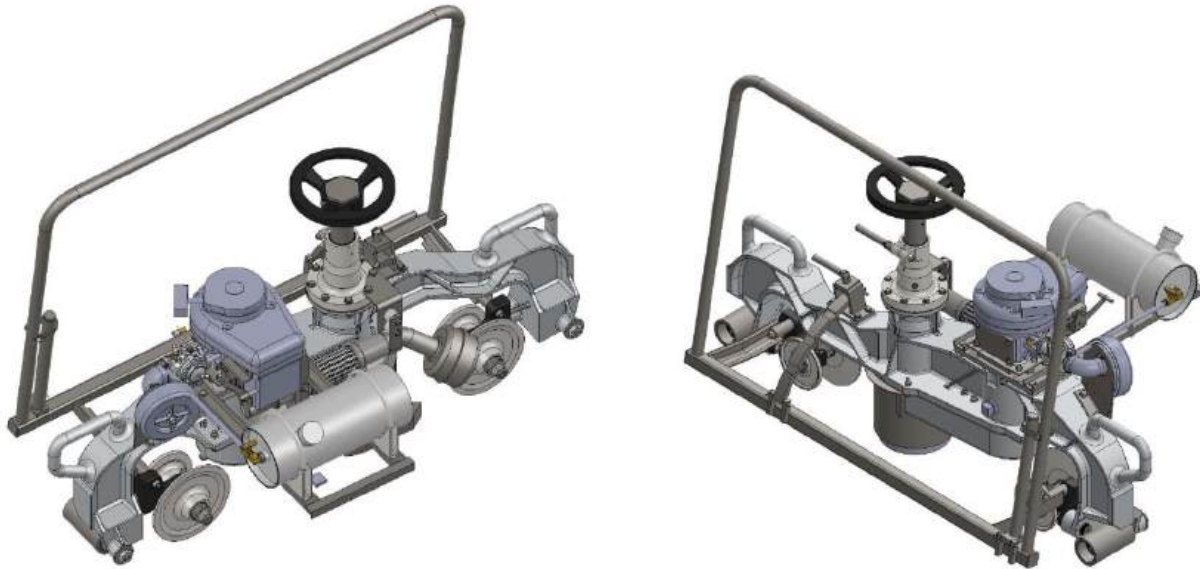


Gas / Petrol Rail Profile Grinder 910170

Operating and Maintenance Manual



Gas / Petrol Rail Profile Grinder 910170

Record of Changes

No.	Date	Description of Changes
Rev 1	3.2017	Initial Release
Rev 2	10.2017	Update parts list
Rev 3	9.2018	Update manual format and engineering changes
Rev 4	6.2019	Add assembly drawings (Rev 5) and parts list to manual & update logo
Rev 5	9.2019	Update parts list (Rev 6): call out exhaust bracket
Rev5.1	3.2023	Update Footer and Contact Information Update Parts and Service page with contact information

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Section 1: Overview and Safety

Rail Profile Grinder Overview

Racine Railroad Products designs and manufactures equipment primarily for the repair and new construction of rail and railroad tie track maintenance.

The Rail Profile Grinder is equipped with a U.S. Motor Power 2-cycle engine that produces 7 HP for easy grinding of all standard railhead profiles. The 2-cycle engine design allows for 180-degree range of motion in grinding the railhead surface without engine shut down.

The Rail Profile Grinder is ergonomically designed for easy operation and offers rubber isolated motor mounts for excellent vibration dampening for operator comfort. The grinder's 185 lb. (84 kg) weight helps produce a smooth grind without additional effort.

Do not use this machine for other than its intended purpose.

Please read these instructions when using this tool, which can only be used for the specified purpose. This instruction manual should be kept throughout the life of the tool.

The operator of this tool should:

- Have access to this operation instruction.
- Read and understand this operation instruction.

Note: Information in this document is subject to change without notice.

Environmental Protection



Comply with relevant national waste disposal laws and regulations. Waste electronic devices cannot be treated as household waste.

Equipment, accessories, and packaging shall be recyclable.



Do not throw the discarded equipment in trash cans.

Safety Information

For safe installation and operation of this equipment, carefully read and understand the contents of this manual. Improper operation, handling, or maintenance can result in equipment damage and personal injury.

Only trained and authorized personnel should be allowed to operate this machine. In addition, all personnel at the worksite should be aware of the safety concerns and their individual responsibilities prior to working this machine.

Please read and comply with all the safety precautions in this manual **before** operating this machine. Your safety is at risk.

Safety Terms



DANGER indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury will occur.



WARNING indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury could occur.



CAUTION indicates a potentially hazardous operating procedure, practice, or condition. If the hazardous situation is not moderate or minor injury could occur.

Machine Use and Safety Precautions



Failure to follow safety precautions when operating this equipment can result in serious injury or death to the operator or other persons in the area.

Observe the following precautions whenever you are operating, working on or near this equipment.

Do not use this machine for other than its intended purpose.

Do not make any modifications without authorization or written approval from Racine Railroad Products. Replace all Racine Railroad Products and OEM parts with genuine Racine Railroad Products and OEM parts. Using non-OEM parts may compromise the safety of the machine.

Do not wear loose clothing, jewelry, radio belts, etc., when operating, working on or near this equipment. They can be caught in moving parts and may result in severe injury.

Always wear appropriate personal protective clothing when operating this equipment: e.g., Orange safety vest, hard hat, safety glasses with side shields, hearing protection, steel-toed safety boots, leather gloves, dust respirator, etc.

Always lift heavy objects with the knees and legs, not the arms and back.

Always keep hands, arms, feet, head, clothing, etc., out of the operating area and away from all rotating or moving components when operating, working on or near this machine.

Always make sure that all guards, covers, belts, hoses and operating components are in good working order and that all controls are in the appropriate position before starting the engine.

Always make sure that all safety equipment installed properly and are in good working order. Do not operate the machine until unsafe conditions have been corrected.

Always operate in a well-ventilated area and make sure that the air filters, air filter covers, and muffler are in good condition.

Always keep the machine clean and free of debris. Operate the machine in a safe and responsible manner. Exercise caution when fueling, working on or near rotating or moving components, hot components and fuel systems. Be aware of potential fire hazards and prevent sparks, exhaust, etc., from starting fires on the machine and/or work area.

Always comply with all instructions provided on any decals or placards installed on the machine and with any relevant amplifying information provided in this manual or other general operating procedures.

Always disconnect the power source and make sure that all controls are in a safe position and install all appropriate locking and safety devices before doing any of the following:

- Lubricating
- Adjusting
- Installing Tooling
- Making Repairs
- Performing Service

Recommended Spare Parts List

Racine Railroad Products highly recommends having the following spare parts on hand in case the machine needs servicing

Note: This list is not intended to supply you with a stock inventory of spare parts. It is intended to prevent any lengthy down time due to lack of available parts. Some of the parts may be available locally depending on your needs

Description	RRP Part Number
Air Filter	458290
Carb. Flange	777185
Cap, Fuel.....	460590
Carburetor	712318
Carburetor (Repair Kit).....	792406
Elbow.....	777200
Filter Cover.....	388376
Filter, Fuel	711661
Flex Tube (Stainless)	389576
Fuel Line, Outer	388806
Gasket, Exhaust (Wire)	461341
Hose.....	389548
Hose Clamp	459431
Internal Fuel Tank Hose.....	385188
Muffler	461348

Recommended Spare Parts List Continued

Description	RRP Part Number
Muffler Clamps	461373
Plate, Brkt.....	777184
Pre-Cleaner	385170
Rubber Element	460095
Screw	400795
Screw	405586
Socket Screw	409063
Sheave, Driven.....	386288
Sheave, Inner Half	386290
Sheave, Outer Half.....	386289
Spark Plug (RL 86C)	458576
Starter (Service)	711555
Toggle Switch.....	459412
V-Belt.....	458312
Wheel, Large Guide	210214
Wheel, Small Guide	210215

Section 3: Tool Operation

Personal Protective Equipment



Before operating this machine, make sure that all general safety precautions are observed, and that proper personal protective clothing is worn as described below.

At a minimum, operators should wear the following Personal Protective Equipment:

1. Safety Glasses
2. Hearing Protection
3. Hard Hat
4. High Visibility Safety Vest
5. Leather Work Gloves
6. Steel Toed Safety Shoes

2-Cycle Engine

All Racine Profile Grinders are tested before shipping. The Profile Grinder currently uses a carburetor which is equipped with a metering screw to restrict fuel flow.

- This limits the engine RPM's to the correct range of the grinding wheel. Consequently, it is not necessary to make any carburetor adjustments on the initial startup.
- When adjustments are necessary, the low speed needle is adjusted one (1) turn open.
- With the grinder running correctly, the engine RPM's should be in a range from 8300 to 8500 controlled by the ignition module at full throttle.

Fuel Mixture



Do not use any type of motor oil.

Motor oil will cause severe carbon build-up in the exhaust ports, in the combustion area and on the spark plug rendering it useless.

Fuel / 2 Cycle Oil – Mix (24:1)

- Use 5.3 ounces (156 ml) oil per 1 gallon (3.7 liters) of fuel.
 - Use 26.6 ounces (786 ml) per 5 gallons (19 liters) of fuel.
1. In a separate clean container, thoroughly mix 26.6 ounces (786 ml) of 2-cycle oil low ash or equivalent with five (5) gallons (19 liters) of fuel.
 - If mixing in a one gallon container, mix 5.3 ounces (156 ml) of oil with one gallon of fuel.
 2. Strain the fuel mixture through a fine mesh screen when filling the fuel tank to remove any dirt or water that may be present.

Note: Never mix any fuel in a container that already has mixed fuel in it. If the amount of fuel in the container is very small, dispose of properly. Always start fresh.

- Before adding fuel to the profile grinder, check that it is mixed with the proper type 2-cycle oil as recommended.



Do not store mixed 2-cycle mixed fuel for more than six (6) months. If the machine is used only occasionally, use a one (1) gallon (3.7 liters) container for storing the fuel.



Use of fuel containing more than 10% alcohol (ethanol) will cause permanent damage to the engine.

Engine Starting

1. Before starting the engine, turn hand wheel counter-clockwise to stop, and tighten the locking lever.
This will make sure the grinding stone will not contact any objects when starting the engine.
2. Fill the fuel tank with fuel in an area 40-50 feet (3-4 meters) away from where grind is to take place.
Wipe up all spilled fuel.
3. Move the choke to closed position.
4. Push the throttle IN, full throttle.
5. Turn the ignition switch to ON.
6. Crank the engine over using quick short pulls.
7. When the engine attempts to fire, move the choke to the open position.
Engine speed will vary according to outside temperatures.
Low temperatures generally require a richer setting.

Engine Stopping

1. Place the throttle to the idle position.
2. Move the ignition toggle switch, located on engine fan housing cover, to the OFF position.

Grinding Top of the Rail

1. Set the grinder on the rail with the handle frame on inside of track.
2. Loosen the advancing screw locking lever and adjust the wheel down, using the hand wheel, until the grinding stone just touches the weld.
3. Move the machine off of the weld and adjust the wheel down slightly more and tighten the advancing screw locking lever.
4. Start the engine
5. Loosen the advancing screw locking lever.
Maintain one hand on the handle frame and the other hand on the hand wheel.
6. With the engine warm and running at full RPM's, move the grinding wheel into and over the weld in a back and forth motion parallel to the rail axis, continuing to adjust the wheel down, until the welded area is flat to rail surface.
7. Rotate over the edge of the rail ball in a back and forth motion perpendicular to the axis of rail on both sides of ball.

Grinding Gauge Side of the Rail

1. Place the throttle control to halfway position.
2. Adjust the grinding wheel up to full height and tighten the advancing screw locking lever.
3. Loosen the frame locking lever on curved slide bar and lower the machine down to the bottom position.
4. Place the throttle control to full position.
5. Loosen the advancing screw locking lever and adjust the wheel down until it contacts the weld.
6. Move the machine past the weld and adjust the wheel down slightly more.
7. Move the grinding wheel into and over the weld in a back and forth motion while continuing to adjust the wheel down until the welded area is flat to the rail surface.
8. Raise the grinding stone up for clearance and tighten the advancing screw locking lever.
9. Place the throttle to halfway position.
10. Loosen the frame locking lever on curved slide bar and raise machine to the UP position.
11. Tighten the frame locking lever.
12. Stop the engine in the prescribed manner.

