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Edition 2

May 2008

Air Screwdrivers

QA1L Series

Parts Information

**PRO
TECH**

Professional Technologies Sweden AB

Munkerödsvägen 3

444 32 STENUNGSUND

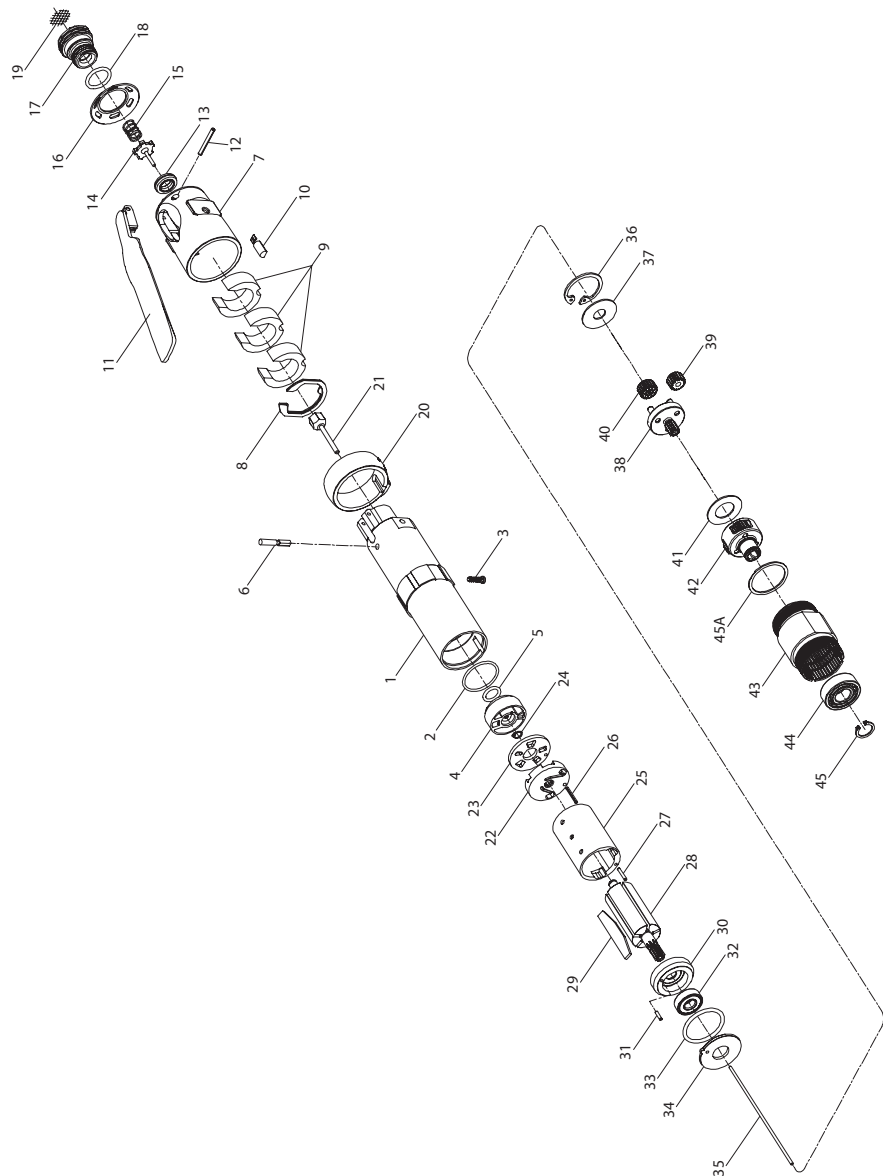
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QA1L Angle Fastener Motor and Gearing Exploded Diagram



