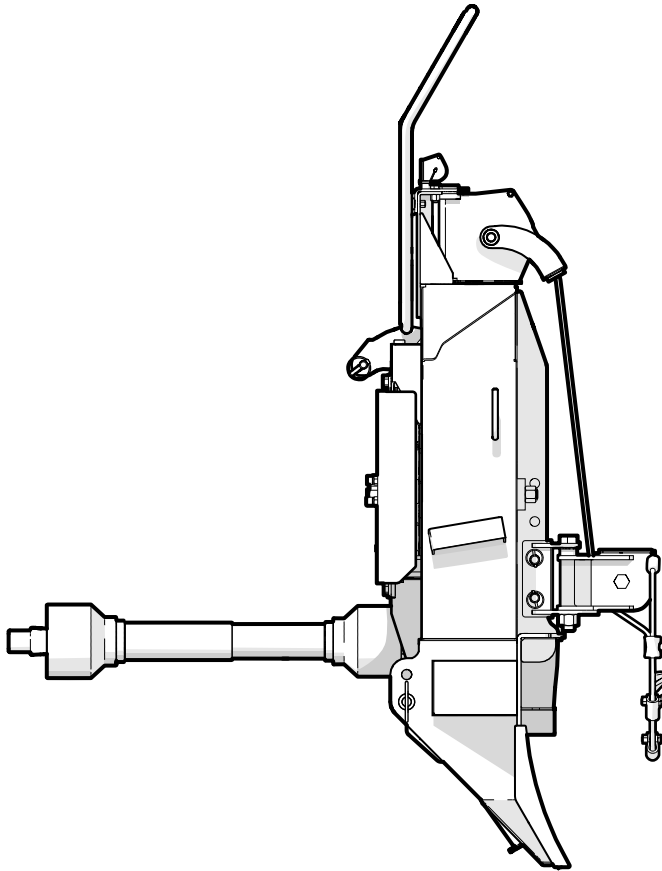


PARTS MANUAL

Serial Number 51101 & up

FX110 / FX110R Skidding Winch



Foreword

This Wallenstein parts manual is prepared to assist customers in ordering quality OEM replacement parts.

Regular maintenance combined with replacing old, worn or broken parts with the correct OEM parts is essential in prolonging the life of your Wallenstein product. Refer to this manual to identify replacement parts.

To order parts, contact your Wallenstein dealer or distributor. Have the product model and serial number handy.

If your dealer is no longer available, please go to our website: <http://wallensteinequipment.com> and click on the [Dealer Locator](#) to find the nearest dealer.

All information contained in this parts manual is current as per the revision date at the bottom of the page. Wallenstein reserves the right to change product specifications at any time without notice.

If your product specifications differ from those contained in this manual, contact Wallenstein for current information.

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WARNING!

Refer to the operators manual for safe operation and maintenance.

Maintenance should be performed by trained personnel only.

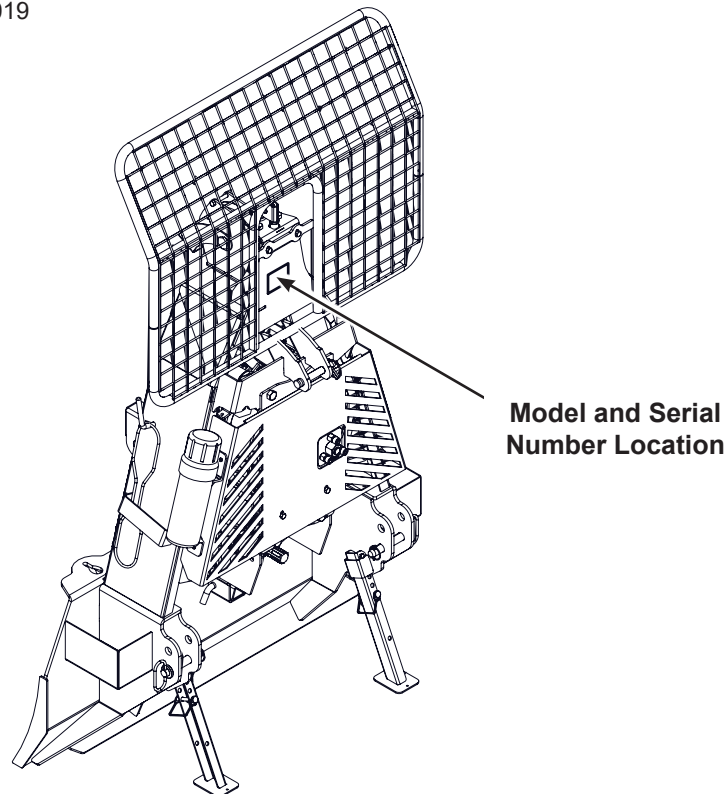
Serial Number Location

Always provide the model and serial number of your Wallenstein product when ordering parts or requesting service or other information. This information is found on the product information plate as shown below.

Record your product information here for future reference.

Model _____

Serial Number _____

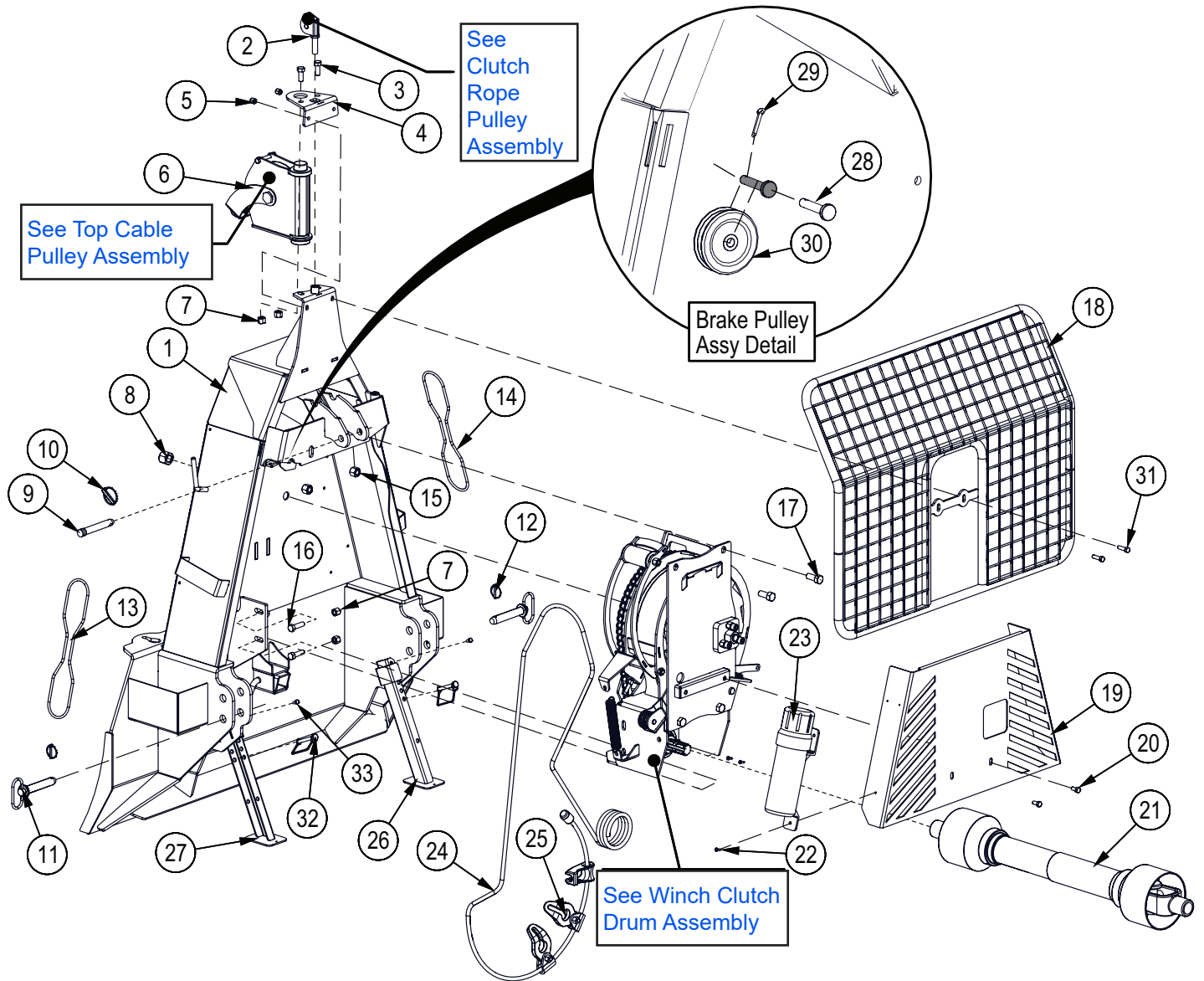


www.wallensteinequipment.com

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Main Assembly, S/N 51101-5110558

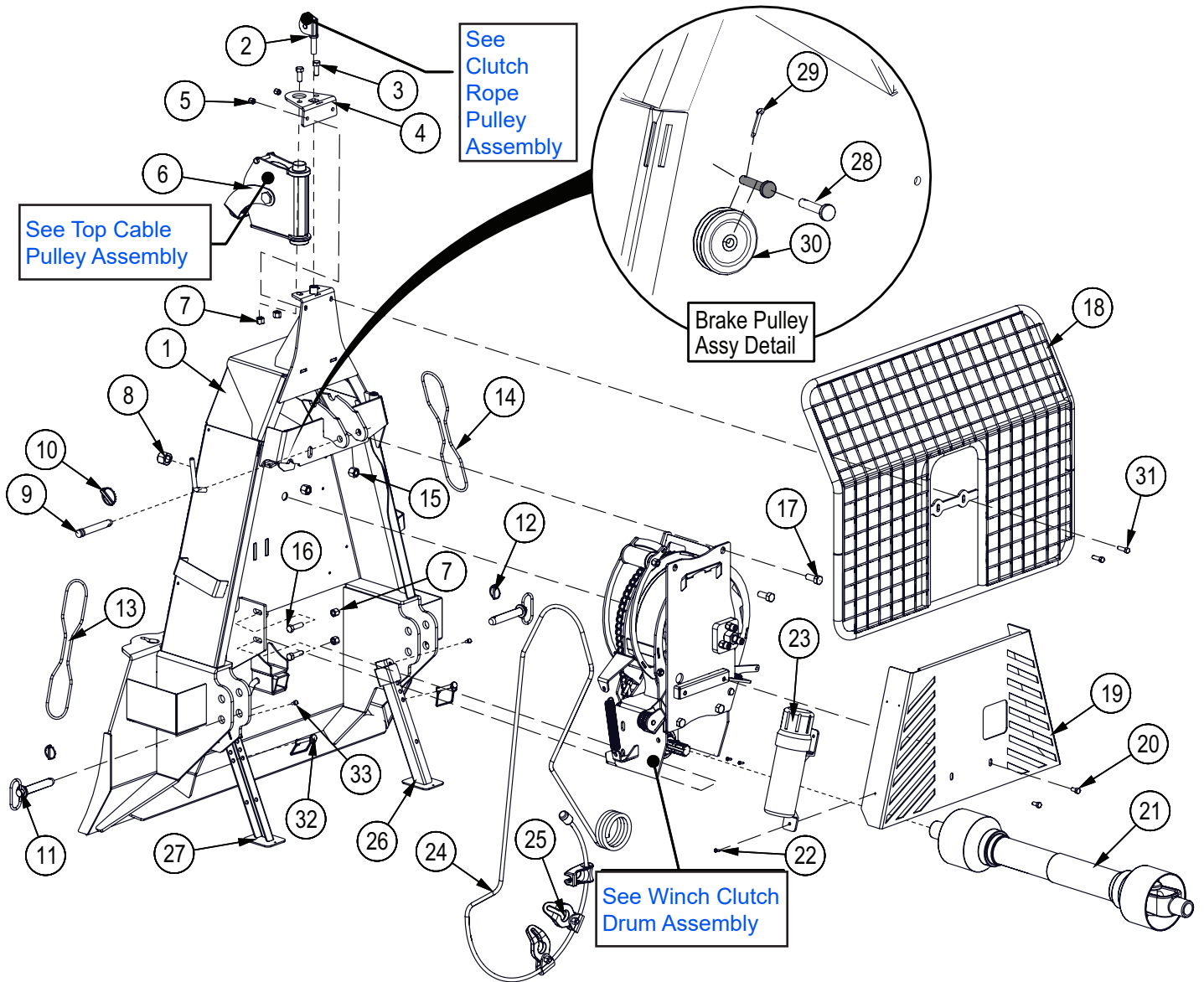


ECN0408

Item No.	Part No.	Description	Qty
1	5012W225	Main Frame	1
2	5012A207	Clutch Rope Pulley	1
3	Z71512	Hex Bolt, 1/2NC x 1-1/4"	2
4	5012L285	Top Pulley Capture Bracket	1
5	Z72231	Hex Lock Nut, 3/8NC	2
6	5012A205	Top Cable Pulley Assembly	1
7	Z72251	Hex Lock Nut, 1/2NC	4
8	Z72281	Hex Lock Nut, 7/8NC	1
9	Z11122	Toplink Pin, 3/4" x 3-7/8"	1
10	Z12140	Lynch Pin, 7/16"	1
11	Z11251	Hitch Pin, 7/8" x 4-1/4"	2
12	Z12110	Lynch Pin, 3/16"	2
13	Z92205	White Nylon Rope 1/4" x 18 ft	1
14	Z92201	Green Nylon Rope, 1/4" x 9-1/2 ft	1
15	Z72261	Hex Lock Nut, 5/8NC	2
16	Z76155	Hex Bolt, 1/2NC x 1-3/4"	2
17	Z76161	Hex Bolt, 5/8NC x 1-1/2"	2

