

FSC 737NG YOKE DUAL LINKED PRO

Assembly Guide

Version 3.1



SKU	PRODUCT
219914	B737 Dual linked Yoke / Control Column - Pro

ENGLISH

ME141059

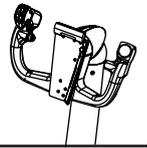


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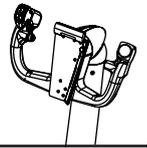
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1. INTRODUCTION

Thanks to the field experience gained during the past years, with intensive use by professional and amateur users, we have been able to further improve our FSC B737 YOKE, which has been completely re-engineered, with new mechanics and materials.

The new product includes the new FSC 737NG Yoke Wheels Captain and First Officer (SKU: 194713 e SKU: 194714) with Chart Holders - Clipboards (SKU: 219911).

It is also available together with the B737 Floorstand PRO (SKU: 858236)



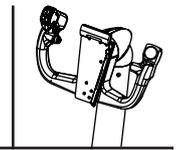
The **3.0 version** features a robust but lightweight aluminium structure, engineered to better protect the gear box and to allow an easier installation and facilitate any maintenance operation, by granting access to its mechanisms from above the floor stand - base level, avoiding the need of lifting the whole structure.

To achieve an even higher realism, the bank angle has been widened in order to match the original one. Furthermore, all gears and potentiometers have been completely replaced with the latest high-end components.

The new developments reduced the slack on the steering wheel and further improved the accuracy of the whole system and the passive feedback settings.

The new Control Column is more realistic, precise and reliable.





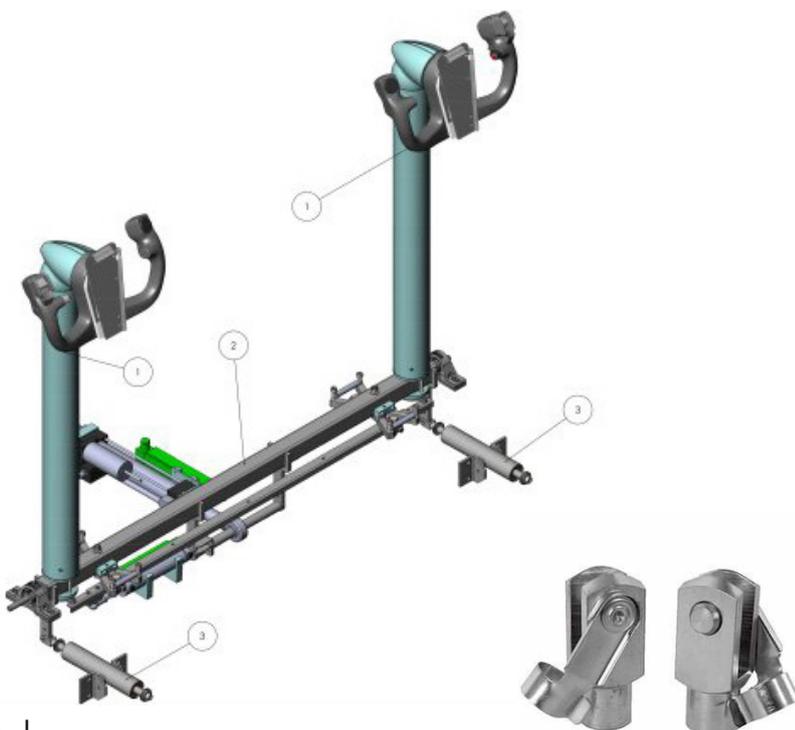
2. UNPACKING AND ASSEMBLY

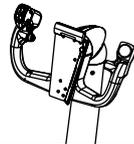
Unpacking the Yoke.

The Yoke system is fitted on 2 Ball bearing supports, with 4 fixing holes, 4 M12 bolts, 97mm center to center distance.



The vertical column has 2 springs (items n°3), fixed with a distance of 161mm from the center. You can fix the springs with brackets in vertical or horizontal position. There is also an hydraulic damper (item n°2). The link between the springs and Yoke is made by a fork head.

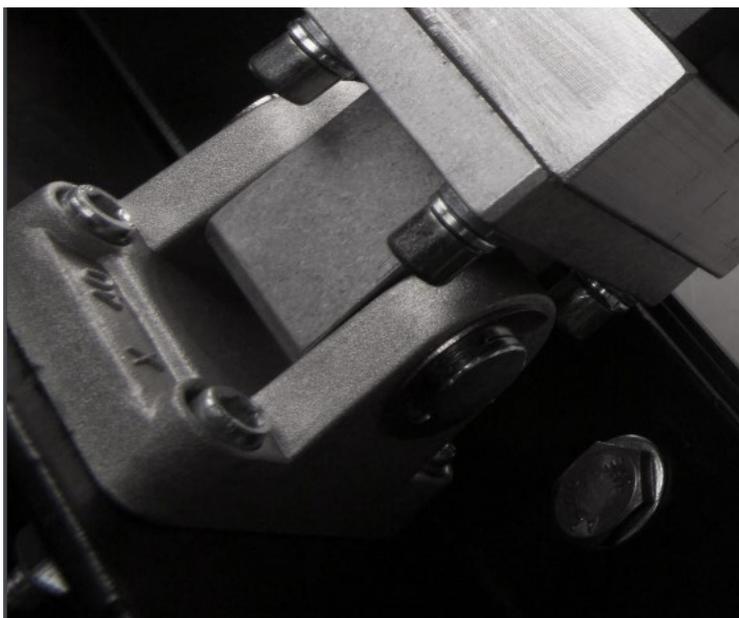




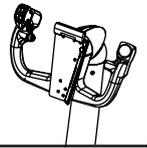
The damper /linear pot is connected to the Yoke system with an uniball link.



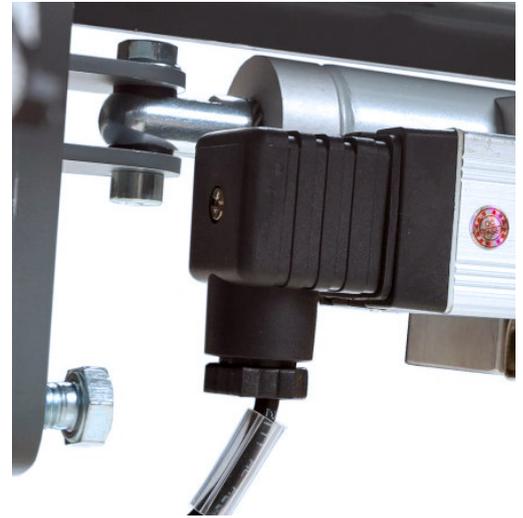
On the other side of damper complex there is a bracket with 4 holes with 40mm distance, fixed with 4 M6 bolts.



