USE AND MAINTENANCE MANUAL WITH SPARE PARTS

CODE: 80000 Series

Contents

1. Safety Instructions and Danger Signs to be Observed

Warning Signs

Warning:

Safety prescriptions and rules to protect the driver and the other person in the area against the risk of injury or death.

Caution:

Special Instructions to prevent damaging the vehicle. Failure to observe these instructions may lead to cancellation of the warranty.

NB:

Special instructions for better operation, control and adjustment procedures during functioning as well as the most correct maintenance procedures.

1.1. Introduction

These operating instructions form an integral part of this undercarriage. They must be kept within reach and accompany the undercarriage in the event that it is sold.

All the parts, data and illustrations contained in these operating instructions are subject to modifications based on technological developments and improvements. All rights reserved.

No update service is provided for these operating instructions.

All the information on the most recent developments can be obtained by contacting:

Wolfe Heavy Equipment
700 Wright St.
Strathroy Ontario
Canada
N7G 3H8

All the drawings contained in this manual are only by way of illustration and may not correspond to the components actually installed on the relative undercarriage. Other components not contemplated in this manual may also be installed on the undercarriage. Vice versa, components not found on this undercarriage may be mentioned in this manual. All the components and the relative functions are subject to modification.

1.2. General

This undercarriage has been constructed to the highest standards and is functionally safe. Nonetheless, the undercarriage may be a source of danger if you continue using it even when you suspect or find a malfunction or if it has been incorrectly repaired.

In these circumstances, there may be:
- **A risk of death and injury to the limbs**
- **A risk to the undercarriage and other structures or equipment, etc.**

Immediately stop the undercarriage if you suspect or find a fault that may jeopardize the safety of the operator, other persons in the vicinity, or structures and equipment, etc.

All the components have carefully been coupled. Fault-free operation and a long operating life can be obtained only if original spare parts are used.

1.3. Instructions For Safety in the Workplace

1.3.1. Operators and Equipment

Only qualified and authorized persons with adequate knowledge of the sector should be appointed to carry out maintenance and repair operations.

Before carrying out any work on an undercarriage, adopt appropriate preventive measures to ensure that it cannot start off on its own or unintentionally be started by third parties (for example, using wedges). In this connection, strictly follow all the starting and stopping procedures.

Wear protective clothing and safety devices for any type of work. Always wear a hardhat, safety shoes and protective gloves. Tight-fitting clothes help prevent accidents.
Once assembled, the complete machine is intended to be used by expert operators. Use by the public is not permitted.

Under no circumstances is it permitted to stand under the machine during its operation. If you need to access this area during maintenance operations, make sure that the machine has stopped.
If you need an assistant to carry out a particular job, establish the respective responsibilities before starting the job so that there will not be any doubts relating to the safety aspects.

1.3.2. Tools and Equipment

Tools, hoists, locking devices, jacks and other working tools must be in perfectly safe working order.
All the hoisting and fastening devices on the tracked undercarriage are exclusively designed for transporting the undercarriage unless otherwise specified.

Metal chips may detach while screwing or unscrewing fastening bolts and may cause serious injury. For this reason, always wear protective goggles when carrying out these procedures.

Equipment or components to be fitted or removed, or if the relative fitting position is changed, must be fastened using appropriate hoisting gear or support devices to prevent accidental movements, shifting or falling.

Systems (e.g. Elastomer Unit) must be properly depressurized before opening them.

Hydraulic or mechanical parts with pre-loaded spring must be replaced as complete units in the event of damage. Further information in this regard is given in the relative descriptions of the components and/or in the fitting and removal instructions.

2. Warranty

The applicable warranty conditions are stipulated in the order confirmation.

THE WARRANTY RIGHTS ARE FORFEITED IN THE FOLLOWING CASES:

 Damage resulting from malfunctioning caused by incorrect use or incorrect operation.

 Repairs or modifications made by unqualified and unauthorized persons.

 Damage caused by accessories or spare parts used without prior approval from Wolfe Heavy Equipment.

3. General Operating and Service Instructions

3.1. Intended Use

The undercarriage has been designed and assembled to be incorporated in the Wolfe Heavy Equipment drainage plows. Its function is to support and move the upper part of the machine (frame, cabin, equipment, etc.)

3.1.2. Table of Screw Tightening Torques

These tables are not applicable for fastening the shoes on the chain (for these see paragraph 9.4.3).

Torque-Tension Relationship for Metric Fasteners

Caution: All material included in this chart is advisory only, and its use by anyone is voluntary. In developing this information, Fastenal has made a determined effort to present its contents accurately. Extreme caution should be used when using a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury.

Nominal Dia. (mm)	Pitch	4.6 Class 4.6			8.8 Class 8.8				10.9 Class 10.9				Class 12.9			
		Clamp Load (lbs)	Tightening Torque		Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque		
			K = 0.15	K = 0.20		Ecoguard	K = 0.15	K = 0.20		Ecoguard	K = 0.15	K = 0.20		Ecoguard	K = 0.15	K = 0.20
4	0.7	333	8 in-lbs	10 in-lbs	858	18 in-lbs	20 in-lbs	27 in-lbs	1228	25 in-lbs	29 in-lbs	39 in-lbs	1436	29 in-lbs	34 in-lbs	45 in-lbs
5	0.8	538	16	21	1387	35	41	55	1985	51	59	78	2319	59	68	91
6	1	763	27	36	1968	60	70	93	2816	86	100	133	3291	101	117	155
7	1	1095	45	60	2822	101	117	156	4039	145	167	223	4720	169	195	260
8	1.25	1389	66	87	3580	147	169	226	5123	210	242	323	5987	245	283	377
10	1.5	2200	10.8 ft-lbs	14.4 ft-lbs	5671	24.2 ft-lbs	27.9 ft-lbs	37.2 ft-lbs	8115	34.6 ft-lbs	39.9 ft-lbs	53.2 ft-lbs	9484	40.4 ft-lbs	46.7 ft-lbs	62.2 ft-lbs
12	1.75	3197	18.9	25.2	8240	42.2	48.7	64.9	11792	60.4	69.6	92.9	13781	70.5	81.4	108.5
14	2	4379	30.2	40.2	11289	67.4	77.8	103.7	16154	96.5	111.3	148.4	18879	112.7	130.1	173.4
16	2	5943	47	62	15320	105	121	161	21924	150	173	230	25622	175	202	269
18	2.5	7301	65	86	19471	149	172	230	26934	207	239	318	31477	242	279	372
20	2.5	9286	91	122	24763	211	244	325	34256	292	337	450	40034	341	394	525
22	2.5	11509	125	166	30692	288	332	443	42457	398	460	613	49619	466	537	716
24	3	13372	158	211	35659	365	421	562	49329	505	583	777	57649	590	681	908
27	3	17428	232	309	46474	535	618	823	64288	740	854	1139	75132	865	998	1331
30	3.5	21266	314	419	56709	726	837	1116	78448	1004	1158	1544	91680	1173	1354	1805
33	3.5	26310	427	570	70160	987	1139	1519	97055	1366	1576	2102	113425	1596	1842	2456
36	4	30982	549	732	82620	1269	1464	1952	114291	1755	2025	2700	133569	2051	2366	3155

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Clamp loads estimated as 75% of proof load for specified bolts.

Torque values listed in inch-pounds through and including M8; M10 and over are in ft-pounds .

Torque values calculated from formula T=KDF where; K=0.13 when coated with Ecoguard, K=0.15 for "lubricated" condition, K=0.20 for plain and dry condition

Torque-Tension Relationship ISO 898-1 Property Class 4.6, 8.8, 10.9 & 12.9 Metric Course Thread

Caution: All material included in this chart is advisory only, and its use by anyone is voluntary. In developing this information, Fastenal has made a determined effort to present its contents accurately. Extreme caution should be used when using a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury.

	Nominal Dia (mm)	5	6	8	10	12	14	16	18	20	22	24	27	30	33	36	39
	Thread Pitch	0.8	1	1.25	1.5	1.75	2	2	2.5	2.5	2.5	3	3	3.5	3.5	4	4
ISO 898-1 Property Class 4.6	Min Tensile (N)	5680	8040	14640	23200	33720	46000	62800	76800	98000	121200	141200	183600	224400	277600	326800	390400
	Min Proof Strength (N)	3195	4523	8235	13050	18968	25875	35325	43200	55125	68175	79425	103275	126225	156150	183825	219600
	Clamp Load (N)	2396	3392	6176	9788	14226	19406	26494	32400	41344	51131	59569	77456	94669	117113	137869	164700
																	
	Min Tensile (lbs)	1278	1809	3294	5220	7587	10350	14130	17280	22050	27270	31770	41310	50490	62460	73530	87840
	Min Proof Strength (lbs)	719	1018	1853	2936	4268	5822	7948	9720	12403	15339	17871	23237	28401	35134	41361	49410
	Clamp Load (lbs)	539	763	1390	2202	3201	4366	5961	7290	9302	11505	13403	17428	21300	26350	31020	37058
		Torque (Nm)															
	Ecoguard	1.6	2.6	6.4	12.7	22.2	35.3	55.1	75.8	107	146	186	272	369	502	645	835
	Lubricated	1.9	3.3	7.9	15.7	27.3	43.5	67.8	93.3	132	180	229	335	454	618	794	1028
	Dry	2.4	4.1	9.9	19.6	34.1	54.3	84.8	117	165	225	286	418	568	773	993	1285
		Torque (ft-lbs)															
	Ecoguard	1.1	2.0	4.7	9.4	16.4	26.1	40.6	55.9	79.3	108	137	201	272	371	476	616
	Lubricated	1.3	2.3	5.5	10.8	18.9	30.1	46.9	64.5	91.5	124	158	231	314	428	549	711
ISO 898-1 Property Class 8.8	Min Tensile (N)	11360	16080	29280	46400	67440	92000	125600	159360	203350	251490	292990	380970	465630	576020	678110	810080
	Min Proof Strength (N)	8236	11658	21228	33640	48894	66700	91060	115200	147000	181800	211800	275400	336600	416400	490200	585600
	Clamp Load (N)	6177	8744	15921	25230	36671	50025	68295	86400	110250	136350	158850	206550	252450	312300	367650	439200
																	
	Min Tensile (lbs)	2556	3618	6588	10440	15174	20700	28260	35856	45754	56585	65923	85718	104767	129605	152575	182268
	Min Proof Strength (lbs)	1853	2623	4776	7569	11001	15008	20489	25920	33075	40905	47655	61965	75735	93690	110295	131760
	Clamp Load (lbs)	1390	1967	3582	5677	8251	11256	15366	19440	24806	30679	35741	46474	56801	70268	82721	98820
	Ecoguard	4.0	6.8	16.6	32.8	57.2	91.0	142	202	287	390	496	725	985	1340	1721	2227
	Lubricated	4.6	7.9	19.1	37.8	66.0	105	164	233	331	450	572	837	1136	1546	1985	2569
	Dry	6.2	10.5	25.5	50.5	88.0	140	219	311	441	600	762	1115	1515	2061	2647	3426
		Torque (ft-lbs)															
	Ecoguard	3.0	5.0	12.2	24.2	42.2	67.2	105	149	211	288	366	535	726	988	1269	1642
	Lubricated	3.4	5.8	14.1	27.9	48.7	77.5	121	172	244	332	422	617	838	1140	1464	1895
	Dry	4.6	7.7	18.8	37.2	64.9	103	161	229	325	443	562	823	1117	1520	1952	2527
ISO 898-1 Property Class 10.9	Min Tensile (N)	14768	20904	38064	60320	87672	119600	163280	199680	254800	315120	367120	477360	583440	721760	849680	1015040
	Min Proof Strength (N)	11786	16683	30378	48140	69969	95450	130310	159360	203350	251490	292990	380970	465630	576020	678110	810080
	Clamp Load (N)	8840	12512	22784	36105	52477	71588	97733	119520	152513	188618	219743	285728	349223	432015	508583	607560
	Min Tensile (lbs)	3323	4703	8564	13572	19726	26910	36738	44928	57330	70902	82602	107406	131274	162396	191178	228384
	Min Proof Strength (lbs)	2652	3754	6835	10832	15743	21476	29320	35856	45754	56585	65923	85718	104767	129605	152575	182268
	Clamp Load (lbs)	1989	2815	5126	8124	11807	16107	21990	26892	34315	42439	49442	64289	78575	97203	114431	136701
		Torque (Nm)															
	Ecoguard	5.7	9.8	23.7	46.9	81.9	130	203	280	397	539	686	1003	1362	1853	2380	3080
	Lubricated	6.6	11.3	27.3	54.2	94.5	150	235	323	458	622	791	1157	1572	2138	2746	3554
	Dry	8.8	15.0	36.5	72.2	126	200	313	430	610	830	1055	1543	2095	2851	3662	4739
		Torque (ft-lbs)															
	Ecoguard	4.2	7.2	17.5	34.6	60.4	96.1	150	206	292	398	506	740	1005	1367	1756	2272
	Lubricated	4.9	8.3	20.2	39.9	69.7	111	173	238	337	459	583	854	1159	1577	2026	2622
	Dry	6.5	11.1	26.9	53.3	92.9	148	231	317	450	612	778	1138	1546	2103	2701	3495
ISO 898-1 Property Class 12.9	Min Tensile (N)	17324	24522	44652	70760	102846	140300	191540	234240	298900	369660	430660	559980	684420	846680	996740	1190720
	Min Proof Strength (N)	13774	19497	35502	56260	81771	111550	152290	186240	237650	293910	342410	445230	544170	673180	792490	946720
	Clamp Load (N)	10331	14623	26627	42195	61328	83663	114218	139680	178238	220433	256808	333923	408128	504885	594368	710040
	Min Tensile (lbs)	3898	5517	10047	15921	23140	31568	43097	52704	67253	83174	96899	125996	153995	190503	224267	267912
	Min Proof Strength (lbs)	3099	4387	7988	12659	18398	25099	34265	41904	53471	66130	77042	100177	122438	151466	178310	213012
	Clamp Load (lbs)	2324	3290	5991	9494	13799	18824	25699	31428	40103	49597	57782	75133	91829	113599	133733	159759
		Torque (Nm)															
	Ecoguard	6.7	11.4	27.7	54.9	95.7	152	238	327	463	630	801	1172	1592	2166	2782	3600
	Lubricated	7.7	13.2	32.0	63.3	110	176	274	377	535	727	925	1352	1837	2499	3210	4154
	Dry	10.3	17.5	42.6	84.4	147	234	365	503	713	970	1233	1803	2449	3332	4279	5538
		Torque (ft-lbs)															
	Ecoguard	5.0	8.4	20.4	40.5	70.6	112	175	241	342	465	591	865	1174	1598	2052	2655
	Lubricated	5.7	9.7	23.6	46.7	81.4	130	202	278	394	537	682	998	1355	1843	2367	3064
	Dry	7.6	12.9	31.4	62.2	109	173	270	371	526	715	909	1330	1806	2458	3157	4085

Minimum tensile and proof strengths per ISO 898-1 where applicable.

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Clamp load calculated as 75% of the proof load when specified by the standard.

Torque values calculated from formula T=KDF, where

K estimated at 0.13 for Ecoguard, 0.15 used for "lubricated" conditions and 0.20 for "dry" conditions.

D = Nominal Diameter

F = Clamp Load

Note: When using Zinc Plated (lubricated with wax) Top Lock Nuts, the K value can vary between 0.12-0.16.

Clamp Load Specified as 75% of Yield

Caution: All material included in this chart is advisory only, and its use by anyone is voluntary. In developing this information, Fastenal has made a determined effort to present its contents accurately. Extreme caution should be used when using a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury.

