



WISDOM INDUSTRIES, INC



## SERVICE BULLETIN

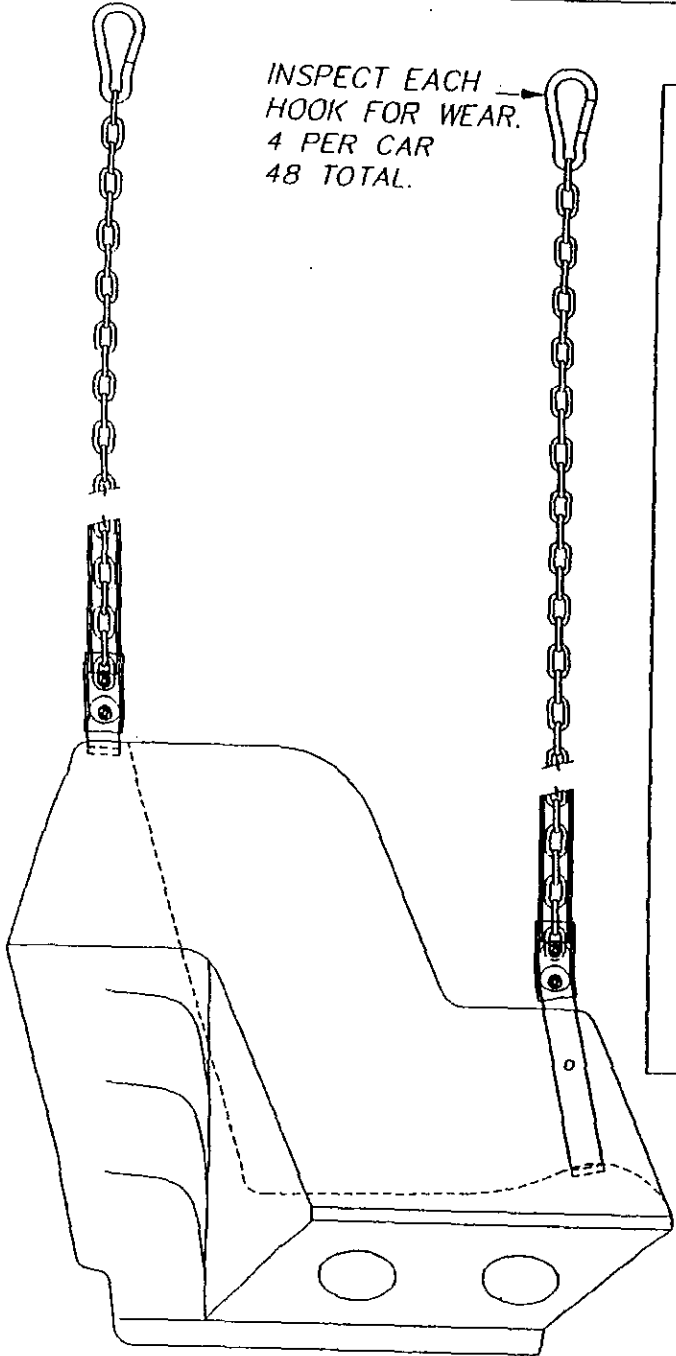
DATE: MARCH 1998  
RIDE: WHIRLWIND  
SUBJECT: SEAT TO CHAIN ATTACHMENT.  
COMPLIANCE: MANDATORY

One Whirlwind has experienced an unusual amount of wear on the seat to chain attachment links. To reduce wear and the possibility of failure of any links, replace the seat to chain attachment link with the enclosed parts.

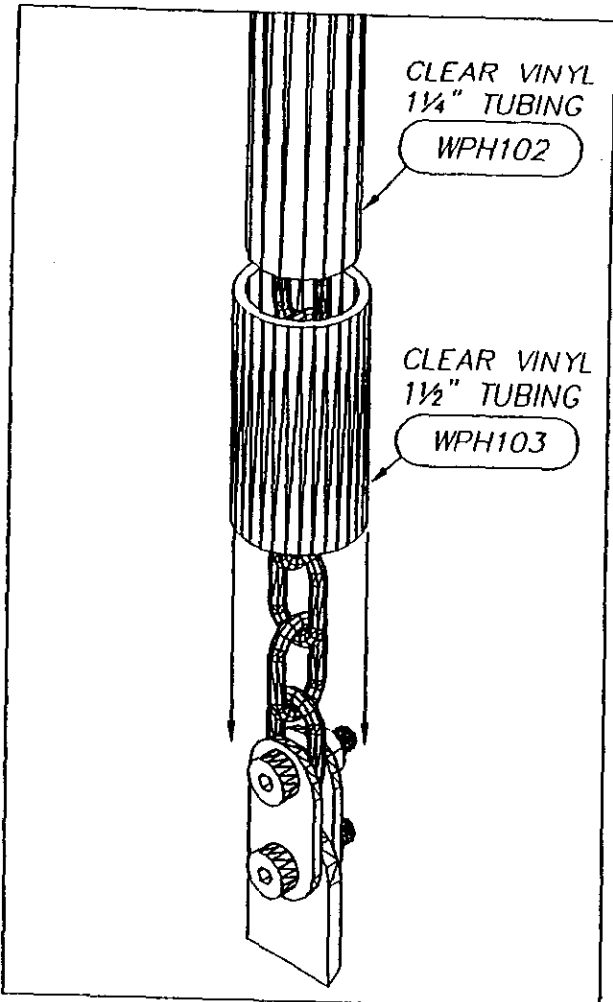
Procedure can be performed with seats hanging or off the ride.

