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Bulletin No: 2015-RCTC01
Release Date: January 15, 2015
Effective Date: January 15, 2015
Supersedes:
Completion Date: As parts are replaced

Page: 1 of 11

SERVICE BULLETIN

Ride Manufacturer: A. Zamperla SpA	Affected Production Dates: 2004 and after
Ride Name: Twister Coaster Family	Affected Serial Nos.: All
Model Number: 420M, 310M, JUNIOR	

Abstract Of Issue:

Design improvement to the T-bar restraint system. Replacement kits are interchangeable with existing lapbar housings. Combination part of T-bar and ratchet is now out of production.

Reason For Release:

Improvement to design (material and heat treatment) and simpler maintenance. Design delivered up to release of this bulletin is now out of production.

Action To Be Taken:

Replace existing lapbar assemblies with parts shown in drawings when ordering spare parts:

9476131995A LAP BAR ASSEMBLY RIGHT SIDE
9476131996A LAP BAR ASSEMBLY CENTRAL RIGHT
9476131997A LAP BAR ASSEMBLY LEFT SIDE
9476131998A LAP BAR ASSEMBLY CENTRAL LEFT

Detail Of Issue:

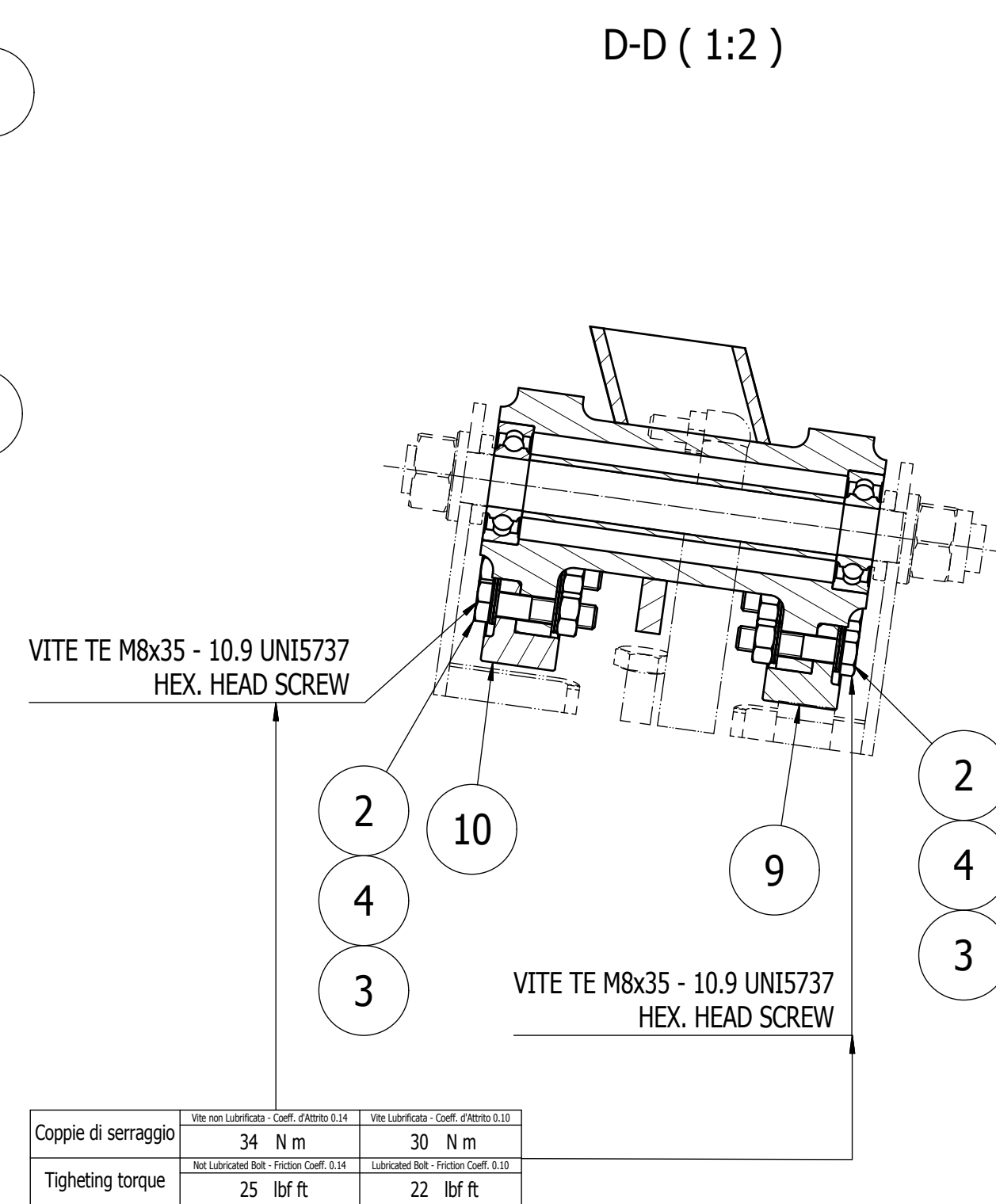
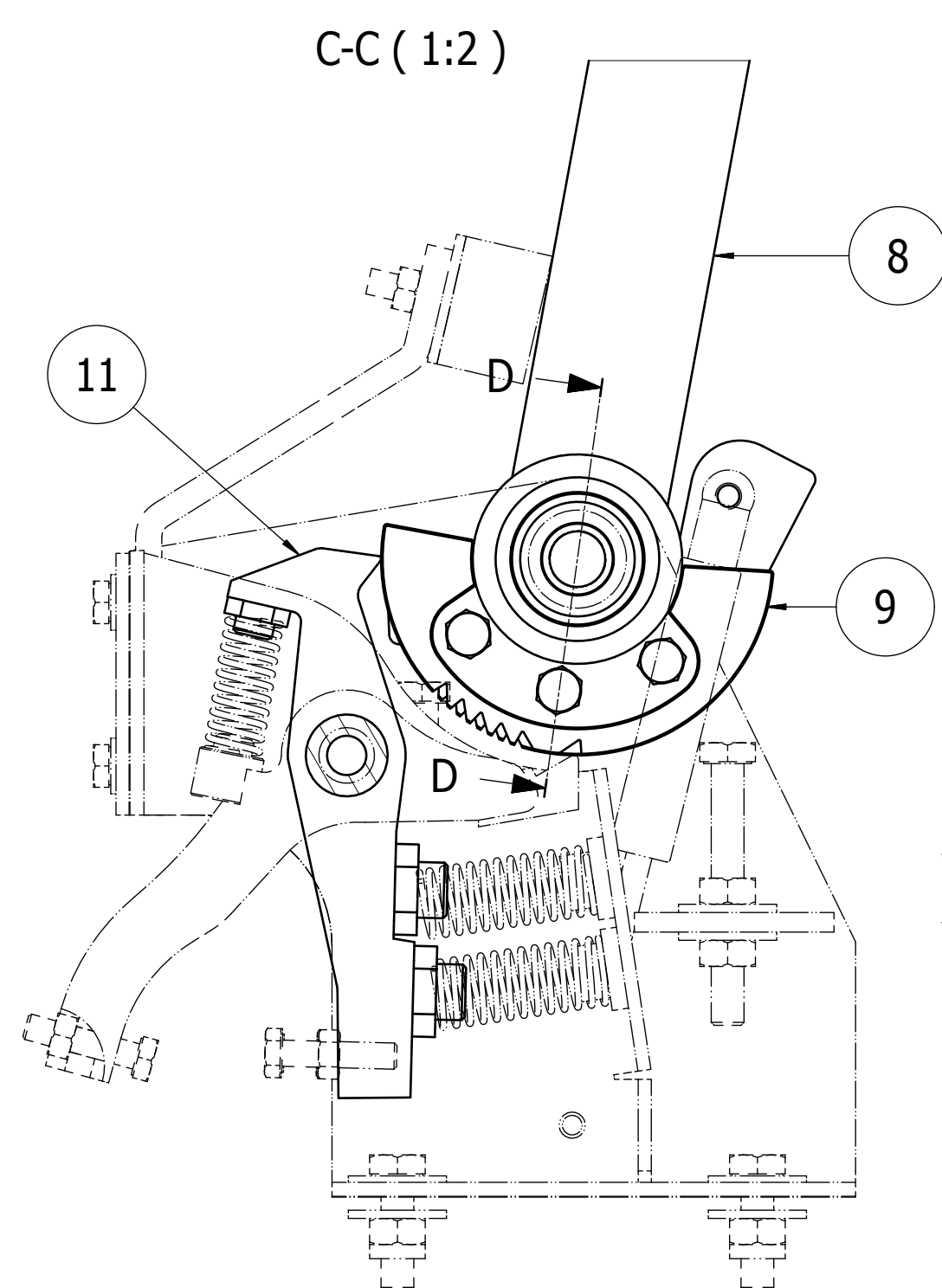
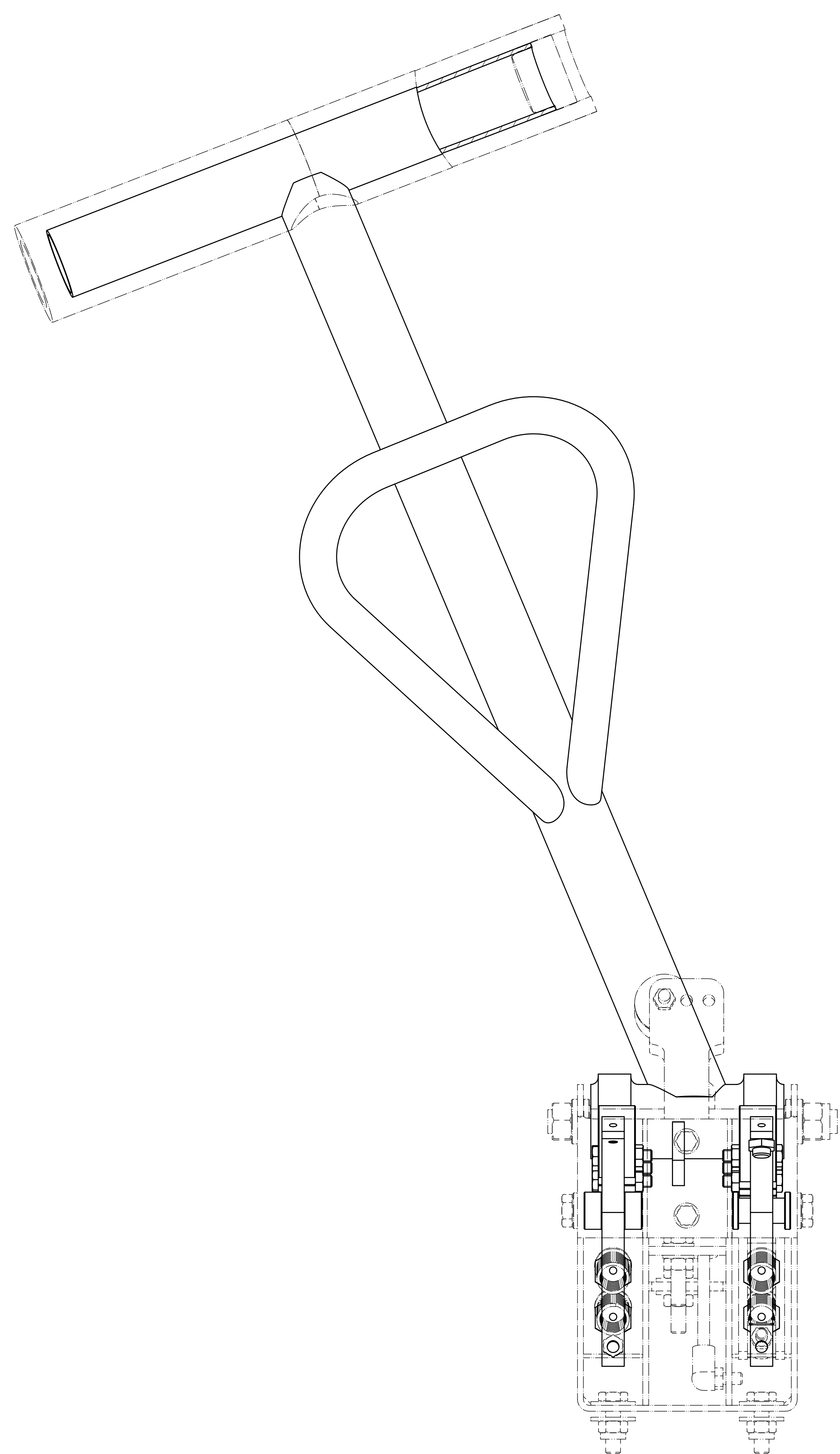
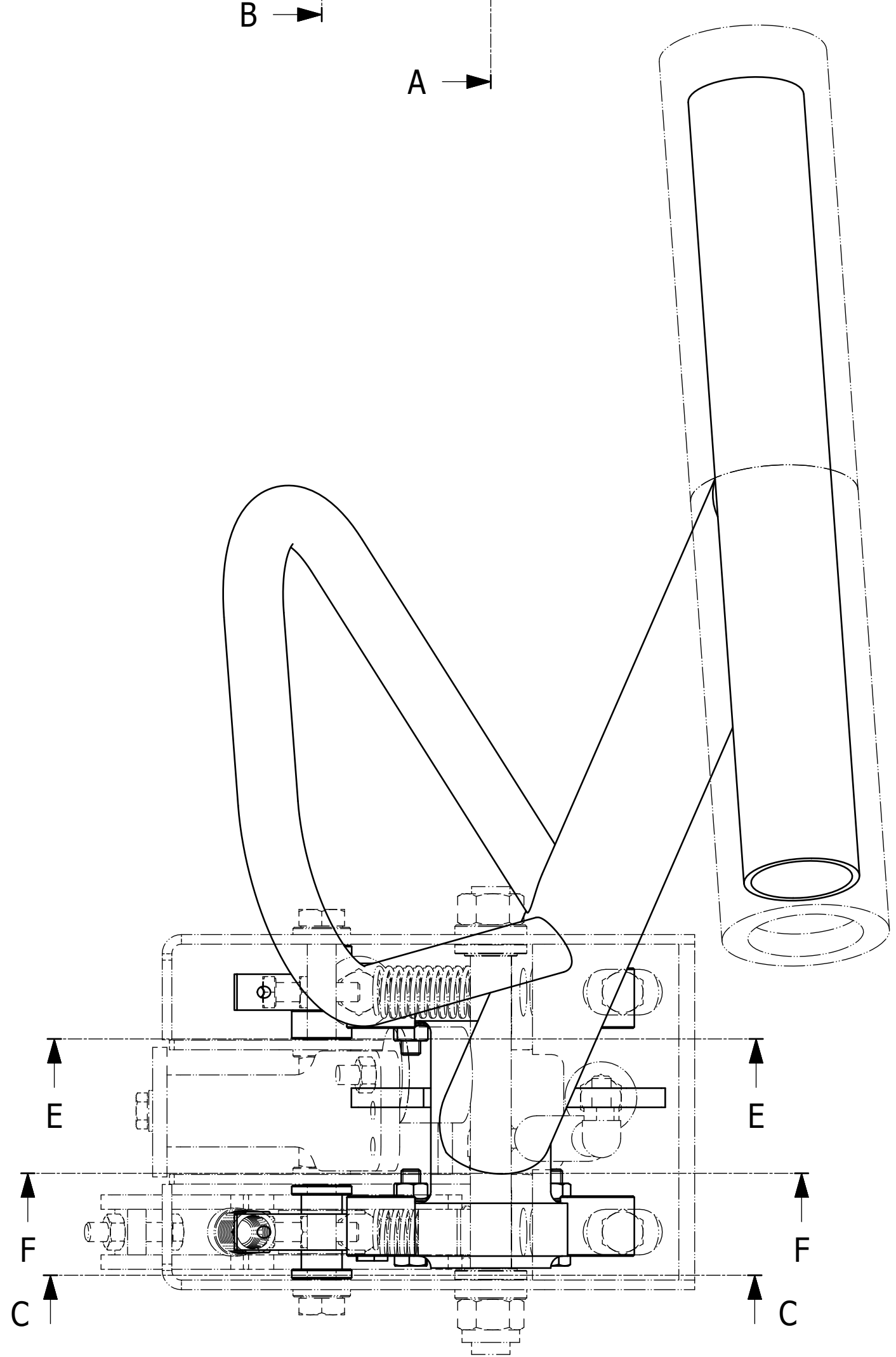
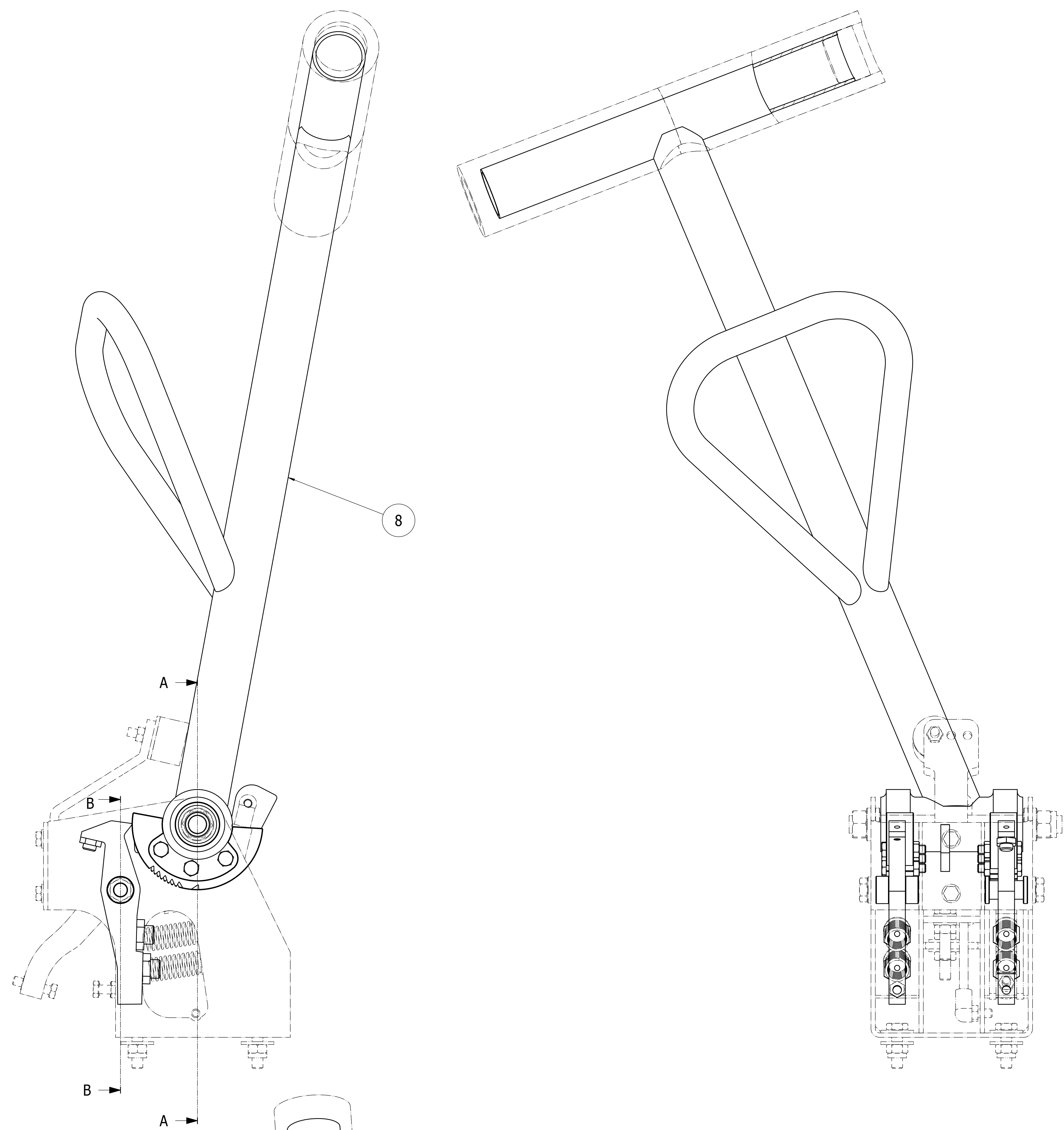
See drawings:

9476131995A LAP BAR ASSEMBLY RIGHT SIDE
9476131996A LAP BAR ASSEMBLY CENTRAL RIGHT
9476131997A LAP BAR ASSEMBLY LEFT SIDE
9476131998A LAP BAR ASSEMBLY CENTRAL LEFT

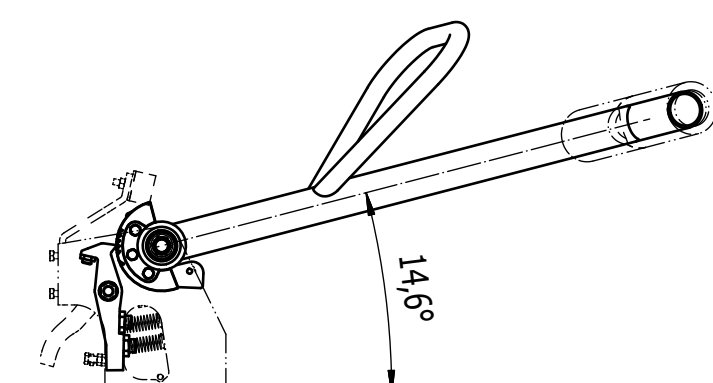
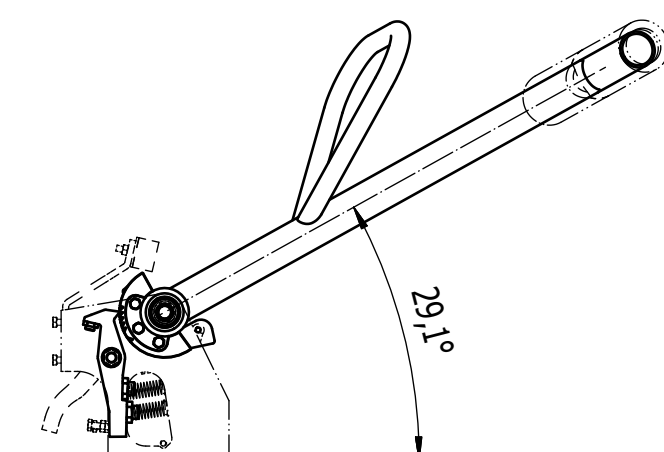
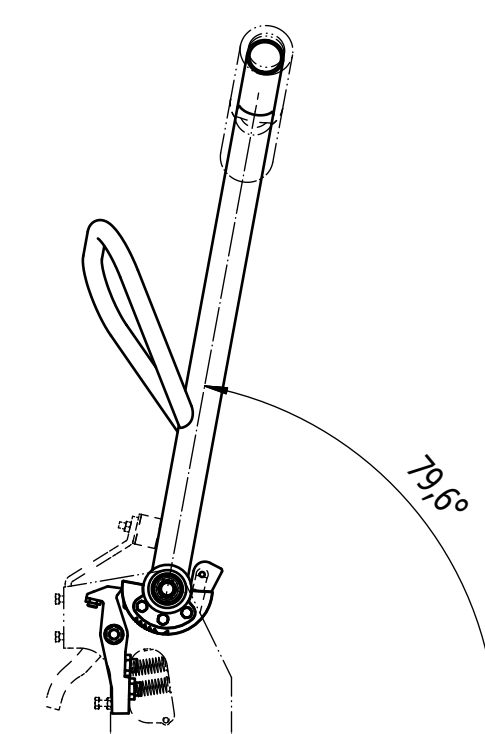
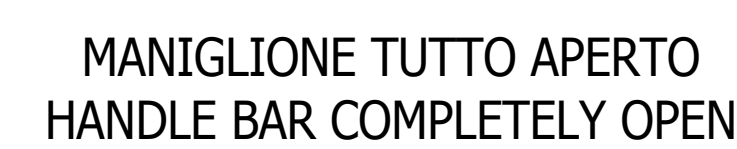
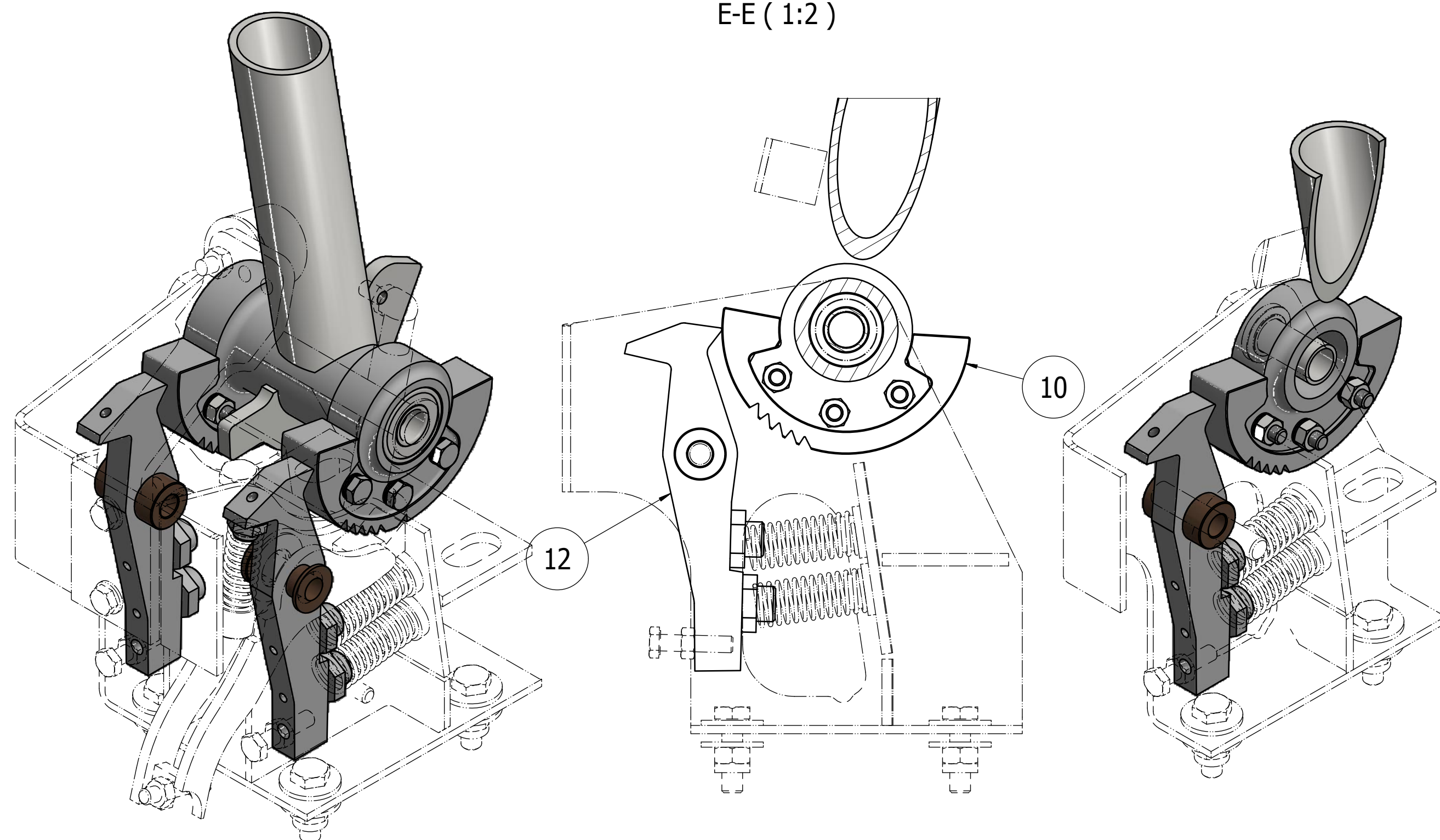
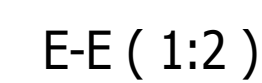
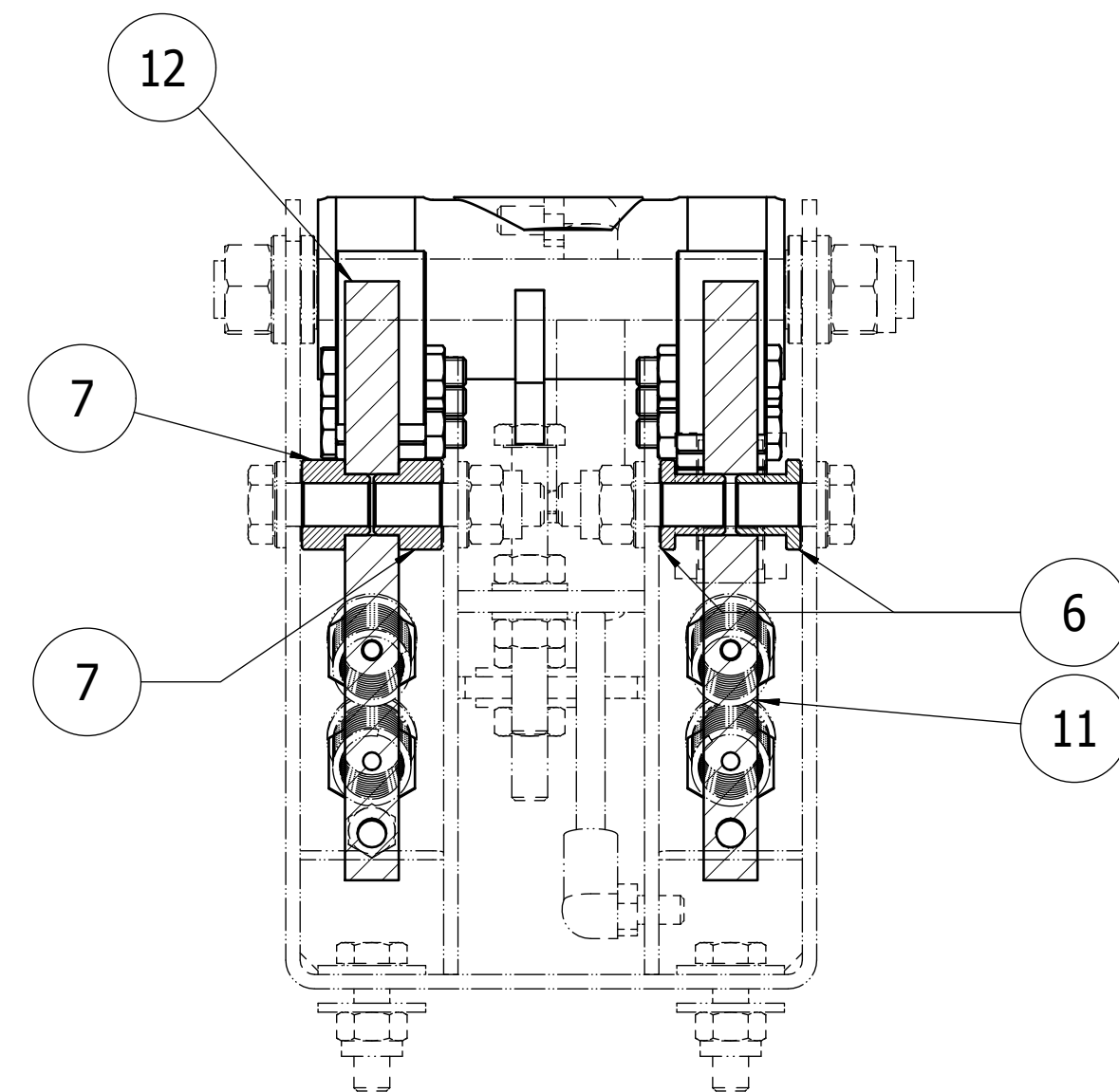
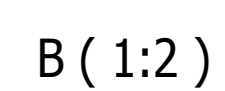
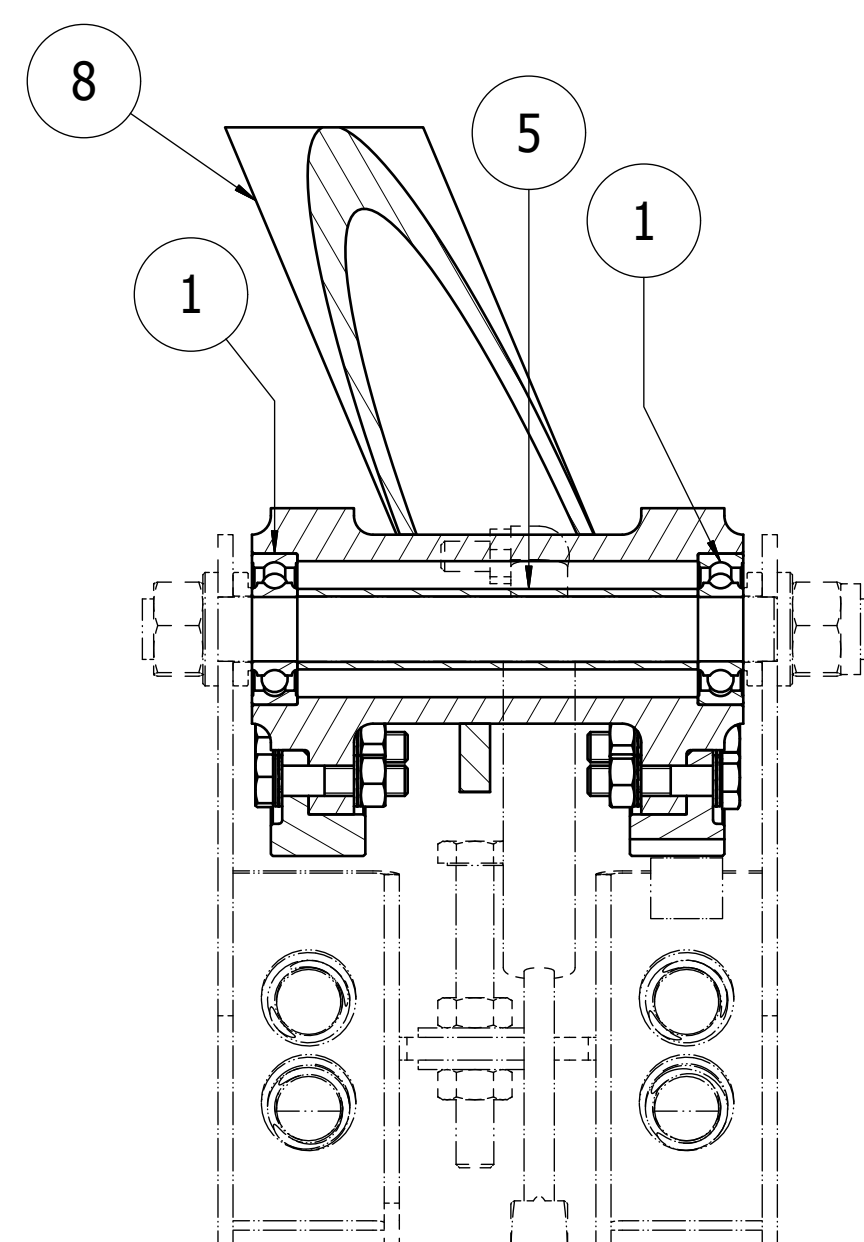
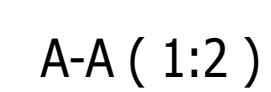
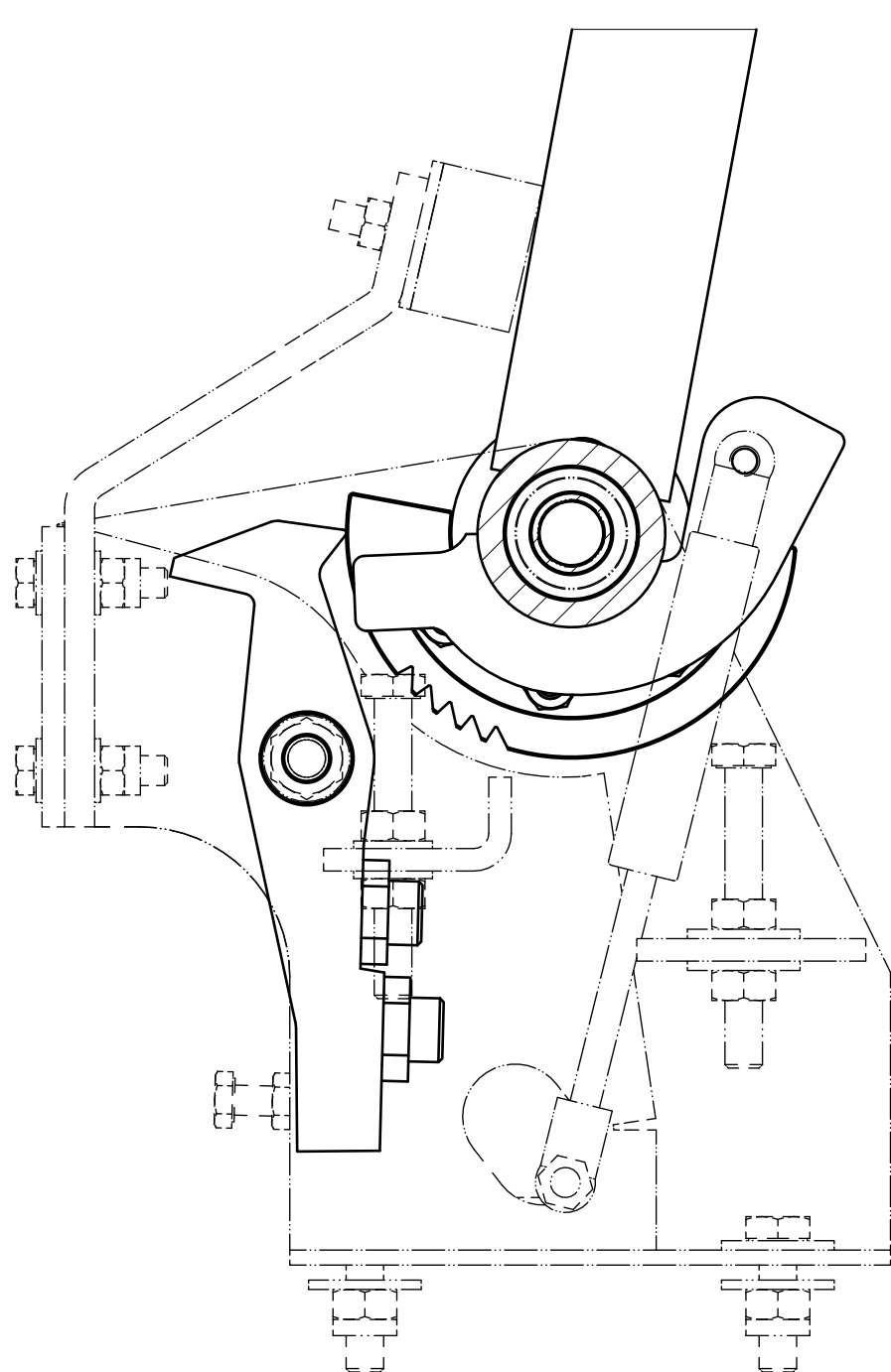
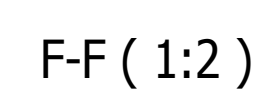
Future Action To Be Taken:

1. Destroy old lapbar drawings.
2. Update maintenance documents to include drawings 9476131995A, 9476131996A, 9476131997A and 9476131998A.
3. Purchase all future replacement spare parts using the drawings called out in this bulletin.
Ratchets of the same lapbar must always be replaced in pairs (i.e. it is not acceptable to replace only the right or left part of a single lapbar)
Pawls acting on the same lapbar ratchets must always be replaced in pairs (i.e. it is not acceptable to replace only the right or left pawl of a single lapbar)
4. Insert Preventive Maintenance (PM) requirements attached with this bulletin into ride's existing PM Program.

