

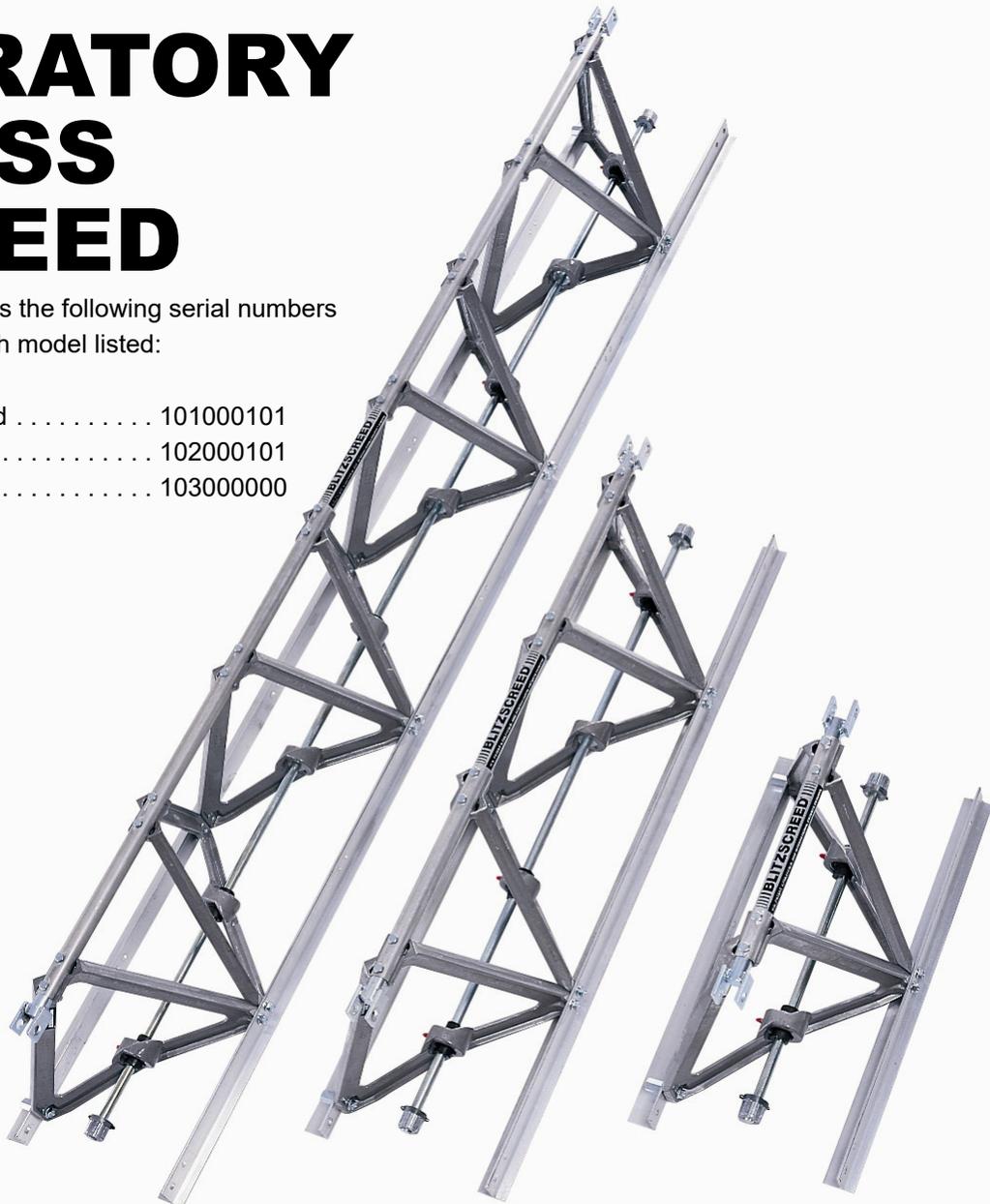
# OPERATOR'S SAFETY AND SERVICE MANUAL



## VIBRATORY TRUSS SCREED

This manual covers the following serial numbers  
and higher for each model listed:

Mechanical Screed . . . . .	101000101
Air Screed . . . . .	102000101
Power Winch . . . . .	103000000



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# **WARNING**



## **CALIFORNIA PROPOSITION 65 WARNING**

Engine exhaust and some of its constituents are known in the state of California to cause cancer, birth defects, and other reproductive harm.

# SAFETY INFORMATION

## Introduction



This Safety Alert Symbol is used to call attention to items or operations which may be dangerous to those operating or working with this equipment.

The symbol can be found throughout this manual and on the unit. Please read these warnings and cautions, along with all decals, carefully before attempting to operate the unit. Make sure every individual who operates or works with this equipment is familiar with all safety precautions.

### **WARNING**

**GENERAL WARNING.** Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment and/or severe bodily injury or death.

### **CAUTION**

**GENERAL CAUTION.** Indicates information important to the proper operation of the equipment. Failure to observe may result in damage to the equipment.

## Safety Precautions



**LETHAL EXHAUST GAS:** An internal combustion engine discharges carbon monoxide, a poisonous, odorless, invisible gas. Death or serious illness may result if inhaled. Operate only in a properly ventilated area. **NEVER OPERATE IN A CONFINED AREA!**



**DANGEROUS FUELS:** Use extreme caution when storing, handling and using fuels as they are highly volatile and explosive in vapor state. Do not add fuel while engine is running. Stop and cool the engine before adding fuel. **DO NOT SMOKE!**



**SAFETY GUARDS:** It is the owner's responsibility to ensure that all guards and shields are in place and in working order.



**IGNITION SYSTEMS:** Breakerless, magneto, and battery ignition systems can cause severe electrical shocks. Avoid contacting these units or their wiring.



**SAFE DRESS:** Do not wear loose clothing, rings, wristwatches, etc. near machinery.



**NOISE PROTECTION:** Wear OSHA specified hearing protection devices.



**EYE PROTECTION:** Wear OSHA specified eye shields, safety glasses, and sweat bands.



**FOOT PROTECTION:** Wear OSHA specified steel-tipped safety shoes.

**HEAD PROTECTION:** Wear OSHA specified safety helmets.



**OPERATOR:** Keep children and bystanders off and away from the equipment.

**DUST PROTECTION:** Machining, crushing or handling of stone, concrete, masonry, metal and other materials may generate dust, mist and fumes containing chemicals such as silica

known to cause serious or fatal injury or illness such as respiratory disease, silicosis, cancer, birth defects, or other reproductive harm.

- Control dust, mist and fumes at the source where possible. Water should be used to control dust whenever feasible.
- Use good work practices and follow the recommendations of the manufacture, OSHA/NIOSH and other occupational trade associations.
- When hazards cannot be eliminated the operator and any bystanders should always wear a OSHA specified respirator for materials being handled.

**REFERENCES:** For details on safety rules and regulations in the United States, contact your local Occupational Safety and Health Administration (OSHA) office. Equipment operated in other countries must be operated and serviced in accordance and compliance with any and all safety requirements of that country. The publication of these safety precautions is done for your information. MBW does not by the publication of these precautions, imply or in any way represent that these are the sum of all dangers present near MBW equipment. If you are operating MBW equipment, it is your responsibility to insure that such operation is in full accordance with all applicable safety requirements and codes. All requirements of the United States Federal Occupational Safety and Health Administration Act must be met when operated in areas that are under the jurisdiction of that United States Department.

## Safety Decals

Carefully read and follow all safety decals. Keep them in good condition. If decals become damaged, replace as required. If repainting the unit, replace all decals. Decals are available from authorized MBW distributors. Order the decal set listed on the following page.

# CAUTION

Read the operating instructions before operating this piece of equipment.

Keep unauthorized, inexperienced, untrained people away from this equipment.

**CHECK** safety switch frequently for proper operation. **ROTATING & MOVING PARTS!** Make sure all guards and safety devices are in place.

**DO NOT RUN** this machine in an enclosed area. The engine produces carbon monoxide, a **POISONOUS** gas.

**SHUT OFF** the engine before servicing, cleaning or adding fuel.

**Failure to comply could result in serious bodily injury.**

Lire le Mode d'Emploi avant de faire fonctionner le matériel

Eloigner toute personne non formée, non autorisée et inexpérimentée du matériel.

**VERIFIER** fréquemment l'interrupteur de sécurité pour un bon fonctionnement.

**PIECES TOURNANTES ET MOBILES!** S'assurer que tous les protecteurs et les dispositifs de sécurité sont en place.

**NE PAS FAIRE FONCTIONNER** le matériel dans les lieux clos. Le moteur produit de l'oxyde de carbone, un gaz **TOXIQUE**.

**ARRETER** le moteur avant d'entretenir ou de nettoyer, et avant d'y ajouter de l'essence.

**L'observation des consignes de sécurité risque de provoquer de graves blessures corporelles.**

01447

**OPERATING INSTRUCTIONS**

1. Check oil in engine crankcase.
2. Open fuel valve; choke as necessary.
3. Set throttle to run position.
4. Pull starter rope.
5. After starting, turn choke off, let engine warm up at idle.
6. Observe **SAFETY PRECAUTIONS** in the owner's manual during operation.
7. **TO STOP:** Return throttle to idle position, close fuel valve, switch to **STOP**.

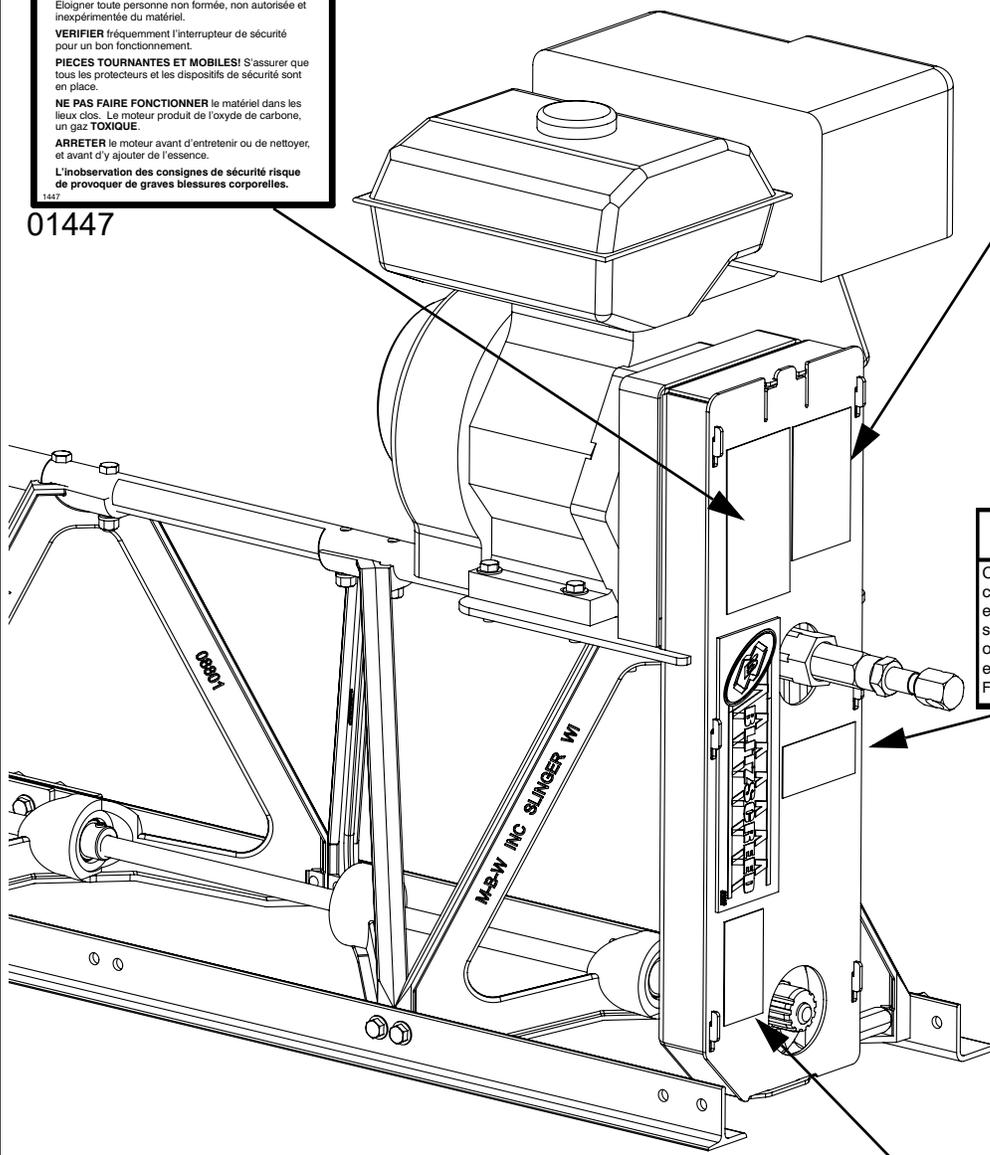
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**MODE D'EMPLOI**

1. Vérifier le niveau d'huile dans le carter du moteur.
2. Ouvrir le volet à carburant. Engager le doseur comme nécessaire.
3. Mettre l'accélérateur à la position "RUN" (MARCHÉ).
4. Tirer sur la corde de démarrage.
5. Dégager le doseur une fois que le moteur commence à marcher. Laisser le moteur se réchauffer au ralenti.
6. Suivre les **PRECAUTIONS DE SECURITE** énumérées dans le manuel de l'utilisateur pendant la marche.
7. **ARRÊT:** Remettre l'accélérateur à la position ralenti, fermer le volet à carburant, mettre le commutateur à la position "STOP" (ARRÊT).

