



**TRU-TURF**

**R52-ELT ELECTRIC GOLF ROLLER MANUAL**



# Contents

Revised 27/11/2012

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# 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 as per the transmission manufacturers servicing schedule.**

# Machine Information Record

Congratulations on your investment in the R52-ELT 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-ELT 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-ELT Golf Green Roller

Serial 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-ELT Golf Greens Roller, please follow the following safety guidelines.**

- Always make a pre-operation inspection before you operate the machine. 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 machine when in motion.
- 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.
- 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 motor is running, always keep hands and loose clothing away from rotating shafts, chains, belts and sprockets in the transmission area. If hair, clothing or

loose objects become entangled on a rotating shaft serious injury could occur. Stop 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

## Universal Conditions

Tru-Turf Pty. Ltd. (Tru-Turf) will repair or replace any item or part of a Tru-Turf Golf Greens Roller that is defective in workmanship or material for a period of twenty four (24) months or unless otherwise stated, from the date of delivery of the new product to the original end user. Items identified as warrantable will be repaired or replaced by an approved Tru-Turf Dealer.

## Products Protected By This Warranty

This Warranty relates to the following products

manufactured by Tru-Turf, listed by model series;

- a). GR7000, GR11000, RB48, RS48, R52 & SC48 series golf greens rollers.
- b). TR66 triplex smoothing heads and triplex mower attachment hardware.
- c). SR72 Sports Turf Roller.
- d). MT5000 Series Totes are covered for a period of twelve (12) months.

Ensure that your dealer has completed and submitted the Online Warranty Registration and Inspection Report Form applicable to your unit. This will ensure that it has been sent directly to Tru-Turf for registration.

## Parts Warranted by OEM Suppliers to Tru-Turf

Specific component parts supplied to Tru-Turf Pty. Ltd. by OEM suppliers are covered by that supplier's Warranty. These parts and components include Eaton Transmissions, Honda Engines, Sevcon & Curtis Controllers & Foot Pedals, Falk Gearboxes & Electric Motors. Only Tru-Turf manufactured parts qualify for the twenty four (24) month warranty.

## Normal Wear and Tear

Tru-Turf will not repair or replace parts that are subject to normal wear and tear and or that are subject to regular maintenance intervals as specified in the product Operator's Manual. These parts include, but are not limited to, oils, filters, tyres, shafts, bearings, blades, spikers, slicers, brakes, belts, hoses, spark plugs, drive chains, sprockets, drive rollers & smoothing rollers.

## Other Items Not Covered By This Warranty

Tru-Turf will not repair or replace any item that has been damaged by accident, lack of reasonable care and protection or lack of suitable storage. Tru-Turf will not warrant parts that have been altered or modified, nor aftermarket parts fitted without written Tru-Turf approval. Tru-Turf will not warrant used parts that are installed in place of failed parts.

Tru-Turf will not warrant parts that have not been installed by an approved Tru-Turf dealer, nor will Tru-Turf warrant parts that have not been maintained per the Operator's Manual.

The product is to be made available for Warranty repairs at the approved Tru-Turf dealer's premises or by arrangement with the approved dealer.

Service calls, overtime-labour rates and freight costs related to the return of the faulty product to Tru-Turf or its agents are not included.

Tru-Turf shall not be liable for any consequential loss, damage or costs incurred 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.

Ensure that you the owner or the Dealer has lodged the completed Warranty Registration and Inspection Report Form, On-line, applicable to your unit and that it has been returned to Tru-Turf for registration. This record must be referred to along with the reasons why the purchaser believes that the product or a part is defective in the categories of faulty material or workmanship.

Acceptance or rejection of the Warranty Claim is entirely at the discretion of Tru-Turf or their OEM Suppliers who warrant their own part/s.

The Warranty Registration and Inspection Report Form along with the TRU-TURF Pty. Ltd. Warranty Terms & Conditions statement are available for viewing, download or printing as a ready reference by simply clicking the link provided on our website.

The Warranty Registration and Inspection Report Form must be signed by both the Dealer Rep and the Customer and returned or any warranty claim/s will be denied.

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

# 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
2	Tires mounted on Wheel Rim
1	Left-side Trailer Arm
1	Right-side Trailer Arm
2	30mm External Circlips
1	Drawbar Coupling Assembly
2	$\frac{3}{8}$ " x $2\frac{3}{2}$ " UNF 2P Bolts
2	$\frac{3}{8}$ " UNF Nyloc Nuts



# Assembly

## Assembly Procedure

### Step 1: 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 2: 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 3: 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 ¾" bolt through each hole, fit ¾" 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 4: 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 15psi. Do not exceed this pressure. The tires act as the suspension, hence the low P.S.I.
- 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 5: 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.

# Assembly

## **Step 6: 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 batteries are fully charged.
- Ensure steering joystick has no looseness.
- Check that foot pedal depresses under normal foot pressure and returns to the neutral position.
- 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 (15psi). Do not over inflate.
- 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.
- When rolling the green hold the accelerator pedal down to a pre-determined speed and use the directional control switch fitted to the top of the joystick to change directions, this can be done on the fly. The roller will gently come to a stop and then gently take off in the opposite direction until it reaches full speed, which is 8-10 mph. Spinning of the roller will not occur. The other method is to use the accelerator pedal to slow down to a stop, change direction on the switch then accelerate off in the opposite direction. This is the operators choice. Keep the roller on the greens surface, it is not necessary to roll onto the collars or fringes.
- The gentle take off and stopping is controlled electronically, it is unlikely that spinning on the green would be possible; the electronics avoid this from happening.
- There is no mechanical braking fitted to the roller, all braking is done by the motor which has regenerative braking built in, this is quite safe, the operator needs to become familiar with the timing required to stop and the distance required to do so at the speed being travelled, remembering the roller is quite heavy.
- If rolling up a steep slope, say off the green ensure

# Operation procedures

the drive roller (rubber coated) is on the lower side to maximize the traction. If you try to roll with the drive roller leading up a steep slope when off the green spinning will occur.

- Roll the green only, this maximizes the battery power.
- Extra effort is required to raise the roller off the ground into it's towing position. An extra extension bar that pivots open to extend the drawbar which is magnetically held in place can be extended to lengthen the drawbar to give the operator more mechanical advantage making it easier to raise the roller into it's towing position.
- Be careful were you uncouple the roller when you reach a green as it is difficult to move the roller on the grass, ideally park it on a flat surface or on a down hill to make it easier to connect to the towing vehicle.
- 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, 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.

## Points to remember

- Make sure the roller is serviceable before rolling.
- Ensure batteries are fully charged.
- Start rolling from the fringe of the green.
- Smooth operation on the foot pedal.
- 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 power until you become a proficient operator.
- 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.
- Move off the green when rolling is complete before putting the trailer in the down position.

# Maintenance

## Maintenance

- Ensure the batteries are fully charged before going to the greens. When you connect the charger you will notice the needle on the meter will be showing maximum charge input into the batteries, as the batteries become charged the needle will fall away to "0" on the meter, the charger will automatically stop charging. It is only when this occurs that the batteries are fully charged.

Ideally it is better to charge the batteries before they are totally flat, if you were to continually flatten the batteries and then recharge, the life of the batteries will be reduced. Charging can be done at any stage of use; the batteries do not have a memory that may stop them from being fully charged.

Until you have charged the unit a number of times, initially there will be a lot of heat generated from the charger, the mains lead plugged into the power supply and the lead connected to the batteries, this is normal so do not be alarmed.

**Important:** Use the meter on the battery charger to indicate the amount of charge in the batteries not the gauge fitted to the roller. This gauge is only a indicator and does not show an accurate amount of charge in the batteries.

## Storing

- **Important:** Store this roller in the towing position. This ensures the trailer strut is in the closed position, protecting the shaft from corrosion.
- It reduces the load on the bearings.
- **Do not store with machine weight on the drive roller, the internal couplings will distort causing**

**the drive roller to be out of balance. Total drive roller replacement would be required.**

## Service of the drive chain system

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

## Lubrication

- If fitted lubricate drive chain with a chain lube such as *Molykote*, *Innox* or *ChunkaRocol ITW*. Spray on the inside of the chain so that the lubricant is forced into each roller and around each pin 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.
- If bearings are faulty
  - (a) Remove the complete smoothing head from the machine, undo the four swivel mount bolts on upper body, steering rod and stabilizer rod, wheel the roller away until the total head is exposed to work on.

# Maintenance

- (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.

of individual components is not recommended or available.

## 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	12Monthly
Transmission Oil	As per manufacturers Handbook		
Lubricate drive chain with WD40 or equivalent (If fitted)	✓	✓	
Check Tires Max 15 P.S.I.	✓	✓	
Check Smoothing Roller Bearing	✓	✓	
Check Drive Roller Bearings	✓	✓	
Check for loose Nuts and Bolts	✓	✓	
Renew Transmission Oil	As per manufacturers Handbook		
Renew Smoothing Roller Bearings	✓		✓
Renew Drive Roller Bearings	✓		✓
Renew Chain Tensioner Sprocket Bearings (If fitted)	✓		✓
Renew Drive Chain (If fitted)	✓		✓
Replace Trailer Strut	✓		

### Changing transmission oil

- Refer to the manufacturers recommendations.

### Contour following drive roller

- Do not disassemble this unit unless you correctly mark the coupling to tube alignment.
- This is important when re-assembling to ensure the correct balance is achieved.
- Damage to either section of this roller means a complete drive roller assembly is required, the supply

# Fault Finding

## Fault Finding

### Roller will not move one or either way, check

- Batteries are not flat
- Ignition is on
- Chain or Belt are okay
- Sprockets are not worn or slipping on the shaft
- Foot control is operating correctly
- For Sheared Sprocket Keys

### 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

### Smoothing rollers seized, check

- Bearings are OK and not rough or seized
- Replace if necessary

### Rubber drive roller will not rotate, check

- Roller shaft end bearings have not seized

- Broken chain or Belt
- Slipping sprockets
- Accumulated dry debris is not locking the smoothing rollers. (Clean properly after use)
- Internal bolts securing the coupling to the roller tube loose or came out

# Operating Positions



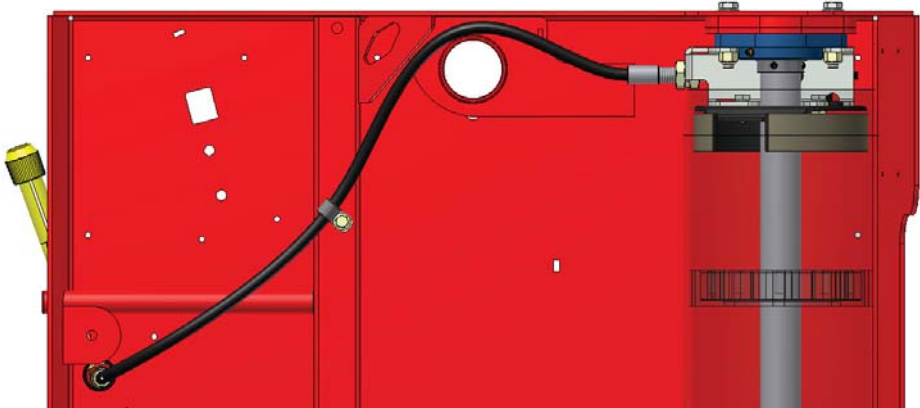
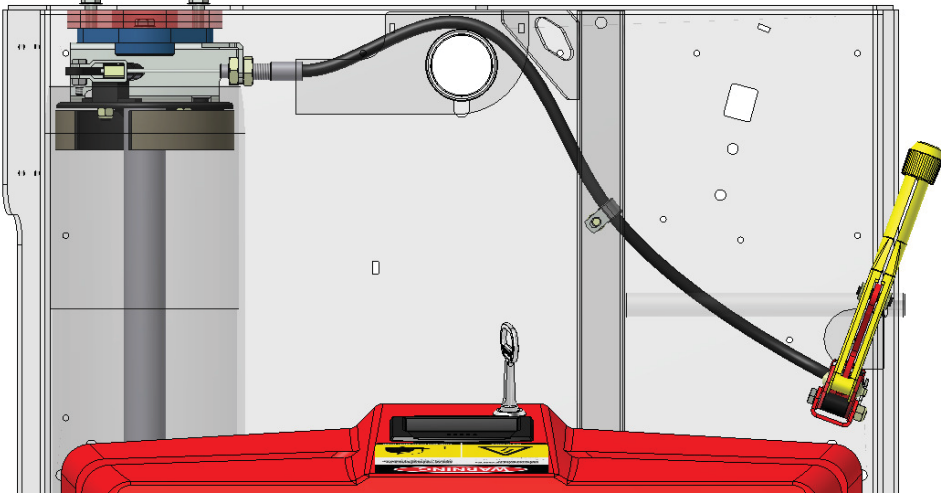
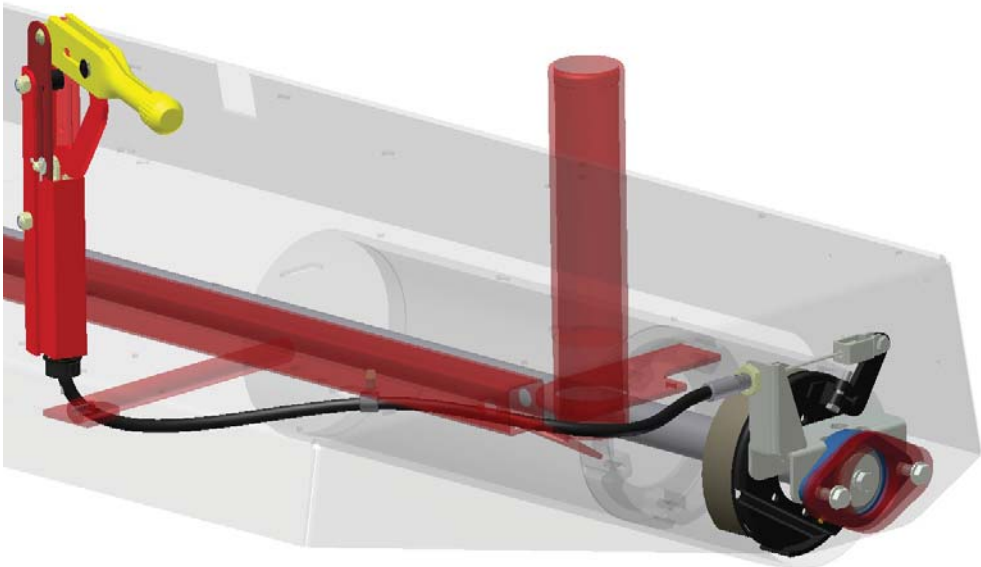
TOWING POSITION

ROLLING POSITION

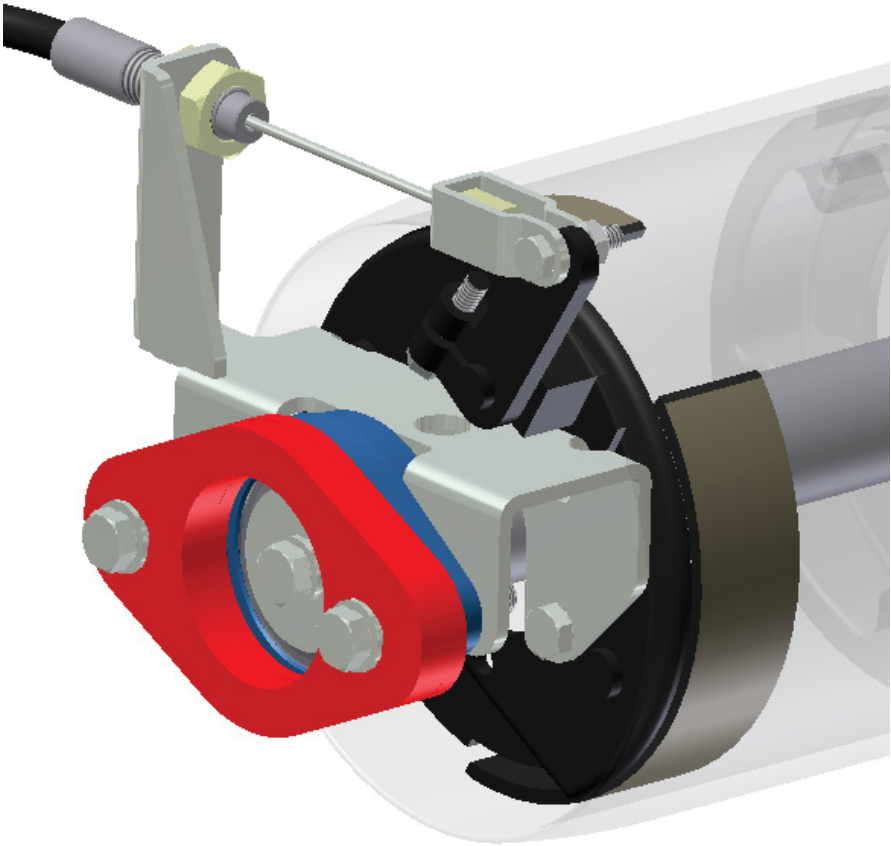
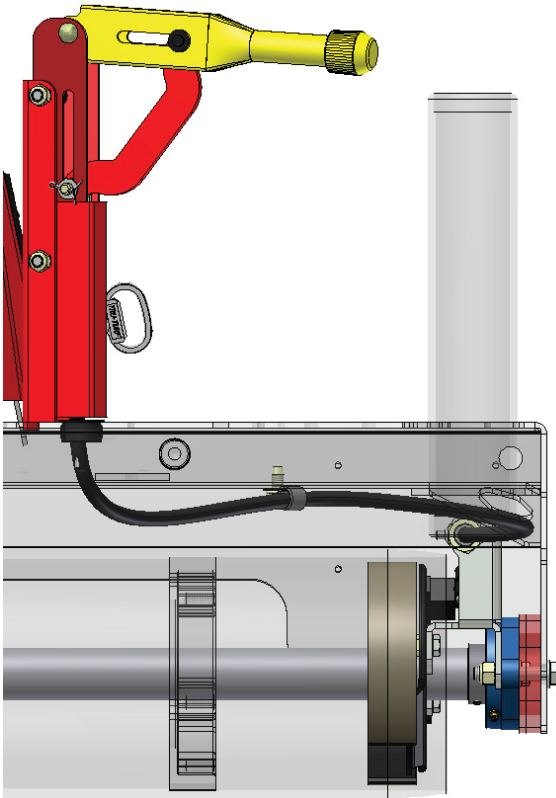
CHARGE / STORE POSITION