Item No.	Part No.	Description	Qty
18	5012W226	Safety Screen	1
19	5012L325	Lower Protective Shield	1
20	Z76133	Flange Bolt, 3/8NC x 3/4"	2
21	Z44402	#4 Global PTO Shaft M8 Shear	1
22	Z76721	Self-tapping Screw, 1/4 x 3/4"	3
23	Z96503	Manual Tube 3-1/2 Short	1
24	Z92120-1	Winch Cable, 7/16"x165', Forged End	1
25	Z92301	Keyhole Slider	2
26	5012W218	Support Leg, LH	1
27	5012W217	Support Leg, RH	1
28	Z11311	Clevis Pin, 1/4" x 1-1/8"	1
29	Z12311	Cotter Pin, 1/8" x 1"	1
30	Z92203	1/4 Groove Pulley 2 Diam.	1
31	Z76137	Flange Bolt, 3/8NC x 1-1/4"	2
32	Z12432	Snap Lock Pin, 3/8" x 2-1/2"	2
33	Z71105	Hex Bolt, 1/4NC x 1/2"	2

Main Assembly, S/N 5110559 – 5110679



ECN0408

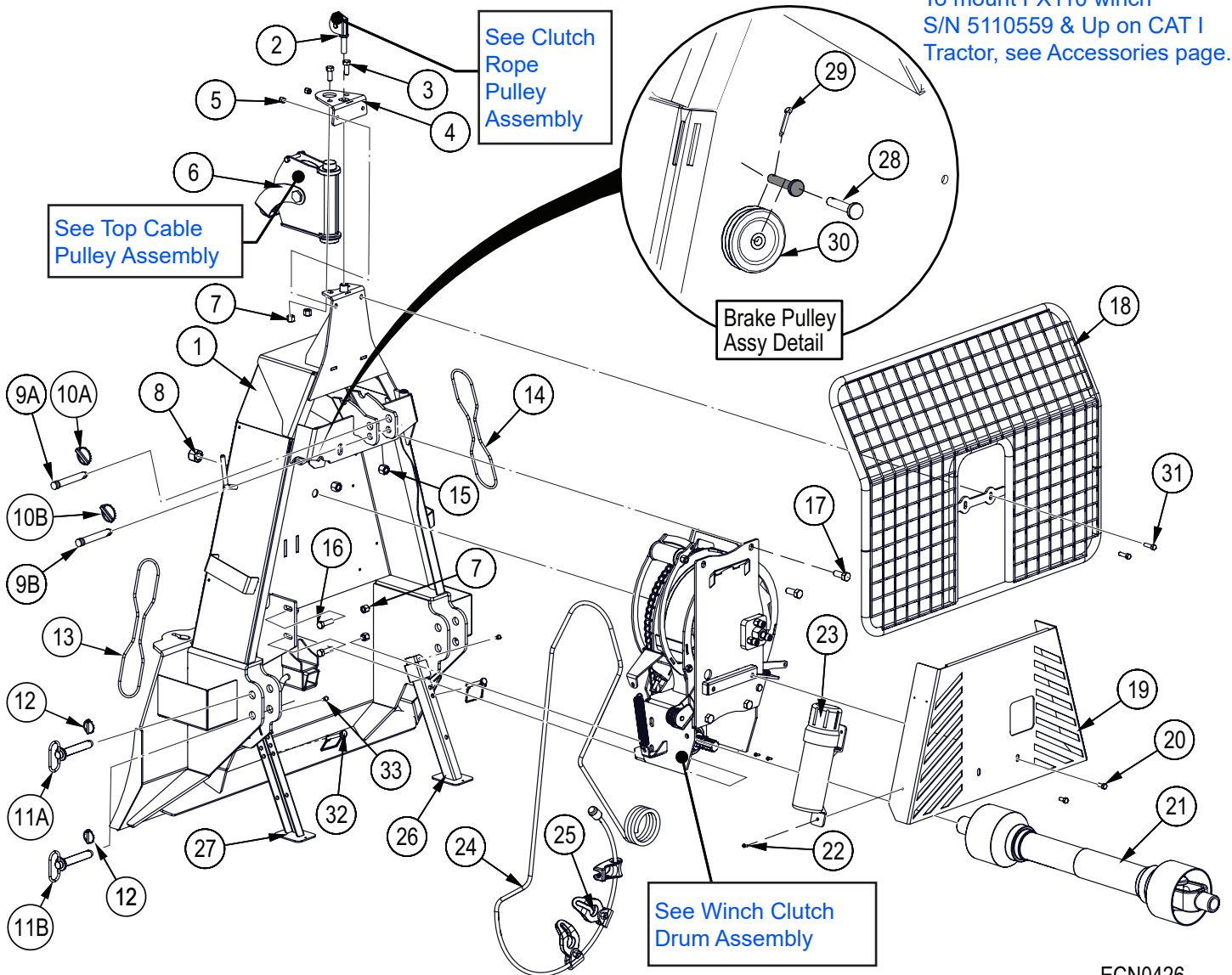
Item No.	Part No.	Description	Qty
1	5012W225	Main Frame	1
2	5012A207	Clutch Rope Pulley	1
3	Z71512	Hex Bolt, 1/2NC x 1-1/4"	2
4	5012L285	Top Pulley Capture Bracket	1
5	Z72231	Hex Lock Nut, 3/8NC	2
6	5012A205	Top Cable Pulley Assembly	1
7	Z72251	Hex Lock Nut, 1/2NC	4
8	Z72281	Hex Lock Nut, 7/8NC	1
9	Z11142	Toplink Pin, 1" x 4-5/16"	1
10	Z12140	Lynch Pin, 7/16"	1
11	Z11271	Hitch Pin, 1-1/8" x 6-1/4"	2
12	Z12110	Lynch Pin, 3/16"	2
13	Z92205	White Nylon Rope 1/4" x 18 ft	1
14	Z92201	Green Nylon Rope, 1/4" x 9-1/2 ft	1
15	Z72261	Hex Lock Nut, 5/8NC	2
16	Z76155	Hex Bolt, 1/2NC x 1-3/4"	2
17	Z76161	Hex Bolt, 5/8NC x 1-1/2"	2

Item No.	Part No.	Description	Qty
18	5012W226	Safety Screen	1
19	5012L325	Lower Protective Shield	1
20	Z76133	Flange Bolt, 3/8NC x 3/4"	2
21	Z44402	#4 Global PTO Shaft M8 Shear	1
22	Z76721	Self-tapping Screw, 1/4 x 3/4"	3
23	Z96503	Manual Tube 3-1/2 Short	1
24	Z92120-1	Winch Cable, 7/16"x165', Forged End	1
25	Z92301	Keyhole Slider	2
26	5012W218	Support Leg, LH	1
27	5012W217	Support Leg, RH	1
28	Z11311	Clevis Pin, 1/4" x 1-1/8"	1
29	Z12311	Cotter Pin, 1/8" x 1"	1
30	Z92203	1/4 Groove Pulley 2 Diam.	1
31	Z76137	Flange Bolt, 3/8NC x 1-1/4"	2
32	Z12432	Snap Lock Pin, 3/8" x 2-1/2"	2
33	Z71105	Hex Bolt, 1/4NC x 1/2"	2

Main Assembly, S/N 5110680 & Up

NOTE:

To mount FX110 winch S/N 5110559 & Up on CAT I Tractor, see Accessories page.

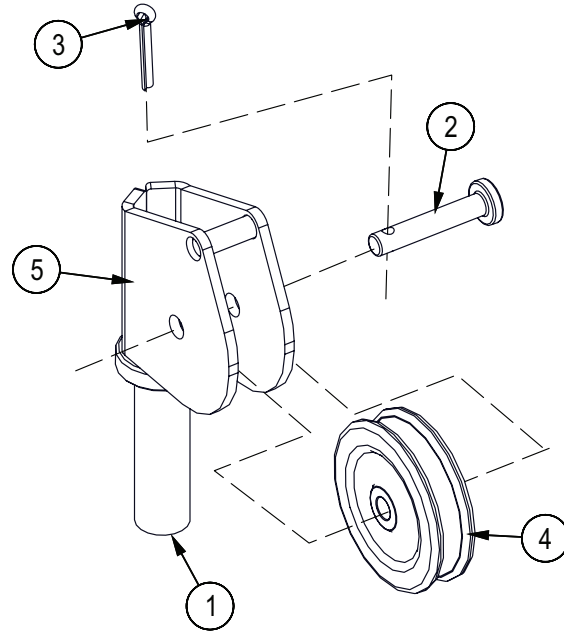


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Item No.	Part No.	Description	Qty
1	5012W225	Main Frame	1
2	5012A207	Clutch Rope Pulley	1
3	Z71512	Hex Bolt, 1/2NC x 1-1/4"	2
4	5012L285	Top Pulley Capture Bracket	1
5	Z72231	Hex Lock Nut, 3/8NC	2
6	5012A205	Top Cable Pulley Assembly	1
7	Z72251	Hex Lock Nut, 1/2NC	4
8	Z72281	Hex Lock Nut, 7/8NC	1
9A	Z11142	Toplink Pin, 1" x 4-5/16"	1
9B	Z11123	Toplink Pin, 3/4" x 4-3/4"	1
10A	Z12110	Lynch Pin, 3/16"	1
10B	Z12140	Lynch Pin, 7/16"	1
11A	Z11271	Hitch Pin, 1-1/8" x 6-1/4"	2
11B	Z11251	Hitch Pin, 7/8" x 4-1/4"	2
12	Z12110	Lynch Pin, 3/16"	4
13	Z92205	White Nylon Rope 1/4" x 18 ft	1
14	Z92201	Green Nylon Rope, 1/4" x 9-1/2 ft	1
15	Z72261	Hex Lock Nut, 5/8NC	2
16	Z76155	Hex Bolt, 1/2NC x 1-3/4"	2

