



Read all instructions before using

SAFETY PRECAUTIONS

Caution: Keep clear of rotating shaft.

Use safety glasses. Also use face or dust mask if operation is dusty.

Speed Scream 280 (Cruiser)

Serial # _____

Engine # _____





METAL FORMS CORPORATION
SINCE 1909

BRP_11/20/2007

General Safety Guidelines Sheet

3334 North Booth Street
Milwaukee, WI 53212

Phone: (414)-964-4550

Fax: (414)-964-4503



EQUIPMENT DIVISION

Metal Forms Corporation™ - Truss Screed Set-Up

MFC-SGS1.1



ALWAYS read assembly instructions as per Speed Screed™ Equipment Division - Operations & Parts Manual

MFC-SGS1.2

DO NOT attempt to perform any assembly/setup while the equipment is running. Moving parts can cause severe injuries.

MFC-SGS1.3

ALWAYS make sure that cables are not under load prior to operation.

MFC-SGS1.4

ALWAYS use O.E.M. supplied hardware.

MFC-SGS1.5

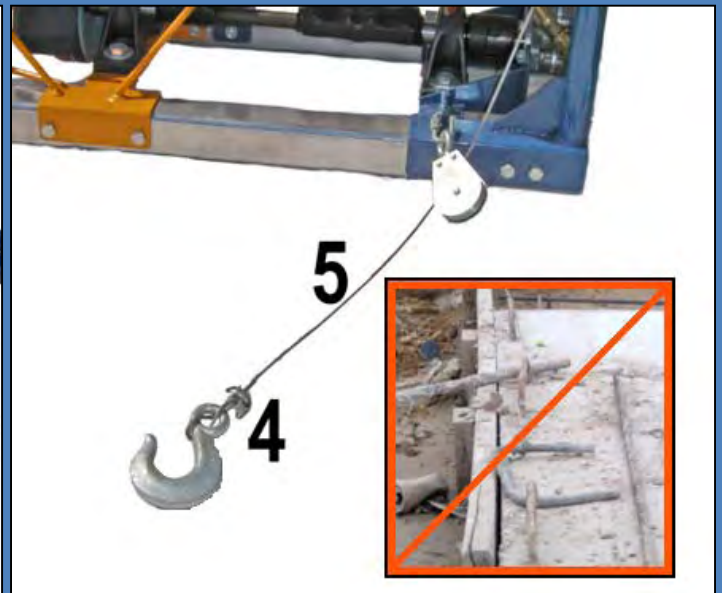
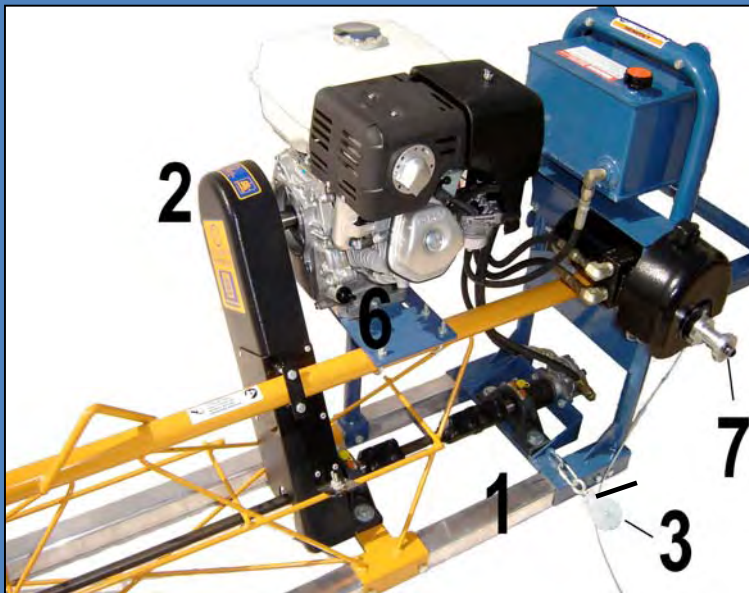
DO NOT bypass or modify in anyway factory installed safety features.