Nom Dia. (in)	Threads per Inch	Clamp Load (lbs)	Tightening Torque K = 0.12 Typical Xylan or other PTFE	Tightening Torque K = 0.15 Typical Plain with Anti-Seize	Tightening Torque K = 0.20 Typical Plain & Dry	Threads per Inch	Clamp Load (lbs)	Tightening Torque K = 0.12 Typical Xylan or other PTFE	Tightening Torque K = 0.15 Typical Plain with Anti-Seize	Tightening Torque K = 0.20 Typical Plain & Dry
Coarse Thread Series						**Fine Thread Series**				
1/4	20	1909	57 in-lbs	72 in-lbs	95 in-lbs	28	2182	65 in-lbs	82 in-lbs	109 in-lbs
5/16	18	3146	118	147	197	24	3484	131	163	218
3/8	16	4649	17 ft-lbs	22 ft-lbs	29 ft-lbs	24	5270	20 ft-lbs	25 ft-lbs	33 ft-lbs
7/16	14	6379	28	35	47	20	7123	31	39	52
1/2	13	8514	43	53	71	20	9597	48	60	80
9/16	12	10917	61	77	102	18	12179	69	86	114
5/8	11	13560	85	106	141	18	15357	96	120	160
3/4	10	20068	151	188	251	16	22378	168	210	280
7/8	9	27704	242	303	404	14	30568	267	334	446
1	8	36345	363	454	606	14	40793	408	510	680
1 1/4	7	58147	727	909	1211	12	64377	805	1006	1341
1 3/8	6	69293	953	1191	1588	12	78883	1085	1356	1808
1 1/2	6	84315	1265	1581	2108	12	94861	1423	1779	2372
UN8 Thread Series										
1 1/4	8	59982	750	937	1250					
1 3/8	8	74010	1018	1272	1696					
1 1/2	8	89511	1343	1678	2238					
1 5/8	8	106484	1730	2163	2884					
1 3/4	8	124929	2186	2733	3644					
1 7/8	8	144848	2716	3395	4526					
2	8	166238	3325	4156	5541					
2 1/4	8	213438	4802	6003	8004					
2 1/2	8	266528	6663	8329	11105					

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Clamp load calculated as 75% of the yield strength for the B7M and L7M specified in ASTM A193/A193M and A320/A320M.

Torque values for 1/4 and 5/16-in series are in inch-pounds. All other torque values are in foot-pounds.

Torque values calculated from formula T=KDF, where

Coatings such as Teflon or Xylan offer extremely low coefficients of friction. Often we will experience K values around 0.12 or lower.

K = 0.15 for "lubricated" conditions and K = 0.20 for "dry" conditions

D = Nominal Diameter

F = Clamp Load

Clamp Load Specified as 75% of Yield

Caution: All material included in this chart is advisory only, and its use by anyone is voluntary. In developing this information, Fastenal has made a determined effort to present its contents accurately. Extreme caution should be used when using a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury.

Nom Dia. (in)	Threads per Inch	Clamp Load (lbs)	Tightening Torque K = 0.12	Tightening Torque K = 0.15	Tightening Torque K = 0.20	Threads per Inch	Clamp Load (lbs)	Tightening Torque K = 0.12	Tightening Torque K = 0.15	Tightening Torque K = 0.20
Coarse Thread Series						**Fine Thread Series**				
1/4	20	2506	75 in-lbs	94 in-lbs	125 in-lbs	28	2864	86 in-lbs	107 in-lbs	143 in-lbs
5/16	18	4129	155	194	258	24	4573	171	214	286
3/8	16	6102	23 ft-lbs	29 ft-lbs	38 ft-lbs	24	6916	26 ft-lbs	32 ft-lbs	43 ft-lbs
7/16	14	8372	37	46	61	20	9349	41	51	68
1/2	13	11175	56	70	93	20	12596	63	79	105
9/16	12	14328	81	101	134	18	15985	90	112	150
5/8	11	17798	111	139	185	18	20157	126	157	210
3/4	10	26339	198	247	329	16	29371	220	275	367
7/8	9	36362	318	398	530	14	40121	351	439	585
1	8	47702	477	596	795	14	53541	535	669	892
1 1/4	7	76318	954	1192	1590	12	84494	1056	1320	1760
1 3/8	6	90947	1251	1563	2084	12	103534	1424	1779	2373
1 1/2	6	110664	1660	2075	2767	12	124506	1868	2334	3113
UN8 Thread Series										
1 1/4	8	78727	984	1230	1640					
1 3/8	8	97138	1336	1670	2226					
1 1/2	8	117483	1762	2203	2937					
1 5/8	8	139760	2271	2839	3785					
1 3/4	8	163970	2869	3587	4782					
1 7/8	8	190112	3565	4456	5941					
2	8	218188	4364	5455	7273					
2 1/4	8	280138	6303	7879	10505					
2 1/2	8	349819	8745	10932	14576					

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Clamp load calculated as 75% of the yield strength for the B7, B16 and L7 specified in ASTM A193/A193M and A320/A320M.

Torque values for 1/4 and 5/16-in series are in inch-pounds. All other torque values are in foot-pounds.

Torque values calculated from formula T=KDF, where

Coatings such as Teflon or Xylan offer extremely low coefficients of friction. Often we will experience K values around 0.12 or lower.

K = 0.15 for "lubricated" conditions and K = 0.20 for "dry" conditions

D = Nominal Diameter

F = Clamp Load

Please Note** Loctite 263 is applied to all roller, final drive assembly and sprocket assembly bolts.

3.2. Maintenance Instructions

Before carrying out any maintenance operation on the undercarriage, make sure that it is stationary.

3.2.1. Handling Hydraulic Substances and Lubricants

When handling oil, grease or other chemical substances, respect the safety rules applicable to the products in question.

Adopt appropriate safety measures to prevent scalds or burns when the undercarriage has reached high temperatures (e.g. operating temperature), as the operating devices will have the same temperature.

Do not smoke when handling combustible liquids.

Be careful in the presence of fire or naked flames. Not only fuel but also other commonly used substances may have a low flash point and easily ignite.

Lubricants that are not to be reused must be disposed of in such a way as to have the lowest possible environmental impact.

3.2.2. Undercarriage Conversions or Modifications

Unauthorized conversions or modifications are not permitted for safety reasons. The nominal pressures of the connected air valves and the pressurized tanks may not be changed.

The seals on the units may not be removed.

3.2.3. Before Starting

- Lubricate all the lubrication points
- Check all the oil levels and top up if necessary
- Check functioning of all the components repaired
- Visually inspect all the components.

3.2.4. Limits of Wear of the Undercarriage Parts

Undercarriage wear is caused by movements, contact of the loads between the parts of the undercarriage and the abrasive action of the ground.

Other factors also contribute to wear, among which:

- The tracks moving on rocky uneven surfaces during operation
- Side load of the undercarriage during turns
- Long distances travelled in reverse
- Carelessly surmounting obstacles
- A track not perfectly tensioned based on the operating conditions
- Substantial build-up of debris on the entire undercarriage

The components of the undercarriage must be replaced with new parts if they are 100% worn. Otherwise the undercarriage might suddenly stop because of a malfunction. Therefore, regularly and carefully measure the degree of wear and replace the parts when necessary. The parts involved and the measuring instruments must be perfectly clean when making the measurements. If possible, sample the measurements at various points. The degree of wear is determined by the maximum and not the average value.

3.2.5. Inspection intervals

COMPONENT	INTERVAL	INSPEC-TION	TYPE OF MAINTENANCE
COMPLETE TRACKED UNDERCARRIAGE	Daily	visual	Amount of dirt in the undercarriage
			Overall condition of the undercarriage components
			Fastening elements of the frame sections and the undercarriage locking devices
	Monthly	visual	Fastening elements of the frame sections and the undercarriage locking devices – fastening of the ribbed shoes (point checks)
REDUCTION UNIT	Daily	visual	Reduction unit seals and any hydraulic couplings
	Every 200 – 250 hours of operation	check	Gearbox oil level
	every 300 – 2000 hours of operation; max 1 year	check	Gearbox oil change
	Monthly	check	Condition and wear of the driving wheel
TRACK TENSIONING WHEELS	Daily	visual	Overall condition of the springs and the tensioning system
	Weekly		Front guide wheel seal and tensioning system
			Track length re-tensioning (maximum tensioning length reached)
		check	Condition and wear of the front guide wheel and sliding blocks
LOWER ROLLERS	Daily	visual	Check for seepage
	Monthly	check	Condition and wear of the track rollers
UPPER ROLLERS / CHAIN GUIDE	Daily	visual	Check for seepage
	Monthly	check	Condition and wear of the load-bearing rollers
CHAINS WITH SHOES	Daily	visual	Check for seepage (only on tracked undercarriages lubricated with grease or oil)
			Track pre-tensioning – track bulging
	Monthly	check	Condition and wear on the sliding surfaces of the track links, bushings (outside diameter), and track elongation. Condition and wear of the ribs

The intervals may vary based on the frequency of use and the operating conditions.

4. Gear Motor

4.1. Technical Features

Builder: BONFIGLIOLI TRASMITAL
Model: 718C Transmission ratio: 1:87
Motor capacity: 250 - 116 cc

4.2. Operation and Functioning

4.2.1. General Instructions for Dangers

Dangerous situations may arise, in particular in the following circumstances:

 When the product is handled by insufficiently qualified persons

 Incorrect installation, operating and maintenance/repair procedures

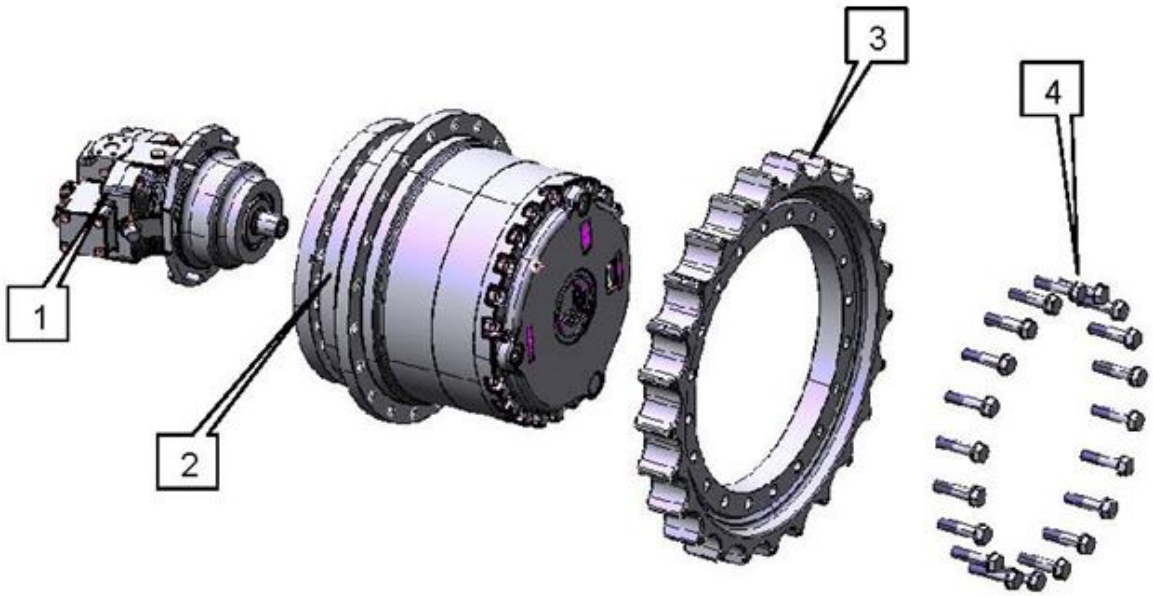
 When the product is not used for its specific purpose, it is not permitted to modify the product in any way unless on prior approval.

4.2.2. Motorization Design

The tracked undercarriage has been designed as one complete unit.
The unit is composed of a high-efficiency, multi-stage, fully boxed planetary gear, a driving wheel and a hydraulic motor.

Coupling to the transmission wheels is by means of bolts (4) in a material of minimum class 10.9 (unless otherwise specified by the customer). The bolt tightening torques are given in the attached tables.

Traction is transmitted to the track through the driving wheel (3) which bolted to the reduction unit (2) is in its turn driven by hydraulic or electric motors (1).



1 - Motor
2 - Reduction unit
3 - Driving wheel
4 - Bolt

4.2.4. Startup

 Check that the transmission is not dirty.
 Avoid pollution. Be careful not to spill lubricant during filling.

The transmission has been internally treated with a preservative agent that guarantees up to 6 months' protection against corrosion if stored in dry environmental conditions. This internal protective layer must not be removed at first starting.

When connecting the hydraulic lines for the hydraulic motor, make sure that no dirt or foreign bodies penetrate the transmission or the hydraulic motor.

There may be risk of scalds and burns due to the high temperature of the transmission oil. The transmission guard may be boiling hot after long periods of operation. Wait for an adequate period of time for it to cool down before touching the surfaces.

4.3. Lubricants

4.3.1. Normal Operating Conditions (+10°C to + 30°C)

Exclusively use lubricants that meet the viscosity requirements for transmission lubrication.

Observe the degree of viscosity marked on the data plate and the following requirements!

The data plate shows only the viscosity necessary **(ISO-VG 150 and ISO-VG 220)** for normal operating conditions from 10° to 30°C.

4.3.2. Heavy Operating Conditions (- 30°C to + 50°C)

In heavy operating conditions, for example, with ambient temperatures between -30° C and +50° C, it is recommended to use transmission oils with an adequate viscosity or a 100% synthetic lubricant.

For lower operating temperatures, use an oil with a lower viscosity **(SAE 80W - 90**) and for higher temperatures, use an oil with a higher viscosity **(SAE 85W - 140).**

21 liters of **Traxon 80W-90** oil & 1 liter of **Molly Slip Gear Oil** are added to the track drives.

4.4. Compact Transmission With Traction Motor

The positioning flange of the side frames and the motor gear are connected by means of appropriately sized coupling bolts. Torque transmission occurs by means of friction locks.

Remove the protective caps before connecting the hydraulic pipes. Be careful not to let dirt penetrate the delivery pipes during the fitting procedure.

All the preset parameters, such as:
- Hydraulic pressure limits
- Minimum and maximum flow rates

Must be observed when using the undercarriage hydraulic system. Where necessary, contact Wolfe Heavy Equipment for the permitted values.

4.5. Transmission (Final Drive) – Fitting and Removal

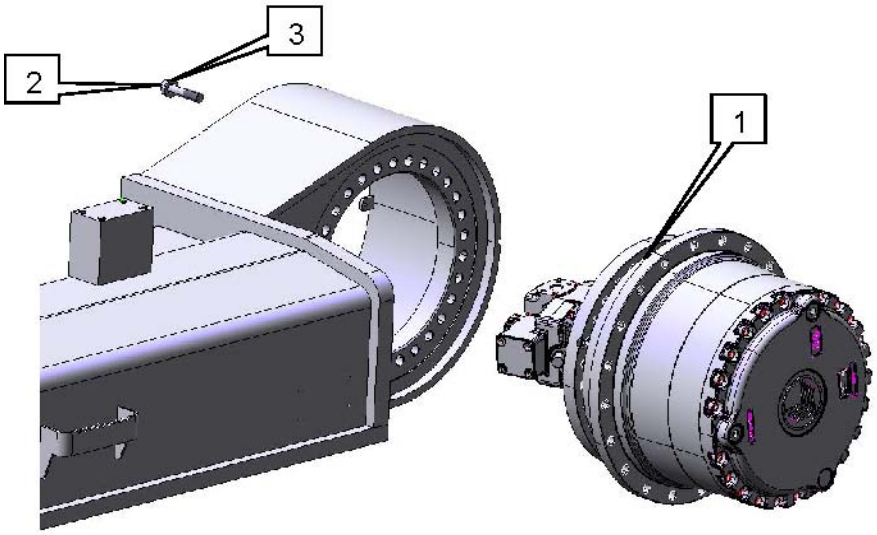
Always use suitable means whenever you work on the transmission to make sure that the device cannot start off on its own or be activated by third parties.

An undercarriage not connected to the track by means of the driving wheel is not protected against the risks of accidental movements caused by the transmission brake. This means that the undercarriage must be secured separately at the time of removing the transmission.

The track must be opened before fitting/removing the transmission.

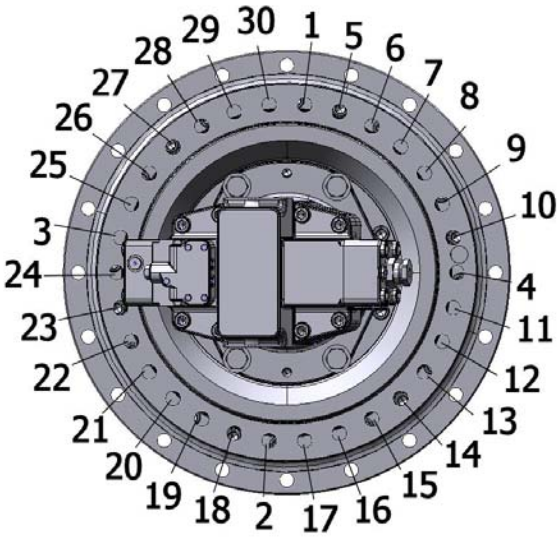
- **All the parts fitted must be clean and without any trace of grease.**

4.5.1. Connecting the Frame to the Transmission



The transmission (1) must carefully be inserted in the side frames in such a way as not to damage the flange surfaces. Check that the transmission is correctly fitted in its seat. Fasten the transmission in its seat fitting the screws (2) and the washers (3) in the frame and screw them in by hand. Again check that the transmission is correctly fitted in its seat.

