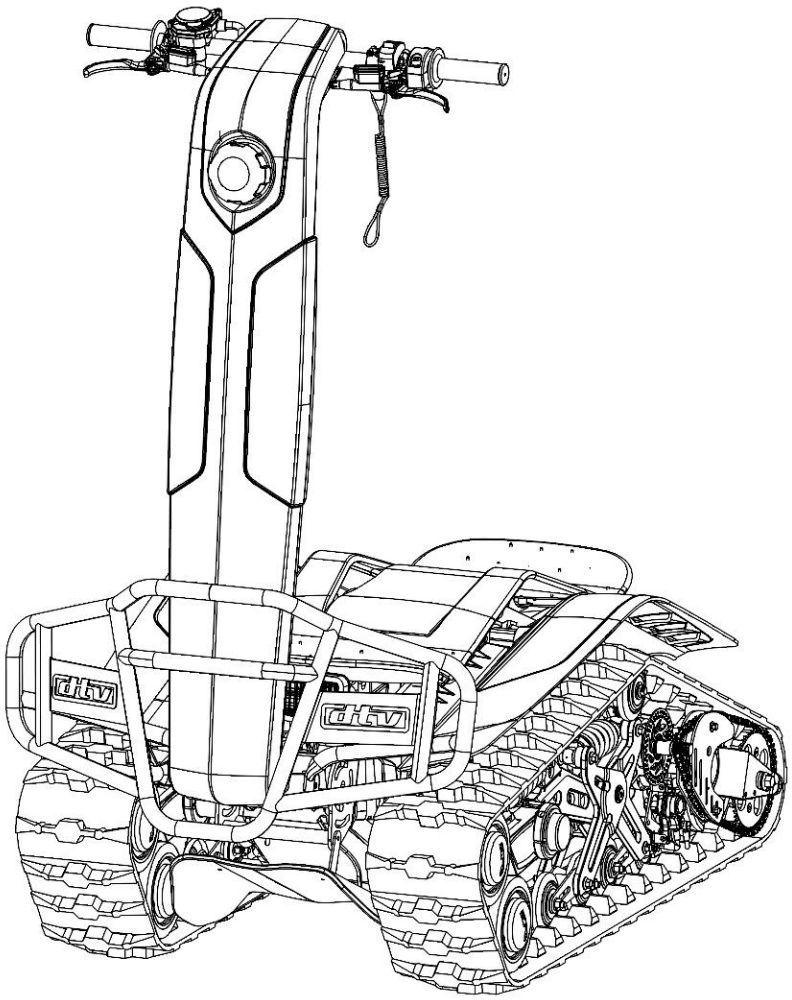
2019 DTV SHREDDER
SERVICE MANUAL



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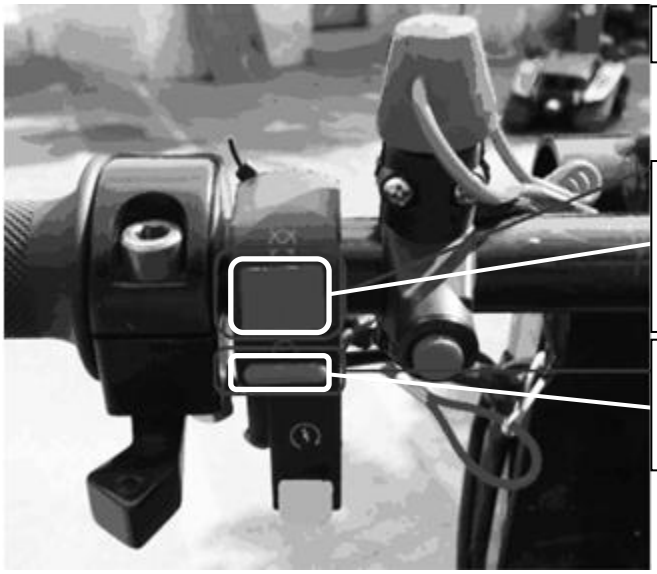
1. General Information

1.1. Headlight Function and Battery Charging

Model with headlights:

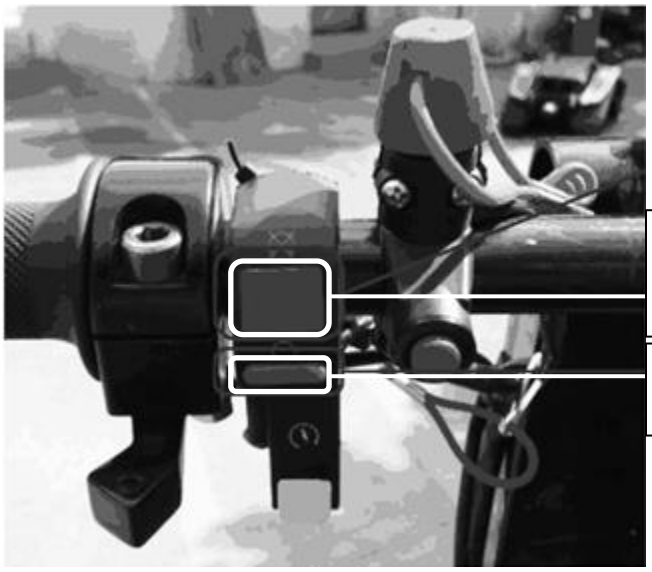


NOTE: headlights are always on when engine is running

Turns battery charging function ON: *battery will only charge while vehicle is running and this switch is **on**.*
Turns headlights ON: *when engine is **not** running*
**** Always operate vehicle with this switch ON***

Battery disconnect: *stops battery discharge. Use when vehicle will be parked for more than 2 weeks.*
Turns headlights OFF: *when engine is **not** running*

Model with NO headlights:



Battery charging function ON: *battery will only charge while vehicle is running and this switch is **on**.*
**** Always operate vehicle with this switch ON***

Battery disconnect: *stops battery discharge. Use when vehicle will be parked for more than 2 weeks.*

*** NOTE: The battery has an automatic low-voltage cut-off switch. If the battery stops working, use the manual pull-start cord to start the engine, press the top charging button, and ride the vehicle for approximately 15 minutes or until the battery is recharged.**

1.2. Engine Break-In

The initial 5 hours of operation are the most important in the life of the DTV. Proper operation during this break –in period will help assure maximum life of the Engine.

The following guidelines will explain the proper break-in procedures.

1. Allow the DTV Engine to warm up a few minutes before riding. This allows the oil to circulate throughout the Engine which lubricates the components.
2. ***During the first 5 hours of operation do not apply more than ½ throttle. Do not run the engine for more than 30 minutes at a time. Allow for a cool-down period of 15 minutes before operating again.*** Make sure to vary the Engine speed during the break-in period. This allows the Engine to load and unload which helps the parts to seat properly. It is essential to place some stress on the Engine during the break-in process, however, too much stress could cause damage to the Engine components. Be careful not to load the Engine too much.
3. Avoid riding in excessively dirty or dusty environments during the break-in period
4. The DTV Engine should be filled by the dealer service department with 700 ml of regular 5W-40 oil for break-in purposes. ***This oil should be drained after 5 hrs of operation and replaced with 600 ml of 5W-40 full-synthetic oil.***
5. ***During the next 5 hours of operation do not appl more than ¾ throttle.***
6. ***ensure the engine is not allowed to idle while the DTV is stationary since there is less air flow to allow for cooling.***
7. ***After 10 hours of service the DTV should be brought to an authorized dealer for a full service.***

Maintenance required as part of the initial service is outlined in the maintenance schedule. Timely performance of this maintenance will help make sure your DTV will have the best service life and performance of the Engine.

1.3. Important Information

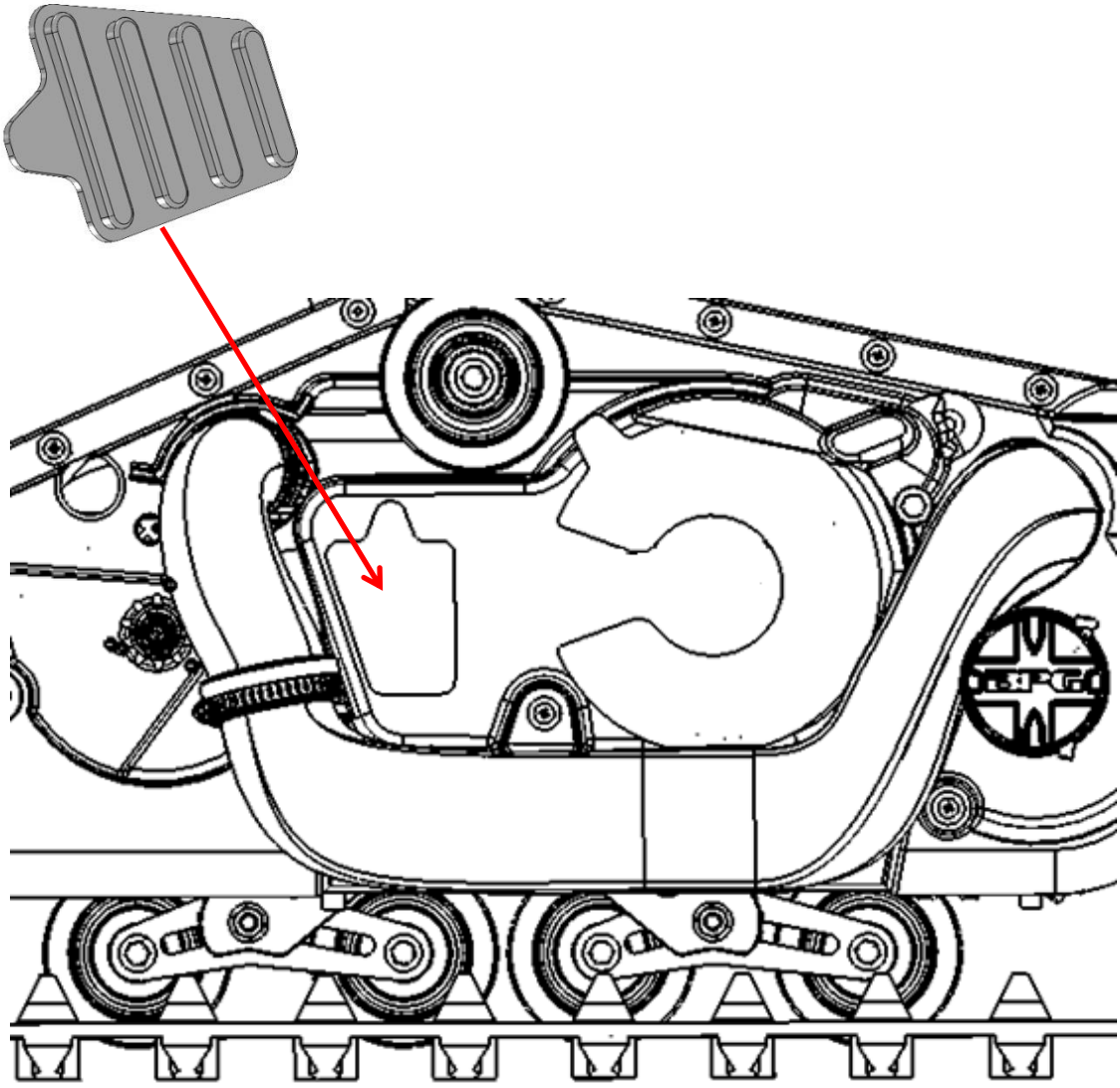
- It is critical to follow the recommended break-in and maintenance schedule
- If part replacement is necessary, always replace with genuine DTV Motor Corp parts from an authorized DTV dealership.
- Whenever oil seals, gaskets, O-rings, crush washers, self-locking nuts and circlips are removed they should be replaced with new ones. Be sure to remove any residual material and clean mating surfaces before installing new gaskets.
- It is critical to the function of the machine that all circlips are properly fitted. When installing new external circlips be very careful not to expand them any more than is necessary to slip over the shaft. After installing any new circlip, always ensure its groove is clean and free of debris and the clip completely seats in its groove (rotate to check).
- Always use a calibrate torque wrench to tighten all fasteners to their specified torques.
- When installing a part with several bolts, nuts or screws, start them all in their holes by hand and tighten them to a snug fit. Then tighten opposing pairs of bolts progressively and evenly in a diagonal criss-cross pattern, starting from the inside working out, to the specified torque. This is to avoid distortion of the part causing gas or oil leakage. Conversely when loosening the bolts, nuts or screws, first loosen all of them by about a quarter of turn and then remove them. Check the torque values chart for the specified torques.
    - Cylinder Head: tighten bolts progressively in an ‘X’ pattern
    - Crankcase Cover: tighten bolts progressively in a criss-cross pattern
    - Transmission case: tighten bolts progressively as shown in Transmission Installation section of General Maintenance chapter

1.4. Winter Operation

It is critical to install the following components prior to operating the DTV in snow

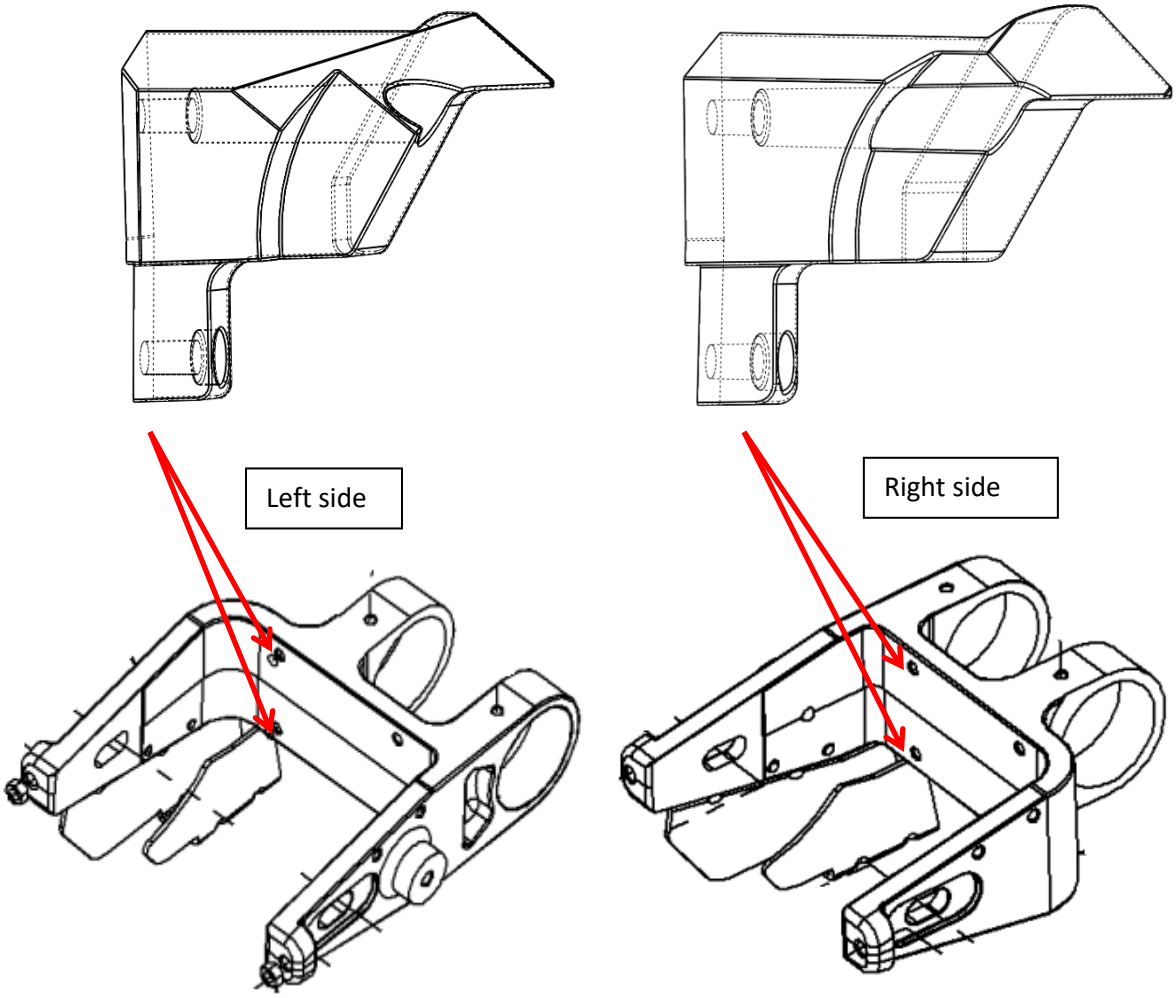
1. Engine Cover Vent Plug – this rubber plug prevents snow from being sucked into the engine compartment and forming ice around the engine.

– The image below shows the right side Subframe missing, but it is not necessary to remove any components to install the Engine Cover Vent Plug. This should be firmly pressed into place until the embossments are securely engaged in the corresponding holes in the Engine Cover.



2. Ice Breakers – these parts prevent the buildup of ice inside the Track Drive Sprocket. Ice formation inside the Track Drive Sprocket will eventually prevent the Track from properly engaging in the Drive Sprocket and stretch the Track enough to stop it from rotating and possibly stalling the engine.

– To install the Ice Breakers disassemble the left and right Rear Swingarm Assemblies (see Rear Swingarm section of General Maintenance chapter) and attach with 2 screws to inside of Rear Swingarm.



1.5. Technical Specifications

Dimensions & Weights	
Overall Width	678mm (27")
Overall Length (handle up/down)	1321mm (52") / 1150mm (45")
Overall Height (handle up/down)	1270mm (50") / 584mm (23")
Gross weight	111kg (245lbs)
Maximum Payload	113kg (250lbs)
Powertrain	
Transmission	Biased Dual Belt-Type Continuously Variable Transmission
Chain Pinion	10 tooth
Chain Sprocket	47 tooth
Chain Type	Sealed O-ring
Brakes	Dual Hydraulic Disc
Fluids	
Fuel type	High Octane Unleaded Gasoline 91 AKI (USA)/95 RON (rest of world)
Fuel Tank Capacity	3.8 L (1 Gal)
Engine Lubrication	5W-30 Synthetic (600ml)
Brake Fluid	DOT 4
Engine	
Type	Lifan "Rhino" - 4-stroke Spark Ignition
Fuel	Gasoline
No. Cylinders	1
Displacement	196 cc
Bore	68mm
Stroke	59mm
Compression Ratio	9.6:1
Valve Clearance (Intake/Exhaust)	0.051 mm (0.002 in)/0.076 mm (0.003 in)
Max Power	12.5 hp @ 6000 rpm
Max Torque	13 lbf-ft @ 5500 rpm
Lubrication system	Splash
Cooling	Forced Air
Idle speed	1900 rpm +/- 100 rpm
Ignition System	
Type	Transistorized with CDI
Ignition Timing	20 deg. BTDC up to 3800 rpm/27 deg. BTDC after
Ignition Pick-Up Gap	0.5 mm (0.020 in)
Spark Plug	NGK BPR 5ES
Carburetor	
Type	Dellorto ECS
Needle Jet Groove Position	Centre
Fuel Mixture Regulation Screw	Initial setting:
Throttle Cable Free play	2 – 4 mm
Electrical	
Battery	12 V

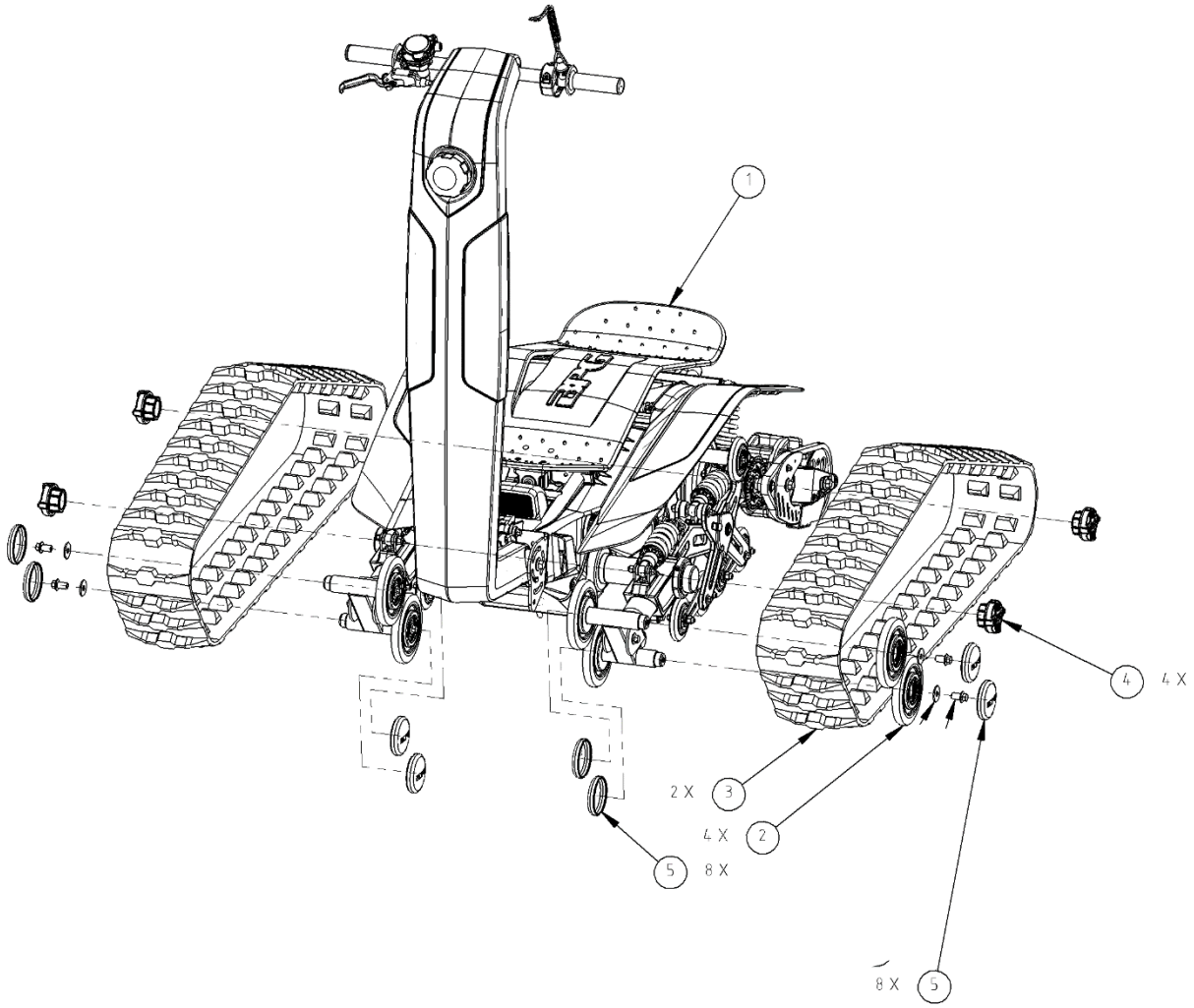
1.6. Standards

This product is in conformity with the following European standards:

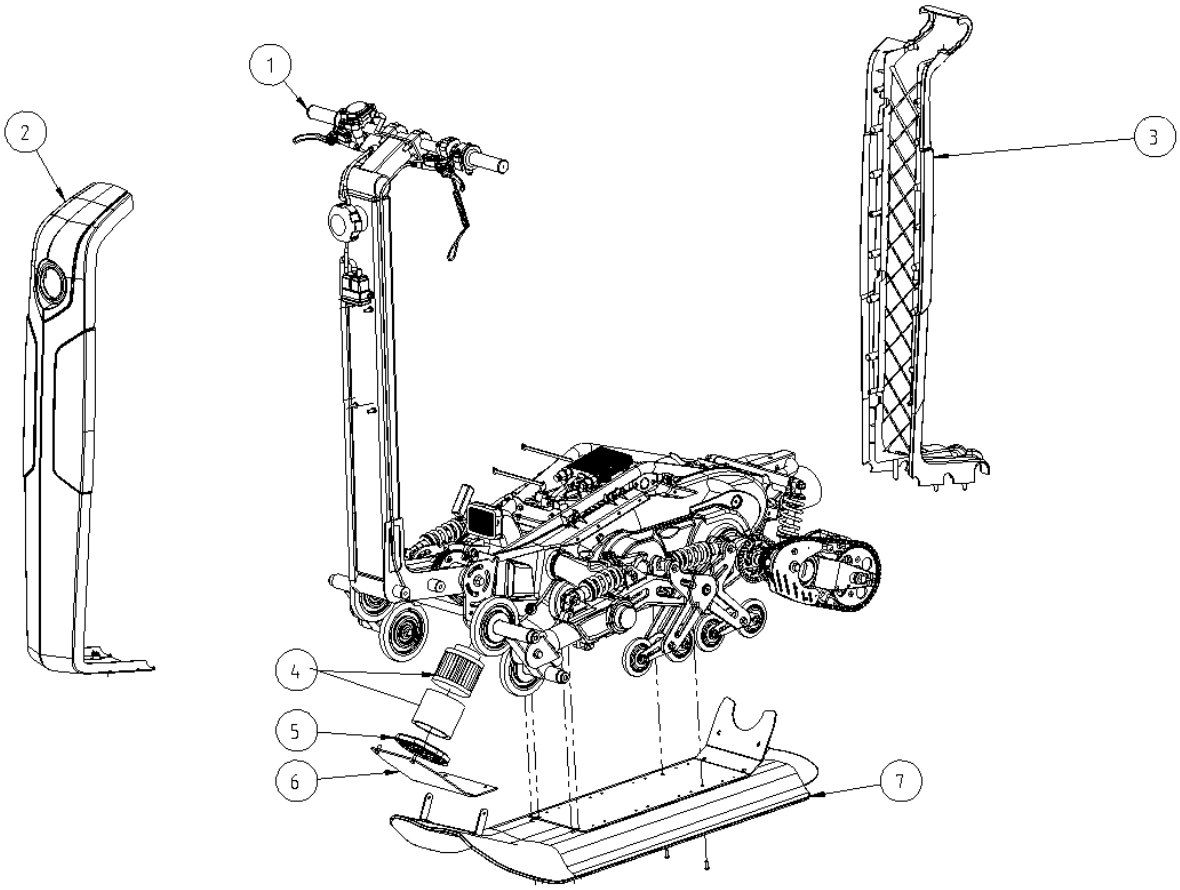
- EC Machinery Directive (206/42/EC)
- EC EMC Directive (2004/108/EC)
- Applied Harmonized Standards: EN ISO 12100
- CE AOC (attestation of compliance) #12 12 82909 001

1.7. General Assembly Drawings

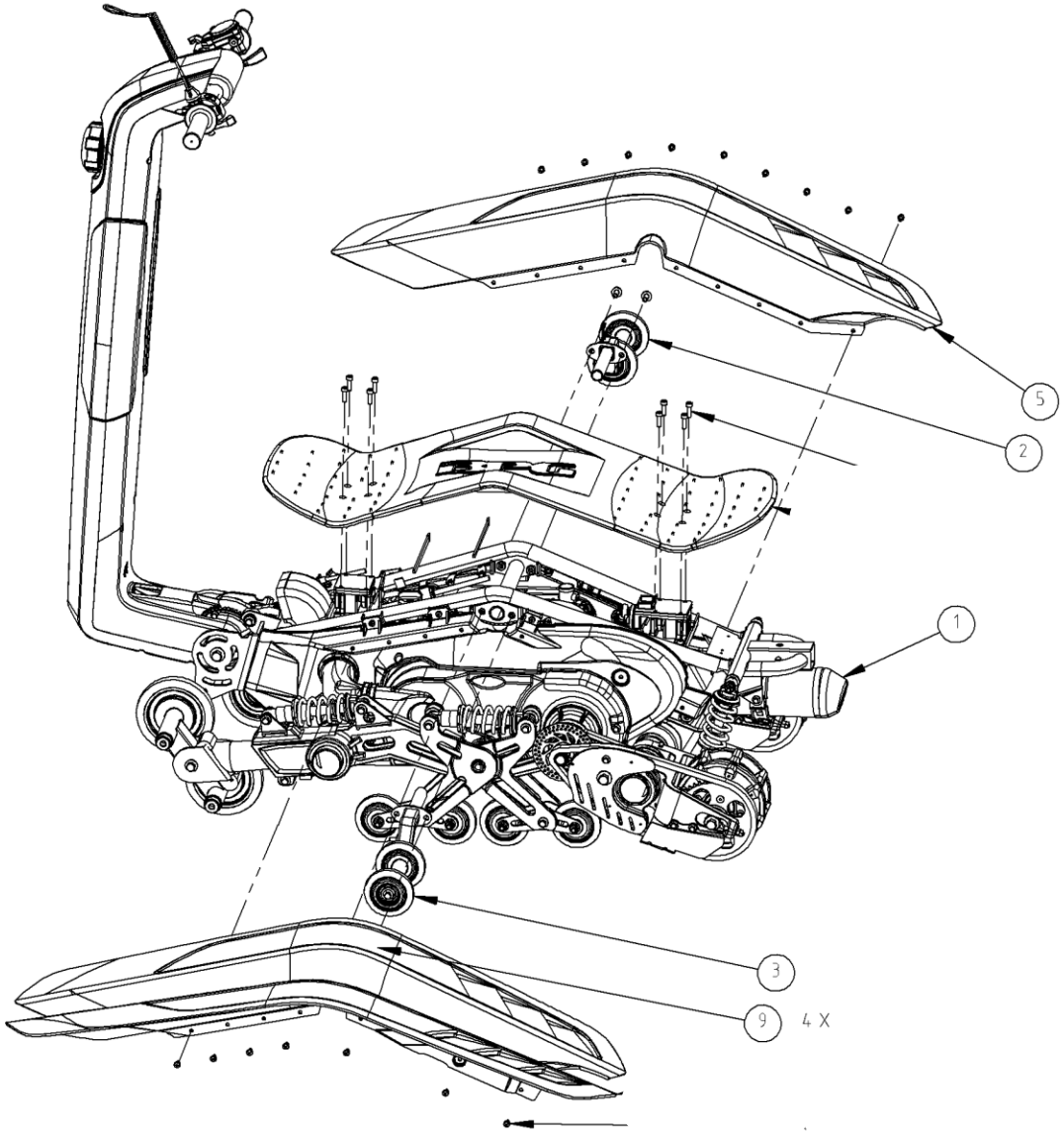
1.4.1. General



#	Name
1	Deck
2	Bogie Wheel
3	Track
4	Pivot Tube End Cap
5	Bogie Wheel Cap

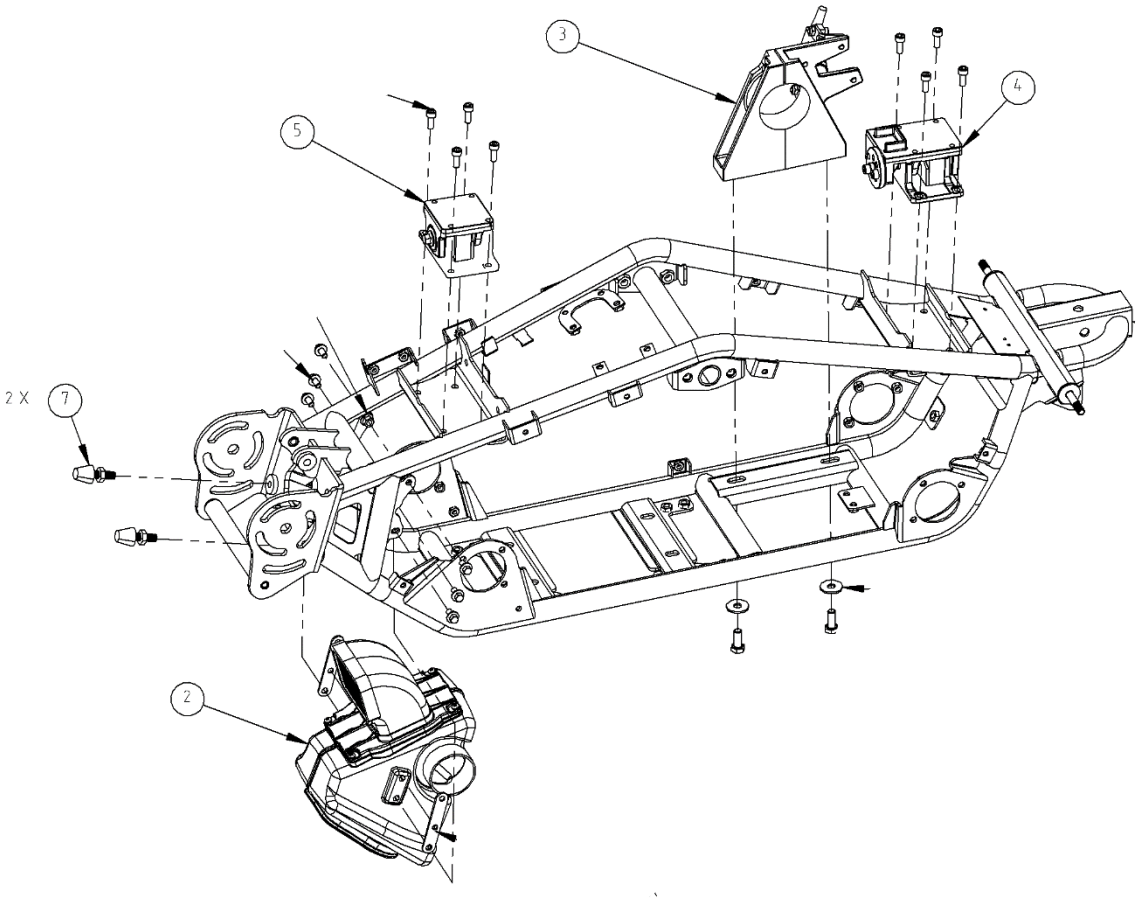


#	Name
1	ASSEMBLY, HANDLE BAR
2	FAIRING, HANDLE FRONT
3	FAIRING, HANDLE BACK
4	AIR FILTER
4	AIR FILTER FOAM
5	PLUG AIRBOX BOTTOM
6	SUB ASSY, FRONT SKID PLATE
7	SUB ASSY, MAIN SKID PLATE

