PXD SERIES LOW PROFILE
HYDRAULIC TORQUE WRENCHES

SOLUTIONS FOR EVERY BOLTING APPLICATION

OPERATION MANUAL

POWERMASTER

INTRODUCING THE NEW GENERATION POWER TOOL

Safety Precautions

Thank you for buying the New PXD Tool.

This manual is designed to provide you with the basic knowledge required to operate and maintain your bolting equipment. Please read this manual carefully and follow the instructions provided.

SAFETY PRECAUTIONS

Hydraulic Torque Wrench is a power tool enables the user to more easily accomplish bolting tasks with increased force, accuracy and efficiency. It is due to the powered nature of the tools, with large forces generated from high pressure fluid/air applied to a variety of applications, that adherence to strict safety issues through the proper design and documented use for tools. However, the user must accept the primary responsibility of safety when using tools by reading, understanding and complying with all operating instructions prior to and during operation. This manual and additional safety related services are designed to assist in the proper training for use and care of tools and play a major role in preventing accidents or personal injury and increasing safety.

The following safety related operating instructions and tips are documented in the manual will assist you:

WHILE PLACING TOOL IN SERVICE

- Follow International Standards Safety Code of Hydraulic Rams and Jacks for operate, inspect and maintain this Hydraulic torque wrench.
- This Hydraulic torque wrench is operated by connecting to hydraulic power pack. The Hydraulic power pack can be driven by pneumatically or electrically. Before using the Hydraulic torque wrench read and follows the safety instructions given in pump manual.
- Use Hydraulic power pack which is generating 10,000 psi (681 bars) maximum pressure for the operation of this Hydraulic torque wrench.
- Use Twin Line Hydraulic hose rated for 10,000 psi (681 bars) pressure having safety ratings of 4:1 with this tool.
- Use High Pressure Quick releasing couplers for quick connection of Hydraulic torque wrench to the hose and pump. Make sure that the spring-loaded retaining rings are fully engaged and the safety rings are tightly threaded against the spring-loaded retaining rings to prevent the connectors from disengaging under pressure.
- Never interchange male female High Pressure Quick Releasing Couplers fitted on Hydraulic torque Wrench or on the hose. Reversing the high pressure coupler fittings will reverse the power stroke cycle and may damage the Hydraulic torque wrench.
- Check for damaged, worn or deteriorated hoses and fittings. Make sure that the hoses are being used are pressure tested and Approved by International Standard.
- Before starts operating check the oil level in the reservoir of Hydraulic power pack, refill, replenish the oil if required.

Warning

Safety is one of our primary concerns. By following these few simple precautions you'll be sure to obtain the most beneficial use of wrench system in the safest manner possible.

WHILE USING THE TOOL

	Do not handle pressurised hoses and be sure they are clear of any possible reaction surface during operation. Test couplers when coupled with hydraulic equipment for pressure test.
	Always wear eye protection when operating or performing maintenance on this tool.
	Always wear head and hand protection and protective clothing when operating this tool.
	Do not carry the Hydraulic Torque Wrench with the help of hoses.
	Do not attempt to support the Hydraulic Torque Wrench with the hands during operation.
	Keep hands, loose clothing and long hair away from the reaction arm and working area during operation.
	This Hydraulic Torque wrench will exert a strong reaction force. The reaction arm to be supported firmly to control the reaction force. Do not position the reaction arm so that it tilts the Hydraulic Torque wrench off the axis of the bolt.
	Do not use the swivel inlets as a reaction stop.
	This tool is not insulated against electric shock. When using this tool with a pump having an electrical power make sure that the earthling is proper.
	This tool is not designed for working in explosive atmospheres
	Avoid sharp bends and kinks that will cause severe back-up pressure in hoses which will lead to premature failure of the hose.
	Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
	Use only sockets and accessories that correctly fit the bolt or nut and function without tilting the tool off the axis of the bolt.
Use accessories recommended by us.	

We will not be held liable for any personal injury, property damage caused, interruption of business, loss of profits, losses of any kind, etc., resulting from any failure that occurs from the use of our product. Additionally, we will not be liable to repair or replace any product, which has been damaged, used improperly or has been subject to an unauthorized repair by the purchaser or a third party.)

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CE

This tool when used in conjunction with the specified console and hoses conforms to the requirements for CE Marking. Contact us for a list of approved components.

1. Introduction

PXD SERIES LOW PROFILE HYDRAULIC TORQUE WRENCHES ROUND CYLINDER

PXD Series Low Profile Hydraulic Torque Wrenches Round Cylinder are designed for installing and removing large bolts having minimal wrench clearance. These Hydraulic Torque Wrenches used at windmill, offshore platforms, power plants, steel erection sites and other locations requiring accurate high torque during bolt tightening and also where maximum torque during failure of the bolt.

1.1 TECHNICAL SPECIFICATION:

Model No.	PXD-1	PXD-2	PXD-4	PXD-8	PXD-16	PXD-32	PXD-45
Tool Hex mm / inch from	13 / 1/2	19 / ¾	25 / 1	50 / 1.7/8	65 / 2.5/8	80 / 3.1/8	80 / 3.1/8
to	41/1.5/8	60 / 2.3/8	80 / 3.1/8	105 / 4	115 / 4.5/8	165 / 6.1/2	165 / 6.1/2
Min Torque Kg-m (ft/lbs)	6(45)	26 (192)	54 (395)	115 (830)	245 (1560)	445 (3220)	658 (4865)
Max Torque Kg-m (ft/lbs)	77(560)	260 (1928)	540 (3950)	1192 (8630)	2293 (16600)	4924 (35650)	6410(47380)
Output Accuracy	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%
Repeatability	100%	100%	100%	100%	100%	100%	100%
Duty Cycle	100%	100%	100%	100%	100%	100%	100%
Corrosion Protection				Standard			
Cylinder Weight Kg / Lbs	0.50/(1)	1.59 / (3.50)	2.73 / (6.00)	5.32 / (11.70)	7.27 / (16.00)	11.82 / (26.00)	13.70 / (30.20)
Link Weight Kg / Lbs From	0.50/(1)	1.09 / (2.40)	2.45 / (5.40)	5.41 / (11.90)	9.55 / (21.00)	13 . 1 8	/

1.2 DIMENSIONS:

1.2.1 Refer Figure 1

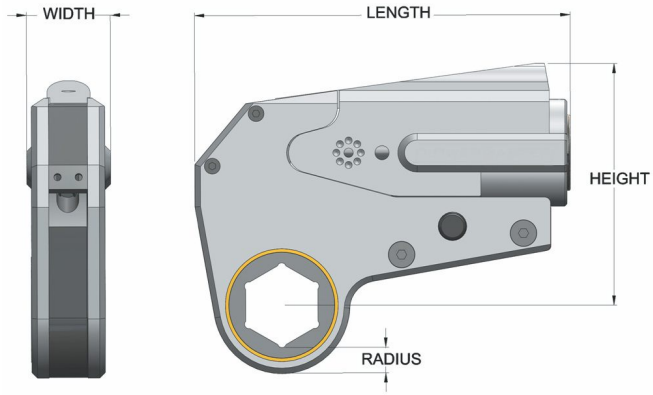

Figure 1 - Dimensions of PXD Series Low Profile Hydraulic Torque Wrench

Model No.	PXD-1		PXD-2		PXD-4		PXD-8		PXD-16		PXD-32		PXD-45	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Length	111.00	4.37	167.00	6.57	203.20	8.00	253.00	9.96	330.00	13.00	390.00	15.35	450.00	17.71
Height	82.60	3.25	103.00	4.05	144.00	5.66	179.50	7.06	193.80	7.63	278.00	10.94	278.00	10.94
Width	19.80	0.78	38.00	1.49	50.70	1.99	59.50	2.34	65.00	2.56	84.00	3.30	84.00	3.30
Radius	5.80	0.23	9.30	0.36	11.85	0.46	13.90	0.54	16.80	0.66	23.75	0.94	23.75	0.94

1.3 SECTIONAL VIEW PXD SERIES LOW PROFILE HYDRAULIC TORQUE WRENCHES:

1.3.1 Refer Figure 2

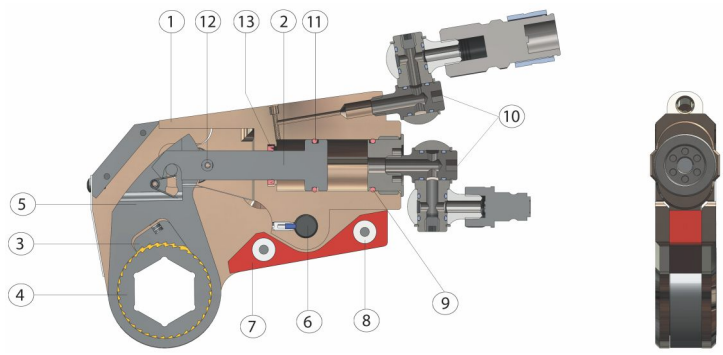

Figure 2 - Sectional View of PXD series Low Profile Hydraulic Torque Wrenches

Sr. No.	Part Description
1	Round Shaped Cylinder
2	Engagement Rod
3	Never Lock Drive Segment
4	Multi Tooth Ratchet
5	Single Piece Drive Plate
6	Link Pin
7	In Line Reaction Pad
8	Steel Alignment Pin
9	End Cap 'O' Ring
10	360 X 360 swivel
11	PU Piston 'O' Ring
12	Slider
13	U-Cap Seal

2. Operation

PXD SERIES LOW PROFILE HYDRAULIC TORQUE WRENCHES

2.1 OPERATING INSTRUCTIONS :

2.1.1 PREPARATION FOR ARRANGING THE TOOL

1. Place the correct size link on the nut making sure that ratchet socket has fully engaged the nut.

2. Make sure the reaction point is firmly touched along a border or with a projecting part against a stationary object such as an adjacent nut, flange, equipment housing, etc.