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**WARNING**

Operating, servicing and maintaining this equipment can expose you to chemicals, including engine exhaust, phthalates and lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm. Avoid breathing engine exhaust. Do not operate equipment in confined areas. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

21820

21820

**WARNING**

**PIÈCES ROTATIVES**  
**Ne Pas Toucher!**

**ROTATING PARTS**  
**Keep Hands Away**

11640

**Safety Decals**

**ENGAGE →**  
**← CABLE OUT**  
**← CABLE IN**

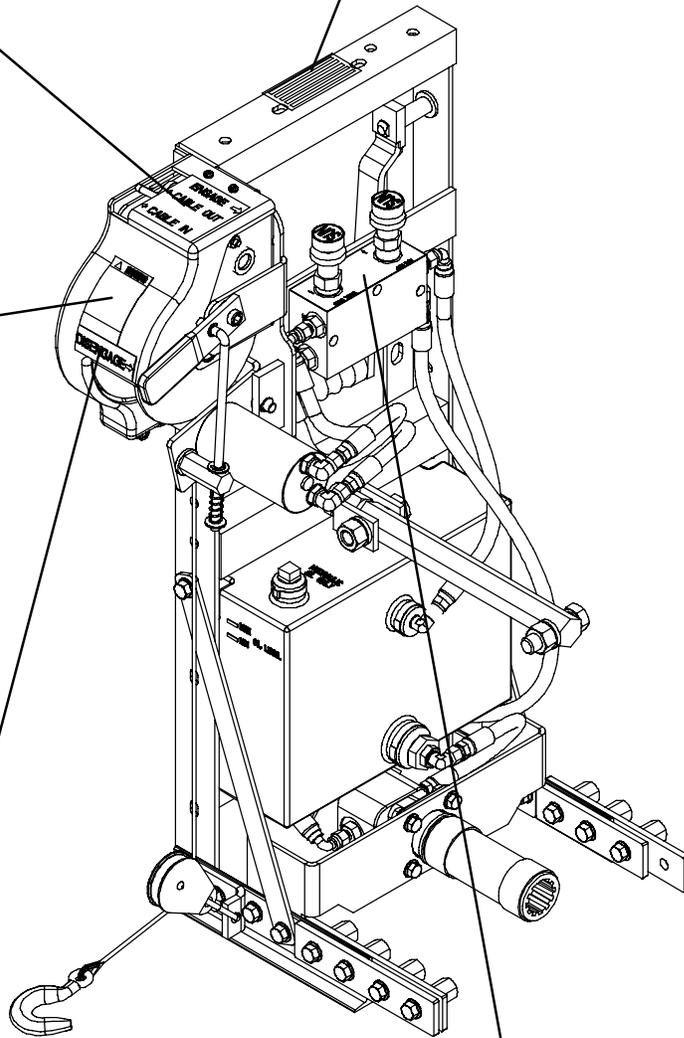
15361

AUTO STOP MUST BE ADJUSTED EACH TIME SCREED LENGTH OR OPERATING CONDITIONS CHANGE. SET TRAVEL SPEED, THEN INCREASE OR DECREASE AUTO STOP RESISTANCE TO A POINT SLIGHTLY HIGHER THAN REQUIRED TO MAINTAIN DESIRED TRAVEL SPEED. 15399

**WARNING**

**ROTATING PARTS**  
**Keep hands away!**

15518



**DISENGAGE →**

15634

**TRAVEL SPEED**

SLOWER FASTER

↓ ↓

**AUTO STOP**

DECREASE RESISTANCE INCREASE RESISTANCE

↓ ↓

15400

# OPERATION

## Introduction

MBW equipment is intended for use in very severe applications. They are powered by four cycle engines and are available in different sizes and a selection of engines.

This parts manual contains only standard parts. Variations of these parts as well as other special parts are not included. Contact your local MBW distributor for assistance in identifying parts not included in this manual.

## Before Starting & Operating

- REMEMBER! It is the owner's responsibility to communicate information on the safe use and proper operation of this unit to the operators.
- Review ALL of the Safety Precautions listed on page 1 of this manual.
- Familiarize yourself with the operation of the machine and confirm that all controls function properly.
- Know how to STOP the machine in case of an emergency.
- Make sure hands, feet, and clothing are at a safe distance from any moving parts.
- OIL LEVEL - Check the oil level in the engine. For more information see "Lubrication" under the respective engine's "Owners Manual" or the Maintenance section of this manual.
- AIR CLEANER - Check to ensure element is in good condition and properly installed.
- FUEL SUPPLY - The engines on MBW equipment require an automotive grade of clean, fresh, unleaded gasoline.
- FUEL FILTER - If clogged or damaged, replace.

## Setup

### Section Assembly

The following describes the assembly procedure of screed sections for both Mechanical and Air Screeds. Section assembly of an Air Screed is identical except where

otherwise stated. It is **essential** to follow the proper set up sequence when assembling the screed for optimum performance.

**IMPORTANT! - For steps 1-10, the screed sections must be on a flat surface.**

1. Determine the number of sections required to obtain the proper screed length. Arrange the sections so the longer sections are in the middle and the shorter sections are at the ends.
2. For the mechanical screed, affix an engine kit to one of the end sections or to the middle section. **Refer to Engine Kit Assembly (5.5 HP Honda), page 20.**, for engine kit installation.
3. If an air screed is being used, **refer to Air Drive Assembly, page 13** for instruction on assembling air drive and end frames.
4. Assemble end frames and winches to the end sections. **Refer to End Frame Assembly, page 13.** for installation of end frames.
5. Start assembling sections at one end of the screed. For mechanical screeds place a flex coupling along with two flex coupling collars between the two coupling drivers of adjoining sections. Collars should be slid out to the ends of the flex coupling.



### CAUTION

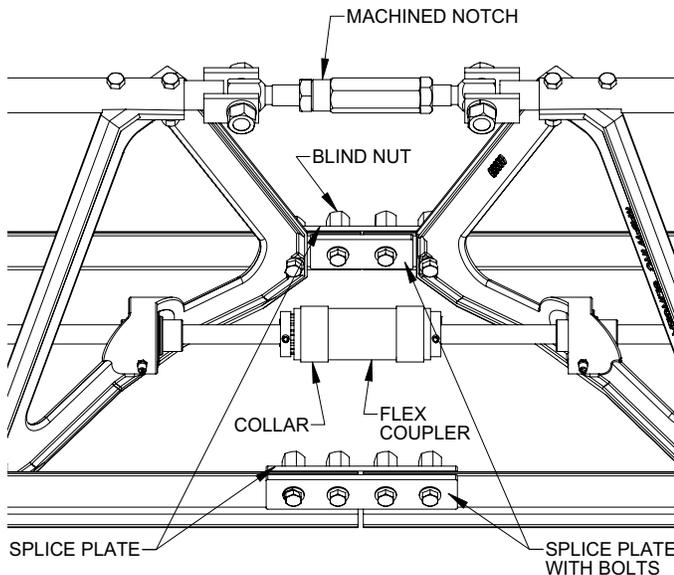


**Check that the two vibrating shaft offsets are in line.**

**For the air screed join the threaded manifold ends with a manifold hose. Use a pipe wrench to prevent the manifold from turning while the hose ends are tightened onto the manifold ends. Assemble all sections in this manner. Sight down top tubes of all sections joined and straighten sections if necessary.**

6. Install a two bolt splice plate through L-rail. Install a four hole splice plate on the outside of the rail and loosely install four blind nuts.
7. Install a four bolt splice plate through the strikeoff rail. Install a four hole splice plate on the inside of the edging and loosely install four blind nuts.

8. Make sure the bottom of the four edgings are in the same plane or height. Tighten both splice plates securely.

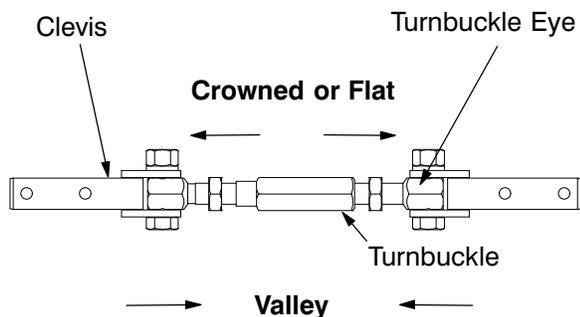


9. Loosely install the turnbuckle assembly directly above the flex coupling to both clevises using a 5/8-18 X 2-1/2 bolt, lockwasher, and a hex nut. **Install all the turnbuckles in the same direction as you progress down the screed.** There is a notch cut on one end of the turnbuckle to indicate its direction. Remember, **do not tighten the turnbuckle hardware yet.**

**REPEAT STEPS 6-10 UNTIL ENTIRE SCREED IS ASSEMBLED**

**After screed is assembled to desired length, a string line should be used for final adjustments.**

10. If the pour surface is to be crowned or flat, rotate the turnbuckles so the turnbuckle eyes are pushed away from each other taking out the slack at the clevis connections. If the pour surface is a valley, rotate the turnbuckles so the turnbuckle eyes are drawn towards each other taking out the slack at the clevis connections. (See Figure Below). Tighten down the 5/8 bolts going through the clevises and turnbuckle eyes **HARD** once the slack is removed.



11. The screed is now ready for grade adjustment. Place the assembled screed on blocks or forms. String a line across the back of the float edge of the screed. Start with the centermost turnbuckle and adjust it so the bottom edge of the screed moves up or down until it is adjusted to the desired grade. Adjust each turnbuckle, working out from the center, until the desired grade is achieved. As the turnbuckles are adjusted from the center out, previously adjusted turnbuckles may need to be readjusted to grade. Readjust the centermost turnbuckles and continue adjusting outward. When all adjustments are completed, tighten the jam nuts.

**CAUTION**

If there is a significant difference between the ambient temperature at set up and the temperature of the concrete to be screeded, the rails may warp due to thermal expansion. Recheck the grade of the screed if this is the case.

### Starting Engine

1. Open fuel valve.
2. Turn engine switch to "ON".
3. Set throttle to idle.
4. Choke engine if necessary (you may not need to choke a warm engine).
5. Pull starter rope repeatedly until engine starts.
6. Move choke lever to open position.
7. Allow engine to warm up for one or two minutes.

### Operating

Proper screed operation is dependant upon uniform and accurate concrete placement. The puddlers should rough grade the freshly poured concrete to just above the strikeoff edging. For the mechanical screed, effective screeding can be done with the engine set from 2000 to a maximum of 2800 rpm with GX160 engine or 3200 for GX270 engine. The operating air pressure range of the air screed is 40 to 60 PSI, depending upon the concrete slump. Each vibrator uses 4 CFM.

**WARNING**

Increasing engine RPM above 2800 (GX160)/3200 (GX270) can cause damage to A-Frames.

1. Begin moving screed to strike off rough graded concrete.
2. Puddlers should maintain a uniform rough grade and remove any concrete buildup in front of leading edge.

3. If screed has to be stopped, it is important to do so quickly as this will prevent wash back and ridges.
4. Before starting up again, pick up screed and set it back about a foot, then proceed.
5. If there is a time delay between concrete trucks, the unfinished concrete should be rough graded back and well below screed strike off height. This will prevent a cold joint when screed operation is resumed.

## Cleaning

1. After using screed, immediately wash the screed down with water hose or high pressure washer and scrub any hard buildup of concrete with a stiff brush. Do not use wire brush.
2. Grease each bearing of the mechanical screed with one shot of low temperature grease immediately after cleaning. **Do not over grease the bearings!**
3. Run screed at operating speed for one minute to dissipate and expel excess water and grease.



## Hydraulic Winch

The hydraulic winches are powered by the main screed shaft and will only operate when the screed shaft is turning. Hydraulic winch operation requires a 9 hp engine.

### To Start Hydraulic Winch:

1. Start engine and throttle up to high rpm.
2. Move winch handle to the "CABLE IN" position.
3. Move the drive gear lever to the "ENGAGE" position. The screed will begin moving. If screed does not move, adjust travel speed and autostop valve until the unit starts to move.
4. The "Auto Stop" is to allow the screed to stop at any obstruction without falling over.

### To Adjust Travel Speed Valve

1. Loosen jam nut counter-clockwise below top knob until jam nut stops. Hold in this position or vibration from unit will change setting.

2. Turn top knob clockwise to increase speed or counter-clockwise to decrease speed.
3. Turn jam nut clockwise to lock travel speed valve.

### To Adjust Auto Stop Valve

**Note: Auto stop valve is preset at the factory and should not need to be re-adjusted for lengths under 25 feet.**

1. Loosen jam nut counter-clockwise below top knob until jam nut stops. Hold in this position or vibration from unit will change valve setting.
2. Turn top knob clockwise to increase resistance. This will increase cable pulling power. Turn counter clockwise to lessen pulling power.
3. Turn jam nut clockwise to lock auto speed valve.

**Note: Failure to lock jam nut will allow valves to turn from vibration during operation.**

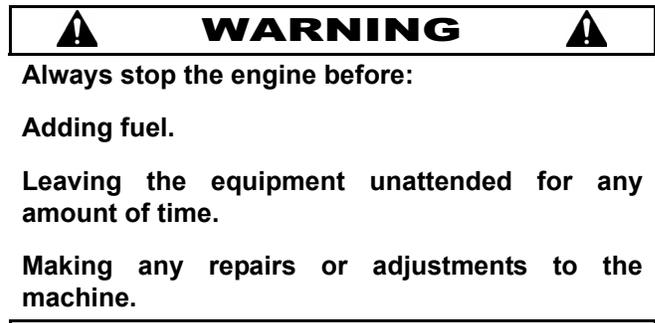
4. The factory setting for the auto stop can be set by turning the valve all the way in clockwise and out 1-1/2 turns.
5. The auto stop valve is to allow the screed to stop at any obstruction without falling over.

### To Stop Hydraulic Winch:

1. Move the drive gear lever to the "DISENGAGE" position on left and right side.
2. Return engine speed to idle or the concrete under the screed will start to separate.

## Stopping Engine

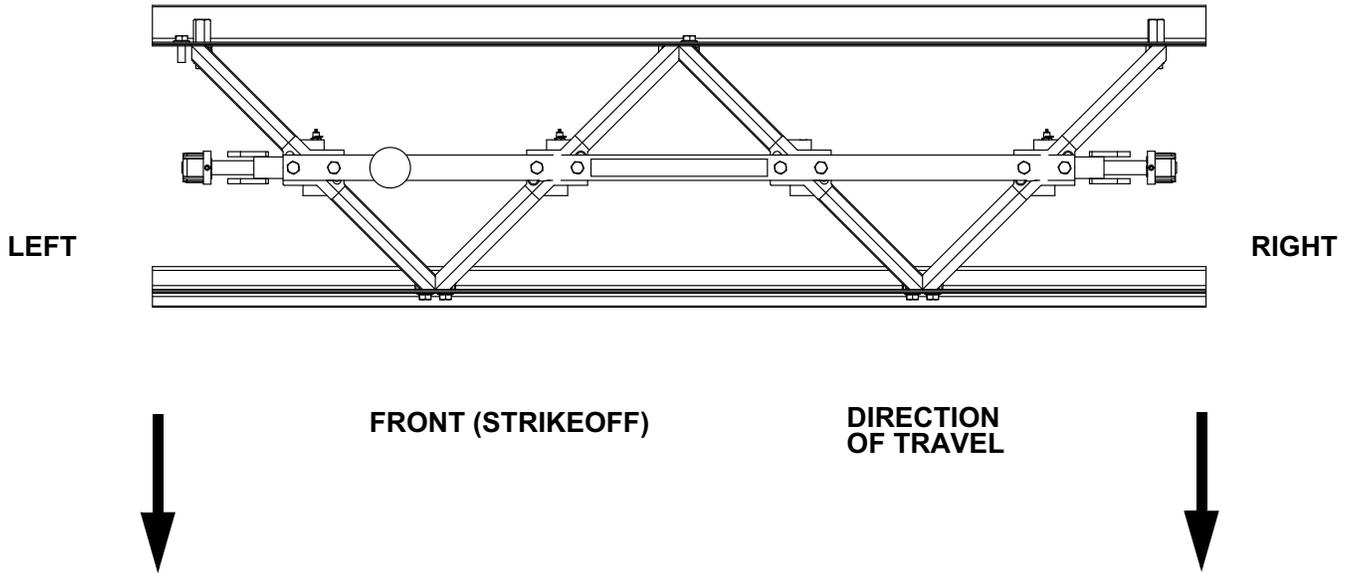
1. Move throttle to idle position.
2. Let engine idle for one or two minutes.
3. Turn switch on engine to "STOP" position.
4. Turn off fuel valve.