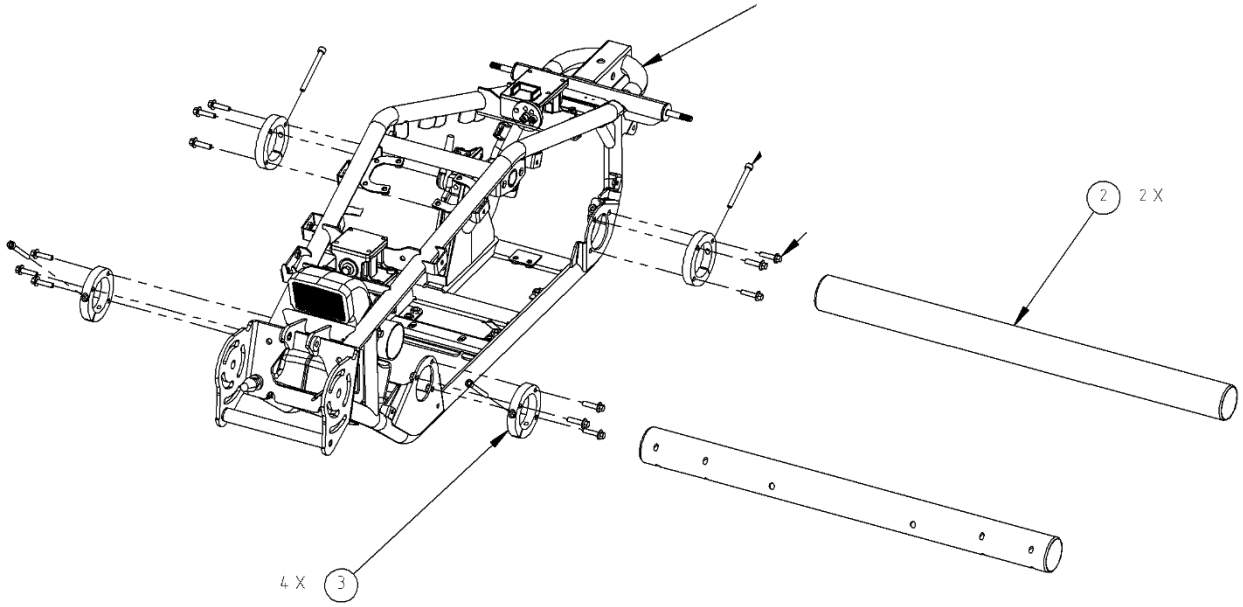


#	Name
1	Muffler
2/3	Upper Bogie Wheels/Axle
5/9	Track Guards

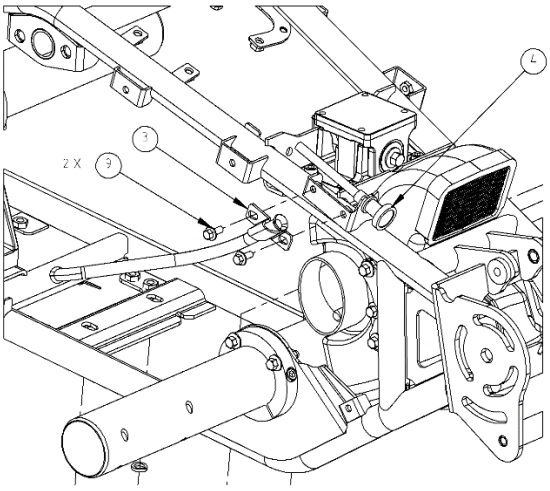
1.4.2. Frame



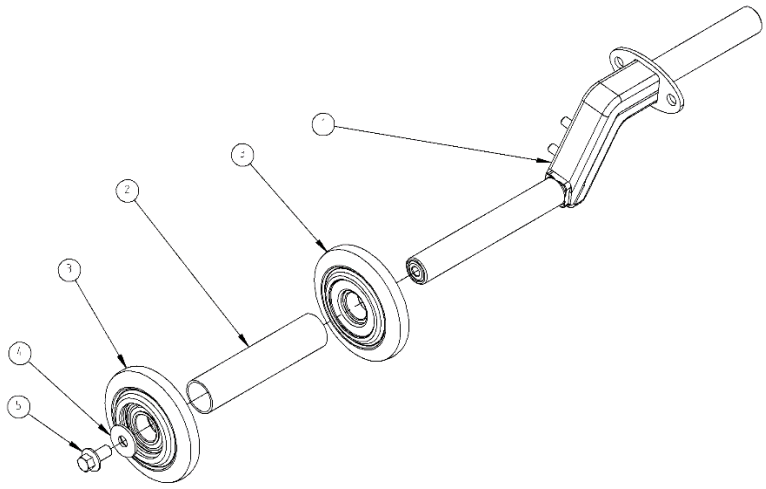
#	Name
2	Airbox
3	Transmission Case Support Bracket
4	Rear Deck Pivot Assembly
5	Front Deck Pivot Assembly
7	Handle Pivot Bumpers



#	Name
2	Rear Pivot Tube
3	Front Pivot Tube Collar

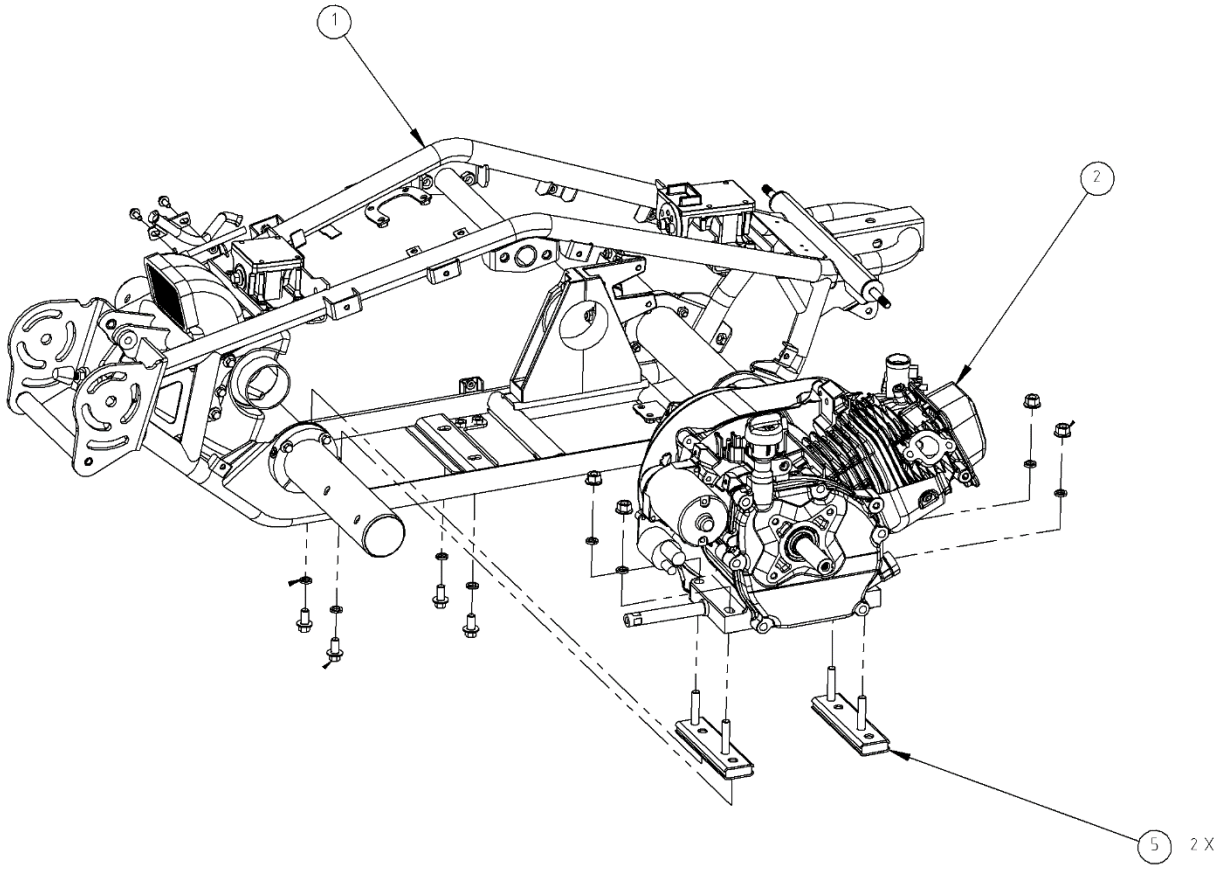


#	Name
4	Choke



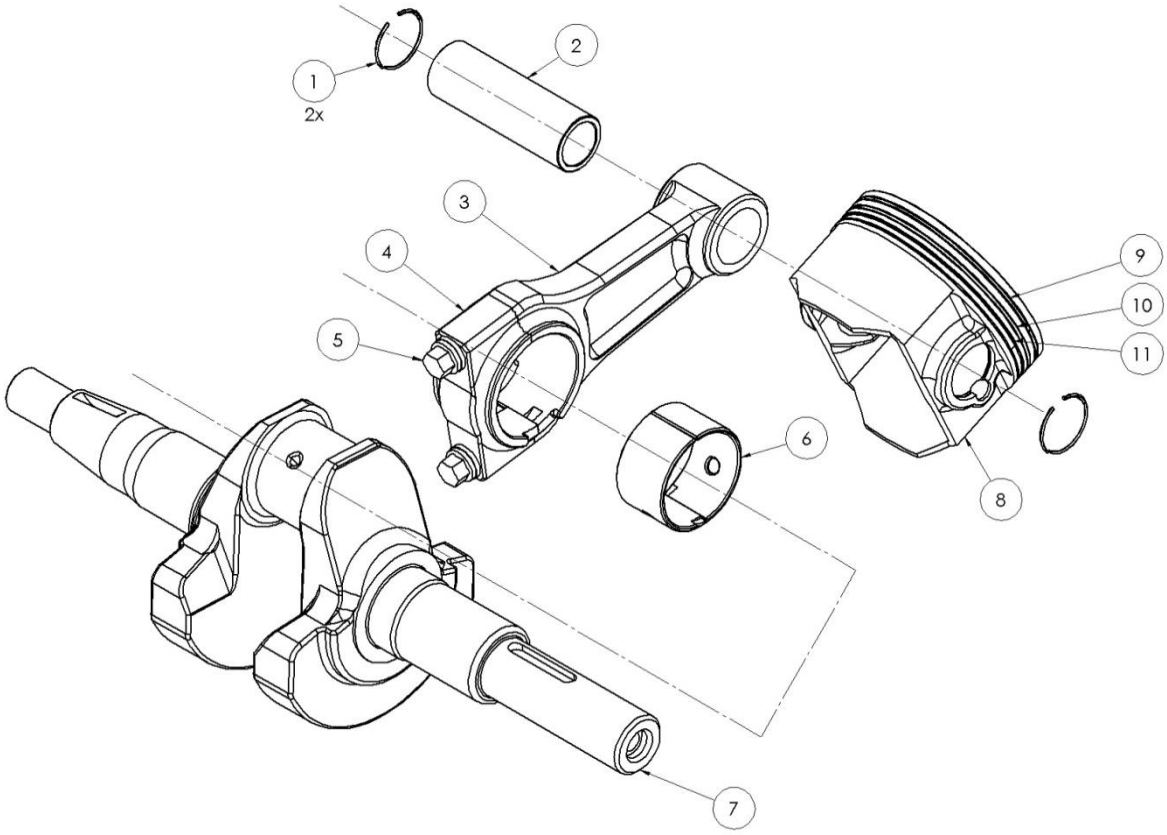
#	Name
1	Upper Bogie Wheel Axle
2	Upper Bogie Wheel Spacer
3	Upper Bogie Wheel

1.4.3. Engine



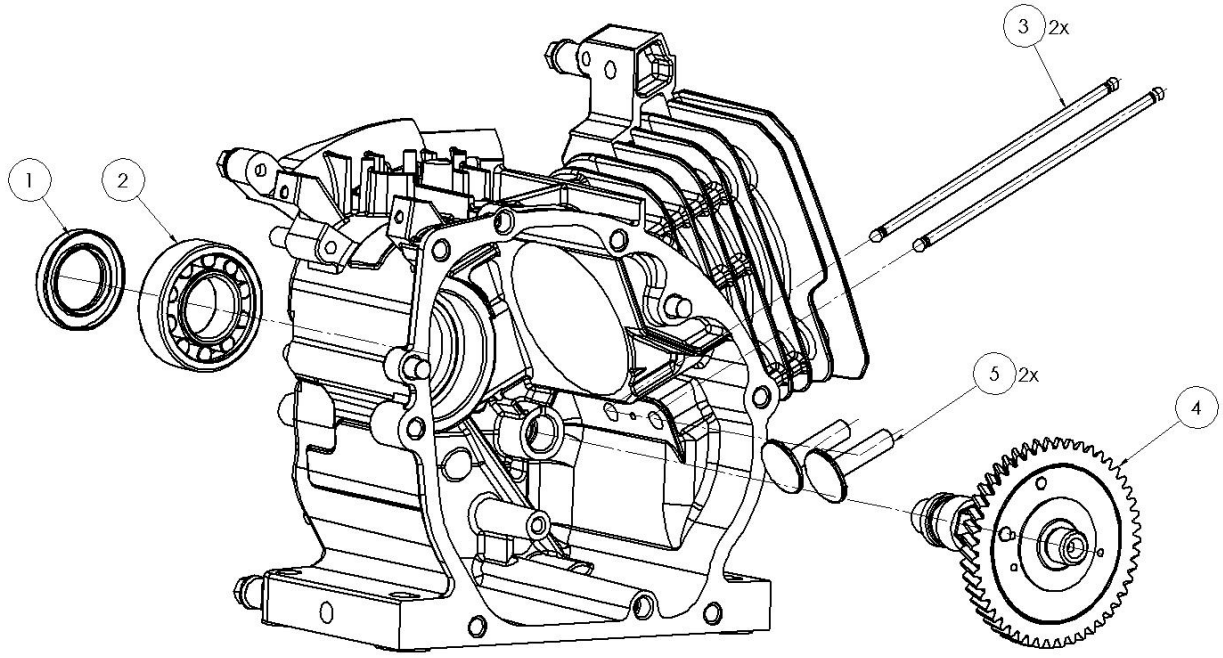
#	Name
1	Frame
2	Engine
5	Engine Damper Pad

1.4.3.1. Piston Assembly



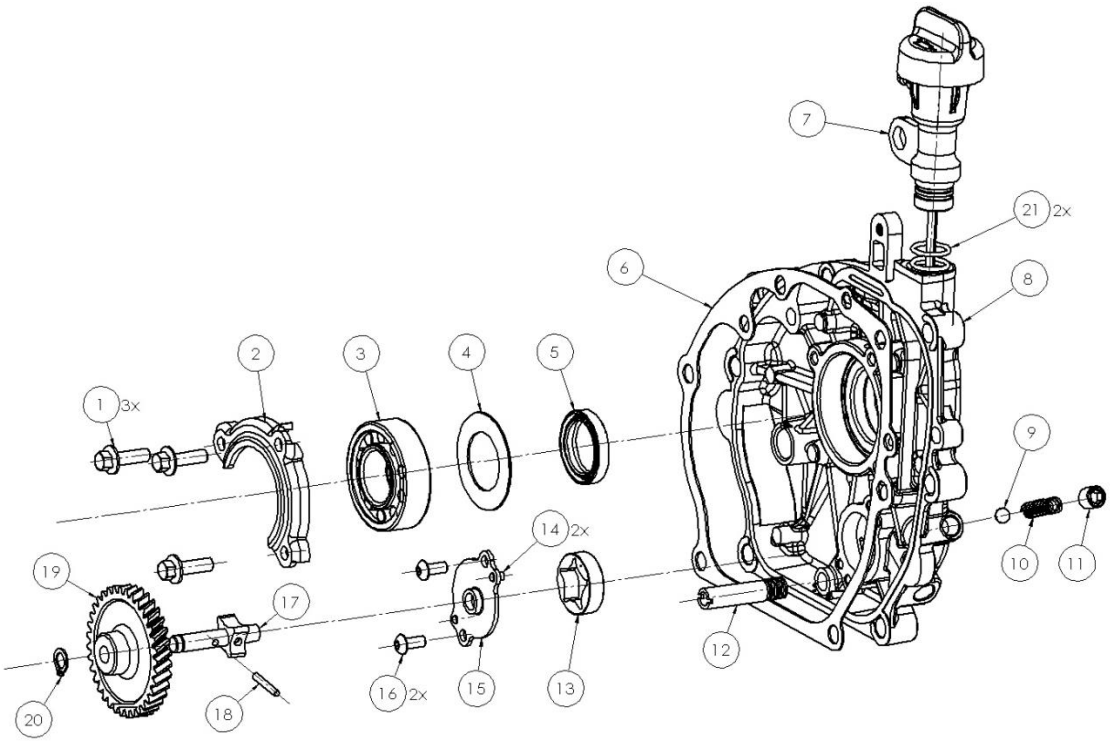
#	Name
1	Piston Clip (x2)
2	Wrist Pin
3	Upper Connecting Rod
4	Lower Connecting Rod
5	M6 Hex Bolt
6	Connecting Rod Bearings (x2)
7	Crankshaft
8	Piston
9	Compression Ring
10	Wiper Ring
11	Oil Ring

1.4.3.2. Camshaft Assembly



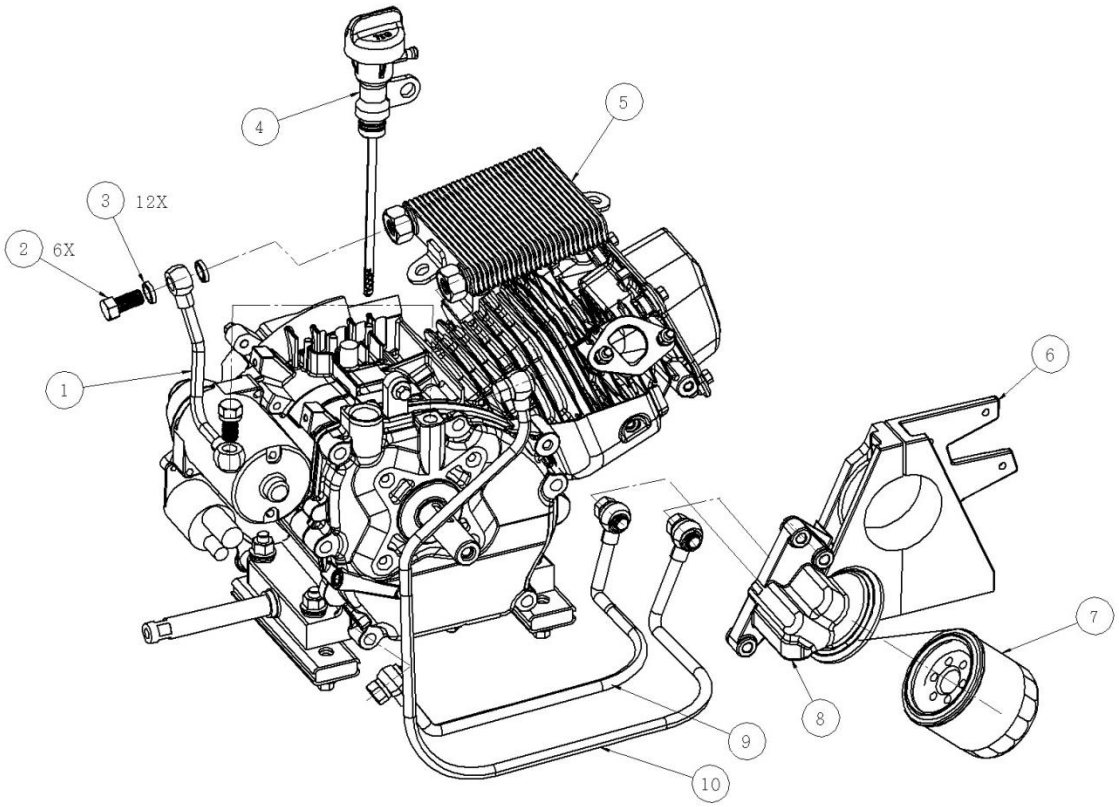
#	Name
1	Oil Seal (41.5x25x6”)
2	NSK Bearing (NJ205E)
3	Push Rod, Cylinder Head (x2)
4	Camshaft
5	Lifters (x2)

1.4.3.3. Oil Pump



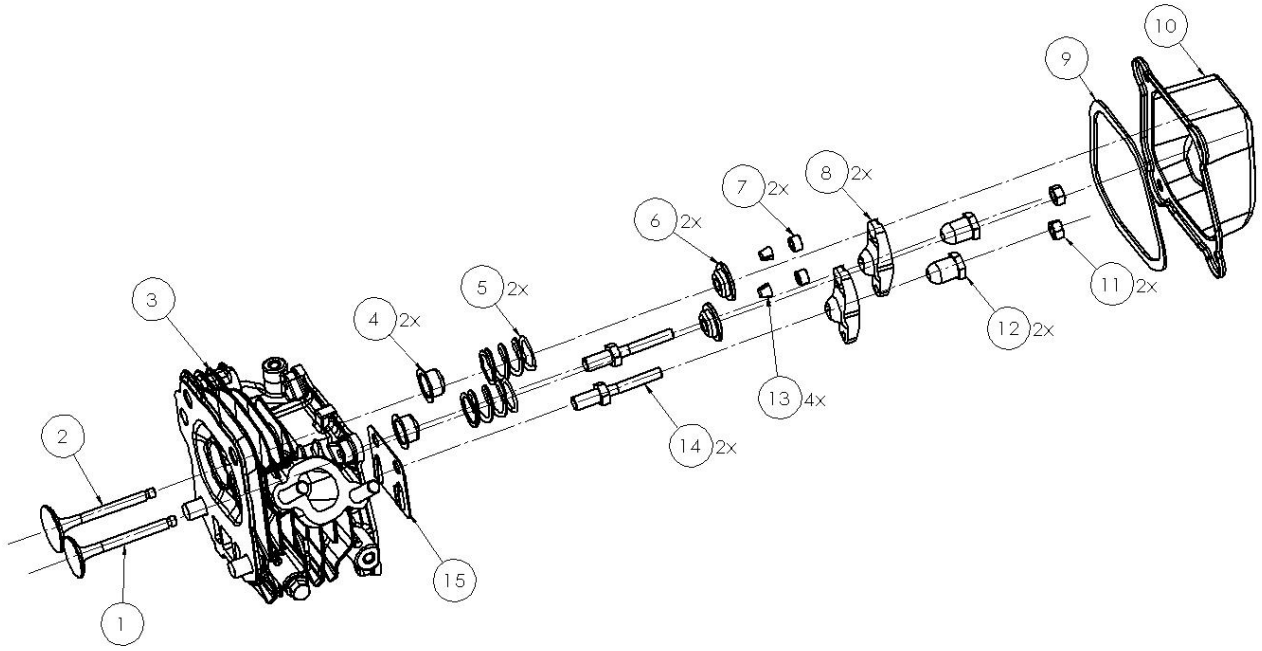
#	Name	#	Name
1	Hex Bolt M6x20 (x3)	16	Button Head Screw M5x12
2	Bearing Clamp	17	Pump Shaft with Gear
3	NSK Bearing (NJ205E)	18	Dowel Pin, 3x20”
4	Washer 1x27x46	19	Pump Gear
5	TCN Seal, 25x35x6”	20	Circlip
6	Gasket, Side Cover	21	O-Ring, Dipstick (x2)
7	Dipstick		
8	Side Cover		
9	Ball Relief Valve 7mm		
10	Spring Relief Valve		
11	Plug		
12	Oil Pickup Tube		
13	Oil Pump Outside Gear		
14	Pins (x2)		
15	Pump Cover		

1.4.3.4. Oil System



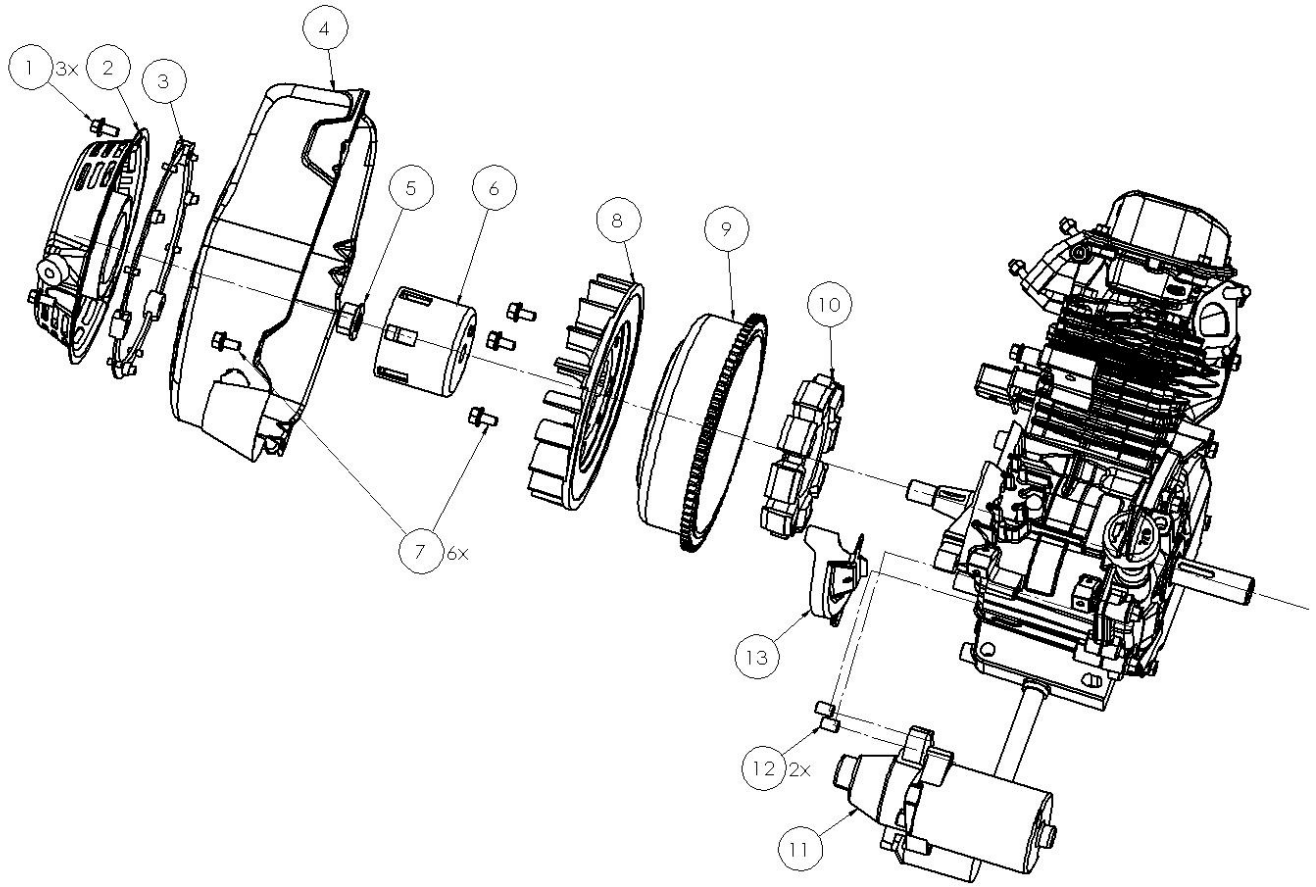
#	Name
1	Engine Supply Line
2	Banjo Bolts M10x1.0
3	Banjo Fitting Washers
4	Dipstick
5	Oil Cooler
6	Transmission Mount
7	Oil Filter
8	Filter Bracket/Holder
9	Filter Supply Line
10	Cooler Supply Line