Grinding Field Side of the Rail

1. With the help of another person, pick up the machine and rotate it 180-degrees and set back down on rail.
2. Loosen the frame locking lever on curved slide bar and lower the machine down to the bottom position.
3. Place the throttle control to full position.
4. Loosen the advancing screw locking lever and adjust the wheel down until it contacts the weld.
5. Move the machine past the weld and adjust the wheel down slightly more.
6. Move the grinding wheel into and over the weld in a back and forth motion while continuing to adjust the wheel down until the welded area is flat to the rail surface.

Section 4: Maintenance

It is highly recommended to practice regular check-ups and maintenance in accordance with the usage frequency to keep your tool in better condition and reduces total running costs.

- Check for loose caps screws or nuts daily.
- Check the engine regularly for abrasive dust built-up on cooling fins. Clean thoroughly as needed to prevent excessive heat.
- Avoid getting grease on the grinding wheel.
- Periodically oil the shoulder bolt on the ball guide flange wheels to prevent rust. Avoid excess.
- Approximately every 3 to 4 months of operation, grease the advancing screw and spindle. Avoid excess. Use approximately one thimble full for each Zerk fitting
- Use appropriate grease.

Storage

1. The recommended operating temperature of the machine is between -4 – 104 °F (-20 – 40 °C).

If not being used for an extended period of time, remove the fuel from the machine and stored it separately.

Apply anti-rust oil on the surface of the machine and keep it in a ventilated, dry, corrosive, fuel-free environment.

Replacing the V-Belt



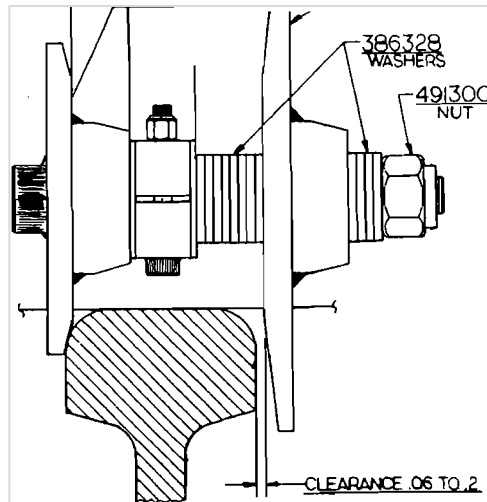
Remove the spark plug wire before performing service.

1. 40-50 feet (3-4 meters) from the grinding site, drain the fuel tank.
2. Lay machine down flat on handle frame and remove the wheel guard.
3. Remove the grinding wheel using a 7/8" open-end wrench and a strap wrench.
4. Remove the belt guard.
5. Remove two (2) cotter pins located in the outer drive sheave.
Remove the two (2) shoulder screws using a 5/32" alien wrench.
6. Loosen the outer drive sheave (left hand thread) with a 1/2" alien wrench and a 1 1/4" open end wrench.
7. Remove the belt.
8. Install a cogged V-belt (RRP# 458312) in both sheaves. Pinch the belt together in the middle and tighten the outer drive sheave.

9. Using a 1/2" allen wrench and a 1 1/4" open-end wrench tighten the outer drive sheave to achieve proper belt tension.
Note: Correct belt tension is when a 5 lbs (2.2 kg) force applied to the middle of the belt deflects it 1/8".
10. At this belt tension, rotate the outer drive sheave in either direction to nearest set of threaded holes in inner sheave.
11. Install two (2) shoulder screws and tighten.
12. Install two (2) cotter pins.
13. Install the belt guard and secure with cap screws.
14. Install the face plate, grinding wheel, and wheel guard.

Flange Wheel Adjustment

1. Using spacer washers, adjust the flange wheel in or out to acquire 1/8" to 3/8" clearance on rail ball.
 See illustration.



Guide Flange

Rail	Head Width	"A" Dim
85 ASCE	2.562	2.682
90 ASCE	2.625	2.745
100 ASCE	2.750	2.870
112 RE	2.718	2.838
115 RE	2.718	2.838
131 RE	3.000	3.120
155 PS	3.000	3.120

Storing the Engine

The following steps should be taken to prepare the engine for storage.

2. Drain the fuel tank.
3. **Do not** run the engine to remove the fuel left in the carburetor.
4. Remove the spark plug and pour 1/4 cup of oil into the cylinder.
5. Replace the spark plug.
6. Crank engine over once or twice to circulate the oil.

If the engine is stored in an extremely damp area, remove the crankcase cover, and lubricate the upper and lower main bearings at both ends of the connecting rod

General Maintenance

Solid State Ignition

Air gap between the coil and the flywheel is 010".

If coil is loosened or removed for any reason, the air gap **must** be reset.

Spark Plug

Check and clean spark plug regularly.

Set the spark plug gap at .030".

Belt Inspection

WEAR: **Do not** use a belt that has glazed.

STRETCHED: **Do not** use a belt that has stretched or cracked.

TENSION: **Do** keep the belt set at the prescribed setting. **Do not** over tighten.

Grinding Wheel or Stone

Do not use any grinding wheel (stone) which has an RPM rating **less than** the spindle RPM's.

Do not use any grinding wheel which has been liquid soaked (water, oil, fuel, etc.).

Do not use any grinding wheel with a broken bond.

Mix - Ration of oil to fuel.

Use the correct type 2-cycle oil: 24:1 (rated BIA/TCW low ash).

Mix to correct proportions:

- 5.3 ounces to 1 gallon (156 ml to 3.7 liter)
- 13.3 ounces to 2.5 gallons (393 ml to 9.5 liter)
- 26.6 ounces to 5 gallons (786 ml to 19 liter)

Filling

Do not fill the fuel tank in the area where the grinding will take place.

Fill the fuel tank at 40-50 feet (3-4 meters) away from where grinding will take place.

Avoid spilling any fuel.

Avoid over filling with a hot engine.

Check and fill before grinding. Use caution and care.

Maintenance Check Chart

This maintenance check chart provides a good preventive maintenance program of regular inspection and care to increase the Profile Grinder life, improve the performance of your new Profile Grinder and help prevent accidents.

Frequencies listed are for average grinding conditions. Cleaning, adjustment, and parts replacement may, under certain conditions, be required at more frequent intervals than those indicated.

Item	Maintenance	Frequency	
		Daily	Weekly
Screws, Nuts & Bolts	Inspect & Tighten	X	
Controls	Inspect	X	
Air Filters	Inspect, Clean, Replace	As Required	
Fuel Filter	Inspect, Replace	As Required	
V-Belt Drive	Inspect, Replace	As Required	
Spark Plug	Clean, Adjust, Replace	As Required	
Cylinder Fins	Clean		X
Starter Rope	Inspect		X
Carburetor	Clean	As Required	
Exhaust Ports	Clean	As Required	

Troubleshooting Chart

Problem	Probable Cause	Correction
Grinding wheel fails to cut.	Loose drive belt.	Adjust belt to correct tension. Replace wheel.
	Grinding wheel too hard.	Replace wheel
	Grinding wheel face loaded up with foreign material.	Dress wheel face using a diamond dresser.
Wheel wobbles or excessive machine vibration.	Face plate missing.	Install new face plate.
	Bond broken between wheel and metal mount.	Replace wheel.
	Grinding wheel out of balance.	Replace wheel.
Engine will not accelerate or maintain high speed.	Carburetor malfunctions or improperly adjusted.	Clean, repair or replace.
	Fuel contaminated. Filters dirty or plugged.	Replace fuel, filters, and clean carburetor screen.
	Damaged spindle bearings.	Replace bearings.
	Excessive amount of spindle grease in housing.	Clean out excess
	Foreign material in spindle bearings due to damaged wiper and seal.	Replace bearings, seal, and shaft wiper.
	Plugged air filter.	Replace.
Rail roller wheels will not turn.	Damaged bearings.	Replace bearings.
	Bearings rusted to shaft.	Remove, clean shaft, and lubricate.

Section 5: Parts and Service Support

Telephone and web-based technical support is available for current production models through our Technical Service Department. Service Manuals and limited technical support may be available for models that are no longer in production.

Telephone and E-mail Technical Support

Telephone and e-mail technical support is available on normal U.S. business days from 8:00 AM to 5:00 PM U.S. Central Time Zone (GMT +6 (+5 Daylight Savings Time)).



1955 Norwood Court
Mount Pleasant, WI 53403
Phone: (262) 637-9681
Email: custserv@racinerailroad.com
racinerailroad.com



Unit 3 Hartington Industrial Estate
Chesterfield • Derbyshire, S43 3YF
Phone: 0330 164 1375
Email: info@racinerailroad.co.uk
racinerailroad.co.uk

Non-Warranty Technical or Field Service Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at the customer's expense*, to assist in the correction of non-warranty related problems. Contact our Technical Service Department to coordinate Non-Warranty Technical or Field Service Support.

Warranty Technical or Field Service Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Technical Service Department to coordinate Warranty Technical or Field Service Support.

Warranty Parts & Service

Warranty parts and service are coordinated through our Technical Service Department.