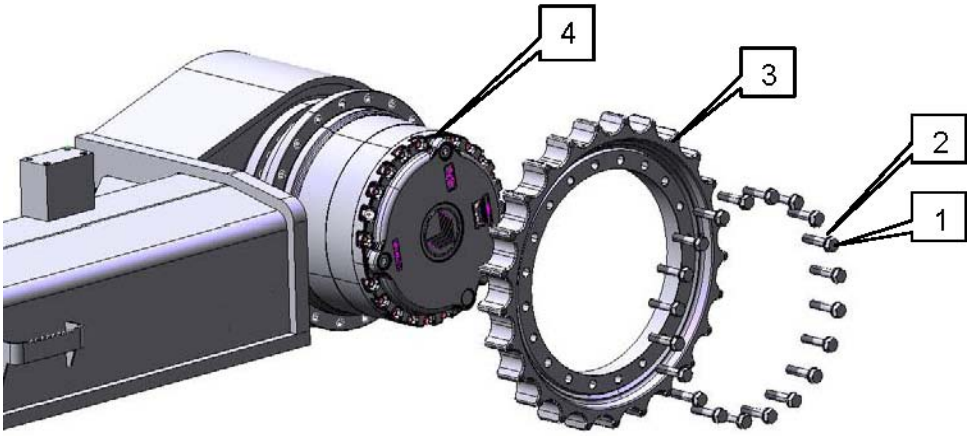
Retighten all the bolts crosswise (see the illustration below). Finally tighten the screws crosswise to the correct torque based on the screw sizes (see the table of tightening torques)



4.5.2. Additional Instructions:

 Thoroughly clean all the centering and joining surfaces.
 Slightly lift the reduction unit in the flanged centering device of the undercarriage using a hoist.
 Completely fasten the reduction unit on the frame before removing the hoisting couplings.
 Do not apply axial forces during installation.
 Do not apply excessive force on the frame.
 The reduction unit must not be tilted.
 Be careful not to let dirt or foreign particles penetrate the hydraulic circuit.
 The multidisc parking brake is a transmission safety device. Be careful not to let dirt or foreign particles penetrate from the hydraulic brake coupling.
 Make sure that the brake coupling is perfectly sealed.

4.5.3. Connection Between the Driving Wheel and the Transmission



Thoroughly clean all the centering and joining surfaces. Lift the driving wheel using a hoist, Insert it in the transmission and tighten it on the transmission hub avoiding violent impact.

Fit the bolts (1) and the washers (2) in the relative holes to fasten the driving wheel (3) and screw them into the threaded holes of the transmission (4) by hand. Pre-tighten all the screws in the correct order and then to the specified tightening torque based on the screw size using a torque wrench (see the table of tightening torques.

4.5.4. Removing the Driving Wheel

Loosen and remove the chain.

Remove any dirt from the parts and the fastening elements. Use a hoist to prevent the driving wheel from dropping. Loosen the screws on the driving wheel crosswise and completely remove them.

Remove the driving wheel from its seat on the reduction unit by lightly hammering with a rubber mallet. If provided, fit the extraction bolts in the threaded holes and tighten them evenly. In the same way, remove the driving wheel from its seat on the transmission holding it suspended with a hoist.

4.5.5. Removing the Transmission

Remove any dirt from the parts and the fastening elements. Use a hoist to prevent the transmission from dropping. Unscrew the bolts on the frame crosswise and completely remove them.

Separate the transmission from its seat on the frame by lightly hammering with a rubber mallet, then lift the transmission and slowly extract it from the frame and hold it suspended with a hoist.

 Collect any dripping/seeping oil in a previously prepared container
 For transport, use only devices approved for this purpose.

4.6. Motorization – Maintenance and Inspection

4.6.1. General Instructions

The complete transmission unit is made up of the following components:
 Motor
 Driving wheel
 Transmission or reduction unit

In the event of malfunctioning, always replace the complete component. Have any repairs carried out by Wolfe Heavy Equipment.

4.6.2. Filling, Topping up and Changing the Reduction Unit Oil

The reduction unit must be filled with fresh clean oil before starting it (see the lubricant specifications for the various types of oil).

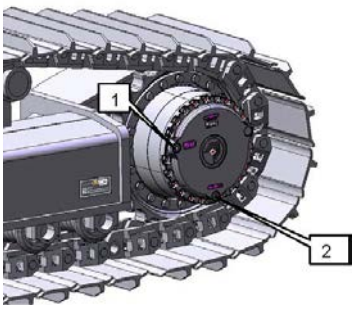
See the table "Inspection Intervals" for the frequency of oil checking and changing.

Position the undercarriage on a horizontal surface and in such a way that you can easily access the transmission (see the illustration).

4.6.3. Filling/Topping Up the Reduction Unit Oil:

Position the transmission in such a way that the oil drain plug (2) is vertical in the lowest position (at about 6 o'clock). The oil filler cap (1) should then be on the right- or the left-hand side of the transmission center-line (at about 10 or 2 o'clock).

Fill with oil until the level reaches the filling hole. Fit a new washer on the cap and retighten it.



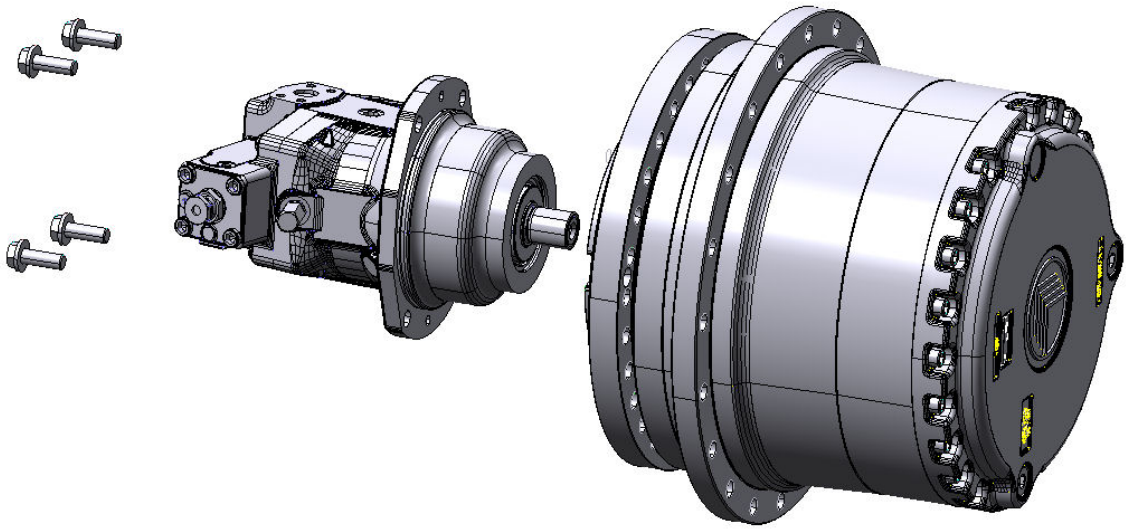
4.6.4. Draining the Transmission Oil:

There may be risk of scalds and burns due to the high temperature of the transmission oil. Also the transmission guard may be boiling hot after long periods of operation. Always wear protective gloves and let the transmission cool down. Collect the drained oil in special containers and dispose of it in such a way as to have the lowest possible environmental impact.

Position an oil collection container underneath the transmission. Unscrew and remove the oil filler cap (1) and the drain plug (2). Drain out all the oil. Fit a new washer on the cap and retighten it.

4.7. Motor

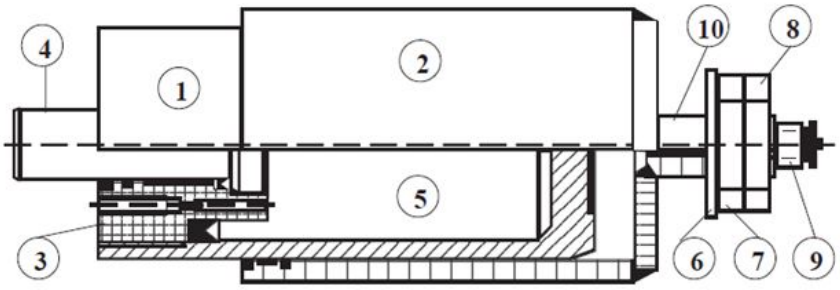
The motor does not require maintenance and only needs to be visually inspected for any seepage.



5. Track Tensioning Wheel Unit

5.1. Track Tensioning Wheel Unit – Functioning and Description

The track tensioning elastomer is composed of the following units:



(1) Inner Cylinder
(2) Outer Cylinder
(3) Piston Bearing
(4) Piston Rod
(5) Compressible silicone oil
(6) Washer
(7) Nut n.1
(8) Nut n.2
(9) Grease nipple / safety valve
(10) Threaded end fitting

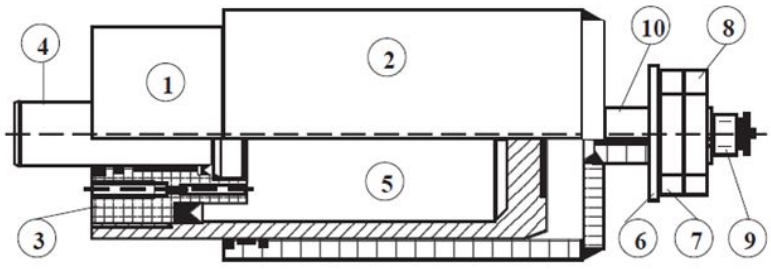
The liquid silicone oil in the cylinder is initially under a predetermined pressure. Once the piston rod immerses in the cylinder (due to an external force), the silicone oil is compressed within the cylinder. The internal pressure grows and attains its maximum when the piston rod is completely immersed. When the external force is released the stored energy pushes the piston rod back into its initial position. The element is again ready for use.

THE ELASTOMER UNIT IS PRELOADED AND HENCE DANGEROUS. BREAKAGE OR TAMPERING MAY BE DANGEROUS TO THE OPERATORS!

IMPORTANT! ANY KIND OF JOB ON THE PRELOADED ELASTOMER UNIT MUST BE CARRIED OUT BY QUALIFIED PERSONS ONLY AND IN SPECIALISED WORKSHOPS THAT CAN GUARANTEE THE NECESSARY SAFETY MEASURES.

The following is valid for the Elastomer unit:
The elastomer unit must be bolted, fitted or secured on the fork of the front guide wheel for easy fitting and removal.

Track tensioning (Elastomer, Cylinder acts as a spring)

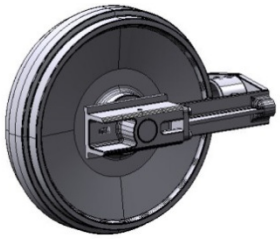


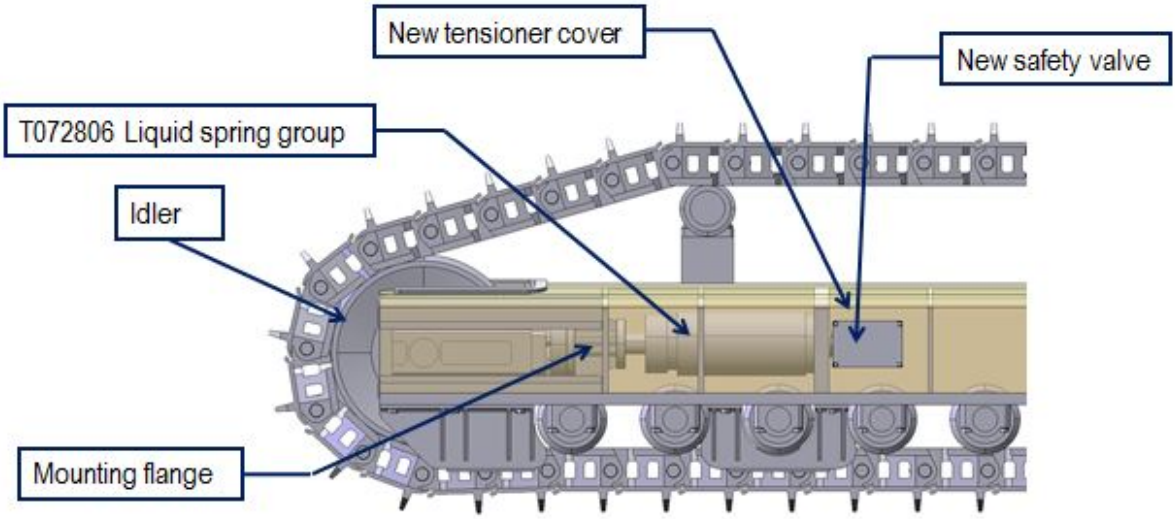
(1) Inner Cylinder
(2) Outer Cylinder
(3) Piston Bearing
(4) Piston Rod
(5) Compressible silicone oil
(6) Washer
(7) Nut n.1
(8) Nut n.2
(9) Grease nipple / safety valve
(10) Threaded end fitting

5.2. Track Tensioning Wheel With Supports and Fork (Cross Member)

The track tensioning unit performs the following functions:

 Flexing action simultaneously guiding the track.
 Position adjustment by means of the sliding supports to adjust track pre-tensioning and to guide the track during springing actions.





The track tensioning wheel (idler) is fitted in the frame and slid into position.

Other components can be fastened on the front guide wheel depending on the type of wheel.

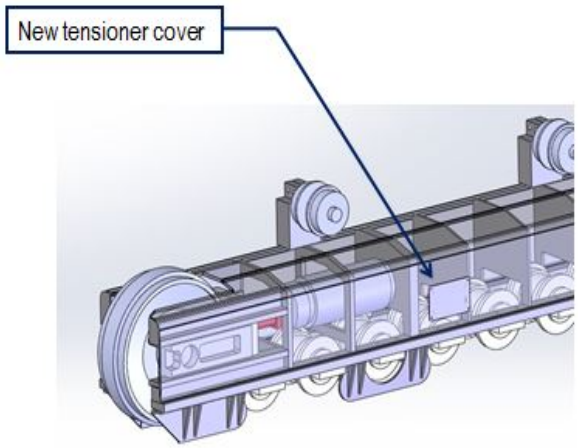
5.3. Elastomer Unit

The function of the elastomer is to protect the complete undercarriage against overloads. An overload may be caused by outside factors (e.g. build-up of dirt) which cause increased track tension. In these circumstances, the spring element reduces the load on all the components. The spring is perfectly operational as long as there is no excessive debris on it.

5.4. Tensioner Unit

The track is held under the necessary tension by means of a tensioning cylinder assembly. If the undercarriage components are worn or the terrain conditions change, the track tension needs to be adjusted, increasing or decreasing it (see the chapter “Setting track pre-tensioning).

The tensioning cylinder is a standard design and operates with grease. To tension or slacken the track, the grease is applied through a special grease nipple on the cylinder, or the grease level can be discharged by unscrewing the nipple by half a turn (see the illustration on the previous page). The grease-operated tensioning unit is accessed through the holes positioned on the sides of the steel frame.



The access holes to the grease-operated tensioning unit can be protected by the new tensioner cover plates fastened with screws.

Regularly check track wear to prevent damage to the track tensioner.

Re-tensioning is not permitted after the track has reached its wear limit, as this would result in excessive stress on the undercarriage components over the permitted limits and the safety conditions against breaking forces would no longer be given.

5.5. Fitting and Removal

5.5.1. Fitting the Elastomer Unit – General

Fitting/removal of the complete track tensioning elastomer unit is different based on the unit configuration. The different configurations are described in the following paragraphs.

In any circumstances where you work on the track tensioning elastomer unit, you need to follow the appropriate steps to ensure that the device cannot start off on its own or be started by third parties. An undercarriage not connected to the track by means of the driving wheel is not locked. The undercarriage must therefore be secured using other solutions. Also bear in mind the risks you run when working on or with shock absorbing elements.

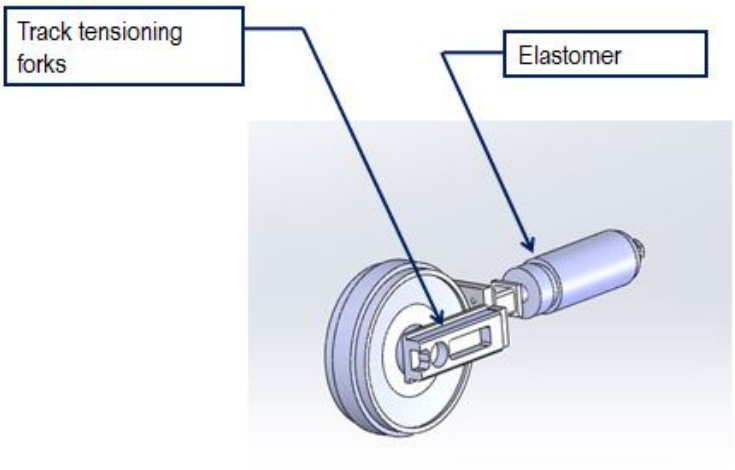
If a tensioning bar (tie-rod) is damaged or broken, there is a risk that a helical spring does not stay in the preload position but causes the front guide wheel to slip out of the frame following sudden slackening after the track has been removed.
This possible risk condition is detectable when the track stays under tension even after having discharged the pre-tensioning pressure from the grease-operated tensioner.