### INSTALLATION

1. Unscrew seat to chain connecting link until the link can be unhooked from the seat ear.
2. Remove and throw away chain connecting link.
3. Slide clear vinyl tube over chain with large end toward seat (see drawing).
4. Use one 3/8 x 1/2 stainless shoulder bolt and 5/16" lock nut to attach 2 stainless plates to the seat ear. One strap on each side of the seat ear (see drawing).
5. Tighten the lock nut until the nut bottoms on the shoulder on the bolt.
6. The bolt must turn freely in the plates and on the seat ear.
7. Use one 3/8 x 1/2 stainless shoulder bolt, and 5/16" lock nut to attach the end chain link between the 2 stainless plates (see drawing).
8. Tighten the lock nut until the nut bottoms on the shoulder on the bolt.
9. The bolt must turn freely in the plates and in the chain link.
10. Repeat steps 1-9 for all chains on the Whirlwind.
11. Inspect the hook on the upper end of the chain for wear. If wear is showing,, contact Wisdom Industries Immediately.

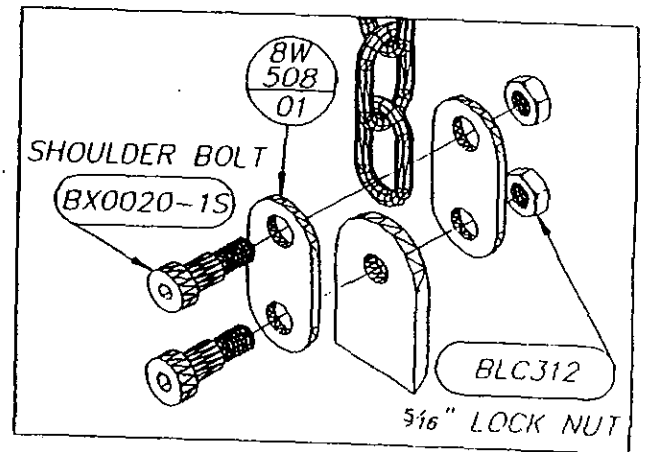


INSPECT EACH HOOK FOR WEAR.  
4 PER CAR  
48 TOTAL.



CLEAR VINYL  
1 1/4" TUBING  
WPH102

CLEAR VINYL  
1 1/2" TUBING  
WPH103



SHOULDER BOLT

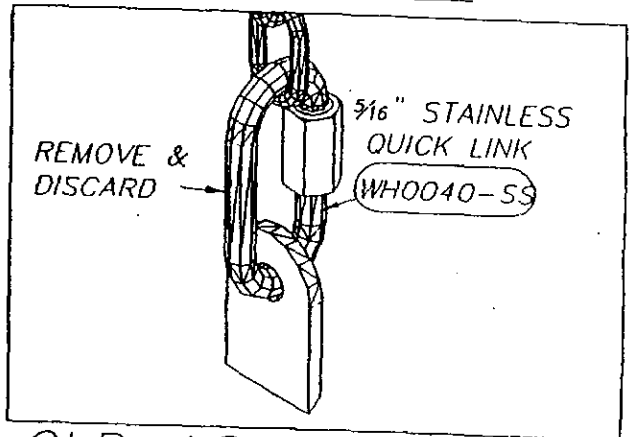
BX0020-1S

8W  
508  
01

BLC312

5/16" LOCK NUT

NEW ASSEMBLY




REMOVE &  
DISCARD

5/16" STAINLESS  
QUICK LINK  
WH0040-SS

OLD ASSEMBLY

NOTE: SEAT EAR MUST BE BETWEEN THE 2 PLATES.  
CHA MUST BE BETWEEN THE 2 PLATES.  
ROT. SHOULDER BOLTS MUST TURN FREELY IN PLATES.