2.1.2 CONNECTING THE TOOL WITH POWERPACK

1. Attach the Drive Cylinder to twin line hoses with the help of quick releasing couplers.

2. Make sure that they are fully engaged and place the safety rings tightly against the spring–loaded retainer rings.

3. Connect the opposite ends of the hose to the power pack in the same manner.

4. Avoid hoses interception between Torque wrench body or reaction members.

5. Remove Link pin out of the Drive Cylinder.

6. Slide drive cylinder on selected Ratchet link by inserting the end of the cylinder between the side plates of the Ratchet Link.

7. Insert the Link Pin threw the side plates and Drive Cylinder to keep the complete unit intact.

8. Apply momentary pressure to the system to ensure proper tool placement.

Refer Figure 3

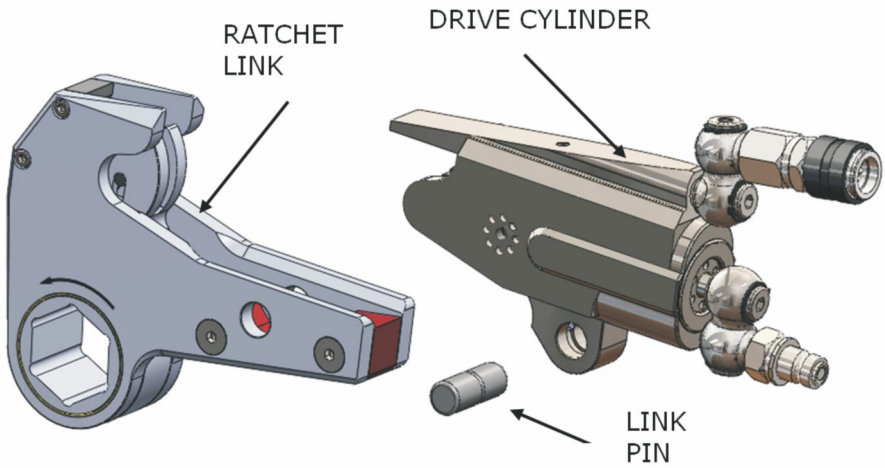

Figure 3 - Link Pin Insertion

2. Operation

2.2 SETTING ADJUSTMENTS:

2.2.1 SETTING THE TORQUE

For desired torque Refer Table 1 conversion chart supplied for your PXD Series tool model. Read across to the corresponding pressure. This pressure is to be set on the pump.

1. Hydraulic Power Pack is connected to the power supply and turns the pump on.
2. By Pressing the remote control button and holding it for some times all the pressure to build up on the gauge of the Hydraulic Power Pack.
3. Adjust the pressure by loosening the lock nut that locks the pressure adjustment thumbscrew. Rotate the Thumbscrew clockwise to increase the pressure and anticlockwise to decrease the pressure.
4. When decreasing pressure, it is necessary to turn the thumb-screw to a pressure setting BELOW what is desired and gradually increase the pressure to the desired level.
5. When the required pressure is achieved then retighten the lock nut and cycle the tool again to confirm that the required pressure setting has been obtained.