FSC B737NG YOKE DUAL LINKED PRO

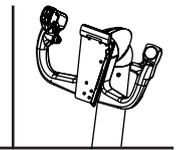


After the mechanical system is ready, connect the pitch axis linear pot.

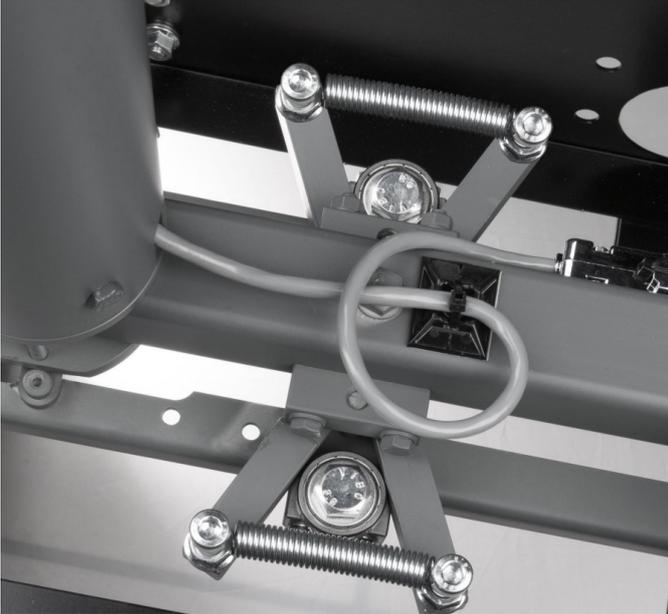


And finally connect the DB44 plug to USB joystick interface box.





You can regulate the roll force with 4 springs.

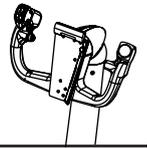


You can install or remove from 4 to 2 springs to regulate the "return to center" force.

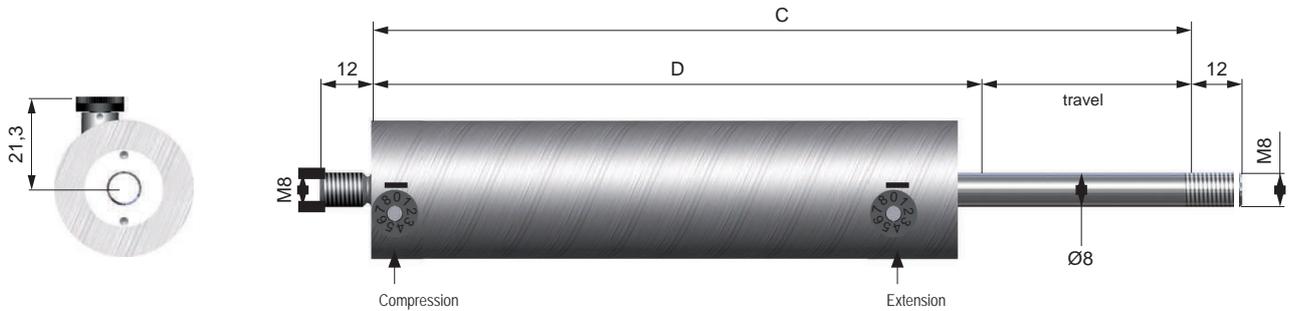


Spring Forces table			
4 springs	start ~2 Kgf	half way ~5,0 Kgf	full deflection ~7,5 Kgf
3 springs	start ~2 Kgf	half way ~4,0 Kgf	full deflection ~6,5 Kgf
2 springs	start ~2 Kgf	half way ~3,4 Kgf	full deflection ~5,0 Kgf

FSC B737NG YOKE DUAL LINKED PRO



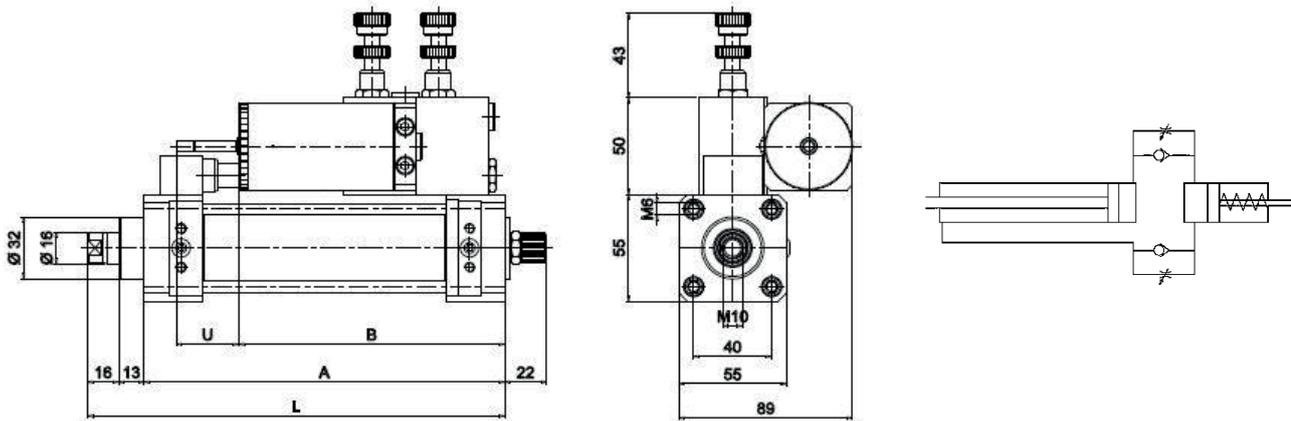
For damping effect, You can regulate the compression and extension of damper, compression for left and extension for right.



SPECIFICATIONS AND DIMENSIONS

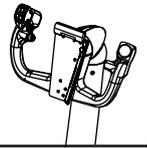
	travel	Extension	Compression	Extension - Compression	Travel speed			C	D	Weight
	mm	N max.	N max.	N min.	m/min			mm	mm	g
WM-VD32-100	100	2000	1700	40	0,015 - 40			290	190	470

But you can have a different setting for elevator axis.