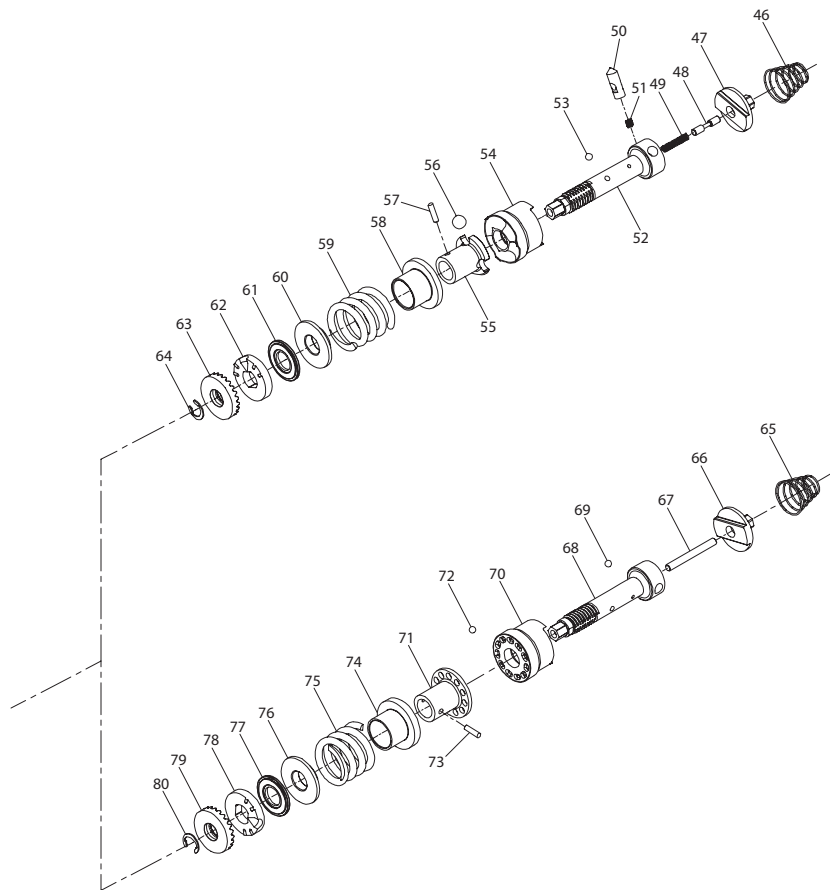
(Dwg. TPA1763-2)

QA1L Angle Fastener Motor and Gearing Parts List

Item	Part Description	Part Number	Item	Part Description	Part Number
1	Motor Housing	TRL-40	29	Vane Packet (set of 5 Vanes)	TRH-42-5
2	Housing O-Ring	TRH-104	30	Front End Plate Assembly	TRH-A11
3	Housing Screw	TRH-330	31	End Plate Alignment Pin	TRH-98-2
4	Reverse Valve Assembly		32	Front Rotor Bearing	TRH-24
	for Models with an Automatic Shutoff Valve	TRH-A329	33	Motor Seal	TRH-211
	for Models without an Automatic Shutoff Valve	TRH-A3291	34	Motor Clamp Washer	TRH-207
5	Reverse Valve Seal	R1A-159	35	Push Rod (for Models with an Automatic Shutoff Valve)	TRH-425
6	Throttle Plunger	TRL-302	36	Gear Retainer	TRH-28
7	Back Cap	TRL-231	37	Gear Head Spacer	TRH-81
8	Back Cap Gasket	TRL-A283	38	Planet Gear Head Assembly (includes gear shafts)	
9	Muffler Element (3)	TRL-311		for Series QA1L02 and QA1L08	TRH-A2169-16
10	Memory Chip (for models with memory chip only)	TRH-800		for Series QA1L05	TRH-A216-12
11	Throttle Lever	TRL-273		for Series QA1L12 and QA1L18C	TRH-A2169-12
12	Throttle Lever Pin	TRL-98		for Series QA1L185 and QA1L18D	TRH-A2169-10
13	Throttle Valve Seat	TRH-303	39	Planet Gear (3 for each Gear Head)	
14	Throttle Valve	TRD-A302		for Series QA1L02, QA1L05 and QA1L08	TRH-10-16
15	Throttle Valve Spring	TRL-51		for Series QA1L12 and QA1L18C	TRH-10-12
16	Exhaust Diffuser	TRH-123		for Series QA1L185 and QA1L18D	TRH-10-10
17	Inlet Bushing Assembly		40	Gear Head Pinion	
	for 1/4-18 NPT Thread	TRH-A465		for Series QA1L12 and QA1L18C	TRH-17-18
	for 1/4-19 BSPT Thread	TRH-A465-B		for Series QA1L185 and QA1L18D	TRH-17-21
18	Inlet Bushing Seal	AF120-290	41	Planet Gear Head Spacer	TRH-82
19	Inlet Screen	TRH-61	42	Spindle Assembly (includes all spindle gearing)	
20	Reverse Lever	TRH-273		for Series QA1L02	TRH-A8-16
21	Automatic Shutoff Valve (for all Models with a Shutoff Clutch)	TRH-A435		for Series QA1L05	TRH-A8-15
22	Rear End Plate Assembly (includes rear rotor bearing)	TRH-A12-1		for Series QA1L08 and QA1L18	TRH-A8-10
23	Rear End Plate Face Plate	TRH-12-2		for Series QA1L12	TRH-A8-12
24	Rear End Plate Assembly Retainer	8SL-305	43	Gear Case	
25	Cylinder Assembly	TRH-A3		for direct drive models	TAL-37
26	Cylinder Rear Alignment Pin	TRH-98		for all other models	TAH-37
27	Cylinder Front Alignment Pin	TRH-98-1	44	Spindle Bearing	TRH-510
28	Rotor		45	Spindle Bearing Retaining Ring	4E-6
	for Models with an Automatic Shutoff Valve	TRH-53	45A	Spindle Bearing Seat	TRH-208
	for Models without an Automatic Shutoff Valve	TRD-53	*	Suspension Bail	7L-365
			*	Piped-Away Exhaust Kit (optional)	LG1-K284
			*	Tune-Up Kit (Includes the following items: 2, 5, 8, 9, 13, 14, 15, 18, 19, 21, 24, 29, 31, 32 and 33)	Q2-TK1

