

Parts Manual
PL12-67ES-Z
04/04/2011

OMEGA TECHNOLOGIES

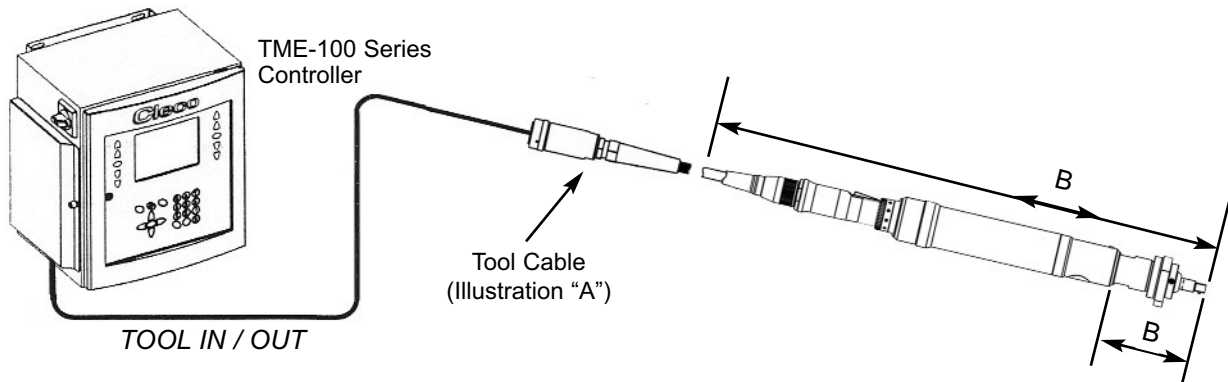
Cleco®

67ES... Series
Electronically Controlled Floating Spindle Nutrunner



For additional product information visit our website at:
<https://dotcotool.com/product-category/cleco-tools/cleco-corded-electric-nutrunners-cleco-air-tools/cleco-67-series-transducer-control-inline-floating-spindle-corded-electric-nutrunners/>

* Power cord
115 VAC or 230 VAC



A	B
Order No.	Order No.
Bestell-Nr.	Bestell-Nr.
Order No.	Order No.
Referencia	Referencia
Order No.	Order No.
67ES105Z4	
67ES135Z4	
67ES1670Z8	
67ES190Z6	
67ES2060Z8	
67ES285Z6	
67ES385Z6	
67ES475Z6	
67ES610Z6	
67ES65Z4	
67ES850Z8	
67ES1050Z8	

Programming notes, see PL12EN-1300
 Programmier-hinweise siehe PL12DE-1300
 Programming notes, see PL12FR-1300
 Instrucciones de programación ver PL12ES-1300
 Programming notes, see PL12IT-1300

Battery for
 Batterie für
 Battery for
 Bateria del
 Battery for

TME-100

575708

(*) Power Cords (one furnished as standard)

115 VAC USA 541683-01
230 VAC USA 541683-02
230 VAC Europe 541683-03

Optional Tool Cables (see page 5):

Extension Cable 542779-XXX
 Swivel Cable 542780-XXX
 Tool Cable 542778-XXX

TME-100 Series Controller

Supply Voltage	EN	DE	PT	ES
	Order Number	Bestell-Nr.	Order Number	Referencia
115 VAC	TME-111-15-U	TME-111-15-D	TME-111-15-P	TME-111-15-S
115 VAC	TME-121-15-U	TME-121-15-D	TME-121-15-P	TME-121-15-S
230 VAC	TME-111-30-U	TME-111-30-D	TME-111-30-P	TME-111-30-S
230 VAC	TME-121-30-U	TME-121-30-D	TME-121-30-P	TME-121-30-S



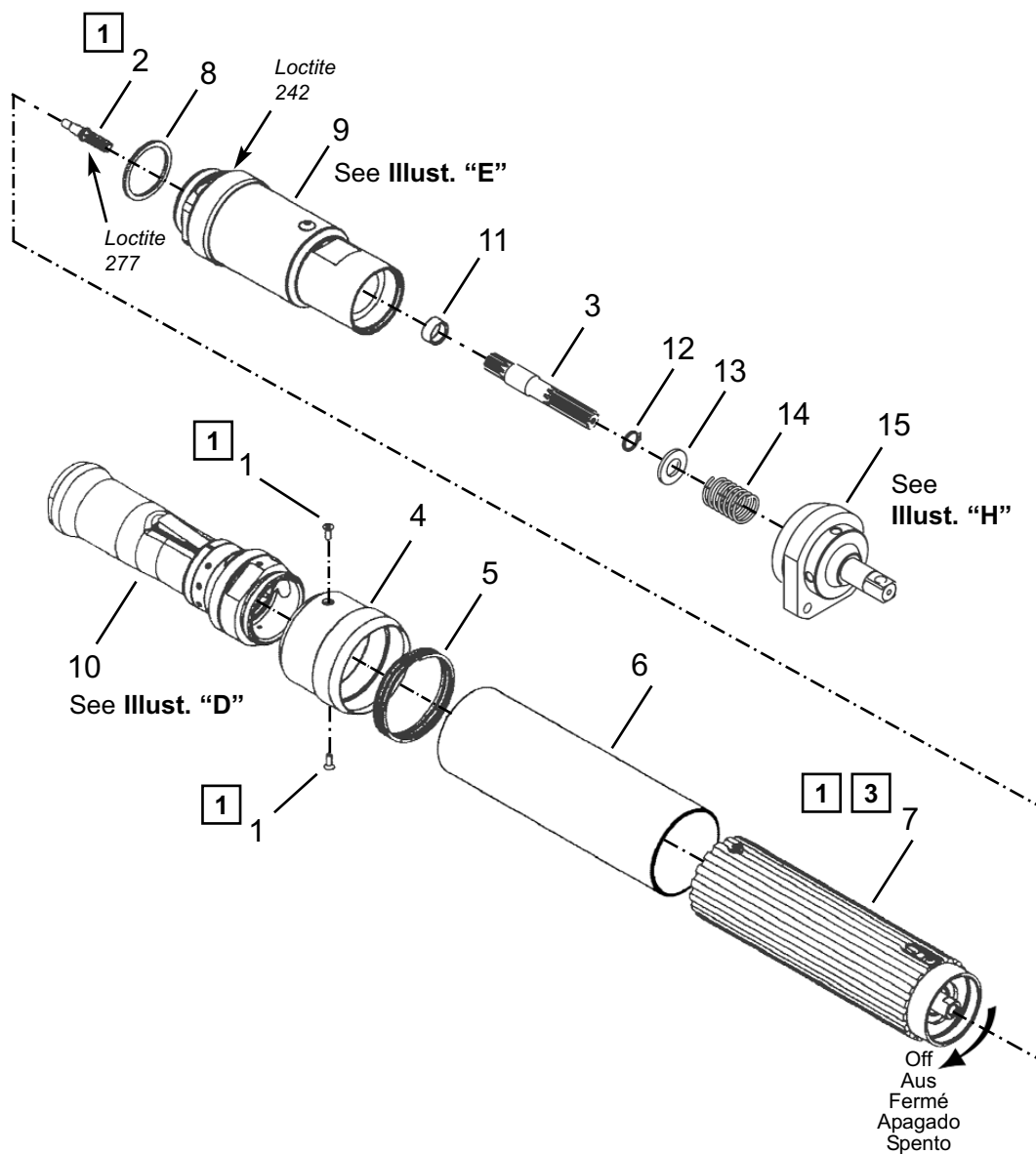
"A"

Models:

67ES65Z4

67ES105Z4

67ES135Z4



1 3 See Assembly Notes.

Cleco®
67ES--Z4 Inline Assembly

PL12-67ES-Z
May 9, 2006

Illustration "A" - Z4 Inline Nutsetter

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	93380005	2		Screw	Schraube	Vis	Tornillo	Vite
2	Table "A"	1		Sun Gear (7T)	Lager	Coussinet	Cojinete	Cuscinetto
3	49088104	1		Shaft	Achse	Arbre	Eje	Albero
4	35177103	1		Sleeve Adapter	Hülse	Manchon	Manguito	Manicotto
5	35009107	1		Spring	Druckfeder	Ressort	Resorte	Molla
6	542937	1		Wire Sleeve	Hülse	Douille	Manguito	Manicotto
7	542878	1		Motor Assembly	Motorbaugruppe	Ensemble du moteur	Ensamblaje del motor	Gruppo motore
8	35019101	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
9	Figure "E"	1		Gear Case Asm.	Getriebegehäusebau- gruppe	Assemblage de couvre-engrenages	Ensamblaje de caja de engranajes	Gruppo scatola ingranaggi
10	Figure "D"	1		Handle Assembly	Handgriff	Poignée	Manija	Impugnatura
11	48139113	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
12	92840003	1		Retaining Ring	Sicherungsring	Anneau de fixation	Anillo de retención	Anello di fissaggio
13	49029103	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
14	94071014	1		Compression Spring	Druckfeder	Ressort	Resorte	Molla
15	Figure "I"	1		Z4 Attachment	Kopfstück	Accessoire	Accesorio	Testina

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato /

Designa el repuesto recomendado / Indique la pièce de rechange conseillée

(T) = Teeth / Zähne / Dents / Dientes / Dente

Table "A"

Ref. #	Description	#	67ES65Z4	67ES105Z4	67ES135Z4
2	Sun Gear	1	43288170	43288170	43288169

"B"