1.4.3.5. Cylinder Head Valve Assembly



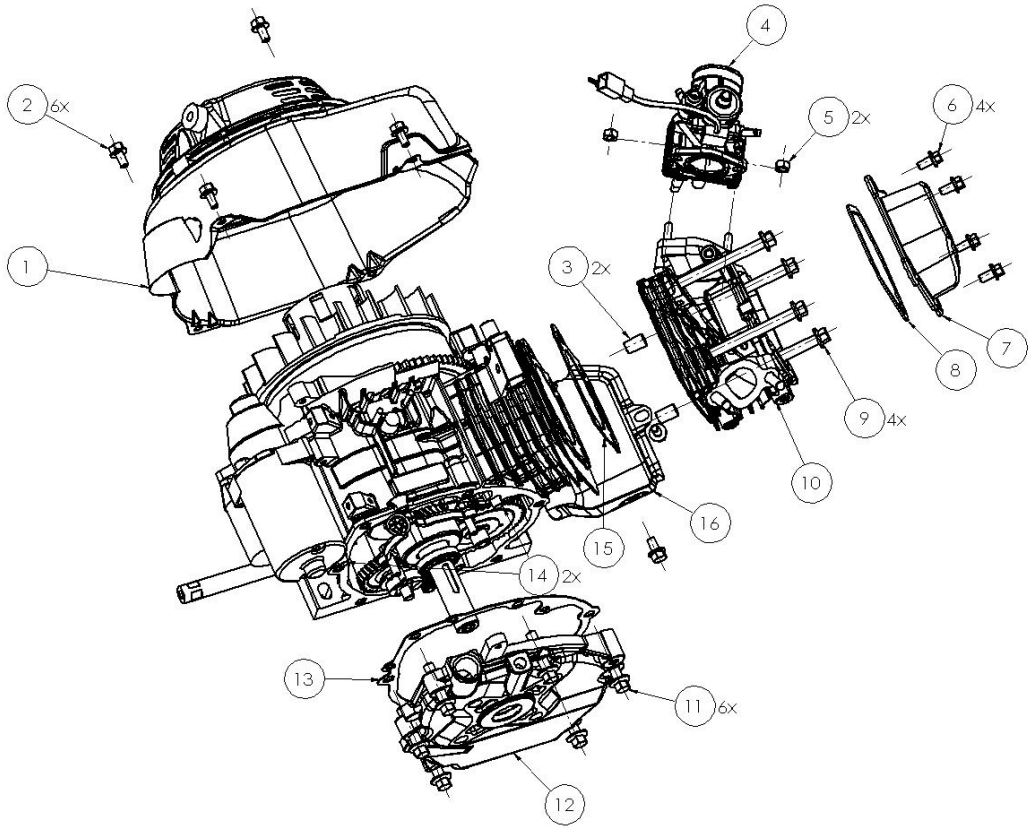
#	Name
1	Exhaust Valve (25mm)
2	Intake Valve (28.4mm)
3	Cylinder Head
4	Valve Stem Seals (x2)
5	Valve Springs (x2)
6	Valve Retainer (x2)
7	Valve Cap (x2)
8	Rocker Arm (x2)
9	Gasket, Valve Cover
10	Valve Cover
11	Hex Nut M6 (x2)
12	Pivot, Rocker Arm (x2)
13	Split Keepers, Valves (x2)
14	Stud, Rocker Arm (x2)
15	Guide Plate

1.4.3.6. Starter Motor



#	Name
1	Hex Bolt M6x12 (x3)
2	Recoil Assembly
3	Recoil Spacer
4	Engine Fun Housing
5	Hex Flange Nut – M14x1.5
6	Starter Cup
7	Hex Bolt M6x12 (Head size 10) (x6)
8	Flywheel Fan
9	Flywheel
10	Stator
11	Starter Motor
12	Dowel Pins (x2)
13	Engine Guard

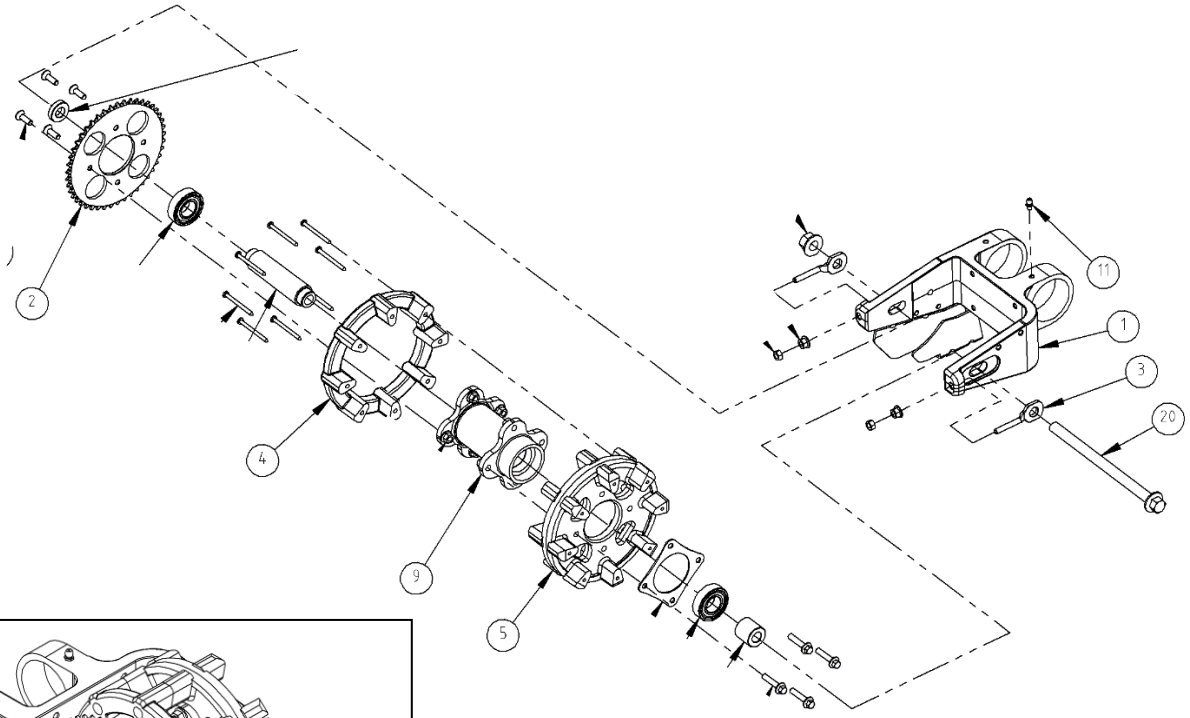
1.4.3.7. Engine Assembly

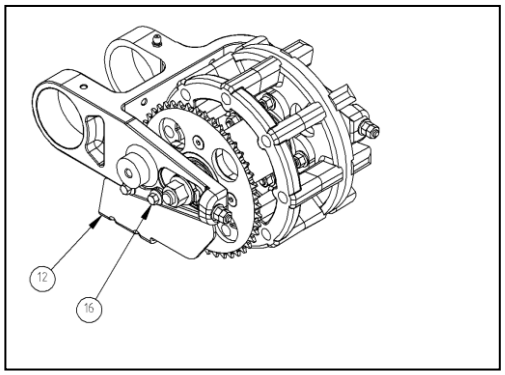


#	Name
1	Engine Recoil Assembly
2	Hex Bolt M6x12 (Head Size 10)
3	Dowel Pin, Cylinder Head (x2)
4	Carburettor
5	Hex Nut M6x12 (x2)
6	Hex Bolt M6x12
7	Engine Valve Cover
8	Gasket, Valve Cover
9	Hex Bolt M8x75 (x4)
10	Cylinder Head
11	Hex Bolt M8x35 (x6)
12	Side Cover
13	Gasket, Side Cover
14	Dowel Pins, Side Cover (x2)
15	Gasket, Cylinder Head
16	Engine Guard

1.4.4. Rear Swingarms

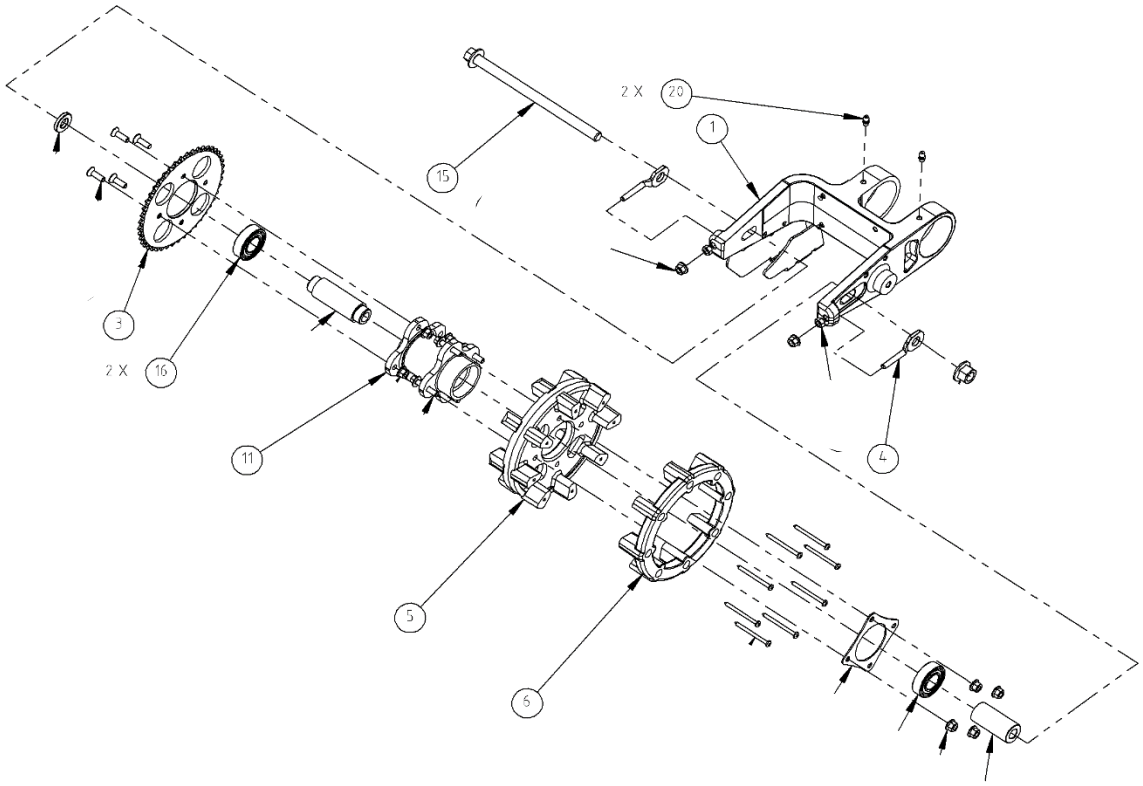
Right Side





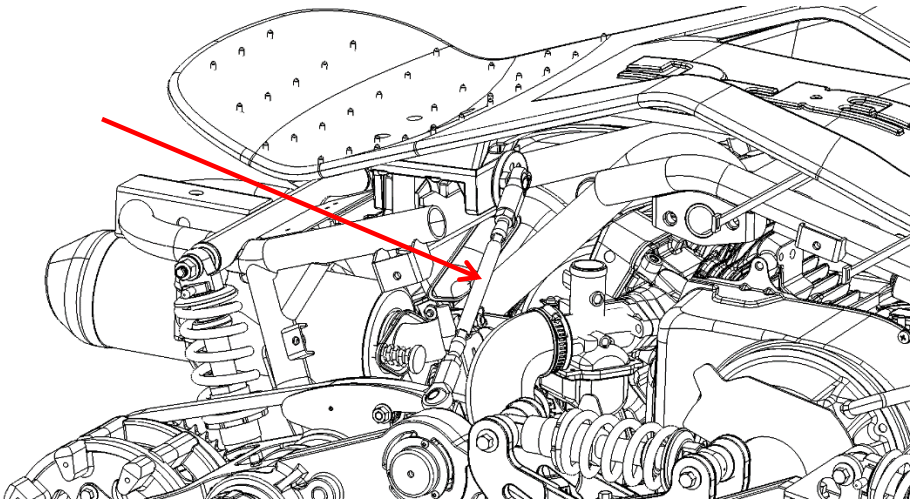
#	Name
1	Swingarm
2	Chain Sprocket
3	Chain Tensioner
4/5	Track Drive Sprocket
9	Sprocket Hub
11	Grease Nipple
12	Chain Guard
20	Axle Bolt

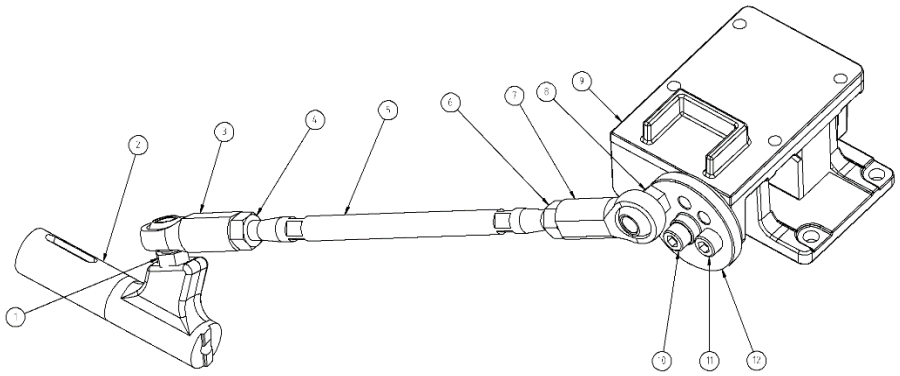
Left Side



#	Name
1	Swingarm
3	Chain Sprocket
4	Chain Tensioner
5/6	Track Drive Sprocket
11	Sprocket Hub
15	Axle Bolt
20	Grease Nipple

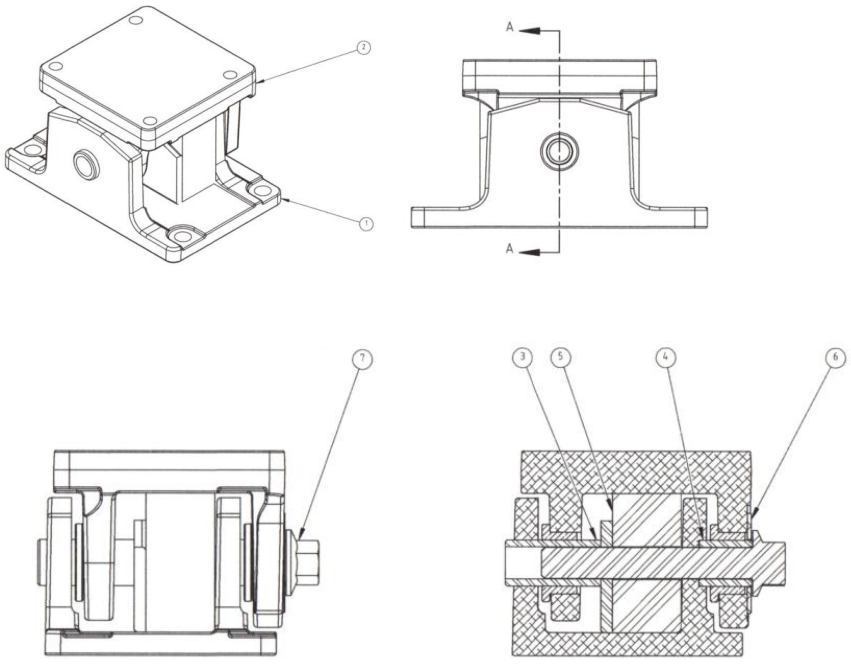
1.4.5. Steering System



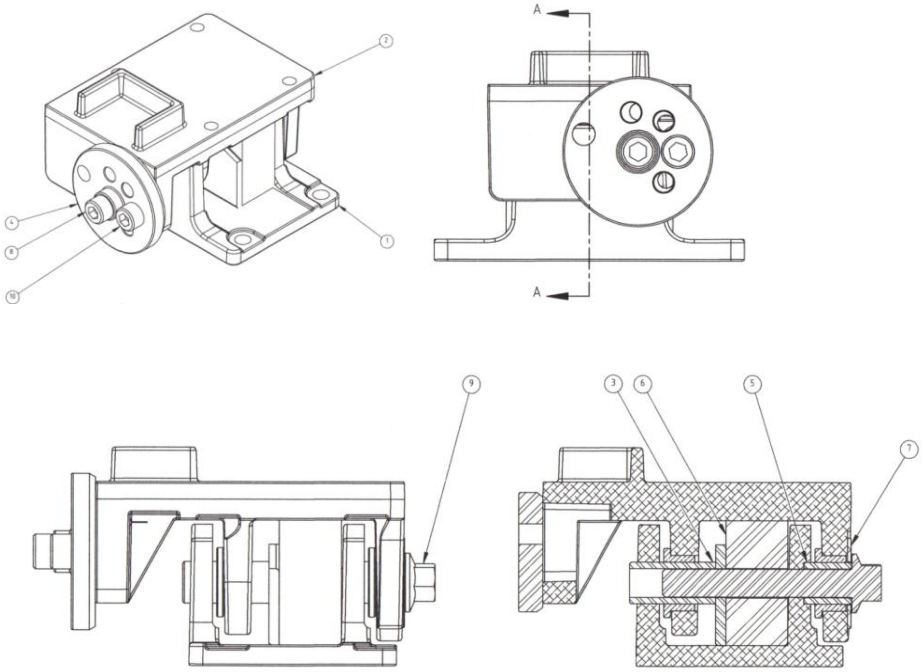


#	Name
1	Lower Ball Joint Stud
2	Steering Knuckle
3	Lower Ball Joint
4	Lower Jam Nut
5	Steering Tie Rod
6	Upper Jam Nut
7	Upper Ball Joint
8	Upper Ball Joint Stud
9	Rear Deck Pivot
10	Steering Adjustment Wheel Bolt
11	Steering Adjustment Wheel Set Screw
12	Steering Adjustment Wheel

Rear Deck Pivot:

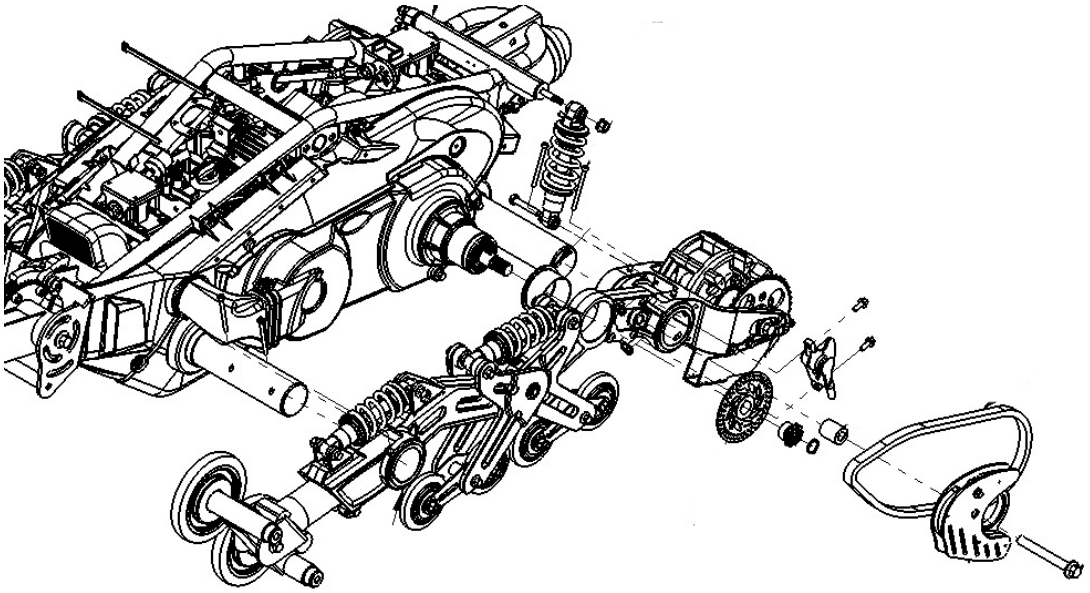


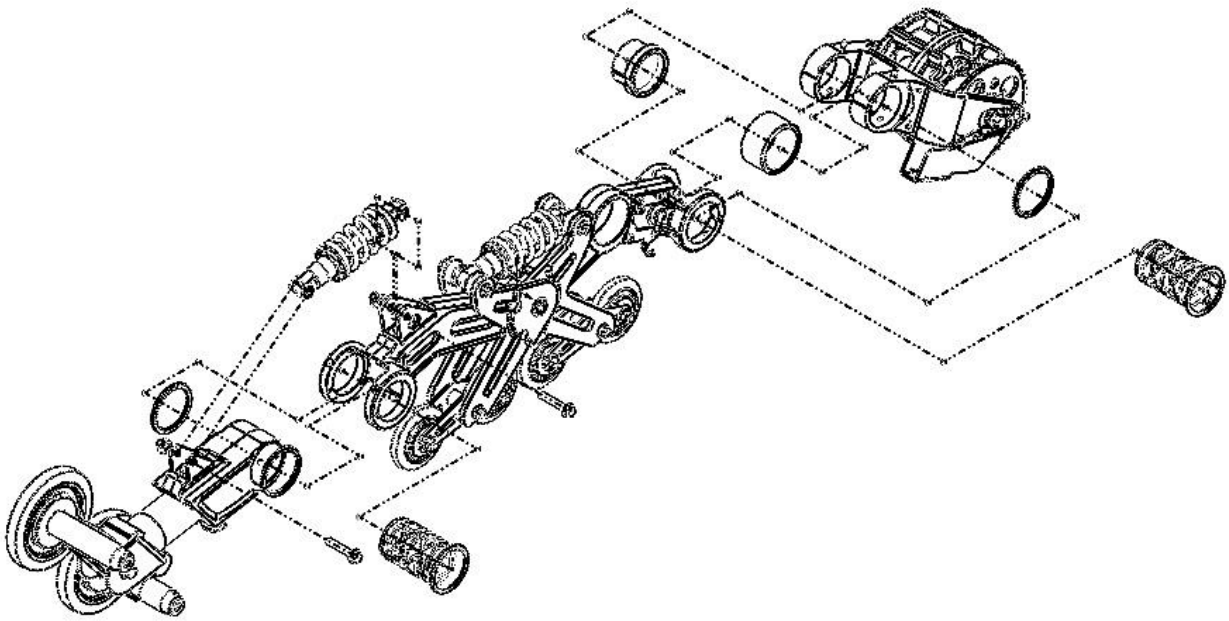
Front Deck Pivot:



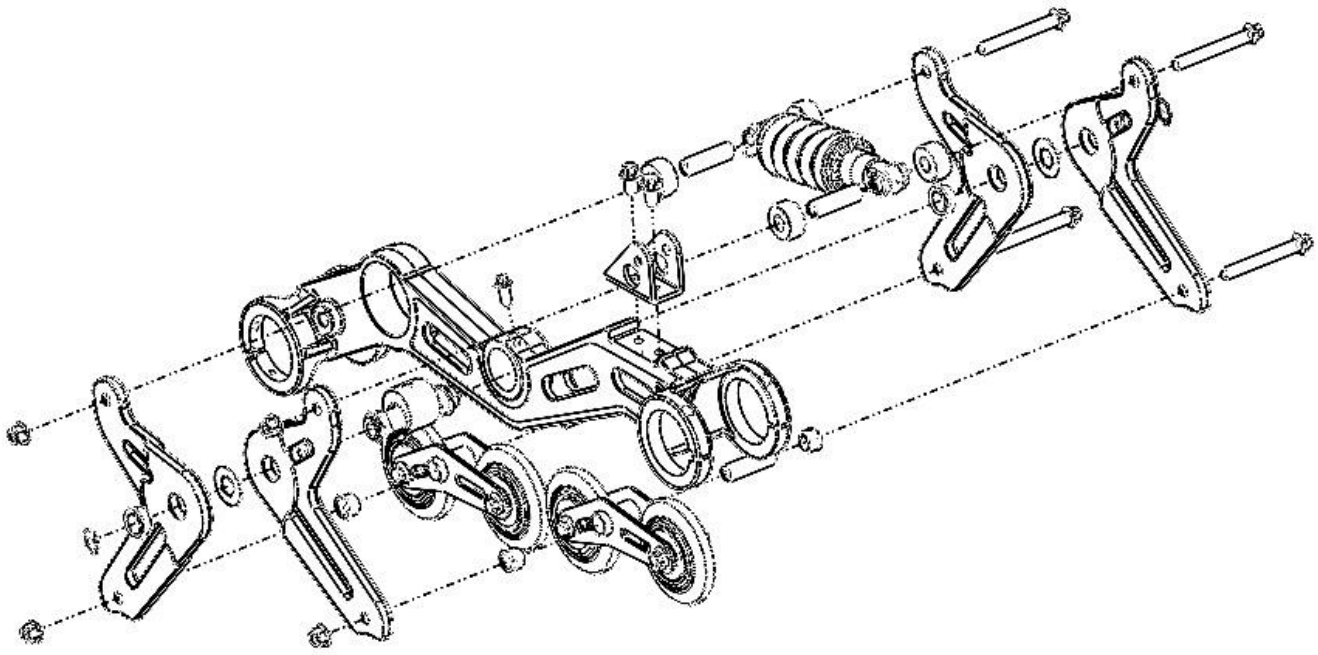
1.4.6. Subframes

Left Side

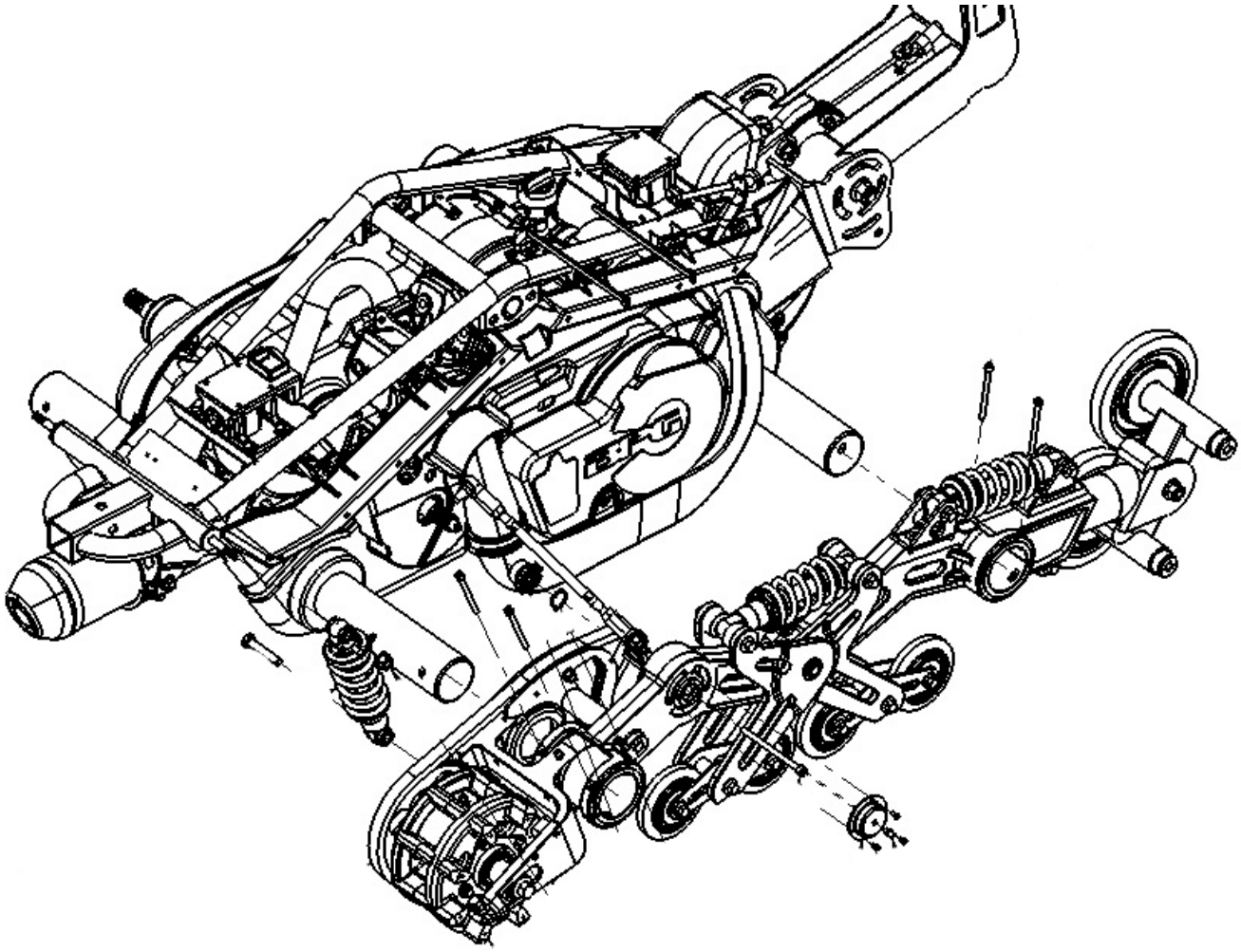


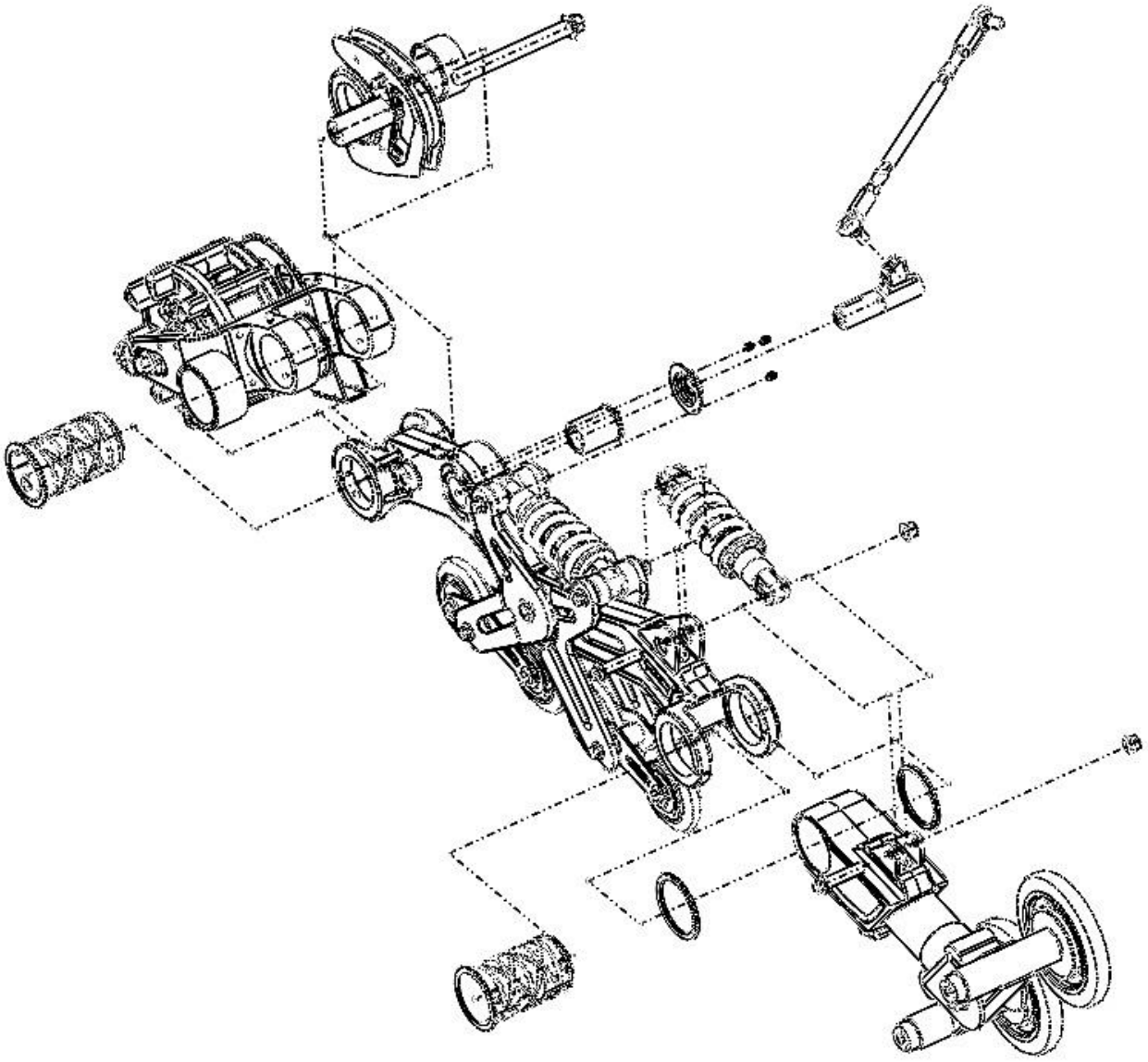


Left Side – Middle Suspension Sub-Assembly

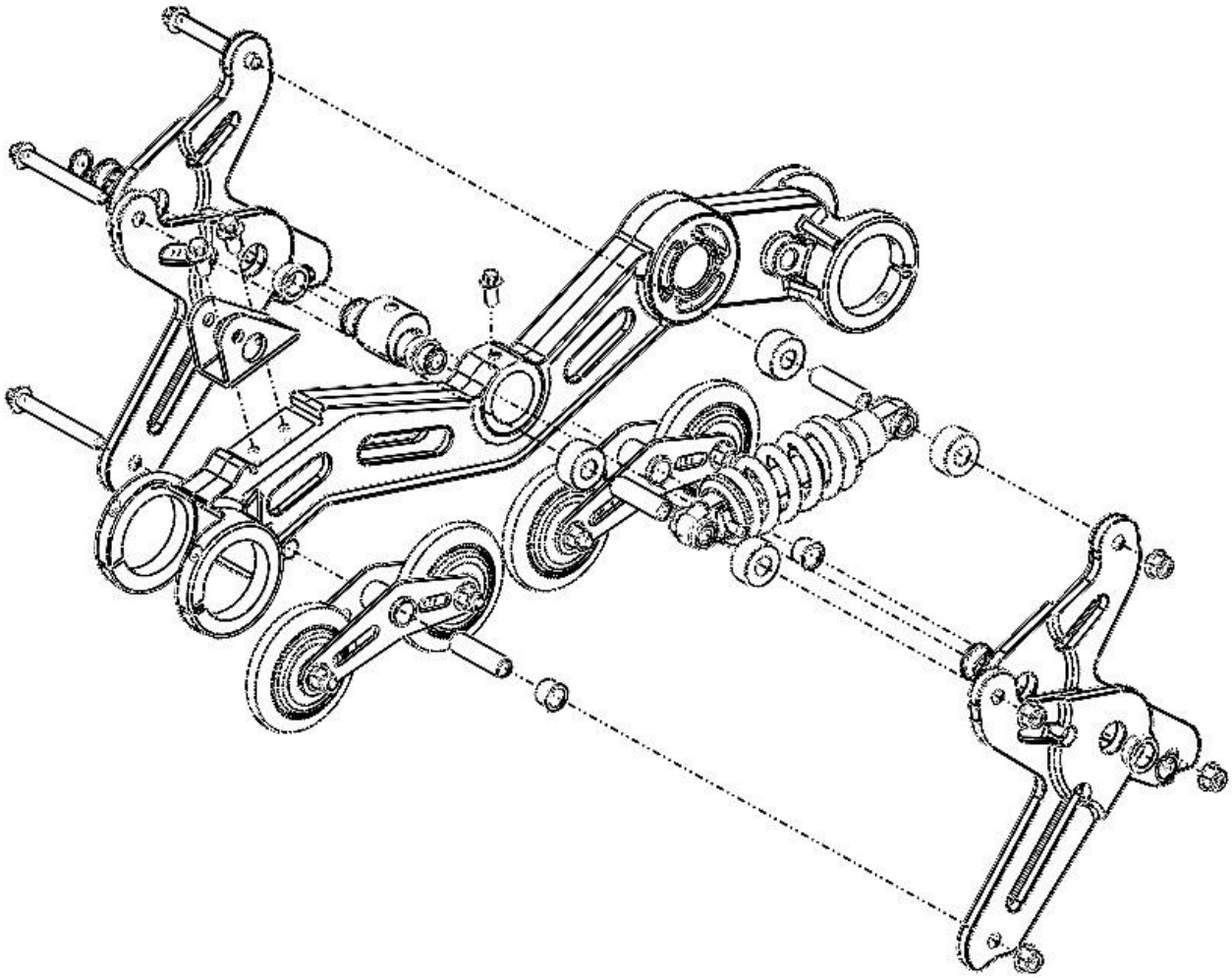


Right Side

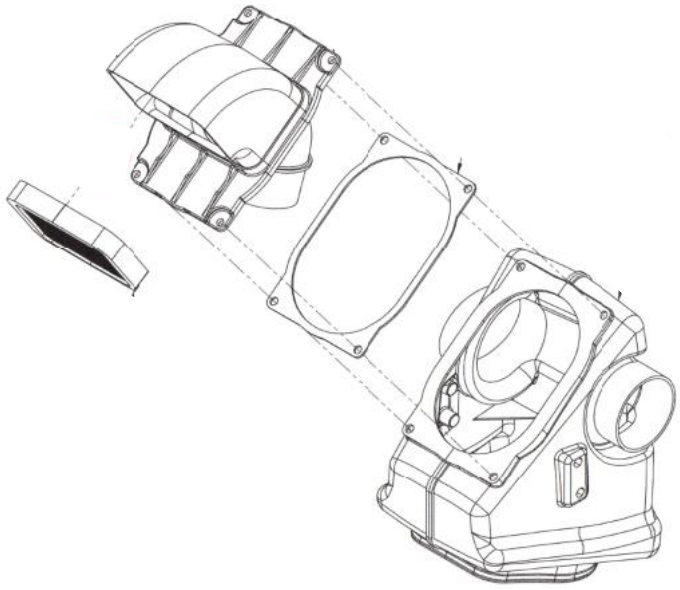


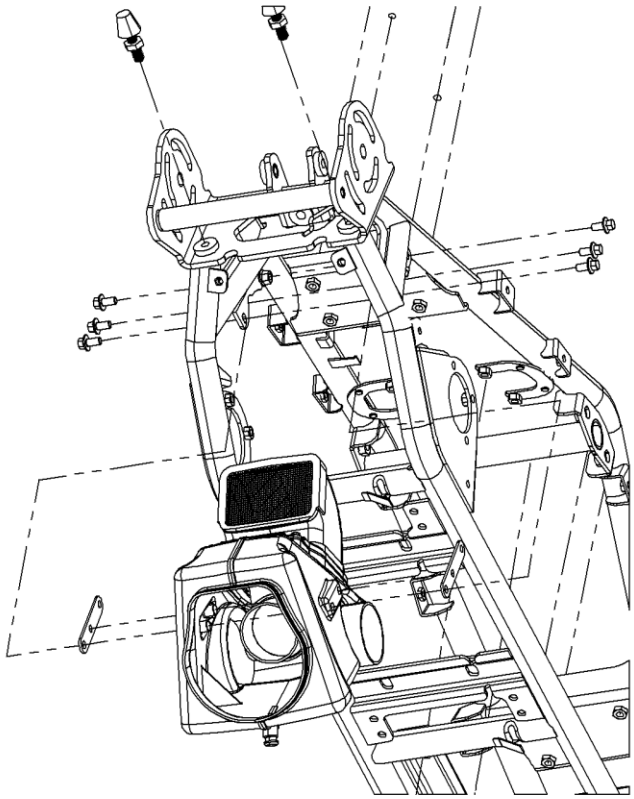


Left Side – Middle Suspension Sub-Assembly

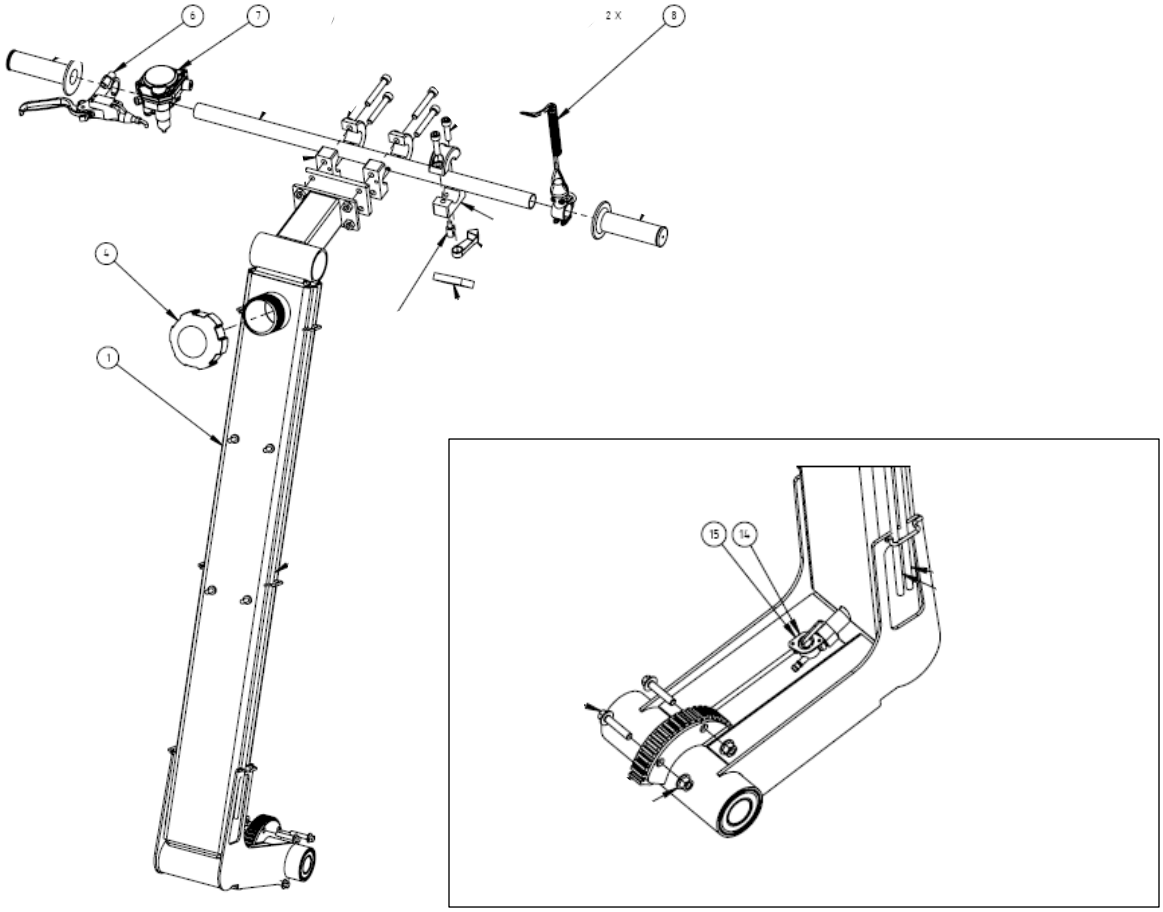


1.4.7. Airbox





1.4.8. Handle



#	Name
1	Gas Tank
4	Gas Cap
6	Brake Lever
7	Throttle Housing
8	Engine Kill-Switch Lanyard
14/15	Fuel Petcock

2. General Maintenance

2.1 Maintenance Schedule

I = INSPECT & CLEAN/ADJUST/REPLACE/TIGHTEN AS NECESSARY **L** = LUBRICATE **R** = REPLACE **DS** = DEALER SERVICE						
ITEM	**BEFORE EACH RIDE**	**FIRST 5 HRS OF USE**	**EVERY 10 HRS OR 3 MONTHS**	**EVERY 50 HRS OR 6 MONTHS**	**EVERY 100 HRS OR 1 YEAR**	**REMARKS**
GENERAL						
TRACKS	I				R	Replace if tears or other damage is visible
TRACK DRIVE SPROCKETS	I			R		Replace if any part of the track drive sprocket is broken, damaged, or severely worn
TRACK DRIVE SPROCKET HUB-MOUNTING BOLTS	I			R		These should be tightened periodically because are clamping plastic under high loads
BRAKE LEVER FREE PLAY	I					Ensure brake lever has proper action to engage brakes fully
BRAKES PADS/ROTORS						Note: the left side pads and rotor are more exposed to the elements and may wear out quicker
BRAKE LINES/FLUID LEVEL				R		Be sure to check the splitter T-connection is not leaking fluid
CHAINS/SPROCKETS/PINIONS	I/L			R		See chain/sprocket replacement section
CHAIN GUIDE ASSEMBLIES	I/L			R		Ensure the idle sprocket is securely fit to and running smoothly on the bearing, otherwise replace entire assembly
FASTENERS	I	I				
AIR FILTER		I			R	
AIRBOX DRAIN TUBE			I			It is critical that this drain tube and its plug are reinstalled after being emptied
AIRBOX SCREEN	I					Ensure intake cover screen is present and secure
HANDLE TOOTH-LOCK MECHANISM	I		L		R	Check for full engagement of teeth. Both top and bottom half should be replaced as a pair if any teeth are broken, damaged or worn
HANDLE LOCK & THROTTLE CABLES	I		L			Ensure cable had smooth action and returns naturally
HANDLE LOCK BOLT	I			R		Ensure this is tight
DECK				I		Check for cracks forming under the stomp pads
FUEL TANK & LINES	I					Check for leaks. Reinstall or replace if necessary
STEERING LINKAGE	I					Ensure steering performance is not degraded over time. If necessary, tighten all fasteners in deck pivot assemblies, steering linkage system, and steering knuckle cavity end caps
SHOCKS (+FASTENERS)	I					Ensure spring preload collars and all mounting fasteners are tight
THROTTLE CABLE	I		L			Ensure cable had smooth action and returns naturally. Ensure enough free play so throttle is not opened when handle folded down
STEERING ROD BUSHING	I		L		R	Check for wear. Replace if necessary
STEERING ROD NEEDLE BEARINGS				I	R	

STEERING KNUCKLE BUSHING			I			Check anti-rotate set screw is tight, and no rotation in bushing.
FUEL FILTER				R		If filter is removed, ensure it is re-installed in the same orientation, or replace if unsure
BOGIE WHEELS/BEARINGS			I			Check behind covers and remove build-up
GREASE FITTINGS			L			
MIDDLE SUSPENSION MAIN PIVOT BUSHINGS			I	R		Check side to side play of the middle suspension assembly and ensure scissor-arms are not scraping against Engine intake duct
ENGINE						
ENGINE OIL LEVEL	I					
ENGINE OIL		R	R			600 ml 5W-30 full synthetic oil
CRANKCASE VENTILATION TUBE			I			
CARBURETOR FLOAT BOWL				I		
CARBURETOR					R	
VALVE CLEARANCE		I	I		DS	
SPARK PLUG		I	I		R	
IDLE SPEED	I					Idle speed 2000 +/- 100 rpm
AIR INTAKE DUCT SYSTEM	I					Check all connections are secure
CRANKSHAFT					R	
CAMSHAFT					R	
CONNECTING ROD					R	
PISTON (+RINGS)					R	
CYLINDER HEAD ASSEMBLY					R	
PCV VALVE		I	I			Inspect filter with each oil change
IGNITION COIL GAP				I		
TRANSMISSION						
TRANSMISSION BELTS				I	R	
TRANSMISSION CASE GASKET				R		
DRIVER SHEAVES				R		Replace when deformation is present on the roller weight ramp surfaces
ALL OTHER SHEAVES				I	R	
STEERING ROD				I	R	Replace when wear is present at needle bearing or bushing running surfaces
TRANSMISSION CASE DRAIN PLUG	I					Remove drain plug to ensure no liquid present after riding in rain, or after washing.
TRANSMISSION CASE				I		Remove any debris build-up inside case
AIR INTAKE DUCT SYSTEM	I		L			Apply grease to all air duct connections and check they are securely fastened
ITEM	**BEFORE EACH RIDE**	**FIRST 5 HRS OF USE**	**EVERY 10 HRS OR 3 MONTHS**	**EVERY 50 HRS OR 6 MONTHS**	**EVERY 100 HRS OR 1 YEAR**	**REMARKS**

I = INSPECT & CLEAN/ADJUST/REPLACE/TIGHTEN AS NECESSARY **L =** LUBRICATE **R =** REPLACE **DS =** DEALER SERVICE

2.2 Standard torque values

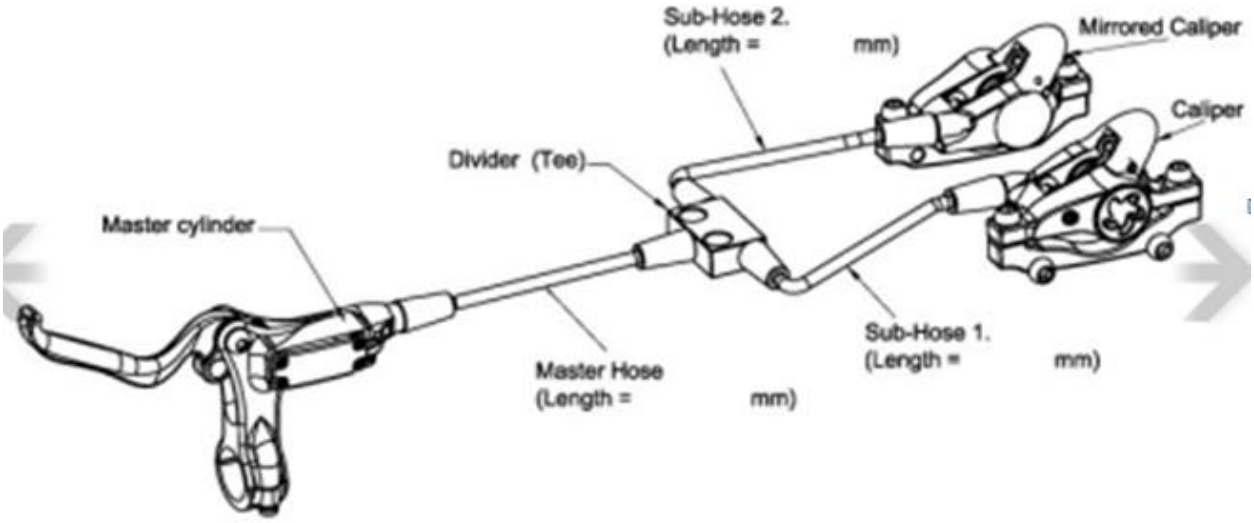
FASTENER TYPE	TORQUE (N-m, lbf-ft)
5mm HEX BOLT & NUT	6 N-m, 4.5 lbf-ft
6mm HEX BOLT & NUT	10 N-m, 7.5 lbf-ft
8mm HEX BOLT & NUT	25 N-m, 18 lbf-ft
10mm HEX BOLT & NUT	50 N-m, 37 lbf-ft
12mm HEX BOLT & NUT	85 N-m, 63 lbf-ft
5mm SCREW	6 N-m, 4.5 lbf-ft
6mm SCREW	10 N-m, 7.5 lbf-ft
8mm SCREW	25 N-m, 18 lbf-ft

2.3 Specific torque values

FASTENER	SIZE	QTY	TORQUE N-m (lbf-ft)
ENGINE			
CRANK BOLT	M10	1	40 (30)
UPPER ENGINE MOUNT NUTS	M8	4	30 (22)
LOWER ENGINE CRADLE MOUNT SCREWS	M8	4	30 (22)
EXHAUST HEADER ATTACHMENT NUTS	M8	2	25 (18)
TRANSMISSION			
TRANSMISSION CASE MOUNTING SCREWS	M8	4	30 (22)
STEERING LINKAGE			
STEERING KNUCKLE CAVITY END CAP SCREWS	M3	6	1 (0.7)
STEERING SENSITIVITY ADJUSTMENT WHEEL SCREWS	M6	2	10 (7.5)
STEERING ROD END SCREW	M6	1	10 (7.5)
STEERING TIE-ROD JAM NUTS	M8	2	25 (18)
CHASSIS			
HANDLE BAR YOKE BOLTS	M8	4	30 (22)
HANDLE LOCK BODY BOLT/NUTS	M8	3	30 (22)
HANDLE LOCK ARM BOLT	M8	1	30 (22)
FRONT SHOCK MOUNT BRACKET SCREWS	M8	4	30 (22)
BALL-JOINT STUD	M8	2	25 (18)
REAR SHOCK MOUNT NUTS	M8	4	30 (22)
REAR DECK-PIVOT MOUNTING SCREWS	M8	4	30 (22)
FRONT BOGIE WHEEL LUG BOLTS	M10	8	40 (30)
FINAL DRIVE			
CHAIN DRIVE SPROCKET HUB-MOUNTING BOLT/NUTS	M6	8	10 (7.5)
TRACK DRIVE SPROCKET HUB-MOUNTING BOLT/NUTS	M6	8	10 (7.5)

2.4 Vehicle System Maintenance

2.5.1. Brake Pads/Fluid

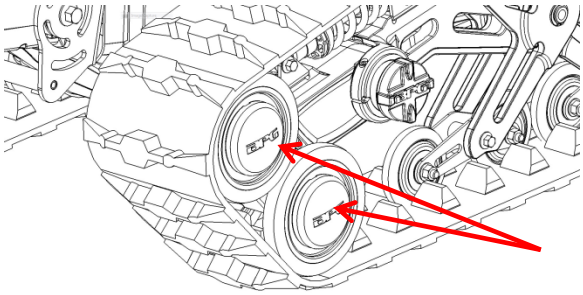


Use only DOT 4.0 or DOT 5.1 brake fluid.

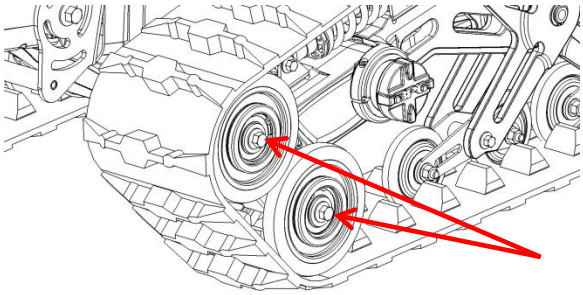
2.5.2. Tracks

Track Removal:

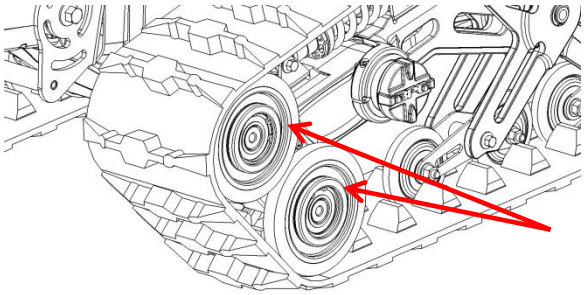
1. Remove 2 front bogie wheel caps



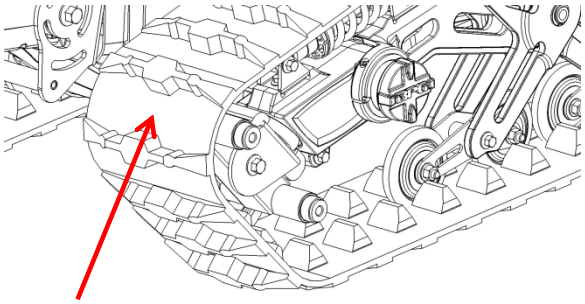
2. Remove 2 front outer bogie wheel screws



3. Pull off 2 front outer bogie wheels



4. Pull track off front inner bogie wheels first, then remove completely



Track Installation:

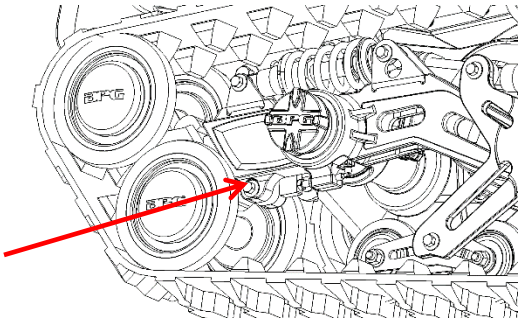
Install tracks in reverse order of removal.

- Ensure drive lugs on inside of track are properly engaged in Track Drive Sprocket
- Ensure track is sitting correctly on upper and lower bogie wheels
- Push front of track onto 2 front inner Bogie Wheels
- Rotate the track slightly while pushing front end on will help it slide onto bogie wheels
- Reinstall front outer Bogie Wheels
- Spray inside surface of tracks with an automotive tire shine product to reduce the friction with the Bogie Wheels and improve performance

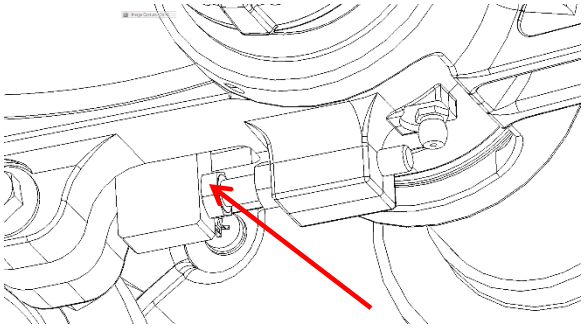
Adjusting Track Tension:

NOTE: proper track tension is not a precise science. If the track is too loose it will derail during hard turning. If it is too tight it will rob too much power from the Engine

1. Unclamp front Swingarm



2. Turn adjustment screw until track reaches proper tension



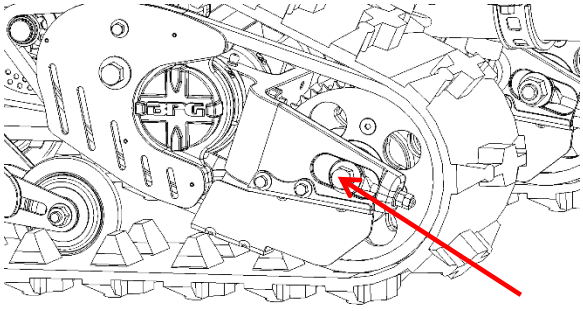
3. Re-clamp front Swingarm

NOTE: a good indicator of appropriate track tension is to wiggle the front upper section (between the front and upper bogie wheels) up and down by hand. The range of motion should be from 20-30mm without too much effort.

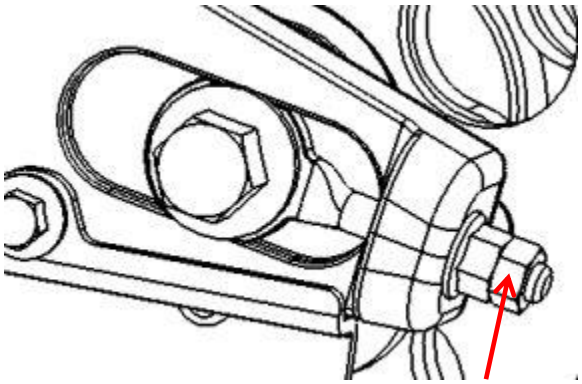
2.5.3. Chains

Chain Tension

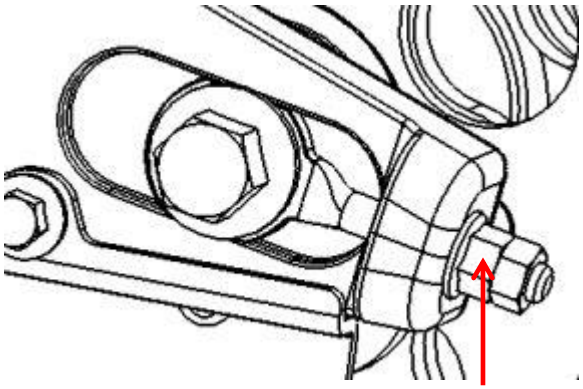
1. loosen axle bolt



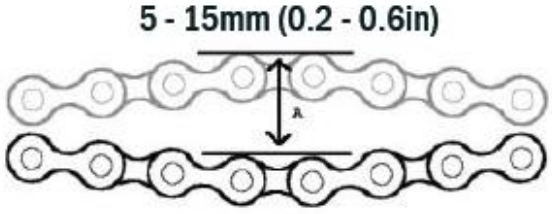
2. loosen lock nut



3. adjust tension nut to increase or decrease chain tension.