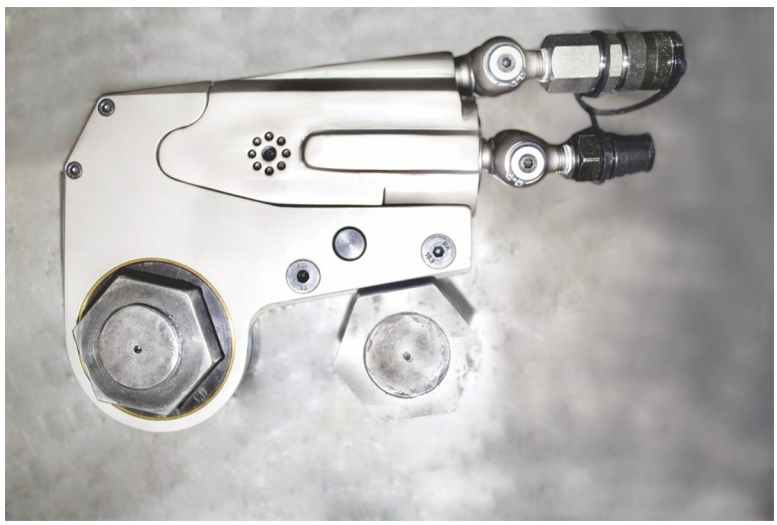

Table 1 - Torque Conversion Chart PXD Series

P.S.I. / FT. / lbs													Bar / N.M.											
Hex Sizes	PXD-1		PXD-2		PXD-4	PXD-8	PXD-16		PXD-32		PXD-45		Hex Sizes	PXD-1		PXD-2		PXD-4	PXD-8	PXD-16		PXD-32		PXD-45	
	1/2" to 1.1/8"	1.3/16" to 1.5/8"	3/4" to 1.13/16"	1.7/8" to 2.3/8"	All Hex Sizes	All Hex Sizes	2.5/8" to 3.15/16"	4" to 4.5/8"	2.7/16" to 4.5/8"	4.11/16" to 6.1/2"	2.7/16" to 4.5/8"	4.11/16 to 6.1/2		1/2" to 1.1/8"	1.3/16" to 1.5/8"	3/4" to 1.13/16"	1.7/8" to 2.3/8"	All Hex Sizes	All Hex Sizes	2.5/8" to 3.15/16"	4" to 4.5/8"	2.7/16" to 4.5/8"	4.11/16" to 6.1/2"	2.7/16" to 4.5/8"	4.11/16 to 6.1/2
	17 to 27 mm	30 to 41 mm	19 to 46 mm	47 to 60 mm	All Hex Sizes	All Hex Sizes	65 to 100 mm	105 to 115 mm	80 to 115 mm	115 to 155 mm	80 to 115 mm	115 to 155 mm		17 to 27 mm	30 to 41 mm	19 to 46 mm	47 to 60 mm	All Hex Sizes	All Hex Sizes	65 to 100 mm	105 to 115 mm	80 to 115 mm	115 to 155 mm	80 to 115 mm	115 to 155 mm
PSI	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	ft./lbs	Bar	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.	N.m.
1,000	49	66	192	210	395	830	1,560	1,660	3,190	3,700	4,685	4,852	68	67	90	260	285	535	1,125	2,115	2,250	4,324	5,016	6,351	6,577
1,200	58	77	230	252	475	1,001	1,870	1,992	3,880	4,440	5,415	5,779	82	79	104	312	342	644	1,357	2,535	2,700	5,260	6,019	7,341	7,834
1,400	66	87	269	294	555	1,173	2,180	2,324	4,570	5,180	6,145	6,706	95	90	118	365	399	752	1,590	2,955	3,150	6,195	7,022	8,330	9,091
1,600	75	97	307	336	630	1,344	2,495	2,656	5,260	5,920	6,875	7,633	109	102	132	416	455	854	1,822	3,382	3, 600	7,130	8,025	9,320	10,347
1,800	84	108	346	378	710	1,516	2,805	2,988	5,950	6,660	7,605	8,560	122	114	146	469	512	962	2,055	3,802	4,051	8,066	9,028	10,309	11,604
2,000	93	118	385	420	790	1,688	3,120	3,320	6,636	7,400	8,338	9,485	136	126	160	522	569	1,071	2,288	4,229	4,501	8,996	10,031	11,303	12,858
2,200	102	130	422	462	870	1,865	3,430	3,652	7,282	8,140	9,180	10,440	150	138	176	572	626	1,179	2,528	4,650	4,951	9,871	11,035	12,444	14,152
2,400	110	140	461	504	950	2,042	3,740	3,984	7,928	8,880	10,022	11,395	163	149	190	625	683	1,288	2,768	5,070	5,401	10,747	12,038	13,586	15,447
2,600	118	152	500	546	1,025	2,219	4,050	4,316	8,574	9,620	10,864	12,350	177	160	206	678	740	1,389	3,008	5,490	5,851	11,623	13,041	14,727	16,742
2,800	126	162	537	588	1,105	2,396	4,365	4,648	9,220	10,360	11,706	13,305	190	171	220	728	797	1,498	3,248	5,917	6,301	12,499	14,044	15,869	18,036
3,000	135	173	578	640	1,185	2,574	4,675	4,980	9,866	11,100	12,548	14,260	204	183	235	784	868	1,606	3,489	6,337	6,751	13,374	15,047	17,010	19,331
3,200	145	186	614	681	1,265	2,775	4,990	3,560	10,512	11,840	13,422	15,202	218	196	252	832	923	1,715	3,762	6,764	4,826	14,250	16,050	18,195	20,608
3,400	153	198	653	724	1,345	2,976	5,300	5,644	11,158	12,580	14,296	16,144	231	208	268	885	981	1,823	4,034	7,185	7,651	15,126	17,053	19,380	21,885
3,600	163	210	691	766	1,420	3,177	5,610	5,976	11,804	13,320	15,170	17,086	245	221	285	937	1,038	1,925	4,307	7,605	8,101	16,002	18,057	20,564	23,162
3,800	172	221	730	809	1,500	3,378	5,925	6,308	12,450	14,060	16,044	18,028	258	233	300	990	1,097	2,033	4,579	8,032	8,551	16,877	19,060	21,749	24,439
4,000	181	234	771	855	1,580	3,580	6,235	6,650	13,201	14,800	16,921	18,970	272	246	317	1,045	1,159	2,142	4,853	8,452	9,015	17,895	20,063	22,938	25,716
4,200	191	246	806	894	1,660	3,735	6,550	6,983	13,861	15,540	17,762	19,914	286	259	333	1,093	1,212	2,250	5,063	8,879	9,466	18,790	21,066	24,078	26,995
4,400	200	257	845	937	1,740	3,891	6,860	7,315	14,521	16,280	18,603	20,858	299	271	349	1,145	1,270	2,359	5,275	9,299	9,916	19,685	22,069	25,218	28,275
4,600	209	270	883	980	1,815	4,046	7,170	7,648	15,181	17,020	19,444	21,802	313	284	366	1,197	1,328	2,460	5,485	9,720	10,368	20,579	23,072	26,358	29,555
4,800	218	281	922	1,022	1,895	4,202	7,485	7,980	15,841	17,760	20,285	22,746	326	296	381	1,250	1,385	2,569	5,696	10,147	10,818	21,474	24,075	27,498	30,834
5,000	227	292	964	1,070	1,975	4,358	7,795	8,360	16,500	18,500	21,130	23,690	340	308	396	1,307	1,450	2,677	5,908	10,567	11,333	22,367	25,079	28,644	32,114
5,200	236	304	998	1,112	2,055	4,538	8,105	8,694	17,163	19,240	21,978	24,637	354	320	412	1,353	1,507	2,786	6,152	10,987	11,786	23,266	26,082	29,739	33,398
5,400	244	314	1,037	1,155	2,135	4,718	8,420	9,029	17,826	19,980	22,826	25,584	367	331	426	1,406	1,566	2,894	6,396	11,414	12,240	24,165	27,085	30,943	34,682
5,600	254	326	1,075	1,198	2,210	4,898	8,730	9,363	18,489	20,720	23,674	26,531	381	344	442	1,457	1,624	2,996	6,640	11,834	12,692	25,064	28,088	32,092	35,965
5,800	262	336	1,114	1,241	2,290	5,078	9,045	9,698	19,152	21,460	24,522	27,478	394	355	456	1,510	1,682	3,104	6,884	12,261	13,147	25,962	29,091	33,242	37,249
6,000	271	348	1,156	1,285	2,370	5,258	9,355	10,100	19,815	22,200	25,372	28,425	408	368	472	1,567	1,742	3,213	7,128	12,682	13,692	26,861	30,094	34,394	38,533
6,200	280	360	1,190	1,327	2,450	5,410	9,665	10,437	20,448	22,940	26,192	29,378	422	380	488	1,613	1,799	3,321	7,334	13,102	14,148	27,719	31,097	35,506	39,825
6,400	289	371	1,229	1,370	2,530	5,562	9,975	10,773	21,081	23,680	27,012	30,331	435	392	503	1,666	1,857	3,430	7,540	13,522	14,604	28,577	32,101	36,617	41,117
6,600	298	384	1,267	1,412	2,605	5,715	10,290	11,110	21,714	24,420	27,832	31,284	449	404	520	1,718	1,914	3,531	7,747	13,949	15,061	29,435	33,104	37,729	42,409
6,800	307	395	1,305	1,455	2,685	5,867	10,600	11,447	22,470	25,160	28,652	32,237	462	416	535	1,769	1,972	3,640	7,953	14,369	15,518	30,460	34,107	38,841	43,700
7,000	316	406	1,349	1,500	2,765	6,020	10,915	11,720	22,981	25,900	29,475	33,190	476	428	551	1,829	2,033	3,748	8,161	14,796	15,888	31,153	35,110	39,956	44,992
7,200	325	418	1,382	1,541	2,845	6,186	11,225	12,055	23,638	26,640	30,328	34,143	490	441	567	1,873	2,089	3,857	8,386	15,217	16,342	32,044	36,113	41,113	46,284
7,400	333	429	1,421	1,583	2,925	6,352	11,535	12,390	24,295	27,380	31,181	35,096	503	452	582	1,926	2,146	3,965	8,611	15,637	16,796	32,934	37,116	42,269	47,576
7,600	343	441	1,460	1,626	3,000	6,519	11,850	12,725	24,952	28,120	32,034	36,049	517	465	598	1,979	2,204	4,067	8,837	16,064	17,250	33,825	38,119	43,425	48,868
7,800	352	452	1,497	1,669	3,080	6,685	12,160	13,005	25,609	28,860	32,887	37,002	530	477	613	2,029	2,262	4,175	9,062	16,484	17,630	34,716	39,123	44,582	50,160
8,000	361	463	1,542	1,715	3,160	6,852	12,475	13,510	26,265	29,600	33,740	37,955	544	489	628	2,090	2,325	4,284	9,289	16,911	18,314	35,605	40,126	45,738	51,452
8,200	370	475	1,574	1,755	3,240	7,023	12,785	13,848	26,922	30,340	34,562	38,877	558	502	644	2,134	2,379	4,392	9,520	17,331	18,772	36,495	41,129	46,852	52,702
8,400	378	486	1,613	1,798	3,320	7,195	13,095	14,186	27,579	31,080	35,382	39,799	571	513	659	2,187	2,437	4,501	9,754	17,752	19,231	37,386	42,132	47,964	53,952
8,600	387	497	1,651	1,840	3,395	7,366	13,405	14,523	28,236	31,820	36,202	40,721	585	525	674	2,238	2,494	4,602	9,985	18,172	19,687	38,277	43,135	49,075	55,201
8,800	395	508	1,690	1,883	3,475	7,538	13,720	14,861	28,893	32,560	37,022	41,643	598	536	689	2,291	2,553	4,711	10,219	18,599	20,146	39,167	44,138	50,187	56,451
9,000	404	520	1,735	1,929	3,555	7,710	14,030	15,020	29,550	33,300	37,840	42,565	612	548	705	2,352	2,615	4,819	10,452	19,019	20,361	40,058	45,141	51,296	57,701
9,200	414	531	1,766	1,969	3,635	7,894	14,345	15,354	30,206	34,040	38,706	43,528	626	561	720	2,394	2,669	4,928	10,701	19,446	20,814	40,947	46,145	52,470	59,007
9,400	422	542	1,805	2,011	3,710	8,078	14,655	15,688	30,862	34,780	39,572	44,454	639	572	735	2,447	2,726	5,029	10,951	19,866	21,267	41,837	47,148	53,644	60,312
9,600	431	554	1,843	2,054	3,790	8,262	14,965	16,021	31,518	35,520	40,438	45,454	653	585	751	2,498	2,784	5,138	11,200	20,287	21,718	42,726	48,151	54,818	61,617
9,800	440	564	1,882	2,097	3,870	8,446	15,280	16,355	32,174	36,260	41,304	46,417	666	596	765	2,551	2,843	5,246	11,449	20,714	22,171	43,615	49,154	55,992	62,923
10,000	448	576	1,928	2,145	3,950	8,630	15,595	16,600	32,830	37,000	42,170	47,380	680	608	781	2,614	2,908	5,355	11,699	21,141	22,503	44,504	50,157	57,166	64,228

2.3 OPERATING THE WRENCH :

The position of the Low Profile Hydraulic Torque Wrench relative to the nut determines whether the action will be for Loosening or Tightening of the nut. Refer figure 4 for Low Profile Hydraulic Torque Wrench Position for Tightening and Loosening application.

The power stroke of the Piston Assembly will always turn the Ratchet Hex toward the Shroud.

Refer Figure 4

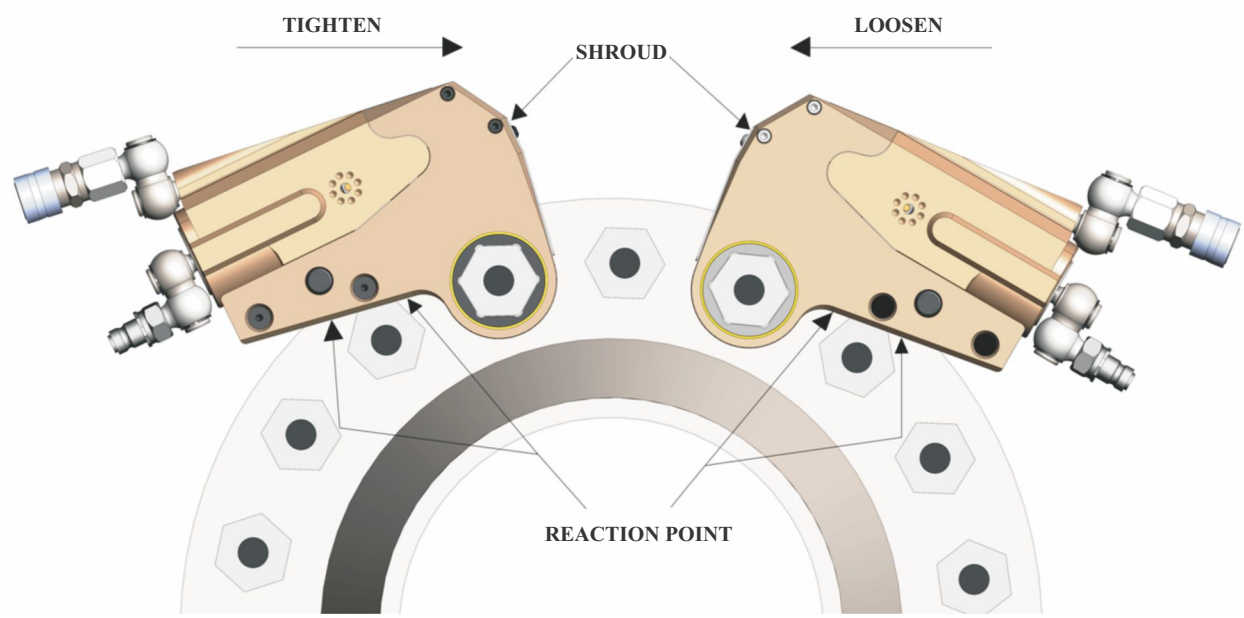

Figure 4 - Reaction Point

1 Place the correct size of Ratchet Hex on the nut. Ratchet Hex will fully engages the nut.

2. Place the reaction surface against an adjacent nut, flange or solid system component. Keep clearance for the hoses, swivels, inlets and End Plug. **Avoid direct contact** of the tool with hoses, swivels, inlets or end plug.

3. Switch on the Hydraulic Power Pack preset the pressure for the required torque, used the remote control button to advance the Piston Assembly. At the beginning if the notch in the piston rod did not engage the Retract Pin in the Ratchet Link when the Link was joined to the Housing, it will engage the Pin automatically during the first forward stroke.

4. When the Low Profile Hydraulic Torque Wrench is started, the reaction surface of the wrench will move against the contact point and the nut will begin to rotate.