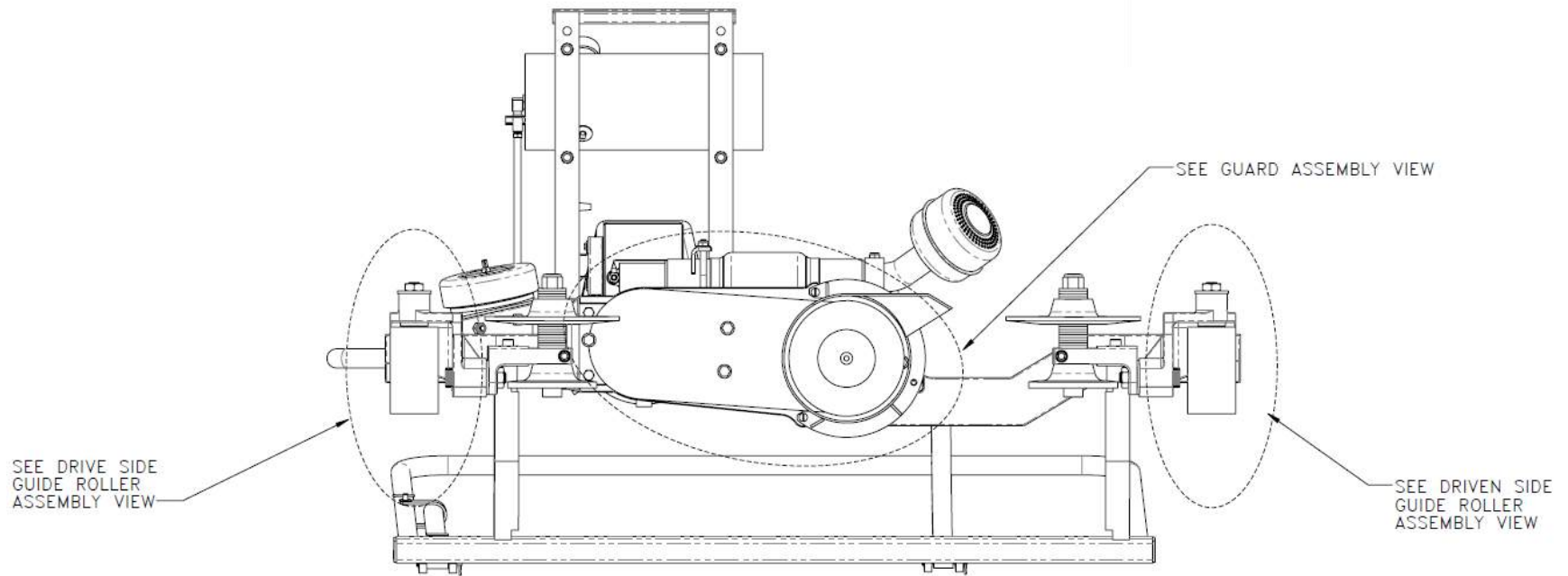
Warranty Parts Claims

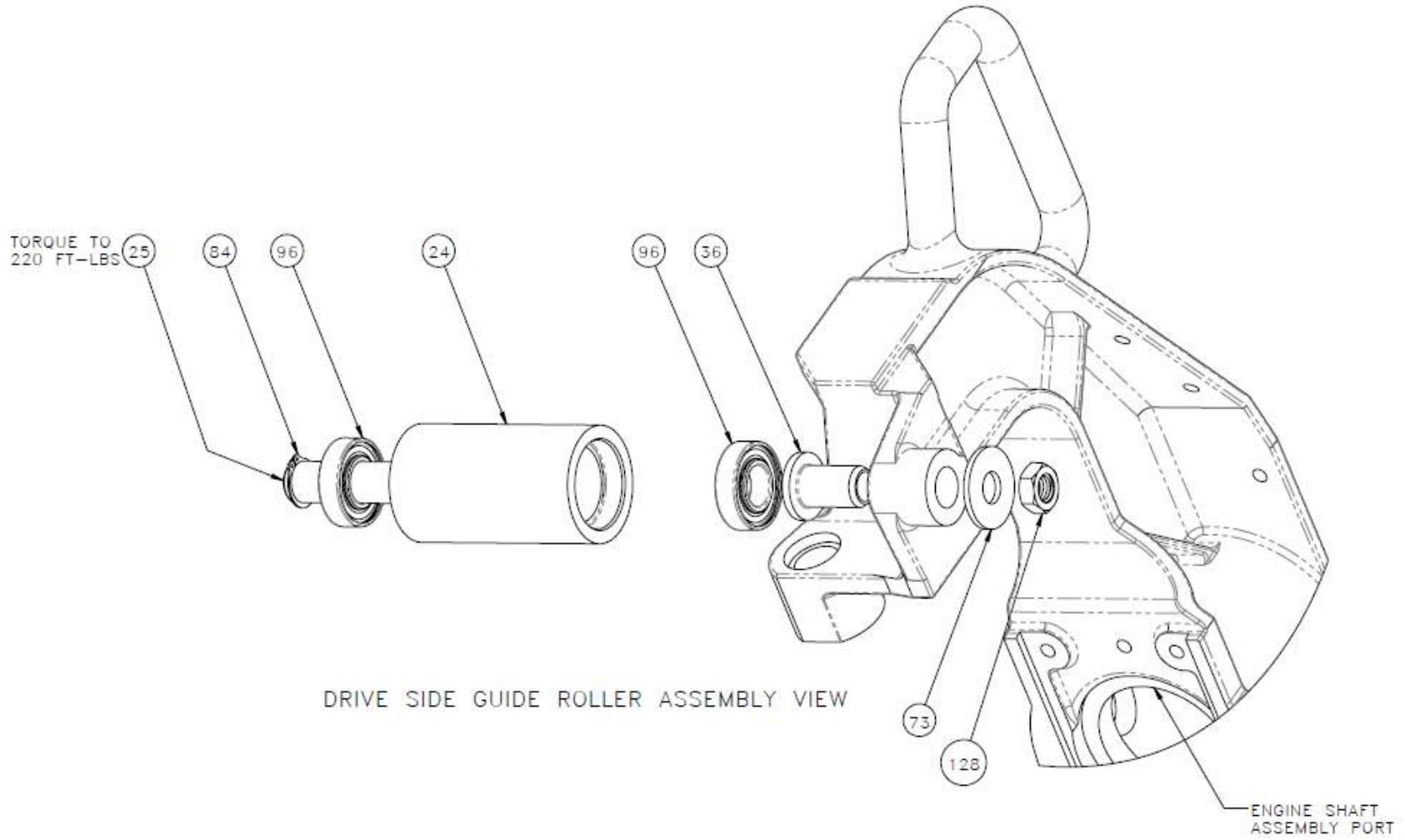
Material claimed to be defective must be returned to our factory for evaluation. Defective materials will be replaced, or your account will be credited if replacement materials have already been purchased. Please contact our Technical Service Department at the address provided below if you have any questions or problems.

Warranty Service Support

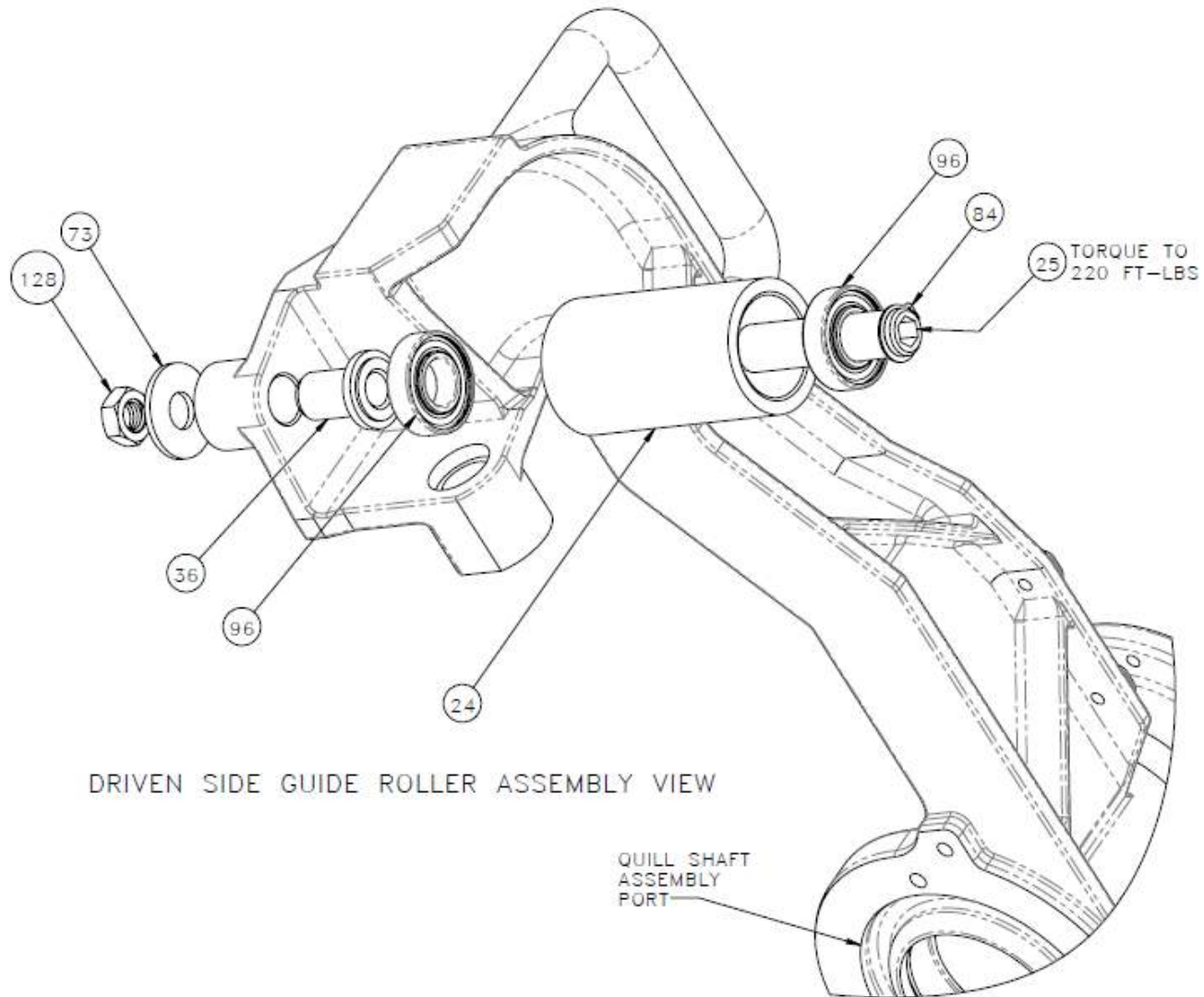
Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, at no charge to the customer, to assist in the correction of warranty related problems. Contact our Technical Service Department at the address provided below to coordinate Warranty Technical or Field Service Support.