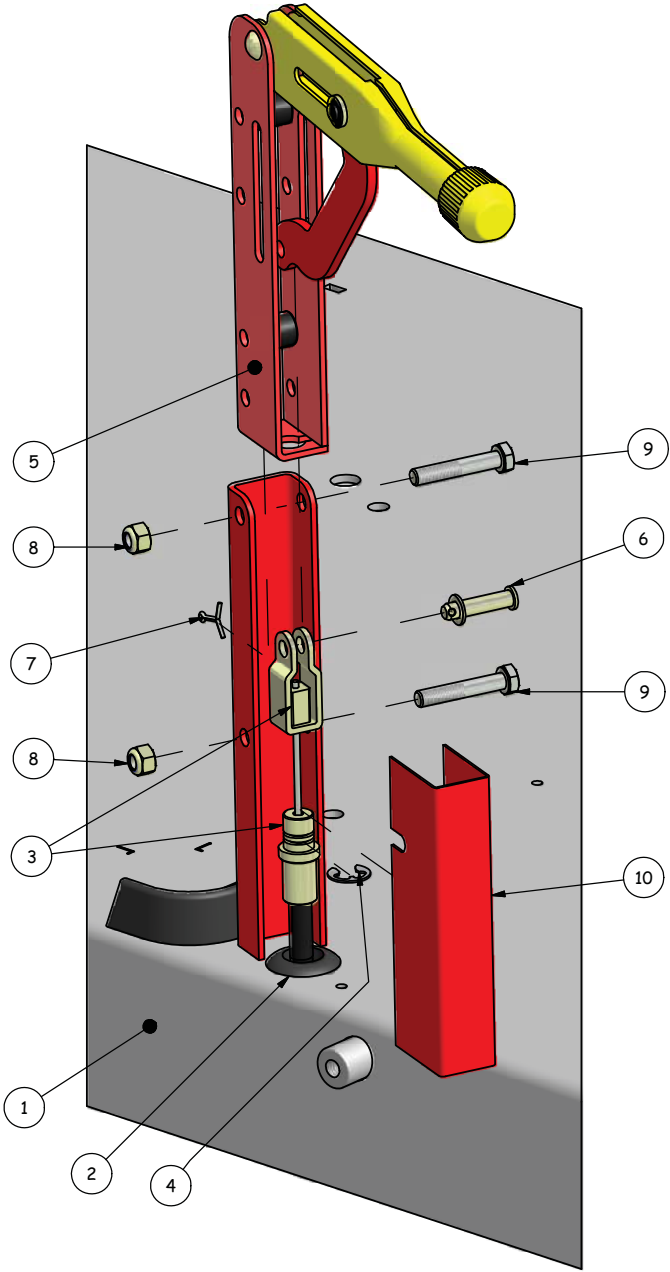
# Park Brake System



# Park Brake System

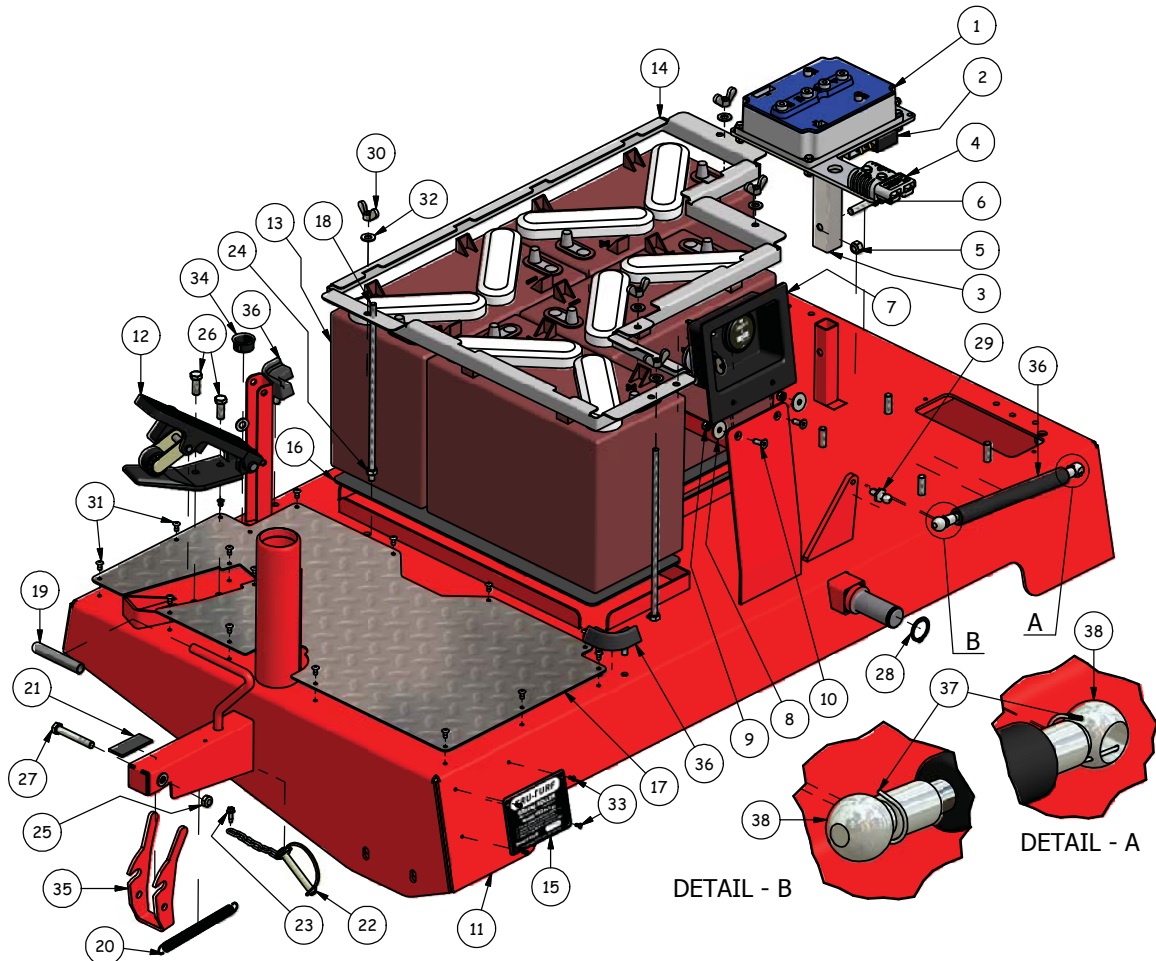


# Park Brake



R52-ELT PARK BRAKE LEVER INSTALL - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7000	BODY WELDED ASSY
2	1	R8344	RUBBER GROMMET BRAKE CABLE
3	1	E7191	CABLE ASSY - DRUM BRAKE R52-ELT
4	1	R8349	CIRCLIP PARK BRAKE CABLE
5	1	R7024	HANDBRAKE LEVER
6	1	165-508-078	SLIDE PIN - HANDBRAKE LEVER
7	1	R8036	SPLIT PIN M2-5X20 ZP
8	2	R8054	5/16 UNF NYLOC NUT
9	2	R8139	5/16 x 1.3/4 UNF BOLT ZP
10	1	R8359	COVER FOR BRAKE LEVER MOUNT BRACKET

# Body Assembly (Upper)



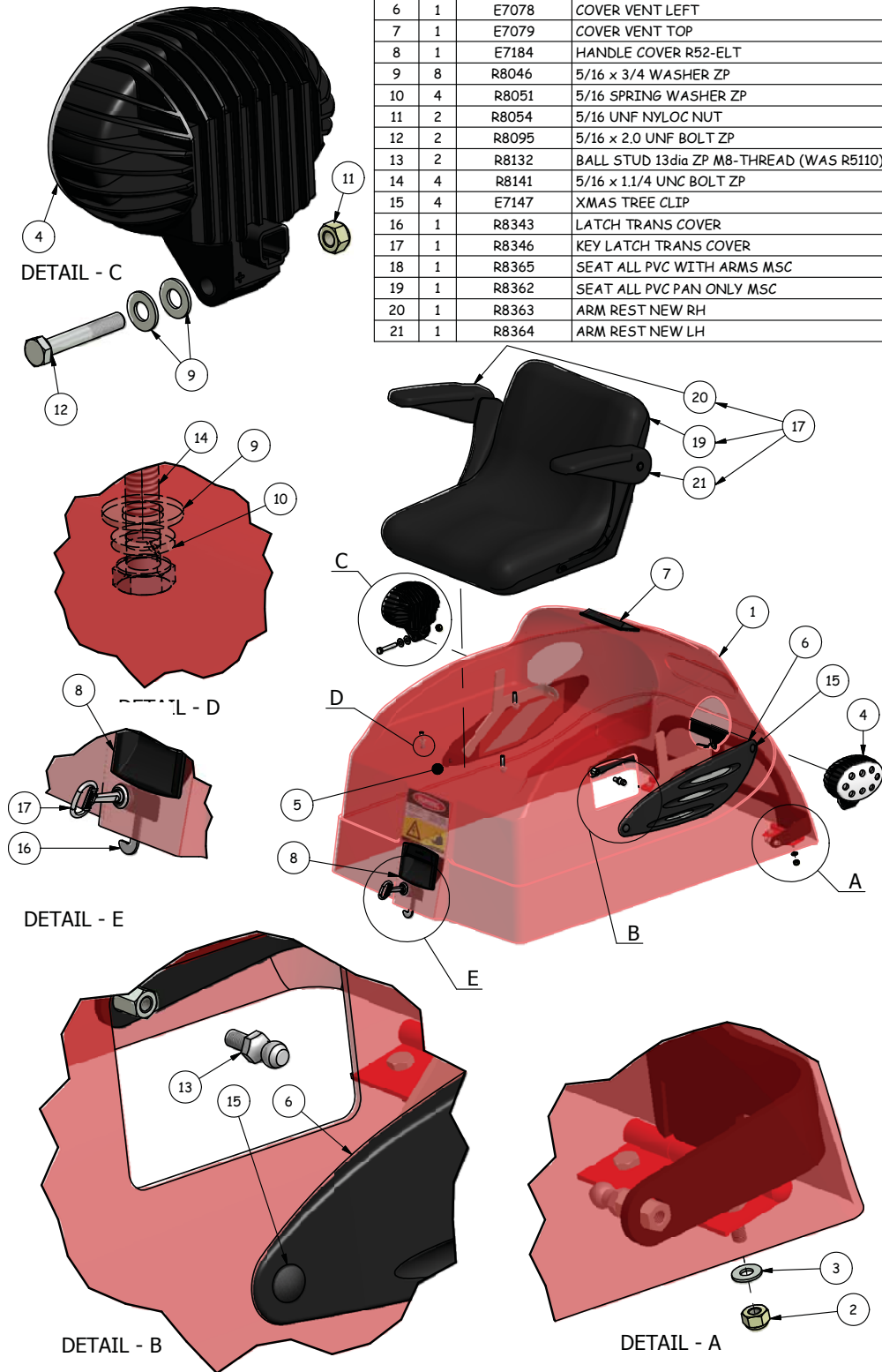
R52-ELT UPPER BODY ASSY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7041	ELECTRIC CONTROLLER
2	1	E7048	SOLENOID 24V
3	1	E7061	CONTROLLER MOUNT ALUMINIUM
4	1	E7180	PLUG 175AMP BATT CHARGER
5	1	R8055	3/8 UNF NYLOC NUT P-TYPE
6	1	R8096	3/8 x 1-3/4 UNF BOLT ZP
7	1	E7040	COVER GAUGES
8	2	R8045	1/4 x 1.0 WASHER ZP
9	2	R8116	1/4 UNC NYLOC NUT S/S
10	2	R8119	1/4 x 3/4 UNC CSK BOLT S/S
11	1	E7000	BODY
12	1	E7046	SPEED CONTROL PEDAL
13	4	E7047	BATTERY 12V
14	1	E7054	BATTERY HOLDER FRAME
15	1	E7190	PLATE SERIAL NUMBER R52-ELT AC
16	1	E7056	RUBBER BATTERY MAT
17	1	E7057	FOOT PLATE
18	5	E7058	ROD THREADED BATTERY HOLDER
19	1	R5014	GRIP HAND

R52-ELT UPPER BODY ASSY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
20	1	R5049	SPRING LATCH & STEER
21	1	R5159	RUBBER TRAILER REST
22	1	R6017	DRAWBAR SAFETY PIN & CHAIN
23	1	R8081	10-24x16 TEK SCREW ZP
24	2	R8043	M8 HEX NUT ZP
25	1	R8056	3/8 UNF NYLOC T-TYPE NUT
26	2	R8067	3/8 x 1 UNF HEX BOLT ZP
27	1	R8072	3/8 x 2.1/2 UNF BOLT ZP
28	2	R8082	CIRCLIP EXT BLK 30mm
29	2	R8131	BALL 13DIA STUD M8X15 LRG FLANGE ZP
30	5	R8133	M8 WING NUT SS
31	14	R8134	6-6 RIVET
32	5	R8142	5/16 x 3/4 WASHER SS
33	4	R8260	RIVET 5-4 BLACK
34	1	R8344	THICK PANEL SNAP BUSH BRAKE CABLE
35	1	E7030	TRAILER CATCH WIDE FOLDED
36	2	E7128	CORNER REST-ENGINE COVER
37	4	R8149	RETAINER CLIP GAS STRUT FOR CUP END
38	4	R8154	CUP END FOR 13mm BALL (WAS R5169)

# Cover

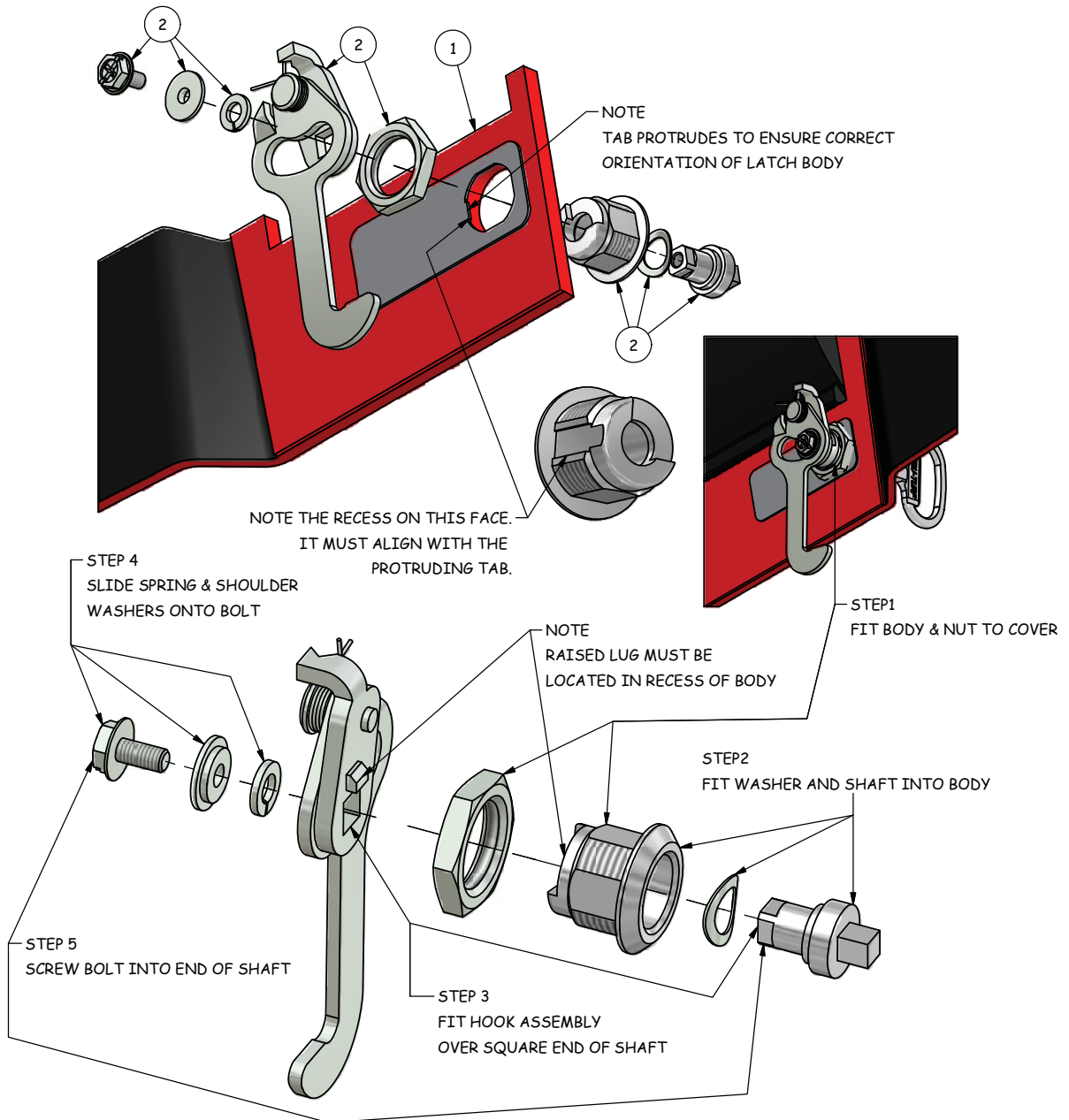
## R52-ELT COVER ASSEMBLY - PARTS LIST

ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7001	COVER ELECTRIC ROLLER
2	6	R8053	1/4 UNF NYLOC NUT
3	6	R8140	1/4 x 9/16 WASHER ZP
4	2	E7045	LIGHT LED
5	1	E7077	COVER VENT RIGHT
6	1	E7078	COVER VENT LEFT
7	1	E7079	COVER VENT TOP
8	1	E7184	HANDLE COVER R52-ELT
9	8	R8046	5/16 x 3/4 WASHER ZP
10	4	R8051	5/16 SPRING WASHER ZP
11	2	R8054	5/16 UNF NYLOC NUT
12	2	R8095	5/16 x 2.0 UNF BOLT ZP
13	2	R8132	BALL STUD 13dia ZP M8-THREAD (WAS R5110)
14	4	R8141	5/16 x 1.1/4 UNC BOLT ZP
15	4	E7147	XMAS TREE CLIP
16	1	R8343	LATCH TRANS COVER
17	1	R8346	KEY LATCH TRANS COVER
18	1	R8365	SEAT ALL PVC WITH ARMS MSC
19	1	R8362	SEAT ALL PVC PAN ONLY MSC
20	1	R8363	ARM REST NEW RH
21	1	R8364	ARM REST NEW LH

