

CRAZY BUSS

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ZAMPERLA INC. 49 Fanny Road Parsippany, New Jersey 07054-6545 USA Phone: 973 334 8133 Fax: 973 334 6880	Bulletin No: 99 CB1
	Release Date: 06/28/99
	Effective Date: 06/28/99
	Supersedes:
	Completion Date: As soon as possible
	Page: 1 of 5

SERVICE BULLETIN

Ride Manufacturer: Zamperla Inc.	Affected Production Dates: from 1990 to 1995
Ride Name: Crazy Bus	Affected Serial Nos.: See attached list of serial numbers
Model Number: Crazy Bus	

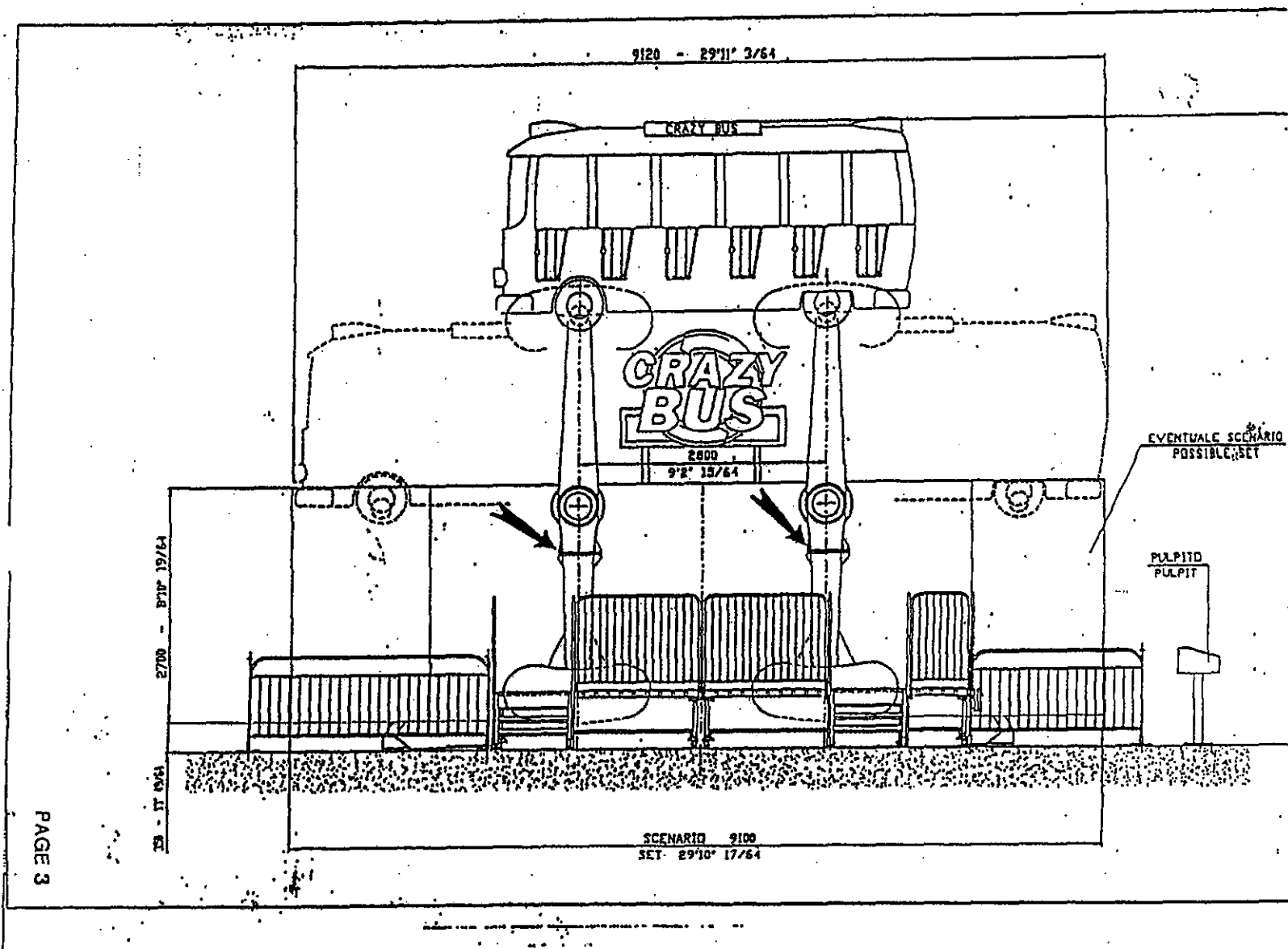
Abstract Of Issue:
 Cracks have been found in the welds of the flange that connects the rotating hub to the counterweight arm on the gondola side. See areas indicated on the accompanying diagram.

