

Parts Manual
PL12EN-48EC
11/03/2011

Cleco®

48EC Series
Electronically Controlled Crowfoot Nutrunner



For additional product information visit our website at <http://www.apextoolgroup.com>

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 angle 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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“A”		48	E	C	X	30	XX	XX	X	1
<u>Tool Series</u>								Crowfoot Socket Data		
48										
<u>Motor Style</u>										
E = Brushless Electric Motor										
<u>Tool Type</u>										
C = Crowfoot										
<u>Feature</u>										
- = Matrix Tool Connector (Standard)										
E = Air LB Connector										
<u>Maximum Torque Nm (rounded to nearest Nm)</u>										
30 = 30 Nm										
<u>Tool Termination</u>										
C1 = 15 Degree Angle Head										
C3 = 30 Degree Angle Head										
<u>Socket</u>										
EA = 1/4"		MA = 7mm				XX = No Socket				
EC = 3/8"		MB = 8mm (5/16")								
EE = 1/2"		MC = 9mm								
EF = 9/16"		MD = 10mm								
		ME = 11mm (7/16")								
		MF = 12mm								
		MG = 13mm								
		MH = 14mm								
		MI = 15mm								
<u>Extension</u>										
0 = Flush										
4 = 1/2"										
6 = 3/4"										
X = No Socket										
<u>Output Type</u>										
1 = Thru Hex										
X = No Socket										

“B”

m-Pro-400 Series
Controller



TME-200 Series
Controller



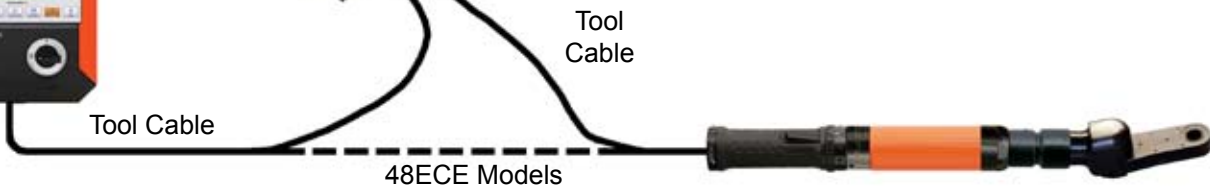
Complete Tool Order Number	Angle Attachment Order Number	Socket Order Number
48EC(E)30C1(XXXX)	301071	See Socket Table
48EC(E)30C3(XXXX)	301072	See Socket Table



m-Pro-400GC
Global Controller



m-Pro-400-IT
Isolation Transformer
(48EC Models)



TME and m-Pro-400 Series Controllers

48EC	48ECE	EN	
		Description	
115 VAC	Standard	TMEI-114-15-U	
115 VAC	DeviceNet	TMEI-114-15-U-ED	
115 VAC	ProfiBus	TMEI-114-15-U-EP	
TME-200	m-Pro-400	Controller	
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	301877-XXX	Extension Cable	
544056-XXX	301904-XXX	Swivel Cable	
544055-XXX	301903-XXX	Swivel Cable - Right Angle	
542778-XXX	301866-XXX	Tool Cable	

* Note: Contact Apex Tool Group

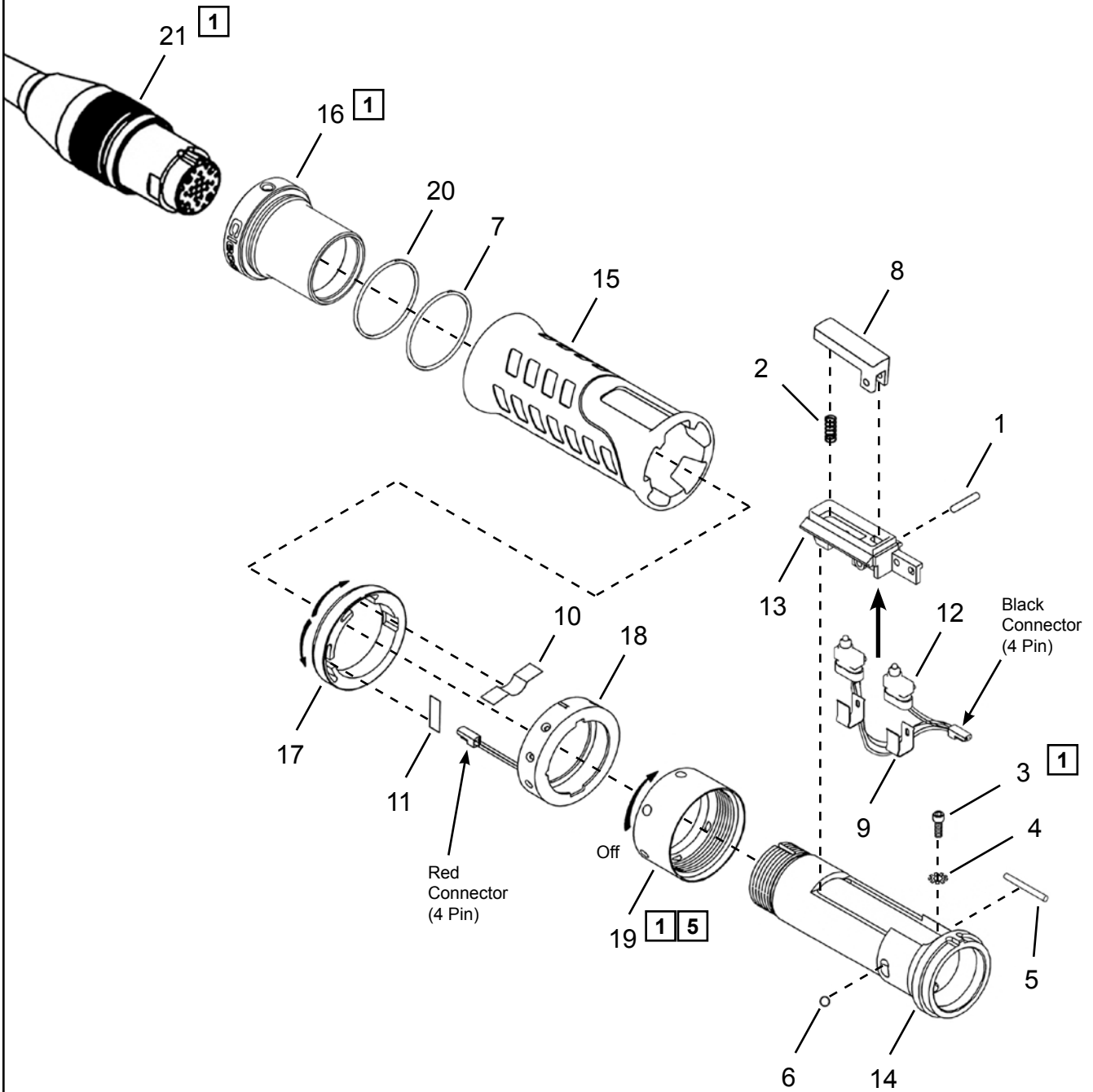
TME-200 Series Controller

Supply Voltage	EN	
	Order Number	
115 VAC	TME-211-15-U	
115 VAC	TME-221-15-U	
230 VAC	TME-211-30-U	
230 VAC	TME-221-30-U	