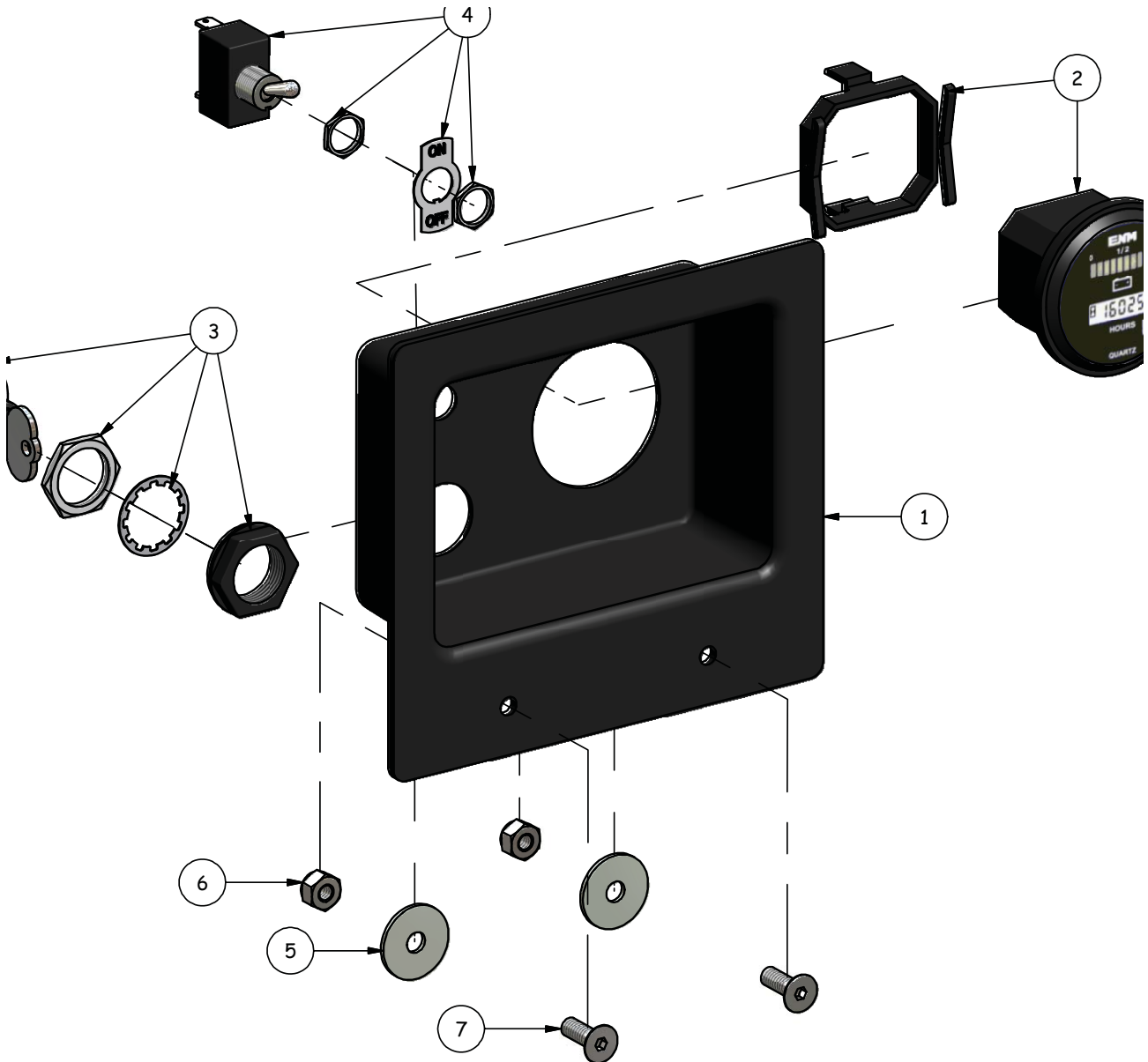


# Transmission Cover Latch

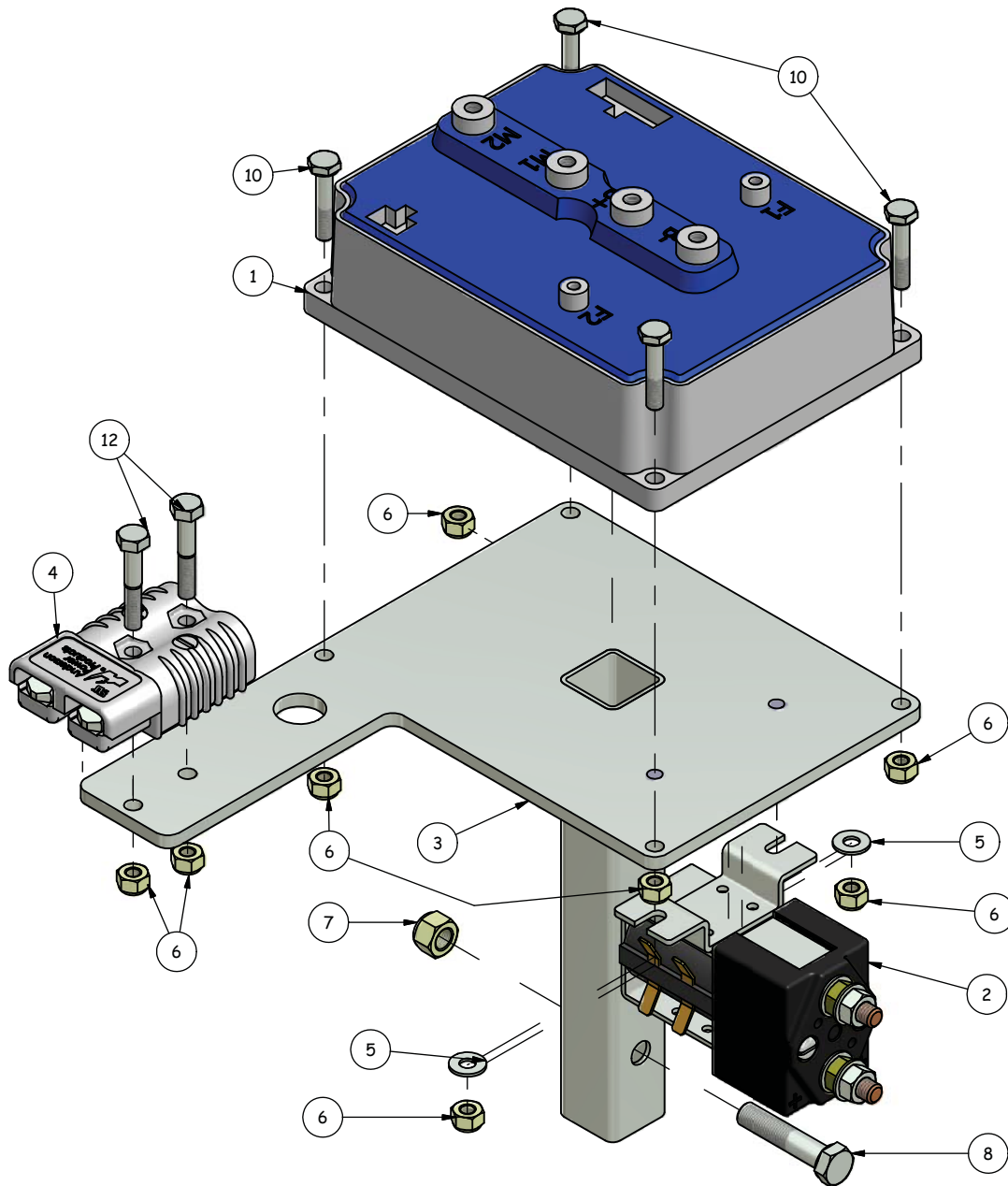
R52-ELT TRANSMISSION COVER LATCH DETAIL			
ITEM	QTY	PART NUMBER	TITLE
1	1	E7001	COVER ASSY ELECTRIC ROLLER
2	1	R8343	DIRAK PULL & LOCK HOOK



# Gauge & Gauge Mount



# Computer Assembly

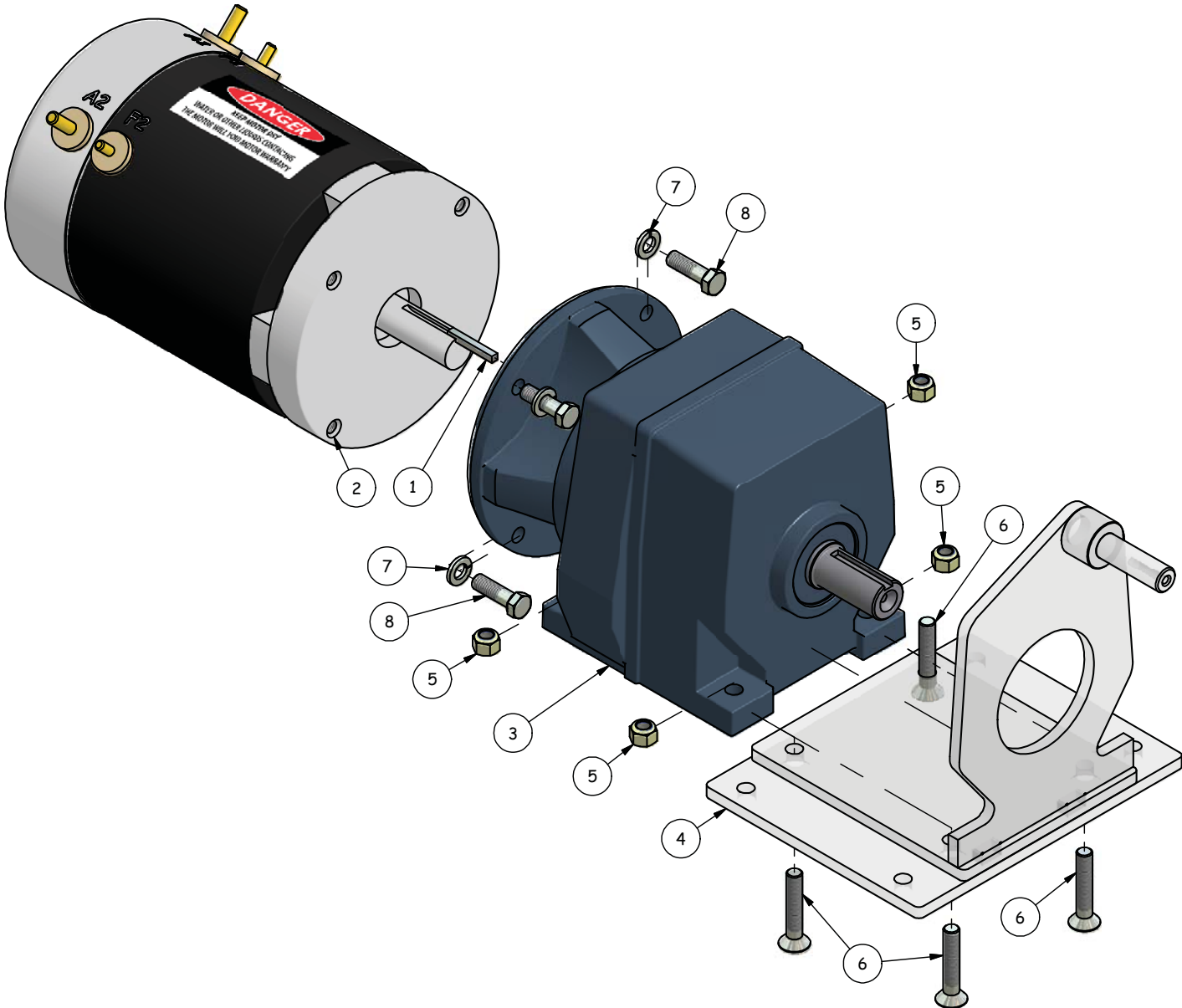


R52-ELT CONTROLLER MOUNT - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7041	ELECTRIC CONTROLLER
2	1	E7048	SOLENOID 12V DC
3	1	E7061	CONTROLLER MOUNT
4	1	E7180	PLUG 175AMP BATT CHARGER
5	2	R8140	1/4 x 1 WASHER ZP
6	8	R8053	1/4 UNF NYLOC NUT
7	1	R8055	3/8 UNF NYLOC NUT P-TYPE
8	1	R8096	3/8 x 1-3/4 UNF BOLT ZP
10	4	R8121	1/4 x 1-1/4 UNF BOLT ZP
12	2	R8334	1/4" X 1-1/2" UNF BOLT ZP

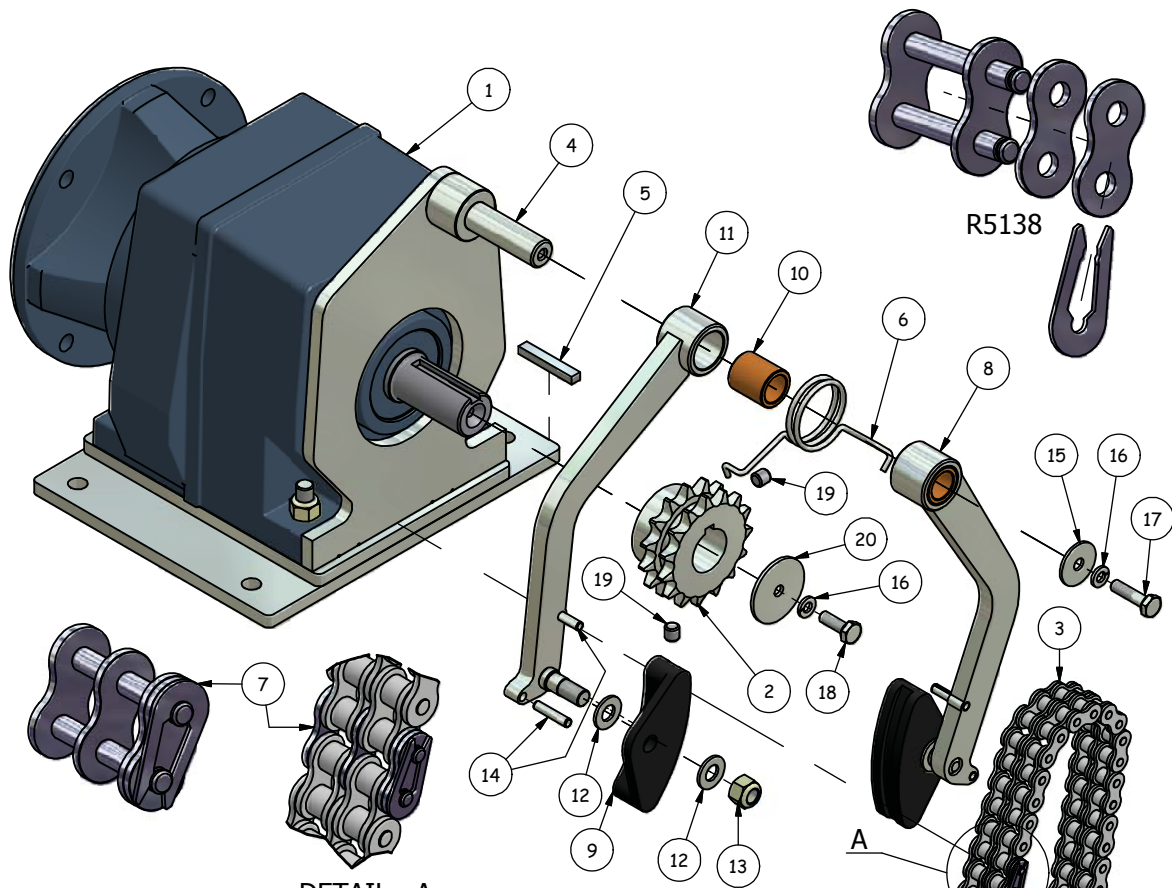


# Motor & Gearbox

R52-ELT DRIVE MOTOR & GEARBOX - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7036	KEY ELECTRIC MOTOR
2	1	E7038	ELECTRIC DRIVE MOTOR 10HP
3	1	E7039	REDUCTION GEARBOX
4	1	E7052	BRACKET GEARBOX MOUNT
5	4	R8055	3/8 UNF NYLOC NUT P-TYPE
6	4	R8123	3/8 x 2.0 UNF CSK BOLT ZP
7	4	R8127	M10 SPRING WASHER ZP
8	4	R8138	3/8 x 1.25 UNC BOLT ZP



