TRU-TURF

R52-11T GOLF ROLLER MANUAL

Contents

Separate Engine Owners Manual Included

Important

Please read and understand before operating machine.

1. Pre-check all nuts, bolts, grub screws for tightness prior to operating machine.

2. Understand the operating procedures and the controls before operating.

3. Use the machine to roll **18-36 greens** then **check** that all nuts, bolts etc. are tight. If loose and the Loctite seal has been broken, treat item as per Loctite instructions, reseal, then tighten securely.

4. **Loose transmission and drive roller sprockets will cause damage to shafts and keyways. Ensure they are correctly tightened at all times.**

5. **Change the transmission oil after 50 hours of operation, then as per the servicing schedule.**

We use and recommend Penrite Synthetic 5 SAE 5W-60. Available through our dealer network.

U.S.A. customers contact your dealer or visit www.truturf.com to find your nearest dealer.

Australian customers call 07 5594 7199.

International customers contact your dealer or visit www.truturf.com to find your nearest dealer.

Machine Information Record

Congratulations on your investment in the R52-11T Golf Green Roller and your move to smoother, faster, more consistent putting Greens. The following operation and maintenance manual has been prepared for use with the R52-11T Golf Green Roller. It is intended as a guide and supplemental updates to the manual may take place at a future date, without prior notice.

This machine is engineered to be simple to operate and easy to maintain. If you have any questions or concerns that this manual does not address, please feel free to contact your distributor.

Distributor Information

Name: _____

Address: _____

_____

Telephone: _____

Fax: _____

Email: _____

Machine Information

Model. **R52-11T Golf Green Roller**

Serial No. _____

Engine No. _____

Transmission No. _____

Purchase Date No. _____

Safety Information

Safety Information

Safety is of the utmost importance when operating turf equipment.

To ensure safe operation of the R52-11T Golf Greens Roller, please follow the following safety guidelines.

- Always make a pre-operation inspection before you start the engine. If this procedure is not carried out damage to property or personnel may occur.
- Keep children, pets and inexperienced personnel away from the machine. This machine should only be operated by trained and skilled personnel - check with your supervisor if you are unsure.
- Know how to stop the engine when in motion. Read and understand engine manufacturers manual, as supplied.
- Never permit inexperienced operators to use the machine. This machine requires certain knowledge and expertise to operate it; you must be a trained person to use this machine. Unskilled persons can harm themselves and others if they operate this machine.
- Do not use in enclosed areas unless well ventilated. Carbon monoxide gases are dangerous if inhaled, it can cause death; use the machine outdoors.
- When transporting the roller, make sure the trailer lock down mechanism is secure to prevent premature release of the catch. If the trailer catch is not correctly engaged while towing and releases accidentally, the front of the roller can drop and dig into the ground, causing the machine to move dangerously in any direction causing bodily injury. When carrying out maintenance ensure the catch is engaged correctly; if it is not the trailer arm could fly up making contact with a person(s) causing serious injury.
- When engine is running, always keep hands and loose clothing away from rotating shafts, chains and sprockets in the transmission area. If hair, clothing or loose objects become entangled on a rotating shaft serious bodily injury could occur. Stop engine before opening safety cover fitted to the transmission area.
- Never ride on the machine when machine is being towed.

Operator, remember it is your responsibility to be aware of your surroundings. To avoid accidents, think safe and operate safe.

Warranty

One Year Warranty

Universal Conditions

Tru-Turf Equipment will either repair or replace any item or part of a Tru-Turf Equipment turf maintenance product that is defective in workmanship or material for a period of twelve (12) months from the date of delivery of the new product to the original end user. These items will be repaired or replaced free of charge and freight free.

Products Protected By This Warranty

This Warranty relates to the following products manufactured by Tru-Turf Equipment and parts used to make these products:- GR39 Golf Greens Roller; GR48 Golf Greens Roller; GR7000 Series Golf Greens Roller; GR11000 Series Golf Greens Roller; RS48 Roll 'n' Spike Golf Greens Roller; RS48-11 Series, Roll 'n' Spike Golf Greens Roller; R52-11T Tri Golf Greens Roller; R52-ELT Electric Golf Greens Roller; Triplex Roll 'n' Spike Mower Attachment Heads and Brackets; MT2000-S & D Single and Dual; MT5000-S&D Single and Dual Tote for Walk Behind Mowers; SR72 Sports Ground Roll 'n' Spike Turf Roller.

Parts Warranted By Suppliers To Tru-Turf

Specific component parts supplied to Tru-Turf Equipment are covered by that supplier's Warranty. These parts include Eaton Transmission, Honda Engines and Kohler Engines.

Normal Wear and Tear

Tru-Turf Equipment will not repair or replace parts subject to normal maintenance routines as specified in the products Operator's Manual nor to parts subject to wear and tear during the correct operation of the product. These parts include, but are not limited to, oils, filters, tires, shafts, bearings, blades, spikers, slicers, brakes, belts, hoses and spark plugs.

Other Items Not Covered By This Warranty

Tru-Turf Equipment will not repair or replace free-of-charge any item that has been damaged by accident, lack of reasonable care and protection or lack of suitable storage. We will not cover parts that have been altered or modified by anyone other than Tru-Turf Equipment nor will we cover used parts that are installed in place of failed parts. We will not cover parts that have not been installed correctly by the end user or its agents nor will we cover parts that have not been maintained as per the Operator's Manual. Service calls and overtime labour rates will not be covered. We will not cover freight costs related to the return of the faulty product to Tru-Turf Equipment or its agents. Tru-Turf Equipment will not be liable for any consequential loss or damage or costs caused by or incidental to the failure of any new part supplied with the original purchase or any new part supplied as a replacement for any failed part.

Lodging Warranty Claims

The final purchaser of the new Tru-Turf Equipment product must lodge a Warranty Claim with Tru-Turf Equipment or its agents. The final purchaser must provide written evidence detailing the product's delivery date to that purchaser and the reasons why the purchaser believes that the product or its part is defective in the categories of faulty material or workmanship. The purchaser is to deliver the faulty product or part to Tru-Turf Equipment or its agents at the purchaser's expense. Acceptance or rejection of the Warranty Claim is entirely at the discretion of Tru-Turf Equipment or their Suppliers who warrant their own part/s.

No person or organization has the authority to modify the terms, conditions or limitations of this Warranty without the written consent of Tru-Turf Equipment.

Assembly

Initial Assembly

When you receive the crate, the machine will be broken down into components ready for assembly. If you run into any problems during assembly, please feel free to call your local distributor or agent.

List of Components

QTY	Description
1	Operation, Maintenance and Parts Manual
1	Machine Frame/Body
1	Drivers Seat
2	Armrests
4	$^{5}/_{16}$" x $^{3}/_{4}$" UNC Bolts
2	Tires mounted on Wheel Rim
1	Steering Joystick
1	Dampener Strut (attached to main body end)
1	Left-side Trailer Arm
1	Right-side Trailer Arm
2	30mm External Circlips
1	Drawbar Coupling Assembly
2	$^{3}/_{8}$" x $1^{1}/_{2}$" UNF 2P Bolts
2	$^{3}/_{8}$" UNF Nyloc Nuts

Assembly

Assembly Procedure

Step 1: Mounting the seat to the seat base.

- Use the four $^{5}/_{16}$" x $^{3}/_{4}$" UNC bolts to fasten the seat to the seat base.
- Remove armrest screws from the seat, position left and right side armrest, fasten and tighten.

Step 2: Mount the steering joystick to the steering shaft.

- Select the steering joystick.
- Slide the joystick into the slot on the top of the steering shaft, already installed in the steering column directly in front of the foot pedal controls, insert the $^{3}/_{8}$" bolt into the bottom bolt hole, select a comfortable operating position, joystick forward for extra operating room or back for less, once determined insert the other $^{3}/_{8}$" bolt into the upper hole and tighten both bolts securely.

Step 3: Attaching the left-hand trailer arm to machine body.

- Locate the trailer arm support axle 30mm in diameter (1¼") which extends out on the left side of the machine, remove the circlip from the support axle. Oil machined portion. Slide the left hand side trailer arm, onto the axle, replace the circlip, ensuring the circlip is located in the groove correctly.

Step 4: Attaching dampener strut and right hand trailer arm.

- Locate the trailer arm support axle 30 mm in diameter (1¼") which extends out on the right side of the machine, remove the circlip from the axle. Hold the right side trailer arm in the vertical position and slide it part way onto the axle. Locate dampener strut., remove packing from the unattached end.
- Place strut onto locating pin and push completely on, insert washer and cotter pin in place to prevent strut from coming off the shaft.
- If necessary use a soft headed hammer and tap the trailer arm onto the axle until the circlip groove is revealed, fit the circlip, ensuring it is located in the groove correctly.

Step 5: Attaching draw bar to trailer arms.

- Locate the draw bar assembly.
- Gather the ends of the right and left trailer arms.
- Place the draw bar assembly between the trailer arms and align the holes.
- Place one 2¾" x $^{3}/_{8}$" bolt through each hole, fit $^{3}/_{8}$" Nyloc nut to each bolt and tighten securely.
- Test to ensure the trailer catch is correctly locking the trailer arms in the down position and the catch locking pin fits correctly when transporting the roller, for safety.

Step 6: Attaching wheels to trailer arms.

- Locate the two wheels for the left and right side trailer arms.
- Check tires for the correct air pressure, approximately 18psi. Do not exceed this pressure. The tires act as the suspension, hence the low P.S.I.

Assembly

- Remove wheel nuts from both hubs, slide wheels onto hub with air valves facing outwards. Replace wheel nuts and tighten securely.

- Ensure the taper on the nuts, mate into the wheel tapers correctly.

Step 7: Correct dampener strut operation

- When the roller is in the trailing position Carefully hold the draw bar assembly, release the locking catch, gently with a firm grip begin to raise the draw bar, when it has travelled sufficiently the dampener strut will take over and prevent the trailer arms rapidly rotating on it's axle, allowing the roller to lower to the surface gently. This prevents the operator from being injured. When the roller is resting on the ground push the trailer arms back gently, (do not use excessive force) until the trailer arms will travel no further. The dampener strut is designed to hold the trailer arms back behind the operator with the wheels off the ground.

Step 8: Replace engine oil

- A tag is placed on the engine's On/Off switch indicating you must fill the machine with oil prior to operation. Low oil level will cause the engine to stop on steep hills, the engine cut off safety switch is designed this way to protect the engine from damage if low in oil.

- The oil in the engine upon delivery (if not pre-delivered) is to prevent the inside of the engine from corroding, replace it with the correct engine oil, as per the manufacturers specifications.

Step 9: Transmission oil tank breather.

- Unscrew the plastic plug from the top of the tank and replace it with the anti-splash breather supplied. Seal damage and oil leakage will occur if the breather is not installed. If this is not done damage to the seals in the transmission will occur.

Step 10: Lubricate smoothing head pivot bearings.

- There is a grease nipple or zirk located on the three (3) smoothing head centre ball joint swivels. Apply grease to lubricate fittings.

- Apply grease to the upper main bearing that supports and carries the three smoothing heads.

Operation procedures

Operation procedures

Pre-operation checks

- Check engine as per Honda manual.
- Ensure steering joystick has no looseness.
- Check that foot pedal depresses under normal foot pressure in both directions and returns to the neutral position. (Similar resistance to a motor vehicle clutch). If this action is not smooth, check the yoke and transmission struts for correct operation.
- Ensure that the draw bar locking catch mechanism is securely locked to the main draw bar and the safety pin is fitted when trailing the roller.
- Check and tighten grub screws fitted to the end bearing lock rings on the rubber coated drive roller bearings on each smoothing head and main support bearing.
- Grease lightly Bearings fitted to Drive Roller and Smoothing Head pivot bearings. Replace plastic caps if fitted.
- Grease rod ends, sparingly.
- Check tire pressure for proper operating pressure (18psi). Do not over inflate.
- Check for oil and fuel leaks - rectify before using machine.
- Lubricate the drive chain with a suitable chain lubricant.

Standard operation procedures

- Inspect and check that the roller is serviceable prior to departing from workshop.
- Use a suitable towing vehicle to move roller from green to green.
- Maximum recommended towing speed would be equal to a motorized golf buggy. Approximately 4mph/7kph. Towing at excess speed or across rough terrain may cause damage to the machine and trailer.
- When approaching the green do not tow the roller onto the green to set up, put the roller on the fringe of the green. Put trailer in the up position, start up the roller and drive it onto the green.
- Greens can be rolled in any direction; take care to ensure there are no crease lines produced on the surface.
- It is recommended that you place the smoothing head rollers on the high side of the green when rolling. This increases the weight on the rubber drive roller and gives better traction, it also reduces slipping or spinning of the drive roller on the green, depending also on the operators ability. Whilst becoming familiar with the roller, set the throttle at about $^{1}/_{2}$ - $^{3}/_{4}$ speed. Press the left or right foot pedal down gently but not suddenly. Be smooth with your action, hold in this position until nearing the edge of the green, then take your foot gently off the pedal, the roller will come to a stop. Rest your other foot on the opposite pedal and gently apply the pressure to the pedal. It then starts to move the roller in the opposite direction. Once again be gentle with the pedal, but not sudden. By using the left and right pedal in this manner, will ensure there is no damage to the green and less wear and tear on the equipment and operator.

Operation procedures

- The correct procedure for rolling the green is:

  (a) Select the correct direction to roll the green, remember this roller can roll the greens in all directions.

  (b) Start on one side of the green and work your way across the green in a zigzag fashion, slightly overlapping each lap you roll: this makes sure you miss no part of the green and all of the green is rolled. Avoid coming back across the green to roll missed areas if possible. You should be able to complete the rolling of 18 greens in the same time or quicker than by mowing using a triplex mower.