Cleco®
Handle - Matrix Tool Connector

“C1”

Models
48EC30C1
48EC30C3



1 5 See Service Notes

Handle - Matrix Tool Connector

Illustration "C1"

Ref	Number	#	X	EN	
				Description	
1	541480	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	541017	1		Handle Retainer Nut	
20	524818	1	3	O-Ring	
Tool Cable (Optional Length)					
21	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)					
21	544056-1M	1		1 meter cable	
	544056-2M			2 meter cable	
	544056-3M			3 meter cable	
	544056-6M			6 meter cable	
	544056-8M			8 meter cable	
	544056-10M			10 meter cable	
	544056-15M			15 meter cable	
Angle Swivel Cable (Optional Length)					
21	544055-1M	1		1 meter cable	
	544055-2M			2 meter cable	
	544055-3M			3 meter cable	
	544055-6M			6 meter cable	
	544055-8M			8 meter cable	
	544055-10M			10 meter cable	
	544055-15M			15 meter cable	
Tool Cable Extension (Optional Length)					
21	542779-1M	1		1 meter cable	
	542779-2M			2 meter cable	
	542779-3M			3 meter cable	
	542779-6M			6 meter cable	
	542779-10M			10 meter cable	
	542779-15M			15 meter cable	
	542779-50M			50 meter cable	

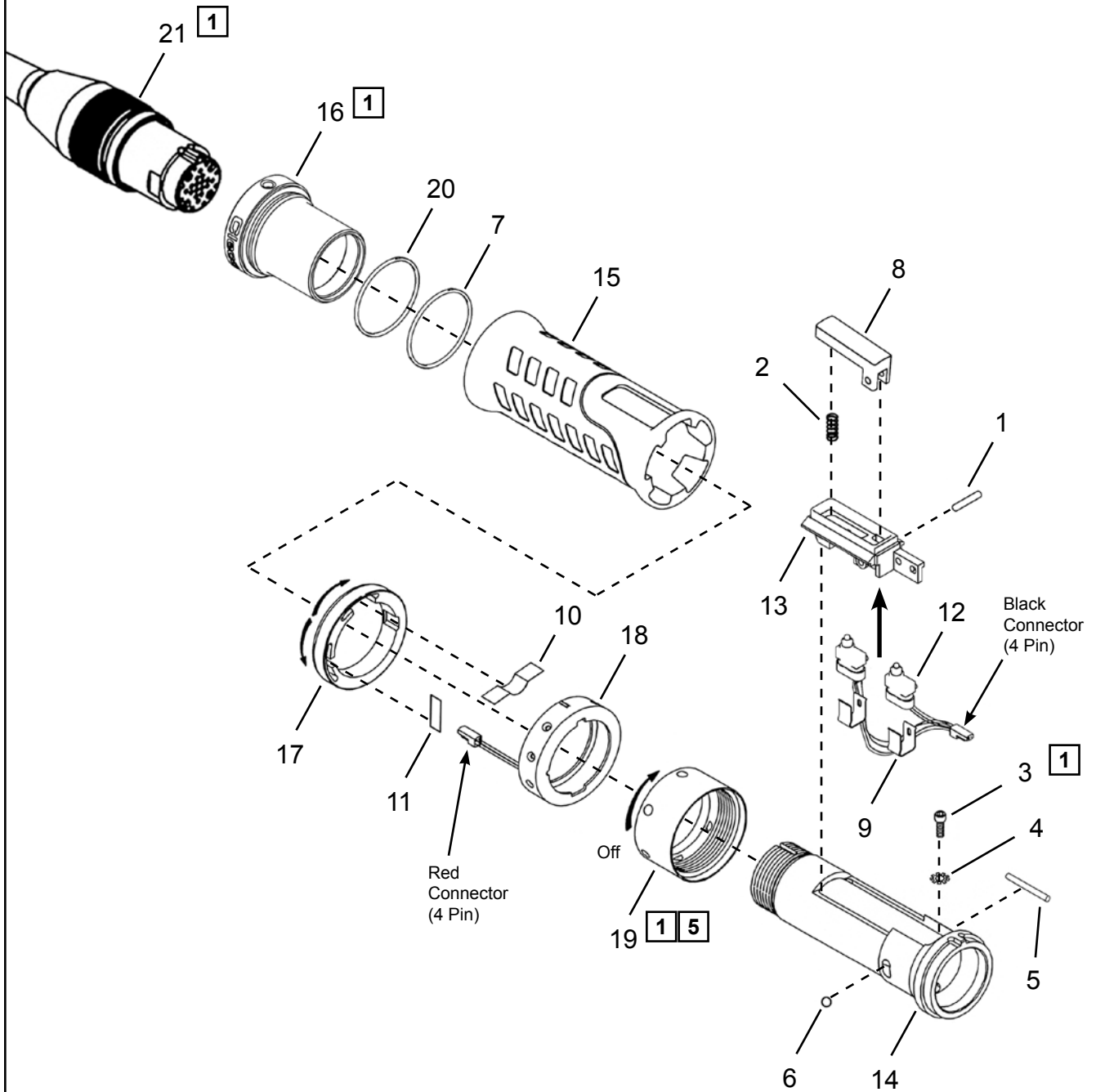
(#) Quantity

(X) Recommended Spare Parts

Cleco®
Handle - Air LB Tool Connector

“C2”

Models
48ECE30C1
48ECE30C3



1 5 See Service Notes

Handle - Air LB Tool Connector

Illustration "C2"