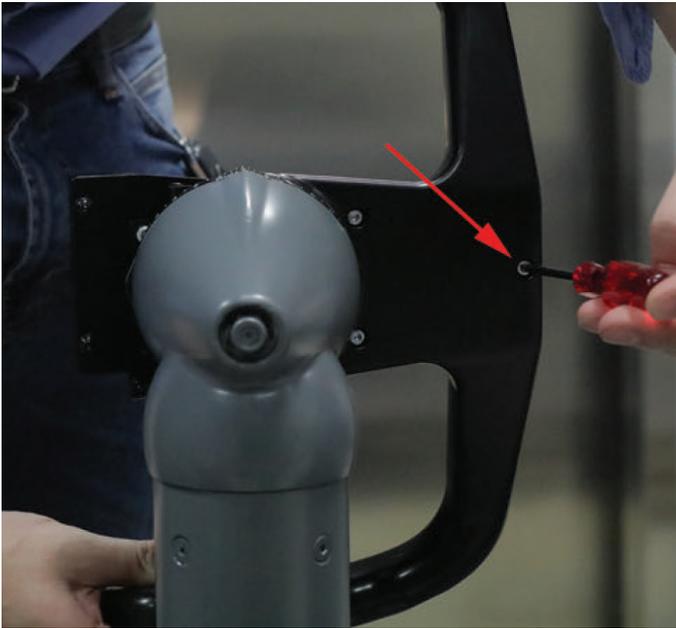
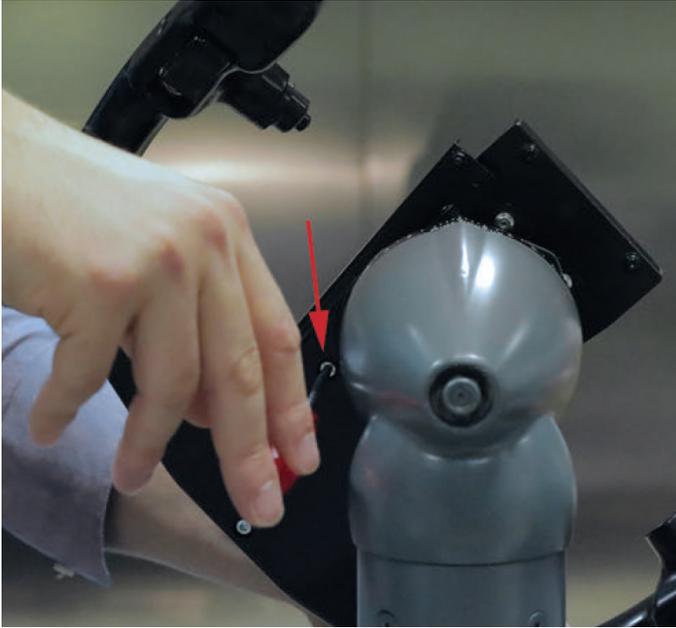
DATI TECNICI E DIMENSIONI – SPECIFICATIONS AND DIMENSIONS

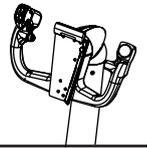
MODELLO - MODEL	CORSA - STROKE	Dimensioni – Dimensions			
		A	B	L	U
40.RPD.200.NO	200	286	158	315	47



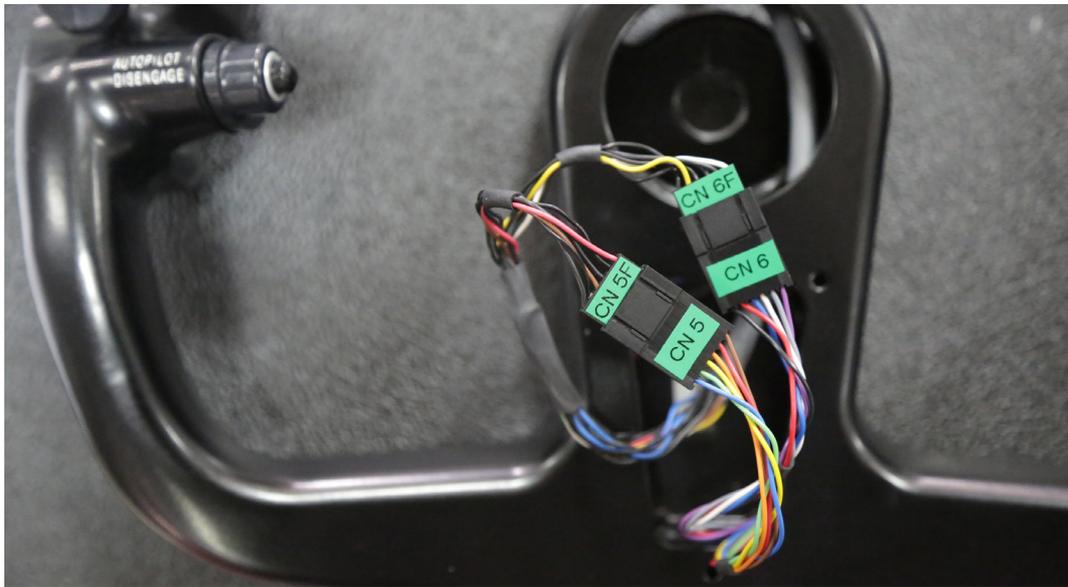
2.1 HOW TO REGULATE THE "NULL ZONE" ON BEVEL GEAR

Remove the Chart Holder unscrewing the 3 hex screws on the back.



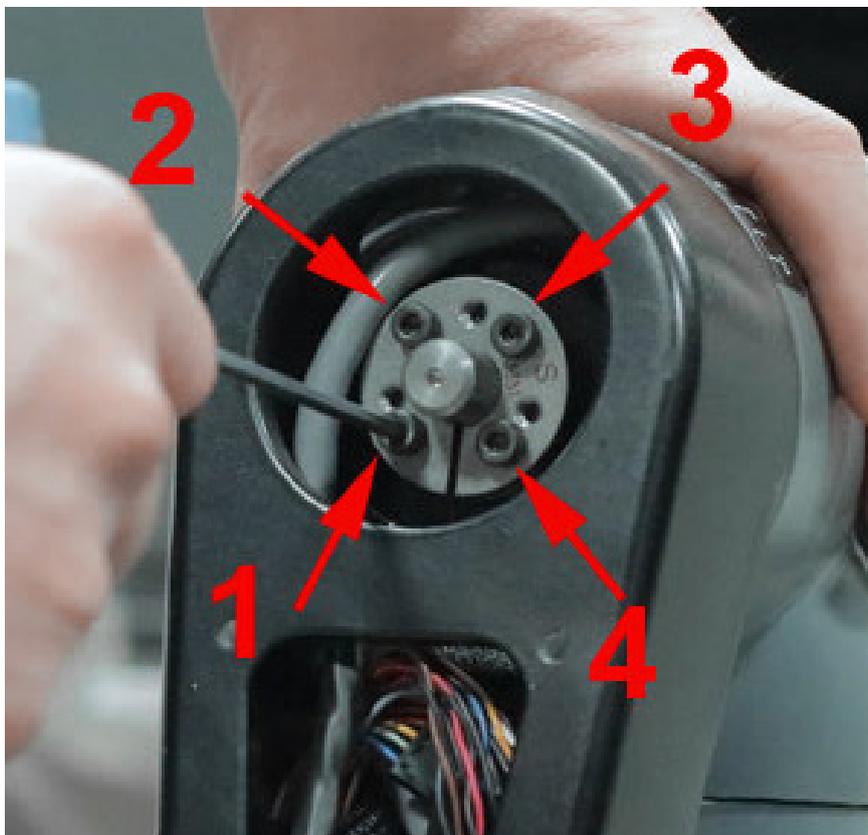


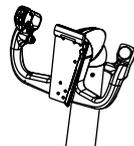
Detach electrical connectors.