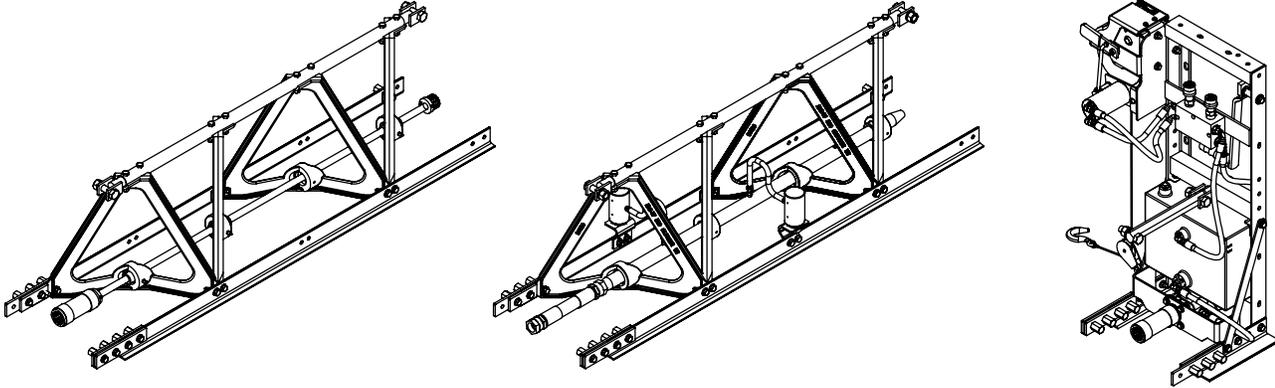
## Directions

Right and left sides of the screed are determined by facing the front (strikeoff) rail ("T" shaped rail).

BACK (FLOAT)



# SPECIFICATIONS



	MECHANICAL	AIR
<b>Length</b>	MVS8 - 8 ft 4 in (2.54 m)	AVS8 - 8 ft 4 in (2.54 m)
	MVS4 - 4 ft 4 in (1.32 m)	AVS4 - 4 ft 4 in (1.32 m)
	MVS2 - 2 ft 4 in (0.71 m)	AVS2 - 2 ft 4 in (0.71 m)
<b>Rails</b>	Front "T" Profile Rail (Standard) Front "L" Profile Rail (Optional) Rear "L" Profile Rail (Standard)	
<b>Truss Height</b>	16 in (40.7 cm)	
<b>Truss Width</b>	15 in (38.1cm)	
<b>Max Section Misalignment</b>	2.75 Degrees	2.75 Degrees
<b>Weight Approx.</b>	8.3 lb/ft (12 kg/m) (excluding engine)	8.9 lb/ft (13.2 kg/m) (excluding regulator kit)
<b>Engine</b>	Robin EX170	N/A
	Honda GX160	
	Honda GX270	
<b>Engine Speed</b>	2800 RPM (max.)	
<b>Eccentric Shaft Speed</b>	2800 RPM (max.)	
<b>Centrifugal Force / Unit Length</b>	15.0 lb/ft (220 N/m) @ 2800 RPM	
<b>Vibrations per Minute</b>		5000-8000
<b>Air Operating Pressure</b>	N/A	40-60 psi (0.28-0.41 MPa)
<b>Air Usage</b>		4 cfm (0.11 m <sup>3</sup> /min) / vibrator

HYDRAULIC WINCH	
<b>Noise Level</b>	89 dba
<b>Weight</b>	82 lb/side (37 kg/side)
<b>Length</b>	10 in (25.4 cm)
<b>Height</b>	34 in (86.4 cm)
<b>Oil Capacity</b>	1.7 gal (6.4 l)
<b>Width</b>	9.75 in (24.8 cm)
<b>Speed</b>	0-16.7 ft/min (0-5.1 m/min)

Specifications subject to change without notice.

# MAINTENANCE



## WARNING



Always exercise the stopping procedure before servicing or lubricating the unit.

After servicing the unit, replace and fasten all guards, shields, and covers to their original positions before resuming operation.



## CAUTION



Always verify fluid levels and check for leaks after changing fluids.

Do not drain oil onto ground, into open streams, or down sewage drains.

## Maintenance Schedule

SYSTEM	MAINTENANCE	EACH USE	EVERY 50 HOURS	EVERY 250 HOURS	YEARLY
Engine	Refer to engine operator/owner manual	X			
Hyd Oil	Check oil level	X			
Hyd	Check for oil leaks	X		X	X
Air Hoses	Check for cracks or tears		X		X
Exciter, Air	Tighten Bolts <sup>1</sup>		X		X
Hardware	Check and tighten as needed		X		X

1. Check all hardware after the first 5 hours of use, then follow the maintenance schedule.

## Fluid Levels

SYSTEM	FLUID VOLUME	RECOMMENDED OIL
Winch	1.7 gal per side	Hydraulic Oil (ISO32)
Engine	Refer to engine operator/owner manual	

## Engine Maintenance

Refer to the engine owner's manual for maintenance intervals and procedures.

## A-Frame Replacement

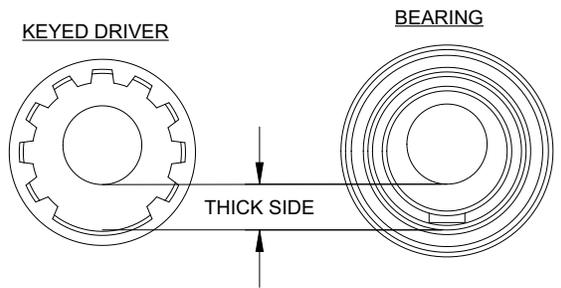
### REMOVAL (*Mechanical*)

1. Remove coupling driver. Support end of shaft when driving out the spiral pin, slide the coupler off.
2. Loosen bearing set screws and remove shaft. If there is a drive pulley on the shaft, it must be loosened to remove the shaft. Note the position of taperlock bushing on the shaft before removal. To loosen drive pulley remove both sheave bolts and re-install into the opposite threaded holes on sheave. This will push apart the assembly. Refer to figure on next page.
3. Slightly loosen all bottom A-frame whiz-lock screws securing rails to A-frames.
4. Loosen top tube bolts and remove top tube.

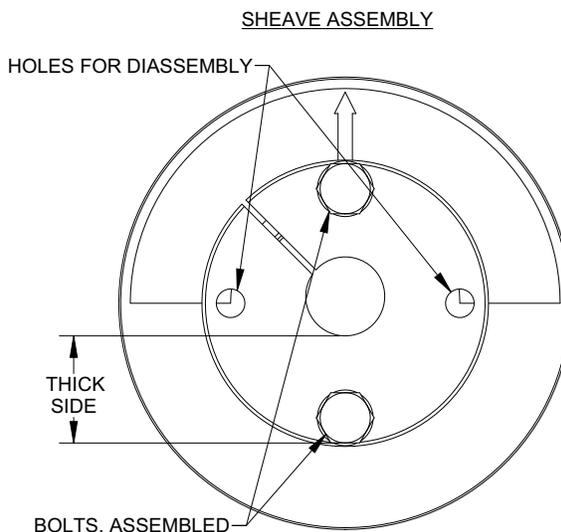
5. Remove the two bottom whiz-lock screws in A-frame to be removed. Remove A-frame.

### INSTALLATION (*Mechanical*)

1. Installation must be done on a flat surface.
2. Loosely install new A-frame into screed with two whiz-lock screws.
3. Loosely install top tube with hardware.
4. Tap screed on flat surface to ensure it is flat and true.
5. Tighten all whiz-lock screws securing A-frames to screed rails.
6. Tighten top tube bolts.
7. Turn and align bearings so the set screws are **all facing up**.
8. Insert shaft into screed bearings. If a drive pulley was removed, loosely place it on the shaft under engine. Also ensure the shaft is positioned through drive belt(s).
9. Align set screw marks on shaft with set screws in bearings. This will ensure the shaft is properly centered in



ASSEMBLE SHEAVE ASSEMBLY ON SHAFT SUCH THAT THICK SIDE OF HOLE OFFSET MATCHES THAT OF KEYED DRIVER AND BEARING.



screed. There should be an offset of 1-7/16" from the end of the shaft to the end of the screed edgings.

10. Tighten bearing set screws ensuring they are all in the same orientation. Refer to image above.

11. Align and install coupling driver. **Make sure offset of coupling driver matches offset of eccentric bearings when installed (thick side of coupling driver matches orientation of thick side of eccentric bearings).** Support the end of the shaft when driving the spiral pin through. The pin should be driven in so an equal amount of the pin is protruding from the coupling driver on either side.

12. If applicable, tighten drive pulley and align as described in **Refer to Engine Assembly, page 12.**

**Note: Make sure offset of drive pulley matches the offset of eccentric bearings.**

#### REMOVAL (Air Screed)

1. Disconnect exciter air hoses from air manifold.
2. Remove male connectors from air manifold.
3. Slide air manifold out of screed.
4. Slightly loosen all bottom A-frame whiz-lock screws securing rails to A-frames.
5. Loosen top tube bolts and remove top tube.
6. Remove the two bottom whiz-lock screws in A-frame. Remove A-frame.

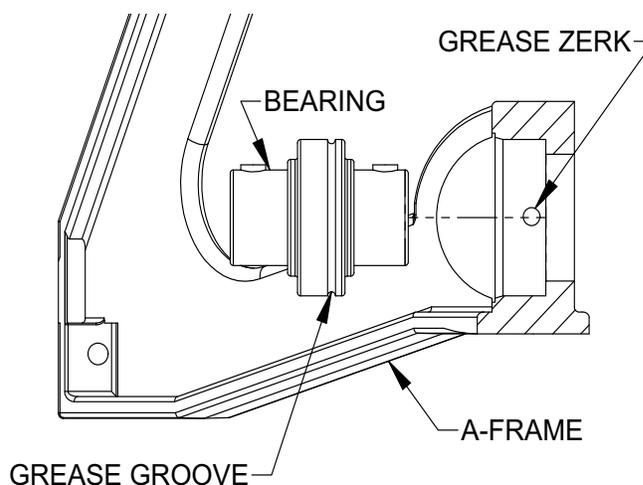
#### INSTALLATION (Air Screed)

1. Installation must be done on a flat surface.
2. Loosely install new A-frame into screed with two whiz-lock screws.
3. Loosely install top tube with hardware.
4. Tighten all whiz-lock screws securing A-frames to screed rails.

5. Tighten top tube bolts.
6. Insert air manifold into screed. Orient air ports so they face up.
7. Install male connectors into air ports.
8. Connect air exciter hoses to air manifold.

#### Bearing Replacement (Mechanical Screed)

1. Remove A-frame (Refer to section on **A-Frame Replacement**).
2. Knock out or press out old bearing out of A-frame.
3. Remove set screw on new bearing before installing.
4. Press new bearing into A-frame, refer to figure below.
5. Make sure grease groove lines up with grease zerk.



6. Install A-frame into screed (refer to **A-Frame Replacement**).

### **Drive Belt Replacement (*Mechanical Screed*)**

1. To access belt, split sections of screed where drive kit is located. Refer to Setup, page 4.
2. Remove belt guard by pulling top locking tab away from engine and pulling up, disengaging hooks.

GX160 Engine option is equipped with a self-tensioning clutch system so belt should be loose when engine is not running.

GX270 engine option is equipped with an adjustable belt tensioning pulley. Tighten belt until 1/2" of deflection is observed while applying moderate pressure.

### **Long Term Storage (*Mechanical Screed*)**

Before storing screed for an extended period of time:

1. Grease bearings with one shot of low temperature grease after final usage before storing. Run screed at operating speed for one minute after greasing all bearings.
2. Refer to engine's **Operator's Manual** for instructions on storage procedure for engine.

### **Changing Hydraulic Oil (*Hydraulic Winches*)**

1. Remove winch assembly from screed sections.

2. Lay winch assembly on its side (rails pointed up) and remove lower hydraulic hose.
3. Remove filter/fitting assembly.
4. Tip winch assembly over and drain oil into a drain pan, dispose of properly.
5. Clean filter assembly in a cleaning solvent, inspect filter and replace if damaged.
6. Check all hoses for wear or damage, replace as necessary.
7. Reassemble filter assembly and hydraulic hose, use sealant at connections. Then, refill tank with 1.2 gallons of hydraulic oil (ISO32).

### **Winch Maintenance (*Hydraulic Winches*)**

1. Remove guard and inspect cable for wear, replace if damaged.
2. Inspect all bushings for wear, replace if damaged.
3. Inspect both drive and driven gears for wear, replace if necessary. Make sure gears are free of any foreign materials.
4. Reinstall guard and inspect decals, replace decals if damaged or illegible.

## **Greasing Bearings (*Mechanical Screed*)**

Bearings come prelubed from the factory and do not need to be greased for initial use. Bearings need to be greased after a days useage and after the screed has been washed down and for long storage. Run screed at operating speed for one minute after greasing all bearings. It is recommended to use a low temperature grease. Refer to sections on **Operation** and **Long Storage** in this manual for additional information. Only one shot of grease is needed for each bearing. Over greasing will result in excess drag on the shaft.

# SERVICE

Assembly and disassembly should be performed by a service technician who has been factory trained on MBW equipment. The unit should be clean and free of debris. Pressure washing before disassembly is recommended.

- Prior to assembly, wash all parts in a suitable cleaner or solvent.
- Check moving parts for wear and failure. Refer to the Replacement section in this manual for tolerance and replacement cycles.
- All shafts and housings should be oiled prior to pressing bearings. Also, ensure that the bearings are pressed square and are seated properly.
- All gaskets and seals should be replaced after any disassembly.