- When rolling of the green is completed, move the roller onto the fringe, stop the engine, lock the trailer into the trailing position, connect it to the towing vehicle then move off to the next green to be rolled. Do not put the trailer down into the towing position on the green; damage may occur to the green from the roller tires and body.

- Remember turn off the fuel cock whilst towing the roller.

Emergency and Park brake

- To engage, push parking lever forward until it will travel no further, the lever operates on a over cam principal, when it is fully engaged the lever will remain in this position with the brake applied. To dis-engage the park brake, pull the lever up and back. The lever will remain in the off position until re-applied. Do not operate the roller with the emergency brake engaged, damage to the drive roller rubber coating will occur.

- Ensure the park brake is released prior to operating the roller, if not irreparable damage to the rubber on the drive roller will occur.

Points to remember

- Make sure the roller is serviceable before rolling.

- Start rolling from the fringe of the green.

- Smooth operation on the foot pedals.

- Pick a point on the other side of the green to roll to.

- Do not look at the green close to the roller; it makes it difficult to steer the roller straight; look well ahead.

- Use 1/2 throttle until you are proficient at operating the roller.

- Once you choose your rolling line hold the joystick steady, correcting direction gently as required.

- Move the steering joystick a little at a time to change direction; excessive movement of the joystick makes it difficult to maintain a straight line.

- Roll in straight lines.

- Do not leave the engine running with the roller parked on the green; the engine vibration will cause roller depression marks on the green.

- Move off the green when rolling is complete before putting the trailer in the down position.

- When rolling steep greens and the engine stops, check engine oil level. The engine is fitted with a safety switch; when the engine oil level is low the engine will stop.

Maintenance

Maintenance

- Stop engine before performing any maintenance.
- Service the Honda engine according to the manufacturers maintenance schedule.

Transmission (pump, Eaton 11)

- Initially, change the oil at 50 hours running time, then;
- Change oil every 500 hours or annually, whichever occurs first.
- Change hydraulic oil filter every 500 hours or annually, whichever occurs first.
- Only use the manufacturer's recommended replacement oil filter .
- When fitting the filter, follow the instructions supplied with the filter. This will ensure that the filter remains tight and that no leaks occur.
- Check all hard line oil pipes for rubbing, excessive vibration, leaks and tightness on a regular basis.
- Check transmission oil level on oil tank sight glass. Oil level should remain at a minimum of 25mm (1") and at a maximum of 40mm (1.5") from the top of the tank.
- Oil Capacity including filter is 6 liters or 5.3 U.S. quarts. For the ultimate performance we use and recommend the Penrite synthetic 5 SAE 5W-60 transmission oil. (Part No. R5226)

Storing

- It is important to store this roller in the towing position. This ensures the trailer strut is in the closed position, protecting the shaft from corrosion, then failure and also the weight is taken off the roller bearings.

Service of the drive chain system

- Replacement - Some chains look a like, but they are not, use only the chain and sprockets recommended as per the correct spare parts number. Wrong pitch drive chain fitted will cause excessive sprocket wear and possible drive failure.
- Tensioning the drive chain - No adjustment is required; the chain tension is automatically adjusted.

Lubrication

- Lubricate Drive Chain with Chain Oil, WD40 or equivalent (CRC; Penetrene etc.) each time prior to rolling of the Greens.

Service of smoothing roller bearings

- Whilst the Roller is suspended by the Trailer, check operational smoothness of the bearings fitted to each smoothing roller by rotating the rollers by hand. If bearing tightness, roughness or excessive looseness is detected, replace the faulty bearings.

Maintenance

- If bearings are faulty

  (a) Remove the complete smoothing head from the machine, undo the four swivel mount bolts on upper body and steering rod, wheel the roller away until the total head is exposed to work on.

  (b) Remove roller shaft bolts from end plates, remove rollers from the heads.

  (c) Screw a bolt back into the shaft end, knock out one end bearing, then use the same shaft to knock out the other end bearing.

  (d) Fit new bearings, replace rollers into the heads, lubricate shaft bolts with an anti seize compound before installing them. Tighten securely and ensure rollers rotate freely when fully tightened.

  (e) Be sure the spacing washers are fitted to the shaft ends before installing the rollers into the heads, in the correct sequence smaller diameter washer first and the larger diameter washer last.

  (f) Sometimes, if the rollers do not rotate freely when installed use a soft headed hammer to hit the securing bolts on each end of the head, this will seat all parts and allow the roller to rotate freely.

  (g) If the rods are removed or lengths altered ensure they are correctly adjusted so that the three heads are parallel to each other when in the straight ahead position. Adjust if necessary.

Changing engine oil

- Change oil and service as per the manufacturers Servicing Schedule enclosed as a separate insert to this manual.

Changing transmission oil

- See page 12 and 14.

Ongoing Maintenance, Lubricant and Replacement Schedule (below)

Note. Areas indicated with a * need to be changed when defective or as required. This may be before the recommended replacement schedule. Please replace all parts as necessary.

Description	Pre-Delivery	Pre-Operating	12 Monthly
Check Engine oil	√	√	
Check Transmission Oil Level	√	√	
Beware of contaminants entering the transmission	√	√	
Lubricate drive chain with WD40 or equivalent	√	√	
Check Tires Max 18 P.S.I.	√	√	
Check Gas	√	√	
Check Smoothing Roller Bearing	√	√	
Check Drive Roller Bearings	√	√	
Check for loose Nuts and Bolts	√	√	
Renew Engine Oil	as per manufacturers Handbook		
Renew Transmission Oil - See page 1 for correct oil	every 500hrs or...		√
Renew Transmission Oil Filter	*		√
Renew Smoothing Roller Bearings	*		√
Renew Drive Roller Bearings	*		√
Renew Chain Tensioner Sprocket Bearings	*		√
Renew Drive Chain	*		√
Replace Foot Pedal Struts	*		
Replace Trailer Strut	*		

Fault Finding

Fault Finding

Roller will not move one or either way, check

- Chain is okay
- Sprockets are not worn or slipping on the shaft
- Foot control is operating - check all arms are secure
- For Sheared Sprocket Keys
- Rubber coupling broken

Roller will not steer, check

- Woodruff Key is in place and not sheared
- Rod ends are connected to smoothing roller head and the steering arm
- Rod ends are not broken or seized
- Centre swivel bearing on top centre of each smoothing roller head has not seized
- Connecting rod are in place and serviceable

Roller has excessive vibration, check

- Disconnect engine-to- transmission and isolate the drive chain to determine whether the problem is in the engine or in the transmissions
- If engine is at fault contact your nearest engine agent for rectification
- If the transmission is at fault, repair or replace as necessary, or seek professional advice from a local Eaton Service Center
- Any out of alignment between engine and transmission.
- For damaged engine and transmission couplings

Smoothing rollers seized, check

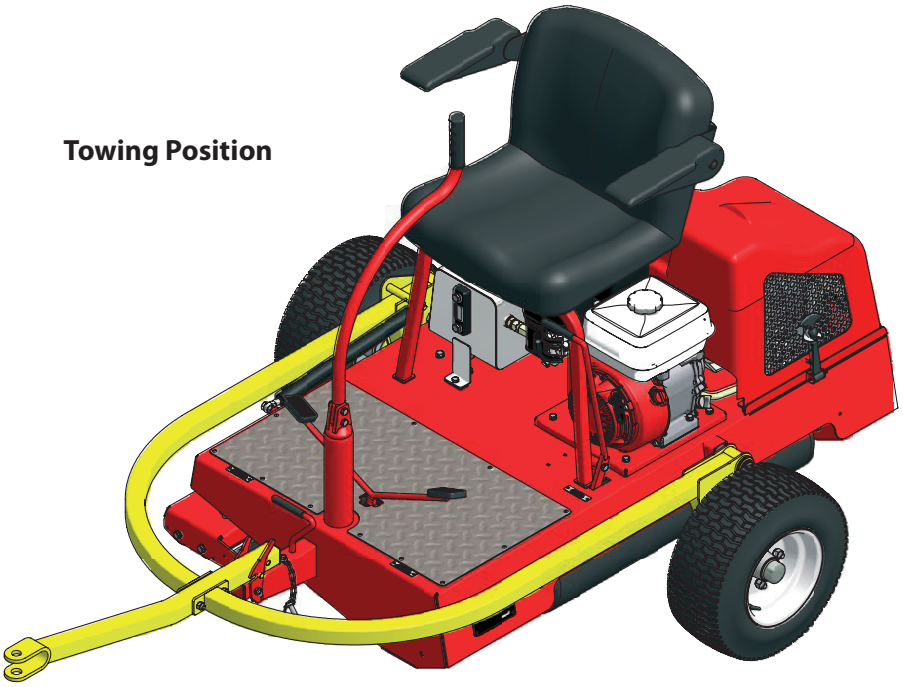
- Bearings have not seized
- Replace if necessary

Rubber drive roller will not rotate, check

- Roller shaft end bearings have not seized
- Broken chain
- Slipping sprockets
- the Park Brake is not locked on
- Accumulated dry debris is not locking the smoothing rollers.

