



ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: #63
Date: 1-2-74

Superceeds:
Number:
Date:

Service Information

Ride: TWISTER

Subject: INSTALLATION OF RESTRAINING BELTS

URGENT

This Service Bulletin is to inform you as a TWISTER owner of a condition that makes the addition of restraining belts to your TWISTER cars necessary and desirable. A complete set of these restraining belts will be shipped to you immediately upon return to us of the enclosed card.

These restraining belts are to be installed in all your TWISTER cars immediately upon receipt.

Chance Manufacturing Company, Inc. is requiring the installation of these restraining belts because of circumstances which have recently come to our attention.

As you know, we have no control over the duration of or number of successive rides a patron is allowed to ride. From field observations, it is surmised that some ride operators are giving too long a ride and allowing patrons to ride a number of times in succession.

Either or both of these conditions may present a hazard to the patron.

Any amusement ride which involves movement imposes a given amount of "G" force in the patron's body. The amount of "G" force and the length of time that such force can be endured varies greatly among individuals.

Should a ride patron reach his or her limit of endurance, blackout could possibly result. If this were to happen, they could possibly slide down and out of the car seat.

You, as a ride owner, should instruct your ride operators of these possible dangers and we would recommend:

1. Do not give patrons too long a ride.
2. Do not allow a patron to ride in succession.

On the reverse side is a complete set of instructions for installing the belts. In addition you will receive installation instructions with the restraining belts.

Richard G. Chance

General Manager

Factory and General Office, 4219 Irving, Box 2397 Wichita, Kansas 67201

Area Code (316) 942-7411

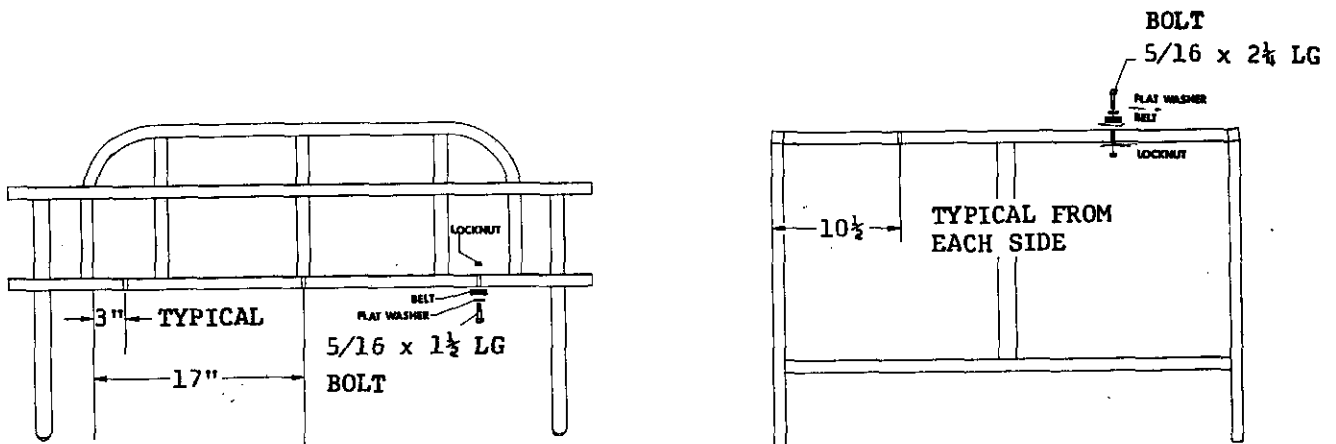
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103 Ross Ave., Dallas, Texas 75202

Area Code (214) 742-3802

INSTALLATION OF BELTS

1. Remove the headrests from the cars and drill three 5/16" diameter holes in each one as shown.
2. Install 5/16 x 1½ LG bolt, flat washer and restraining belt from bottom side of tube on the headrest and secure with locknut.
3. Drill two 5/16" diameter holes down thru the square tube that supports the back of the front seat of each car.
4. Install 5/16 x 2¼ LG bolt, flat washer and restraining belt from top side of tube and secure with locknut.



FRONT SEAT BACK

NOTE

When installing belts make sure they are not twisted before bolting.

OPERATION OF RIDE AFTER BELTS ARE INSTALLED

Do not start ride until all passengers have slipped under the Restraining Belts so the belt rest around their mid-section and under arm pits.





ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 67
Date: 2-14-74

Supersedes:
Number:
Date:

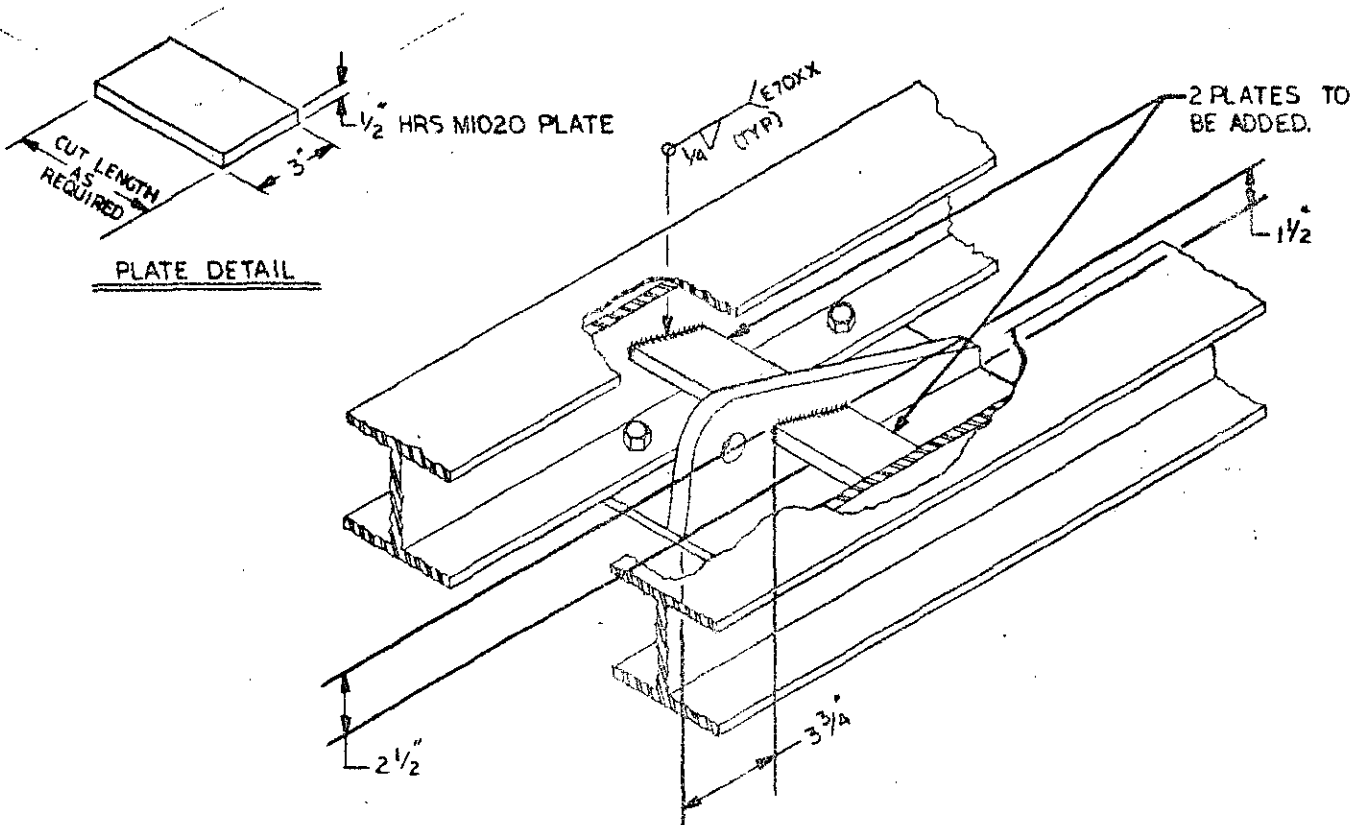
Service Information

Ride: Twister

Subject: Floor lift cylinder-structure addition.

TWISTER OWNERS

In order to improve the structure of the floor lift beam cylinder mounting bracket, we ask that the following change be added to both floor lift beams. Weld two $\frac{1}{2}$ " steel plates, one to each side of the hydraulic cylinder mount, in accordance with the dimensions shown in the detail section. Ride owner to furnish plates to be added.



DETAIL SECTION OF FLOOR LIFT BEAM

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ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 71
Date: 5-5-74

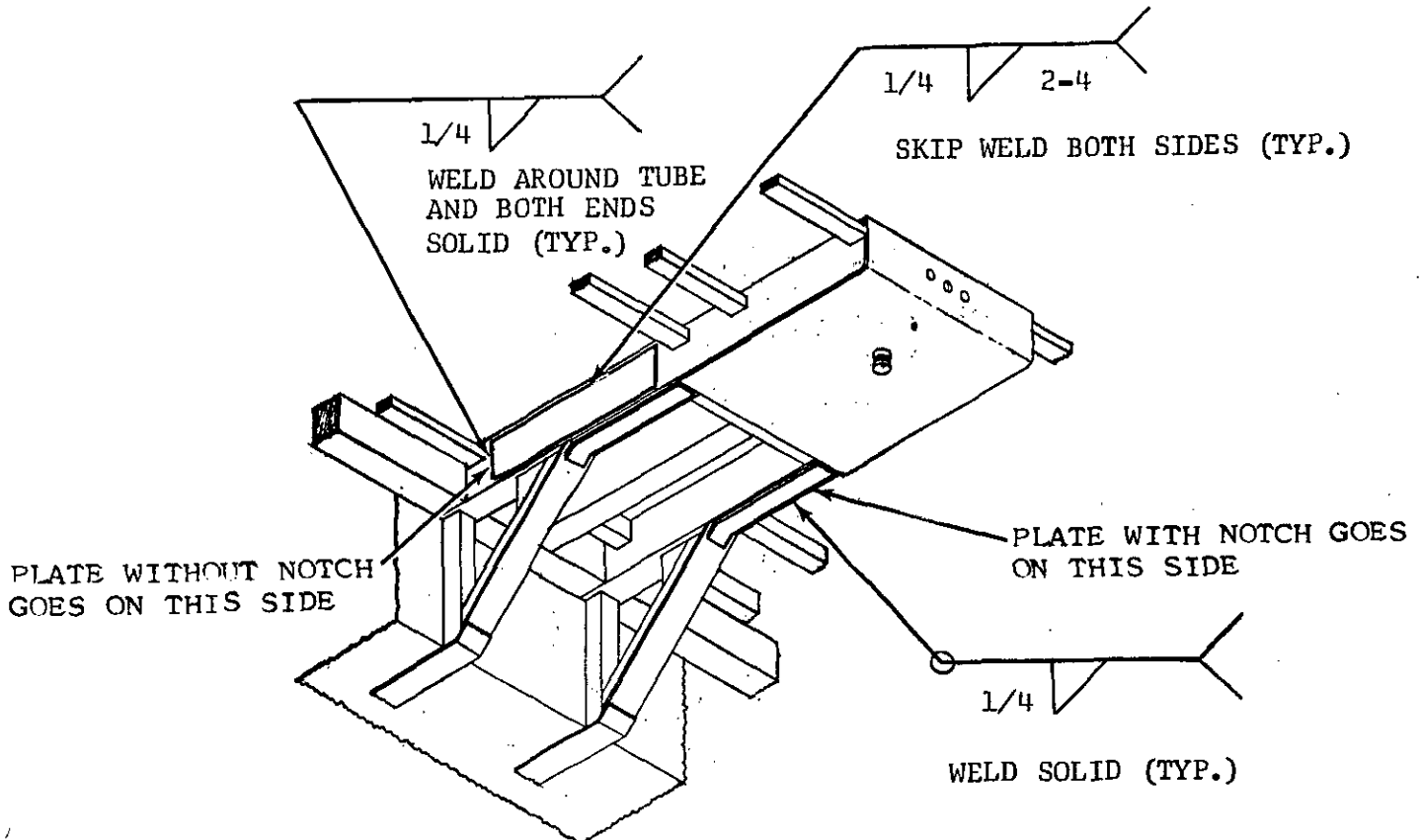
Superceeds:
Number:
Date:

Service Information

Ride: TWISTER

Subject: Trailer Reinforcement

We wish to inform all Twister owners of an area on the Twister trailer that could be termed marginal as far as strength goes. Should the trailer become bogged in mud and you try to jerk it free, it is possible that the main support tubes could bend. This could also happen if the trailer were bouncing severely on a rough highway. Enclosed is a print showing details of some plates. We are recommending that these plates be added to the trailer immediately. The print calls for 3/8" thick plate and this is recommended. However, if the 3/8" plate is not available, 1/4" plate could be substituted.



