrated for removal of the cylinder.



6. Raise cylinder out of the top of the ride, observing clearance of plumbing, through mounting hole, as it is removed. Lower cylinder to a pallet on the ground, protecting the plumbing and bar linkage as it is being placed onto the pallet.

7. Remove bar linkage from spider and inspect all stripper bolts and steel bushings for wear. Holes in bar linkage should not be elongated more than shown on illustration.



8. Transport cylinder to qualified third party hydraulics and non-destructive testing organization for two (2) year inspection as in SECTION III of this bulletin, OR Return cylinder to Chance Manufacturing Co., Inc. for a five (5) year reconditioning replacement of the rod.

9. Sweep bearings should be inspected at this time by swinging each sweep out away from the tower four (4) to six (6) feet, with the aid of a 2x4 timber or bar. The sweep should free fall back into place without help. Sweeps that are bound up require new sweep bearings. New spherical roller bearings are recommended rather than the ball bushings used as original equipment. Kit number K61-174 is for replacement of bearings in one sweep. 16 kits are needed to replace all sweep bearings, total replacement is recommended rather than selective replacement.

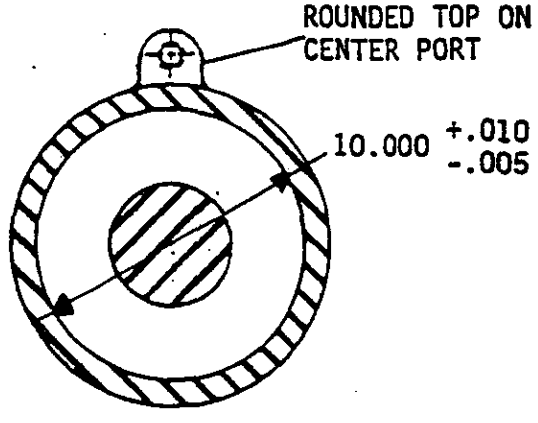
SECTION III

CYLINDER DISASSEMBLY

1. A competent third party hydraulic organization must be selected for dissassembly and pressure testing of the cylinder.

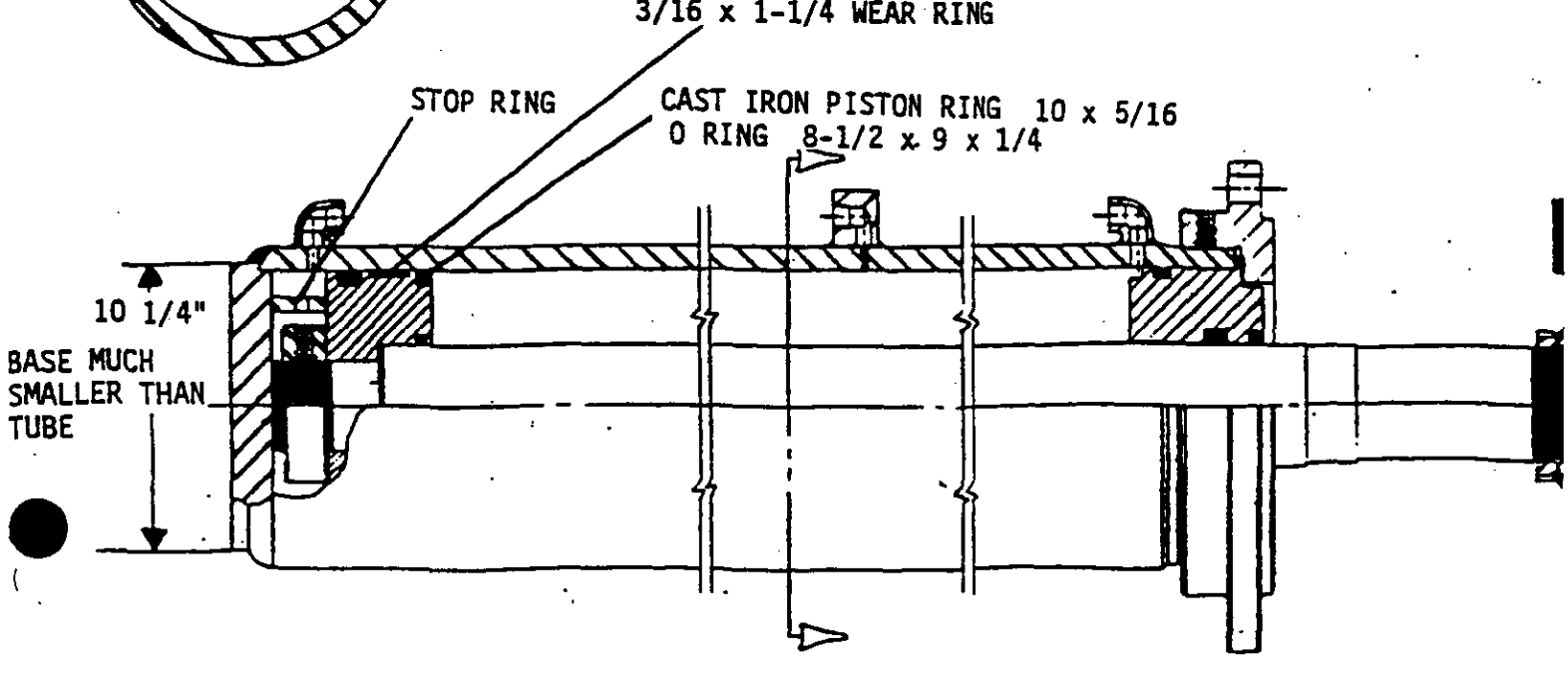
2. Identification of the cylinder as to original Manufacturer is necessary to order the proper seal kits or other repair parts. Exterior examination will identify the cylinder as follows:

GREAT BEND INDUSTRIES

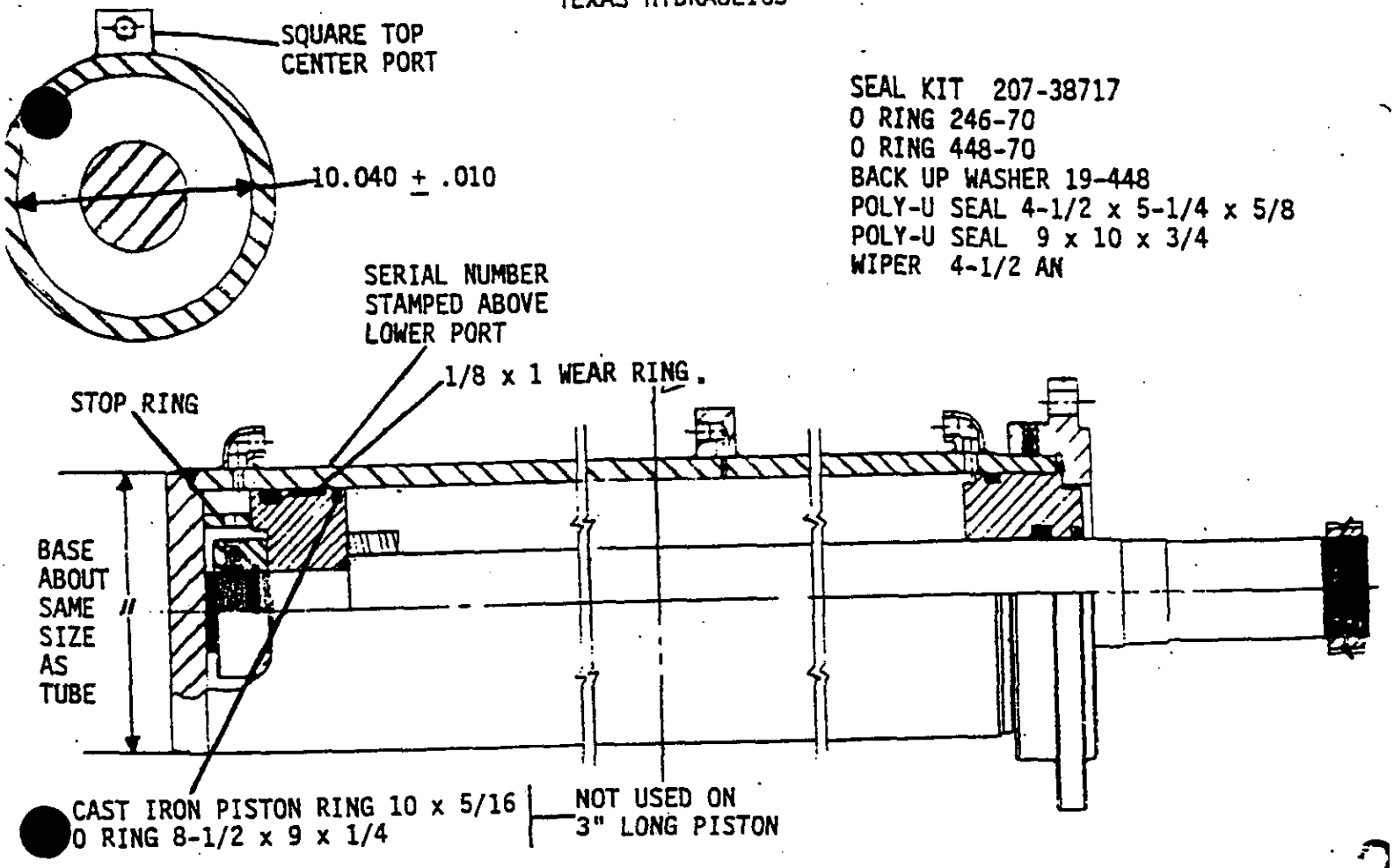


SEAL KIT 207-38717

O RING -246-70
O RING -448-70
BACK UP WASHER -19-448
POLY-U SEAL 4-1/2 x 5-1/4 x 5/8
POLY-U SEAL 9 x 10 x 3/4
WIPER 4-1/2 AN



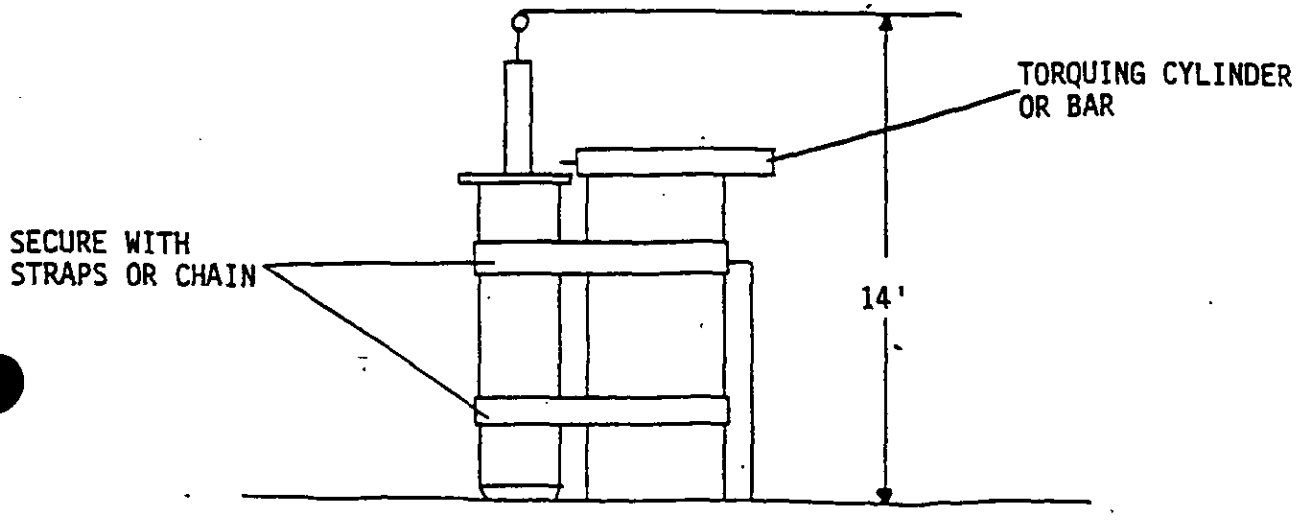
TEXAS HYDRAULICS



SEAL KIT 207-38717
O RING 246-70
O RING 448-70
BACK UP WASHER 19-448
POLY-U SEAL 4-1/2 x 5-1/4 x 5/8
POLY-U SEAL 9 x 10 x 3/4
WIPER 4-1/2 AN

Hydraulic organization shall identify cylinder as above and fill out portion of Chance form dealing with identification, bore, stop ring, stroke measurement and pressure tests. Failure of cylinder to meet any of the required dimensions or tests, will require return to Chance Manufacturing Co., Inc. for five (5) year rod replacement and reconditioning.

3. Secure the cylinder, in an upright position, in a stand capable of supporting the cylinder and torquing the cap as illustrated below. 14 ft. head room for removal of the rod is required.