MFC-SGS1.6

ALWAYS check make sure mechanical fasteners are secured prior to operations.
(Drive Shaft set screws Turnbuckle assemblies Lap plates & saddles)

MFC-SGS1.7

ALWAYS refer all repairs to qualified service technicians.



Safety Inspection Checklist

- | | |
|------------------------|---------------------------|
| 1.) Safety Link | 5.) Frayed Cable |
| 2.) Belt Guard | 6.) Engine Oil Level |
| 3.) Snatch Block | 7.) Cable Spool Desengage |
| 4.) Cable Hook & Clamp | |

****DO NOT USE NON OEM CABLE HOOKS****

Legal Notice

The information contained in this General Safety Guidelines Sheet was considered the best available at the date of issue. However, no warranty is made or implied that the information is accurate or complete. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.



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EQUIPMENT DIVISION

Metal Forms Corporation™ - Truss Screenshot Operations Checklist

MFC-SGS2.0

****Operator Disclaimer****

Operator concentration is always an important factor when using mechanical equipment and anything that distracts the operator during operation is a clear and present danger



Familiarity and proper training are required for the safe operation of all Metal Forms Corporation™ equipment. Equipment operated improperly or by untrained personnel can be dangerous. All operators **MUST** read both the General Safety Guidelines Sheet and the Speed Screenshot manual prior to operation.

MFC-SGS2.1

NEVER allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with all the risks and hazards associated with it.

MFC-SGS2.2

DO NOT operate any equipment while under the influences of drugs, alcohol or medications.

MFC-SGS2.3

ALWAYS check for proper Cable Anchoring prior to operation

- All cable must be stationary
- Anchoring must have minimum strength capacity of 800 Lbs.
- All cables must be secured low to the ground (6" or less)
- Always keep cables in alignment with spool

MFC-SGS2.4

ALWAYS maintain three wraps of cable around the spool

MFC-SGS2.5

DO NOT hook anchoring cables onto itself

MFC-SGS2.6

ALWAYS remain aware of moving parts and keep hands, feet, and loose clothing away from moving parts:

- Belt Drive
- Drive Shaft
- Winch Spool
- Snatch Block
- Winch Cable
- Hot Surfaces



MFC-SGS2.7

DO NOT leave winch controls unattended while the motor is in operation

MFC-SGS2.8

ALWAYS remove any obstacles or obstructions from the desired screenshot path.
(Stakes, Forms & Equipment)

MFC-SGS2.9

ALWAYS make others aware of the cable hazard

(X) _____
Signature

(X) _____
Company

(X) _____
Date

I have read this RELEASE AND WAIVER OF LIABILITY, ASSUMPTION OF RISK, AND INDEMNITY, understand that I have given up substantial rights by signing it and have signed it freely and without any inducement or assurance of any nature and intend it be a complete and unconditional release of all liability to the greatest extent allowed by law and agree that if any portion of this agreement is held to be invalid

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INTRODUCTION

Assembly Before Operation: Adding a “screed extension” or non-engine-end “end-frame”.

1. Read the owner’s manual before starting or using your Screed unit.
2. Perform all assembly work on a level surface.
3. Referring to sketches on the following page, remove coupler half and key on machines equipped with hydraulic winches.
4. Remove bolts (A) and saddles (B). Loosen set screws “C” on shaft coupler.
5. Loosen turnbuckle nut. Turn turnbuckle until only 1-2 threads are engaged.
6. Move joining sections together. Line up turnbuckle (D) w/ opposing backbone.
7. Thread turnbuckle into adjoining section. As the turnbuckle draws the sections together, align shaft coupler and lap plates for assembly. A drift pin may be helpful for final line-up of bolt holes.
8. When sections are drawn together, install the saddles (B) with bolts (A) and tighten coupler set screws (C) on flat portion of adjoining shaft (E).
9. Follow the above procedure when adding or removing other screed extensions.

Important: *Be sure coupler headless set screws "C" engage on flat portion of the adjoining shaft (E). This provides proper alignment of eccentric weights, thus assuring even vibration over the entire length of the machine.*

Small gaps between screed bottoms are permissible and will not affect surface finish.