When working on track tensioners, make sure that any overflow of oil or grease is collected and disposed of in such a way as to have the lowest possible environmental impact.

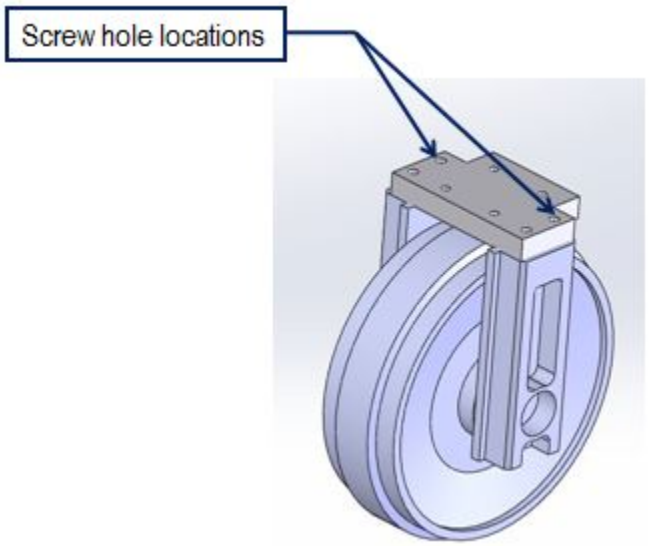
Before being able to fit or remove the elastomer unit, you need to open the track.

5.5.2. Elastomer Tensioning Unit

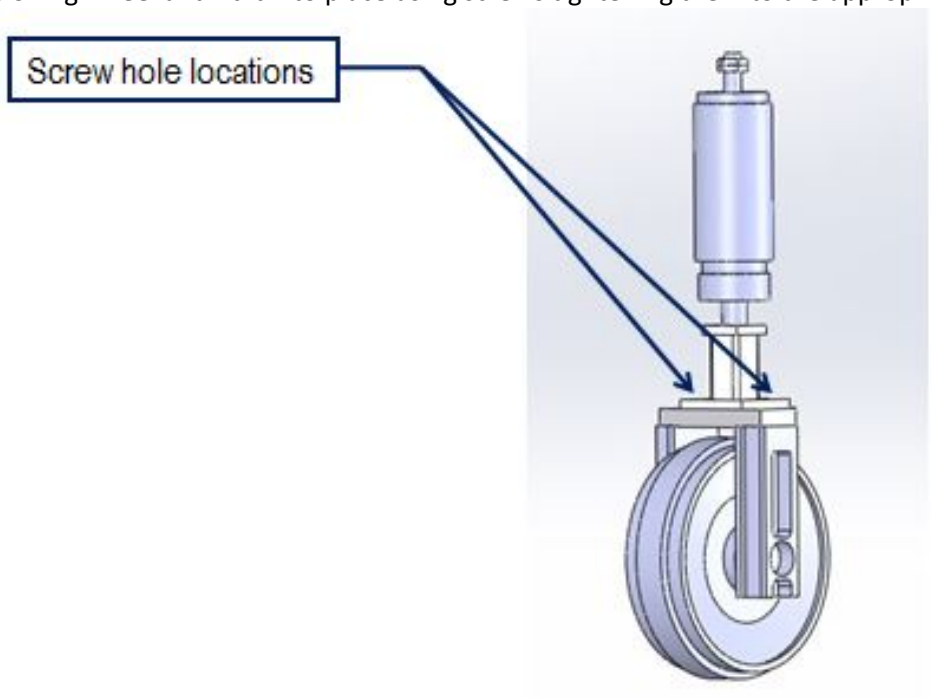
Detail1 = Track tensioning forks
Detail2 = Elastomer tensioning unit



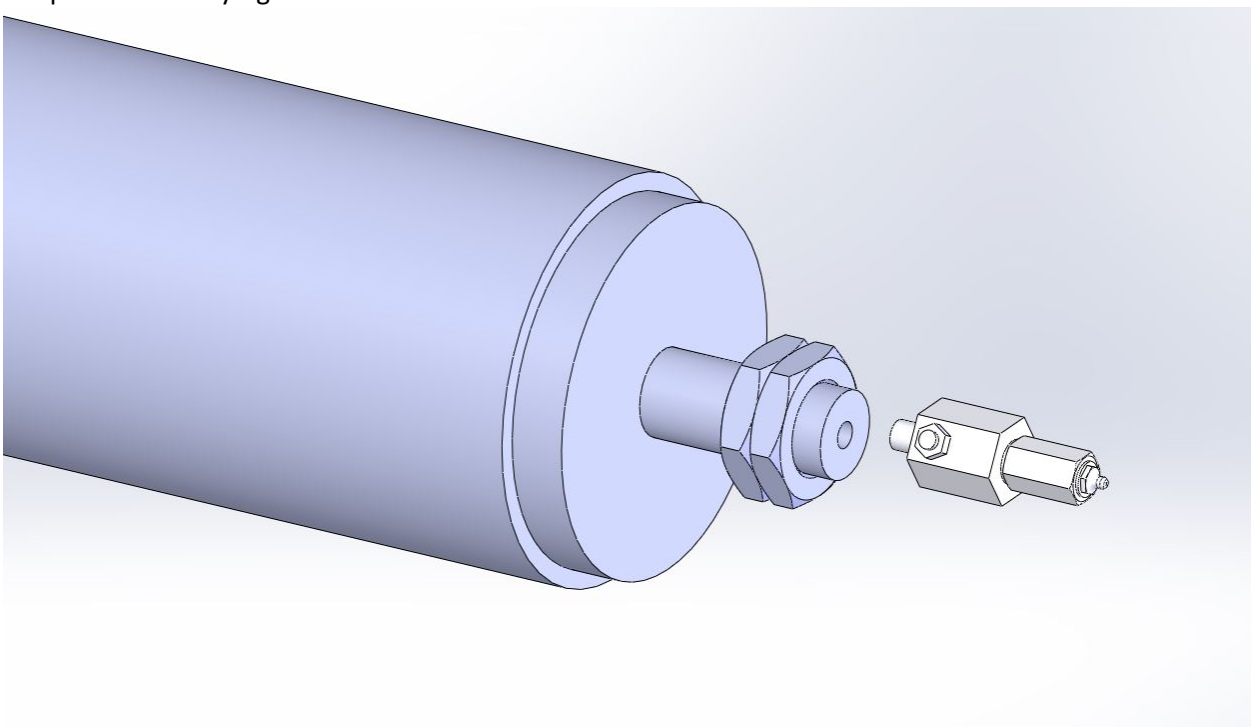
Position the fork or cross member on the sliding supports of the track tensioning wheel and fit it into place using screws tightening them to the appropriate torque.



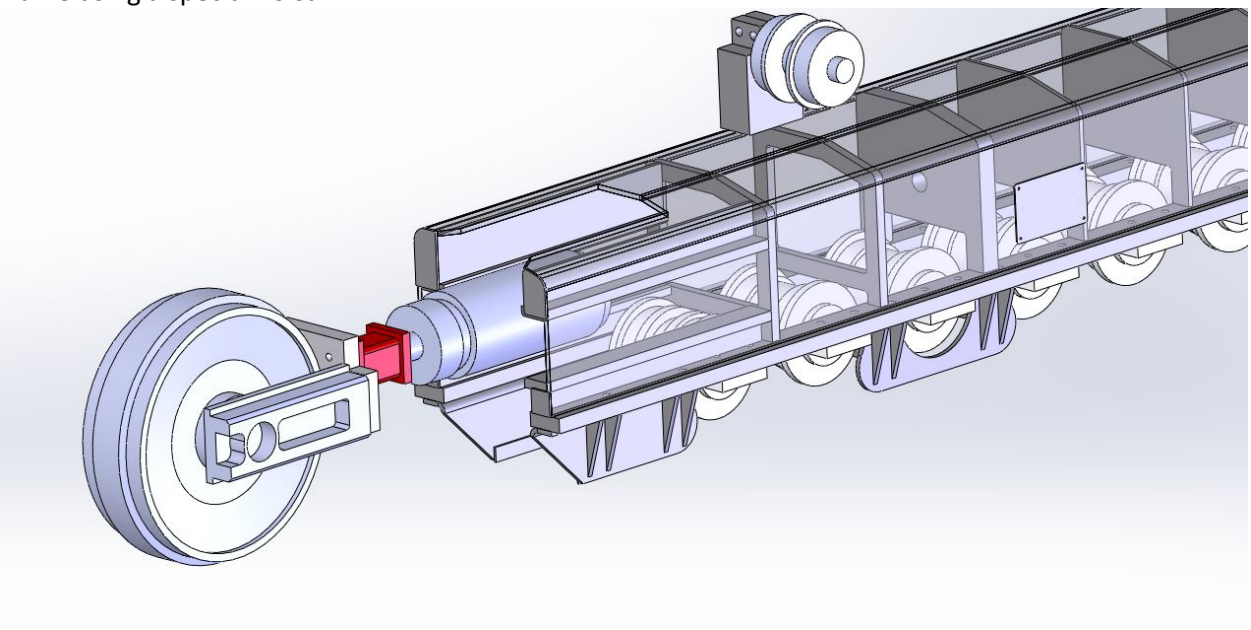
Screw the elastomer unit onto the fork (cross member). The elastomer unit with the integrated cylinder is designed with an integrated fork. Position the complete unit on the sliding supports of the track tensioning wheel and fit it into place using screws tightening them to the appropriate torque.



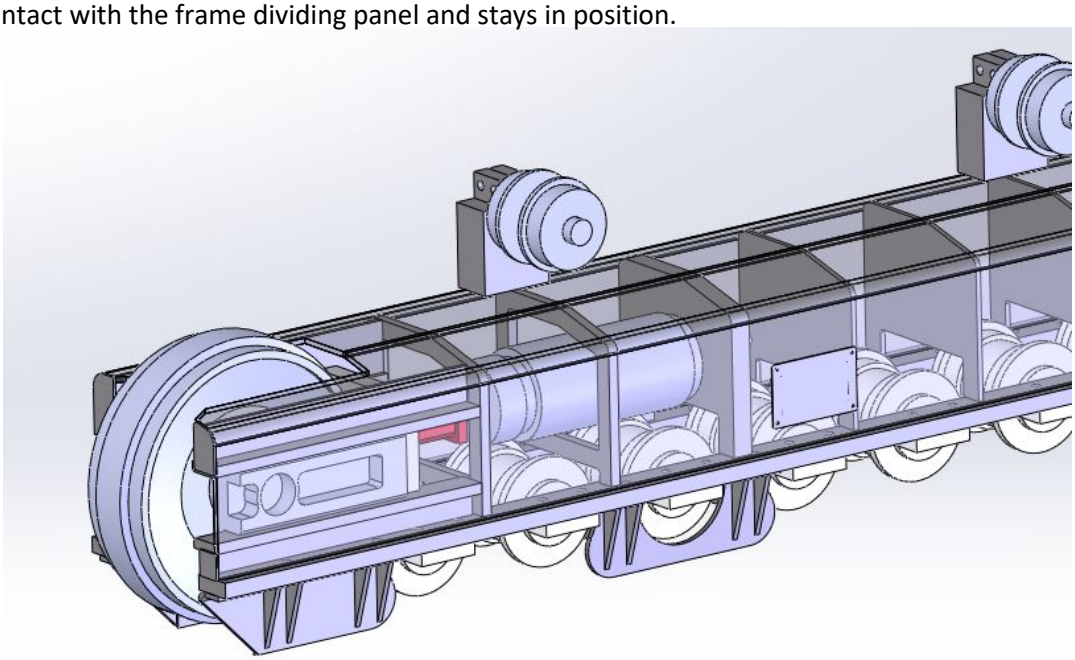
Push the piston into the cylinder as far as it will go. Screw the grease nipple with the relative washer into the piston and fully tighten it.



Fit the track tensioning wheel unit with the hydraulic spring unit fitted on the greased guides of the frame using a special hoist.



Make sure that the guide wheel unit is fully pushed in without colliding until the elastomer unit comes into contact with the frame dividing panel and stays in position.



5.5.3. Removal

For removal, work in reverse order to fitting.

6. Upper Rollers/Support Guides

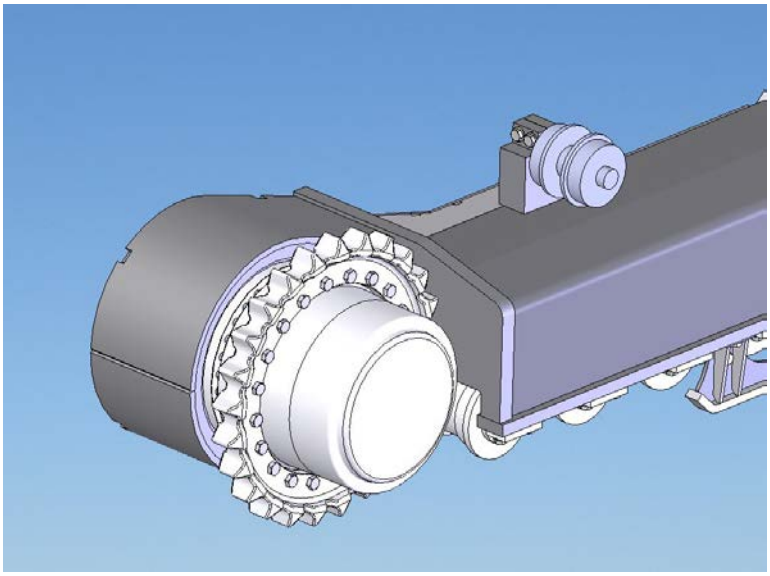
6.1. Upper Rollers/Support Guides – Operation and Functioning

6.1.1. General

The load-bearing rollers/support guides are supplied as a complete unit. The complete unit must be replaced in the event of damage, repairs, or when the wear limits have been reached.

6.1.2. Upper Rollers

Upper Rollers with cantilever shaft



6.1.3. Function

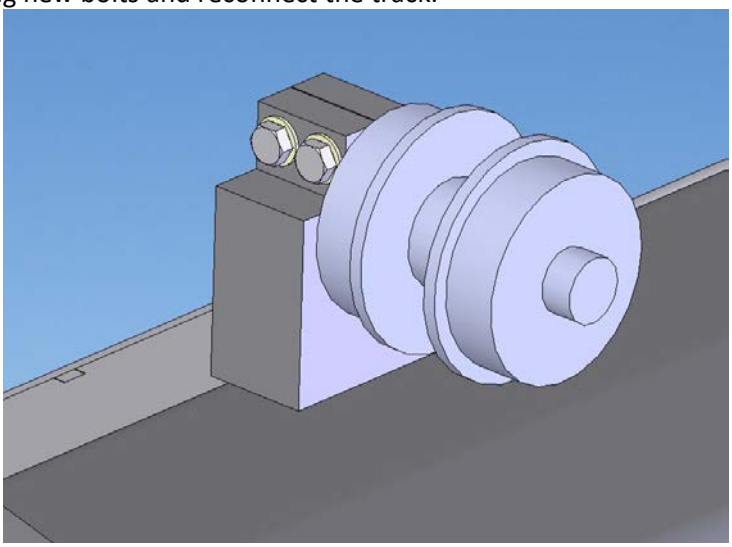
The load-bearing rollers perform the following functions:

Guide the track in the upper section support the track in such a way as to minimize its bulging and prevent damage to the adjacent components.

The sliding surface of the upper rollers has been hardened (not in the case of the support guides) to prevent wear. They mount special screw ring units that allow perfect seal and prevent dirt from penetrating, and they are permanently lubricated.

6.1.4. Upper Rollers – Fitting and Removal

Unscrew the bolts of the upper roller and remove it.
Fit the new roller using new bolts and reconnect the track.