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ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: #74
Date: 6-24-74

Superceeds:
Number:
Date:

Service Information

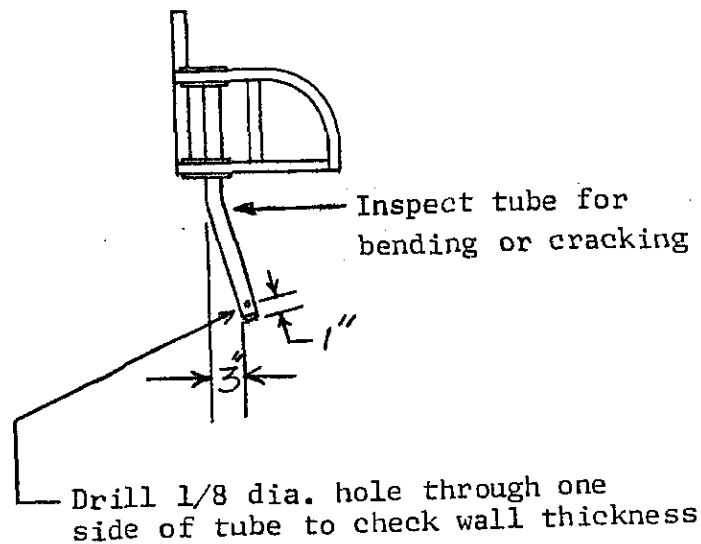
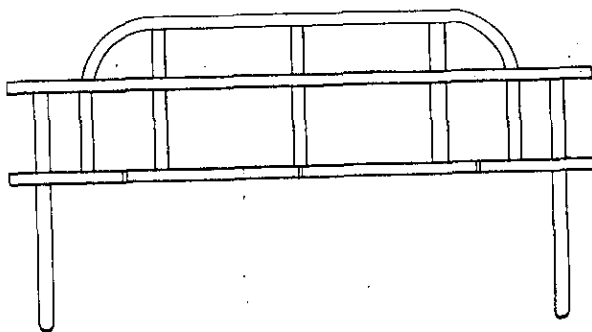
Ride: TWISTER

Subject: HEAD REST INSPECTION

We are asking all TWISTER owners to inspect the head rests on all TWISTER cars immediately. Remove each head rest and inspect the support tubes that fit down in the sockets on each car. Inspect for any signs of physical damage, such as bending or cracking. Next, drill a small hole, 1/8 inch, near the bottom of the support tube approximately 1 inch from bottom. Drill hole through one side of tube only. Check wall thickness of tube. It should be 1/8 inch thick.

If any of the tubes show signs of bending or cracking, or if any tube has less than a 1/8 inch wall, report such condition to Mr. Richard G. Chance, General Manager, Chance Manufacturing Company.

Any of the afore-mentioned conditions could result in a serious accident if the head rests are not inspected, and any faults corrected immediately.



Follow-Up Inspections

Inspect the head rest support tubes on a regular weekly basis as an added
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ALLAN HERSHELL

CHANCE
MANUFACTURING CO., INC.

Number: 89

Date: 11-8-74

Superceeds:

Number:

Date:

Service Information

Ride: TWISTER (CHANCE BUILT)
Serial No. 73-3201 thru 74-3216

Subject: INSTALLATION OF CONTROL
LEVER DETENT

The following instructions cover installation of a Control Lever Detent which is to be added to each TWISTER.

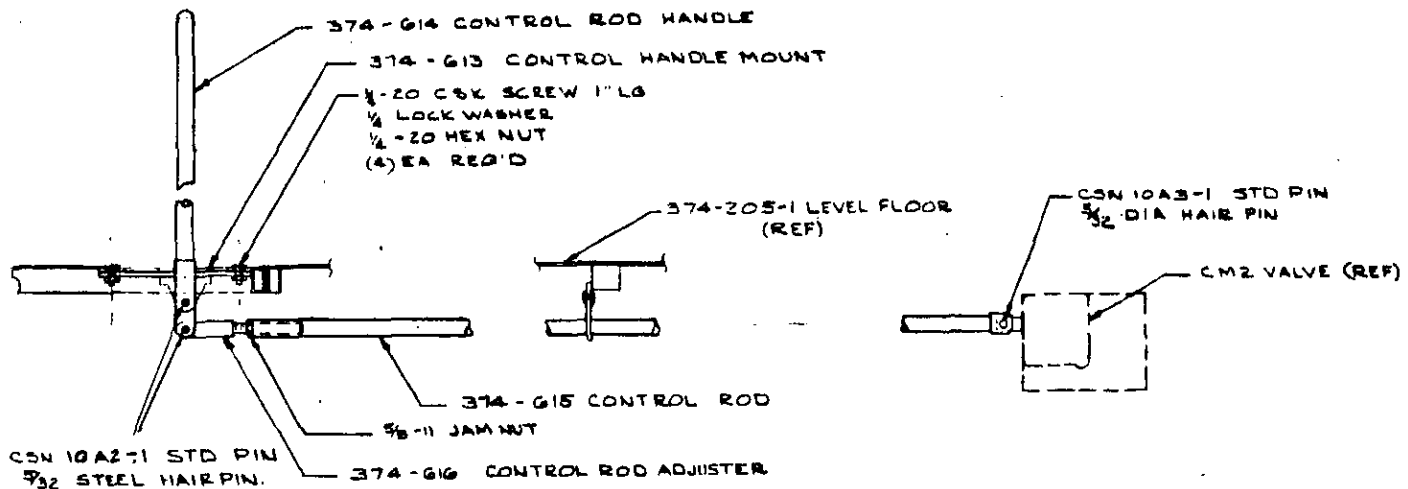
The detent will prevent an accidental engagement of the Control Lever during loading or unloading of the ride.

Quantity	Part Number	Description
1	374-610-3	Control Lever Detent Assy.
3 ea.	1/4-20 x 1 1/4 lg.	Bolt, Lock Washer, Nut

The ride must be erected and the Control Rod Handle and linkage installed.

Before installing the detent, the Control Rod Handle should be adjusted so it is in a vertical position.

To adjust handle, loosen the jam nut and adjuster on the control rod underneath the porch. Turn adjuster until Control Handle is vertical and tighten jam nut.