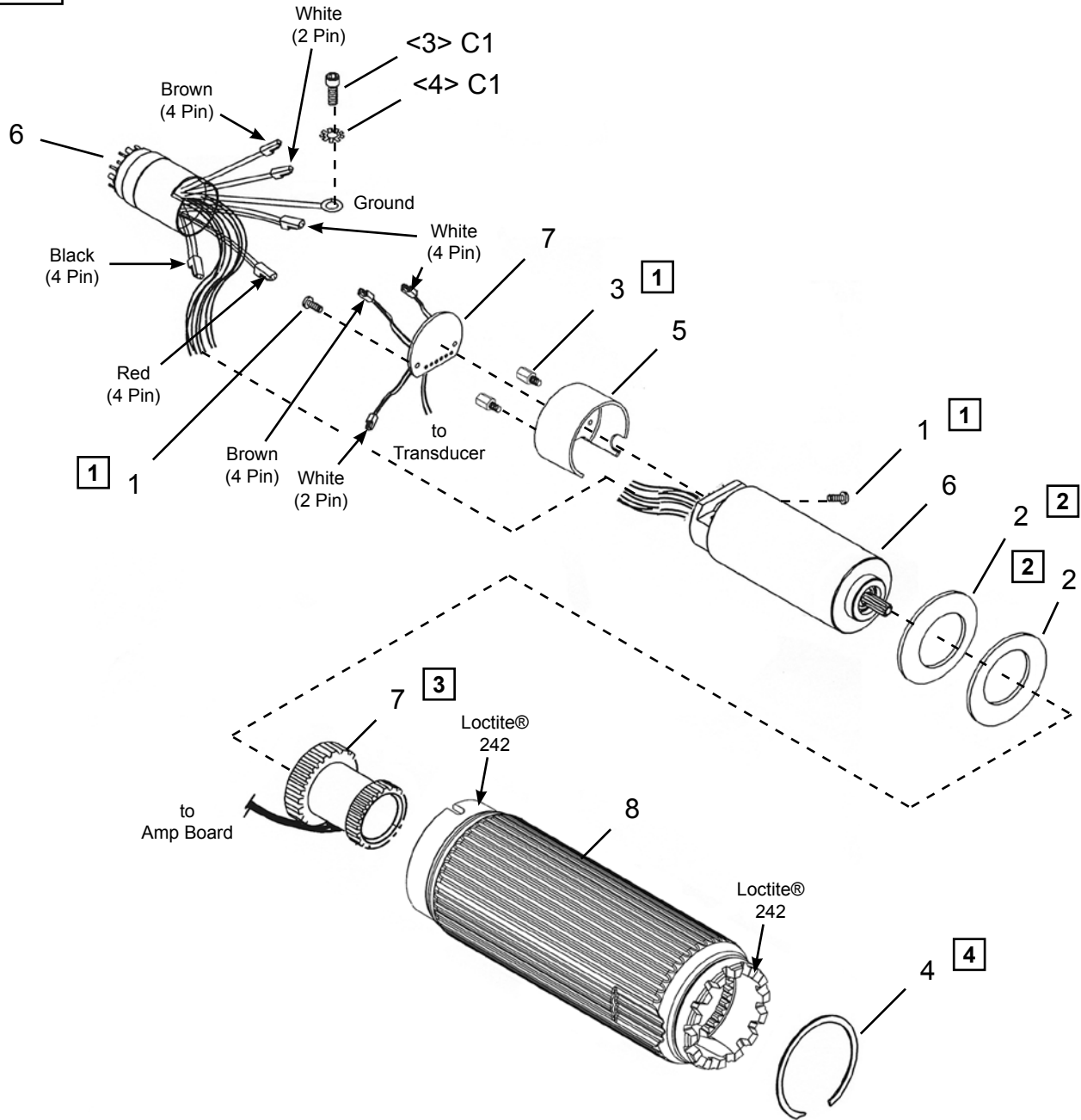
Ref	Number	#	X	EN	
				Description	
1	541480	1	3	Switch Pin	
2	266255	1	3	Switch Spring	
3	B159V	1	3	Cap Screw - #6-32	
4	W115	1	3	Lock Washer	
5	1009089	1	3	Housing Pin	
6	1091PT	1	3	Steel Ball - 3/16"	
7	22598	1	3	O-Ring	
8	F900185	1		Switch Actuator	
9	207317	2	2	Switch Spring Clip	
10	541033	1	2	Reverse Spring	
11	541624	1	2	Forward/Reverse Spring	
12	F900571	1	2	Start/Reverse Switch	
13	207316	1		Switch Holder	
14	207322	1		Handle	
15	207323	1		Handle Sleeve	
16	207325E	1		Connector Sleeve	
17	542938	1		Reverse Ring	
18	542819	1		Light Ring Assembly	
19	541017	1		Handle Retainer Nut	
20	524818	1	3	O-Ring	
Tool Cable (Optional Length)					
21	301866-2M	1		2 meter cable	
	301866-3M			3 meter cable	
	301866-4M			4 meter cable	
	301866-6M			6 meter cable	
	301866-8M			8 meter cable	
	301866-10M			10 meter cable	
	301866-15M			15 meter cable	
Inline Swivel Cable (Optional Length)					
21	301904-2M	1		2 meter cable	
	301904-3M			3 meter cable	
	301904-8M			8 meter cable	
	301904-15M			15 meter cable	
Angle Swivel Cable (Optional Length)					
21	301903-2M	1		2 meter cable	
	301903-3M			3 meter cable	
	301903-8M			8 meter cable	
	301903-15M			15 meter cable	
Tool Cable Extension (Optional Length)					
21	301877-4M	1		4 meter cable	
	301877-8M			8 meter cable	
	301877-10M			10 meter cable	
	301877-20M			20 meter cable	
	301877-30M			30 meter cable	
	301877-40M			40 meter cable	
	301877-50M			50 meter cable	

(#) Quantity

(X) Recommended Spare Parts

“D1”

Models
48EC30C1
48EC30C3



1 **2** **3** **4** See Service Notes

Motor - Matrix Tool Connector

Illustration "D1"

Ref	Number	#	X	EN
				Description
1	17-111	3	6	Pan Head Screw - #4-40 x .19
2	541009	2	2	Wave Washer
3	542244	2	2	Stand Off - 5/16"
4	505306	1	2	Retaining Ring
5	542588	1		Motor Spacer
6	301761	1		Motor Assembly
7	Table "D1"	1		Transducer Assembly
8	207340	1		Housing

