Harsh Limited
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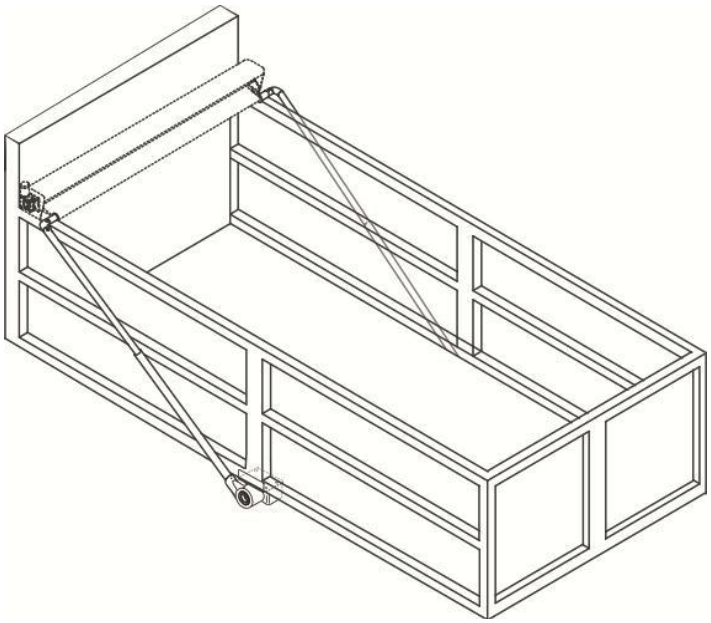
FLIP 'N' GO

INSTALLATION MANUAL

UNDERBODY MOUNTED SPRING ASSEMSBLY



This manual is supplied as a fitting guideline and is subject to change without prior notice.

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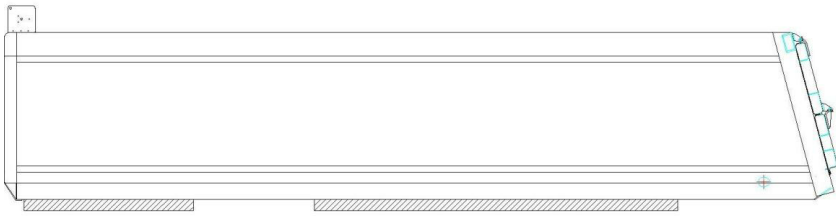
FLIP 'N' GO (UNDERBODY MOUNT) FITTING INSTRUCTIONS

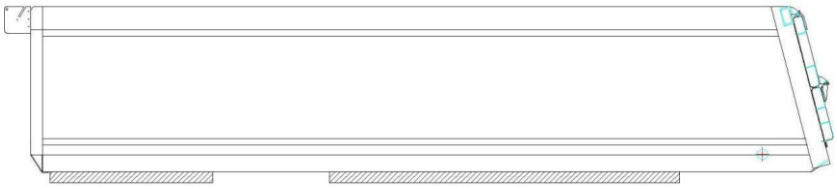
STEP 1 – ROLLER PLATE ASSEMBLY INSTALLATION

Determine the mounting position for your application:-

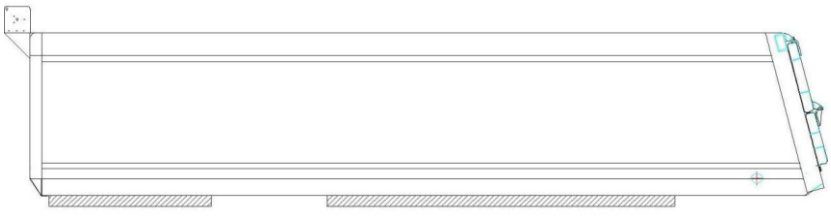
- Standard Mount



- Mount Plates on Front of Body



- Mount Plates on Shelf



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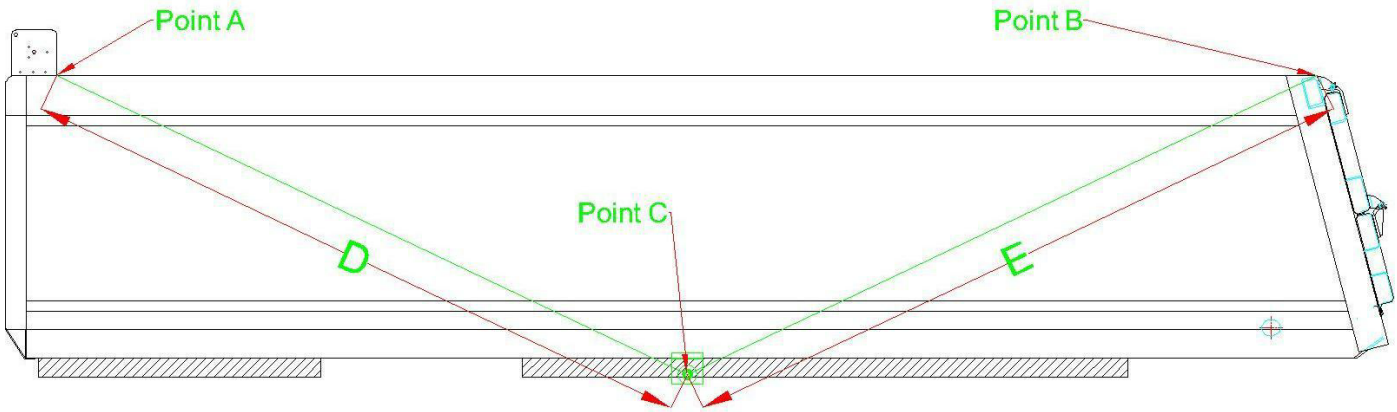
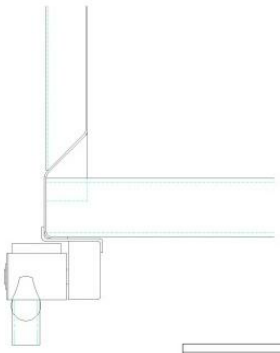
STEP 2- PIVOT POINTS

Determine the: Pivot Points and Mounting Locations.
Locate the proper mounting positions by determining Point A and Point B and ensuring measurement D and E are equal.
Point C must be located as low on the body as possible.