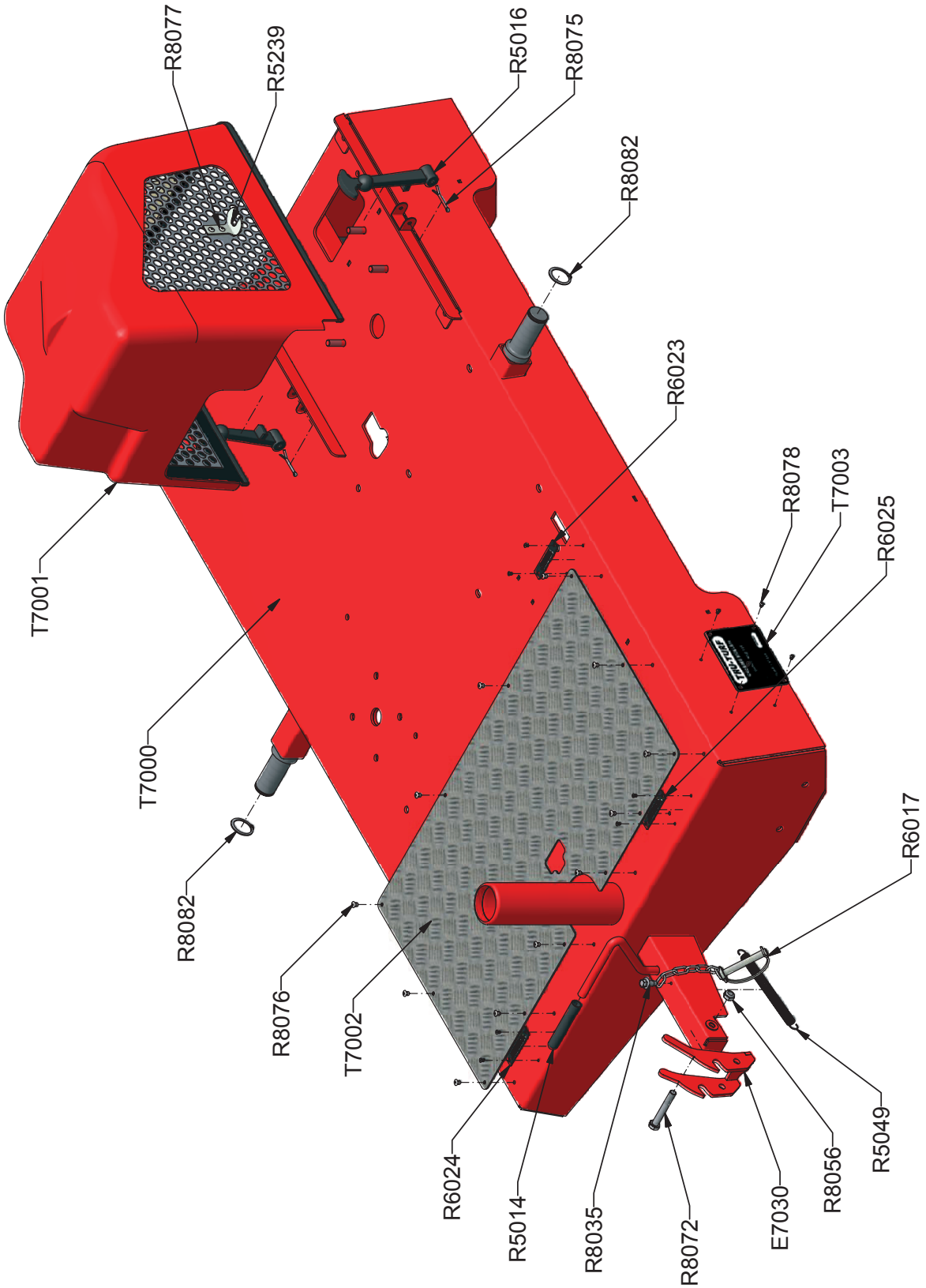
Operating Positions

Towing Position



Rolling Position

Upper Body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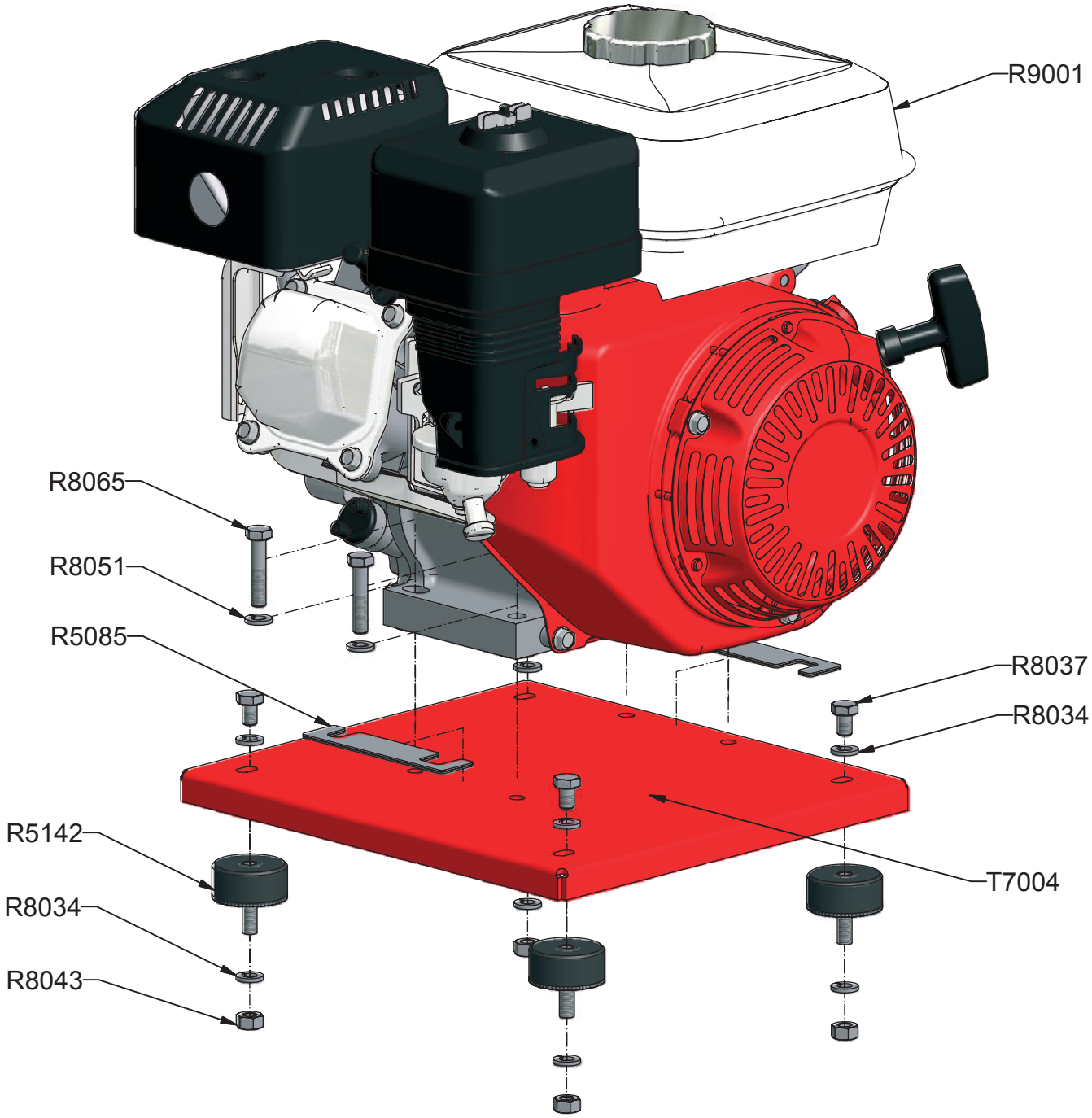
Engine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Seat & Frame


R8026
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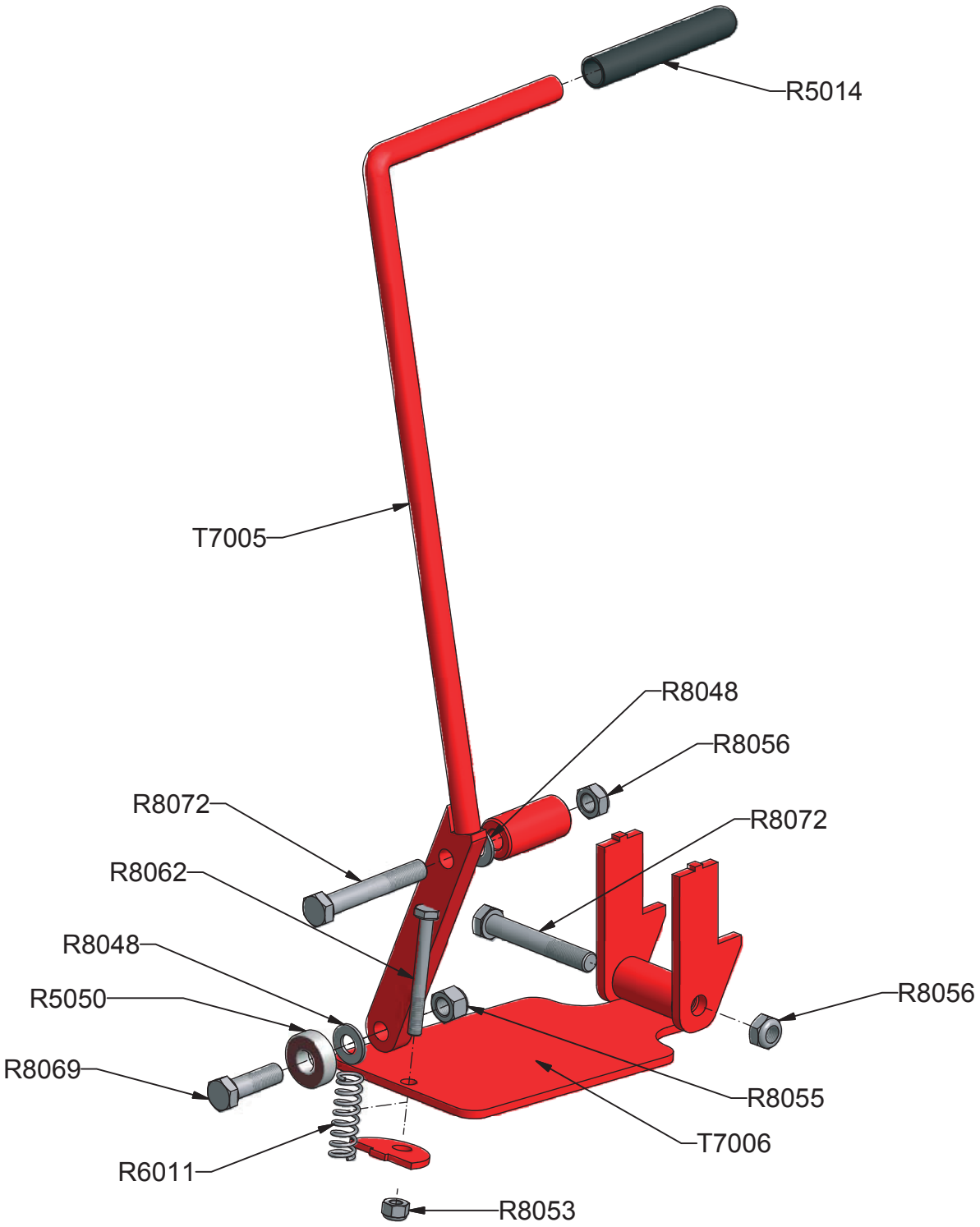
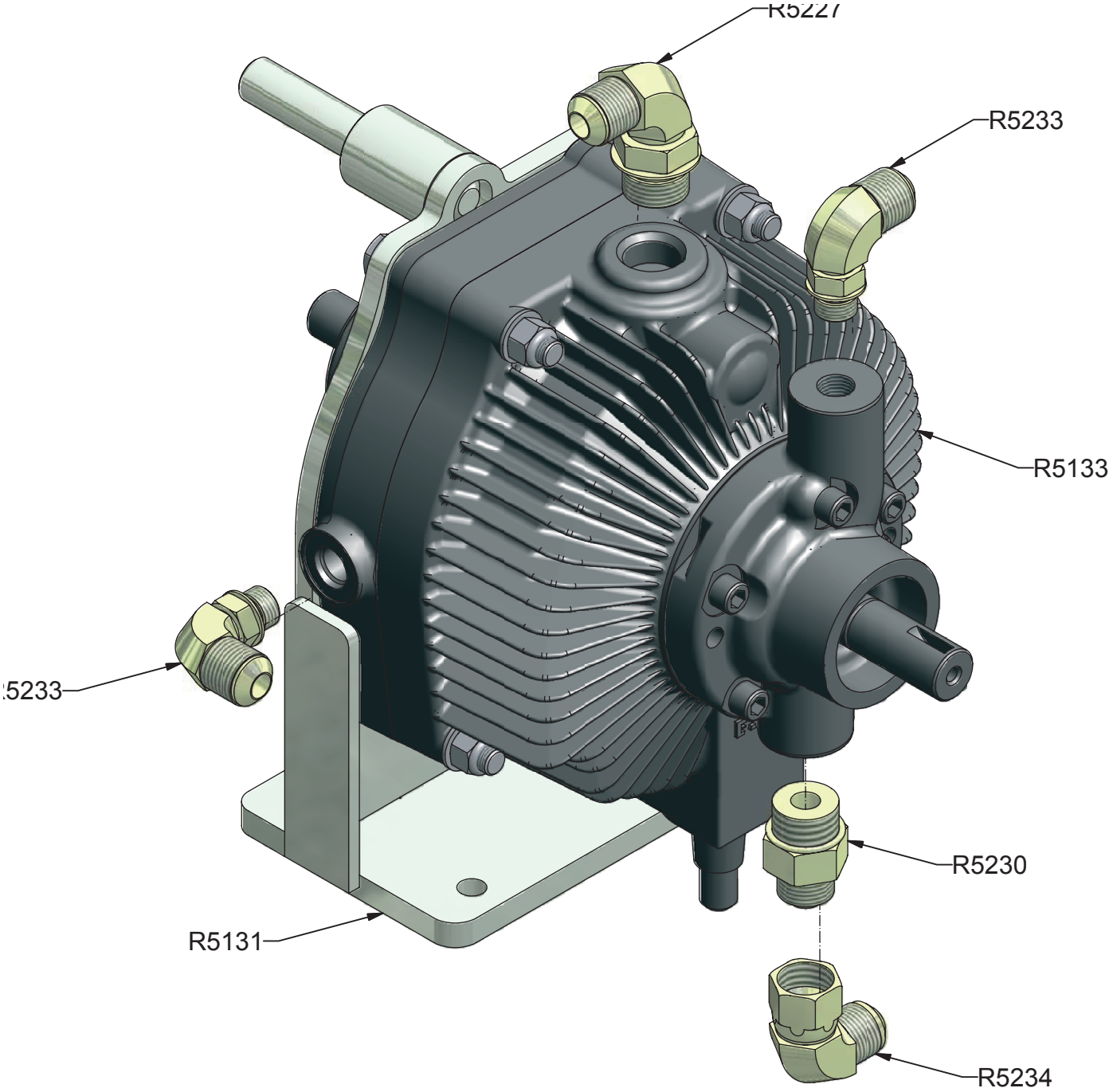
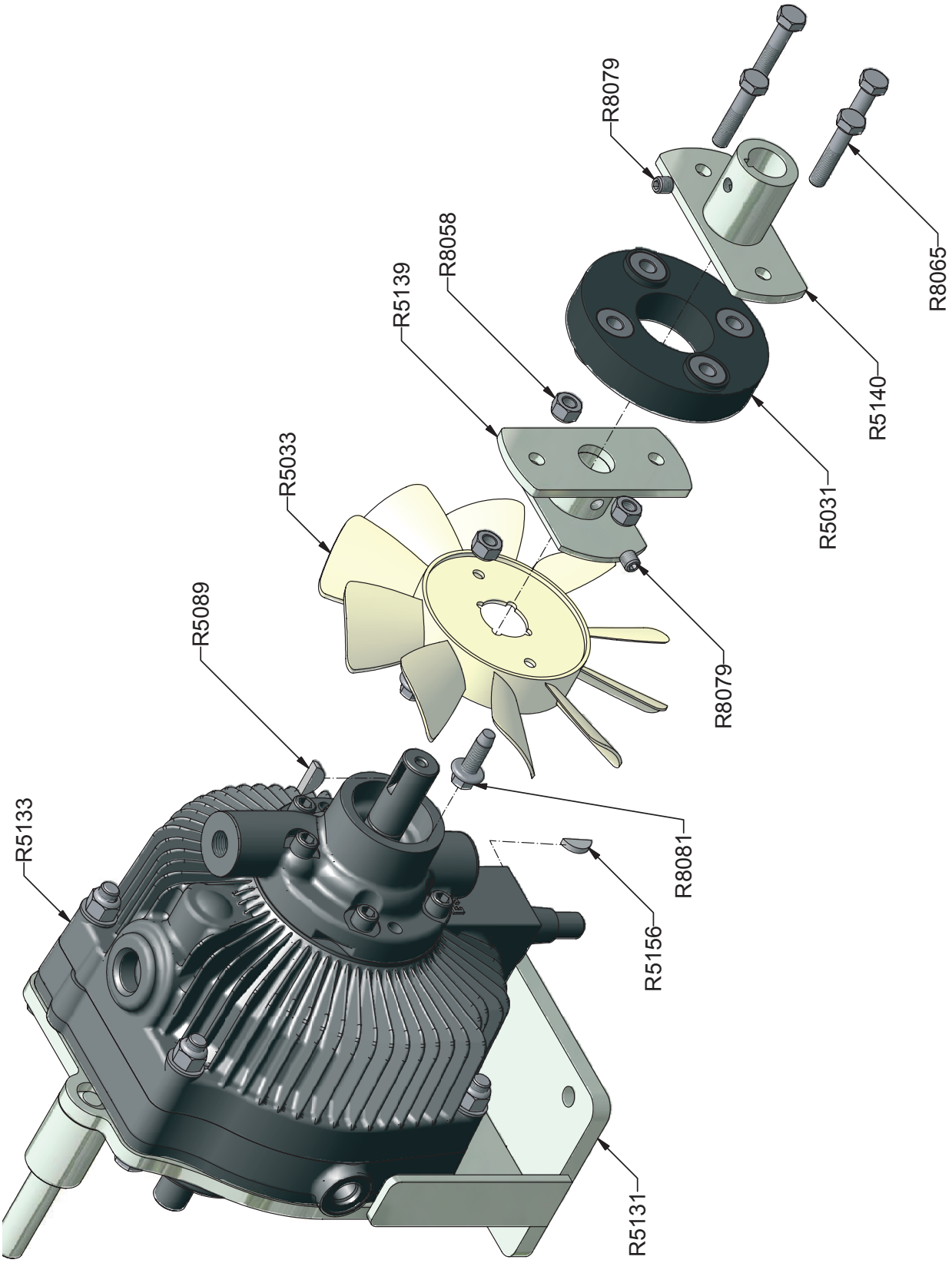
Emergency Brake