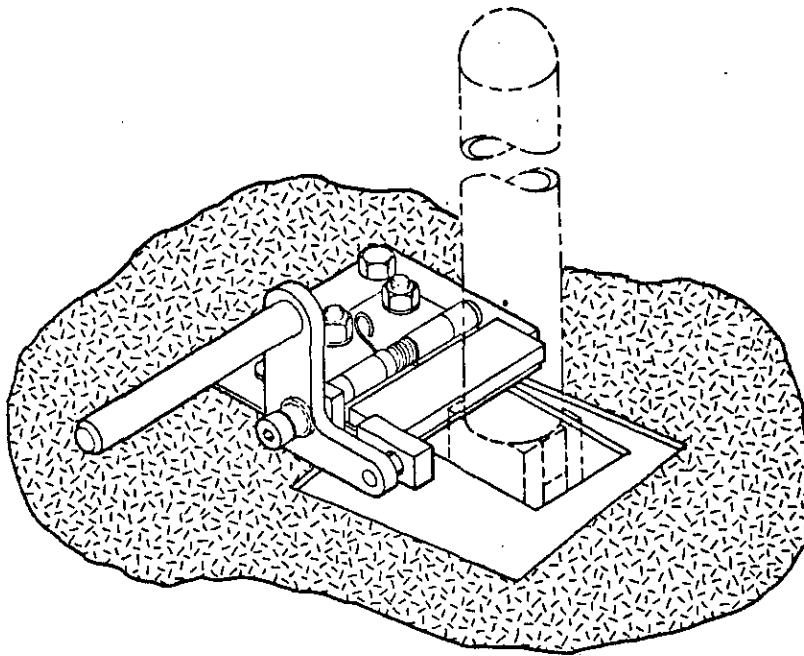
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Position Detent Assembly in front of the Control Handle, centering it with the travel of the Handle.

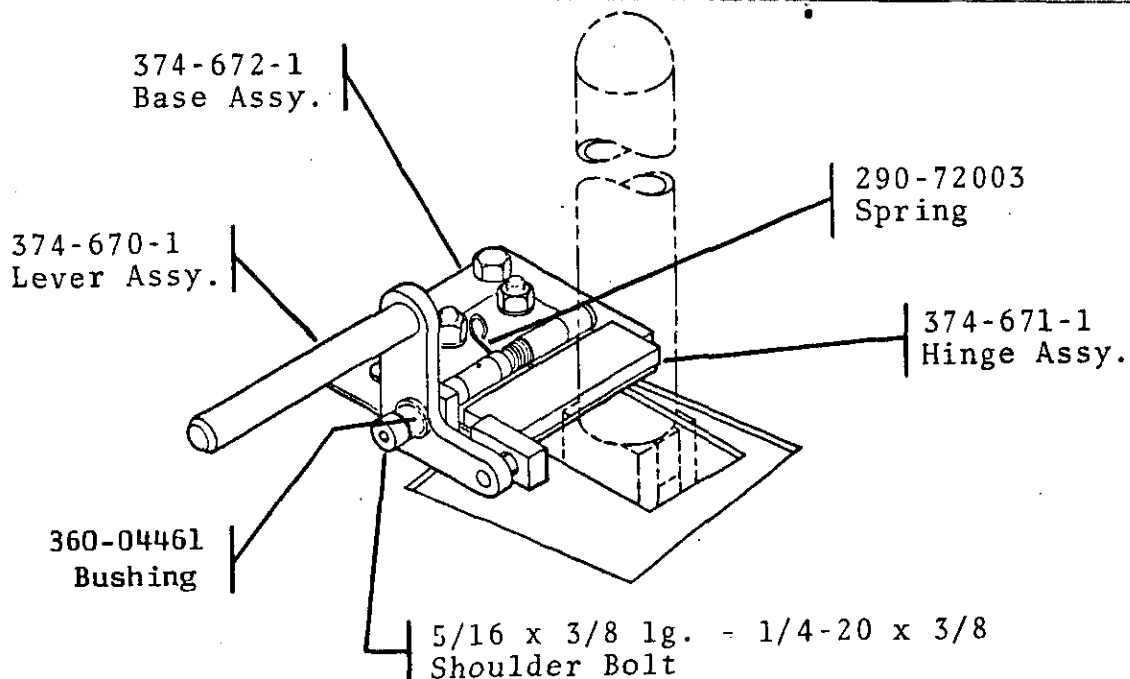
If there is any slop or play in the travel of the handle, push it forward gently until it is at the point of engaging the control valve.

Now, position the detent so that it is up against the Control Handle

Mark and drill holes to match Detent Base Plate, securing with bolts provided.

REPLACEMENT PARTS

374-610-3 Control Handle Detent Assy.





ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 90
Date: 11-8-74

Superceeds:

Number:

Date:

Service Information

Ride: TWISTER
Serial Numbers 73-3201 thru 74-3218
Subject: BRAKE RELIEF VALVE
PRESSURE SETTING

From field observations, it has become apparent that a number of TWISTER Rides are being operated with the "Brake Pressure Relief Valve" set at a higher pressure setting than the recommended 700 P.S.I. maximum.

This results in a severe braking action causing discomfort to ride passengers. In addition, it subjects the ride structure to undue stresses.

To eliminate this, we have enclosed a new spring that is to be installed in the relief valve. This will limit the valve to a maximum setting of approximately 700 P.S.I.

INSTALLATION OF SPRING

Remove the left rear possum belly door to gain access to hydraulic components.

The Relief Valve is readily accessible as can be seen in photograph.

To replace spring, loosen the packing nut behind the Adjustment Knob, and carefully remove Adjustment Knob and Stem.

Replace spring and assemble in reverse order.

Run the ride and adjust Relief Valve to approximately 600-700 P.S.I.

CAUTION

Loosen carefully to avoid losing spring and needle, as they will pop out of the hole.