STEP 3 – MOUNTING THE PIVOT POINTS

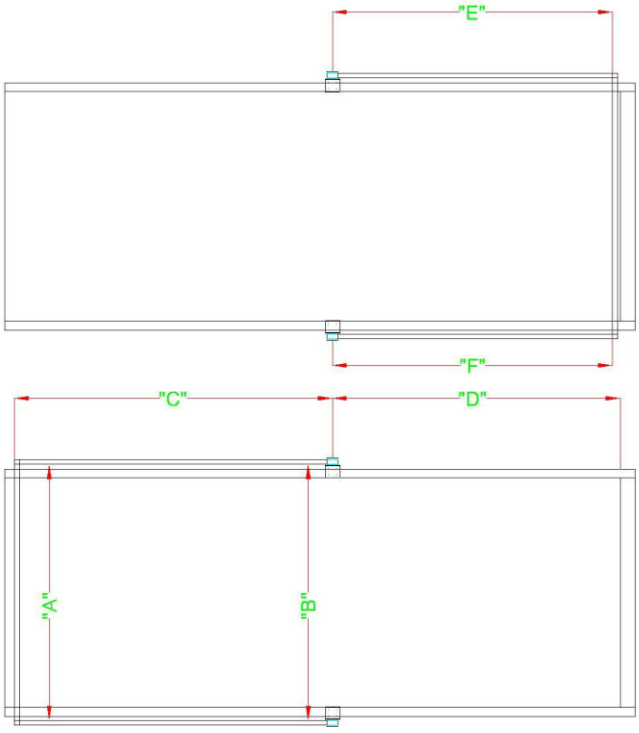
Align the Housing onto the Body



STEP 4 – CORRECT ALIGNMENT OF ARMS TO BODY

Arms and Pivots must be square and parallel to truck

Dimension “A” must be equal to “B”
Dimension “C” must be equal to “D”
Dimension “E” must be equal to “F”



The Arms should be installed so that there is a 40mm clearance between the arm and the widest point of the body.

The Upper Arms and Lower Arms can be shortened if required to enable a different landing position.

BOLT SPRING HOUSING ON THE SIDE OF THE BODY

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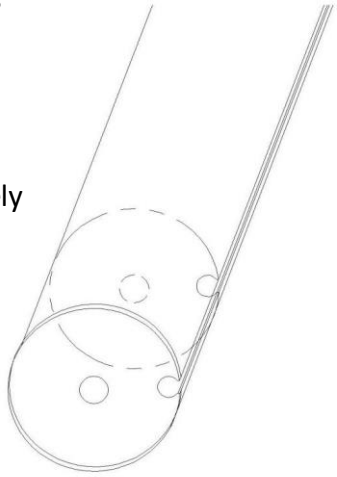
STEP 5 - ROLLER TUBE INSTALLATION
ROLLER INSTALLATION

Attach the Roller to the Motor using the bolt supplied, if your roller is to long for your application the Roller can be shortened.

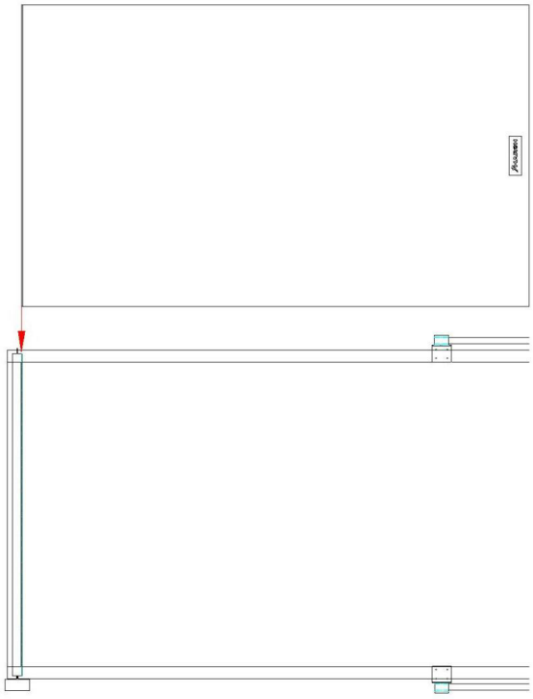


Shortening the Roller.

In Order for the Roller to rotate freely there needs to be approximately 5mm clearance on the Roller Stud, to achieve this you may need to shorten the Roller. To do this, follow the steps below.

- Remove the screw holding the plastic end cap into the Roller
- Remove the Plastic End Cap
- Cut the Roller to the desired length
- Insert Roller End Cap
- Insert Screw to hold Roller End Cap in place.

STEP 6 – SHEET INSTALLATION
Slide Tarp into Roller groove and centralise**.**



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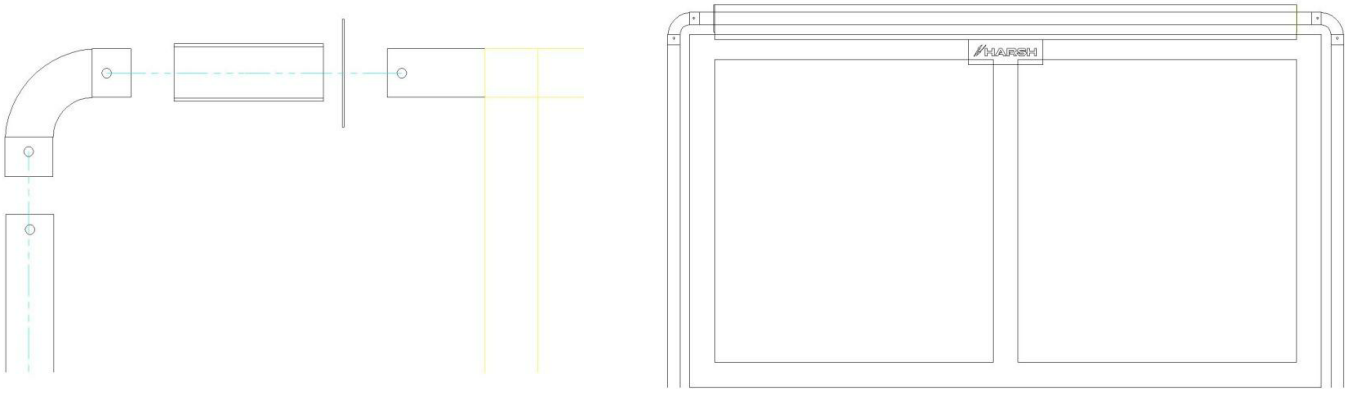
STEP 7 – CROSSBAR INSTALLATION