5. When the nut stop rotating and the Pump Gauge reaches the preset pressure, a sound **"click"** will be heard , the piston rod will retract to the normal conditions after releasing the remote control button and the Hydraulic Torque Wrench will resets itself.

6. Continue to cycle the hydraulic torque wrench until it reaches to the position where the preset torque has been achieved preset pressure of Hydraulic Power Pack.

7. Once the nut stops rotating, cycle the Hydraulic Torque Wrench one last time to achieve total torque.

2.4 LUBRICATION :

The frequency for the lubrication is dependent on operating conditions The Hydraulic Torque Wrench used in a clean enclosed environment will require less servicing than a tool used open atmosphere and dropped in loose dirt or sand. **Synthetic Grease** is used for lubrication. Whenever lubrication is required, lubricate as follows:

1. By removing Link Pin separate the Low Profile Cylinder from the Ratchet Link if they are joined.
2. After wiping of the old grease, apply Synthetic Grease to the hook notch in the Piston rod and make a thin layer of Synthetic Grease onto the sides and faces of the two Sliders.
3. Disassemble the Ratchet Link as instructed in the **Section 3** of the Maintenance and wash the components in a suitable cleaning solution in a well-ventilated area.
4. Dry the components, then apply a film of Synthetic Grease onto the wear surface of both Side Plate Sleeves and the hubs of the Ratchet.
5. Apply a light film of Synthetic Grease onto the inner faces of both Side Plates covering the area where the Drive Plate and Drive Segment Pawl travel. **DO NOT** over grease the teeth of the Drive Segment or Ratchet. It can prevent the teeth from engaging properly.
6. Reassemble the Ratchet Link as instructed in the Maintenance Section.

Refer Figure 5

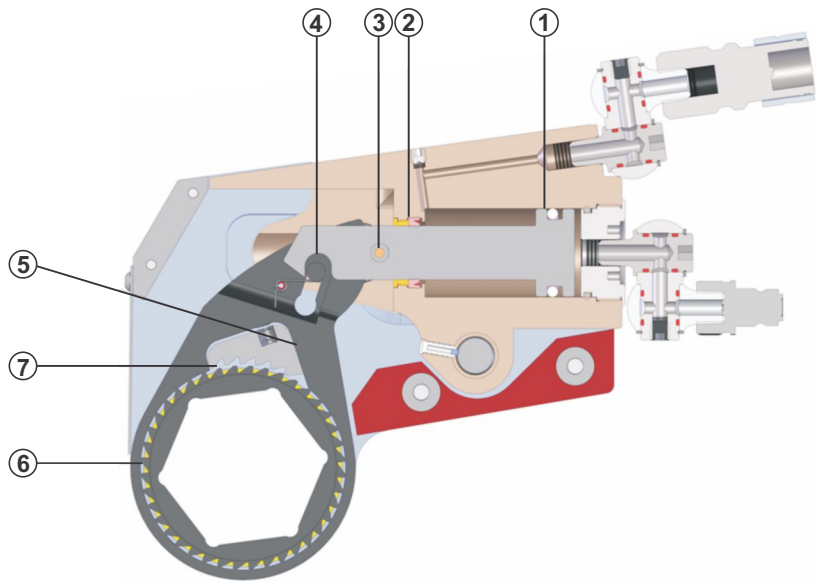

Figure 5 - Wrench Lubrication Point

3. Maintenance

PXD SERIES LOW PROFILE HYDRAULIC TORQUE WRENCHES

Refer figure	6	for PXD-2, 4, 8, 16, 32 and 45 Series Swivel.
Refer figure	7	for PXD-1 Series Ratchet Link.
Refer figure	8	for PXD-2, 4 and 8 Series Ratchet Link.
Refer figure	9	for PXD-16 and 32 Series Ratchet Link.
Refer table	2	for Part Identification of PXD-1,2, 4, 8, 16 and 32 Series Ratchet Link.
Refer figure	10	for PXD-1 Series Cylinder.
Refer table	3	for Part Identification of PXD- 1 Series Cylinder.
Refer figure	11	for PXD-2, 4 and 8 Series Cylinder.
Refer figure	12	for PXD-16 and 32 Cylinder.
Refer table	4	for Part Identification of PXD- 2, 4, 8, 16 and 32 Series Cylinder.
Refer figure	13	for PXD-45 Cylinder.
Refer table	5	for Part Identification of PXD- 45 Series Cylinder.