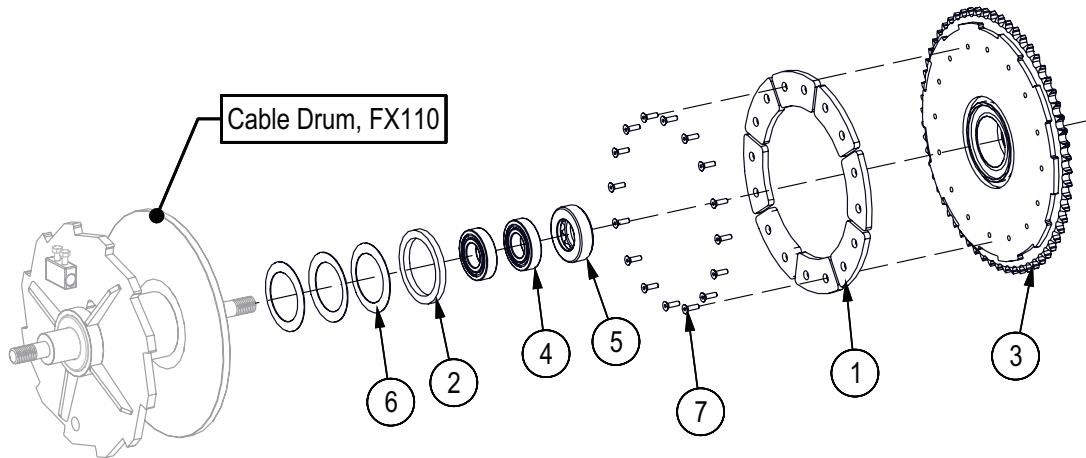
Item No.	Part No.	Description	Qty
17	Z76161	Hex Bolt, 5/8NC x 1-1/2"	2
18	5012W226	Safety Screen	1
19	5012L325	Lower Protective Shield	1
20	Z76133	Flange Bolt, 3/8NC x 3/4"	2
21	Z44402	#4 Global PTO Shaft M8 Shear	1
22	Z76721	Self-tapping Screw, 1/4 x 3/4"	3
23	Z96503	Manual Tube 3-1/2 Short	1
24	Z92120-1	Winch Cable, 7/16"x165', Forged End	1
25	Z92301	Keyhole Slider	2
26	5012W218	Support Leg, LH	1
27	5012W217	Support Leg, RH	1
28	Z11311	Clevis Pin, 1/4" x 1-1/8"	1
29	Z12311	Cotter Pin, 1/8" x 1"	1
30	Z92203	1/4 Groove Pulley 2 Diam.	1
31	Z76137	Flange Bolt, 3/8NC x 1-1/4"	2
32	Z12432	Snap Lock Pin, 3/8" x 2-1/2"	2
33	Z71105	Hex Bolt, 1/4NC x 1/2"	2

Clutch Pulley



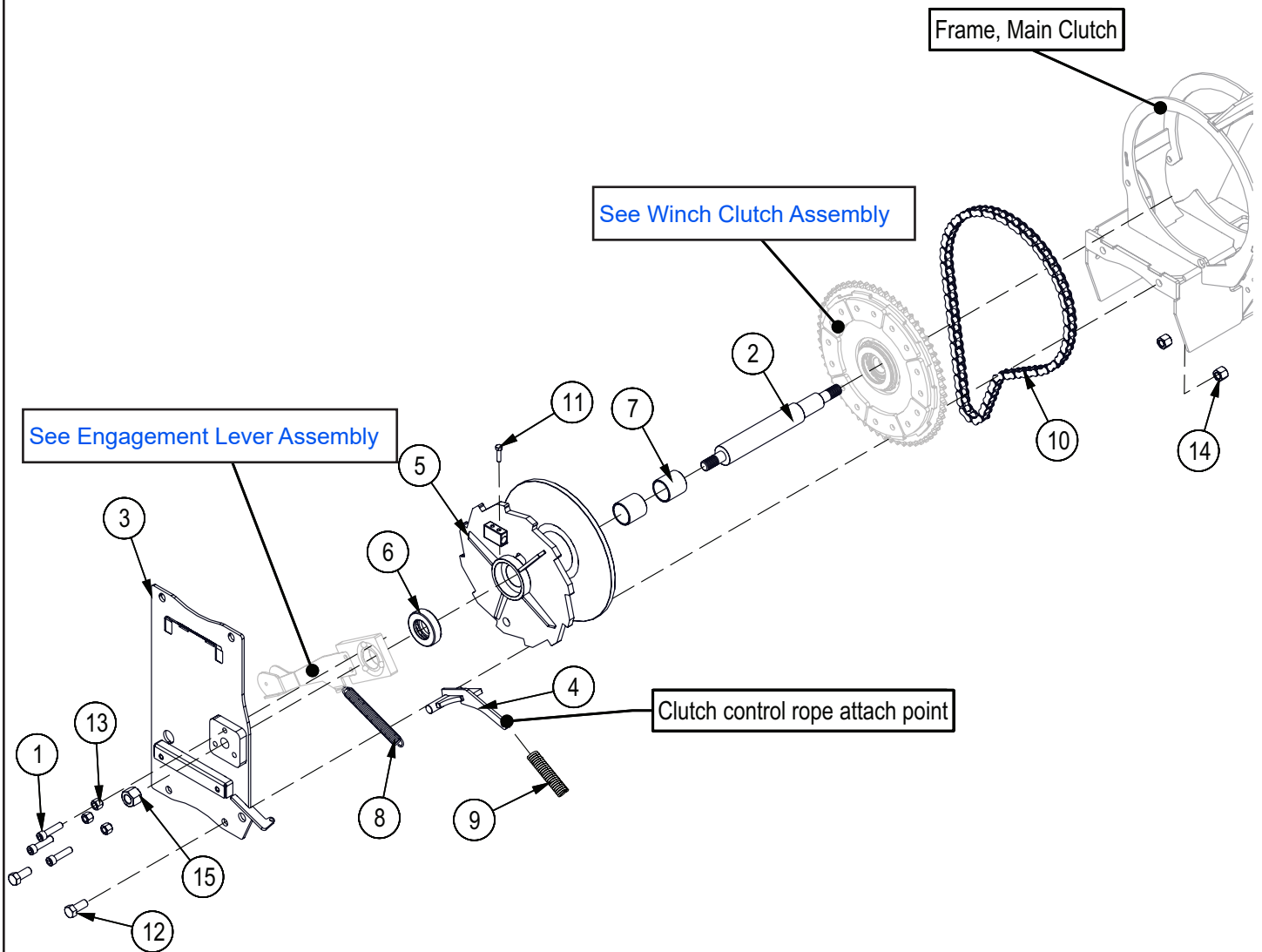
Item No.	Part No.	Description	Qty
1	5012A207	Clutch Rope Pulley	1
2	Z11311	Clevis Pin, 1/4" x 1-1/8"	1
3	Z12311	Cotter Pin, 1/8" x 1"	1
4	Z92203	1/4 Groove Pulley 2 Diam.	1
5	5012W215	Clutch Rope Pulley Housing	1

Clutch Assembly



Item No.	Part No.	Description	Qty
1	5012M215	Clutch Pad Set (8 pieces)	1
2	5012M228	Nylon Bearing Washer	1
3	5012W209	60 Tooth Sprocket	1
4	Z21202	Ball Bearing 6207-2RS	2
5	Z22101	1-3/4 Bore Shielded Thrust Bearing	1
6	Z34101	Cup Spring, 2-3/4" ID x 4" OD x 1mm	3
7	Z75211	FHCS, 1/4NC x 7/8"	16

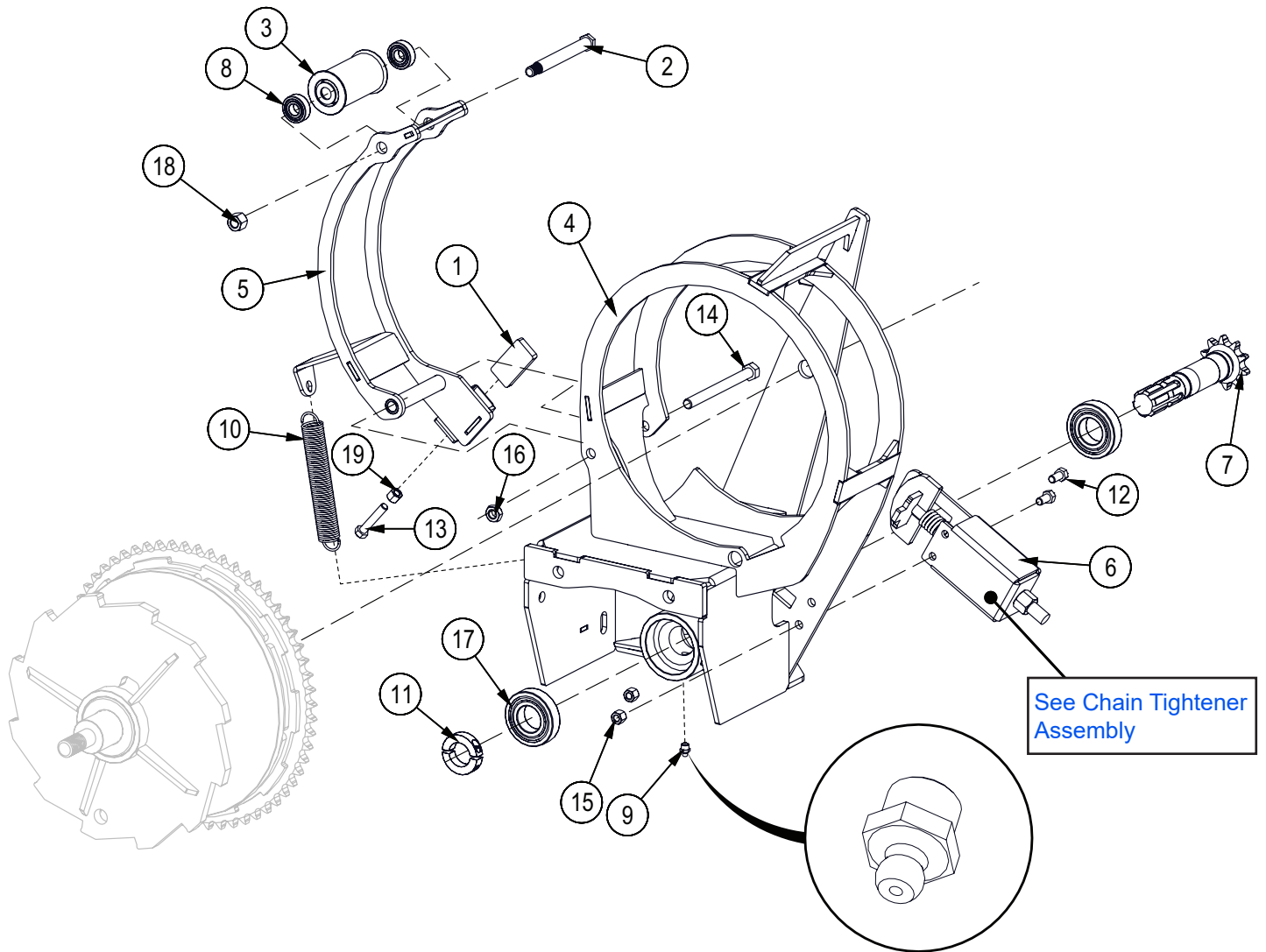
Cable Drum Assembly



Item No.	Part No.	Description	Qty
1	Z75151	SHCS, 1/2NF x 2"	3
2	5012M214	Main Drum Shaft	1
3	5012W203	Drum Frame Capture Plate	1
4	5012W206	Lock Dog	1
5	5012W207	FX90 Cable Drum	1
6	Z22101	1-3/4 Bore Shielded Thrust Bearing	1
7	Z27101	Fiberglide Bearing 1-3/4" ID x 2" long x 1/8" wall	2
8	Z31405	Ext Spring, 7/8" OD x 7" x 0.125"	1
9	Z32401	Comp Spring, 1" OD x 7" x 0.162"	1
10	Z42151	#60 Chain 76 Links	1
11	Z71212	Hex Bolt, 5/16NC x 1-1/4"	1
12	Z71615	Hex Bolt, 5/8NC x 1-1/2"	2
13	Z72352	Jam Nut, 1/2NF	3
14	Z72261	Hex Lock Nut, 5/8NC	2
15	Z72281	Hex Lock Nut, 7/8NC	1