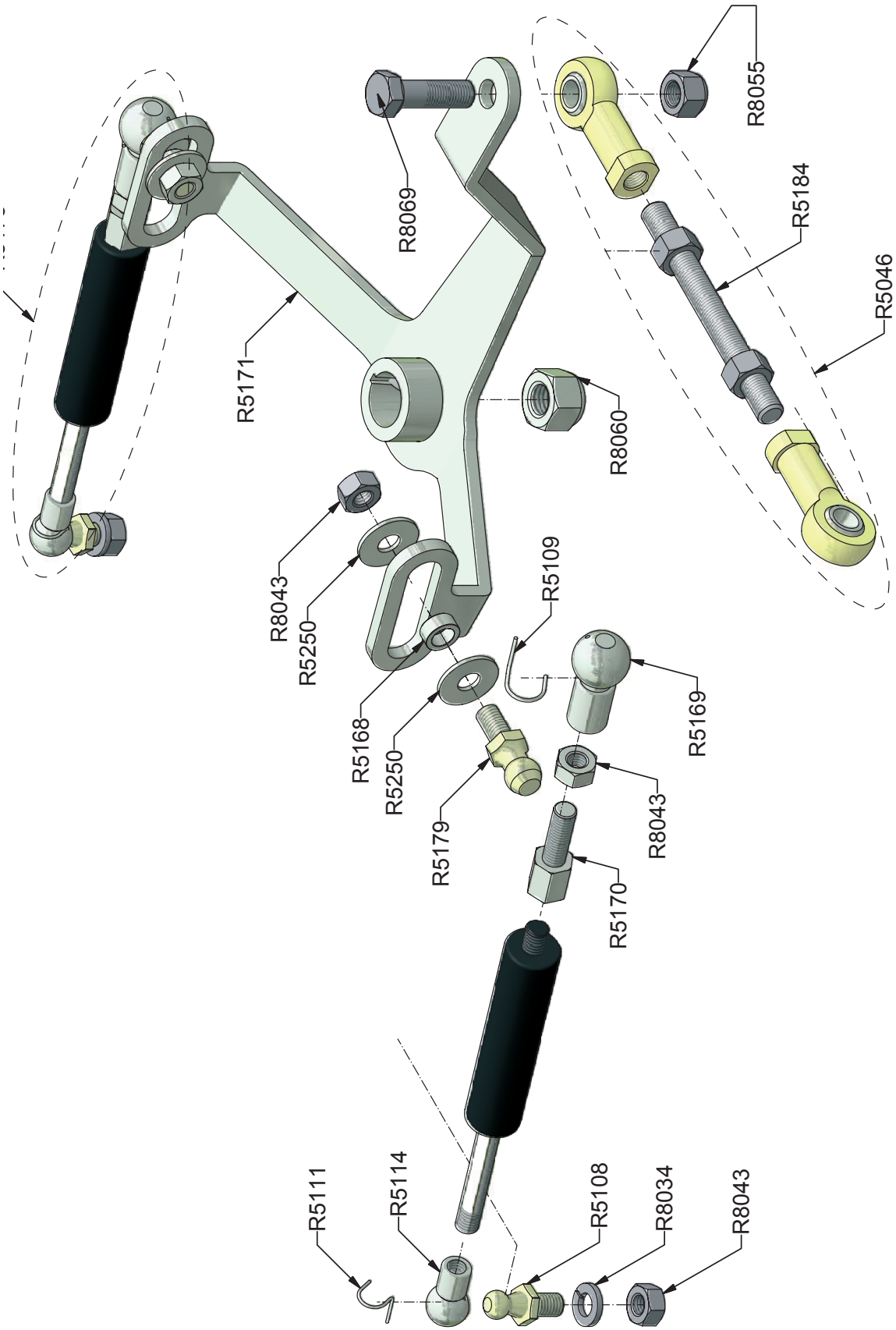
Transmission



Fan & Coupling



Yoke & Struts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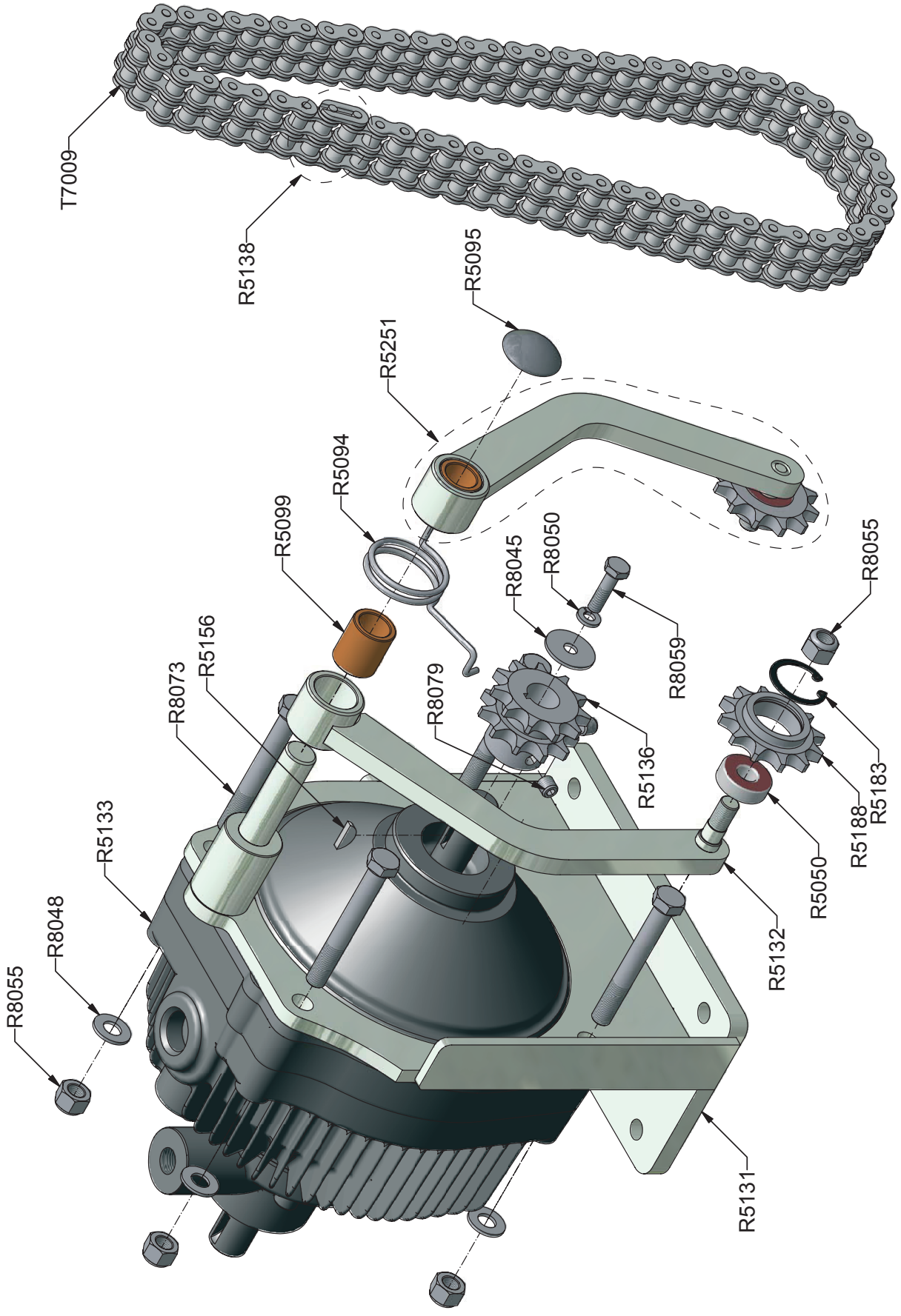
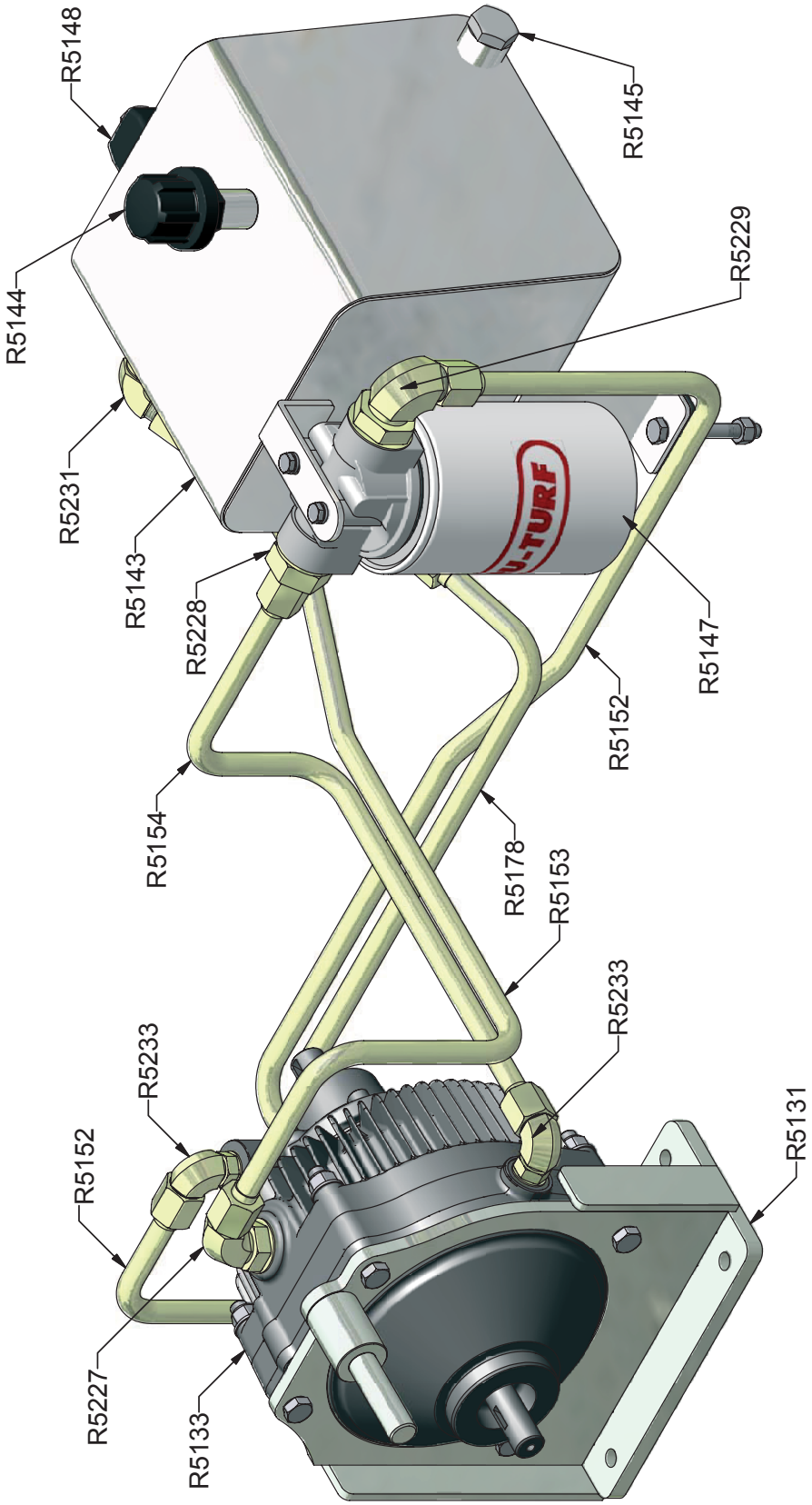
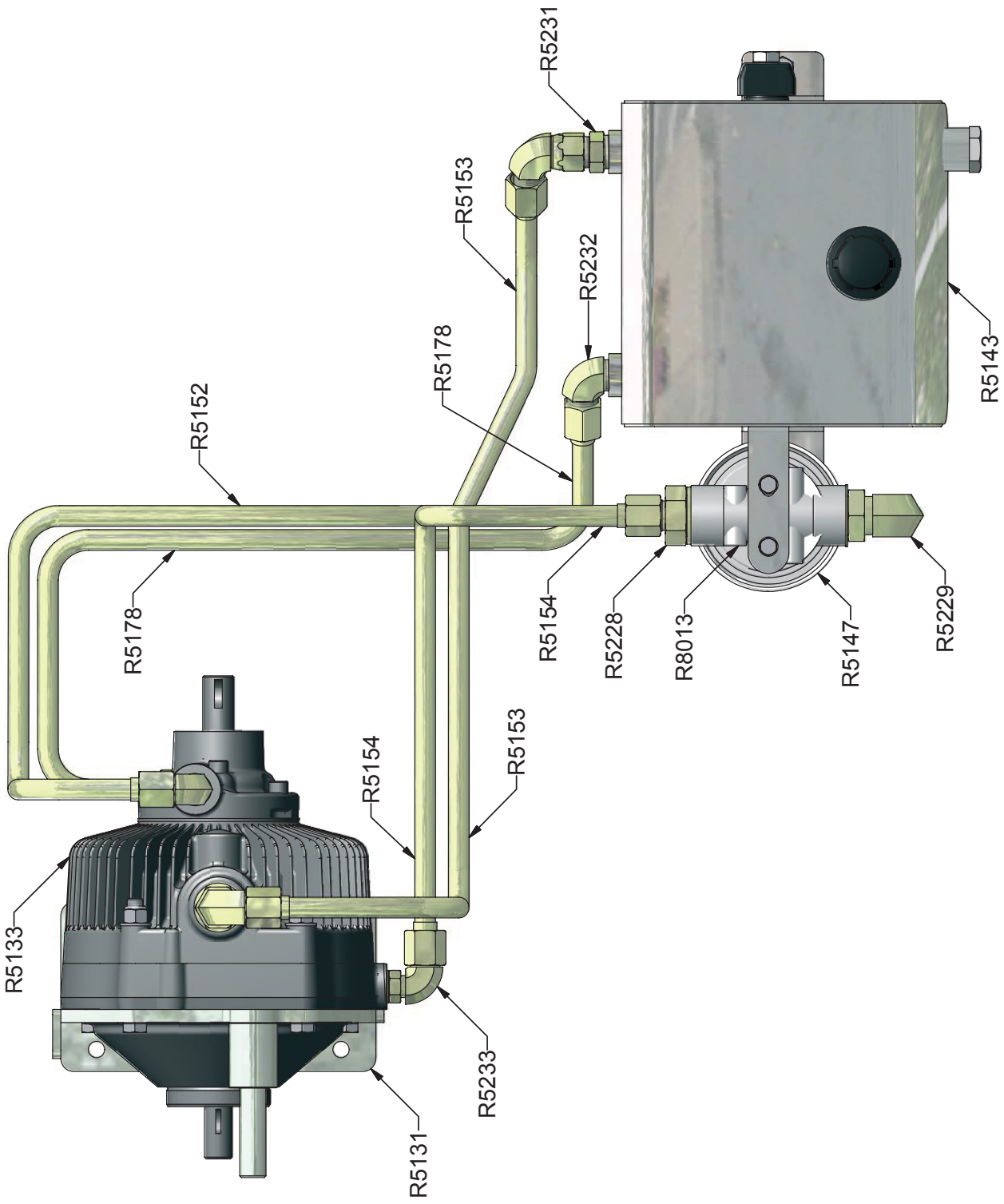
Chain Tensioner & Chain



