

Parts Manual
PL12EN-67ES-D
12/19/2013

OMEGA TECHNOLOGIES

Cleco®

67ES Series
Electronically Controlled Inline 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-corded-electric-nutrunners/>

Language Version:

This Parts Manual is the ***“Original Instructions”*** intended for all persons who will use or repair these tools.

Product Identification:

Refer to the “Model Nomenclature” page in this document.

Noise and Vibration:

Refer to documents CE-1002DC and CE-1002TD.

General Description:

Brushless DC electric transducer controlled inline portable nutrunners.

Intended Use:

These DC electric tools are intended for tightening of threaded joints or running down fasteners. Use only for their designated purpose. Do not use as a hammer, lever or other improper usage that can cause tool damage and operator injury.

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Model Nomenclature

“A”

67	E	S	XXXX	D	XX
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Tool Series

67

Motor Style

E = Brushless Electric Motor

Tool Type

S = Inline

Maximum Torque Nm (rounded to nearest Nm)

65 = 65 Nm

105 = 104 Nm

135 = 135 Nm

190 = 190 Nm

285 = 285 Nm

385 = 385 Nm

475 = 475 Nm

610 = 610 Nm

850 = 848 Nm

1050 = 1050 Nm

1670 = 1668 Nm

2060 = 2060 Nm

4050 = 4050 Nm

Attachment

D = Inline Non-Retractable

Output

4 = 1/2" Square Drive

6 = 3/4" Square Drive

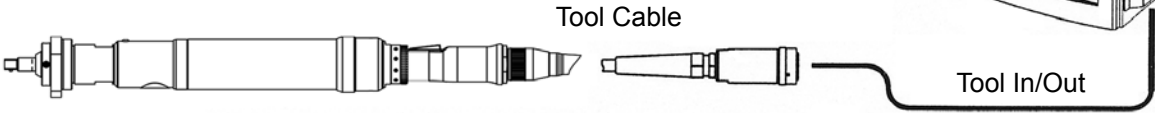
8 = 1" Square Drive

12 = 1-1/2" Square Drive

“B”

Complete Tool
Order Number
67ES65D4
67ES105D4
67ES135D4
67ES190D6
67ES285D6
67ES385D6
67ES475D6
67ES610D6
67ES850D8
67ES1050D8
67ES1670D8
67ES2060D8
67ES4050D12

TME-100 Series
Controller



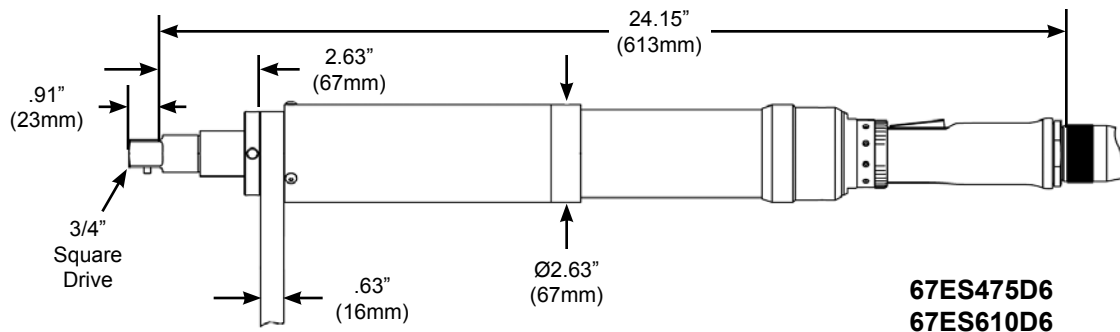
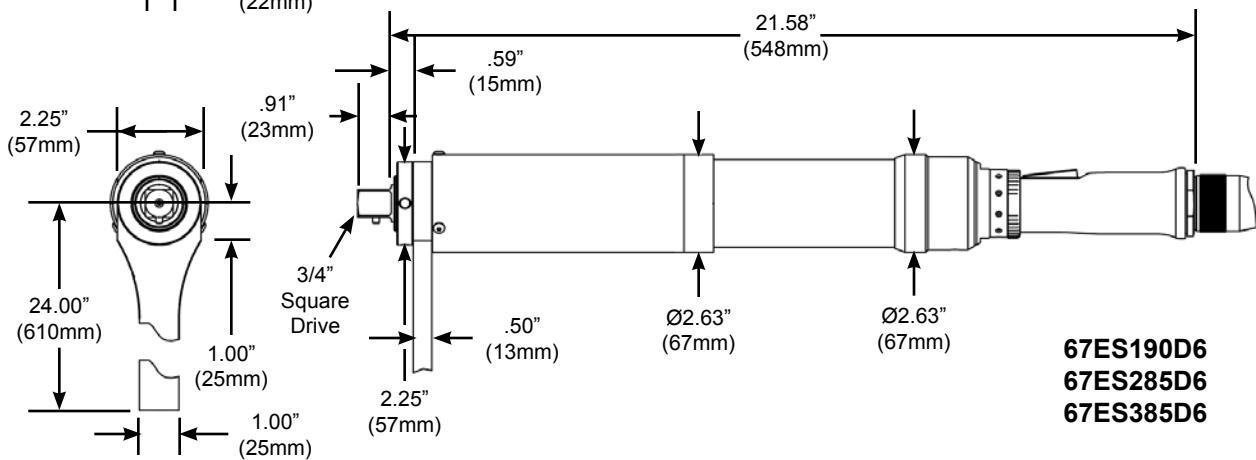
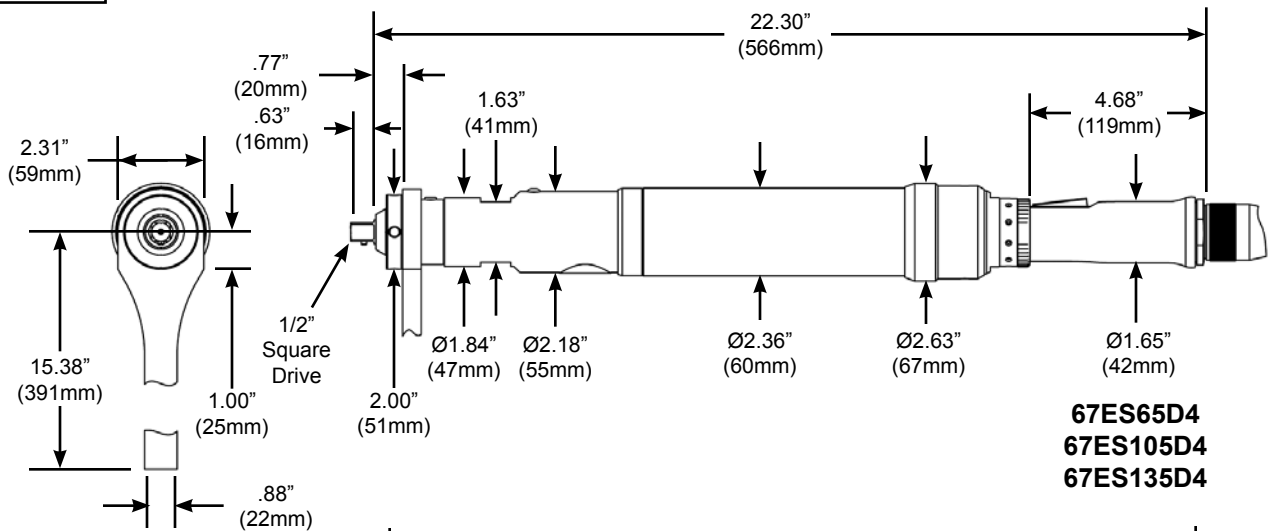
TME Series Controllers

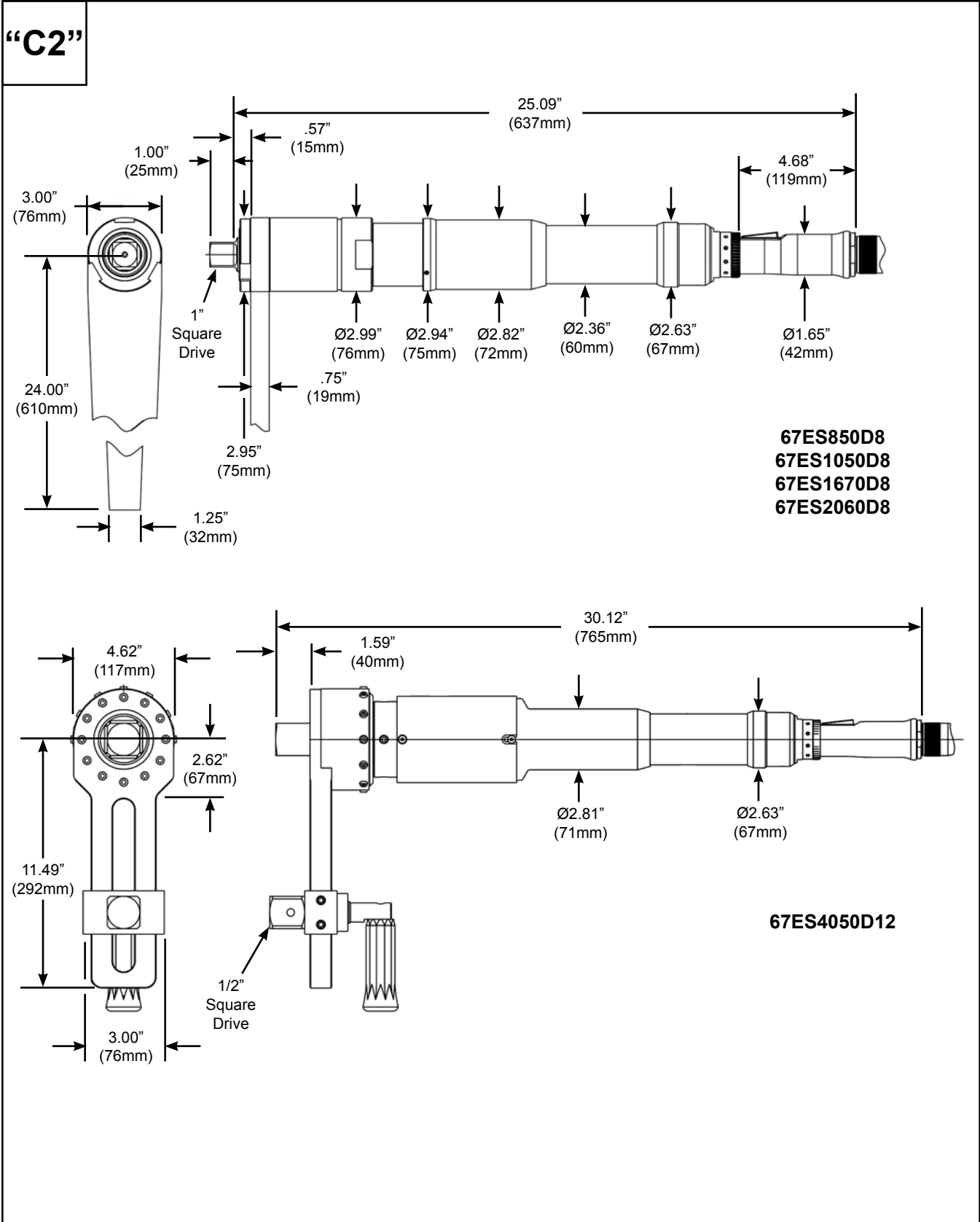
67EA	EN
	Description
115 VAC	TME-111-15-U
115 VAC	TME-121-15-U
230 VAC	TME-111-30-U
230 VAC	TME-121-30-U
PL12()-1300	Programming Notes
575708	Battery
541683-01	Power Cord: 115VAC - USA
541683-02	Power Cord: 230VAC - USA
541683-03	Power Cord: 230VAC - Europe
542779-XXX	Extension Cable
542780-XXX	Swivel Cable
542778-XXX	Tool Cable

