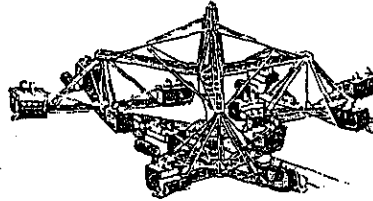


ALL STEEL PORTABLE
BIG ELI
FERRIS WHEELS



AREA CODE 217 PHONE 245-7145



Scramblers
ELI POWER UNITS

ELI BRIDGE COMPANY
INCORPORATED
800-820 CASE AVENUE
JACKSONVILLE, ILLINOIS, 62650
17 August 1977

ANNOUNCING

the

"T. M. S."

TRAILER-MOUNTED SCRAMBLER RIDE

For those of you who have expressed an interest in the *trailer-mounted* BIG ELI Scrambler ride, better known around here simply as the "T.M.S.", we are pleased to announce that factory testing has been completed and the prototype of the T.M.S. is currently undergoing final "in the field" testing.

Time and distance limitations have made it impossible to display the ride in every part of the country, or to book it during "field testing" with every show owner who has been so kind as to ask us to do so. But for those of you who are interested in seeing the prototype of the T.M.S. in operation, its tentative schedule of operation for the weeks just ahead is as follows:

<u>Approx. Dates</u>	<u>Location</u>	<u>Show</u>
Aug. 22-27	Randolph, Ohio (near Akron)	Bates Bros. Amusements. (Portage County Fair)
Aug. 28 - Sep. 6	Jacksonville, IL	back to Eli Bridge Co.
Sep. 7-11	Sandwich, IL	Reid's Spectacular (Sandwich Fair)
Sep. 16-18	Baltimore, MD	Shaw & Sons, Inc. (Baltimore City Fair)
Sep. 19		Back to Jacksonville, IL

If you have the opportunity to inspect the ride at any of these locations, we believe you will be more than pleased with what you see. With all new lighting system, the ride stands slightly over 21 feet at its highest point -- erected for operation; folds compactly on its own trailer for going over the road. All the lighting either stays in place or "folds automatically" as the ride structure folds. The only exception to this at the present time are the 3 flasher lights at the very crown of the center lighting.

"T.M.S."

17 August 1977

Page 2

How long does it take to erect or dismantle the ride. We are prepared to say two (2) men, 45 minutes -- up or down. This is based on our experience here at the factory. The first time the ride was erected, it required 2 men 40 minutes. The first time it was dismantled by the same two men, it required 42 minutes. These were the slowest times recorded!

It is anticipated that production of 1978 model trailer-mounted Scrambler rides will be somewhat limited. However, it is currently our intention to accept orders and schedule shipping dates, as available, in the same rotation that firm orders, accompanied by binder deposits are received -- starting with orders received NOW.

Anticipated selling price of the T.M.S. complete with electric motor power is \$96,900.00, cash price f.o.b. our factory; with terms of purchase as follows:

Cash terms: 10% cash with order, 15% when equipment is ready for shipment, balance at time of delivery.

Time terms: 10% cash with order, 15% when equipment is ready for shipment. Unpaid balance plus time price differential in monthly payments (due June 1 thru October 1, each year of the purchase period), secured by conditional sales contract. Subject to our approval of business references.

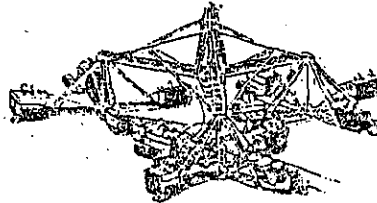
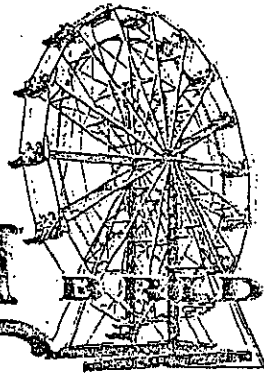
The enclosed photographs will give you a brief glimpse of the T.M.S., and we believe you will find it to be everything we said it would be. However, looking at photographs is never quite as satisfactory as getting a close look at the real thing. If you have any questions about what the ride looks like, how well it is constructed, how easy does it, "up and down" -- or, equally important to you, is it worth the money -- take the time to go SEE it!

Sincerely yours,

ELI BRIDGE COMPANY

ALL STEEL PORTABLE
Big ELLI
FERRIS WHEELS

AREA CODE 217 PHONE 245-7145



Scrambler
ELI POWER UNITS

ELI BRIDGE COMPANY

INCORPORATED

500-520 CASE AVENUE

JACKSONVILLE, ILLINOIS, 62250

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TMS SCRAMBLER BULLETIN NUMBER 1

APPLIES TO SERIAL NUMBERS 1 THROUGH 10

DATE: 21 June 1979

SUBJECT: BREAKAGE OF LANDING GEAR CYLINDERS STACK VALVE

There have been six instances of landing gear cylinders stack valve breakage reported to us.

From our analysis of the information available to us we believe that some, if not all, of the failures have been caused by a valve handle not returning to its neutral position after use. If the handle is not in neutral the flow of oil back to the reservoir is blocked. If another valve is then operated, the cylinders can act as pressure boosters and increase the internal system pressure 30% or more above the 3,000 pounds per square inch rating of the valve, which can lead to the early failure of a valve.

Therefore, on the basis of our analysis and to avoid valve damage, do not operate more than one of the three valves (unit pole lift cylinders valve, landing gear cylinders stack valve, or center pole cylinder valve) at any one time, and be certain that after you have operated a valve handle that it returns to the neutral center position.

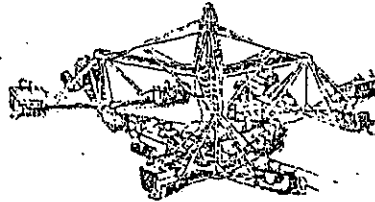
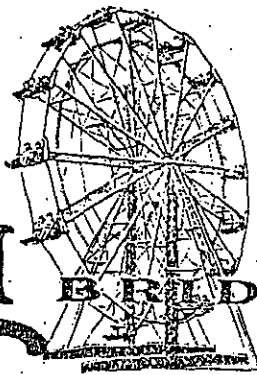
If you would like to know more about this, you are welcome to use our WATS line.

William C. Deem

William C. Deem
Chief Engineer
ELI BRIDGE COMPANY

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BIG ELI
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Scrambler
ELI POWER UNITS

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TMS SCRAMBLER BULLETIN NUMBER 2

APPLIES TO SERIAL NUMBERS ALL THROUGH _____

DATE: 19 August 1980

SUBJECT: RUBBER VIBRATION MOUNTS UNDER THE ELECTRIC MOTOR/HYDROSTATIC TRANSMISSION ASSEMBLY

It has come to our attention that on one TMS Scrambler the rubber vibration mounts under the assembly that supports the electric motor and the hydrostatic transmission have disintegrated because of oil damage. These vibration mounts are made of natural rubber, and any natural rubber is destroyed in the continued presence of hydrocarbons.

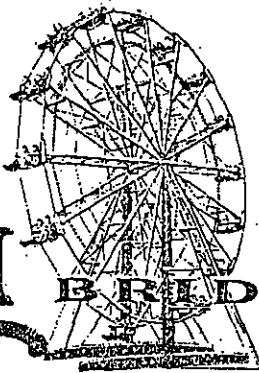
The manufacturer of these mounts was called to see about the availability of oil-resistant Neoprene mounts. The factory man said that Neoprene mounts would be available on special order at a cost three or four times the cost of the ones we are now using, and the selling price on the present ones is \$14.48 each. In addition, he said that the Neoprene mounts would not take the vibration as well nor last as long as the natural rubber one, provided oil was kept off the rubber. He recommended continuing with the rubber mounts, and washing them off with soap and water if oil should get on them. He said it was the sustained exposure of the rubber to oil that would cause the rubber to disintegrate, but if washed off right away these rubber mounts should give better service than ones made of Neoprene, at substantially less cost.

Therefore, we recommend that you keep a close watch on these rubber mounts, and any time you see oil, grease, or gasoline on them, wash them off thoroughly with soap and water.

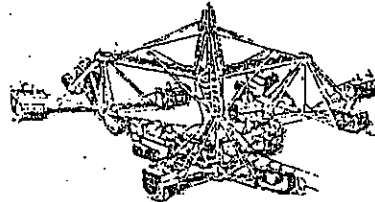
William C. Deem

William C. Deem
Chief Engineer
ELI BRIDGE COMPANY

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TMS SCRAMBLER BULLETIN NUMBER 3

APPLIES TO SERIAL NUMBERS ALL THROUGH _____

DATE: 19 August 1980

SUBJECT: DAMAGE TO HYDROSTATIC TRANSMISSION BECAUSE OF ELECTRIC MOTOR
TURNING WRONG DIRECTION

In the second paragraph, page 35, of the TMS Scrambler manual, you are advised how to change the direction of rotation of the electric motor by reversing any two of the three power lines going into it. The proper direction of rotation is shown in Picture No. 105, on page 36.

WARNING: If you do not have the motor turning in the counterclockwise direction when viewed from the back side of the motor as shown in the picture, stop it immediately and do not operate it further until two of the power leads have been reversed. Continuing to operate the electric motor can damage the hydrostatic transmission because the charge pump inside the transmission will function only when the electric motor is turning in the proper direction. The charge pump supplies makeup oil for the drive and also provides lubrication for the precision parts inside the transmission. To operate without the charge pump working properly can do permanent damage to the hydrostatic transmission in a very few minutes, possibly requiring replacement of the transmission.

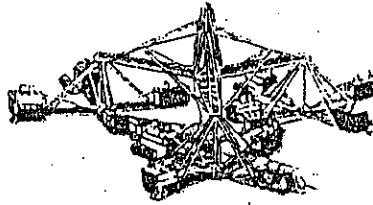
William C. Deem

William C. Deem
Chief Engineer
ELI BRIDGE COMPANY

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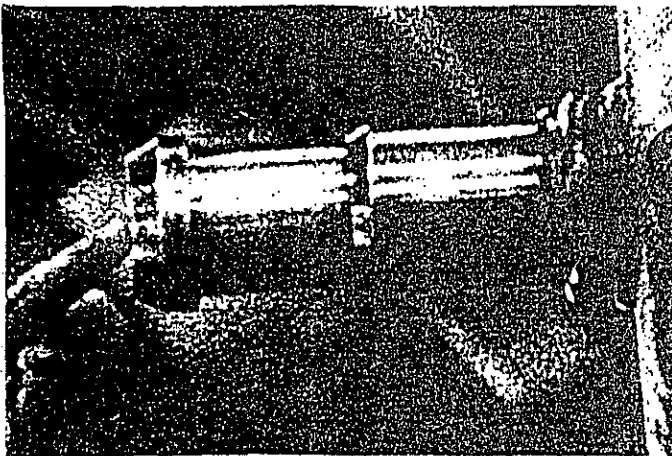
TMS SCRAMBLER BULLETIN NUMBER 4

APPLIES TO SERIAL NUMBERS ALL THROUGH _____

DATE: 25 January 1984

SUBJECT: UNIT POLE AND SPLIT RING WEAR

It has come to our attention that on two different Big Eli TMS Scrambler rides there has been substantial wear at the top end of each unit pole where the split rings are located. In one case the wear was great enough to permit the unit pole to drop down through the bearing. If this should happen while the ride is in motion it could be very dangerous. It is imperative that you check your TMS Scrambler ride for wear at this location.



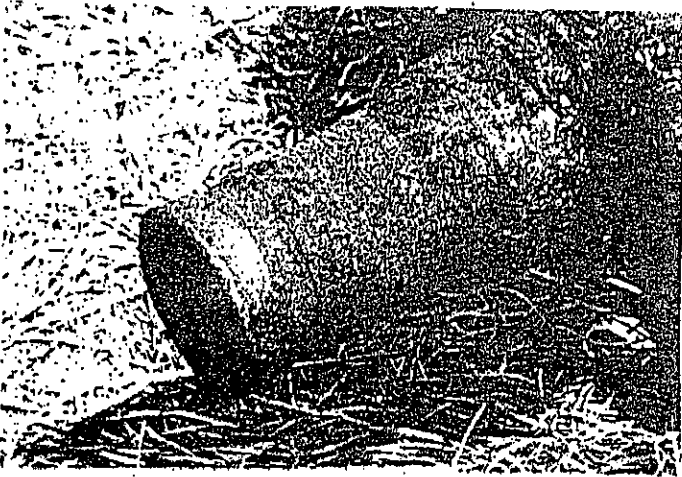
Picture No. 1

Picture No. 1 shows the top of the unit pole. The shoulder on the left end is machined to a diameter of 2.938", while the smaller diameter is 2.500".