 <b>WISDOM INDUSTRIES</b> Merino, CO 80741		APPROVED BY:
		DRAWN BY: ADCR
SCALE: 1 1/2" = 1'-0"	DATE: 3-5-98	REVISED
DESCRIPTION		
SEAT ASSEMBLY - SERVICE BULLETIN		
EQUIPMENT:		



WISDOM INDUSTRIES, INC



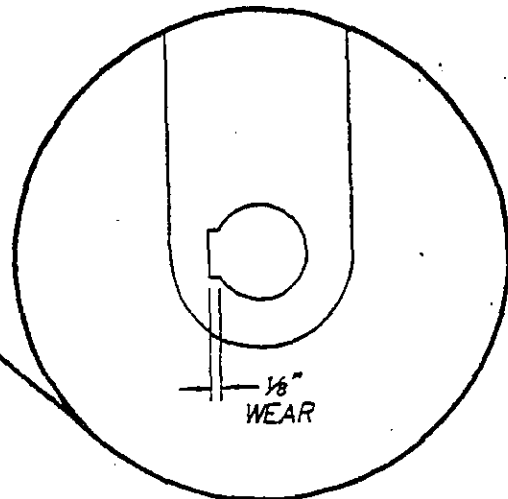
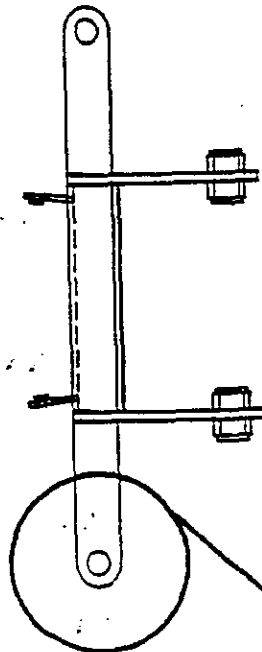
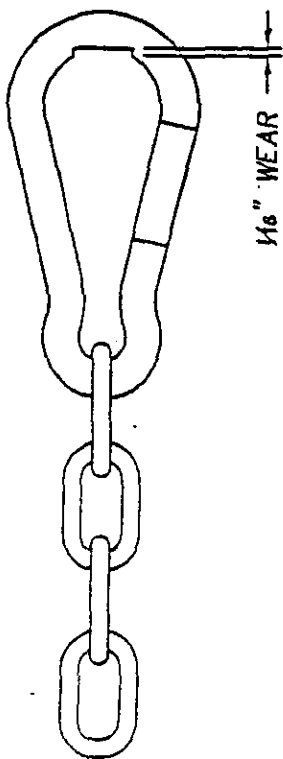
## SAFETY ALERT

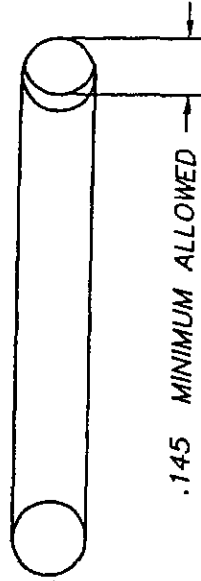
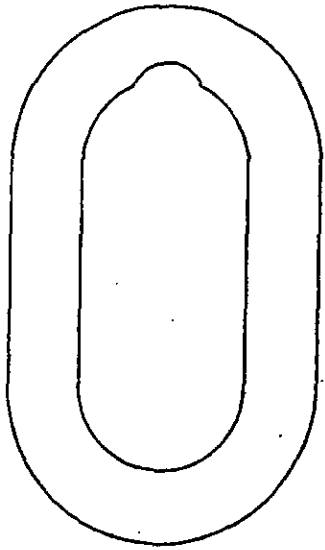
DATE: AUGUST 1998  
RIDE: WHIRLWIND  
COMPLIANCE: MANDATORY  
COMPLIANCE TIME: IMMEDIATE AND 1 WEEK INTERVALS THERE  
AFTER.

Inspect the upper chain attachment quick link attachment hooks for wear. If more than 1/16 inch of wear is observed replace quick link.

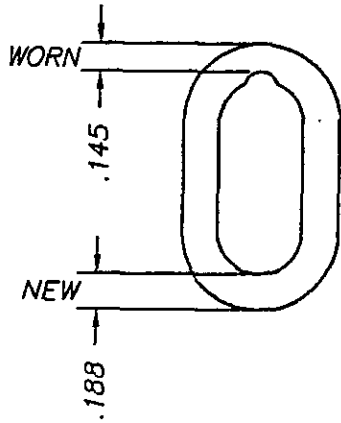
Inspect the hole that the upper chain attachment quick link hooks into for wear. If more than 1/8 inch of wear is noted contact Wisdom Industries, Ltd. for a replacement part.