Drive Side Guide Roller Assembly

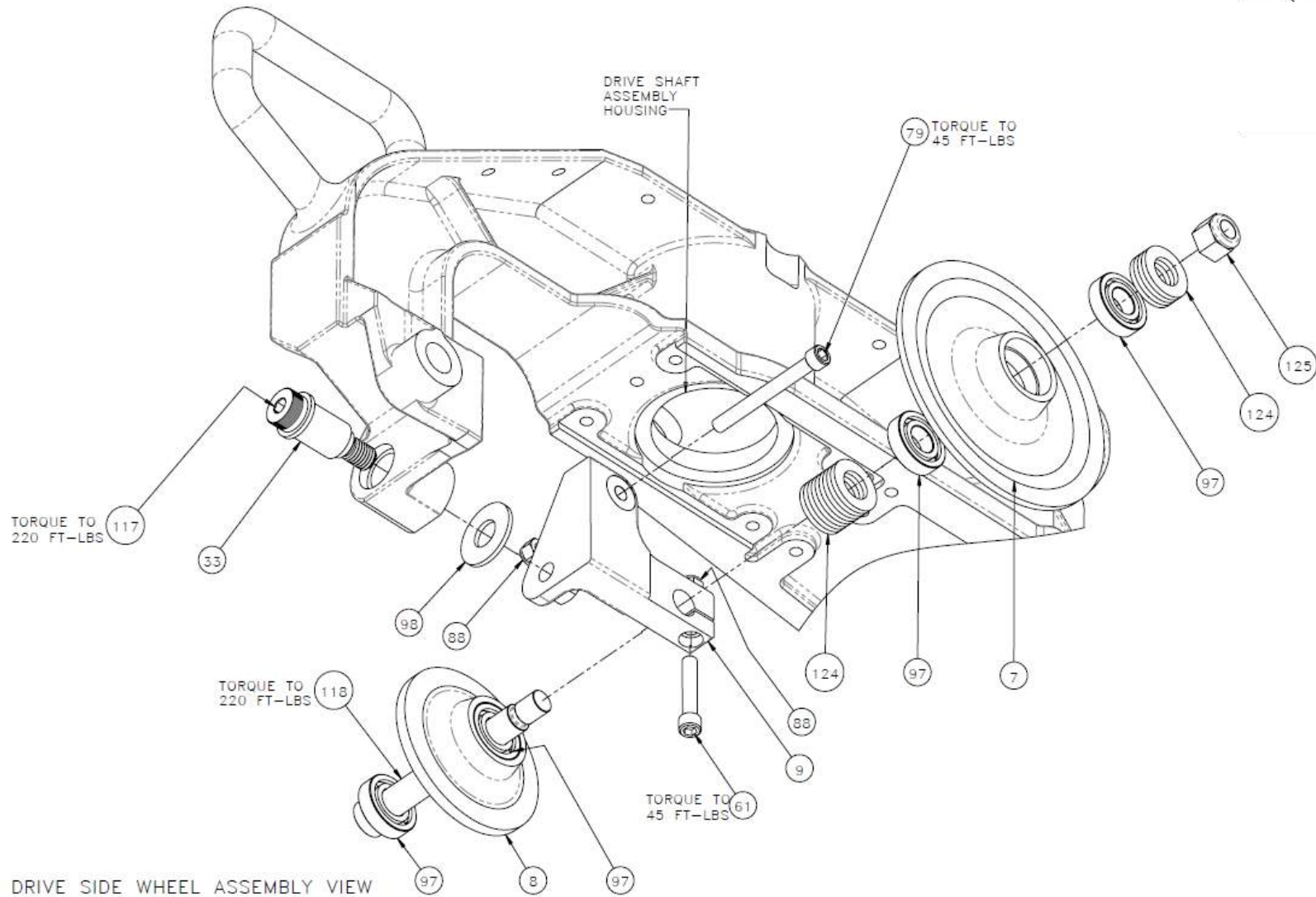




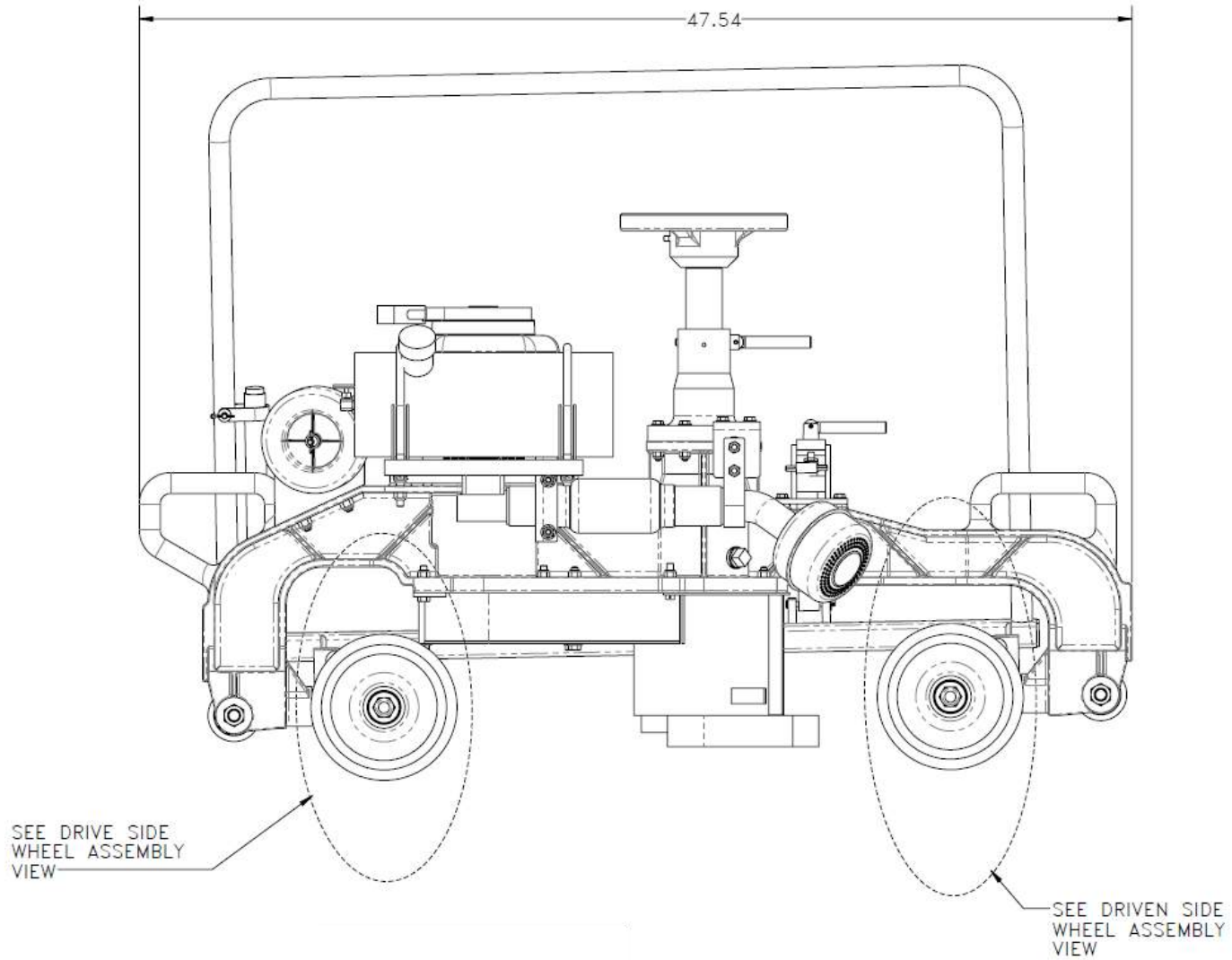
Driven Side Guide Roller Assembly

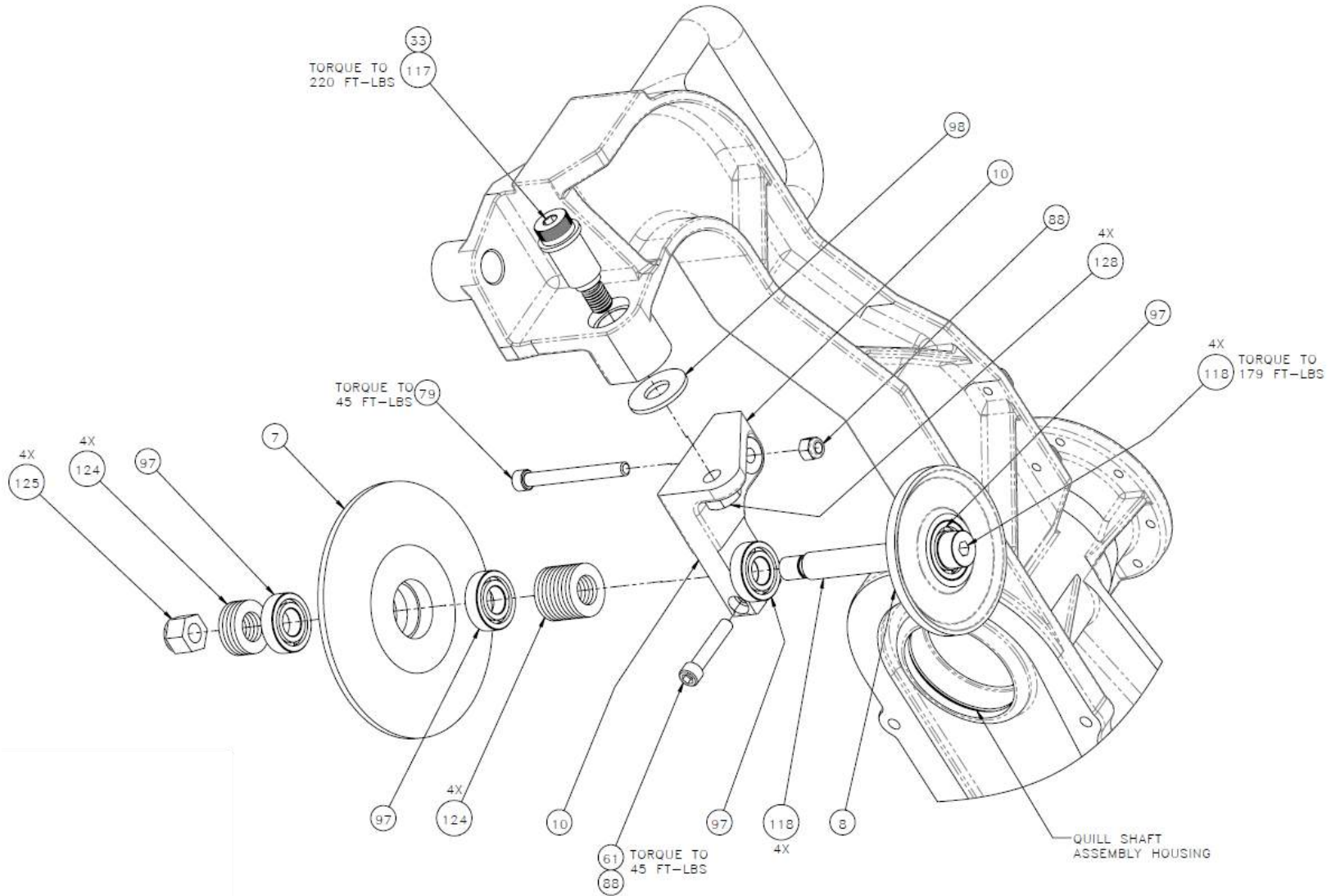


Drive Side Wheel Assembly



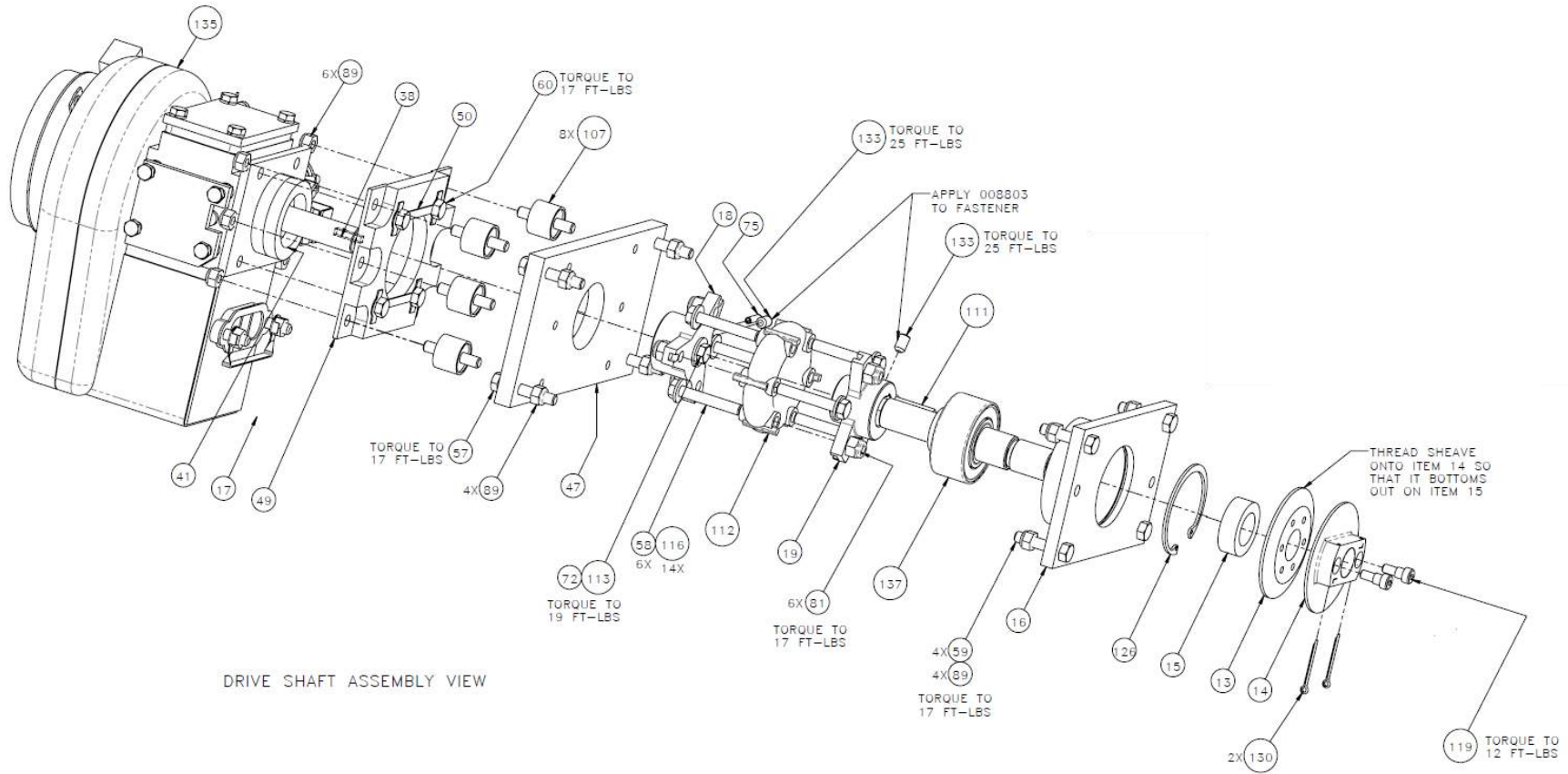
Driven Side Wheel Assembly



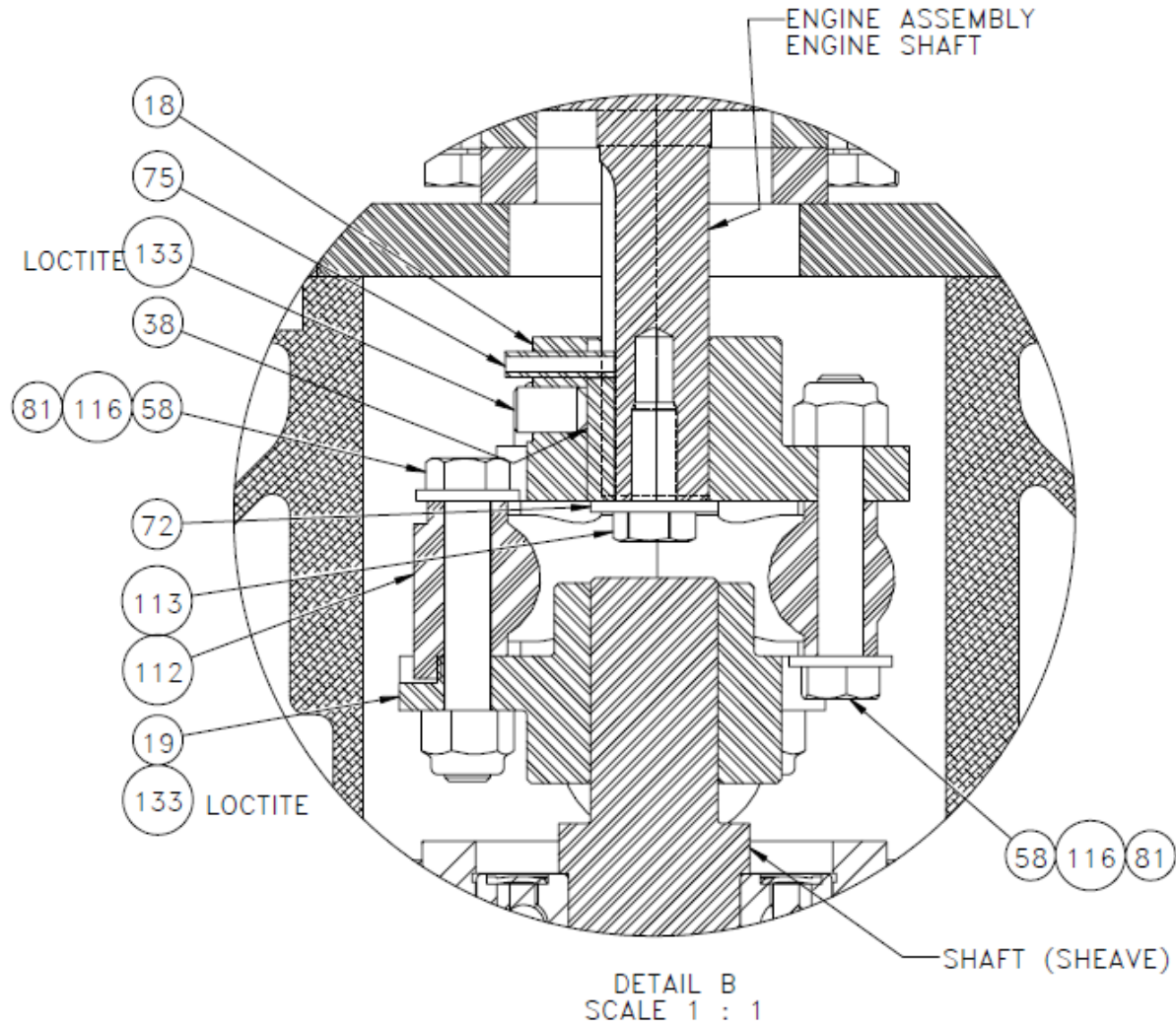


DRIVEN SIDE WHEEL ASSEMBLY VIEW

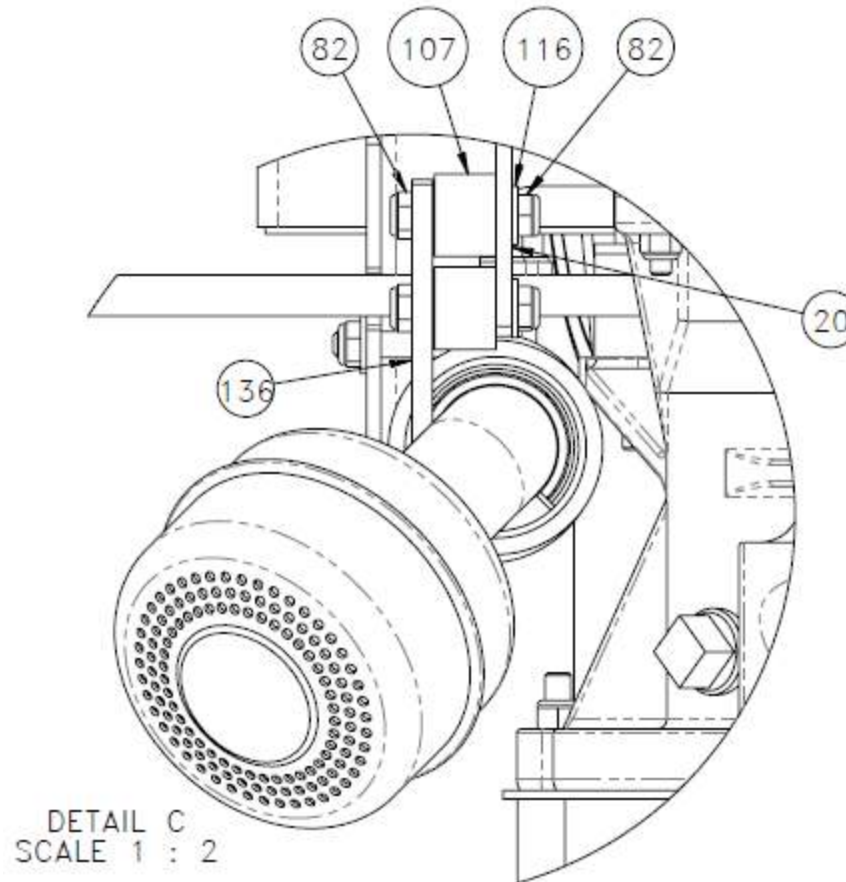
Drive Shaft Assembly



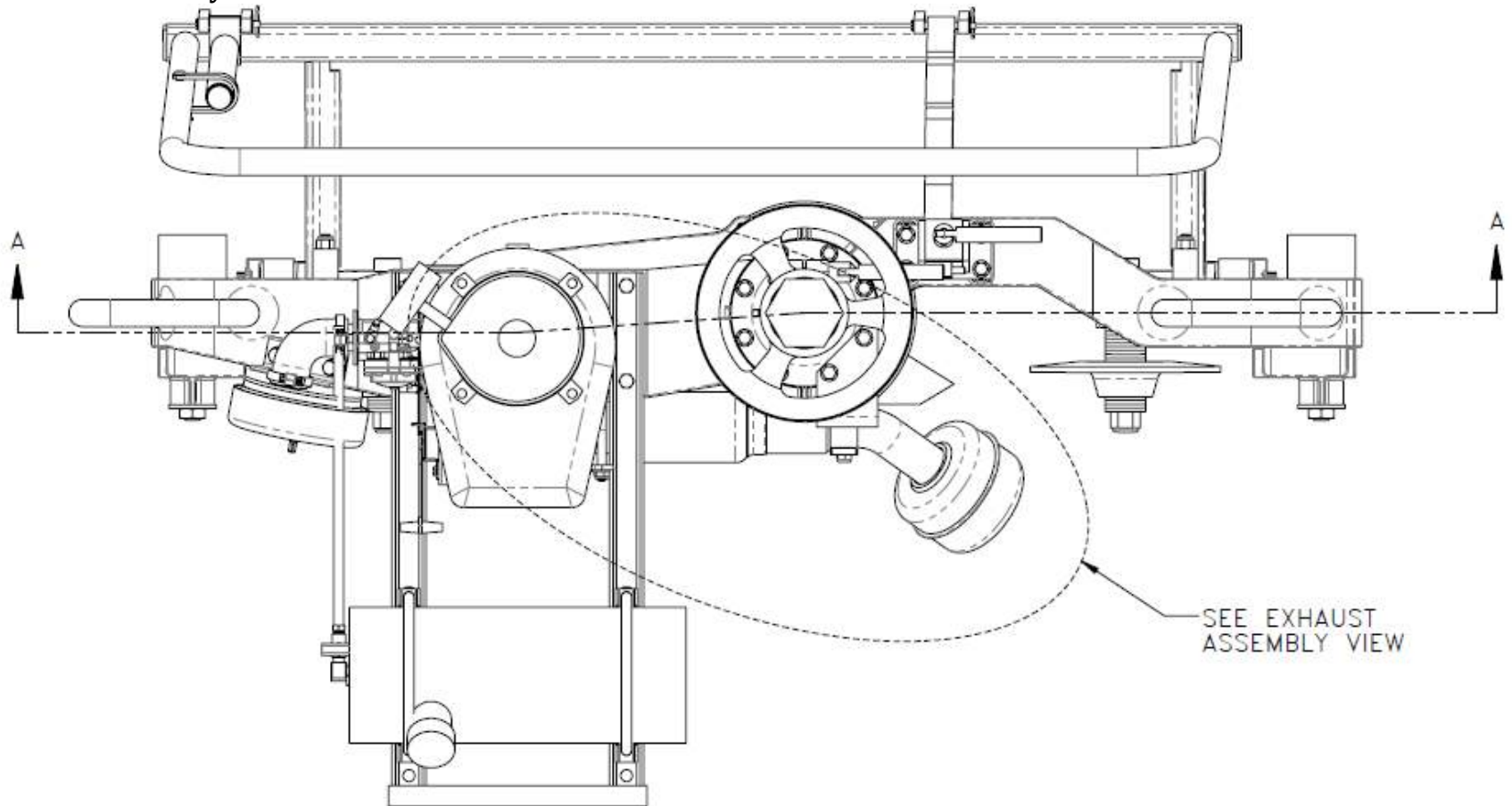
Detail B

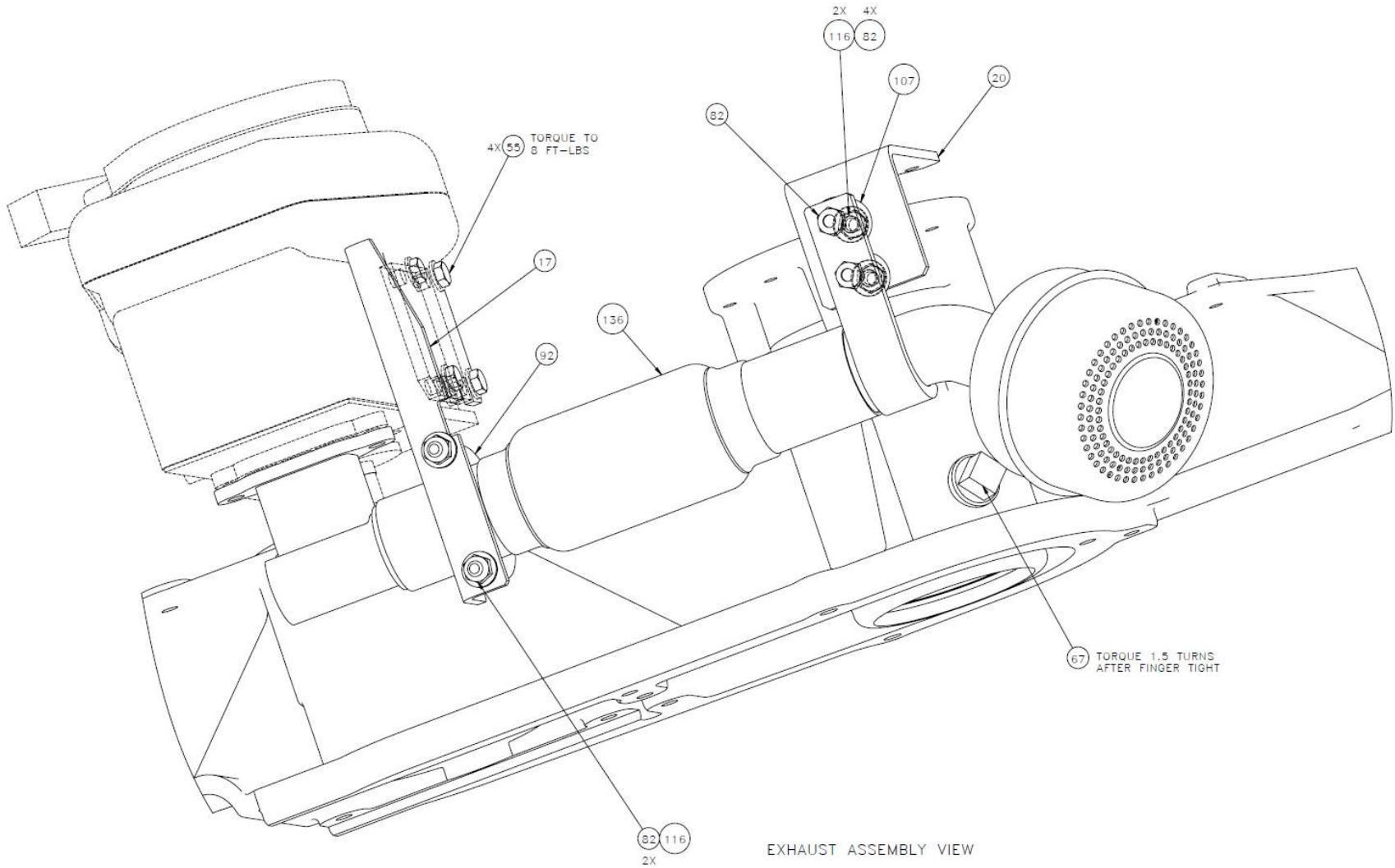


Detail C

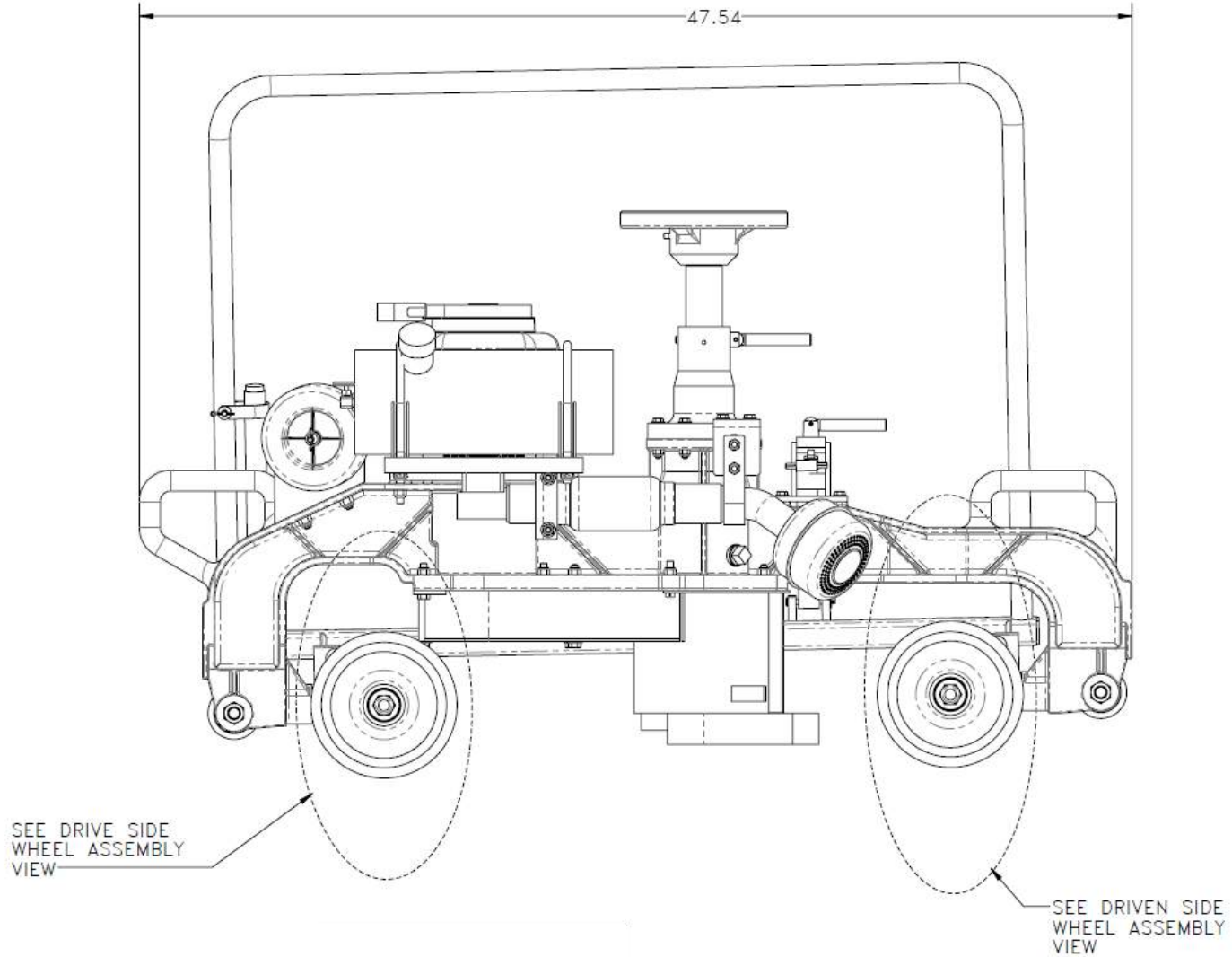


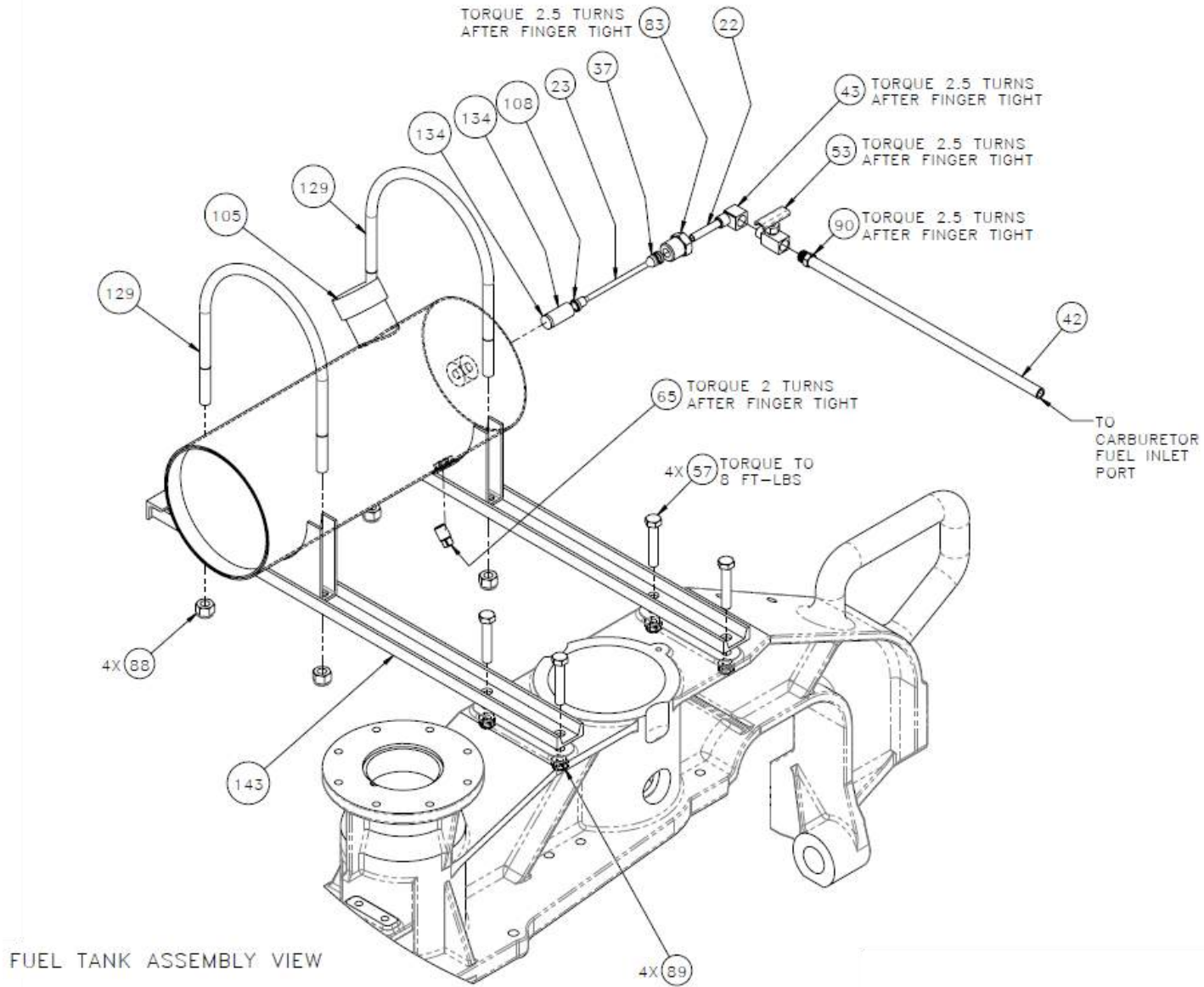
Exhaust Assembly



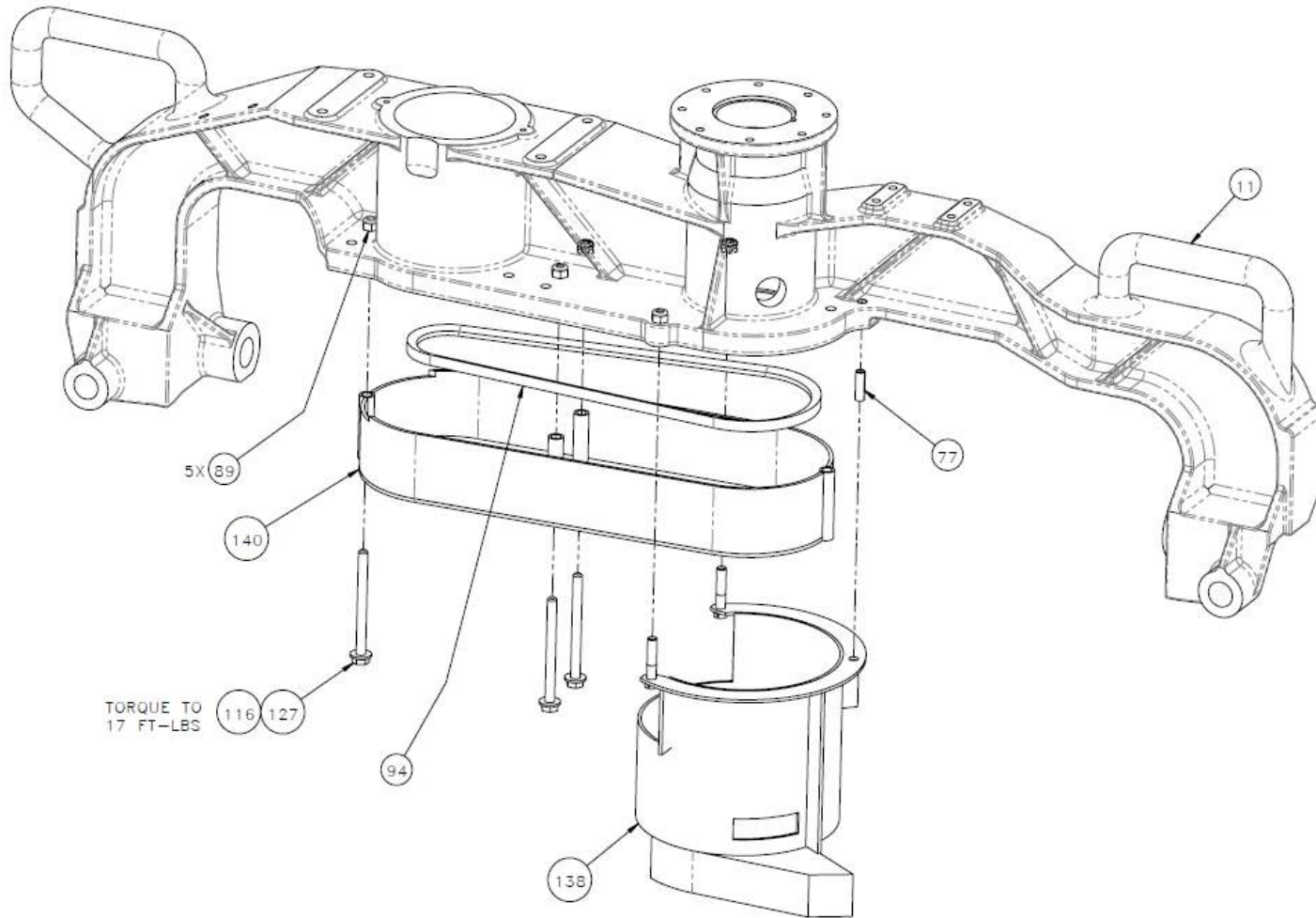


Fuel Tank Assembly



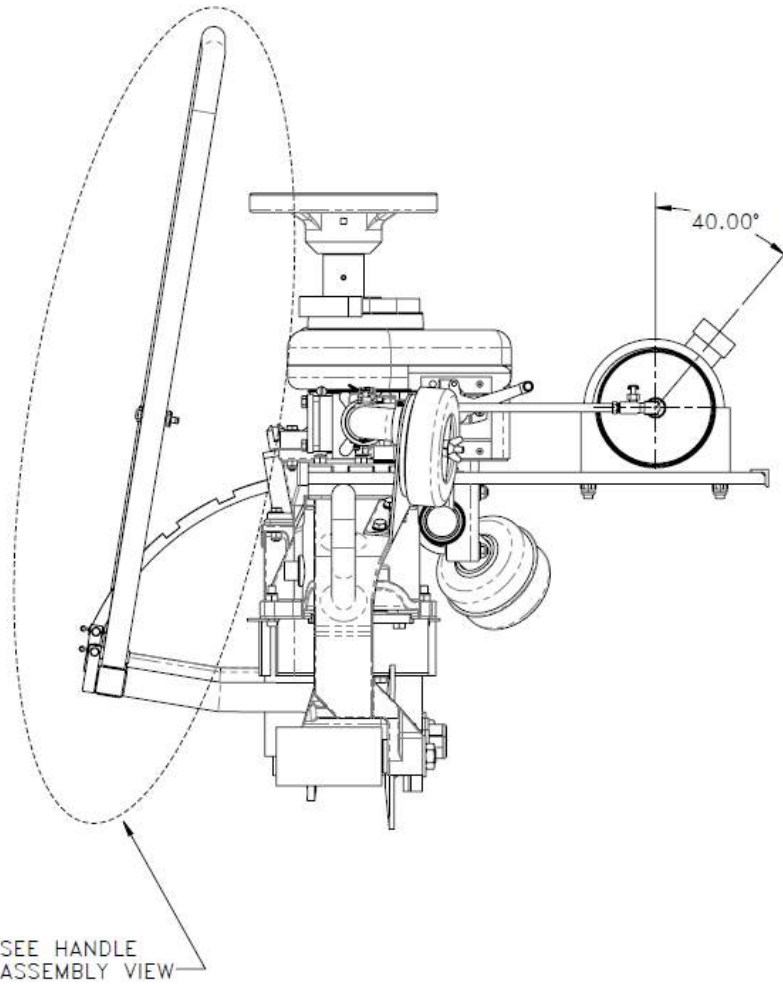


Guard Assembly

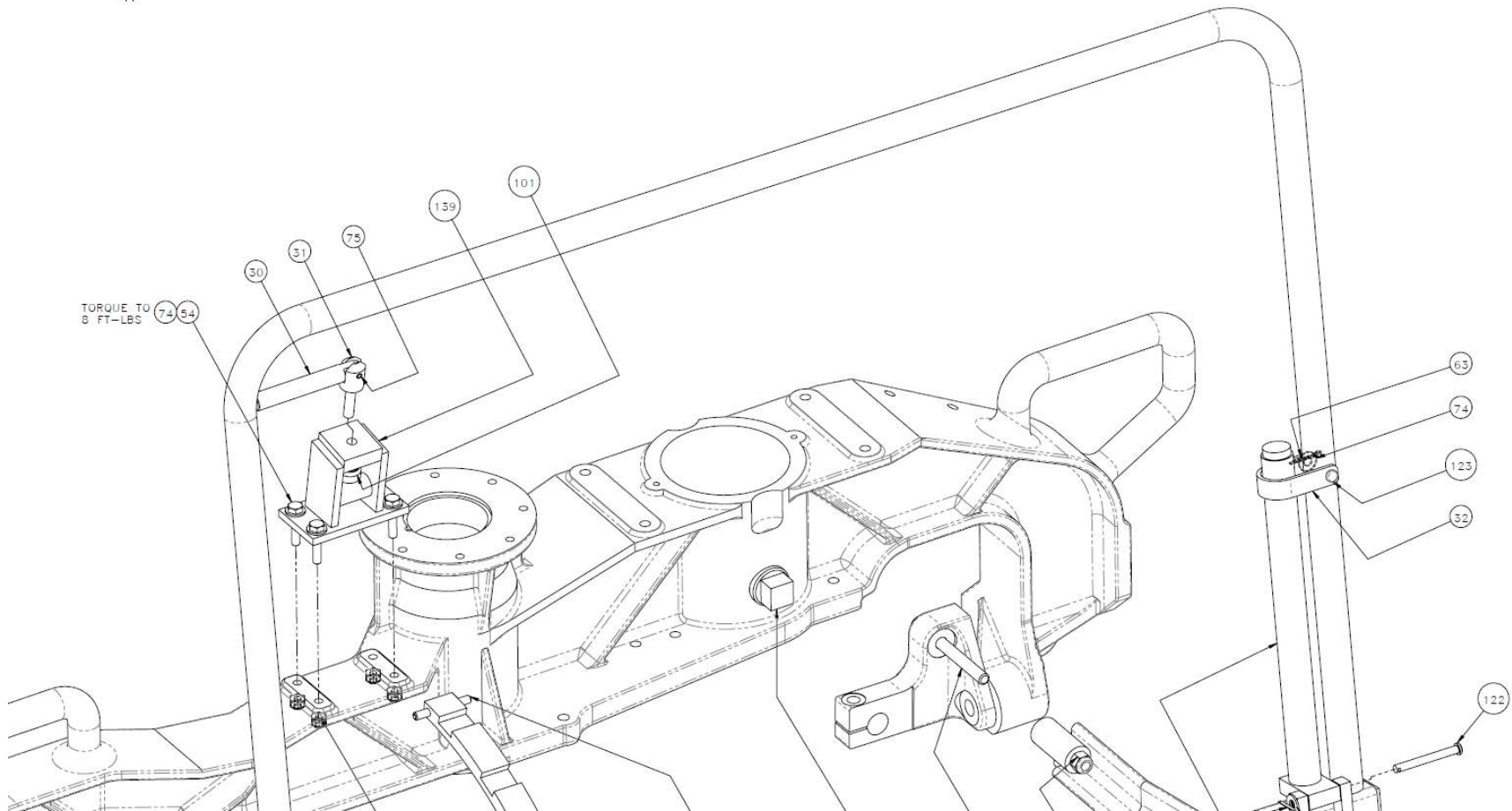


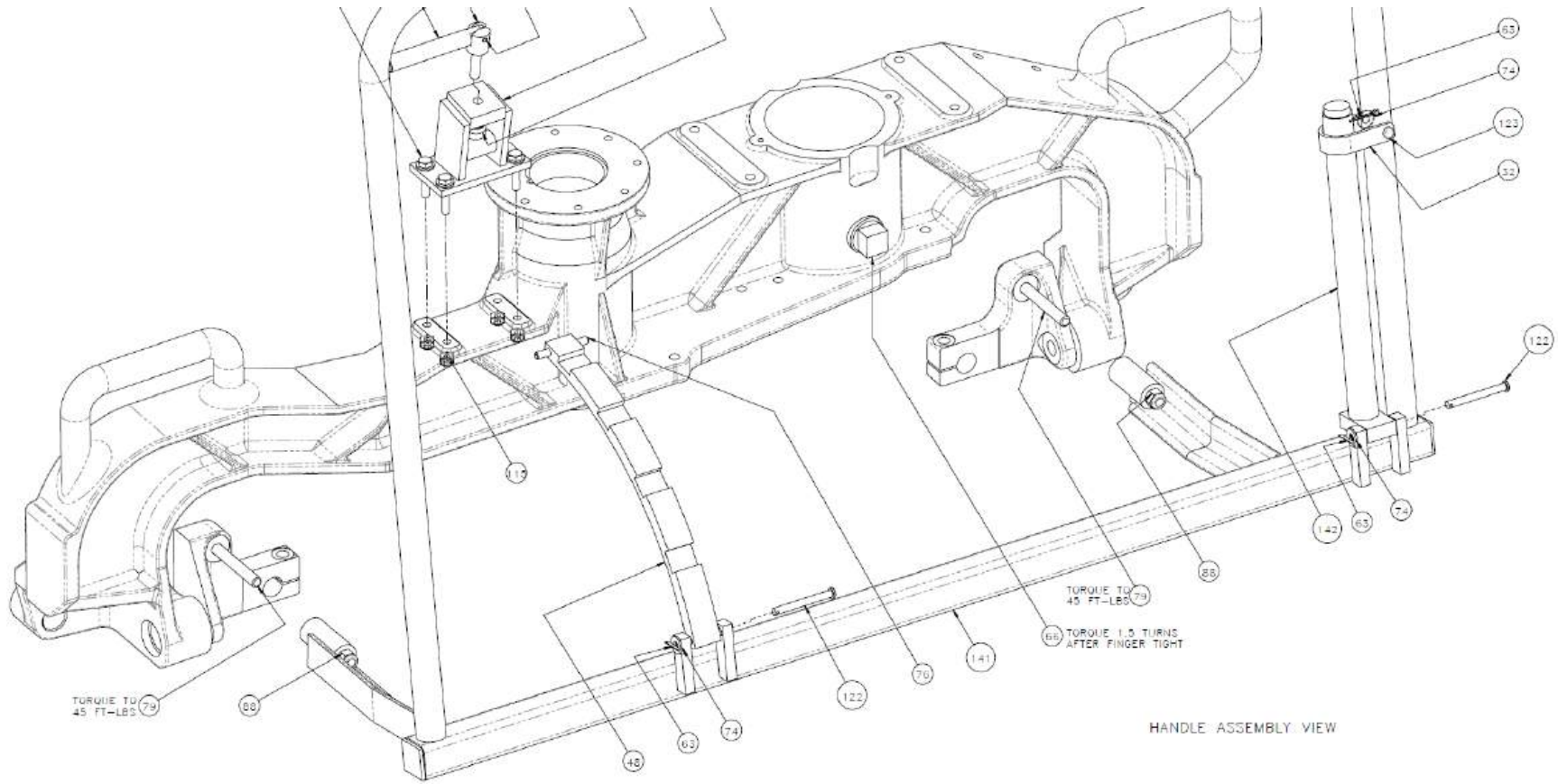
GUARD ASSEMBLY VIEW

Handle Assembly

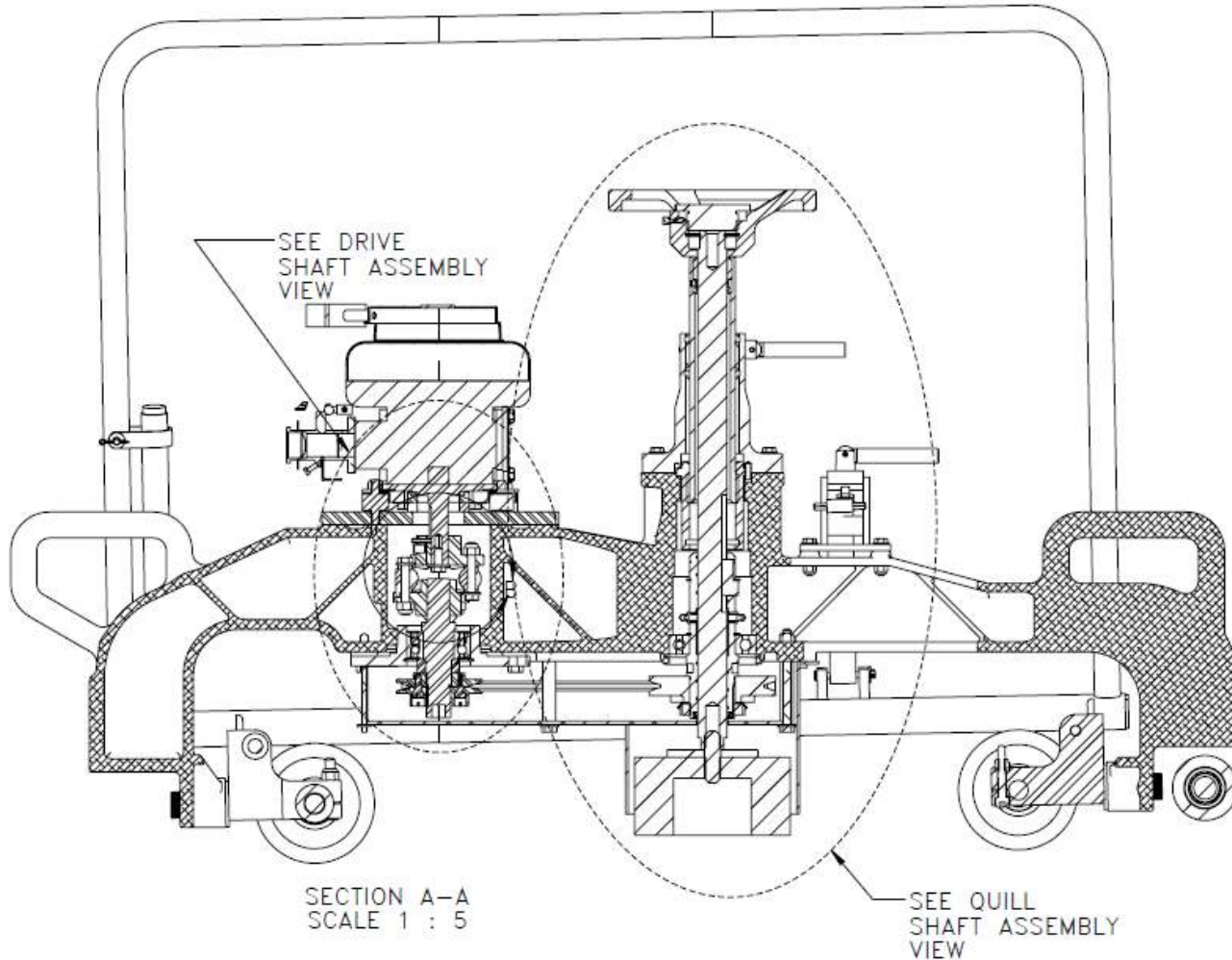


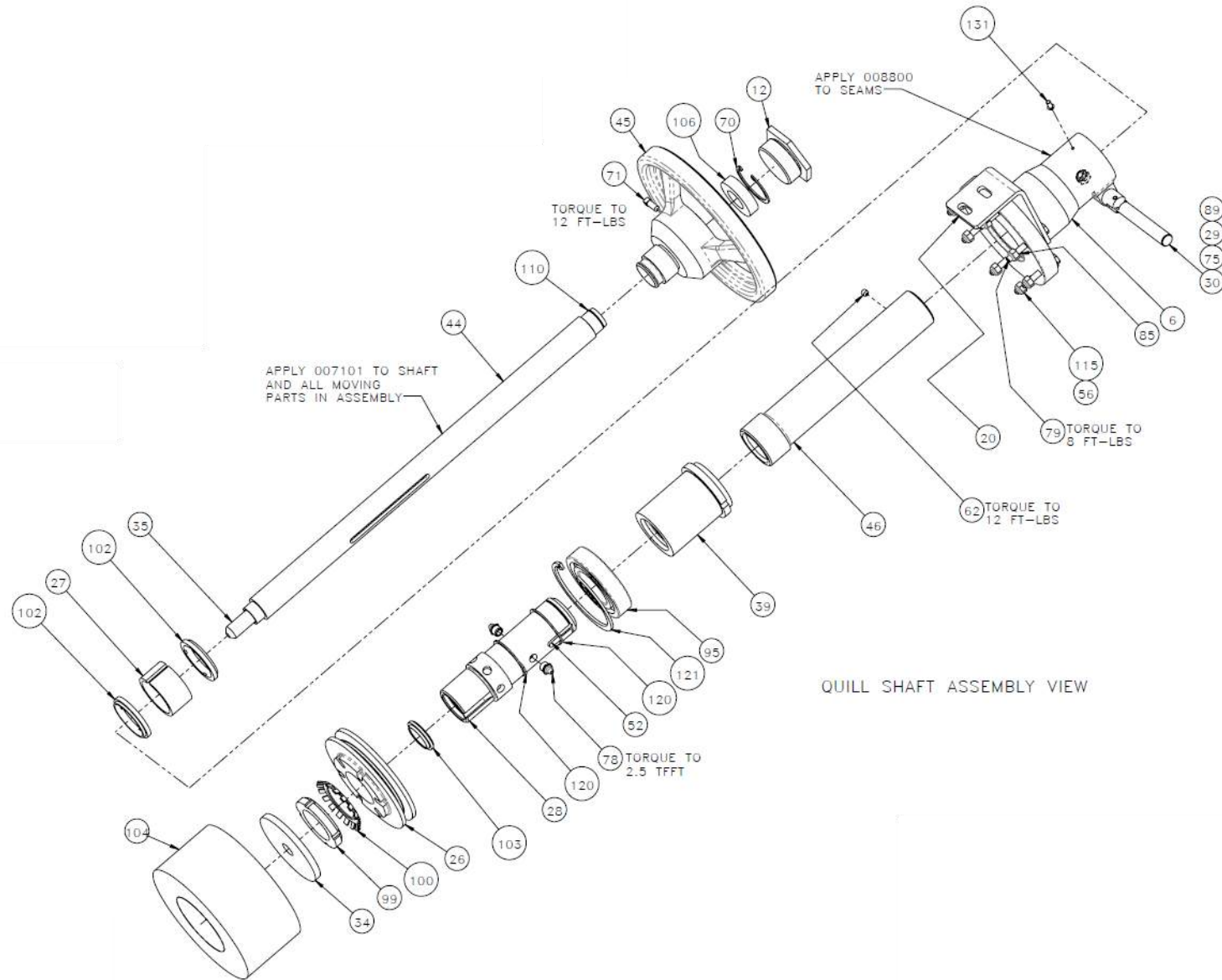
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Quill Shaft Assembly





Rail Profile Grinder / RRP# 910170 Parts List

NO.	QTY	DESCRIPTION	PART NO.
1	AR	GREASE, NLGI 2 HIGH TEMP	007101
2	AR	SEALANT, SILICONE	008800
3	AR	LOCTITE, 620	008803
4	AR	LOCTITE, 242	008806
5	AR	ANTI-SEIZE	008812
6	1	HOUSING, QUILL SHAFT	210212
7	2	WHEEL, LARGE GUIDE	210214
8	2	WHEEL, SMALL GUIDE	210215
9	1	PIVOT, LEFT GUIDE WHEEL	265177
10	1	PIVOT, RIGHT GUIDE WHEEL	265178
11	1	FRAME, GRINDER	285098
12	1	CAP	310367
13	1	SHEAVE, UPPER DRIVE	315964
14	1	SHEAVE, LOWER DRIVE	315965
15	1	SPACER, SHAFT	317221