## Torque Chart

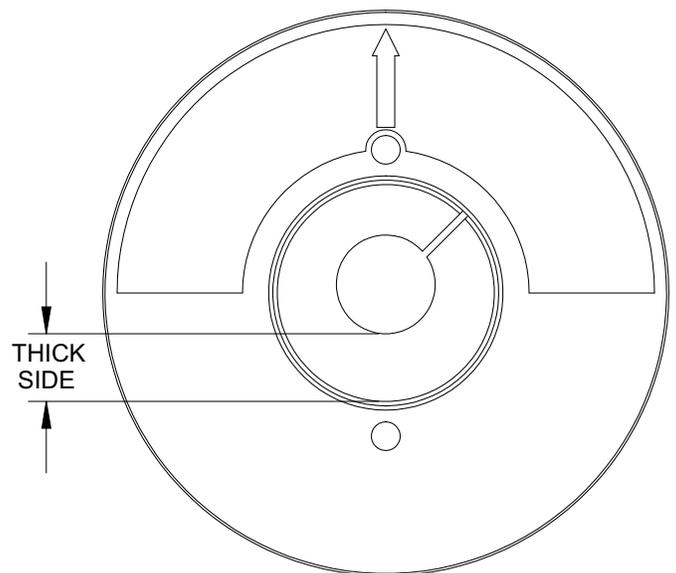
SIZE	GRADE 2	GRADE 5	GRADE 8
1/4-20	49 in·lbs	76 in·lbs	9 ft·lbs
1/4-28	56 in·lbs	87 in·lbs	10 ft·lbs
5/16-18	8 ft·lbs	13 ft·lbs	18 ft·lbs
5/16-24	9 ft·lbs	14 ft·lbs	20 ft·lbs
3/8-16	15 ft·lbs	23 ft·lbs	33 ft·lbs
3/8-24	17 ft·lbs	26 ft·lbs	37 ft·lbs
7/16-14	24 ft·lbs	37 ft·lbs	52 ft·lbs
7/16-20	27 ft·lbs	41 ft·lbs	58 ft·lbs
1/2-13	37 ft·lbs	57 ft·lbs	80 ft·lbs
1/2-20	41 ft·lbs	64 ft·lbs	90 ft·lbs
9/16-12	53 ft·lbs	82 ft·lbs	115 ft·lbs
5/8-11	73 ft·lbs	112 ft·lbs	159 ft·lbs
5/8-18	83 ft·lbs	112 ft·lbs	180 ft·lbs
3/4-16	144 ft·lbs	200 ft·lbs	315 ft·lbs
1-8	188 ft·lbs	483 ft·lbs	682 ft·lbs
1-14	210 ft·lbs	541 ft·lbs	764 ft·lbs
1-1/2-6	652 ft·lbs	1462 ft·lbs	2371 ft·lbs
M 6	3 ft·lbs	4 ft·lbs	7 ft·lbs
M 8	6 ft·lbs	10 ft·lbs	18 ft·lbs
M 10	10 ft·lbs	20 ft·lbs	30 ft·lbs
<b>CONVERSIONS</b>			
in·lbs x 0.083 = ft·lbs			
ft·lbs x 12 = in·lbs			
ft·lbs x 0.1383 = kg·m			
ft·lbs x 1.3558 = N·m			

## Engine Assembly

The engine must be put on any mechanical screed section on the right end when viewed from the "T" rail side.

Installation is similar with GX160 and GX270 engine options. **Refer to GX160 Engine Kit, page 20**

1. Remove right coupling driver. Support the end of the shaft when driving out the spiral pin. Keep parts for reassembly.
  2. Remove the two top tube bolts from the right end A-frame and remove clevis. Remove the existing flange headed bolt securing the a frame to the "L" shaped floating rail.
  3. Install threaded rod (#14) into coupling nut (#10), then install assembly into a-frame and rail as shown.
  4. Insert clevis (#12) included with kit into top rail and align holes.
  5. Place engine mounting deck (#13) on top of top tube. Loosely install engine mounting deck using Flat head bolts (#24) and the lock washers and nuts removed in step 2. Also secure at lower end with bolt (#23). Tighten hardware.
  6. Install engine asm (#1) as shown.
  7. Install drive pulley with bolts on the screed side.
  8. Slip V-belt over engine clutch and drive pulley. Place V-belt on sheave and align sheave with engine clutch so that the belt is parallel to the belt guard.
- Note: Make sure the shaft is rotated to its highest position at this time (set screws in bearings are down).**
9. Rotate pulley so the **thick** side of bore is **below** the shaft. Tighten sheave onto shaft by tightening the two screws in the tapered bushing of sheave.



10. For GX270 assembly, Adjust belt tension by sliding belt tensioner pulley in slot. Check belt tension by

pinching the belt between your fingers. With moderate pressure, belts should deflect about 1/2".

11. Reinstall the drive coupler with spiral pin. support end of shaft while driving pin into place to prevent damage.
12. Align slots in plastic belt cover (#8) with tabs on rear guard (#13) and slide down into place.
13. Assemble turnbuckle components as shown and attach to clevis (#12) using bolt (#25) and lock washer (#17)

## End Frame Assembly

The end frames are symmetrical and can be used on either end. **NOTE:** The end frames for the hydraulic drive are left hand and right hand. **Refer to Engine Kit Assembly (5.5 HP Honda), page 20.**

1. Set an end frame (#5) on one of the screed ends and align the two bottom holes with the two holes in the edging. Secure with two whiz-lock screws (#21) and two flange nuts (#23).
2. Attach eye bolt (#6) to clevis and place through hole in center of cross brace. Square end frame with screed edging by adjusting the two nuts (#32) on the eye-bolt and then tightening them securely.

## Air Drive Assembly

**Refer to Air Regulator Kit Assembly, page 26.**

1. Decide on which end of screed the combination regulator unit will be mounted.
2. Install 90 degree pipe fitting (#10) and nipple (#9) on regulator end of air manifold. Install pipe cap (#21) on opposite end of manifold.
3. Install end frames on either end of screed, **Refer to End Frame Assembly, page 13.**

4. On inlet side of regulator assembly install pipe nipple (#9) and ball valve (#11).
5. On outlet side of regulator assembly install pipe nipple (#9), 90 degree pipe fitting (#10) and another pipe nipple (#9).
6. Install pipe plug and pressure gauge on regulator assembly.
7. Install pipe rings (#1) on each side of air regulator (#6).
8. Using bolts (#23) and nuts (#7), mount air filter assembly bracket (#5) to the screed end bracket (#2).
9. Using bolts (#22) and nuts (#16) mount regulator assembly to mounting bracket.
10. Install air hose (#7) between regulator assembly outlet and screed air manifold.

## Hydraulic Drive Assembly

**Refer to Hydraulic Winch Kit (RH Shown) - Figure 2, page 32.**

1. Install the flex coupling (#8) with the two collars (#7).
2. Install end frames (#1) on either end of screed.
3. Install a three bolt splice plate (#9) on the inside of the float rail. Install a four hole splice plate (#4) on the outside of the float rail and loosely install three blind nuts (#2).
4. Install a four bolt splice plate (#3) on the outside of the strikeoff edging. Install a four hole splice plate (#4) on the inside of the strikeoff edging and loosely install four blind nuts (#2).
5. Make sure the bottom of the four edgings are in the same plane. Securely tighten both splice plates.
6. Install the extension bar with a hex head bolt (#16) and a lockwasher (#18) with hex nut (#17). Refer to Hydraulic Winch Kit (RH Shown) - Figure 1, page 30

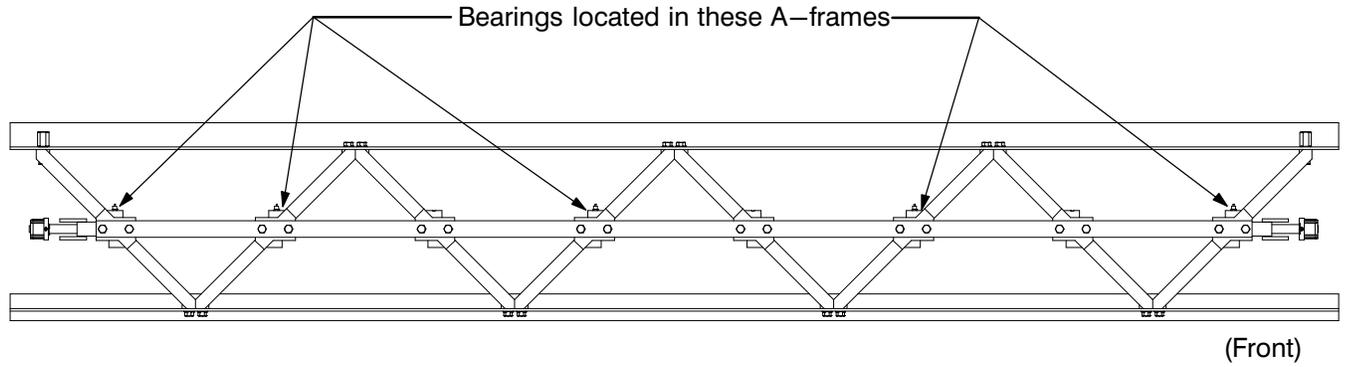
## Parts Replacement Cycles and Tolerances

<b>Bearings</b>	Replace anytime a bearing is rough, binding, discolored or removed from housing or shaft.
<b>Clutch</b>	Replace clutch if it does not disengage below 1800 rpm.
<b>Engine Components</b>	Refer to your engine manufacturer's Owner's Manual.
<b>Hardware</b>	Replace any worn or damaged hardware as needed. Replacement hardware should be grade 5 and zinc plated unless otherwise specified.
<b>Safety Decals</b>	Replace if they become damaged or illegible.
<b>Seals &amp; Gaskets</b>	Replace if a leak is detected and at every overhaul or teardown.
<b>V-Belts</b>	Replace if cracked, torn, or stretched to the point the belt won't tension properly.
<b>A-Frame</b>	Replace if cracked or damaged.
<b>Flex Keyed Coupler</b>	Replace if cracked, worn or teeth are missing.
<b>Hoses</b>	Replace if a leak is detected.

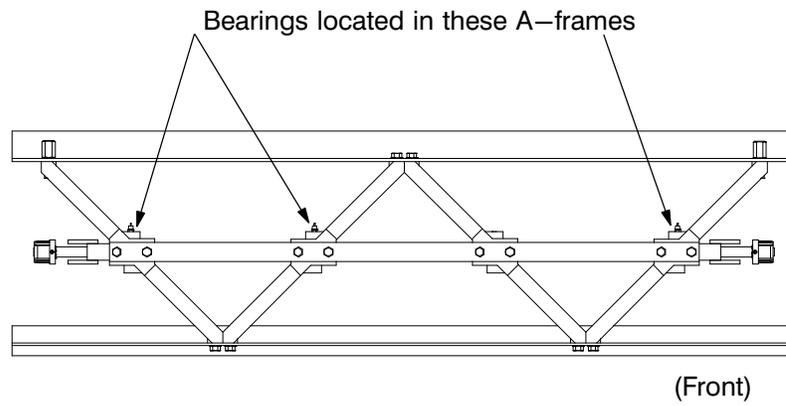
# BEARING LOCATIONS (*MECHANICAL SCREED*)

The eccentric bearings are located in the screed A-frames as shown below.

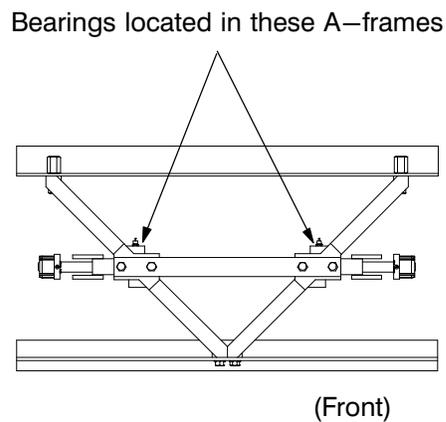
**MVS8**



**MVS4**

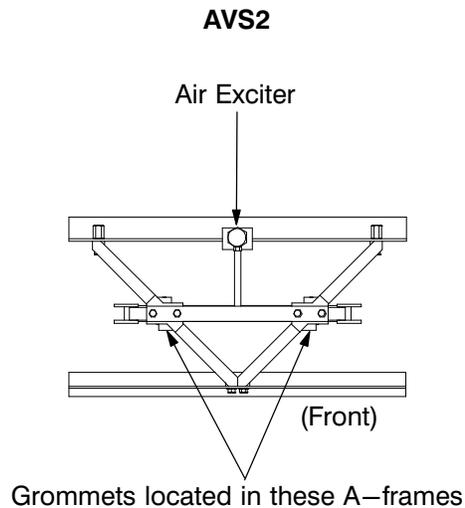
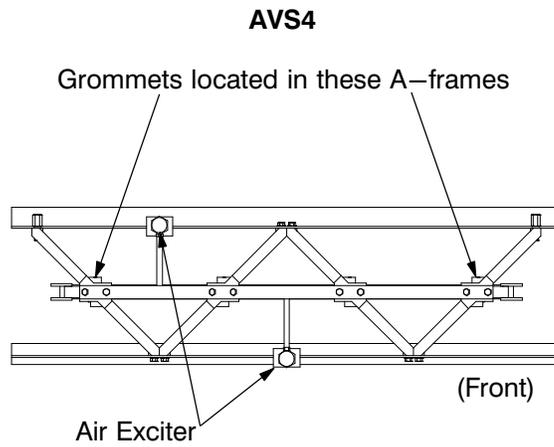
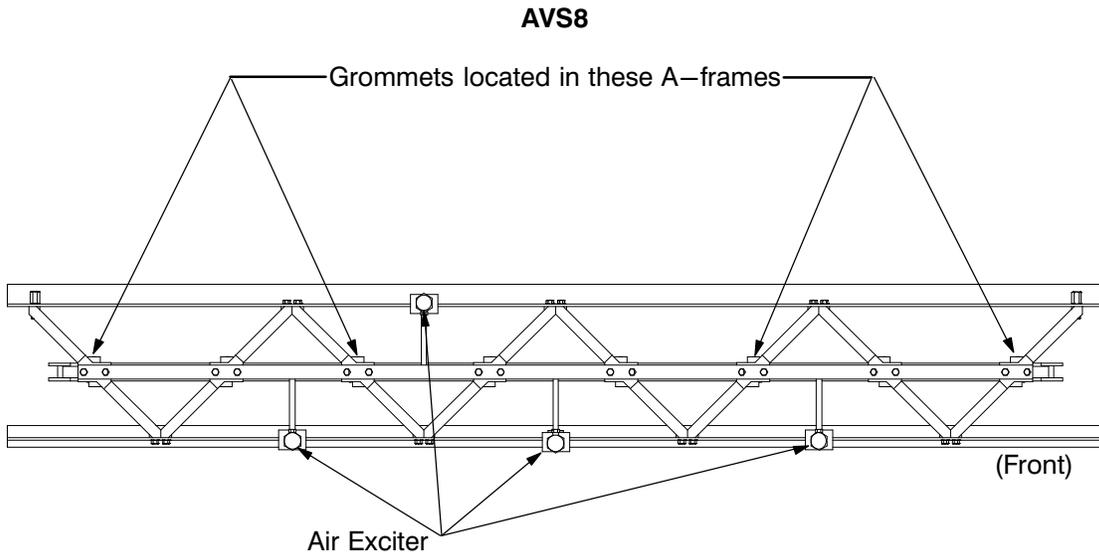


**MVS2**



# AIR EXCITER & GROMMET LOCATIONS

Air exciters and grommets are located on the screed as shown below.