TME-100 Series Controller

Supply Voltage	EN
	Order Number
115 VAC	TME-111-15-U
115 VAC	TME-121-15-U
230 VAC	TME-111-30-U
230 VAC	TME-121-30-U

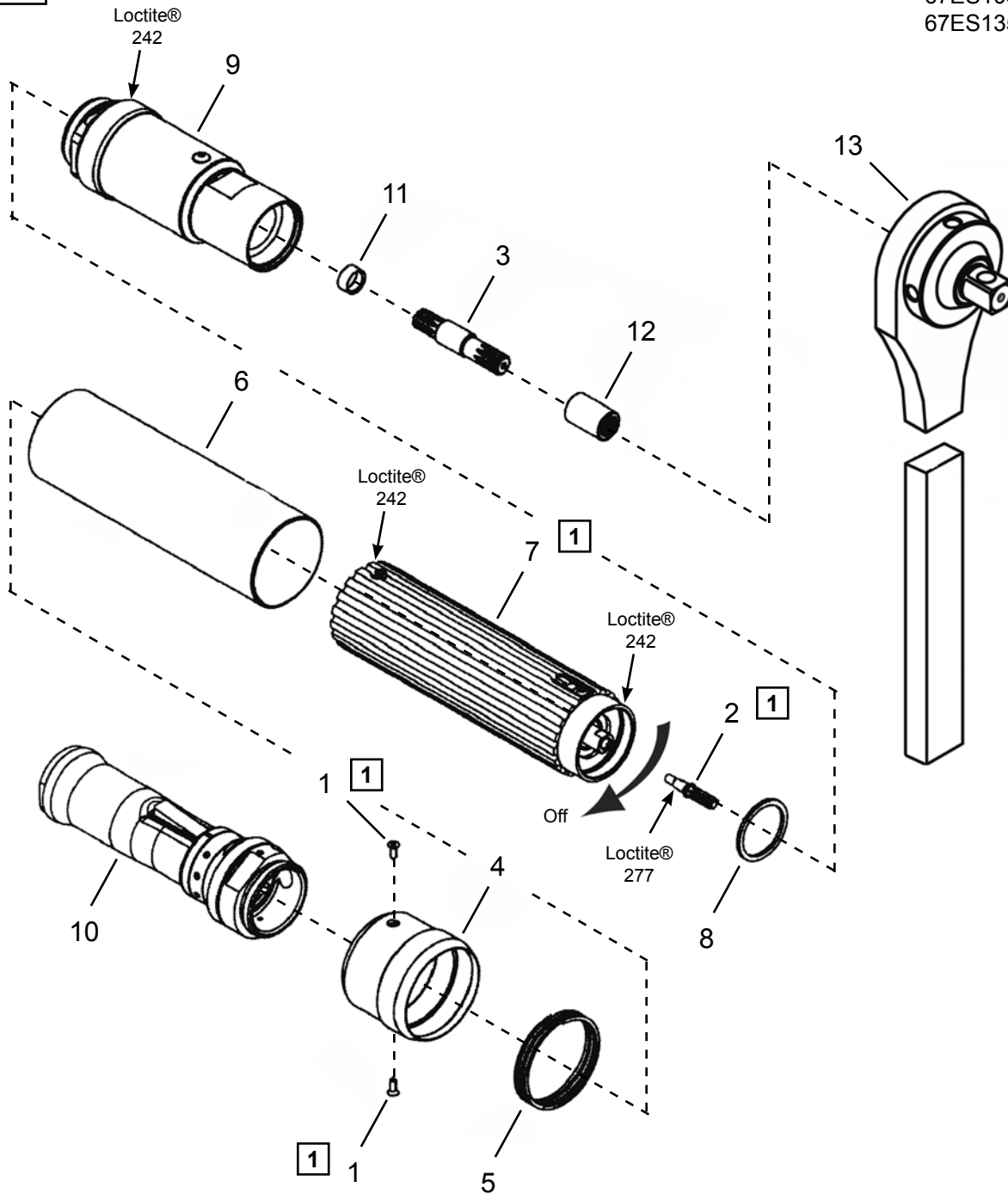
"C1"





“D”

Models
67ES65D4
67ES105D4
67ES135D4



1 See Service Notes

Cleco®
D4 Inline Nutrunner

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Illustration "D"

Ref	Number	#	X	EN
				Description
1	93380005	2	4	Screw
2	Table "D"	1	2	Sun Gear
3	48138110	1	2	Shaft
4	35177103	1		Sleeve Adapter
5	35009107	1		Spring
6	542937	1		Wire Sleeve
7	542878	1		Motor Assembly
8	35019101	1		Spacer
9	Illustration "I"	1		Gear Case Assembly
10	Illustration "H"	1		Handle Assembly
11	48139113	1	2	Spacer
12	48068103	1		Spline Coupling
13	Illustration "N"	1		D4 Attachment Assembly

(#) Quantity

(X) Recommended Spare Parts

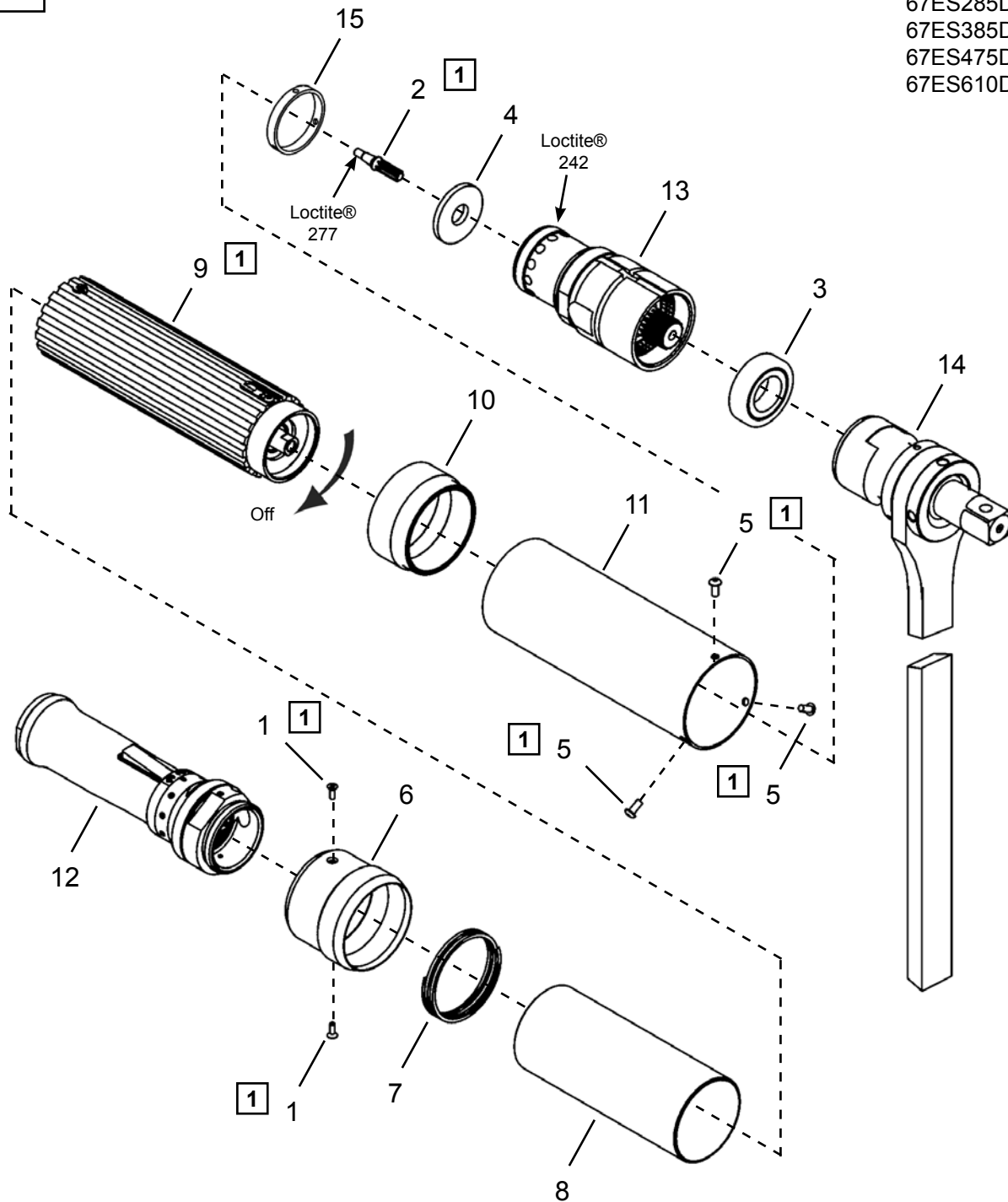
Table "D"

Ref.	Description	#	67ES65D4	#	67ES105D4	#	67ES135D4
2	Sun Gear	1	43288170	1	43288170	1	43288169

“E”

Models

67ES190D6
67ES285D6
67ES385D6
67ES475D6
67ES610D6



1 See Service Notes

Cleco®
D6 Inline Nutrunner

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Illustration "E"

Ref	Number	#	X	EN
				Description
1	93380005	2	4	Screw
2	43288170	1	2	Sun Gear
3	92100031	1	2	Ball Bearing
4	35129102	1		Washer
5	93300033	3	6	Screw
6	35177103	1		Sleeve Adapter
7	35009107	1		Spring
8	542889	1		Wire Sleeve
9	542878	1		Motor Assembly
10	35098102	1		Sleeve Adapter
11	Table "E"	1		Wire Sleeve
12	Illustration "H"	1		Handle Assembly
13	Illustration "J"	1		Gear Case Assembly (67ES190, 67ES285, 67ES385)
	Illustration "K"	1		Gear Case Assembly (67ES475, 67ES610)
14	Illustration "O"	1		D6 Attachment
15	48A18103	1		Spacer