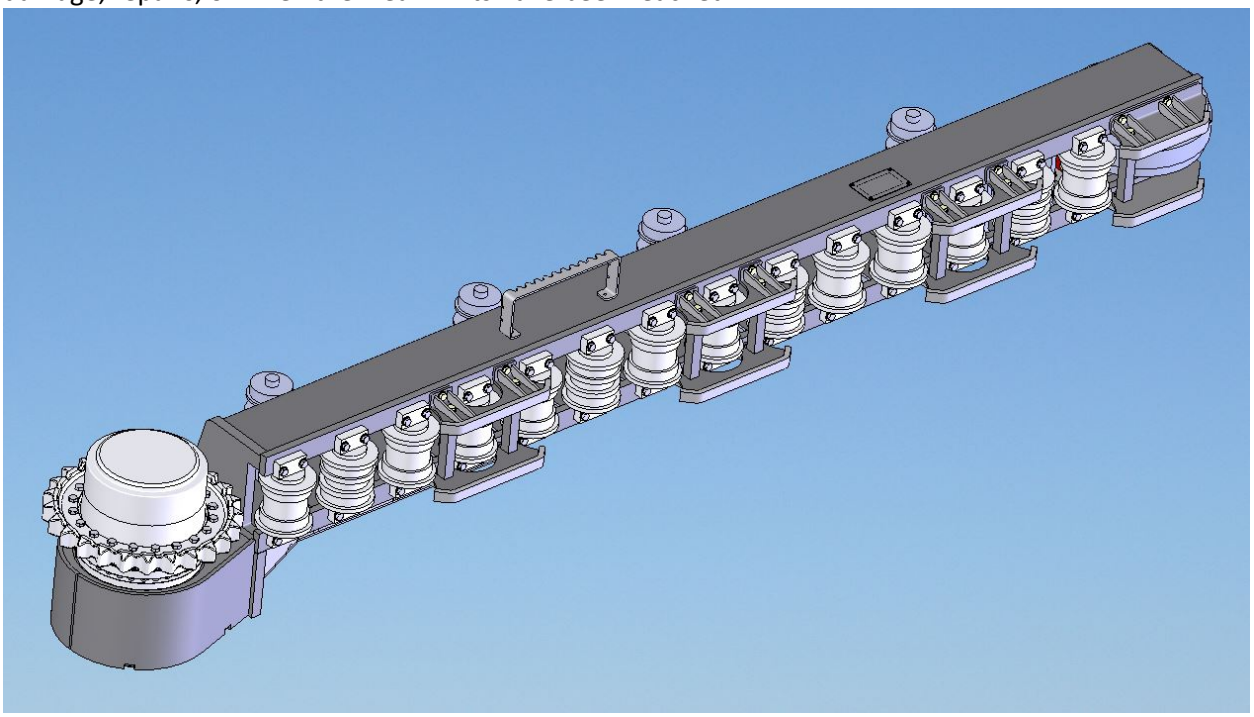
NB:
These fitting/removal instructions apply to the upper rollers with cantilever shaft. The only difference with respect to fitting/removal of the upper rollers with double support (same design as the lower rollers) is the number and the position of the fastening bolts.

7. Lower Rollers

7.1. Lower Rollers – Operation and Functioning

7.1.1. General

The lower rollers are supplied as a complete unit. The complete unit must be replaced in the event of damage, repairs, or when the wear limits have been reached.



7.1.2. Types of Lower Rollers

Lower roller with one edge

Lower roller with two edges

7.1.3. Function

The lower rollers perform the following functions:

 Guide the track in such a way that the dynamic forces of the track are transmitted to the ground.
 Recover the loads caused by the machine

The surface of the lower roller has been hardened to reduce wear.

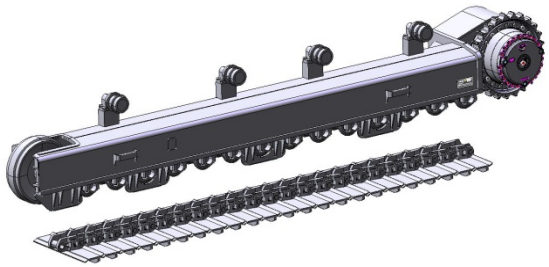
It has “screw” seals to prevent penetration of dirt and oil leaks

The track rollers are fitted as a complete unit at the installation points provided in the lower part of the frame (see the chapter "Track rollers – Fitting and Removal) and are immediately ready for use.

7.1.4. Lower Rollers – Fitting and Removal

If necessary, slacken the track and remove the locking devices.

Lift the undercarriage using a suitable device and remove the dirt from all the components.



Unscrew the bolts of the defective track roller, remove and scrap it.

Should the track guide be fitted, it must first be removed by acting in the specific points before continuing.

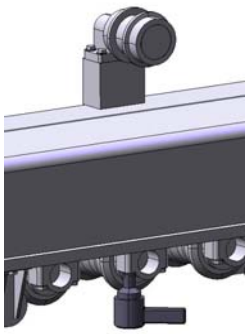
Fit a new roller using new bolts and tighten it in its seat. Reconnect the track as described in the following chapter.

NOTE FOR INSTALLING LOWER ROLLERS:

- REMOVE ALL PAINT OR DEBRIS FROM MATING SURFACES, INCLUDING UNDER HEAD OF BOLT
- USE PLAIN FINISH BOLTS AND WASHERS FOR LOWER ROLLERS
- C5-A ANTI-SEIZE ON ALL THREADS. ***DO NOT USE LOCTITE***
- FIRST STAGE TORQUE BOLTS TO **360 FT/LB**
- FINISHING STAGE TORQUE TO **515 FT/LB**

RE-TORQUE INTERVAL

- EVERY 50-75 HOURS
- TORQUE TO 515 ft-lbs

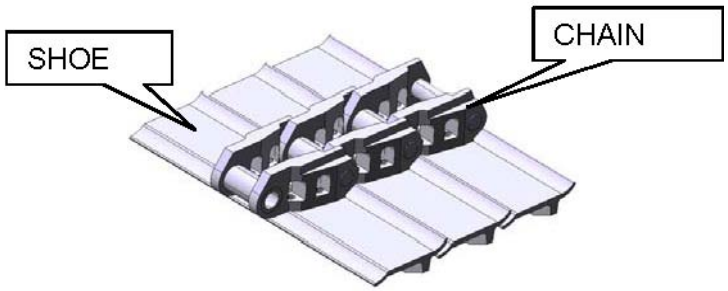


8. Chain With Shoes

8.1. Chain With Shoes – Function and Description

8.1.1. Configuration of the Chain With Shoes

The shoes are bolted onto the chain and form a complete unit in compliance with the project specifications.

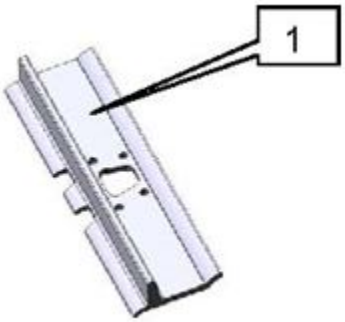


8.1.2. Chain Configuration

The chain that carries the shoes is composed of elements divided into right- and left-hand links. These links together with the corresponding bushings and pins are pressed together so as to form one element. These elements are connected to each other to make up different lengths. The individual elements of the track have been induction-hardened making them extremely hard-wearing.

8.2. Shoes – General Description

The shoes are supplied in shapes and widths according to the requirements.



Basic Type

 1- Shoe with one rib

8.2.1. Function

The chains with shoes perform the following functions:

 Recover the loads caused by the machine

 Transmission of the motive output power the sliding surface of the track has been hardened to reduce wear.

8.3. Chain with Shoes – Fitting and Removal

8.3.1. General

These instructions describe the correct method to secure the shoes to the chain. Incorrect fitting is the most common cause of detachment between the shoe and the track.

Remove any form of materials or foreign bodies from the contact surfaces of the links, which may wedge in between the shoes and the bolts (e.g. paint, primer, rust, dirt, etc.). Brushing or light grinding can produce good results.
Clean the contact surfaces and the seats of the track link nuts
Apply a thin layer of oil (preferably) or grease to the threading and the contact surfaces under the bolt heads.

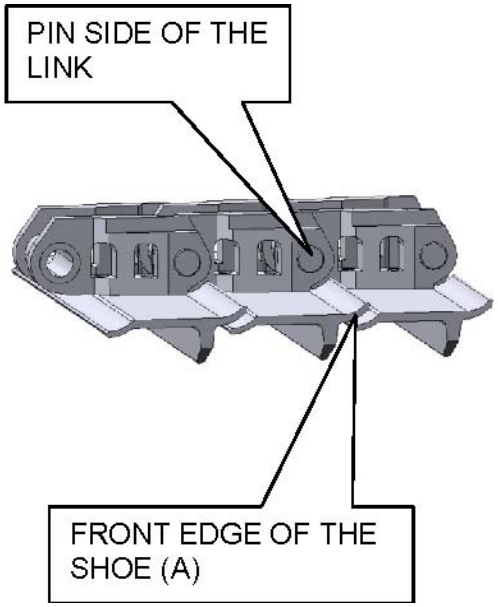
Fitting or removing bolts with hardened end pieces by hammering poses a serious risk to the operators because of projecting chips of material. Adopt appropriate protective measures to prevent injury (e.g. wear protective goggles).

8.3.2. Fitting the Shoes

It is often underestimated how important it is to correctly carry out the shoe fitting procedure. Incorrect fitting may cause bolt skimming and in the worst case damage the track links. It is recommended to **always use NEW bolts and nuts** when fitting the ribbed shoes. Used bolts may already be deformed and no longer guarantee an optimal tightening force.

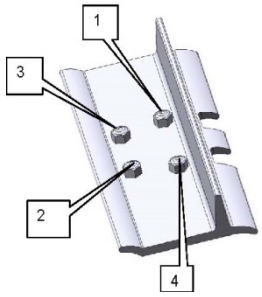
Shoes

Remove any form of materials or foreign bodies from the contact surfaces of the links, which may wedge in between the shoes and the bolts (e.g. paint, primer, rust, dirt, etc.). Brushing or light grinding can produce good results. Also clean the contact surfaces of the nut seats on the track links. Position the shoes with the front edge (A) on the pin side of the track link. Apply a thin layer of oil (preferably) or grease to the threading and the contact surfaces under the bolt heads. Fit the bolts in the holes and tighten them in the nuts by several turns. Make sure that the flat part of the nut rests on its seat in the link (the rounded side of the nut must face the sliding surface of the link). Fully tighten the bolts without applying particular force.



Select a tightening procedure (see "Tightening procedure" on the next page) and establish the torque necessary referring to the table given after these instructions. Tighten the bolts crosswise as shown in the figure.

Caution! Do not apply an excessive tightening torque to the bolts!



8.3.3. Checking the Torque/Retightening

Following normal stabilization, all the bolts should be retightened after about 50 - 75 hours of operation.

Further checks must be carried out at regular intervals based on the experience of the owner or operator or based on the manufacturer's recommendations.

8.4. Tightening Procedure for Track Bolts

The tightening torque for each single bolt is obtained with two different tightening procedures: dynamometric procedure and angular method.

The angular method is used to as far as possible exclude the incidence of friction factors. This is why this method is preferable to the dynamometric tightening procedure.

The tightening torque levels are specified based on the ISO strength classes 11.9 and 12.9, and 13.9 for special bolts.

8.4.1. Dynamometric Tightening Procedure

Tighten the bolts to the torque value in the order indicated below. The torque level should be reached using a torque wrench and taking care to apply a uniform rotary movement. Sudden actions generate torque peaks producing incorrect results. Stop tightening as soon as you reach the pre-established tightening torque.

8.4.2. Angular Tightening Procedure (Preferable On-Site Working Conditions)

With this procedure, the bolts are first tightened crosswise, as already described, to a pre-established torque value indicated in the table. Then the bolts are pre-tightened by a further 120° (1/3 turn of the wrench). With this procedure, a certain plastic deformation of the bolts occurs in order to reach the maximum pre-tightening value for each single bolt.

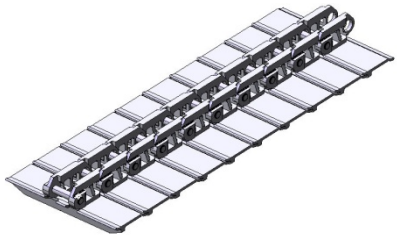
In both cases, excessively tightening the bolts over the values specified may damage them beyond the yield point associated with an un-tolerated excessive plastic deformation with the consequent risk of premature easing of the bolt.

8.4.3. Tightening Torques for Track Bolts (NM)

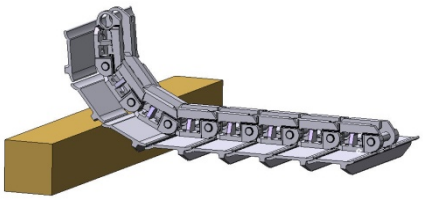
[Nm] Bolt	Strength class 11.9		Strength class 12.9		Strength class 13.9	
	Dynamometric procedure	Angular tightening procedure	Dynamometric procedure	Angular tightening procedure	Dynamometric procedure	Angular tightening procedure
7/16 – 20 UNF	115 □ 5	40 □ 2	125 □ 5	43 □ 2	130 □ 5	45 □ 2
½ - 20 UNF	180 □ 10	60 □ 3	190 □ 10	65 □ 3	200 □ 10	70 □ 3
9/16 – 18 UNF	260 □ 15	90 □ 5	275 □ 15	95 □ 5	290 □ 15	100 □ 5
5/8 – 18 UNF	360 □ 20	180 □ 10	385 □ 20	190 □ 10	400 □ 20	200 □ 10
¾ - 16 UNF	630 □ 30	320 □ 15	675 □ 35	340 □ 15	700 □ 35	360 □ 15
7/8 – 14 UNF	1010 □ 50	350 □ 15	1080 □ 55	370 □ 20	1130 □ 55	390 □ 20
1 -14 UNS	1540 □ 80	520 □ 30	1650 □ 80	560 □ 30	1720 □ 85	580 □ 30
1 1/8 - 12 UNF	2250 □ 110	760 □ 40	2400 □ 120	810 □ 40	2500 □ 125	850 □ 40

8.5. Fitting the Chain With Shoes (Track)

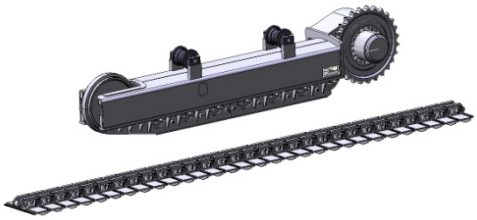
Spread out the chain with shoes so that it is as linear as possible.



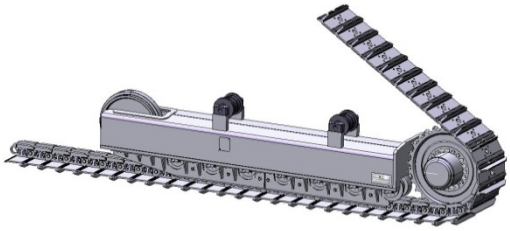
Position a wooden wedge under the end of the track (front guide wheel side, bushing side of the free track facing up).



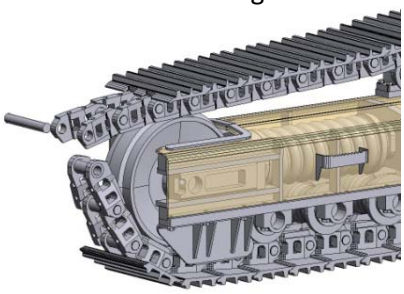
Position the assembled frame on the track. Important! Position the frame so that the forward drive of the machine is the same as the chain.



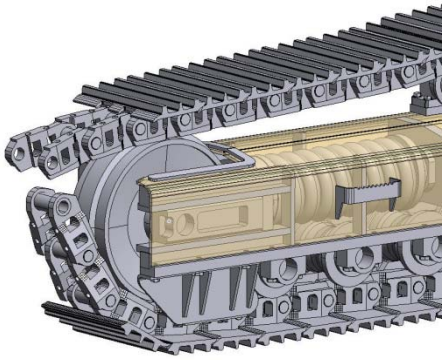
If the track is correctly aligned, pull it over the transmission unit in the direction of the front guide wheel above the side section. Make sure that the chain bushings lock into the compartments of the driving wheel.



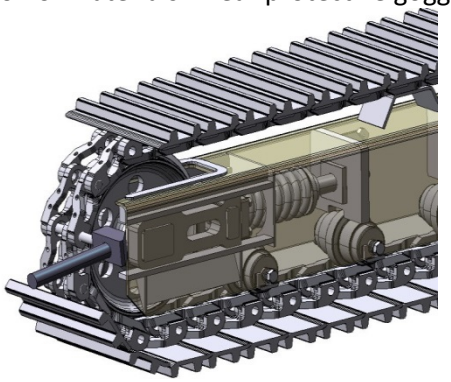
Position the ends of the track on the front track tensioning wheel.



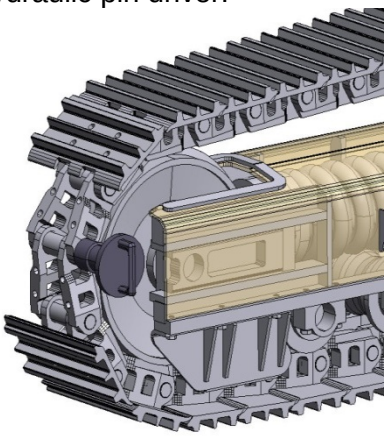
Grease two shims and fit them in the bores of the track links (also use sealing washers if necessary).