# REPLACEMENT PARTS

The warranty is stated in this book on page 14. **Failure to return the Warranty Registration Card renders the warranty null and void.**

MBW has established a network of reputable distributors/dealers with trained mechanics and full facilities for maintenance and rebuilding, and to carry an adequate parts stock in all areas of the country. Their sales engineers are available for professional consultation. If you cannot locate an MBW distributor in your area, contact MBW or one of our Sales Branches listed below.

When ordering replacement parts, be sure to have the following information available:

- Model and Serial Number of machine when ordering MBW parts
- Model and Serial Number of engine when ordering engine parts
- Part Number, Description, and Quantity
- Company Name, Address, Zip Code, and Purchase Order Number
- Preferred method of shipping

**REMEMBER - You own the best! If repairs are needed, use only MBW parts purchased from authorized MBW distributors.**

Write Model Number here

Write Serial Number here

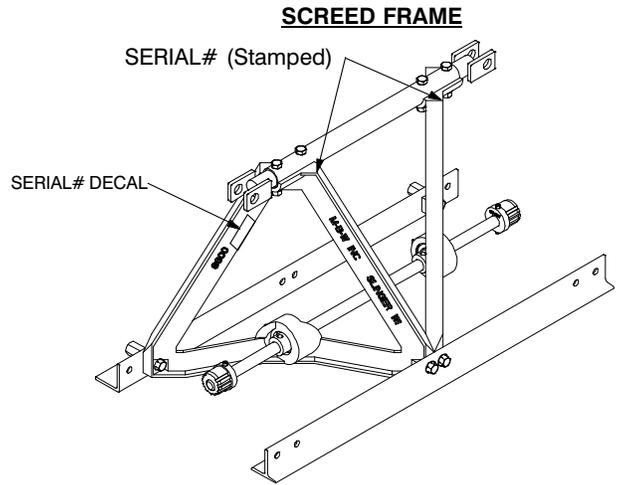
## Contact Information

### MBW, Inc.

250 Hartford Rd • PO Box 440  
Slinger, WI 53086-0440  
Phone: (262) 644-5234  
Fax: (262) 644-5169  
Email: [mbw@mbw.com](mailto:mbw@mbw.com)  
Website: [www.mbw.com](http://www.mbw.com)

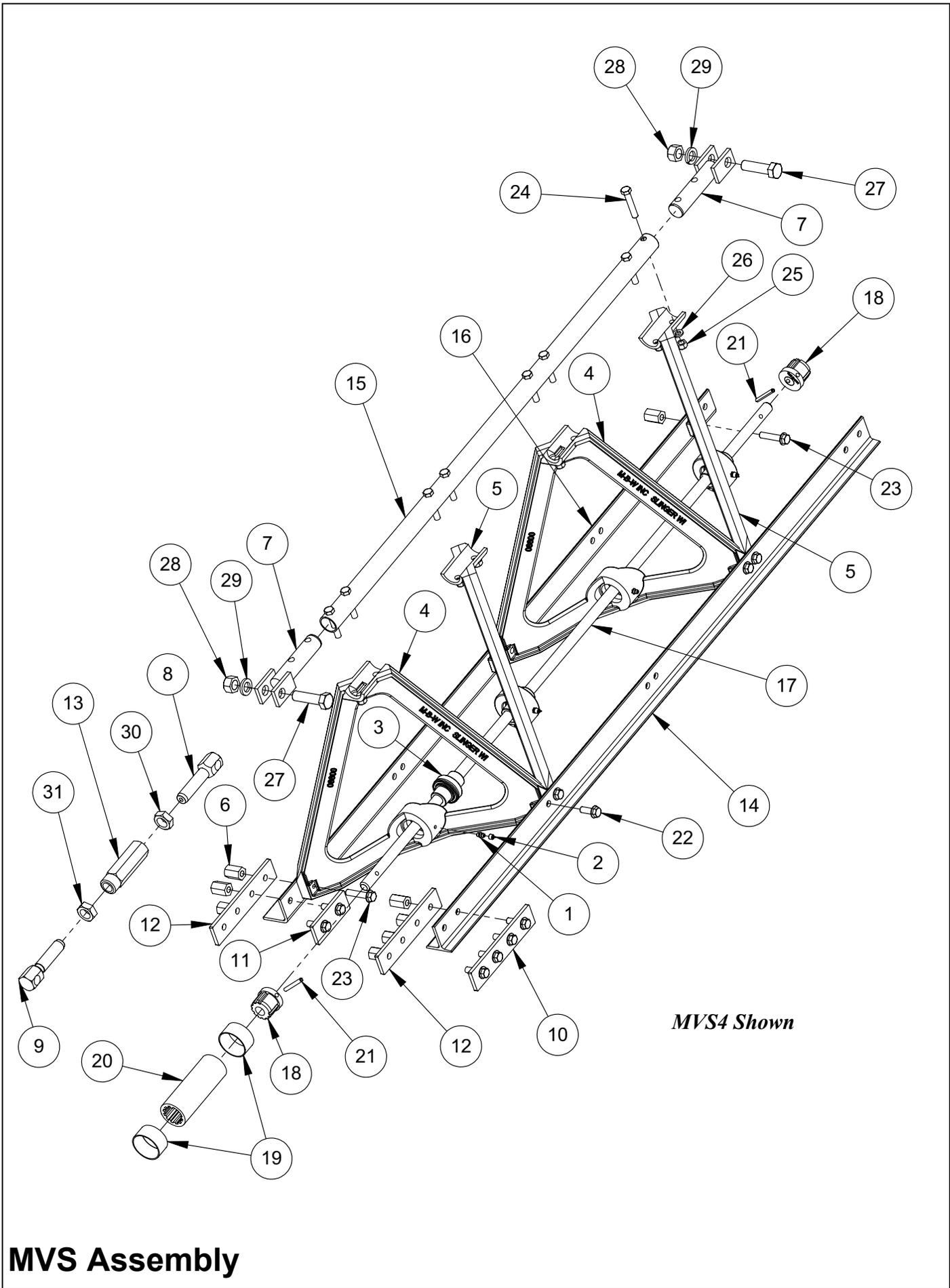
### MBW Europe Ltd.

Units 2 & 3 Cochrane Street  
Bolton BL3 6BN, England  
Phone: 01204 387784  
Fax: 01204 387797  
Email: [mbwuk@btinternet.com](mailto:mbwuk@btinternet.com)



The unit's serial number can be found in the following locations:

- The serial number for each screed section is located on the side of the left most A-Frame.
- The serial number is also stamped into the top of each A-Frame.

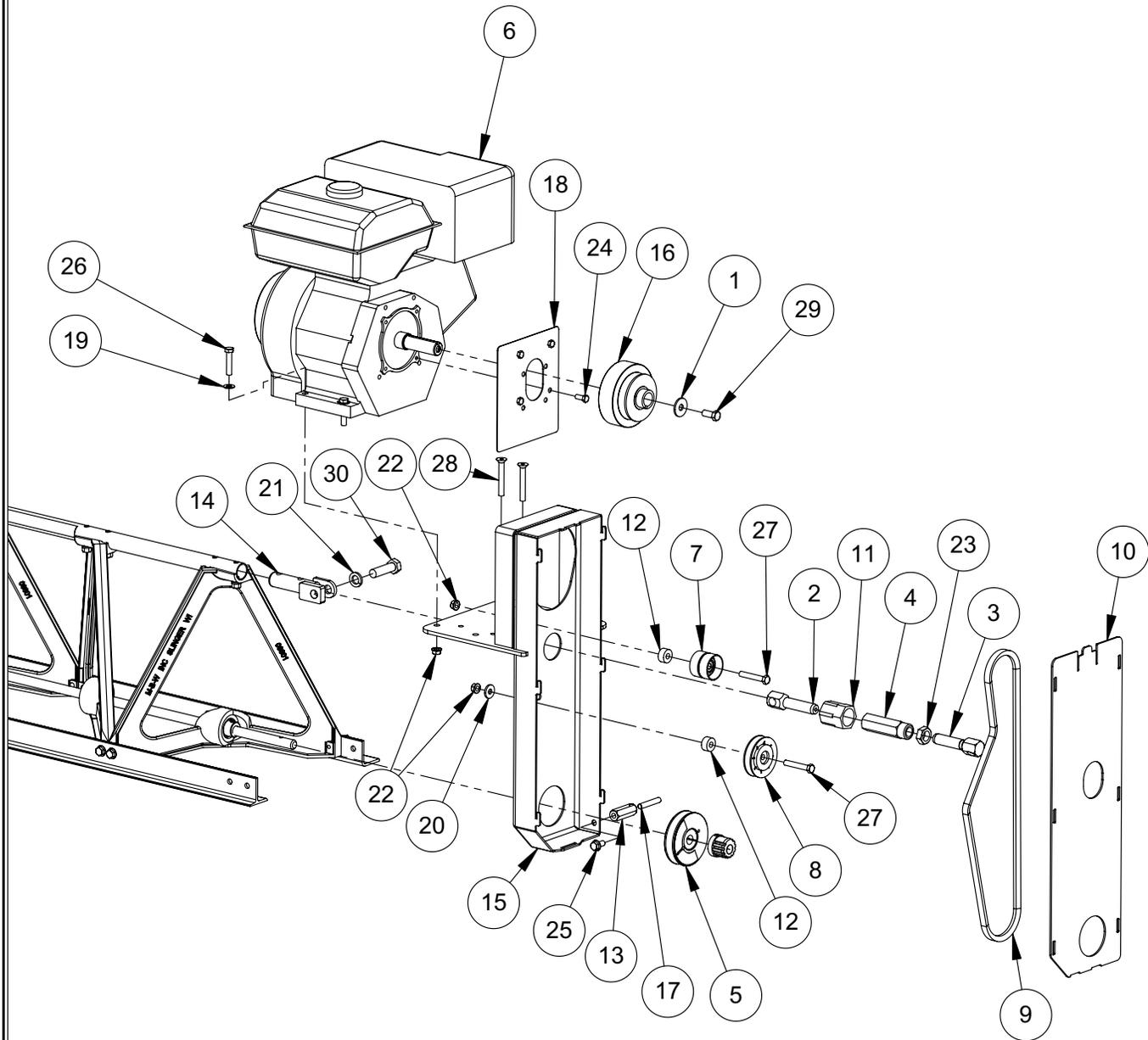


**MVS Assembly**

ITEM	PART NO.	DESCRIPTION	MVS2	MVS4	MVS8
1.	01177	FITTING, GREASE 1/4-28 THD (Before Serial #101017325)	2	3	5
2.	21068	FITTING, GREASE 3/8-24 THD (After Serial #101017326)	2	3	5
	01427	CAP, GREASE (1 CAP)			
3.	08804	BEARING, RADIAL BALL (INCLUDES 2 SHSS, 5/16-24 X 5/16)	2	4	5
4.	08805	A-FRAME, MACHINED LEFT	1	2	4
5.	08806	A-FRAME, MACHINED RIGHT	1	2	4
6.	08818	NUT, BLIND ZP, PLATED	8	8	8
7.	08828	CLEVIS, PLATED	2	2	2
8.	08829	EYE, PLATED TURNBUCKLE RH	1	1	1
9.	08830	EYE, PLATED TURNBUCKLE LH	1	1	1
10.	08831	PLATE ASM, SPLICE	1	1	1
11.	08832	PLATE ASM, SPLICE SHORT	1	1	1
12.	08838	PLATE, SPLICE	2	2	2
13.	08839	TURNBUCKLE, PLATED	1	1	1
14.	08846	EDGING, STRIKEOFF 2 FT	1	0	0
	08847	EDGING, STRIKEOFF 4 FT	0	1	0
15.	08848	EDGING, STRIKEOFF 8 FT	0	0	1
	08850	TUBE, TOP 2 FT	1	0	0
	08851	TUBE, TOP 4 FT	0	1	0
	08852	TUBE, TOP 8 FT	0	0	1
16.	08871	EDGING, FLOAT 2 FT	1	0	0
	08872	EDGING, FLOAT 4 FT	0	1	0
17.	08873	EDGING, FLOAT 8 FT	0	0	1
	08995	SHAFT, MAIN SECTION, 2 FT	1	0	0
	08997	SHAFT, MAIN SECTION, 4 FT	0	1	0
	08999	SHAFT, MAIN SECTION, 8 FT	0	0	1
18.	09081	DRIVER, KEYED	2	2	2
19.	11734	COLLAR, FLEX COUPLING	2	2	2
20.	09076	COUPLER KIT (INCLUDES COUPLING AND COLLARS)	1	1	1
21.	12554	SPIROL PIN (HEAVY DUTY)	2	2	2
22.	F061608FWS	FWLS, 3/8-16 X 1 ZP	2	6	14
23.	F061614FWS	FWLS, 3/8-16 X 1-3/4 ZP	2	2	2
24.	F061616HCS	HHCS, 3/8-16 X 2 GR5 ZP	4	8	16
25.	F0616HN	NUT, HEX 3/8-16 ZP	4	8	16
26.	F06LW	LOCKWASHER, 3/8 ZP	4	8	16
27.	F101818HCS	HHCS, 5/8-18 X 2-1/4 GR5 ZP	2	2	2
28.	F1018HN	NUT, HEX 5/8-18 ZP	2	2	2
29.	F10LW	LOCKWASHER, 5/8 ZP	2	2	2
30.	F1216HJN	NUT, HEX JAM 3/4-16 ZP	1	1	1
31.	F1216HJN-LH	NUT, HEX JAM 3/4-16 (LH) ZP	1	1	1
		<b>ACCESSORIES, KITS &amp; ASSEMBLIES</b>			
	02535	KIT, TURNBUCKLE SCREED (Includes 8, 9, 13, 29 & 30)			
	08841	A-FRAME ASSEMBLY, LEFT (Includes 1, 2, 3 & 4)			
	08842	A-FRAME ASSEMBLY, RIGHT (Includes 1, 2, 3 & 5)			
	08899	KIT, HARDWARE SCREED (Includes 6, 8, 9, 10, 11, 12, 13, 18, 26, 18, 26, 27, 28, 29 & 30)			