4. The chain slack should be between 5 – 15mm (0.2 – 0.6in)

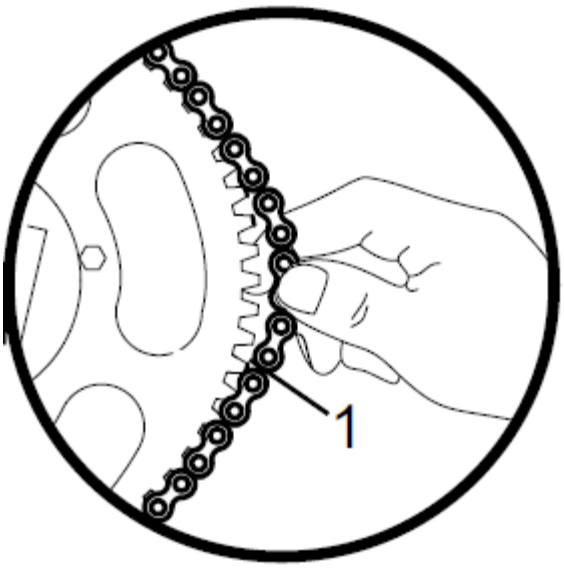


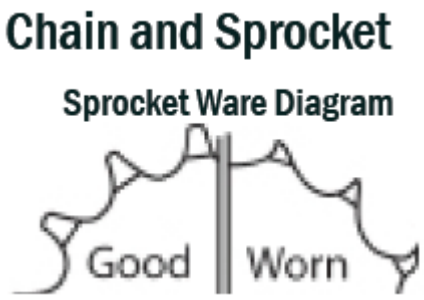
5. re-tighten lock nut

Chain/Sprocket Inspection

Inspect the drive chain for wear, rust, bound links, proper lubrication and tension. Inspect the sprocket and pinion for worn, broken or damaged teeth. Replace chain and sprocket together if there is a problem with either.

Hold the chain at the farthest rear point of the sprocket at pull as shown. If the chain can be pulled higher than the teeth of the sprocket then replace the chain, sprocket, and pinion.





2.5.4. Throttle Freeplay

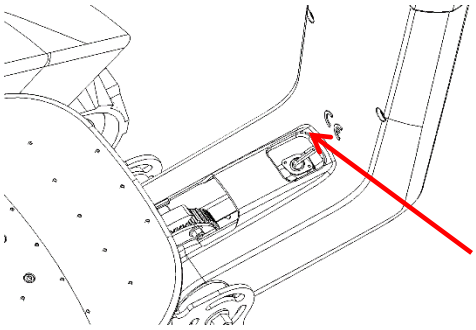
1. Remove handle covers
2. Loosen jam nut on throttle cable housing end
3. Adjust long nut (screw in to increase free play, screw out to decrease free play)
4. Tighten jam nut
5. Replace covers

Note: Make sure throttle snaps back to idle when throttle lever is released.

Note: The thumb throttle should have 2 - 4mm (0.08”-0.16”) of free play.

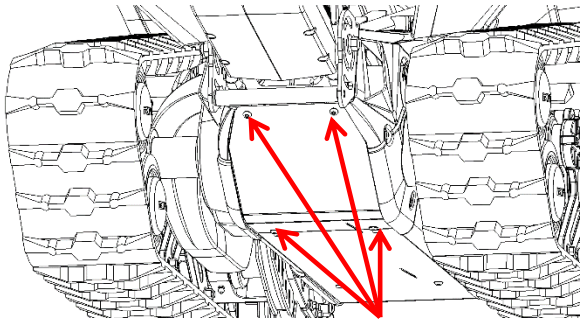
2.5.5. Air Filter

1. Turn off fuel petcock

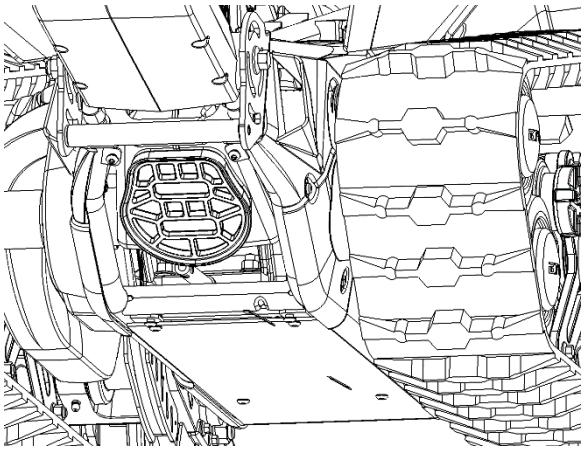


2. Tip machine on its side (preferably left side down) so fuel can not flow into Engine air intake duct), or raise up to allow access to the front skid plate

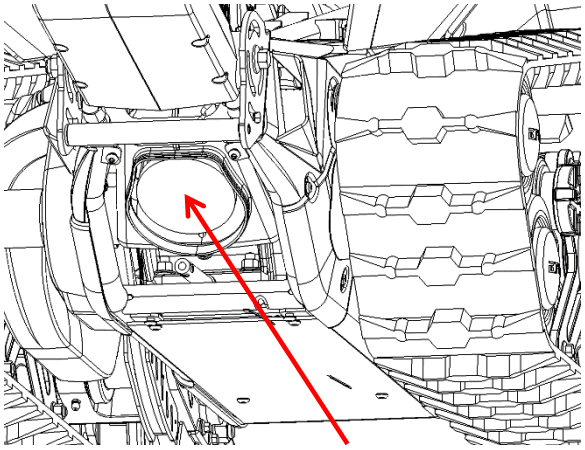
3. Remove front skid plate screws (x4)



4. Pull off rubber airbox cap



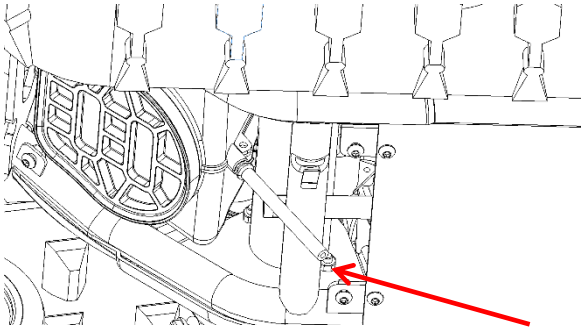
5. Reach into airbox and pull off air filter



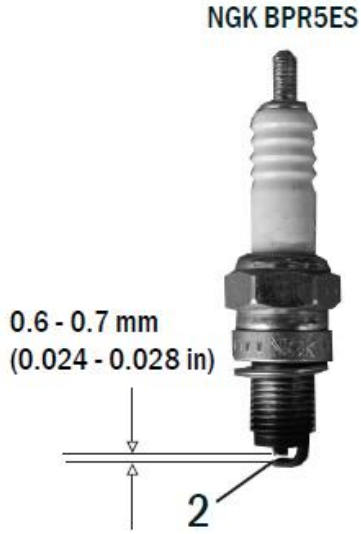
6. Inspect air filter and foam pre-filter for excessive trapped dust and dirt
7. If filters are dirty clean air filter with water, flushing it from the inside, and then blow dry from the inside with compressed air. Clean the foam pre-filter using air filter cleaner and reapply

foam filter-oil before slipping it back over the air filter

8. Inspect Airbox for cracks or leaks and repair or replace if necessary
9. Reinstall air filter and reassemble machine in reverse order
10. Drain the airbox drain tube if necessary, and ensure it is securely fastened to the airbox, with the plug completely inserted in the open end when replaced



2.5.6. Spark Plug



Spark Plug

This DTV comes equipped with an NGK BPR5ES spark plug.

To inspect the spark plug, remove the plug cap then remove the spark plug from the engine.

Inspect the plug for carbon deposits and clean if necessary. If plug shows excessive carbon, replace the plug.

CAUTION

Dirt can damage the engine if it enters the spark plug hole.

Make sure the spark plug hole is covered after removing plug.

MAINTENANCE

Use a thickness feeler to inspect the spark plug gap (2). The spark plug gap should be 0.6 - 0.7mm (0.024 - 0.028 in.)

Re-install the inspected plug or new plug until finger tight. Finish tightening plug with a wrench. If the plug is a new plug, tighten approximately 1/2 turn more with the wrench. If plug is an old plug, tighten approximately 1/8 turn more with a wrench.

2.5.7. Idle Speed Adjustment

Idle speed adjustment

The idle speed should be set at 2000 ± 200 RPMs

To adjust the idle speed:

1. locate the idle adjustment (silver finger knob) located on the Right hand side of the vehicle just under the deck.

2. Allow the engine to warm up approximately 10 minutes

3. With the engine running, turn the idle adjustment knob in or out at small increments until the correct idle is achieved.

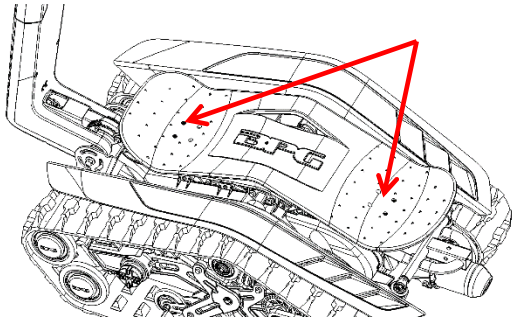
Note: A service center can perform this adjustment . A diagnostic tachometer is required for this adjustment.

2.5.8. Engine Oil

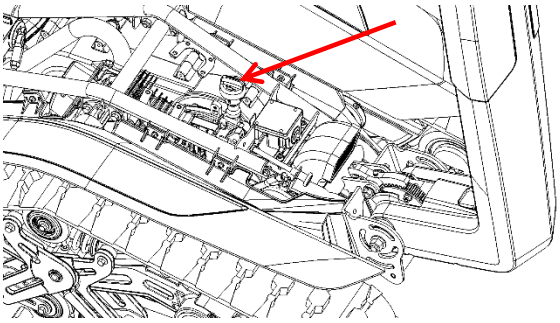
1.4.4.

Engine oil level should be checked before each ride, or minimum every 5 hours of operation. It should be replaced every 10 hours of operation, or 3 months, whichever comes first. Use 5w-30 full synthetic oil.

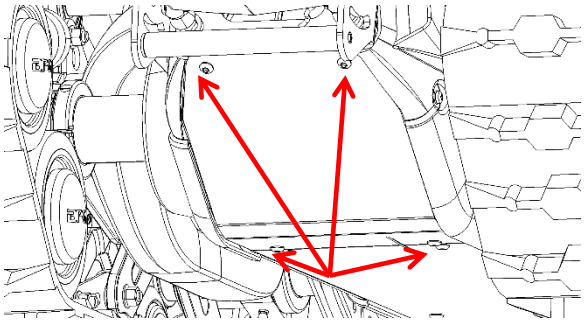
1. Remove deck (8 screws)



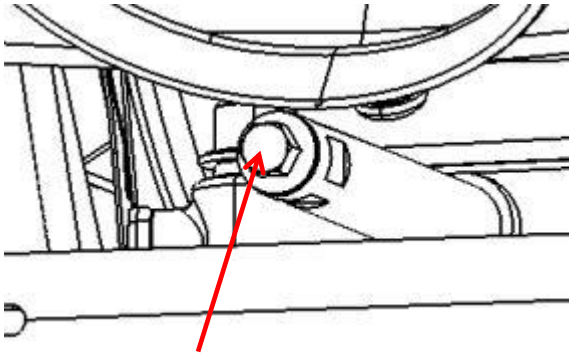
2. Twist off and pull out oil dipstick, wipe with a clean rag and re-insert. Remove again and check oil level and cleanliness.



3. If oil level is low, add more to within the hatched section on the end of the dipstick. If oil is dirty and needs to be replaced
4. To drain Engine oil remove the front skid plate (4 screws). Raising the machine up a little by supporting it under the tracks or hoisting it by the upper frame rails might make this easier.



5. Place an empty container underneath crankcase drain tube to catch the oil. Be sure it is large enough to hold up to 600ml of oil.
6. Remove crankcase drain tube threaded plug (be sure to hold the drain tube with a wrench so that it does not rotate with the threaded plug), and allow to drain for a few minutes. Tilting the machine forward by a few degrees may help to get the most oil to flow out.



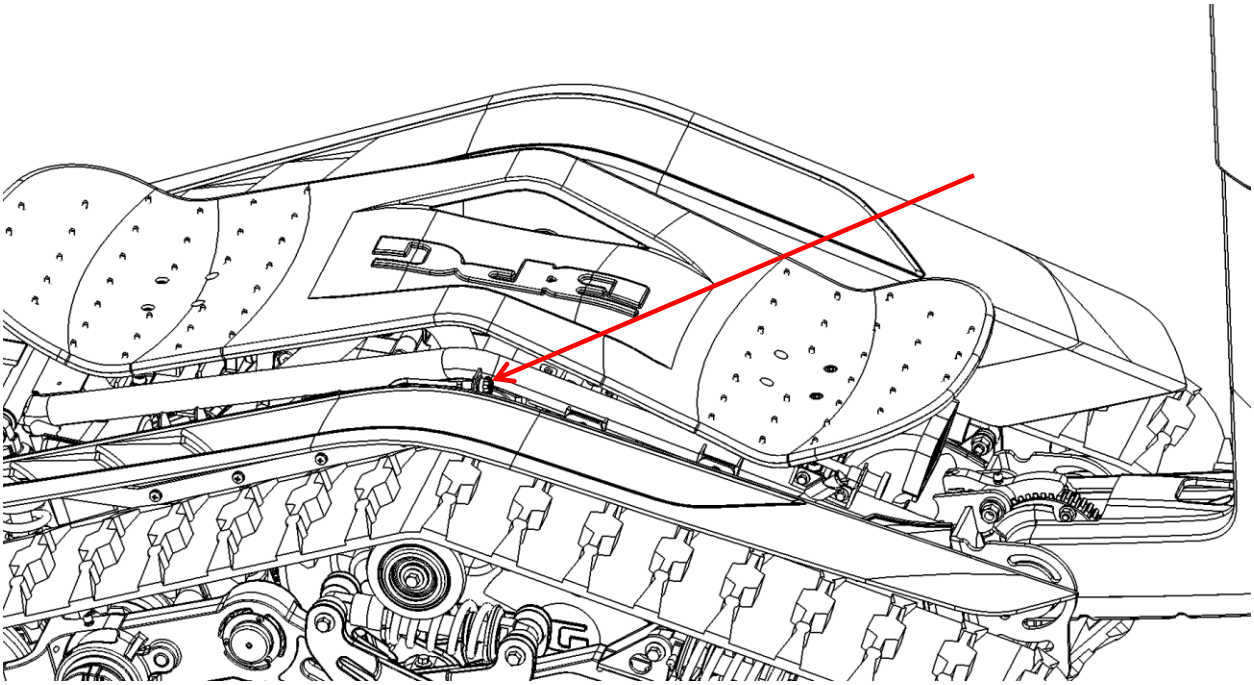
7. Replace threaded plug using a new crush washer.
8. Fill Engine with 600ml of 5w-30 full synthetic oil, verify level using dipstick, and reassemble machine in reverse order.

2.5.9. Carburetor Climate Adjustment

The jets in the Carburetor are sized for efficiency for approximately 20 degree Celsius ambient temperature and sea level. They may need to be changed for other climates or altitudes. See Carburetor section under Engine service chapter for instructions on how to replace jets.

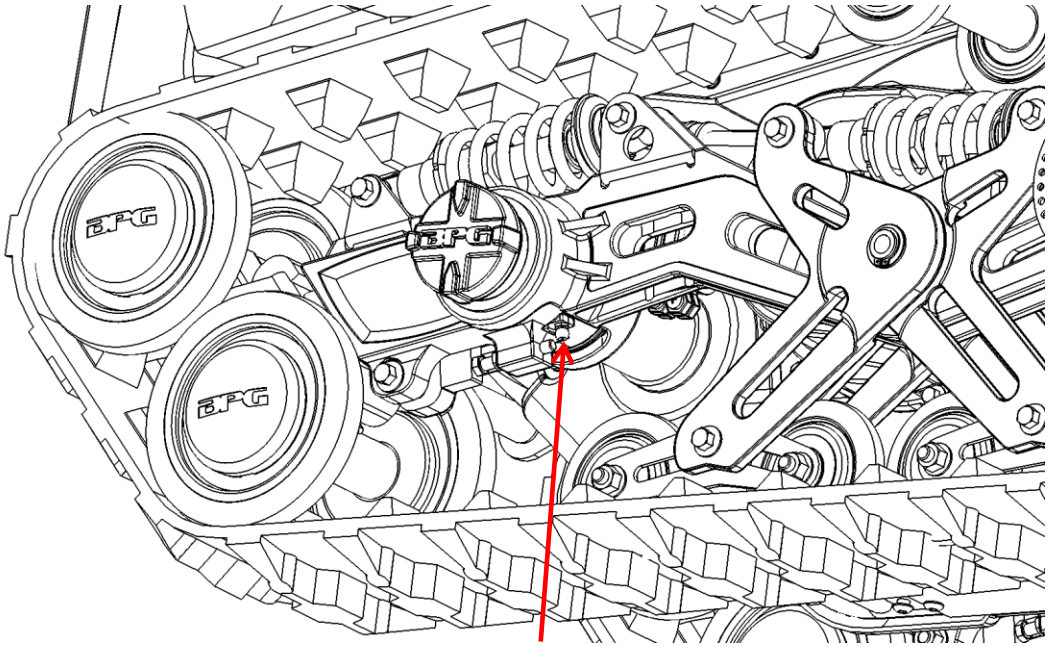
2.5.10. Engine Idle speed

Engine idle speed is adjusted with the silver finger-knob on the right side of the machine

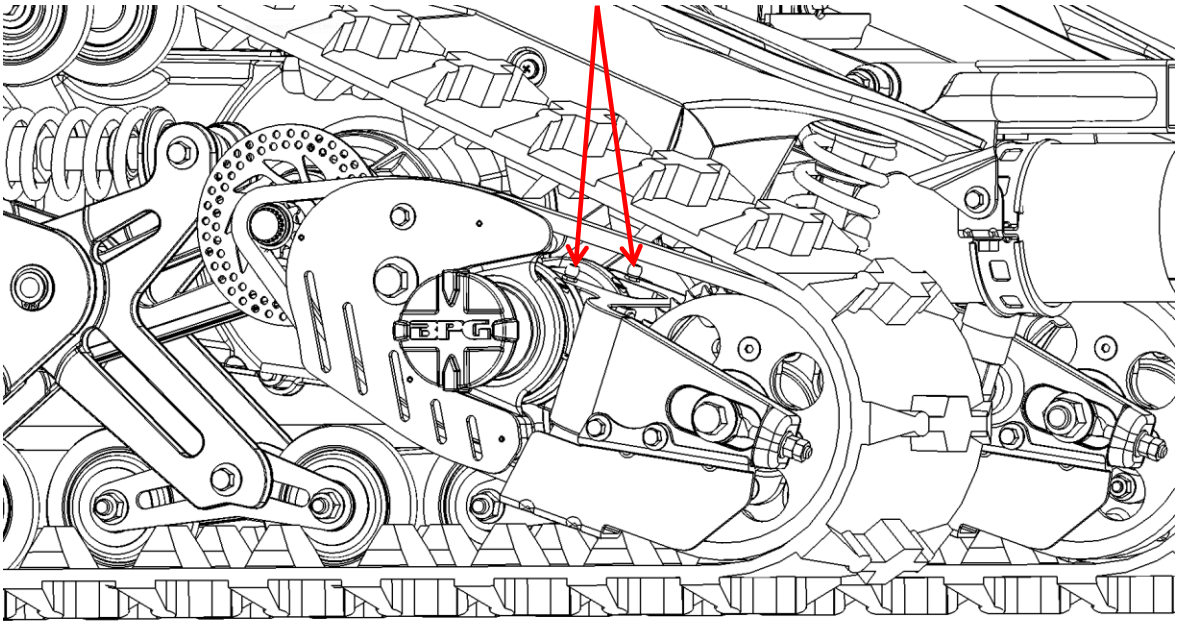


2.5.11. Lubrication and seal points

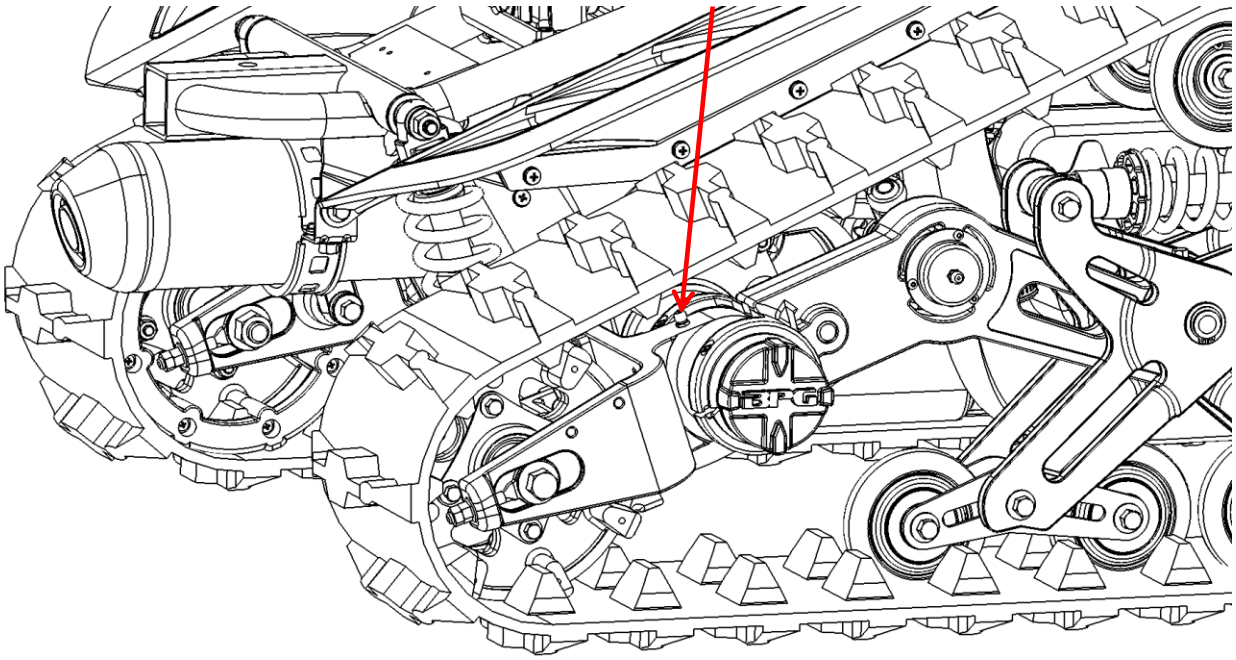
Front Swingarms:



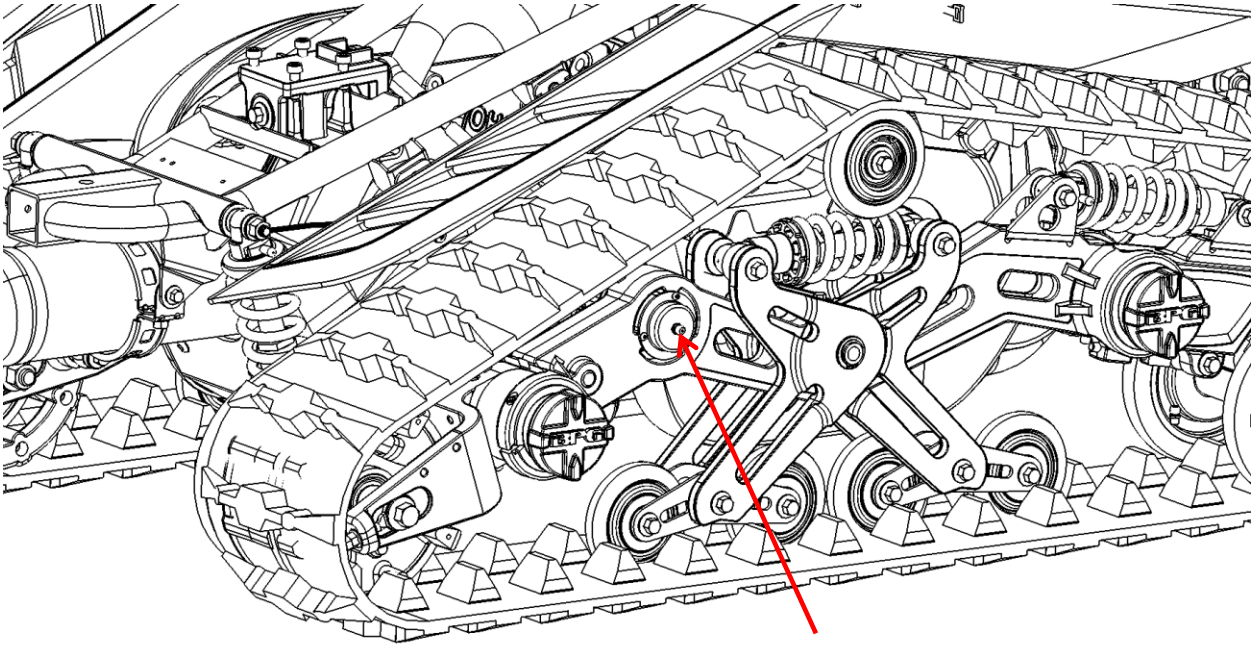
LH Rear Swingarm:



RH Rear Swingarm:



Steering Knuckle:



2.5.12. Battery

Type: 12v Lead-Acid Battery

WARNINGS!

The battery will fire, explode or leak if not strictly observing this item described below.

- Do not immerse the battery in water or seawater, and keep the battery in a cool dry environment during stands by period.
- Do not mix using the battery with one-off battery (such as dry battery) or different performance together.
- Keep all batteries out of the reach of little children. Consult a doctor immediately if a battery is swallowed.
- Do not use or leave the battery near a heat source such as fire or heater.
- When re-charging , use the battery charger specifically for that purpose.
- Do not reverse the positive (+) and negative (-) terminals.
- Do not connect the battery to an electrical outlet.
- Do not dispose the battery in fire or heat.
- Do not short-circuit the battery by directly connecting the positive (+) and negative (-) terminals with metal objects such as wire.
- Do not transport or store the battery together with metal objects such as necklaces, hairpins etc.
- Do not strike or throw the battery against hard surface.
- Do not directly solder the battery .
- Dot not pierce the battery with a nail or other sharp object.
- Never disassembling the battery in any way.

CAUTIONS!

- Do not use or leave the battery at very high temperature (for example, at strong direct sunlight or in a vehicle in extremely hot weather). Otherwise, it can overheat or fire or its performance will be degenerate and its service life will be shortened.
- Do not use it in a location where static electricity is rich, otherwise, the safety devices may be damaged, causing a harmful situation.
- In case the electrolyte getting into the eyes due to the leakage of battery, do not rub the eyes! Rinse the eyes with clean running water, and seek medical attention immediately. Otherwise, it may injure eyes or cause a loss of sight.
- If the battery gives off an odor, generates heat, becomes discolored or deformed, or in any way appear abnormal during use, recharging or storage, immediately remove it from the device or battery charger and place it in a contained vessel such as a metal box.
- In case the battery terminals are contaminated, clean the terminals with a dry cloth before use. Otherwise power failure or charge failure may occur due to the poor connection between the battery and the electronic circuitry of the instrument.
- Be aware discarded batteries may cause fire, 100%discharged the battery and tape the battery terminals to insulate them before disposal.

3. Service

3.1 General Information

PREPARATION FOR REMOVAL PROCEDURES

1. Remove all dirt, mud, dust and foreign material before removal and disassembly.
2. Use proper tools and cleaning equipment.
3. When disassembling the machine, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been "mated "through normal wear. Mated part must always be reused or replaced as an assembly.
4. During machine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.

REPLACEMENT PARTS

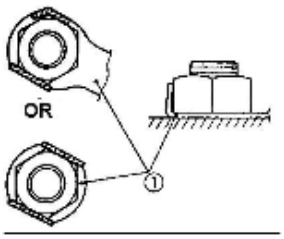
Use only genuine parts for all replacements. Use recommended oil and grease for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

GASKETS,OIL SEALS AND O-RINGS

1. Replace all gaskets seals and O-rings when overhauling the engine. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.

LOCK WASHERS/PLATES AND COTTER PINS

Replace all lock washers/plates and cotter pins after removal. Bend lock tabs along the bolt or nut flats after the bolt or nut has been tightened to specification.



BEARINGS AND OIL SEALS

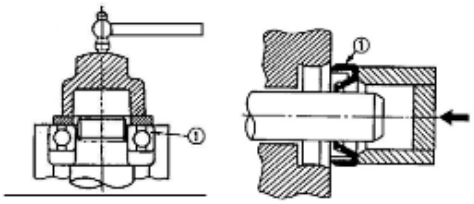
Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, apply a light coating of lightweight lithium base grease to the seal lips. Oil bearings liberally when installing, if appropriate.

① oil seal

CAUTION:

Do not use compressed air to spin the bearings dry. This will damage the bearing surfaces.

① Bearing

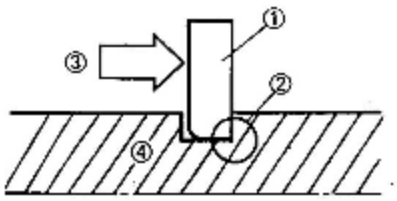


CIRCLIPS

1. Check all circlips carefully before reassembly.

Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip①, make sure that the sharp-edged corner ② is positioned opposite the thrust ③ it receives. See sectional view.

④Shaft



CHECKING OF CONNECTIONS

Dealing with stains, rust, moisture, etc. on the connector.

1. Disconnect:
   - ●Connector
2. Dry each terminal with an air blower.
3. Connect and disconnect the connector two or three.
4. Pull the lead to check that it will not come off.
5. If the terminal comes off, bend up the pin ① and reinset the terminal into the connector.
6. Connect:
   - Connector

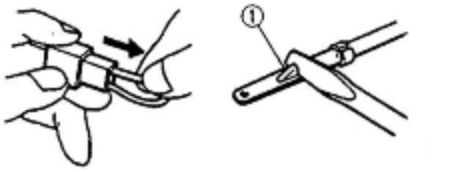
NOTE:

The two connectors " click " together.

7. Check for continuity with a tester.

NOTE:

- If there is no continuity, clean the terminals.
- Be sure to perform the steps 1 to 7 listed above when checking the wire harness.
- Use the tester on the connector as shown.



WARNING

Never run an engine in an enclosed area. Carbon monoxide exhaust gas is poisonous and can cause severe injury or death. Always start engines outdoors.

Gasoline is extremely flammable and explosive under certain conditions. Battery electrolyte is poisonous. It contains sulfuric acid. Serious burns can result from contact with skin, eyes or clothing. Always keep alert and wear protection..

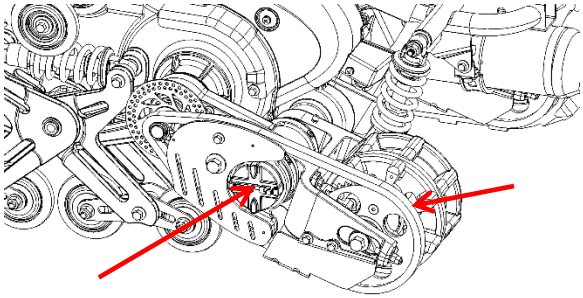
Exhaust system components are very hot during and after use of ATV. Never service when the engine is warm or hot. Escaping steam from cooling system or hot oil from the machine can cause severe burns. The engine must be cool before service.

