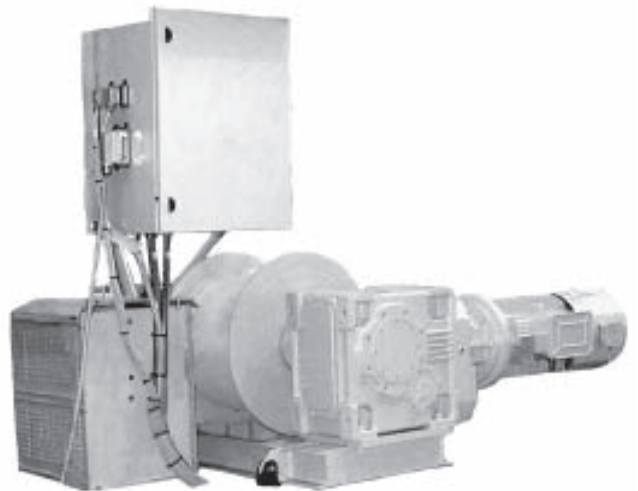




30 AFC 40 F12

Hoisting Drive Unit

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Chapter 9

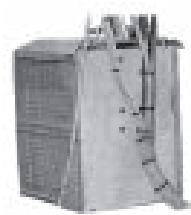
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GENERAL INFORMATION





1.1 DIMENSION AND WEIGHT

	DESCRIPTION	LENGTH	QUANTITY	WEIGHT
	<i>HOIST WINCH 30 AFC 40 F12</i>	1.95 m (6' 5")	1	1100 kg (2,425 lbs) (w/out rope)
		WIDTH		
		1.43 m (4' 8")		
		HEIGHT		
		0.88 m (2' 11")		

	DESCRIPTION	LENGTH	QUANTITY	WEIGHT
	<i>ELECTRICAL BOX</i>	0.6 m (1' 12")	1	
		WIDTH		
		0.4 m (1' 4")		
		HEIGHT		
		0.9 m (2' 11")		





	DESCRIPTION	LENGTH	QUANTITY	WEIGHT
	<i>RESISTORS GROUP</i>	0.6 m (1' 12")	1	
		WIDTH		
		0.55 m (1' 10")		
		HEIGHT		
		0.7 m (2' 4")		

1.2 PERFORMANCES

			m/min	t	kW	
	30 AFC 40 F12		0 ⇒ 3	4	30	278 m 350 m (LEBUS)
			3 ⇒ 10	4		
			10 ⇒ 41	4		
			41 ⇒ 66	2.38		
			66 ⇒ 82	1.86		
			0 ⇒ 1.5	8		
			1.5 ⇒ 5	8		
			5 ⇒ 20.5	8		
			20.5 ⇒ 33	4.76		
			33 ⇒ 41	3.72		



U.S. Customery units

			ft/min	lbs	kW	
	30 AFC 40 F12		0 ⇒ 10	8820	30	912 ft 1148 ft (LEBUS)
			10 ⇒ 33	8820		
			33 ⇒ 135	8820		
			135 ⇒ 216	5250		
			216 ⇒ 269	4100		
			0 ⇒ 5	17640		
			5 ⇒ 16	17640		
			16 ⇒ 66	17640		
			66 ⇒ 108	10500		
			108 ⇒ 135	8200		



1.3

TECHNICAL SPECIFICATIONS

A variable-frequency hoist winch controlled by a three-phase A.C. motor, which allows jerk-free accelerations and decelerations, thus ensuring a smooth load movement.

max. capacity 4 t / 8818 lbs (2-part line) and 8 t / 17636 lbs (4-part line) .

Motor

Feeding:	<i>three-phase A.C. current 400 V 50 Hz</i>
Model:	<i>FC200L TFE CCL 4 B5 poles</i>
Rated power:	<i>30 kW</i>
Cooling:	<i>Forced ventilation</i>

Reduction gear

Model:	<i>A903 UR P200 B3</i>
Nominal output torque:	<i>13750 Nm (10141 lbs.ft) (at 1400 rpm)</i>
Reduction:	<i>1:35.8</i>
Lubrication:	<i>Oil bath</i>