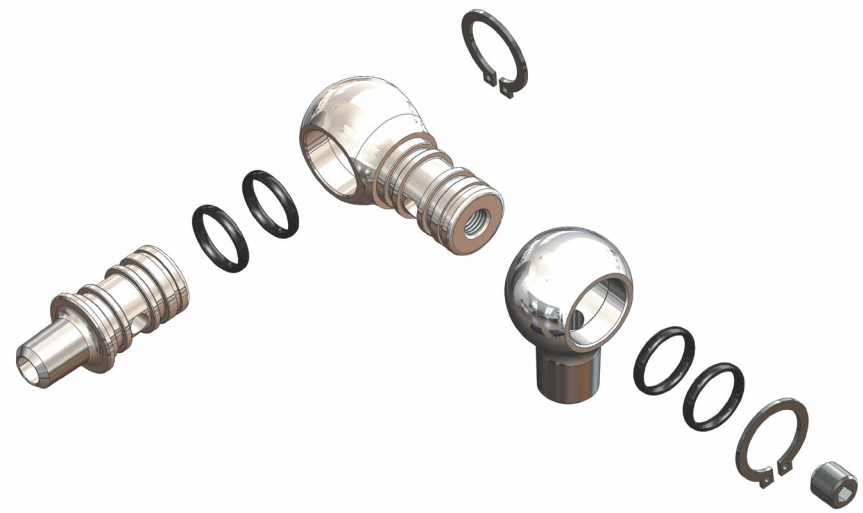

Figure 6 - PXD - 2, 4, 8, 16, 32 Series Swivel

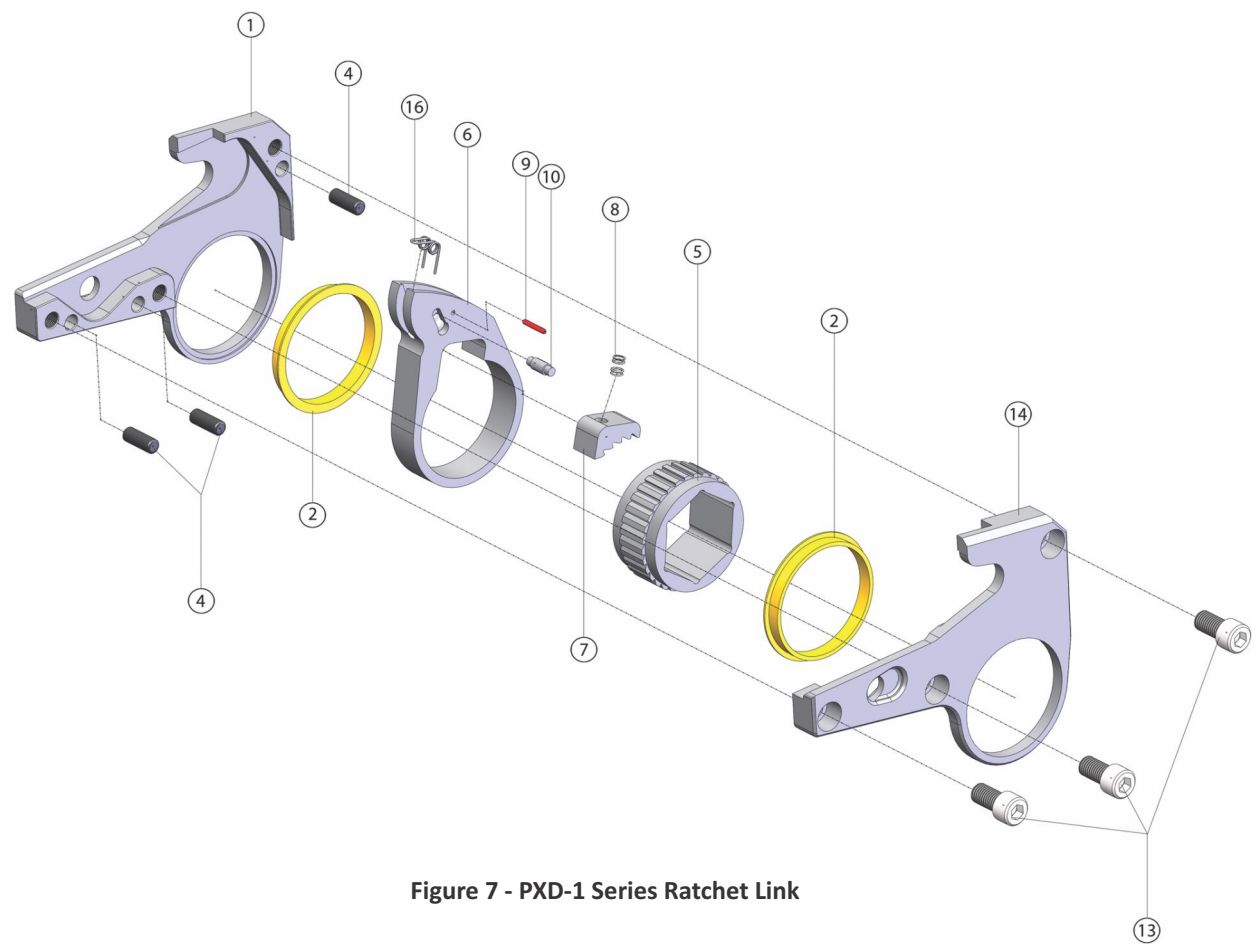

Figure 7 - PXD-1 Series Ratchet Link

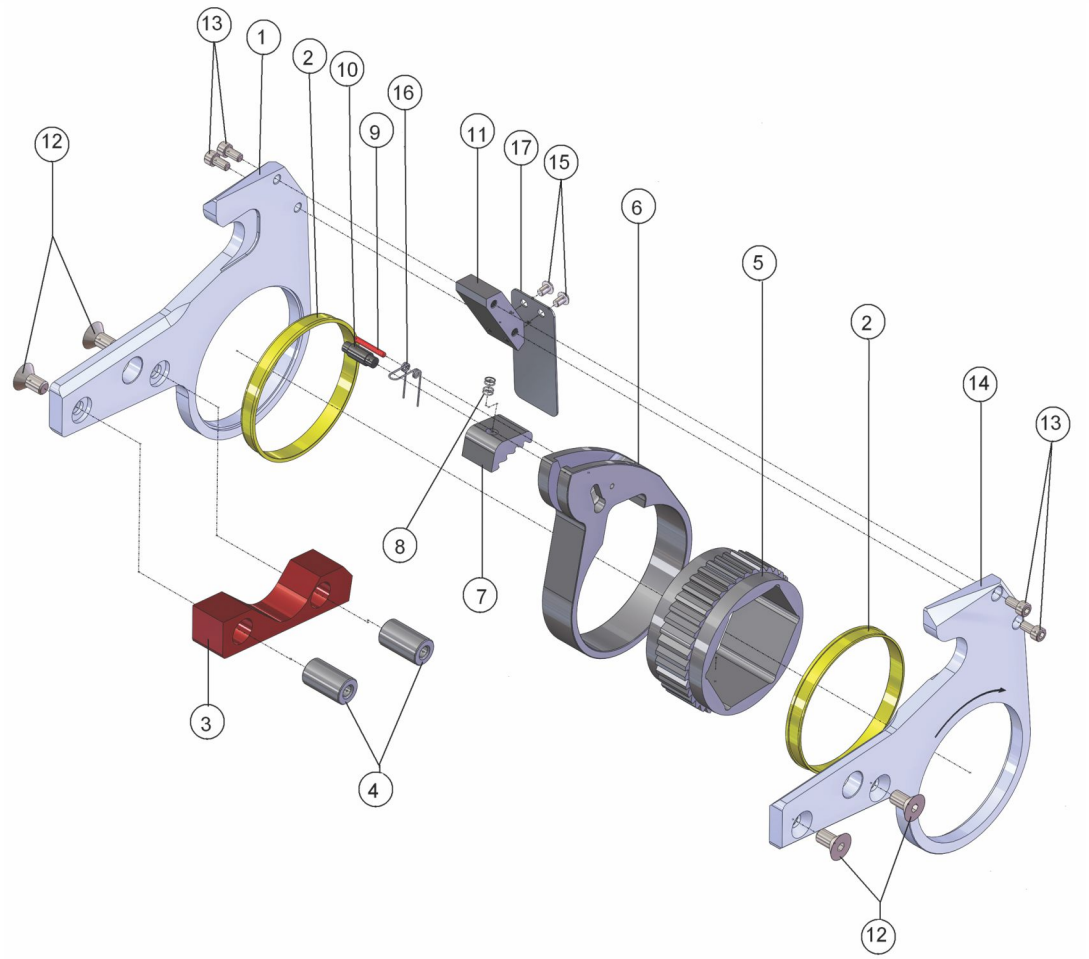

Figure 8 - PXD – 2, 4 and 8 Series Ratchet Link

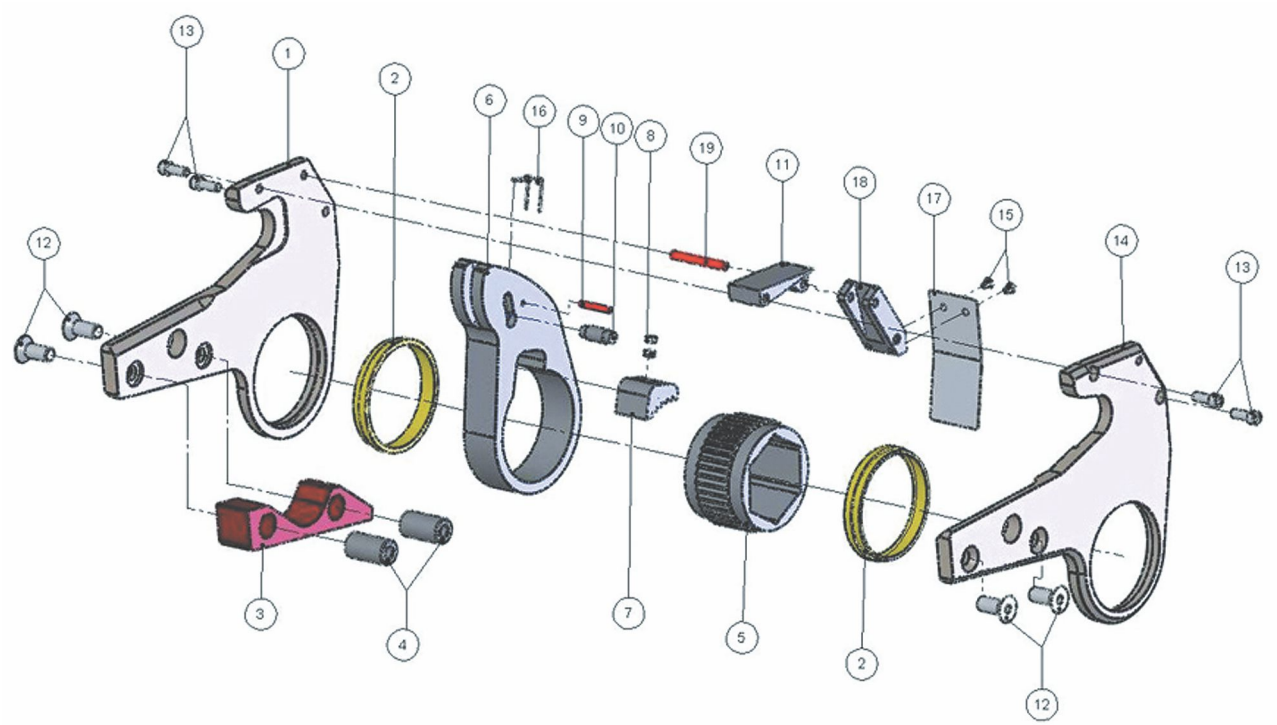

Figure 9 - PXD – 16 and 32 Series Ratchet Link

Table 2 – Part Identification of PXD-1, 2, 4, 8, 16 and 32 Series Ratchet Link

SR. No.	DESCRIPTION	Qty.	PXD-1	PXD-2	PXD-4	PXD-8	PXD-16	PXD-32
			PART NO	PART NO	PART NO	PART NO	PART NO	PART NO
1	Side Plate-L	1	BT-001020-01	BT-001021-01	BT-001022-01	BT-001023-01	BT-001024-01	BT-001025-01
2	Sleeves-Side plate	2	BT-001020-12	BT-001021-12	BT-001022-12	BT-001023-12	BT-001024-12	BT-001025-12
3	Lower Spacer	1	N/A	BT-001021-10	BT-001022-10	BT-001023-10	BT-001024-10	BT-001025-10
4	Lower spacer pin	2	BT-001020-11	BT-001021-11	BT-001022-11	BT-001023-11	BT-001024-11	BT-001025-11
5	Ratchet	1	BT-001020-06	BT-001021-06	BT-001022-06	BT-001023-06	BT-001024-06	BT-001025-06
6	Drive Plate	1	BT-001020-03	BT-001021-03	BT-001022-03	BT-001023-03	BT-001024-03	BT-001025-03
7	Drive segment	1	BT-001020-07	BT-001021-07	BT-001022-07	BT-001023-07	BT-001024-07	BT-001025-07
8	Segment Spring	1	BT-001020-14	BT-001021-14	BT-001022-14	BT-001023-14	BT-001024-14	BT-001025-14
9	Spring pin rolled	1	2050043	2050057	2050076	2050098	2050181	2050181
10	Drive pin	1	BT-001020-04	BT-001021-04	BT-001022-04	BT-001023-04	BT-001024-04	BT-001025-04
11	Upper spacer	1	N/A	BT-001021-08	BT-001022-08	BT-001023-08	BT-001024-08	BT-001025-08
12	Hex countersunk flat screw	4	N/A	1550001	1550001	155001	1550001	1550001
13	Socket head cap screw	4	100001	100001	100001	1110001	100001	110001
14	Side Plate-R	1	BT-001020-02	BT-001021-02	BT-001022-02	BT-001023-02	BT-001024-02	BT-001025-02
15	Button head cap screw	2	NA	110001	110001	100001	110001	100001
16	Drive pin spring	1	BT-001020-05	BT-001021-05	BT-001022-05	BT-001023-05	BT-001024-05	BT-001022-05
17	Shroud	1	N/A	BT-001021-13	BT-001022-13	BT-001023-13	BT-001024-13	BT-001022-13
18	Middle spacer	1	N/A	N/A	N/A	N/A	BT-001024-49	BT-001025-49
19	Spring pin	1	N/A	N/A	N/A	N/A	2050059	2050059