(#) Quantity

(X) Recommended Spare Parts

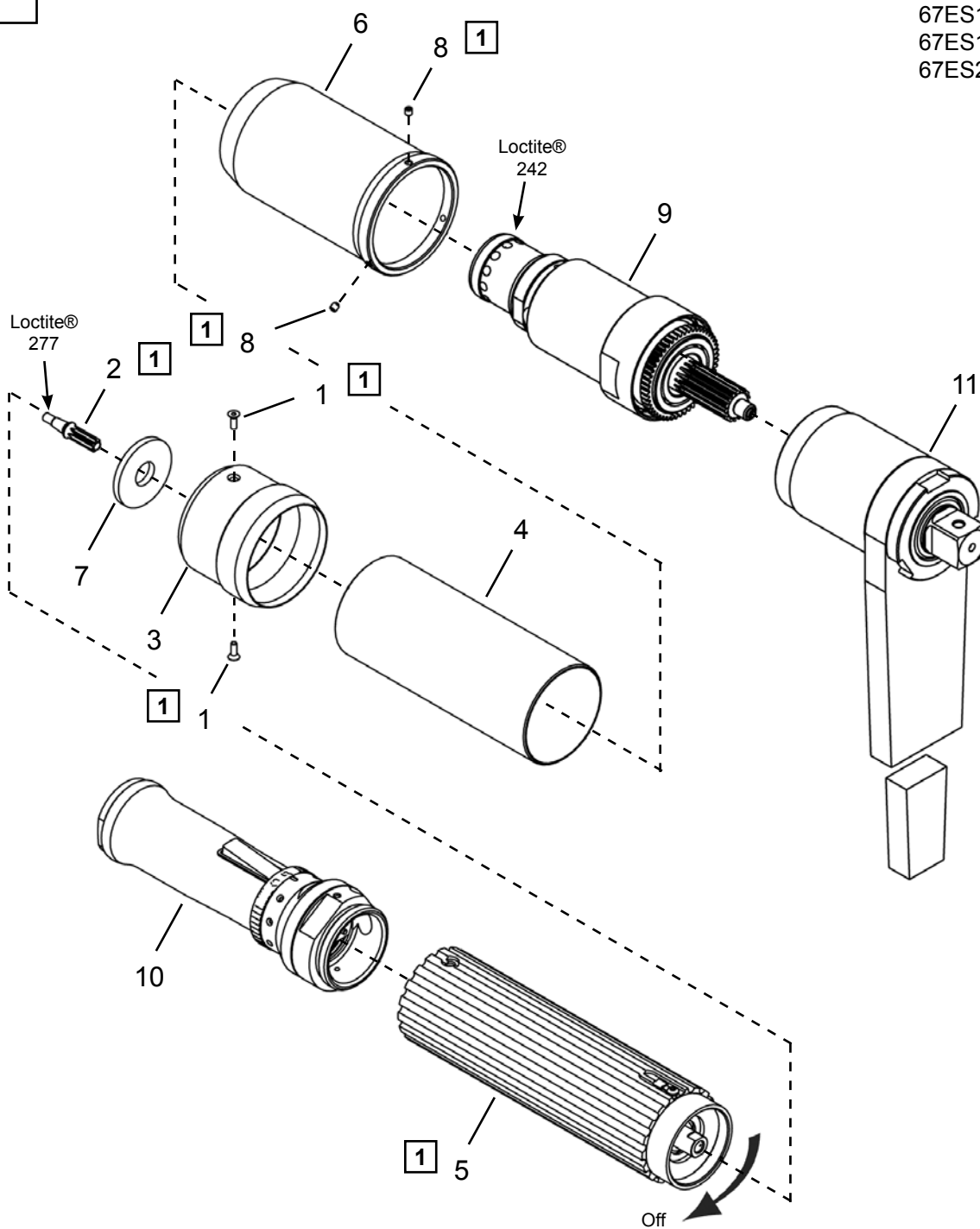
Table "E"

Ref.	Description	#	67ES190D6 67ES285D6 67ES385D6	#	67ES475D6 67ES610D6
11	Wire Sleeve	1	35127101	1	35157101

"F"

Models

67ES850D8
67ES1050D8
67ES1670D8
67ES2060D8



1 See Service Notes

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D8 Inline Nutrunner

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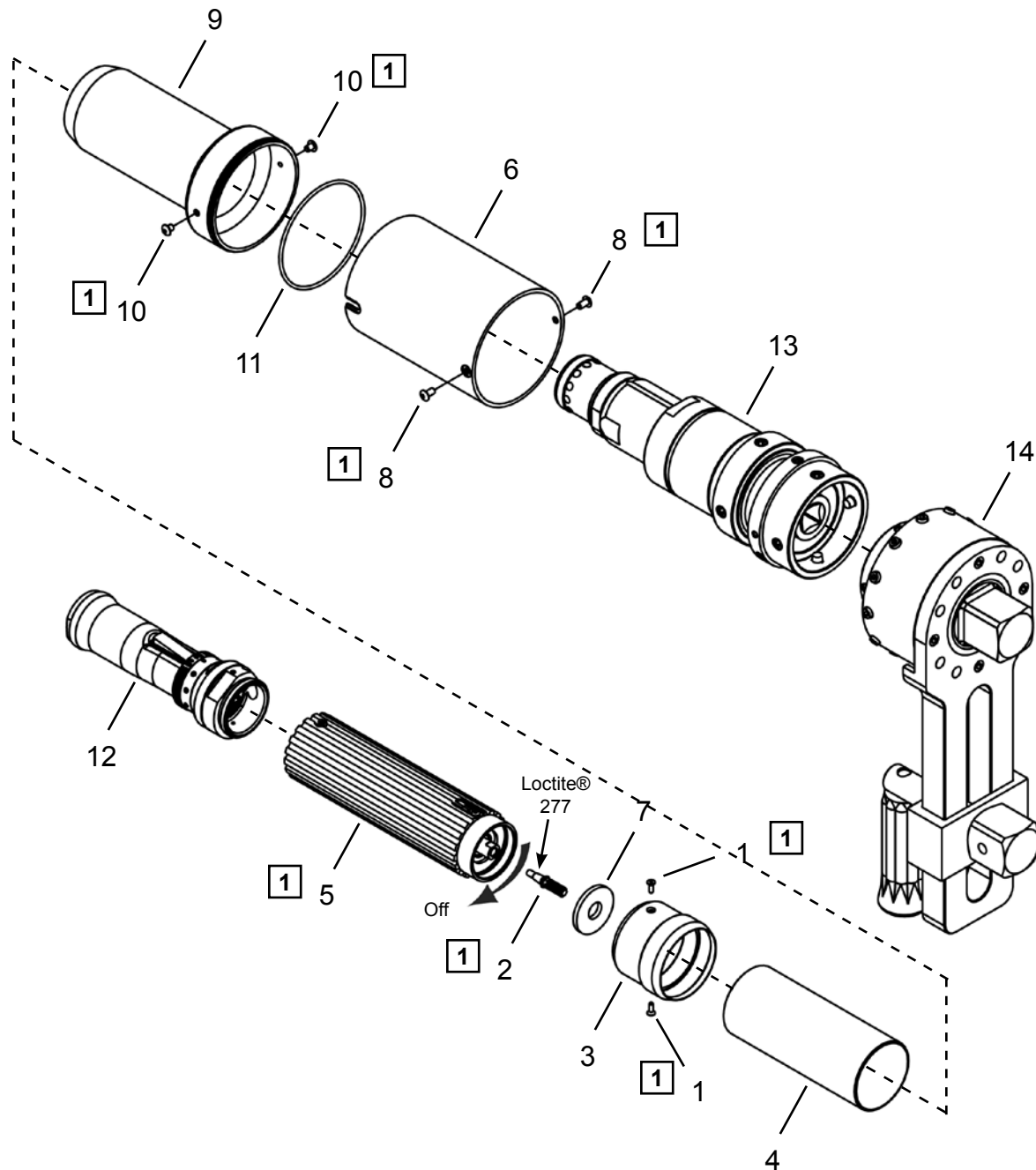
Illustration "F"

Ref	Number	#	X	EN
				Description
1	93380005	2	4	Screw
2	43288170	1	2	Sun Gear
3	35177103	1		Sleeve Adapter
4	542889	1		Wire Sleeve
5	542878	1		Motor Assembly
6	35257105	1		Wire Sleeve
7	35129102	1		Washer
8	93320021	3	6	Set Screw
9	Illustration "L"	1	2	Gear Case Assembly
10	Illustration "H"	1		Handle Assembly
11	Illustration "P"	1		D8 Attachment Assembly

(#) Quantity

(X) Recommended Spare Parts

“G”



1 See Service Notes

Cleco®
D12 Inline Nutrunner

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Illustration "G"

Ref	Number	#	X	EN
				Description
1	93380005	2	4	Screw
2	43288170	1	2	Sun Gear
3	35177103	1		Sleeve Adapter
4	542889	1		Wire Sleeve
5	542878	1		Motor Assembly
6	49646102	1		Wire Sleeve
7	35129102	1		Washer
8	93300006	2	4	Screw (10-24 x 1/4")
9	46607179	1		Cover Sleeve
10	93300029	2	4	Screw (10-24 x 3/8")
11	93010153	1	3	O-Ring
12	Illustration "H"	1		Handle Assembly
13	Illustration "M"	1		Gear Case Assembly
14	Illustration "Q"	1		D12 Attachment Assembly