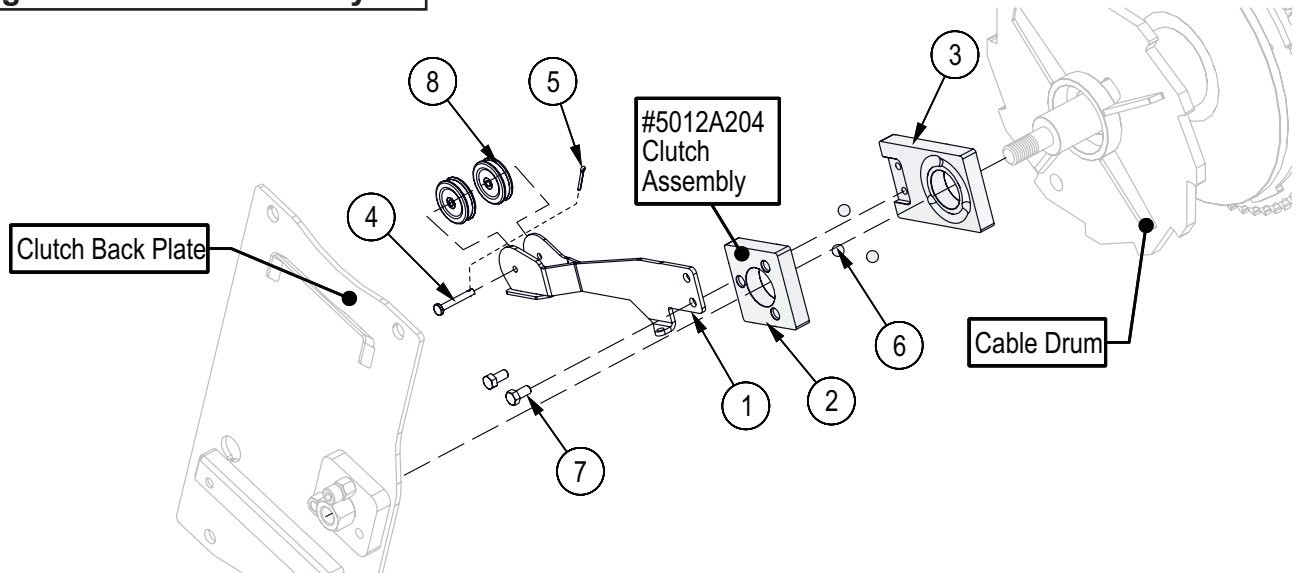
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Drum Frame Assembly



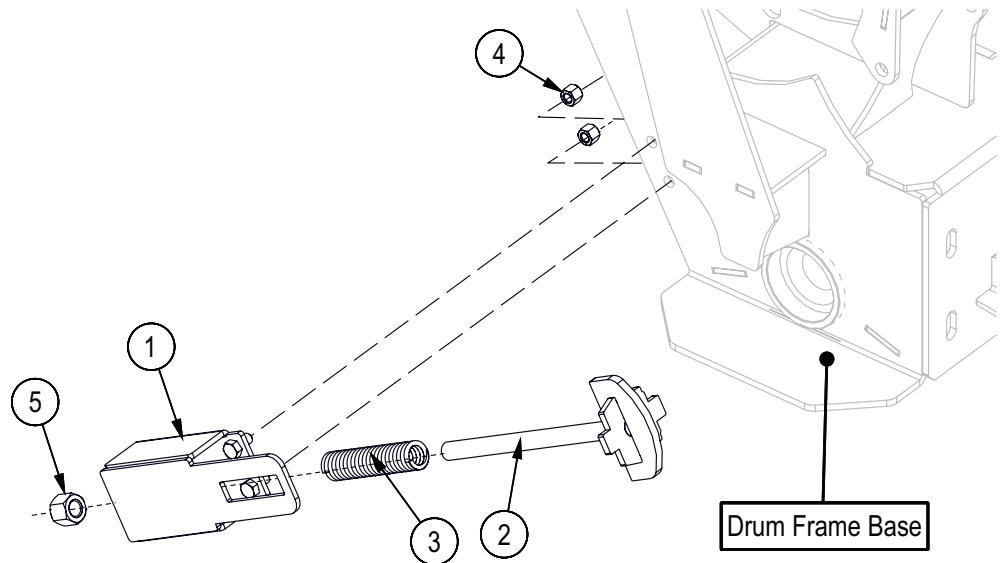
Item No.	Part No.	Description	Qty
1	5012M204	Block, Drum Brake	1
2	5012M205	Cable Roller Pin	1
3	5012M206	Brake Arm Cable Roller	1
4	5012W202	Drum Frame Base	1
5	5012W204	Drum Brake Arm	1
6	5012A203	Single Auto Chain Tightener	1
7	5012W208	PTO Spline Shaft w/ Sprocket	1
8	Z21203	Ball Bearing 6202 2RS	2
9	Z29201	Grease Fitting, 1/8NPT	1
10	Z31403	Ext Spring, 27mm OD x 178mm x 0.105"	1
11	Z46311	Clamp-on Shaft Collar	1
12	Z71307	Hex Bolt, 3/8NC x 3/4"	2
13	Z71320	Hex Bolt, 3/8NC x 2"	1
14	Z71555	Hex Bolt, 1/2NC x 5-1/2"	1
15	Z72231	Hex Lock Nut, 3/8NC	2
16	Z72351	Jam Nut, 1/2NC	1
17	Z21202	Ball Bearing 6207-2RS	2
18	Z72251	Hex Lock Nut, 1/2NC	1
19	Z72531	Serrated Flange Locknut, 3/8NC	1

Engagement Lever Assembly



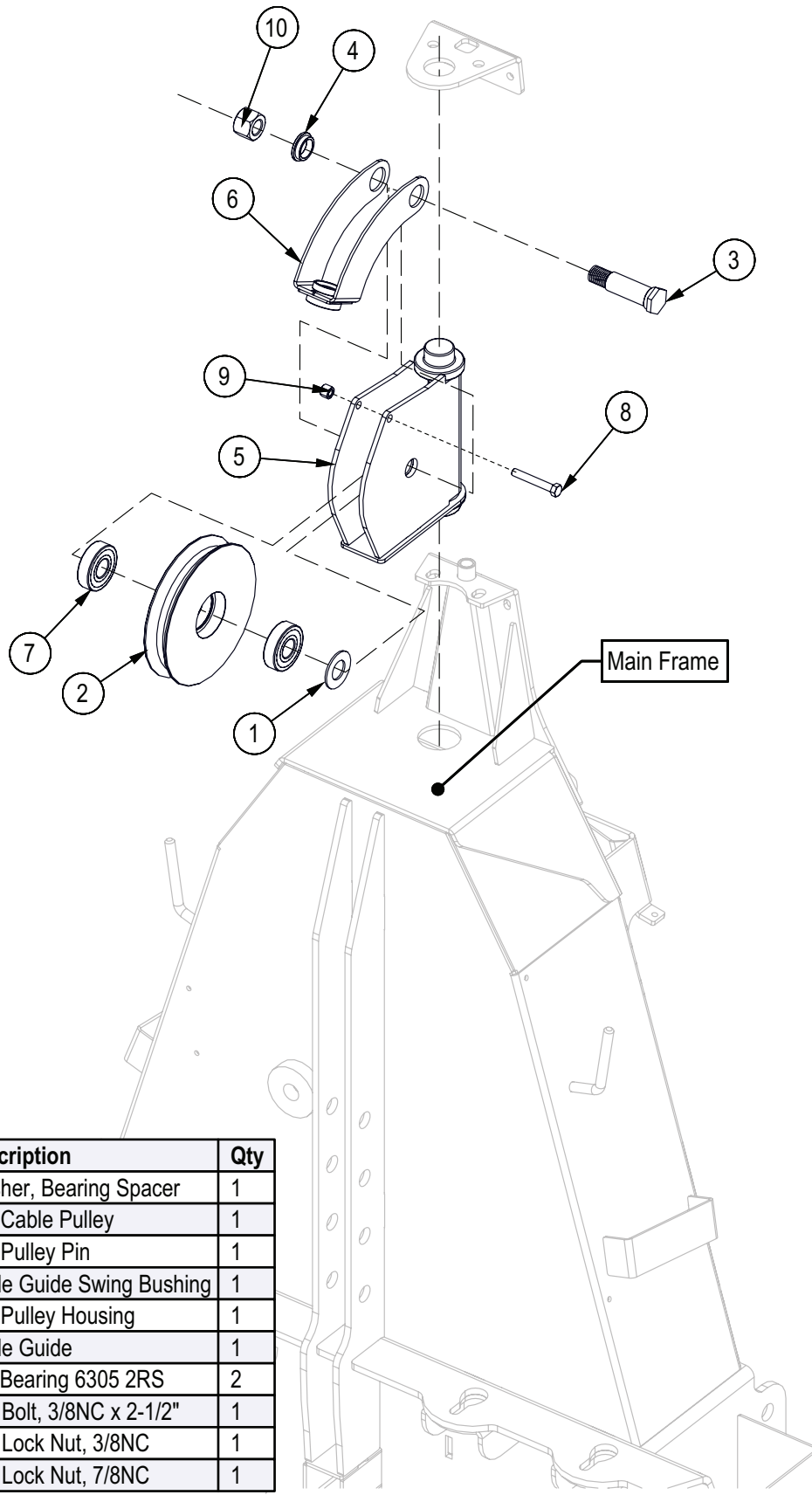
Item No.	Part No.	Description	Qty
1	5012W220	Clutch Lever	1
2	5012M212	Clutch Engagement Nut	1
3	5012M213	Clutch, Engagement Block-Handle	1
4	Z11312	Clevis Pin, 1/4" x 1-5/8"	1
5	Z12311	Cotter Pin, 1/8" x 1"	1
6	Z29101	Roller Ball, 1/2	3
7	Z76133	Flange Bolt, 3/8NC x 3/4"	2
8	Z92203	1/4 Groove Pulley 2 Diam.	2

Chain Tightener Assembly



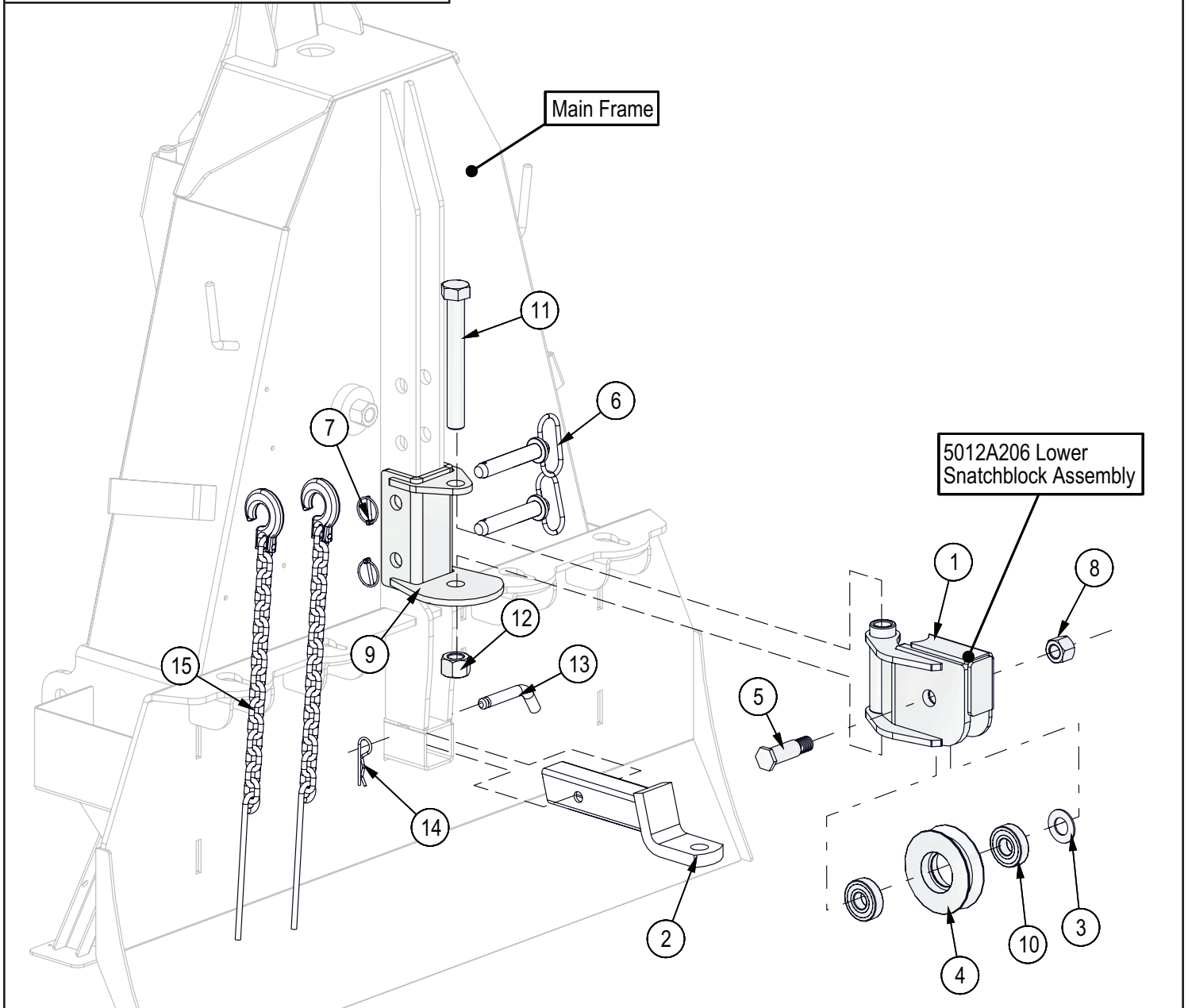
Item No.	Part No.	Description	Qty
1	5012W221	Chain Tightener Housing	1
2	5012W205	Chain Tightener Plunger	1
3	Z32401	Comp Spring, 1" OD x 7" x 0.162"	1
4	Z72531	Serrated Flange Locknut, 3/8NC	2
5	Z72261	Hex Lock Nut, 5/8NC	1