(#) Quantity

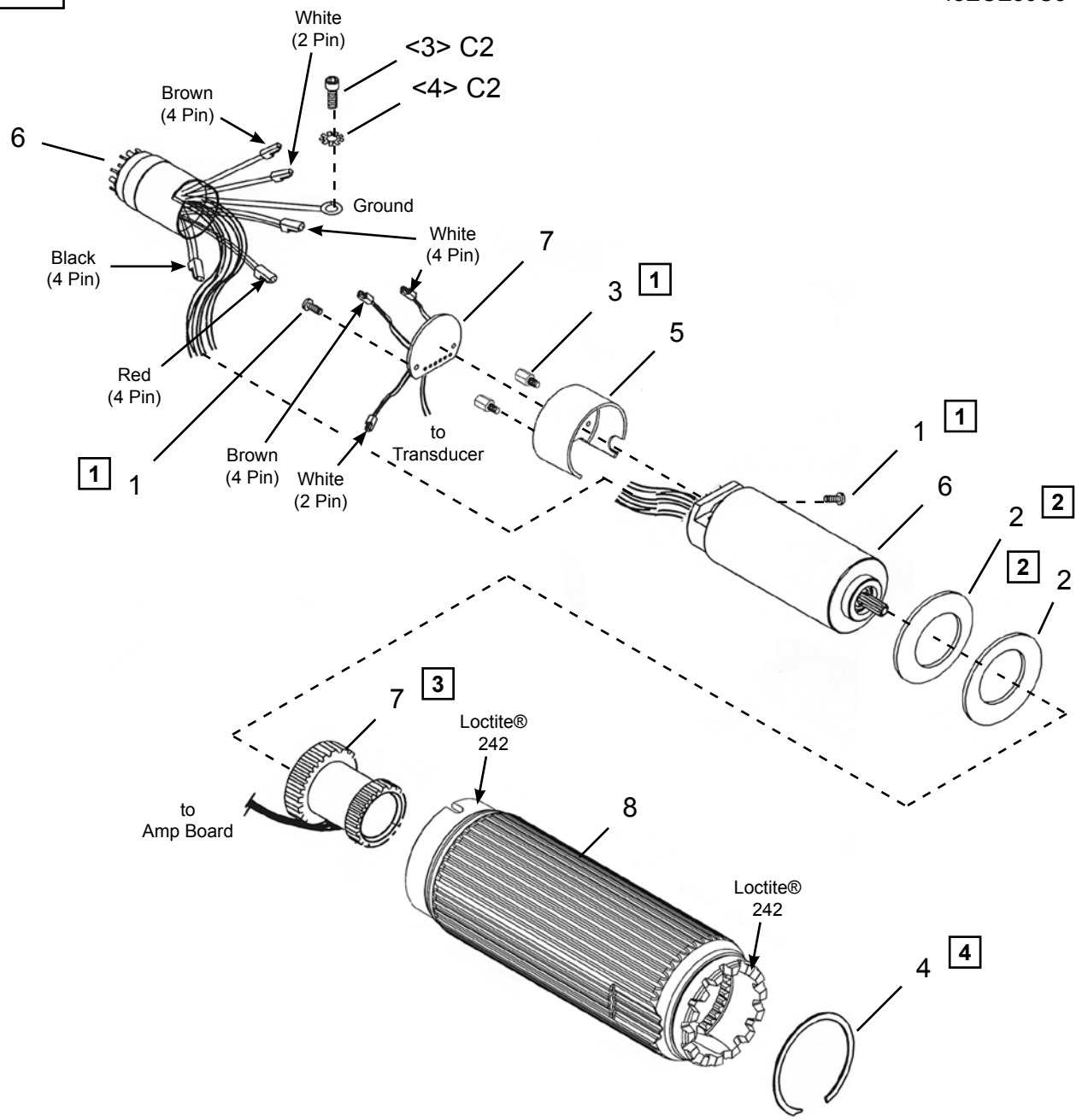
(X) Recommended Spare Parts

Table "D1"

Ref.	Description	#	48EC30C1	#	48EC30C3
7	Transducer (unprogrammed)	1	542846-48	1	542846-48
	Transducer (programmed)	1	542846-48P	1	542846-48P
	Transducer Capacity		48 Nm		48 Nm

“D2”

Models
48ECE30C1
48ECE30C3



1 2 3 4 See Service Notes

Motor - Air LB Tool Connector

Illustration "D2"

Ref	Number	#	X	EN
				Description
1	17-111	3	6	Pan Head Screw - #4-40 x .19
2	541009	2	2	Wave Washer
3	542244	2	2	Stand Off - 5/16"
4	505306	1	2	Retaining Ring
5	542588	1		Motor Spacer
6	301761E	1		Motor Assembly
7	Table "D2"	1		Transducer Assembly
8	207340	1		Housing

(#) Quantity

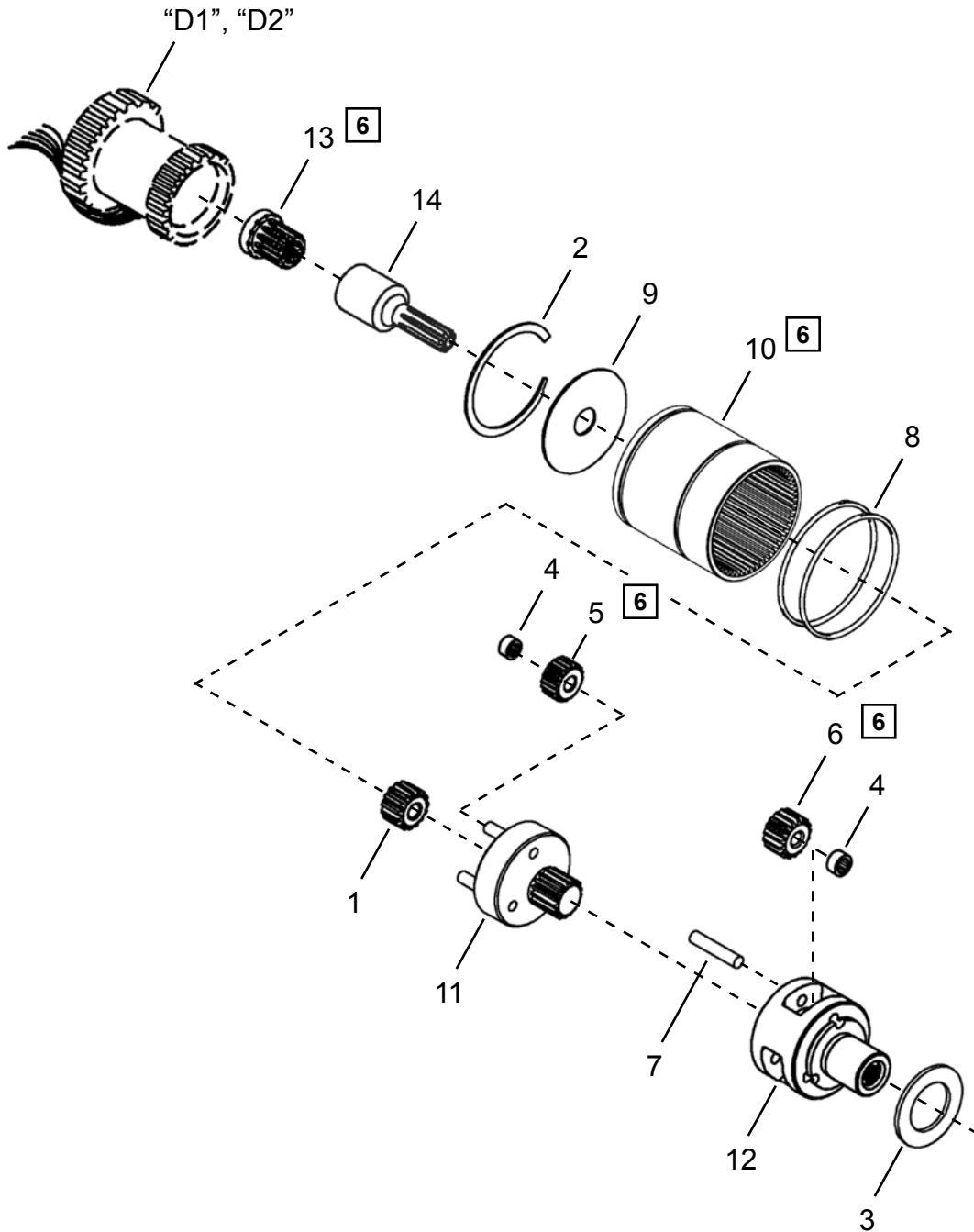
(X) Recommended Spare Parts

Table "D2"