(#) Quantity

(X) Recommended Spare Parts



Cleco®
Handle - Matrix Tool Connector

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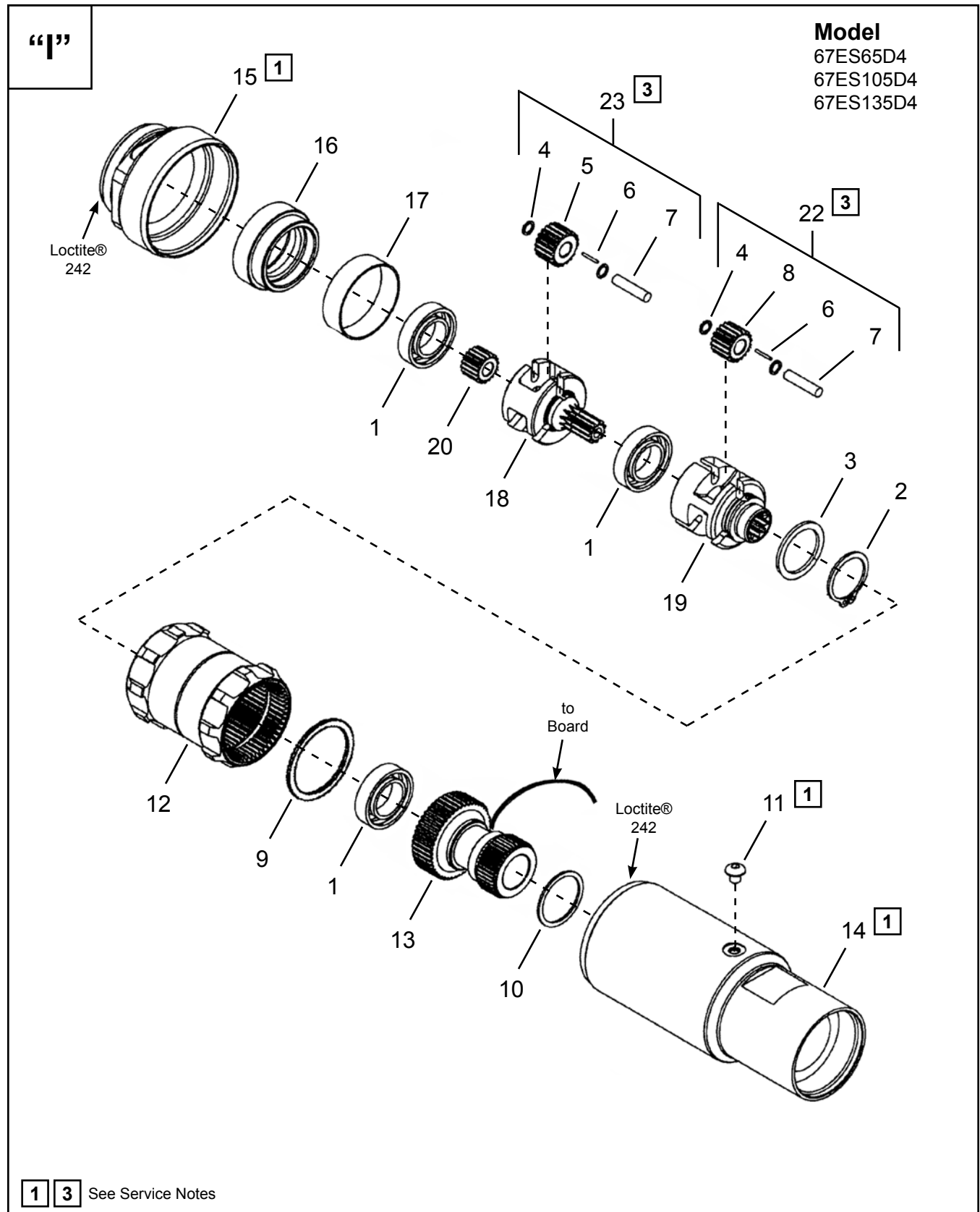
Illustration "H"

Ref	Number	#	X	EN
				Description
1	541840	1	3	Switch Pin
2	266255	1	3	Switch Spring
3	B159V	1	3	Cap Screw - #6-32
4	W115	1	3	Lock Washer
5	1009089	1	3	Housing Pin
6	1091PT	1	3	Steel Ball - 3/16"
7	22598	1	3	O-Ring
8	F900185	1		Switch Actuator
9	207317	2	2	Switch Spring Clip
10	541033	1	2	Reverse Spring
11	541624	1	2	Forward/Reverse Spring
12	F900571	1	2	Start/Reverse Switch
13	207316	1		Switch Holder
14	541015	1		Handle
15	207323	1		Handle Sleeve
16	207325	1		Connector Sleeve
17	542938	1		Reverse Ring
18	542819	1		Light Ring Assembly
19	542875	1		Cap
20	524818	1	3	O-Ring
21	17-111	2	4	Screw
22	542244	2	4	Stand Off
23	542874	1		Mounting Plate
24	902362	1	3	O-Ring
25	542877	1		Handle Adapter
Tool Cable (Optional Length)				
26	542778-1M	1		1 meter cable
	542778-2M			2 meter cable
	542778-3M			3 meter cable
	542778-6M			6 meter cable
	542778-8M			8 meter cable
	542778-10M			10 meter cable
	542778-15M			15 meter cable
	542778-50M			50 meter cable
Inline Swivel Cable (Optional Length)				
26	542780-3M	1		3 meter cable
	542780-6M			6 meter cable
	542780-8M			8 meter cable
	542780-10M			10 meter cable
	542780-15M			15 meter cable
	542780-50M			50 meter cable
Tool Cable Extension (Optional Length)				
26	542779-3M	1		3 meter cable
	542779-6M			6 meter cable
	542779-8M			8 meter cable
	542779-10M			10 meter cable
	542779-15M			15 meter cable
	542779-50M			50 meter cable

(#) Quantity

(X) Recommended Spare Parts

Cleco® Double Stage Gearing



Cleco®
Double Stage Gearing

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Illustration "I"

Ref	Number	#	X	EN
				Description
--	Table "I"	1		Gear Case Assembly
1	92100071	3	6	Ball Bearing
2	92840009	1	2	Retaining Ring
3	48019119	1		Washer
4	Table "I"	12	24	Planetary Gear Washer
5	Table "I"	--	x2	Upper Planetary Gear
6	Table "I"	90	180	Needle Roller (Planetary Gears)
7	Table "I"	6	12	Planetary Pin
8	Table "I"	3	6	Lower Planetary Gear
9	92830026	1		Retaining Ring
10	92830018	1		Retaining Ring
11	93300040	1		Screw
12	46067104	1		Gear Housing
13	Table "I"	1		Transducer
14	43527118	1		Housing
15	542876	1		Adapter
16	48138114	1		Bearing Housing
17	43259102	1		Protector Sleeve
18	Table "I"	1		Upper Planetary Cage
19	Table "I"	1		Lower Planetary Cage
20	Table "I"	1	2	Pinion Gear
21	43329171	1		Vise Decal (not shown)
22	Table "I"	3	6	Lower Planetary Gear Assembly (includes as shown)
23	Table "I"	--	x2	Upper Planetary Gear Assembly (includes as shown)

(#) Quantity

(X) Recommended Spare Parts

Table "I"

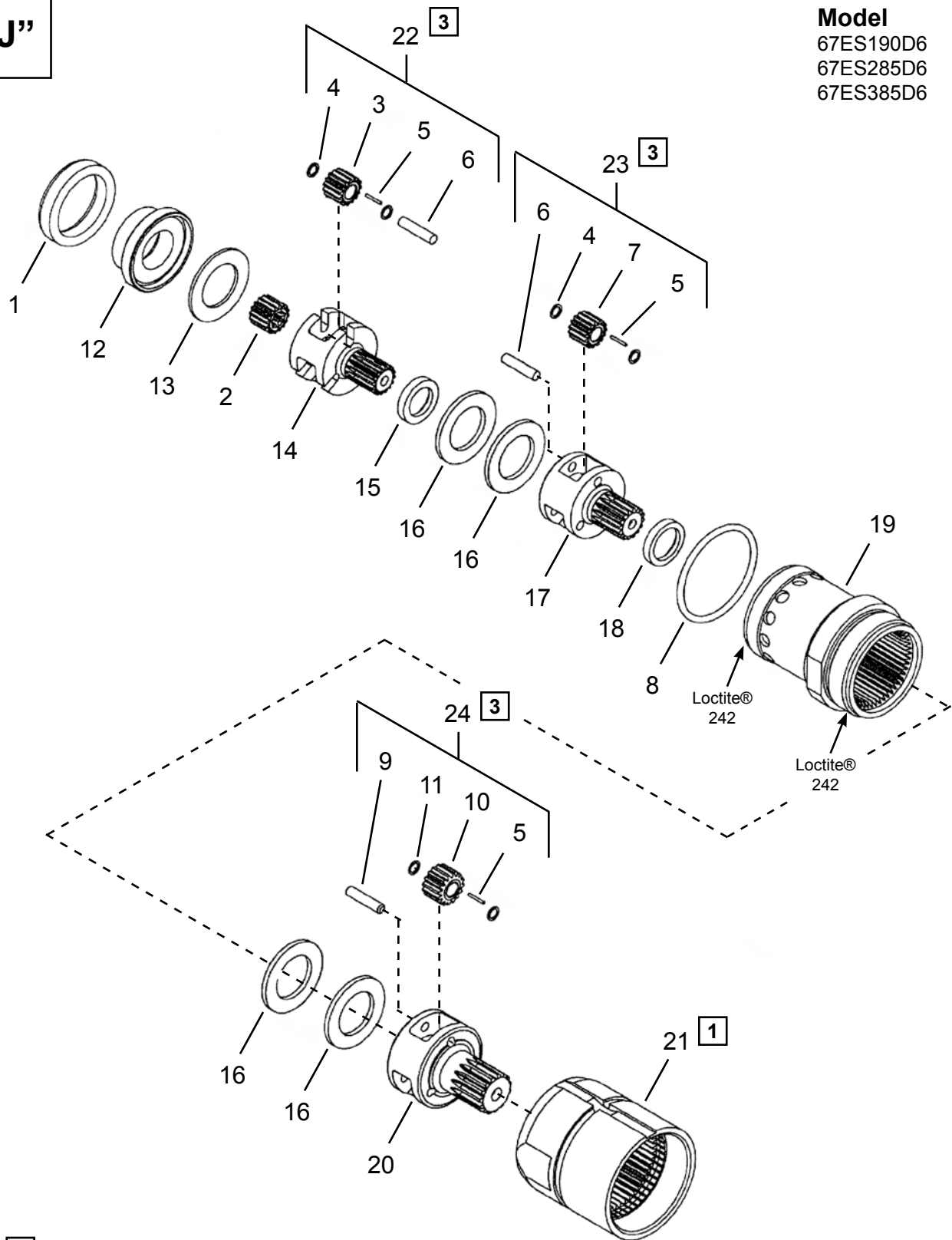
Ref.	Description	#	67ES65D4	#	67ES105D4	#	67ES135D4
--	Gear Case Assembly	1	435260101	1	435260102	1	435260103
4	Washer	10	48019118	12	48019118	12	48019118
5	Upper Planetary Gear	2	48018116 (16T)	3	48048110 (20T)	3	48038149 (21T)
6	Needle Roller	75	92880015	90	92880015	90	92880015
7	Planetary Pin	5	48019110	6	48019110	6	48019110
8	Lower Planetary Gear	3	48018194 (18T)	3	48048111 (17T)	3	48048111 (17T)
13	Transducer	1	542833-65	1	542883-135	1	542883-135
18	Upper Planetary Cage	1	48016112	1	43527127	1	43527158
19	Lower Planetary Cage	1	48138104	1	48138106	1	48138106
20	Pinion Gear	1	11801184 (15T)		-----		-----
22	Lower Planetary Assembly	3	48058018	3	48038017	3	48038017
23	Upper Planetary Assembly	2	48038016	3	48038020	3	48038081

(T) Teeth

Cleco®
Triple Stage Gearing

“J”

Model
67ES190D6
67ES285D6
67ES385D6



1 3 See Service Notes

Cleco®
Triple Stage Gearing

PL12EN-67ES-D

12/19/2013

Illustration "J"