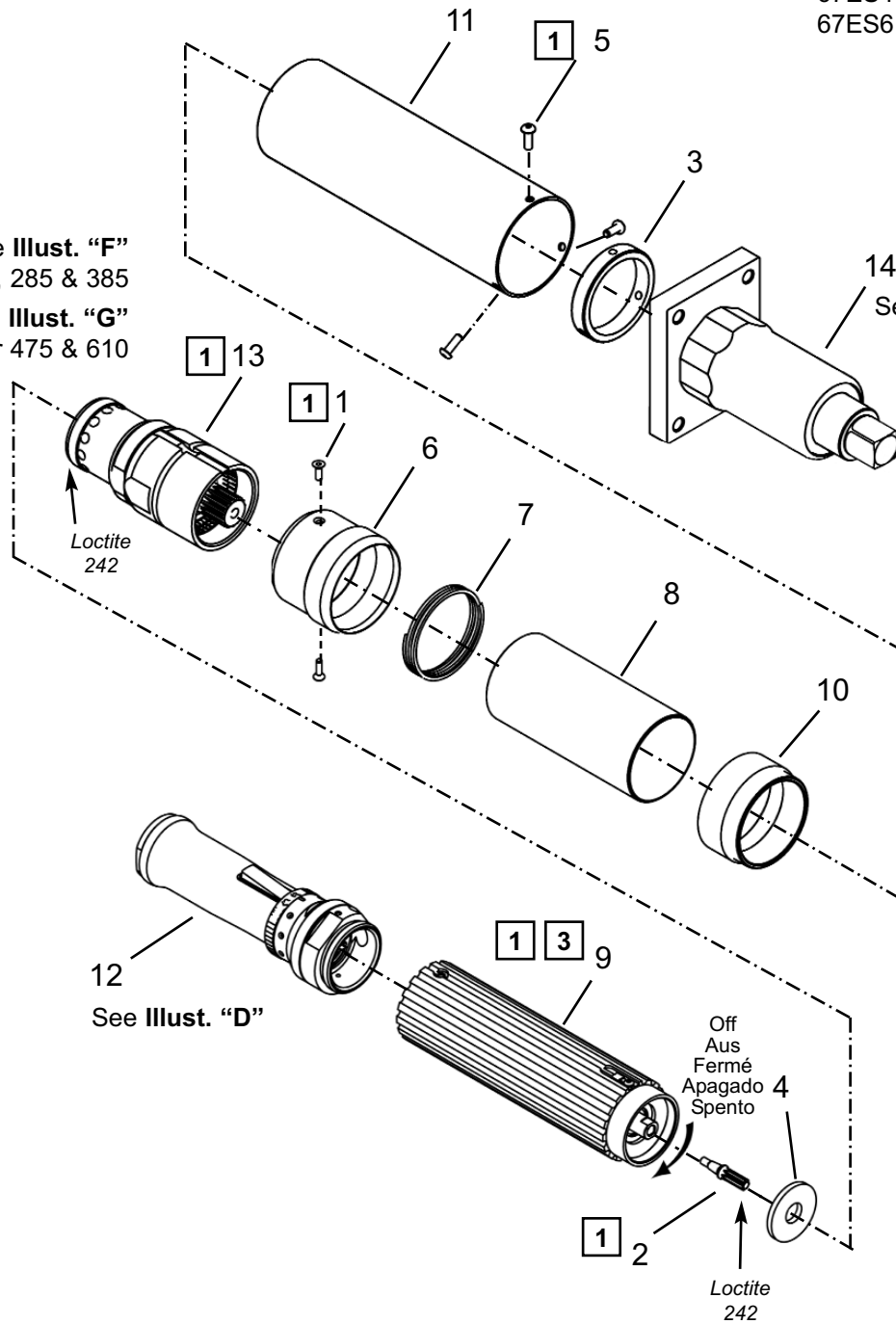
Models:

67ES190Z6
67ES285Z6
67ES385Z6
67ES475Z6
67ES610Z6

See Illust. "F"
for 190, 285 & 385

See Illust. "G"
for 475 & 610

See Illust. "J"



1 3 See Assembly Notes.

Cleco®
67ES--Z6 Inline Assembly

PL12-67ES-Z
May 9, 2006

Illustration "B" - Z6 Inline Nutsetter

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	93380005	1		Screw	Schraube	Vis	Tornillo	Vite
2	43288169	1		Sun Gear (5T)	Lager	Coussinet	Cojinete	Cuscinetto
3	49658124			Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
4	35129102	1		Washer	Scheibe	Rondelle	Arandela	Rondella
5	93300035	3		Screw	Schraube	Vis	Tornillo	Vite
6	35177103	1		Sleeve Adapter	Hülse	Manchon	Manguito	Manicotto
7	35009107	1		Spring	Druckfeder	Ressort	Resorte	Molla
8	543216	1		Wire Sleeve	Kabelabdeckung	Couverture de fil	Cubierta de cable	Copertura filo
9	542878	1		Motor Assembly	Motorbaugruppe	Ensemble du moteur	Ensamblaje del motor	Gruppo motore
10	35098102	1		Sleeve Adapter	Mutter	Ecrou	Tuerca	Dado
11	Table "B"	1		Wire Sleeve	Hülse	Douille	Manguito	Manicotto
12	Figure "D"	1		Handle Assembly	Handgriff	Poignée	Manija	Impugnatura
13	Table "B"	1		Gear Case Asm.	Getriebegehäusebau gruppe	Assemblage de couvre-engrenages	Ensamblaje de caja de engranajes	Gruppo scatola ingranaggi
14	Figure "J "	1		Z6 Attachment	Kopfstück	Accessoire	Accesorio	Testina

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Table "B"

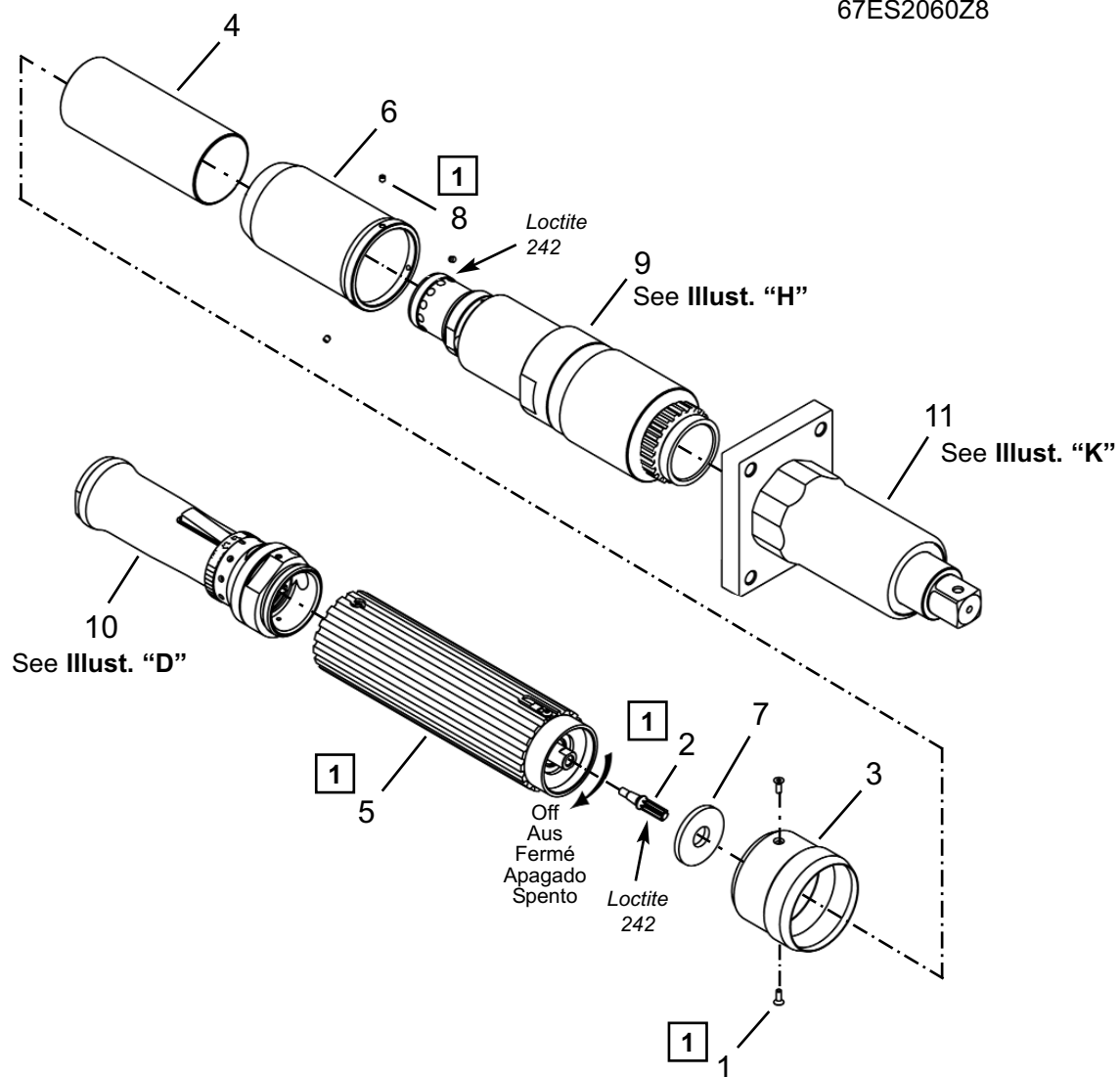
Ref. #	Description	Qty.	67ES190D6	67ES285D6	67ES385D6	67ES475D6	67ES610D6
11	Wire Sleeve	1	35097101	35097101	35097101	35A37102	35A37102
13	Gear Case Asm.	1	35646010	35646011	35646012	46036093	46036094

67ES--Z8 Inline Assembly

"C"

Models:

67ES850Z8
67ES1050Z8
67ES1670Z8
67ES2060Z8



1 3 See Assembly Notes.