Ref.	Description	#	48ECE30C1	#	48ECE30C3
7	Transducer (unprogrammed)	1	542846-48	1	542846-48
	Transducer (programmed)	1	542846-48P	1	542846-48P
	Transducer Capacity		48 Nm		48 Nm

Cleco®
Double Stage Gearing

“E”



6 See Service Notes

Cleco®
Double Stage Gearing

PL12EN-48EC
11/03/2011

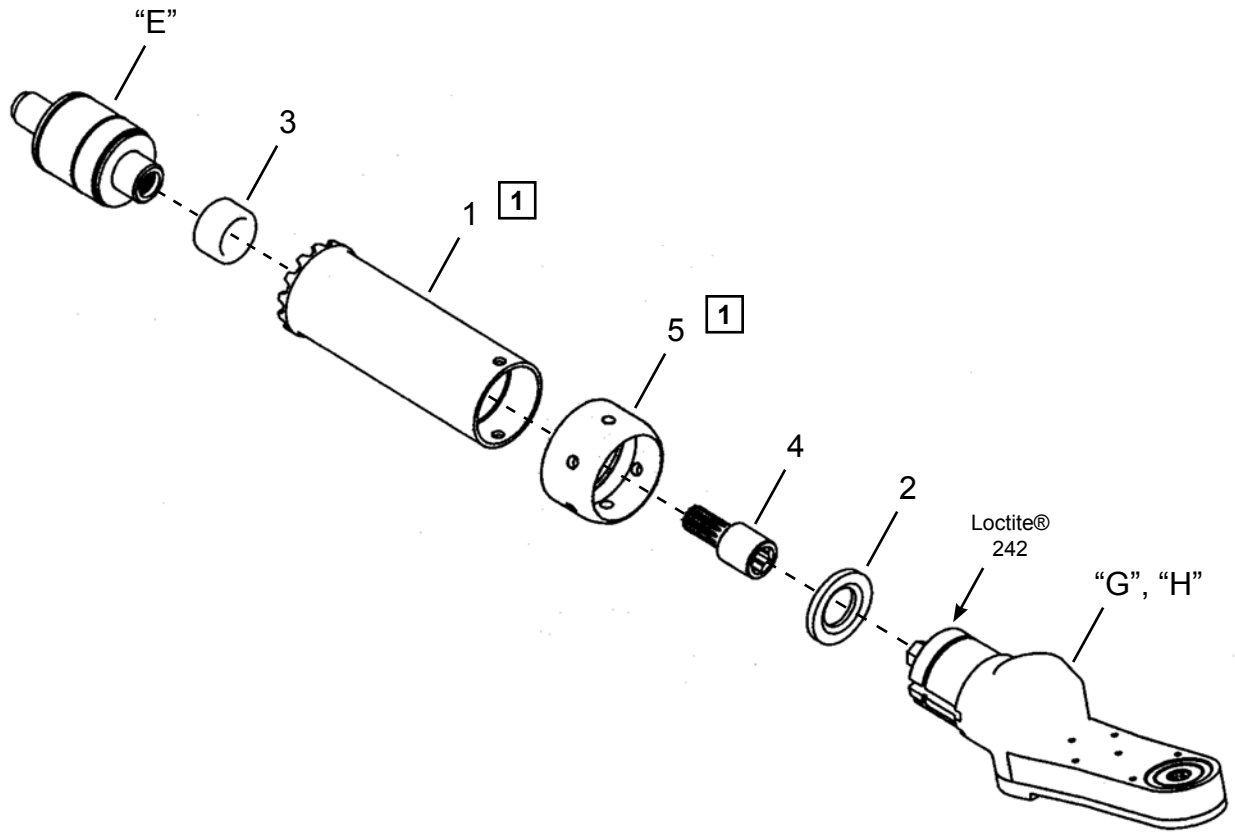
Illustration "E"

Ref	Number	#	X	EN
				Description
1	541899	1	3	Slip-On Gear (17T)
2	800116	1	2	Retaining Ring
3	207303	1	2	Thrust Washer
4	203749	6	12	Needle Bearing
5	541894	3	6	Planet Gear (17T)
6	541897	3	6	Planet Gear (20T)
7	541888	3	6	Planet Pin
8	542724	2	6	O-Ring
9	541887	1	2	Washer
10	542722	1		Ring Gear
11	542233	1		Planet Carrier
12	542099	1		Planet Cage
13	541044	1	2	Pinion Adapter
14	541898	1	2	Extension Pinion

(#) Quantity
(X) Recommended Spare Parts
(T) Teeth

Cleco®
Crowfoot Adapter

“F”