Ref	Number	#	X	EN
				Description
--	Table "J"	1		Gear Case Assembly
1	11801172B	1	3	Muffler
2	Table "J"	1	2	Pinion Gear
3	Table "J"	3	6	Upper Planetary Gear
4	48019118	12	24	Planetary Gear Washer (Upper and Intermediate)
5	92880015	150	300	Needle Roller (Planetary Gears)
6	48019110	6	12	Planetary Pin (Upper and Intermediate)
7	Table "J"	3	6	Intermediate Planetary Gear
8	93040014	1	3	O-Ring
9	48039116	3	6	Planetary Pin (Lower)
10	48038104	3	6	Lower Planetary Gear (17T)
11	48039115	6	12	Planetary Gear Washer (Lower)
12	48038117	1		Deflector Ring
13	92060023	1		Washer
14	Table "J"	1		Upper Planetary Cage (includes Ref. 15)
15	Table "J"	1		Spacer
16	92060018	4		Washer
17	Table "J"	1		Intermediate Planetary Cage (includes Ref. 18)
18	48039157	1		Spacer
19	48037107	1		Gear Housing
20	48037110	1		Output Spindle
21	35647101	1		Gear Housing
22	Table "J"	3	6	Upper Planetary Gear Assembly
23	Table "J"	3	6	Intermediate Planetary Gear Assembly
24	48058017	3	6	Lower Planetary Gear Assembly

(#) Quantity

(X) Recommended Spare Parts

(T) Teeth

Table "J"

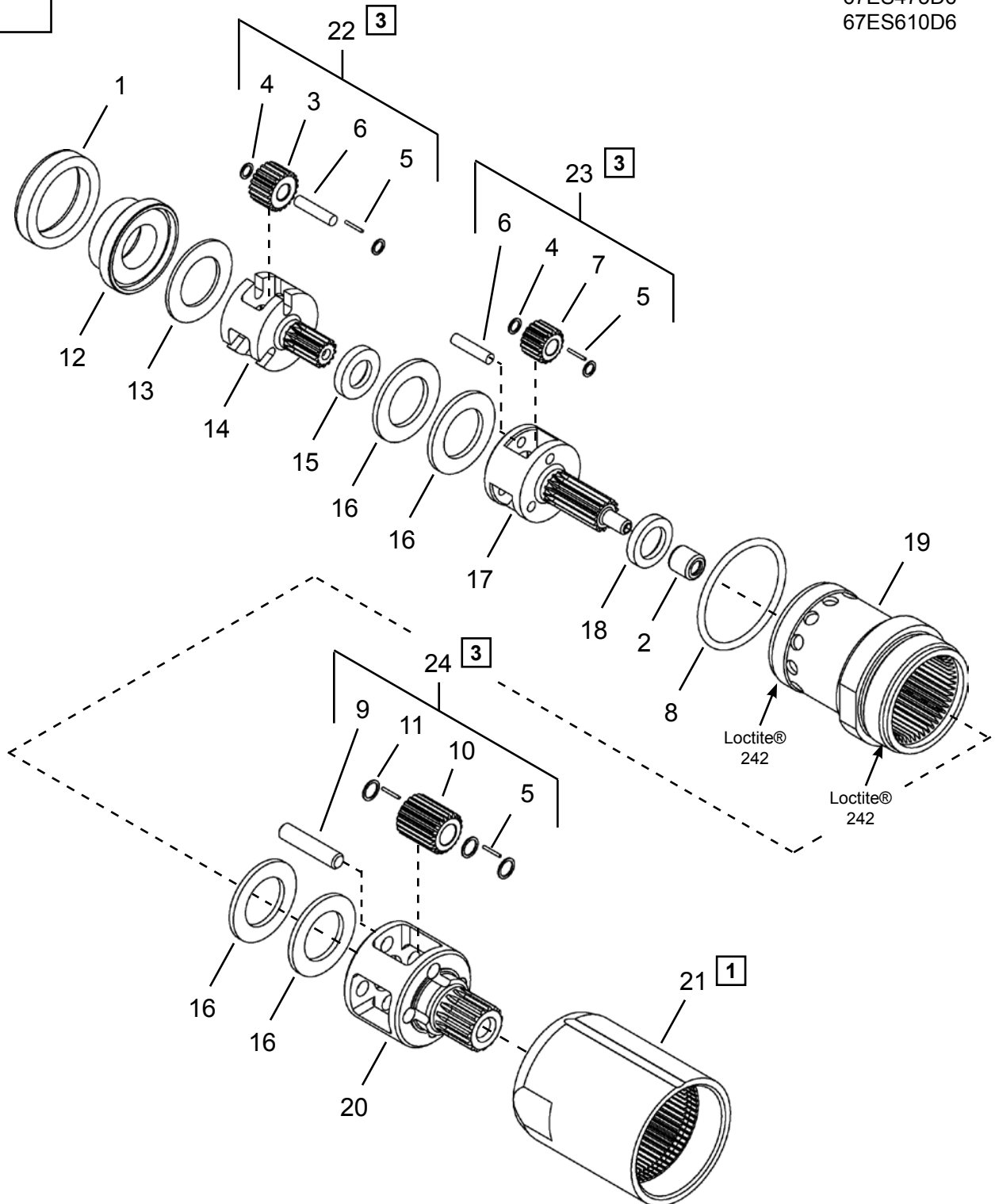
Ref.	Description	#	67ES190D6	#	67ES285D6	#	67ES385D6
--	Gear Case Assembly	1	35646010	1	35646011	1	35646012
2	Pinion Gear	1	48038118 (16T)	1	48038118 (16T)		-----
3	Upper Planetary Gear	3	48038129 (15T)	3	48038129 (15T)	3	48048110 (20T)
7	Intermediate Planetary Gear	3	48038129 (15T)	3	48038128 (18T)	3	48038129 (15T)
14	Upper Planetary Cage	1	48037125	1	48037123	1	48037125
15	Spacer	1	48039178	1	48039177	1	48039178
17	Intermediate Planetary Cage	1	48037172	1	48037119	1	48037172
22	Upper Planetary Assembly	3	48038015	3	48038015	3	48038020
23	Intermediate Planetary Assembly	3	48038015	3	48038018	3	48038015

(T) Teeth

Cleco®
Triple Stage Gearing

Model
67ES475D6
67ES610D6

"K"



1 **3** See Service Notes

Cleco®
Triple Stage Gearing

PL12EN-67ES-D
12/19/2013

Illustration "K"

Ref	Number	#	X	EN
				Description
--	Table "K"	1		Gear Case Assembly
1	11801172B	1	3	Muffler
2	92000008	1	2	Needle Bearing
3	Table "K"	3	6	Upper Planetary Gear
4	48019118	12	24	Planetary Gear Washer (Upper and Intermediate)
5	92880015	258	516	Needle Roller (Planetary Gears)
6	48019110	6	12	Planetary Pin (Upper and Intermediate)
7	48048111	3	6	Intermediate Planetary Gear (17T)
8	93040014	1	3	O-Ring
9	46039190	4	8	Planetary Pin (Lower)
10	46038191	4	8	Lower Planetary Gear (21T)
11	460391100	12	24	Planetary Gear Washer (Lower)
12	48038117	1		Deflector Ring
13	92060023	1		Washer
14	Table "K"	1		Upper Planetary Cage (includes Ref. 15)
15	48039176	1		Spacer
16	92060018	4		Washer
17	46037187	1		Intermediate Planetary Cage (includes Ref. 18)
18	48039157	1		Spacer
19	48037107	1		Gear Housing
20	46036184	1		Output Spindle
21	46037183	1		Gear Housing
22	Table "K"	3	6	Upper Planetary Gear Assembly
23	48038017	3	6	Intermediate Planetary Gear Assembly
24	46038067	3	6	Lower Planetary Gear Assembly

(#) Quantity

(X) Recommended Spare Parts

(T) Teeth

Table "K"

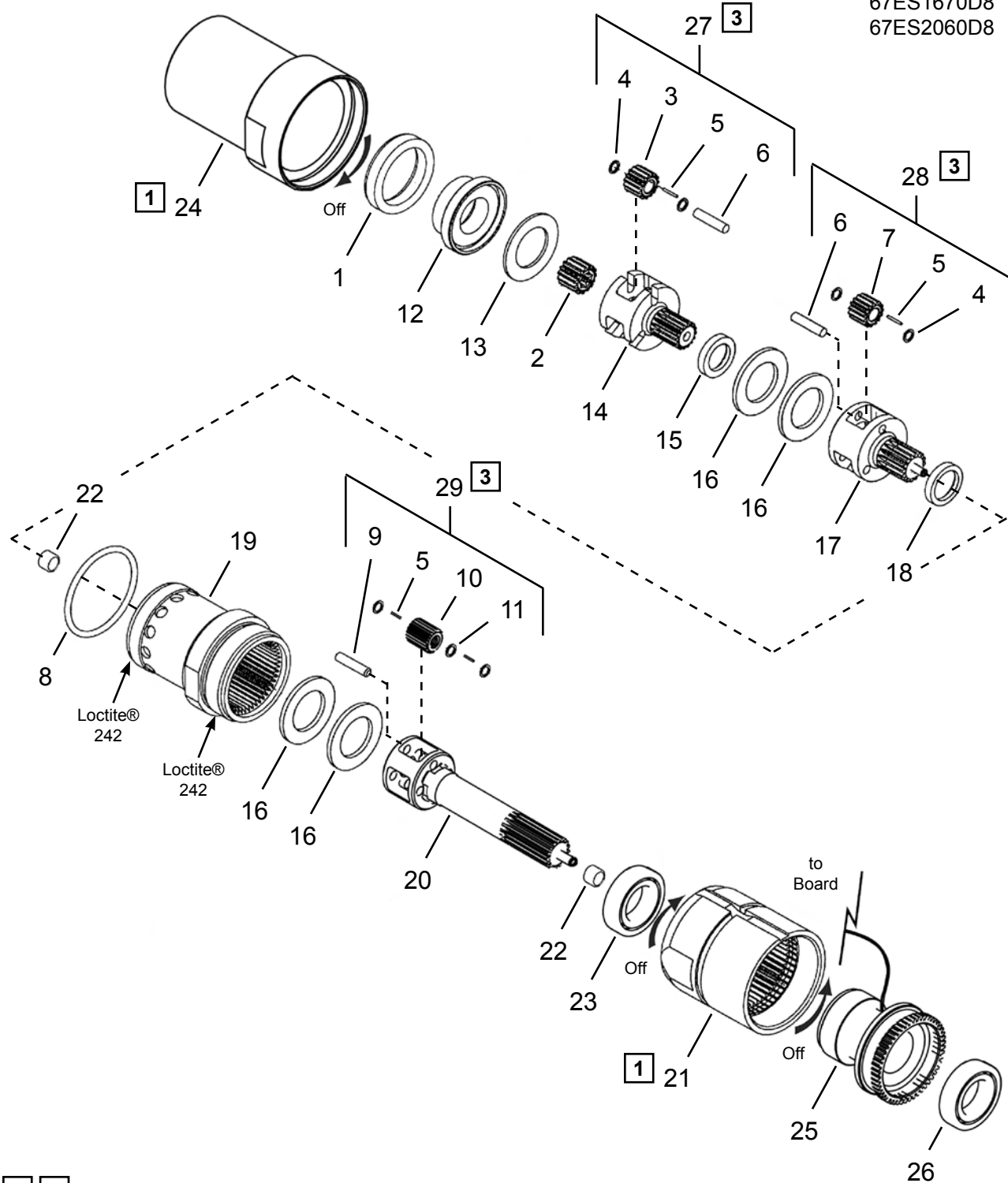
Ref.	Description	#	67ES475D6	#	67ES610D6
--	Gear Case Assembly	1	46036093	1	46036094
3	Upper Planetary Gear	3	48048110 (20T)	3	48038149 (21T)
14	Upper Planetary Cage	1	48037124	1	46087197
22	Upper Planetary Assembly	3	48038020	3	48038081