Picture No. 2 shows the top end of the unit pole which dropped through the bearing. Notice that the shoulder on the left end has been completely worn away. Here the diameter measured 2.485". The smaller diameter which started out as 2.500" was worn down to 2.290" at one point.

The top of the split ring was worn as shown in Picture No. 3. Originally the top of the split ring was flat.

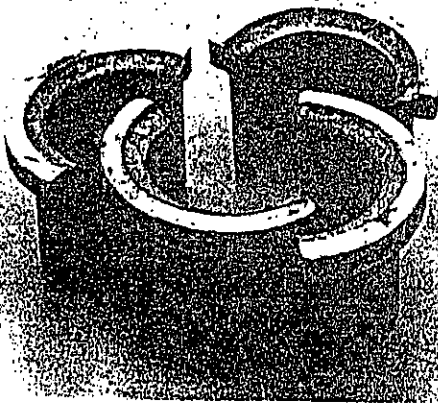
This type of wear was unknown on ground model Scrambler rides. We are not absolutely certain what has caused this wear on the TMS Scramblers, but we believe we know what has happened. We feel that this wear does not occur when the ride is in operation, but takes place while it is traveling on the highway. The bottom of each unit pole is supported on the floor of the trailer, but the top sweep hangs on the top of the unit pole. There is



Picture No. 2

some clearance built in, and as the trailer travels on the highway the normal bouncing of the trailer causes the unit pole and top sweep to pound against each other. This pounding has a peening effect which wears away the metal.

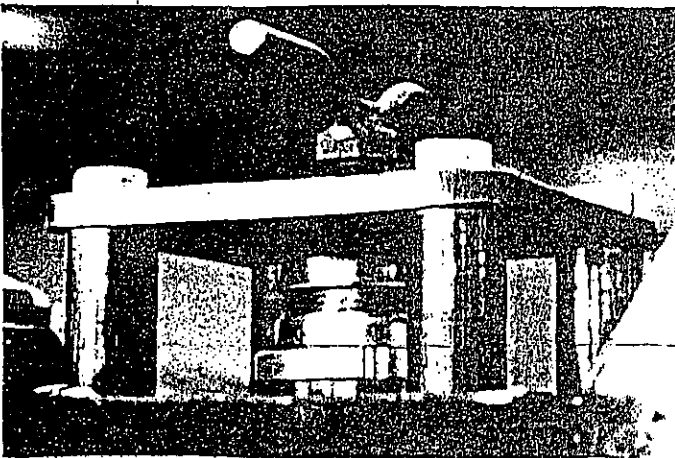
It is our feeling that this peening can be minimized by preventing this pounding from taking place. Accordingly, we have designed a tightening structure, as shown in Picture No. 4. Turning the handle at the top pushes a pad on the other end against the top of the unit pole. It is to be tightened while traveling on the highway, and loosened when the ride is operating. Picture No. 4 has the rain shield removed so the interior details can be seen. A cylindrical rain shield has been added in Picture No. 5.



Picture No. 3

This equipment can be added easily to your TMS Scrambler. We will send you the necessary parts for your TMS Scrambler ride at no charge if you will put on the enclosed order sheet the address where you wish it to be sent. If you find that the top of the unit pole shows noticeable wear we will repair or replace the unit pole if you will return it to our factory. We will do the work at no charge, but we do ask you to be responsible for transportation charges to and from our factory.

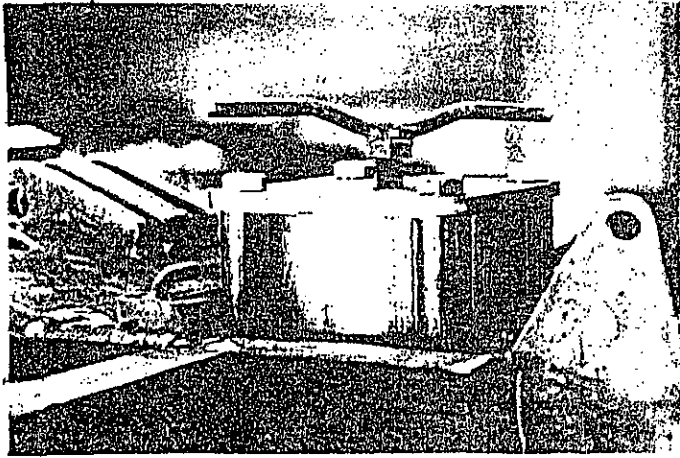
It would be a great help to us if you would send us any worn split rings which you replace.



Picture No. 4

The TMS Scrambler ride in which the unit pole dropped through also had a Sealmaster SF-47 ball bearing pillow block to fail. We do not know that this bearing failure was related to the excessive wear problem, but we do remind you that for many years it has been our recommendation that the SF-47 ball bearing pillow blocks be replaced every four years or 3,000 hours of service, whichever comes first.

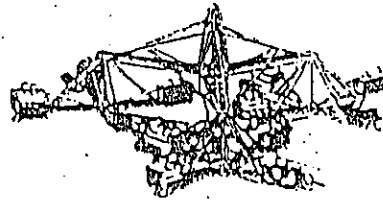
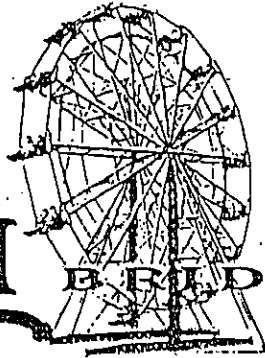
We do consider this to be a mandatory inspection and modification.



Picture No. 5

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TMS SCRAMBLER BULLETIN NUMBER 5

APPLIES TO SERIAL NUMBERS ALL THROUGH _____

DATE: December 28, 1984

SUBJECT: TMS SCRAMBLER TOP SWEEP BEARINGS

On January 25, 1984, TMS Scrambler Bulletin No. 4 was sent to all owners and inspectors. At that time it was our feeling that early bearing failures on the TMS Scrambler, reported to us, were being caused by impact from bouncing on the highway, since the same bearing used on ground-model Scramblers has given a very high degree of reliability over a 30 year period.

We provided a clamping device to clamp the unit pole to the bearing while on the highway, but at the same time we said that we were not absolutely sure that this would be a complete solution to the problem.

Recently, owners of a TMS, in replacing these bearings, discovered the spherical outer races of two bearings to be badly cracked, yet still together. They sent them to us. It was the first time we were able to see bearings in this condition, and we felt sure that they would give us valuable information about what was happening. We sent the bearings on to the Sealmaster Bearing Company for their analysis.

We want to emphasize that each of the four failed or about to fail bearings on the TMS Scramblers were not replaced according to our original recommendations of 3,000 hours or four years, whichever came first. These four bearings had been used five and six seasons. Had they been replaced when they were supposed to have been, then failure might never have occurred.

We have been working closely with the Sealmaster people, and we expect to have a modification available in the near future, at which time you will be informed. For the present we feel that it is imperative that these bearings be replaced regularly. On ground-model Scramblers replacement after 3,000 hours or four years, whichever comes first, still seems to be a proper replacement schedule. However, indications are that this is not conservative enough for the TMS Scrambler, and so at this time we are establishing a new replacement schedule:

The TMS Scrambler top sweep Sealmaster SF-47 ball bearing flange units must be replaced every 2,000 hours, or three years, whichever comes first.

We suggest that you tag or mark the installation date on each new bearing, so that you can be sure when each should be replaced.

We know that our recommendations for replacing these bearings have often been ignored in the past. From what we have seen in 1984, however, this bulletin must be taken as a warning of the most serious nature. Failure of one of these bearings during operation can create a disaster.

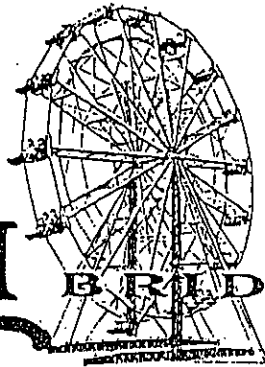
The safety of your passengers and equipment demands that the 2,000 hour/three season replacement schedule be followed faithfully. We consider this replacement schedule to be mandatory.

William C. Deem

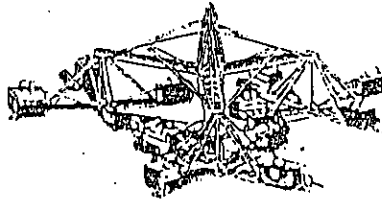
William C. Deem
Chief Engineer
ELI BRIDGE COMPANY

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Scrambler
QUALITY
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TMS SCRAMBLER BULLETIN NUMBER 6

APPLIES TO SERIAL NUMBERS 1 THROUGH 26

DATE: February 28, 1985

SUBJECT: TMS SCRAMBLER TOP SWEEP BEARING MODIFICATION

Our TMS Scrambler Bulletin No. 5, dated December 28, 1984, stated that we expected to have a modification for the TMS Scrambler top sweep bearing installation available in the near future. We are now ready with this modification.

Picture No. 1 shows the complete installation, and Picture No. 2 shows a cross-sectional drawing of the assembly. This modification has been reviewed and approved by Chief Engineer Albert M. LaRou of the Sealmaster Bearing Company, and J. E. Mickelson, Product Engineer of Morse Industrial Corporation. Mr. LaRou felt that the extra loading of the Sealmaster SF-47 bearing as a result of highway travel warranted a change to the Morse RFP-215-C tapered roller bearing flange unit. Mr. Mickelson confirmed this, and stated that with this higher capacity tapered roller bearing on the TMS Scrambler top sweeps we could go back to the 3000 hour/4 year (whichever comes first) bearing replacement schedule which we have used for many years on ground-model Scramblers.

In Bulletin No. 5 we stated that owners of a TMS Scrambler had sent us cracked bearings which they had replaced. In reading that bulletin they felt that we had not emphasized enough the seriousness of this problem and suggested that we send out a picture of one of these cracked bearings. We thought we had been quite emphatic in Bulletin No. 5, but we are glad to include in this Bulletin Picture No. 3, which shows a bearing which was returned to us. It is obvious that this bearing was very close to complete failure when it was replaced. It should be stressed how important it is to make this modification, and then after that to follow the bearing replacement schedule of 3000 hours or four years, whichever comes first.

Bulletin No. 4, dated January 25, 1984, covered a clamping arrangement which we made available to all TMS Scramblers. This clamp was designed to clamp the unit pole to the bearing to prevent its jiggling up and down when traveling on the highway. Mr. Mickelson of Morse Industrial Corporation approves of this clamping arrangement, and

so it has been incorporated in the new modification.

This modification includes double backup protection in the event of a premature bearing failure. However, backup protection will be of no help if the equipment is not inspected and maintained properly and regularly. We feel that this modification is a conservative one, but the most conservative design cannot prevent wearing out a bearing and through each succeeding backup, if maintenance and the bearing replacement schedule are ignored.

With this modification we believe that the TMS Scrambler top sweep bearing installation will provide the excellent service ground-model Scramblers have provided in the past 30 years.

CONSIDER THIS TO BE A MANDATORY MODIFICATION.

Our Engineering Department is prepared to furnish you with complete instructions for making this modification. The Morse RFP-215-C tapered roller bearing flange unit is a standard bearing which can be purchased from any Morse bearing distributor, or it can be obtained from Eli Bridge Company at our cost. PLEASE DO NOT ATTEMPT TO USE ANY OTHER BRAND OR STYLE OF BEARING IN THIS INSTALLATION; ONLY THE MORSE RFP-215-C TAPERED ROLLER BEARING FLANGE UNIT HAS BEEN APPROVED FOR THIS INSTALLATION. We will furnish the installation kit at our cost. The kit will include all materials necessary to modify all three top sweeps on one complete TMS Scrambler. Pricing does not include freight costs.

Modification kit, with three Morse RFP-215-C tapered roller bearing flange units.....	\$ 905.55
Modification kit, without bearings.....	\$ 342.30

An order form is enclosed for your use. On receipt of your order, we will prepare the modification kit you order, and will ship it to you as soon as we can.

NOTE: THIS MODIFICATION APPLIES ONLY TO TMS SCRAMBLER TOP SWEEP BEARINGS. WE HAVE NO REASON TO BELIEVE THAT THE SEALMASTER SF-17 BEARING CANNOT CONTINUE TO BE USED ON THE TMS SCRAMBLER BOTTOM SWEEPS, WITH THE SAME REPLACEMENT SCHEDULE OF 3000 HOURS OR FOUR YEARS, WHICHEVER COMES FIRST.