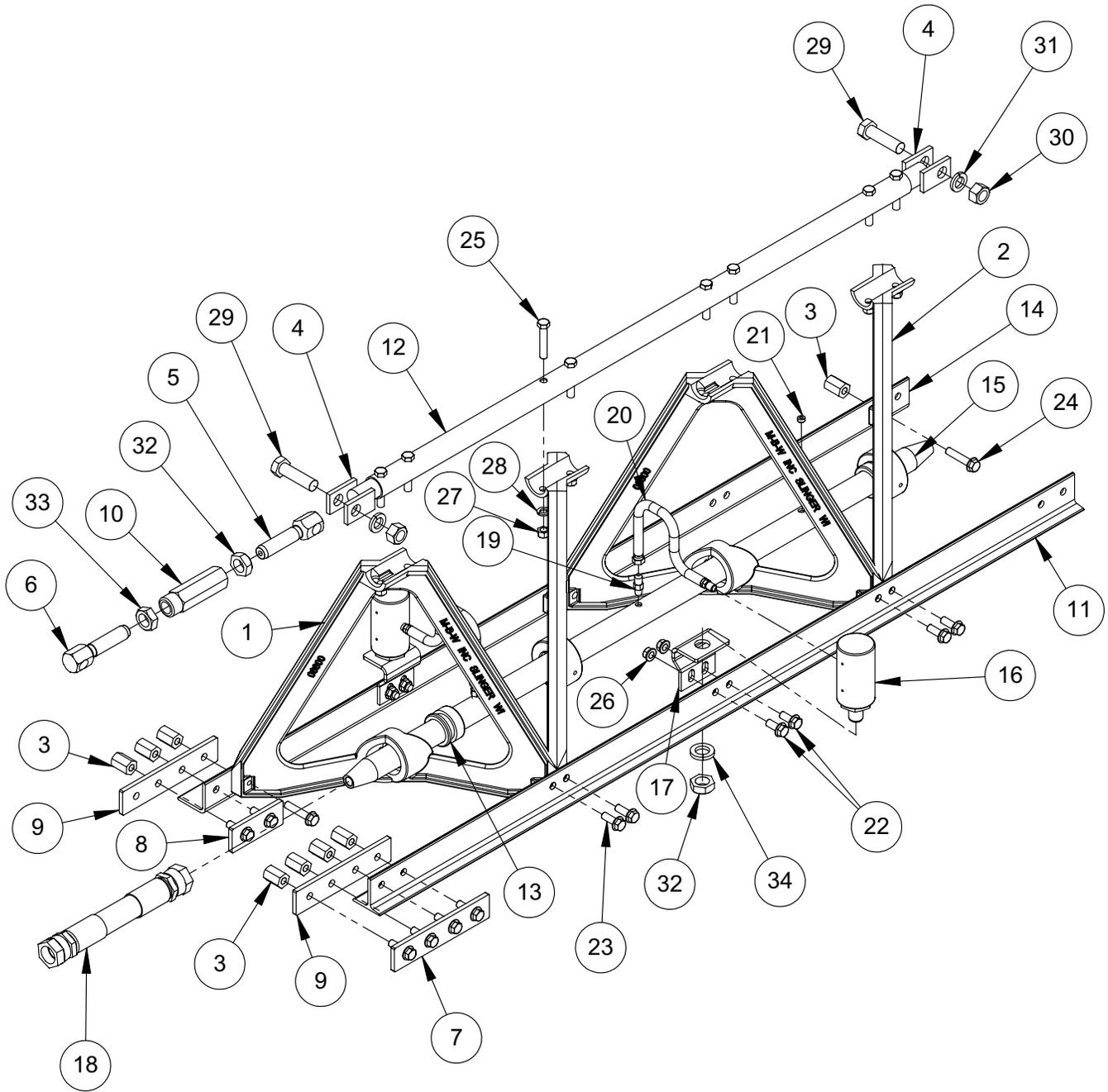






## GX270 Engine Kit

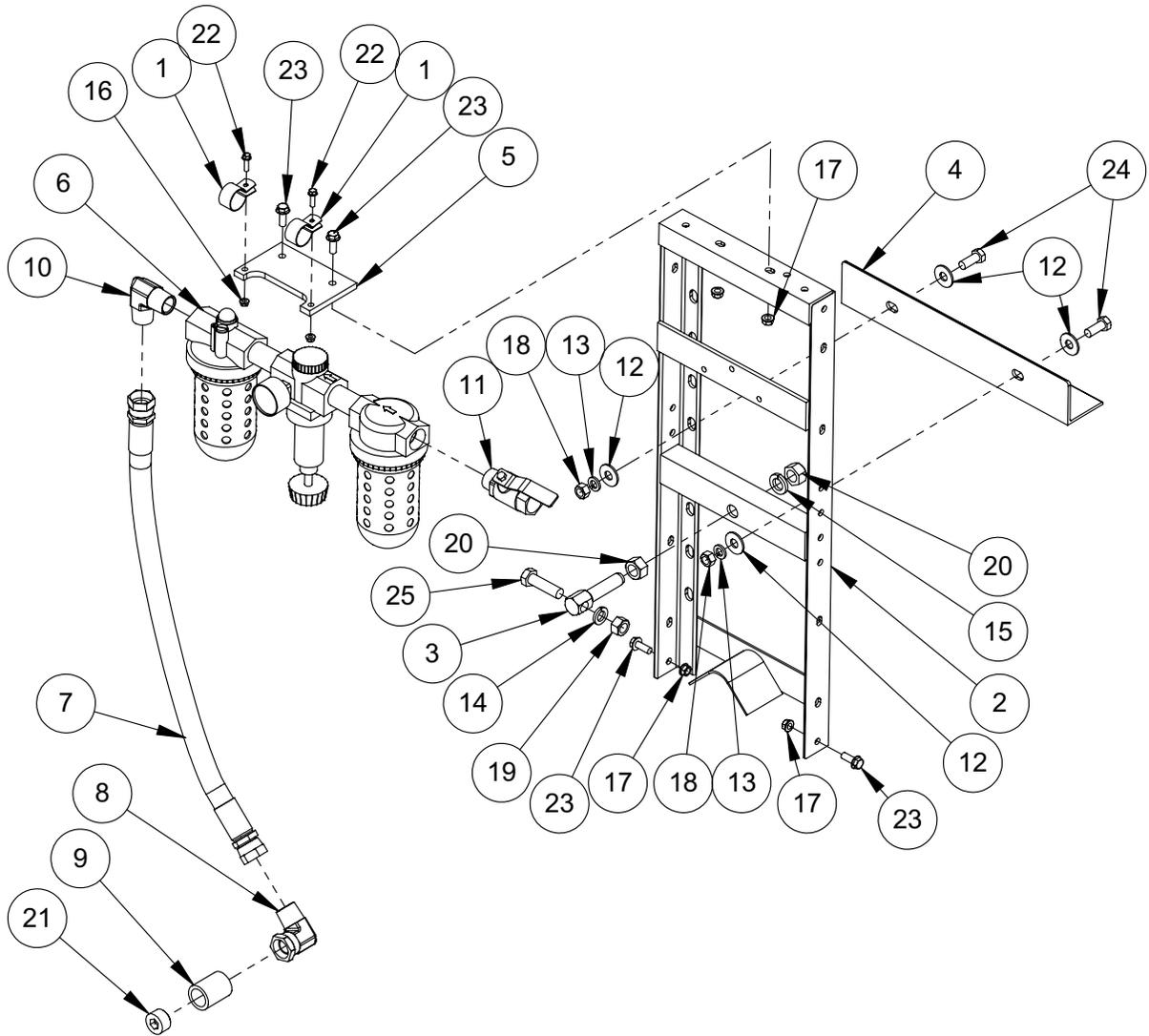




*AVS4 Shown*

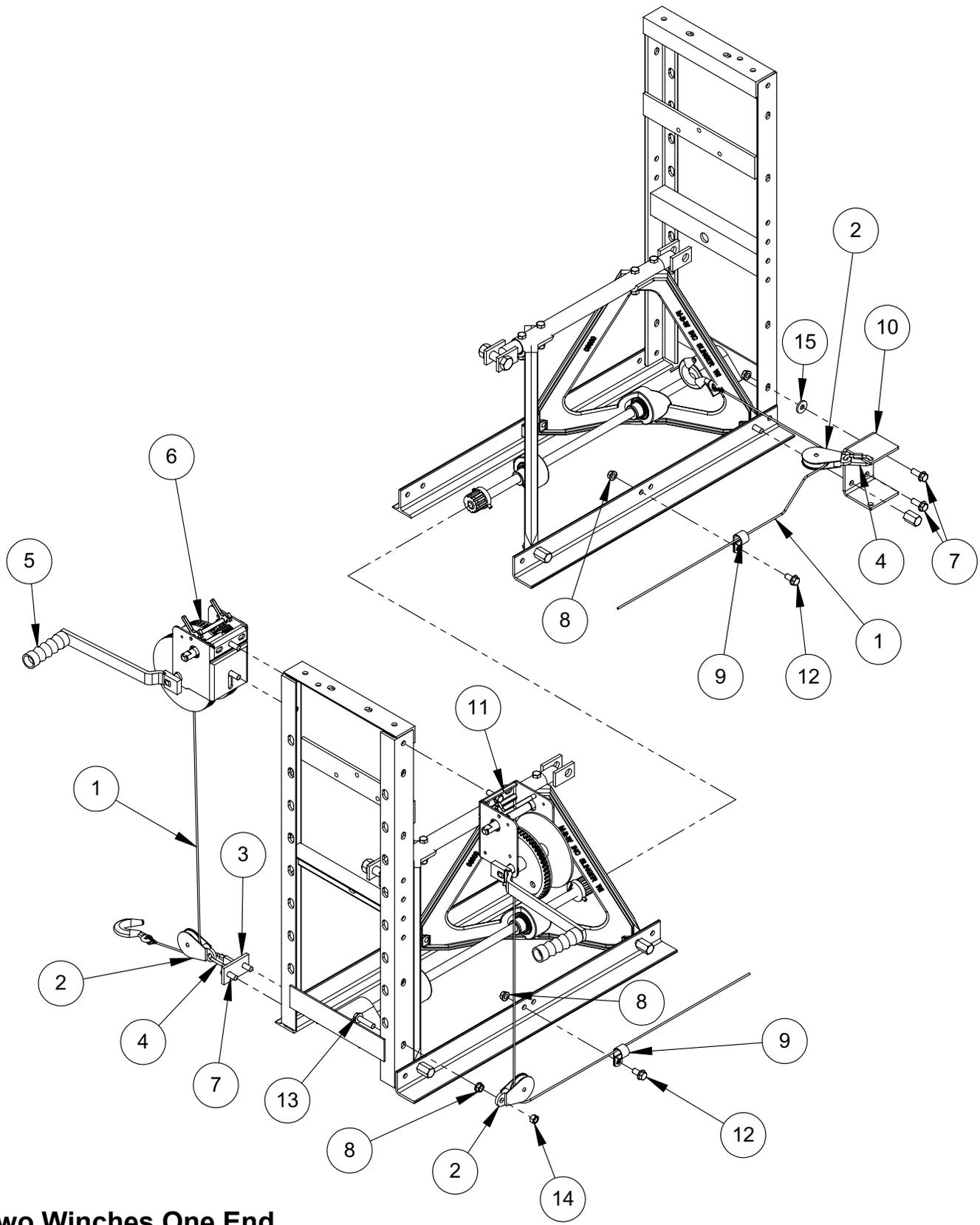
# AVS Assembly

ITEM	PART NO.	DESCRIPTION	AVS2	AVS4	AVS8
1.	08805	A-FRAME, LEFT (08800)	1	2	4
2.	08806	A-FRAME, RIGHT (08801)	1	2	4
3.	08818	NUT, BLIND ZP, PLATED	8	8	8
4.	08828	CLEVIS, PLATED	2	2	2
5.	08829	EYE, PLATED TURNBUCKLE RH	1	1	1
6.	08830	EYE, PLATED TURNBUCKLE LH	1	1	1
7.	08831	PLATE ASM, SPLICE	1	1	1
8.	08832	PLATE ASM, SPLICE SHORT	1	1	1
9.	08838	PLATE, SPLICE	2	2	2
10.	08839	TURNBUCKLE, PLATED	1	1	1
11.	08846	EDGING, STRIKEOFF 2 FT	1	0	0
	08847	EDGING, STRIKEOFF 4 FT	0	1	0
	08848	EDGING, STRIKEOFF 8 FT	0	0	1
12.	08850	TUBE, TOP 2 FT	1	0	0
	08851	TUBE, TOP 4 FT	0	1	0
	08852	TUBE, TOP 8 FT	0	0	1
13.	08870	GROMMET, TUBE MANIFOLD	2	2	4
14.	08871	EDGING, FLOAT 2 FT	1	0	0
	08872	EDGING, FLOAT 4 FT	0	1	0
	08873	EDGING, FLOAT 8 FT	0	0	1
15.	08912	MANIFOLD, AIR 2 FT SECTION	1	0	0
	08877	MANIFOLD, AIR 4 FT SECTION	0	1	0
	08902	MANIFOLD, AIR 8 FT SECTION	0	0	1
16.	08894	EXCITER, AIR	1	2	4
17.	08900	BRACKET, EXCITER AIR	1	2	4
18.	08905	HOSE, AIR 1 X 10	1	1	1
19.	08909	FITTING, ST PARKER 4-FTX-B	1	2	4
20.	09074	HOSE, AIR 1/4 X 9.90	1	2	4
21.	F0227SPP	SOCKET PIPE PLUG, 1/8-27	0	1	3
22.	F061607FWS	FWLS, 3/8-16 X 7/8 ZP	2	4	8
23.	F061608FWS	FWLS, 3/8-16 X 1 ZP	2	6	14
24.	F061614FWS	FWLS, 3/8-16 X 1-3/4 ZP	2	2	2
25.	F061616HCS	HHCS, 3/8-16 X 2 GR5 ZP	4	8	16
26.	F0616FN	FLANGE WHIZ-LOCK NUT, 3/8-16	2	4	8
27.	F0616HN	NUT, HEX 3/8-16 ZP	4	8	16
28.	F06LW	LOCKWASHER, 3/8 ZP	4	8	16
29.	F101818HCS	HHCS, 5/8-18 X 2-1/4 GR5 ZP	2	2	2
30.	F1018HN	NUT, HEX 5/8-18 ZP	2	2	2
31.	F10LW	LOCKWASHER, 5/8 ZP	2	2	2
32.	F1216HJN	NUT, HEX JAM 3/4-16 ZP	2	3	5
33.	F1216HJN-LH	NUT, HEX JAM 3/4-16 (LH) ZP	1	1	1
34.	F12LW	LOCKWASHER, 3/4 ZP	1	2	4
		<b>ACCESSORIES, KITS &amp; ASSEMBLIES</b>			
	02535	KIT, TURNBUCKLE SCREED (Includes 5, 6, 10, 32 & 33)			
	08914	KIT, EXCITER AIR (Includes 16, 17, 19, 20, 22, 26, 32 & 34)			
	08917	KIT, HARDWARE AIR SCREED (Includes 3, 5, 6, 7, 8, 9, 10, 18, 29, 30, 31 & 32)			