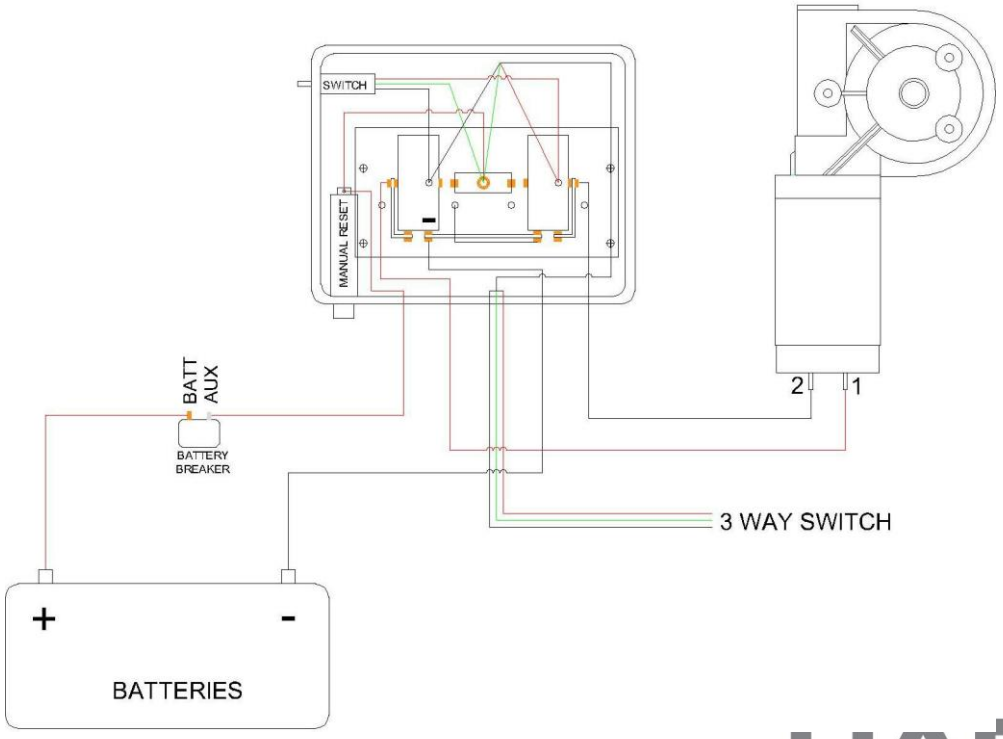
Tarp Retainer Installation

Insert the Crossbar in between the Sheet and centralise, using the PVC spacers to ensure that the sheet does not wander.
(Spacers can be cut down if required.)

Securely Fasten.



Overview of Electrical Set Up



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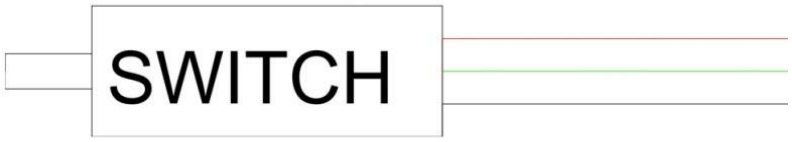
ELECTRICAL INSTALLATION

It is essential for the vehicle to be wired up using the wire provided in the kit.

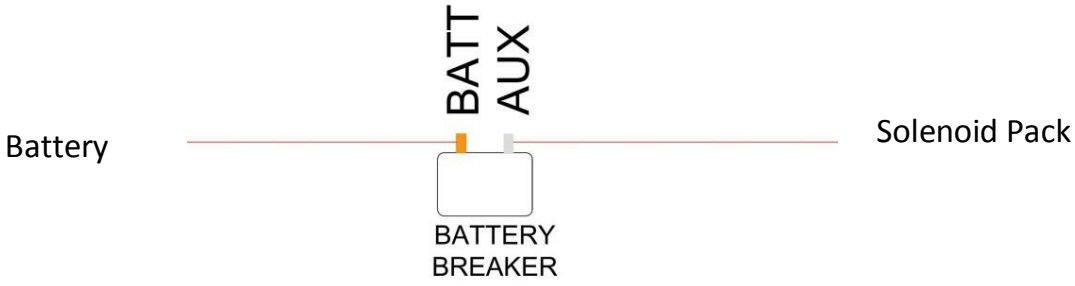
Failure to do so may invalidate warranty and cause further damage to the vehicle.

1. The Solenoid Pack is to be located on the chassis rail or a sufficient bracket mounted on the chassis rail. The location is to be close to the batteries and in a position that will protect the Solenoid Pack from road surface spray and stone chips.
2. Run the 3 Core Cable into the cab (and crane controls if applicable) and securely fasten. (It is a recommendation to follow the manufacturer's wiring loom to avoid pinching, pulling and stretching. Always ensure there is enough wire to enable the cab to be tilted.
3. Locate a suitable position in the cab for the Rocker Switch. Wire the switch as shown below,



4. Run the electrical wire from the Solenoid Pack to the Motor, always ensure that there is adequate wire loose on the rear hinge to ensure that the wire does not get pinched, pulled or stretched whilst tipping. Securely fasten.
5. Crimp the terminals to the wire and attach to the motor.
6. Crimp the terminals and attach to solenoid pack as shown in the Overview of Electrical Set Up (page 8).
7. Run a length of wire from the batteries to the solenoid pack.
8. On the positive side of the wire install the battery breaker

   Note – The Battery Breaker is to be located in the Battery Box and to be wired up as shown below.



Always wrap the Breaker in Amalgamating Tape

9. Crimp the Terminals to the Wire and fasten to the Manual Reset Breaker and the Batteries.

   Note – The Battery Breaker is to be located in the Battery Box and to be wired up as shown in the following diagram overleaf.

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From the Battery Breaker

To the Solenoid Pack

10. Test the system.
    Note – If the System operates backwards, reverse the connections on the Motor.

PARTS FAMILIARISATION

Battery Breaker

The thermal circuit breaker breaks the circuit should the temperature rise above the recommended level preventing permanent damage to the electrical system.

IF THE SWITCH IS PRESSED WHILST THE 5 SECOND TRIP IS OPERATED THE TIMER WILL RESTART.

Manual Reset Breaker

The Manual thermal circuit breaker breaks the circuit should the temperature rise above the recommended level preventing permanent damage to the electrical system.
Once the Manual Reset breaker has cut the circuit the Manual Reset Breaker needs to be manually over-ridden by pushing the switch back into the closed position.

Fitting Guidelines

- Follow Chassis Manufacturers existing wiring looms to avoid pinching, pulling and stretching.
- Run EMT Conduit up the underneath of the body to ensure a neat finish and to eliminate any chance of the wiring being caught on items whilst tipping.
- Flexible Split Conduit may be used down the Chassis rail and up the front of the body to ensure a neat finish and to also protect the wire from binding, pinching and rubbing.