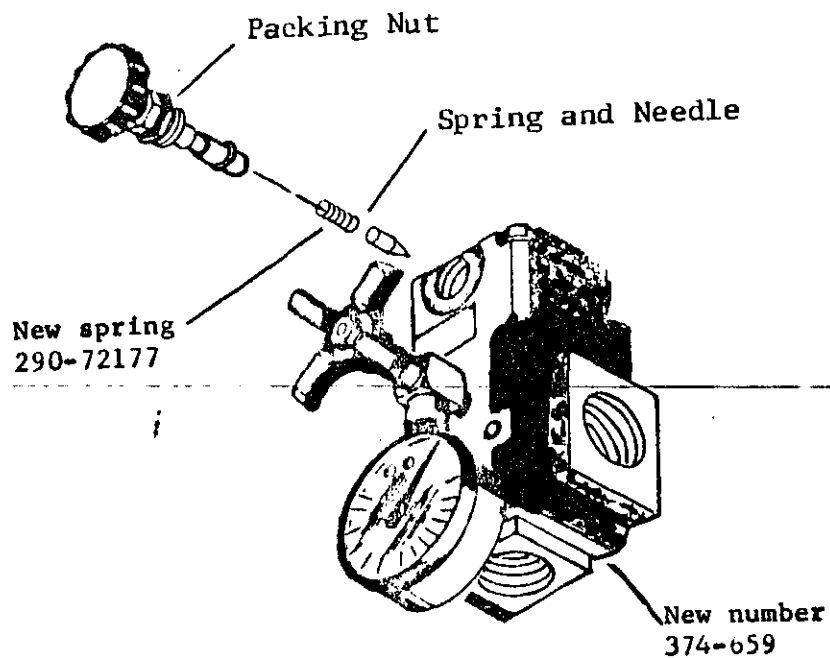
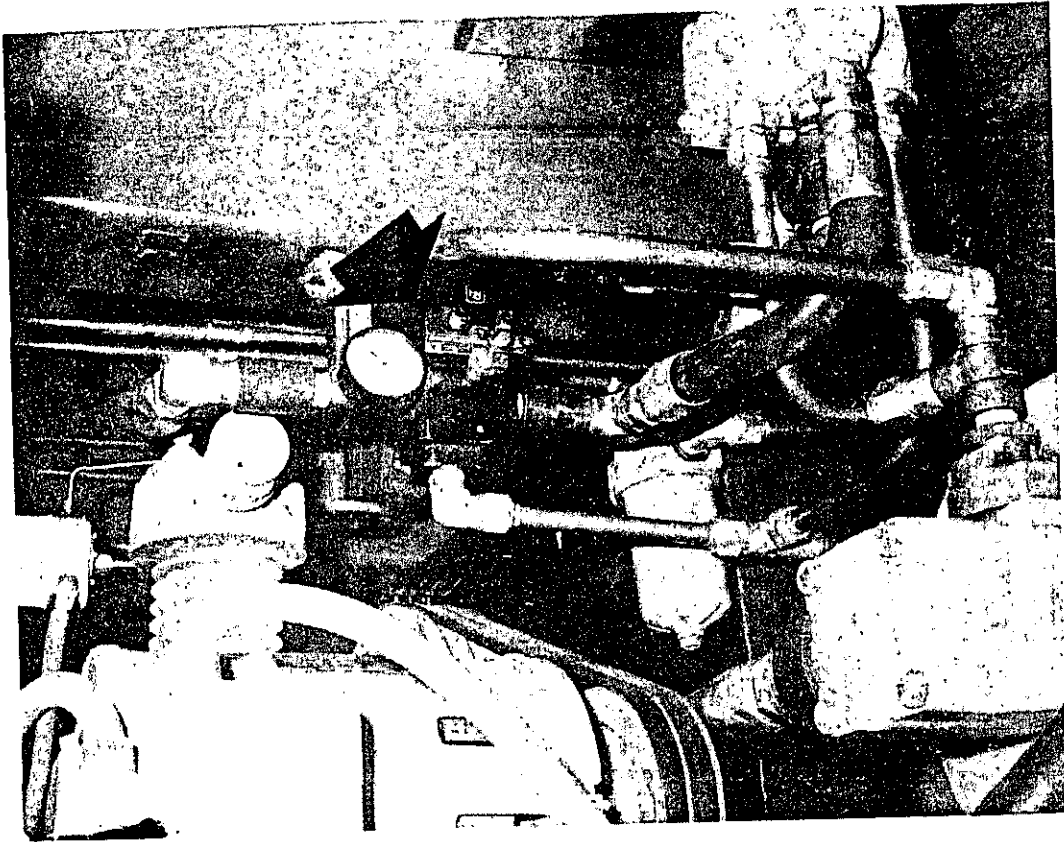
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Valve shown removed from system for Clarity Only

DO NOT REMOVE VALVE FROM SYSTEM

NOTE

Change Valve callout on pages 36 & 42 of the Twister Manual, from MRFN 12P-0A-P-09AA to 374-659



ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 91

Date 11-10-74

Superceeds:

Number:

Date:

Service Information

Ride: TWISTER

Subject: CHECKING SWEEP FOR CRACKS

One of the Outer Sweeps on a TWISTER has developed a crack in it. The crack developed across the top side starting from the access hole for the Master Cylinder. This has only shown up on one sweep and could be attributed to any one of several possible causes.

However, the most logical cause for the crack is simply that the cover plate was not bolted down tightly.

The cover plate, when tightened down, adds the necessary strength needed in this area of the sweep because of the access hole.

CHECKING SWEEPS (Requires Minimum Two Persons)

All sweeps should be checked immediately.

Remove the cover plate * and inspect area around access hole.

1. Look for cracks in the paint, if paint is old.
2. If ride has recently been painted, look for depressions which might indicate a crack into which paint has run.
3. If ride has been run since painting, again look for cracking or stretching, wrinkles, etc., in paint.

*NOTE:

If any cover plates are found to be loose during inspection, pay particular attention to these sweeps.

After preliminary check, block or jack each sweep up directly under the bolted joint for inner and outer sweep sections.

Again visually inspect area around access hole while having partner stand on the car and bounce. This will possibly cause crack to show up enough to visually sight if one exists.

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Sales Office:

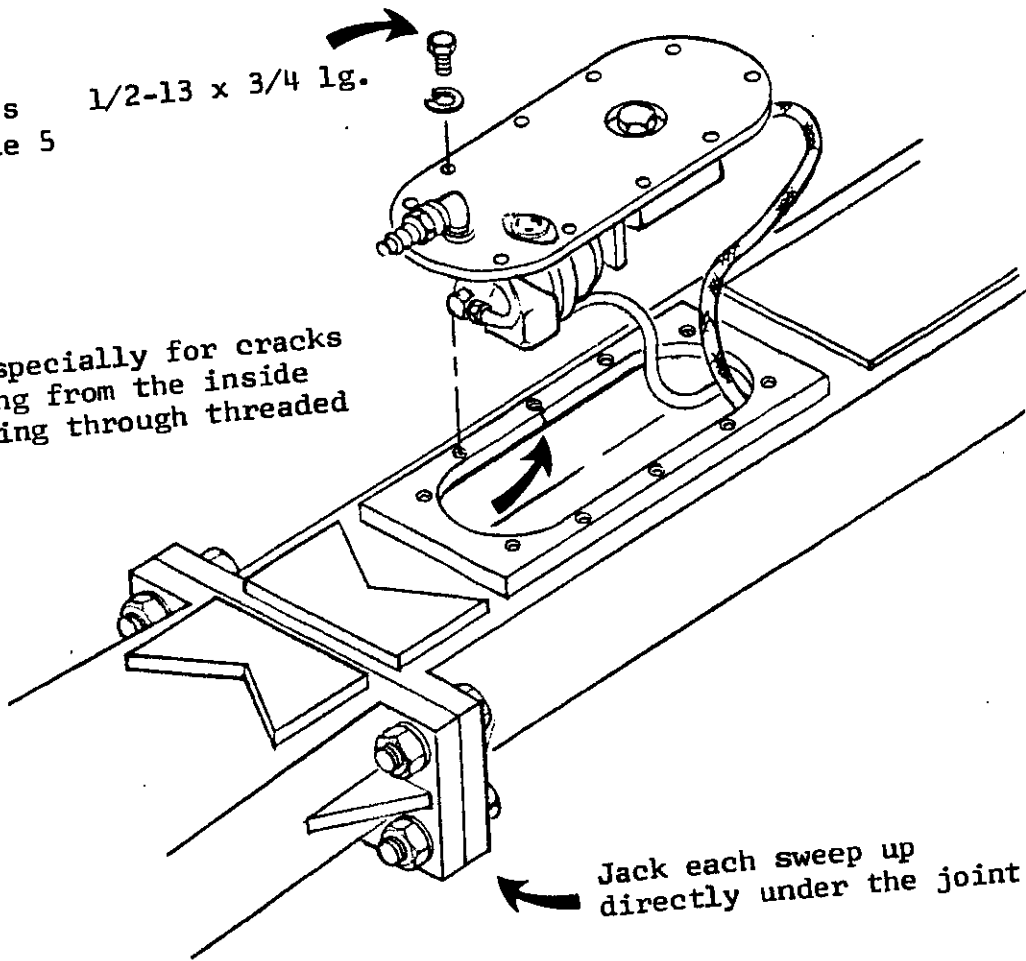
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Bolts
Grade 5

1/2-13 x 3/4 lg.

Look especially for cracks starting from the inside and going through threaded hole.



Re-installing Cover Plates

If no cracks are found, install cover plates, torquing bolts to 75 ft. lbs.
If bolts are greasy or oily, torque to 55 ft. lbs.

Check length of bolts before installing cover plates. The six bolts along sides should be 3/4 inch long grade 5 bolts. Longer bolts will bottom out against the sweep channel not drawing the cover plate down tight.

If existing bolts are found to be longer than 3/4 inch, notify Chance Manufacturing. Specify quantity of bolts needed, and they will be shipped free of charge.

If ride must be operable before you receive new bolts, either cut the existing ones off to 3/4 inch or replace. Bolts purchased from suppliers other than Chance Manufacturing must be at least a Grade 5 but not more than a Grade 8 bolt.

EXISTING CRACKS

If any cracks are found, consult Chance Manufacturing Company before attempting to repair or operate ride.

FOLLOW-UP CHECKS

Check torque values on bolts securing cover plates weekly. Remove Cover Plates and visually inspect sweep monthly.



ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 104
Date: 7-21-75

Superceeds:
Number:
Date:

Service Information

Ride: TWISTER

Subject: Sweep Check

URGENT

One ride has reportedly developed some problems with the sweep joints where they attach to the center hub. In order to evaluate the precise area and cause, more information is needed from the field.

Please check each sweep on the ride and report findings to Mr. Richard G. Chance, General Manager, Phone - 316, 942-7411.

CHECK THESE AREAS

1. Inspect the plate and ears that bolt onto the Center Hub, paying particular attention to the area around the bolt holes. "B-B" and ears that house the Bearings shown in section "A-A".

Look for any signs of cracks in ears, plate or welds. If the ride has recently been painted, look for signs of cracking or stretching in the paint.

If an area is suspected of having cracks, clean area with solvent and apply thinned-down paint or dye penetrant, wiping off excess. Cracks should then show up as fine dark lines.

2. The sweep shaft is tack welded to the sweep ears as shown in "A-A". Inspect this area very carefully to see if welds are holding.

Also, check clearance between sweep ear and the bearing ear. There should be approximately 3/16 inch between the ears.

3. Have two men rock the outer sweep end and observe the hub end of the sweep for any signs of play in the bearings, etc.

REPORT FINDINGS TO CHANCE MFG. CO.

4. In addition to checking the sweep, make sure the Braking Pressure is limited to approximately 600 PSI as prescribed in Bulletin #90, 11-8-74. As stated in that bulletin, higher pressures subject the entire ride to undue stress forces during the braking cycles.