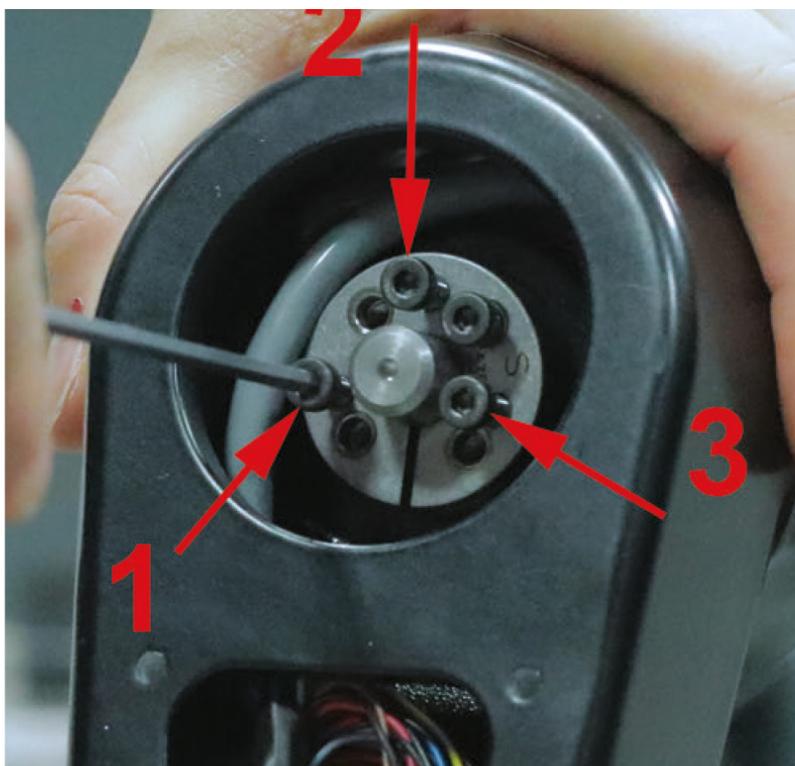
2.2 SELF LOCKING UNIT DISASSEMBLE

The Control Wheel is locked with a self locking unit: you must unscrew the 4 bolts first, each a bit at a time, in circular order.



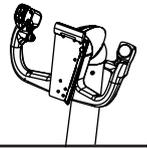


Then you have to screw 3 of them (each a bit at a time in circular order) in the extracting holes until you hear a "click".



Now, the wheel is decoupled from the shaft and free to move.



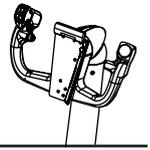


Now you must loose 4 nuts, to regulate the 4 grub screws.

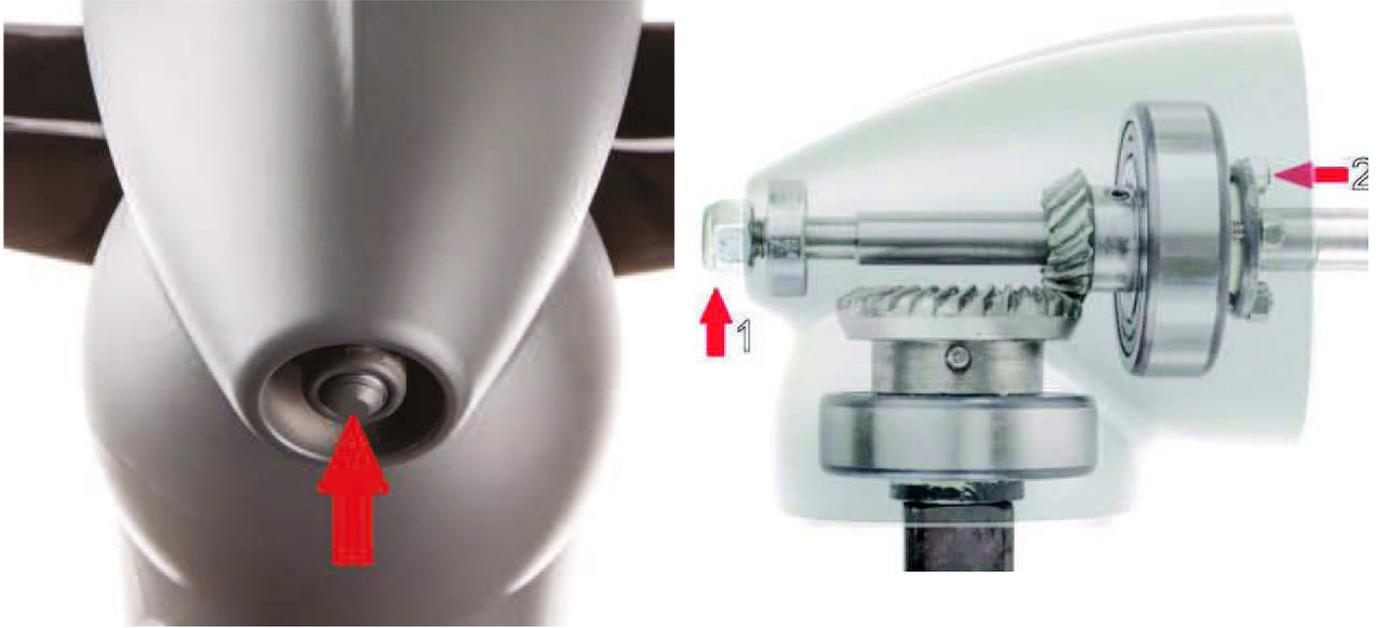


And loose or tight the gooseneck nut.



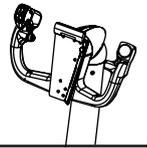


Regulated the “null zone” of the Yoke tightening or loosening the nut (1) located in back of gooseneck.