1 See Service Notes

Cleco®
Crowfoot Adapter

PL12EN-48EC
11/03/2011

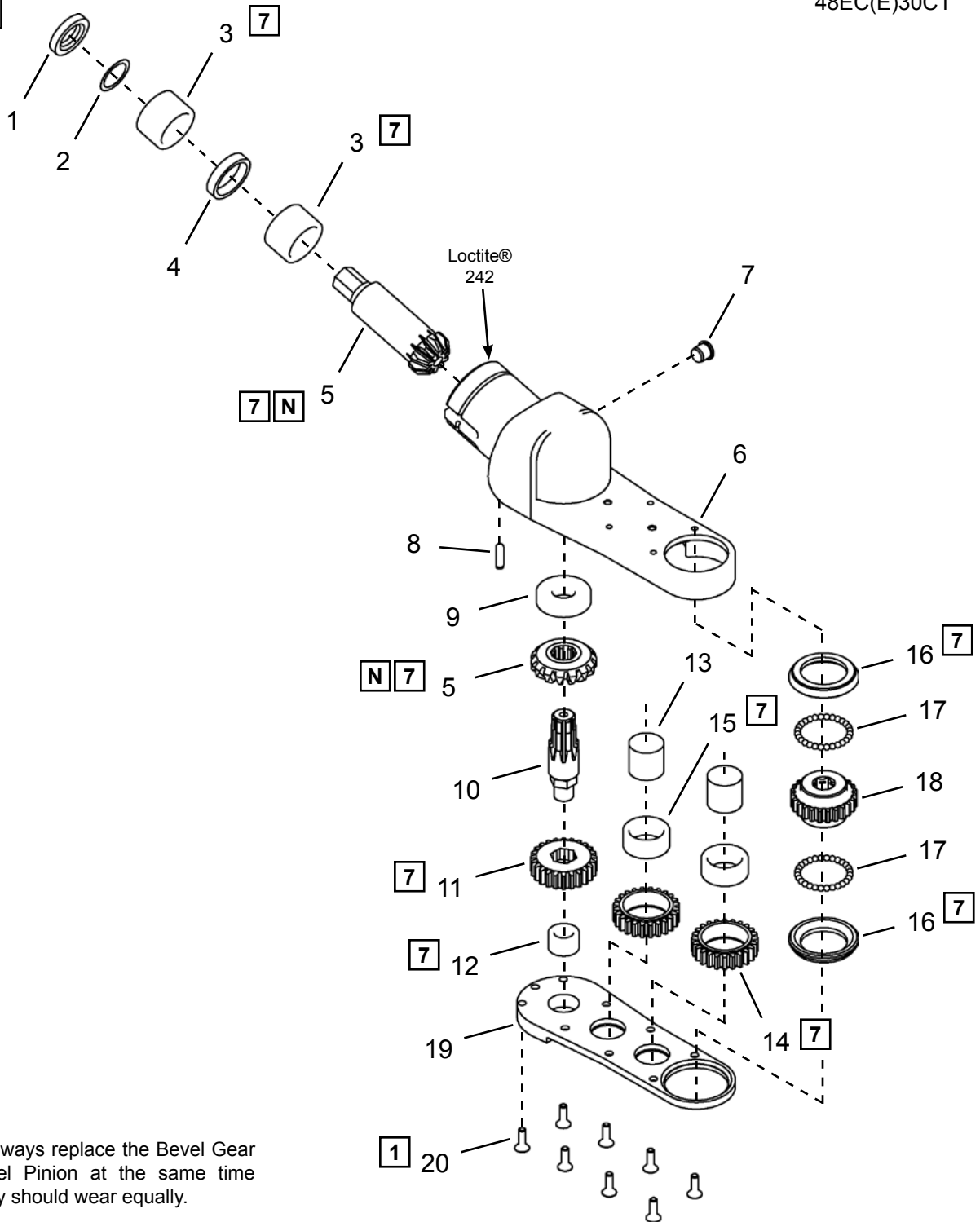
Illustration "F"

Ref	Number	#	X	EN
				Description
1	207349	1		Adapter (includes Ref. 3)
2	207495	1		Spacer
3	500528	1	2	Needle Bearing
4	543435	1	2	Extension Pinion
5	541904	1		Gear Case Nut

(#) Quantity

(X) Recommended Spare Parts

“G”



N

NOTE: Always replace the Bevel Gear and Bevel Pinion at the same time since they should wear equally.

1 7

See Service Notes

301959PT 15° Crowfoot Angle Head

Illustration "G"

Ref	Number	#	X	EN	
				Description	
1	864751	1	2	Pinion Spacer	
2	202349	1	2	Shim	
3	800177	2	4	Needle Bearing	
4	869206	1	2	Bearing Spacer	
5	861690	1	2	Gear Set (Pinion Gear and Bevel Gear)	
6	207603PT	1		15° Angle Head	
7	843589	1	2	Grease Fitting	
8	833075	1	2	Dowel Pin	
9	847095	1	2	Ball Bearing	
10	869211	1	2	15° Gear Shaft	
11	202127	1	2	Driving Gear	
12	843827	1	2	Needle Bearing	
13	207606PT	2		Bearing Post	
14	202128	2	4	Idler Gear (includes Ref. 15)	
15	864202	2	4	Needle Bearing	
16	864264	2		Ball Race	
17	842980	56	112	Ball (.094")	
18	Table "G"	1	2	Socket	
19	207605PT	1		Base Plate	
20	863462	8	16	Base Plate Screw	

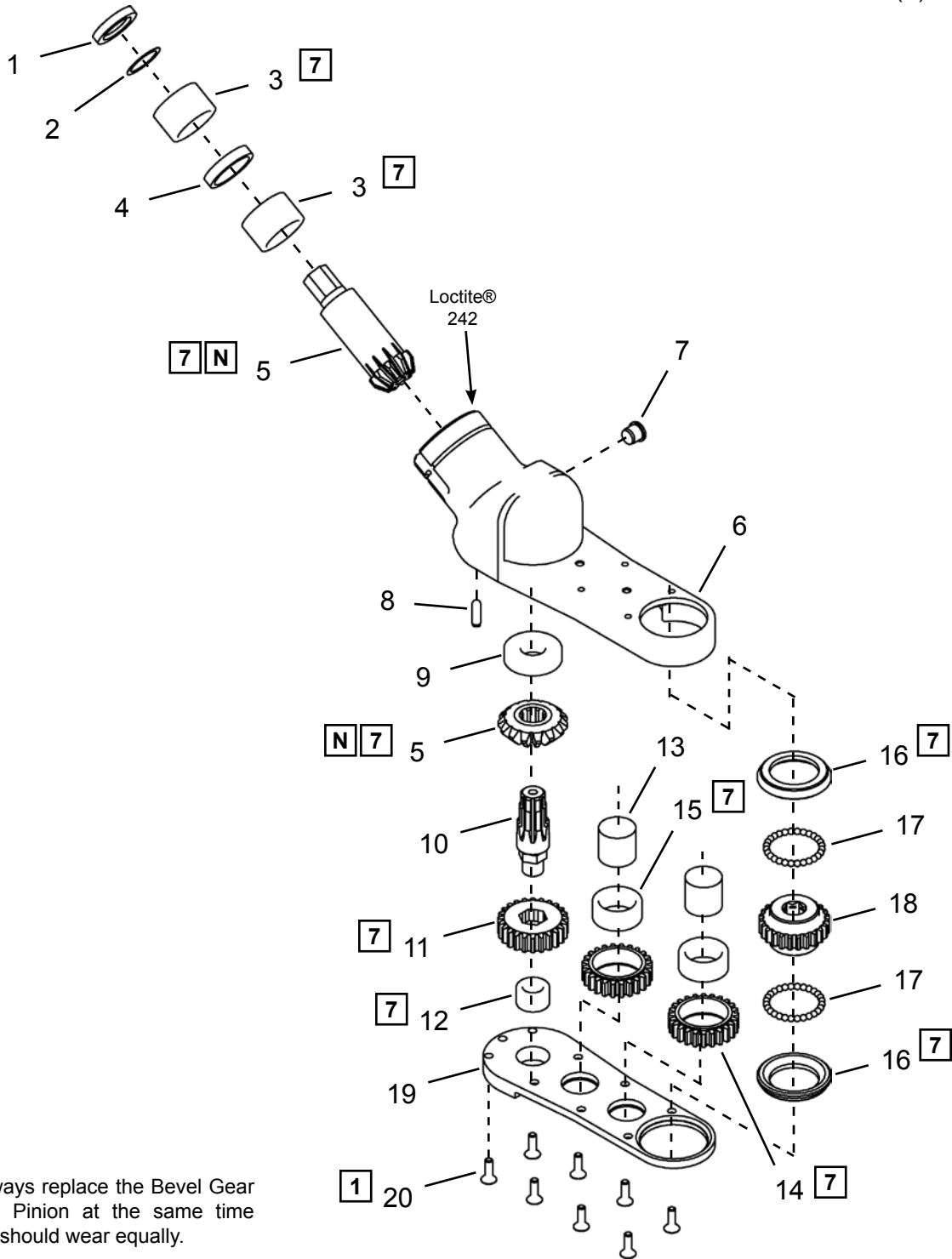
(#) Quantity

(X) Recommended Spare Parts

Table "G"