4. Disassemble the spider by removing the cover and gasket secured by 1/4" bolts. Loosen the tang on the lockwasher between the two nuts. Remove the upper nut, the washer and lower nut. Lift spider and bearings from the rod.

5. Wash and clean bearing and housing, cover and gasket. Inspect bearings inner and outer races, and grease seals. (We recommend new grease seals) Upon re-assembly, fill cavity between bearings full of grease, and re-seal gasket.

6. Remove double set of set screws and nylon plugs, securing cap to cylinder threads in two places.

7. Cap is held very tightly with right hand threads and must be re-tightened very tightly on re-assembly. A combination of torquing and shock may be required to loosen and remove the cap.

8. Remove cap from rod and rod bearing. Lift rod, piston and rod bearing from cylinder with hoist. Maintain hoist centered over cylinder. Do not rock or apply side loads to rod, as damage to piston or rod bearing may result.

9. Inspect tightness of piston on rod and tightness of nut against piston. Looseness indicates possible damage to rod or piston.

10. Piston nut is secured with a double set of set screws and a nylon plug. Remove the above and remove the nut.

11. Remove the piston and rod bearing from the rod. Inspect the piston for wear or fractured seal container grooves. Inspect the phenolic or fiber-glass wear ring. Inspect the cast iron seal ring. Inspect the rod bearing locking lip and the seal container grooves.

12. Replace nuts on both ends of rod for thread protection before transporting rod to a qualified third party non=destructive testing organization.

13. Non-destructive test organization shall magnetic particle inspect the rod with logitudinal magnetization to detect any circumferential cracking, with particular attention devoted to areas of piston shoulder and any areas showing wear due to severe contact with rod bearing as illustrated in form. Chance form shall be completed as well as organizations form on acceptance or rejection of the rod.

14. Rejection of the rod by the testing organization will require the return of the entire cylinder to Chance Manufacturing Co., Inc. for five (5) year rod replacement and reconditioning.

15. Acceptance of rod by testing organization and proper re-assembly and hydraulic testing of the cylinder by qualified third party hydraulics organization, qualifies the cylinder for two (2) years of operation without further inspection.

16. Documentation of the completion of the tests and inspections and their acceptance by the qualified organization forms and the Chance forms, shall be send to chance Manufacturing Co., Inc. to the attention of the chief engineer. When documentation is received, a metal tag will be sent to the owner/operator for attachment to the cylinder, at the bottom port, indicating the certification of the cylinder for a two (2) year period, at which time it must be re-inspected or if 10 years old, reconditioned with a new rod.

17. Re-assembly should include all new packing and seals. Re-assembly of spider, bearings and cover. Securing of spider bearing with double nut with tang washer in center and filling cavity between bearings full of grease. Return of cylinder to 6" extended position for assembly into ride, after bleeding and stroke testing. Attachment of bar linkage for installation in tower.

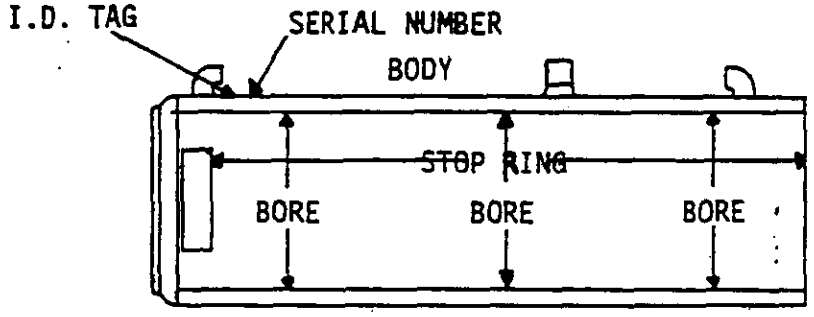
YO-YO SWEEP CYLINDER INSPECTION

RIDE SERIAL NO_____

OWNER/OPERATOR_____ DATE_____

CYLINDER MFG. - GREAT BEND INDUSTRIES ☐ TEXAS HYDRAULICS ☐
(See Section III of Bulletin B61-0217-00 for identification)

CYLINDER SERIAL NUMBER OR TAG NO._____



AREA	REQUIRED	ACTUAL
BORE 3 PLACES	G.B.I. $10.000 \pm \frac{.010}{.005}$	_____ TOP
	T.H. $10.040 \pm \frac{.010}{.010}$	_____ MIDDLE
		_____ BOTTOM
STOP RING DEPTH HIGH & LOW	G.B.I. - $60\ 3/8 \pm 1/32$ T.H. - $60\ 1/2$ or $61 \pm 1/32$	_____ HIGH
	STOP RING SURFACE MUST BE FLAT, PARALLEL AND PERPENDICULAR TO BORE WITHIN .010 TOTAL READOUT.	_____ LOW

INSPECT CONDITION OF CYLINDER PARTS AS PER SECTION III OF BULLETIN B61-0217-00.