William C. Deem

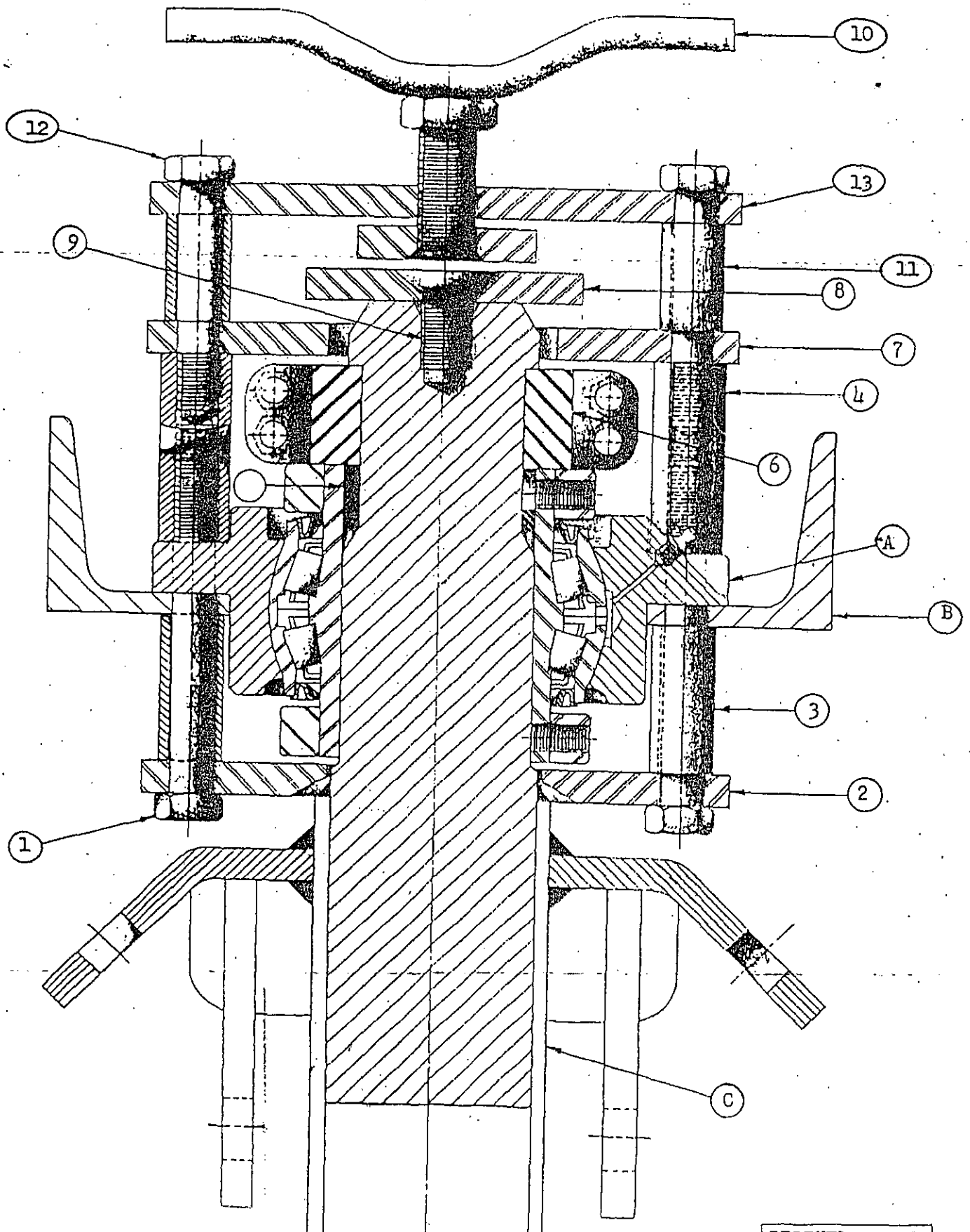
William C. Deem
Chief Engineer
ELI BRIDGE COMPANY

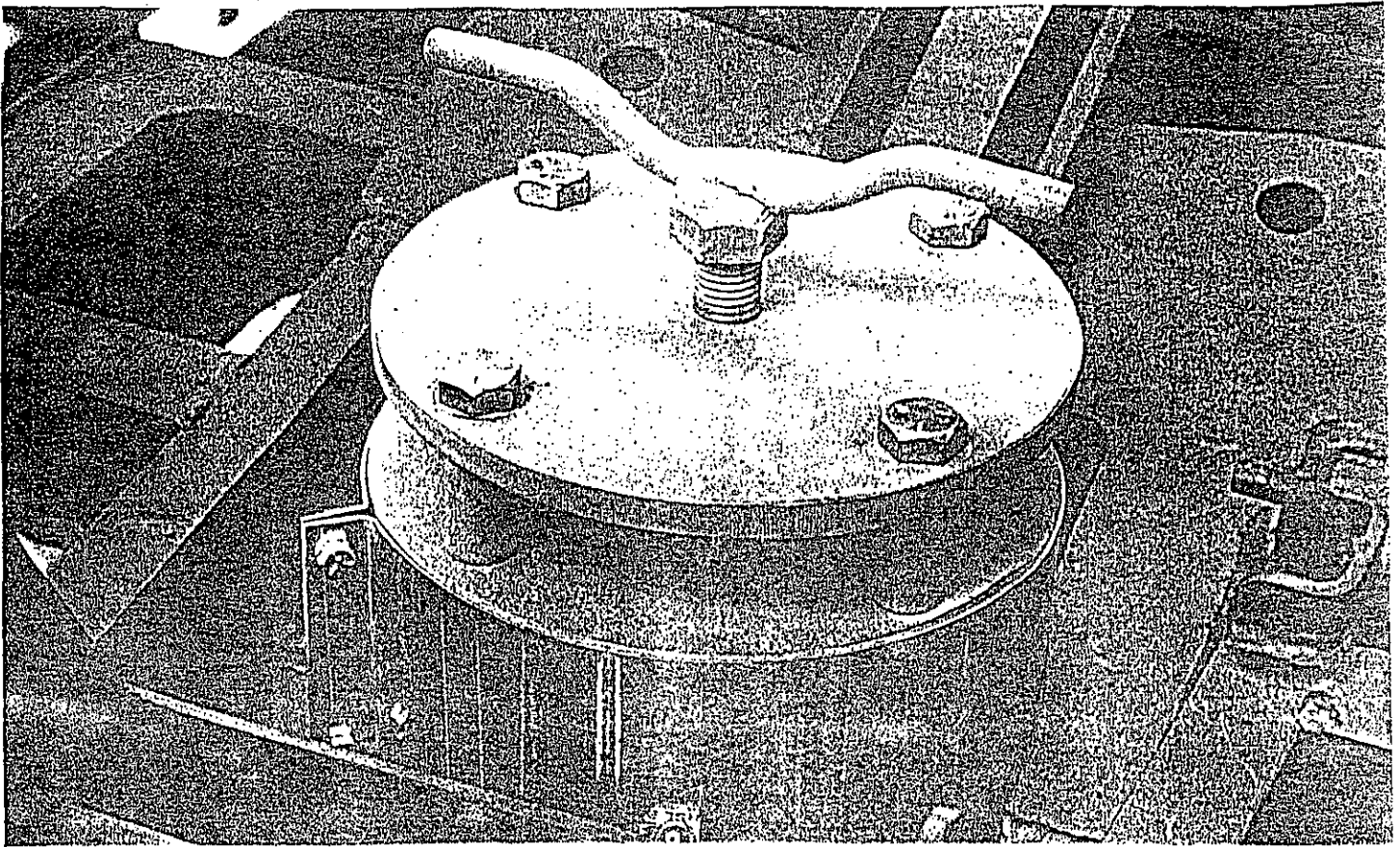
7

TRAILER MOUNTED SCRAMBLER

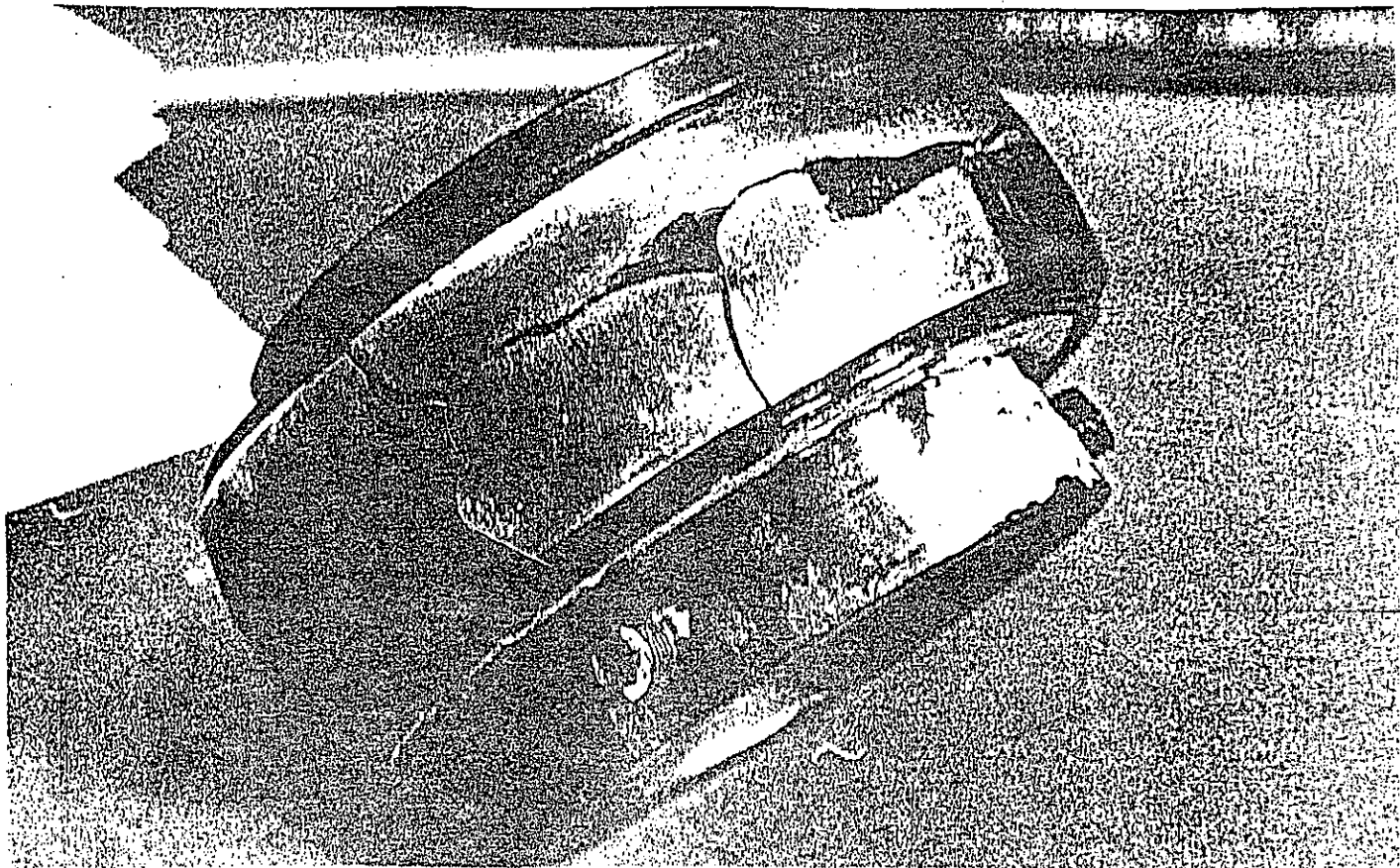
TOP SWEEP BEARING CHANGE...

ENCLOSED - SWEEP MODIFICATION INSTRUCTIONS
- RFP 215 - C BEARING MOUNTING
INSTRUCTIONS



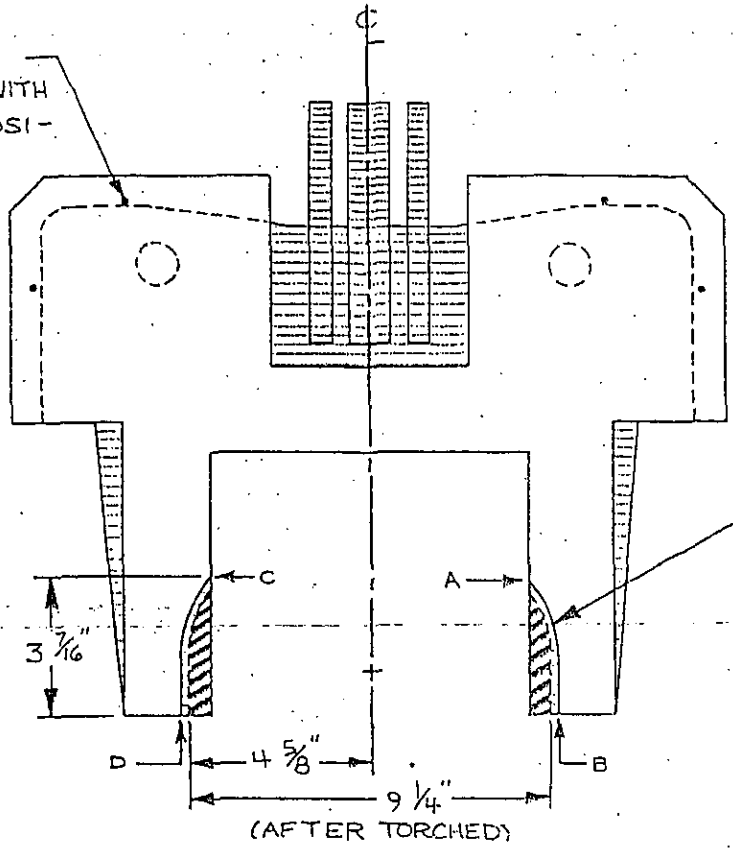


PICTURE NO. 1






PICTURE NO. 3

① LAY TORCH TEMPLATE OVER CLEVIS PLATE WITH FOL^D DOWEL PINS POSITION^D AS SHOWN.