Drum

	Standard	Lebus
Groove bottom diameter:	<i>600 mm (1' 12")</i>	<i>560 mm (1' 10")</i>
Flange diameter:	<i>760 mm (2' 6")</i>	<i>760 mm (2' 6")</i>
Length:	<i>456 mm (1' 6")</i>	<i>456 mm (1' 6")</i>
Rope lay:	<i>Left hand helical</i>	<i>Lebus</i>
Spooled rope capacity:	<i>278 m (912 ft)</i>	<i>350 m (1148 ft)</i>

Wire rope

Diameter:	<i>12mm</i>
Model:	<i>L15 Flex153 wires</i>
Breaking strain:	<i>107 kN (24050 lbs)</i>
Tensile strength:	<i>1960 N/mm²</i>
Spiral:	<i>Right hand parallel</i>

Service brake

Model:	<i>K09/D</i>
Feeding:	<i>180 d.c.</i>
Braking torque:	<i>350 Nm (258 lbs.ft)</i>

Emergency brake (auxiliary)

Model:	<i>not available</i>
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1.3.1 Limiting devices and ropes

The 30 AFC 40 F12 hoist winch is provided with hoist limit switch (A) (fig. 1.3.1).

Hoisting rope (B) is usually supplied already coiled on the winch drum (fig. 1.3.1).



For the operation, adjustment and maintenance of these components, refer to the main chapters of the crane operation manual.