Top Cable Pulley



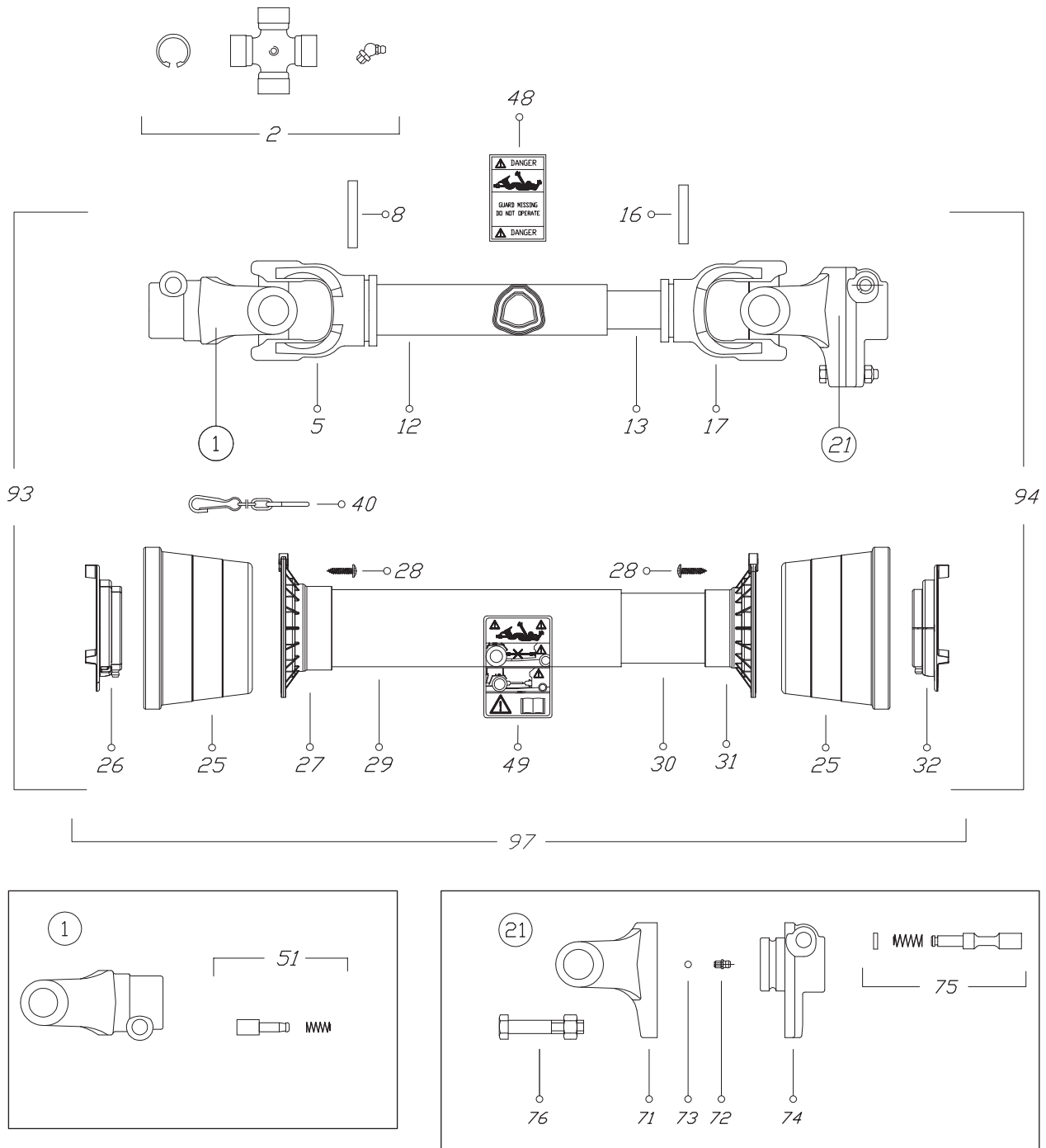
Item No.	Part No.	Description	Qty
1	5012L264	Washer, Bearing Spacer	1
2	5012M220	Top Cable Pulley	1
3	5012M221	Top Pulley Pin	1
4	5012M222	Cable Guide Swing Bushing	1
5	5012W210	Top Pulley Housing	1
6	5012W211	Cable Guide	1
7	Z21201	Ball Bearing 6305 2RS	2
8	Z71325	Hex Bolt, 3/8NC x 2-1/2"	1
9	Z72231	Hex Lock Nut, 3/8NC	1
10	Z72281	Hex Lock Nut, 7/8NC	1

Snatch Block Assembly



Item No.	Part No.	Description	Qty
1	5012W213	Snatchblock Swivel Housing	1
2	Z91641	Ball Mount for 2" Receiver	1
3	5012L264	Washer, Bearing Spacer	1
4	5012M223	Snatch Block Pulley	1
5	5012M224	Snatch Block Pulley Pin	1
6	Z11251	Hitch Pin, 7/8" x 4-1/4"	2
7	Z12110	Lynch Pin, 3/16"	2
8	Z72281	Hex Lock Nut, 7/8NC	1
9	5012W212	Snatchblock Base	1
10	Z21201	Ball Bearing 6305 2RS	2
11	Z71915	Hex Bolt, 1NC x 8"	1
12	Z72291	Hex Lock Nut, 1NC	1
13	Z91641-2	Pin for Z91641	1
14	Z91641-3	Clip for Z91641	1
15	Z92318	Choker Chain, 5/16" x 90"	2

PTO Shaft



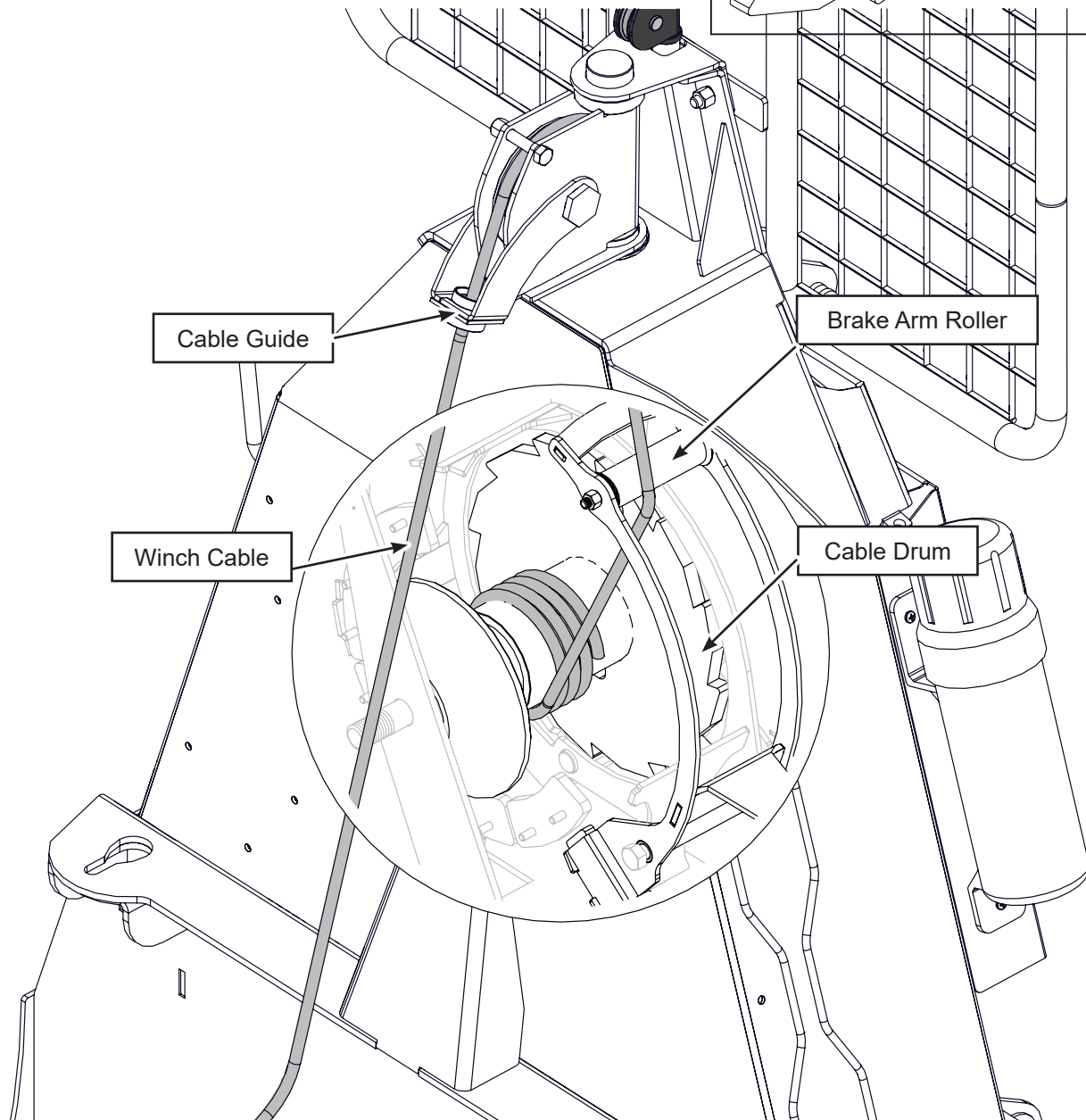
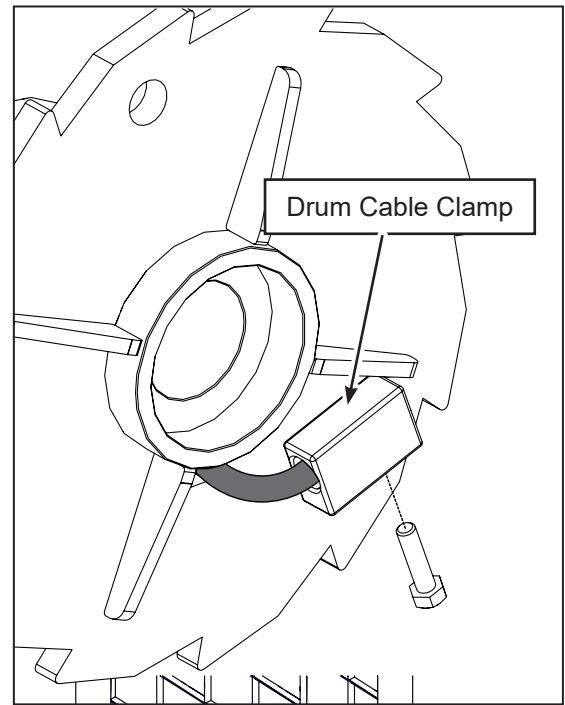
PTO Shaft – P/N Z44402

Item.	Description	Qty.	Part Number
1	YOKE	1	0800403
2	CROSS JOURNAL ASS.	2	08204
5	OUTER TUBE YOKE	1	08004021
8	FLEXIBLE PIN	1	098700860
12	CM. 100 CARDAN TUBE(*)	1	09881433100
13	CM. 100 CARDAN TUBE(*)	1	09881364100
16	FLEXIBLE PIN	1	098700855
17	INNER TUBE YOKE	1	08004011
21	SHEAR BOLT YOKE	1	08805A604633
25	CONE SHIELD BELL 03-04	2	021904C001
26	OUTER BEARING 03-04	1	025504C001
27	OUTER BASE CONE 03-04	1	025404C001
28	SCREW	6	0998052242
29	OUTER SAFETY TUBE	1	0988966NB4061
30	INNER SAFETY TUBE	1	0988961NB4061