Align the track segments. Grease the tips of the master pins and fit them in the holes. Push them inside using a mallet if the tracks are small. Follow the safety instructions. Fitting and removing the pins with a mallet may cause dangerous projection of materials. Wear protective goggles.

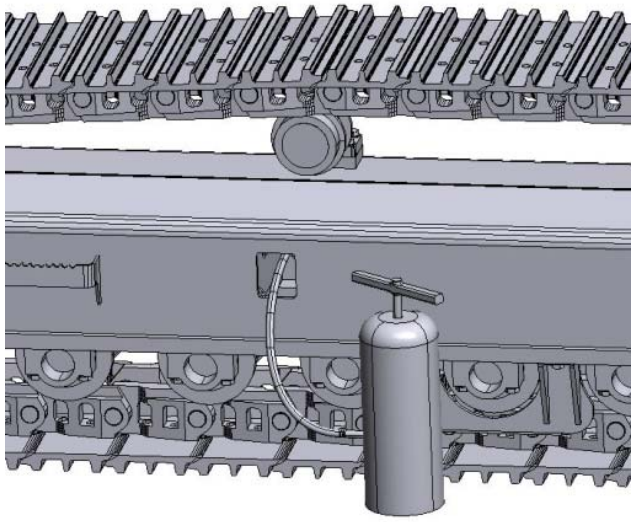


For large tracks, fit the pins using a hydraulic pin driver.



Track tensioning

Be careful to fit all the track components in the correct position. You need to use a grease gun during tensioning. Fit the end connector of the pipe on the valve of the grease-operated tensioner. Keep the grease gun active for the entire time necessary for the track to be correctly tensioned.

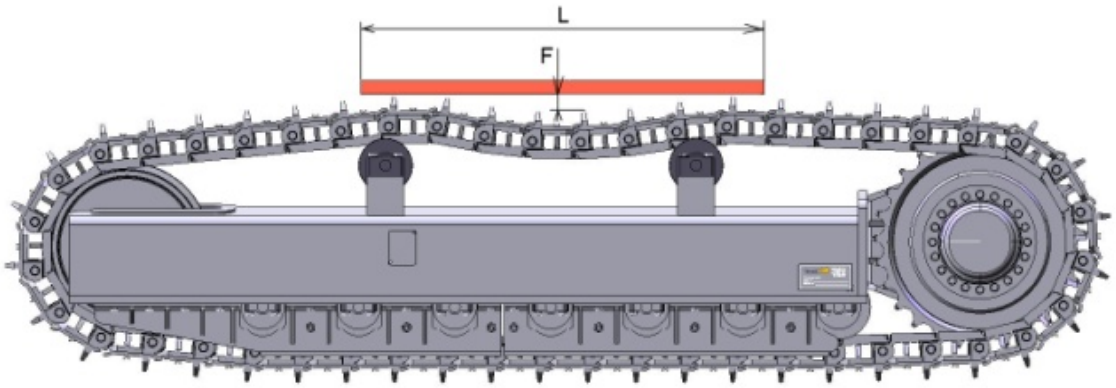


Important!

There must be a bulge of 2-3 cm for a length (L) of 1-1.5 m. This is applied linearly for a free length (L) smaller or greater than 1-1.5 m (at least 4 track elements).

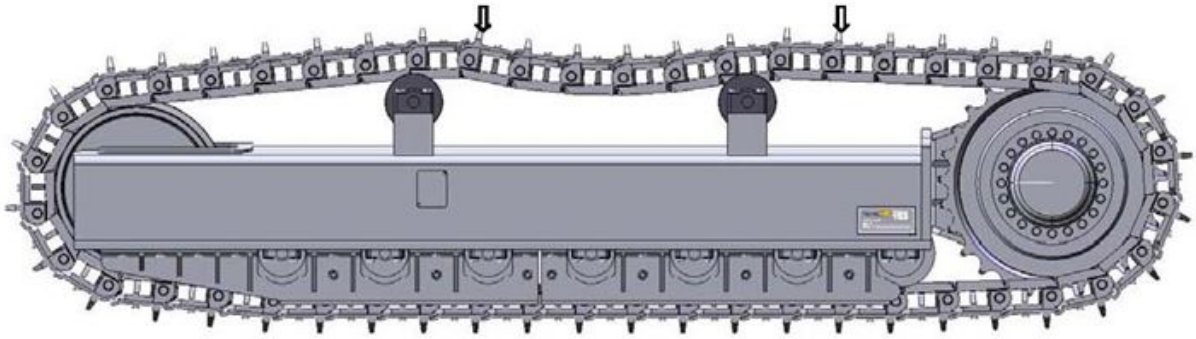
Measure the bulge dimension using a ruler. This is obtained by measuring the distance f from the edge of the shoe to the ruler (at the bulge center-line).

Detach the connector at the end of the tensioning process. At this point, the undercarriage should be



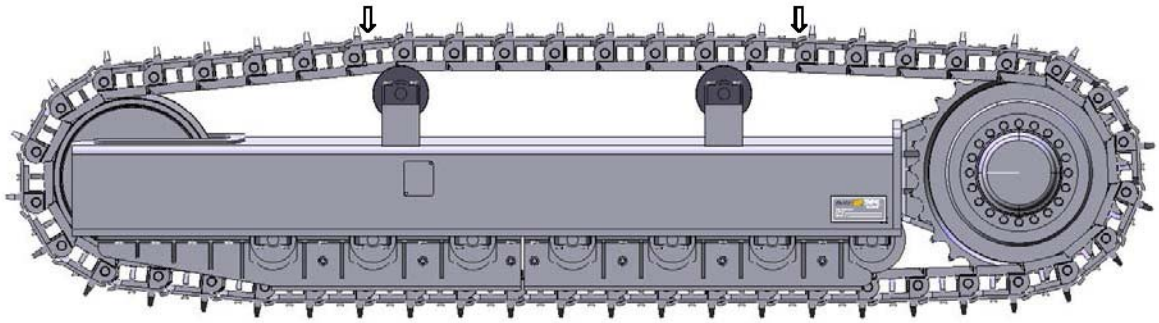
moved forward and backward for about 1 turn of the driving wheel. Check the position of the tracks on the front guide wheel and on the driving wheel.

Too slack tracks may slip off the roller flanges, the driving wheel and the front guide wheel and considerably increase wear.



Too taut tracks increase wear on the front guide wheel and the bearings and also results in a

high degree of wear on the track bushings and pins. It also requires greater motive power during driving with consequent increased fuel consumption.



Depending on the configuration, on some models there might not be any bulges in the upper section of the track. In this case, the track tension can be adjusted by measuring the pressure in the tensioning device or lifting the undercarriage (bulge measurement in the upper section – also in this case, the same rules as above for the distances L and f apply).

9. Sundry/Special

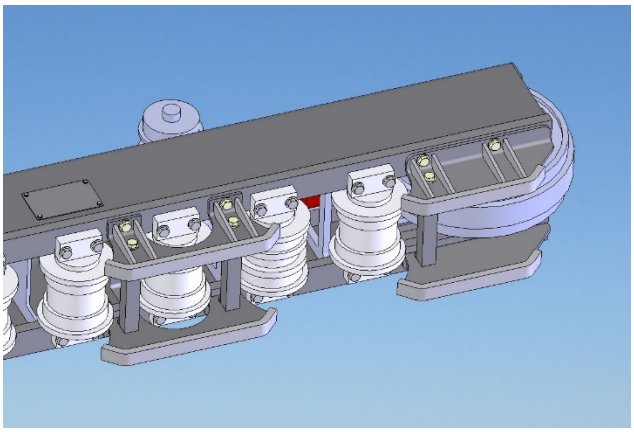
9.1. Track Guide – Operating and Functioning

9.1.1. General

The track guides go into action each time track flexure occurs when the undercarriage needs to surmount an obstacle. This may cause the track to slip off the track roller flanges. There are various types of track guide. The main difference lies in welded and bolted configurations. There are also versions that cover the entire length of the undercarriage and others that are mounted in separate sections.

9.1.2. Track Guides

Track guide in the configuration with welded segments (in this version, the undercarriage must be lifted for fitting or removal).



9.1.3. Function

The track guide acts as track "realigned". When a slackening flexure occurs, the track slips out of the track roller seat. When the flexure disappears, the track guide ensures that the track and the rollers are correctly realigned.

9.1.4. Track Guide – Fitting and Removal

In the case of a **welded configuration**, the undercarriage must be lifted in order to fit the track guide, since it cannot be fitted on the side. After lifting the undercarriage, the track guide must be fastened to the undercarriage with bolts. For removal, work in reverse order to fitting.

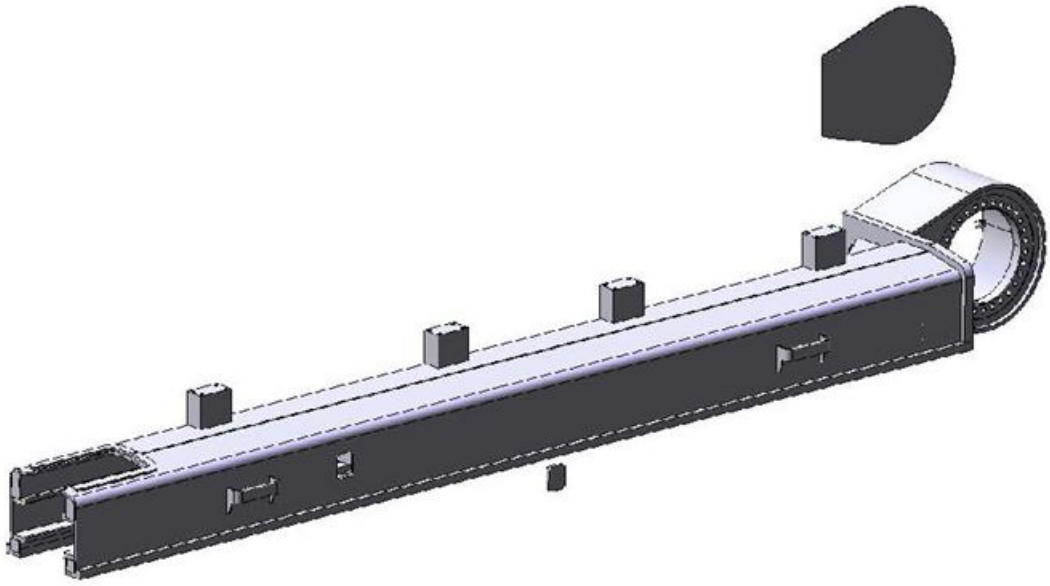
Make sure that there is no contact between the guide and the track roller body and that there is adequate clearance between the guide and the track (protrusion of the track pin).

9.2. Covers

9.2.1. General

The covers shown in the illustration below are provided with all the standard undercarriages (not all the covers are provided with all the undercarriages).

Additional covers not shown in the illustration may be provided with the undercarriages. The most common covers are those for the hydraulic motor or for the manual access hole to the grease nipple of the tensioning unit.



Be careful when handling the cover plates as they may be heavy depending on their size and hence be a source of injury.

9.2.2. Function

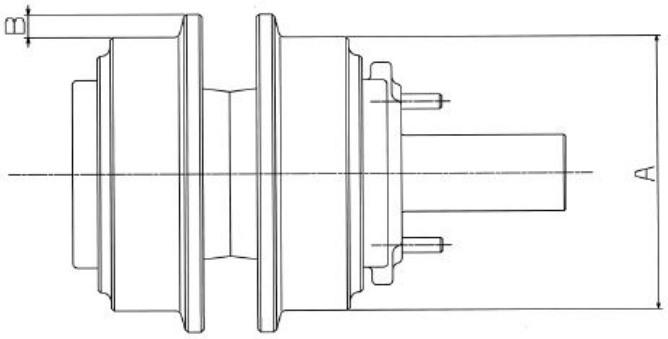
The covers are made of sheet metal and have the following function:

- Close hydraulic units and lines
- Provide protection against dirt and contamination
- Protect persons against injury

10. Wear Limits

C0107100M00N ROLLER WEAR SPECS

CARRIER ROLLER WEAR MEASUREMENT



CALIPER METHOD

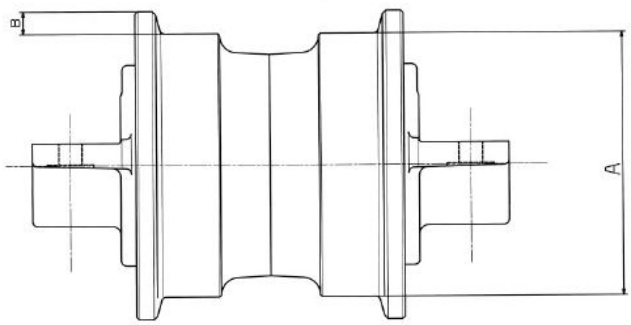
ITM Part Number	New A	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
C0107100M00N	190.0	188.8	187.3	186.5	185.7	184.0	182.2	180.3	178.2	177.1	175.9	173.5	171.0	168.5	166.0

DEPTH GAUGE METHOD

ITM Part Number	New B	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
C0107100M00N	16.0	16.6	17.3	17.7	18.1	19.0	19.9	20.8	21.9	22.5	23.0	24.3	25.5	26.7	28.0

A01070A1M00N ROLLER WEAR SPECS

TRACK ROLLER WEAR MEASUREMENT



CALIPER METHOD

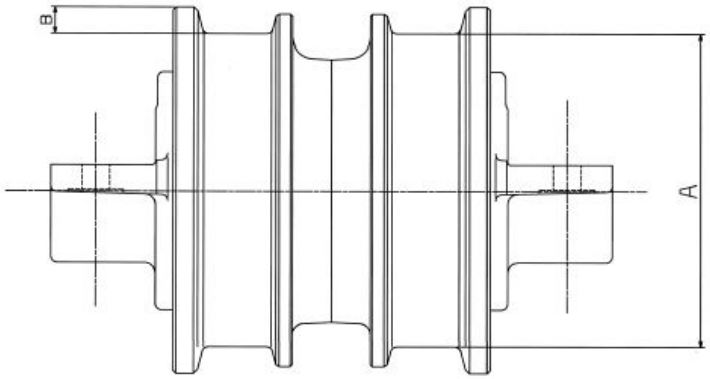
ITM Part Number	New A	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
A01070A1M00N	222.0	220.3	218.5	217.6	216.6	214.6	212.4	210.2	207.7	206.5	205.2	202.4	199.5	196.5	193.6

DEPTH GAUGE METHOD

ITM Part Number	New B	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
A01070A1M00N	16.0	16.9	17.8	18.2	18.7	19.7	20.8	21.9	23.2	23.8	24.4	25.8	27.3	28.8	30.2

B01070A2M00N ROLLER WEAR SPECS

TRACK ROLLER WEAR MEASUREMENT



CALIPER METHOD

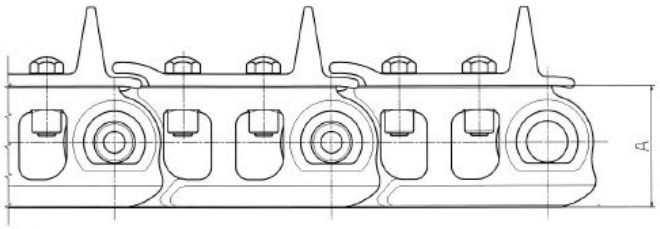
ITM Part Number	New A	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
B01070A2M00N	222.0	220.3	218.5	217.6	216.6	214.6	212.4	210.2	207.7	206.5	205.2	202.4	199.5	196.5	193.6

DEPTH GAUGE METHOD

ITM Part Number	New B	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
B01070A2M00N	16.0	16.9	17.8	18.2	18.7	19.7	20.8	21.9	23.2	23.8	24.4	25.8	27.3	28.8	30.2

