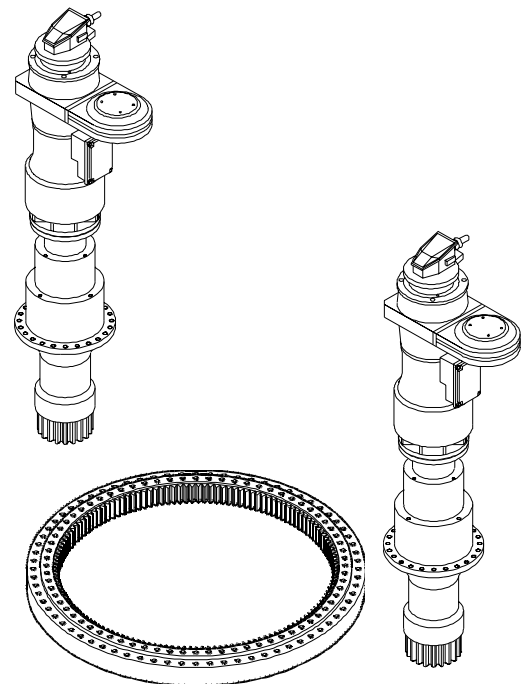




SSR 2 2 65

Slewing Drive Unit

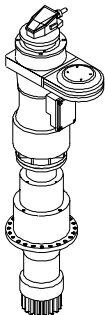
1	GENERAL INFORMATION
1.1	DIMENSIONS AND WEIGHTS
1.2	PERFORMANCES
1.3	TECHNICAL CHARACTERISTICS
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3.4	SPECIAL MAINTENANCE
3.5	LUBRICATION AND OILS

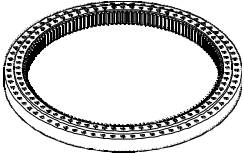


1


GENERAL INFORMATION

1.1 DIMENSIONS AND WEIGHTS

	DESCRIPTION	LENGTH	QUANTITY	WEIGHT
	GEARMOTOR	0.66 m (2' 2")	1	200 kg (441 lbs)
		WIDTH		
		0.66 m (2' 2")		
		HEIGHT		
		1.37 m (4' 6")		

	DESCRIPTION	LENGTH	QUANTITY	WEIGHT
	SLEWING RING	1.75 m (5' 9")	1	572 kg (1261 lbs)
		WIDTH		
		1.42 m (4' 8")		
		HEIGHT		
		0.12 m (5")		

1.2 PERFORMANCES

	SSR 2 2 65	0.7 r.p.m. (50 Hz)	0.84 r.p.m. (60 Hz)	2 × 65 Nm
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U.S. Customary Units

	SSR 2 2 65	0.7 r.p.m. (50 Hz)	0.84 r.p.m. (60 Hz)	2 × 48 lbs.ft
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1.3 TECHNICAL CHARACTERISTICS

The rotation is driven by two 65 Nm / 48 lbs.ft powered units which allow 3 speeds varying from 0 and 0.7 rpm (50 Hz) or 0.84 rpm (60 Hz).

The eddy current motor brakes allow jerk-free accelerations and decelerations thus limiting possible load oscillations.

A special device allows inversion of the slewing motion once it has stopped and structural inertia is down to zero.

Motor

Quantity	2
Feeding	Three-phase A.C. 400÷ 460 V - 50÷ 60 Hz
Type	LSA112M2 - R02
Power	65 Nm (2×48 lbs.ft)
R.p.m.	1400/2800 (50 Hz) - 1680/3360 (60 Hz)
Cooling	Forced ventilation

Reduction gear

Quantity	2
Type	Epicycloidal 706 T3
Max. output torque	10000 Nm (7,376 lbs.ft)
Reduction	1/184
Lubrication	Oil/grease
Pinion	No. 11 teeth - module 12

Slewing ring	CTT 141-161	CTT 181 - CTT 181/A - CT 212
Type	I.2.175.300	I.2.175.401
Teeth no.	120	
Module	12	
Fixing bolts	no.40+40 M24	no.48+48 M24