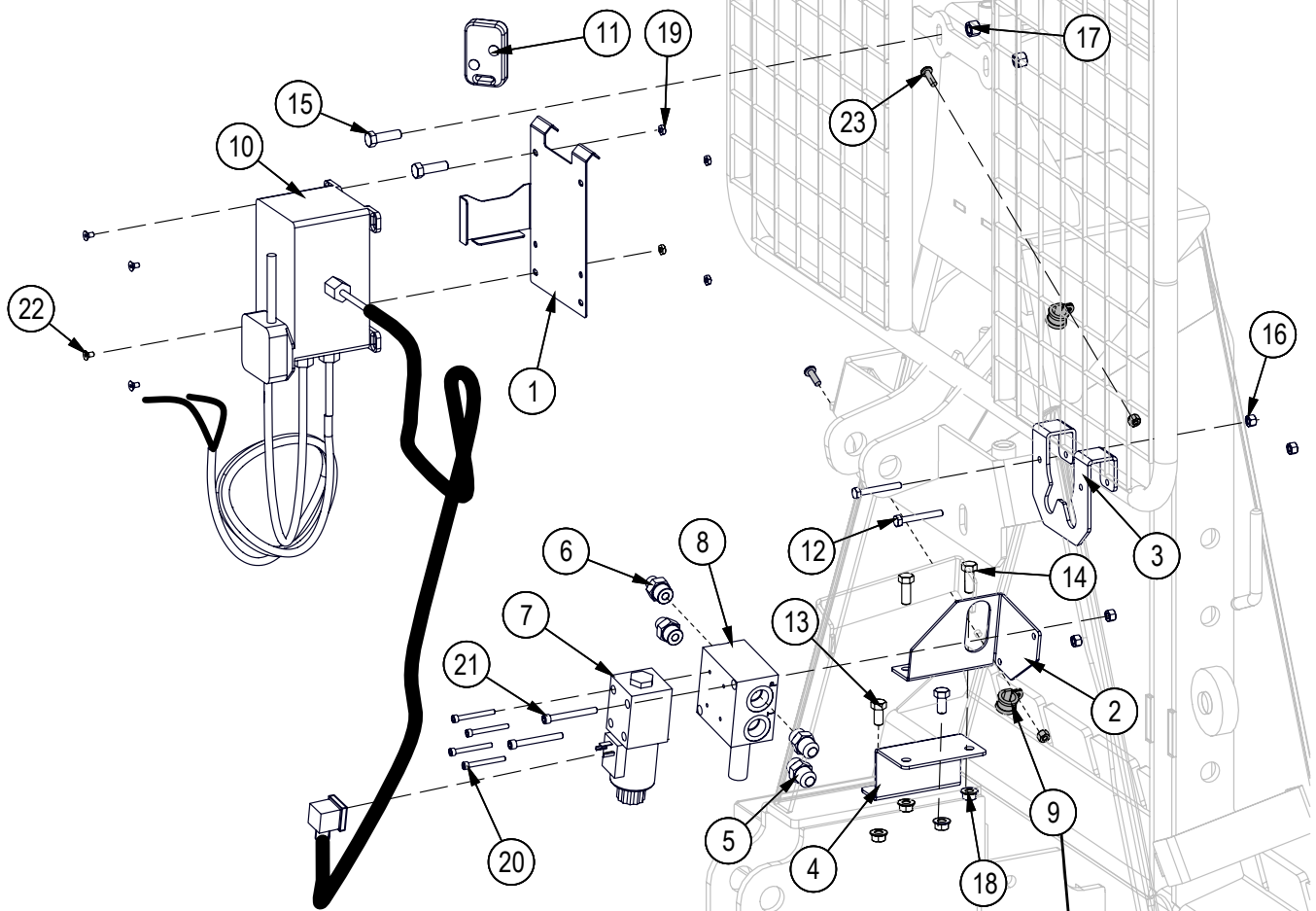
Item.	Description	Qty.	Part Number
31	INNER BASE CONE 03-04	1	025404C002
32	INNER BEARING 03-04	1	025504C002
40	CHAIN	1	0252000001
48	LABEL DANGER OUTER DRIVE TUBE	1	09872006
49	EXTERNAL SHIELD LABEL	1	09872003
51	COMPLETE PUSH BUTTON	1	0986014047
71	YOKE FOR LB4	1	08896904
72	GREASE NIPPLE	1	0984010150
73	STEEL BALL	23	098680104
74	HUB	1	088964
75	PUSH PIN SET	1	0986014075
76	SHEARBOLT AND NUT M8 x 1.25 x 45 10.9	1	Z44902 (Package of 5)
93	OUTER HALF SHAFT	1	B4N061US2
94	INNER HALF SHAFT	1	B4N061US1098
97	SAFETY GUARD	1	083US04061

Cable Install

Feed cable through the eye of cable guide and over the pulley down into drum. Cable must be routed under brake roller on drum band coiler. Insert cable into hole in drum and tighten clamp.

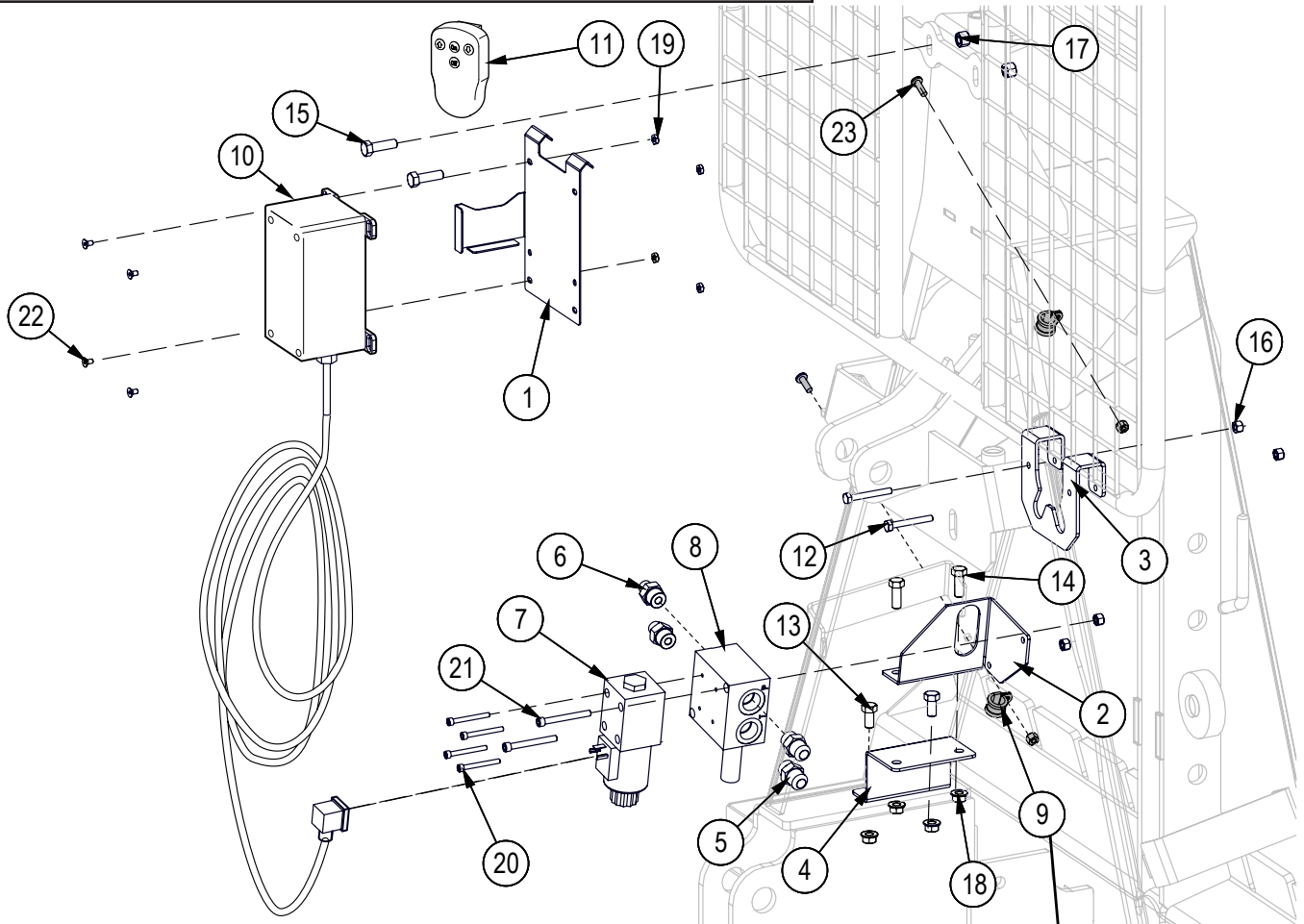


Remote Control Components – FX110R; S/N 51101–5110652



Item No.	Part No.	Description	Qty
1	5089L217	Remote Box Mount	1
2	5089L208	Hydraulic Mount Base	1
3	5089L209	Hose Hanger	1
4	5089L210	Valve Mount Extension	1
5	Z51643	#8ORB x #8JIC	2
6	Z51644	#8ORB x #6JIC	2
7	Z56509	Solenoid 4-2 Valve - Motor Spool	1
8	Z56510	SubPlate with Relief	1
9	Z62819	Rubberized Wire Clamp, 1/2"	2
10	Z66208	Dual State Remote Receiver	1
11	Z66209	Remote Handset for Z66208	1
12	Z71120	Hex Bolt, 1/4NC x 2	2
13	Z71307	Hex Bolt, 3/8NC x 3/4	2
14	Z71310	Hex Bolt, 3/8NC x 1	2
15	Z71312	Hex Bolt, 3/8NC x 1-1/4	2
16	Z72211	Hex Lock Nut, 1/4NC	6
17	Z72231	Hex Lock Nut, 3/8NC	2
18	Z72531	Flange Nut 3/8NC	4
19	Z72752	Machine Nut, #10-32NF	4
20	Z75102	SHCS, #10-24NC x 1-3/4	4
21	Z75117	SHCS, 1/4NC x 2-1/4	2
22	Z75202	FHCS, #10-32NF x 3/8	4
23	Z78301	Machine Screw, 1/4-20NC x 3/4	2

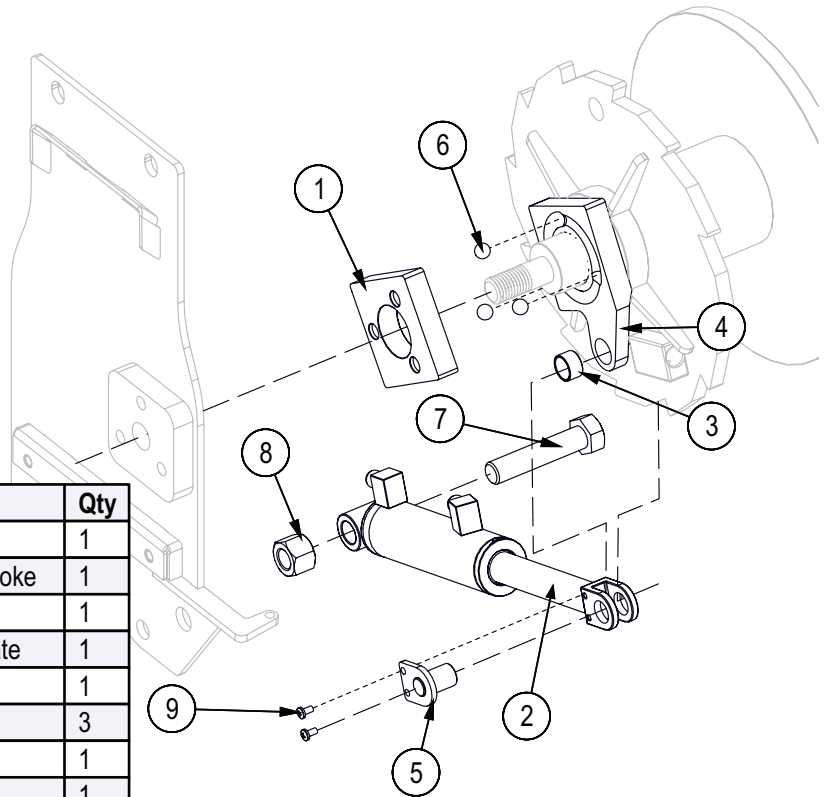
Remote Control Components – FX110R; S/N 5110653 & Up