Reference # 18 - Socket					
Description			Flush	1/2" (12.7mm) Extended	3/4" (19mm) Extended
Code	Size (in.)	Size (mm)	Order Number		
EA	1/4"	6.35	CSEA01	CSEA41	CSEA61
MA	0.276"	7	CSMA01	CSMA41	CSMA61
MB	5/16"	8	CSMB01	CSMB41	CSMB61
MC	0.354"	9	CSMC01	CSMC41	CSMC61
EC	3/8"	9.53	CSEC01	CSEC41	CSEC61
MD	0.394"	10	CSMD01	CSMD41	CSMD61
ME	7/16"	11	CSME01	CSME41	CSME61
MF	0.472"	12	CSMF01	CSMF41	CSMF61
EE	1/2"	12.7	CSEE01	CSEE41	CSEE61
MG	0.512"	13	CSMG01	CSMG41	CSMG61
MH	0.551"	14	CSMH01	CSMH41	CSMH61
EF	9/16"	14.29	CSEF01	CSEF41	CSEF61
MI	0.591	15	CSMI01	CSMI41	CSMI61
XXXX	No Socket				

“H”



N
NOTE: Always replace the Bevel Gear and Bevel Pinion at the same time since they should wear equally.

1 7 See Service Notes

301960PT 30° Crowfoot Angle Head

Illustration "H"

Ref	Number	#	X	EN	
				Description	
1	864751	1	2	Pinion Spacer	
2	202349	1	2	Shim	
3	800177	2	4	Needle Bearing	
4	869206	1	2	Bearing Spacer	
5	861691	1	2	Gear Set (Pinion Gear and Bevel Gear)	
6	207604PT	1		30° Angle Head	
7	843589	1	2	Grease Fitting	
8	833075	1	2	Dowel Pin	
9	847095	1	2	Ball Bearing	
10	869208	1	2	30° Gear Shaft	
11	202127	1	2	Driving Gear	
12	843827	1	2	Needle Bearing	
13	207606PT	2		Bearing Post	
14	202128	2	4	Idler Gear (includes Ref. 15)	
15	864202	2	4	Needle Bearing	
16	864264	2		Ball Race	
17	842980	56	112	Ball (.094")	
18	Table "G"	1	2	Socket	
19	207605PT	1		Base Plate	
20	863462	8	16	Base Plate Screw	

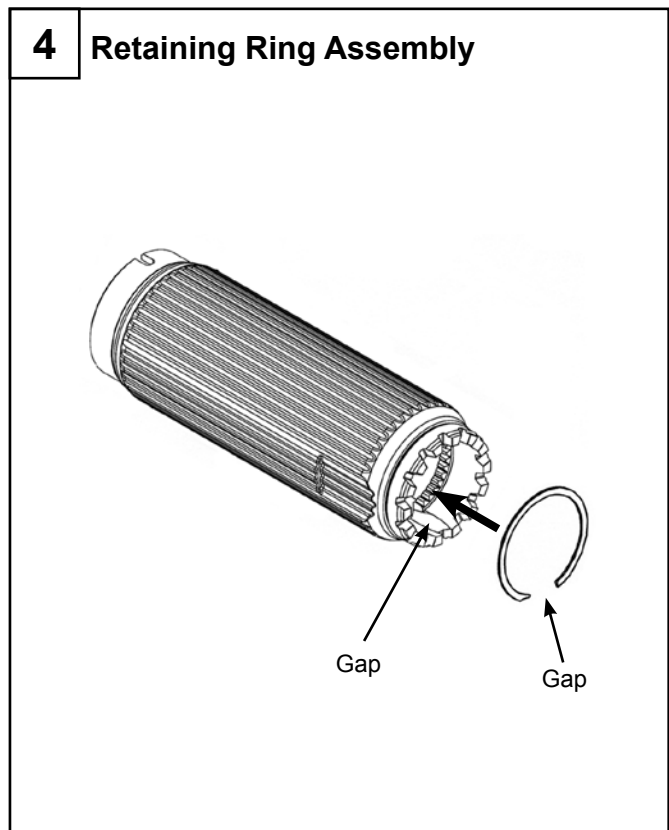
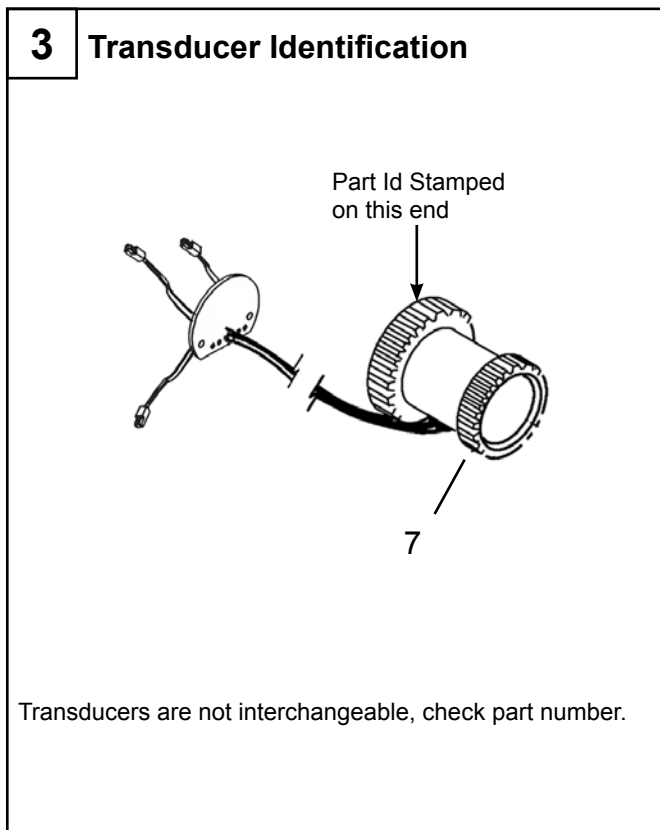
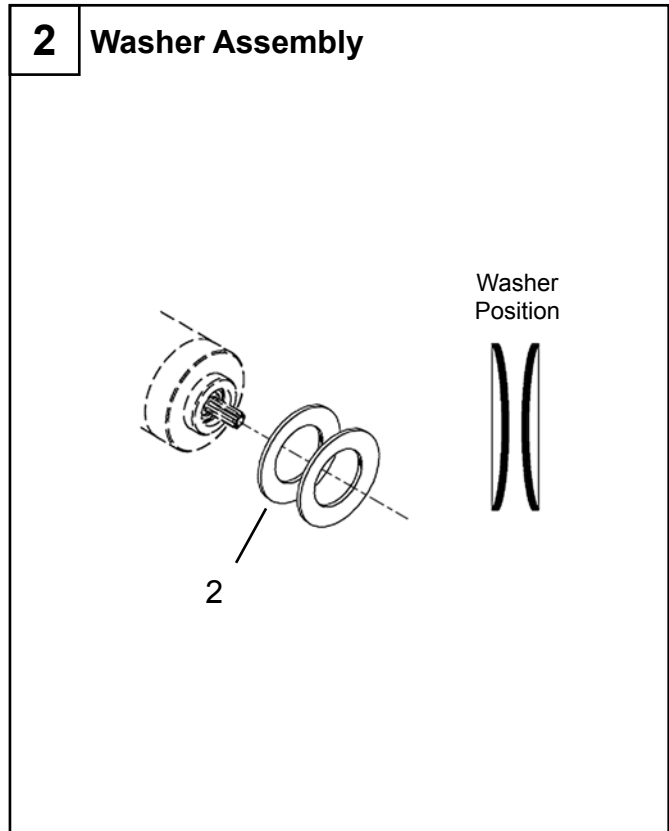
(#) Quantity