Service brake

Type	FCM Passive disc
Feeding	20 V DC
Resistant torque	2×40 Nm / 2×30 lbs.ft

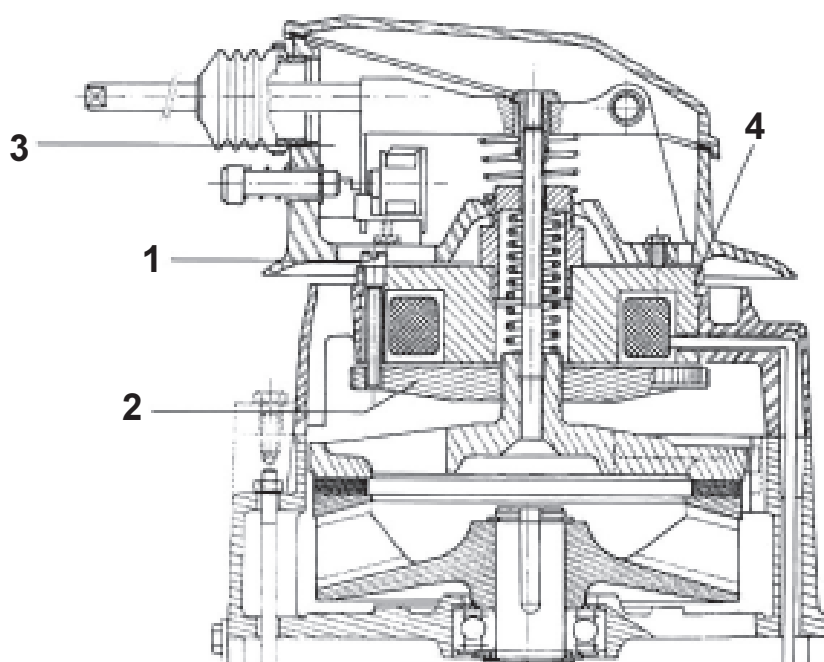
1.4 BRAKE SETTING

The brake, placed on the motor axle, is passive-disc type and intervenes only for parking; therefore it is electrically delayed by the general electric equipment.

The adjustment of the brake is carried out during the preassembly phase at Comedil's works.

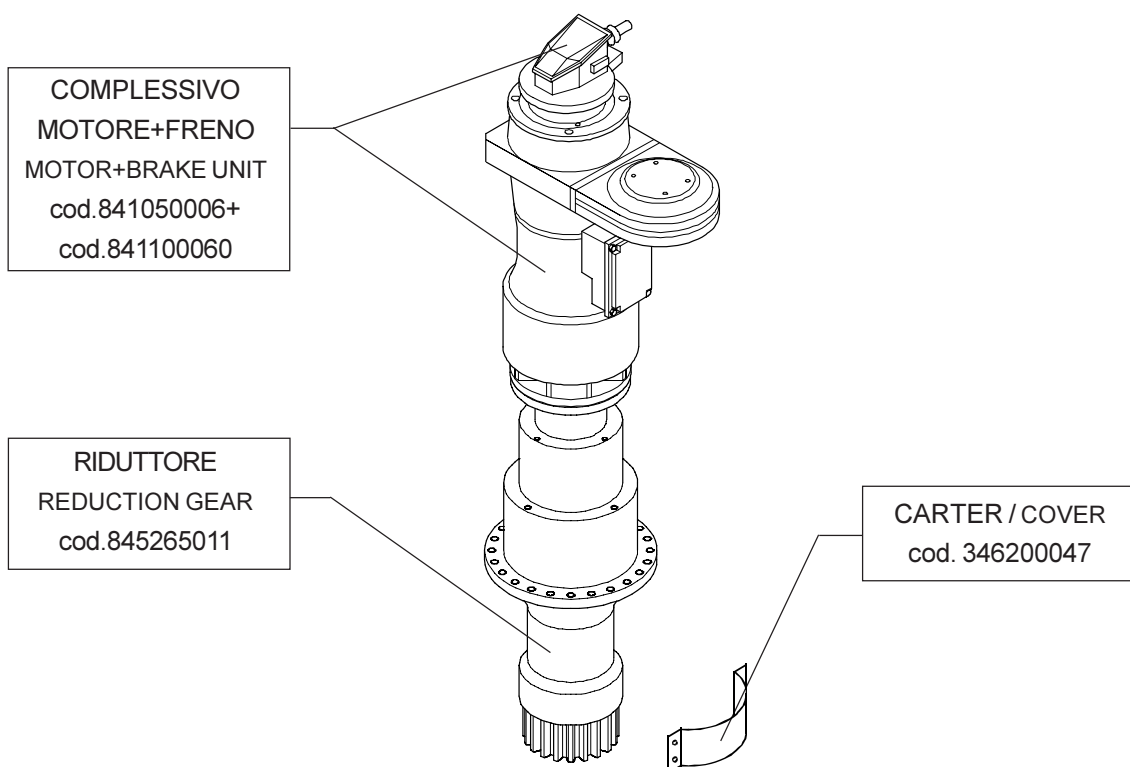
Any adjustments should be carried out on the air gap as follows (picture 1.4.1):

- A) remove the cover of the brake release device;
- B) loosen and remove screw (1),
- C) turn mobile disc (2) counterclockwise using a screwdriver through slit (3) until it touches magnet (4);
- D) with slit pressure make screw (1) touch mobile disc (2) and turn the latter clockwise; count three holes for the screw fitting;
- E) position screw (1) and lock it, when the third hole has been reached.