Do not use that seat until the worn part is replaced. Do not remove the seat. Tie seat off and clearly tag it to not be used. This will keep the ride balanced during operation.





DOUBLE SIZE



ACTUAL SIZE



**WISDOM INDUSTRIES** Merino, CO 80741

APPROVED BY:

DESCRIPTION

CHAIN INSPECTION

SCALE: FULL

DATE: 03/17/98

EQUIPMENT:

WHIRLWIND

DRAWN BY:

M.HICKAM

DRAWING NUMBER:

SB 500



**WISDOM  
INDUSTRIES, Ltd.**

# **SERVICE BULLETIN**

**DATE:** JULY 2000.

**RIDE:** WHIRLWIND

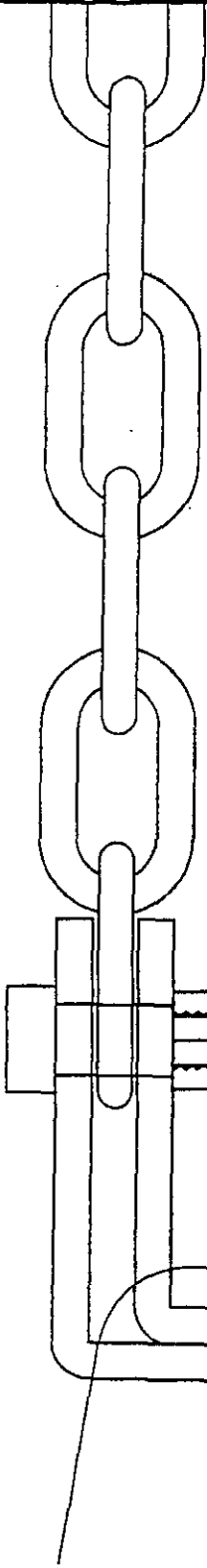
**SUBJECT:** SEAT TO CHAIN ATTACHMENT WEAR

**COMPLIANCE:** MANDATORY: PRIOR TO FURTHER  
OPERATION.

**Procedure can be performed with seats hanging or off the ride.**

- 1. Refer to the appropriate drawing for the type of seat to chain attachment.**
- 2. Remove the connecting link or shoulder bolt attaching the seat to the chain.**
- 3. Measure the amount of wear in the chain link, quick link or shoulder bolt.**
- 4. If the wear is more than allowable according to the drawing, cut off one link on each chain.**
- 5. If the wear is in the quick link or seat ear, replace the seat ear or quick link**
- 6. Inspect upper hanger for wear. (See Drawing)**
- 7. Perform inspection on a weekly basis for wear.**
- 8. Do not operate seat with wear greater than shown in drawings.**

# CHAIN AND BOLT INSPECTION



REMOVE SHOULDER BOLT AND INSPECT FOR WEAR,  
REPLACE BOLT IF WORN.

ALSO, IF CHAIN LINK IS WORN, CUT OFF ONE CHAIN LINK  
AT EACH CORNER, AND REASSEMBLE.

## INSPECT WEEKLY



**WISDOM INDUSTRIES** Merino, CO 80741

APPROVED BY:

DESCRIPTION

CHAIN INSPECTION

SCALE: HALF

DATE: 07/27/00

EQUIPMENT:

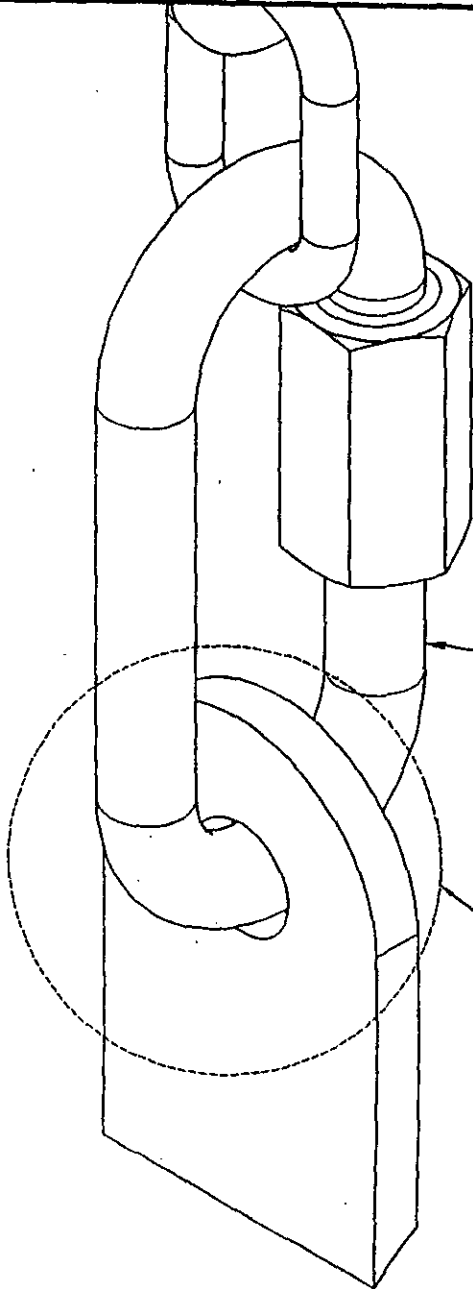
WHIRLWIND

DRAWN BY:

M.HICKAM

DRAWING NUMBER:

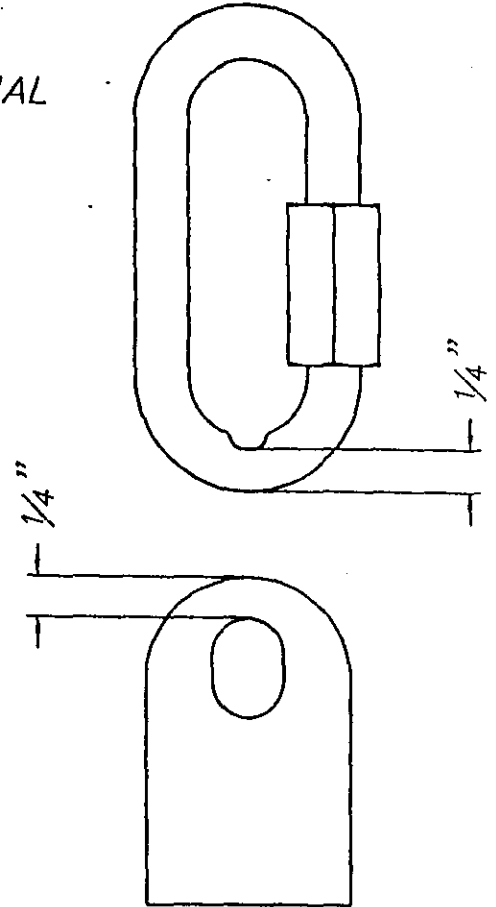
SB 090



5/16" STAINLESS  
QUICK LINK  
WH0040-SS

AREA TO INSPECT  
FOR WEAR

NOTE: MINIMUM MATERIAL  
THICKNESS. REPLACE  
WHEN LESS THAN 1/4"



WISDOM  
INDUSTRIES

Merino, CO 80741

SCALE: NTS

APPROVED BY:

DRAWN BY: ADCR

DATE: 5-20-98

REVISED

DESCRIPTION

SEAT ATTACHMENT INSPECTION

EQUIPMENT:

WHIRLWIND

DRAWING NUMBER



**WISDOM  
INDUSTRIES, Ltd.**

# SERVICE BULLETIN

**DATE:** APRIL 30, 2001

**RIDE:** TORNADO, WHIRLWIND, SPACE SLED

**SUBJECT:** LIFT FRAME REINFORCEMENT PLATES

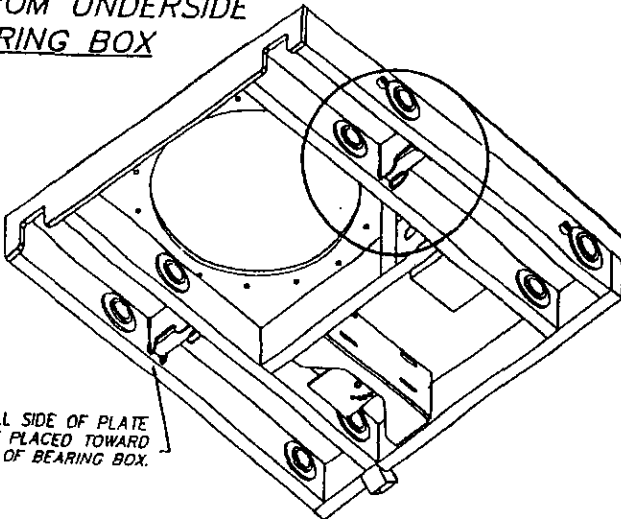
**INSPECTION DATE:** IMMEDIATELY

**INSTALLATION OF PLATES:** 2 WEEKS WITHOUT  
CRACKS, IMMEDIATELY WITH CRACKS

- 1) Inspect the frame near the 2 x 6 cross tube for cracks.  
(See Drawing)
- 2) If cracks are found, grind the affected area and reweld with  
7018 rod and install doubler plates prior to further operation.
- 3) If cracks are not found, inspect area daily for cracks prior to  
operation.
- 4) If your unit does not have doubler plates, install doubler  
plates.
- 5) Contact Wisdom Industries and the plates can be sent out. If  
you have any questions, contact Wisdom Industries, Ltd. at  
(800) 634-6097.