# Transmission

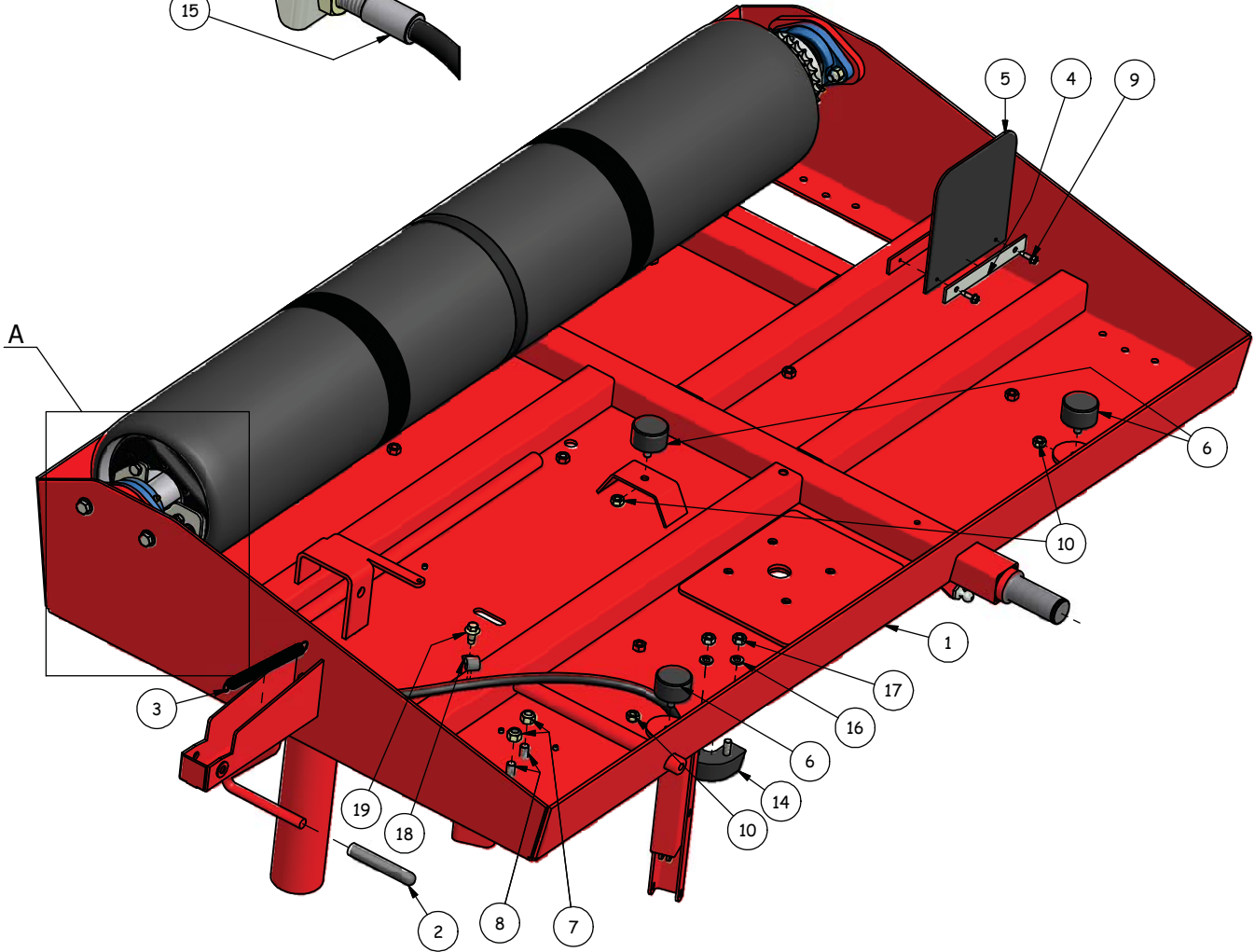
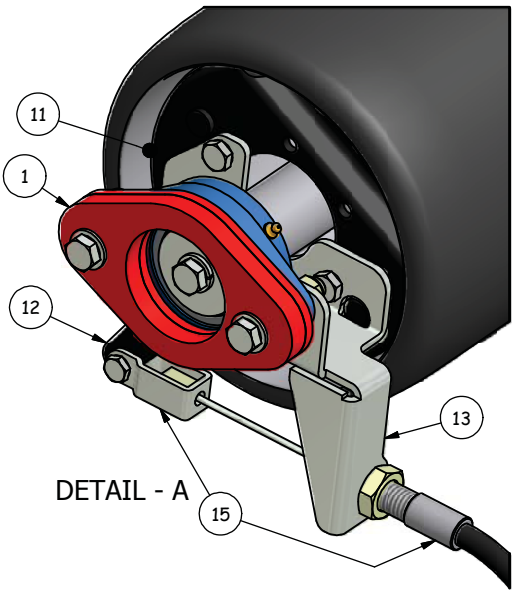


DETAIL - A

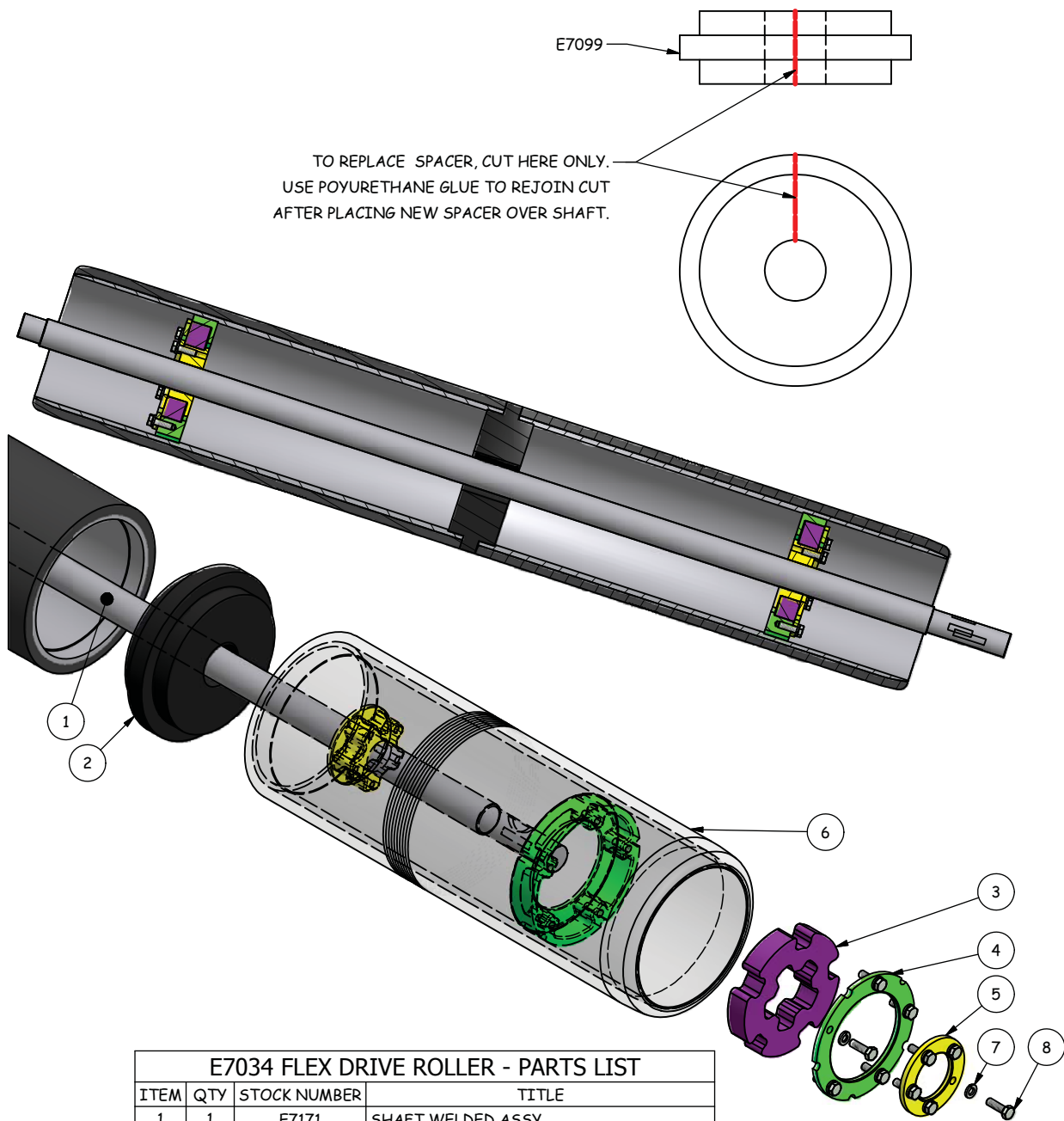
R52-ELT GEARBOX, CHAIN & TENSIONERS - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7039	REDUCTION GEARBOX
2	1	E7049	SPROCKET 15T DUPLEX PARALLEL
3	1	E7050	CHAIN ELECTRIC ROLLER 66 PITCH
4	1	E7052	BRACKET GEARBOX MOUNT WELDED ASSY
5	1	E7053	KEY RECTANGULAR REDUCTION GEARBOX
6	1	R5094	SPRING TENSIONED CHAIN ARM
7	1	R5138	DRIVE CHAIN SPLIT LINK ASSY
8	2	R5251	CHAIN TENSIONER ASSY COMPLETE
9	1	E7044	CHAIN TENSION GUIDE
10	1	R5099	BUSH BRONZE CHAIN TENSIONER ARMS
11	1	R5132	CHAIN TENSION ARM WELDED ASSY
12	2	R8048	3/8 x 3/4 WASHER ZP
13	1	R8055	3/8 UNF NYLOC NUT P-TYPE
14	2	R8293	ROLL SPRING PIN ZP M5 x 24
15	1	R8045	1/4 x 1.0 WASHER ZP
16	2	R8050	1/4 SPRING WASHER ZP
17	1	R8059	1/4 x 1.0 UNC BOLT ZP
18	1	R8137	1/4 x 3/4 UNF BOLT ZP
19	2	R8188	5/16 x 5/16 UNC GRUB SCREW BLK
20	1	R8255	1/4" x 1-1/2" WASHER FLAT ZP

# Underbody Assembly (Lower)

R52-ELT LOWER BODY ASSEMBLY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7000	BODY WELDED ASSY
2	1	R5014	GRIP HAND
3	1	R5049	SPRING LATCH & STEER
4	1	R5061	STRAP MUDFLAP SCREW ON
5	1	R5071	MUD FLAP
6	3	R6013	BUFFER STOP UNDER BODY
7	2	R8055	3/8 UNF NYLOC NUT P-TYPE
8	2	R8067	3/8 x 1 UNF HEX BOLT ZP
9	2	R8081	10-24x16 TEK SCREW ZP
10	3	R8256	M8 NYLOC NUT ZP
11	1	E7034	FLEX TUBE DRIVE ROLLER COMPLETE ASSY
12	1	R7020	BRAKE DRUM MECH DRIVE ROLLER
13	1	R7021	DRUM BRAKE MOUNT BRACKET
14	2	E7128	CORNER REST-ENGINE COVER
15	1	E7191	CABLE ASSY - DRUM BRAKE
16	4	R8034	M8 SPRING WASHER ZP
17	4	R8043	M8 HEX NUT ZP
18	1	E7076	P CLIP
19	1	R8035	10-12 x16 TEK SCREW ZP