* Not Illustrated.

QA1L Angle Fastener Clutches Exploded Diagram



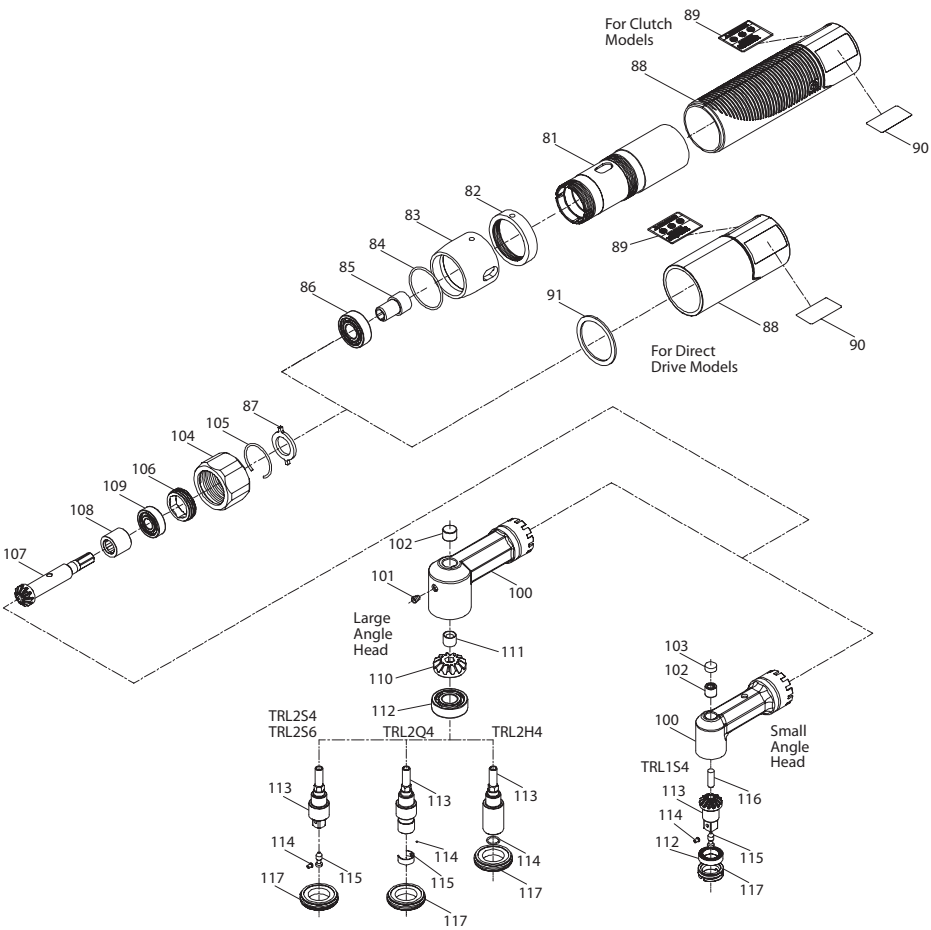
(Dwg. TPA1764)