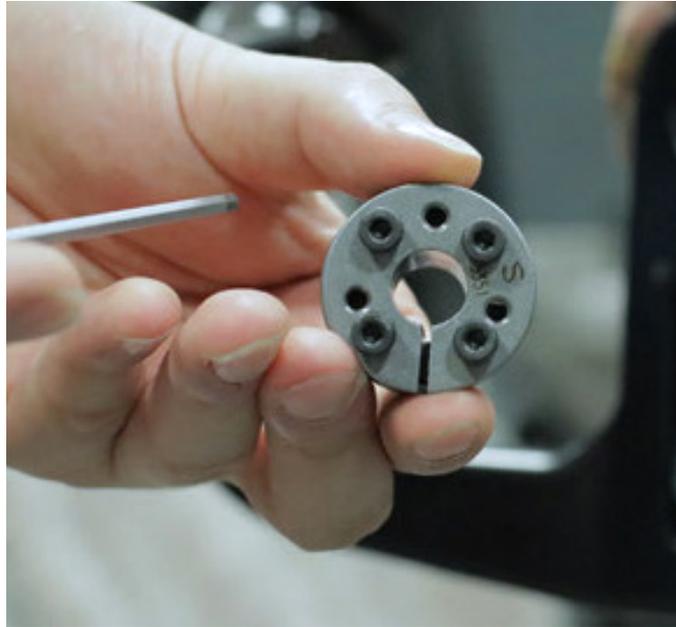
and loose or thigh the 4 grub screws (2) to “pack” the Yoke shaft and eliminated dead zone. Then, screw the 4 nuts back.



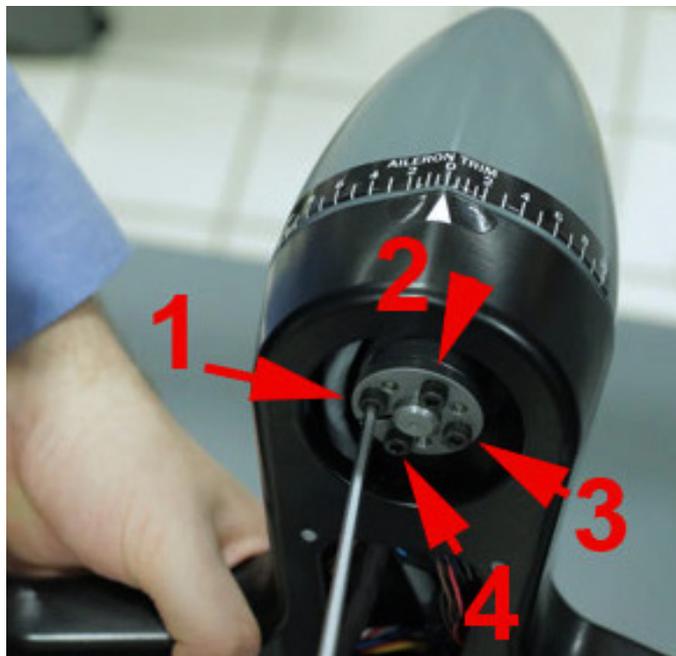


2.3 SELF LOCKING UNIT REASSEMBLE

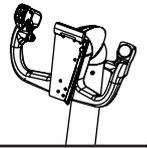
To fix the control wheel back to the gooseneck shaft, put the 4 screws back in original position.



Then, screw them tightly, each a bit at a time, in circular order.



Pay attention to Gooseneck/Control Wheel Alignment when reassembling.



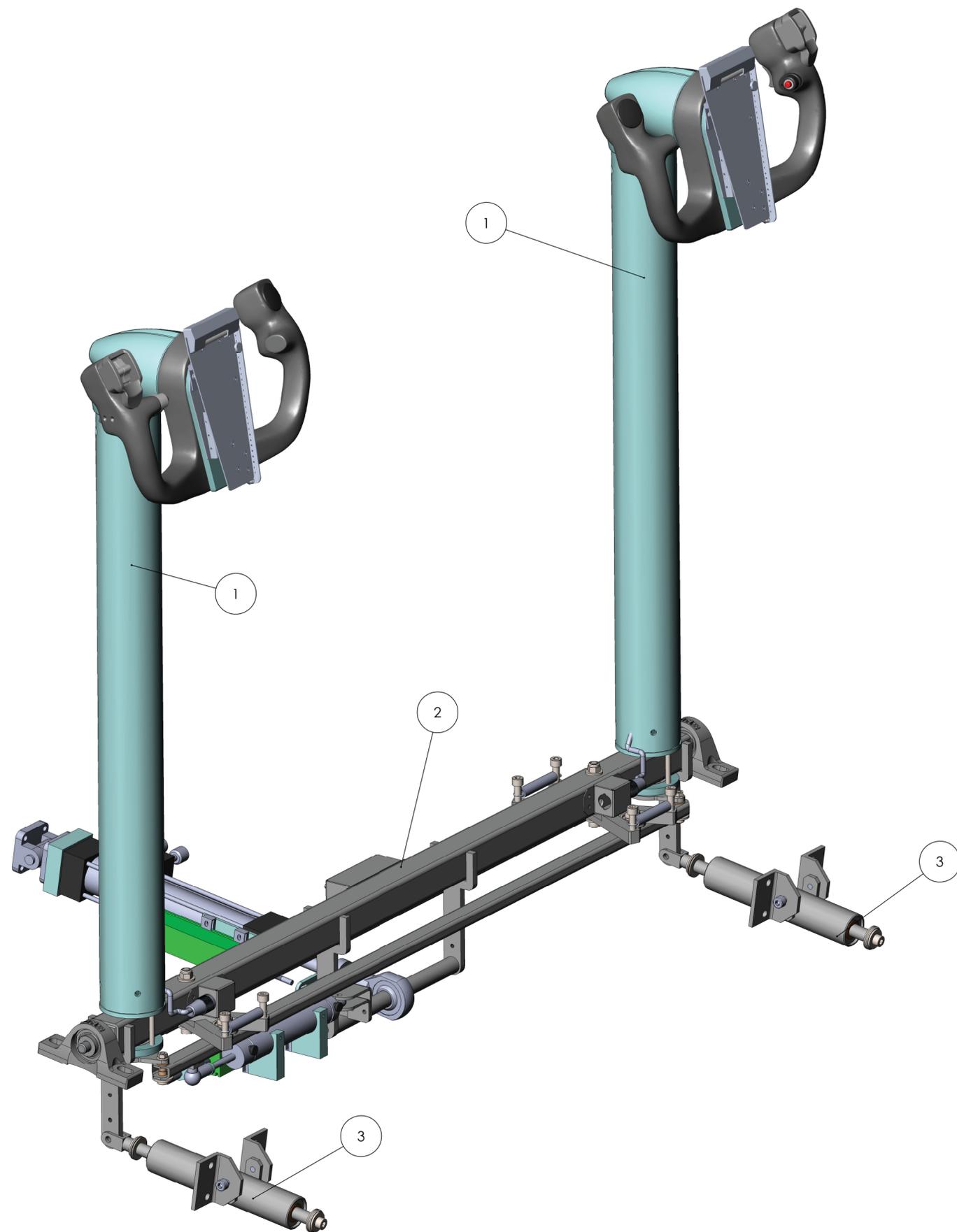
2.4 HOW TO REMOVE THE YOKE COLUMN

You must leave an inspection panel over the central movement bar, is important to inspect the wiring. Open the panel and unplug the HR10 plug, then unscrew and remove the 4 bolts located on the base of column:



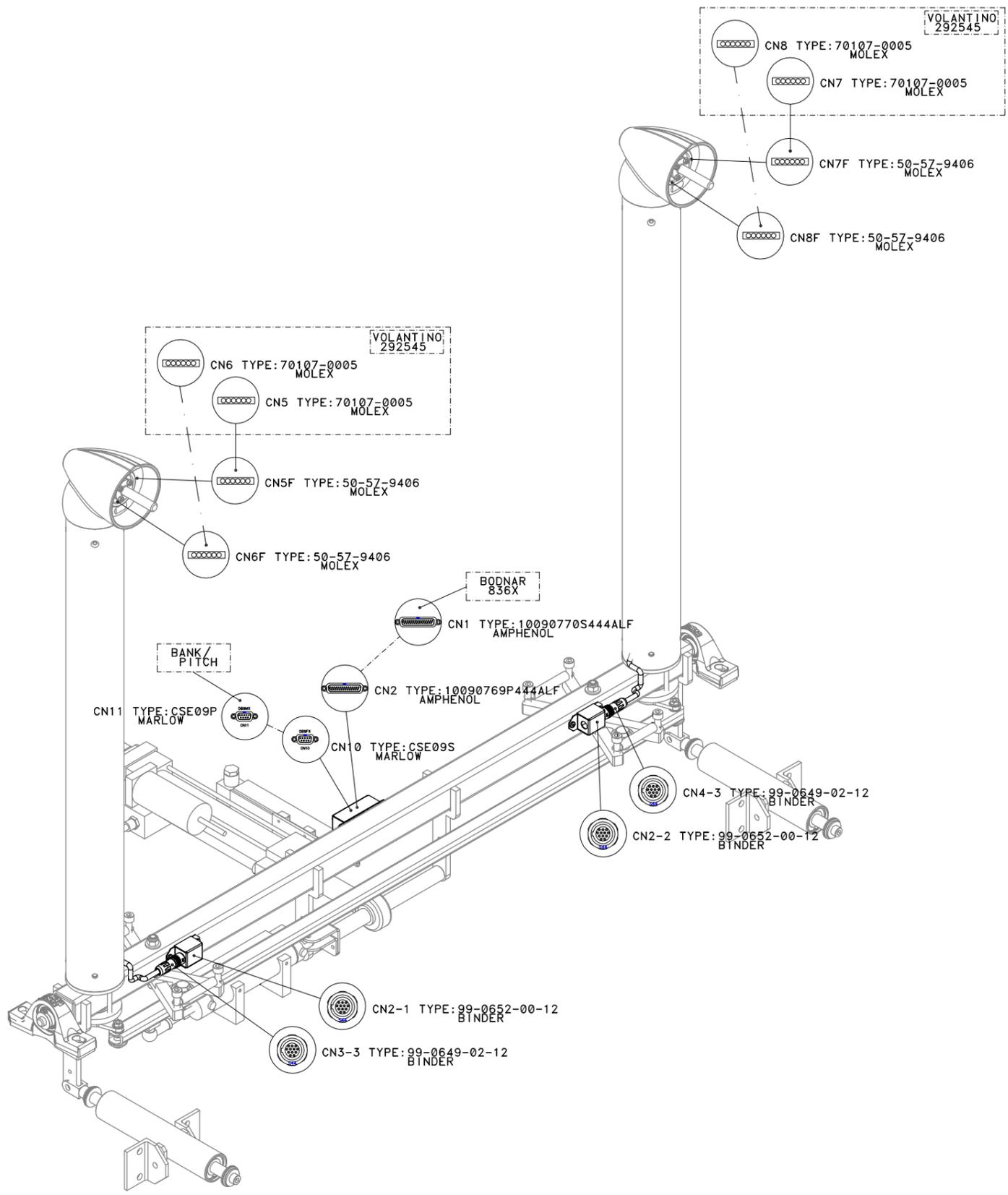
Now remove column.





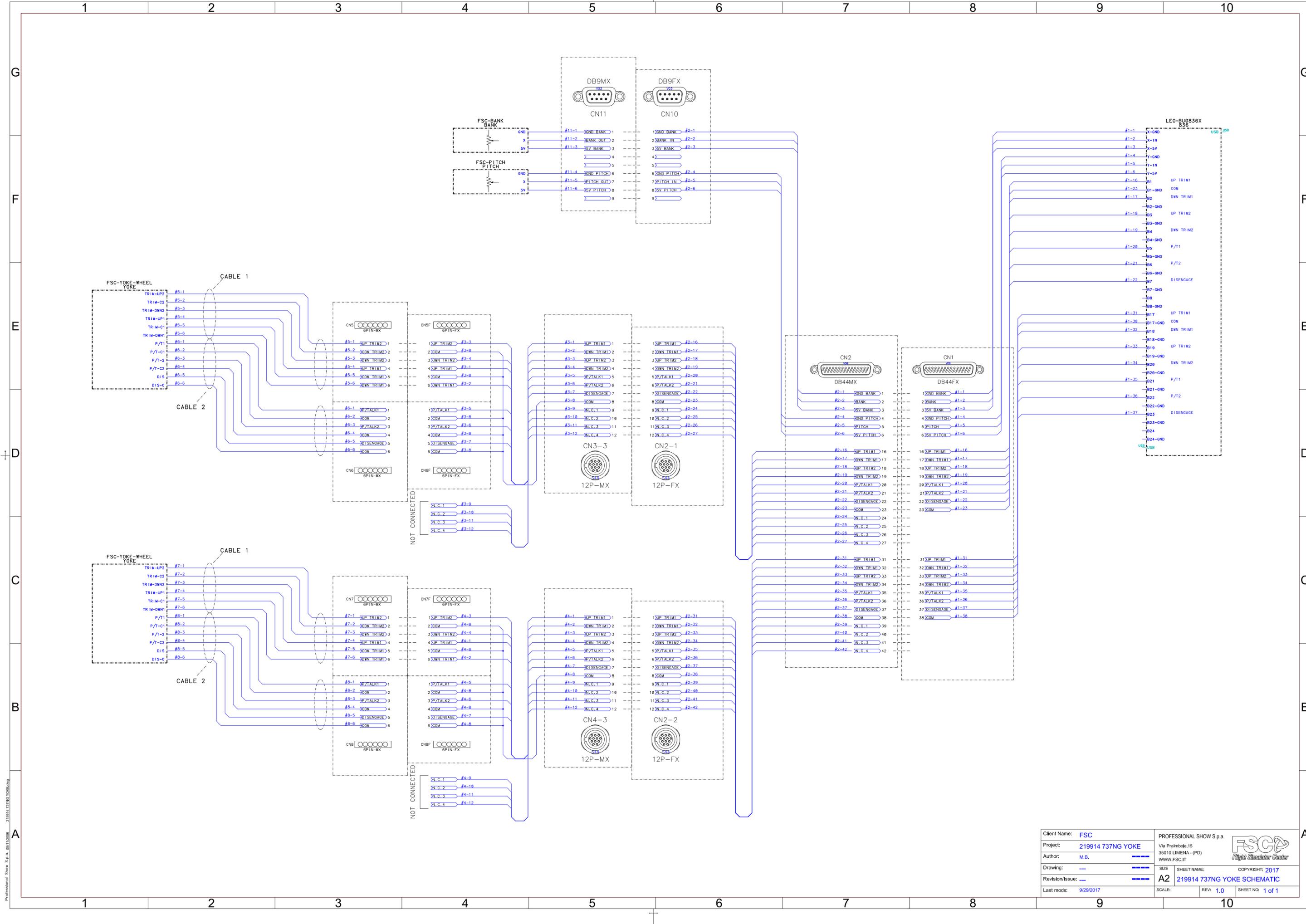
Num. articolo	Num. parte	Descrizione	Materiale	Quantità
1	219914_01	gruppo verticale yoke	vario	2
2	219914_02	asse orizzontale yoke	vario	1
3	219914-05	ammortizzatore pitch	vario	2