Picture 1.4.1

SPARE PARTS



Indice - Index - Sommaire - Inhaltsangabe

PARTI DI RICAMBIO - SPARE PARTS - PIECES DE RECHANGE - ERSATZTEILE				
CODICE DI GRUPPO	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
	Gruppo rotazione SSR 2 2 65	<i>Slewing unit</i>		
845265011	Riduttore 7 06 T3	<i>Reduction gear</i>		
841050006+ 841100060	Complessivo motore - freno	<i>Motor - Brake unit</i>		
840101010 840101013	Ralla	<i>Slewing ring</i>		

RICAMBI
SPARE PARTS
PIECES DE RECHANGE
ERSATZTEILE

Istruzioni per l'uso
Instructions for use
Mode d'emploi
Gebrauchsanleitung

A	B	C	D	E	F	G
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POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
243501010			TRASLAZIONE MOTRICE TAD 1RP 2M3	DRIVE TRAVELLING BOX		
1	346202001	1	Chiusura per scatola motrice	Cover		
2	840206005	2	Cusc. 22219 E TVPB (95 × 170 × 43)	Bearing		
3	346903040	1	Perno mot. 110 × 293	Motor pin		
4	347201010	1	Flangia attacco riduttore	Reduction gear		
5	845257001	1	Riduttore 1/51,7	Reduction gear		