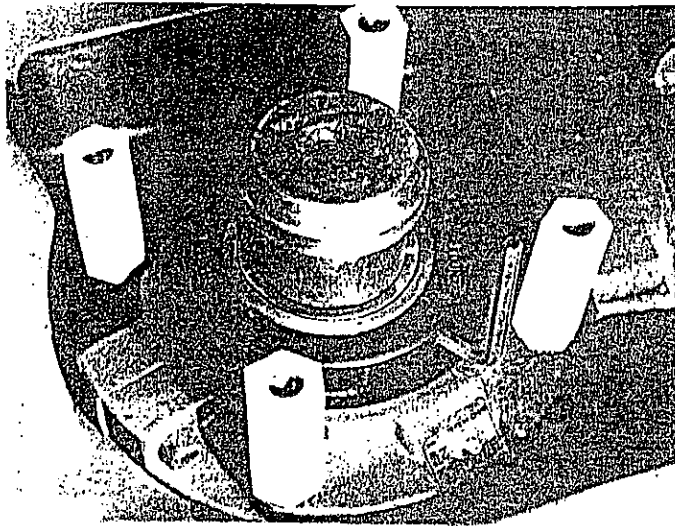
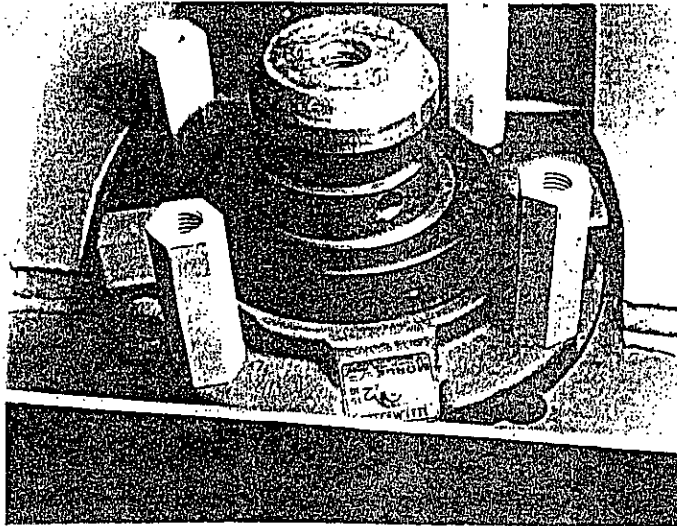
② REMOVE OLD BEARING
 *IF BEARING IS IN GOOD CONDITION AND WITHIN THE 3,000 HR. 4 YEAR MAXIMUM USA RECOMMENDATIONS CAN BE USED FOR A REPLACEMENT ON THE BOTTOM SWEEPS.

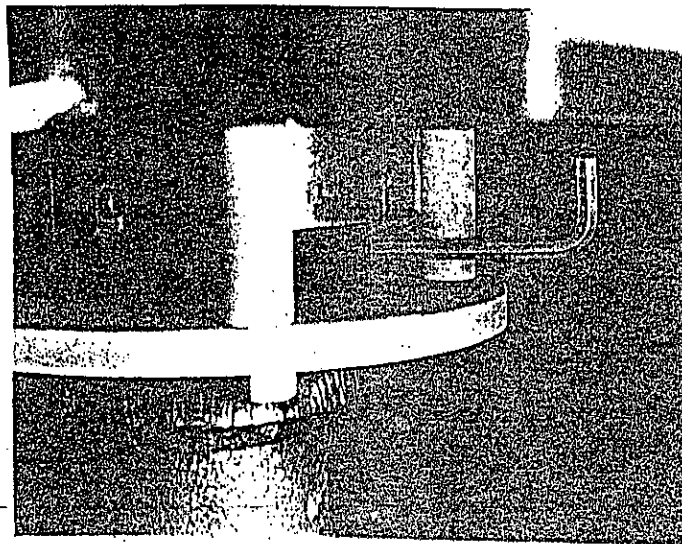
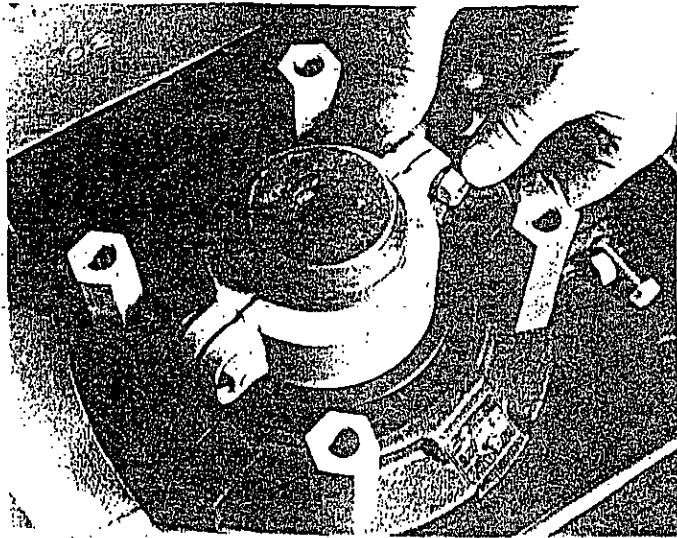
③ TORCH CUT USING A 3/8" T
 - GUIDE TIP ALONG THIS EDGE FROM POINT A TO B.
 - BE CAREFUL NOT TO CUT THROUGH THE BEARING MOUNT CHANNEL BENEATH THE CLEVIS PLATE WHEN YOU GET CLOSE TO THE WELD AT POINT
 - ANY WELD LEFT IN THE CUT AWAY SECTION SHOULD BE GROUND FLAT TO ACCOMMODATE THE NEW BEARING.
 - FOLLOW THE ABOVE PROCEDURE BETWEEN POINTS C AND D.

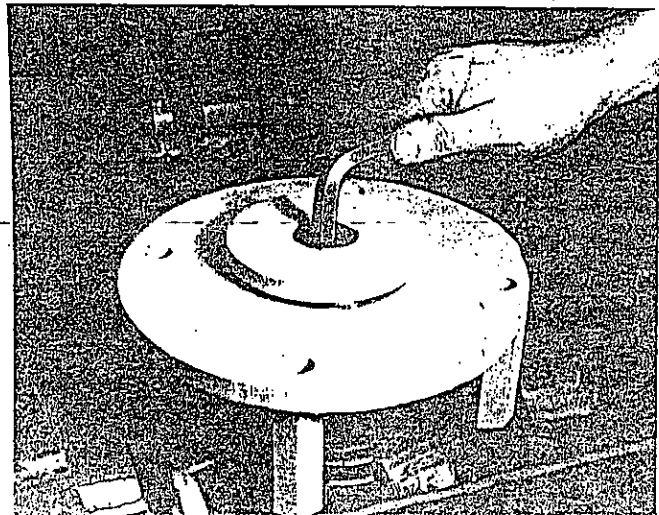
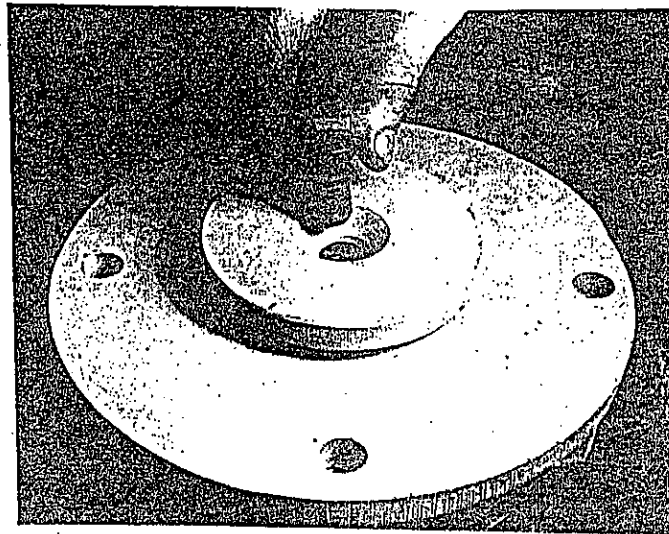
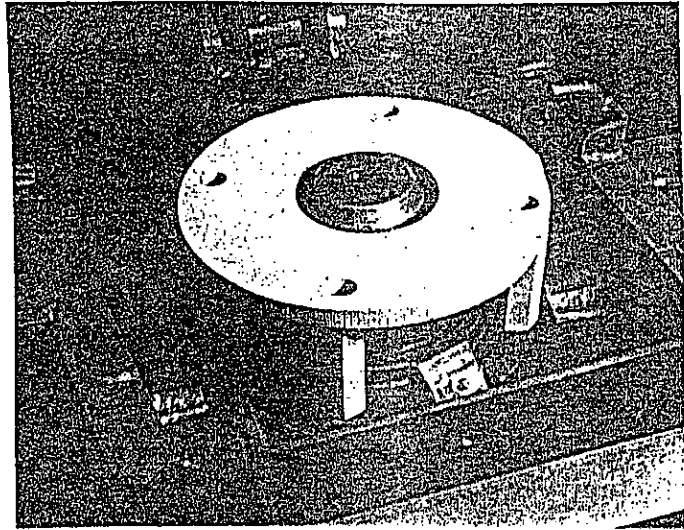
LEGEND-	
	CLEVIS PLATE
	CLEVIS - TORCH TEMPLATE
	CUT-AWAY SECTION

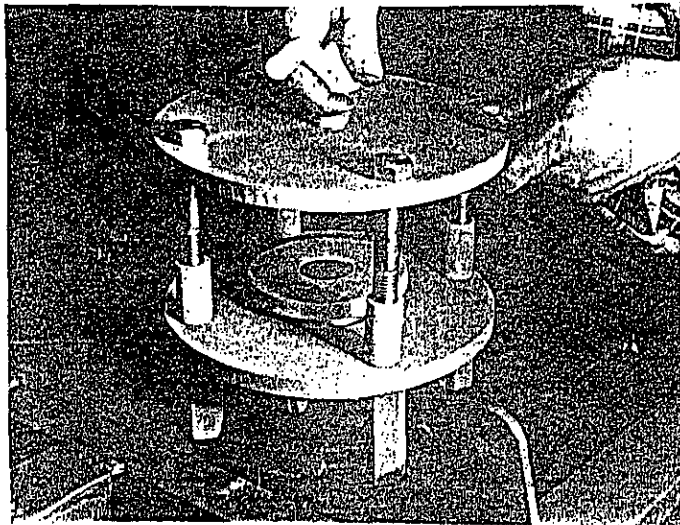
— NOTE :
 IF INSTRUCTIONS (ABOVE RIGHT) ARE FOLLOWED YOU SHOULD END UP WITH THE MINIMUM REQUIRED DIMENSIONS LISTED ON ABOVE DRAWING!