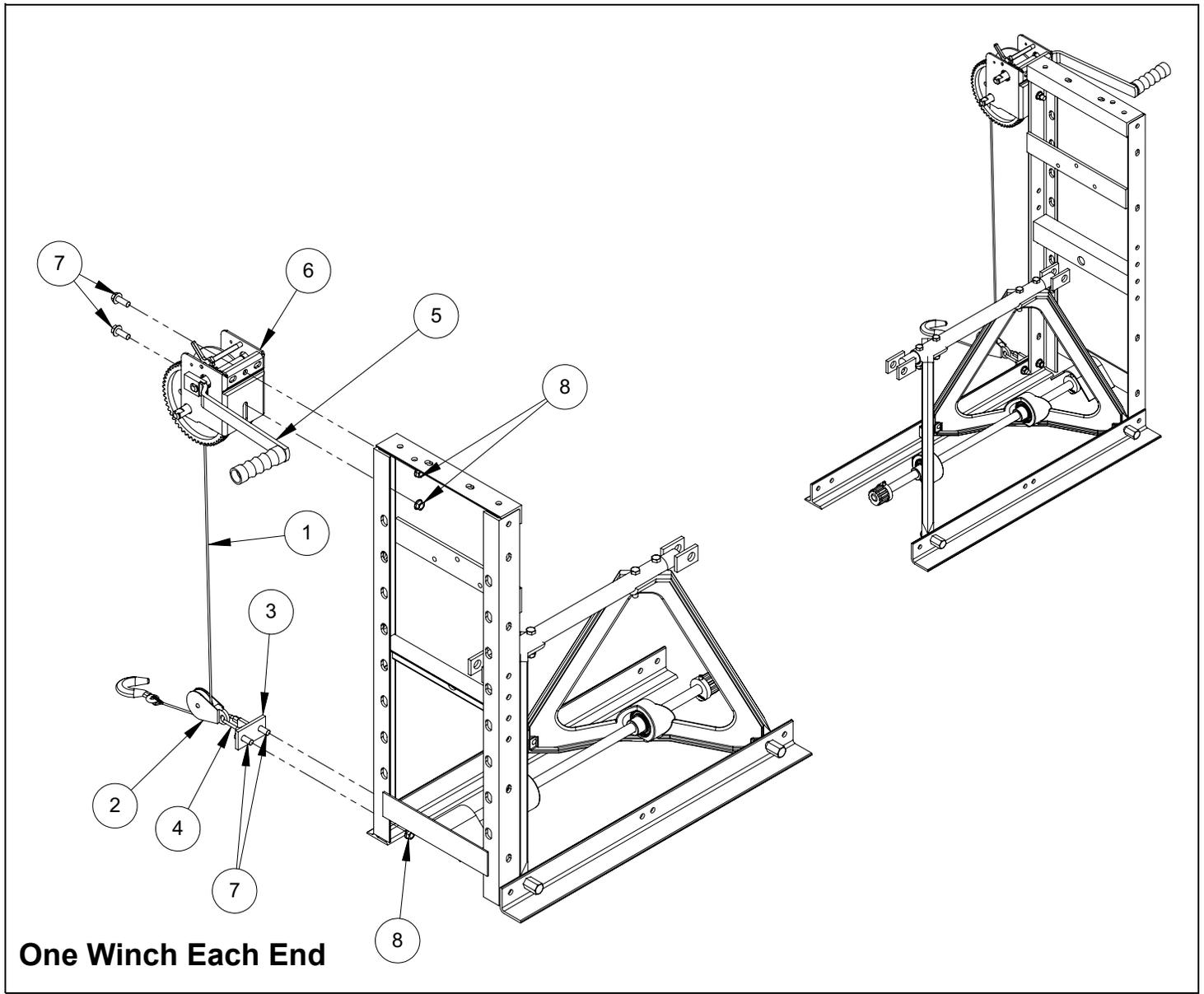
# Air Regulator Kit Assembly





**Two Winches One End**

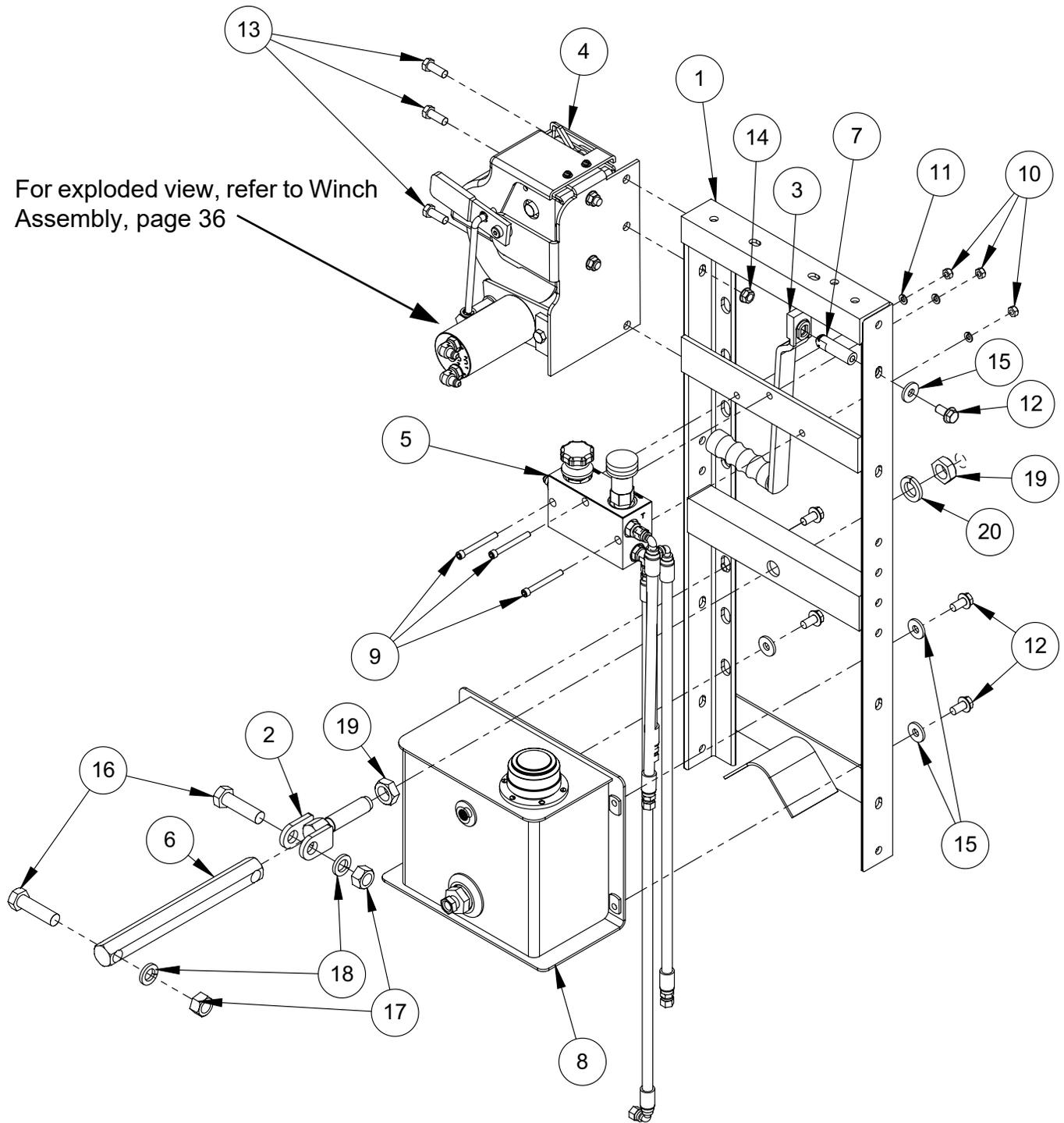
**Hand Winch Kit**



**One Winch Each End**

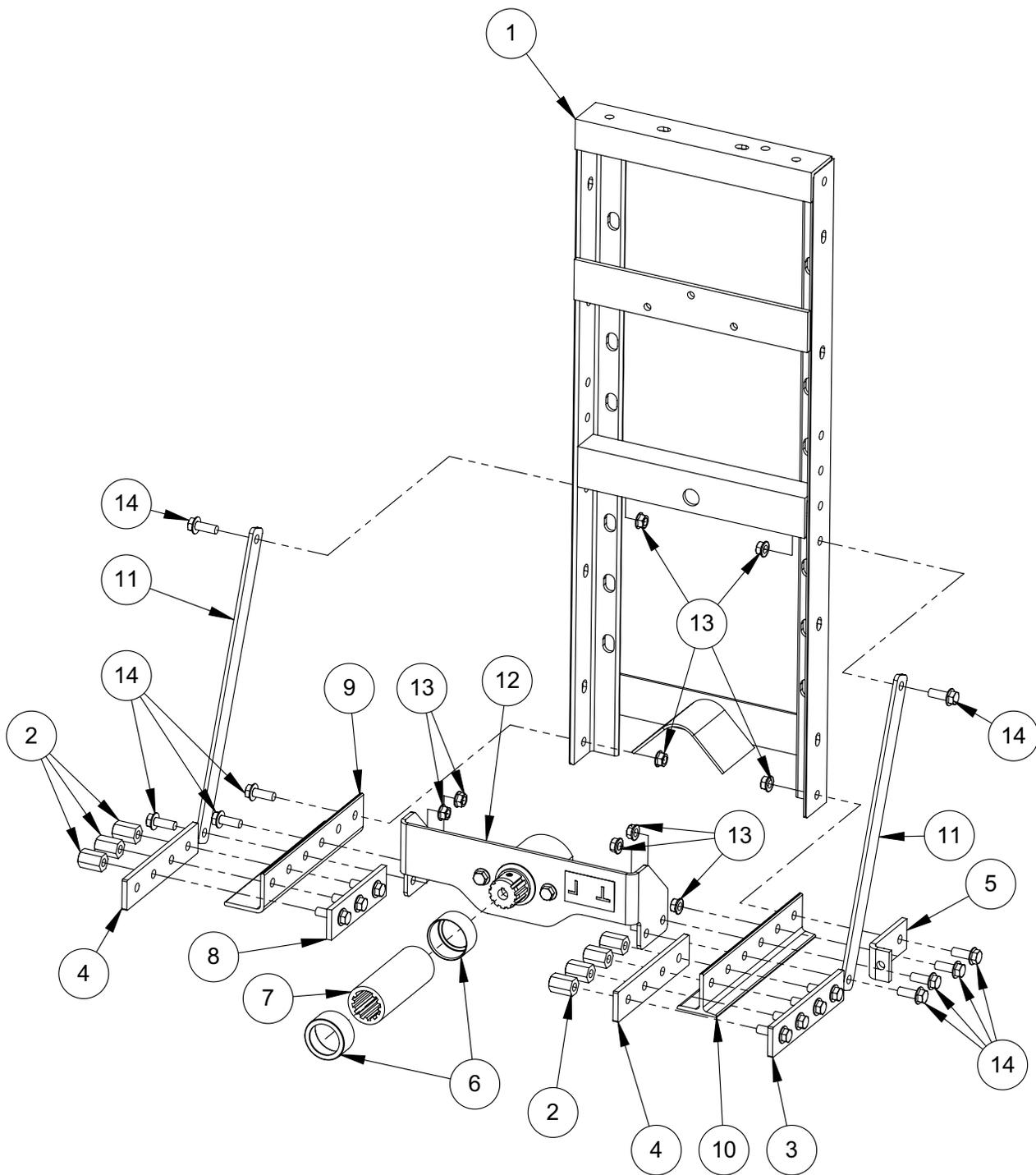
ITEM	PART NO.	DESCRIPTION	QTY
1.	08888	CABLE ASM, WINCH 60 FT & HOOK	2
2.	08891	PULLEY	3
3.	08976	BRACKET, PULLEY	2
4.	08993	LINK, PULLEY	2
5.	15336	HANDLE, WINCH	2
6.	16186	WINCH (B)	1
7.	F061608FWS	FWLS, 3/8-16 X 1 ZP	8
8.	F0616FN	FLANGE WHIZ-LOCK NUT, 3/8-16	14
9.	01428	CLAMP, TUBE	6
10.	09065	PULLEY BRACKET	1
11.	16185	WINCH (A)	1
12.	F061606FWS	FWLS, 3/8-16 X 3/4 ZP	6
13.	F061612FWS	FWLS, 3/8-16 X 1-1/2 ZP	1
14.	F0616DLN	LOCKNUT, 3/8-16 DEFORMED (DWG)	1
15.	F06SW	WASHER, 25/64 X 1 X 1/8 ZP	1
	08858	KIT, HAND WINCH SCREED (Includes 1-15)	