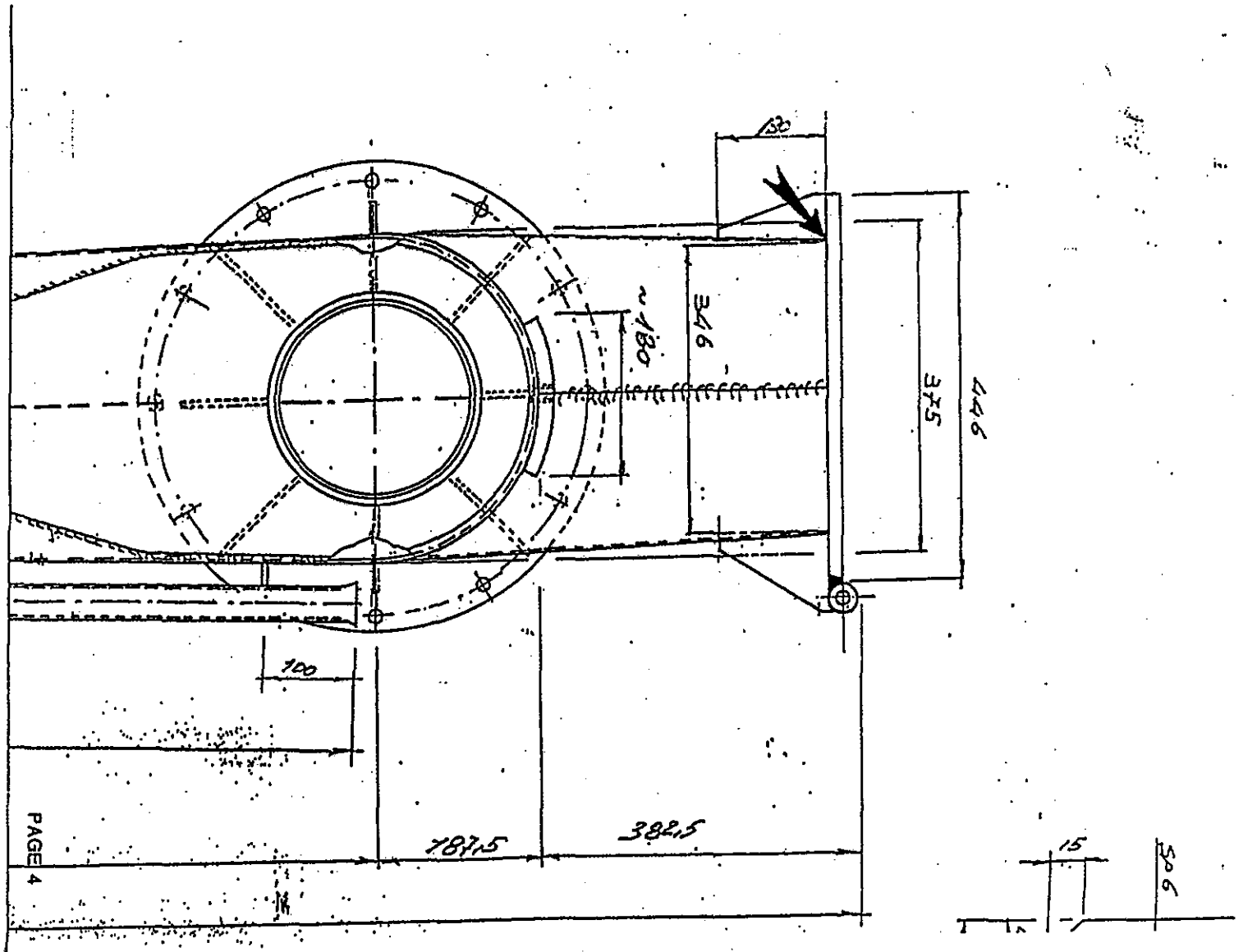
Reason For Release:
 Same.

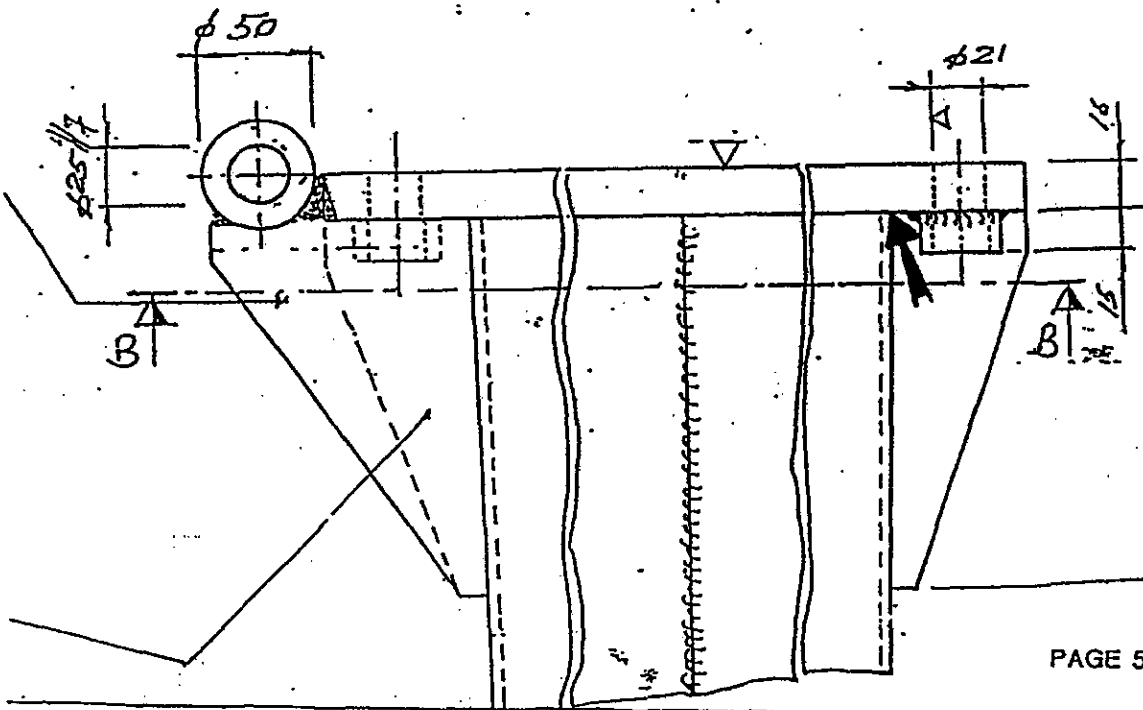
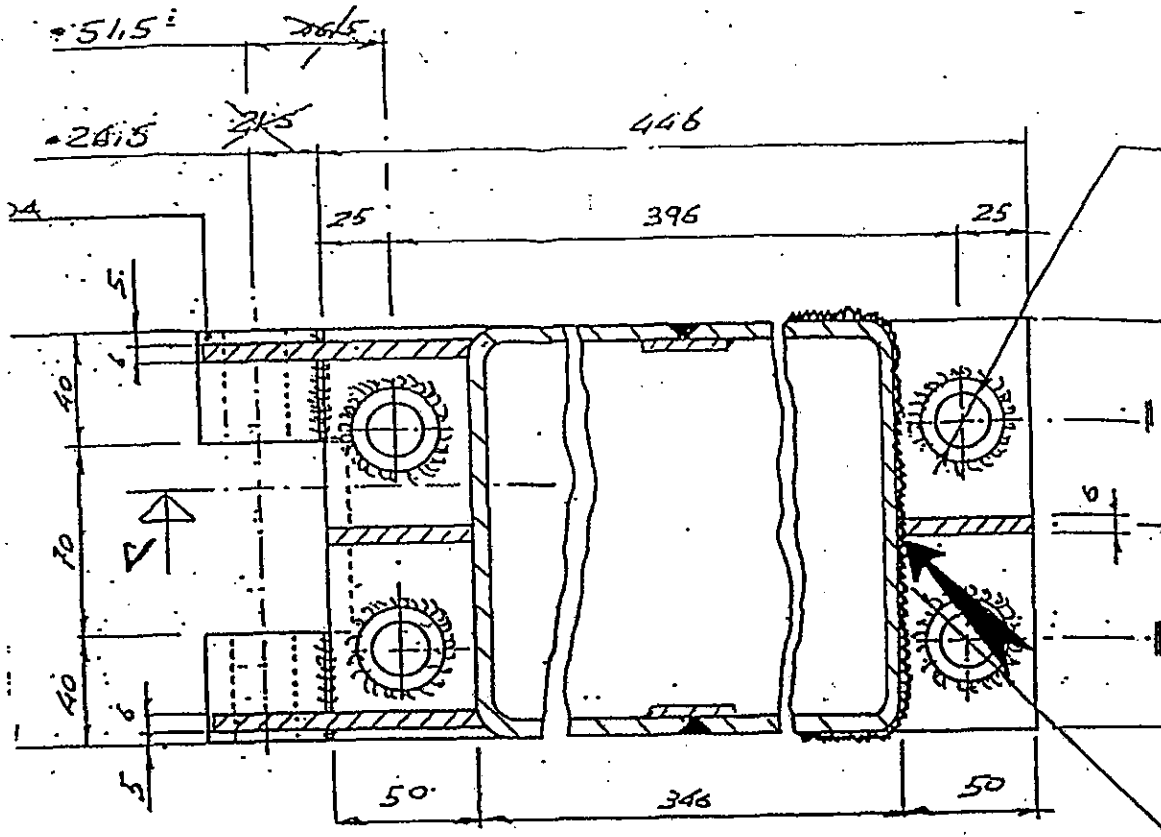
Action To Be Taken:
 Magnetic particle testing by a certified NDT technician.