Check for Flatness:

1. Elevate screed on forms or blocks to check or adjust flatness or crown.
2. Loosen turnbuckle lock nuts and shaft coupler set screws.
3. Turn turnbuckles counter-clockwise to pull in crown, or clockwise to flatten.
4. Pull a string tight under the screed bottom of the rear finishing tube (finish grade is obtained from the rear finishing tube).
5. Measure for flatness or crown at each joint.
6. When desired crown or flatness is obtained, lock turnbuckle lock nuts, and tighten shaft coupler set screws. (Note: tighten all eight (8) lock nuts at each finishing tube joint.)

Optional: Wrap a good grade of tape over the shaft coupler’s headless set screws. This will keep concrete out of the headless set screw holes.

THE SCREED IS NOW READY FOR OPERATION

INTRODUCTION

Figure 1: Assembly of Section-to-Section

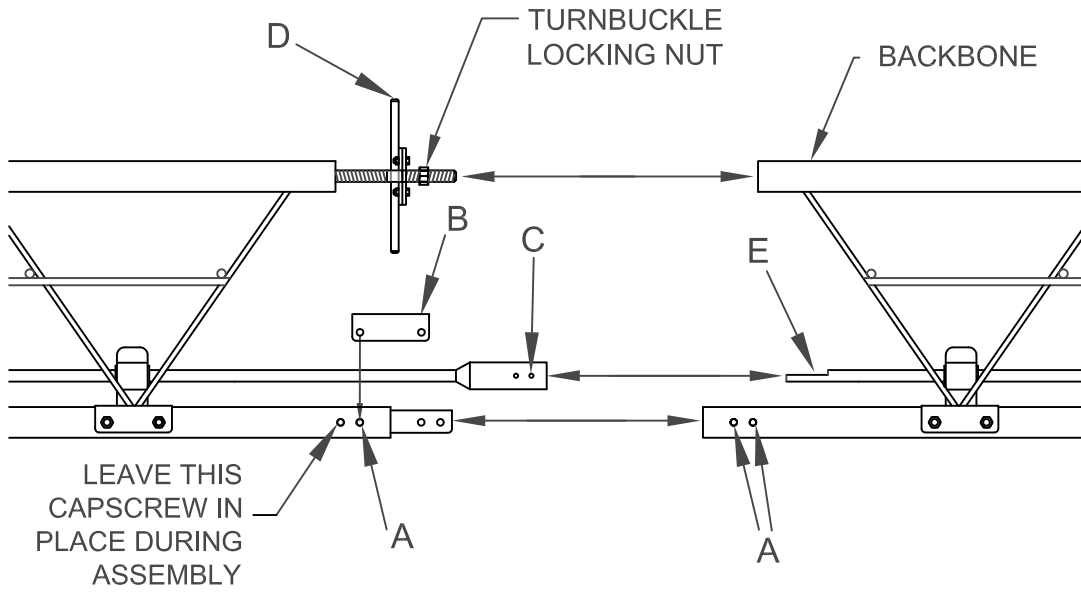
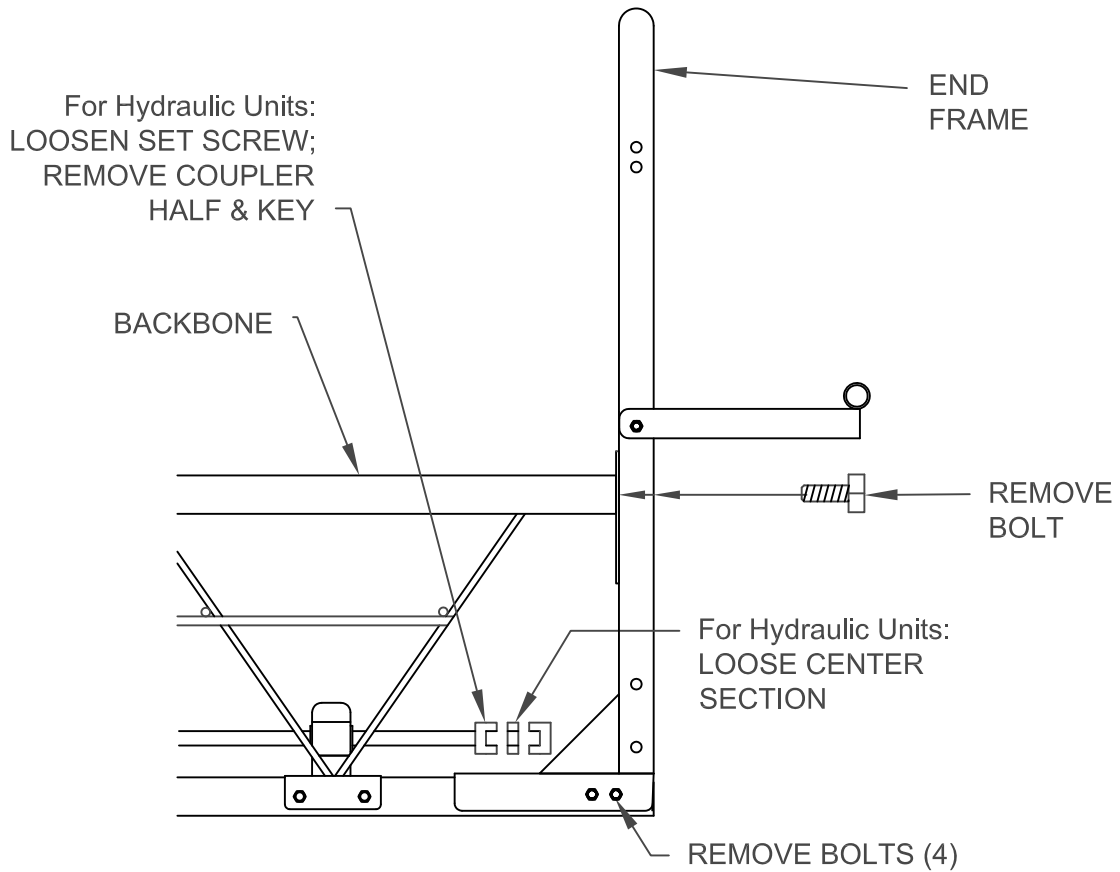