16	1	HOUSING, BEARING	317591
17	1	SHEET, EXHAUST	318038
18	1	COUPLING, DRIVE: ENGINE	318071
19	1	COUPLING, DRIVE: SHEAVE	318072
20	1	BRACKET	318087
21	1	PRECLEANER, AIR FILTER	385170
22	1	TUBE, FUEL INLET	385183
23	1	HOSE	385188
24	2	ROLLER, RAIL	386284
25	2	AXLE	386285
26	1	SHEAVE, DRIVEN	386288
27	1	BUSHING, SPINDLE	386298
28	1	HOUSING, QUILL	386305
29	1	YOKE, SPINDLE LOCK	386307
30	2	PIN, LOCKING	386308
31	1	YOKE, TILT LOCK	386309
32	1	COLLAR	386343
33	2	BEARING, FLANGE	386380
34	1	PLATE, FACE	386423

35	1	STUD	386424
36	2	BUSHING	386467
37	AR	WIRE	386833
38	1	KEY, SQ: .19 X .84	387782
39	1	NUT, ADVANCING	388229
40	1	COVER	388376
41	2	SEAL, LINER NECK	388606
42	1	HOSE	388806
43	1	ELBOW	388807
44	1	SHAFT, QUILL	388840
45	1	HANDWHEEL, GRINDER	388842
46	1	SLEEVE, ADVANCING	388843
47	1	PLATE, MOUNTING	388844
48	1	BAR, STABILIZER	388851
49	1	PLATE, ENGINE MOUNTING	388868
50	2	CLIP, LOCK	389168
51	1	HOSE	389548
52	1	KEY, DRIVE	389651
53	1	VALVE, SHUT OFF	400163
54	4	SCR, HEX: .25-20 X 1.25	400687
55	4	SCR, HEX: .25-20 X 1.5	400689
56	6	SCR, HEX: .25-20 X 1.75	400690
57	4	SCR, HEX: .31-18 X 1.75	400695
58	6	SCR, HEX: .31-18 X 2	400702
59	4	SCR, HEX: .31-18 X 1.5	400704
60	4	SCR, HEX: .31-18 X 1	400706
61	2	SCR, SOC: .38-16 X 2	400806
62	1	SCR, SOC SET: .25-20 X .25	400852
63	3	PIN, COTTER: .09 X .75	400897
64	2	WASHER, LOCK: .19 INT TOOTH	400915
65	1	PLUG, .12 NPT(M)	400921
66	1	PLUG, 1 NPT(M)	400934
67	1	PLUG, .75 NPT(M)	400936
68	1	NUT, HEX JAM: .25-20	401022
69	1	NUT, WING: .25-20	401058
70	1	RING, RETAINING: 1.81 DIA INT	401239