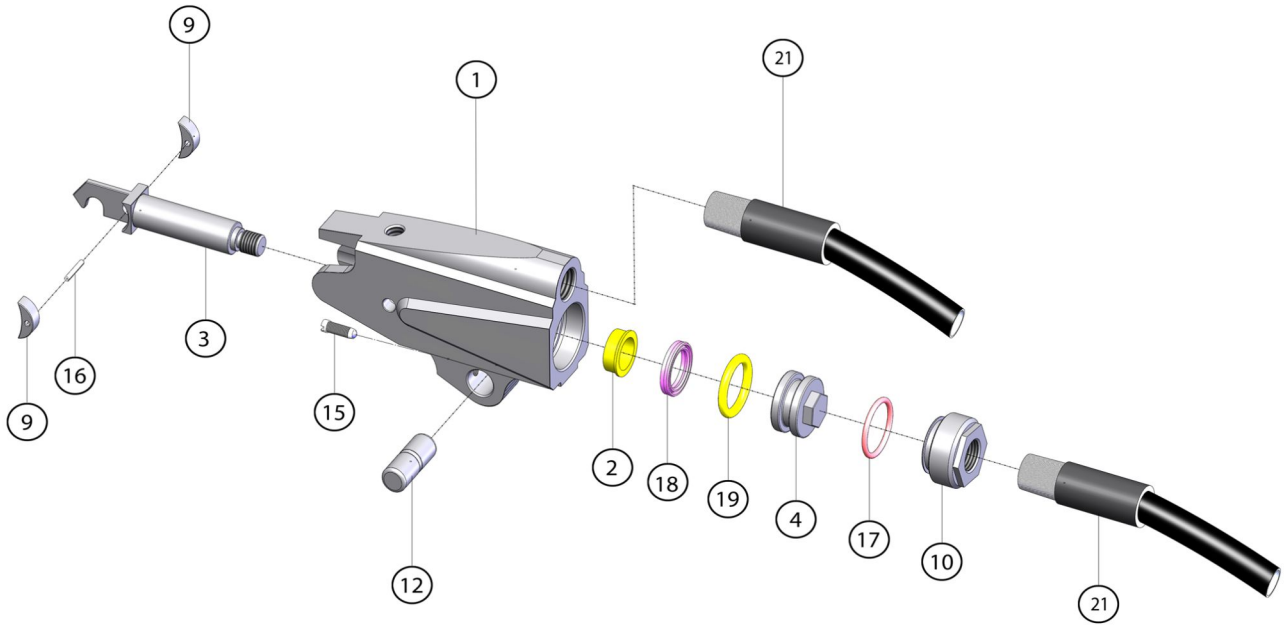

Figure 10 - PXD – 1 Series Cylinder

Table 3 – Part Identification of PXD-1 Series Cylinder

SR. NO.	PART	PXD-1
1	HOUSING	PXD1-20-15
2	PISTON BRASS BUSHING	PXD1-20-16
3	PISTON ROD ASSEMBLY	PXD1-20-0B
	PISTON ROD	PXD1-20-18
4	PISTON CAP	PXD1-20-19
5	VALVE BALL	N/A
6	VALVE SPRING	N/A
7	WASHER	N/A
8	VALVE HOLLOW LOCK	N/A
9	SLIDER	PXD1-20-23
10	END CAP	PXD1-20-24
11	RETAINING RING	N/A
12	LINK PIN	PXD1-20-25
13	END COVER	N/A
14	END COVER SCREWS	N/A
15	BALL PLUNGER	2200013
16	SLIDER PIN	02050014
17	END PLUG SEAL	9040031
18	ROD SEAL	9390010
19	PISTON O-RING	9040032
20	SWIVEL (2 req)	N/A
	SWIVEL (2 req)	N/A
21	COUPLER ASSEMBLY	HC-S100
22	SEAL INSERTION TOOL	N/A
23	END PLUG WRENCH	N/A
24	PISTON CAP ROD SEAL	N/A

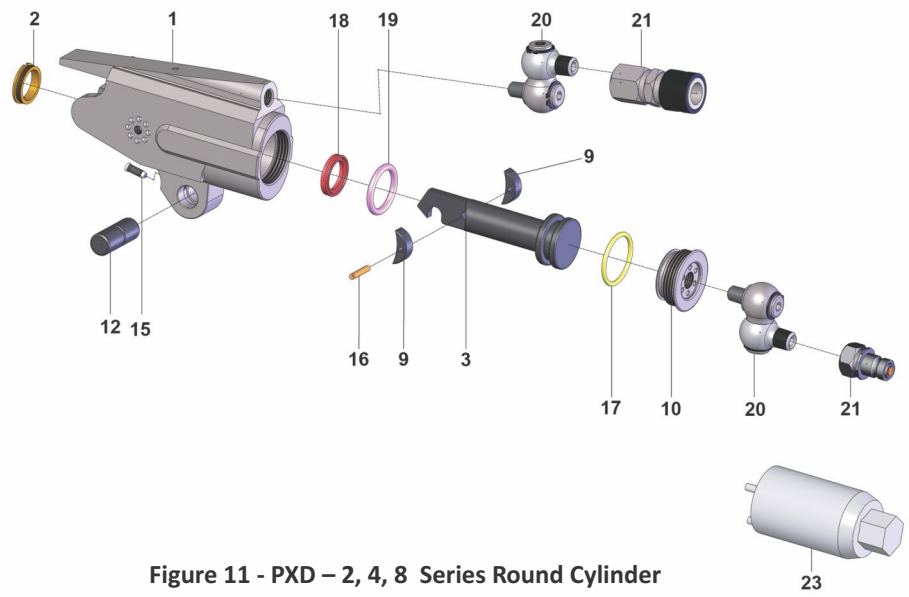

Figure 11 - PXD – 2, 4, 8 Series Round Cylinder

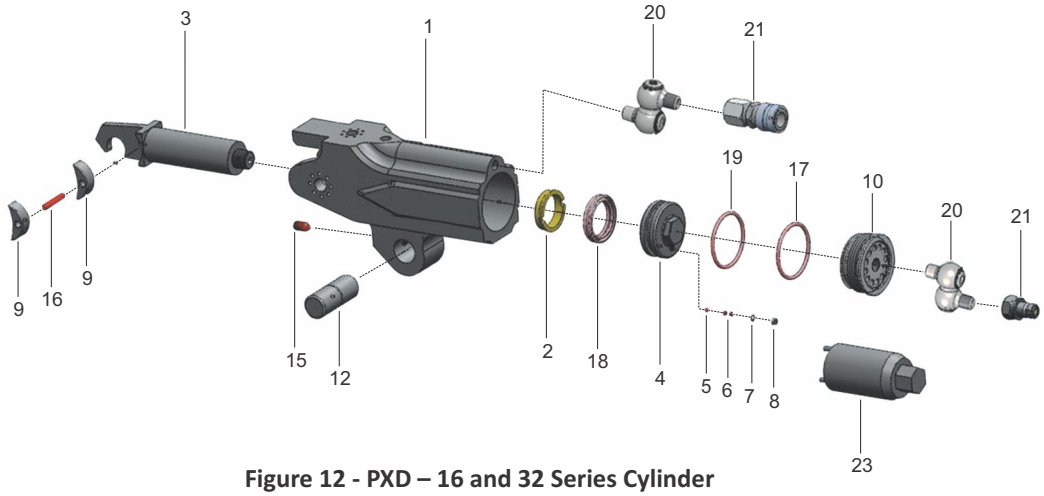

Figure 12 - PXD – 16 and 32 Series Cylinder

Table 4 – Part Identification of PXD-2, 4, 8, 16 and 32 Series Round Cylinder

SR. NO.	PART	PXD-2	PXD-4	PXD-8	PXD-16	PXD-32
1	HOUSING	PXD2-21-15	PXD4-22-15	PXD8-23-15	PXD16-24-15	PXD32-25-15
2	PISTON BRASS BUSHING	N/A	PXD4-22-16	PXD8-23-16	PXD16-24-16	PXD32-25-16
3	PISTON ROD ASSEMBLY	PXD2-21-0B	PXD4-22-0B	PXD8-23-0B	PXD16-24-16	PXD32-25-0B
	PISTON ROD	PXD2-21-18	PXD4-22-18	PXD8-23-18	PXD16-24-18	PXD32-25-18
4	PISTON CAP	N/A	N/A	N/A	PXD16-24-19	PXD32-25-19
5	VALVE BALL	N/A	N/A	N/A	2140006	2140006
6	VALVE SPRING	N/A	N/A	N/A	PXD16-24-21	PXD32-25-21
7	WASHER	N/A	N/A	N/A	N/A	01310007
8	VALVE HOLLOW LOCK	N/A	N/A	N/A	PXD16-24-22	PXD32-25-22
9	SLIDER	PXD2-21-23	PXD4-22-23	PXD8-23-23	PXD16-24-23	PXD32-25-23
10	END CAP	PXD2-21-24	PXD4-22-24	PXD8-23-24	PXD16-24-24	PXD32-25-24
11	RETAINING RING	N/A	N/A	N/A	N/A	N/A
12	LINK PIN	PXD2-21-25	PXD4-22-25	PXD8-23-25	PXD16-24-25	PXD32-25-25
13	END COVER	N/A	N/A	N/A	N/A	N/A
14	END COVER SCREWS	N/A	N/A	N/A	N/A	N/A
15	BALL PLUNGER	2200007	2200008	2200009	2200010	2200011
16	SLIDER PIN	2050076	2050095	2050126	2050151	2020145
17	END PLUG SEAL	9040021	9040020	9040023	9040025	9040027
18	ROD SEAL	9390003	9390004	9390005	9390006	9390007
19	PISTON O-RING	9040019	9040022	9040024	9040026	9040028
20	SWIVEL (2 req)	N/A	PXD-4M-4M	PXD-4M-4M	PXD-4M-4M	PXD-4M-4M
	SWIVEL (2 req)	PXD-4M-8M	N/A	N/A	N/A	N/A
21	COUPLER ASSEMBLY	HC-S100	HC-S100	HC-S100	HC-S100	HC-S100
22	SEAL INSERTION TOOL	N/A	N/A	N/A	N/A	N/A
23	END PLUG WRENCH	PXD-2-EPW	PXD-4-EPW	PXD-8-EPW	PXD-16-EPW	PXD-32-EPW