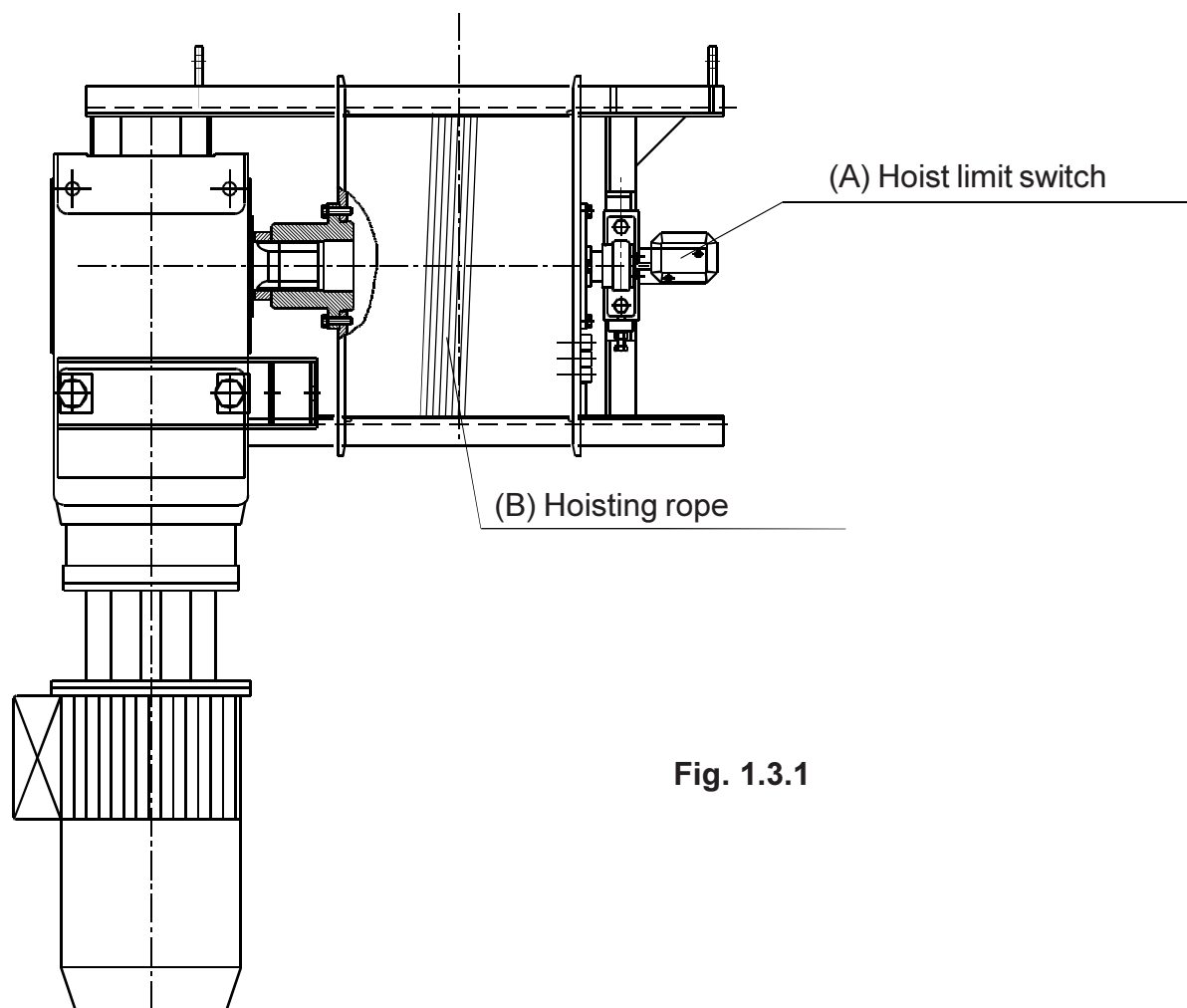


Fig. 1.3.1

1.4 BRAKE SETTING

1.4.1 General information

The hoist winch is equipped with an electromagnetic spring service brake placed on the motor, which is assembled at Comedil's works.



Visually inspect the brake for possible deficiencies at regular intervals, replacing the disc when showing an excessive wear (3 mm / 0.12 inch.).



Prior to servicing the brake anyhow, make sure it is not being energized and check grounding for proper connection.



Adjust the air gap "O" (fig.1.4.1) to 0.2 mm (0.008 inch.) when it reaches a value of 0.7 mm (0.03 inch.).

1.4.2 Setting the air gap

Unloose fixing screws (9) and set air gap "O" with brake adjusters (8) (fig. 1.4.1).



Should the air gap be adjuster as the work shift is over, make sure that the brake casing is not overheated.



The recommended air gap setting value is 0.2 mm (+0.05 - 0) / 0.008 inch.

The acceptable limit value is 0.7 mm / 0.03 inch.

The wear of the friction material increases the air gap, thus affecting the brake performances (even considerably when the acceptable limit value is exceeded).



Failing to inspect the brake unit as specifically recommended and to perform the required maintenance shall seriously compromise the braking function and constitute a hazard..