# Flex Drive Roller

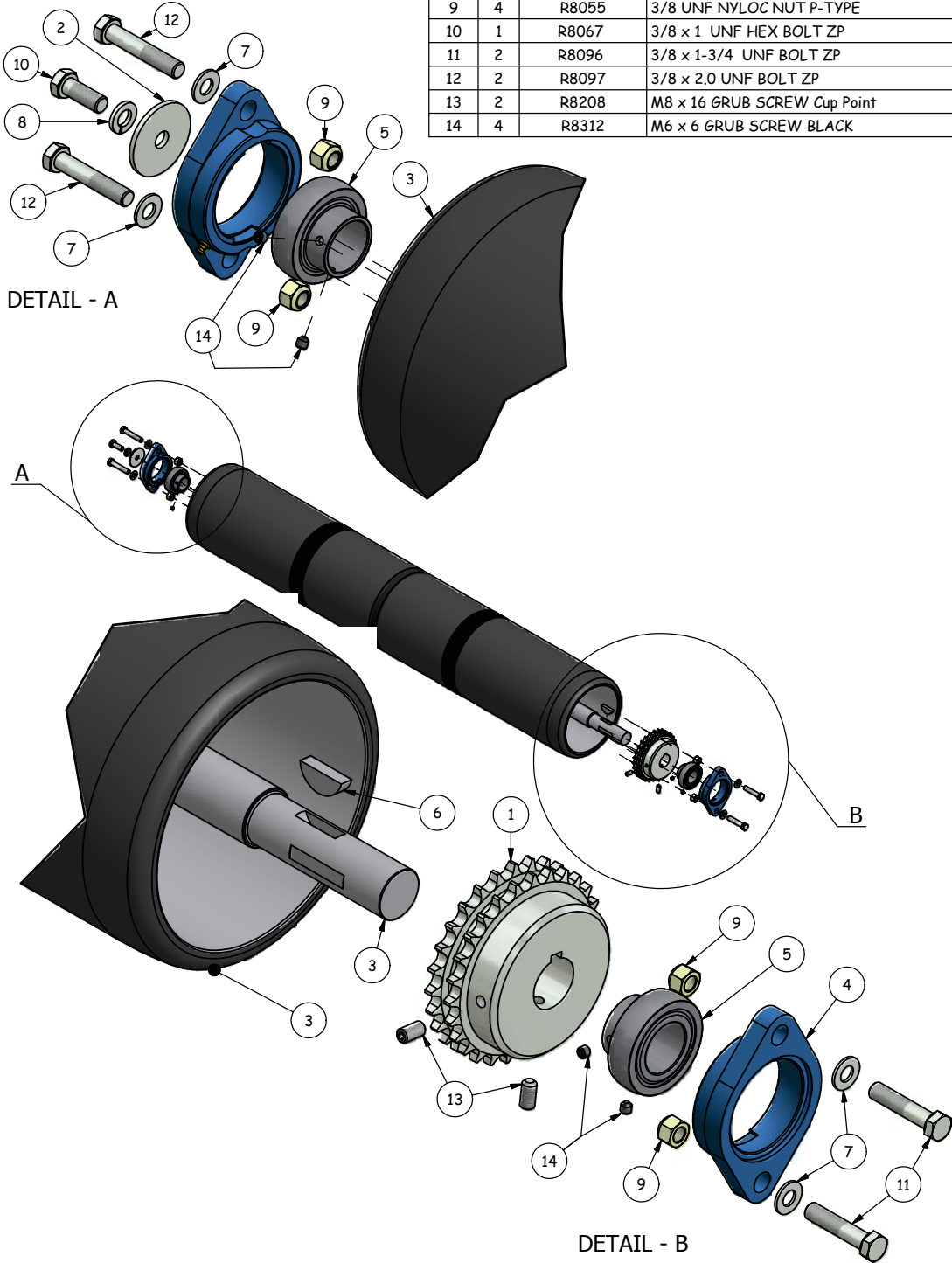


E7034 FLEX DRIVE ROLLER - PARTS LIST

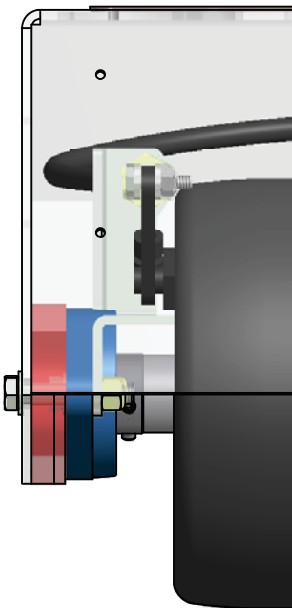
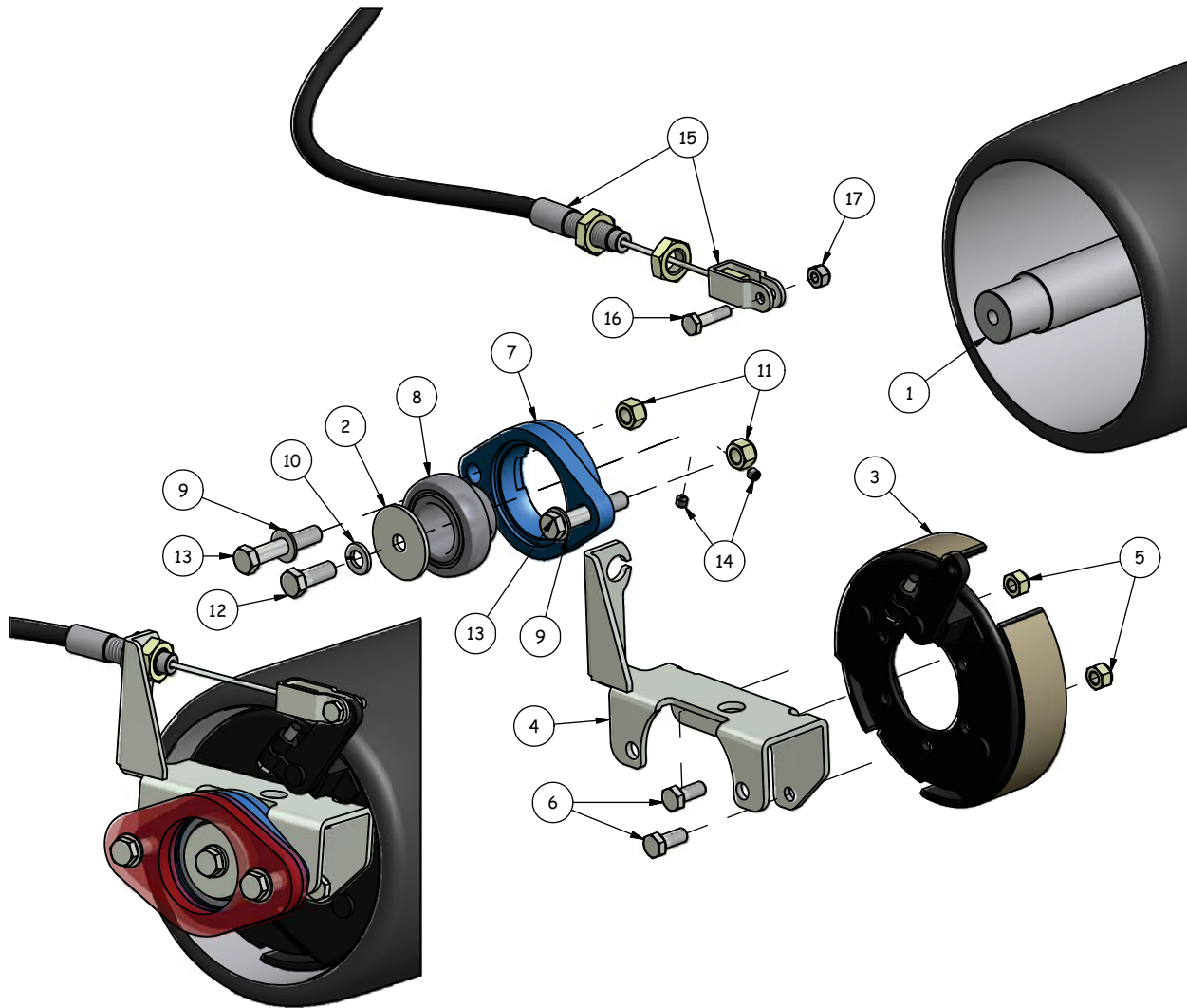
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7171	SHAFT WELDED ASSY
2	1	E7099	FLEX TUBE DRIVE ROLLER CTR SPACER
3	2	E7116	DRIVE CENTRE INSERT
4	2	E7102	OUTER CLAMP RING
5	2	E7103	INNER CLAMP RING
6	2	E7175	TUBE & DRIVE RUBBER COATED ASSY
7	20	R8051	5/16 SPRING WASHER ZP
8	20	R8139	5/16 x 1.0 UNF BOLT ZP

# Flex Drive Roller

E7034 (R52-11TC & ELT) DRIVE ROLLER - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7131	SPROCKET DRIVE ROLLER TYPE 08B2
2	1	E7010	WASHER M10x43x3
3	1	E101	FLEX TUBE DRIVE ROLLER BARE ASSY
4	2	R5077	BEARING HOUSING DRIVE ROLLER
5	2	R5078	BEARING B6
6	1	R5087	KEY WOODRUFF
7	4	R8048	3/8 x 3/4 WASHER ZP
8	1	R8052	3/8 SPRING WASHER ZP
9	4	R8055	3/8 UNF NYLOC NUT P-TYPE
10	1	R8067	3/8 x 1 UNF HEX BOLT ZP
11	2	R8096	3/8 x 1-3/4 UNF BOLT ZP
12	2	R8097	3/8 x 2.0 UNF BOLT ZP
13	2	R8208	M8 x 16 GRUB SCREW Cup Point
14	4	R8312	M6 x 6 GRUB SCREW BLACK

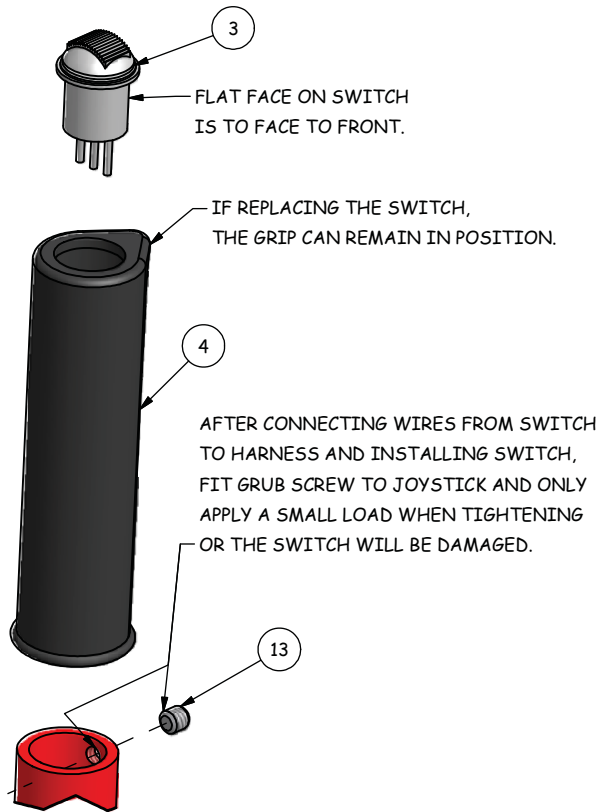


# Drive Roller Sprocket & Bearings



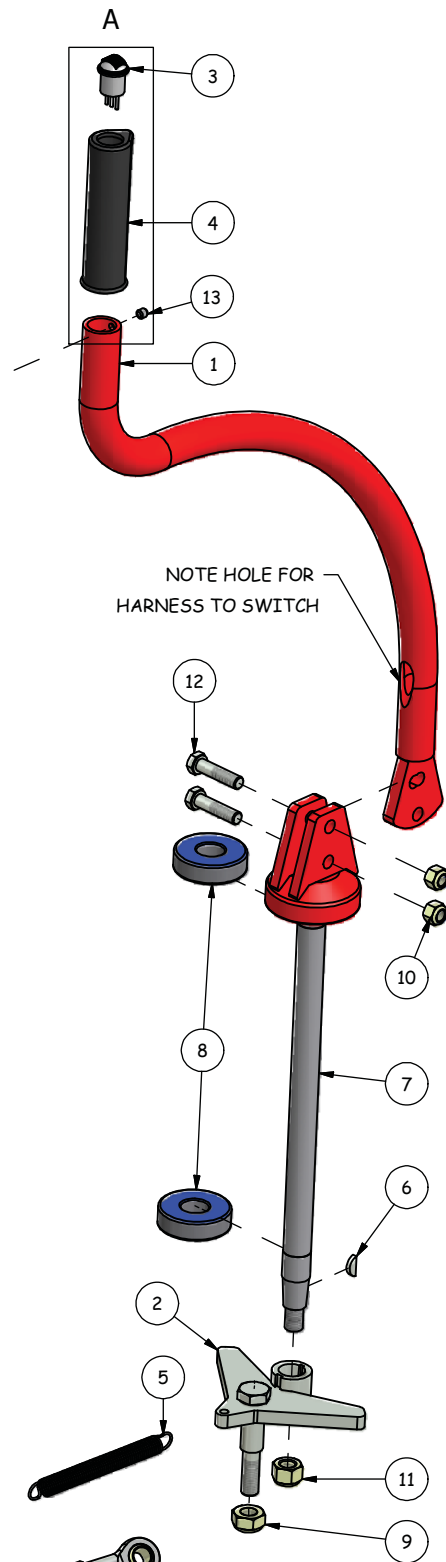
R52-ELT PARK DRUM BRAKE & DRIVE ROLLER ASSY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E101	FLEX TUBE DRIVE ROLLER BARE ASSY
2	1	E7010	WASHER M10x43x3
3	1	R7020	BRAKE DRUM MECH DRIVE ROLLER
4	1	R7021	DRUM BRAKE MOUNT BRACKET
5	2	R8054	5/16 UNF NYLOC NUT
6	2	R8177	5/16 x 3/4 UNF BOLT ZP
7	1	R5077	BEARING HOUSING DRIVE ROLLER
8	1	R5078	BEARING B6
9	2	R8048	3/8 x 3/4 WASHER ZP
10	1	R8052	3/8 SPRING WASHER ZP
11	2	R8055	3/8 UNF NYLOC NUT P-TYPE
12	1	R8067	3/8 x 1 UNF HEX BOLT ZP
13	2	R8097	3/8 x 2.0 UNF BOLT ZP
14	4	R8312	M6 x 6 GRUB SCREW BLACK
15	1	E7191	CABLE ASSY - DRUM BRAKE R52-ELT
16	1	R8059	1/4 x 1.0 UNC BOLT ZP
17	1	R8116	1/4 UNC NYLOC NUT S/S

# Joystick & Steering Shaft

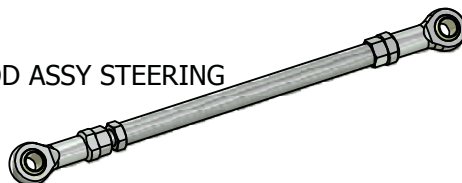


DETAIL - A

R52-ELT JOYSTICK & STEERING - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7002	JOYSTICK WELDED ASSY
2	1	E7029	STEERING ARM WELDED ASSY
3	1	E7059	SWITCH DIRECTION CONTROL
4	1	R5009	GRIP JOYSTICK
5	1	R5049	RETURN SPRING - STEERING
6	1	R5156	WOODRUFF KEY 1_8 x 5_8
7	1	R6009	JOYSTICK SHAFT WELDED ASSY
8	2	R8018	BEARING 6304 STEERING SHAFT
9	1	R8039	M12 NYLOC NUT ZP
10	2	R8055	3/8 UNF NYLOC NUT P-TYPE
11	1	R8060	1/2" UNC NYLOC NUT ZP
12	2	R8070	3/8 x 1.1/2 UNF BOLT ZP
13	1	R8090	1/4 x 1/4 UNC GRUB SCREW BLK



E7018 CONNECTING ROD ASSY STEERING

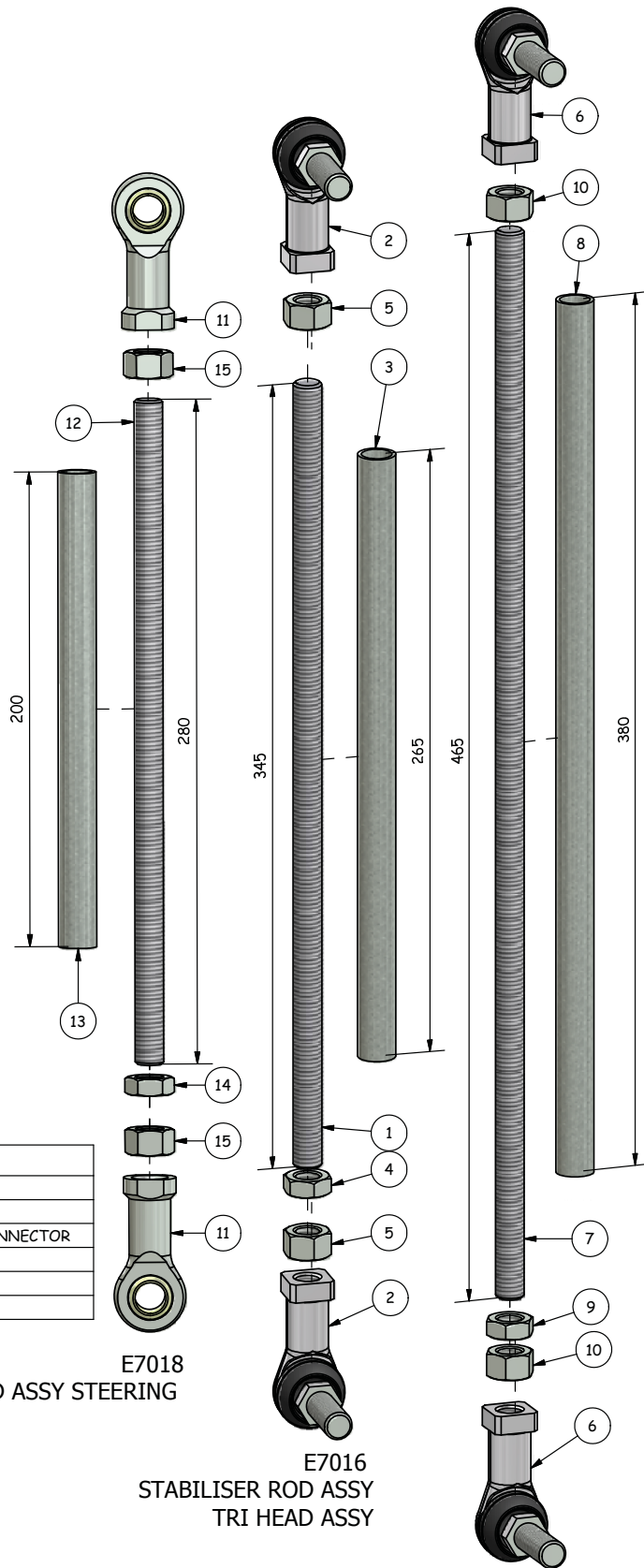


# Rod Units

E7016 - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7015	ROD THREADED
2	2	E7019	ROD END FEMALE STUDDED M12X1.75
3	1	E7025	TUBE TIE ROD STABILISER
4	1	R8086	M12 HALF NUT ZP
5	2	R8087	M12 FULL NUT ZP

E7017 - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
6	2	E7019	ROD END FEMALE STUDDED M12X1.75
7	1	E7023	ROD THREADED M12
8	1	E7024	TUBE CONNECTING ROD
9	1	R8086	M12 HALF NUT ZP
10	2	R8087	M12 FULL NUT ZP

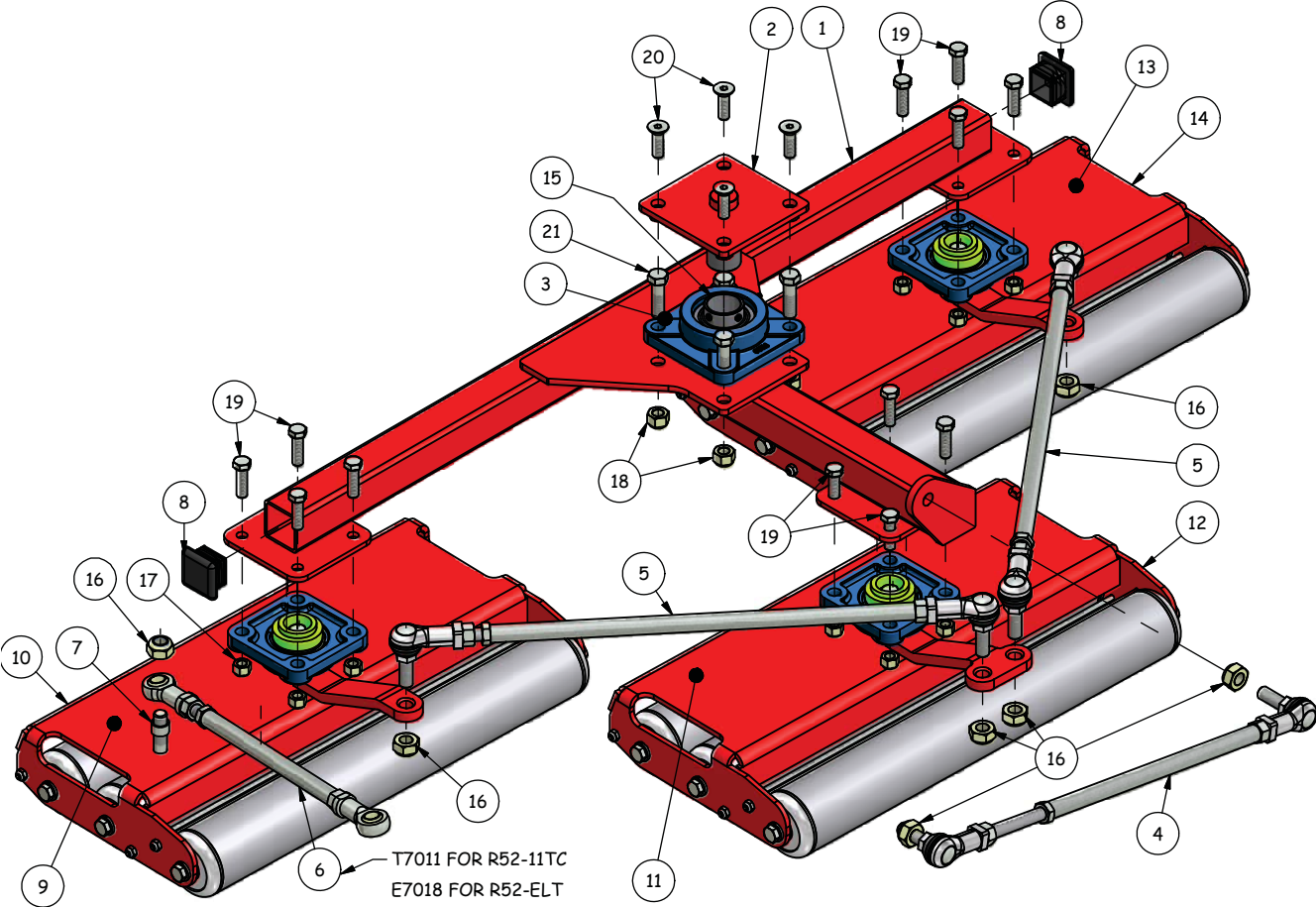
E7018 - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
11	2	E7020	ROD END FEMALE M12
12	1	E7021	M12 THREADED ROD - STEER CONNECTOR
13	1	E7022	TUBE TIE ROD STEERING
14	1	R8086	M12 HALF NUT ZP
15	2	R8087	M12 FULL NUT ZP