Crate of the ATV and parts in the ATV maybe have sharp edge, always pay attention and wear protection.

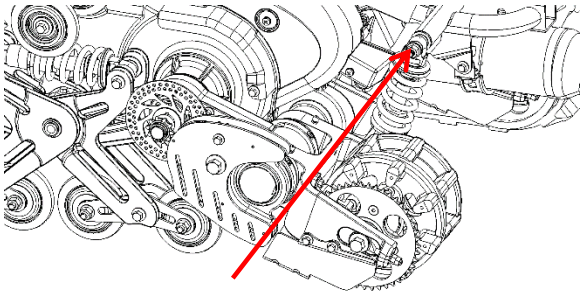
3.2 Subframes – Left Side

Removal: Subframes – Left Side

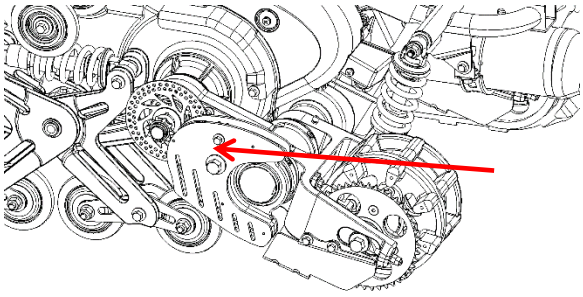
1. Remove track (see section xx)
2. Remove chain (see section xx) and rubber end cap from pivot tube



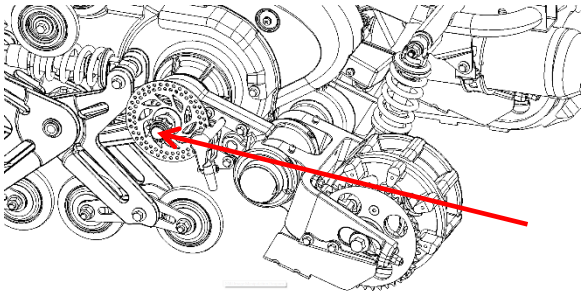
3. Remove upper shock mount bolt



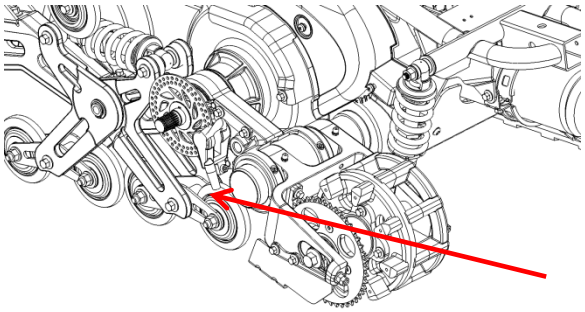
4. Remove chain guide



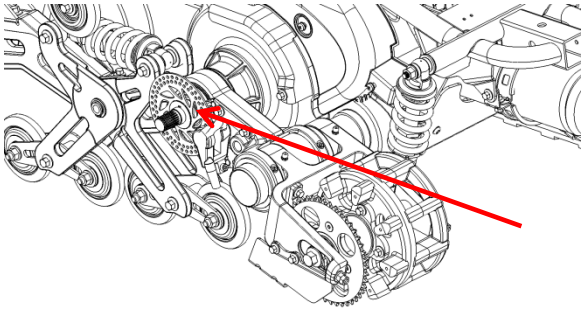
5. Remove chain sprocket circlip and chain sprocket



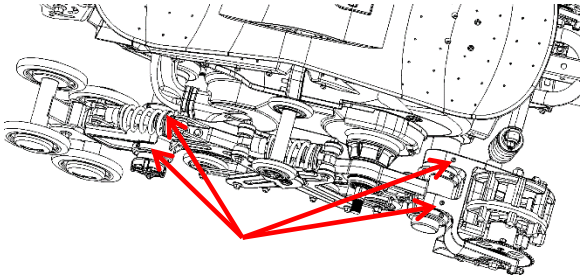
6. Remove brake caliper (2 bolts)



7. Remove brake rotor



8. Remove 4 subframe clamping bolts



9. Remove subframe assembly. Ensure exposed parts of pivot tubes are clean. Pull evenly at both front and rear pivot tube. Do not hammer on parts as they are cast aluminum and can crack. If necessary, remove the shock and place a long wooden block against the lower shock mount and tap it with a mallet while pulling at the front of the subframe simultaneously.

Installation: Subframes – Left Side

Reinstall in reverse order of removal.

Before reinstalling subframe, be sure to:

- Check all fasteners are tight. Pay close attention to:
    - the front shock mounting bracket bolts
    - Track drive sprocket fasteners. Because the track drive sprocket is made of plastic and under high torque loads the fasteners are more prone to loosening. It is a good idea to check and tighten each one.
- Remove and clean all plastic pivot bushings and spacers.
- Apply a thin film of assembly grease on pivot tubes and all plastic pivot bushings and spacers
- Inspect the plastic track drive sprocket for damage
- Clean and inspect the chain sprocket for wear. Replace if necessary (see section xx)
- Clean and lubricate the chain
- Clean the chain guide and idler sprocket assembly and check for excessive wear.
- Check the integrity of the front Swingarm rubber damper pad. Replace if cracked or worn
- Check the shock spring preload collars are tight against the spring
-

Disassembly: Subframes – Left Side

Assembly: Subframes – Left Side

Reverse order of disassembly

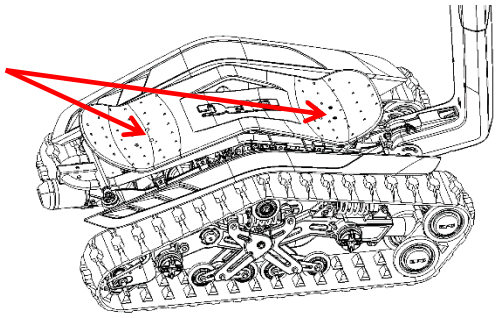
Prior to reassembling, be sure to:

- Clean all parts and inspect for wear and damage
- Replace any broken, worn or damaged parts

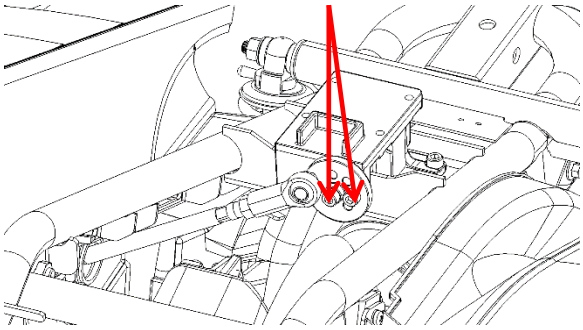
3.3 Subframes – Right Side

Removal: Subframes – Right Side

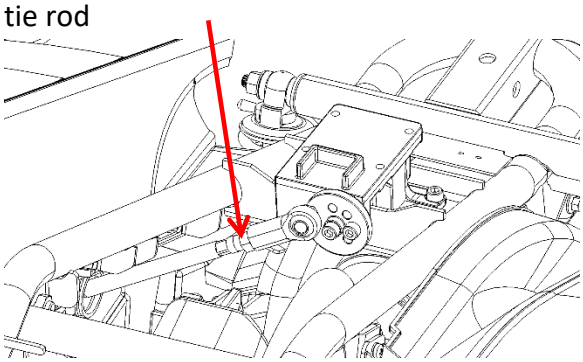
1. Remove deck (8 screws)



2. Unbolt steering adjustment wheel (2 bolts)

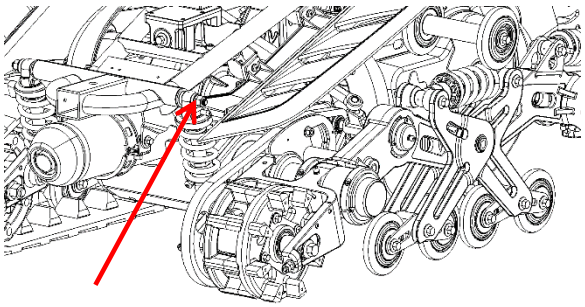


3. Loosen upper tie rod jam nut and unscrew upper ball joint assembly from tie rod

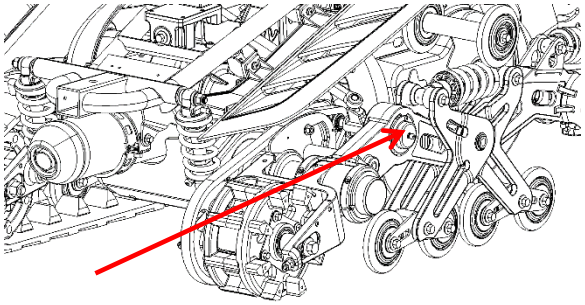


4. Remove right side track (*see Track Removal in General Maintenance Chapter*)

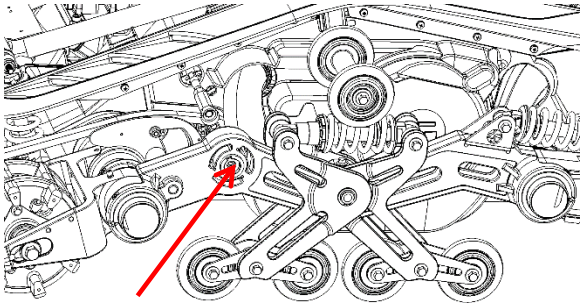
5. Remove upper shock mount nut



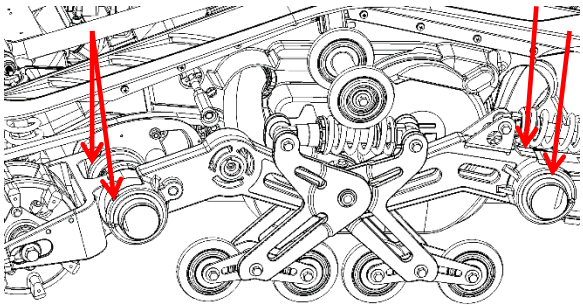
6. Remove steering knuckle cavity outside end cap



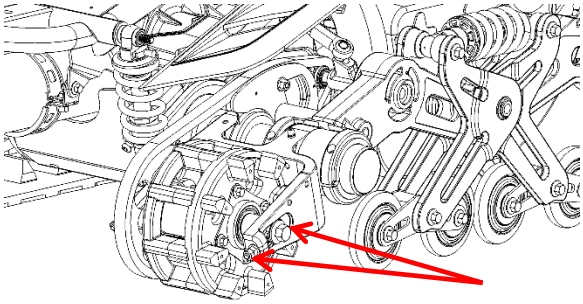
7. Remove steering knuckle bolt



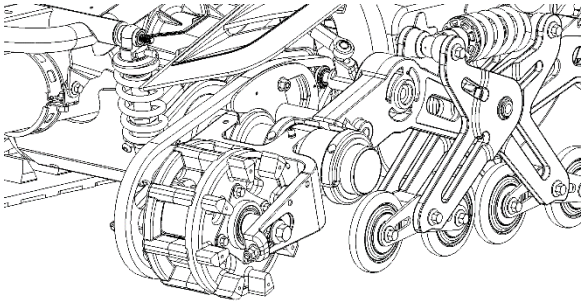
8. Remove 4 subframe clamping bolts



9. Loosen right side Axle nuts and Chain Tensioner nuts



10. Push drive sprocket assembly forward to put slack in the chain, then pull chain forward off pinion and place on outside of pinion



11. Remove subframe assembly. Ensure exposed parts of pivot tubes are clean. Pull evenly at both front and rear pivot tube. Do not hammer on parts as they are cast aluminum and can crack. If necessary, remove the shock and place a long wooden block against the lower shock mount and tap it with a mallet while pulling at the front of the subframe simultaneously.

Installation: Subframes – Right Side

Reinstall in reverse order of removal.

Before reinstalling subframe, be sure to:

- Check all fasteners are tight. Pay close attention to:
    - the front shock mounting bracket bolts
    - the steering knuckle cavity inside end cap. This must be fastened securely, but be sure not to over-torque the 3 screws as they are threaded into aluminum. Follow recommended torque in Torque Specifications section.
    - Track drive sprocket fasteners. Because the track drive sprocket is made of plastic and under high torque loads the fasteners are more prone to loosening. It is a good idea to check and tighten each one.
- Remove and clean all plastic pivot bushings and spacers.
- Apply a thin film of assembly grease on pivot tubes and all plastic pivot bushings and spacers
- Inspect the plastic track drive sprocket for damage
- Clean and inspect the chain sprocket for wear. Replace if necessary (see section xx)
- Clean and lubricate the chain
- Clean the chain guide and idler sprocket assembly and check for excessive wear.
- Check the steering knuckle free play and sliding action (see “Disassembly” for details)
- Check the grease in the steering knuckle cavity for debris. Wipe off and re-grease if necessary
- Check the integrity of the front Swingarm rubber damper pad. Replace if cracked or worn
- Check the shock spring preload collars are tight against the spring

Disassembly: Subframes – Right Side

Assembly: Subframes – Right Side

Reassemble in reverse order of disassembly

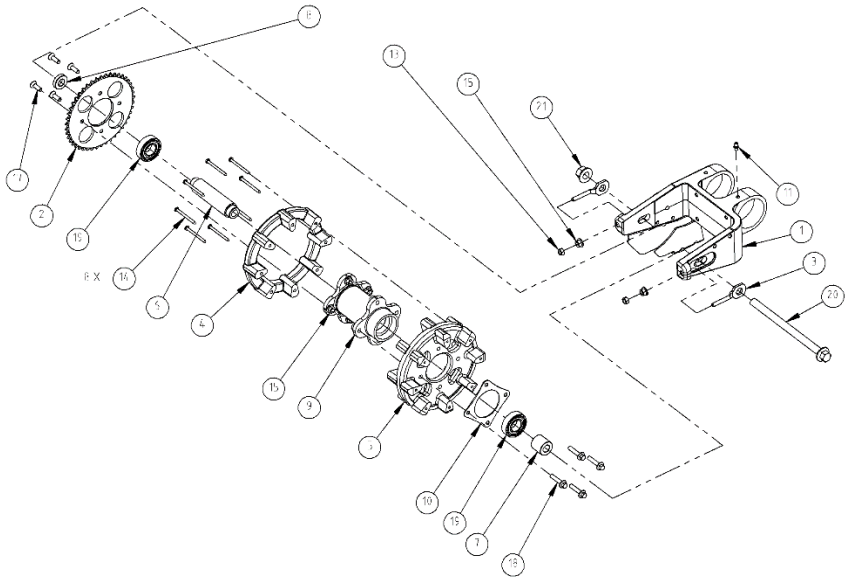
Prior to reassembling, be sure to:

- Clean all parts and inspect for wear and damage
- Replace any broken, worn or damaged parts

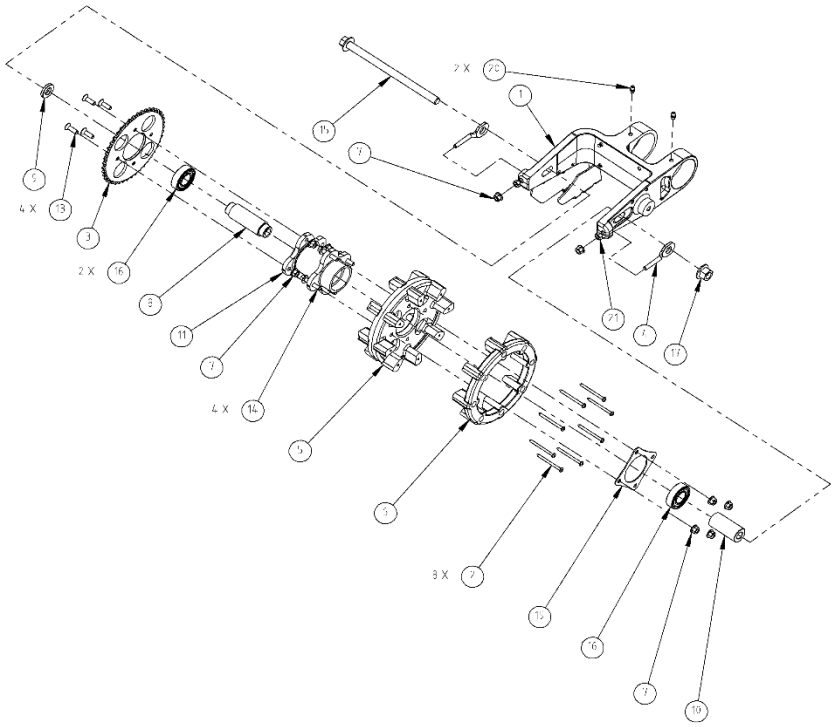
3.4 Rear Swingarms

Assembly Drawings

Right Side



Left Side



Service Information

Lubricate grease fittings every 10 hours of regular use.

General Info

Torque Values

Removal – Rear Swingarms

The Subframe must be removed to remove the Rear Swingarm - refer to Subframe Removal procedures (section xx). Separate Rear Swingarm by removing plastic Pivot Tube Sleeve. Be sure to take note of the orientation and position of the Swingarm relative to the subframe, as well as the position of the plastic spacers and Pivot Tube Sleeve.

Installation – Rear Swingarms

Prior to installation be sure to:

- Clean all parts and inspect for wear and damage
- Replace any broken, worn or damaged parts
- Ensure all fasteners are tight – pay special attention to bolts and nuts holding plastic Track Drive Sprocket [5/6] to Sprocket Hub [11]
- Check ball bearings [15] in Sprocket Hub for wear
- Check Chain Drive Sprocket for wear (see section xx)

Disassembly – Rear Swingarms

- See assembly drawing above

Assembly – Rear Swingarms

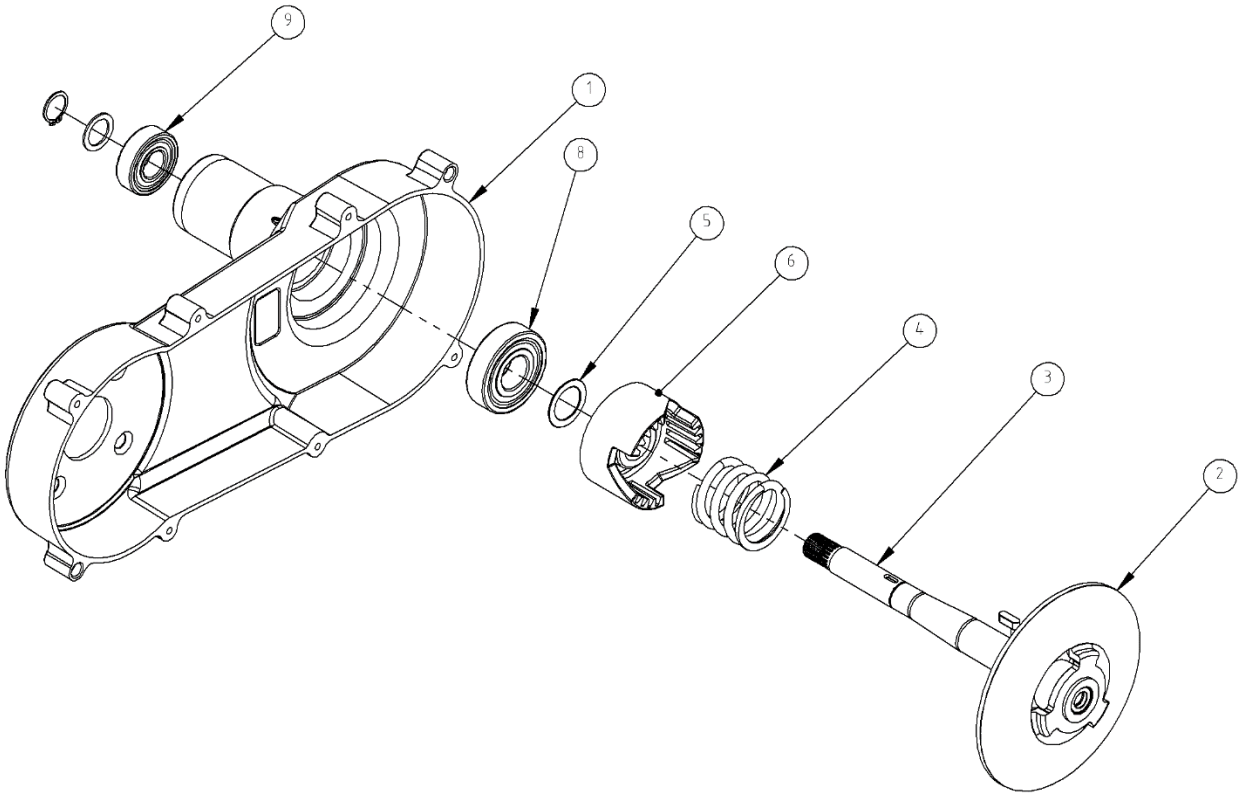
- Assemble in reverse order of disassembly

Prior to reassembling, be sure to:

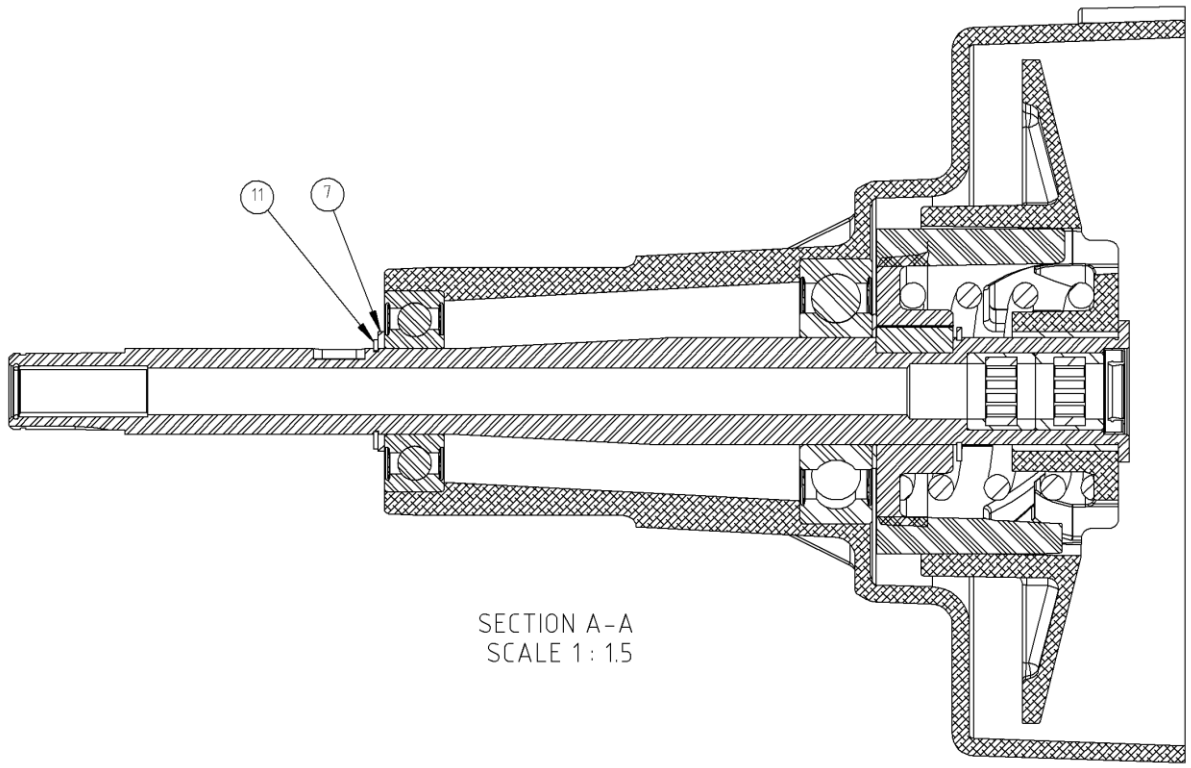
- Use permanent thread-locking compound on all bolts holding plastic Track Drive Sprocket to Sprocket Hub, and torque to specified torque (*see specific torque values in General Maintenance Chapter*)

3.5 Transmission

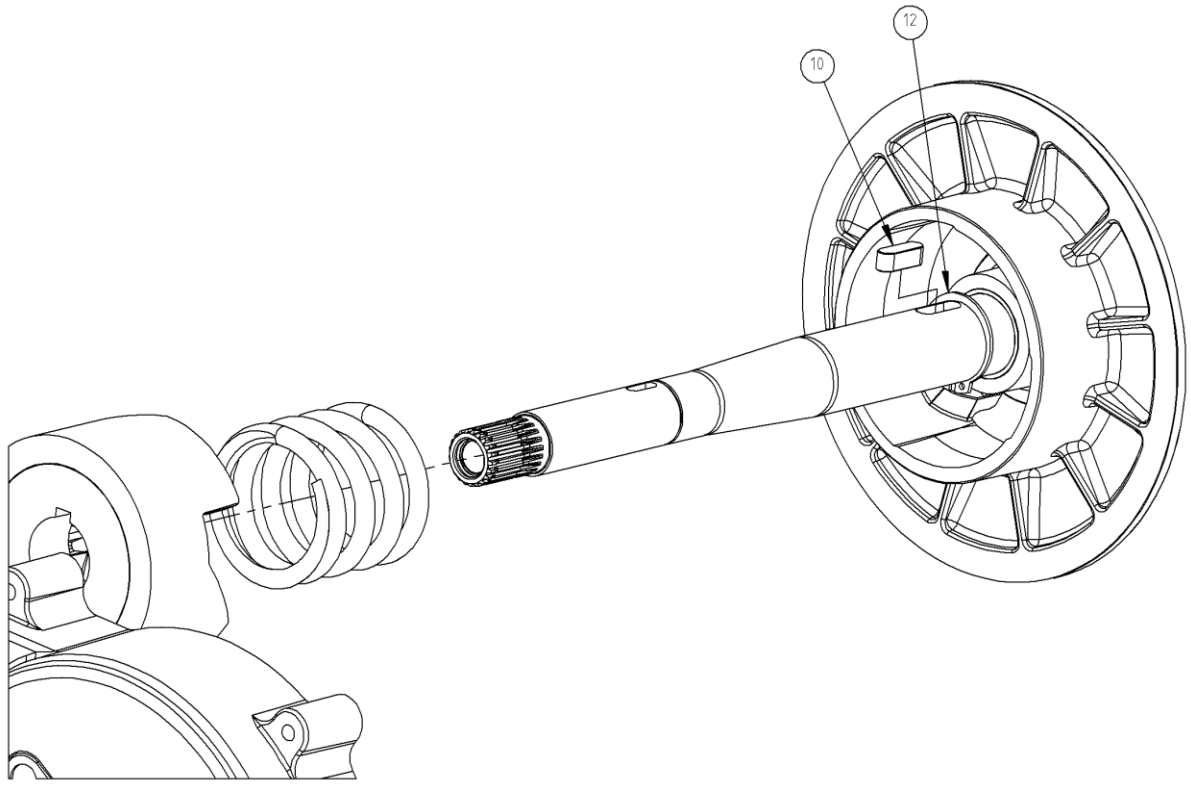
Assembly Drawing



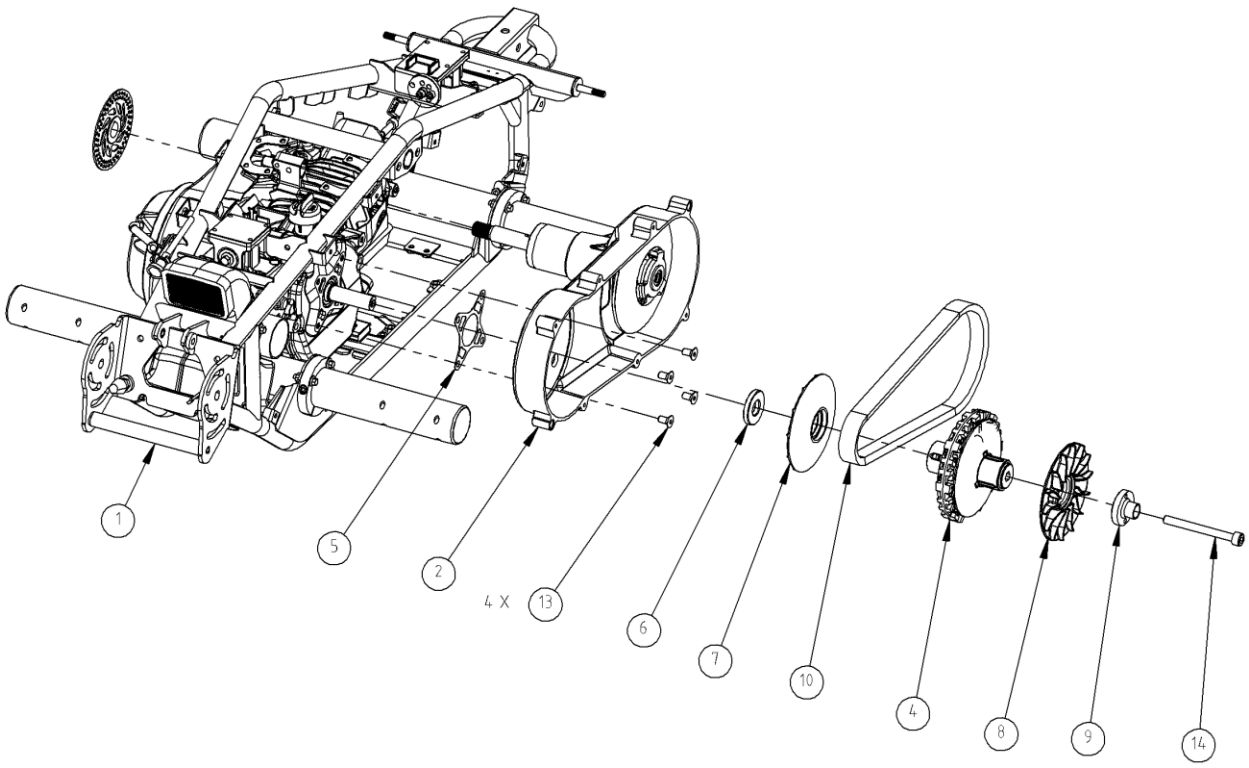
#	Name
1	Inner transmission case
2	Torque-Sensing Sheave
3	Inner (Right Side) Drive Shaft
4	Driven Spring
6	Inner (Right Side) Helix