Hoist Brake K09/D

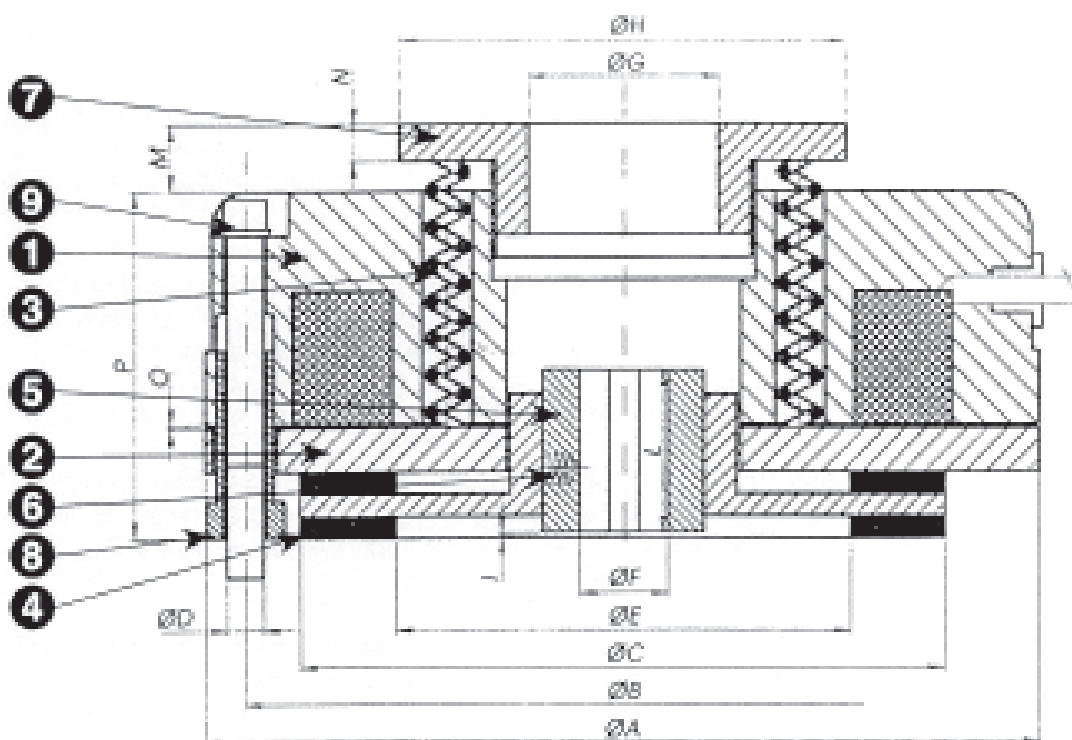


Fig. 1.4.1

**SPARE PARTS****Indice - Index - Sommaire - Inhaltsangabe**

PARTI DI RICAMBIO - SPARE PARTS - PIECES DE RECHANGE - ERSATZTEILE				
CODICE DI GRUPPO	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
240471010	Argano sollevamento 30 AFC 40 F12	Hoist winch		
841100410	Freno di servizio K09/D	Service brake unit		
345070040	Riduttore A-903 UR P200 B3	Reduction gear		



**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
----------	----------	----------	----------	----------	----------	----------