Cleco®
67ES--Z8 Inline Assembly

PL12-67ES-Z
May 9, 2006

Illustration "C" - Z8 Inline Nutsetter

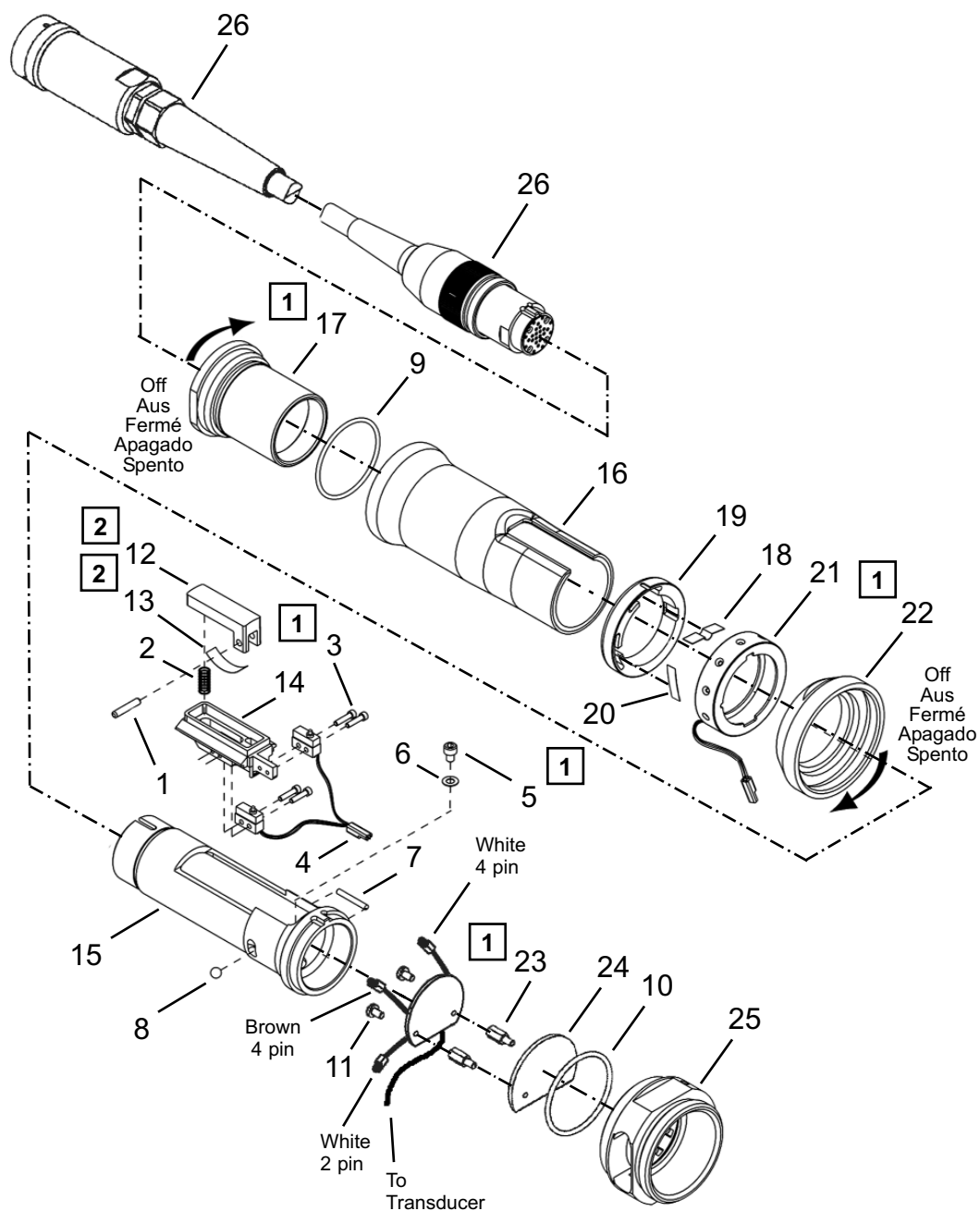
Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	93380005	2		Screw	Schraube	Vis	Tornillo	Vite
2	43288170	1		Sun Gear (7T)	Lager	Coussinet	Cojinete	Cuscinetto
3	35177103	1		Sleeve Adapter	Zwischenstück	Adaptateur	Adaptador	Adattatore
4	542889	1		Wire Sleeve	Kabelabdeckung	Couverture de fil	Cubierta de cable	Copertura filo
5	542878	1		Motor Assembly	Motorbaugruppe	Ensemble du moteur	Ensamblaje del motor	Gruppo motore
6	35257105	1		Wire Sleeve	Kabelabdeckung	Couverture de fil	Cubierta de cable	Copertura filo
7	35129102	1		Washer	Scheibe	Rondelle	Arandela	Rondella
8	93320021	3		Set Screw	Stellschraube	Vis de pression	Tornillo fijador	Vite di arresto
9	Figure "H"	1		Gear Case Asm.	Getriebegehäusebau gruppe	Assemblage de couvre-engrenages	Ensamblaje de caja de engranajes	Gruppo scatola ingranaggi
10	Figure "D"	1		Handle Assembly	Handgriff	Poignée	Manija	Impugnatura
11	Figure "K"	1		Z8 Attachment	Kopfstück	Accessoire	Accesorio	Testina

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“D”



1 **2** See Assembly Notes.

67ES--Handle Assembly

Illustration "D" - ES Handle Assembly

Index	Number	#	●	EN Description	DE Benennung	FR Designation	ES Descripción	IT Descrizione
1	541480	1		Pin	Stift	Goupille cylindrique	Pasador	Spina
2	26451	1		Switch Spring	Druckfeder	Ressort	Resorte	Molla
3	542077	4		Screw	Schraube	Vis	Tornillo	Vite
4	F900246	1		Start/Reverse Switch	Schalter	Interruteur	Interrupitor	Interruttore
5	B159V	1		Cap Screw	Kopfschraube	Vis de chapeau	Tornillo de casquete	Vite a testa cilindrica
6	W115	1		Lock Washer	Sicherungsscheibe	Rondelle frein	Arandela de presión	Rondella di bloccaggio
7	1009089	1		Pin	Stift	Goupille cylindrique	Pasador	Spina
8	1091	1		Steel Ball,3/16"	Stahlkugel	Bloom d'acier	Bola de acero	Sfera in acciaio
9	22598	1		O-Ring	O-Ring	Joint torique	Anillo "O"	Anello ad O
10	902362	1		O-Ring	O-Ring	Joint torique	Anillo "O"	Anello ad O
11	17-111	2		Screw	Schraube	Vis	Tornillo	Vite
12	931310	1		Switch Actuator	Hebel	Levier	Palanca	Leva
13	931311	1		Switch Spring	Druckfeder	Ressort	Resorte	Molla
14	541013	1		Switch Holder	Gehäuse	Corps	Caja	Corpo
15	541015	1		Handle	Handgriff	Poignée	Manija	Impugnatura
16	541018	1		Handle Sleeve	Griffhülse	Manchon de poignée	Manguito de la manija	Rivestimento impugnatura
17	541023	1		Connective Sleeve	Hülse	Douille	Manguito	Manicotto
18	541033	1		Reverse Spring	Druckfeder	Ressort	Resorte	Molla
19	542938	1		Reverse Actuator	Hebel	Levier	Palanca	Leva
20	541624	1		Fwd/Rev Spring	Druckfeder	Ressort	Resorte	Molla
21	542819	1		Light Ring Asm.	Ring	Anneau	Anillo	Anello
22	542875	1		Cap	Kappe	Chapeau	Tapa	Cappello
23	542244	2		Stand Off	Distanzstück	Séparateur	Separador	Neutralizzatore
24	542874	1		Mounting Plate	Montageplatte	Plaque de montage	Placa de montaje	Piastra di montaggio
25	542877	1		Handle Adapter	Zwischenstück	Adaptateur	Adaptador	Adattatore
Tool Cable (optional length)								
26	542778-1M	1		1 meter Cable	Kabel	Câble	Cable	Cavo
	542778-2M	1		2 meter Cable	Kabel	Câble	Cable	Cavo
	542778-3M	1		3 meter Cable	Kabel	Câble	Cable	Cavo
	542778-6M	1		6 meter Cable	Kabel	Câble	Cable	Cavo
	542778-8M	1		8 meter Cable	Kabel	Câble	Cable	Cavo
	542778-10M	1		10 meter Cable	Kabel	Câble	Cable	Cavo
	542778-15M	1		15 meter Cable	Kabel	Câble	Cable	Cavo
	542778-50M	1		50 meter Cable	Kabel	Câble	Cable	Cavo
Swivel Cable (optional length)								
26	542780-3M	1		3 meter Cable	Kabel	Câble	Cable	Cavo
	542780-6M	1		6 meter Cable	Kabel	Câble	Cable	Cavo
	542780-8M	1		8 meter Cable	Kabel	Câble	Cable	Cavo
	542780-10M	1		10 meter Cable	Kabel	Câble	Cable	Cavo
	542780-15M	1		15 meter Cable	Kabel	Câble	Cable	Cavo
	542780-50M	1		50 meter Cable	Kabel	Câble	Cable	Cavo
Tool Cable Extension (optional length)								
26	542779-3M	1		3 meter Cable	Kabel	Câble	Cable	Cavo
	542779-6M	1		6 meter Cable	Kabel	Câble	Cable	Cavo
	542779-8M	1		8 meter Cable	Kabel	Câble	Cable	Cavo
	542779-10M	1		10 meter Cable	Kabel	Câble	Cable	Cavo
	542779-15M	1		15 meter Cable	Kabel	Câble	Cable	Cavo
	542779-50M	1		50 meter Cable	Kabel	Câble	Cable	Cavo