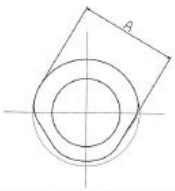
M01071B0M65915W TGA WEAR SPECS

TRACK LINK AND BUSHING WEAR MEASUREMENT



LINK HEIGHT

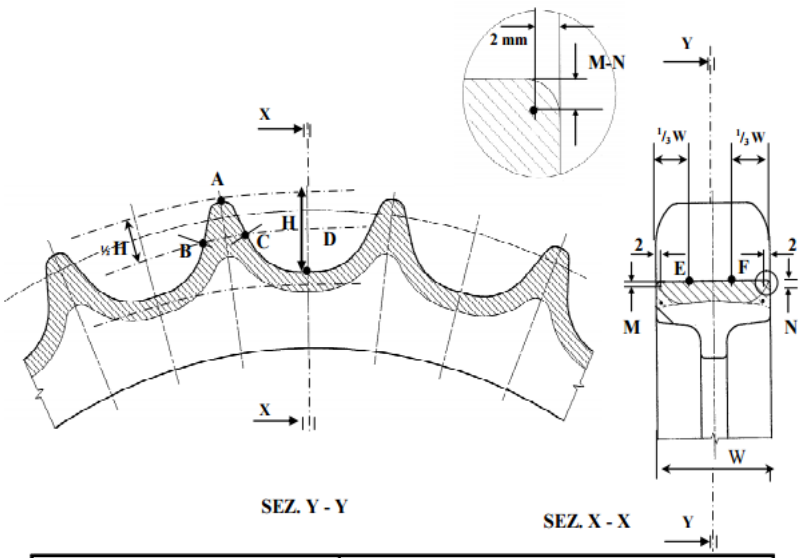
ITM Part Number	New A	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
G01070L0M00065W	140.0	139.1	138.1	137.6	137.1	136.0	134.8	133.6	132.3	131.6	130.9	129.4	127.8	126.2	124.6



BUSHING DIAMETER

ITM Part Number	New A	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	100%	110%	120%
G01070L0M00065W	78.5	78.1	77.6	77.4	77.2	76.7	76.2	75.6	75.0	74.7	74.4	73.7	73.0	72.3	71.6

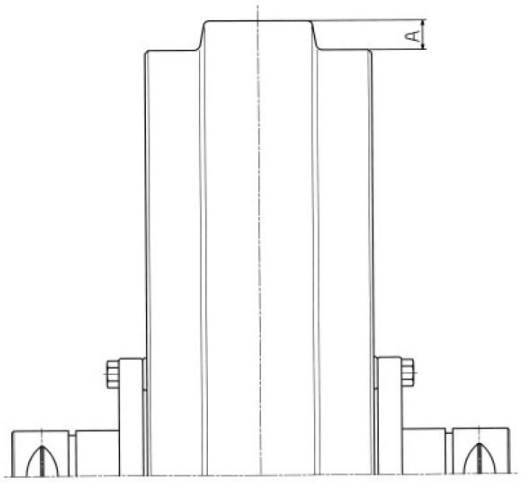
SHOT)



MEASUREMENT POSITION *Posizione per il rilievo*	INDUCTION HARDENING DEPTH (AT 40 HRc) *Profondità di Tempra (a 40 HRc)*
A	≥ 10,0 mm
B	≥ 6,0 mm
C	≥ 6,0 mm
D	≥ 4,5 mm
E	≥ 4,5 mm
F	≥ 4,5 mm
M, N	≥ 2,0 mm

P1445400N00U IDLER WEAR SPECS

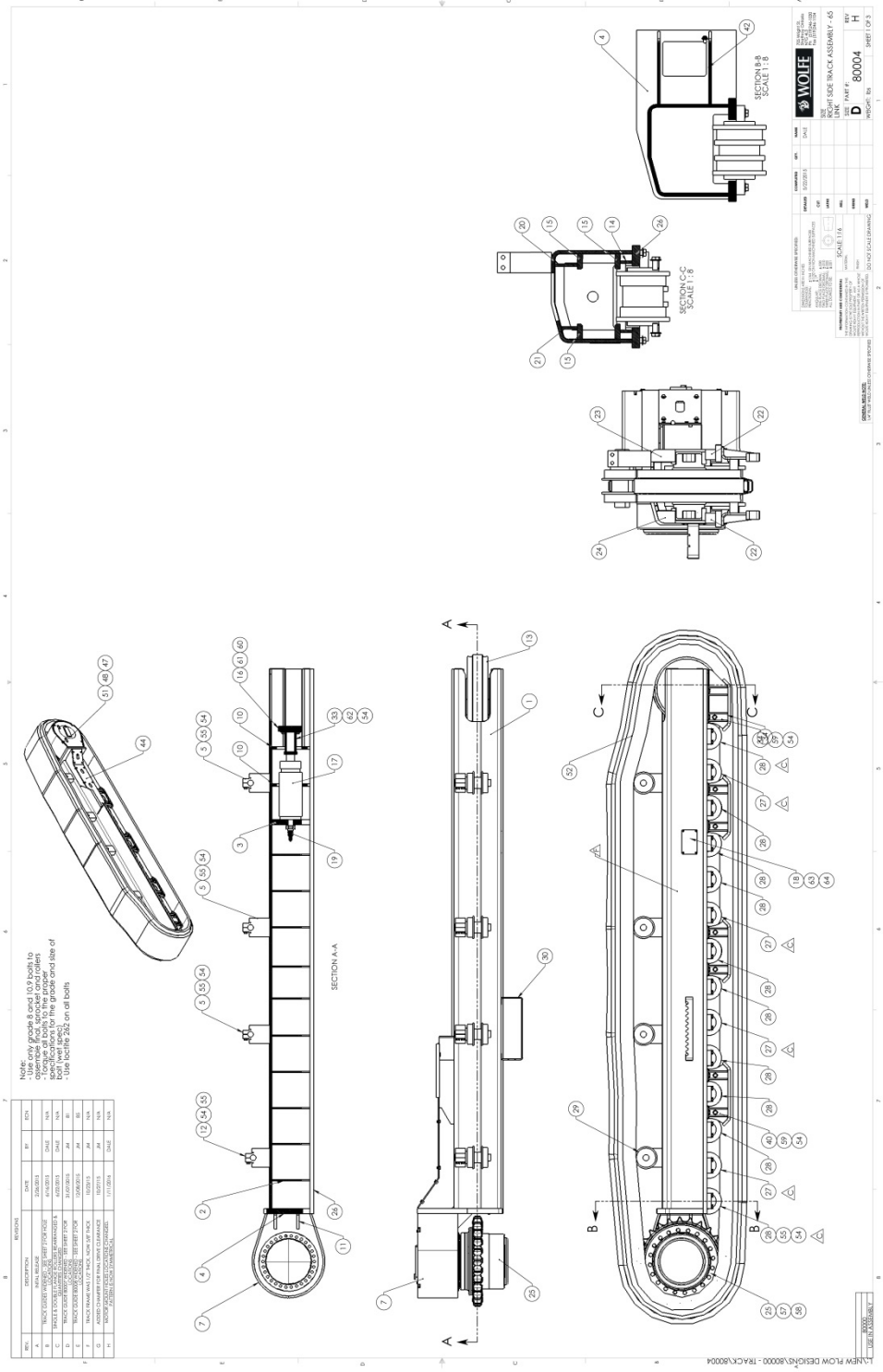
IDLER WEAR MEASUREMENT



ITM Part Number	**New A**	10%	20%	25%	30%	40%	50%	60%	70%	75%	80%	90%	**100%**	110%	120%
P1445400N00U	**20.5**	21.4	22.4	22.9	23.4	24.5	25.6	26.8	28.1	28.8	29.5	30.9	**32.5**	34.2	36.1

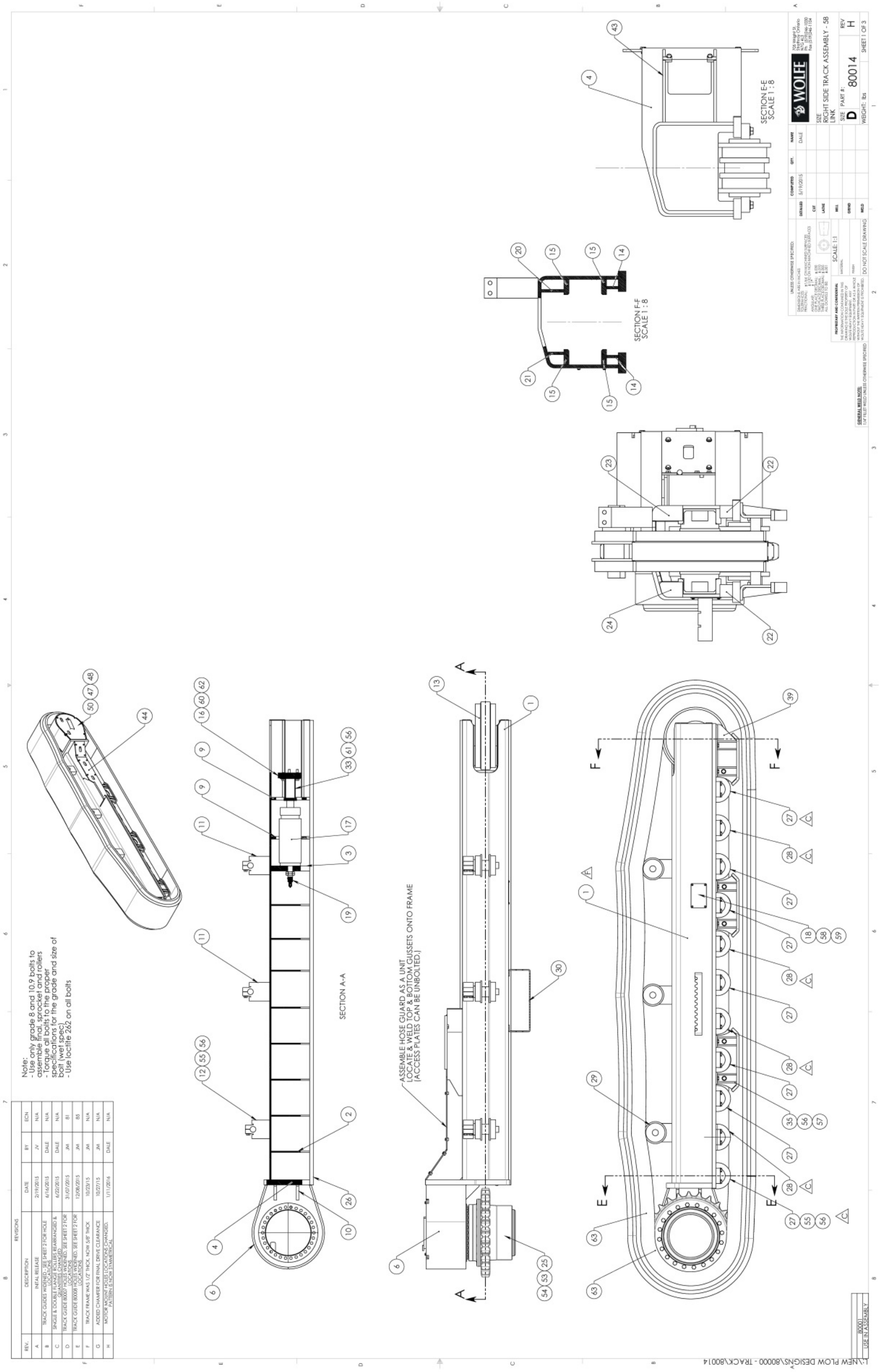
11. Spare Parts

11.1. 58 Link Tracks



65 Link Track Assembly

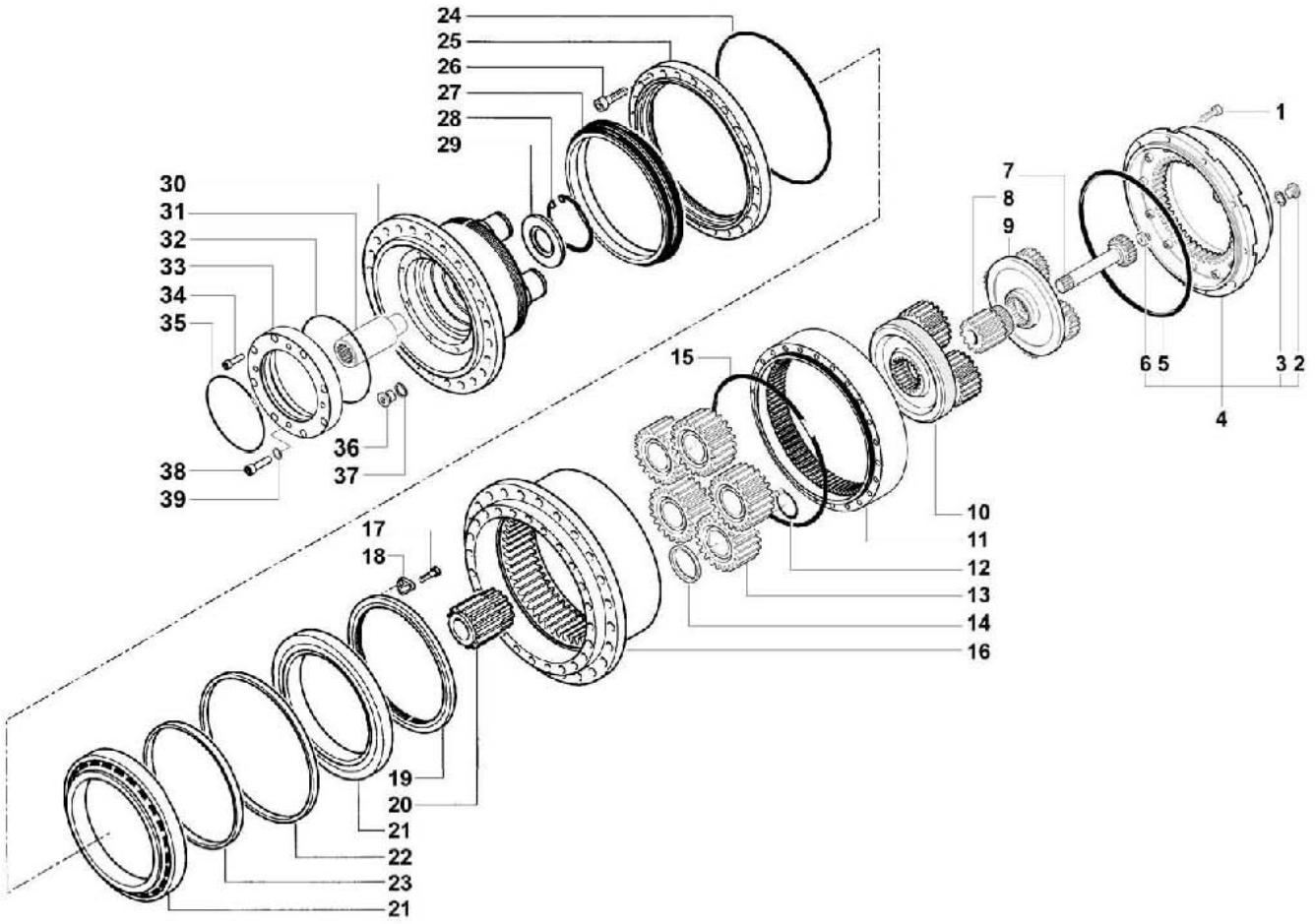
ITEM NO.	QTY.	PART NUMBER	FINISHED SIZE	Vendor	DESCRIPTION	BERCO OPTIONAL PART NUMBER	CAT OPTIONAL PART NUMBER
1	1	10391			TRACK OUTER STEP PLATE		
2	1	80006			FINAL DRIVE HOUSING ASSEMBLY		
3	3	80007			TRACK GUIDE ASSEMBLY		
4	1	80008			END TRACK GUIDE ASSEMBLY		
5	1	80012			ELASTOMER SPACER		
6	1	80020			RH HOSE GUARD ASSEMBLY		
7	1	80100			TRACK- RIGHT SIDE MAIN FRAME		
8	10	80103			MAIN FRAME INTERIOR SUPPORT 1/2" THK		
9	1	80104			MAIN FRAME INTERIOR SUPPORT 2" THK		
10	2	80105			MAIN FRAME UNDER RAIL		
11	1	80106			MAIN FRAME END PIECE AT FINAL DRIVE		
12	3	80107			ROLLER MOUNT BLOCK		
13	1	80109			FINAL DRIVE ACCESS PANEL		
14	2	80115			MAIN FRAME INTERIOR SUPPORT W/ CUTOUT		
15	1	80119			30 1/4"x 4 7/16" x 1/2" BAR		
16	4	80121			IDLER WHEEL GUIDE- BAR 30 1/4" x 3" x1"		
17	1	80123			ROLLER MOUNT BLOCK (NEAR FINAL DRIVE)		
18	2	80124			30 1/4" x 2 5/16" x 1/2" BAR		
19	1	80125			TRACK TENSION ACCESS PLATE		
20	1	80126			30 1/4" x 3 1/16" x 1/2" BAR		
21	2	80127			2 1/2" x 2 1/2" x 1/4" PLATE COVER		
22	1	80128			6" x 3" x 1/4" PLATE COVER		
23	1	80129			PLATE COVER		
24	1	80143			MOUNT PLATE		
25	1	80156			FINAL DRIVE FITTING		
26	2	80167			GUSSET		
27							
28							
29	1	45-68-75-350	PURCHASED COMPONENT	PIT FEDERN	TRACK TENSIONER WITH SAFETY VALVE		
30	4	B01070A2M00N	PURCHASED COMPONENT	ITM	DOUBLE BOTTOM ROLLER	BERCO CR2615B	CAT 323-5928 WITH (2X) 222-7244
31	10	A01070A2M00N	PURCHASED COMPONENT	ITM	SINGLE BOTTOM ROLLER	BERCO CR2617B	CAT 323-5925 WITH (2X) 222-7244
32	4	C0107100M00N	PURCHASED COMPONENT	ITM	CARRIER ROLLER	BERCO CR2876	CAT 428-0056
33	1	ALL TGA PADS EQUIPPED WITH MH RELIEF AND CLIPPED CORNERS M01071B0M65915W (65 LINK EXTREME PAD) SV.00526 (65 LINK STANDARD PAD)	PURCHASED COMPONENT	ITM	65 LINK TRACK ASSEMBLY	TMH (SHOE-TRACK ONLY, STANDARD PAD) PART# CR4426 (SHOE-TRACK ONLY, ECTREME PAD) PART# CR4054	[illegible] ASSEMBLY, 8.5" PITCH, 79.16mm BBUSHING, WITH 36" SINGLE GROUSER SHOE WITH MUD RELIEF, ASSEMBLED (SHOE-TRACK ONLY, STANDARD PAD) PART# 326-[illegible]
34	1	P1445400N00U	PURCHASED COMPONENT	ITM	IDLER WHEEL	BERCO CR6597	CAT 248-7151
35	1	R14070U0Y01	PURCHASED COMPONENT	ITM	SPROCKET ASSEMBLY	TRACK-ONE T073002	
36	1	TAP1684	PURCHASED COMPONENT		GREASE NIPPLE ASSEMBLY		
37							
38	30	F15411	GRADE 8, YELLOW ZINC	FASTENAL	7/8"-9 X 2" HCS		
39	4	F15413	GRADE 8, YELLOW ZINC	FASTENAL	7/8"-9 X 2-1/2 HCS		
40	64	F15416	GRADE 8, YELLOW ZINC	FASTENAL	7/8"-9 X 3-1/4" HCS		
41	98	F33821	THRU HARD, YELLOW ZINC	FASTENAL	7/8" X 1.75 OD STEEL SAE WASHER		
42	4	15205	GRADE 8, YELLOW ZINC	FASTENAL	1/2"-13 X 1" HCS		
43	4	F33086	LOW CARB, ZINC	FASTENAL	1/2" X 1.06 OD SAE WASHER		
44	4	F15002	GRADE 8, YELLOW ZINC	FASTENAL	1/4"-20 X 5/8 HCS		
45	4	F33078	LOW CARB, ZINC	FASTENAL	1/4" X .63" OD SAE WASHER		
46	30	F0154072	CLASS 10.9, ZINC	FASTENAL	M24-3 X 110mm HCS		
47	20	F0154071	CLASS 10.9, ZINC	FASTENAL	M24-3.0 X 100mm HCS		
48	30	F40365	LOW CARB, ZINC	FASTENAL	M24 X 44mm OD TYPE A WASHER		
49	4	F0154049	CLASS 10.9, ZINC	FASTENAL	M20-2.5 X 90mm HCS		
50	4	F34883	THRU HARD, PLAIN STEEL	FASTENAL	M20 FLAT WASHER		