NO.	QTY	DESCRIPTION	PART NO.
71	1	SCR, SQ SET: .25-20 X .62	401433
72	1	WASHER, FLT: .31	401620
73	2	WASHER, FLT: .62	401623
74	15	WASHER, FLT: .25	401626
75	3	PIN, ROLL: .19 X .75	401718
76	1	PIN, ROLL: .25 X 2	401729
77	1	PIN, ROLL: .31 x 1	401731
78	3	FITTING, LUBE: .12 NPT(M)	401987
79	2	SCR, HEX: .25-20 X 2	402443
79	2	SCR, SOC: .38-16 X 3.5	402574
81	8	NUT, HEX ES: .31-18 HVY	404068
82	6	NUT, HEX ES JAM: .31-18	404141
83	1	REDUCER, .38 NPT(M) X .12 NPT(F)	404498
84	2	RING, RETAINING: .875 DIA EXT	406147
85	1	PIN, ROLL: .25 X .62	406299
86	1	WASHER, LOCK: .25	408528
87	2	SCR, SOC: 10-32 X .38	409063
88	8	NUT, HEX ES: .38-16	450577
89	21	NUT, HEX ES: .31-18	450578
90	1	HOSE END, #4 HOSE X .12 NPT(M) BRASS	450753
91	1	GASKET	451005
92	1	CLAMP, U-BOLT: 1.12 ID	457816
93	1	FILTER, AIR	458290
94	1	BELT, 3VX335	458312
95	1	BRG, BALL: 1.77 ID	459270
96	4	BRG, BALL: .88 ID	459271
97	8	BRG, BALL: .75 ID	459272
98	2	WASHER, FLT: .77 ID OILITE	459274
99	1	NUT, LOCK: N-09	459275
100	1	WASHER, LOCK: W-09	459276
101	1	PAD, TOGGLE	459279
102	2	WIPER, ROD: 1.75 ID	459280
103	1	WIPER, ROD: 1.125 ID BRONZE	459369
104	1	WHEEL, GRINDING: 6" CUP	459653
105	1	TANK, FUEL	460339
106	1	BRG, BALL: .98 ID	460996
107	8	MOUNT, VIBRATION	460997

108	2	CABLE TIE, .09 X 3.62	461193
109	2	CLAMP, HOSE: .81-1.5 DIA	461405
110	1	RING, RETAINING: .938 DIA EXT	461760
111	1	KEY, .19 SQ X 1.25	464453
112	1	DONUT, COUPLING	472964
113	1	SCR, HEX: .31-24 X .75	490432
114	2	SCR, HEX FLG: .31-18 X 1	491043
115	12	NUT, HEX ES: .25-20	491232
116	14	WASHER, FLT: .31	491259
117	2	SCR, SOC SHLD: .75 X 1.75	491287