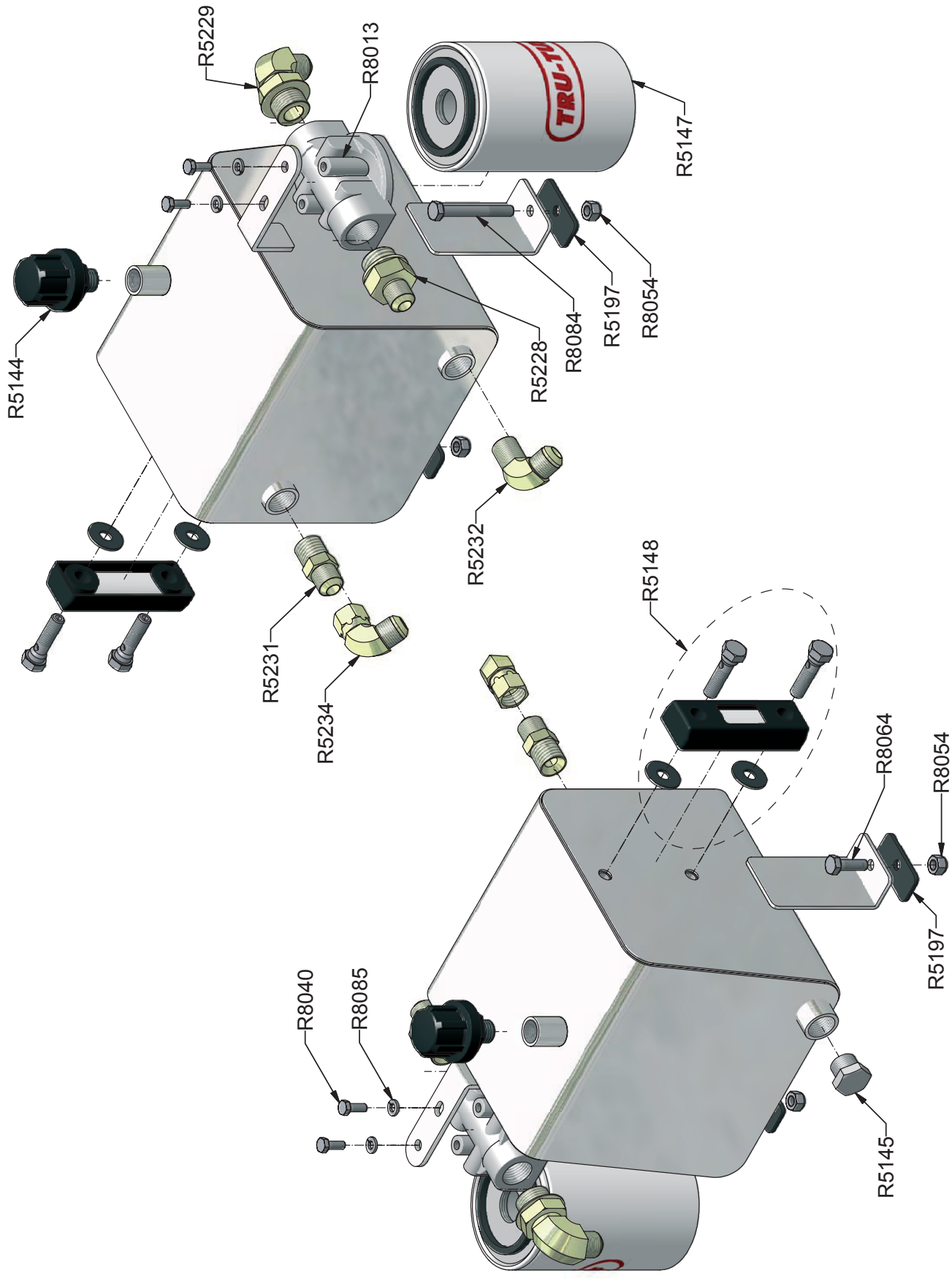
Oil Tank & Pipes



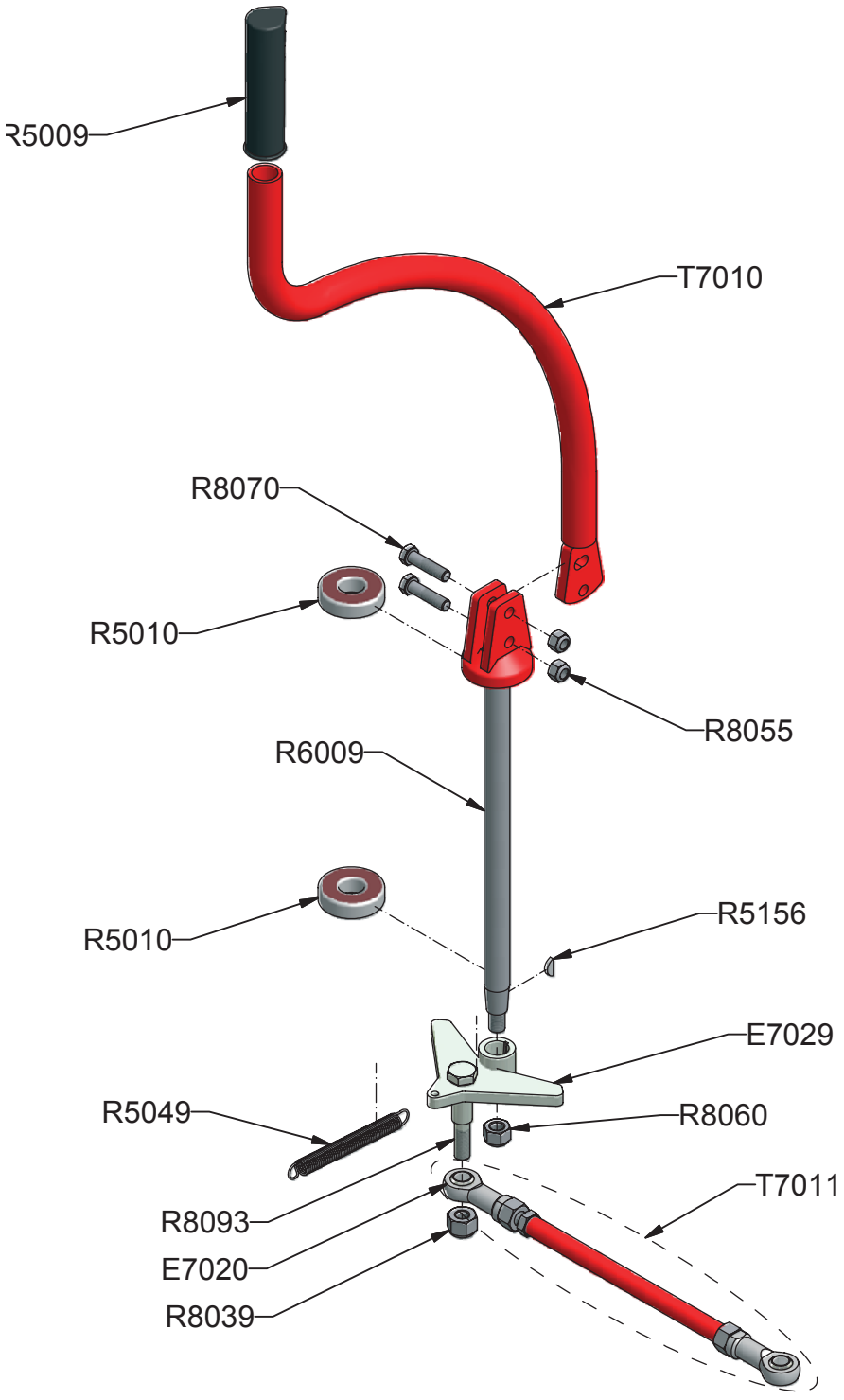
Oil Tank & Pipes



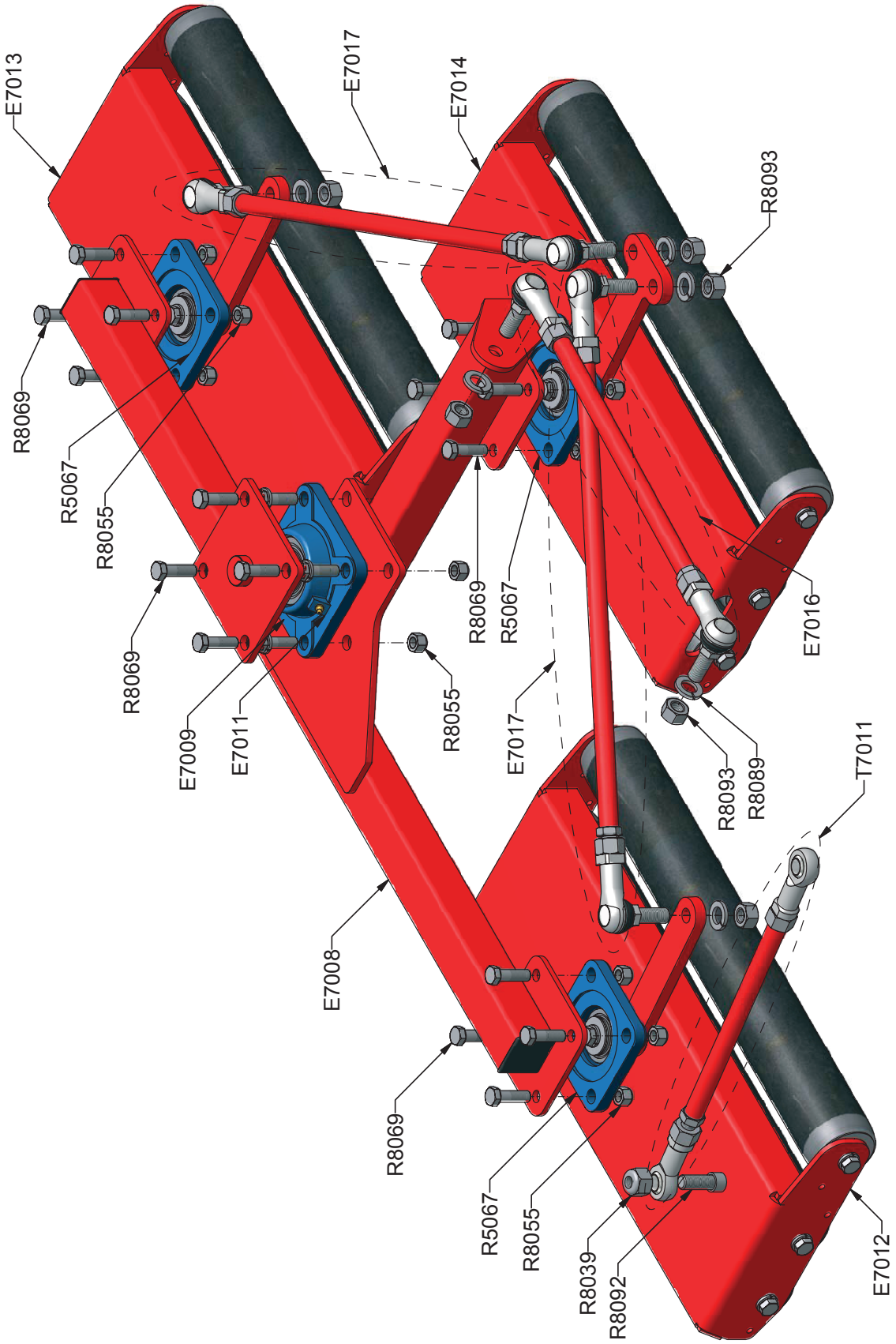
Oil Tank & Fittings



Joystick & Steering Components