Note:
- Use only grade 8 and 10.9 bolts to assemble final, sprocket and rollers
- Torque all bolts to the proper specifications for the grade and size of bolt (wet spec)
- Use loctite 262 on all bolts
SECTION A-A
ASSEMBLE HOSE GUARD AS A UNIT
LOCATE & WELD TOP & BOTTOM GUSSETS ONTO FRAME
(ACCESS PLATES CAN BE UNBOLTED.)
SECTION E-E
SCALE 1 : 8
SECTION F-F
SCALE 1 : 8
WOLFE
RIGHT SIDE TRACK ASSEMBLY - 58 LINK
80014
DO NOT SCALE DRAWING
L:\NEW PLOW DESIGNS\80000 - TRACK\80014

58 Link Track Assembly

ITEM NO.	QTY.	PART NUMBER	FINISHED SIZE	MATERIAL	DESCRIPTION	BERCO OPTIONAL PART NUMBER	CAT OPTIONAL PART NUMBER
1	1	10391			TRACK OUTER STEP PLATE		
2	1	80006			FINAL DRIVE HOUSING ASSEMBLY		
3	2	80007			TRACK GUIDE ASSEMBLY		
4	1	80008			END TRACK GUIDE ASSEMBLY		
5	1	80012			CAT AND BERCO ELASTOMER SPACER		
6	1	80020			RH HOSE GUARD ASSEMBLY		
7	8	80103			MAIN FRAME INTERIOR SUPPORT 1/2" THK		
8	1	80104			MAIN FRAME INTERIOR SUPPORT 2" THK		
9	1	80106			MAIN FRAME END PIECE AT FINAL DRIVE		
10	2	80107			ROLLER MOUNT BLOCK		
11	1	80109			FINAL DRIVE ACCESS PANEL		
12	2	80115			MAIN FRAME INTERIOR SUPPORT W/ CUTOUT		
13	1	80119			30 1/4"x 4 7/16" x 1/2" BAR		
14	4	80121			IDLER WHEEL GUIDE- BAR 30 1/4" x 3" x1"		
15	1	80123			ROLLER MOUNT BLOCK (NEAR FINAL DRIVE)		
16	2	80124			30 1/4" x 2 5/16" x 1/2" BAR		
17	1	80125			TRACK TENSION ACCESS PLATE		
18	1	80126			30 1/4" x 3 1/16" x 1/2" BAR		
19	2	80127			2 1/2" x 2 1/2" x 1/4" PLATE COVER		
20	1	80128			6" x 3" x 1/4" PLATE COVER		
21	1	80129			PLATE COVER		
22	1	80143			MOUNT PLATE		
23	1	80147			TRACK- RIGHT SIDE MAIN FRAME		
24	2	80149			MAIN FRAME UNDER RAIL		
25	1	80156			FINAL DRIVE FITTING		
26	2	80167			GUSSET		
27							
28							
29	1	45-68-75-350	PURCHASED COMPONENT	PIT FEDERN	TRACK TENSIONER WITH SAFETY VALVE		
30	4	B01070A2M00N	PURCHASED COMPONENT	ITM	DOUBLE BOTTOM ROLLER	BERCO CR2615B	CAT 323-5928 WITH (2X) 222-7244
31	7	A01070A2M00N	PURCHASED COMPONENT	ITM	SINGLE BOTTOM ROLLER	BERCO CR2617B	CAT 323-5925 WITH (2X) 222-7244
32	3	C0107100M00N	PURCHASED COMPONENT	ITM	CARRIER ROLLER	BERCO CR2876	CAT 428-0056
33	1	ALL TGA PADS EQUIPPED WITH MH RELIEF AND CLIPPED CORNERS M01071B0M65915W (65 LINK EXTREME PAD) SV.00526 (65 LINK STANDARD PAD)	PURCHASED COMPONENT	ITM	58 LINK TRACK ASSEMBLY	TMH (SHOE-TRACK ONLY, STANDARD PAD) PART# CR4426 (SHOE-TRACK ONLY, ECTREME PAD) PARTt# CR4054	65 SALT LINK CHAIN ASSEMBLY, 8.5" PITCH, 79.16mm BBUSHING, WITH 36" SINGLE GROUSER SHOE WITH MUD RELIEF, ASSEMBLED (SHOE-TRACK ONLY, STANDARD PAD) PART# 326-1144
34	1	P1445400N00U	PURCHASED COMPONENT	ITM	IDLER WHEEL	BERCO CR6597	CAT 248-7151
35	1	R14070U0Y01	PURCHASED COMPONENT	ITM	SPROCKET ASSEMBLY	TRACK-ONE T073002	
36	1	TAP1684	PURCHASED COMPONENT		GREASE NIPPLE ASSEMBLY		
37							
38	22	F15411	GRADE 8, YELLOW ZINC	FASTENAL	7/8"-9 X 2" HCS		
39	4	F15413	GRADE 8, YELLOW ZINC	FASTENAL	7/8"-9 X 2-1/2 HCS		
40	50	F15416	GRADE 8, YELLOW ZINC	FASTENAL	7/8"-9 X 3-1/4" HCS		
41	76	F33821	THRU HARD, YELLOW ZINC	FASTENAL	7/8" X 1.75 OD STEEL SAE WASHER		
42	4	15205	GRADE 8, YELLOW ZINC	FASTENAL	1/2"-13 X 1" HCS		
43	4	F33086	LOW CARB, ZINC	FASTENAL	1/2" X 1.06 OD SAE WASHER		
44	4	F15002	GRADE 8, YELLOW ZINC	FASTENAL	1/4"-20 X 5/8 HCS		
45	4	F33078	LOW CARB, ZINC	FASTENAL	1/4" X .63" OD SAE WASHER		
46	30	F0154072	CLASS 10.9, ZINC	FASTENAL	M24-3 X 110mm HCS		
47	20	F0154071	CLASS 10.9, ZINC	FASTENAL	M24-3.0 X 100mm HCS		
48	30	F40365	LOW CARB, ZINC	FASTENAL	M24 X 44mm OD TYPE A WASHER		
49	4	F0154049	CLASS 10.9, ZINC	FASTENAL	M20-2.5 X 90mm HCS		
50	4	F34883	THRU HARD, PLAIN STEEL	FASTENAL	M20 FLAT WASHER		

BONFIGLIOLI TRASMITAL	Prodotto tipo / Product type: 7 18 C 3 H 12 F1 87 J14 0 LB1	Compilatore / Signature	Cignani P.	Lista ricambi n°: Spare part list No.: 1.718C3087001	Rev: 0
		Data / Date	18/11/2010		
		Sostituisce il / Replacing			
		Sostituito da / Replaced by			
Rapporto di riduzione / Total ratio: 1:87		Codice di ordinazione prodotto / Product ordering code: 2T718C3087001			
Predisposizione motore / Motor adaptor: HYDROMATIK A6VE 250 (DIN 5480 50x2 z24)					



BONFIGLIOLI TRASMITAL

Prodotto tipo / Product type: **7 18 C 3 H 12 F1 87 J14 0 LB1**

Compilatore / Signature	Cignani P.
Data / Date	18/11/2010
Sostituisce il / Replacing	
Sostituito da / Replaced by	

Lista ricambi n°: Spare part list No.: **1.718C3087001** Rev: 0

Ref	Codice/Code	Qt.	Denominazione	Denomination	Denomination	Beschreibung	Note		
1	720956019	21	VITE	SCREW	VIS	SCHRAUBE	M16x160-8.8 UNI 5931		
2-3	6682501661	2	TAPPO SFIATO	OIL BREATHER PLUG	RENIFLARD	ENTLUEFTUNGSTOPFEN	M30x2 (OR)	4*	#
4	2T237179603	1	ASSIEME COPERCHIO	COVER ASSEMBLY	ENSEMBLE COUVERCLE	DECKEL MIT ZUBEHOR			
5	715303377	1	O-RING	O-RING	O-RING	O-RING	5,33x456,06	4*	#
6	6663350310	1	PASTIGLIA	PAD	DISQUE DE FRICT.	ANLAUFSCHEIBE		4*	
7	6643012280	1	SOLARE	SUN GEAR	ENGREN CENTRAL	SONNENRAD	1:4,60 z30 m3,50		
8	6643040500	1	SOLARE	SUN GEAR	ENGREN CENTRAL	SONNENRAD	z24 m5,50 1:4,25		
9	2T235379770	1	ASSIEME 1° RIDUZIONE	1ST RED. ASSEMBLY	ENSEMBLE 1° REDUCT.	KOMPL.MONT.1°STUFE	1:4,60		
10	2T235379700	1	ASSIEME 2° RIDUZIONE	2ND RED. ASSEMBLY	ENSEMBLE 2° REDUCT.	KOMPL.MONT. 2°STUFE	1:4,25		
11	6641040200	1	ANELLO DENTATO	TOOTHED RING	ANNEAU DENTEE	ZAHNKRANZ	z78 m5,50 H121		
12	718298763	5	ANELLO ELASTICO	CIRCLIP	ANNEAU ELASTIQUE	SICHERUNGSRING	UNI 7436-80		
13	2T235979590	5	ASSIEME PLANETARIO	PLANETARY ASSEMBLY	PLAN.AVEC ACCES.	PLAN.MIT ZUBEHOR	1:4,50		
14	6662006740	5	DISTANZIALE	SPACER	ENTRETOISE	DISTANZSCHEIBE			
15	715303377	1	O-RING	O-RING	O-RING	O-RING	5,33x456,06		#
16	6650010430	1	CORPO RIDUTTORE	GEARBOX HOUSING	CARTER REDUCTEUR	GETRIEBEGEHÄUSE			
17	720954010A	1	VITE	SCREW	VIS	SCHRAUBE	UNI 5931 M10x50-8.8		
18	6660850530	1	PIASTRA ANTIROTAZ.	BACK STOP	DISPOSITIF ANTIROT.	ANTIROT-SICHERUNG			
19	6660001160	1	GHIERA REGISTRO	NUT	ECROU	RUNDMUTTER	M380x2,5		
20	6643040300	1	SOLARE	SUN GEAR	ENGREN CENTRAL	SONNENRAD	z20 1:4,50 m6,50		
21	712767014	2	CUSCINETTO	BEARING	ROULEMENT	LAGER	381X479X49		
22	6662004630	1	DISTANZIALE	SPACER	ENTRETOISE	DISTANZSCHEIBE			
23	6662004640	1	DISTANZIALE	SPACER	ENTRETOISE	DISTANZSCHEIBE			
24	715303381A	1	O-RING	O-RING	O-RING	O-RING	5,33x481,41		#
25	6660800410	1	ANELLO RITEGNO	COVER	COUVERCLE	DECKEL			
26	720956207	24	VITE	SCREW	VIS	SCHRAUBE	M16x60-8.8 UNI 5931		
27	710317024	1	TENUTA FRONTALE	LIFETIME SEAL	JOINT LIFETIME	LIFETIME-DICHTUNG	Øi 192		#
28	718299119	1	ANELLO ELASTICO	CIRCLIP	ANNEAU ELASTIQUE	SICHERUNGSRING	UNI 7437-170		
29	6660300411	1	SPINGI-DISCHI	DISCS RETAINER	POUSSE-RESSORT	FEDERDRUCKSCH			
30	6632593940	1	MOZZO FLANGIATO	HUB	MOYEU	NABE			
31	6646003730	1	GIUNTO MOTORE	COUPLING	ACCOUPLEMENT	MOTOR KUPPLUNG			
32	715303257	1	O-RING	O-RING	O-RING	O-RING	3,53x266,29		#
33	6654510110	1	FLANGIA MOTORE	MOTOR ADAPTOR	BRIDE	MOTOR FLANSCH			
34	720956011A	6	VITE	SCREW	VIS	SCHRAUBE	UNI 5931 M16x80-8.8		
35	715307376	1	O-RING	O-RING	O-RING	O-RING	247.02X5.33 PK 2-376		#
36	722366113	2	TAPPO CHIUSO	PLUG	BOUCHON	STOPFEN	M30X2 DIN 908-St		#
37	718006018	2	RONDELLA	WASHER	RONDELLE	SCHEIBE	30x36x1,5		#

*Componenti inclusi nell'assieme indicato	# Ricambi consigliati da tenere a magazzino
*Components included in the indicated assembly	# Recommended for stock
*Composants inclus dans le sous ensemble	# Pièces à stocker
*In der Baugruppe enthaltene Teile	# Wir empfehlen diese Teile zu bevorraten

Ref. / Item		Sostituisce / Replaces		Data / Date	

BONFIGLIOLI TRASMITAL

Prodotto tipo / Product type: **7 18 C 3 H 12 F1 87 J14 0 LB1**

Compilatore / Signature	Cignani P.
Data / Date	18/11/2010
Sostituisce il / Replacing	
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Lista ricambi n°: Spare part list No.: **1.718C3087001** Rev: 0

Ref	Codice/Code	Qt.	Denominazione	Denomination	Denomination	Beschreibung	Note
38	711395505	4	VITE	SCREW	VIS	SCHRAUBE	UNI 5737 M20x60-12.9
39	6682300150	4	RONDELLA	WASHER	RONDELLE	SCHEIBE	

^Componenti inclusi nell'assieme indicato
^Components included in the indicated assembly
*Composants inclus dans le sous ensemble
*In der Baugruppe enthaltene Teile

Ricambi consigliati da tenere a magazzino
Recommended for stock
Pièces à stocker
Wir empfehlen diese Teile zu bevorraten

Ref. / Item		Sostituisce / Replaces		Data / Date	