Figure 2: Assembly of End frame to Section)



INTRODUCTION

Hydraulic end frame installation: for addition of hydraulic winches

Mount and Align Pump:

pump # 580-107...engine end

580-108...extension end

Once you're new hydraulic end frame has arrived, follow the below instructions to change your existing end frame out with the new hydraulic end frame.

- Loosen end bearing from existing end frame.
- Remove existing end frame.
- Install "love-joy" coupler on the existing shaft.
- Install new hydraulic end frame.
- Align "love-joy" coupler to pump, and tighten the set screw to the pump shaft.
- Tighten end bearing.
- Rotate shaft to check for alignment.

**IF THE HYDRAULICS FAIL TO WORK PROPERLY,
REFER TO THE TROUBLESHOOTING PROCEDURES.**

INTRODUCTION

Attaching the Screed Extenders:

Screed Extenders attach to outside of End Frame Assembly using reinforcement angles, cap screws, and lock nuts.

Figure 1: View from operator's position.

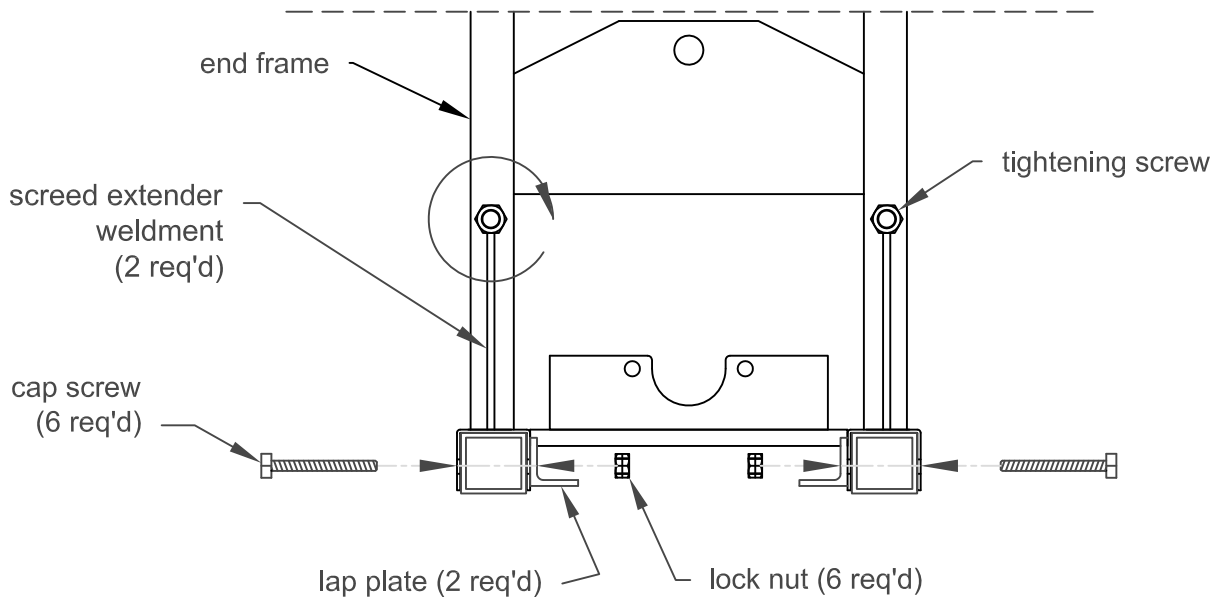
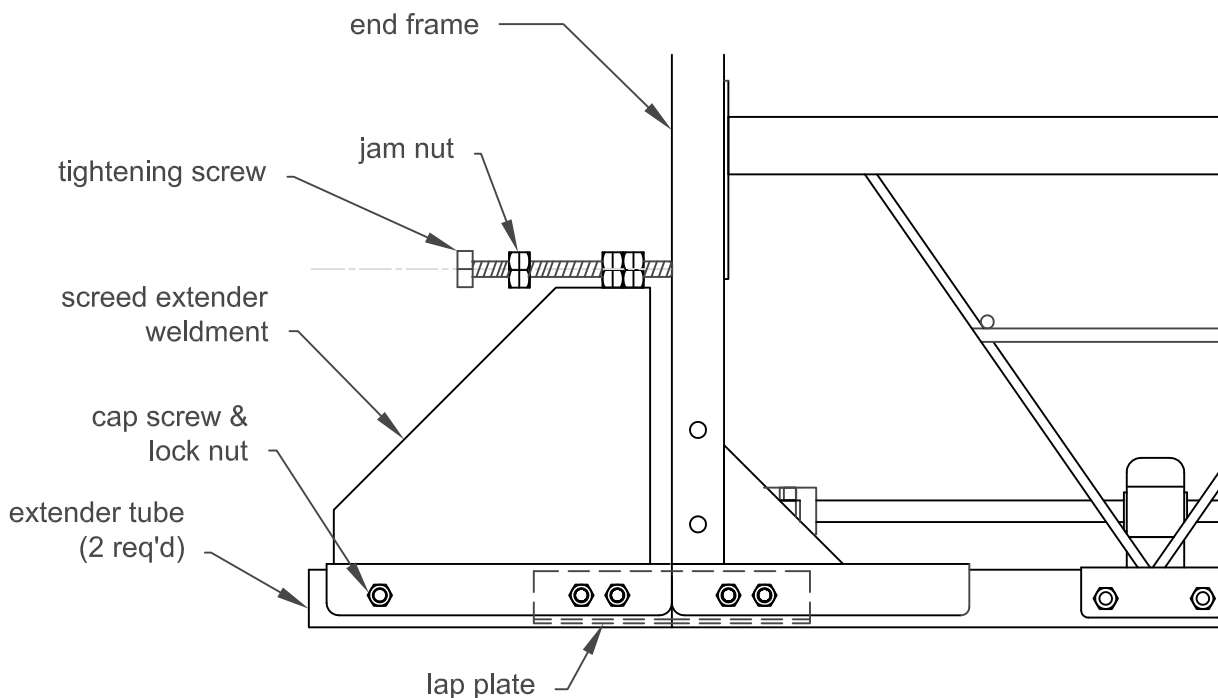