Note: General shop terminology for the individual T-bar restraint in this bulletin may also be referred to as a lapbar.



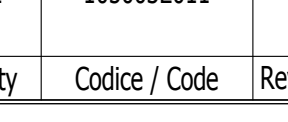
Coppie di serraggio	Vite non lubrificate - Coeff. d'attrito 0,14 34 N m	Vite lubrificate - Coeff. d'attrito 0,10 30 N m
Tightening torque	Nut Lubricated Bolt - Friction Coeff. 0,14 25 lbf ft	Lubricated Bolt - Friction Coeff. 0,10 22 lbf ft



NOTA PER TUTTE LE PARTI FILETTATE NOTE FOR ALL THREADS
APPLICARE FRENA-FILETTI TIPO MEDIO "LOCTITE 243" USE THREADLOCKING MEDIUM TYPE "LOCTITE 243"

12	1	947613041	A	ASSIEME DENTE DI BLOCCO DX	RIGHT PAWL ASSEMBLY	0,6
11	1	947613041	A	ASSIEME DENTE DI BLOCCO SX	LEFT PAWL ASSEMBLY	0,6
10	1	947613036	A	SETTORE DENTATO DX	RIGHT RATCHET	0,6
9	1	947613036	A	SETTORE DENTATO SX	LEFT RATCHET	0,6
8	1	947613031	A	MANGIONE LATERALE DX	LAP RIGHT SIDE SHAF	6,9
7	2	947608306	A	BRONZINA SGANCIO	UNLOADING BUSHING	0
6	2	947608305	A	BRONZINA SGANCIO	UNLOADING BUSHING	0
5	1	1476027152	I	DISTANZIALE	SPACER	0,1
4	12	10707935	P	RONDELLA MORO-LOCK N.8	MORO-LOCK WASHER	0
3	6	10707507	V	DADO ES. M8 - 10 UNH5888	HEX. NUT	0
2	6	10707502	V	VITE E MBAS - 20 UN15373	HEAD SCREW	0
1	2	105003011	C	CLUSC. RADIALE A SFERE GUN3 25SI - DN625	BALL BEARING	0,1

Posi Qty Codice Code Rev.



Machine:
Assembly machine:

Gruppo:
Unit:

Denominazione:
Name:

N° disegno:
drawing No:

Descrizione

Date:
Date
Signature:

A. Cecchin

Disegnato / Drawn

Description

Mass Kg

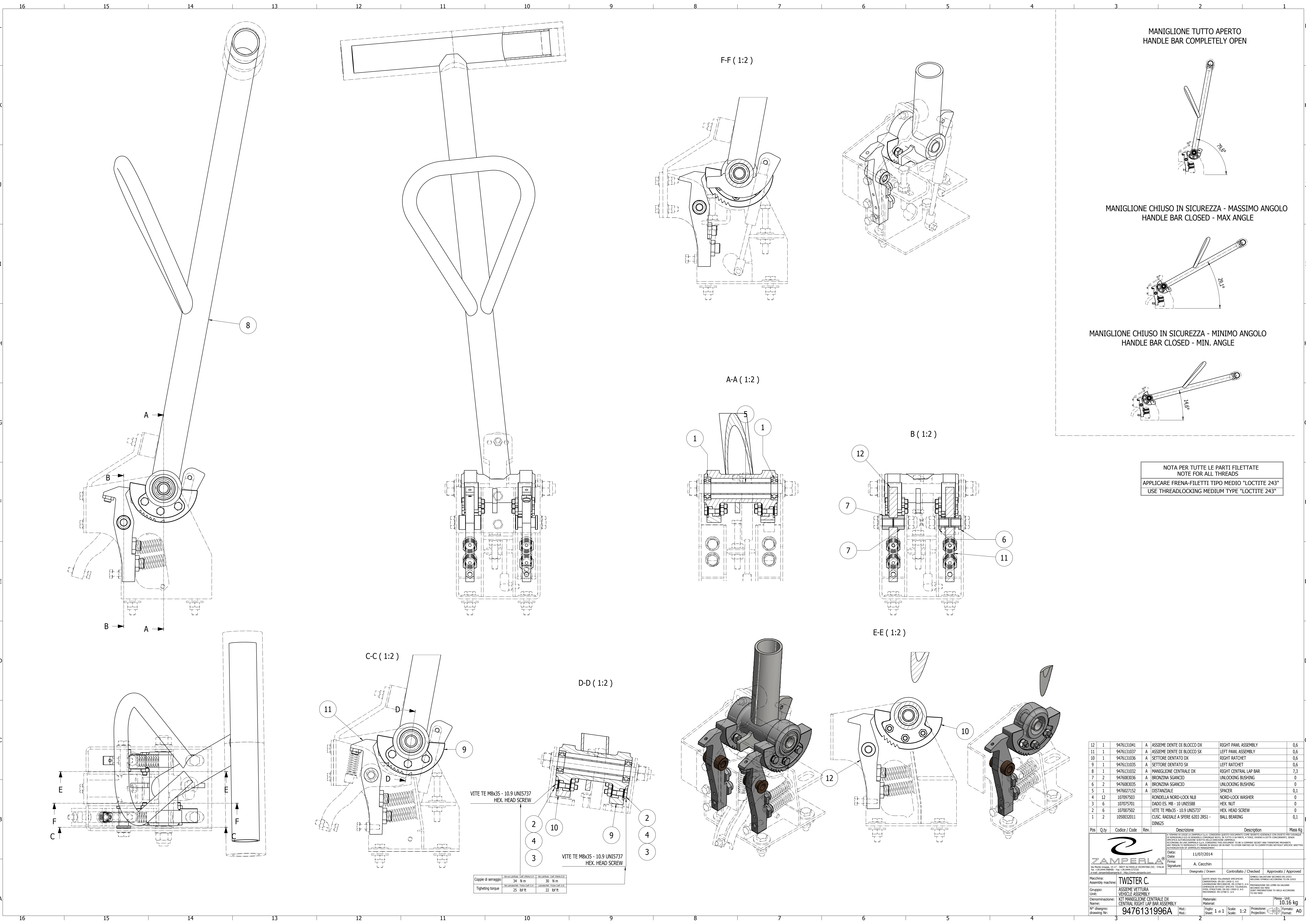
Contribuito / Checked

Approvato / Approved

Scale: 1 : 1

Protezione: 1:2

Formato: A0



MANIGLIONE TUTTO APERTO
HANDLE BAR COMPLETELY OPEN

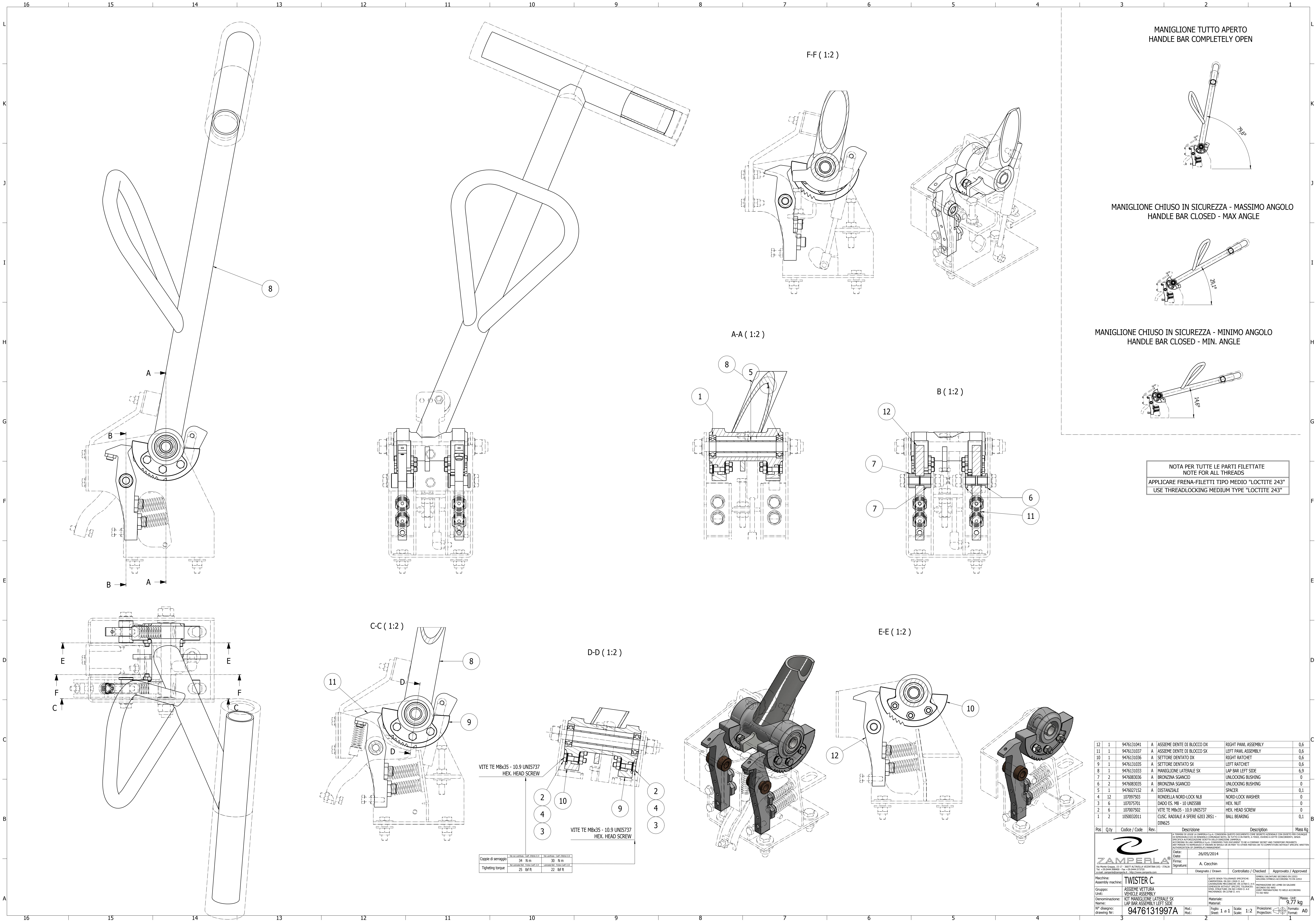
MANIGLIONE CHIUSO IN SICUREZZA - MASSIMO ANGOLO
HANDLE BAR CLOSED - MAX ANGLE

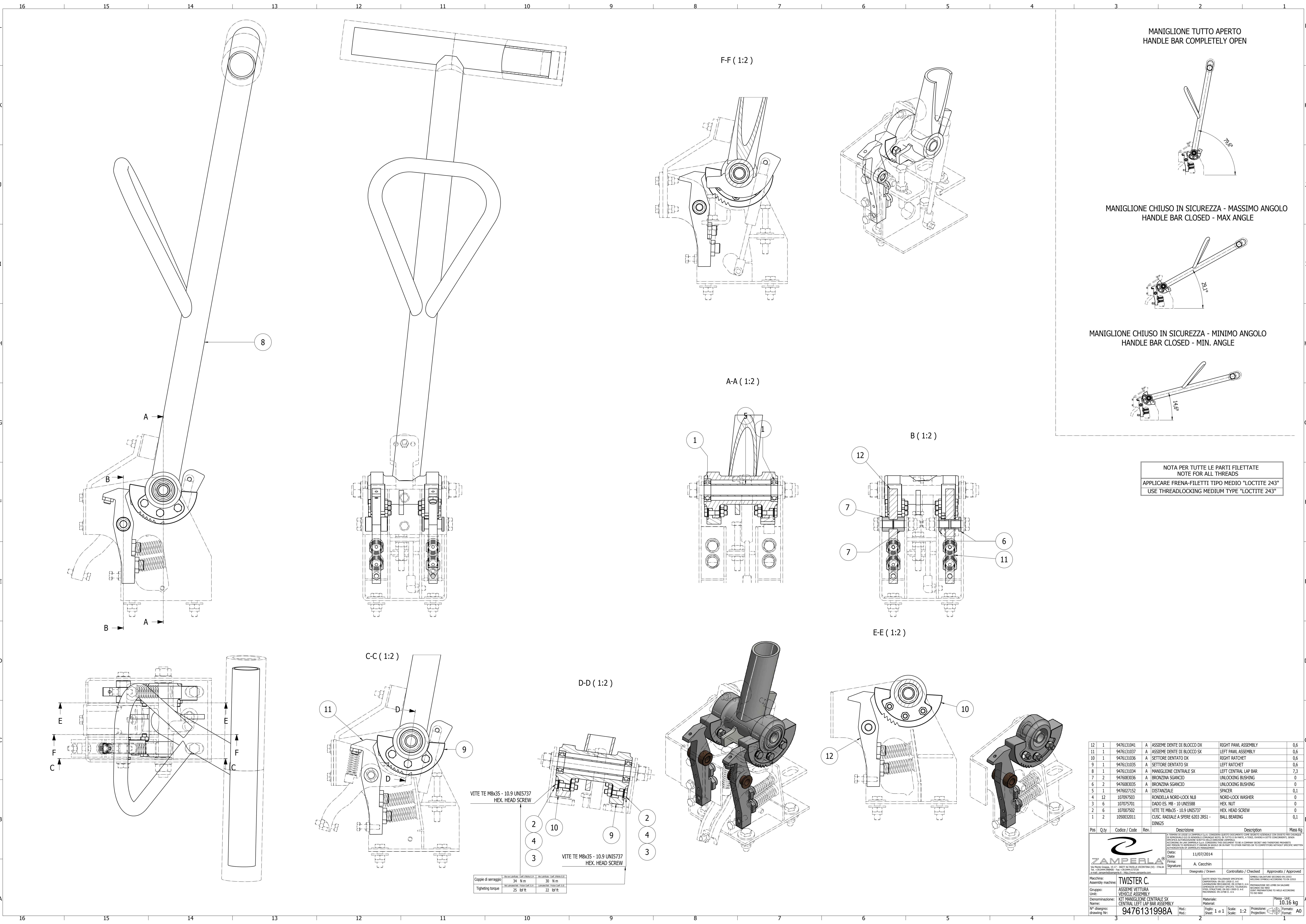
MANIGLIONE CHIUSO IN SICUREZZA - MINIMO ANGOLO
HANDLE BAR CLOSED - MIN. ANGLE

NOTA PER TUTTE LE PARTI FILETTATE
NOTE FOR ALL THREADS
APPLICARE FRENA-FILETTI TIPO MEDIO "LOCTITE 243"
USE THREADLOCKING MEDIUM TYPE "LOCTITE 243"

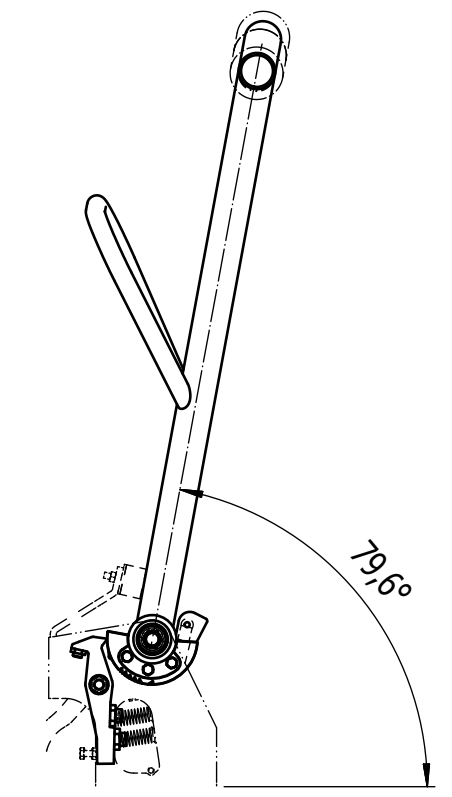
Pos.	Q.ty	Codice / Code	Rev.	Descrizione	Description	Mass Kg
12	1	9476131041	A	ASSIEME DENTE DI BLOCCO DX	RIGHT PAWL ASSEMBLY	0,6
11	1	9476131037	A	ASSIEME DENTE DI BLOCCO SX	LEFT PAWL ASSEMBLY	0,6
10	1	9476131026	A	SETTORE DENTATO DX	RIGHT RATCHET	0,6
9	1	9476131035	A	SETTORE DENTATO SX	LEFT RATCHET	0,6
8	1	9476131032	A	MANIGLIONE CENTRALE DX	RIGHT CENTRAL LAP BAR	7,3
7	2	9476083036	A	BRONZINA SGANCIO	UNLOCKING BUSHING	0
6	2	9476083035	A	BRONZINA SGANCIO	UNLOCKING BUSHING	0
5	1	9476027152	A	DISTANZIALE	SPACER	0,1
4	12	107097503		RONDELLA NORD-LOCK NL8	NORD-LOCK WASHER	0
3	6	107075701		DADO ES. M8 - 10 UNIS588	HEX. NUT	0
2	6	107007502		VITE TE M8x35 - 10.9 UNIS737	HEX. HEAD SCREW	0
1	2	1050032011		CUSC. RADIALE A SFERE 6203 2RS1 - D10625	BALL BEARING	0,1
Pos.	Q.ty	Codice / Code	Rev.	Descrizione	Description	Mass Kg
ZAMPERLA® Via Ponte Rosso, 10 - 37017 ALTELLA (VERONA) - ITALIA Tel. +39 0445 694601 - Fax +39 0445 673374 E-mail: zamperla@zamperla.it - Web: www.zamperla.com						
Machine: TWISTER C. Gruppo: VEHICLE ASSEMBLY Denominazione: KIT MANIGLIONE CENTRALE DX N° disegno: 9476131996A				Date: 11/07/2014 Firma: A. Cecchin Disegnato / Drawn: Controllato / Checked: Approvato / Approved		
Materiale: Acciaio S235JR N° disegno: 9476131996A				Materiale: Acciaio S235JR N° disegno: 9476131996A		
Foglio: 1 di 1 Mod.: 1.0				Foglio: 1 di 1 Mod.: 1.0		
Scale: 1:2				Scale: 1:2		
Proiezione: 1°				Proiezione: 1°		
Formato: A0				Formato: A0		

Copie di serraggio	M8x35 - 10.9 UNIS737	M8x35 - 10.9 UNIS737
Tightening torque	25 lbf ft	22 lbf ft

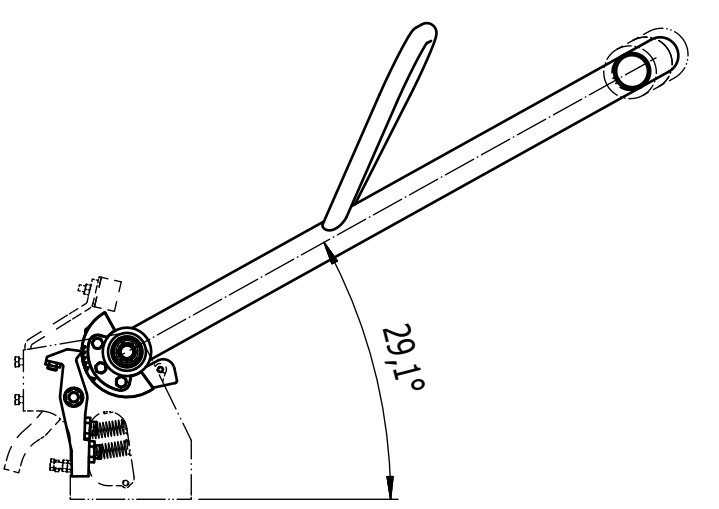




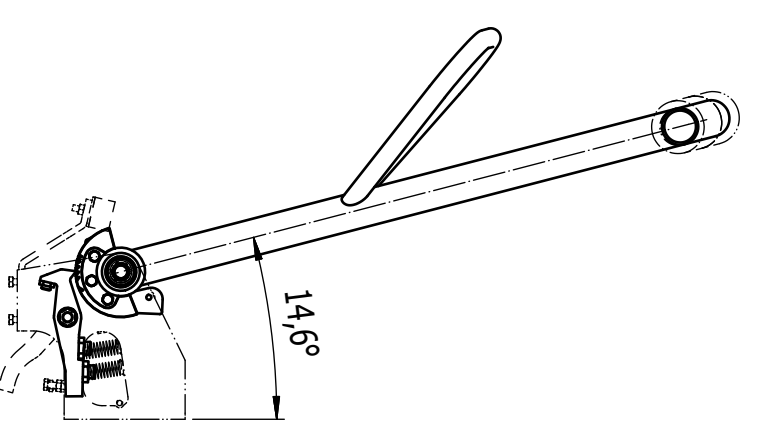
MANIGLIONE TUTTO APERTO
HANDLE BAR COMPLETELY OPEN