Detail Of Issue:
 If cracks have been detected in the above mentioned welds and confirmed, please stop the ride and immediately contact Zamperla for notification of repair procedure.

Future Action To Be Taken:
 Magnetic particle testing by a certified NDT technician.







CRAZY BUS SERIAL NUMBERS AFFECTED BY SERVICE BULLETIN 99 CB 1

Serial no. 1990	Serial no. 1991	Serial no. 1992	Serial no. 1993	Serial no. 1994	Serial no. 1995/96
				CB20F050US94	CB20F173US96
2101-9365	CB20B076US91	CB20B060US92	CB20B024US93	CB20F074US94	CB20R052US95
2101-9300	CB20B079US91	CB20B073US92	CB20B025US93	CB20F119US94	
2101-9339	CB20B086US91	CB20B093US92	CB20B027US93	CB20F198US94	
2101-9354	CB20F075US91	CB20B130US92	CB20B060US93	CB20F212US94	
	CB20F079US91	CB20B140US92	CB20B168US93	CB20R026US94	
	CB20R077US91	CB20B142US92	CB20F043US93	CB20R028US94	
	CB20R078US91	CB20B144US92	CB20F141US93	CB20R052US94	
	CB20R081US91	CB20B145US92	CB20R143US93	CB20R053US94	
	CB20R082US91	CB20B157US92	CB20R199US93	CB20R056US94	
	CB20R085US91	CB20B158US92	CB20R200US93	CB20R153US94	
	CB20R088US91	CB20B162US92	CB20R214US93	CB20R155US94	
	CB20R095US91	CB20B166US92		CB20R149US94	
	CB20R096US91	CB20B170US92			
		CB20B171US92			
		CB20F126US92			
		CB20F161US92			
		CB20F163US92			
		CB20F164US92			
		CB20F165US92			

Zamperla INC
49 Fanny Road
Parsippany, NJ
07054
973 334 8133

Bulletin No:2005 CB 01

Release Date: October 21, 2005

Effective Date: October 21, 2005

Supersedes:

Completion Date: Immediately

Page: 1 of 2

SERVICE BULLETIN

Ride Manufacturer: Zamperla SPA

Affected Production Dates: From 1997 to 2003

Ride Name: Crazy Bus, Sub & Fire Chief

Affected Serial Nos.: From 1997 to 2003

Model Number: Same

Abstract Of Issue:

Cracks have been detected on the boom arms.

Reason For Release:

Same.

Action To Be Taken:

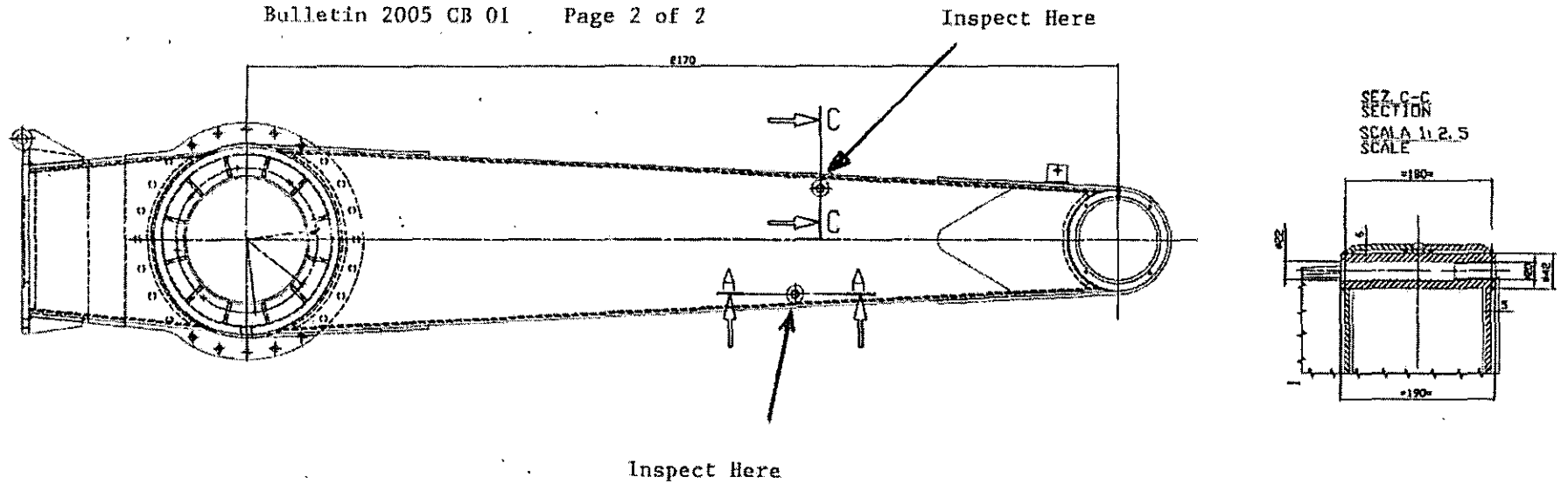
Perform a visual inspection of the area indicated on the attached drawing.
Contact Zamperla if a crack is detected.