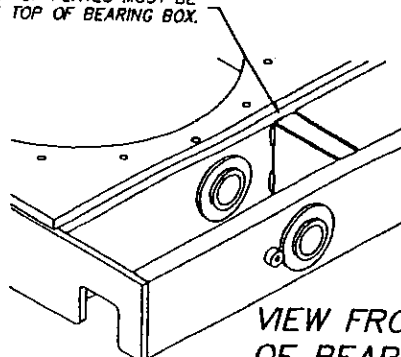


**VIEW FROM UNDERSIDE  
OF BEARING BOX**

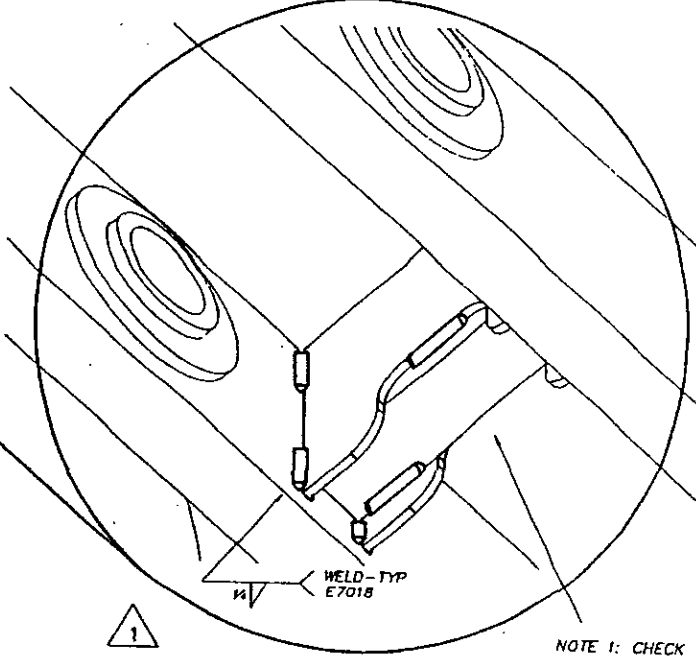


NOTE 3: SMALL SIDE OF PLATE  
MUST BE PLACED TOWARD  
THE OUTSIDE OF BEARING BOX.

NOTE 4: TOP OF PLATES MUST BE  
FLUSH WITH TOP OF BEARING BOX.



**VIEW FROM TOPSIDE  
OF BEARING BOX**



**DETAIL OF PLATES**

WELD-TYP  
E7018

NOTE 1: CHECK THAT  
CROSS TUBE DOES NOT  
REST ON LIFTING ARM IN  
THE DOWN POSITION. IF  
IT DOES, ADD SHIMS TO  
RAISE OFF OF LIFT ARM.

NOTE 2: NOTCH IS OFFSET  
TO CLEAR LIFT ARM.  
WATCH DURING  
INSTALLATION

WISDOM INDUSTRIES		Merino, CO 80741	
SCALE: 1" = 1'-0"	APPROVED BY:	DRAWN BY: CKW	
DATE: 08/04/99	<i>PHI</i>	REVISED	
DESCRIPTION SERVICE BULLETIN			
EQUIPMENT:		DRAWING NUMBER	
TORNADO		8T 3055B	