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée

67ES--Z4 Inline Double Stage Gearing Assembly

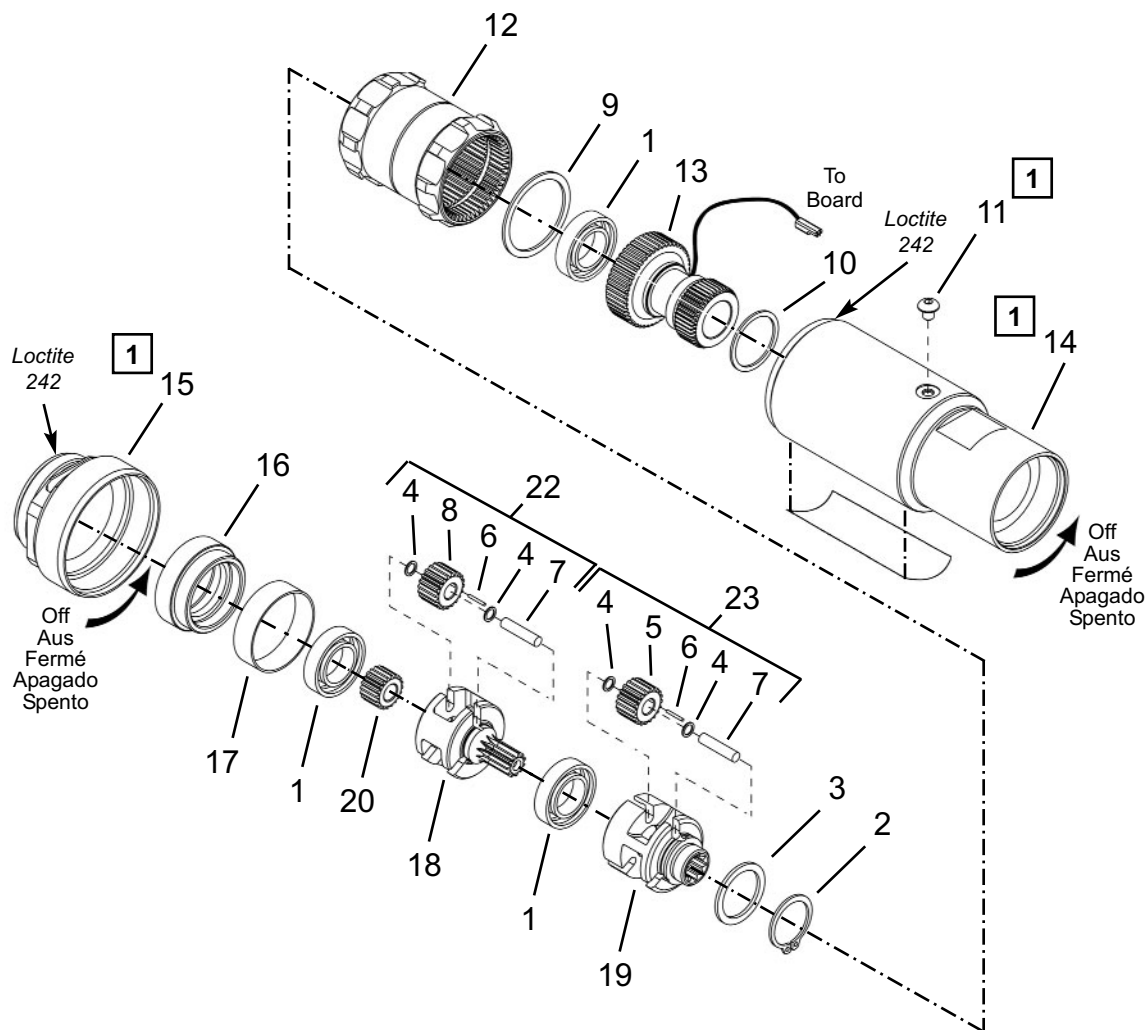
"E"

Models:

67ES65Z4

67ES105Z4

67ES135Z4



1 See Assembly Notes.

67ES--Z4 Inline Double Stage Gearing Assembly

Illustration "E" - Double Stage Gearing

Index	Number	#	•	EN Description	DE Benennung	FR Designation	ES Descripción	IT Descrizione
1	92100071	3		Ball Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
2	92840009	1		Retaining Ring	Sicherungsring	Anneau de fixation	Anillo de retención	Anello di fissaggio
3	48019119	1		Washer	Scheibe	Rondelle	Arandela	Rondella
4	Table "E"	12		Washer	Scheibe	Rondelle	Arandela	Rondella
5	Table "E"	3		Upper Idler Gear	Oberes Zwischenzahnrad	Roue intermédiaire supérieure	Engranaje secundario superior	Ingranaggio intermedio superiore
6	Table "E"	90		Needle Roller	Nadelrolle	Galet à aiguilles	Cilindro de púas	Rullo
7	Table "E"	6		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
8	Table "E"	3		Lower Idler Gear	Unteres Zwischenzahnrad	Engrenage secondaire inférieur	Engranaje secundario inferior	Ingranaggio intermedio inferiore
9	92830026	1		Retaining Ring	Sicherungsring	Anneau de fixation	Anillo de retención	Anello di fissaggio
10	92830018	1		Retaining Ring	Sicherungsring	Anneau de fixation	Anillo de retención	Anello di fissaggio
11	93300040	1		Screw	Schraube	Vis	Tornillo	Vite
12	46067104	1		Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi
13	Table "E"	1		Transducer	Transducer	Transducteur	Transductor	Trasduttore
14	43527118	1		Housing	Gehäuse	Corps	Caja	Corpo
15	542876	1		Adapter	Zwischenstück	Adaptateur	Adaptador	Adattatore
16	43138114	1		Bearing Housing	Gehäuse	Corps	Caja	Corpo
17	43259102	1		Protector Sleeve	Hülse	Douille	Manguito	Manicotto
18	Table "E"	1		Upper Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
19	Table "E"	1		Lower Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
20	Table "E"	1		Drive Pinion	Antriebsrad	Engrenage d'entraînement	Engranaje impulsor	Ingranaggio di trasmissione
21	43329171	1		Vise Decal	Aufkleber	Étiquette	Etiqueta	Etichette
22	Table "E"	3		Lower Idler Gear Assembly	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
23	Table "E"	3		Upper Idler Gear Assembly	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

• Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato /

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Table "E"

Index	Description	#	67ES65Z4	#	67ES105Z4	#	673S135Z4
4	Washer	10	48019118	12	48019118	12	48019118
5	Upper Idler Gear	2	48018113	3	48048110 (20T)	3	48038149 (21T)
6	Needler Roller	75	92880015	90	92880015	90	92880015
7	Idler Pin	5	48019110	6	48019110	6	48019110
8	Lower Idler Gear	3	48018194 (21T)	3	48048111 (17T)	3	48048111 (17T)
13	Transducer	1	542883-65	1	542883-135	1	542883-135
18	Upper Gear Cage	1	48016112	1	43527127	1	43527158
19	Lower Gear Cage	1	48138104	1	48138106	1	48138106
20	Drive Pinion	1	11801184 (15T)	----	-----	-----	-----
22	Lower Idler Gear Asm	3	48058018	3	48038017	3	48038017
23	Upper Idler Gear Asm	2	48038016	3	48038020	3	48038081

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

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67ES--Z6 Inline Double Stage Gearing Assembly

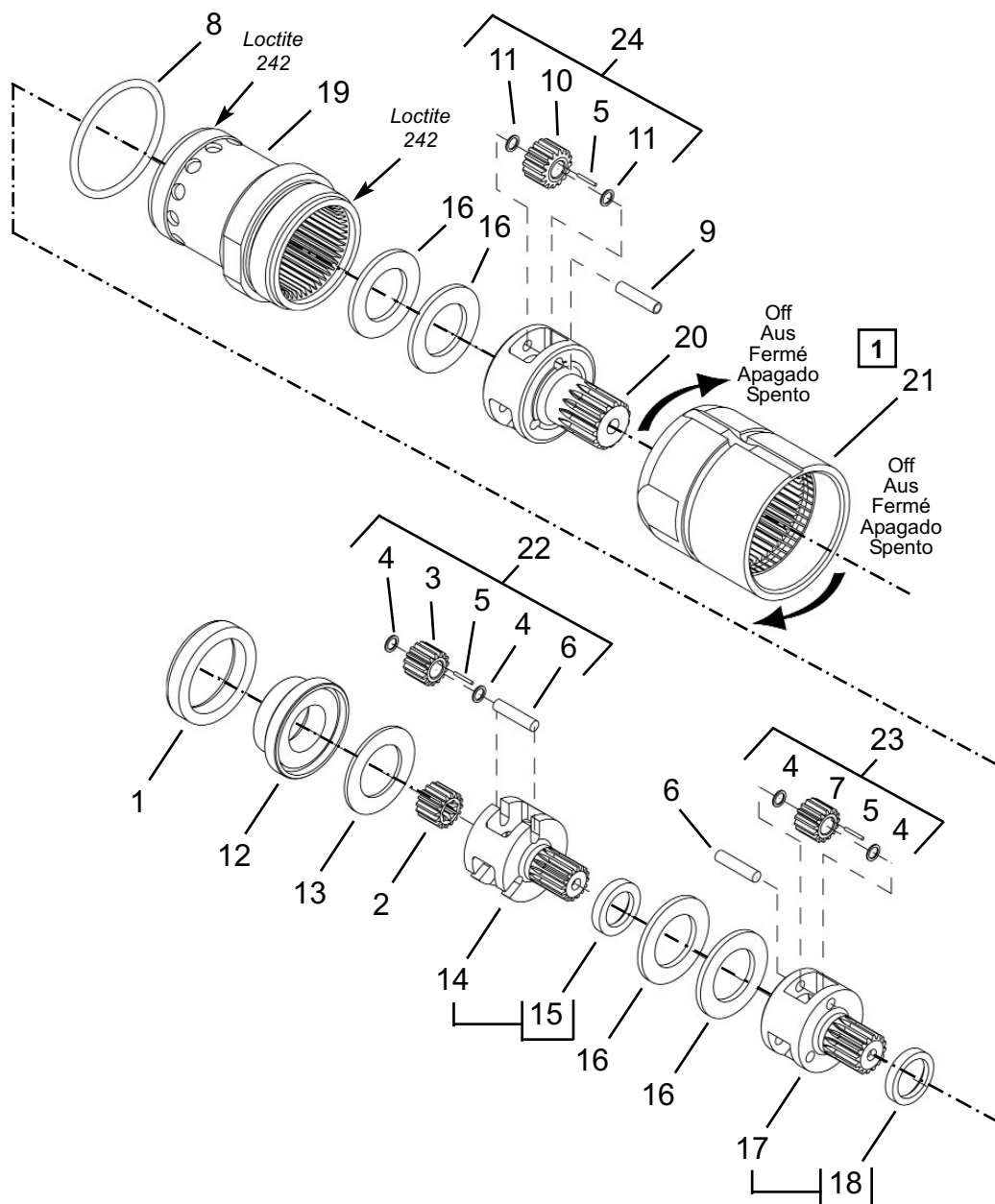
"F"