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

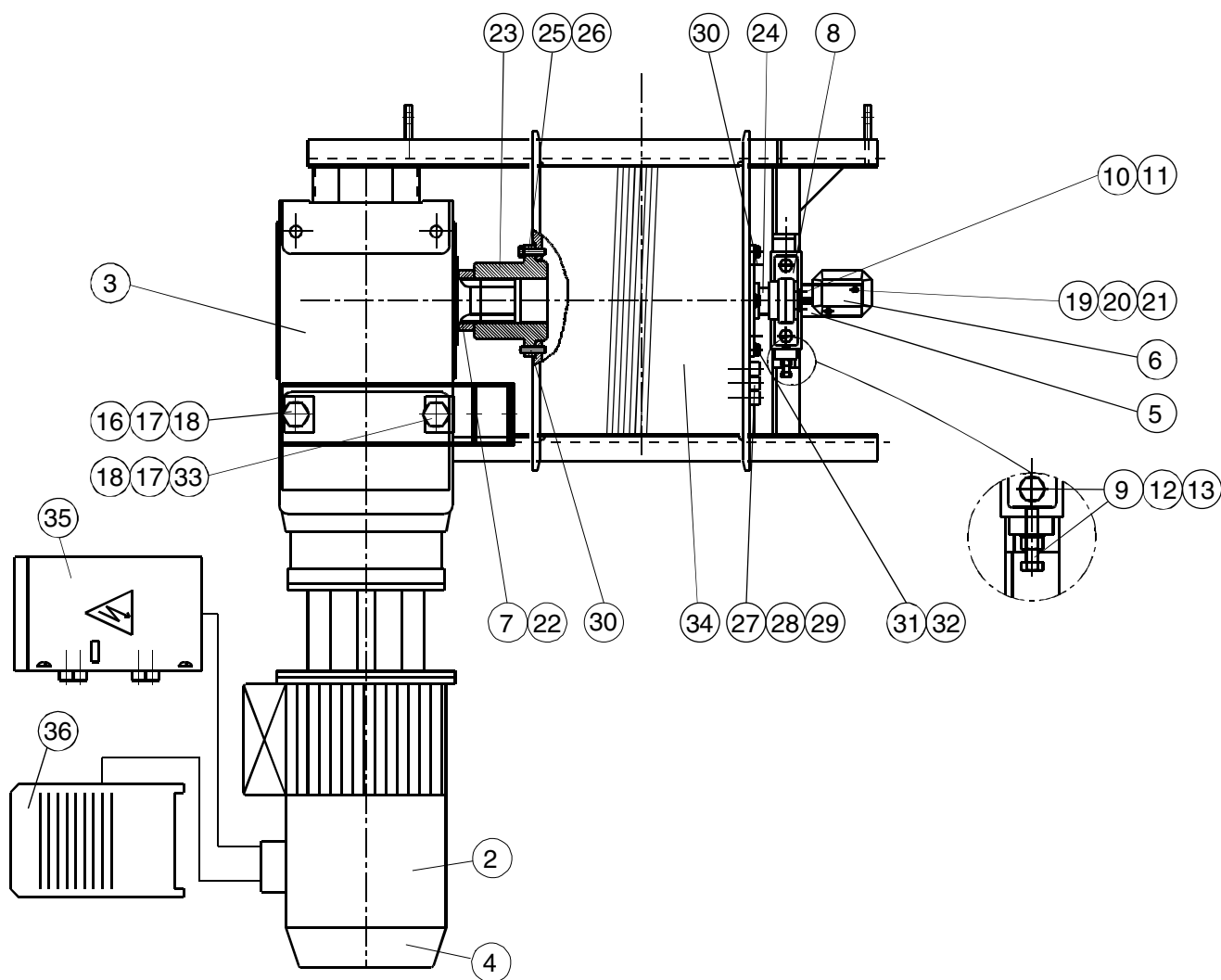
Kolonne B: Einzelheiten - Code

Kolonne C: Anzahl Einzelheiten

Kolonne D: Beschreibung in italienisch

Kolonne E - F - G: Beschreibung in verschiedenen Sprachen

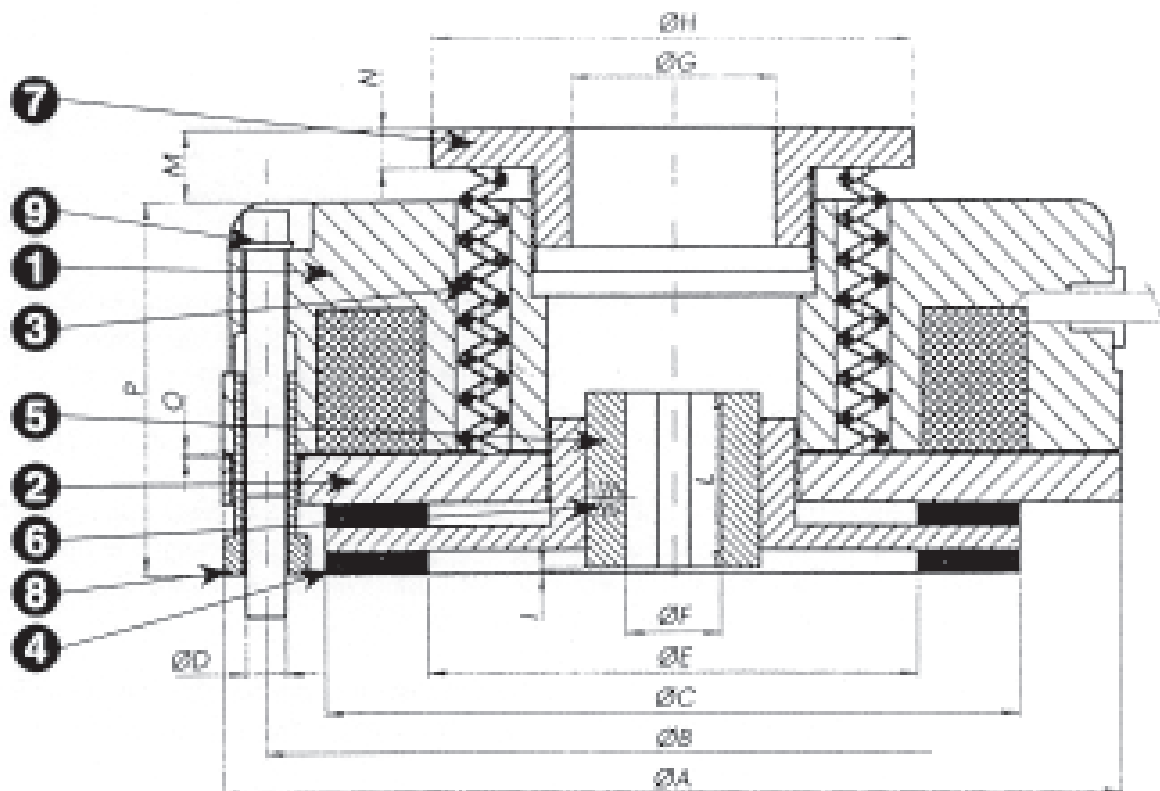
30 AFC 40 F12
ARGANO SOLLEVAMENTO
HOIST WINCH