Ensure All Terminals are insulated to avoid any possible short circuits

Failure to Install Parts properly may invalidate Warranty

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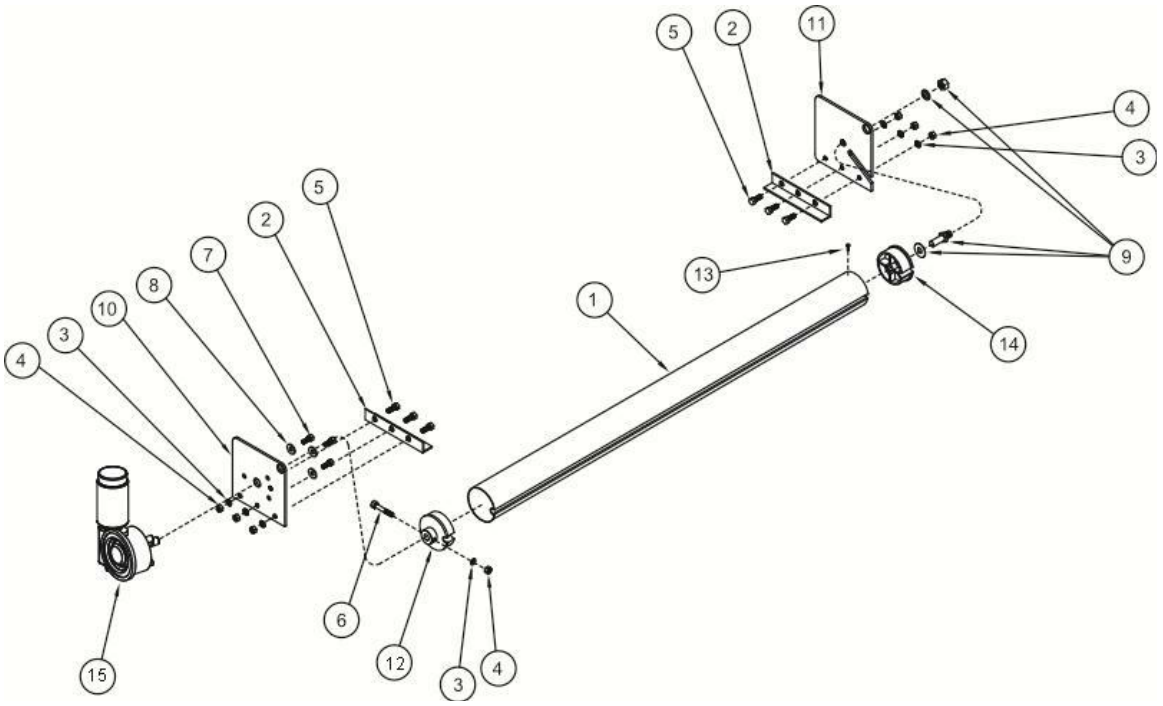
PARTS BREAKDOWN

Front Roller Assembly Breakdown



HARSH STEEL FLIP 'N' GO FRONT ROLLER ASSEMBLY				
ITEM	**PART#**	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	501-1310	Roller Tube Assy 96, 100" Long	YROLLERGALV	1
2	501-1526	Open System Mount Bracket		2
3	505-2502	¼" Flat Washer USS		7
4	504-3103	5/16" Nyloc Nut		
5	504-3104	5/16"-18x¾" lg Carriage Bolt		6
6	503-3108	5/16"-18x1¾" lg Carriage Bolt		1
7	503-3103	5/16" – 18 x ¾ lg Carriage Bolt		3
8	505-3102	5/16" Lock Washer		3
9	501-0632	System End Plate Stud kit	YROLLERSTUD	1
10	501-0221	Open System End Plate (Electric Drive)	YROLLERPLATE-MOTORMNT	1
11	501-0220	Open System End Plate (Roller Stud Mount)	YROLLERPLATE-PLAIN	1
12	501-9915	Roller Drive Aluminum End Cap	YROLLERGALVDRIVEENDCAP	1
13	506-9916	Screw#8-18x¾" Self Drive		1
14	507-0102	Plastic Non Drive End Cap For Roller	YROLLERGALVENDCAP	1
15		24v Direct Drive Motor FNG c/w Manual Override*	XMOTORDDRIVEORIDE	1

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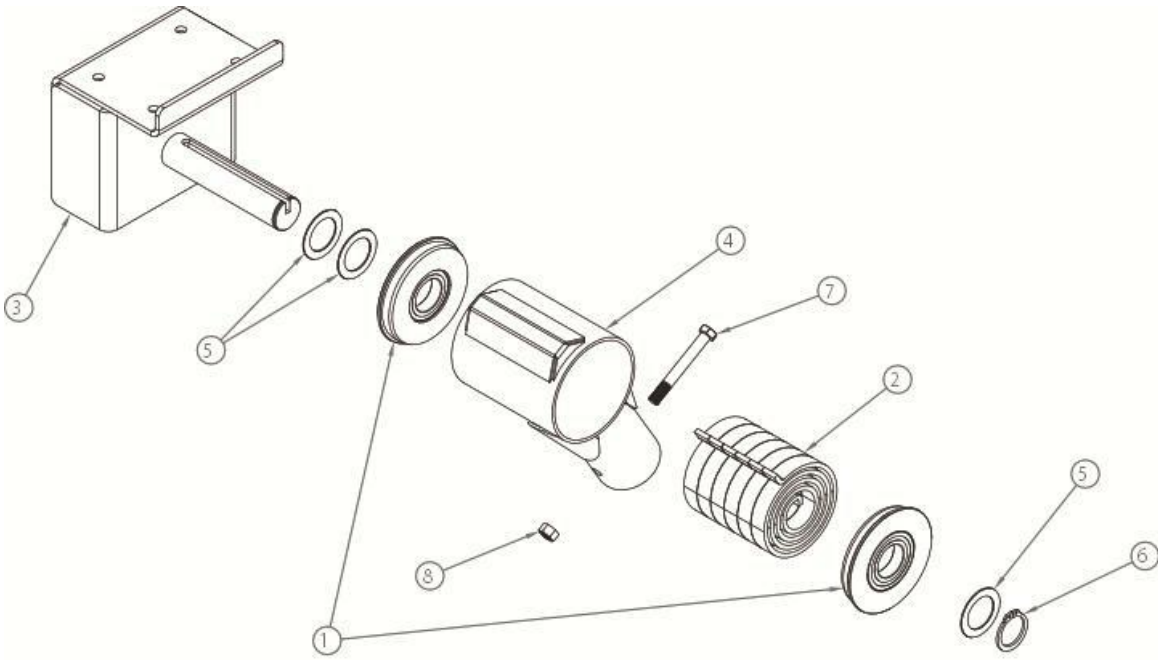
Gen 3 Under body Mount Spring Assembly (LH Shown)



YSPRINGASSEMBLY-LH/RH-UB-GEN3				
ITEM	**PART#**	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	501-2116	End Cap with Bearing	YSPRINGASSEMBLY-LH-UB-GEN3	2
2	517-9966	Spring, Underbody Arm System		6
3	501-2108	Underbody Pivot Mount Assy		1
4	501-2106	6 Spring Housing Assy		1
5	501-1162	Washer 1-7/8x1-1/4 Narrow Rim		3
6	506-0101	11/4 Snap Ring		1
7	503-3712	3/8-16 x3" HHCS Bolt		1
8	504-3702	Nut 3/8-16 Hex Nut Nyloc Zinc Plt		1