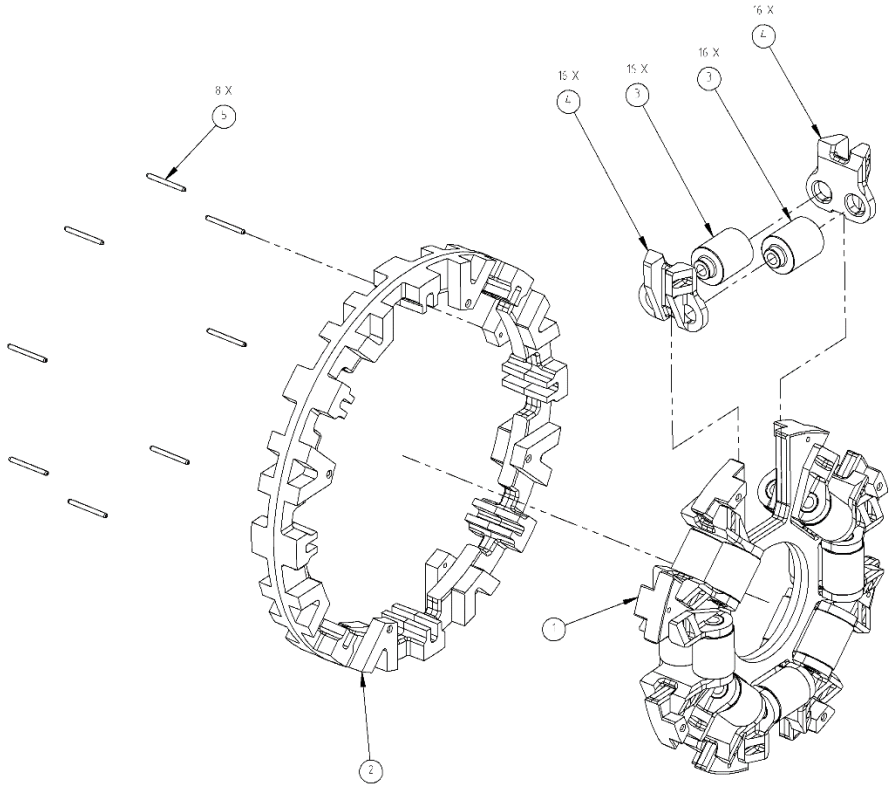
Inner Driven Pulley Assembly



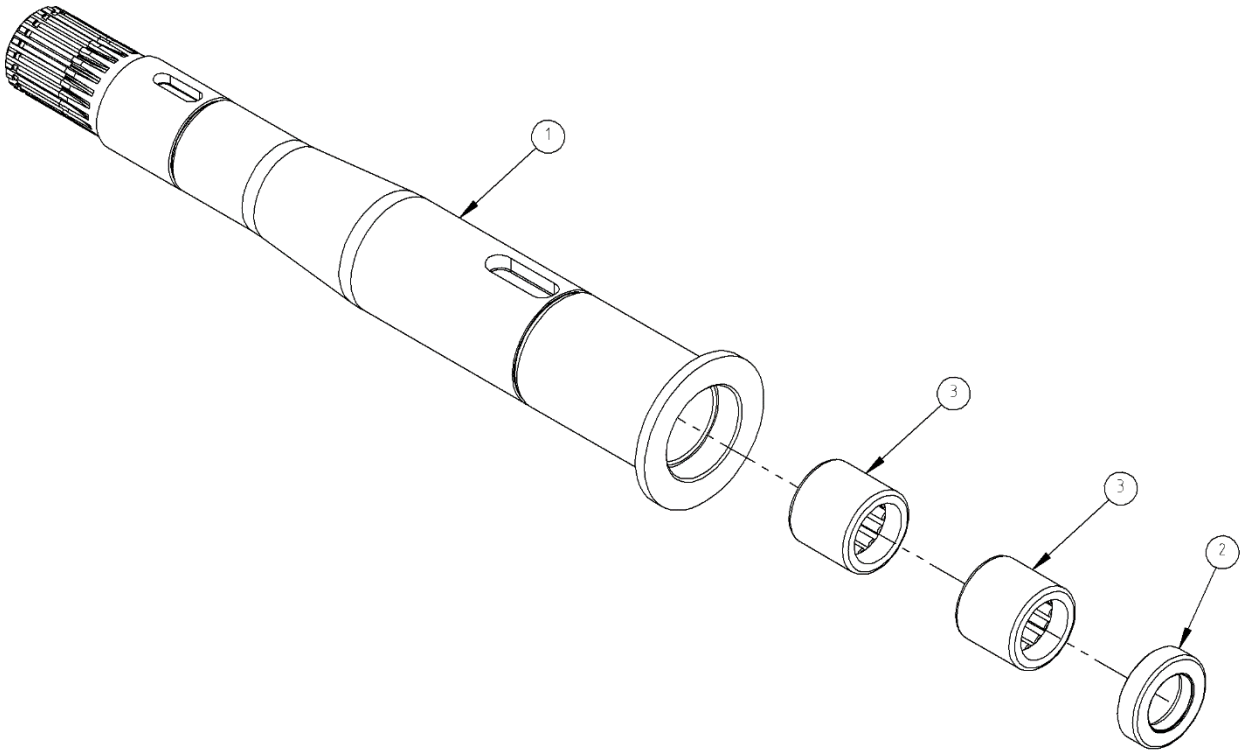
Inner Driven Pulley Assembly

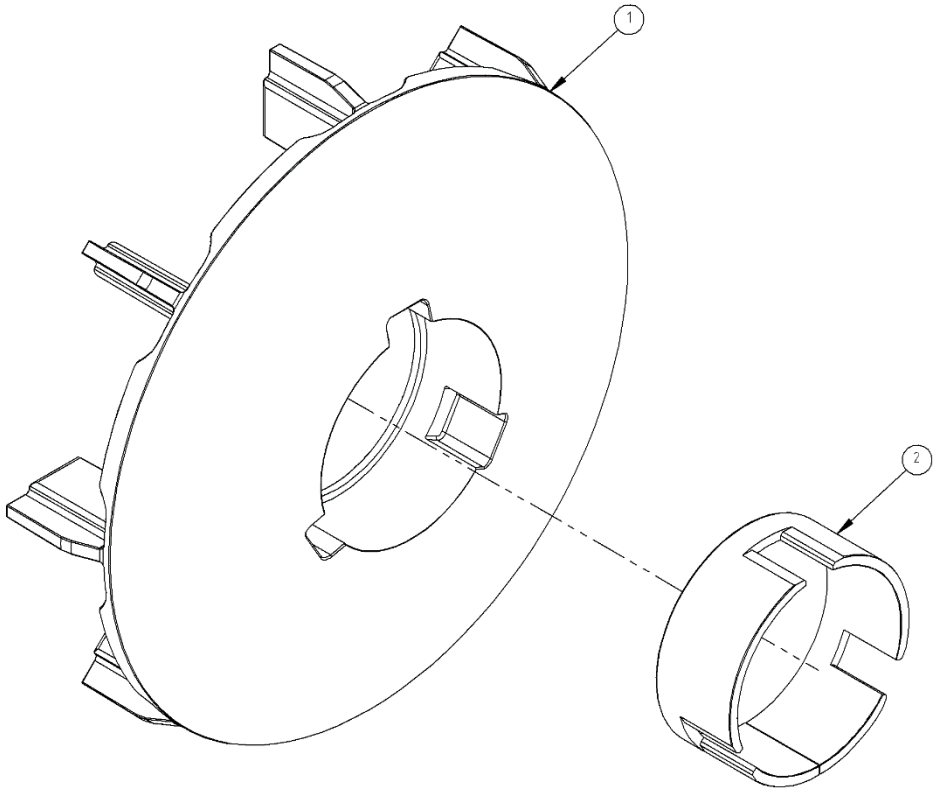


#	Name
2	Inner Transmission Case
4	Driver Clutch Assembly
5	Gasket
6	Spacer
7/8	Driver Fixed Sheave
9	Outer Shaft Collar
10	Crankshaft Bolt



#	Name
1	Roller Weight Guide Plate
2	Roller Weight Guide Outer Ring
3	Roller Weight
4	Slider
5	Roll Pin


1
3
3
2


1
2

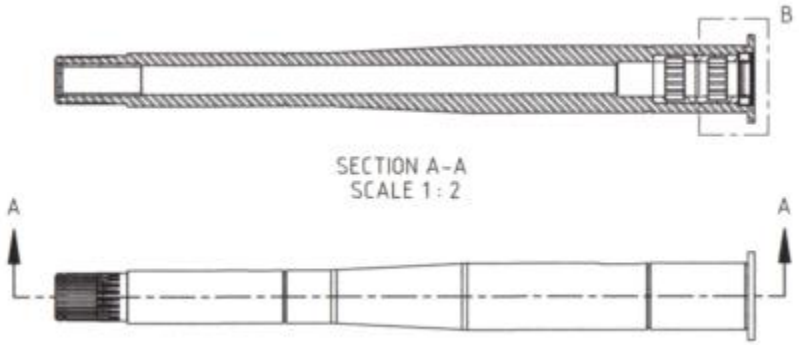
Service Information

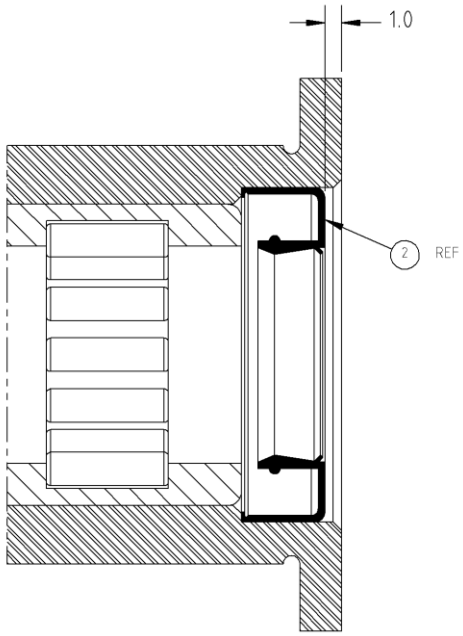
As a general rule:

- Belts should be replaced every 100 hours of operation
- Driver Sheaves should be replaced every 50 hours of operation due to ramp wear, and all other sheaves about every 100 hours.
- Steering Rod should be replaced every 100 hours of operation.

In dirty environments transmission components will wear out faster.

Specifications





show steering rod specs
bushing specs

Torque Values

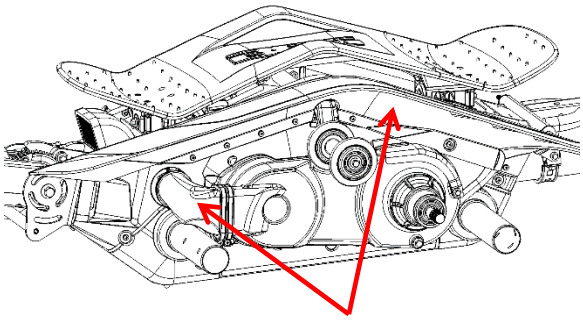
Special Tools

- pin-type face spanner wrench (35mm span. 6mm pin)

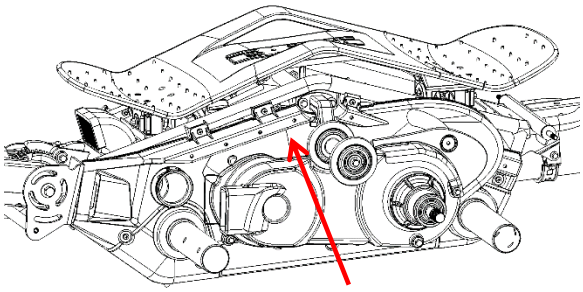
Removal: Transmission

1. Remove left side Subframe (*see Left Side Subframe Removal section*)

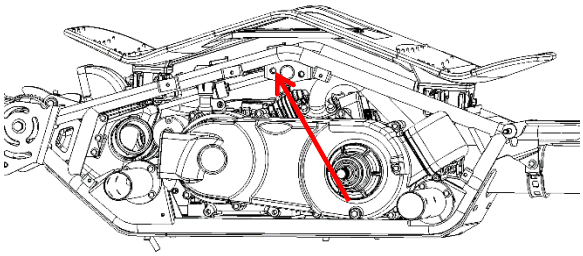
2. Remove transmission case intake duct and Track Guard



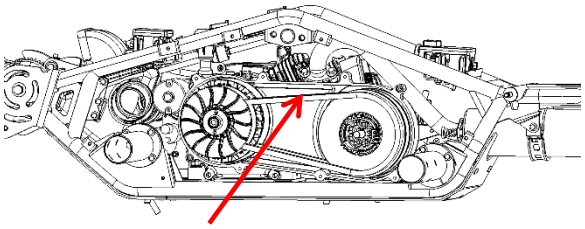
3. Remove left side-cover



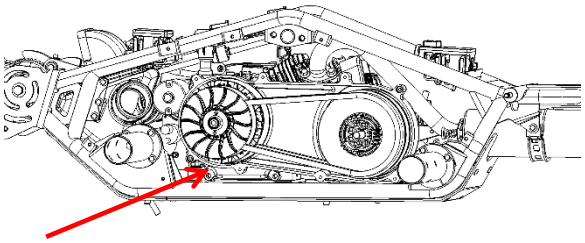
4. Remove outer transmission case assembly. Be careful not to damage the gasket if you don't have a replacement. Be sure to pull the case off straight. Tap case *lightly* with a mallet to break the seal.



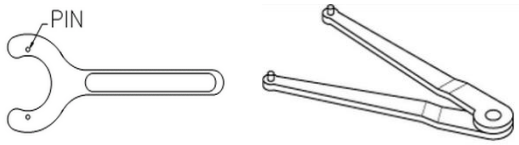
5. Remove outer belt



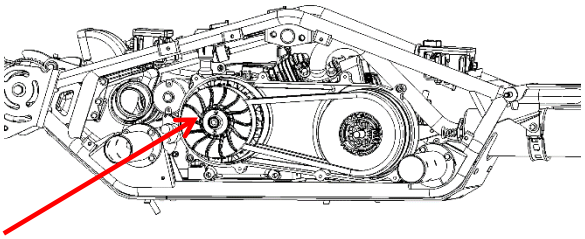
6. Remove crank bolt and outer shaft collar.



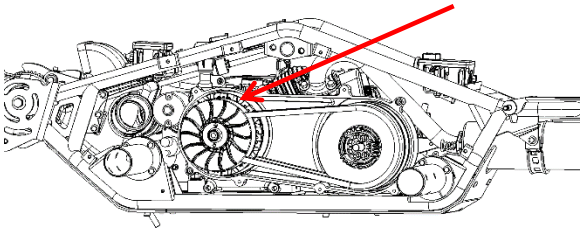
- *You will need a pin-type face spanner wrench (6mm pin - 35mm span or adjustable)*



7. Remove transmission driver sheave assembly

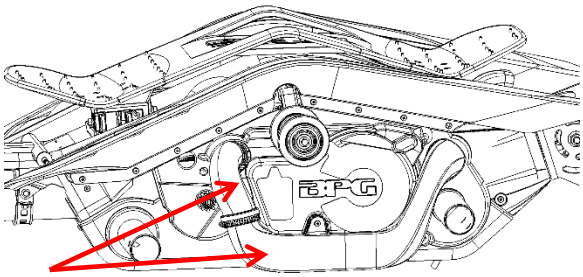


8. Remove inner fixed sheave and spacer disc

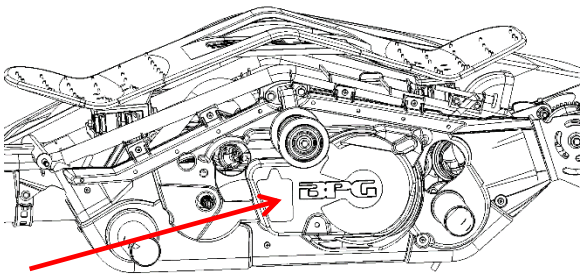


9. Remove right side Subframe (*see Right Side Subframe Removal section*)

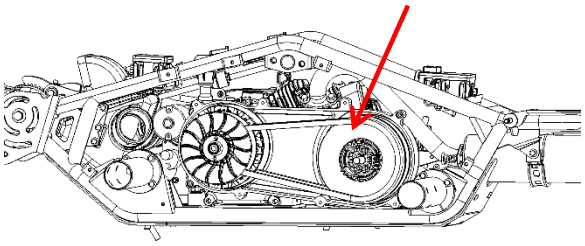
10. Remove right Track Guard and Engine Intake Duct system



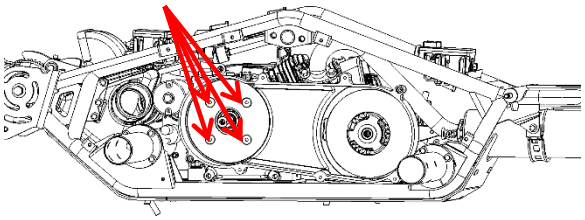
11. Remove right Side Cover



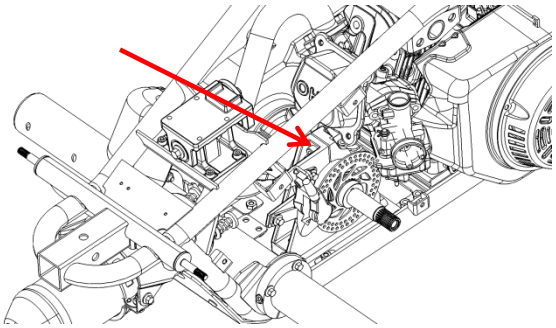
12. Remove transmission steering sheave assembly



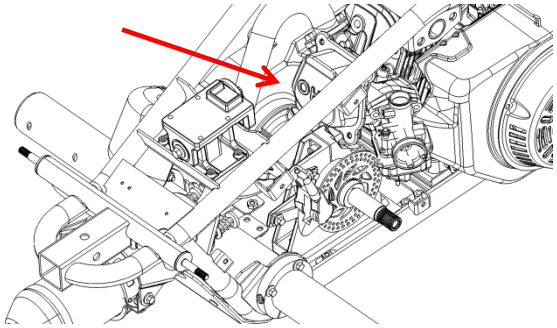
13. Remove 4 transmission mounting screws



14. Loosen transmission support bracket clamp bolt and wedge bracket open a little with a flathead screwdriver



15. Remove inner transmission case assembly. Be sure to hold the brake rotor with one hand to help guide it off straight while pulling the inner transmission case assembly free



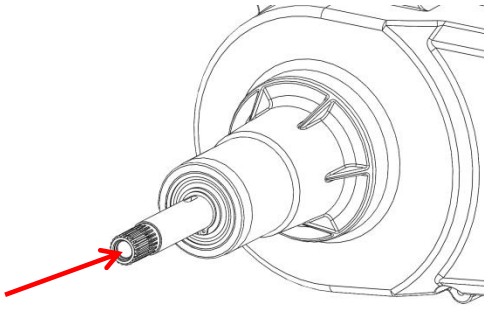
Installation: Transmission

Reinstall in reverse order of removal.

NOTE: ***Do not try to force Transmission Case Assembly halves together using the bolts. Manually turn output Driveshafts while pushing Transmission Case halves together to allow Transmission Belts to move out on the Driven Sheaves which allows the case halves to mate naturally.***

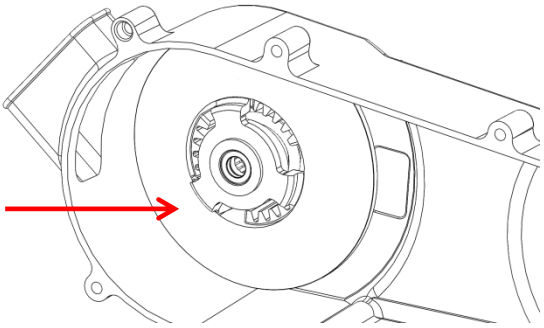
Before reinstalling transmission, be sure to:

- Check Steering Rod Bushing wear. Replace bushing if necessary. Steering Rod Bushing should be inspected every 10 hours of operation as a general rule, and lubricated with chain lube. Lubrication can be applied without disassembly if applied while bushing is still hot immediately after operation. Replace bushing when it is worn. A good Steering Rod bushing should have no free play on the Steering Rod. In dirty environments the bushing will wear out faster.

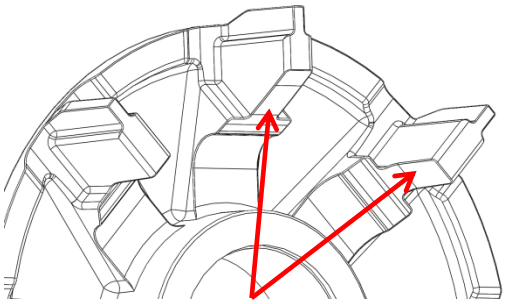


- Check belts for excessive wear or damage. Replace if necessary. Belts should be replaced every 100 hours of operation as a general rule. In dirty environments the belts will wear out faster.

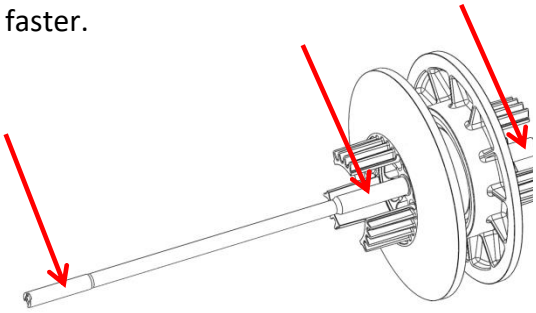
- Check sheave faces for wear or damage. Replace if necessary. As a general rule Sheaves should be replaced every 100 hours of operation. In dirty environments sheaves will wear out faster.



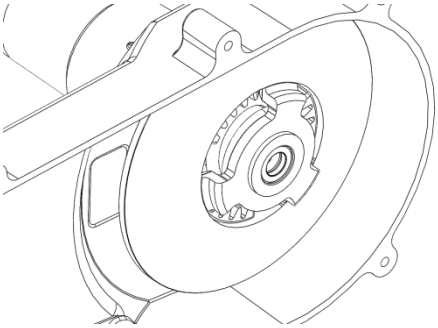
- Check Driver Sheave Ramps for wear or damage. Replace if necessary. As a general rule Driver Sheaves should be replaced every 50 hours of operation due to Ramp wear. In dirty environments sheaves will wear out faster.



- Check wear on steering rod at needle bearing and bushing running surfaces. Replace rod if necessary. Steering Rod and drive shafts should be replaced every 100 hours of operation as a general rule. In dirty environments the rod will wear out faster.



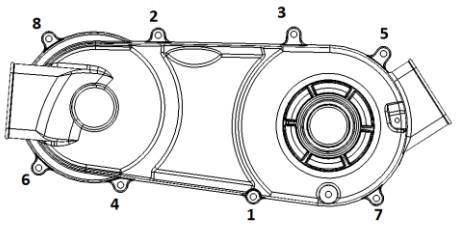
- Check needle bearing seal integrity. Replace if necessary. In dirty environments seal will wear out faster



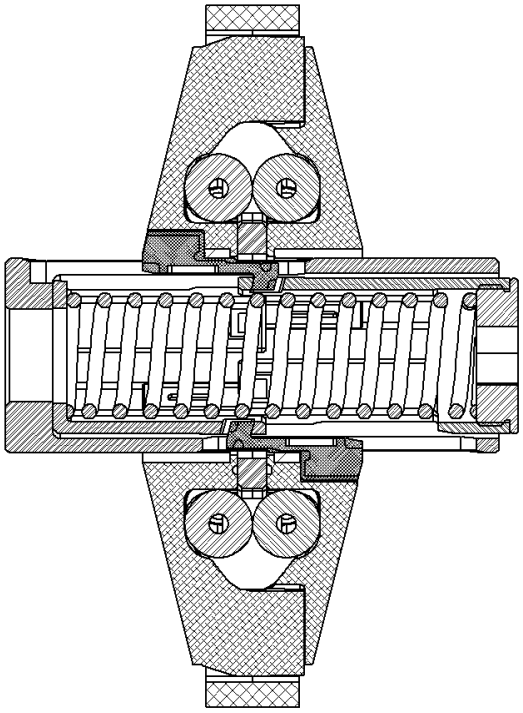
- Grease needle bearings. Replace if necessary. In dirty environments needle bearings will wear out faster.

- It is a good idea to rebuild the Driver Assembly to check for worn and damaged parts. Moveable Sheave Roller Weight ramp surfaces should be checked about every 10 hours of operation for rutting. Replace Moveable Sheaves if rutting is evident. Also ensure Roller Weights slide freely and Sliders are not damaged

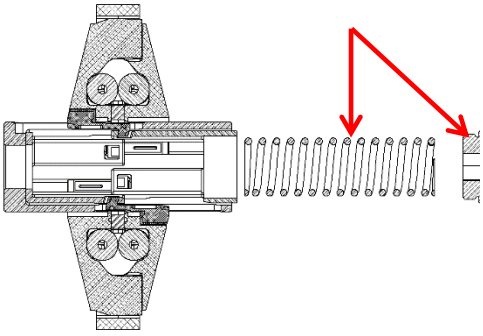
- Tighten Transmission case bolts progressively as follows:



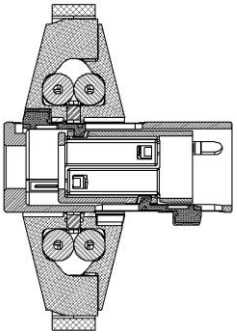
Disassembly: Transmission - Driver Assembly



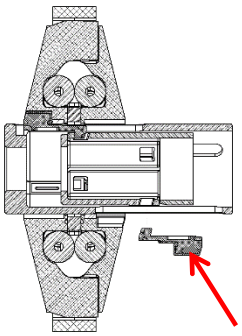
1. Remove Spring Holder Cap and Spring



2. Slide Moveable Sheave Assembly to one end of Main Shaft



3. remove the 3 exposed Moveable Sheave Keys



4. Slide Moveable Sheave Assembly back the other way and remove remaining 3 Moveable Sheave Keys

5. Slide Moveable Sheave assembly off Main Shaft, and remove Spring Holders
6. Pull apart Moveable Sheaves

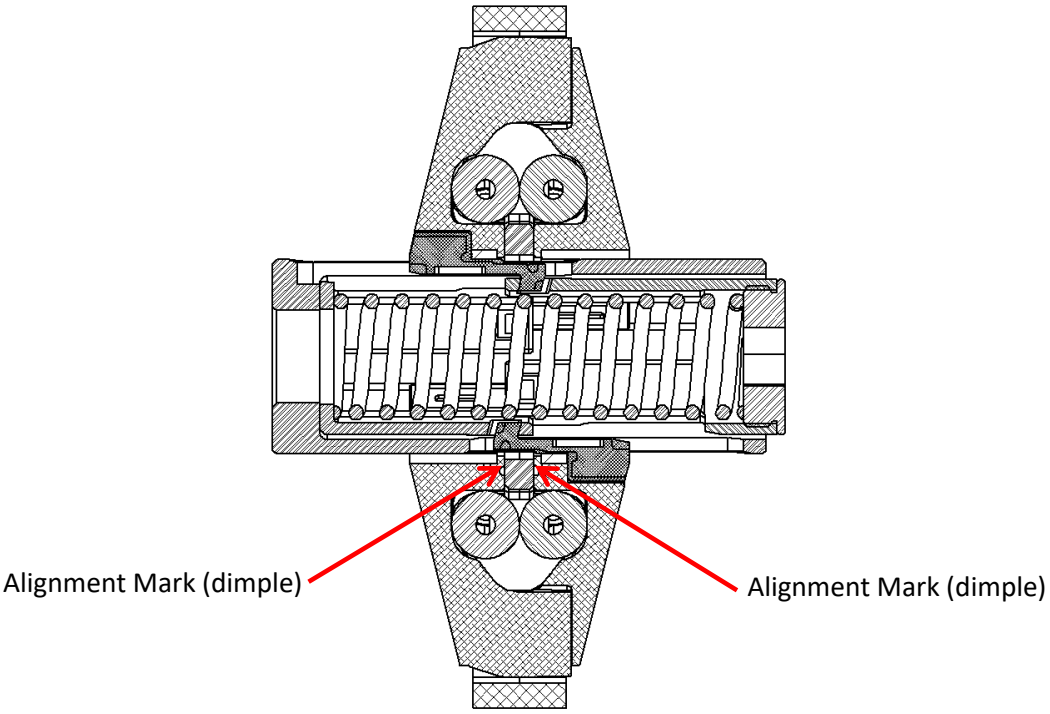
To Disassemble Roller Weight Guide Assembly:

1. Remove Roller Weight Guide Assembly Roll Pins
2. Slide all Roller Weights to centre of assembly
3. Rotate Inner Guide Plate on Outer Ring
4. Remove all Roller Weights and Sliders

Assembly: Transmission- Driver Assembly

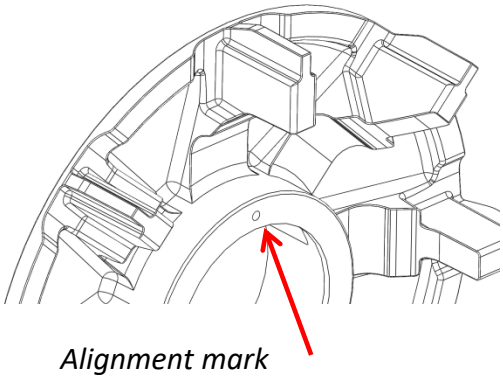
Prior to reassembling, be sure to:

- Clean all parts and inspect for wear and damage
- Replace any broken, worn or damaged parts
- Ensure all Sliders have smooth action, but not excessive play, on Inner Plate after Roller Weight Guide Assembly is reassembled
- Check that all roll pins are present and fully engaged
- Check ramp surfaces of Moveable Sheaves for excessive wear or rutting from Roller Weights. If excessive wear or rutting is visible replace Moveable Sheaves
- Ensure alignment marks (dimples) on inside of each Moveable Sheave are facing each other, as shown

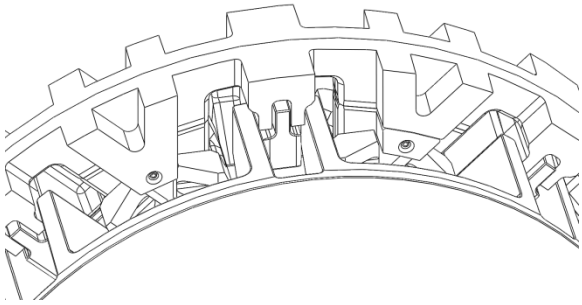


Cross-section view of Driver Assembly

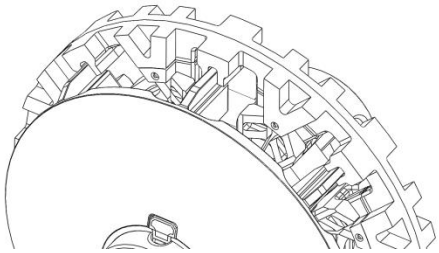
1. Reassemble Moveable Sheave Assembly ensuring the alignment marks are facing each other, as shown