Detail Of Issue:

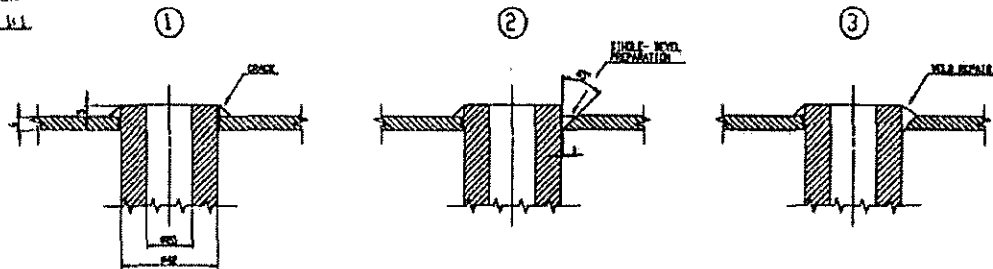
Drawing of boom arm with the area indicated (page 2 of 2).

Future Action To Be Taken:

None.



SEZIONE A-A
SECTION
SCALE 1:1
SCALE



DO NOT REMOVE THIS LABEL
REMOVE THIS LABEL AFTER REPAIR

DO NOT REMOVE THIS LABEL
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ASZOMPIERLA
SPECIALISTE DES TRAVAS D'ENTRETIEN ET DE REPARATION
DES EQUIPEMENTS EN TITANE
ET ALUMINIUM
11720 2004
CRAZY BUS/SUBMARINE
MONTREAZIONE
ASST REPAIR FOR 9262164006A



Bulletin No: 08 CB01
Release Date: 30 June 2008
Effective Date: 30 June 2008
Supersedes:
Completion Date: Immediately
Page: 1 of 7

SERVICE BULLETIN

Ride Manufacturer: Zamperla SPA	Affected Production Dates: 1996 and later
Ride Name: Crazy Bus Family	Affected Serial Nos.: Models only with EC 2046 Brevini
Model Number: See Affected Serial Nos.	gearboxes with a vertically mounted motor, non-belt driven.

Abstract Of Issue:

Based on field experience, additional maintenance is required.

Reason For Release:

Based on field experience, additional maintenance is required.

Action To Be Taken:

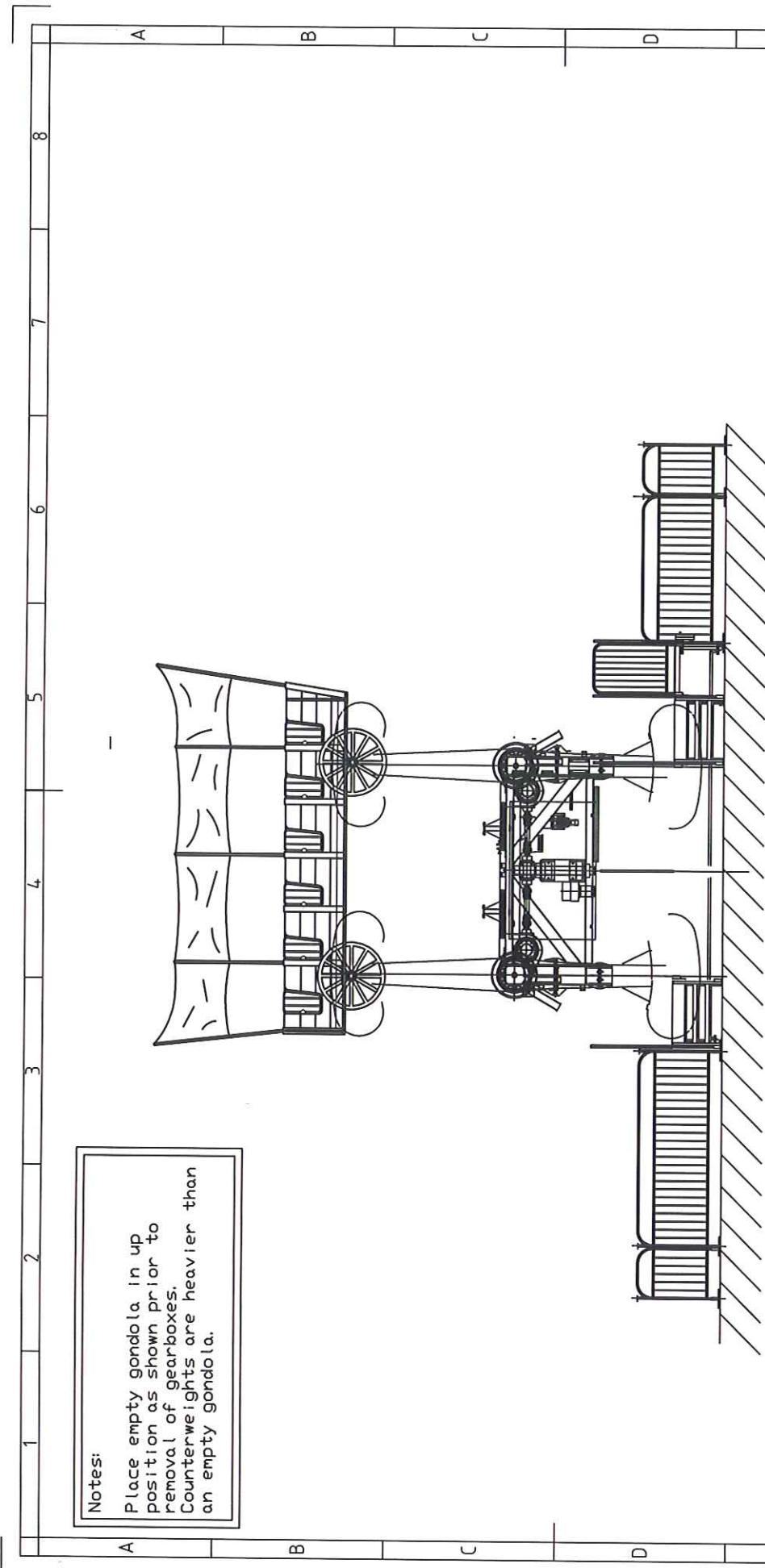
- 1) Position vehicle in upper position as per attached drawing 08 CB01.
- 2) Remove both rear gearboxes as indicated per attached drawing 9369087000B.
- 3) Install new bolts (M10x60 UNI 5737 grade 8.8), one at a time to avoid full disassembly of gearbox, per attached drawing V004600. Verify the 4 guide pins are not damaged and replace if necessary.
- 4) Install safety washer (DIN 93, UNI 6600 or similar) to each bolt as shown in attached picture. If a washer interferes with the gearbox housing, it is acceptable to snip the edge of the washer to fit.
- 5) Torque the M10x60 UNI 5737 grade 8.8 bolts to 50 Nm (37 ft-lbs) with Loctite 243 or higher in a star pattern. Use of a crowfoot wrench will be required due to the limited clearance.
- 6) Bend safety washers as per picture.
- 7) Apply a torque seal to all bolt connections.