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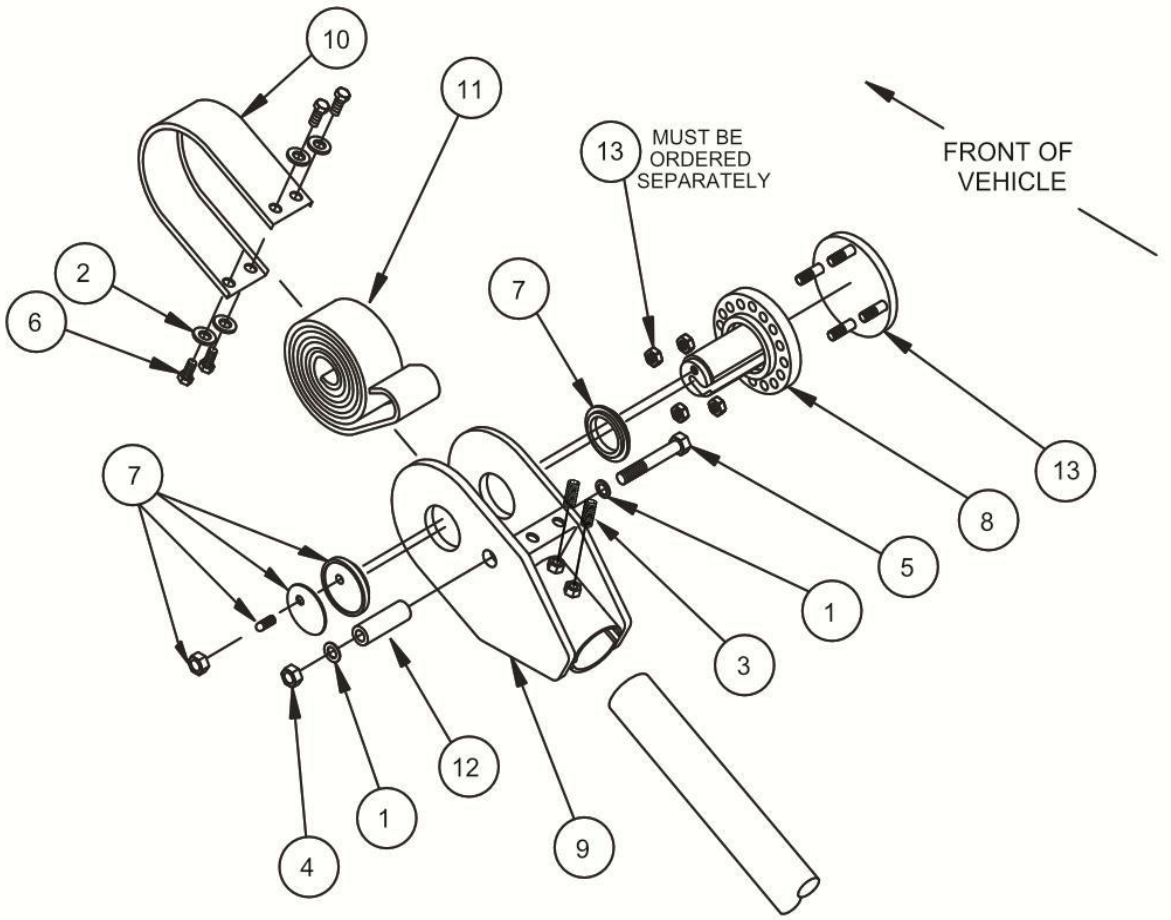
Side Mount Assembly Spring Breakdown



YSPRINGASSEMBLY-LH/RH-DEVO1				
ITEM	**PART#**	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	505-5001	½”AN Flat Washer		2
2	505-2502	¼” AN Flat Washer USS		4
3	501-5008	½”-13x¾ Set Screw		4
4	505-5004	½”” – 13 Nyloc Nut		1
5	503-5011	½” – 13 x 3 HHCS Bolt		1
6	503-2503	¼”- 20x ½ ”lg HHCS Bolt		4
7	501-1181	Bush Kit	YPIVOTBUSHKIT	1
8	501-1119	Pivot Assy LH	YSPRINGPIVOT-LH	1
	501-1120	Pivot Assy RH	YSPRINGPIVOT-RH	1
9	501-1109	Spring Side Plate Assembly		1
10	501-1151	Arm Dust Cover		1
11	501-1156	Rolled Spring Assy	YSPRING	1
12	501-1158	Spring Connection Pin		1
13	501-1237	Arm Adaptor Plate Assy		1
Complete Assembly – YSPRINGASSEMBLY-LH/RH-DEVO1				

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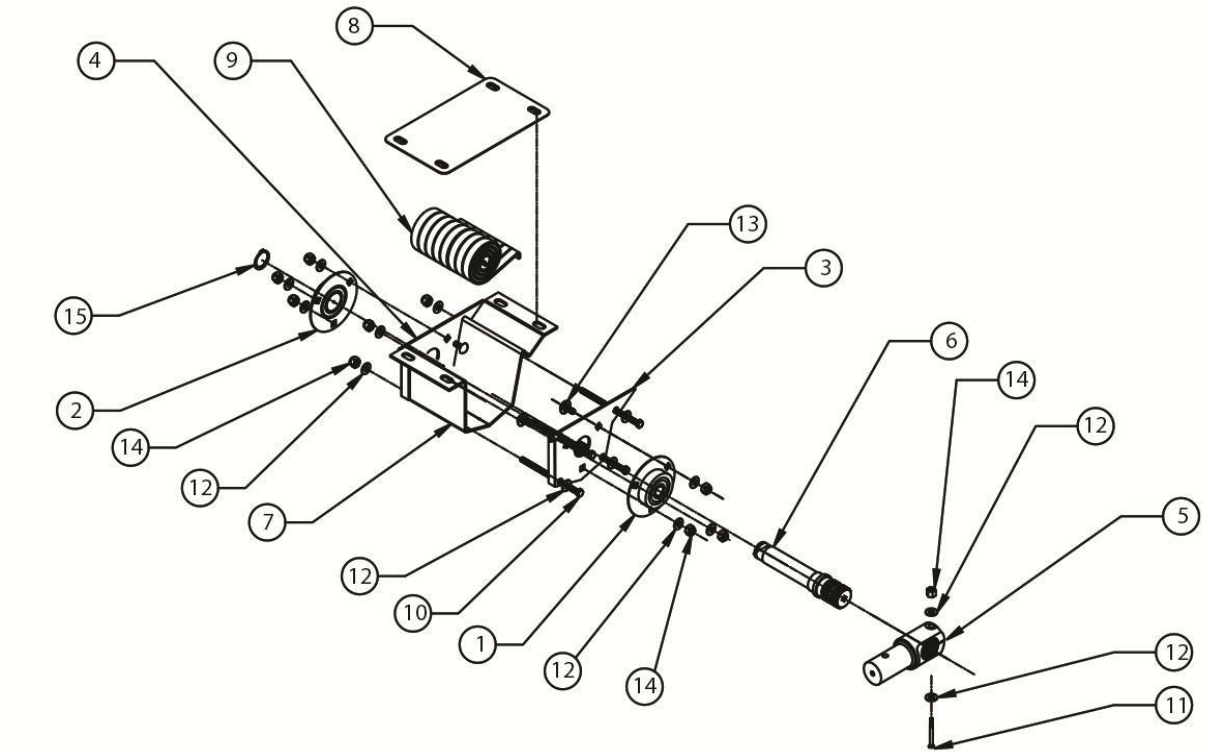
Underbody 8 Spring Assembly Mount Breakdown