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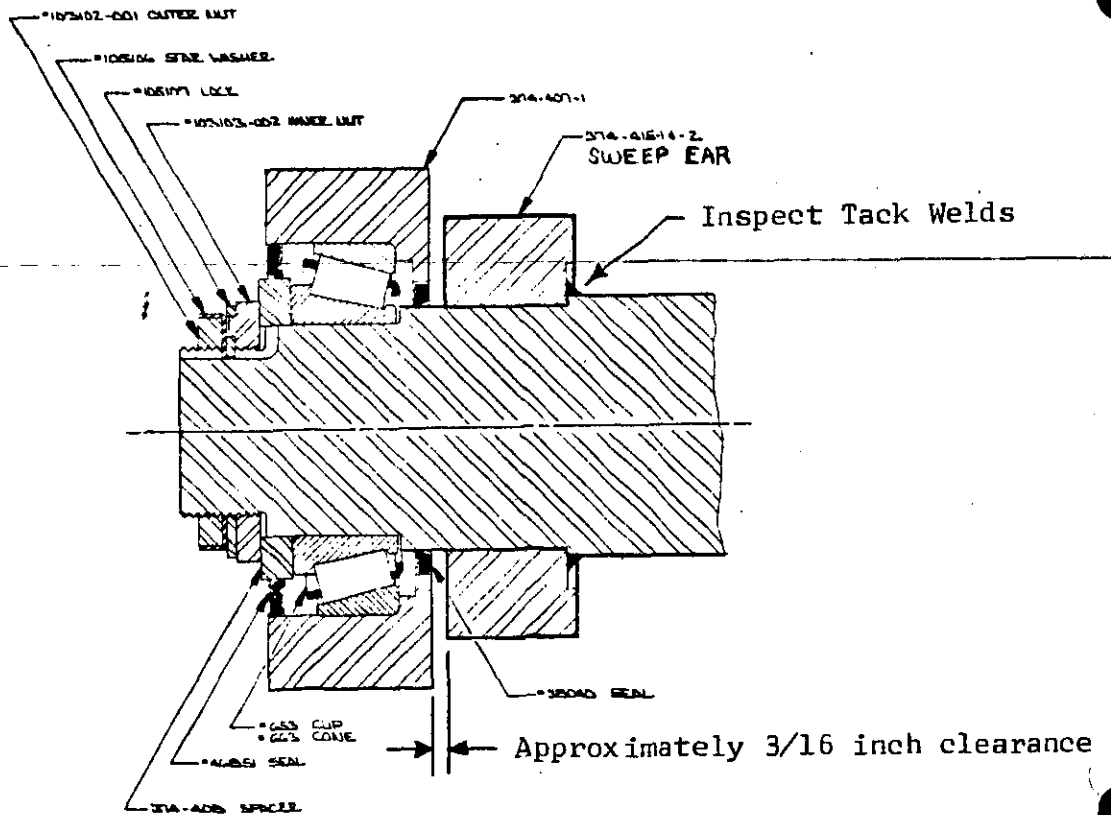
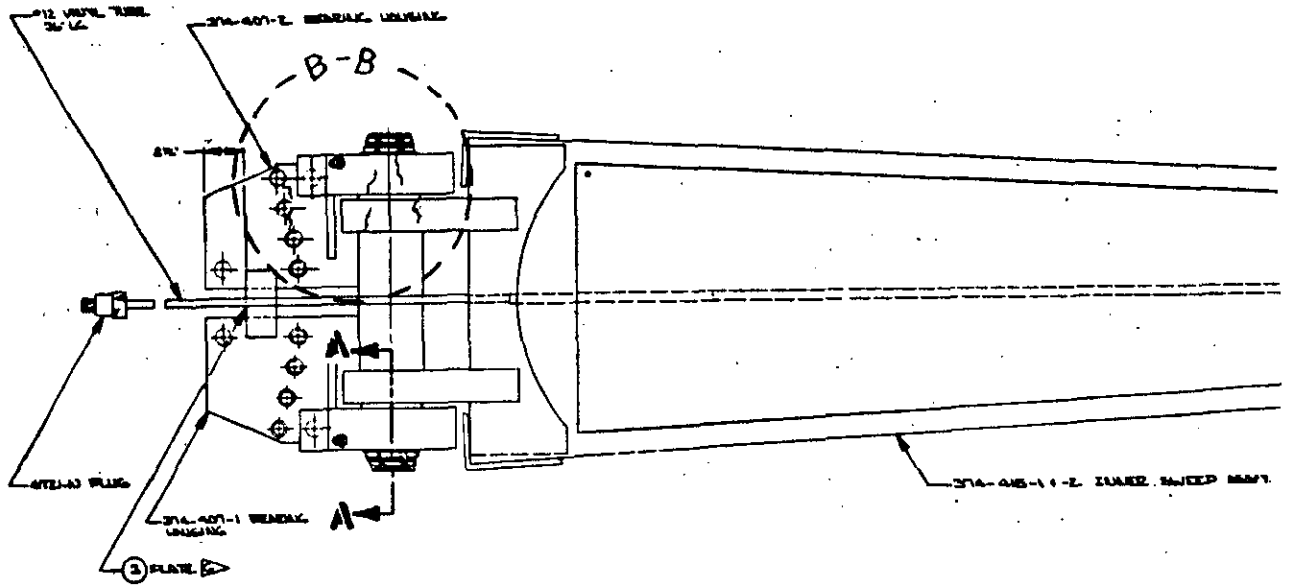
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103 Ross Ave., Dallas, Texas 75202

Area Code (214) 742-3802

IF ANY CRACKS, ETC. ARE FOUND
DO NOT OPERATE RIDE



SECTION A-A



ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 104A
Date: 9-19-75

Superceeds:
Number:
Date:

Service Information

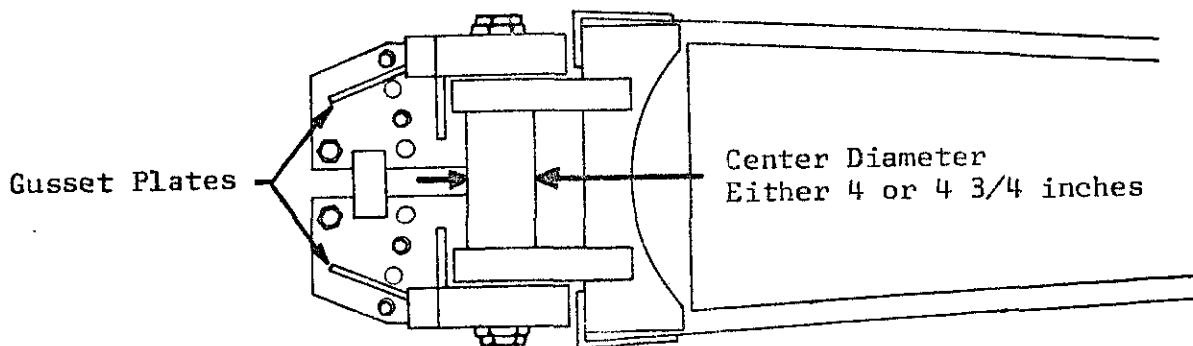
Ride: TWISTER

Subject: SWEEP REPORT

After evaluating the reports on the Sweep joints, Ref. Bulletin 104, it has been determined that it would be desirable to reinforce all existing sweep joints, that haven't already been done.

In order to accomplish this, additional information is necessary from each owner. Please answer the following, and notify us as soon as possible.

1. Center diameter of shaft.
2. Bearing housing (does or does not) have gusset plates as shown.



REPORT FINDINGS TO:

Mr. Richard G. Chance, General Mgr.
Chance Mfg. Co., Inc.
P.O. Box 2397
Wichita, Kansas 67201
Phone: AREA CODE 316, 942-7411

Factory and General Office, 4219 Irving, Box 2397 Wichita, Kansas 67201

Area Code (316) 942-7411

Sales Office:

103 Ross Ave., Dallas, Texas 75202

Area Code (214) 742-3802



ALLAN HERSCHELL

CHANCE
MANUFACTURING CO., INC.

Number: 117
Date: 1-5-76

Supersedes:
Number:
Date:

Service Information

Ride: TWISTER

Subject: SWEEP REINFORCEMENT
PUMP CHANGE
BRAKE VALVE

DO NOT OPERATE RIDE

Further observations and field reports have indicated that no TWISTER should be operated until the following conditions have been met:

1. Sweeps must be reinforced as described in Bulletin 104A, 105 or 106.
 2. The pump supplying the drive circuit must be changed to slow the ride down from 13 R.P.M. to 9 R.P.M.
New pump is a 25V-17A-1C10L Chance Manufacturing Part Number 260-56092.
 3. Brake pressure relief valve is modified per Bulletin #90 to limit braking pressure.
- If any of the above has not been completed, contact Mr. Richard G. Chance immediately.