Detail Of Issue:


See attachments.

Future Action To Be Taken:

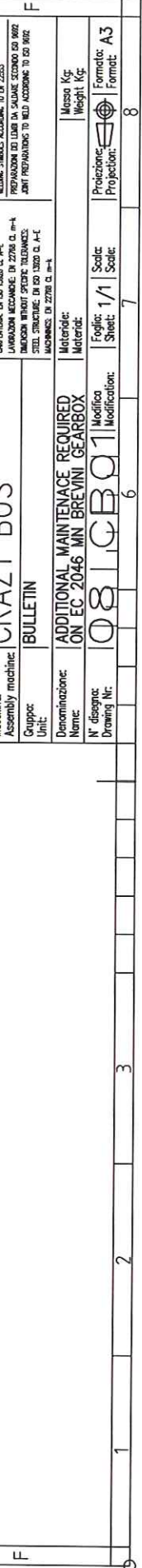
Weekly, visually inspect the bolts.

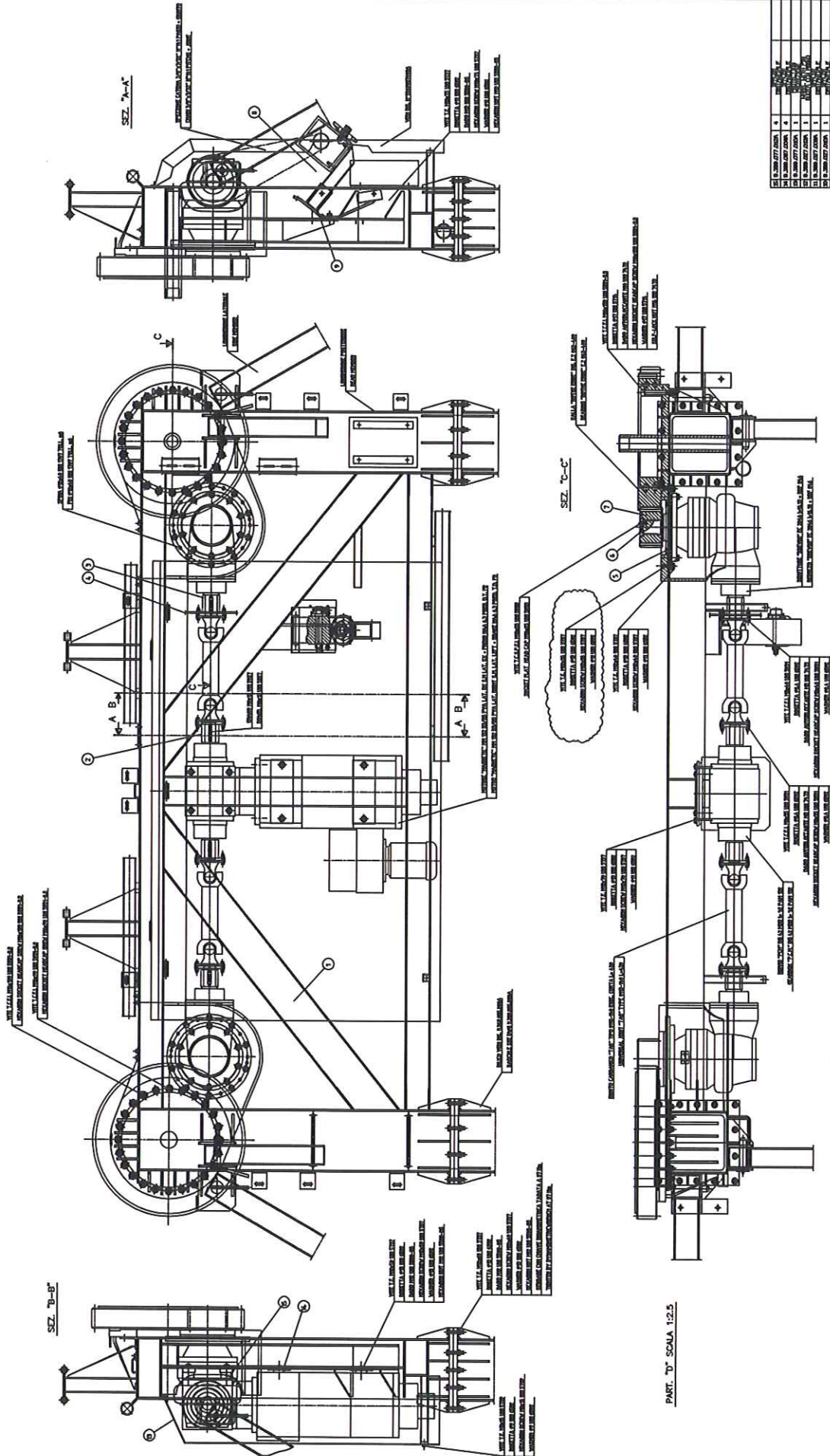


Notes:
 Place empty gondola in up position as shown prior to removal of gearboxes.
 Counterweights are heavier than an empty gondola.