MODIFICATION OF T.M.S. TOP SWEEP CLEVIS PLATES ~
 FOR BEARING CHANGE OVER - FROM SF-47 TO THE NEW RFP-215-C

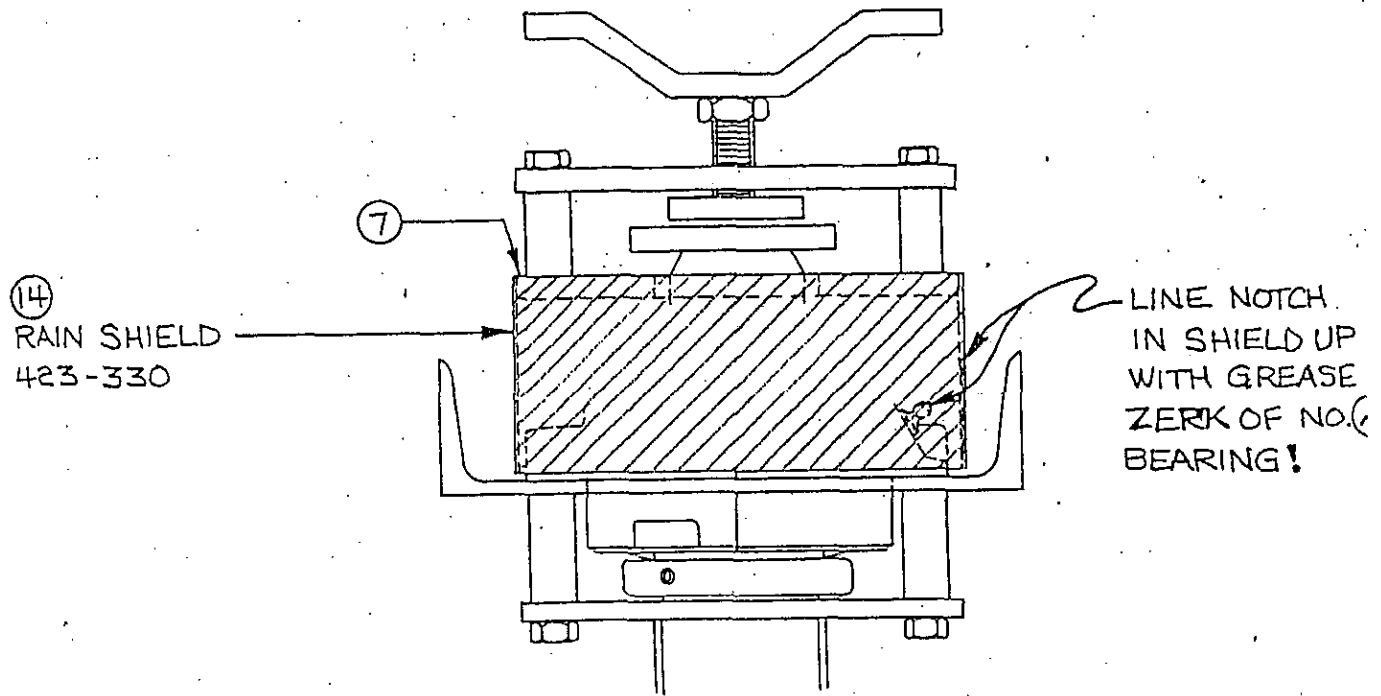








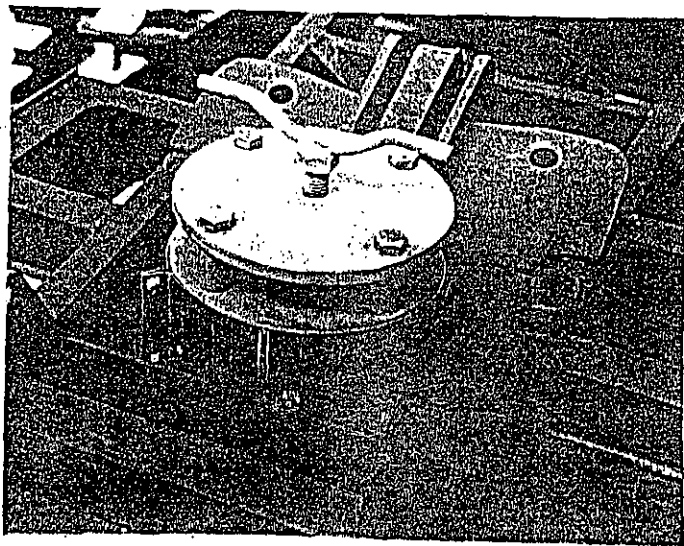
TOP

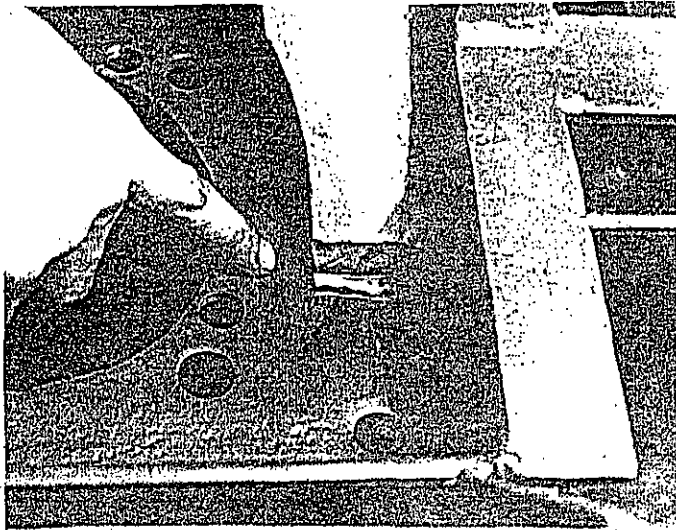
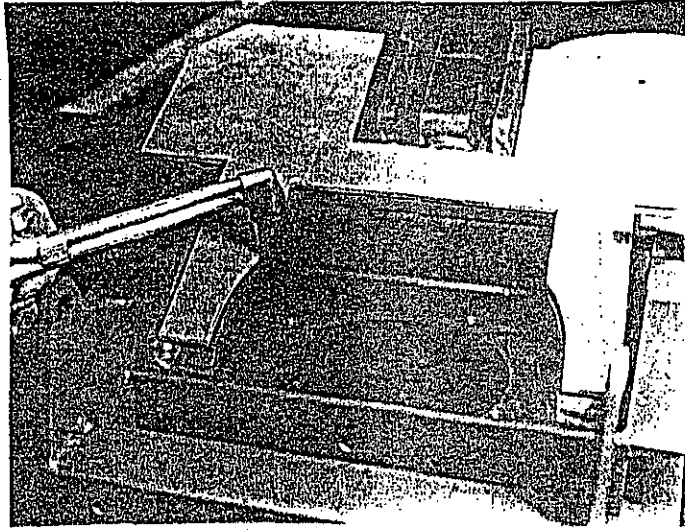


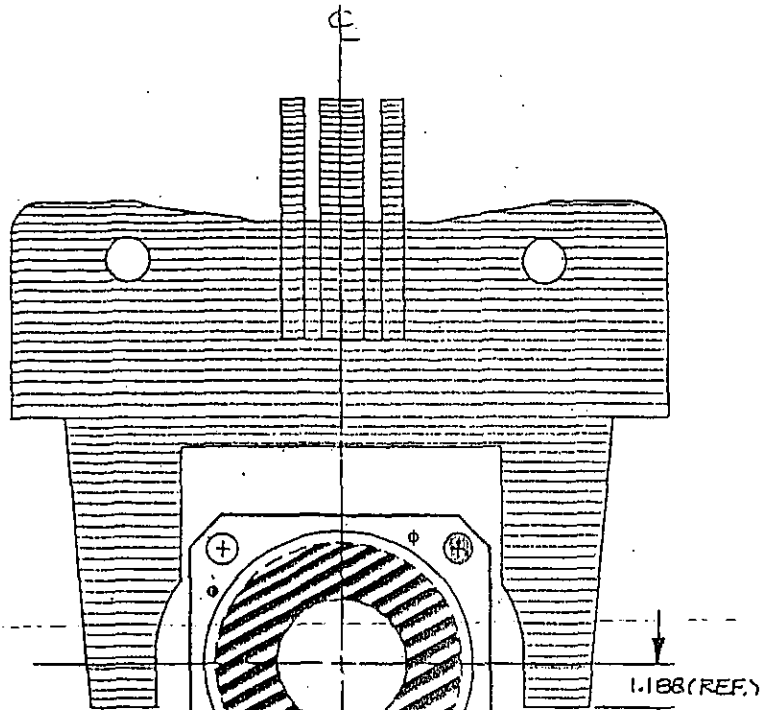
- TO MOUNT NO. (14) RAIN SHIELD ~ PLACE NO. (14) AROUND PLATE NO. (7) WITH TOP EDGES OF BOTH FLUSH WITH EACH OTHER.
- USING (2) 1/4" - 20 THD. BOLTS AND 1/4" - 20 THD. ESNA NUTS - FASTEN THE TWO FLANGES OF THE RAIN SHIELD (14) TOGETHER, CLAMPING IT ONTO THE NO. (7) SECONDARY PLATE.

★ NOTE:

THIS COMPLETES THE ENTIRE MODIFICATION/ASSEMBLY PROCEDURE. PLEASE FOLLOW THESE INSTRUCTIONS IN CHANGING OVER ALL (3) TOP SWEEPS!







PLACE TEMPLATE
 ↓ POSITION OVER THE FOUR
 BEARING MOUNTING HOLES.

INSERT TWO OF THE $\frac{3}{4}$ " BOLTS
 FROM THE OLD BEARING-DIAGONALLY
 ACROSS FROM EACH OTHER-ADD NUT & TIGHTEN.

LEGEND-

- CLEVIS PLATE (MODIFIED)
- 12-INCH CHANNEL-TORCH TEMPLATE
- CUT-AWAY SECTION

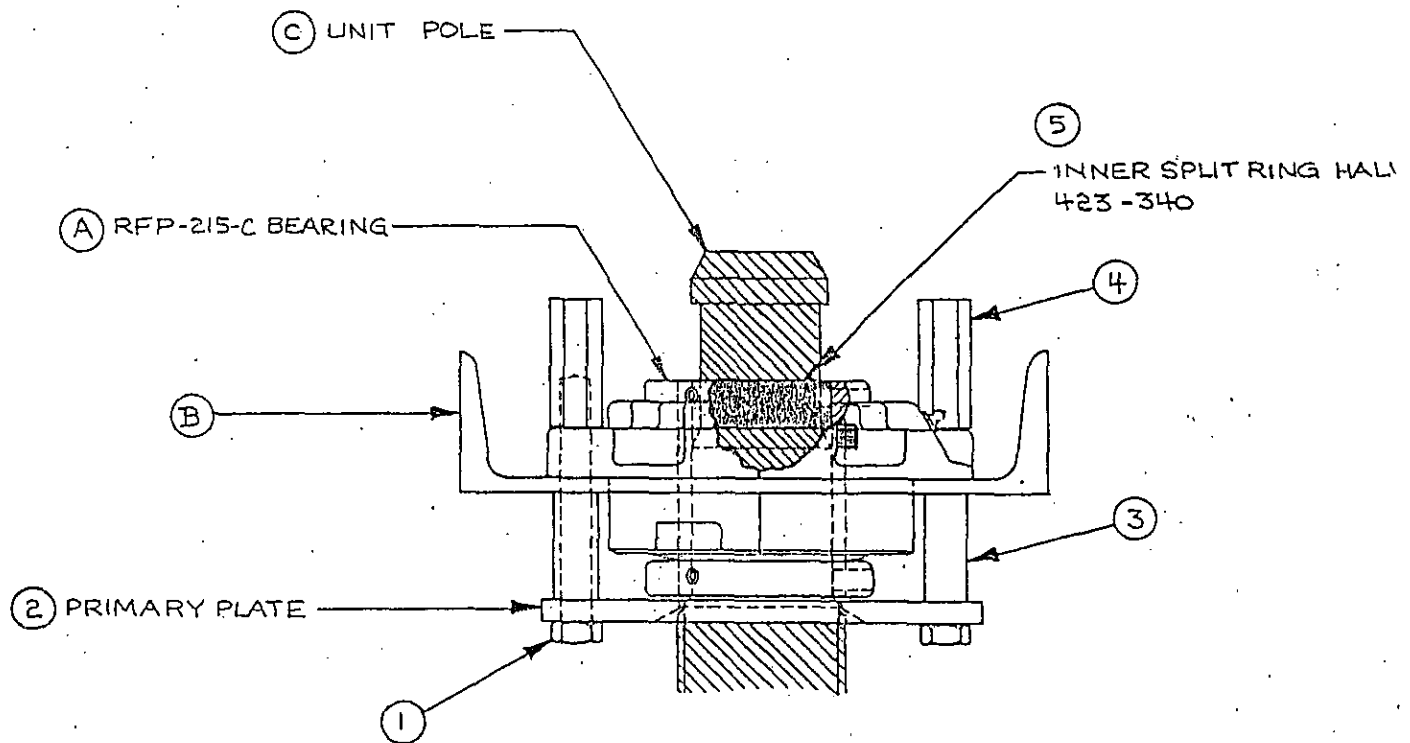
-NOTE: YOU SHOULD END UP WITH $6\frac{3}{8}$ " DIA.
 ON THE CENTER HOLE AFTER TORCHING.

②
 — DRILL (4) $\frac{1}{4}$ " PILOT HOLES.