Models:

67ES190Z6

67ES285Z6

67ES385Z6



1 See Assembly Notes.

67ES--Z6 Inline Double Stage Gearing Assembly

Illustration "F" - Triple Stage Gearing

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Désignation	Descripción	Descrizione
1	11801172B	1		Muffler	Schalldämpfer	Silencieux	Silenciador	Silenziatore
2	Table "F"	1		Driver Pinion	Antriebsrad	Engrenage d'entraînement	Engranaje impulsor	Ingranaggio di trasmissione
3	Table "F"	3		Upper Idler Gear	Oberes Zwischenzahnrad	Roue intermédiaire supérieure	Engranaje secundario superior	Ingranaggio intermedio superiore
4	48019118	12		Washer	Scheibe	Rondelle	Arandela	Rondella
5	93880015	150		Needle Roller	Nadelrolle	Galet à aiguilles	Cilindro de púas	Rullo
6	48019110	6		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
7	Table "F"	3		Center Idler Gear	Zwischenzahnrad	Engrenage secondaire	Engranaje secundario	Ingranaggio intermedio
8	93040014	1		O-Ring	O-Ring	Joint torique	Anillo "O"	Anello ad O
9	48039116	3		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
10	48038104	3		Lower Idler Gear (14T)	Unteres Zwischenzahnrad	Engrenage secondaire inférieur	Engranaje secundario inferior	Ingranaggio intermedio inferiore
11	48039115	6		Washer	Scheibe	Rondelle	Arandela	Rondella
12	48038117	1		Deflector Ring	Ring	Bague	Anillo	Anello
13	92060023	1		Washer	Scheibe	Rondelle	Arandela	Rondella
14	Table "F"	1		Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
15	Table "F"	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
16	92060018	4		Washer	Scheibe	Rondelle	Arandela	Rondella
17	Table "F"	1		Center Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
18	48039157	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
19	48037107	1		Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi
20	48037110	1		Spindle	Spindel	Arbre	Husillo	Mandrino
21	35647101	1		Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi
22	Table "F"	3		Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
23	Table "F"	3		Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
24	48058017	3		Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

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Table "F"

Index	Description	#	67ES190Z6	#	67ES285Z6	#	67ES385Z6
2	Driver Pinion	1	48038118 (16T)	1	48038118 (16T)	---	-----
3	Upper Idler Gear	3	48038129 (15T)	3	48038129 (15T)	3	48048110 (20T)
7	Center Idler Gear	3	48038129 (15T)	3	48038128 (18T)	3	48038129 (15T)
14	Gear Cage	1	48037125	1	48037123	1	48037125
15	Spacer	1	48039178	1	48039177	1	48039178
17	Center Gear Cage	1	48037172	1	48037119	1	48037172
22	Idler Gear Assembly	3	48038015	3	48038015	3	48038020
23	Idler Gear Assembly	3	48038015	3	48038018	3	48038015

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

(T) = Teeth / Zähne / Dents / Dientes / Dente

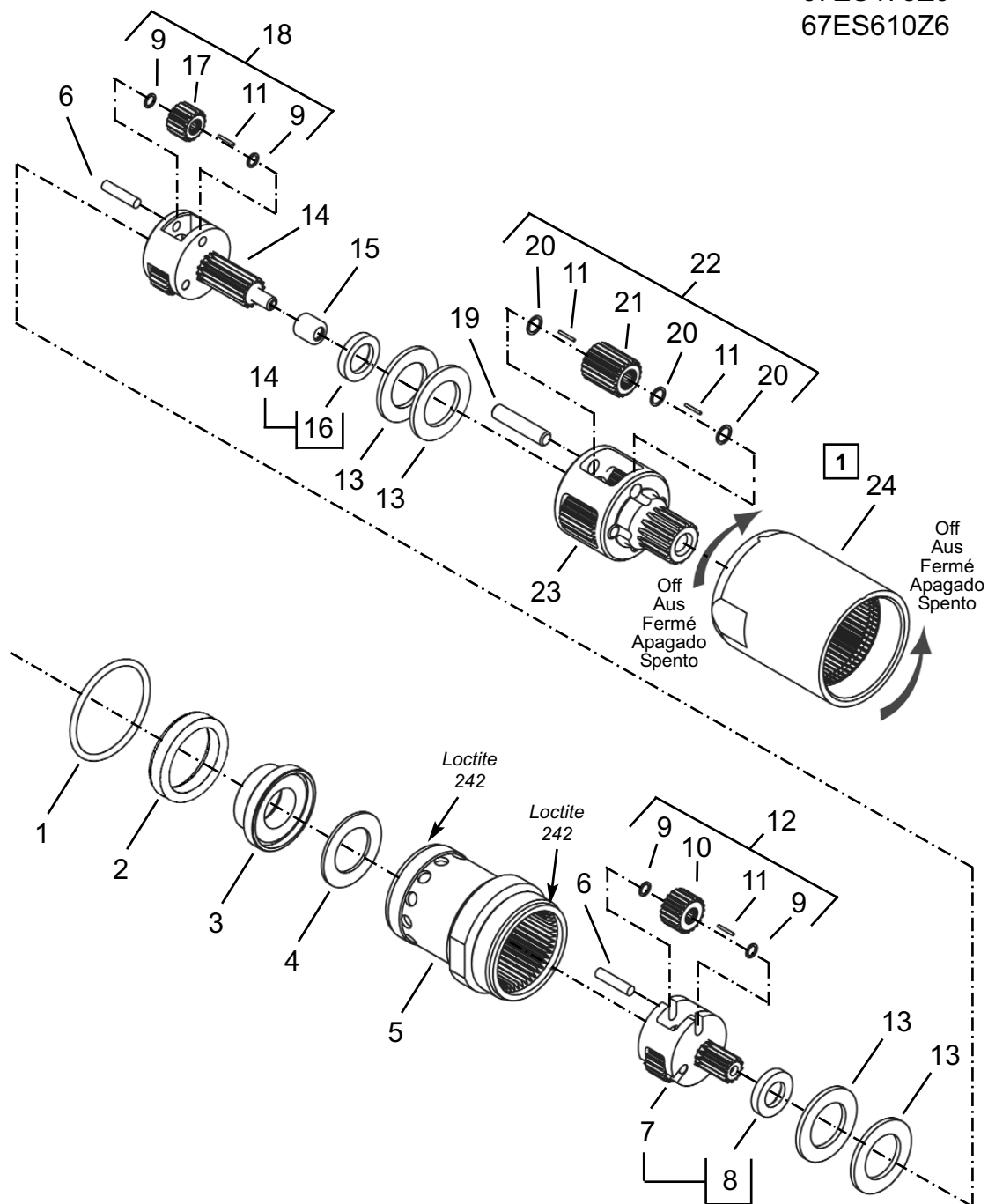
Z6 Inline Triple Stage Gearing Assembly

"G"

Models:

67ES475Z6

67ES610Z6



Z6 Inline Triple Stage Gearing Assembly

Illustration "G" - Triple Stage Gearing

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	93040014	1		O-Ring	O-Ring	Joint torique	Anillo "O"	Anello ad O
2	11801172B	1		Muffler	Schalldämpfer	Silencieux	Silenciador	Silenziatore
3	48038117	1		Deflector Ring	Ring	Bague	Anillo	Anello
4	92060023	1		Washer	Scheibe	Rondelle	Arandela	Rondella
5	48037107	1		Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi
6	48019110	6		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
7	Table "G"	1		Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
8	48039176	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
9	48019118	12		Washer	Scheibe	Rondelle	Arandela	Rondella
10	Table "G"	3		Upper Idler Gear	Oberes Zwischenzahnrad	Roue intermédiaire supérieure	Engranaje secundario superior	Ingranaggio intermedio superiore
11	92880015	258		Needle Roller	Nadelrolle	Galet à aiguilles	Cilindro de púas	Rullo
12	Table "G"	3		Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
13	92060018	4		Washer	Scheibe	Rondelle	Arandela	Rondella
14	46037187	1		Center Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
15	92000008	1		Needle Bearing	Nadellager	Cage à aiguilles	Cojinete de agujas	Cuscinetto a rulli
16	48039157	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
17	48048111	3		Idler Gear (17T)	Zwischenzahnrad	Engrenage secondaire	Engranaje secundario	Ingranaggio intermedio
18	48038017	3		Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
19	46039190	4		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
20	460391100	12		Washer	Scheibe	Rondelle	Arandela	Rondella
21	46038191	4		Idler Gear (21T)	Zwischenzahnrad	Engrenage secondaire	Engranaje secundario	Ingranaggio intermedio
22	46038067	4		Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
23	46036184	1		Spindle	Spindel	Arbre	Husillo	Mandrino
24	46037183	1		Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato /

Designa el repuesto recomendado / Indique la pièce de rechange conseillée

(T) = Teeth / Zähne / Dents / Dientes / Dente

Table "G"

Index	Description	#	67ES475Z6	#	67ES610Z6
7	Gear Cage	1	48037124	1	46087197
10	Upper Idler Gear	3	48048110 (20T)	3	48038149 (21T)
12	Idler Gear Assembly	3	48038020	3	48038081

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

(T) = Teeth / Zähne / Dents / Dientes / Dente

67ES--Z8 Inline Double Stage Gearing Assembly

"H"