For exploded view, refer to Winch Assembly, page 36



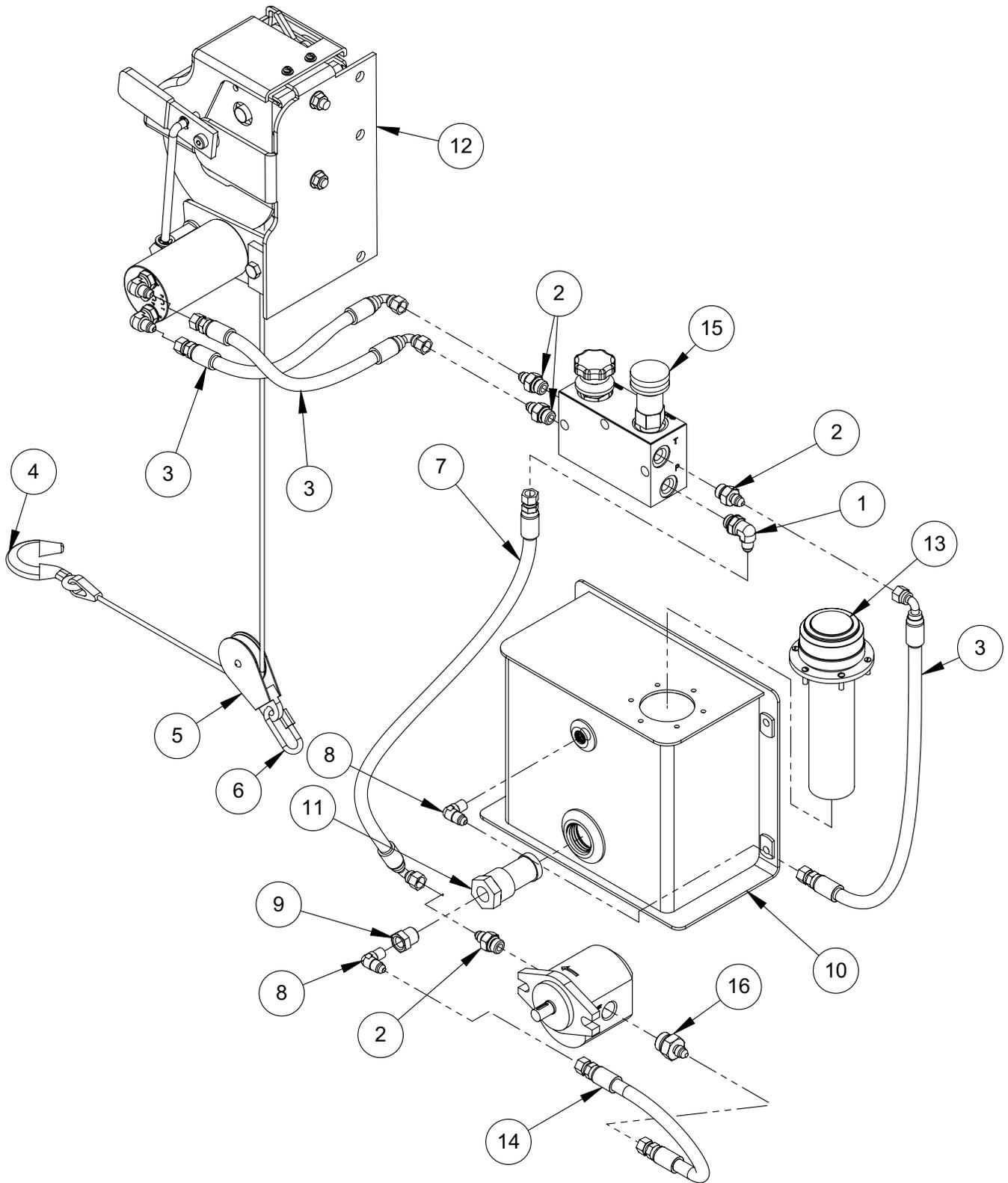
**Hydraulic Winch Kit (RH Shown) - Figure 1**





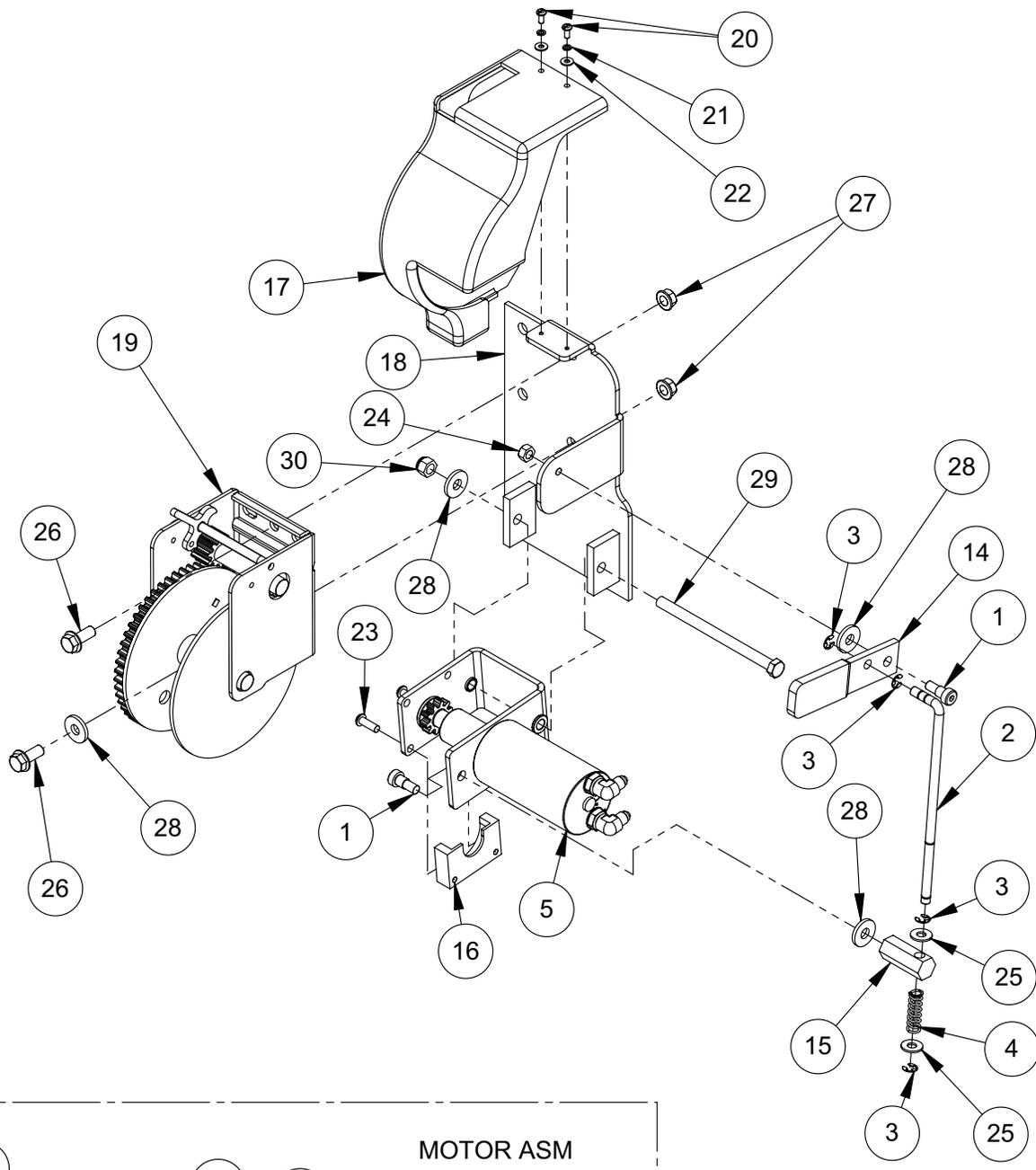
**Hydraulic Winch Kit (RH Shown) - Figure 2**



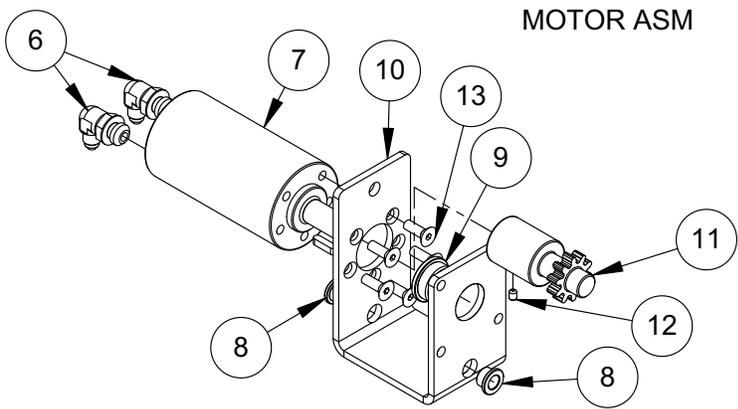


**Hydraulic Winch Kit (RH Shown) - Figure 3**





MOTOR ASM



**Winch Assembly (LH Shown)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	01280	SCREW, SOCKET HEAD SHOULDER	2
2.	15333	ROD, CONNECTING	1
3.	15337	RETAINING RING, EXTERNAL	4
4.	15338	SPRING, COMPRESSION	1
5.	15347	MOTOR ASSEMBLY	1
6.	08216	FITTING, ELBOW PARKER 4-6C50X	2
7.	15302	MOTOR, HYDRAULIC	1
8.	15348	BEARING, FLANGE	2
9.	15349	BEARING, FLANGE	1
10.	15383	BRACKET, SUPPORT, MOTOR, COATED	1
11.	16119	PINION, ZINC PLATED	1
12.	F033202SSS	SSS, #10-32 X 1/4	1
13.	F042806FSS	FSS, 1/4-28 X 3/4 ZP - S/N 1030000347 and below	5
	F042804FSS	FSS, 1/4-28 X 1/2 ZP - S/N 1030000348 and above	3
14.	15367	LEVER, COATED	1
15.	15370	PIN, PIVOT, ZINC PLATED	1
16.	15387	COVER, DRIVEGEAR	1
17.	15388	COVER, WINCH (PLASTIC) - S/N 103000074 and above	1
	15433	COVER, WINCH (METAL) - S/N 103000073 and below	1
	15432	COVER, WINCH (METAL) - S/N 103000073 and below	
18.	15379	COVER, WINCH (PLASTIC) - S/N 103000074 and above	
	16124	BACK PLATE - S/N 103000074 and above	1
	15389	BACK PLATE - S/N 103000073 and below	1
	15382	BACK PLATE - S/N 103000073 and below	
19.	16126	BACK PLATE - S/N 103000074 and above	
	16185	WINCH, A - S/N 103000074 and above (SHOWN ABOVE)	1
	15283	WINCH - S/N 103000073 and below	1
	15358	WINCH - S/N 103000073 and below	
20.	16186	WINCH, B - S/N 103000074 and above (OPPOSITE SIDE)	
	F023203PMS	PAN HEAD MACHINE SCREW, #8-32 X 3/8	2
21.	F02LW	LOCKWASHER, #8 ZP	2
22.	F02SW	WASHER, 3/16 X 7/16 X 18GA ZP	2
23.	F042006BCS	BCS, TORX, 1/4-20 X 3/4	2
24.	F0518HN	NUT, HEX 5/16-18 ZP	1
25.	F05BFW	WASHER, 21/64 X 3/4 X 0.064 BRASS	2
26.	F061607FWS	FWLS, 3/8-16 X 7/8 ZP	2
27.	F0616FN	FLANGE WHIZ-LOCK NUT, 3/8-16	2
28.	F06SW	WASHER, 25/64 X 1 X 1/8 ZP	3
29.	F061644HCS	HHCS, 3/8-16 X 5-1/2 GR5 ZP	1
30.	F0616ELN	LOCKNUT, 3/8-16 NYLOC ZP	1

# WARRANTY

1. IN GENERAL - The warranties described in this document are provided by M-B-W, INC. and MBW EUROPE, LTD. ("MBW") to define what is, what is not, and for how long machines and parts are covered against material defects and/or defective workmanship. To obtain warranty service, the purchaser must, within the Warranty Period (defined in Paragraph 3): (i) report the product defect to an authorized repair center, (ii) make a written request for repair, (iii) provide proof of purchase to the authorized repair center, and (iv) deliver the equipment to the authorized repair center. A list of authorized repair centers is available on the MBW website (mbw.com) or by contacting MBW at 800-678-5237.

2. COVERED - MBW's obligation under this limited warranty is limited to the cost of the parts and the labor to repair any defect in material and/or workmanship at an authorized MBW repair center. Transportation charges are not covered by this limited warranty.

3. WARRANTY PERIODS - The Warranty Period begins on, as applicable: (i) the product purchase date by an end user or (ii) the first day the product is put into rental or two years after invoice date from MBW to Dealer, whichever starts the warranty period first. To insure that your warranty is in place, fill out the warranty card and mail it in or register your product online at [www.mbw.com/service-support/warranty-registration](http://www.mbw.com/service-support/warranty-registration). The warranty is nontransferable.

The Warranty Period ends after:

- A. New Ground compaction equipment - 2 years.
  - B. New Concrete finishing equipment - 1 year.
  - C. New Utility equipment - 1 year.
  - D. Demonstration equipment - 6 months.
  - E. Wear parts: lubricants, filters, belts and shock mounts - 30 days.
4. NOT COVERED- This warranty does not include, and MBW specifically excluded from any warranty:
- A. Used equipment - all used equipment is not warranted and is sold 'as is' 'where is' with all defects.
  - B. Replacement electrical parts, including but not limited to: electric motors, circuit boards, switches, are not warranted or returnable.
  - C. OEM: engines, batteries, and chargers. Those warranties are covered by the manufacturer.
  - D. Consumable parts: trowel and screed blades.
  - E. Equipment that has been: altered, abused, neglected, not maintained, or modified to run outside its specifications. Any modification to the machine or its parts makes this warranty null and void.
  - F. Other: damage to a product from normal wear, air freight, overtime, pickup and delivery, temporary replacement rentals, freight damage, or other similar incidents.
  - G. Product used in a fashion it was not designed for.
  - H. Parts and labor not performed by authorized dealers.

It is at MBW's discretion if warranty applies and has the right to adjust labor rates on a claim by claim basis.

**5. OTHER - IT IS EXPRESSLY AGREED THAT THIS SHALL BE THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY. UNDER NO CIRCUMSTANCES SHALL MBW BE LIABLE FOR ANY COSTS, LOSS, EXPENSE, DAMAGE, SPECIAL DAMAGES, DIRECT DAMAGES, INCIDENTAL DAMAGES, EXEMPLARY, CONSEQUENTIAL, OR PUNITIVE DAMAGES ARISING DIRECTLY OR INDIRECTLY FROM THE USE OF MBW PRODUCT OR DAMAGES FOR LOSS OF USE, LOSS OF ANTICIPATED PROFITS, INCOME, OR ECONOMIC LOSSES OF ANY KIND. MBW'S LIABILITY TO BUYER UNDER THESE WARRANTIES FOR THE PRODUCT IS LIMITED AS SET FORTH HEREIN, WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, INCLUDING BUT NOT LIMITED TO FRAUD, MISREPRESENTATION, BREACH OF CONTRACT, PERSONAL INJURY, PRODUCTS LIABILITY OR ANY OTHER THEORY.**

MBW'S LIABILITY UNDER ANY WARRANTY HEREUNDER, WHETHER EXPRESS OR IMPLIED, SHALL NOT EXCEED THE COST OF REPAIR OR REPLACEMENT OF DEFECTIVE PARTS OF THE PRODUCT OR THE PRODUCT. BUYER MAY NOT BRING ANY ACTION UNDER THESE WARRANTIES MORE THAN ONE YEAR AFTER THE CAUSE OF ACTION HAS ACCRUED.

**THE FORGOING WARRANTY IS EXPRESSED IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR USE, AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITY ON MBW'S PART. MBW SPECIFICALLY DISCLAIMS AND EXCLUDES ANY AND ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

**MBW NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME ON BEHALF OF MBW ANY OTHER LIABILITY OR WARRANTY IN CONNECTION WITH THE SALE OR SERVICE OF ANY MBW PRODUCT.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.