MANIGLIONE CHIUSO IN SICUREZZA - MASSIMO ANGOLO
HANDLE BAR CLOSED - MAX ANGLE



MANIGLIONE CHIUSO IN SICUREZZA - MINIMO ANGOLO
HANDLE BAR CLOSED - MIN. ANGLE



NOTA PER TUTTE LE PARTI FILETTATE
NOTE FOR ALL THREADS
APPLICARE FRENA-FILETTI TIPO MEDIO "LOCTITE 243"
USE THREADLOCKING MEDIUM TYPE "LOCTITE 243"

Pos.	Q.ty	Codice / Code	Rev.	Descrizione	Description	Mass Kg
12	1	9476131041	A	ASSIEME DENTE DI BLOCCO DX	RIGHT PAWL ASSEMBLY	0,6
11	1	9476131037	A	ASSIEME DENTE DI BLOCCO SX	LEFT PAWL ASSEMBLY	0,6
10	1	9476131036	A	SETTORE DENTATO DX	RIGHT RATCHET	0,6
9	1	9476131035	A	SETTORE DENTATO SX	LEFT RATCHET	0,6
8	1	9476131034	A	MANIGLIONE CENTRALE SX	LEFT CENTRAL LAP BAR	7,3
7	2	9476083036	A	BRONZINA SGANCIO	UNLOCKING BUSHING	0
6	2	9476083035	A	BRONZINA SGANCIO	UNLOCKING BUSHING	0
5	1	9476027152	A	DISTANZIALE	SPACER	0,1
4	12	107097503		RONDELLA NORD-LOCK NL8	NORD-LOCK WASHER	0
3	6	107075701		DADO ES. M8 - 10 UNIS588	HEX. NUT	0
2	6	107007502		VITE TE M8x35 - 10.9 UNIS737	HEX. HEAD SCREW	0
1	2	1050032011		CUSC. RADIALE A SFERE 6203 2RS1 - DIN625	BALL BEARING	0,1
Pos.	Q.ty	Codice / Code	Rev.	Descrizione	Description	Mass Kg
ZAMPERLA® Via Ponte Rosso, 10 - P. 38077 ALVALA (VERONA) - ITALIA Tel. +39 0444 694600 - Fax +39 0444 694601 E-mail: zamperla@zamperla.it - Web: www.zamperla.com						
Machine: TWISTER C. Group: VEHICLE ASSEMBLY Name: KIT MANIGLIONE CENTRALE SX Central Left Lap Bar Assembly N° disegno: 9476131998A				Date: 11/07/2014 Firma: A. Cecchin Signature: _____ Disegnato / Drawn: _____ Controllato / Checked: _____ Approvato / Approved: _____		Massa - Weight: 10,16 kg

MANUTENZIONE PERIODICA

SOGGETTO

Manutenzione giornaliera

- Controllare il sistema di ritenuta per verificare eventuali anomalie.
- Controllare che ogni dente di blocco sia agganciato correttamente al settore dentato tirando ripetutamente manualmente verso destra e sinistra con una forza di circa (5 a 10kg.)
- Ripetere l'operazione per ciascuna posizione di aggancio. Verificare inoltre che il dente di blocco non si sganci cercando di spostare lateralmente il maniglione. (tirare manualmente verso Dx e Sx)
- Se il maniglione non aggancia in tutte le posizioni, procedere con la manutenzione.

Le condizioni sottoelencate obbligano la sostituzione del settore dentato o del dente di blocco:

- usura del dente che non permette il corretto aggancio del maniglione
- L'usura non uniforme (gradini, usura angolata o non uniforme)
- Denti scheggiati

Il corretto aggancio del maniglione è data dal corretto bloccaggio tra il dente di blocco e il settore dentato. Pertanto, i controlli devono essere sempre effettuati su entrambi i componenti.

I manutentori devono avere un'ottima conoscenza di come le parti si accoppiano allo stato nuovo non usurato

PERIODIC MAINTENANCE

VEHICLE (safety bars)

Daily maintenance

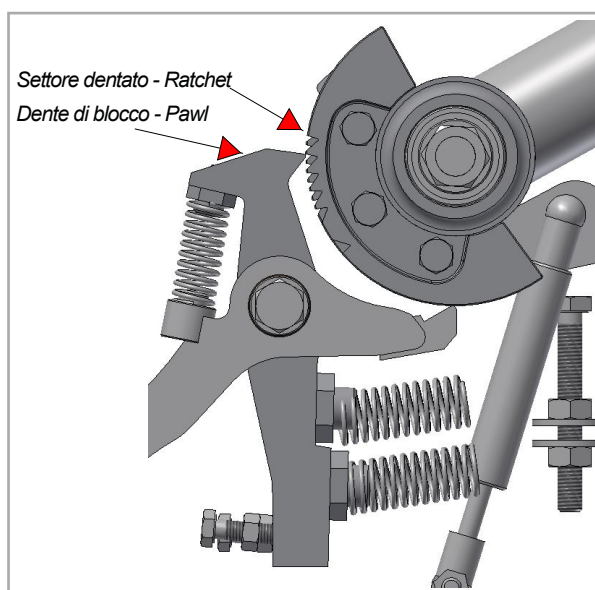
- Inspect restraint system for any anomalies.
- Check that each pawl engages properly on each lapbar ratchet by manually tugging (approx. 10 to 20lbs force) at every position. Check also that the pawl doesn't disengage by trying to manually move laterally the lap bar.
- If any single engagement position does not hold properly, then service.

Any of the items below shall require the ratchets or pawls to be replaced:

- Edges of tooth are worn so that engagement is not secure.
- Wear is not uniform (i.e. step in tooth, wear is angled)
- Part is chipped.

Proper engagement is dependent on both the condition of the pawl and the ratchet. Hence, inspections must always included both parts.

Technicians need to be familiar with how new parts work together.



MANUTENZIONE PERIODICA

SOGGETTO

Manutenzione settimanale

- Controllare il sistema di ritenuta per verificare eventuali anomalie.
 - Aprire la parte anteriore del soggetto. Per togliere la parte anteriore togliere le copiglie di sicurezza poste sotto al soggetto.
 - Sbloccare manualmente il dente di blocco su un lato del maniglione e tenerlo aperto durante l'ispezione.
 - Abbassare il maniglione fino a quando il dente di blocco aggancia il primo dente del settore dentato.
 - Applicare una forza verso l'alto (10-20 kg) per testare il suo corretto aggancio.
 - Ripetere l'operazione per ciascuna posizione di aggancio (ogni clic).
 - Aprire il maniglione, sbloccare il dente di blocco opposto e ripetere l'operazione per ogni dente sull'altro lato del maniglione.
 - Ripetere la procedura per ogni maniglione.
- Se il maniglione non aggancia in tutte le posizioni, vietare l'utilizzo della seduta ed effettuare la manutenzione prima di poterlo riutilizzare

PERIODIC MAINTENANCE

VEHICLE (safety bars)

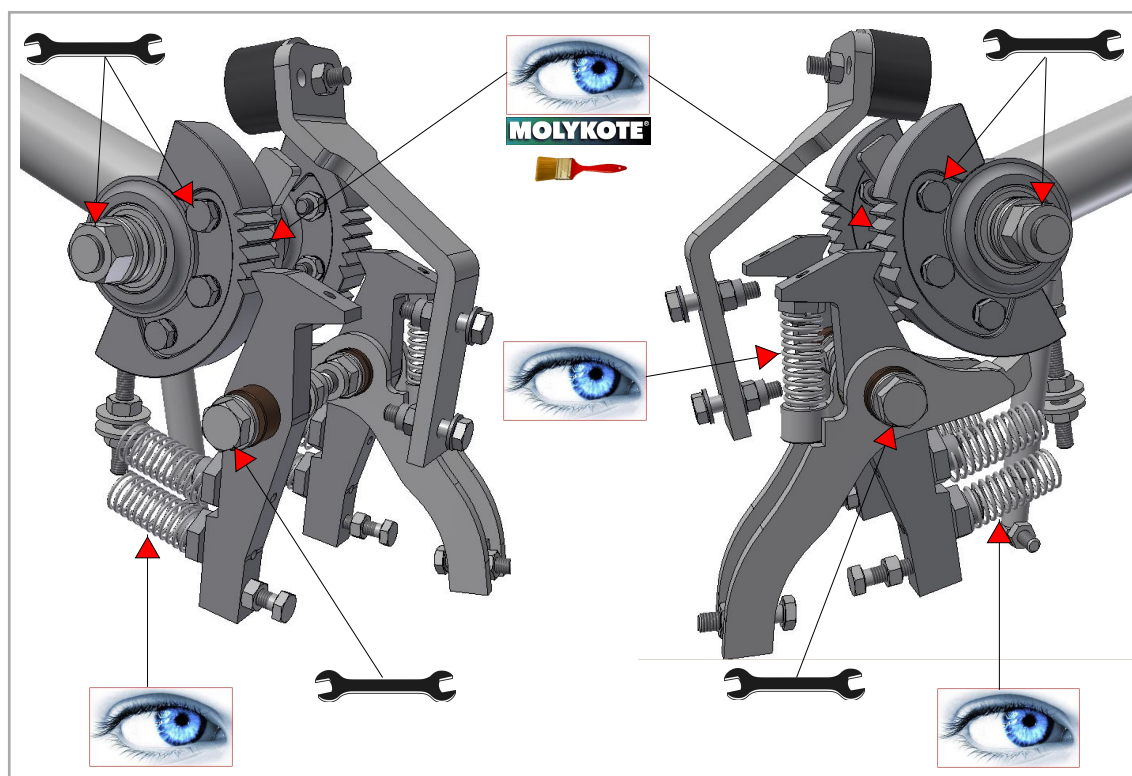
Weekly maintenance

- Inspect restraint system for any anomalies.
 - Open the front part of the vehicle.
 - To remove the front part, remove the safety split pin placed under the vehicle .
 - Manually release a pawl on one side of a lap bar and hold it open during the inspection.
 - Lower the bar until the other pawl engages at the first tooth.
 - Apply an upwards force (25 – 50 pounds) to test its engagement.
 - Repeat for each engagement position (each click).
 - Open bar, release the opposite pawl and repeat for each tooth on the other side of the same lap bar.
 - Repeat procedure on each lap bar.
- If the T-bar skips at any location, remove seat from operation and service the restraint assembly prior to placing it back into operation.