**WISDOM  
INDUSTRIES, Ltd.**

# SAFETY BULLETIN

**DATE:** APRIL 30, 2001

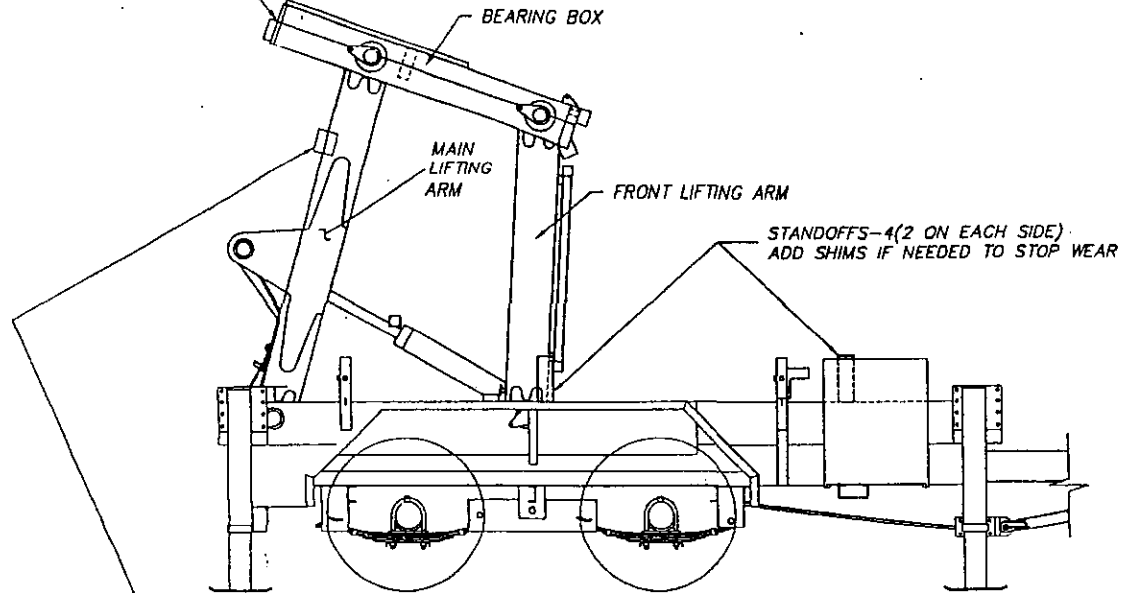
**RIDE:** TORNADO, WHIRLWIND, SPACE SLED

**SUBJECT:** MAIN LIFT ARM INSPECTION

**COMPLIANCE DATE:** IMMEDIATE

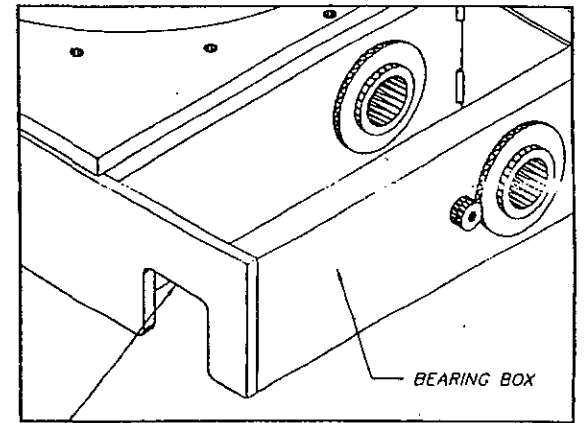
- 1) Inspect top edge of main lift arm for wear from lower edge of lift frame. (See Drawing)
- 2) If wear is noted block up standoffs until there is a 1/2" gap between the arm and lift frame.
- 3) If the surface of the tube is worn, inspect for cracks in tube and contact Wisdom for repair procedure.
- 4) Contact Wisdom Industries, Ltd. at (800) 634-6097 if you have any questions.

WEAR POINT FROM  
LIFT FRAME




- 1) INSPECT TOP EDGE OF LIFTING ARM FOR WEAR FROM LOWER EDGE OF BEARING BOX. IF WEAR IS NOTED INSPECT FOR CRACKS IN TUBE AND CONTACT WISDOM FOR REPAIR PROCEDURE.
- 2) IF WEAR IS NOTED, BLOCK UP STANDOFFS UNTIL THERE IS 1/2" GAP BETWEEN THE ARM AND LIFT FRAME. CONTACT WISDOM INDUSTRIES IF YOU HAVE ANY QUESTIONS.

PASSENGER SIDE RAISED VIEW



NOTE: INSPECT TOP AND SIDES OF THE MAIN LIFTING ARM AS THEY PASS THROUGH THIS OPENING FOR WEAR AND CRACKS ON BOTH ARMS.

 <b>WISDOM INDUSTRIES</b>		Merino, CO 80741
SCALE: 1/2" = 1'-0"	APPROVED BY:	DRAWN BY: JJR
DATE: 05/01/01		REVISED
DESCRIPTION SERVICE BULLETIN		
EQUIPMENT: TORNADO		DRAWING NUMBER BT 230



# WISDOM INDUSTRIES, Ltd.

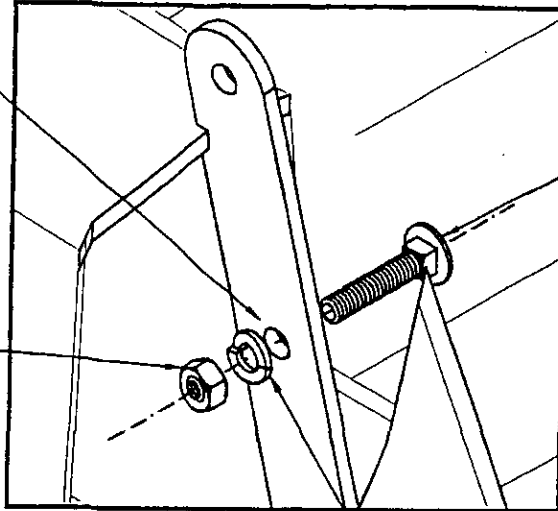
## SAFETY BULLETIN

**DATE: JUNE 25, 2001**  
**RIDE: WHIRLWIND**  
**SUBJECT: SEAT INTERNAL FRAME INSPECTION**  
**INSPECTION DATE: IMMEDIATE**  
**COMPLETION DATE: IMMEDIATE**