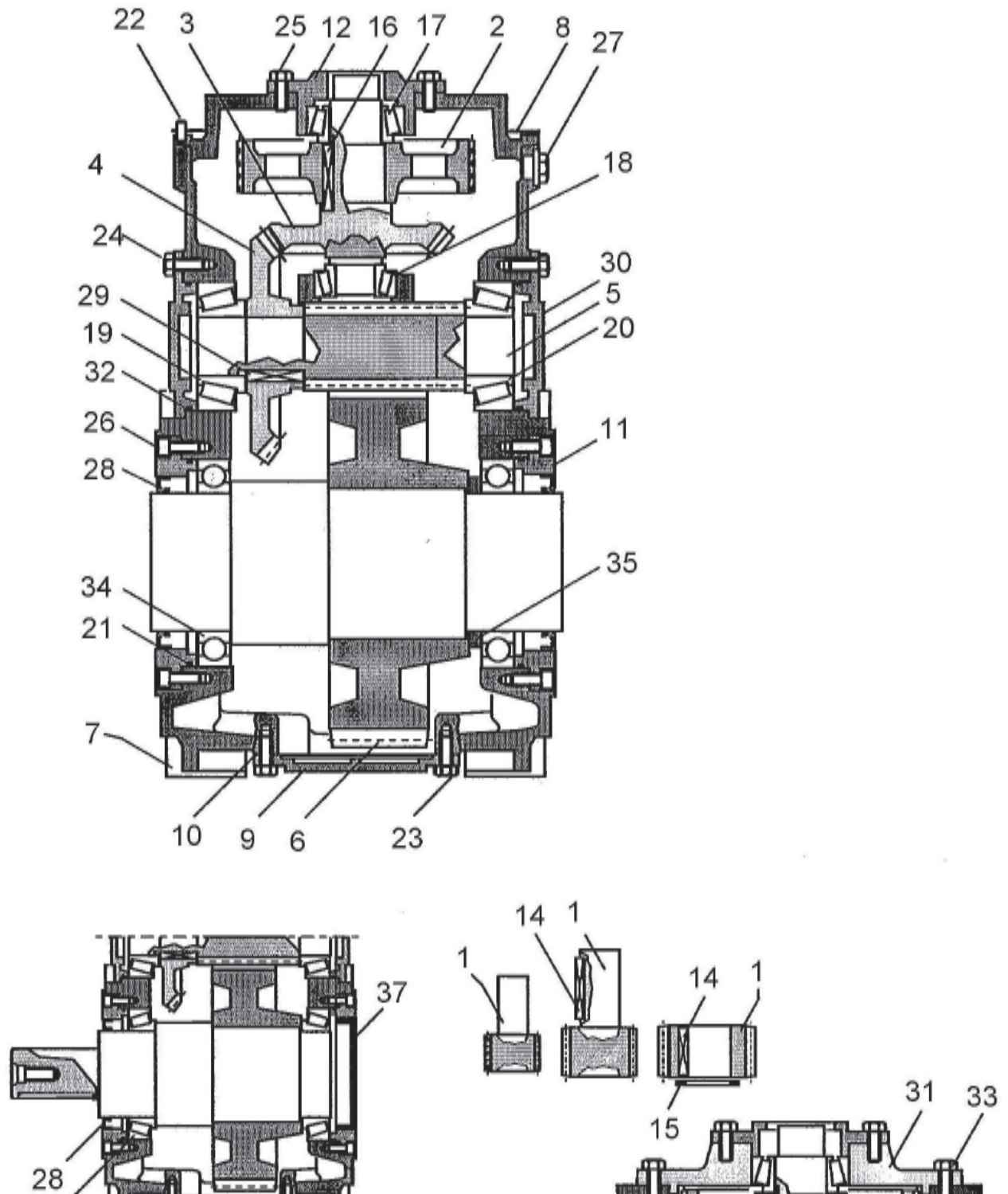
POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
240471010			ARGANO SOLLEVAMENTO 30 AFC 40 F12	HOIST WINCH		
1						
2	841020061	1	MOTORE FC200L+FRENO K09D	MOTOR+BRAKE		
3	345070040	1	RIDUTTORE A903	REDUCTION GEAR		
4	841100410	1	FRENO DI SERVIZIO K09D	SERVICE BRAKE		
5	326702010	1	SUPPORTO	SUPPORT		
6	832106025	1	FINECORSO	LIMIT SWITCH		
7	347000210	1	ALBERO IN USCITA	OUTPUT SHAFT		
8	840214001	1	CUSCINETTO SUPP. A OMEGA	BEARING		
9	881023004	3	DADO MEDIO CL8 M14 Z	MEAN NUT		
10	880133003	2	VITE TE 8,8 8 x 35 Z	SCREW		
11	881732003	2	RONDELLA PIANA 6,8 M8 Z	WASHER		
12	880133020	3	VITE TE 8,8 14 x 60 Z	SCREW		
13	881732006	5	RONDELLA PIANA 6,8 M14 Z	WASHER		
14						
15						
16	880133067	4	VITE TE 8,8 24 x 100 Z	SCREW		
17	881023007	6	DADO MEDIO CL8 M24Z	MEAN NUT		
18	881732010	10	RONDELLA PIANA 6,8 M24 Z	WASHER		
19	880133080	2	VITE TE 8,8 6 x 20 Z	SCREW		
20	881732002	2	RONDELLA PIANA 6,8 M6 Z	WASHER		
21	881023011	2	DADO MEDIO CL8 M6 Z	MEAN NUT		
22	347201270	1	SPESSORE Øi 99,5 x Øe 13 x 34,8	SHIM		
23	347201280	1	FLANGIA LATO RIDUTTORE	FLANGE		
24	347201290	1	FLANGIA LATO SUPPORTO	FLANGE		
25	880134041	8	VITE TE 10,9 14 x 50 Z	SCREW		
26	881736013	8	RONDELLA PIANA C50 M14 Z	WASHER		
27	881732003	6	RONDELLA PIANA 6,8 M8 Z	WASHER		
28	880133205	6	VITE TE 8,8 8 x 40 Z	SCREW		
29	883346100	3	MORSETTO TAMBURRO F12	CLAMP		
30	883847014	4	SPINA ELASTICA Ø 10 x 35	ELASTIC PIN		
31	881732006	6	RONDELLA PIANA 6,8 M14 Z	WASHER		
32	880133017	6	VITE TE 8,8 14 x 45 Z	SCREW		
33	880133063	2	VITE TE 8,8 24 x 60 Z	SCREW		
34	446001035	1	TAMBURRO SOLL. 600 456 760 F12	DRUM		
35	330704001-1	1	QUADRO ELETTRICO	ELECTRICAL BOX		
36	831499014	1	GRUPPO RESISTENZE	RESISTORS GROUP		