Colonna A: posizione di riferimento su disegno d'insieme

Colonna B: codice particolare

Colonna C: quantità particolare

Colonna D: descrizione in lingua italiana

Colonna E - F - G: descrizione nelle varie lingue

Column A: part reference number on the assembly drawing

Column B: part code

Column C: part quantity

Column D: Italian designation

Column E - F - G: designations for the various languages

Colonne A: repère sur dessin d'ensemble

Colonne B: référence particulière

Colonne C: quantité particulière

Colonne D: description en italien

Colonne E - F - G: description dans les autres langues

Kolonne A: Referenznummer auf der Gesamtzeichnung

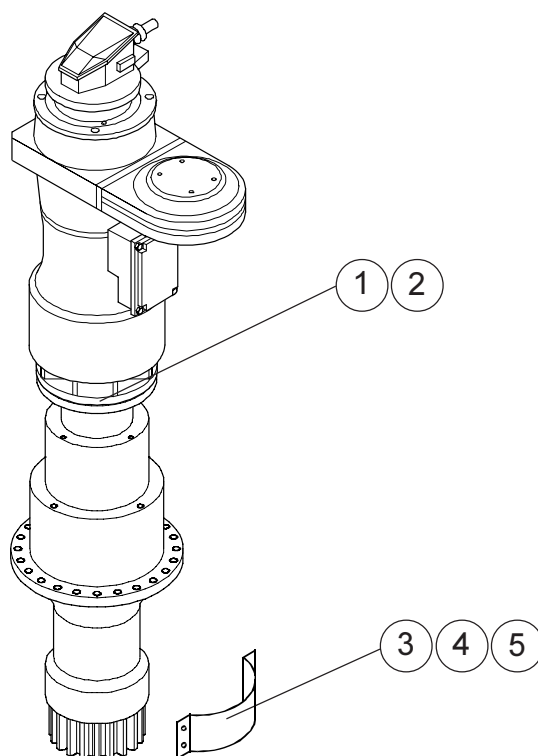
Kolonne B: Einzelheiten - Code

Kolonne C: Anzahl Einzelheiten

Kolonne D: Beschreibung in italienisch

Kolonne E - F - G: Beschreibung in verschiedenen Sprachen

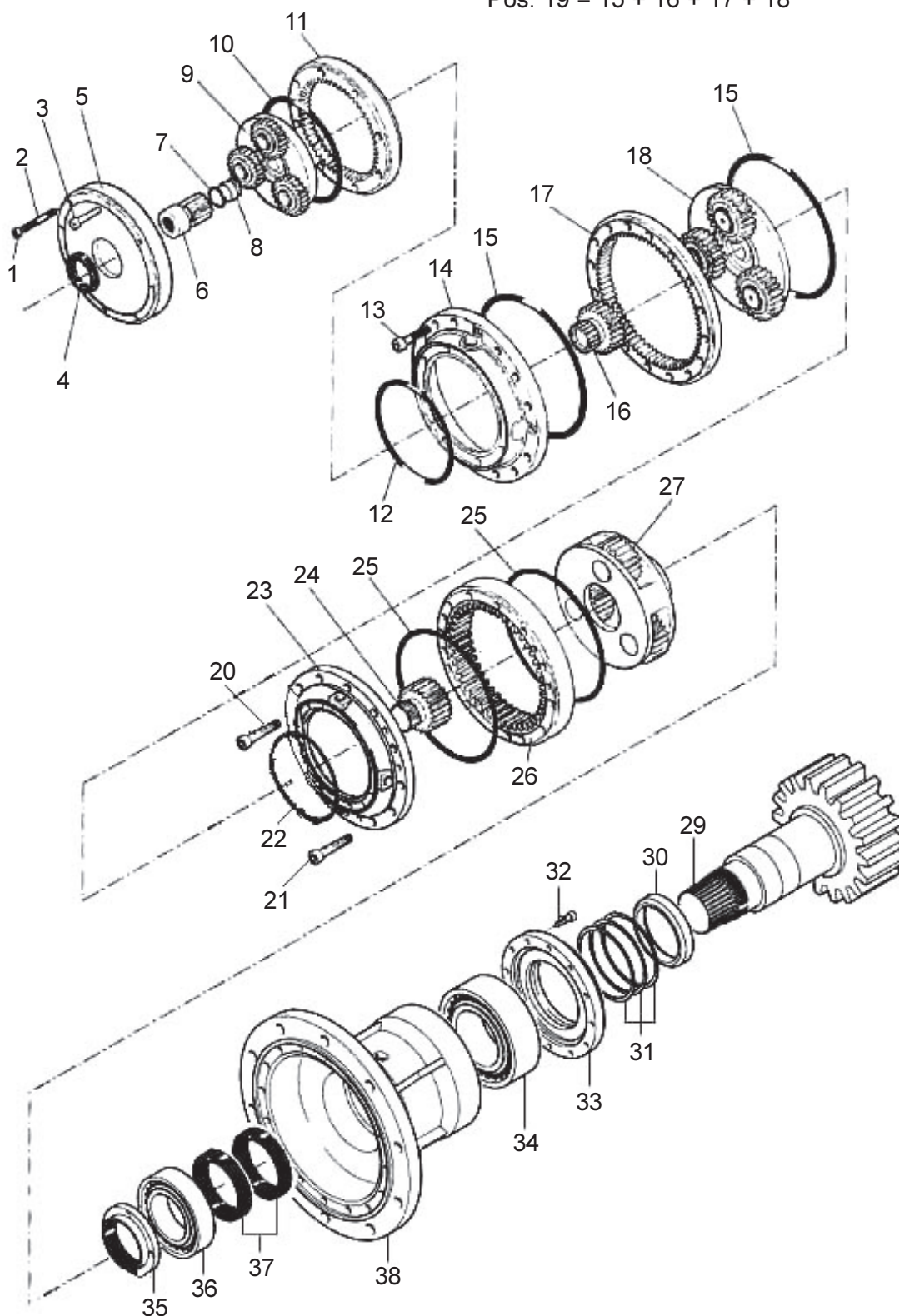
GRUPPO ROTAZIONE SSR 2 2 65
SLEWING UNIT



POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
			GRUPPO ROTAZIONE	SLEWING UNIT		
1	881732004	8	RONDELLA M10 Z - 6.8	WASHER		
2	881323002	8	DADO AUTOBLOCCANTE M10 -CL.8	SELF-LOCKING NUT		
3	346200047	2	CARTER PIGNONE	PINION COVER		
4	880133084	4	VITE TEIF M8 x 20 Z - 8.8	SCREW		
5	881732003	4	RONDELLA M8 Z - 6.8	WASHER		