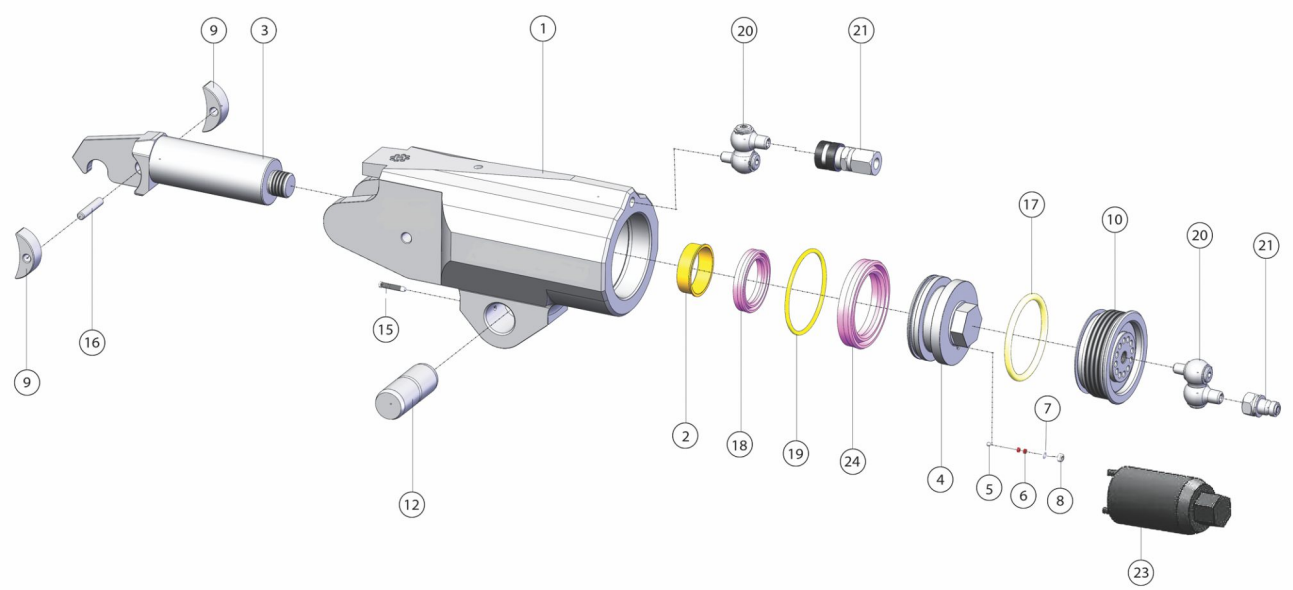

Figure 13 - PXD – 45 Series Cylinder

Table 5 – Part Identification of PXD-45 Series Cylinder

SR. NO.	PART	PXD-45
1	HOUSING	PXD45-26-15
2	PISTON BRASS BUSHING	PXD45-26-16
3	PISTON ROD ASSEMBLY	PXD45-26-0B
	PISTON ROD	PXD45-26-18
4	PISTON CAP	PXD45-26-19
5	VALVE BALL	2140006
6	VALVE SPRING	PXD45-26-21
7	WASHER	01310007
8	VALVE HOLLOW LOCK	PXD45-26-22
9	SLIDER	PXD45-26-23
10	END CAP	PXD45-26-24
11	RETAINING RING	N/A
12	LINK PIN	PXD45-26-25
13	END COVER	N/A
14	END COVER SCREWS	N/A
15	BALL PLUNGER	2200012
16	SLIDER PIN	2020145
17	END PLUG SEAL	9040029
18	ROD SEAL	9390008
19	PISTON O-RING	9040030
20	SWIVEL (2 req)	PXD-4M-4M
	SWIVEL (2 req)	N/A
21	COUPLER ASSEMBLY	HC-S100
22	SEAL INSERTION TOOL	N/A
23	END PLUG WRENCH	PXD-45-EPW
24	PISTON CAP ROD SEAL	9390009

3.1 DISASSEMBLY OF WRENCH:

3.1.1 General Instructions

1. Do not disassemble the tool unless until required to replace or repair damaged parts.
2. Take precautionary measure while handling surfaces that will contain hydraulic oil under pressure.
1. Do not disassemble the tool unless until required to replace or repair damaged parts.
2. Take precautionary measure while handling surfaces that will contain hydraulic oil under pressure.
3. Hold a wrench in a leather–covered or copper–covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly for the threaded part and housings.
4. Do not remove any part that is a press fit in or on an assembly unless the removal of that part is necessary for repairs or replacement.
5. Do not disassemble the hydraulic cylinder assembly unless you are in a position of complete set of seals and O-rings for replacement.
6. Use only Standard size tools when disassembling these Hydraulic Torque Wrenches.

3.1.2 Steps for Disassembly of the Wrench

1. Remove the **Link Pin** out of the **Housing** and **Side Plates** (L and R).
2. Lift the **Housing** from between the **Side Plates** and separate the two units.

3.1.3 Step for Disassembly of the PXD-2, PXD-4 and PXD-8 Cylinder Assemblies

1. Hold the **Housing** in copper-covered or leather covered vise jaws with the inlet end upward and using a Allen Key, unscrew and remove the two **Swivel Inlets** with their attached **Couplers**.
2. Remove the **Housing** Assembly from the vise jaws; collect the oil in container by moving the **Piston Rod** back and forth several times to purge the hydraulic oil from the Housing.
3. Hold the **Housing** in copper-covered or leather covered vise jaws with the inlet end upward.
4. Press the piston end of the **Piston Rod** forward in the Housing until the **Slider Pin** aligns with the cross holes in the **Housing**.
5. Using a small drift, tap the **Slider Pin** out of the **Sliders** and position shaft and remove the two **Sliders**.
6. Remove **end cap** using End cap wrench along with **End cap O-ring**.
7. Push the **piston** out of the **Housing**.
8. Replace **Rod Seal** by using a hooked tool to pull it out of the **Housing**.

3.1.4 Step for Disassembly of the PXD-16, PXD-32 and PXD-45 Cylinder Assemblies

1. Hold the **Housing** in copper-covered or leather covered vise jaws with the inlet end upward and using a 1/4” hex wrench, unscrew and remove the two **Swivel Inlets** with their attached **Couplers**.
2. Remove the **housing** assembly from the vise jaws and over a container to collect the oil, move the **Piston Rod Assembly** back and forth several times to purge the hydraulic oil from the **Housing**.
3. Hold the **Housing** in copper-covered or leather covered vise jaws with the inlet end upward.
4. Insert the pins of the End Plug Wrench into the holes of the **End Cap**. Using a wrench on the hex of the End Plug Wrench, unscrew and remove the **End Cap** with the **End Plug Seal**.
5. Push the **Piston Rod** far enough into the **Housing** to expose the hex on the **piston head**.

During removal and after the piston shaft is removed; DO NOT hold the round portion of the shaft with any holding device that will damage the surface. To avoid hydraulic oil leak do not allow nicks or scratches to the surface.

6. Using a socket on the hex of the **piston head** unscrew and remove the **piston head** from the shaft with the **Piston O-ring**.
7. Pull the **Piston** shaft out of the **Housing**.
8. Replacing **Sliders** position the **Slider Pin** over a clearance opening in a soft block and use a small drift to tap the Pin out of the **Sliders** and **shaft**.
9. If the **Rod Seal** needs replacement, use a hooked tool to pull it out of the **Housing**.

3.1.5 Step for Disassembly of the Ratchet Link

1. Keep the Ratchet Link flat on a workbench with the **Left Side Plate** downward and using an Allen Key, unscrew and remove the two **Lower Spacer Screws**.
2. Using an Allen key, unscrew and remove the two **Upper Spacer Screws**.
3. By using roll pin punch tap the **Spacer Roll Pin** out of the **Right Side Plate** For Series PXD-16, PXD-32.
4. Applying thumb pressure to the edge of the **Ratchet**, carefully lift the **Side Plate** off the Assembly.
5. Hold the **Ratchet** and **Drive Plate** and, while maintaining their relationship, lift them both off the **Left Side Plate**.
6. Push the **Ratchet** out of the **Drive Plate** and Remove the **Drive Segment** and the **Segment Spring** from the **Drive Plate** Recess.
7. By using roll pin punch replace the **Drive Pin** or **Drive Pin Spring**; use a roll pin punch to push the **Drive Pin Spring Roll Pin** out of the **Drive Plate**. Once the **Pin Spring** is removed, the **Drive Pin** will drop down to the large opening at the bottom of the slot for easy removal.
8. Lift the **Lower Spacer** off the **Lower Spacer Pins**. If the Pins must be replaced, use a Allen key to remove the two **Lower Spacer Screws** from the **Right Side Plate**. Pull the **Pins** out of the holes on the inner face of the **Right Side Plate**.
9. For Series PXD-2, PXD-4, and PXD-8, unscrews the two **Spacer Screws** and remove the **Upper Spacer** from the **Right Side Plate**. For Series PXD-16 and PXD-32 uses a roll pin punch to remove the **Spacer Roll Pin** from the **Right Side Plate**. Unscrew the two **Spacer Screws** and remove the **Middle Spacer** and **Upper Spacer** from the **Right Side Plate**.
10. Replace the **Side Plate Sleeves** by pressing the **Sleeves** out toward the inner face of the **Side Plate**.

3.2 ASSEMBLY OF WRENCH:

3.2.1 General Instructions

1. Take precautionary measure while handling surfaces that will contain hydraulic oil under pressure.
2. Hold a wrench in a leather–covered or copper–covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly for the threaded part and housings.
3. Apply 'O'–ring lubricant to all 'O'–rings before final assembly.

3.2.2 Step for Assembly of the Ratchet Link

1. Insert the **Side Plate Sleeves** by pressing, new **sleeves** shoulder end trailing into the **Right and Left Side Plates** from the inner face of the **side Plates**. Assure that the **Sleeves** are square with the **side plate faces** and the shoulder of the **Sleeves** enters the recesses in the **Side Plates** and are pressed flush with the faces.
2. **For Series PXD-2, PXD-4, and PXD-8** position the **Upper Spacer** against the inside faces of the **Right Side Plate** by applying a non permanent thread-locking compound to the threads of the **two Upper Spacer Screws** and tighten the **Spacer** with the **Screws** through the **Side Plate**.