FRENO DI SERVIZIO K09/D
SERVICE BRAKE



POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
841100410			FRENO SERVIZIO K09/D	SERVICE BRAKE	FREIN SERVICE	BETRIEBSBREMSE
1		1	Elettromagnete	Electromagnet	Electroaimant	Elektromagneten
2		1	Ancora	Armature plate	Ancre	Ankerscheibe
3			Molla di coppia	Spring	Ressort	Federn
4		1	Disco	Disc	Disque	Bremsscheibe
5		1	Mozzo	Splined hub	Moyeu	Mitnehmer
6			Molla antivibrazione	Spring	Ressort	Federn
7		1	Ghiera	Adjusting ring	Embout	Einstellring
8			Registro	Adjusting nut	Ecrou	Einstellmutter
9		6	Vite di fissaggio	Fixing screw	Vis de fixation	Feststellschrauben
10						
11						
12						

**RIDUTTORE A-903
REDUCTION GEAR**





POS.	CODICE	Q.TA'	DESCRIZIONE	DESCRIPTION	DESIGNATION	BEZEICHNUNG
345070040			RIDUTTORE A-903	REDUCTION GEAR		
1			PIGNONE 1a RIDUZIONE (151)	PINION		
2			CORONA 1a RIDUZIONE (152)	CROWN		
3			PIGNONE CONICO (201)	BEVEL PINION		
4			CORONA CONICA (202)	RING BEVEL GEAR		
5			PIGNONE LENTO (231)	PINION		
6			CORONA LENTA (232)	CROWN		
7			CASSA (301)	CASING		
8			GUARNIZIONE (302)	GASKET		
9			COPERCHIO DI CHIUSURA (303)	COVER		
10			GUARNIZIONE (304)	GASKET		
11			CAPPELLOTTO ALB. LENTO (305)	SHAFT CAP		
12			SUPPORTO INTERNO (307)	SUPPORT		
13						
14			LINGUETTA (5039)	TONGUE JOINT		
15			ANELLO SEEGER (5040)	SNAP RING		
16			LINGUETTA (5202)	TONGUE JOINT		
17			CUSCINETTO (5320)	BEARING		
18			CUSCINETTO (5321)	BEARING		
19			CUSCINETTO (5322)	BEARING		
20			CUSCINETTO (5323)	BEARING		
21			ANELLO O-RING (5324)	O-RING		
22			SPINA CILINDRICA (5325)	PARALLEL PIN		
23			VITE DI FISSAGGIO (5326)	FIXING SCREW		
24			VITE DI FISSAGGIO (5327)	FIXING SCREW		
25			VITE DI FISSAGGIO (5328)	FIXING SCREW		
26			VITE DI FISSAGGIO (5329)	FIXING SCREW		
27			TAPPO OLIO (5333)	FILLER CAP		
28			ANELLO DI TENUTA (5851)	O-RING		
29			LINGUETTA (5854)	TONGUE JOINT		
30			CAPPELLOTTO CHIUSO (306)	CAP		
31			SUPPORTO CUSCINETTO (310)	BEARING SUPPORT		
32			ANELLO O-RING (5254)	O-RING		
33			VITE SUPPORTO CUSCINETTO (5335)	SCREW		
34			CUSCINETTO (5303)	BEARING		
35			DISTANZIALE (853)	SPACER		
36			CUSCINETTO (5304)	BEARING		
37			CAPPELLOTTO IN GOMMA (5852)	CAP		