YSPRINGASSEMBLY-LH / RH-UB-8S				
ITEM	**PART#**	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	501-1175	Flanged Bearing – Large	YFLANGEBEARING-LARGE	1
2	501-1176	Flanged Bearing – Small	YFLANGEBEARING-SMALL	1
3	501-1184	Left Side		1
4	501-1185	Right Side		1
5	501-1186	Aluminum Arm Connector	YSPRINGASSEMBLY-UB-ARMCONNECT	1
6	501-1190	Pivot Shaft	YSPRINGASSEMBLY-UB-SPRINGSHAFT	1
7	501-1191	Spring Housing		1
8	501-1192	Top Cover		1
9	517-9921	Spring	XALLOYSPRING	8
10	503-3719	3/8”-16X63/4” Bolt. HHCS		4
11	503-3711	3/8”-16X23/4”HHCS		1
12	505-3702	3/8” Flat Washer		16
13	503-3717	3/8”-16X3/4” Carriage Bolt		6
14	504-3702	3/82-16 Nyloc Nut		11
15	506-0103	13/16”X0.056”Retaining Ring		1
Complete Assembly - YSPRINGASSEMBLY-LH / RH-UB-8S				

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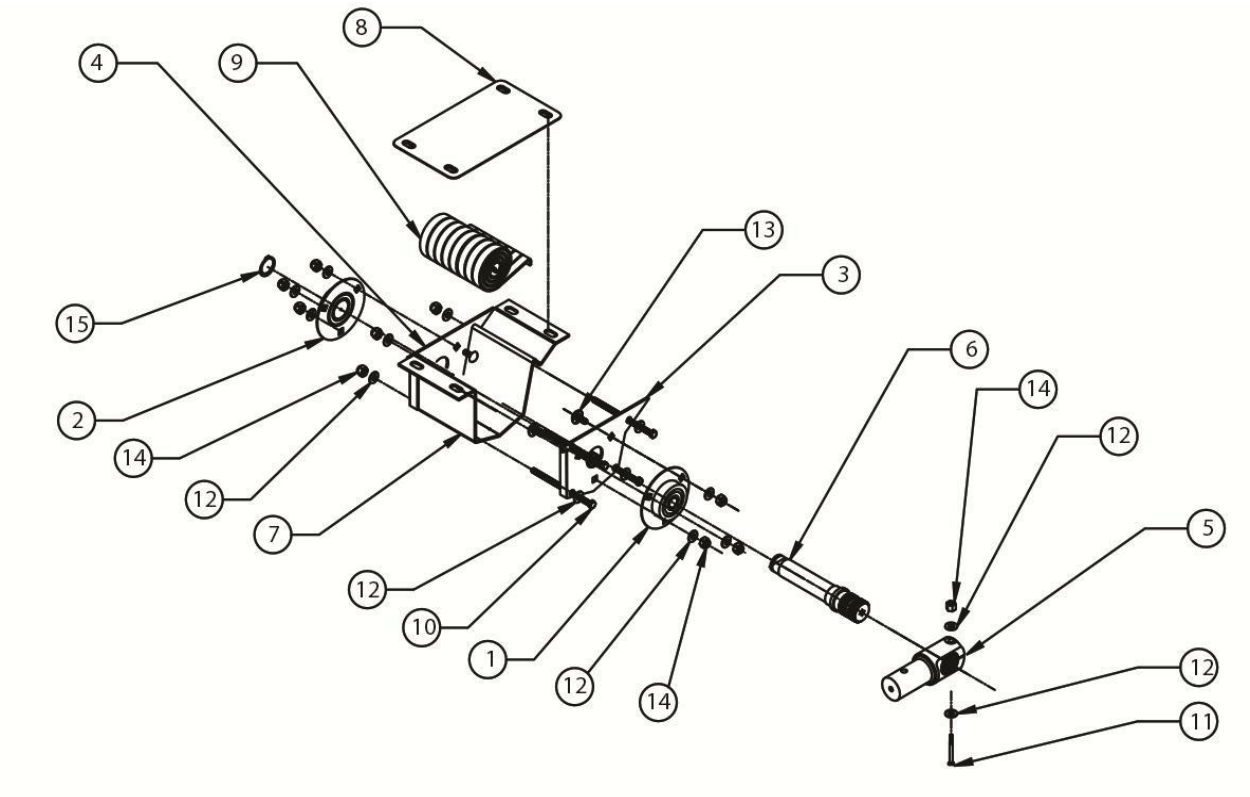
Underbody 6 Spring Assembly Mount Breakdown



YSPRINGASSEMBLY-UB-RH / LH-6S				
ITEM	**PART#**	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	501-1175	Flanged Bearing – Large	YFLANGEBEARING-LARGE	1
2	501-1176	Flanges Bearing- Small	YFLANGEBEARING-SMALL	1
3	501-1184	Left Side Plate		1
4	501-1185	Right Side Plate		1
5	501-1186	Aluminum Arm Connector	YSPRINGASSEMBLY-UB-ARMCONNECT	1
6	501-1190	Pivot Shaft		1
7	501-1191	Spring Housing		1
8	501-1192	Top Cover		1
9	517-9921	Spring	XALLOYSPRING	8
10	503-3719	3/8”-16X63/4” Bolt. HHCS		4
11	503-3711	3/8”-16X23/4”HHCS		1
12	505-3702	3/8” Flat Washer		16
13	503-3717	3/8”-16X3/4” Carriage Bolt		6
14	504-3702	3/82-16 Nyloc Hex Nut		11
15	506-0103	13/16”X0.056” Retaining ring		1
Complete Assembly - YSPRINGASSEMBLY-LH / RH-UB-6S				