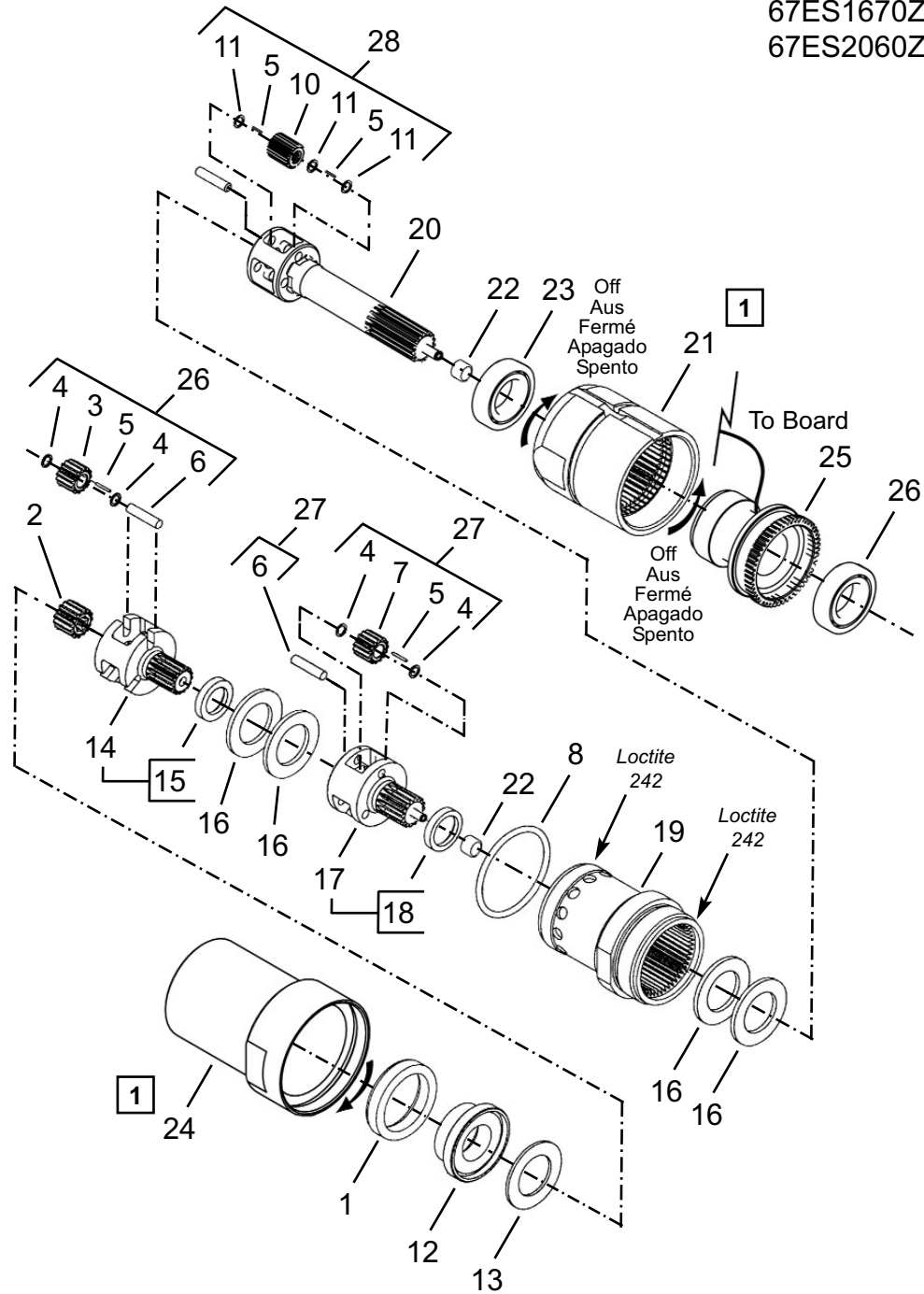
Models:

67ES850Z8

67ES1050Z8

67ES1670Z8

67ES2060Z8



1 See Assembly Notes.

67ES--Z8 Inline Double Stage Gearing Assembly

Illustration "H" - Triple Stage Gearing

Index	Number	#	•	EN Description	DE Benennung	FR Designation	ES Descripción	IT Descrizione
1	11801172B	1		Muffler	Schalldämpfer	Silencieux	Silenciador	Silenziatore
2	Table "H"	1		Driver Pinion	Antriebsrad	Engrenage d'entraînement	Engranaje impulsor	Ingranaggio di trasmissione
3	Table "H"	3		Upper Idler Gear	Oberes Zwischenzahnrad	Roue intermédiaire supérieure	Engranaje secundario superior	Ingranaggio intermedio superiore
4	48019118	12		Washer	Scheibe	Rondelle	Arandela	Rondella
5	92880015	90		Needle Roller	Nadelrolle	Galet à aiguilles	Cilindro de púas	Rullo
6	48019110	6		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
7	Table "H"	3		Center Idler Gear	Zwischenzahnrad	Engrenage secondaire	Engranaje secundario	Ingranaggio intermedio
8	93040014	1		O-Ring	O-Ring	Joint torique	Anillo "O"	Anello ad O
9	46039190	4		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
10	46038191	4		Lower Idler Gear (21T)	Unteres Zwischenzahnrad	Engrenage secondaire inférieur	Engranaje secundario inferior	Ingranaggio intermedio inferiore
11	460391100	12		Washer	Scheibe	Rondelle	Arandela	Rondella
12	48038117	1		Deflector Ring	Ring	Bague	Anillo	Anello
13	92060023	1		Washer	Scheibe	Rondelle	Arandela	Rondella
14	Table "H"	1		Upper Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
15	48039157	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
16	92060018	4		Thrust Washer	Scheibe	Rondelle	Arandela	Rondella
17	Table "H"	1		Center Gear Cage	Planetenradträger	Cage d'engrenage	Jaula de engranajes	Gabbia ingranaggio
18	48039157	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
19	48037107	1		Upper Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi
20	46605118	1		Spindle	Spindel	Arbre	Husillo	Mandrino
21	35647101	1		Gear Housing	Getriebegehäuse	Boîte de changement de vitesse	Alojamiento del engranaje	Scatola ingranaggi
22	92000008	1		Needle Bearing	Nadellager	Cage à aiguilles	Cojinete de agujas	Cuscinetto a rulli
23	92100031	1		Bearing	Lager	Coussinet	Cojinete	Cuscinetto
24	46607120	1		Clamp Nut	Mutter	Ecrou	Tuerca	Dado
25	Table "H"	1		Transducer	Transducer	Transducteur	Transductor	Trasduttore
26	Table "H"	3	6	Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
27	Table "H"	3	6	Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio
28	46038067	4	8	Idler Gear Asm	Stellen Sie Versammlung ein	Assemblée d'engrenage	La Asamblea engranada	Il Montaggio di ingranaggio

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

• Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato /

Designa el repuesto recomendado / Indique la pièce de rechange conseillée

(T) = Teeth / Zähne / Dents / Dientes / Dente

Table "H"

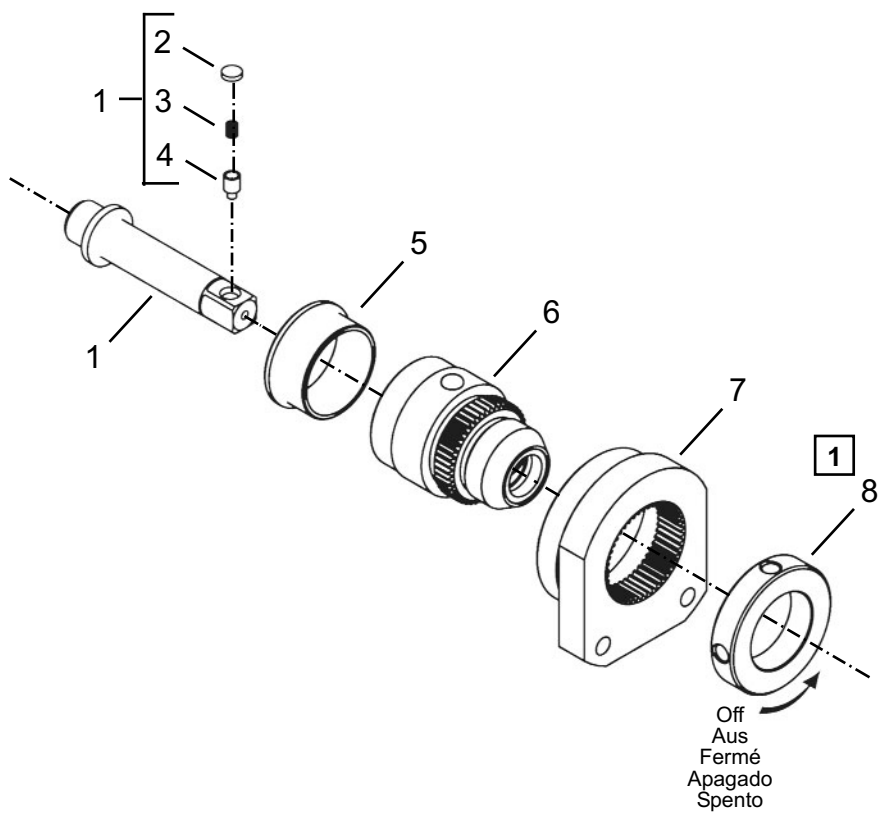
Index	Description	#	67ES850Z8	#	67ES1050Z8	#	67ES1670Z8	#	67ES2060Z8
2	Driver Pinion	1	48038118 (16T)	1	48038118 (16T)	---	-----	---	-----
3	Upper Idler Gear	3	48038129 (15T)	3	48038129 (15T)	3	48048110 (20T)	3	48048110 (20T)
7	Center Idler Gear	3	48048111 (17T)	3	48038128 (18T)	3	48048111 (17T)	3	48038128 (18T)
14	Upper Gear Cage	1	48037124	1	48037123	1	48037124	1	48037123
17	Center Gear Cage	1	46037187	1	46037188	1	46037187	1	46037188
25	Transducer	1	543244-339	1	543244-339	1	543244-746	1	543244-746
26	Idler Gear Assembly	3	48038015	3	48038015	3	48038020	3	48038020
27	Idler Gear Assembly	3	48038017	3	48038018	3	48038017	3	48038018

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

(T) = Teeth / Zähne / Dents / Dientes / Dente

67ES--Z4 Inline Attachment Assembly

"1"