3. **For Series PXD-16 and PXD-32** presses the **Spacer Roll Pin** into the **Right Side Plate** with one end of the **Pin** flush with the outer face of the **Side Plate**. Insert the tab of the **Upper Spacer** into the slot in the **Middle Spacer**, and after aligning the holes in both pieces, install them on the **Spacer Roll Pin**. When they are correctly positioned, apply a non-permanent thread-locking compound to the threads of the two **Upper Spacer Screws** and tighten the **Spacers** with the **Screws** through the **side plate**.
4. Insert the two **Lower Spacer Pins** into the holes in the lower edge of the **Right Side Plate**. Apply a nonpermanent thread-locking compound to the threads of the **Lower Spacer Screws** and tighten the **Pins** with the **Screws** through the **Side Plate**.
5. Place the **Lower Spacer** over the **Pins** against the **Side Plate**. Assure it is correctly oriented so that no part of the **Spacer** extends beyond the edge of the **Side Plate**.
6. Insert the **Drive Pin** into the small cross-hole and slot in the **Drive Plate**. Turn the Plate which helps the ends of the **Pin** to enter the slot and move the Pin to the narrow end.
7. Position the **Drive Pin Spring** in the **drive plate** slot with the two non-connected ends between the **Drive Pin** and the large hole in the slot. Position the closed end of the **spring** on the opposite side of the **Pin** and then apply pressure on the **spring** to align the hole through it with the hole in the **Drive Plate** for the **Drive Pin Spring Roll Pin**. Insert the **Spring Roll Pin** into the **Drive Plate**, through the **spring** and into the far wall of the **Drive Plate**.

In the following step, when the Ratchet is removed from the Drive Plate, the Drive Segment and Segment Spring will be free to fall from the Drive Plate recess. Prevent falling of the Drive Segment on a hard surface that might chip the teeth.

8. Apply a thin film of Synthetic Grease onto the inner race of the large opening in the **Drive Plate**.
9. Position the **Ratchet** in the central opening of the **Drive Plate**.
10. Insert the **Drive Segment** into the opening adjacent to the **Ratchet**.

Make certain the teeth of the Ratchet correctly engage the teeth of the Drive Segment. Reverse the Ratchet if they do not properly engage.

11. Move the **Drive Segment** sideways to expose the **spring** hole. Insert the **Segment Spring** into the hole. While compressing the **spring**, move the **Drive Segment** inward until the **Drive Plate** captures the **Segment Spring**.
12. Apply a light coat of Synthetic Grease to both sides of the **Drive Plate** and **Drive Segment** and to the inner races of both **Side Plate Sleeves**.
13. While keeping the assembly together, insert the hub of the **Ratchet** into the **Side Plate Sleeve** of the assembled **Side Plate**.
14. Place the **Left Side Plate Sleeve** on the hub of the **Ratchet** and align the screw holes for the **Spacers**.
15. After applying a non-permanent thread-locking compound to the threads and using hex wrenches, install the two remaining **Lower Spacer Screws**.

3.2.3 Step for Assembly of the PXD-16, PXD-32 and PXD-45 Cylinder

3.2.3.1 Assemblies

1. Hold the link retaining pin lug in copper-covered, vise jaws keeping the **Housing** horizontal.
2. Remove **Rod Seal** from the Housing, apply a coat of 'O'-ring lubricant to the **Seal** and install it, lip end trailing, in the recess at the bottom of the **piston** bore.
3. Push the **Slider Pin** into one of the **Sliders** flush with one side. Insert the **Pin** through the hole in the **piston** shaft and press the remaining **Slide**r onto the **Pin**.
4. Insert the **Piston O-ring** in the groove of the **piston** head.
5. Insert the **piston rod**, threaded end leading, into the small central opening from the non-piston end of the **Housing**. Notch direction in the trailing end of the shaft should be toward the **Ball Plunger**.

6. Insert the **piston**, hex end trailing, into the bore of the **Housing**, and use socket to thread and tighten the **piston** onto the **piston shaft**.
7. Install the **End Plug Seal** in the groove on the hub of the **End Cap**.
8. Using the **End Plug Wrench**, thread the assembled **End Cap**, o-ring end leading, into the **piston** end of the **Housing** and tighten it.
9. Wrap the threads of the **Swivel Sets** with Teflon tape and thread the **swivel** with the **male hose Coupler** into the center of the **End Cap**. Thread the **Swivel** with the **female Coupler** into the hole in the **Housing** directly above the **End Cap**.

3.2.4 Step for Assembly of the PXD-2, PXD-4 and PXD-8 Cylinder

3.2.4.1 Assemblies

1. Hold the link retaining pin lug in copper-covered vise jaws with the **Housing** horizontal.
2. Before inserting **Rod Seal** in the **Housing**, apply a coat of o-ring lubricant to the Seal and install it, lip end trailing, in the recess at the bottom of the **piston** bore.
3. Insert the **piston rod**, notched end leading, into the **Rod Seal** and the small central opening from the **piston** end of the **Housing**. The notch in the leading end of the shaft should be toward the **Ball Plunger**.
4. Push the **Piston Rod** inward until the hole for the **Slider Pin** aligns with the holes in the walls of the **Housing**.
5. Position one **Slider** on each side of the **piston shaft** and insert the **Slider Pin** through the hole in the **Housing** into both **Sliders** and the **piston shaft**. The fit between the **Pin** and **Sliders** is an interference fit. Use a brass hammer and drift to set the **Slider Pin** below the outer edge of both **Sliders** or deep enough to prevent the shaft ends from dragging on the **Housing** walls.
6. Install the **End Plug Seal** in the groove of the **End Cap**.
7. Insert the assembled **End Cap** into the **Housing** with the O-ring end leading and the threaded inlet hole upward. By using **end cap wrench** tighten the **end cap** into the **Cylinder**.

In the following step, an excessive amount of grease will prevent proper tooth engagement between the Ratchet and the Drive Segment causing the tool to malfunction.

In the following step, DO NOT use thread-locking compound on the screw threads.

8. Wrap the threads of the **Swivel Sets** with Teflon tape and thread the **swivel** with the **male hose Coupler** into the threaded hole in the **End Cap**.
9. Apply some Synthetic Grease to the notch in the **Piston Rod** and the face of the **Sliders**.

3.2.5 Step for Assembly of the Tool

1. With the Cylinder Assembly in one hand and the Ratchet Link in the other, hook the notch on the shaft of the **Piston Rod** onto the **Drive Pin** and bring the two assemblies together.
2. Insert the **Link Pin** into the hole in the **Side Plate** until the **Ball Plunger** snaps into the annular groove around the center of the Link Pin.

3.3 TROUBLE SHOOTING GUIDE:

Trouble	Probable Cause	Solution
Piston does not function	Couplers are not attached tightly to the wrench or pump.	Check the Coupler connections and make sure that they are connected tightly.
	Coupler is defective.	Replace any defective Coupler.
	Defective remote control switch.	Replace the switch and/or check electrical connection.
	Dirt in the direction-control valve of the pump unit.	Disassemble the pump and clean the direction-control valve.
Piston not working in reverse stroke	Hose connections reversed on wrench or pump.	Assure that the Inward on the pump is connected to the tool and reverse on the pump is connected to the reverse on the tool.
	Reverse hose not connected.	Connect the reverse hose to the tool.
	Retract pin broken.	Replace the broken pin /or spring.
Low oil pressure in Cylinder	Piston Seal and/or End Plug Seal leaking.	Replace any defective, damage O-rings.
	Retaining Screws Sheared.	Replace any broken screws.
	Coupler is defective.	Replace any defective, damage Coupler.
Ratchet fails to rotate	Jamming due to very low clearance between ID of Drive Plate and OD of Ratchet.	Ratchet the parts to get increased clearance maximum up to 0.5 mm.
	Worn or broken teeth on Ratchet / or Segment Pawl.	Replace any worn or damaged parts.
Tool tightens immediately when turned on	Hose connections are reversed.	Depress the advance button to release the tool; shut the pump off in the advance position and reverse the hose connection.
Pressure not increasing in Power pack	Defective relief valve.	Inspect, adjust or replace the relief valve.
	Air supply too low or air hose too small.	Make certain the air supply and hose size comply with the pump manual recommendations.
	Electric power source is too low.	Make necessary power supply arrangement as per the pump manual requirements.
	Low oil level.	Check and fill the pump reservoir.
	Clogged filter.	Inspect, clean and/or replace the pump filter.
Pressure reading error	Defective Gauge or gauge out of calibration.	Replace or calibrate the gauge.
Nut Returns with return stroke	Ball Plungers are not engaging the Drive Sleeves.	Thread the Ball Plungers to the correct depth in the Housing.

3.4 PXD SERIES ACCESSORIES:

Refer Figure 14

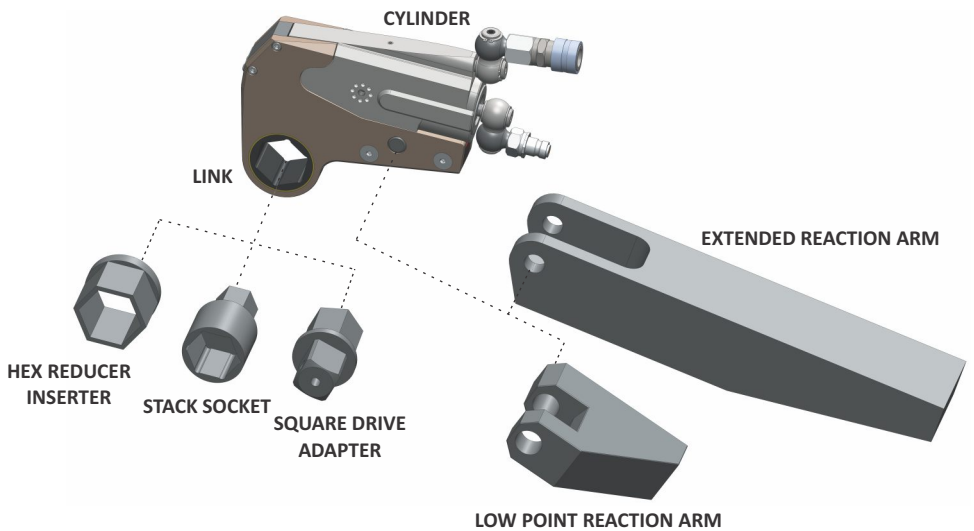

Figure 14 - PXD Series Low Profile Hydraulic Torque Wrench

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