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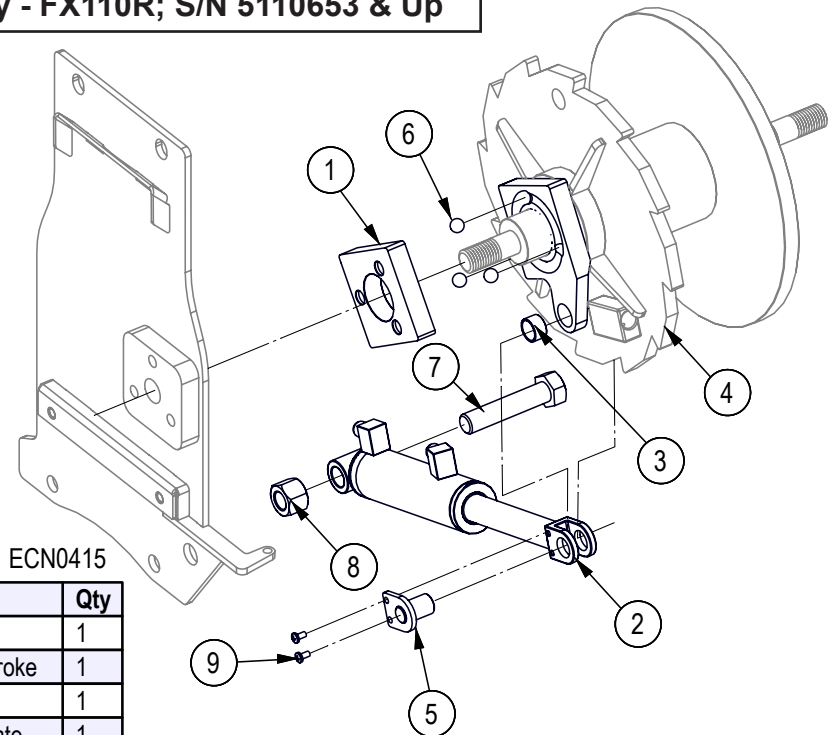
Item No.	Part No.	Description	Qty
1	5089L217	Remote Box Mount	1
2	5089L208	Hydraulic Mount Base	1
3	5089L209	Hose Hanger	1
4	5089L210	Valve Mount Extension	1
5	Z51643	#8ORB x #8JIC	2
6	Z51644	#8ORB x #6JIC	2
7	Z56509	Solenoid 4-2 Valve - Motor Spool	1
8	Z56510	SubPlate with Relief	1
9	Z62819	Rubberized Wire Clamp, 1/2"	2
10	Z66218	Dual State Remote Receiver	1
11	Z66219	Remote Handset for Z66218	1
12	Z71120	Hex Bolt, 1/4NC x 2	2
13	Z71307	Hex Bolt, 3/8NC x 3/4	2
14	Z71310	Hex Bolt, 3/8NC x 1	2
15	Z71312	Hex Bolt, 3/8NC x 1-1/4	2
16	Z72211	Hex Lock Nut, 1/4NC	6
17	Z72231	Hex Lock Nut, 3/8NC	2
18	Z72531	Flange Nut 3/8NC	4
19	Z72752	Machine Nut, #10-32NF	4
20	Z75102	SHCS, #10-24NC x 1-3/4	4
21	Z75117	SHCS, 1/4NC x 2-1/4	2
22	Z75202	FHCS, #10-32NF x 3/8	4
23	Z78301	Machine Screw, 1/4-20NC x 3/4	2

Cylinder / Clutch Plate Assembly - FX110R; S/N 51101-5110652



Item No.	Part No.	Description	Qty
1	5012M212	Clutch Engagmnet Nut	1
2	5089C201	Cylinder, 1-1/2" x 3-1/2 Stroke	1
3	5089M202	Bushing	1
4	5089M203	Remote Control Clutch Plate	1
5	5089W201	Cylinder Pin	1
6	Z29101	Roller Ball, 1/2	3
7	Z71735	Hex Bolt, 3/4NC x 3-1/2	1
8	Z72271	Hex Lock Nut, 3/4NC	1
9	Z78302	Machine Screw, #10-32NF x 3/8	2

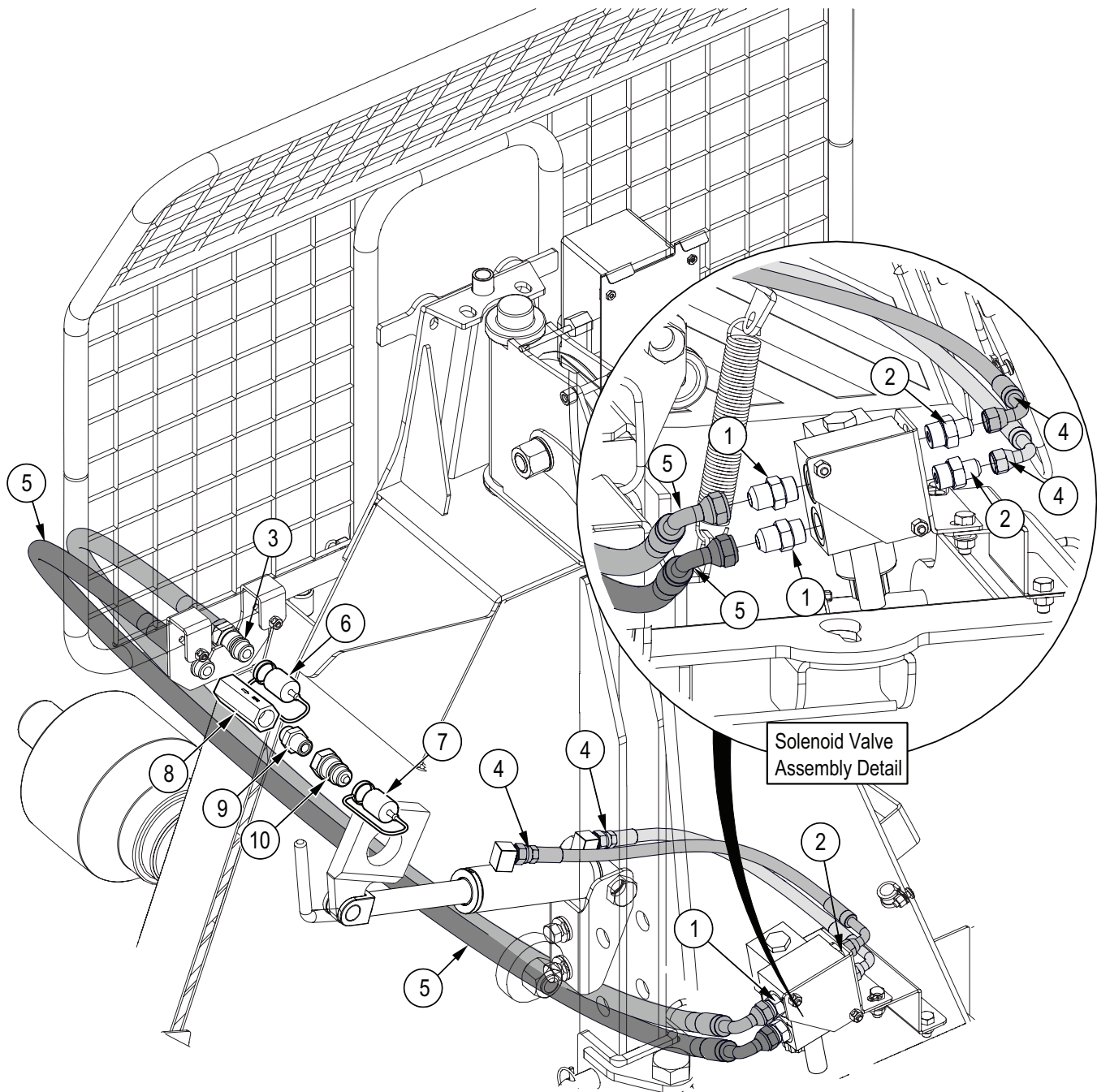
Cylinder / Clutch Plate Assembly - FX110R; S/N 5110653 & Up



ECN0415

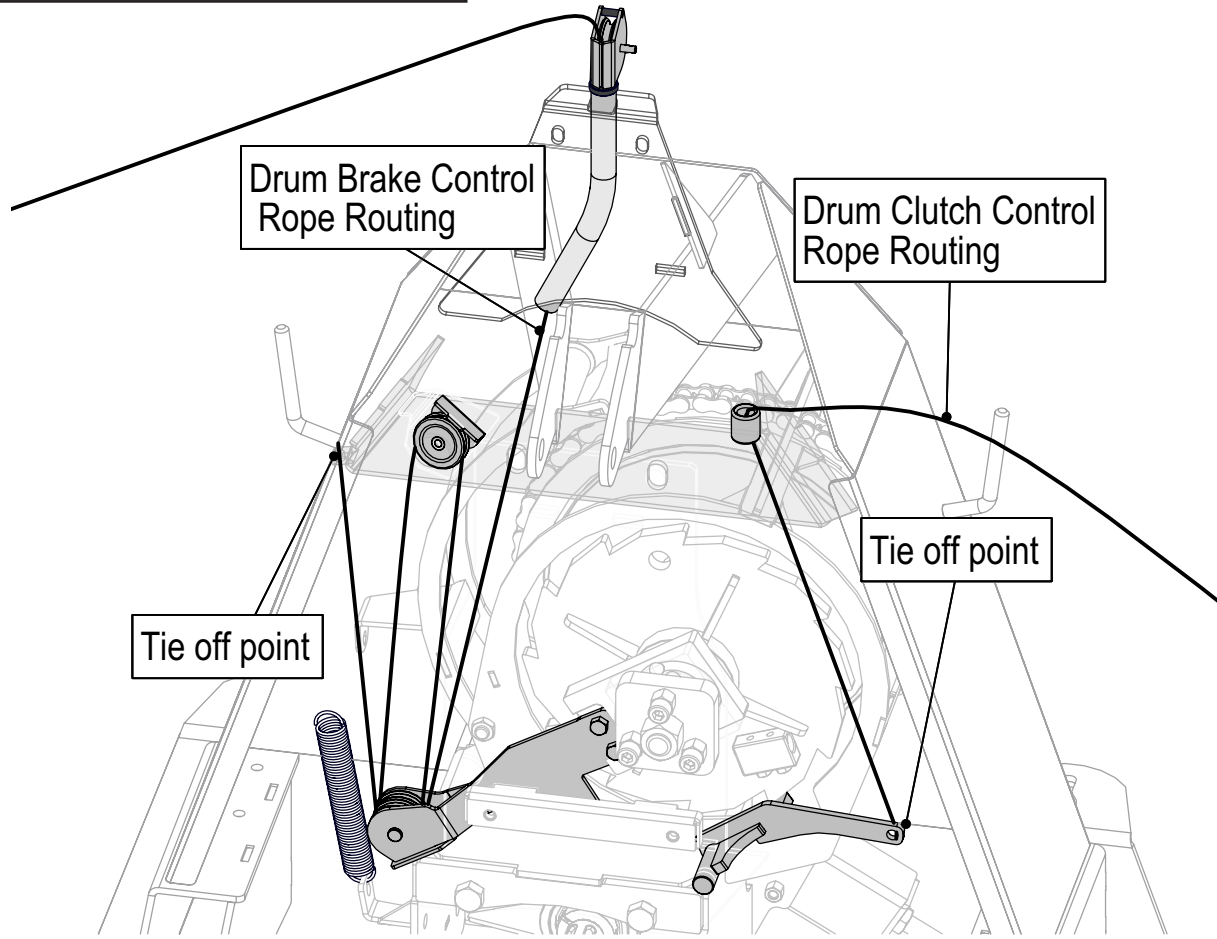
Item	Part Number	Description	Qty
1	5012M212	Clutch Engagment Nut	1
2	5089C202	Cylinder, 1-1/2" x 3-1/2 Stroke	1
3	5089M202	Bushing	1
4	5089M203	Remote Control Clutch Plate	1
5	5089W201	Cylinder Pin	1
6	Z29101	Roller Ball, 1/2	3
7	Z71735	Hex Bolt, 3/4NC x 3-1/2	1
8	Z72271	Hex Lock Nut, 3/4NC	1
9	Z78302	Machine Screw, #10-32NF x 3/8	2