 <p>ZAMPERLA Via Mala Orpica, 16-17 - 38077 ALMELLA (Trento) - ITALIA TEL. +39.0461.88400 - FAX +39.0461.87070 E-MAIL: zamperla@zamperla.it - http://www.zamperla.com</p>		<p>Meccanica: CRAZY BUS Gruppo: BULLETTIN Unit:</p>		<p>Disegnato / Drawn: Disegnato / Checked: Disegnato / Approved:</p>											
<p>Denominazione: ADDITIONAL MAINTENANCE REQUIRED ON EC 2046 MN BREVINI GEARBOX N° disegno: 0816CB01 Drawing Nr: 0816CB01</p>		<p>Materiali: SCELTI SECONDO TOLLERANZE SPECIFICHE CARATTERI: DA ISO 13020 CL. A-E LAVORAZIONI MECCANICHE: DA 22706 CL. m-H IMBROZZIONI SENZA SPECIFIC TOLLERANZE STATI STRUTTURALI: DA ISO 13020 CL. A-E MECCANICHE: DA 22706 CL. m-H</p>		<p>Approvato / Approved: SCELTI SECONDO TOLLERANZE SPECIFICHE CARATTERI: DA ISO 13020 CL. A-E PREPARAZIONI DEI LUBRIFI CAI SECONDO ISO 9902 PREPARAZIONI DEI LUBRIFI CAI SECONDO ISO 9902 PREPARAZIONI DEI LUBRIFI CAI SECONDO ISO 9902</p>											
<p>Masso Kg: Weight Kg:</p>		<p>Proiezione: Projection: Formator: A3</p>		<p>Foglio: 1/1 Scale: Sheet: 1/1</p>											
1		2		3		4		5		6		7		8	

A TUTTINI DI LEGGE LA ZAMPERLA S.P.A. CONSIDERA QUESTO DOCUMENTO COME SEGRETO E SENSIBILE CON DIVIETO PER CHIUNQUE DI RIPRODUCELLO E/O DI RENDERSILO COMUNIQUE NOTO, IN TUTTO O IN PARTE. A TUTTINI DI LEGGE LA ZAMPERLA S.P.A. CONSIDERA QUESTO DOCUMENTO COME SEGRETO E SENSIBILE CON DIVIETO PER CHIUNQUE DI RIPRODUCELLO E/O DI RENDERSILO COMUNIQUE NOTO, IN TUTTO O IN PARTE. A TUTTINI DI LEGGE LA ZAMPERLA S.P.A. CONSIDERA QUESTO DOCUMENTO COME SEGRETO E SENSIBILE CON DIVIETO PER CHIUNQUE DI RIPRODUCELLO E/O DI RENDERSILO COMUNIQUE NOTO, IN TUTTO O IN PARTE. A TUTTINI DI LEGGE LA ZAMPERLA S.P.A. CONSIDERA QUESTO DOCUMENTO COME SEGRETO E SENSIBILE CON DIVIETO PER CHIUNQUE DI RIPRODUCELLO E/O DI RENDERSILO COMUNIQUE NOTO, IN TUTTO O IN PARTE. A TUTTINI DI LEGGE LA ZAMPERLA S.P.A. CONSIDERA QUESTO DOCUMENTO COME SEGRETO E SENSIBILE CON DIVIETO PER CHIUNQUE DI RIPRODUCELLO E/O DI RENDERSILO COMUNIQUE NOTO, IN TUTTO O IN PARTE.