Parts will be provided at no charge.

However, your account will be charged \$205.10 to cover the cost of the new pump. This will be credited back to your account when you ship us the pump currently on your ride.

When contacting factory, be sure to specify information as requested in Bulletin 104A.

REPORT FINDINGS TO:

Mr. Richard G. Chance, General Mgr.
Chance Manufacturing Co., Inc.
P.O. Box 2397
Wichita, Kansas 67201
Phone: AREA CODE 316, 942-7411

Factory and General Office, 4219 Irving, Box 2397 Wichita, Kansas 67201

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CHANCE
MANUFACTURING CO., INC.

Number: 138

Date: 7-9-77

Supercedes:

Number:

Date:

America's Largest Manufacturer of Amusement Rides

Service Information

Effective Serial Numbers:

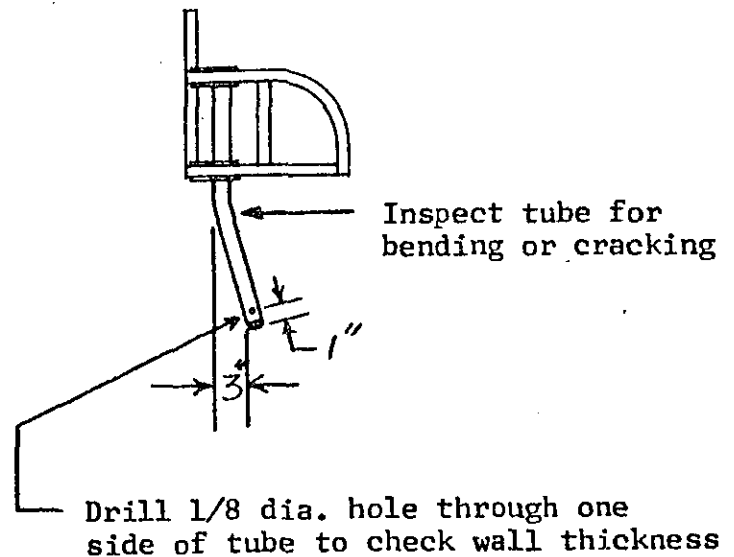
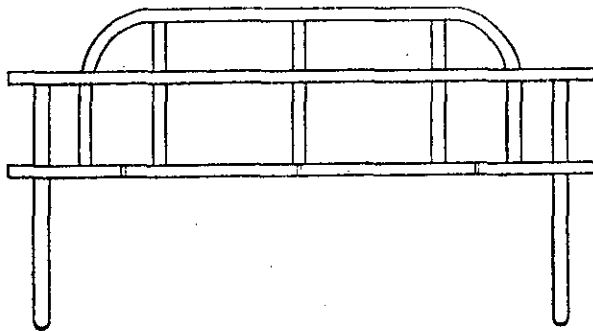
Ride: TWISTER

Subject: HEAD REST INSPECTION

All TWISTER owners must inspect the head rests on all TWISTER cars immediately. Remove each head rest and inspect the support tubes that fit down in the sockets on each car. Inspect for any signs of physical damage, such as bending or cracking. Next, drill a small hole, 1/8 inch, near the bottom of the support tube approximately 1 inch from bottom. Drill hole through one side of the tube only. Check wall thickness of tube. It should be 1/8 inch thick.

If any of the tubes show signs of bending or cracking, or if any tube has less than a 1/8 inch wall, immediately report such condition to Mr. Richard C. Chance, General Manager, Chance Manufacturing Company.

Any of the afore-mentioned conditions could result in a serious accident if the head rests are not inspected, and any faults corrected immediately.



Follow-Up Inspections

Inspect the head rest support tubes on a regular weekly basis as an added measure of safety.

Factory and General Office. 4219 Irving, P.O. Box 12328 Wichita, Kansas 67277

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Number: 60-169

Date: 8-14-78

Supersedes:

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Numbers: ALL RIDES

Ride: TWISTER Subject: HUB EAR REPLACEMENT

All work must be done by competent, qualified mechanics capable of understanding the function of the parts and their proper installation.

Before installing this kit, read the instructions completely and familiarize yourself with the parts listed. Make certain all parts have been received. If any parts are missing, notify Chance Manufacturing Co. immediately. Do not substitute an inferior grade of material or part.

The attached CERTIFICATION OF COMPLIANCE must be completed and returned to Chance Manufacturing, Inc. within seven (7) days of receipt of kit.

If you have any questions concerning the installation of this kit, please contact Chance Manufacturing for assistance.

With ride set up remove outer sweep. Fold stub sweep up and lock into place. Use an air arc to cut the broken ear loose around the outer edge of hub plate. Lower stub sweep and cut broken ear loose all the way around.

Disconnect air hose and wiring from stub sweep. Remove nuts bearing and seal from good ear on opposite side of sweep. Remove bolts from broken ear. Remove stub sweep and broken ear. Grind hub plate smooth.

Remove broken ear from stub sweep. Place bearings from broken ear along with new seal into new ear. Place outer attaching bolt in new ear and install new ear onto shaft. Start nuts onto shaft but do not tighten.

If any seals are damaged they must be replaced.

Install stub sweep and new ear on hub plate. Insert bearing along with new seal in opposite ear. Start adjusting nut on shaft but do not tighten. Start all bolts in new ear but do not tighten. Shove new ear as far as possible away from opposite ear and tighten bolts.

Center stub sweep in ears and lightly adjust bearings. It is recommended that the adjustments of these bearings be performed by someone familiar with adjustment of Temkin bearings.

Factory and Sales Office: 4219 Irving • P.O. Box 12328 • Wichita, Kansas 67277 • (316) 942-7411

Tack weld new ear to hub. Check adjustment of bearings and then weld ear to hub all the way around.

All welding must be performed by a welder that is certified under the American Welding Society Structural Welding Code DI. 1-75 or the equivalent.

Check torque on ear attaching bolts. Check bearing adjustment and lock adjustment in place. Install hoses, electrical connections and outer sweep.

The attached CERTIFICATION OF COMPLIANCE must be completed and returned to Chance Manufacturing Co., Inc. within seven (7) days of receipt of kit.