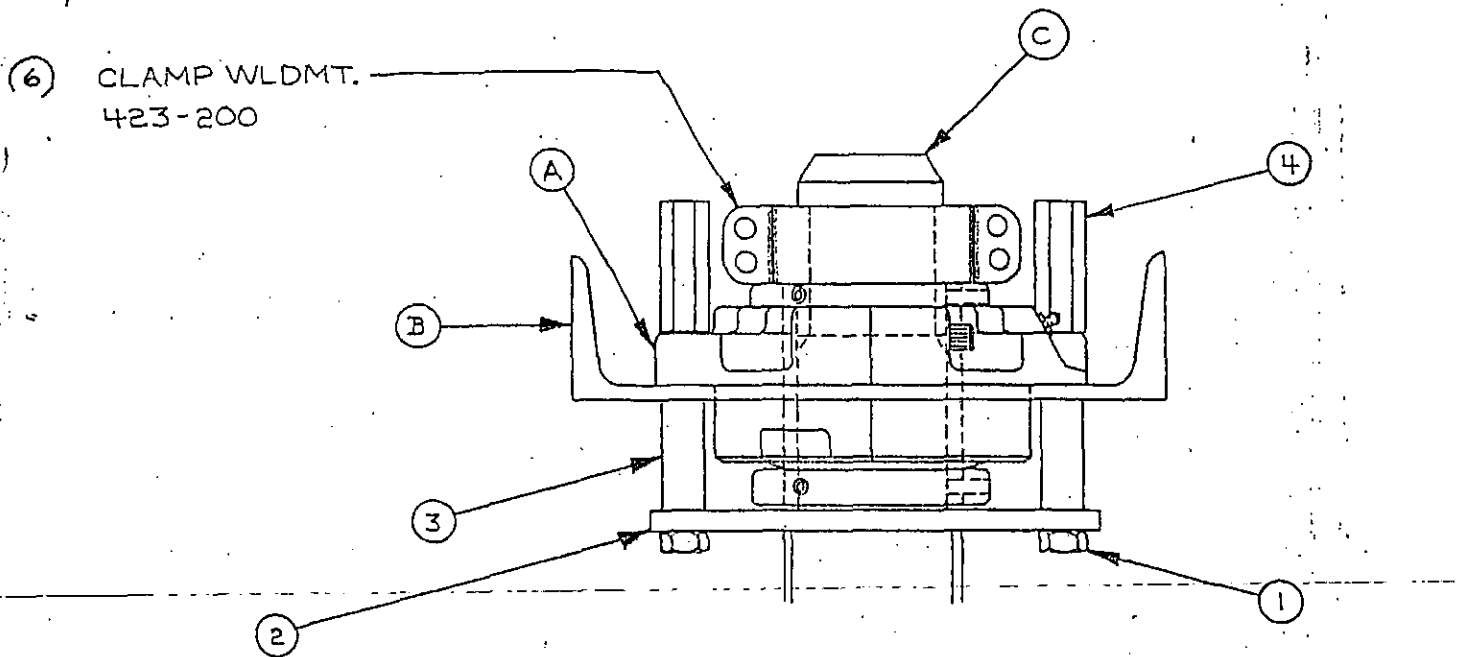
— TORCH CUT USING A $\frac{3}{8}$ " TIP!
 — GUIDE TIP CAREFULLY AROUND
 THIS EDGE COMPLETELY
 CIRCLING THE CIRCUMFERENCE
 (SEE NOTE BELOW LEFT)

③
 — REMOVE TEMPLATE
 — DRILL THE (4) $\frac{1}{4}$ " PILOT
 HOLES OUT TO $2\frac{1}{32}$ " DIA
 — PLACE RPF-215-C
 BEARING OVER THESE
 FOUR HOLES - LOCATING
 THE BEARING GREASE
 ZERK TOWARD POINT
 (A) ON ABOVE DRAWING.

T.M.S TOP SWEEP -12 IN. BEARING MOUNT CHANNEL MODIFICATION ~
 FOR BEARING CHANGE OVER - FROM SF-47 TO THE NEW RPF-215-C



- RAISE UNIT POLE UP THROUGH PLATE (2), BEARING (A) AND HOLD IN POSITION.
- PLACE INNER SPLIT RING (5) (HALF WITH TWO HOLES IN IT) DOWN INTO TOP OF BEARING IN THE SPACE BETWEEN THE NO. (C) UNIT POLE AND THE INNER RACE OF THE BEARING - THE OUTER EDGE CLOSEST TO THE HOLES FACES UP!
- LINE UP THE HOLES IN THE SPLIT RING HALF WITH THE TWO SET SCREWS IN THE TOP FLANGE OF THE BEARING (SLIGHTLY RAISING OR LOWERING OF UNIT POLE MIGHT BE NEEDED FOR PROPER VERTICAL ALIGNMENT)
- ONCE IN LINE TURN TOP TWO SET SCREWS IN ENOUGH TO HOLD THIS RING HALF IN PLACE
- DO NOT TIGHTEN SET SCREWS THROUGH TO UNIT POLE AT THIS TIME!
- DROP REMAINING SPLIT RING (5) (HALF WITHOUT HOLES) DOWN INTO BEARING OPPOSITE THE ONE WITH HOLES.
- LEAVE SET SCREWS AS IS - CONTINUE TO HOLD UNIT POLE UP!
- GO TO FOLLOWING PAGE.

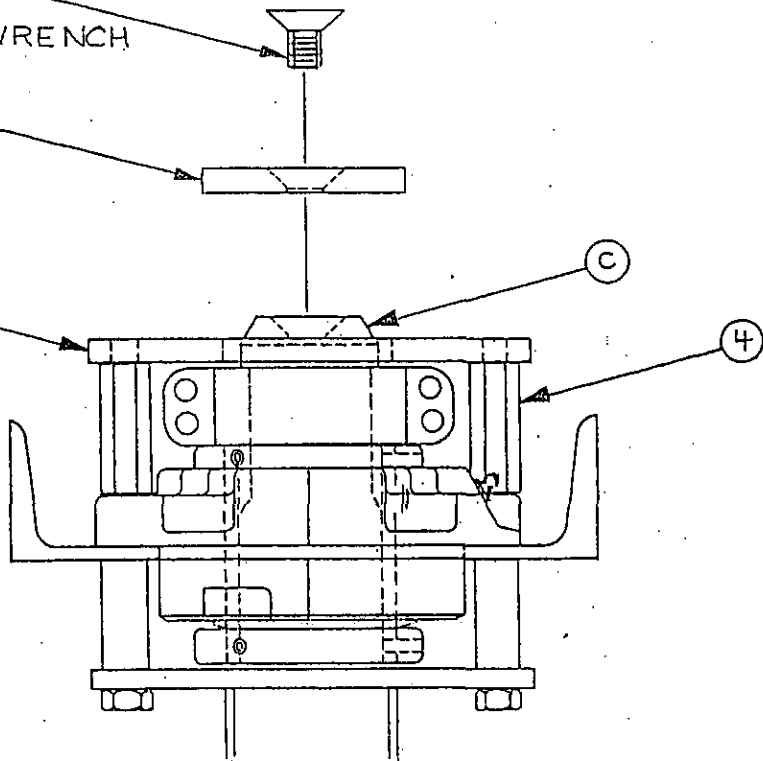


- PLACE THE TWO CLAMP WLDMT. (6) HALVES AROUND UNIT POLE (C) BETWEEN TOP EDGE OF BEARING (A) AND THE UPPER LIP OF THE UNIT POLE.
- BOLT CLAMP HALVES TOGETHER USING (4) $\frac{3}{8}$ "-16 THD. X $1\frac{1}{2}$ " LONG HEX BOLTS AND $\frac{3}{8}$ "-16 THD. FSNA STOP NUTS - TIGHTEN SO THAT THE CLAMP HAS JUST ENOUGH PLAY IN IT THAT YOU CAN TURN IT BY HAND ON THE UNIT POLE.
- AT THIS TIME YOU CAN LET THE UNIT POLE (C) DOWN TO HANG FREELY!
- TIGHTEN THE (4) $\frac{3}{8}$ " BOLTS HOLDING THE NO. (6) CLAMP HALVES THE REMAINDER OF THE WAY.
- TIGHTEN FOUR SET SCREWS (2 TOP - 2 BOTTOM) IN THE BEARING (A) (TORQUE TO 408 INCH POUNDS) ~ (34 FOOT POUNDS)

⑨ $\frac{3}{4}$ "-10THD. X $1\frac{1}{4}$ " LONG
W/ HOLE FOR ALLEN WRENCH
IN HEAD

SAFETY LIP PLATE
423-326

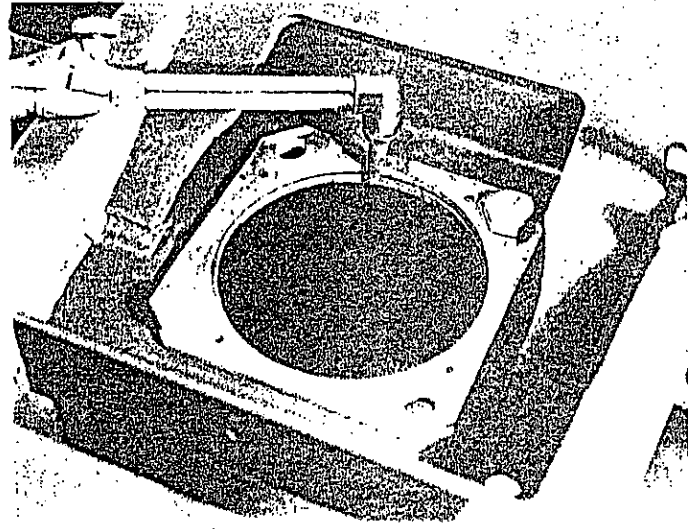
⑦ SECONDARY DROP
PREVENTION PLATE
423-325

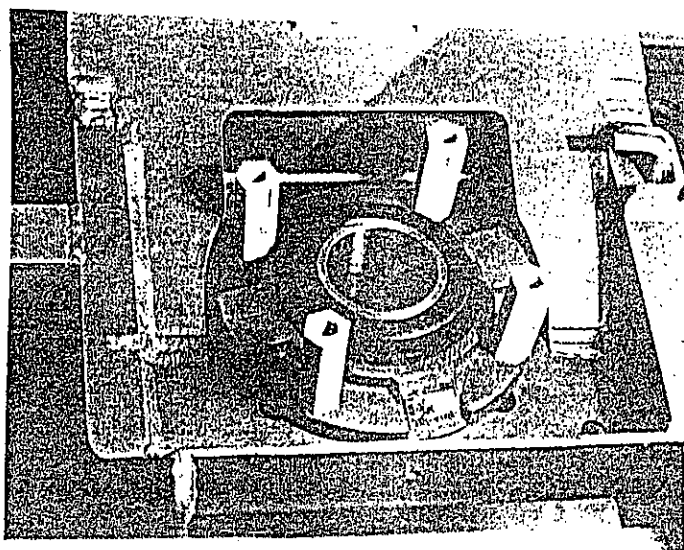
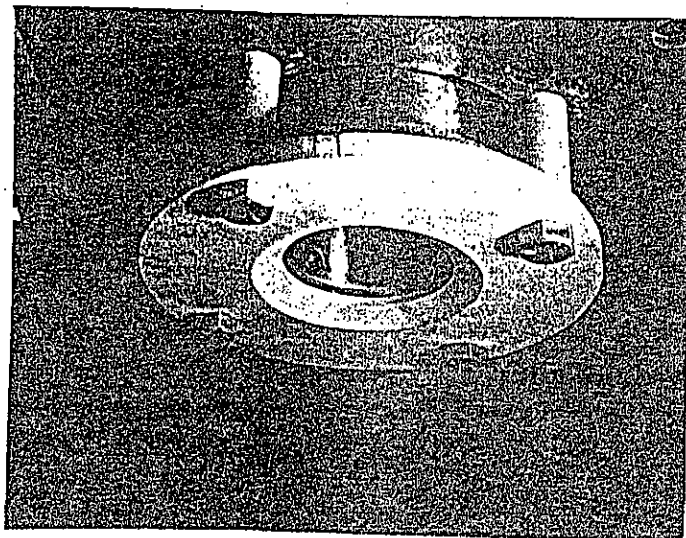


— PLACE SECONDARY PLATE ⑦ OVER UNIT POLE ③ REST PLATE ON TOP OF HEX COUPLERS ④ WITH THE ④ $\frac{2}{32}$ PLATE HOLES LINED UP WITH HOSE IN THE COUPLERS. — NO BOLTING AT THIS TIME!

• TAKE NO. ⑧ SAFETY PLATE (WITH BEVEL ON HOLE FACING UP) AND PUT IT ON TOP OF UNIT POLE ③ LINE THE HOLE IN NO. ⑧ UP WITH HOLE IN THE TOP OF ③

— USING A FLAT HEAD $\frac{3}{4}$ "-10THD. X $1\frac{1}{4}$ " LONG BOLT ⑨ SECURE PLATE ⑧ TO UNIT POLE ③ WITH A $\frac{3}{8}$ " ALLEN WRENCH. (TORQUE TO 2,160 INCH POUNDS) ~ (180 FOOT POUNDS)





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TMS Scrambler® Bulletin No. 7

Applies to ALL Serial Numbers

DATE: May 18, 1992

SUBJECT: Unit Pole Wear - Top Sweep Bearing

Inspection of the unit pole for wear at the top shoulder sweep bearing and clamp weldment should be done once a year at the beginning of each operating season.