Alignment mark

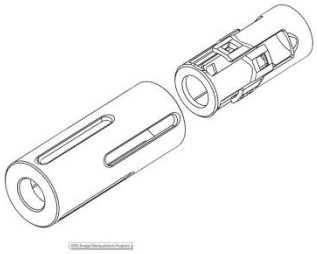


Male Moveable Sheave engagement with Roller Weight Guide Assembly:

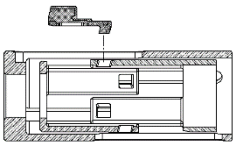


Female Moveable Sheave engagement with Roller Weight Guide Assembly

2. Place Spring Holders together and slide inside Main Shaft in exact direction and orientation shown, ensuring slots in Main Shaft and square holes in Spring Holders are lined up

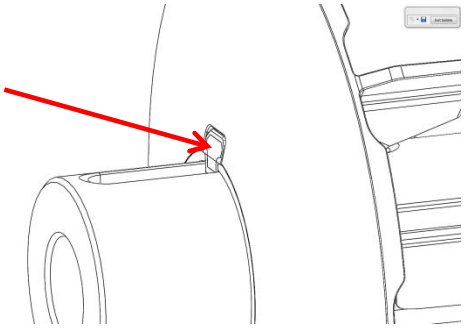


3. Place 3 Moveable Sheave Keys around one end of Main Shaft, engaging with one Spring Holder as shown, and hold them in place with one hand

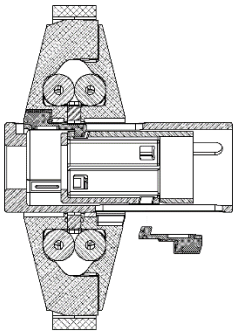


4. Slide Moveable Sheave Assembly onto Main Shaft (orientation not important) until it comes up against the Moveable Sheave Keys, then push the Keys into the slots of the Moveable Sheave until they are

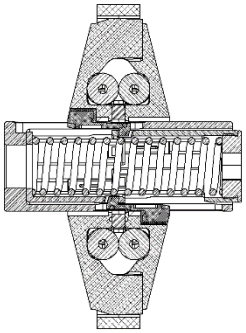
flush with the conical sheave face



5. Place remaining 3 Moveable Sheave Keys around other end of Main Shaft engaging with other Spring Holder, as shown

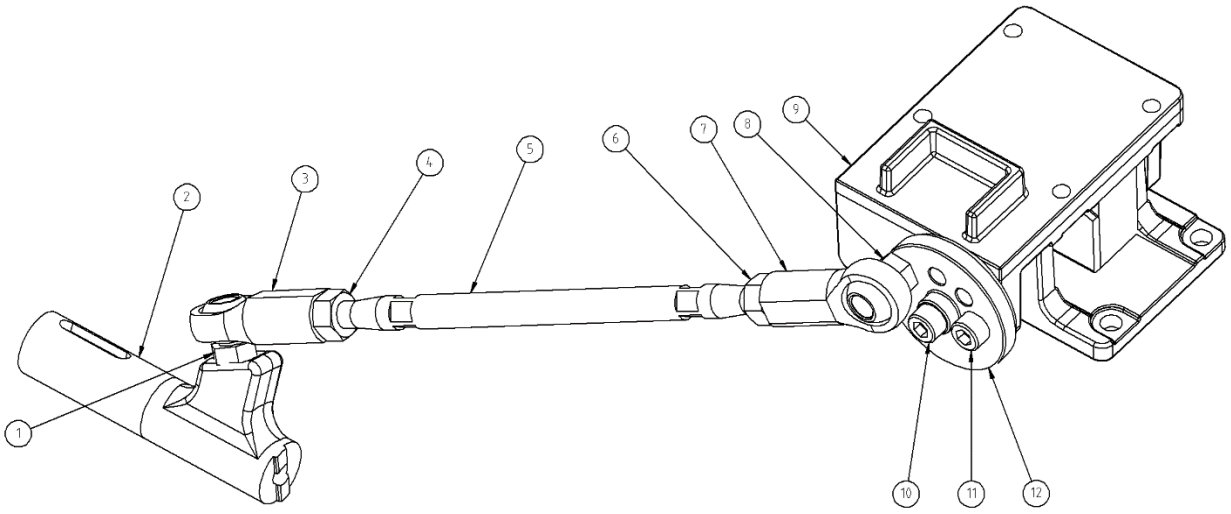


6. Slide Moveable Sheave Assembly carefully back into centre of Main Shaft ensuring all Keys are properly seated and flush with the belt contact surface
7. Insert Spring into centre of Driver Assembly, compress and install Spring Holder Cap



3.6 Steering System

Assembly Drawing



#	Name
1	Lower Ball Joint Stud
2	Steering Knuckle
3	Lower Ball Joint
4	Lower Jam Nut
5	Steering Tie Rod
6	Upper Jam Nut
7	Upper Ball Joint
8	Upper Ball Joint Stud
9	Rear Deck Pivot
10	Steering Adjustment Wheel Bolt
11	Steering Adjustment Wheel Set Screw
12	Steering Adjustment Wheel

Service Information

Follow disconnection instructions carefully. ***Avoid loosening screws 1, 8, 10, 11 whenever possible.*** These screws have been installed with permanent thread locker prevent them from loosening over time due to the high transmitted and cyclic loads. Any amount of play in the steering linkage system will greatly reduce the steering function.

Disconnecting: Steering System

NOTE: *disconnection of the steering system is necessary in order to remove the right side Subframe assembly.*

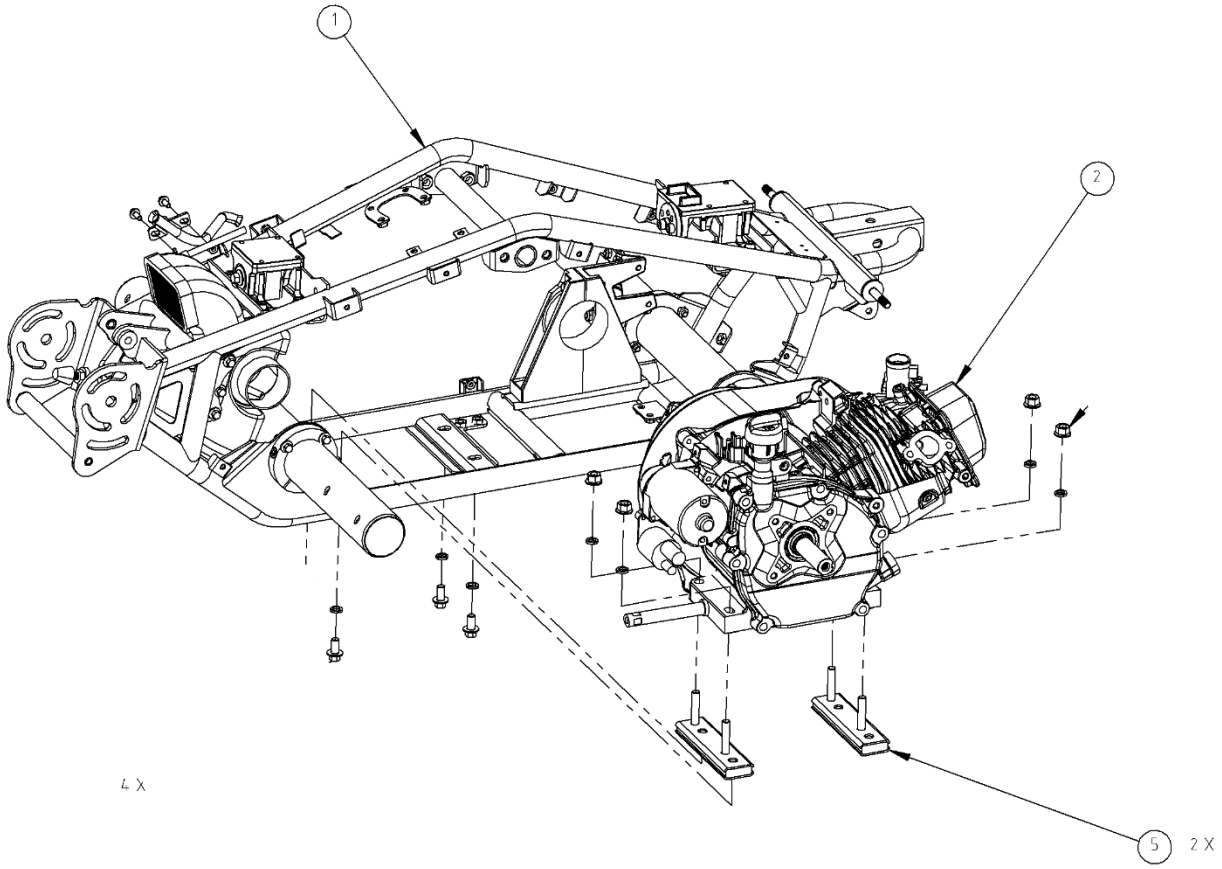
1. Remove Deck
2. Remove 4 Rear Deck Pivot mounting screws
3. Remove right side Track Guard
4. Loosen Upper and Lower Jam Nuts
5. Turn Steering Tie Rod counter-clockwise (if standing on right side of machine) until it pulls out of both Upper and Lower Ball Joints

Reconnection: Steering System

Reconnection is in reverse order of disconnection. Follow “Steering Alignment” instructions in the “Troubleshooting Guide” section to realign the steering.

3.7. Engine

Assembly Drawings



#	Name
1	Frame
2	Engine
5	Engine Damper Pad

Removal – Engine

1. Remove the deck (8 screws)
2. Remove the subframes from both sides (see subframe section in Service chapter).
3. Remove Side Covers
4. Remove Engine intake duct
5. Remove transmission intake duct
6. Remove transmission (see transmission section of Service chapter)
7. Disconnect fuel line from Carburetor
8. Disconnect throttle cable from Carburetor
9. Disconnect ignition wire from Engine
10. Disconnect starter motor wires
11. Remove Engine mount bolts (4) from bottom
12. Remove Engine

Installation – Engine

WARNING!: The position of the Engine/Transmission assembly in the frame is set by the Steering Rod Knuckle. The subframes must be securely fastened to the frame and the steering rod fastened to the steering knuckle before the transmission support bracket and Engine can be fastened to the frame. Failure to follow this procedure will cause undue stresses on the steering rod and will cause bushing failure in the Transmission Case.

- Place Engine on Engine cradle in frame with 4 mount bolts loose
- Reinstall transmission (see transmission section of Service Chapter) leaving the transmission Axle Housing Clamp Bolt on the Transmission Support Bracket loose
- Reinstall Subframes and secure to frame
- Adjust Engine position so that Steering Rod lines up with Steering Knuckle and fasten securely.
- Tighten Transmission Axle Housing Clamp Bolt on the Transmission Support Bracket
- Tighten Engine mount bolts (4)
- Reconnect ignition wire, starter motor wires, throttle cable and fuel line
- Reinstall deck (8 screws)

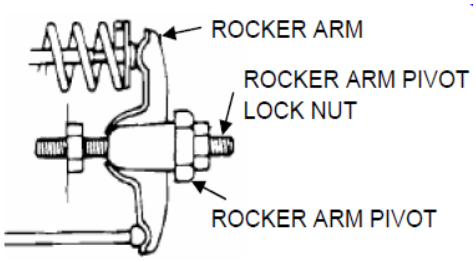
3.7.1. Valve Clearance

Valve Clearance should be checked after the first 5 hours of operation, and then after every 10 hours of operation.

NOTE: Valve clearance should always be checked when the Engine is cold (ambient temperature)

Checking Valve Clearance:

1. Remove Deck
2. Remove Cylinder Head Valve Cover (4 bolts)
3. Remove Spark Plug (clean around plug)
4. Turn Engine over using the pull cord until the piston is at TDC (top dead centre) on the compression stroke. This is visible through spark plug hole. Note that air will escape and rocker arms will be parallel
5. Check the valve clearance with a feeler gauge between the rocker and the lash cap on top of the valve stem

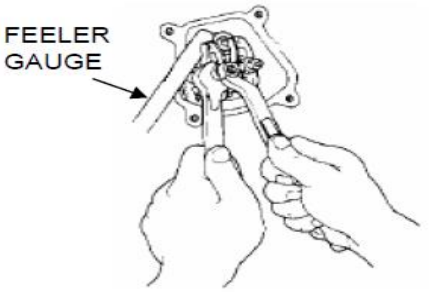


Setting Valve Clearance:

1. Hold the Rocker Arm Pivot with a wrench and loosen the Rocker Arm Pivot Lock Nuts
2. Adjust Rocker Arm Pivot until the correct valve clearance is achieved

   Intake - 0.051 mm (0.002 in)
   Exhaust - 0.076 mm (0.003 in)

3. Tighten the rocker Arm Pivot Lock Nut while holding the Rocker Arm Pivot
4. Pull Engine over a few times manually with pull-start cord
5. Recheck the valve clearance to ensure that the Rocker Arm Pivot did not move when the Lock Nut was tightened



3.7.2. Ignition Pickup Sensor Gap

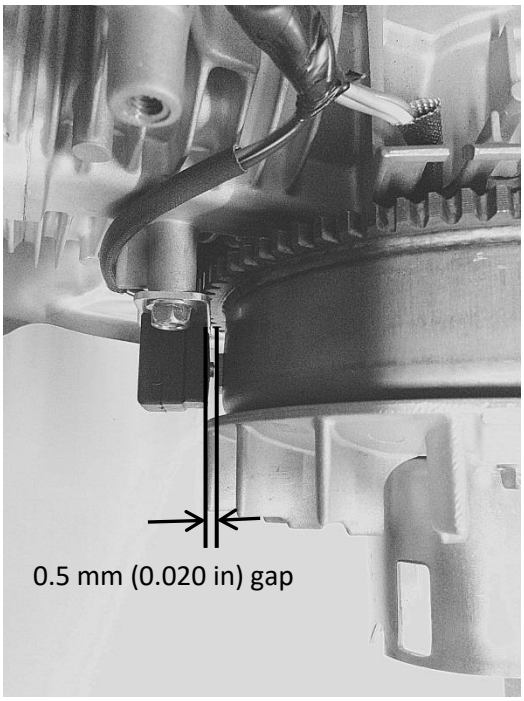
To access the Pickup Sensor:

1. Remove the right side Subframe assembly
2. Remove the Engine Intake Duct and Carburetor rubber Intake Elbow
3. Remove the Engine Side Cover
4. Remove the Engine Recoil Cover assembly (4 screws).
5. Loosen the Ignition Pickup Sensor mounting screws very slightly
6. Place a 0.5 mm (0.020 in) feeler gauge between the magnet of the Pickup Sensor and one of the raised steel inserts on the flywheel
7. Push the sensor firmly but gently against the feeler gauge and tighten the Pickup Sensor mounting screws
8. Recheck gap after tightening screws to ensure Pickup Sensor did not shift
9. Readjust if necessary
10. Reinstall Recoil Cover assembly
11. Reinstall Engine Side Cover
12. Reinstall Carburetor rubber Intake Elbow
13. Reinstall Engine Intake Duct.

It is critical that the Intake Duct is securely fastened to the rubber Carburetor Intake Elbow and to the Airbox with NO gaps present. Use grease on the mating surfaces to help seal the connections.

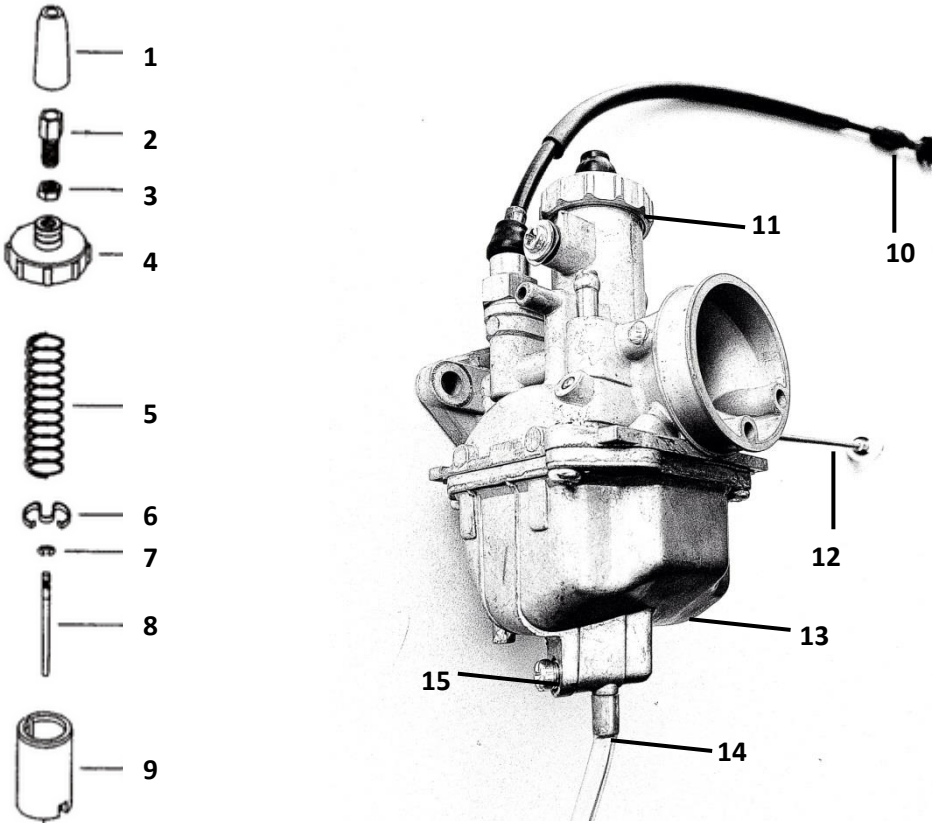
14. Reinstall right side Subframe assembly

The ignition Pickup Sensor gap should be set to 0.5 mm (0.020 in).



3.7.3. Carburetor

Components



#	Name
1	Throttle Cable Rubber Guide
2	Throttle Cable Adjuster
3	Throttle Cable Adjuster Locknut
4	Mixing Chamber Top
5	Throttle Valve Slide Spring
6	Needle Jet Retaining Spring
7	Needle Jet Clip
8	Needle Jet
9	Throttle Valve Slide
10	Choke Cable
11	Mixing Chamber Top
12	Idle Adjustment Knob
13	Float Bowl
14	Float Bowl Overflow Tube
15	Float Bowl Drain

Removal - Carburetor

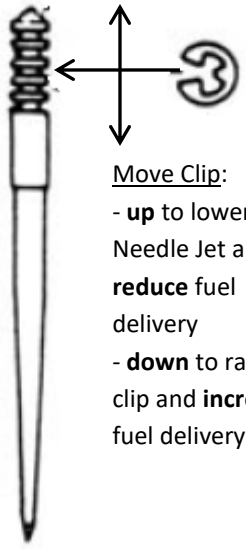
1. Remove right Subframe
2. Remove Engine intake duct
3. Remove right Side Cover
4. Remove right Brake Rotor
5. Disconnect Throttle Cable from top of Carburetor
6. Remove Carburetor (2 nuts)

Replacing/Changing Jets

1. Remove Float Bowl screws (4)
2. Unscrew Pilot Jet and replace
3. Unscrew Main Jet and replace
4. Reinstall Float Bowl

Adjusting Needle Jet

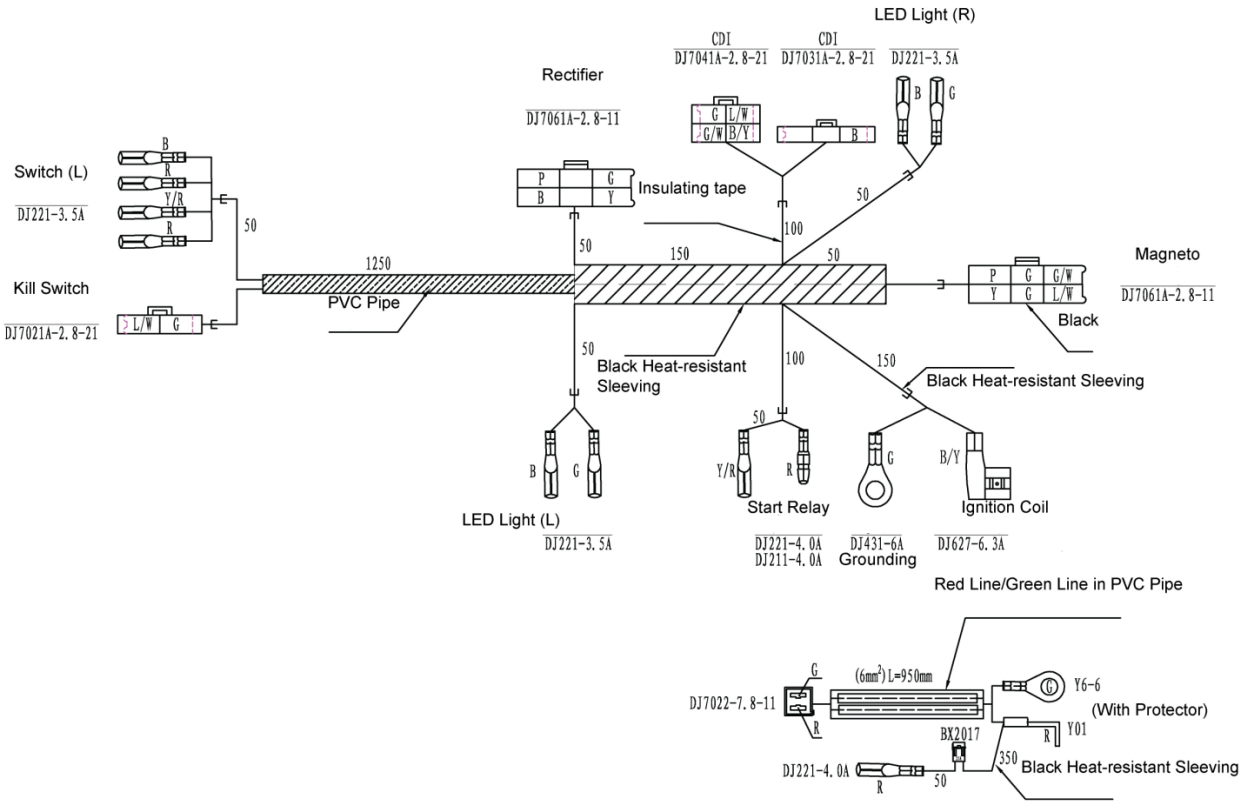
5. Unscrew the Mixing Chamber Top and pull out the Throttle Valve Slide assembly
6. Compress the Throttle Valve Slide Spring and disconnect Throttle Cable end from the Throttle Valve Slide through the groove
7. Remove Needle Jet Retaining Spring from inside the Throttle Valve Slide
8. Remove the Needle Jet
9. Move Needle Jet Clip up or down depending on desired performance change.
   NOTE: The Needle Jet affects fuel delivery in the ¼ to ¾ throttle range



Standard Factory Setting: Middle Clip position

Move Clip:
- **up** to lower Needle Jet and **reduce** fuel delivery
- **down** to raise clip and **increase** fuel delivery

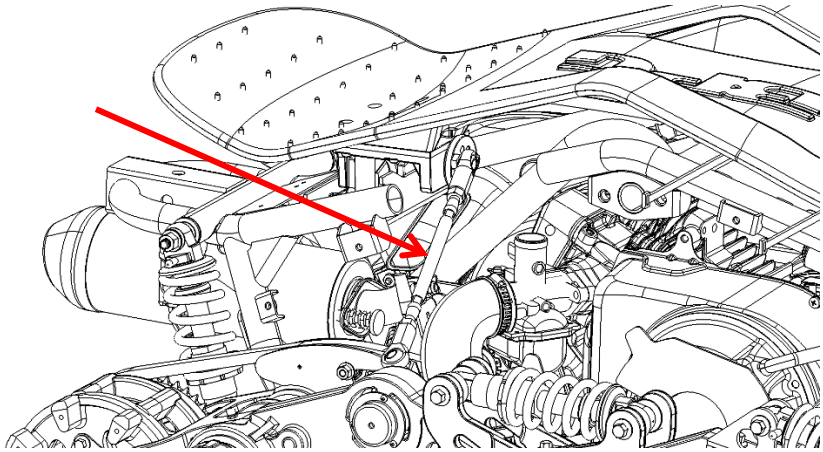
3.8. Wiring Diagram



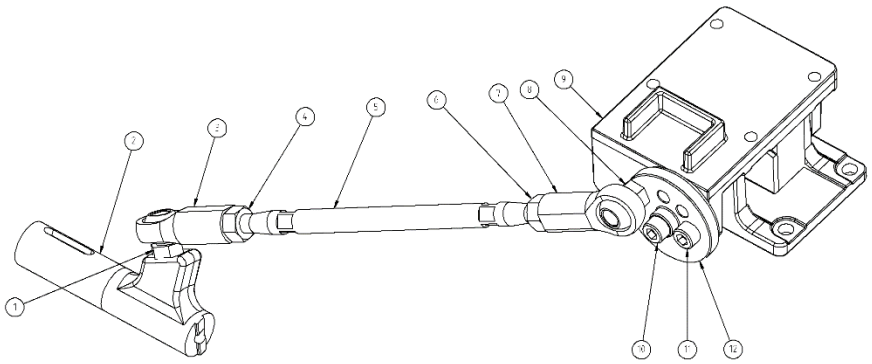
4. Troubleshooting Guide

4.1 Steering Alignment

If steering seems to be biased to one side more than the other, it can be brought back into alignment by adjusting the length of the steering tie rod.



#	Name
1	Lower Ball Joint Stud
2	Steering Knuckle
3	Lower Ball Joint
4	Lower Jam Nut
5	Steering Tie Rod
6	Upper Jam Nut
7	Upper Ball Joint
8	Upper Ball Joint Stud
9	Rear Deck Pivot
10	Steering Adjustment Wheel Bolt
11	Steering Adjustment Wheel Set Screw
12	Steering Adjustment Wheel



IMPORTANT: ***Avoid loosening screws 1, 8, 10, 11 whenever possible.*** *These screws have been installed with permanent thread locker prevent them from loosening over time due to the high transmitted and cyclic loads. Any amount of play in the steering linkage system will greatly reduce the steering function.*

<u>Setting Steering Alignment</u>:

1. Remove deck
2. Remove right side track guard
3. Loosen upper and lower ball joint jam nuts

   NOTE: ***lower end of tie rod is reverse threaded.***

   Using a wrench on the flats at the upper end of the tie rod, turn rod to adjust the linkage length. Turning the rod clockwise (if standing on right side of machine) will shorten the linkage, and counter-clockwise will lengthen it.

   - If steering is biased to the left, lengthen linkage to centre it.

   - If steering is biased to the right, shorten linkage to centre it
4. Re-tighten jam nuts
5. Reinstall Deck
6. Test steering by riding in clockwise and counter-clockwise circles and comparing the turning radius of each at a moderate speed
7. Repeat steps 1 through 7 if further adjustment is necessary
8. Reinstall track guard and deck

4.2 Poor Steering Response

The DTV may feel unresponsive at low speeds for anybody not accustomed to riding one. Even at low speeds ***the steering will only work while also applying some throttle***. It can be counter-intuitive but completely necessary – very similar to steering a jetski. It can take time to learn this skill and timid riders will have the most difficulty.

If the DTV has poor steering response even after the above technique is applied:

1. Ensure there are no rocks or debris block the action of the deck, or the rotation of the tracks
2. Make sure the Steering Tie-Rod ball joints are not loose or broken
3. Ensure the Steering Adjustment Wheel is secure
4. Ensure the Rear Deck Pivot Assembly is not loose (bushings not worn, pivot bolt not loose)
5. Ensure the Steering Knuckle cavity end caps are securely fastened
6. Ensure Steering Knuckle cavity is filled with grease and Steering Knuckle action is smooth

   * When vehicle is not moving, the knuckle should have approximately 4-6mm of total travel

4.3 Tracks Coming Off

1. Ensure track tension is adjusted correctly
2. Ensure Track Drive Sprockets are not worn out or damaged
3. Ensure Tracks are not damaged
4. Ensure bogie wheels are not damaged or missing
5. Ensure Upper Bogie Wheel Axles are not loose

4.4 Engine Has Poor Throttle Response

NOTE: the Carburetor is set up from factory for 20 deg. C at sea level

1. Ensure all connections in the Engine air intake system are tight, and the rubber Carburetor elbow is securely attached to the Carburetor and not kinked
2. Ensure Air Filter is not blocked
3. Ensure there is sufficient fuel. Fuel Petcock may get blocked with debris if it is on “reserve”. Pull fuel line momentarily off petcock to determine if fuel is flowing freely. Always switch petcock back after refueling, never operate on ‘RESERVE’ for longer than necessary
4. Ensure the Throttle Cable is operating properly and opens/closes fully
5. Ensure spark plug is not fouled
6. Ensure Carburetor Jets are sized correctly for the particular climate (temperature and altitude)

4.5 Engine Hard to Start

NOTE: Electric Start should only be used after the Engine has been warmed up. Use pull-start when Engine is cold.

NOTE: the Carburetor is set up from factory for 20 degrees C at sea level

Check the following if engine will not start or is hard to start:

1. Pull the choke forward if starting the Engine from cold. Let the Engine idle for about 2 minutes while it warms up. Push in the choke before riding
2. Ensure the emergency Engine Kill-Switch Lanyard is securely in place
3. Spark plug – Check for spark and ensure plug is not fouled
4. Push/pull the unit to straighten transmission
5. Throttle not stuck open – you should hear the slide closing at carburetor
6. If the starter motor is weak or does not work ensure the battery is switched on and fully charged (See Headlight Function and Battery Charging section in General Information chapter)
7. Ensure Carburetor Jets are sized correctly for the particular climate (temperature and altitude)
8. Ensure the fuel tank petcock is in the 'ON' position during normal operation. Because the 'RESERVE' position draws fuel from the very bottom of the tank there is the possibility for contaminants to be drawn into the petcock and block or disrupt the fuel flow.

ON OFF RESERVE

9. If all of the above are ok take your DTV to an authorized dealer or service centre

4.6 Engine idle too high/low

Engine suddenly starts revving high

1. Ensure choke knob has been pushed back to 'off' position
2. Throttle cable is not stuck open
3. Adjust idle with remote manual adjustment knob

DTV Motor Corporation

4020A Sladeview cres, Mississauga,
Ontario,
L5L 6B1, Canada

www.dtvmotorcorp.com