Verificare che tutte le molle siano perfettamente integre. Se necessario sostituire le molle.
Verificare che tutte le viti siano correttamente serrate.
Ingrassare la dentatura settimanalmente con MOLYKOTE HSC PLUS PASTE

Inspect condition of all springs and ensure they are seated and installed correctly. Replace springs if necessary.
Verify no loose hardware.
Lubricate all teeth with MOLYKOTE HSC PLUS PASTE

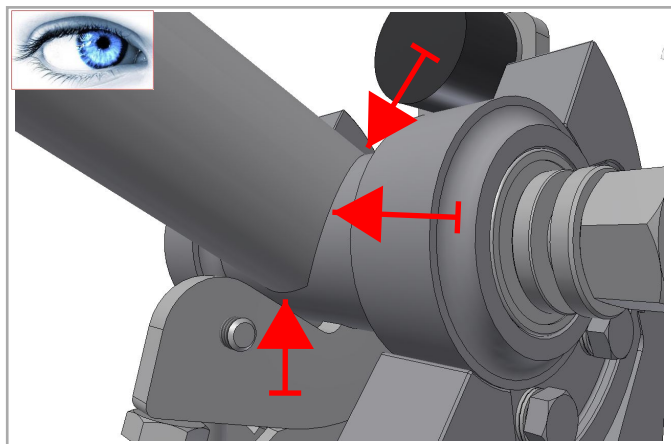
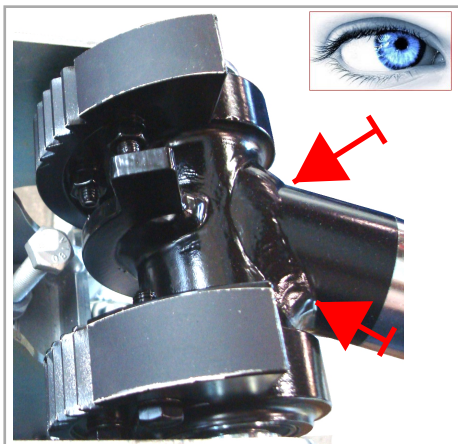




Use and maintenance manual
Twister Coaster Park Model

controllare la saldatura alla base del tubo
maniglione (controllo visivo)

Check the welding at the base of the safety T-bar
tube (visual check).



Annualmente eseguire :
Controllo magnetoscopico **(MT)** del dente di blocco e dei
denti del settore dentato nelle aree evidenziate in foto 2.

Normativa di riferimento per il controllo :
UNI EN ISO 17638 (2010)/ 23278 (2010) lev.2X
Tale controllo deve essere eseguito da PERSONALE
QUALIFICATO .

Inoltre eseguire un'ispezione visiva **(VT)** sulle zone non
interessate dal controllo **MT**.

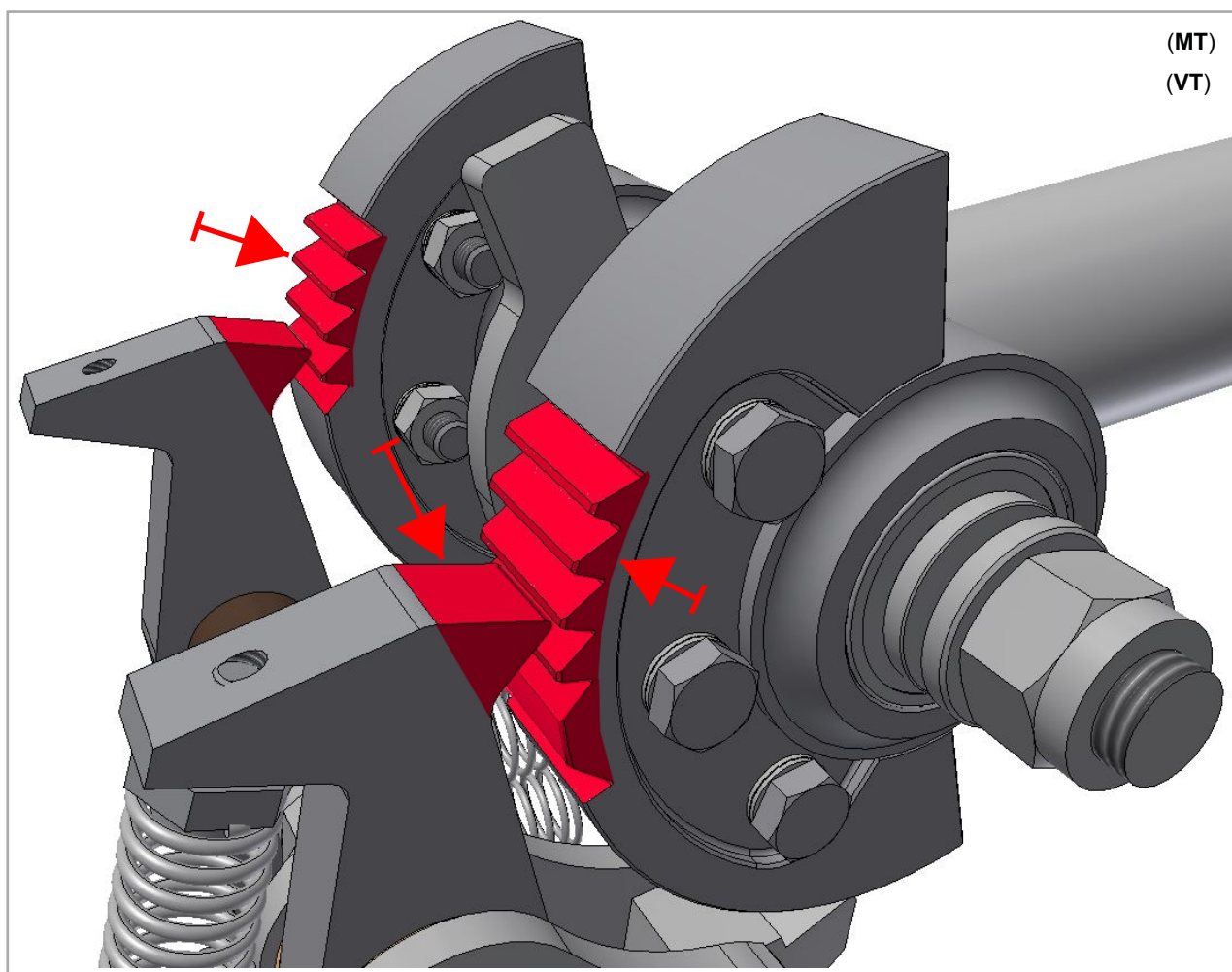
Nel caso i controlli **(MT o VT)** dovessero dare esito
negativo evidenziando la presenza di cricche, occorre
sospendere immediatamente l'utilizzo e mettersi in contatto
con la ditta Antonio Zamperla S.p.A.

Yearly check:
By means of magnetic test **(MT)**, check the locking
teeth as shown in picture 2.

Test reference standard:
UNI EN ISO 17638 (2010)/ 23278 (2010) lev.2X
This test must be carried out by QUALIFIED
PERSONNEL.

A visual inspection **(VT)** must also be carried out on those
parts where **MT** test will not be made.

In case these inspections **(MT or VT)** give a negative
result and they show the existence of cracks, it will be
necessary to stop the ride immediately and
contact the manufacturer, Antonio Zamperla S.p.A.



Picture 2

Use and maintenance manual

Twister Coaster Park Model

Annualmente eseguire :
controllo non distruttivo con liquidi penetranti (**PT**)
secondo normativa **EN 571-1 / EN 1289-2X** nelle
zone evidenziate nella foto 3. Tale controllo deve
essere eseguito da **PERSONALE QUALIFICATO** .

Inoltre eseguire un'ispezione visiva (**VT**) sulle zone
non interessate dal controllo non distruttivo (**PT**).

Nel caso i controlli (**PT o VT**) dovessero dare esito
negativo evidenziando la presenza di cricche,
occorre sospendere immediatamente l'utilizzo e
mettersi in contatto con la ditta Antonio Zamperla
S.p.A.

Yearly check:

Carry out a non destructive test, by using a dye
penetrant test (**PT**), according to **EN 571-1 / EN
1289-2X** standards, in the parts indicated in the
picture 3. This test must be carried out by
QUALIFIED PERSONNEL.

A visual inspection (**VT**) must also be carried out
on those parts where **PT** test will not be made.

In case these inspections (**PT or VT**) give a negative
result and they show the existence of cracks, it will be
necessary to stop the ride immediately and contact
the manufacturer, Antonio Zamperla S.p.A.