Underbody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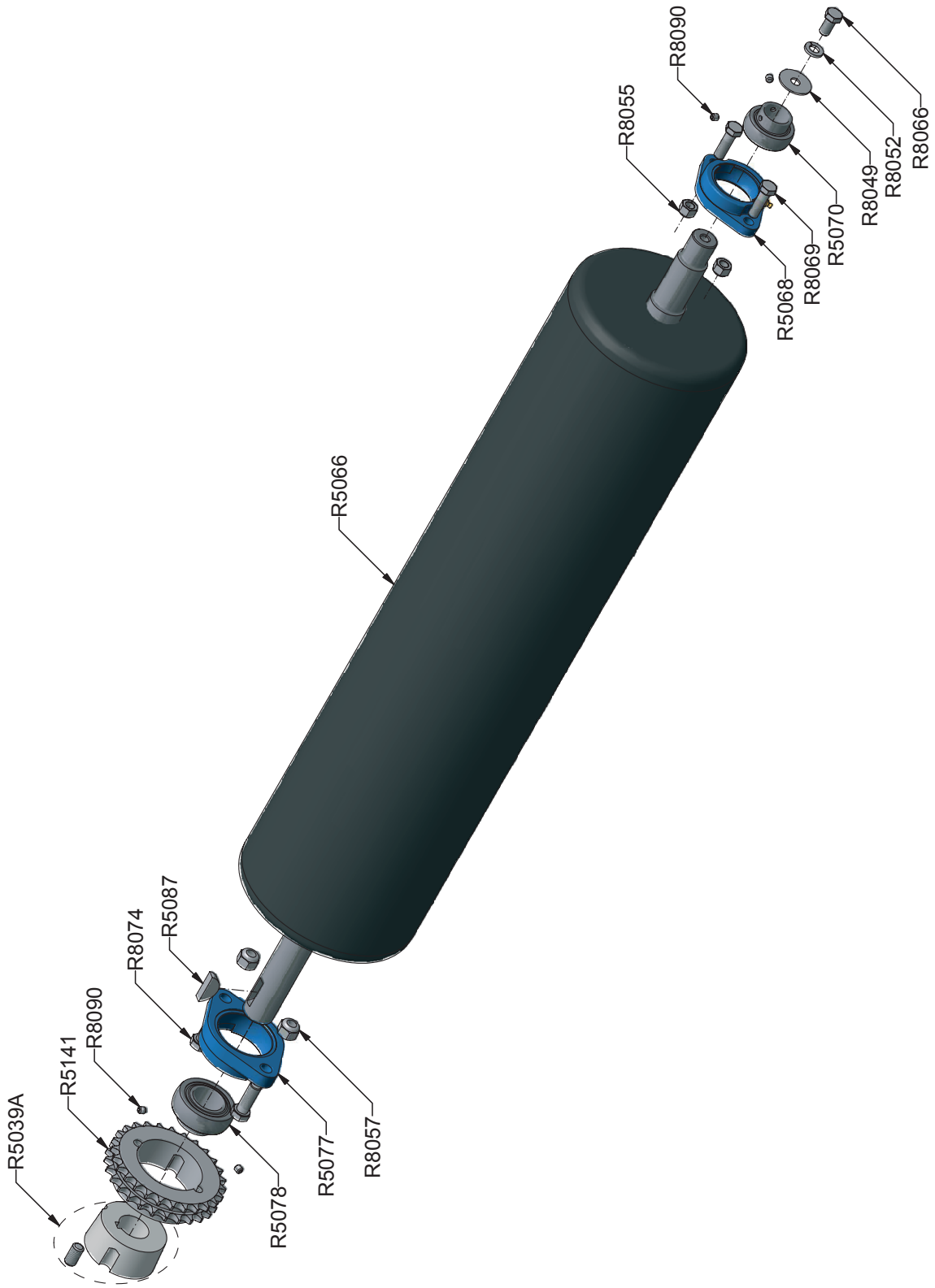
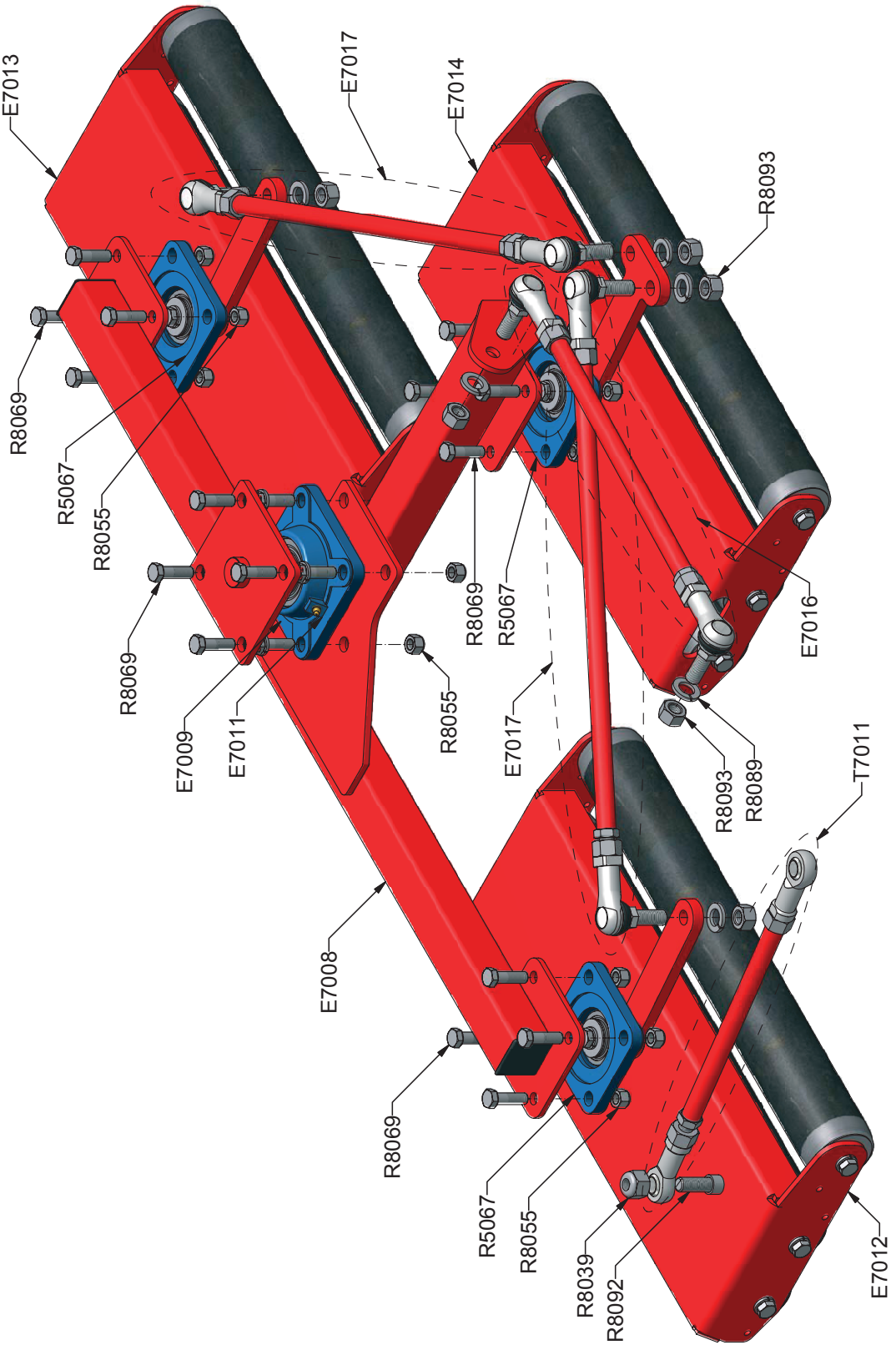
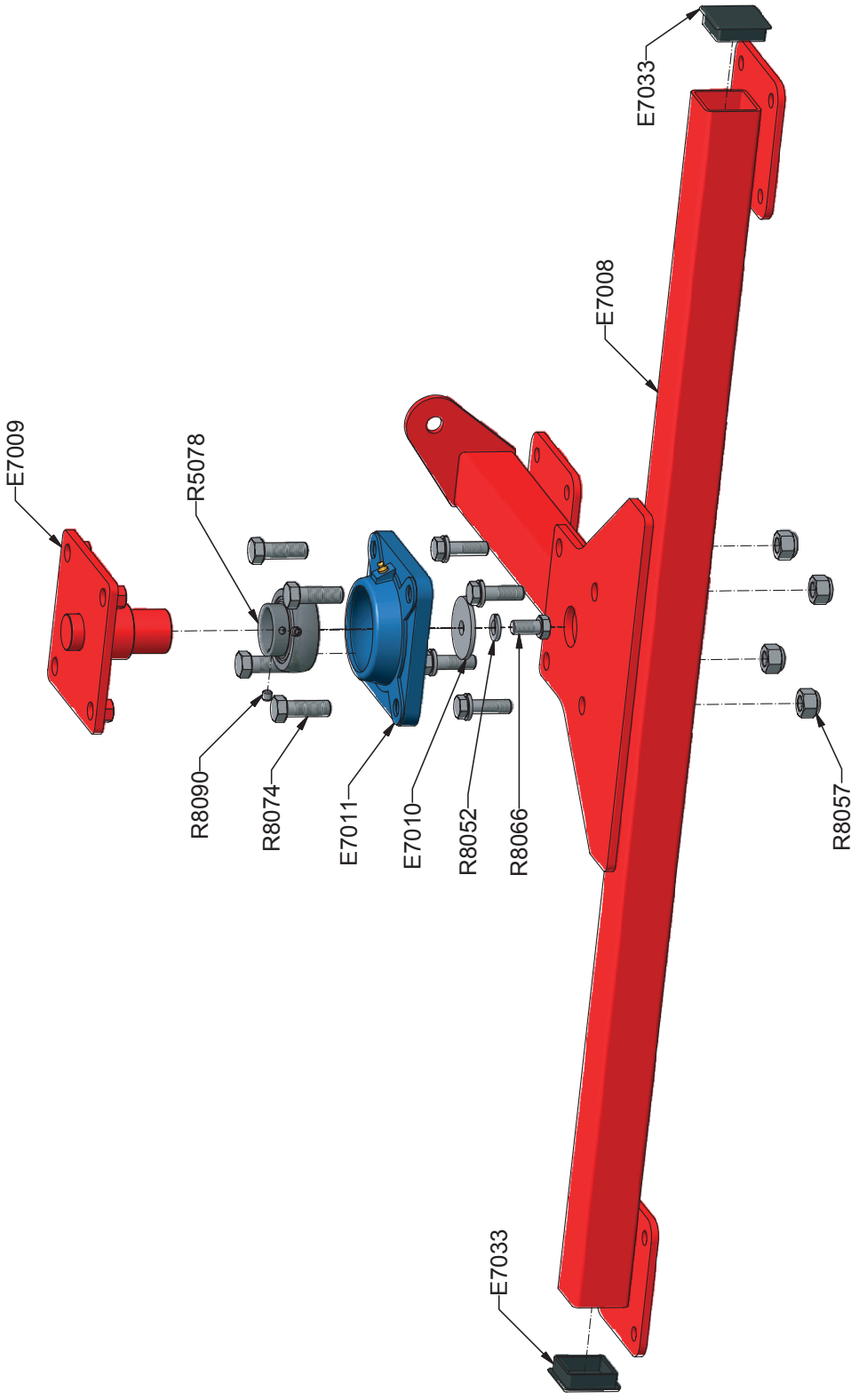
Drive Roller