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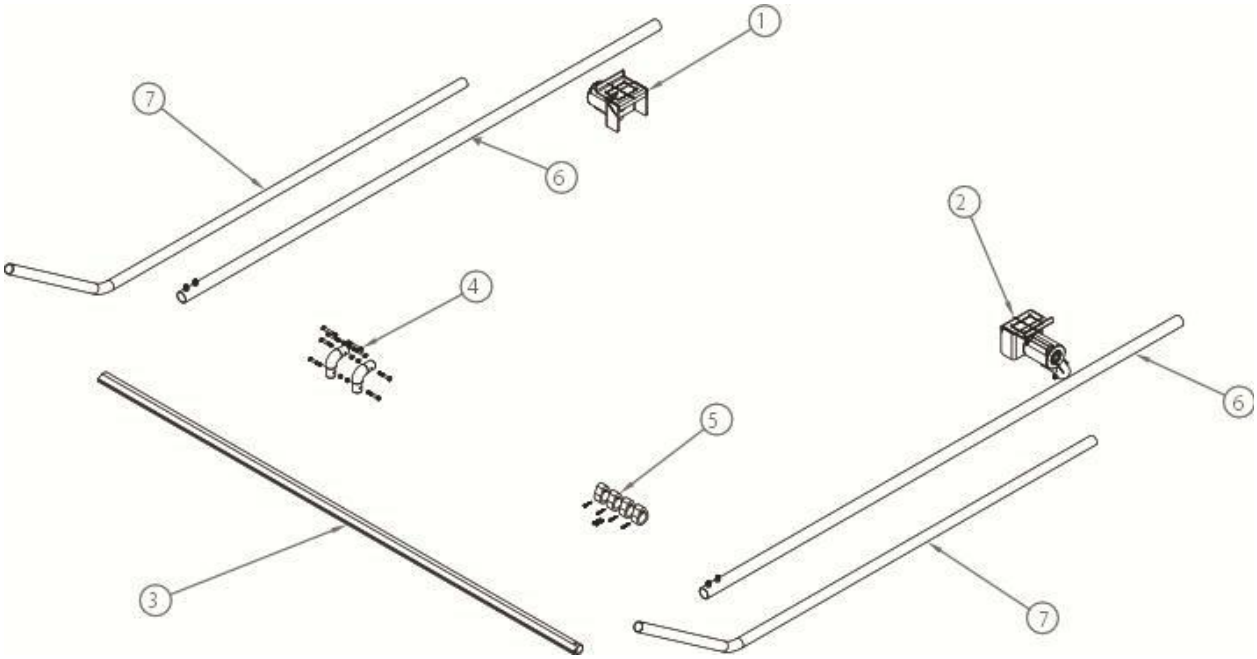
Arm Breakdown



HARSH ARMS				
ITEM	**PART#**	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	501-2110	Gen 3 Underbody Spring Assy LH	YSPRINGASSEMBLY-LH-UB-GEN3	1
2	501-2109	Gen 3 Underbody Spring Assy RH	YSPRINGASSEMBLY-RH-UB-GEN3	1
3	501-1202	Devo Flip Crossbar	YARMCROSSBAR-DEVO1	1
4	501-1251	Devo Flip Cast Corner for Top Arm	YARMTOPCORNER-DEVO1	2
5	501-1234	1½ Pipe & Washers, Jubilee Clips, Red End Caps	YBUFFERKIT-DEVO1	1
6	501-1201	Devo Flip Lower Arm Galvanized	YARMLOWER-DEVO1	2
7	501-1202	Devo Flip Top Arm	YARMTOP-DEVO1	2

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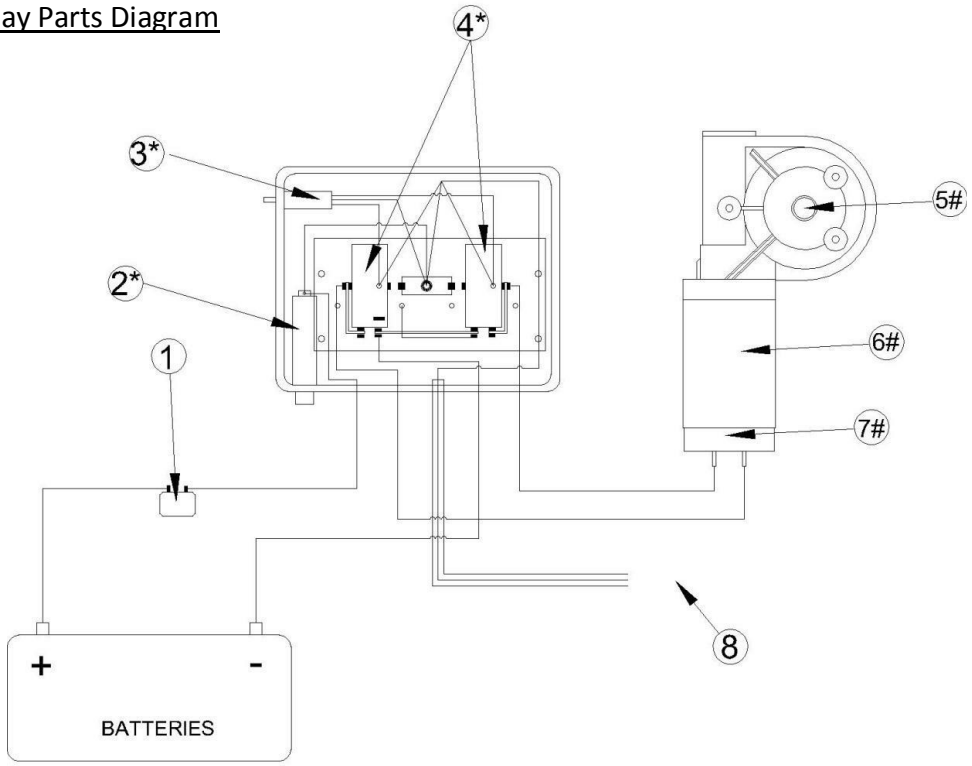
Electrical Overlay Parts Diagram



Parts Diagram for 24 Volt Electrical Systems			
ITEM	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	40a 24v Battery Breaker	XBREAKER	1
2*	40a Manual Reset Breaker	XSWITCH-RESET40A	1
3*	3 Way Spring Return Rocker Switch	XSWITCH-422046	1
4*	24v Solenoid for 1538 Pack	XSOLENOID-ONLY	2
5#	Gearbox to suit 24v Direct Drive Motor*	XMOTORDD/GBOX	1
6#	Direct Drive Motor only 24v 90-33318 *	XMOTORDIRECTONLY	1
7#	Direct Drive End Bell c/w Brushes 90-10770 *	XMOTOR-D-ENDBELL	1
8	3 Way Spring Return Rocker Switch	XSWITCH-DASH-ROCKER	1