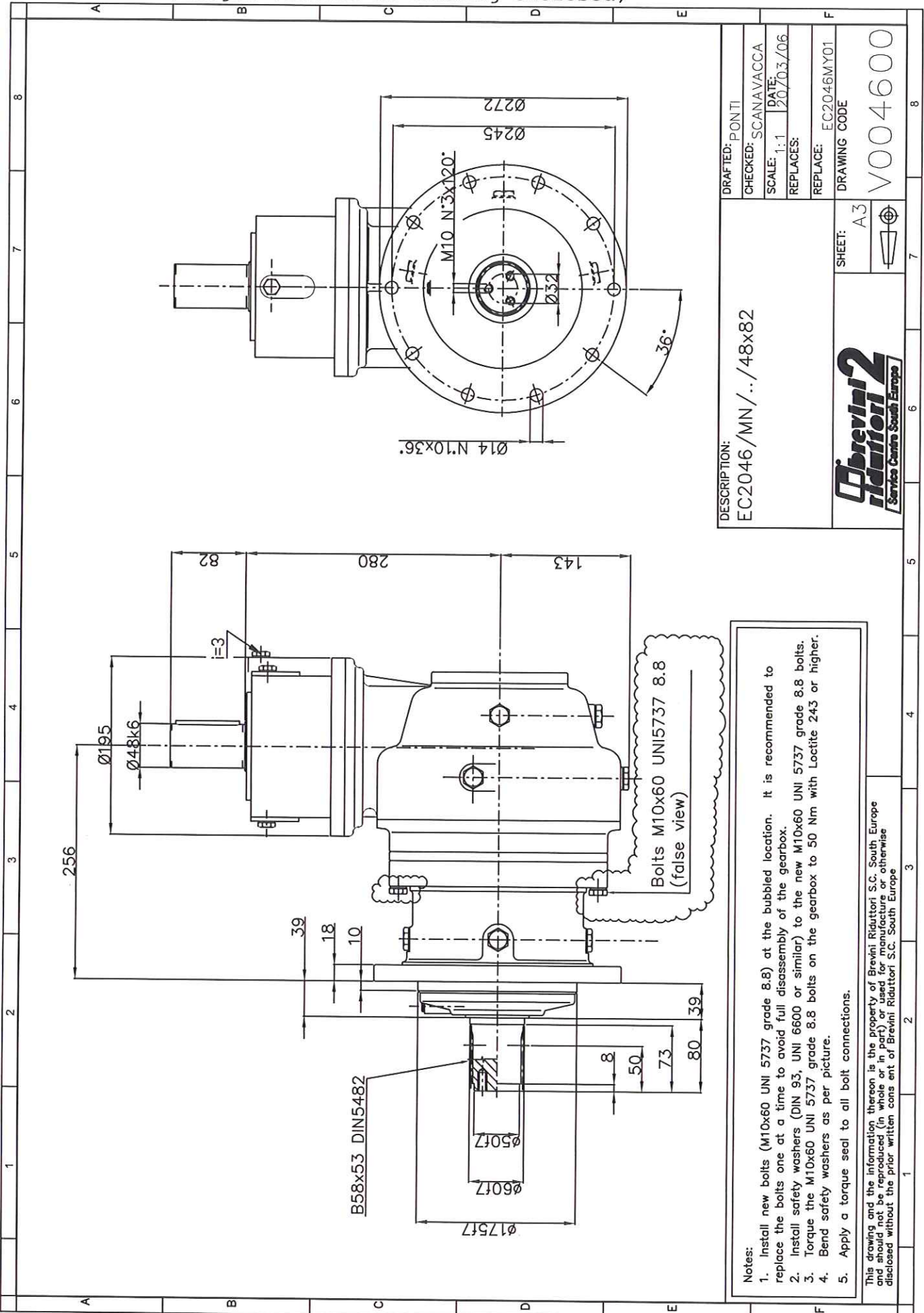




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Notes:

1. Position gondola in the up position.
2. Disconnect gearboxes from the universal joints.
3. Remove both gearboxes by removing M12x35 bolts. Location of bolts indicated with bubble.
4. Install new bolts (M10x60 UNI 5737 grade 8.8) one at a time to avoid full disassembly of the EX 2046 MN Brevini gearboxes. See separate drawing for location.
5. Torque the new bolts to 30 Nm.
6. Torque the M10x60 UNI 5737 bolts on the gearbox to 50 Nm with Loctite 243 or higher.
7. Bend safety washers as per picture.
8. Apply a torque seal to all bolt connections.



DESCRIPTION:
EC2046/MN/./48x82

DRAFTED: PONTI
CHECKED: SCANAVACCA
SCALE: 1:1 DATE: 20/03/06
REPLACES:
REPLACE: EC2046MY01
DRAWING CODE



SHEET: A3

V004600

- Notes:
1. Install new bolts (M10x60 UNI 5737 grade 8.8) at the bubbled location. It is recommended to replace the bolts one at a time to avoid full disassembly of the gearbox.
 2. Install safety washers (DIN 93, UNI 6600 or similar) to the new M10x60 UNI 5737 grade 8.8 bolts.
 3. Torque the M10x60 UNI 5737 grade 8.8 bolts on the gearbox to 50 Nm with Loctite 243 or higher.
 4. Bend safety washers as per picture.
 5. Apply a torque seal to all bolt connections.

This drawing and the information thereon is the property of Brevini Riduttori S.C. South Europe and should not be reproduced (in whole or in part) or used for manufacture or otherwise disclosed without the prior written consent of Brevini Riduttori S.C. South Europe



Secure all these screws
nr.8 M10x60 UNI5737 8.8
by means of safety washers
UNI 6600 as indicated
Torque 50Nm

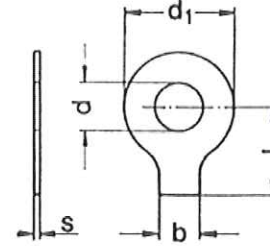
Section 2 Non-Threaded Fasteners, Etc.



TAB WASHERS # 93

Ref: DIN 93 - One Tab

Three materials: Plain Steel, A2 (304) Stainless or A4 (316) Stainless



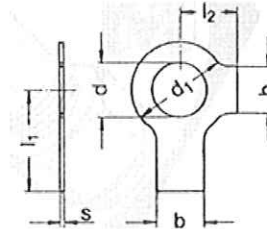
SCREW DIA. mm	# 93 Steel	# 93 A2 Stainless	# 93 A4 Stainless	I.D. mm d	O.D. mm d1	b	l	s
3	x	-	-	3.2	12	4	13	0.38
4	x	x	-	4.3	14	5	14	0.38
5	x	x	x	5.3	17	6	16	0.5
6	x	x	x	6.4	19	7	18	0.5
8	x	x	x	8.4	22	8	20	0.75
10	x	x	x	10.5	26	10	22	0.75
12	x	x	x	13	30	12	28	1
14	x	x	x	15	33	12	28	1
16	x	x	x	17	36	15	32	1
18	x	x	x	19	40	18	36	1
20	x	x	x	21	42	18	36	1
22	x	x	x	23	50	20	42	1
24	x	x	x	25	50	20	42	1
27	x	x	x	28	58	23	48	1.6
30	x	x	x	31	63	26	52	1.6
33	x	-	-	34	68	28	56	1.6
36	x	x	-	37	75	30	60	1.6
39	x	-	-	40	82	32	64	1.6
42	x	-	-	43	88	35	70	1.6

"x" denotes stock availability

TWO TAB WASHERS # 463

Ref: DIN 463 - Two Tabs

Two materials: Plain Steel or A4 (316) Stainless



SCREW DIA. mm	# 463 Steel	# 463 A4 Stainless	I.D. mm	O.D. mm	b	l1	l2	S
4	x	-	4.3	9	5	14	6.5	0.38
5	x	x	5.3	10	6	16	8	0.5
6	x	x	6.4	12.5	7	18	9	0.5
8	x	x	8.4	17	8	20	11	0.75
10	x	x	10.5	21	10	22	13	0.75
12	x	x	13	24	12	28	15	1
14	x	x	15	28	12	28	16	1
16	x	x	17	30	15	32	18	1
18	x	x	19	34	18	36	20	1
20	x	x	21	37	18	36	21	1
22	x	x	23	39	20	42	23	1
24	x	x	25	44	20	42	25	1
27	x	x	28	50	23	48	29	1.6
30	x	x	31	56	26	52	32	1.6
33	x	-	34	60	28	56	34	1.6
36	x	-	37	66	30	60	38	1.6
39	x	-	40	72	32	64	41	1.6
42	x	-	43	78	35	70	44	1.6

"x" denotes stock availability

How to Order
 Item #: 93 A2
 Size: 20
 Quantity: 300
 Tel: 1-888-966-MMCC

Vibration Meters & Tachometers

Tamper and Vibration Detection Paint



Apply this paint directly to equipment for easy and economical detection. Squeeze on correctly positioned fittings, studs, nuts, parts, and assemblies. When paint dries it becomes brittle and cracks from any movement caused by tampering or vibration. It's noncorrosive and adheres to most surfaces, including all types of metals. Temperature range is -10° to +450° F.