1 See Assembly Notes.

67ES--Z4 Inline Attachment Assembly

Illustration "I" - Z4 Inline Attachment

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Designation	Descripción	Descrizione
1	49088103	1		Spindle, 1/2" SQ. Drive Asm.	Spindel	Arbre	Husillo	Mandrino
2	12601479A	1		Lock Pin Plug	Buchse	Bouchon	Tapón	Spina
3	12601481	1		Lock Pin Spring	Druckfeder	Ressort	Resorte	Molla
4	12601480	1		Socket Locking Pin	Stift	Goupille cylindrique	Pasador	Spina
5	49028106	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
6	48047107	1		Bearing Cap Asm.	Lagergestell	Support de coussinet	Soporte de cojinete	Supporto cuscinetto
7	49087108	1		Mounting Plate	Montageplatte	Plaque de montage	Placa de montaje	Piastra di montaggio
8	11841013	1		Lock Nut	Überwurfmutter	Contre-ecrou molette	Tuerca de fijación	Dado di bloccaggio

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée

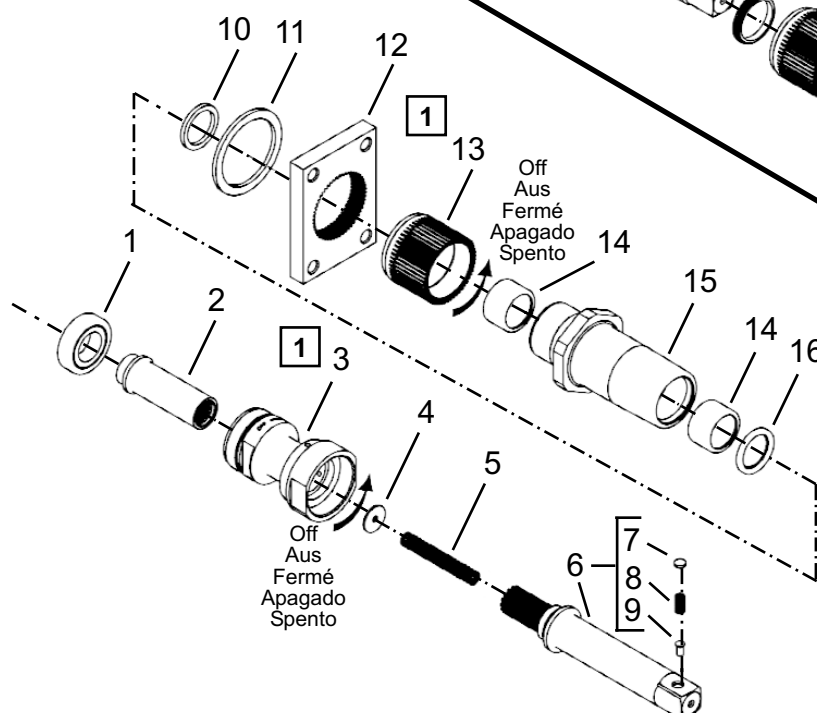
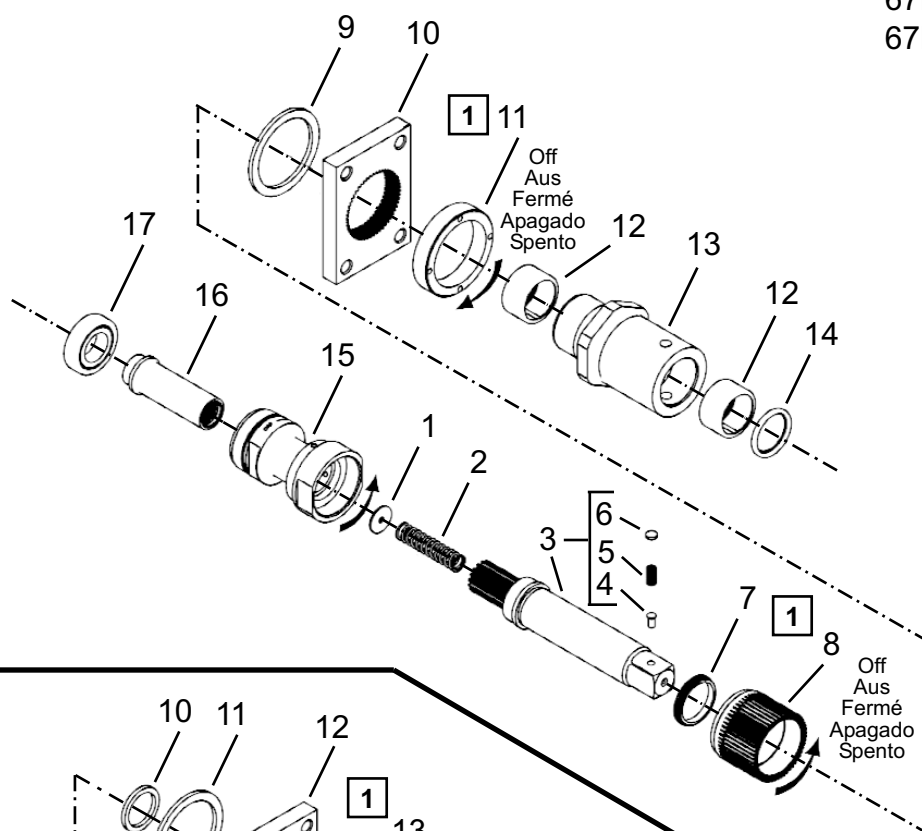
67ES--Z6 Inline Attachment Assembly

"J"

Models:

67ES475Z6

67ES610Z6



Models:

67ES190Z6

67ES285Z6

67ES385Z6

1 See Assembly Notes.

67ES--Z6 Inline Attachment Assembly

Illustration "J" - Z6 Attachment Assembly

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Désignation	Descripción	Descrizione
1	43979113	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
2	94070682	1		Compression Spring	Druckfeder	Ressort	Resorte	Molla
3	49656128	1		Output Spindle	Spindel	Arbre	Husillo	Mandrino
4	12601479A	1		Lock Pin Plug	Buchse	Bouchon	Tapón	Spina
5	94070240	1		Spring	Druckfeder	Ressort	Resorte	Molla
6	12031048	1		Socket Locking Pin	Stift	Goupille cylindrique	Pasador	Spina
7	49658131	1		Shoulder Stop	Stopp	Arrêt	Parada	Stop
8	43977108	1		Adapter	Zwischenstück	Adaptateur	Adaptador	Adattatore
9	43978111	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
10	43977109	1		Mounting Plate	Montageplatte	Plaque de montage	Placa de montaje	Piastra di montaggio
11	43978110	1		Lock Nut	Überwurfmutter	Contre-ecrou molette	Tuerca de fijación	Dado di bloccaggio
12	92000061	1		Needle Bearing	Nadellager	Cage à aiguilles	Cojinete de agujas	Cuscinetto a rulli
13	49657127	1		Spindle Housing	Spindelgehäuse	Cage à pignons	Caja del husillo	Corpo mandrino
14	93130082	1		Shaft Seal	Wellendichtring	Arbre d'étanchéité	Eje de estancamiento	Guarnizione dell'albero
15	92100031	1		Ball Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
16	35607106	1		Coupler	Kupplung	Couplage	Acoplamiento	Accoppiamento
17	543247-651	1		Transducer	Transducer	Transducteur	Transductor	Trasduttore

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée

Illustration "J" - Z6 Attachment Assembly

Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Désignation	Descripción	Descrizione
1	92100031	1		Ball Bearing	Kugellager	Roulement à billes	Cojinete de bolas	Cuscinetto a sfera
2	43977107	1		Coupler	Kupplung	Couplage	Acoplamiento	Accoppiamento
3	543246-298	1		Transducer (190)	Transducer	Transducteur	Transductor	Trasduttore
	543246-285	1		Transducer (298)	Transducer	Transducteur	Transductor	Trasduttore
	543246-385	1		Transducer (385)	Transducer	Transducteur	Transductor	Trasduttore
4	43979113	1		Washer	Scheibe	Rondelle	Arandela	Rondella
5	94070658	1		Compression Spring	Druckfeder	Ressort	Resorte	Molla
6	49077108	1		Output Spindle	Spindel	Arbre	Husillo	Mandrino
7	12601479A	1		Lock Pin Plug	Buchse	Bouchon	Tapón	Spina
8	94070240	1		Spring	Druckfeder	Ressort	Resorte	Molla
9	12031048	1		Socket Locking Pin	Stift	Goupille cylindrique	Pasador	Spina
10	49078109	1		Washer	Scheibe	Rondelle	Arandela	Rondella
11	43978111	1		Spacer	Distanzstück	Entretoise	Espaciador	Distanziale
12	43977108	1		Adapter	Zwischenstück	Adaptateur	Adaptador	Adattatore
13	72036115	1		Mounting Plate	Montageplatte	Plaque de montage	Placa de montaje	Piastra di montaggio
14	92000056	1		Needle Bearing	Nadellager	Cage à aiguilles	Cojinete de agujas	Cuscinetto a rulli
15	49077110	1		Spindle Housing	Spindelgehäuse	Cage à pignons	Caja del husillo	Corpo mandrino
16	93130080	1		Shaft Seal	Wellendichtring	Arbre d'étanchéité	Eje de estancamiento	Guarnizione dell'albero

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée

Z8 Inline Attachment Assembly

"K"