RIDUTTORE 7 06 T3
REDUCTION GEAR

Pos. 19 = 15 + 16 + 17 + 18



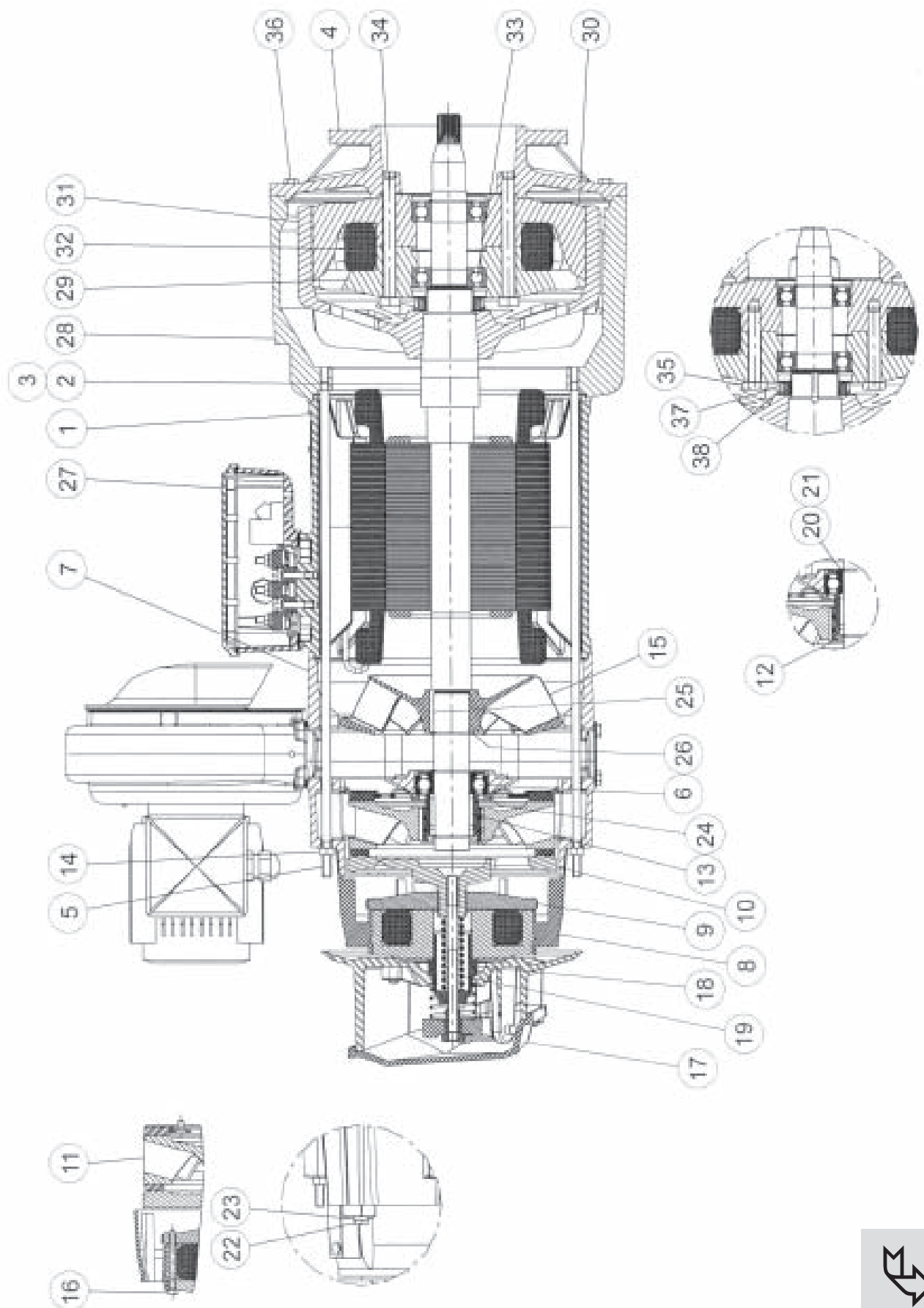
Pos. 39 = 29 + 30 + 31 + 32 + 33 + 34 + 35 + 36 + 37 + 38





POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
845265011			RIDUTTORE 7 06 T3	REDUCTION GEAR		
1		4	DADO M10 (713005003A)	NUT	ECROU	MUTTER
2		4	PRIGIONIERO M10 x 60 - 8.8 (721982016)	STUD BOLT	GOUJON	STIFTSCHRAUBE
3		4	VITE M10 x 35 - 8.8 (720954007A)	SCREW	VIS	SCHRAUBE
4		1	ANELLO TENUTA 35 x 52 x 7	SEAL RING	JONT D'ETANCHEITE	DICHTRING
5		1	COPERCHIO CHIUSURA (6653000890)	COVER	COUVERCLE	DECKEL
6		1	SOLARE z13 1:5,77 (6643500220)	SUN GEAR	ENGREN CENTRAL	SONNENRAD
7		1	O-RING 1,78 x 18,77 (715303310)	O-RING	O-RING	O-RING
8		1	PASTIGLIA (6663350030)	PAD	DISQUE DE FRICT.	ANLAUFSCHEIBE
9		1	RIDUZIONE COMPLETA 1:5,77 (2T235330030)	REDUCTION ASSEMBLY	ENSAMBLE REDUCTEUR	UNTERSETZUNGSRUFE
10		1	O-RING 2,62 x 145,72 (715303245A)	O-RING	O-RING	O-RING
11		1	ANELLO DENTATO z62 m2,25 (6641000141)	TOOTHED RING	ANNEAU DENTEE	ZAHNKRANZ
12		1	O-RING 2,62 x 145,72 (715303245A)	O-RING	O-RING	O-RING
13		12	VITE M10 x 50 - 8.8 (720954010A)	SCREW	VIS	SCHRAUBE
14		1	COPERCHIO CHIUSURA (6653500711)	COVER	COUVERCLE	DECKEL
15		2	O-RING 2,62 x 202,87 (715303268A)	O-RING	O-RING	O-RING
16		1	SOLARE z12 1:7,50 (6643000170)	SUN GEAR	ENGREN CENTRAL	SONNENRAD
17		1	ANELLO DENTATO z78 h20 (6641000360)	TOOTHED RING	ANNEAU DENTEE	ZAHNKRANZ
18		1	RIDUZIONE COMPLETA 1:7,50 (2T235332050)	REDUCTION ASSEMBLY	ENSAMBLE REDUCTEUR	UNTERSETZUNGSRUFE
19		1	STADIO DI RIDUZIONE 1:7,50 (2T235632050)	REDUCTION STAGE	STADE DE REDUCTION	UNTERSETZUNGSRUFE
20		4	VITE M12 x 70 - 8.8 (720955012A)	SCREW	VIS	SCHRAUBE
21		12	VITE M12 x 80 - 8.8 (720955014A)	SCREW	VIS	SCHRAUBE
22		1	O-RING 2,62 x 202,87 (715303268A)	O-RING	O-RING	O-RING
23		1	COPERCHIO COLLEGAMENTO (6653500920)	COVER	COUVERCLE	DECKEL
24		1	SOLARE z24 1:4,25 (6643010060)	SUN GEAR	ENGREN CENTRAL	SONNENRAD
25		2	O-RING 2,62 x 247,32 (715303295)	O-RING	O-RING	O-RING
26		1	ANELLO DENTATO z78 h48 (6641010030)	TOOTHED RING	ANNEAU DENTEE	ZAHNKRANZ
27		1	RIDUZIONE COMPLETA 1:4,25 (2T235334020)	REDUCTION ASSEMBLY	ENSAMBLE REDUCTEUR	UNTERSETZUNGSRUFE
28		1	STADIO DI RIDUZIONE 1:4,25 (2T235634020)	REDUCTION STAGE	STADE DE REDUCTION	UNTERSETZUNGSRUFE
29		1	ALBERO PIGNONE m12 z11 (6630060950)	PINION SHAFT	ARBRE PIGNON	RITZELWELLE
30		1	DISTANZIALE (6662000410)	SPACER	ENTRETOISE	DISTANZSCHEIBE
31		1	SEG. LAMELLARE 110/4,6/0,98 (722368004)	SEALING	JOINT	STHALABDICHTUNG
32		6	VITE M8 x 20 - 8.8 (720953003A)	SCREW	VIS	SCHRAUBE
33		1	COPERCHIO ANTERIORE (6657000221)	COVER	COUVERCLE	DECKEL
34		1	CUSCINETTO (712760086)	BEARING	ROULEMENT	LAGER
35		1	GHIERA REGISTRO M75 x 2 (6660000092)	NUT	ECROU	RUNDMUTTER
36		1	CUSCINETTO (712760063)	BEARING	ROULEMENT	LAGER
37		2	ANELLO TENUTA 85 x 110 x 12 (710300882A)	SEAL RING	JONT D'ETANCHEITE	DICHTRING
38		1	CORPO RIDUTTORE (6650005530)	REDUCTION GEAR HOUSING	CARTER	GETRLEBEGEHAUSE
39		1	ASSIEME USCITA (2T235042180)	OUTPUT ASSEMBLY	ENSEMBLE SORTIE	KOMPL.ABTRIEB

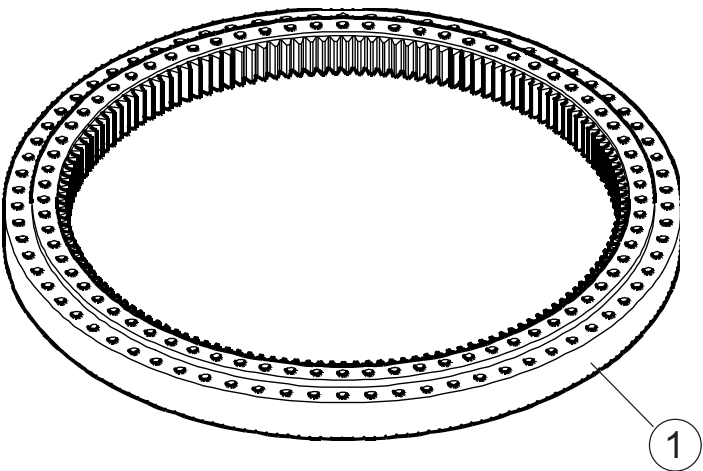
**COMPLESSIVO MOTORE-FRENO
MOTOR-BRAKE UNIT**





POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
841050006+ 841100060			MOTORE + FRENO	MOTEUR + FREIN		
1			Statore	Stator	Stator bobine	
2			Albero	Shaft	Arbre usine	
3			Rotore	Rotor	Rotor	
4			Flangia	Flange	Flasque	
5			Tirante M7 x 440	Threaded bar	Tige	
6			Cuscinetto	Bearing	Roulement prot. gr. hte temp.	
7			Flangia	Flange	Flasque cote frein	
8			Scudo bobina	Shield	Culasse bobinee	
9			Armatura	Frame	Armature	
10			Ingranaggio	Gear	Couronne gamie	
11			Disco freno	Brake disc	Disque frein	
12			Anello Seeger	Circlip	Circlip	
13					C// (F:A) >600 MPA 8 x 7 x 30	
14			Dado zincato	Galvanized nut	Ecrou zingue	
15			Turbina	Turbine	Turbine	
16			Vite di posizionamento	Setting screw	Vis de positionnement	
17			Dado autobloccante	Sel-locking nut	Ecrou auto freine	
18			Scatola per molla	Spring box	Boite a ressort	
19			Molla di compressione	Compression spring	Ressort cylind. de compression	
20			Anello di tenuta	O-ring	Anneau d'etancheite	
21			Distanziale	Spacer	Entretoise	
22			Vite M7 x 25	Screw	Vis	
23			Rondella Grower	Washer	Rondelle grower	
24			Rondella elastica	Spring washer	Rondelle elastique	
25					C// (F:B) >600 MPA 8 x 7 x 30	
26			Anello Seeger	Circlip	Circlip	
27			Scatola morsettiere	Terminal box	Ensemble boite a bornes	
28			Carter	Carter	Carter	
29			Induttore interno	Internal inductor	Inducteur interieur	
30			Induttore	Inductor	Inducteur	
31			Volano magnetico	Magnetic flywheel	Volant magnetique	
32			Bobina	O-ring	Bobine complete	
33			Cuscinetto	Bearing	Roulement	
34			Vite M8 x 90	Screw	Vis	
35			Vite M8 x 55	Screw	Vis	
36			Vite M6 x 20	Screw	Vis	
37			Dado	Nut	Ecrou	
38			Rondella	Washer	Rondelle	

RALLA
SLEWING RING



POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
840101010/13			RALLA	SLEWING RING		
1	840101010	1	RALLA PER CTT161-141	SLEWING RING CTT161-141		
	840101013		RALLA PER CTT181 - 181/A - CT212	SLEWING RING CTT181 - 181/A - CT212		



3

MAINTENANCE

3.1 GENERAL

Maintenance of the slewing drive unit is an on-going process pursuing two basic aims : inspection and repair.

Inspection consists of all the appropriate operations required to identify, locate and assess problems which might weaken the safety and functionality of the unit.

Repair is directly related to the inspection carried out and, resolving each detected deficiency, restores the unit to its original configuration and state of operation.



For detailed information on the maintenance programme recommended by the Manufacturer, refer to **Chapter 8 “General Maintenance”** of the crane’s operation manual.

3.2 GROUPS SUBJECT TO MAINTENANCE

To facilitate the routine maintenance operations Comedil cranes systems/components have been divided into main groups of intervention.



For detailed information, refer to **Chapter 8 “General Maintenance”** of the crane’s operation manual.

Details of the slewing drive groups subject to maintenance:

- 1) *Slewing ring*
- 2) *Motor*
- 3) *Reduction gear*
- 4) *Brake*
- 5) *Electrical equipment*

3.3 ROUTINE MAINTENANCE AND PERIODICAL INSPECTIONS

Maintenance procedures consist of two phases:

INSPECTION

REPAIR

This system guarantees that all potential slewing drive unit deficiencies are identified and repaired.

Defects which cannot be solved during this phase will become part of the “SPECIAL MAINTENANCE”.



For detailed information on the routine inspection criteria and requirements, refer to **Chapter 8 “General Maintenance”** of the crane’s operation manual.

3.3.1 Daily inspections

The operator, a qualified and trained person, is the appointed person to examine deficiencies and to determine whether they constitute a hazard.

A general inspection of the slewing unit is recommended, so as to check possible loosening of the slewing ring's connection bolts, insufficient lubrication of the slewing ring's teeth and of the pinions, etc.

3.3.2 Weekly inspections

A) Lubricate the slewing ring and pinion teeth as specified in the lubrication chart (⇒ par. 3.5). Teeth must always be covered by a grease film.

B) Lubricate the slewing ring's bearings as specified in the lubrication chart (⇒ par. 3.5).