(T) Teeth

Cleco®
Triple Stage Gearing

“L”

Model
67ES850D8
67ES1050D8
67ES1670D8
67ES2060D8



1 3 See Service Notes

Cleco®
Triple Stage Gearing

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Illustration "L"

Ref	Number	#	X	EN
				Description
--	Table "L"	1		Gear Case Assembly
1	11801172B	1	3	Muffler
2	Table "L"	1	2	Pinion Gear
3	Table "L"	3	6	Upper Planetary Gear
4	48019118	12	24	Planetary Gear Washer (Upper and Intermediate)
5	92880015	258	516	Needle Roller (Planetary Gears)
6	48019110	6	12	Planetary Pin (Upper and Intermediate)
7	Table "L"	3	6	Intermediate Planetary Gear
8	93040014	1	3	O-Ring
9	46039190	4	8	Planetary Pin (Lower)
10	46038191	4	8	Lower Planetary Gear (21T)
11	460391100	12	24	Planetary Gear Washer (Lower)
12	48038117	1		Deflector Ring
13	92060023	1		Washer
14	Table "L"	1		Upper Planetary Cage (includes Ref. 15)
15	Table "L"	1		Spacer
16	92060018	4		Washer
17	Table "L"	1		Intermediate Planetary Cage (includes Ref. 18)
18	48039157	1		Spacer
19	48037107	1		Gear Housing
20	46605118	1		Output Spindle
21	46037183	1		Gear Housing
22	92000008	2	4	Needle Bearing
23	92100031	1	2	Bearing
24	46607120	1		Clamp Nut
25	Table "L"	1		Transducer
26	92100165	1	2	Bearing
27	Table "L"	3	6	Upper Planetary Gear Assembly
28	Table "L"	3	6	Intermediate Planetary Gear Assembly
29	46038067	3	6	Lower Planetary Gear Assembly

(#) Quantity

(X) Recommended Spare Parts

(T) Teeth

Table "L"

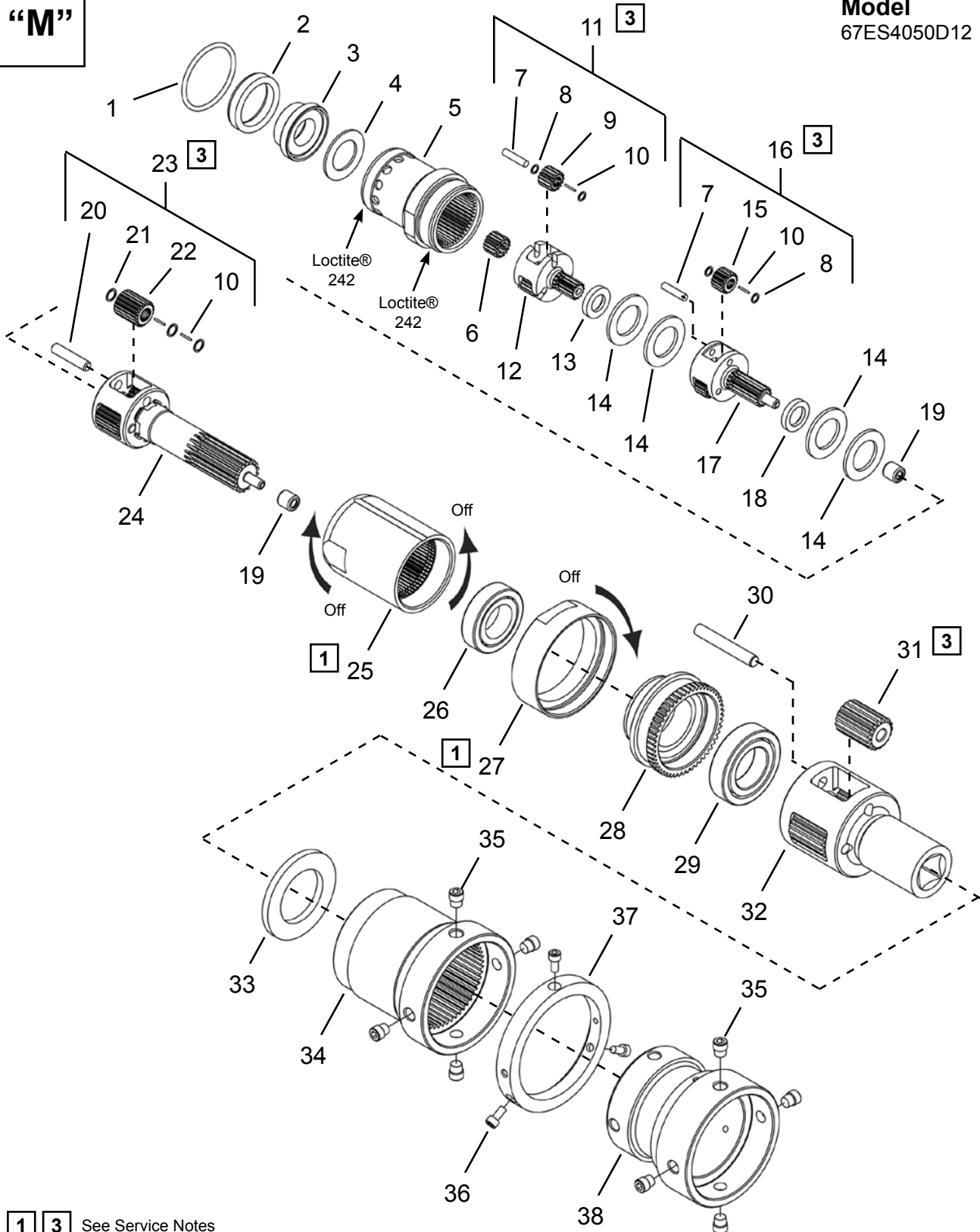
Ref.	Description	#	67ES850D8	#	67ES1050D8	#	67ES1670D8	#	67ES2060D8
--	Gear Case Assembly	1	466060133	1	466060134	1	466060135	1	466060136
2	Pinion Gear	1	48038118 (16T)	1	48038118 (16T)		-----		-----
3	Upper Planetary Gear	3	48038129 (15T)	3	48038129 (15T)	3	48048110 (20T)	3	48048110 (20T)
7	Intermediate Planetary Gear	3	48048111 (15T)	3	48038128 (18T)	3	48048111 (15T)	3	48038128 (18T)
14	Upper Planetary Cage	1	48037124	1	48037123	1	48037124	1	48037123
15	Spacer	1	48039176	1	48039177	1	48039176	1	48039177
17	Intermediate Planetary Cage	1	48037187	1	48037188	1	48037187	1	48037188
25	Transducer	1	543244-339	1	543244-339	1	543244-746	1	543244-746
27	Upper Planetary Gear Assembly	3	48038015	3	48038015	3	48038020	3	48038020
28	Intermediate Planetary Gear Assembly	3	48038017	3	48038018	3	48038017	3	48038018

(T) Teeth

Cleco®
Four Stage Gearing

Model
67ES4050D12

"M"



1 3 See Service Notes

Cleco®
Four Stage Gearing

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Illustration "M"

Ref	Number	#	X	EN
				Description
--	466060137	1		Gear Case Assembly
1	93040014	1	3	O-Ring
2	11801172B	1	3	Muffler
3	48038117	1		Deflector Ring
4	92060023	1		Washer
5	48037107	1		Gear Housing
6	48038118	1	2	Pinion Gear (16T)
7	48019110	6	12	Planetary Pin (Upper and 1st Intermediate)
8	48019118	12	24	Planetary Gear Washer (Upper and 1st Intermediate)
9	48038129	3	6	Upper Planetary Gear (15T)
10	92880015	258	516	Needle Roller (Planetary Gears)
11	48038015	3	6	Upper Planetary Gear Assembly
12	48037124	1		Upper Planetary Cage (includes Ref. 13)
13	48039176	1		Spacer
14	92060018	4		Washer
15	48048111	3	6	1st Intermediate Planetary Gear (17T)
16	48038017	3	6	1st Intermediate Planetary Gear Assembly
17	46037187	1		1st Intermediate Planetary Cage (includes Ref. 18)
18	48039157	1		Spacer
19	92000008	2	4	Needle Bearing
20	46039190	4	8	Planetary Pin (2nd Intermediate)
21	460391100	12	24	Planetary Gear Washer (2nd Intermediate)
22	46038191	4	8	2nd Intermediate Planetary Gear (21T)
23	46038067	4	8	2nd Intermediate Planetary Gear Assembly
24	46606117	1		2nd Intermediate Planetary Cage
25	46037183	1		Gear Housing
26	92100031	1	2	Ball Bearing
27	46608127	1		Clamp Nut
28	46607114	1		Gear Housing Adapter
29	92100165	1	2	Ball Bearing
30	46608122	4	8	Planetary Pin (Lower)
31	46608121	4	8	Lower Planetary Gear (17T)
32	46607177	1		Output Spindle
33	46199116	1		Washer
34	46607178	1		Gear Housing
35	46039136	8	8	Retaining Pin
36	93310032	3	3	Screw
37	48A17111	1		Support Ring
38	543245-2034	1		Transducer