118	2	SCR, SOC SHLD: .75 X 5	491288
119	2	SCR, SOC SHLD: .31 X .62	491290
120	2	RING, RETAINING: 1.772 DIA EXT	491292
121	1	RING, RETAINING: 3.346 DIA INT	491294
122	2	PIN, CLEVIS: .25 X 2.25	491295
123	1	PIN, CLEVIS: .25 X 1.75	491297
124	26	WASHER, FLT: .75	491344
125	2	NUT, HEX ES: .62-11 LT	491356
126	1	RING, RETAINING: 2.44 DIA INT	491384
127	4	SCR, HEX: .31-18 X 3.75	491387
128	4	NUT, HEX LOCK JAM: .62-11	491443
129	2	CLAMP, U-BOLT: 5 ID	491454
130	2	PIN, COTTER: .06 X 1.5	491467
131	1	SCR, RD DRIVE: #2 X .31	491479
132	1	SCR, HEX: .25-20 X 2.5	491524
133	2	SCR, SOC SET: .31-24 X .5	491677
134	1	FILTER	711661
135	1	ENGINE, 2 CYCLE	712454
136	1	MUFFLER, EXHAUST	718227
137	1	SHAFT, SHEAVE	718838
138	1	GUARD, WHEEL	776633
139	1	BRACKET, ADJUSTMENT	776676
140	1	GUARD, BELT	776688
141	1	HANDLE, GRINDER	776756
142	1	STAND, FOOT	776903
143	1	BRACKET, GAS TANK	777032
144	1	PLATE, BRACKET	777184
145	1	FLANGE	777185

Section 6: Warranty Terms and Conditions

Warranty Period

Each new machine and new parts of our manufacture are warranted against defects in material and workmanship for one year from the date of shipment from our factory.

When contacting customer service for factory parts, service or warranty support please provide the:

- Racine Railroad Products Model
- Serial Number
- Any locally assigned identification

Vendor Parts Warranty Period

Other equipment and parts used, but not manufactured by Racine Railroad Products, Inc., are covered directly by the manufacturer's warranty for their products.

Warranty Parts and Service