MAGNETIC PARTICLE INSPECTION OF ROD - Use longitudinal magnetization to detect circumferential cracking along full length of rod.

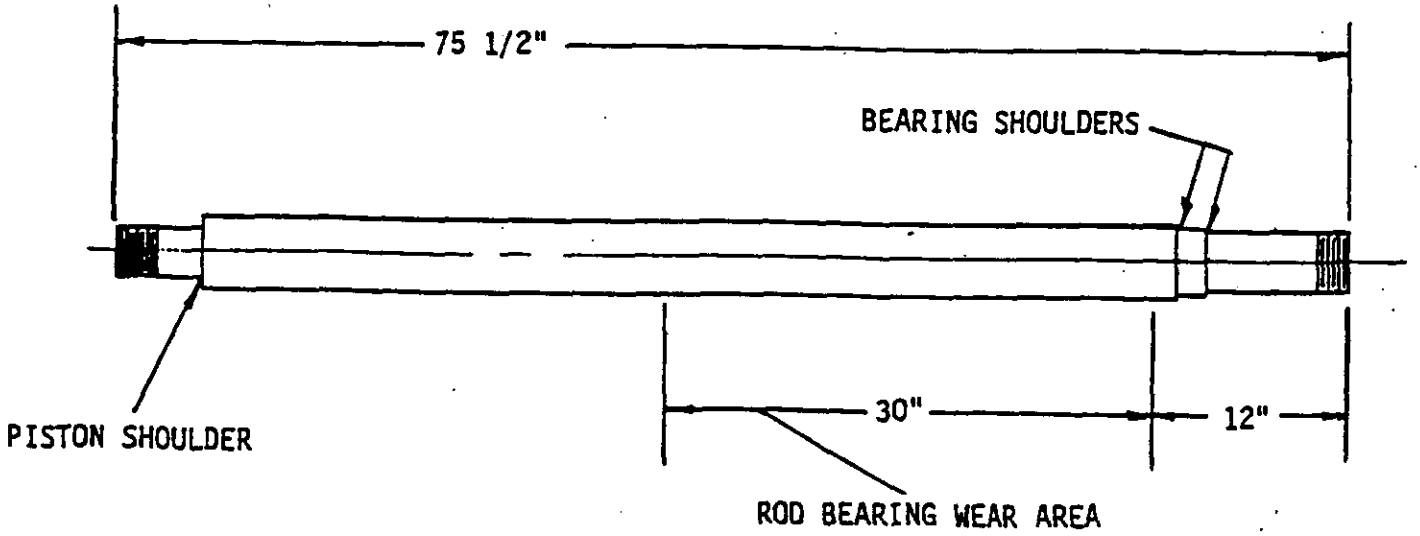
AREA	ACCEPT	REJECT
PISTON SHOULDER		
ROD BEARING WEAR AREA		
BEARING SHOULDERS		
OTHER AREAS		

CERTIFIED INSPECTION ORGANIZATION _____ DATE _____

SIGNATURE _____

ADDRESS _____ PHONE _____

NON-DESTRUCTIVE TEST OF ROD



	ACCEPT	REJECT
SPIDER BEARINGS		
SPIDER BEARING SEALS		
PISTON		
PISTON WEAR RING		
PISTON CAST IRON RING		
ROD BEARING		
PISTON NUT		
SPIDER BEARING NUTS		
SPIDER BEARING TANG WASHER		
ROD EXTERNAL CONDITION		
TESTING AFTER RE-ASSEMBLY		
25-1/4 IN. MID STROKE		
52-3/8 IN. FULL STROKE		
RETRACTED - 3000 PSI ROD END PRESSURE		
MID POINT 3000 PSI PISTON END PRESSURE		
EXTENDED 3000 PSI PISTON END PRESSURE		

QUALIFIED INSPECTION ORGANIZATION _____ DATE _____

SIGNATURE _____

ADDRESS _____ PHONE _____