(#) Quantity

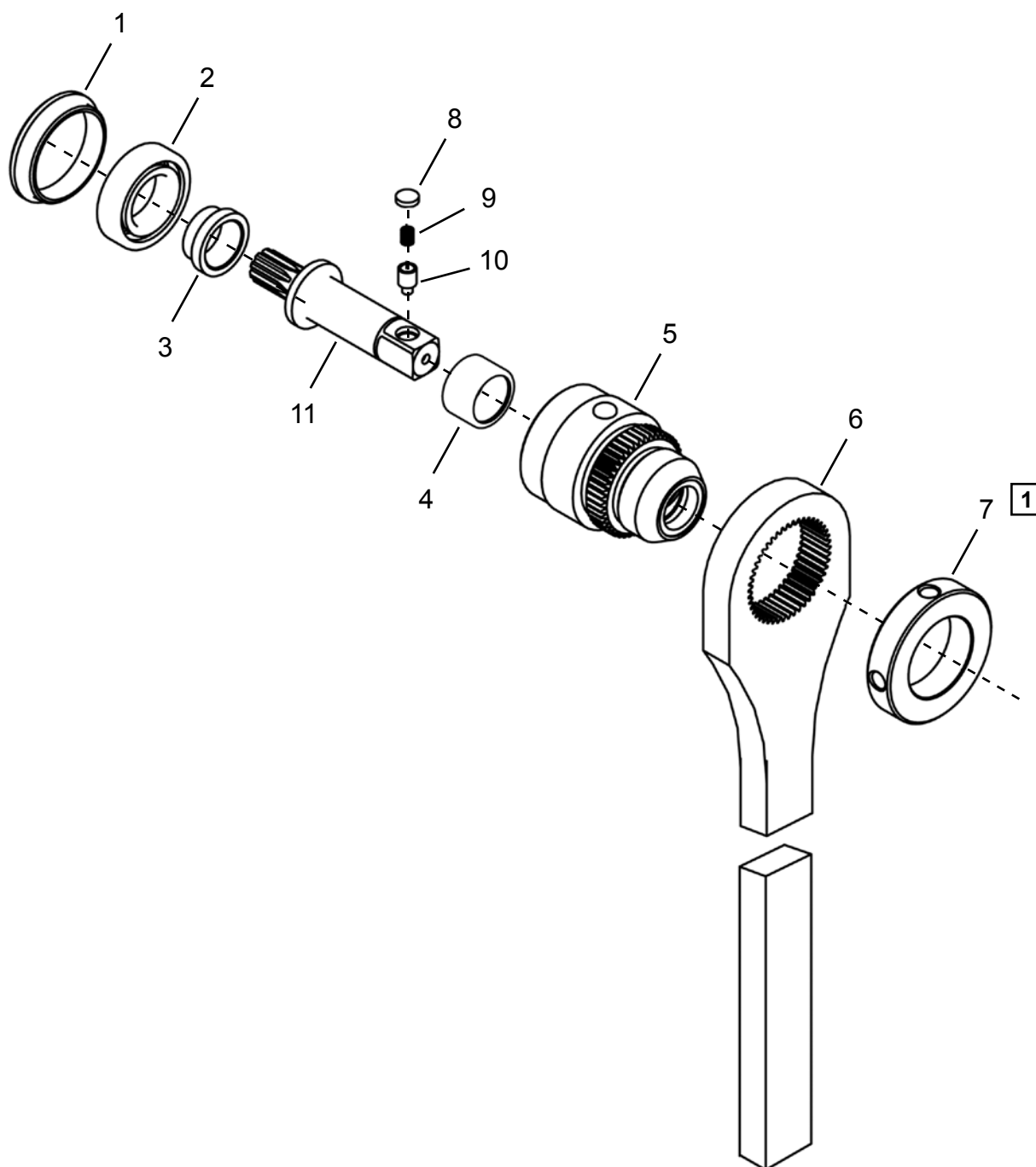
(X) Recommended Spare Parts

(T) Teeth

Cleco®
D4 Attachment Assembly

“N”

Models
67ES65D4
67ES105D4
67ES135D4



1 See Service Notes

Cleco®
D4 Attachment Assembly

PL12EN-67ES-D
12/19/2013

Illustration "N"

Ref	Number	#	X	EN
				Description
1	48048114	1		Spacer
2	92100138	1	2	Ball Bearing
3	48048171	1		Bearing Spacer
4	48048115	1		Bushing
5	48047107	1		Bearing Cap Assembly (includes Ref. 4)
6	48047128	1		Torque Bar
7	11841013	1		Lock Nut
8	12601480	1	3	Plug
9	12601481	1	3	Spring
10	12601479A	1	3	Pin
11	48047123	1		1/2" Square Drive Output Spindle (includes Ref. 8-9-10)

(#) Quantity

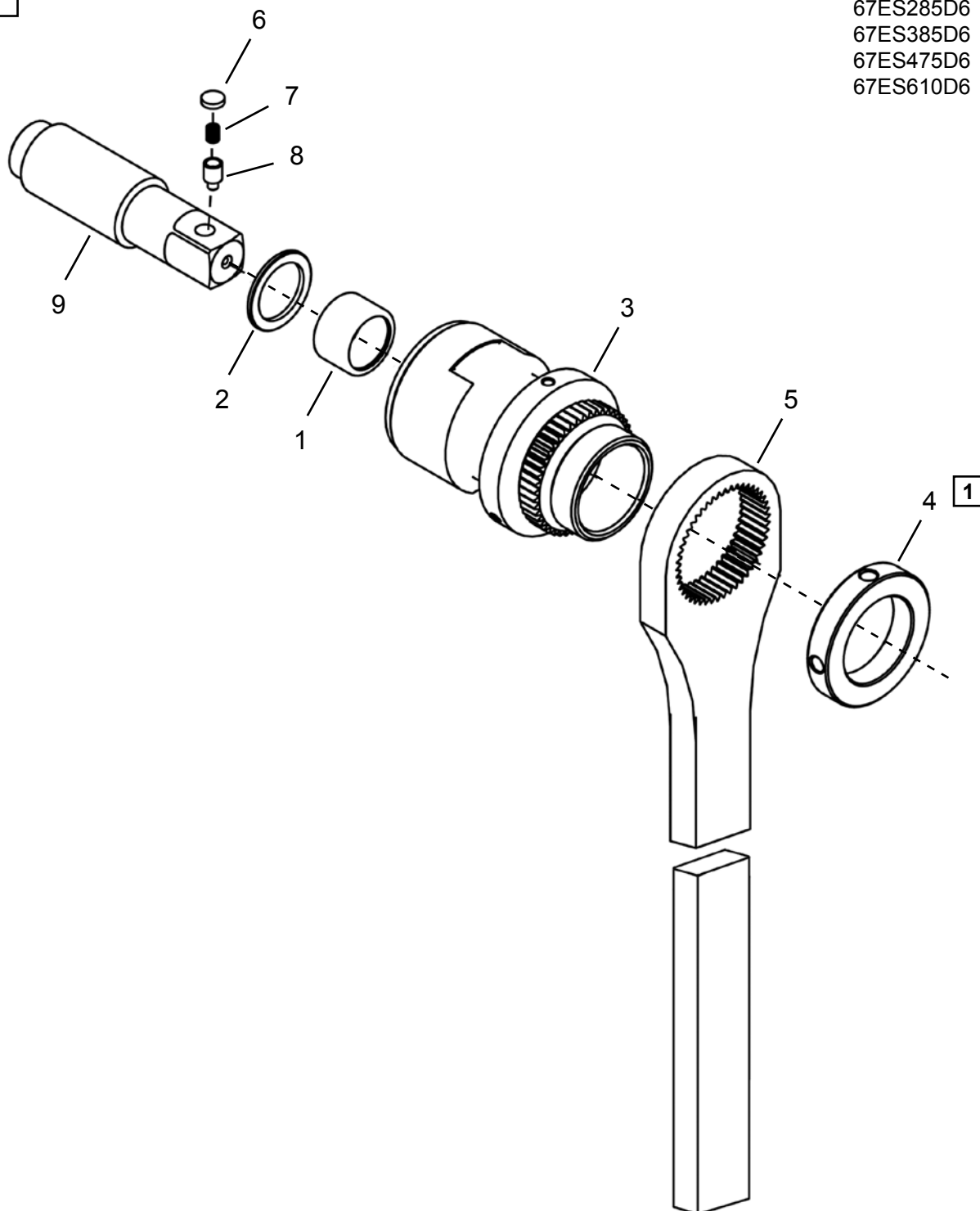
(X) Recommended Spare Parts

Cleco®
D6 Attachment Assembly

“O”

Models

67ES190D6
67ES285D6
67ES385D6
67ES475D6
67ES610D6



1 See Service Notes

Cleco®
D6 Attachment Assembly

PL12EN-67ES-D
12/19/2013

Illustration "O"

Ref	Number	#	X	EN
				Description
1	92000056	1	2	Needle Bearing
2	48039157	1		Spacer
3	Table "O"	1		Transducer
4	48038113	1		Lock Nut
5	Table "O"	1		Torque Bar
6	12031048	1	3	Plug
7	94070240	1	3	Spring
8	12601479A	1	3	Pin
9	48047123	1		1/2" Square Drive Output Spindle (includes Ref. 6-7-8)

(#) Quantity

(X) Recommended Spare Parts

Table "O"

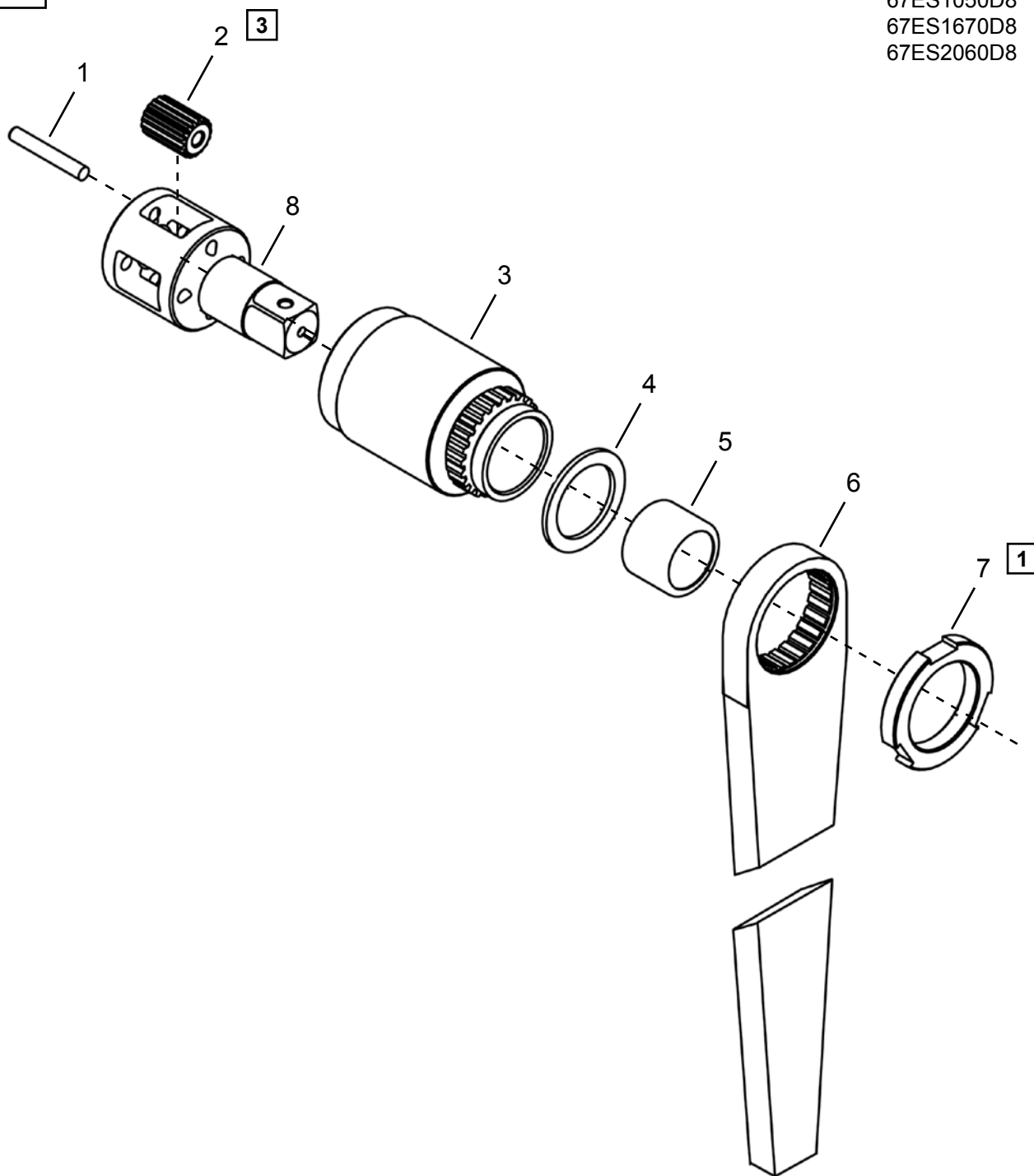
Ref.	Description	#	67ES190D6	#	67ES285D6	#	67ES385D6	#	67ES475D6 67ES610D6
3	Transducer	1	542-884-232	1	542884-353	1	542884-610	1	542884-610
5	Torque Bar	1	48037127	1	48037127	1	48037127	1	48037148
9	Output Spindle	1	46197105	1	46197105	1	46197105	1	46037197