You should be looking for wear at the top of the unit pole, or wear or grooving at the diameter under the clamp weldment as shown in cross-sectional drawing **Figure 1**. To check this area the top screw down weldment No. 10 should be removed along with safety lip plate No. 8 and drop prevention plate No. 7.

To start, first remove the rain shield, not shown in the cross-sectional drawing. Then remove the four 5/8" hex head capscrews shown in Picture No. 2 along with the screw down weldment No. 10. This will expose the safety lip plate (See Picture No. 3). Remove the Allen head capscrew and safety lip plate along with the secondary drop prevention plate No. 7 (See Picture No. 4)

Loosen four set screws in the bearing - two at the top and two at the bottom (Picture Nos. 6 and 8). Raise the unit pole in the bearing and remove clamp weldment No. 6 (Picture No. 5). Check the unit pole for wear at the shoulder where the clamp weldment rides and at the diameter inside the clamp weldment (See Picture Nos. 7 and 8).

DATE: May 18, 1992

SUBJECT: Unit Pole Wear - Top Sweep Bearing (Continued)

The original diameter was 2.493" to 2.495". If this diameter is badly grooved or worn down to 2.480" diameter, contact the factory.

From the bottom of the shoulder to the top of the unit pole was originally 1" high. The tapered part was 1/2" high and the straight part was 1/2" high. Wear on the shoulder will cause the straight part to get shorter. When the straight part has been shortened to 5/16" high (13/16" from the shoulder to the top of the unit pole), then wear is approaching the danger point. If you find this kind of wear, contact the factory.

Failure to correct this excessive wear can eventually allow the unit pole to drop through, with possible catastrophic results.

This wear cannot be seen during normal operations because all the parts stay assembled. To inspect for wear here you must carefully follow the outlined procedure at least once a year.

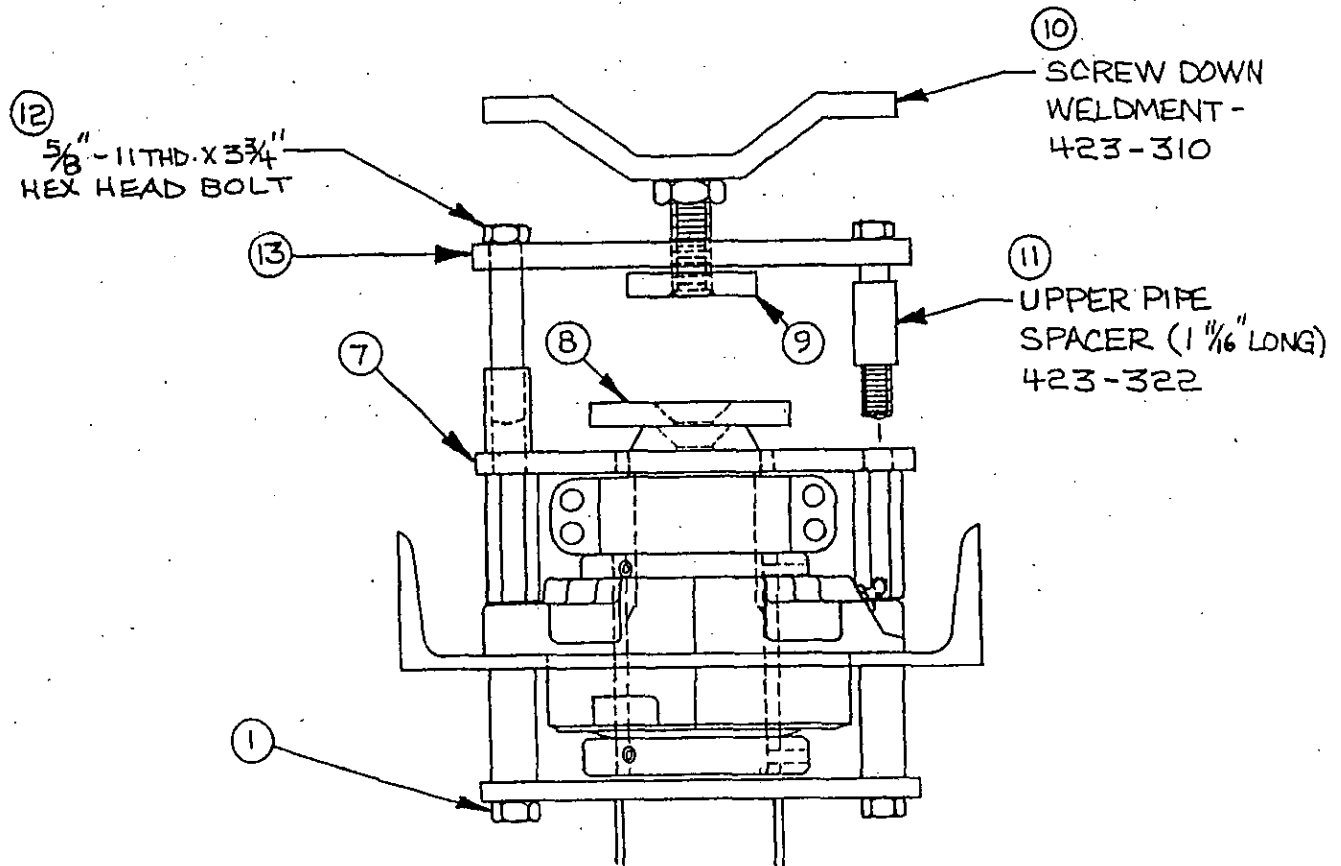
Refer to Figure Nos. 2, 3 and 4 for instructions on reassembling.



Lee Sullivan

President
Eli Bridge Company

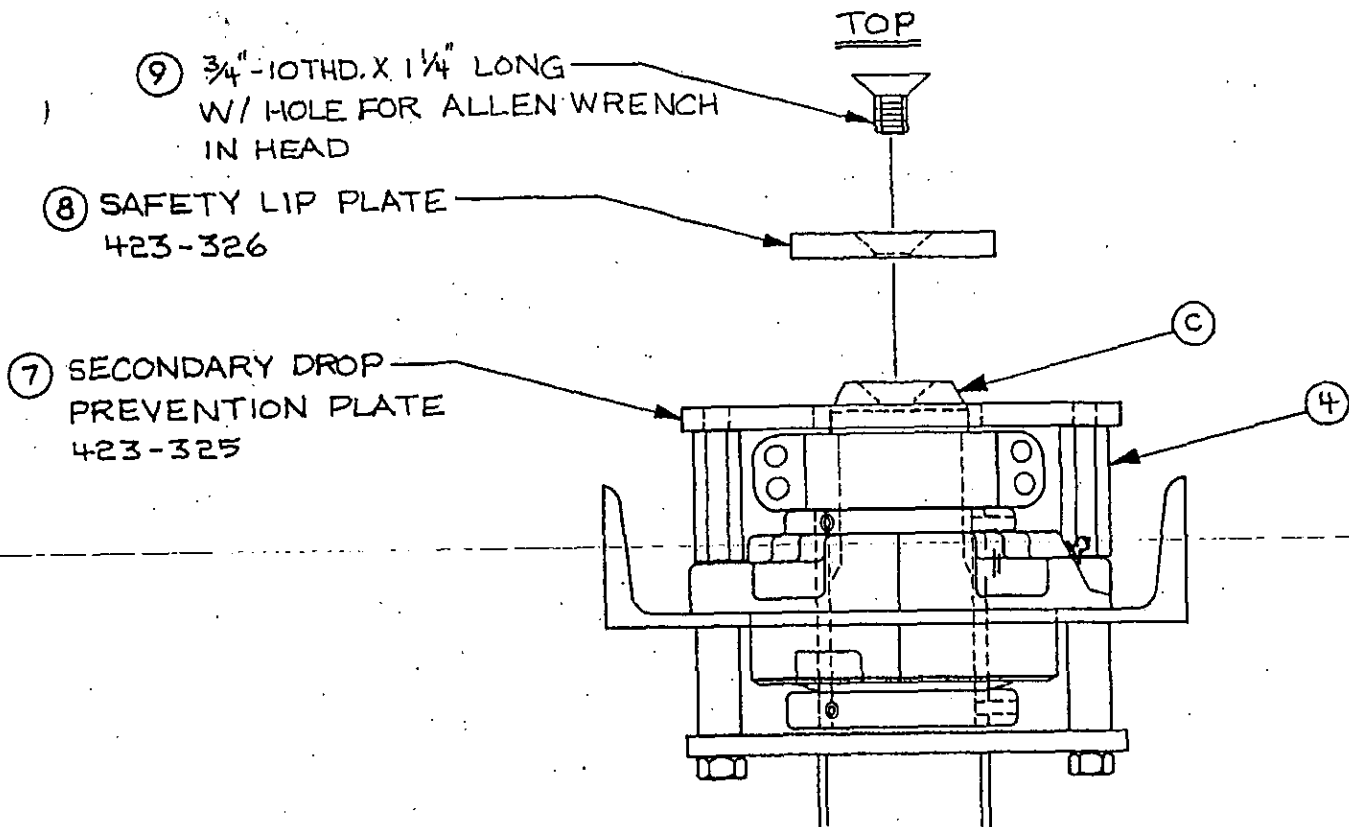
TOP



- PLACE (4) NO. ⑪ UPPER PIPE SPACERS OVER 2 1/32" HOLES ON TOP OF PLATE ⑦.
- PLACE SCREW DOWN WELDMENT ⑩ ON TOP OF PIPE SPACERS - ⑪ ~ LINING UP 2 1/32" HOLES IN PLATE ⑬ WITH THOSE IN NO ⑪ PIPE SPACERS.
- USING (4) 5/8" - 11 THD. BOLTS X 3 3/4" LONG ⑫ - DROP BOLTS DOWN THROUGH NO. ⑬ PLATE, NO. ⑪ SPACER, NO. ⑦ PLATE, AND TIGHTEN THE (4) NO. ⑫ BOLTS INTO THE NO. ④ HEX COUPLERS WITH A 1 5/16" WRENCH. (1,320 IN. LBS.) ~ (110 FT. LBS.)
- TIGHTEN (4) NO. ① HEX BOLTS TO (1,320 IN. LBS.) ~ (110 FT. LBS.)

* NOTE:

- ~~~~ TO TRANSPORT YOUR "T.M.S." TURN THE HANDLE OF THE NO. ⑩ SCREW DOWN WELDMENT CLOCKWISE - RESTING PLATE ⑨ FIRMLY ON TOP OF SAFETY LIP PLATE ⑧.
- ~~~~ TO OPERATE YOUR "T.M.S." TURN THE HANDLE OF THE NO. ⑩ SCREW DOWN WELDMENT AS FAR AS IT WILL GO COUNTER - CLOCKWISE ~ DISENGAGING PLATES ⑧ AND ⑨.

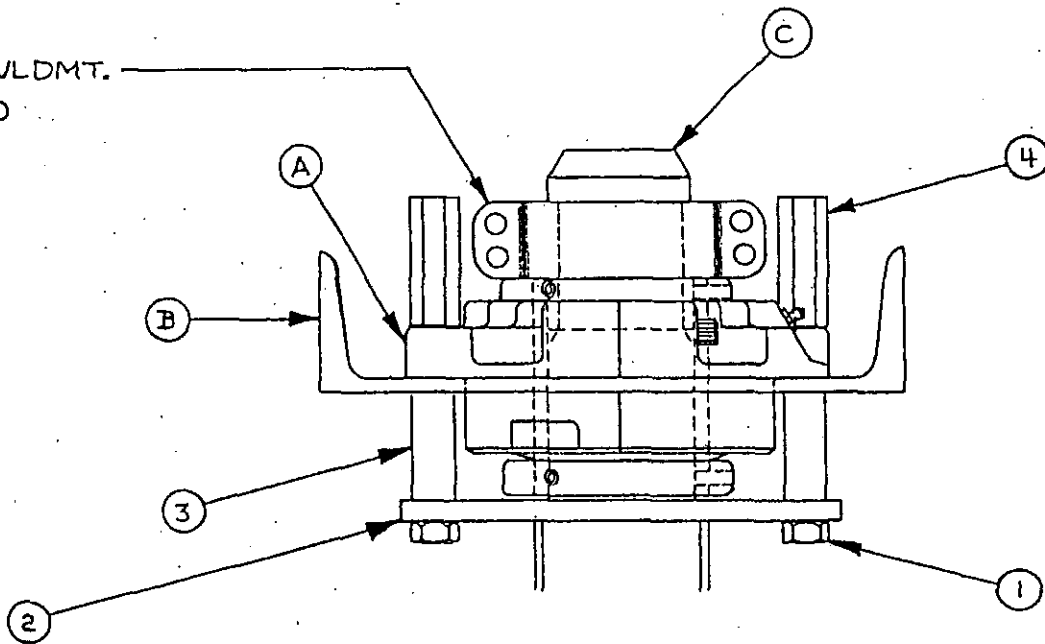


- PLACE SECONDARY PLATE (7) OVER UNIT POLE (C) REST PLATE ON TOP OF HEX COUPLERS (4) WITH THE (4) $\frac{2}{32}$ " PLATE HOLES LINED UP WITH THOSE IN THE COUPLERS. - NO BOLTING AT THIS TIME!
- TAKE NO. (8) SAFETY PLATE (WITH BEVEL ON HOLE FACING UP) AND PUT IT ON TOP OF UNIT POLE (C) LINE THE HOLE IN NO. (8) UP WITH HOLE IN THE TOP OF (C)
- USING A FLAT HEAD $\frac{3}{4}$ "-10THD. X $\frac{1}{4}$ " LONG BOLT (9) SECURE PLATE (8) TO UNIT POLE (C) WITH A $\frac{3}{8}$ " ALLEN WRENCH. (TORQUE TO 2,160 INCH POUNDS) ~ (180 FOOT POUNDS)

FIGURE NUMBER 3

TOP

⑥ CLAMP WLDMT.
423-200



- PLACE THE TWO CLAMP WLDMT. ⑥ HALVES AROUND UNIT POLE ③ BETWEEN
TOP EDGE OF BEARING ① AND THE UPPER LIP OF THE UNIT POLE.