Complete Assemblies;-

2*3*4* XSOLENOIDPACK-CAE

5#6#7# XMOTORDDRIVEORIDE

Parts Diagram for 12 Volt Electrical Systems			
ITEM	**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
1	40a 12v Battery Breaker	XBREAKER (State 12V when ordering)	1
2*	40a Manual Reset Breaker	XSWITCH-RESET40A	1
3*	3 Way Spring Return Rocker Switch	XSWITCH-422046	1
4*	12v Solenoid for 1538 Pack	XSOLENOID-ONLY (State 12V when ordering)	2
5#	Gearbox to suit 12v Direct Drive Motor*	XMOTORDD/GBOX	1
6#	Direct Drive Motor only 24v 90-33318 *	XMOTORDIRECTONLY12V	1
7#	Direct Drive End Bell c/w Brushes 90-10770 *	XMOTOR-D-ENDBELL	1
8	3 Way Spring Return Rocker Switch	XSWITCH-DASH-ROCKER	1

Complete Assemblies;-

2*3*4* XSOLENOIDPACK-CAE

5#6#7# XMOTORDIRECTDRIVE

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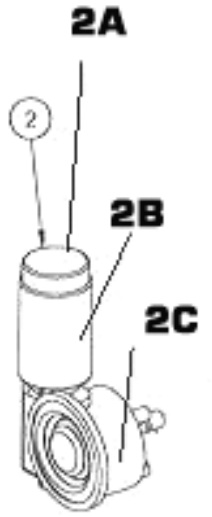

HARSH 24V Standard Motor Drive 24V					
ITEM	**DESCRIPTION**	**STOCK CODE**			**QTY**
2A	24V DC ELECTRIC MOTOR	XMOTORDDRIVEORIDE	2A	XMOTOR-D-ENDBELL	1
2B			2B	XMOTORDIRECTONLY	
2C			2C	XMOTORDDG/BOX	
HARSH 12V Standard Motor Drive 12V					
ITEM	**DESCRIPTION**	**STOCK CODE**			
2A	12V DC ELECTRIC MOTOR	XMOTORDIRECTDRIV-12V	2A	XMOTOR-D-ENDBELL	1
2B			2B	XMOTORDIRECTONLY12V	
2C			2C	XMOTORDDG/BOX	

Electrical Components				
ITEM		**DESCRIPTION**	**HARSH STOCK CODE**	**QTY**
	XBREAKER	40a 24v Battery Breaker	XBREAKER	1
		40a 12v Battery Breaker	XBREAKER (State 12V when ordering)	1
	XSWITCH-RESET40A	40a Manual Reset Breaker	XSWITCH-RESET40A	1
	XWIRETERM1/4	¼" Wire Terminal*	XWIRETERM1/4	4
	XWIRETERM3/8	3/8" Wire Terminal*	XWIRETERM3/8	6
	XWIRETERM10	#10 Wire Terminal*	XWIRETERM10	2

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OPERATION OF THE SYSTEM

***SPECIAL NOTE:** The first time the sheet is rolled up onto the roller; make sure that it rolls evenly on both sides. If not, make certain all installation steps were followed correctly.

SAFETY

When installing your Flip 'N' Go (Underbody Mount) System, use OSHA approved ladders or scaffolding when working above ground level.

- Be careful of existing wires in or on the truck bed.
- Keep clothing and body parts clear of any moving parts while operating the system.
- Vinyl Sheets may require to be secured at rear in windy conditions.
- Do not dump with load covered.

When operating the system, BEWARE OF OVERHEAD WIRES.

For any further queries do not hesitate to contact the Harsh Office on **01759 372100** or email **harsh@harshuk.com**

Trouble Shooting Guide

	SYMPTOM	CAUSE	SOLUTION
Sheet does not cover body.	Roller does not rotate.	Has the Roller been damaged whilst loading?	Replace Roller.
	Arms not under spring tension		Replace Springs
Motor will not turn or turns slowly.	Low voltage and / or amperage to the motor.	Wrong Gauge wire used.	6 Gauge wire must be used from the Power Source, thru the breakers and solenoid pack to the motor. (See Motor Checkout Procedure)
		Is the Solenoid Pack not clicking?	Make sure the breakers are working and there are no breaks in the wire.
		Is the Motor Turning	Test with Jump Leads.
		Are the Electrics tripping out?	Check Breakers and replace if required.

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Motor Checklist

If your system is not working correctly follow the following steps.

1. Remove leads from Motor and attach Volt meter to leads.
2. With the switch in the on position, the volt meter should read a minimum of 12 volts. If the voltage is low re check with the engine running (Minimum 6 Gauge wire must be used as supplied.)
3. Return switch to neutral position and re attach leads to motor.
4. Attach Volt meter to leads at the motor.
5. With the Switch in the on position and the leads attached, the volt meter should read 8.5 minimum volts. If voltage is low re-check with engine running.
6. Return switch to the neutral position and attach amp meter to leads at the motor.
7. With the switch in the on position, amp meter should read approximately 20-30 amps. Constant amperage reading of over 40 amps indicated binding in the system and / or low voltage.

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PRODUCT WARRANTY

Our sheeting systems are fully warranted to be free from defects in workmanship and materials for TWELVE Months from time of shipping. Any part (EXCEPT THE FLEXIBLE COVER and ELECTRIC MOTOR) which proves to be defective upon our inspection will be replaced free of charge. Harsh is not liable for and will not pay for any labour charges or costs incurred in replacing any defective parts.

Approval for authorised warranty replacement must be obtained from Harsh Sheeting Systems prior to returning items to Harsh. If a product failure occurs within our area of responsibility, we will cover shipping charges for the return of the defective part and for reshipping the replacement part, by the most economical mode of transportation available. If the customer wishes to utilise special transportation services such as overnight delivery, the customer bears full responsibility for shipping costs.

Our products are not warranted for application suitability or for any specific purpose unless we are fully informed in writing of all factors related to the operating condition prior to submitting design recommendations.

This warranty does not apply to deterioration resulting from storage or damages sustained in areas beyond our realm of control. This warranty is void if the product is altered by anyone without our authorisation and/or is not installed or maintained according to the instructions included with the system.

It is also understood under these terms of sale that Harsh does not assume responsibility and is not liable for sub sequential or consequential losses or damages to equipment or materials, or expenses incurred in delays, loss of production, or handling costs resulting from a product failure within the limits of this guarantee.

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