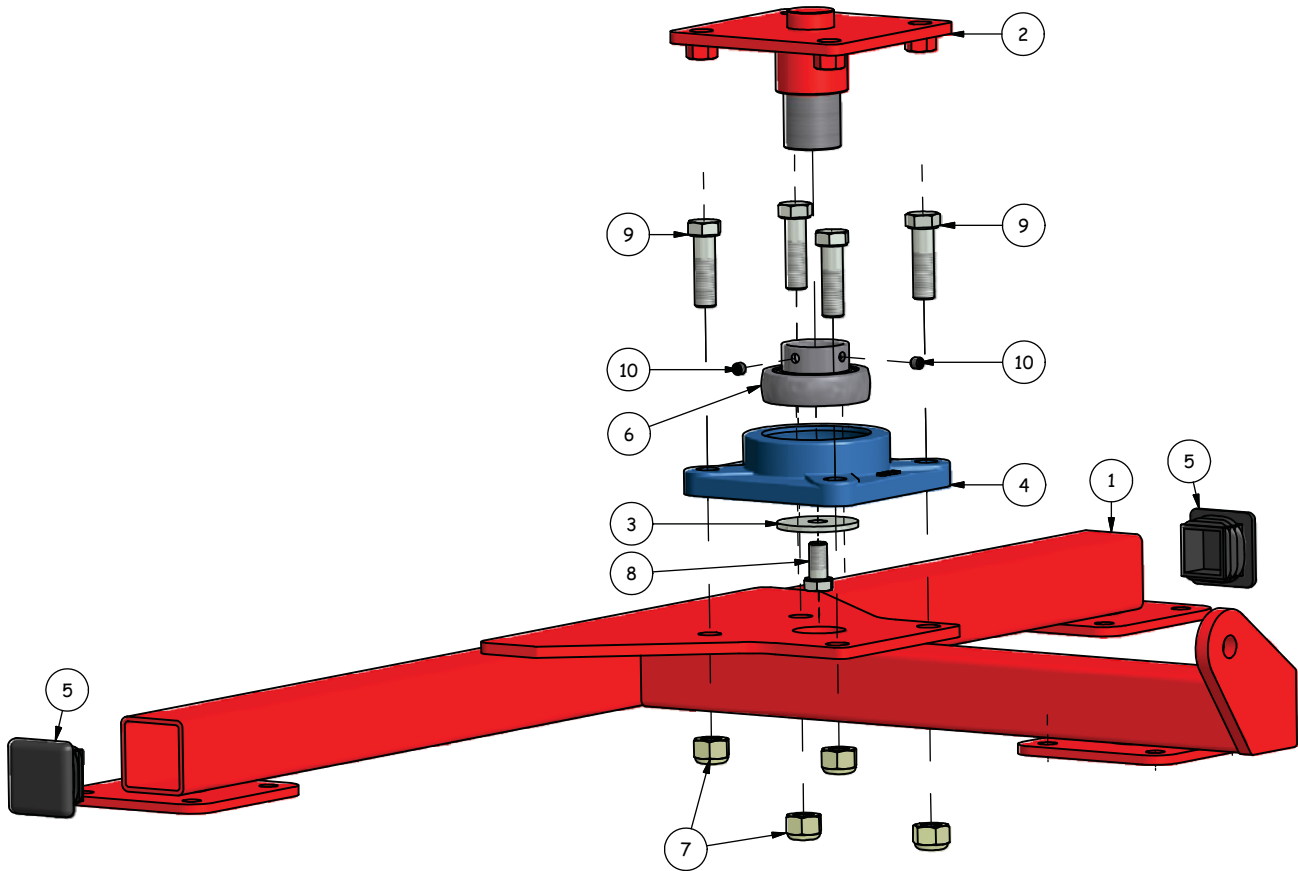
# Steering Assembly

E7179 R52-ELT TRI HEAD SMOOTHING ROLLERS - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7008	SMOOTHING HEAD 'T' FRAME
2	1	E7009	SHAFT PIVOT WELDED ASSY
3	1	E7011	BEARING HOUSING F206 4 HOLE
4	1	E7016	STABILISER ROD ASSY
5	2	E7017	CONNECTING ROD SMOOTHING HEADS
6	1	E7018	STEER CONNECTING ROD ASSY FOR R52-ELT
7	1	E7028	SPACER TUBE
8	2	E7033	END CAP PLASTIC - 40x40
9	1	E7166	SMOOTHING TRI HEAD FRONT ASSY
10	1	E7156	SMOOTHING TRI HEAD FRONT COVER
11	1	E7167	SMOOTHING TRI HEAD CENTRE ASSY
12	1	E7157	SMOOTHING TRI HEAD CENTRE COVER
13	1	E7168	SMOOTHING TRI HEAD REAR ASSY
14	1	E7158	SMOOTHING TRI HEAD REAR COVER
15	1	R5078	BEARING B6
16	7	R8039	M12 NYLOC NUT ZP
17	12	R8055	3/8 UNF NYLOC NUT P-TYPE
18	4	R8057	7/16 UNF NYLOC NUT ZP
19	12	R8069	3/8 x 1-1/4 UNF BOLT ZP
20	4	R8122	3/8 x 1.25 UNF CSK BOLT ZP
21	4	R8172	7/16 x 1.1/2 UNF HEX BOLT ZP



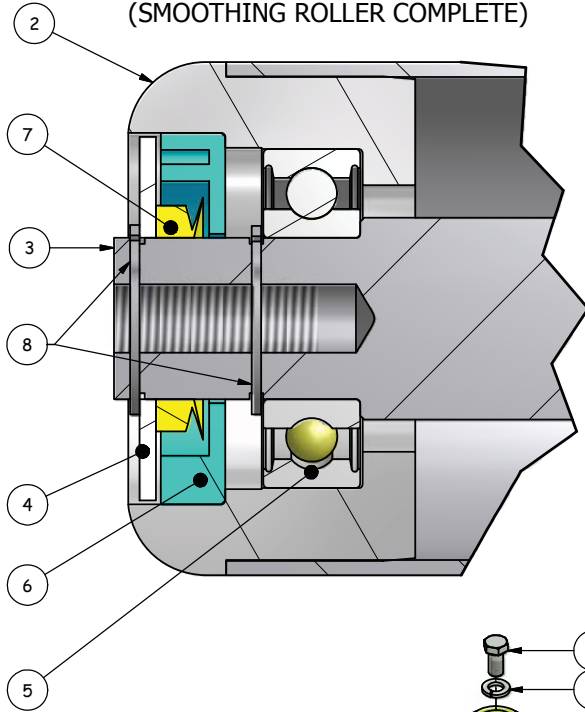
# Smoothing Head T-Frame

R52-11TC & ELT 'T' FRAME ASSEMBLY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7008	SMOOTHING HEAD 'T' FRAME
2	1	E7009	SHAFT PIVOT WELDED ASSY
3	1	E7010	WASHER M10x43x3
4	1	E7011	BEARING HOUSING F206 4 HOLE
5	2	E7033	END CAP PLASTIC - 40x40
6	1	R5078	BEARING B6
7	4	R8057	7/16 UNF NYLOC NUT ZP
8	4	R8066	3/8 x 3/4 UNF BOLT ZP
9	4	R8172	7/16 x 1.1/2 UNF HEX BOLT ZP
10	2	R8312	M6 x 6 GRUB SCREW BLACK



# Smoothing Head

SECTION DETAIL - ITEM 1  
(SMOOTHING ROLLER COMPLETE)



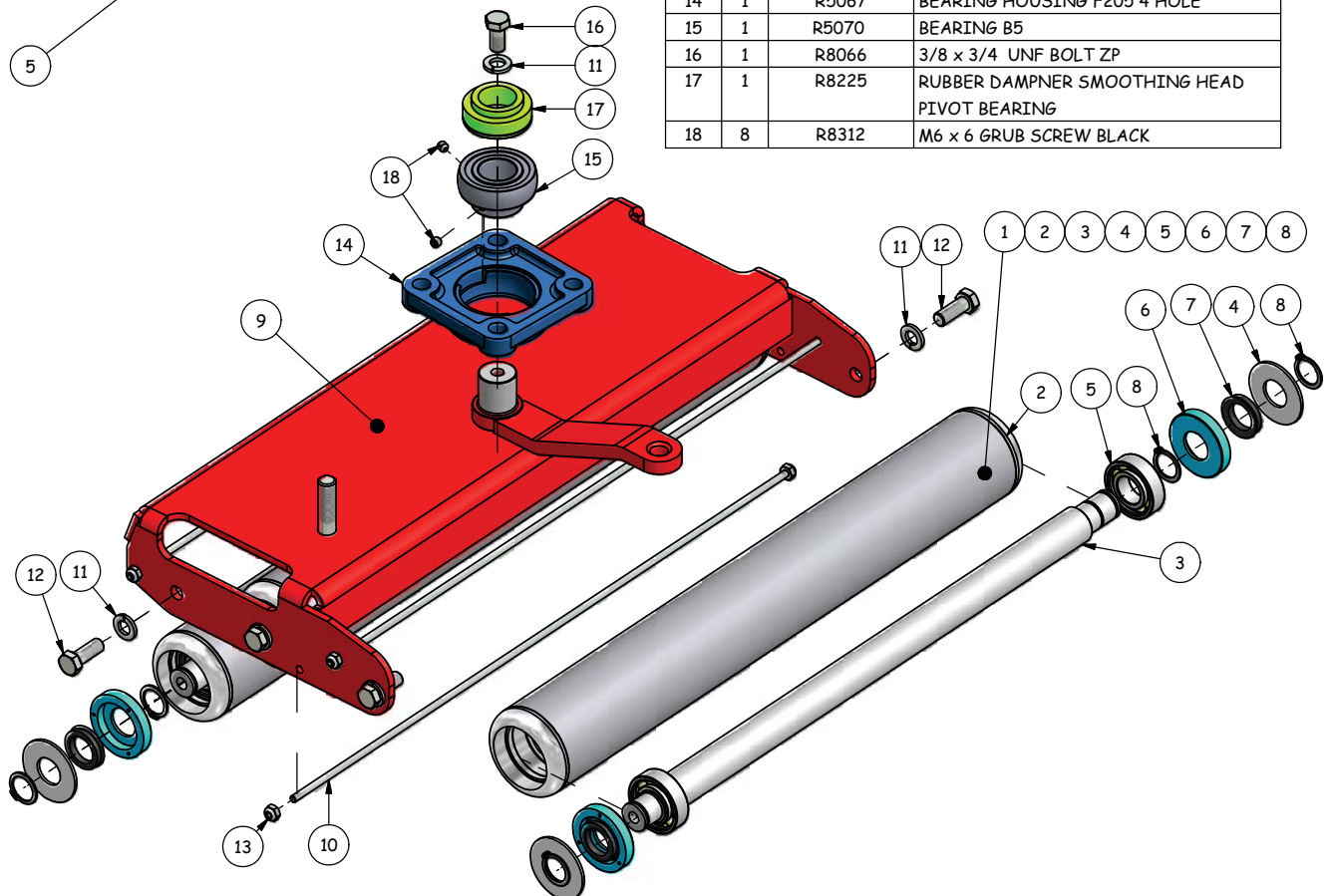
E7149 SMOOTHING ROLLER ASSEMBLY - PARTS LIST

ITEM	QTY	STOCK NUMBER	TITLE
2	1	E7134	TUBE & ENDS SMOOTHING ROLLER TRI HEAD
3	1	E7135	SHAFT SMOOTHING ROLLER TRI HEAD
4	2	R8209	SHIELD - END CAP 63.5 DIA
5	2	R8212	BEARING - END CAP
6	2	R8213	SEAL INSERT - END CAP
7	2	R8214	SEAL V-RING V20A
8	4	R8215	CIRCLIP EXTERNAL - SHAFT ENDS

E7166 SMOOTHING HEAD FRONT ASSY &  
E7167 SMOOTHING HEAD CENTRE ASSY  
ARE NOT SHOWN.

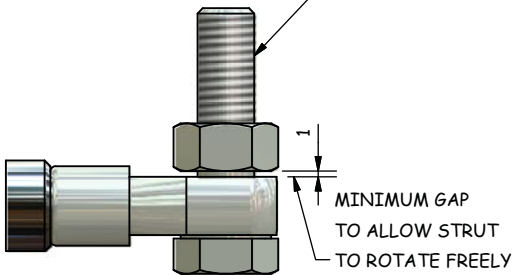
E7166 SMOOTHING HEAD ASSEMBLY - PARTS LIST

ITEM	QTY	STOCK NUMBER	TITLE
1	3	E7149	SMOOTHING ROLLER ASSY - TRI HEAD
9	1	E7156	SMOOTHING HEAD STEERING
10	3	E7170	ROD SCRAPER 3/16
11	7	R8052	3/8 SPRING WASHER ZP
12	6	R8067	3/8 x 1 UNF HEX BOLT ZP
13	6	R8250	3/16 UNF NYLOC NUT SS
14	1	R5067	BEARING HOUSING F205 4 HOLE
15	1	R5070	BEARING B5
16	1	R8066	3/8 x 3/4 UNF BOLT ZP
17	1	R8225	RUBBER DAMPNER SMOOTHING HEAD PIVOT BEARING
18	8	R8312	M6 x 6 GRUB SCREW BLACK