BOLT CLAMP HALVES TOGETHER USING (4) $\frac{3}{8}$ "-16 THD. X $1\frac{1}{2}$ " LONG HEX BOLTS AND $\frac{3}{8}$ "-16 THD.
ESNA STOP NUTS - TIGHTEN SO THAT THE CLAMP HAS JUST ENOUGH PLAY IN IT
THAT YOU CAN TURN IT BY HAND ON THE UNIT POLE.

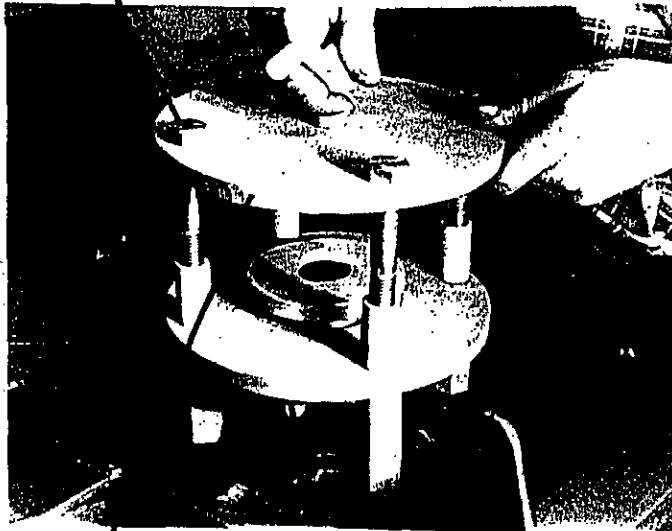
~ AT THIS TIME YOU CAN LET THE UNIT POLE ③ DOWN TO HANG FREELY!

- TIGHTEN THE (4) $\frac{3}{8}$ " BOLTS HOLDING THE NO. ⑥ CLAMP HALVES THE
REMAINDER OF THE WAY.

- TIGHTEN FOUR SET SCREWS (2 TOP - 2 BOTTOM) IN THE BEARING ① (TORQUE
TO 408 INCH POUNDS) ~ (34 FOOT POUNDS)

FIGURE NUMBER 2

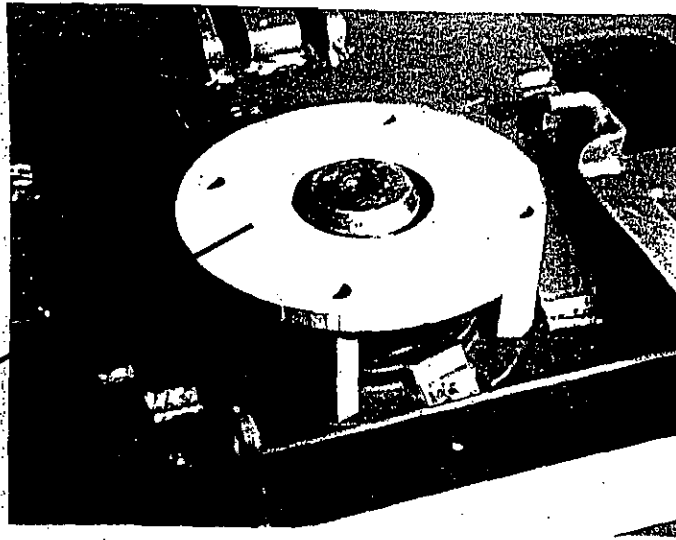
5/8" CAPSCREW



SCREW DOWN WELDMENT # 10

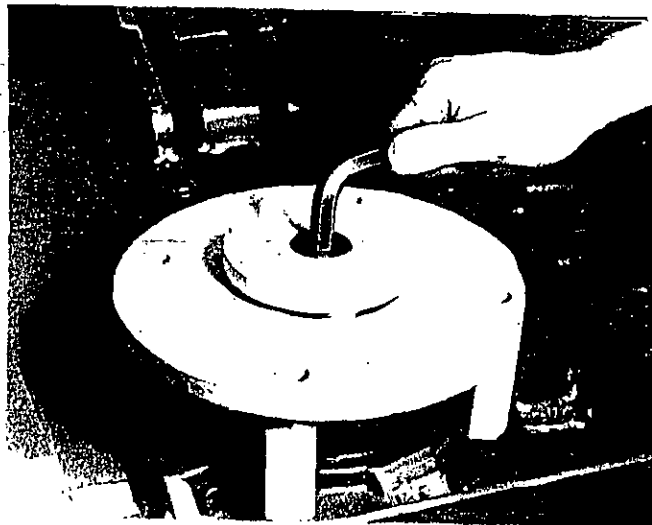
PICTURE NUMBER 2

DROP
PREVENTION
PLATE # 7

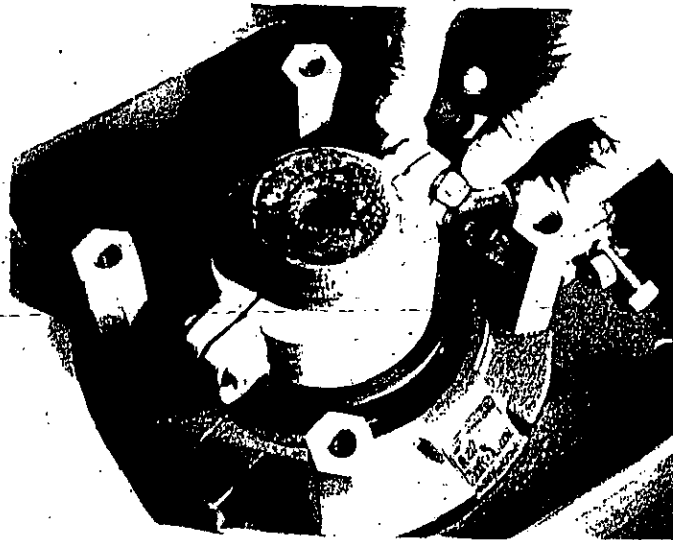


PICTURE NUMBER 4

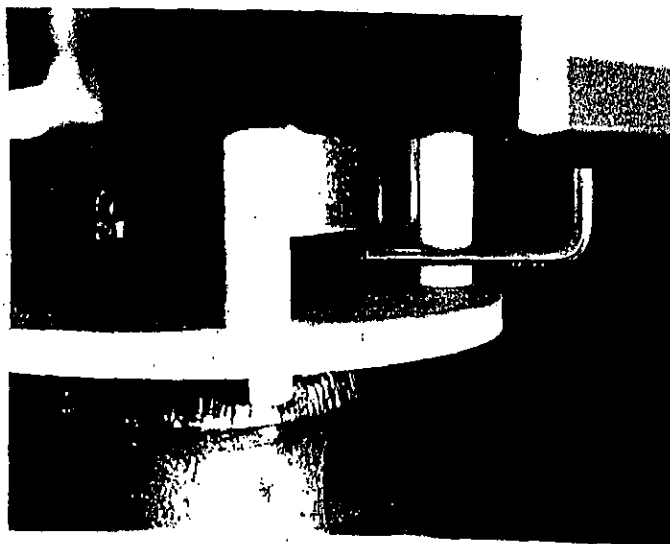
SAFETY LIP
PLATE # 8



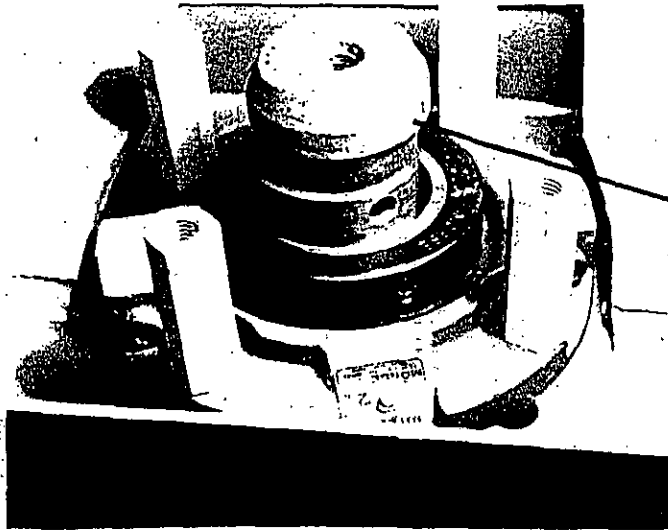
PICTURE NUMBER 2



PICTURE NUMBER 5

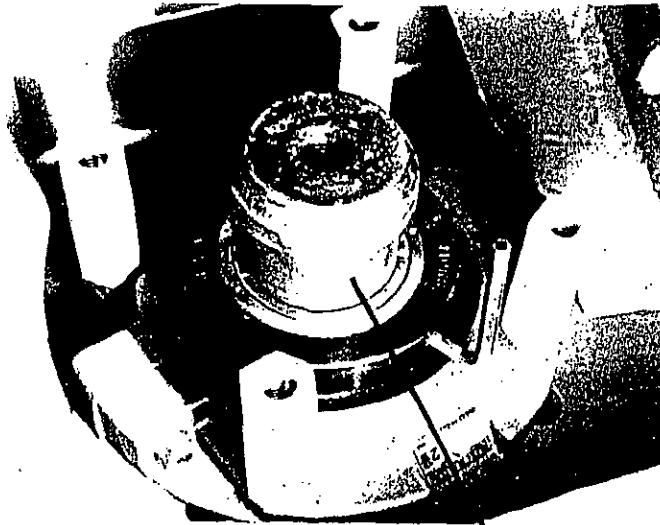


PICTURE NUMBER 6



PICTURE NUMBER 7

WEAR AT THIS SHOULDER

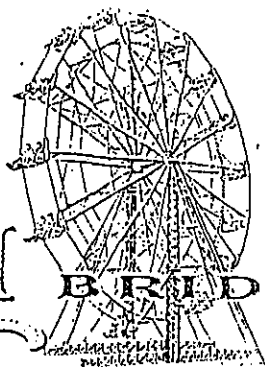


PICTURE NUMBER 8

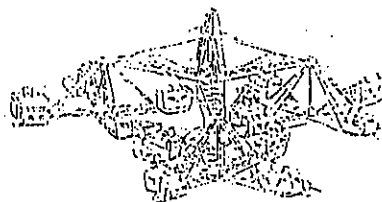
WEAR ON THIS DIAMETER.

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INSTRUCTIONS FOR INSTALLING TIGHTENING STRUCTURE ON TMS SCRAMBLER UNIT POLES

1. With the unit poles supported on the trailer floor, remove the nut from each of the four bolts holding the bearing at the outer end of each top sweep.
2. With the nuts removed, screw on the hex spacers but do not tighten them at this time.
3. Drop in place the rain shield, which goes between the hex spacers.
4. Position the top plate, and start each of the four bolts through each top plate.
5. Tighten the hex spacers against the bearing. Pull them as tight as you can with a hand wrench approximately 12 inches long.
6. Then tighten the four top bolts as tight as you can with a 12 inch wrench.
7. This completes the installation of this modification. The above procedure is necessary because occasionally there are slight variations in the cast top surface of the bearings where the bolts go through. If you tighten the bottom bolts all the way, the spacers may lean slightly, making it difficult if not impossible to slip on the top plate. If the top plate is positioned and the four bolts started before the bottom bolts are tightened then it should all go together easily.
8. The handle on the top should be pulled down tight against the top of the unit pole before traveling on the highway.
9. When you begin the erection of the TMS Scrambler DO NOT FORGET TO LOOSEN ALL THREE HANDLES.