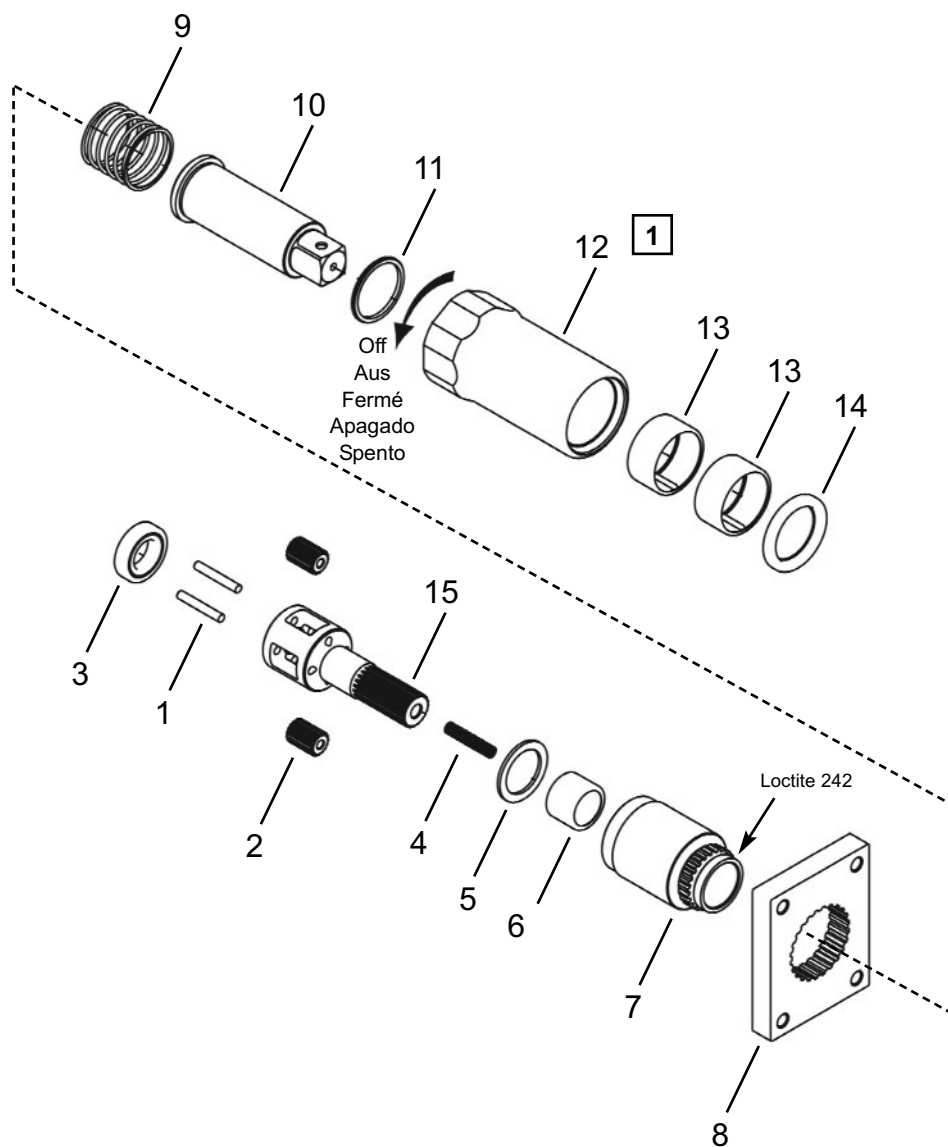
Models:

67ES850Z8

67ES1050Z8

67ES1670Z8

67ES2060Z8



1 See Assembly Notes.

Z6 Inline Attachment Assembly

Illustration "K" - Z8 Attachment Assembly

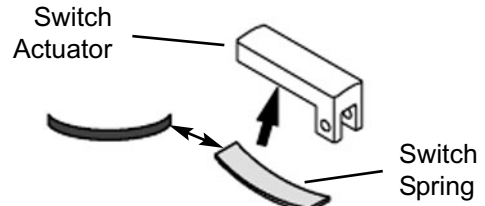
Index	Number	#	●	EN	DE	FR	ES	IT
				Description	Benennung	Désignation	Descripción	Descrizione
1	46608122	4		Idler Pin	Stift	Goupille cylindrique	Pasador	Spina
2	46608121	4		Idler Gear	Zwischenzahnrad	Engrenage secondaire	Engranaje secundario	Ingranaggio intermedio
3	92100165	1		Bearing	Lager	Coussinet	Cojinete	Cuscinetto
4	94070670	1		Spring	Druckfeder	Ressort	Resorte	Molla
5	46609119	1		Thrust Washer	Scheibe	Rondelle	Arandela	Rondella
6	92190034	1		Needle Bearing	Nadellager	Cage à aiguilles	Cojinete de agujas	Cuscinetto a rulli
7	46606116	1		Gear Case	Getriebegehäuse	Couvre-engrenages	Caja de engranaje	Scatola ingranaggio
8	49487101	1		Mouting Plate	Montageplatte	Plaque de montage	Placa de montaje	Piastra di montaggio
9	94071051	1		Spring	Druckfeder	Ressort	Resorte	Molla
10	46606129	1		Output Spindle 1" Sq. Dr.	Spindel	Arbre	Husillo	Mandrino
11	46609139	1		Thrust Washer	Scheibe	Rondelle	Arandela	Rondella
12	46607130	1		Spindle Housing	Spindelgehäuse	Cage à pignons	Caja del husillo	Corpo mandrino
13	92000086	1		Needle Bearing	Nadellager	Cage à aiguilles	Cojinete de agujas	Cuscinetto a rulli
14	93130091	1		Shaft Seal	Wellendichtring	Arbre d'étanchéité	Eje de estancamiento	Guarnizione dell'albero
15	46606128			Planet Carrier	Planetentraeger	Porte-planète	Portador planetario	Portasatellite

(#) Quantity / Stückzahl / Quantité / Cantidad / Quantità

● Recommended Spare Parts / Kennzeichnet empfohlenes / Identifica un particolare di ricambio raccomandato / Designa el repuesto recomendado / Indique la pièce de rechange conseillée

1

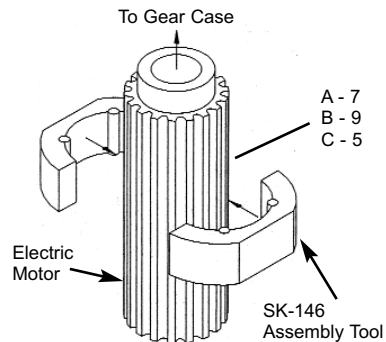
Illustration	Index Number	EN: Tightening Torque DE: Anzugsmoment FR: Tightening Torque ES: Torsión de Apriete IT: Tightening Torque	
		Ft-Lbs (in-lbs)	Nm
A	1	(10-12)	1.1-1.3
	2	(100-105)	11.3-11.8
	7	45-55	61-74
B	1	(10-12)	1.1-1.3
	2	(100-105)	11.3-11.8
	5	(25-27)	2.8-3.1
	9	45-55	61-74
C	1	(10-12)	1.1-1.3
	2	(100-105)	11.3-11.8
	5	45-55	61-74
	8	(25-27)	2.8-3.1
D	3	(2-4)	0.2-0.4
	5	(10-14)	1.1-1.6
	11	(6-8)	0.7-0.9
	17	25-35	34-47
	22	35-40	47-54
	23	(6-8)	0.7-0.9
E	15	65-75	88-101
	14	125-135	170-183
	11	(40-45)	4.5-5
F	21	125-135	170-183
	21	145-155	196-210
G	24		
H	21	125-135	170-183
	24		
I	8	45-55	61-74
J	3	45-55	61-74
	13	45-55	61-74
	8	45-55	61-74
	11	45-55	61-74
K	12	45-55	61-74

2**Illustration "D"**

EN: Insert Spring into Switch Actuator as shown
 DE: Stellen Sie Feder in Schalter Stellglied.
 FR: Le ressort d'endroit dans le mécanisme de positionnement de commutateur.
 ES: La primavera del lugar en el activador de interruptor.
 IT: La primavera di luogo nell'attuatore di interruttore.

3**Illustration "A", "B", "C"****SK-146**

A holding tool to assemble (or disassemble) EN/EM225 electric motor to gear case.



Place two SK-146 holding tools on opposite sides of electric motor. Clamp the assembly tool with motor in a vise.

Be careful not to overtighten the vise and crush the motor fins.

To assembly gear case to motor, place gear case onto motor threads and with a wrench on the gear case flats turn clockwise (right hand thread).

Sales & Service Centers

Note: All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

Dallas, TX
**Apex Tool Group
Sales & Service Center**
1470 Post & Paddock
Grand Prairie, TX 75050
Tel: 972-641-9563
Fax: 972-641-9674

Detroit, MI
**Apex Tool Group
Sales & Service Center**
2630 Superior Court
Auburn Hills, MI 48326
Tel: 248-391-3700
Fax: 248-391-7824

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**Apex Tool Group
Sales & Service Center**
6550 West Sam Houston
Parkway North, Suite 200
Houston, TX 77041
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Lexington, SC
Apex Tool Group
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Lexington, SC 29072
Tel: 800-845-5629
Tel: 803-951-7544
Fax: 803-358-7681

Los Angeles, CA
**Apex Tool Group
Sales & Service Center**
15503 Blackburn Avenue
Norwalk, CA 90650
Tel: 562-623-4457
Fax: 562-802-1718

Seattle, WA
**Apex Tool Group
Sales & Service Center**
2865 152nd Avenue N.E.
Redmond, WA 98052
Tel: 425-497-0476
Fax: 425-497-0496

York, PA
**Apex Tool Group
Sales & Service Center**
3990 East Market Street
York, PA 17402
Tel: 717-755-2933
Fax: 717-757-5063

Canada
**Apex Tool Group
Sales & Service Center**
5925 McLaughlin Road
Mississauga, Ont. L5R 1B8
Canada
Tel: 905-501-4785
Fax: 905-501-4786

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Industriestraße 1
73463 Westhausen
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Tel: +49 (0) 73 63 81 0
Fax: +49 (0) 73 63 81 222

England
Cooper Power Tools
GmbH & Co. OHG
a company of
Apex Tool Group, LLC
C/O Spline Gauges
Piccadilly, Tamworth
Staffordshire B78 2ER
United Kingdom
Tel: +44 1827 8741 28
Fax: +44 1827 8741 28

France
Cooper Power Tools SAS
a company of
Apex Tool Group, LLC
25 rue Maurice Chevalier
77330 Ozoir-La-Ferrière
France
Tel: +33 1 6443 2200
Fax: +33 1 6443 1717

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955 Sheng Li Road,
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Fax: +86-21-51118446

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de México S.A. de C.V.
a company of
Apex Tool Group, LLC
Vialidad El Pueblito #103
Parque Industrial Querétaro
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Apex Tool Group, LLC
Av. Liberdade, 4055
Zona Industrial - Iporanga
18087-170 Sorocaba
SP Brazil
Tel: +55 15 2383929
Fax: +55 15 2383260

Hungary
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