A correct lubrication reduces friction and prolongs the slewing ring's life protecting it against corrosion.

Go on lubricating until a film of new grease leaks from the labyrinths or gaskets.

A lubrication carried out with the slewing ring running would prove more effective.

On completing the lubrication, make the slewing ring turn completely in both directions a few times so as to distribute the lubricant in a uniform way.

The greases used shall be compatible with the plastic materials used for the internal spacers and for the seal gaskets as specified in the lubrication chart. (⇒ par. 3.5).

The frequency of lubrication of the slewing ring depends on the working conditions. Normally, for all Comedil cranes, lubricate every 100 working hours.



Frequent lubrications are necessary when the crane is exposed to adverse environments, such as tropical, humid and dusty surroundings or in those areas where there are a lot of impurities or sudden changes in temperature. The same applies when a nonstop slewing is requested.



It is also necessary when the crane working area is restricted by the specific configuration of the job site, resulting in repeated partial slewings.

Always lubricate it before or after a long idle period, particularly before or after the winter stop.

Pay attention to detergents, which must not penetrate into the rolling system or damage the seal gaskets.

C) Visually inspect the integrity of the electrical equipment.



3.3.3 Monthly inspections

- A) Check high strength bolts used in connection of the slewing ring for proper tension with the special torque wrench, sticking to the values shown in the following table:

TYPE	PITCH		CLASS		MATERIAL	TORQUE WRENCH SETTING	
	[mm]	[inch.]	SCREW	NUT		[Nm]	[lbs.ft]
M24 × 160	3	0.12	10.9	10	C50	735	542

Attention to the crane which must be properly balanced.

The first check shall be done after 100 working hours; then every 3 working months.

The above intervals shall be reduced for crane working under anomalous conditions or when bolts that loosen have already been found.

Check gaskets every six months.

- B) Using low pressure compressed air remove the dust from inside the electrical boxes and panels.
- C) Inspect the motors and cooling fans for obvious defects or damage (likewise, inspect for obvious damage or short circuit and check the electric wires for right connections or for visible signs of damage).

3.3.4 Quarterly inspections

Made up for by monthly inspection.

3.3.5 Six-monthly inspections

Made up for by monthly inspection.

3.3.6 Annual inspections

- A) Inspect the slewing ring for broken teeth or wear. Likewise, inspect the pinions. Check more frequently as wear becomes more evident. The gap must be of approximately 0.4 mm (0.02 inch) maximum.
- B) Inspect the slewing ring for wear of the rollers or balls.
- At least a centesimal-scale dial gauge should be used for measurement and placed as near as possible to the rolling system (if possible, between the upper and lower slewing ring support). Measure the oscillation between a maximum unfavourable moment condition (crane unloaded and trolley at jib foot) and a maximum favourable moment condition (maximum static load), repeating the measurement on different points along the slewing ring's circumference. Prior to measuring, check the setting torque of the bolts used in connection with the slewing ring.



Carry out the first measurement prior to initial use to get reference values. Compare the following measurements (every 1000 hours or 12 working months) with the initial reference values: the difference shall be the actual gap.

The gap shall be equal to 2.4 mm (0.09 inch.).

In case of deviation from the mentioned values, replace the slewing ring (special maintenance to be performed by high qualified technicians, as called for in para. 3.4).

Inspect more frequently as wear becomes more evident.

- C) Treat corrosion on all external structural components and repaint as necessary.
- D) Visually inspect all the motor bearings for evident signs of wear.

Important notice



Should extraordinary events happen, such as long periods of driving rain with lightening striking near the crane, protracted work in a corroding ambient or in particularly foul areas, etc. MORE FREQUENTLY AND CAREFULLY INSPECT the electrical equipment for evident signs of wear. In particular, check the ropes running up the tower and possible leakages of water into the electrical boxes.

3.4 SPECIAL MAINTENANCE

Special maintenance tasks shall be carried out by skilled technicians who have been properly trained and have the experience to accomplish these tasks.



Specialists only shall be appointed to carry out the following operations:

- A) Overhaul of the electric motors and of the reduction gears;
- B) Replacement of the slewing ring;
- C) Repair of the electric system;

3.5 LUBRICATION AND OILS

PARTS TO BE SERVICED	LUBRICANT
Slewing reduction gear	MOBIL Mobilube oil 85/140
Slewing ring bearings	BP Energrease LS EP 2 ESSO Beacon EP 2 MOBIL Mobilux EP 2 SHELL Alvania EP 2 MOLIKOTE TTF 52 (*)
Slewing ring and pinions teeth	BP Energrease LC 2 ESSO Cazar K 2 MOBIL Mobiltac 81 SHELL Malleus GL 95
(*) for uses at low temperature	