03	
02	
01	
REV.	DESCRIZIONE		EMISSIONE	APPROVATO
	<small>TOLLERANZE GENERICHE PER QUOTE DI LAVORAZIONE (UNI 5307-03) segnare con una croce il grado di precisione indicato per questo particolare</small>		<small>MASSIMO GRADO DI RASCIUTA AMMESSA</small>	<small>RIMUOVERE BAVE DI LAVORAZIONE</small>
	<small>GRANDI PRESSIONI</small> GROSSOLANO	<small>GRANDI PRESSIONI</small> MEDIO	<small>GRANDI PRESSIONI</small> PRECISO	<small>MATERIALE</small> <small>TRATTAMENTO SUPERFICIALE</small> <small>PESO Kg</small>
	<small>GRANDI PRESSIONI</small> +0,2 +0,5 +0,8 +1,2 +2 +3 +4 +5	<small>GRANDI PRESSIONI</small> +0,1 +0,2 +0,3 +0,5 +0,8 +1,2 +2 +3	<small>GRANDI PRESSIONI</small> +0,05 +0,1 +0,15 +0,2 +0,3 +0,5 / /	<small>UNI EN ISO 22768</small> <small>PESO Kg</small>
	<small>TITOLO:</small> Assieme NEW YOKE universale		<small>N° DISEGNO:</small> 219914-00	<small>SVILUPPO mm</small>
	<small>PROGETTO:</small> Luca Pranovi		<small>Progettista/Designer</small>	<small>QUANTITA'</small>
	<small>La riproduzione e divulgazione, anche parziale, è vietata ai sensi delle norme vigenti.</small>		<small>SE NON DIVERSAMENTE SPECIFICATO: TUTTE LE FRECCE SONO A 90° ALTEZZA SALDATURE 0,7 VOLTE LO SPESORE MINIMO DEL MATERIALE</small>	<small>APPROVATO</small>
	<small>SCALA</small> 1:4	<small>FOGLIO</small> 1	<small>Data</small> 27/09/2017	A2



Professional Show S.p.a. 09/11/2006 219914 737NG YOKE.dwg

Client Name: FSC	PROFESSIONAL SHOW S.p.a.	
Project: 219914 737NG YOKE	Via Praimbole,15 35010 LIMENA - (PD) WWW.FSC.IT	
Author: M.B.	---	COPYRIGHT: 2017
Drawing: ---	---	
Revision/Issue: ---	---	SHEET NAME: 219914 737NG YOKE LAYOUT
Last mods: 9/29/2017	---	
SIZE: A3	SCALE: 1.0	SHEET NO: 1 of 1



Professional Show S.p.a. 08/11/2006 219914 737NG YOKE.dwg

Client Name:	FSC	PROFESSIONAL SHOW S.p.a.	 Flight Simulator Center		
Project:	219914 737NG YOKE	Via Pratombole,15 35010 LIMENA - (PD) www.fsc.it			
Author:	M.B.	---	SIZE	SHEET NAME:	COPYRIGHT: 2017
Drawing:	---	---	A2	219914 737NG YOKE SCHEMATIC	
Revision/Issue:	---	---	SCALE:	REV: 1.0	SHEET NO: 1 of 1
Last mods:	9/29/2017				

CN11 TO POTENTIOMETER BANK/PITCH				
CN11 (DB9MX)	NUMBER	COLOR	BANK	PITCH
PIN	CABLE	CABLE:1508ENH	POTENTIOMETER	POTENTIOMETER
1	#11-1	BLACK	> P1=GND	
2	#11-2	WHITE	> P2=X	
3	#11-3	RED	> P3=5V	
6	#11-4	BLACK	>	P1=GND
7	#11-5	WHITE	>	P2=X
8	#11-6	RED	>	P3=5V

CN1 TO BODNAR836X (2mt cable type CA2025G)				
CN1 (DB44FX)	NUMBER	COLOR	BODNAR 836X	
PIN	CABLE	CABLE:CA2025G	PINOUT	FUNCTION
1	#1-1	BROWN	> X-GND	POTENTIOMETER BANK
2	#1-2	RED	> X-IN	
3	#1-3	ORANGE	> X-5V	
4	#1-4	YELLOW	> Y-GND	
5	#1-5	GREEN	> Y-IN	POTENTIOMETER PITCH
6	#1-6	BLUE	> Y-5V	
16	#1-16	VIOLET	> B1	
17	#1-17	GREY	> B2	
18	#1-18	WHITE	> B3	UP TRIM 1-CPT
19	#1-19	BLACK	> B4	DWN TRIM 2-CPT
20	#1-20	BLACK/BROWN	> B5	P/TALK 1-CPT
21	#1-21	BLACK/RED	> B6	P/TALK 2-CPT
22	#1-22	BLACK/ORANGE	> B7	DISENGAGE-CPT
23	#1-23	BLACK/YELLOW	> B1-GND	COM-GND-CPT
31	#1-31	BLACK/GREEN	> B17	UP TRIM 1-F/O
32	#1-32	BLACK/LIGHTBLUE	> B18	DWN TRIM 1-F/O
33	#1-33	BLACK/PINK	> B19	UP TRIM 2-F/O
34	#1-34	BLACK/GREY	> B20	DWN TRIM 2-F/O
35	#1-35	GREEN/YELLOW	> B21	P/TALK 1-F/O
36	#1-36	LIGHTBLUE	> B22	P/TALK 2-F/O
37	#1-37	PINK	> B23	DISENGAGE-F/O
38	#1-38	WHITE ORANGE	> B17-GND	COM-GND-F/O