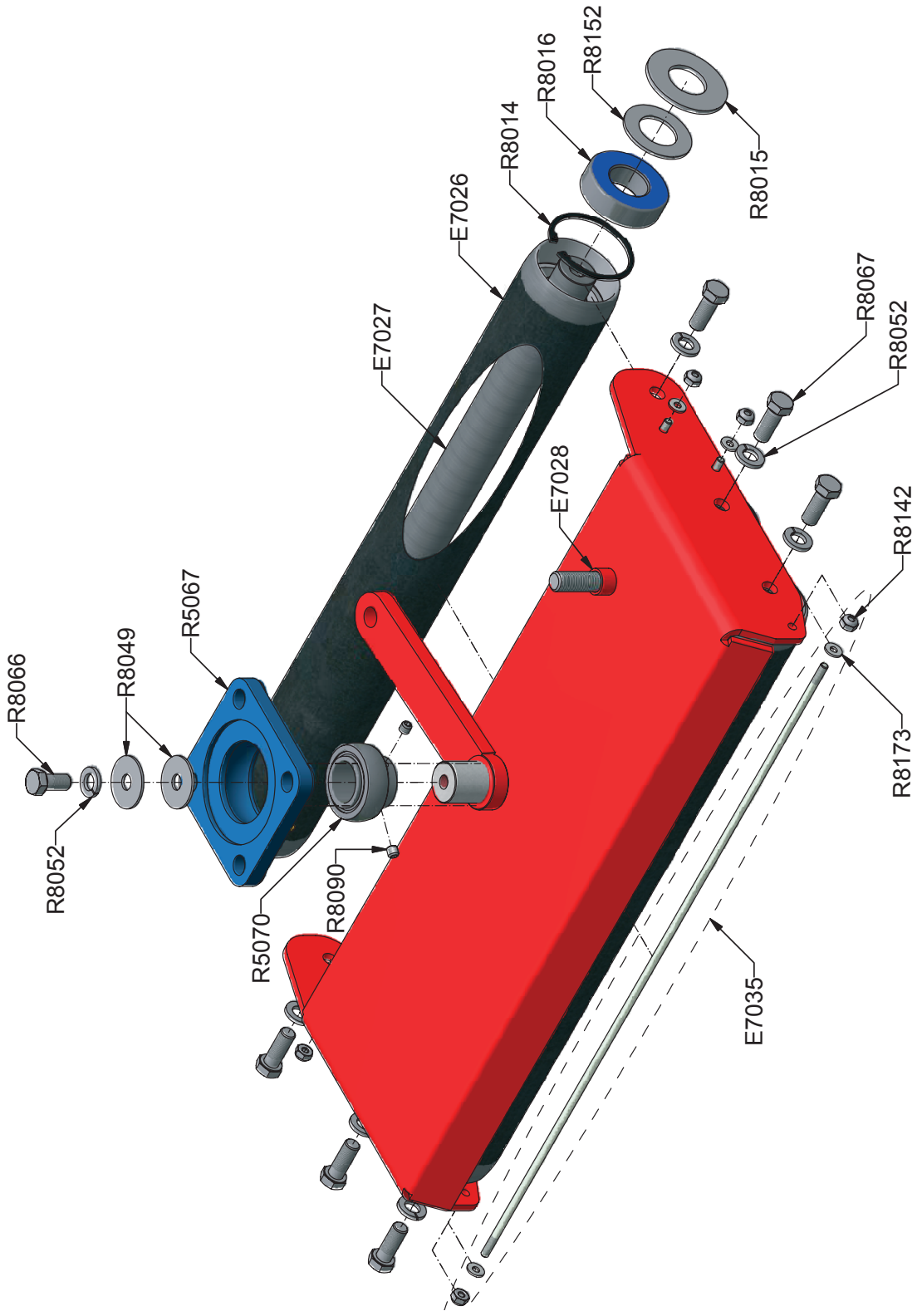
Tri Smoothing Heads



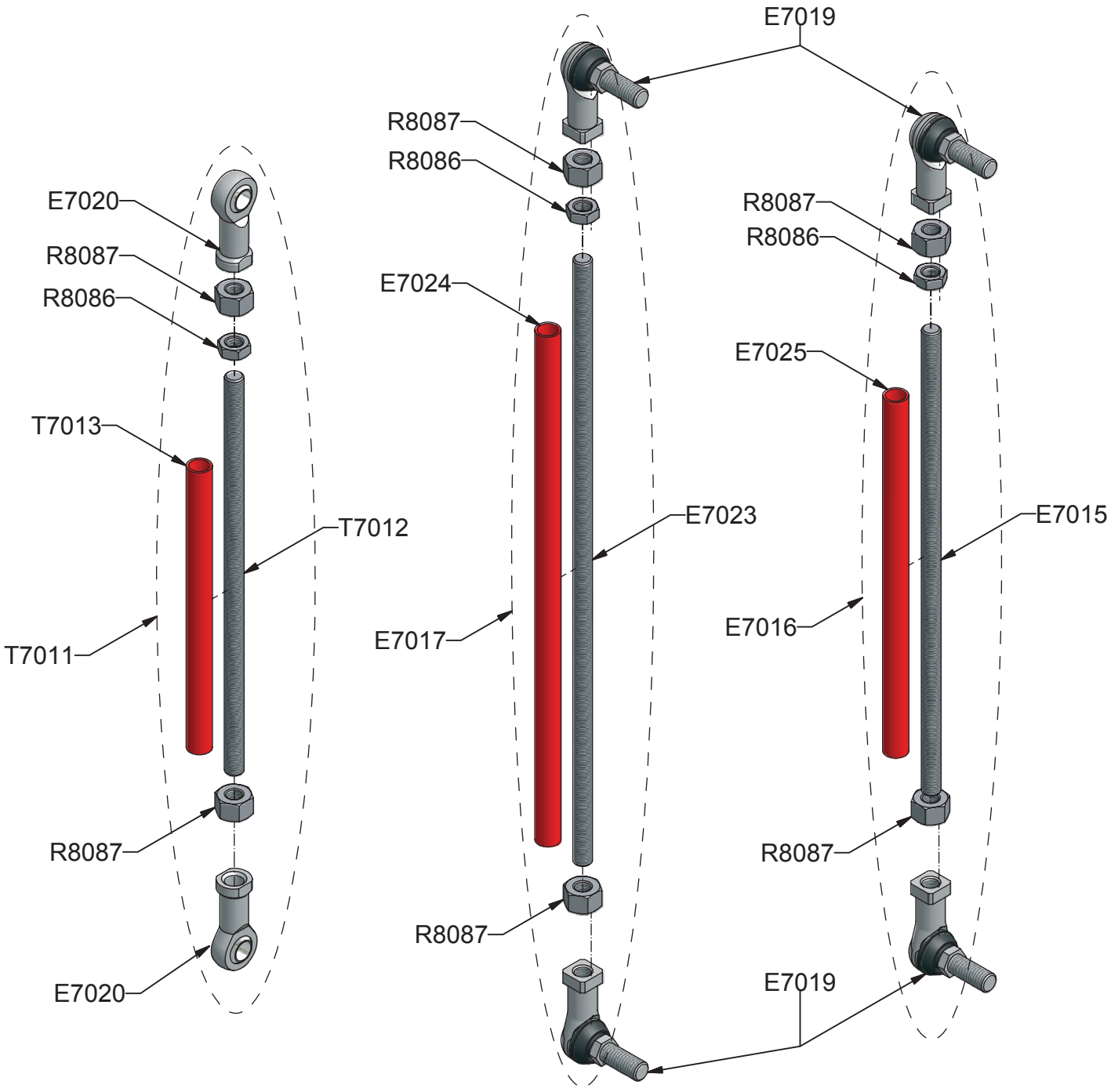
Tri Head Frame



Smoothing Roller

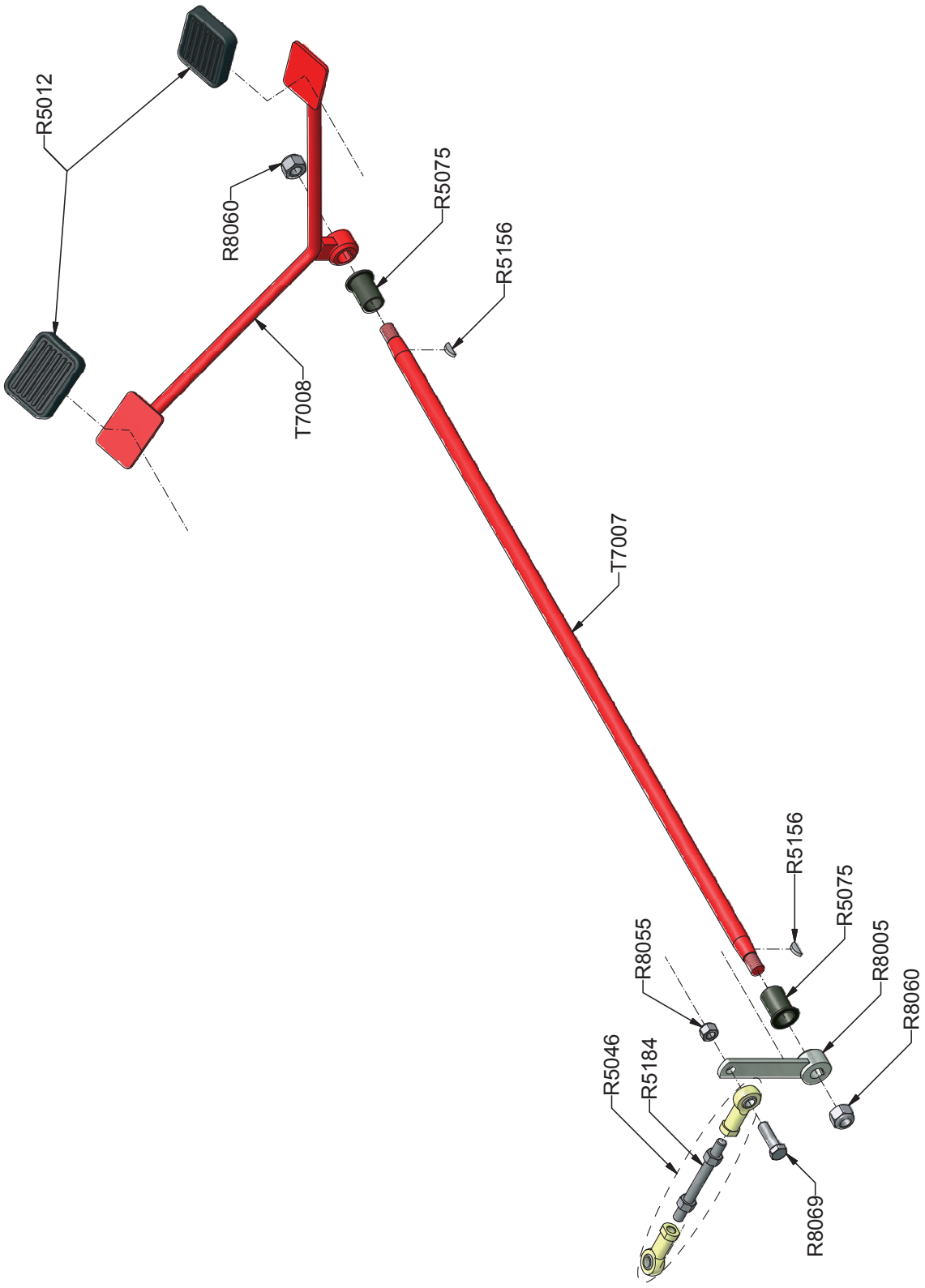


Steering & Connecting Rods



Steering Rod Unit **Smoothing Head Rod Unit** **Stabiliser Rod Unit**

Foot Pedal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R5075
R5156
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T7007
R5156
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R8005