3

MAINTENANCE3.1 **GENERAL**

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

Inspection consists of all the appropriate operations required to locate, identify 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 program and requirements, refer to **Chapter 8 “Maintenance”** of the crane operation manual.

3.2 **LIST OF THE GROUPS SUBJECT TO MAINTENANCE**

To facilitate the routine maintenance operations, Comedil cranes systems/components have been shared into some main groups of intervention. For detailed information, refer to **Chapter 8 “Maintenance”** of the crane operation manual.

Below find the hoisting unit groups subject to maintenance:

- 1) *Winch*
- 2) *Winch brake*
- 3) *Connectors and electric cables*
- 4) *Limit switch*
- 5) *Cooling fan*

3.3 **ROUTINE MAINTENANCE AND PERIODICAL INSPECTIONS**

Maintenance procedures consist of two phases: **INSPECTION**
 REPAIR

This system guarantees that all potential hoist 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 “Maintenance”** of the crane 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.

When entering the crane's slewing upper part, the first visual examination shall be performed and the general conditions of the hoist winch inspected for possible deficiencies.

3.3.2 Weekly inspections

Visually inspect the hoist winch for possible defects, make sure it works correctly and check the wear conditions of the brake pads.

3.3.3 Monthly inspections

- A) Check that the winch is in good condition;
- B) Check the brake discs for evident signs of wear and damage of their components; adjust the brake pads as necessary;
- C) Check the reduction gear for proper oil level and grease the bearing (Ω -support \Rightarrow para. 3.5);
- D) Remove dust from the indoor of any electric box using low pressure compressed air;
- E) Inspect the motor and cooling fan for obvious defects or damage;
- F) Inspect the gearmotor-to-frame and frame-to-crane structure for proper connection;
- G) Likewise, inspect the motor for obvious damage or short circuit, the electric wires for right connection or visible signs of damage.

3.3.4 Annual inspections

- A) Perform the non-destructive test on the winch brake discs;
- B) Inspect the bearing (Ω -support), clean it and check it for evident signs of damage;
- C) Replace any fastening equipment which is damaged;
- D) Treat corrosion on all components. Repaint as necessary.



ADVISE: At three-year intervals at the latest, even with the drive unit not in regular use, replace the oil in the reduction gear with that recommended at para 3.5 .



Important Advise

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 cables running up the tower and possible leakages of water into the electrical boxes.

3.4 SPECIAL MAINTENANCE

Special maintenance tasks shall be accomplished 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) Repair of electronic components and calibration of electronic systems which operate the drive unit motion and mechanisms;
- B) Adjustment of the winch and the brake;
- C) Overhaul of the electric motor and the reduction gear;
- D) Overhaul of the winch and replacement of the bearing (Ω -support);
- E) Repair of the electric system;
- F) Non-destructive testing for structural damage;
- G) Repair and replacement of structural parts of the winch.

3.5 LUBRICATION AND OILS

PARTS TO BE SERVICED	LUBRICANT
Hoist reduction gear	MOBIL Mobilube oil 630 HC "BP" Energear SGX 75W-90
	SINTOFLO "GEAR LUBE" additive (*)
Bearing (omega support)	SKF "LGEP 2" INA "SM02"
(*) The recommended PTFE-additive is optional	



Check the reduction gear for proper oil level after any repair performed inside the hoist winch.