QA1L Angle Fastener Clutches Parts List

Item	Part Description	Part Number	Item	Part Description	Part Number
	Automatic Shutoff Clutch Assembly		67	Clutch Pushrod	TRH-236-C
	with heavy clutch spring (standard)	TRH-AH579	68	Clutch Shaft	TRH-502
	with medium clutch spring	TRH-AM579	69	Clutch Ball (1/8" diameter) (12)	AV1-255
	with light clutch spring	TRH-AL579	70	Cam Jaw	
46	Clutch Return Spring	TRH-405		for Series QA1L02, QA1L05, QA1L08 and QA1L12	TRH-721-C
47	Clutch Input Driver	TRH-103		for Series QA1L18	TRH-722-C
48	Automatic Shutoff Plunger	TRH-408	71	Clutch Cam Ball Driver	TRH-581-C
49	Automatic Shutoff Plunger Return Spring	TRH-420	72	Clutch Cam Ball (1/8" diameter) (11)	AV1-255
50	Automatic Shutoff Pin	TRH-704	73	Clutch Cam Ball Driver Retaining Pin	TRH-188
51	Automatic Shutoff Pin Spring	TRH-407	74	Cam Ball Seat	TRH-627-C
52	Clutch Shaft	TRH-502	75	Clutch Spring	
53	Clutch Ball (1/8" diameter) (12)	AV1-255		heavy (green)	TRH-H583
54	Cam Jaw	TRH-721		medium (red)	TRH-M583
55	Clutch Cam Ball Driver	TRH-581		light (orange)	TRH-XL583
56	Clutch Cam Ball (1/4" diameter) (3)	4U-722	76	Spring Seat	TRH-623
57	Clutch Driver Retaining Pin	TRH-188	77	Thrust Bearing	161A32-105
58	Cam Ball Seat	TRH-627	78	Clutch Adjusting Nut Washer	TRH-582
59	Clutch Spring		79	Clutch Adjusting Nut	TRH-588
	heavy (green)	TRH-H583	80	Clutch Adjusting Nut Stop	353-701
	medium (red)	TRH-M583	81	Clutch Housing	TRL-580
	light (orange)	TRH-XL583	82	Grip Retaining Nut	TRL-40-305
60	Spring Seat	TRH-623	83	Clutch Adjusting Hole Cover	TRL-415
61	Thrust Bearing	161A32-105	84	Cover O-Ring	TRL-415-272
62	Clutch Adjusting Nut Washer	TRH-582	85	Angle Wrench Drive Adapter	TRL-586
63	Clutch Adjusting Nut	TRH-588	86	Drive Adapter Bearing	TRH-510
64	Clutch Adjusting Nut Stop	353-701	87	Housing Lock Spacer	TRL-682
*	Automatic Shutoff Tune-Up Kit (Includes the following items: 35, 46, 49, 51, 53, 56, 57, 61 and 64)	Q2-AS0-TK1	88	Grip Assembly	
				for Clutch Models	TRH-40-A135
				for Direct Drive Models	TRH-40-A136
	Cushion Clutch Assembly		89	Nameplate	TRH-301
	with heavy clutch spring (standard)	TRH-AH579-C	90	Warning Label	TRH-99
	with medium clutch spring	TRH-AM579-C	91	Grip Spacer	TRL-504
	with light clutch spring	TRH-AL579-C	*	Clutch Housing Spanner Wrench	TRH-478
65	Clutch Return Spring	TRH-405	*	Cushion Clutch Tune-Up Kit (Includes the following items: 65, 67, 69, 72, 73, 76, 77 and 80)	Q2-CC-TK1
66	Clutch Input Driver	TRH-103			

* Not Illustrated.