General-purpose paint is excellent for use on small parts.
Aircraft industry paint resists aircraft hydraulic fluid.
Fast-drying paint is for large jobs such as machinery bolts.

Color	Size	Each
General Purpose		
Black	1/2 oz.	1476T55 \$2.87
Blue	1/2 oz.	1476T115 2.87
Brown	1/2 oz.	1476T33 2.87
Gray	1/2 oz.	1476T44 2.87
Green	1/2 oz.	1476T114 2.87
Orange	1/2 oz.	1476T112 2.87
Purple	1/2 oz.	1476T113 2.87
Red	1/2 oz.	1476T111 2.87
White	1/2 oz.	1476T11 2.87
Yellow	1/2 oz.	1476T22 2.87
Aircraft Industry		
Pink	1/2 oz.	1476T122 4.38
Yellow	1/2 oz.	1476T12 4.38
Fast Drying		
Blue	1 oz.	1476T21 5.68

Digital Vibration Meter

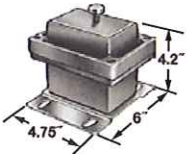


- Acceleration Range: 0.02 to 199.9 g
- Frequency Range: 3 to 1000 Hz
- Velocity Range: 0.02 to 199.9 in./sec.
- Displacement Range: 0.1 to 199.9 mils
- Accuracy: ±2.5% of full scale

In addition to vibration, this meter measures acceleration, velocity, and displacement. Ideal for monitoring the performance of rotating machines such as fans and pumps. Meter has an LCD display that holds the reading for one minute, a polystyrene housing, and comes with a 1 1/2" probe. Size is 6" Lg. x 3" Wd. x 1" Dp. Operating temperature range is 32° to 122° F. Meter operates on a 9-volt battery (included) and comes with a vinyl carrying case and a certificate of calibration traceable to NIST (National Institute of Standards and Technology).

	Each
Meter.....	8721T1 \$637.31
Replacement 9-Volt Battery (1/Pkg.).....	71455K56 Per Pkg. \$2.57

Vibration-Monitoring Switch



Protect your machinery from damage and downtime with this switch. If vibration or shock exceeds a set point, the contacts actuate to either shut down your machine or activate an alarm. Reset switch with the push of a button. The activation point is adjustable between 0-5 gravity units (g's) at 0-60 Hz. Switches are SPDT and rated 15 amps @ 125 or 480 VAC. Conduit connection is 3/4" NPT female.

Switch has four 0.375" dia. mounting slots (mounting hardware not included). Housing is cast aluminum and rated for hazardous locations for Class I, Groups C and D, Div. 1; Class II, Groups E, F, and G, Div. 1. Meets NEMA 4 and IP65 for dirt and water protection. UL and C-UL listed. CE approved.

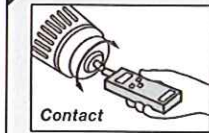
1188T31	Each \$446.67
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About Tachometers

Tachometers measure the speed of rotating parts on machines such as shafts, gears, and belts.

Contact tachometers come in direct contact with an object and are an excellent choice for dirty and dusty environments. *Cone tips* are for shafts with a center hole. *Concave tips* are for shafts, pulleys, saws, and other items with a flat end surface.

Noncontact tachometers have a beam of light or laser that reflects off a piece of reflective tape attached to the rotating point.



Analog Contact Tachometer



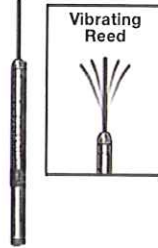
- Range: 0 to 4000 rpm
- Accuracy: ±3% of full scale

Housed in steel for durability, this reversible tachometer can measure in both directions (clockwise and counterclockwise). It has a 2 3/4" dia. dial face with a glass cover and includes one cone and one concave tip.

Optional 12" extension shaft enables access to hard-to-reach areas.

O'all Size, Dia. x Lg.	Each
Tachometer.....3" x 4".....	1416T1 \$74.69
Optional 12" Extension Shaft.....	1416T2 24.00
Per Set	
Replacement Tips (One Cone, One Concave).....	1416T3 \$5.33

Pocket-Size Vibration Meters



Quickly detect and measure machine vibration with these pen-size tools. A flexible steel wire reed detects vibration while the scale on the side of the meter indicates the machine vibration in cycles per minute (cpm). A simple calculation determines motor speed in rpm for engines with multiple cycles. Housing is made of aluminum and is 6 1/2" long. Come with a vinyl carrying case.

Combination set contains one of each meter in a vinyl carrying case.

Vibration Range	Accuracy of Reading	Each
200-2,000 cpm	±5-10%	1353T15 \$49.94
2,000-21,000 cpm.....	±10-15%	1353T11 36.19
Combination Set	1353T13 Per Set	\$82.44

Data-Logging Vibration Meter and Stethoscope



- Acceleration Range: 0.01 to 199.9 g
- Frequency Range: 10 to 10,000 Hz
- Velocity Range: 0.01 to 199.9 in./sec.

Listen to, monitor, and record machine performance. In addition to vibration, this meter measures acceleration and velocity. It also has an easy-to-read chart that lets you determine the severity of the vibration based on the size of your machine.

Meter has an LCD display, padded headphones, and a 4 1/2" long sensor probe for locating problem areas. The magnetic base allows you to mount the probe on a machine for constant readings. Recorded data can be entered into the monitoring software (included) so you can predict when machine maintenance is required. Software is compatible with Windows 95/98, XP, and NT 4.0; minimum system requirements are 166 MHz, 32 MB of RAM, and 100 MB of hard-drive space. Size is 6" Lg. x 3" Wd. x 1" Dp. Operating temperature is -14° to +122° F. Operates on two AA batteries (included) and comes with a nylon carrying case.

	Each
Meter.....	8738T1 \$1230.36
Replacement AA Batteries (4/Pkg.).....	71455K53 Per Pkg. \$3.10