Cleco®
D8 Attachment Assembly

“P”

Models

67ES850D8
67ES1050D8
67ES1670D8
67ES2060D8



1 3 See Service Notes

Cleco®
D8 Attachment Assembly

PL12EN-67ES-D
12/19/2013

Illustration "P"

Ref	Number	#	X	EN
				Description
1	46608122	4	8	Planetary Pin
2	46608121	4	8	Planetary Gear
3	46606116	1		Gear Housing
4	46609119	1		Thrust Washer
5	92190034	1	2	Needle Bearing
6	46036202	1		Torque Bar
7	46038134	1		Lock Nut
8	46606115	1		1" Square Drive Output Spindle

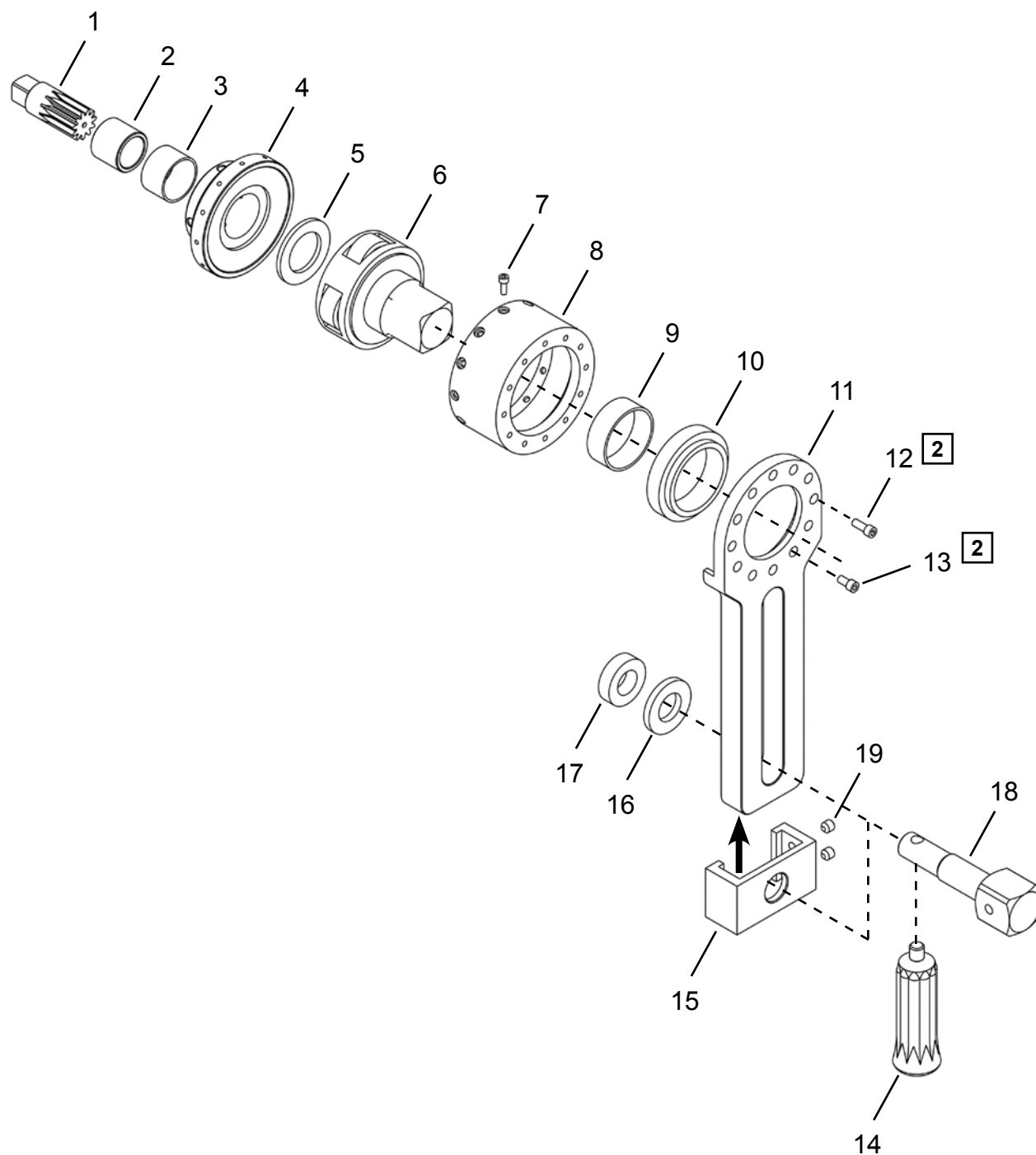
(#) Quantity

(X) Recommended Spare Parts

Cleco®
D12 Attachment Assembly

“Q”

Models
67ES4050D12



2 See Service Notes

Cleco®
D12 Attachment Assembly

PL12EN-67ES-D
12/19/2013

Illustration "Q"

Ref	Number	#	X	EN
				Description
1	46197181	1	1	Sun Gear
2	46198182	1		Sleeve
3	46199122	1	2	Bearing
4	46197130	1		Adapter
5	46199117	1		Thrust Washer
6	46199118	1		Carrier Assembly
7	93310044	12	12	Screw
8	46199120	1		Annulus
9	46199124	1	2	Bearing
10	46199123	1		Bearing Bushing
11	46197149	1		Reaction Plate
12	93310064	4	4	Screw (1/4 BSF x 5/8")
13	93310024	8	8	Screw (1/4 BSF x 3/8")
14	113217B	1		Dead Handle
15	93960001	1		Clamp Collar
16	94050053	1		Washer
17	46198148	1		Slave Drive Slide
18	46197188	1		Slave Square
19	93320084	2	2	Set Screw (3/8-24 x 3/8")

(#) Quantity

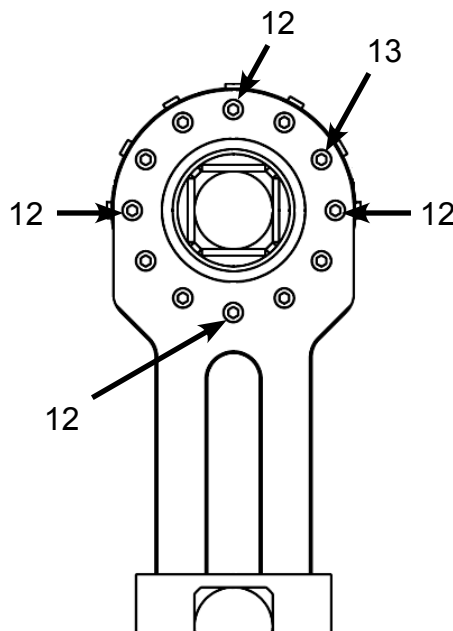
(X) Recommended Spare Parts

1 Tightening Torque

Illustration	Reference	Tightening torque	
		Ft-Lbs (in-lbs)	Nm
D	1	(8-11)	0.9-1.2
	2	(100-105)	11.3-11.9
	7	45-55	61-75
E	1	(8-11)	0.9-1.2
	2	(100-105)	11.3-11.9
	5	(25-27)	2.8-3.1
	9	45-55	61-75
F	1	(8-11)	0.9-1.2
	2	(100-105)	11.3-11.9
	5	45-55	61-75
	8	(25-27)	2.8-3.1
G	1	(8-11)	0.9-1.2
	2	(100-105)	11.3-11.9
	5	45-55	61-75
	8	(25-27)	2.8-3.1
H	3	(10-14)	1.1-1.6
	16	25-35	34-47
	19	35-40	47-54
	21	(6-8)	0.7-0.9
I	22	(6-8)	0.7-0.9
	26 (Swivel)	15-18	20-24
	11	(40-45)	4.5-5.1
	14	125-135	169-183
J	15	65-75	88-102
	21 (Motor End)	125-135	169-183
	21 (Output End)	145-155	196-210
K	21 (Motor End)	125-135	169-183
	21 (Output End)	145-155	196-210
L	21 (Motor End)	125-135	169-183
	21 (Output End)	145-155	196-210
M	24	65-75	88-102
	25 (Motor End)	125-135	169-183
	25 (Output End)	145-155	196-210
N	27	65-75	88-102
	7	45-55	61-75
	4	45-55	61-75
O	7	45-55	61-75
	7	45-55	61-75

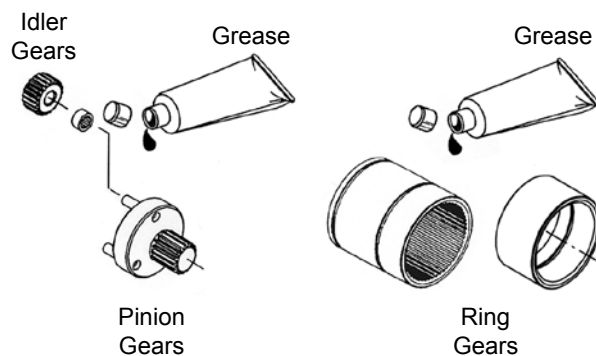
2 Annulus Screw Assembly

12 = 93310064 Screw (Qty. 4) locations shown
13 = 93310024 Screw (Qty. 8) remaining locations



3 Gear Train Lubrication

541444 - 2 oz. (56 g)
541445 - 1 pound (0.45 kg)



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.

Detroit, Michigan

**Apex Tool Group
Sales & Service Center**
2630 Superior Court
Auburn Hills, MI 48326
Tel: (248) 393-5640
Fax: (248) 391-6295

Houston, Texas

**Apex Tool Group
Sales & Service Center**
6550 West Sam Houston
Parkway North, Suite 200
Houston, TX 77041
Tel: (713) 849-2364
Fax: (713) 849-2047

Lexington, South Carolina

Apex Tool Group
670 Industrial Drive
Lexington, SC 29072
Tel: (800) 845-5629
Tel: (803) 951-7544
Fax: (803) 358-7681

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**Apex Tool Group
Sales & Service Center**
6881 Stanton Avenue
Unit B
Buena Park, CA 90621
Tel: (714) 994-1491
Fax: (714) 994-9576

Seattle, Washington

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

York, Pennsylvania

**Apex Tool Group
Sales & Service Center**
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Mississauga
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