**INSPECT WHIRLWIND SEAT INTERNAL FRAME STRAPS FOR CRACKS AT THE MOUNTING HOLES.**

1. Remove bottom seat pan.
  2. Remove bolts from front and rear stainless steel seat internal frame straps.
  3. Lower straps until they can be visually inspected for cracks around the carriage bolt holes.
  4. Reinstall carriage bolts into straps.
  5. Repeat for the other seats.
  6. Inspect chains and mounting bolts for wear.
- ❖ SEE ATTACHED BULLETIN
7. A safety cable system is available, contact Wisdom for information on installation of safety cables.
- ❖ COMPLIANCE IS MANDATORY FOR THE SAFETY CABLES.
- ❖ **DO NOT USE SEATS WITH CRACKED STRAPS.  
CONTACT WISDOM FOR REPLACEMENTS.**

INSPECT FOR  
CRACKS (2 PLACES  
ON EACH SEAT)



$\frac{5}{16}$ " X  $1\frac{1}{2}$ "  
CARRIAGE BOLT  
BGC3101

$\frac{5}{16}$ " UNC  
HEX NUT  
BNC3120

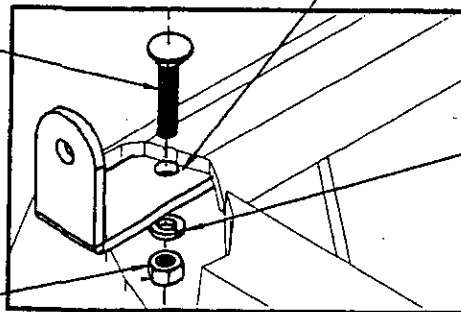
BWL3120

$\frac{5}{16}$ " STANDARD  
LOCK WASHER

**SIDE BOLT ASSEMBLY**  
(TYP. 2)

INSPECT FOR CRACKS  
(3 PLACES ON EACH SEAT)

$\frac{5}{16}$ " X  $1\frac{1}{2}$ "  
CARRIAGE BOLT  
BGC3101



$\frac{5}{16}$ " STANDARD  
LOCK WASHER  
BWL3120

$\frac{5}{16}$ " UNC  
HEX NUT  
BNC3120

**BACK STRAP BOLT ASSEMBLY**  
(TYP. 3)



**WISDOM  
INDUSTRIES** Merino, CO 80741

APPROVED BY:

DESCRIPTION

SEAT INSPECTION

SCALE: N.T.S.

DATE: 06/25/01

EQUIPMENT:

WHIRLWIND

DRAWN BY:

JJR

DRAWING NUMBER:

8W 500



# WISDOM INDUSTRIES, Ltd.

## SAFETY ALERT

**DATE:** March 31, 2003

**RIDE:** Tornado/Whirlwind/Space Sled

**SUBJECT:** Check the torque of the main bearing attachment bolts.

**COMPLIANCE: IMMEDIATE (TWO STAGES)**

### Stage 1

➤ **IMMEDIATELY, CHECK THE MAIN BEARING BOLTS FOR TIGHTNESS:**

1. Check all main bearing bolt torques.
  - a. 5/8 inch bolts torque to 150 foot pounds.
  - b. 1/2 inch bolts torque to 110 pounds.
2. Loose bolts must be removed, red 262 Locktite added to the threads, and torqued.

### Stage 2

- **REPLACE THE MAIN BEARING BOLTS.**  
➤ **BOLT SELECTION**

There have been two different bearings used on the Tornado. One bearing uses 5/8 inch bolts for both sides of the bearing attachment. The other bearing uses both 5/8 inch and 1/2 inch bolts. All bolts must be at least grade 8 or better.

1. Replace all bearing bolts with new grade 8 or better bolts and case hardened flat washer. Use red 262 Locktite for installation and torque to the above listed rating.
2. Remove old bolt.
3. Install new bolt with a grade 8 hardened flat washer.
4. Apply red 262 Locktite to the treads.
5. Torque the bolt to the above listed rating.

**CHECK THE RIDE BOLTS ON A MONTHLY BASIS**

**REPORT ANY PROBLEMS OR DISCREPANCIES TO WISDOM INDUSTRIES, LTD.**

(12)