PINOUT YOKE CPT TO CN5/CN6					
YOKE CPT	NUMBER	COLOR	CN5	CN6	
PIN	CABLE	CABLE	70107-0005 MOLEX	70107-0005 MOLEX	
UP TRIM 2	#5-1	BROWN	> 1		
COM TRIM 2	#5-2	RED	> 2		
DWN TRIM 2	#5-3	ORANGE	> 3		
UP TRIM 1	#5-4	YELLOW	> 4		
COM TRIM 1	#5-5	GREEN	> 5		
DWN TRIM 1	#5-6	BLUE	> 6		
P/TALK 1	#6-1	PURPLE	>	1	
COM P/TALK 1	#6-2	GREY	>	2	
P/TALK 2	#6-3	WHITE	>	3	
COM P/TALK 2	#6-4	LIGHT BLUE	>	4	
DISENGAGE	#6-5	RED	>	5	
COM DISENGAGE	#6-6	BLACK	>	6	

PINOUT YOKE F/O TO CN7/CN8					
YOKE F/O	NUMBER	COLOR	CN7	CN8	
PIN	CABLE	CABLE	70107-0005 MOLEX	70107-0005 MOLEX	
UP TRIM 2	#7-1	BROWN	> 1		
COM TRIM 2	#7-2	RED	> 2		
DWN TRIM 2	#7-3	ORANGE	> 3		
UP TRIM 1	#7-4	YELLOW	> 4		
COM TRIM 1	#7-5	GREEN	> 5		
DWN TRIM 1	#7-6	BLUE	> 6		
P/TALK 1	#8-1	PURPLE	>	1	
COM P/TALK 1	#8-2	GREY	>	2	
P/TALK 2	#8-3	WHITE	>	3	
COM P/TALK 2	#8-4	LIGHT BLUE	>	4	
DISENGAGE	#8-5	RED	>	5	
COM DISENGAGE	#8-6	BLACK	>	6	

PINOUT CN2 TO CN2-1/CN2-2/CN10						
CN2 (DB44MX)	NUMBER	COLOR	COLOR	CN10 (DB9FX)	CN2-1 (BINDER-FX)	CN2-2 (BINDER-FX)
PIN	CABLE	CABLE:9506BELD	CABLE:1508ENH	PIN	PIN 99-0652-00-12	PIN 99-0652-00-12
1	#2-1		BLACK	> 1		
2	#2-2		WHITE	> 2		
3	#2-3		RED	> 3		
4	#2-4		BLACK	> 6		
5	#2-5		WHITE	> 7		
6	#2-6		RED	> 8		
16	#2-16	BROWN		>	A	
17	#2-17	BLACK/BROWN		>	B	
18	#2-18	RED		>	C	
19	#2-19	BLACK/RED		>	D	
20	#2-20	WHITE		>	E	
21	#2-21	BLACK/WHITE		>	F	
22	#2-22	YELLOW		>	G	
23	#2-23	BLACK/YELLOW		>	H	
24	#2-24	GREEN		>	J	
25	#2-25	BLACK/GREEN		>	K	
26	#2-26	BLUE		>	L	
27	#2-27	BLACK/BLUE		>	M	
31	#2-31	BROWN		>		A
32	#2-32	BLACK/BROWN		>		B
33	#2-33	RED		>		C
34	#2-34	BLACK/RED		>		D
35	#2-35	WHITE		>		E
36	#2-36	BLACK/WHITE		>		F
37	#2-37	YELLOW		>		G
38	#2-38	BLACK/YELLOW		>		H
39	#2-39	GREEN		>		J
40	#2-40	BLACK/GREEN		>		K
41	#2-41	BLUE		>		L
42	#2-42	BLACK/BLUE		>		M

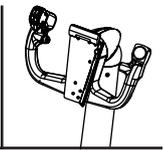
PINOUT CN3-3 TO CN5F/CN6F						
CN3-3 (BINDER-MX)	NUMBER	COLOR	CN5F	CN6F	FUNCTION	PINOUT BODNAR
PIN 99-0649-02-12	CABLE	CABLE:9506BELD	50-57-9406 MOLEX	50-57-9406 MOLEX		
A	#3-1	BROWN	> 4		UP TRIM 1	B1
B	#3-2	BLACK/BROWN	> 6		DWN TRIM 1	B2
C	#3-3	RED	> 1		UP TRIM 2	B3
D	#3-4	BLACK/RED	> 3		DWN TRIM 2	B4
E	#3-5	WHITE	>	1	P/TALK 1	B5
F	#3-6	BLACK/WHITE	>	3	P/TALK 2	B6
G	#3-7	YELLOW	>	5	DISENGAGE	B7
H	#3-8	BLACK/YELLOW	> 2 - 5	2 - 4 - 6	COM	
J	#3-9	GREEN	>			
K	#3-10	BLACK/GREEN	>			
L	#3-11	BLUE	>			
M	#3-12	BLACK/BLUE	>			

PINOUT CN4-3 TO CN7F/CN8F						
CN4-3 (BINDER-MX)	NUMBER	COLOR	CN7F	CN8F	FUNCTION	PINOUT BODNAR
PIN 99-0649-02-12	CABLE	CABLE:9506BELD	50-57-9406 MOLEX	50-57-9406 MOLEX		
A	#4-1	BROWN	> 4			
B	#4-2	BLACK/BROWN	> 6		UP TRIM 1	B17
C	#4-3	RED	> 1		DWN TRIM 1	B18
D	#4-4	BLACK/RED	> 3		UP TRIM 2	B19
E	#4-5	WHITE	>	1	DWN TRIM 2	B20
F	#4-6	BLACK/WHITE	>	3	P/TALK 1	B21
G	#4-7	YELLOW	>	5	P/TALK 2	B22
H	#4-8	BLACK/YELLOW	> 2 - 5	2 - 4 - 6	DISENGAGE	B23
J	#4-9	GREEN	>		COM	
K	#4-10	BLACK/GREEN	>			
L	#4-11	BLUE	>			
M	#4-12	BLACK/BLUE	>			

Client Name: FSC	PROFESSIONAL SHOW S.p.a.	
Project: 219914 737NGYOKE	Via Praimbole,15 35010 LIMENA - (PD) WWW.FSC.IT	
Author: M.B.	SIZE: A3	SHEET NAME: 219914 737NGYOKE TABLE
Drawing: ----	REVISION: ----	COPYRIGHT: 2017
Revision/Issue: ----	SCALE: 1:1	SHEET NO: 1 of 1
Last mods: 9/29/2017	REV: 1.0	

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FSC B737NG YOKE DUAL LINKED PRO



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