(X) Recommended Spare Parts

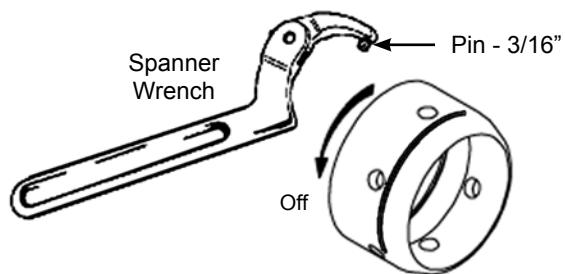
Table "H"

Reference # 18 - Socket					
Description			Flush	1/2" (12.7mm) Extended	3/4" (19mm) Extended
Code	Size (in.)	Size (mm)	Order Number		
EA	1/4"	6.35	CSEA01	CSEA41	CSEA61
MA	0.276"	7	CSMA01	CSMA41	CSMA61
MB	5/16"	8	CSMB01	CSMB41	CSMB61
MC	0.354"	9	CSMC01	CSMC41	CSMC61
EC	3/8"	9.53	CSEC01	CSEC41	CSEC61
MD	0.394"	10	CSMD01	CSMD41	CSMD61
ME	7/16"	11	CSME01	CSME41	CSME61
MF	0.472"	12	CSMF01	CSMF41	CSMF61
EE	1/2"	12.70	CSEE01	CSEE41	CSEE61
MG	0.512"	13	CSMG01	CSMG41	CSMG61
MH	0.551"	14	CSMH01	CSMH41	CSMH61
EF	9/16"	14.29	CSEF01	CSEF41	CSEF61
MI	0.591	15	CSMI01	CSMI41	CSMI61
XXXX	No Socket				

1 Tightening Torque			
Illustration	Reference	Tightening torque	
		Ft-Lbs (in-lbs)	Nm
C1, C2	3	(10-14)	1,1-1,6
	16	25-30	34-41
	19	35-40	47-54
	21 (Swivel)	15-18	20-25
D1, D2	1	(4-6)	0,45-0,68
	3	(4-6)	0,45-0,68
	10	35-40	47-54
F	1	40-50	54-68
	5	40-50	54-68
G	20	(8-10)	0,9-1,1
H	20	(8-10)	0,9-1,1

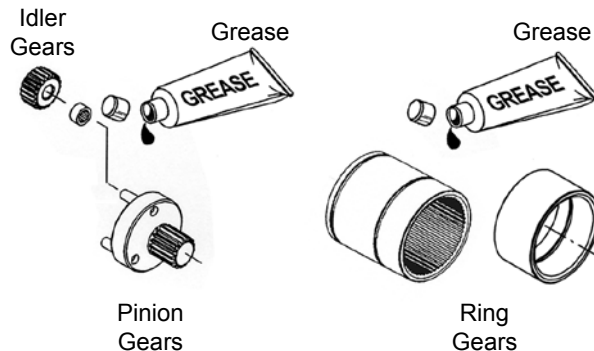


5 Spanner Wrench



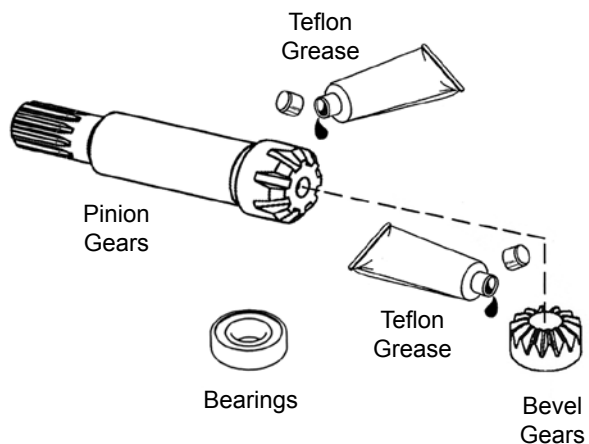
6 Gear Train Lubrication

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



7 Attachment Lubrication

544076 - 2 oz. (56 g)
544077 - 1 pound (0.45 kg)



Tool Memory Parameters

48EC(E) Tool Memory Parameters

Model Number	Max Speed [RPM]	Max Torque [Nm]	Torque Cal [Nm]	Transducer Type	Angle Cal [PPD]	Static Current Factor [Nm/A]
48EC(E)30C1xxxx	860	30	49.1424	542846-48	99.1829	1.5444
48EC(E)30C3xxxx	860	30	49.1424	542846-48	99.1829	1.5444

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

Houston, TX
**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, SC
Apex Tool Group
670 Industrial Drive
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

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5925 McLaughlin Road
Mississauga, Ont. L5R 1B8
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Tel: 905-501-4785
Fax: 905-501-4786

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GmbH & Co. OHG**
Industriestraße 1
73463 Westhausen
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England
**Apex Tool Group
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C/O Spline Gauges
Piccadilly, Tamworth
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25 rue Maurice Chevalier
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Fax: +86-21-51118446

Mexico
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Apex Tool Group, LLC
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Parque Industrial Querétaro
Querétaro, QRO 76220
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Brazil
Cooper Tools Industrial Ltda.
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