We will repair or replace, without charge, F.O.B. factory, Racine, Wisconsin, USA, any part Racine Railroad Products manufactures which is proven to be defective during the warranty period.

Material claimed defective must be returned, if requested, to the factory within 30 days from the date of the claim for replacement. Ordinary wear and tear, abuse, misuse, and neglect are not covered by this warranty. Depending upon the circumstances, we may provide technical assistance and/or technical service support, without charge, to assist in the correction of warranty related problems.

Non-Warranty Parts and Service

Material damaged through normal wear and tear, abuse, misuse and/or neglect are not covered by our warranty and should be ordered directly from our Customer Service.

Note: Parts for models that are no longer in production may not be available.

Non-Warranty Parts Orders

When placing a parts order please provide the following information:

- Company Name and Billing Address
- Purchase Order Number and Issuing Authority
- Shipping Address
- Special Handling Instructions
- Contact Phone Number
- Machine Model and Serial Number
- Part Numbers and Quantities Being Ordered

Note: *Please use Racine Railroad Products part numbers when ordering parts.* Racine Railroad Products part numbers are shown in the parts lists and drawings of this manual and have only six (6) numbers.

Any part number with other than six numbers (e.g., contains alpha-numeric characters) is a Vendor Part Number and **not** a Racine Railroad Products part number