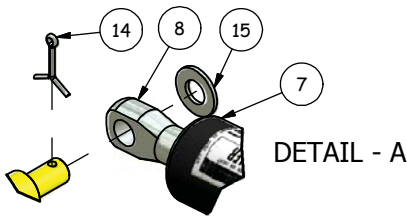


# Trailer Frame Assembly

WHEN FITTING TO THE BODY  
USE LOCTITE 248 ON THREADS TO  
PREVENT IT VIBRATING LOOSE

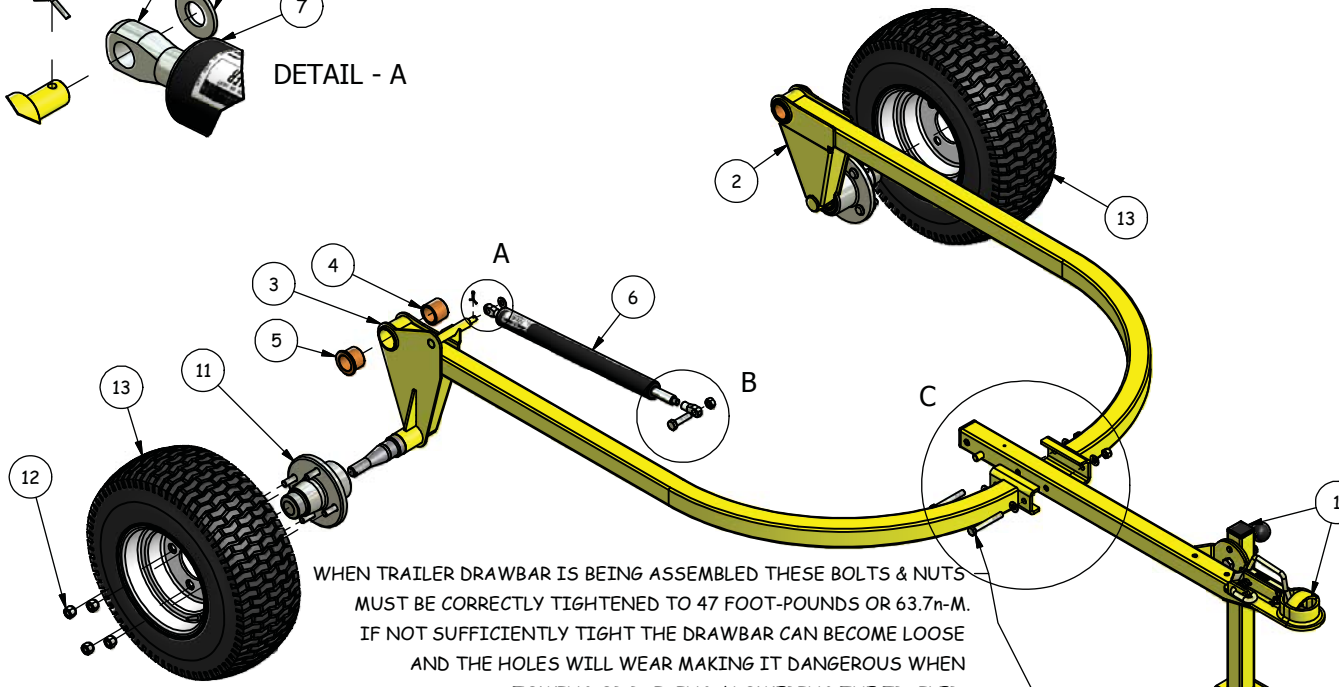


FITTING R5210 TO BODY

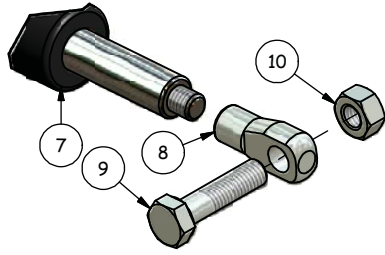


DETAIL - A

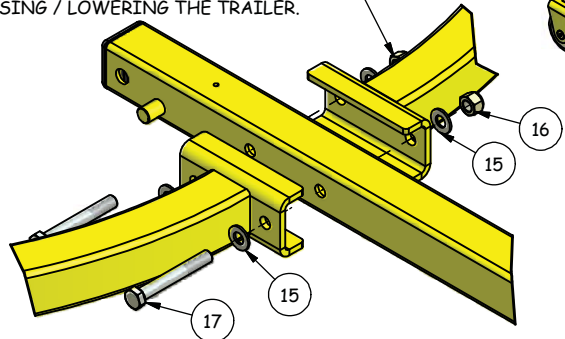
R52-ELT TAPER AXLE TRAILER ASSEMBLY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7163	DRAWBAR TOWBALL COUPLING & JOCKEY WHEEL ASSY
2	1	E7164	TRAILER 175 AXLE LH WELDED ASSY
3	1	E7165	TRAILER 175 AXLE RH WELDED ASSY
4	2	E7006	BUSH PLAIN BRONZE
5	2	E7007	BUSH FLANGED BRONZE
6	1	R5210	GAS STRUT ASSY
7	1	R5202	GAS STRUT TRAILER
8	2	R5203	GAS STRUT END
9	1	R8038	M10 x 40 BOLT ZP
10	1	R8088	M10 NUT ZP
11	2	R6035	WHEEL HUB COMPLETE
12	8	R6034	WHEEL NUT 7/16 UNF
13	2	R6039	WHEEL 4 STUD
14	1	R8036	SPLIT PIN M2-5X20 ZP
15	5	R8048	3/8 x 3/4 WASHER ZP
16	2	R8055	3/8 UNF NYLOC NUT P-TYPE
17	2	R8190	HEX BOLT 3/8 x 2-3/4 UNF



WHEN TRAILER DRAWBAR IS BEING ASSEMBLED THESE BOLTS & NUTS  
MUST BE CORRECTLY TIGHTENED TO 47 FOOT-POUNDS OR 63.7n-M.  
IF NOT SUFFICIENTLY TIGHT THE DRAWBAR CAN BECOME LOOSE  
AND THE HOLES WILL WEAR MAKING IT DANGEROUS WHEN  
TOWING OR RAISING / LOWERING THE TRAILER.

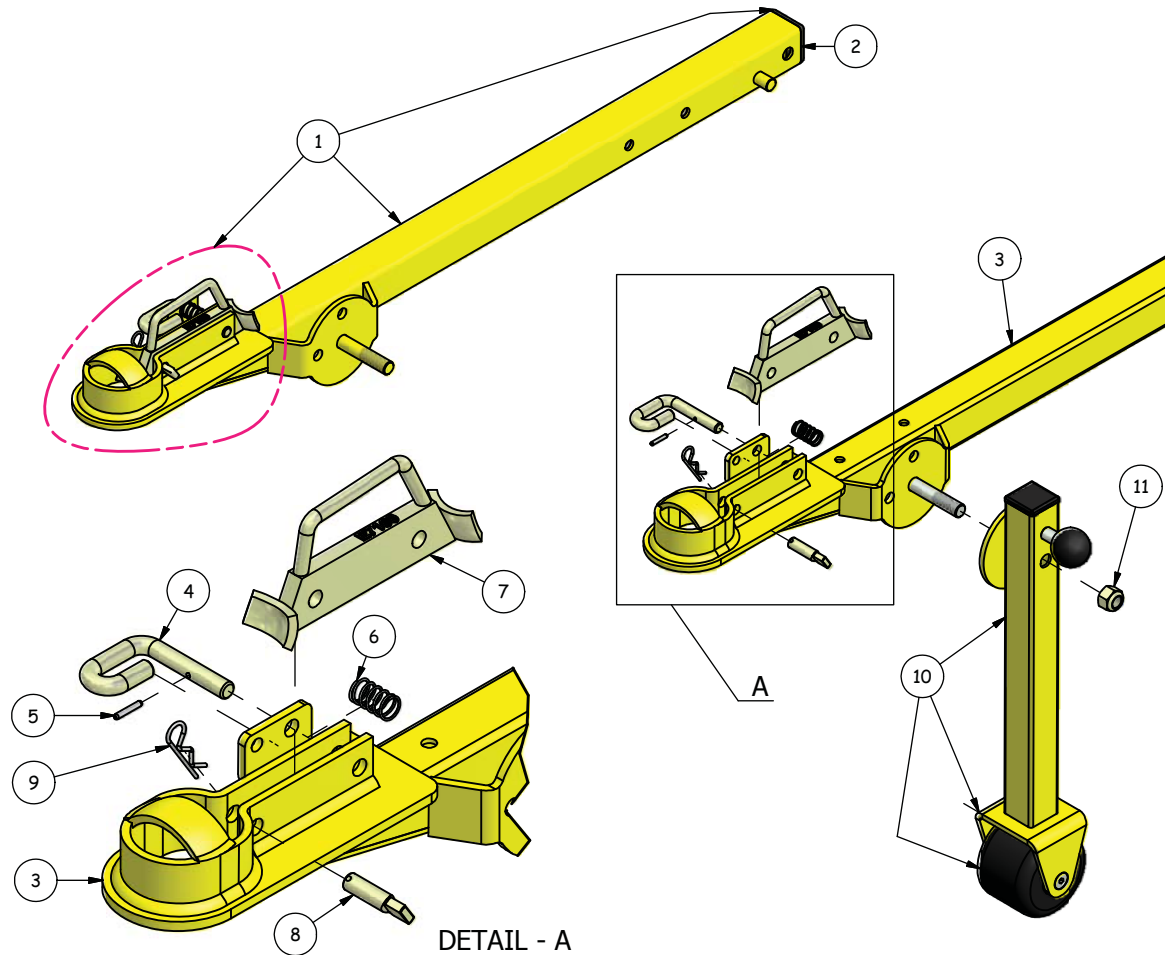


DETAIL - B



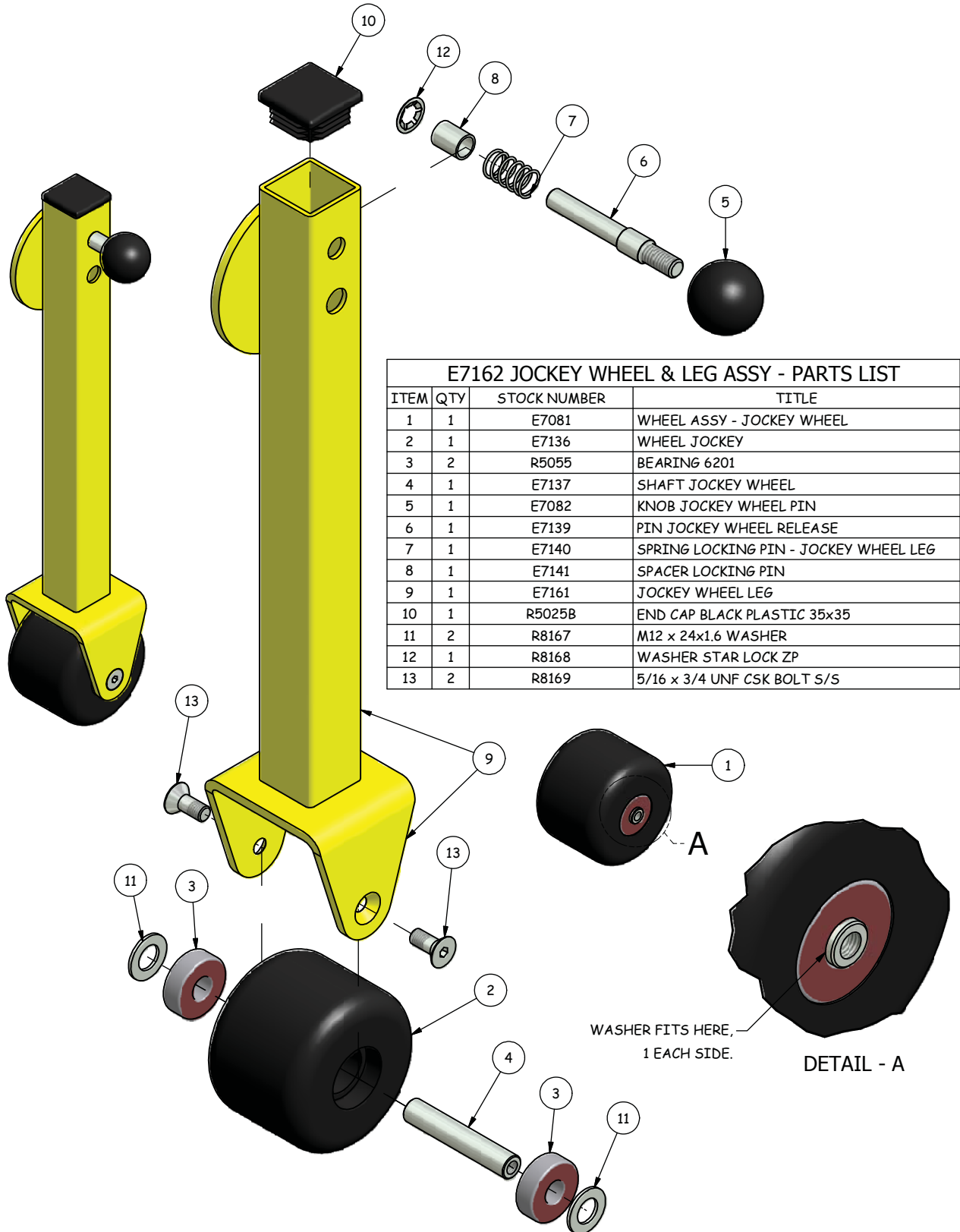
DETAIL - C

# Drawbar



R52-ELT TRAILER DRAWBAR COMPLETE ASSY (E7163) - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7153	DRAWBAR WITH TOWBALL COUPLING ASSY
2	1	E7033	END CAP PLASTIC - 40x40
3	1	E7106	DRAWBAR TOWBALL COUPLING
4	1	E7112	LOCK PIN TOWBALL COUPLING
5	1	E7114	ROLL/SPRING PIN 1/8 x 3/4
6	1	E7113	SPRING LOCKING PIN
7	1	E7160	TOWBALL HITCH HANDLE 50MM-2inch
8	1	E7177	PIVOT PIN TOWBALL COUPLING
9	1	E7178	R CLIP TOW COUPLING
10	1	E7162	JOCKEY WHEEL LEG ASSY
11	1	R8101	1/2 UNF NYLOC NUT ZP

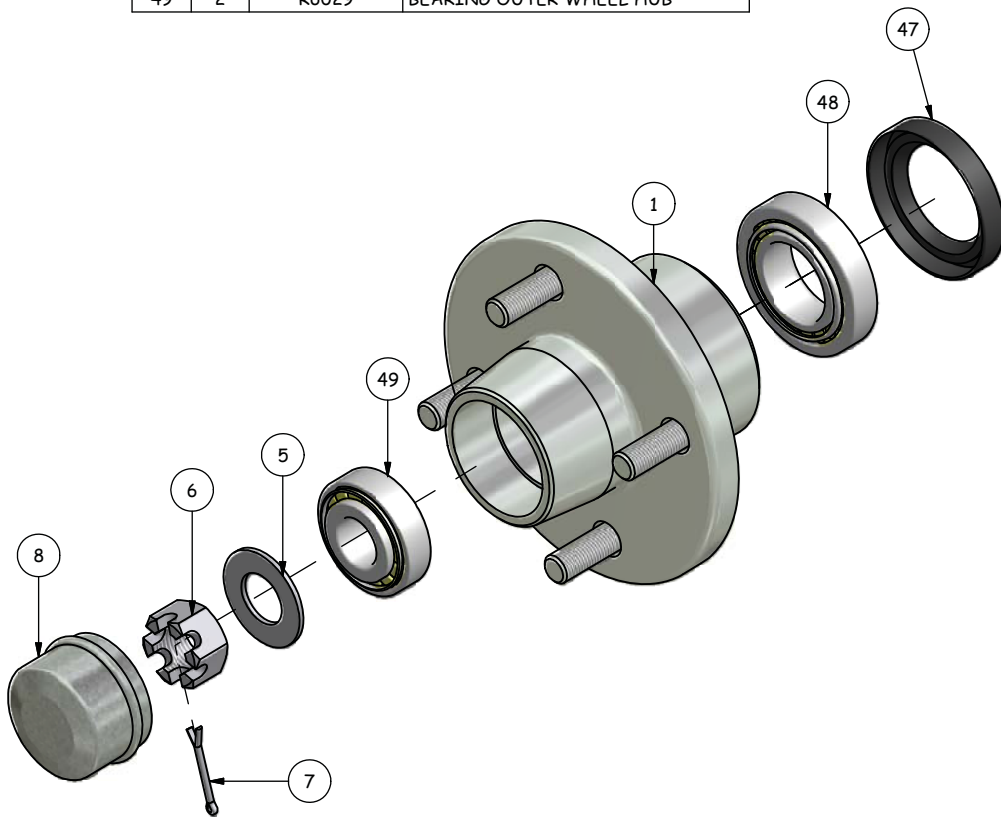
# Jockey Wheel



E7162 JOCKEY WHEEL & LEG ASSY - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	E7081	WHEEL ASSY - JOCKEY WHEEL
2	1	E7136	WHEEL JOCKEY
3	2	R5055	BEARING 6201
4	1	E7137	SHAFT JOCKEY WHEEL
5	1	E7082	KNOB JOCKEY WHEEL PIN
6	1	E7139	PIN JOCKEY WHEEL RELEASE
7	1	E7140	SPRING LOCKING PIN - JOCKEY WHEEL LEG
8	1	E7141	SPACER LOCKING PIN
9	1	E7161	JOCKEY WHEEL LEG
10	1	R5025B	END CAP BLACK PLASTIC 35x35
11	2	R8167	M12 x 24x1.6 WASHER
12	1	R8168	WASHER STAR LOCK ZP
13	2	R8169	5/16 x 3/4 UNF CSK BOLT S/S

# Hub (Taper Axle)

R6035 TAPER AXLE HUB COMPLETE - PARTS LIST			
ITEM	QTY	STOCK NUMBER	TITLE
1	1	R6026	HUB TRAILER
5	1	R6030	WASHER HUB-AXLE
6	1	R6031 & R9033	CASTLE NUT-STUB AXLE 3/4-16 UNF
7	1	R6032	PIN SPLIT
8	1	R6033	CAP WHEEL HUB
47	2	R6027	HUB INNER SEAL AUST
48	2	R6028	BEARING INNER WHEEL HUB
49	2	R6029	BEARING OUTER WHEEL HUB