QA1L Angle Fastener Grip and Angle Attachments Exploded Diagram



(Dwg. TPA1765-1)

QA1L Angle Fastener Grip and Angle Attachments Parts List

Item	Part Description	Part Number				
		TRL154	TRL2H4	TRL254	TRL256	TRL2Q4
	Angle Housing Assembly					
100	Angle Housing	TRL1-550	TRL2-A550	TRL2-A550	TRL2-A550	TRL2-A550
101	Grease Fitting	---	D0F9-879	D0F9-879	D0F9-879	D0F9-879
102	Spindle Upper Bearing	W22-654	TRL2-603	TRL2-603	TRL2-603	TRL2-603
103	Spindle Upper Bearing Cap	TRL2-531	---	---	---	---
104	Coupling Nut	TRL-27	TRL-27	TRL-27	TRL-27	TRL-27
105	Coupling Nut Retainer	TRL-29	TRL-29	TRL-29	TRL-29	TRL-29
106	Angle Head Plug	TRL1-532	TRL1-532	TRL1-532	TRL1-532	TRL1-532
107	Bevel Pinion	TRL1-552	TRL2-552	TRL2-552	TRL2-552	TRL2-552
108	Pinion Front Bearing	TRL-654	H54U-511B	H54U-511B	H54U-511B	H54U-511B
109	Pinion Rear Bearing	TRL-514	TRL-514	TRL-514	TRL-514	TRL-514
110	Bevel Gear	---	TRL2-551	TRL2-551	TRL2-551	TRL2-551
111	Bevel Gear Retainer	---	TRL2-578	TRL2-578	TRL2-578	TRL2-578
112	Spindle Lower Bearing	TRL1-593	R00B1-510	R00B1-510	R00B1-510	R00B1-510
113	Spindle	TRL1-A551-S4	TRL2-A607-H4	TRL2-A607-S4	TRL2-A607-S6	TRL2-A607-Q4
114	Spindle Detent	47028	38790	47028	30889	R000B-263
115	Detent Retainer	46749	---	46749	30890	TRH-241
116	Spindle Upper Bearing Shaft	TRL1-110	---	---	---	---
117	Lower Spindle Bearing Cap	TRL1-531	120A4-531	120A4-531	120A4-531	120A4-531
*	Spindle Bearing Cap Wrench	---	141A12-26	141A12-26	141A12-26	141A12-26

* Not Illustrated.

Clutch Spring Selection Chart

Tool	Free Speed (rpm)	Torque Range (Soft Draw)		
		Light Clutch Spring (Orange)	Medium Clutch Spring (Red)	Heavy Clutch Spring (Green)
All Series QA1L18 models	1750	2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 26.1 in.-lbs. (1.05 to 2.95 Nm)	---
All Series QA1L12 models	1270	2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 32.2 in.-lbs. (1.05 to 3.64 Nm)	---
Series QA1L08 models with large Angle Heads	850	2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 33.4 in.-lbs. (1.05 to 3.77 Nm)	15.7 to 47.2 in.-lbs. (1.77 to 5.33 Nm)
Series QA1L08 models with small Angle Heads		2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 36.0 in.-lbs. (1.05 to 4.07 Nm)	---
Series QA1L05 models with large Angle Heads	500	2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 33.4 in.-lbs. (1.05 to 3.77 Nm)	15.7 to 56.4 in.-lbs. (1.77 to 6.37 Nm)
Series QA1L05 models with small Angle Heads		2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 36.0 in.-lbs. (1.05 to 4.07 Nm)	---
Series QA1L02 models with large Angle Heads	250	2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 33.4 in.-lbs. (1.05 to 3.77 Nm)	15.7 to 56.4 in.-lbs. (1.77 to 6.37 Nm)
Series QA1L02 models with small Angle Heads		2.0 to 11.5 in.-lbs. (0.23 to 1.30 Nm)	9.3 to 36.0 in.-lbs. (1.05 to 4.07 Nm)	---

Parts and Maintenance

When the life of the tool has expired, it is recommended that the tool be disassembled, degreased and parts be separated by material so that they can be recycled.

Tool repair and maintenance should only be carried out by an authorized Service Center.

Refer all communications to the nearest **Ingersoll Rand** Office or Distributor.

Related Documentation

For additional information refer to:

Product Safety Information Manual 04585006.

Product Information Manual 80167406.

Maintenance Information Manual 16575201.

Manuals can be downloaded from www.irttools.com.

www.irtools.com

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