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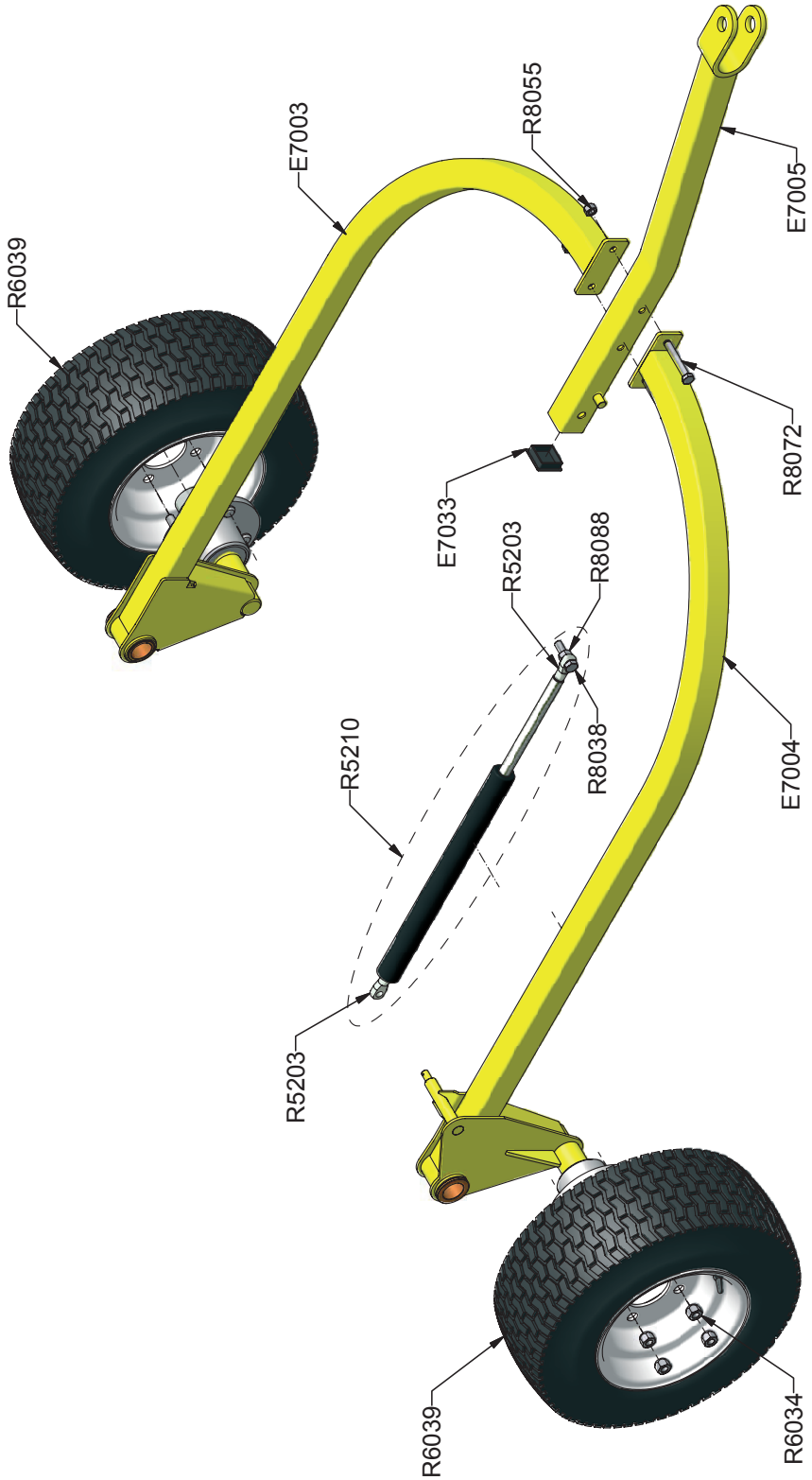
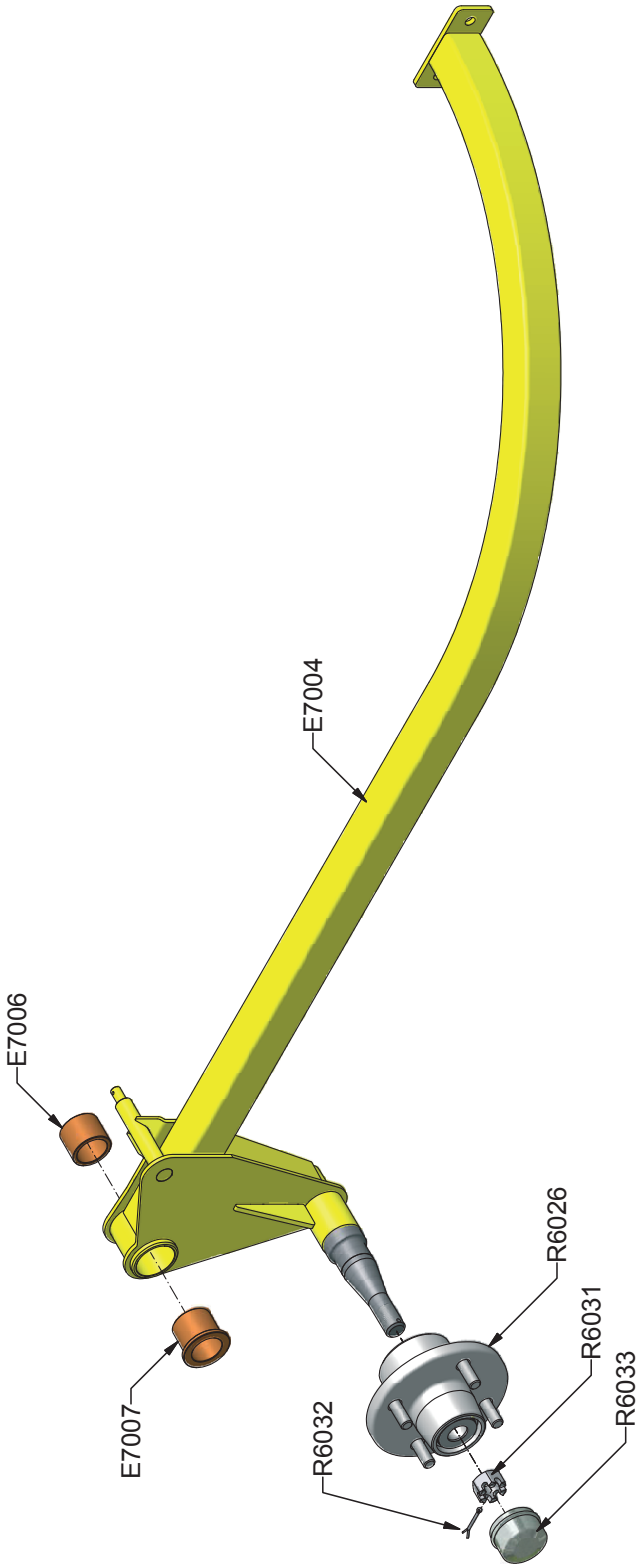
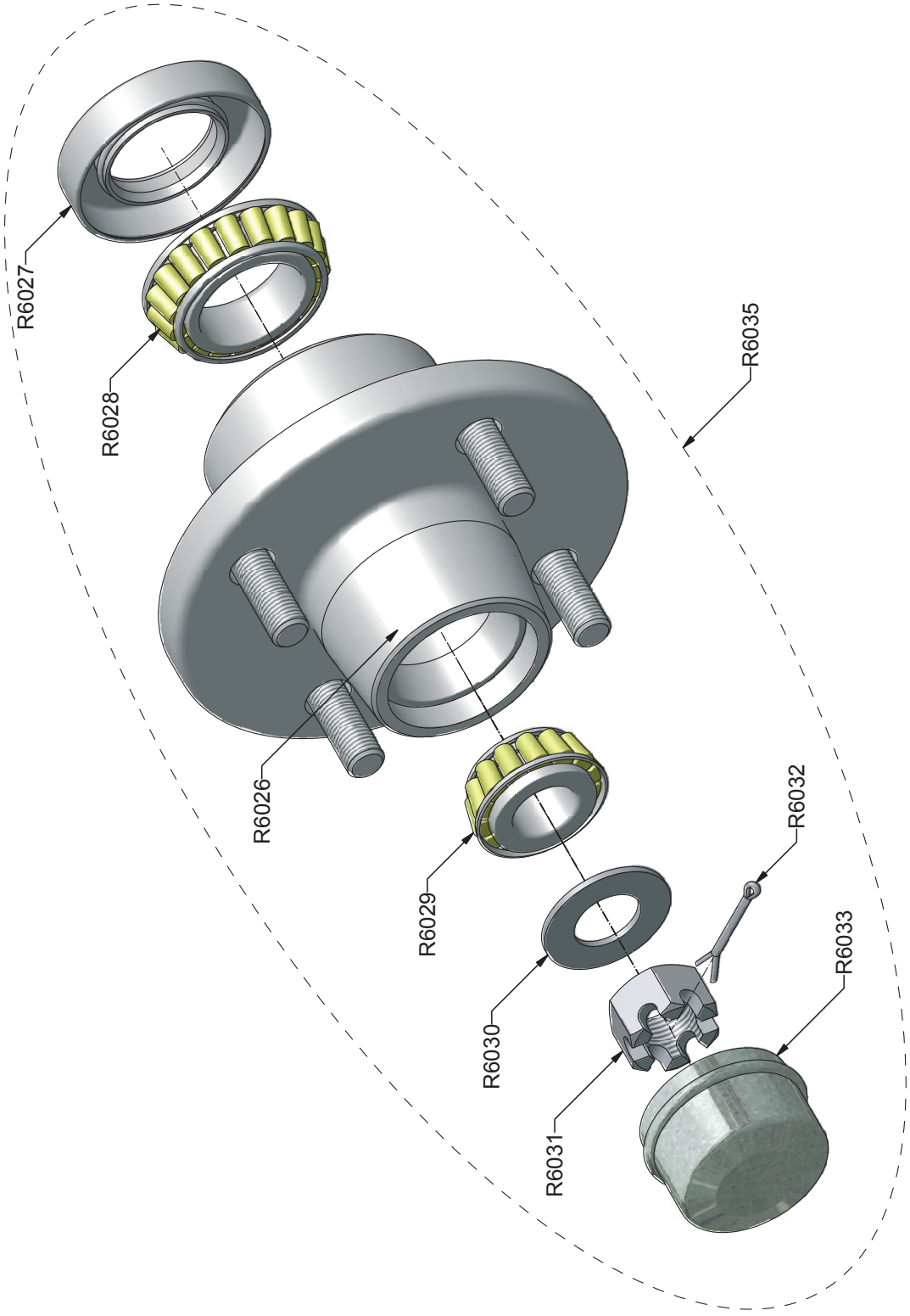
Trailer Components



RH Trailer Arm



Wheel Hub & Bearings



Labels

T7003

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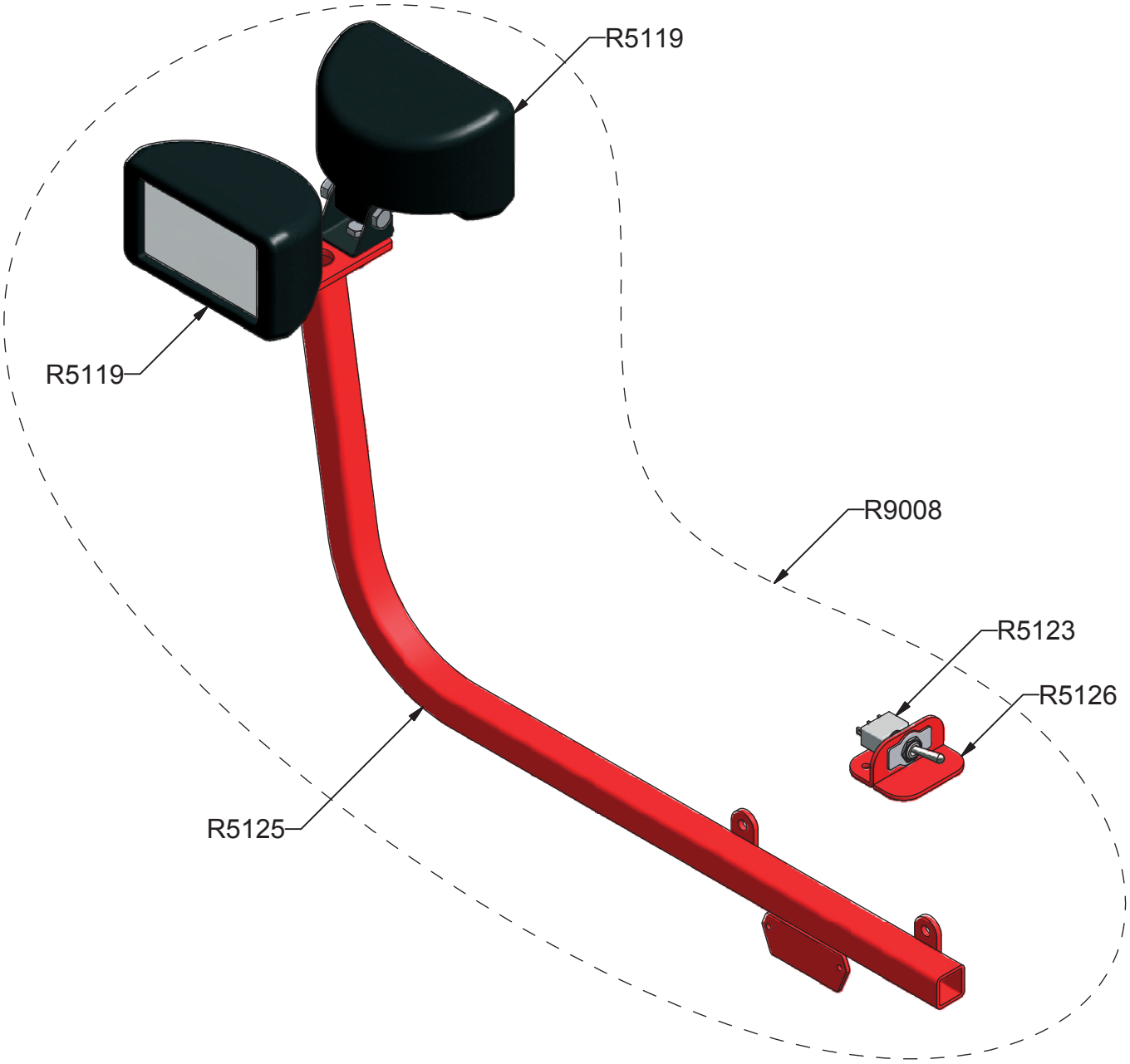
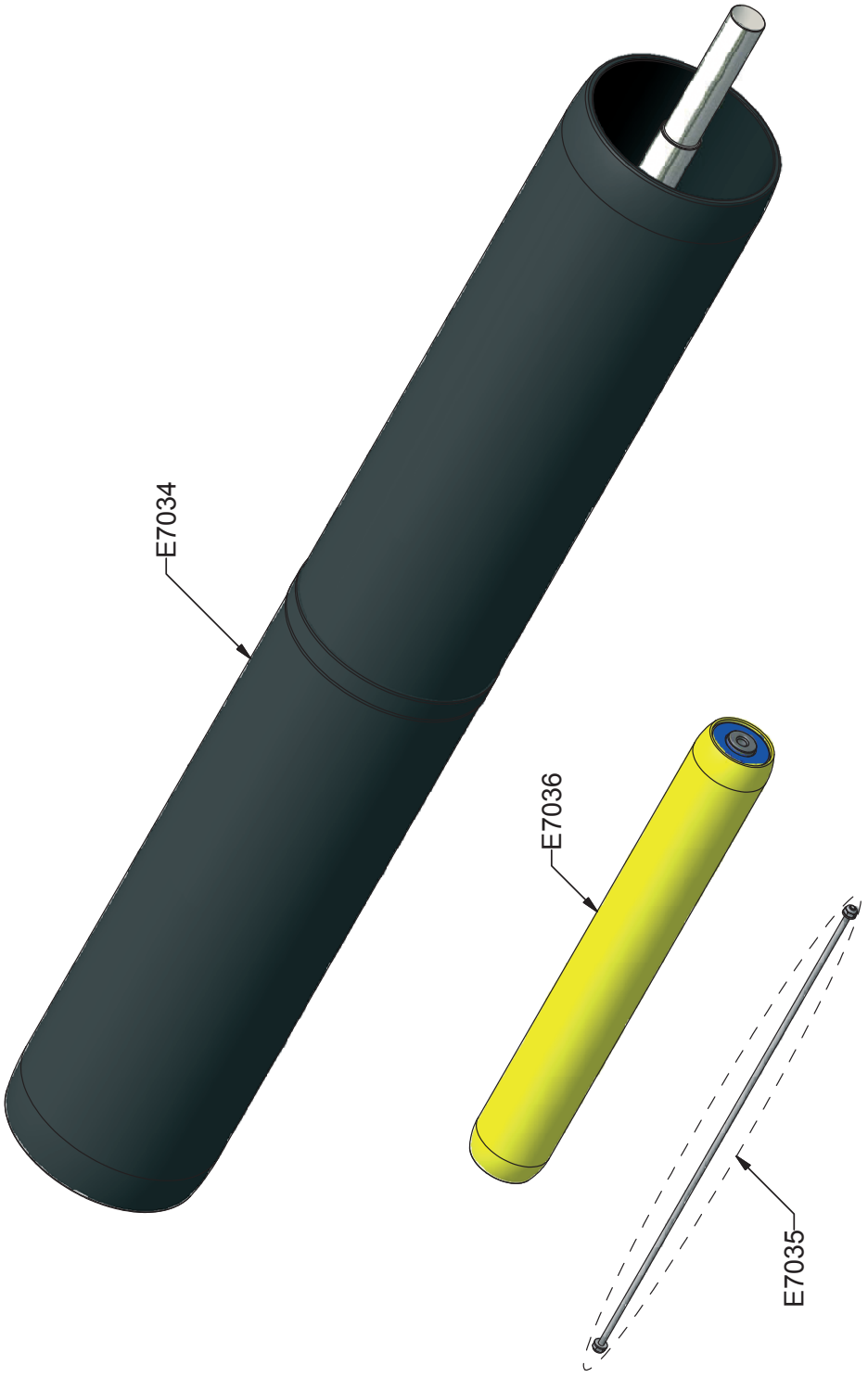


Options



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