# Labels



T7055



R6058



R6057



R6059



E7075



E7063



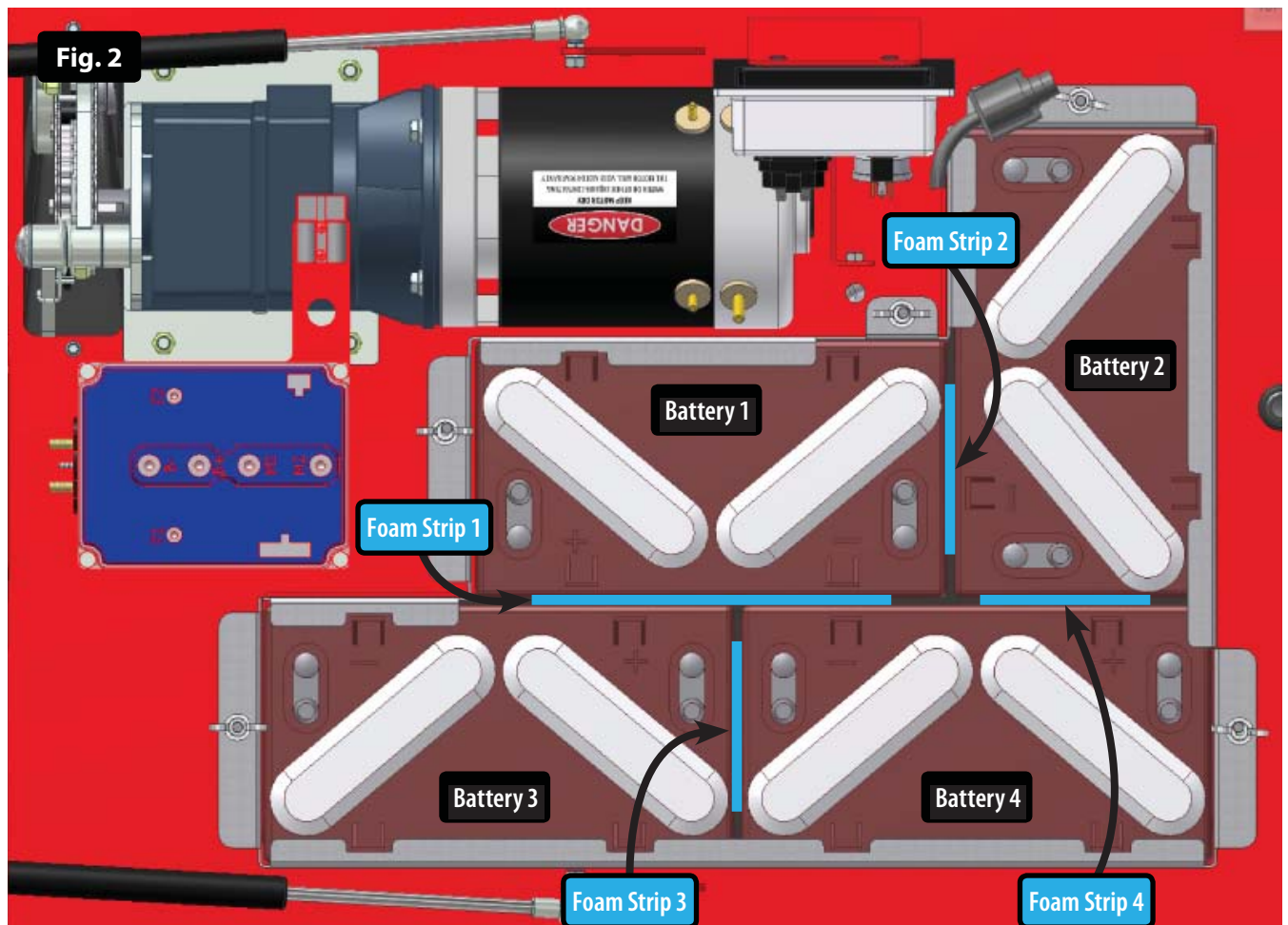
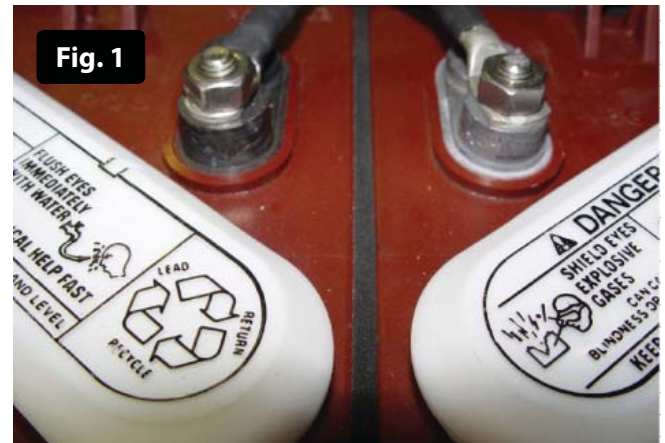
# Battery Fitting Instructions

## Instructions To Fit Batteries & Foam Strips

Refer to the Fig. 2 below to identify batteries and foam. The foam strips are to be attached to the upper most part and onto the side so that the edge of the foam strip is flush with the top of the battery (see Fig. 1).

1. Place battery 1 onto the machine and locate into position, attach foam rubber strips 1 & 2 to side and end of battery.
2. Place battery 2 onto the machine and locate into position, attach foam strip 3 to end of battery 2.
3. Place battery 3 onto machine and locate into position, attach foam strip 4 to end of battery 3.

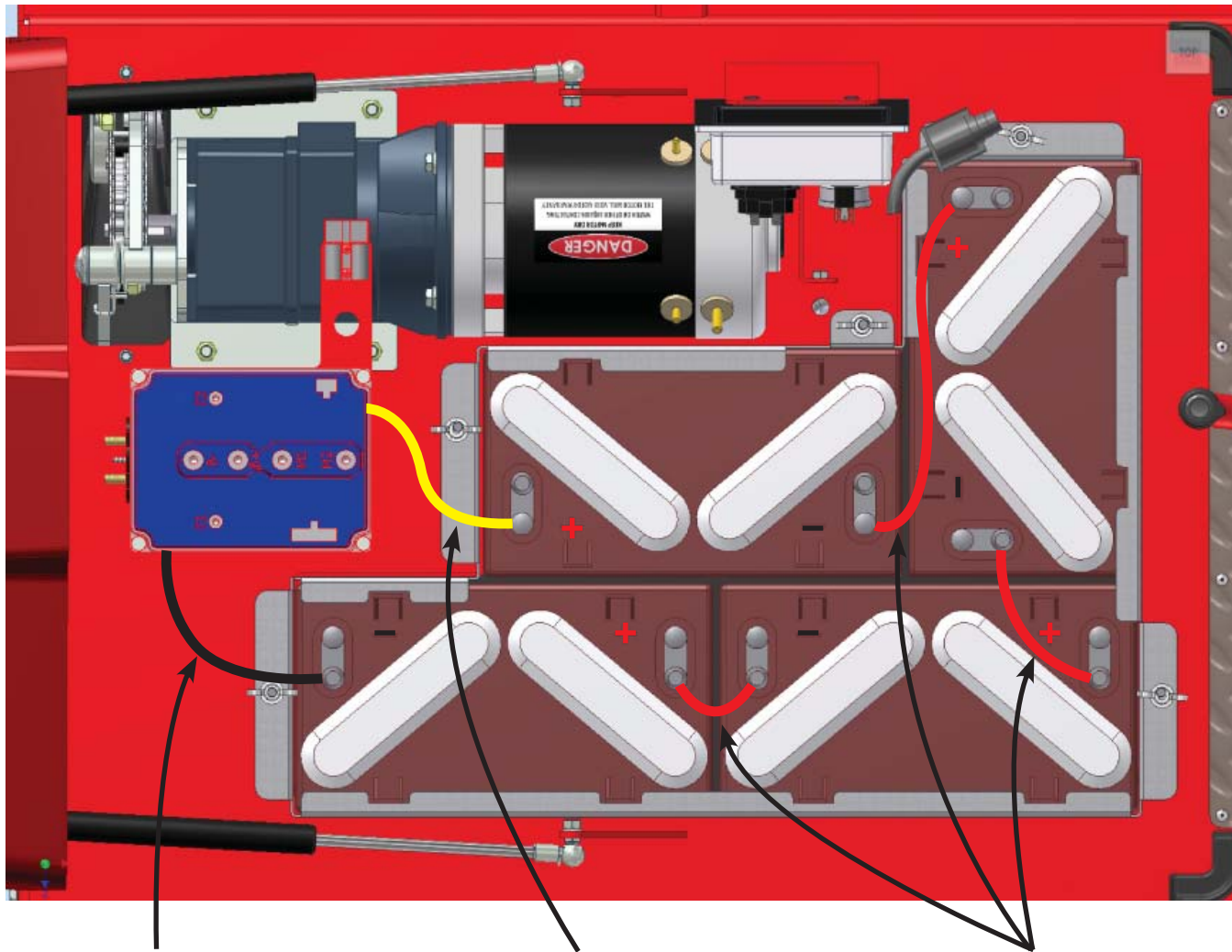
4. Place battery 4 onto machine and locate into position.
5. Fit battery clamping frame over batteries and attach the 5 washers and wing nuts, finger tighten only.



# Battery Link Cable Connections

## Battery Connection Diagram

- + Positive terminal
- Negative terminal
- ~ Battery link cable
- ~ Computer to negative post cable
- ~ Solenoid to battery positive post cable



From Computer To  
Battery Negative Post

From Solenoid To  
Battery Positive Post

Battery Link Cables

# Battery Watering System

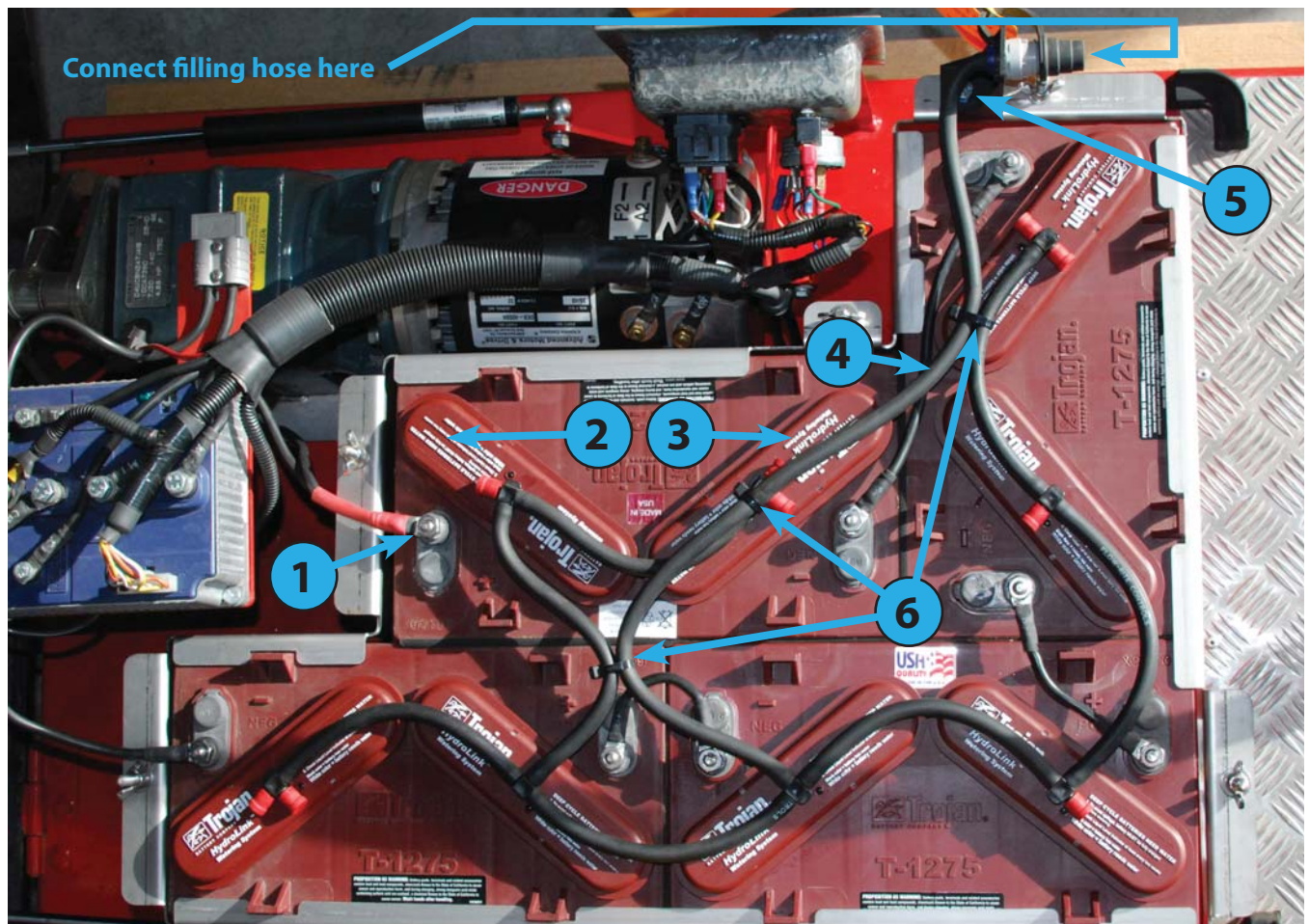
## Installing E7118 Pro-Fill Kit (Battery Watering System & bracket)

1. Disconnect the battery positive terminal from the battery.
2. Remove all battery caps.
3. Place Pro-Kit manifolds into the battery holes and lock firmly into place.
4. Before cutting any tubes lay out the Pro-Fill tubes on the batteries as shown below. Ensure there is no kinks in the tube.
5. Undo the battery nut at point 5. Place the plastic bracket on top of the stainless steel battery bracket. Ensure the hose connecting end of the coupling is facing towards the front of the roller. Do not nut up firm, do not over tighten the bracket.

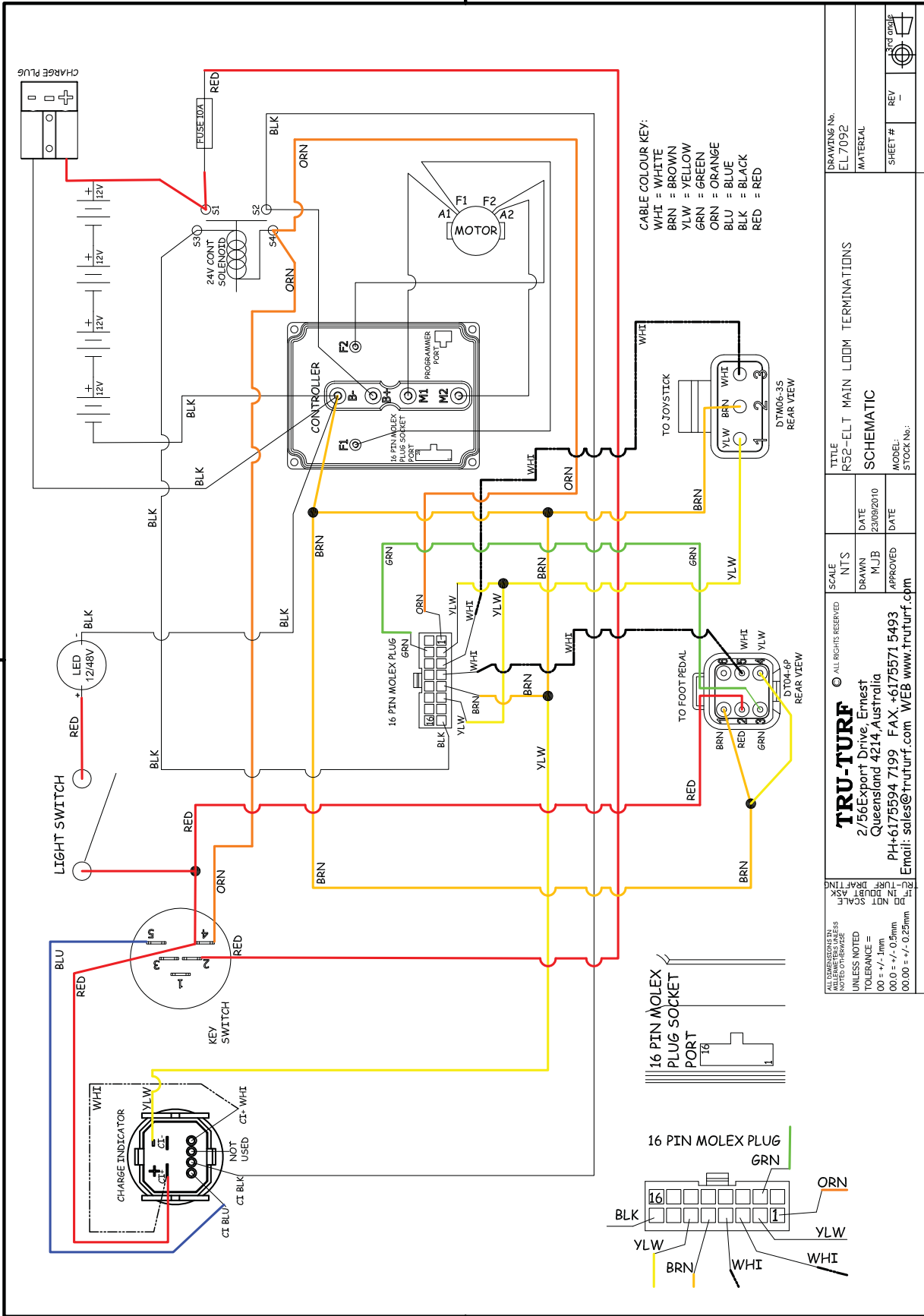
6. Use zip ties to secure tubing as shown.

## Topping up battery water (to be done on a regular basis)

1. Using the hose/filter to tap arrangement, connect one end to a tap and the other end to the battery filling point. Turn on the tap and watch the red balls in the inline container rotate, once the balls have stopped rotating the battery water level is correct. Disconnect the hose and recharge the batteries if necessary. **Never charge the batteries if they are low in water, permanent damage to the batteries will occur.**
2. Using the hand bulb filling arrangement, place the pickup tube into a container of distilled water, connect the outlet fitting to the battery filling point. Squeeze the bulb until it becomes tight to squeeze when this occurs the water level in the batteries is correct. Disconnect the filling device and charge the batteries if necessary as per instructions in "A".



# Loom Schematic Diagram



DRAWING No. EL7092		MATERIAL	
SHEET #		REV	
TITLE R52-ELT MAIN LOOM TERMINATIONS SCHEMATIC		SCALE N.T.S.	DATE 23/09/2010
DRAWN M.J.B.		APPROVED	DATE
MODEL: STOCK No.:		<b>TRU-TURF</b> 2/56Export Drive, Ernest Queensland 4214, Australia PH+6175594 7199 FAX. +6175571 5493 Email: sales@truturf.com WEB www.truturf.com	
<small>           ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED            UNLESS NOTED TOLERANCE = 00 ± 0.1mm            00.0 = ± 0.05mm            00.00 = ± 0.025mm         </small>			