Hydraulic Circuit – FX110R

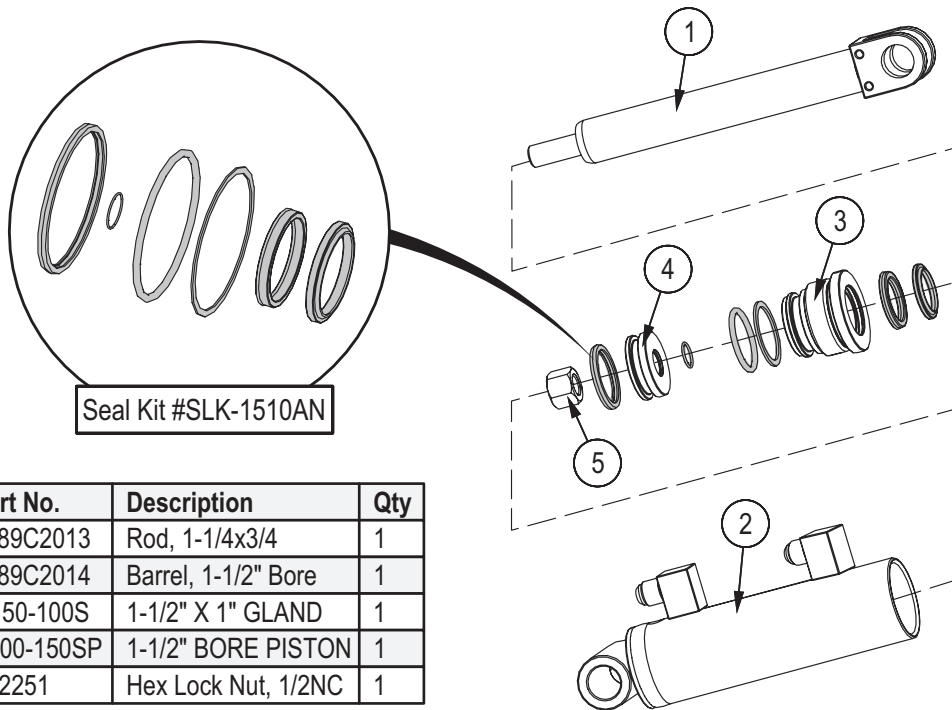


Item No.	Part No.	Description	Qty
1	Z51643	Straight, MJIC x MORB 0808	2
2	Z51644	Straight, MJIC x MORB 0608	2
3	Z51926	Quick Coupler, FP08 x M ISO 7241-1	2
4	Z52124	1/4" Hose, FJIC06 x 90 FJIC06 x 26"	2
5	Z52342	1/2" Hose, 90FJIC08 x MP08 x 60"	2
6	Z52831	Nipple Cap, ISO 7241-1 x Red	1
7	Z52832	Nipple Cap, ISO 7241-1 x Black	1
8	Z56109	Check Valve, ORB08 x 72psi	1
9	Z51615	Straight, MORB x MP 0808	1
10	Z51926	Quick Coupler, FP08 x M ISO 5675 IRV	1

Brake and Clutch Rope Routing



Hydraulic Cylinder Detail – FX110R

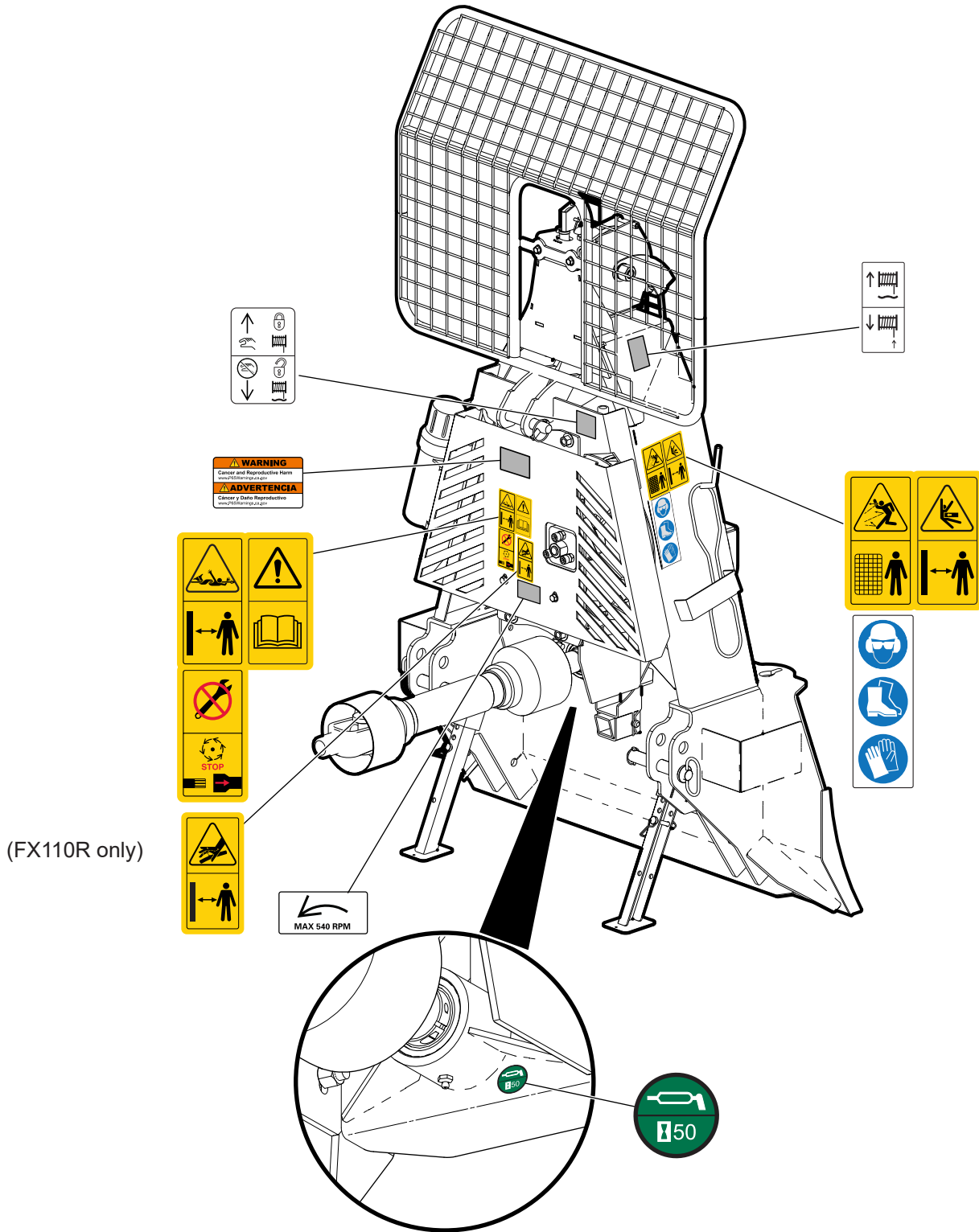


Item No.	Part No.	Description	Qty
1	5089C2013	Rod, 1-1/4x3/4	1
2	5089C2014	Barrel, 1-1/2" Bore	1
3	G150-100S	1-1/2" X 1" GLAND	1
4	P500-150SP	1-1/2" BORE PISTON	1
5	Z72251	Hex Lock Nut, 1/2NC	1

Decal Layout

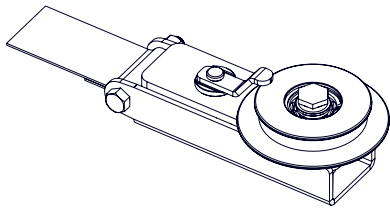
IMPORTANT! If parts are replaced that have safety signs on them, new signs must be applied. Safety signs must always be replaced if they become damaged, are removed, or become illegible.

Safety signs are included in the product decal kit available from your authorized dealer. Decals are not available separately.

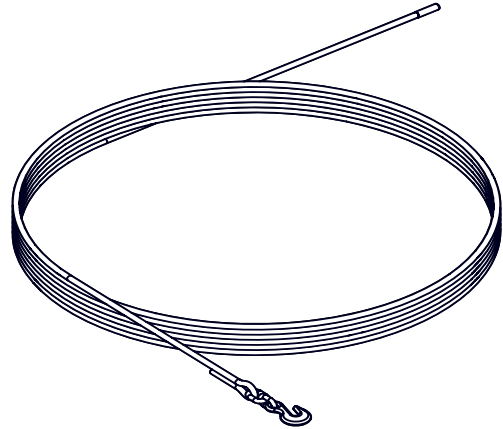


(FX110R only)

Accessories

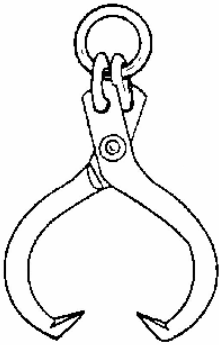


Self Releasing Snatch Block – P/N 5089A100

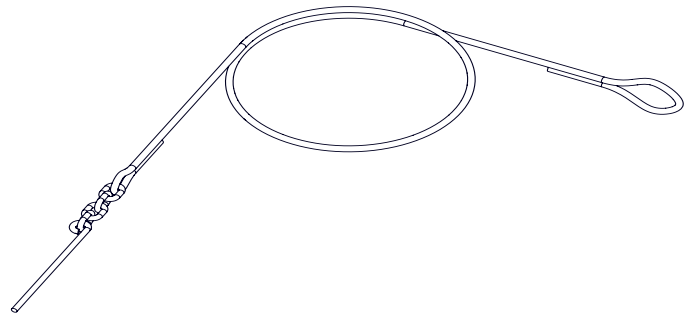


Synthetic Mainline with Hook – P/N Z92124

200 ft (61 m) x 1/2" (12.7 mm) diameter



Logging Tongs – P/N Z99003



5 ft (1.5 m) Synthetic Choker with Rod Chain End – P/N Z92125

7 ft (2.1 m) Synthetic Choker with Rod Chain End – P/N Z92126

Mount FX110 (S/N 5110559 & Up) on CAT I tractor requires the following parts:

- Qty 1 – SB-FX110-01 Kit
- Qty 2 – Z11122 Toplink Pins
- Qty 2 – Z11251 Hitch Pins


Common Bolt Torque Values

Checking Bolt Torque

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

IMPORTANT! If replacing hardware, use fasteners of the same grade.

IMPORTANT! Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.

 **NOTE:** Bolt grades are identified by their head markings.

Imperial Bolt Torque Specifications

Bolt Diameter	Torque Value					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4"	6	8	9	12	12	17
5/16"	10	13	19	25	27	36
3/8"	20	27	33	45	45	63
7/16"	30	41	53	72	75	100
1/2"	45	61	80	110	115	155
9/16"	60	95	115	155	165	220
5/8"	95	128	160	215	220	305
3/4"	165	225	290	390	400	540
7/8"	170	230	420	570	650	880
1"	225	345	630	850	970	1320



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

Metric Bolt Torque Specifications

Bolt Diameter	Torque Value			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1 495	1,550	2 100



8.8



10.9

Hydraulic Fitting Torque Values

Tightening Flare Type Tube Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Hand-tighten swivel nut until snug.
4. To prevent twisting the tube, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second. Torque to values shown.

If a torque wrench is not available, use the FFFT (Flats From Finger Tight) method.

Hydraulic Fitting Torque					
Tube Size OD	Hex Size Across Flats	Torque value		Flats From Finger Tight	
		lbf•ft	N•m	Flats	Turns
3/16	7/16	6	8	2	1/6
1/4	9/16	11–12	15–17	2	1/6
5/16	5/8	14–16	19–22	2	1/6
3/8	11/16	20–22	27–30	1-1/4	1/6
1/2	7/8	44–48	59–65	1	1/6
5/8	1	50–58	68–79	1	1/6
3/4	1-1/4	79–88	107–119	1	1/8
1	1-5/8	117–125	158–170	1	1/8

Values shown are for non-lubricated connections.