Figure 2: View from in-front of machine



INTRODUCTION

Attaching Offset Plates & Guide Plates

Figure 1: Offset Plate

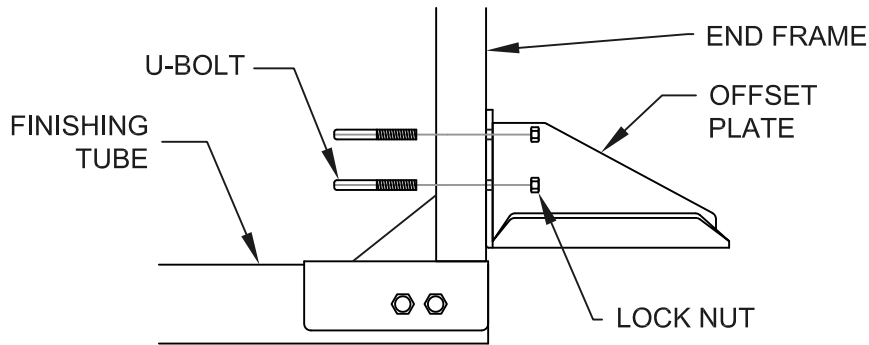


Figure 2: Outside Guide Plate

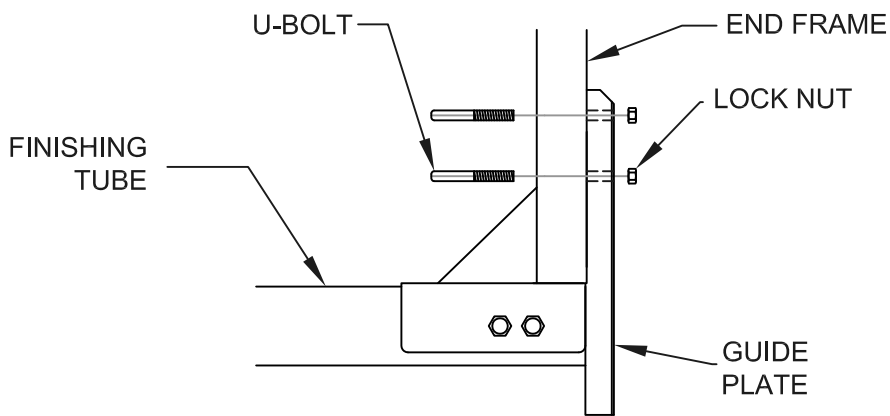
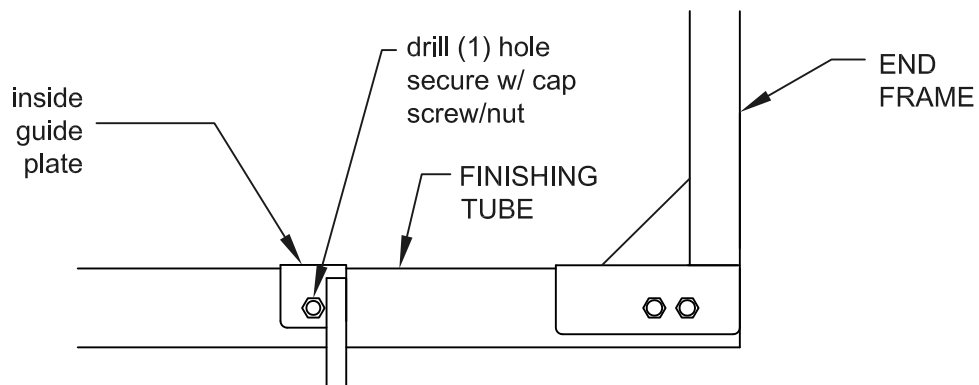


Figure 3: Inside Guide Plate



OPERATING and SERVICING

Operating the Screed:

WARNING! Keep Clear of Rotating Shaft!

NOTE: Always run engine at either idle speed or full throttle.

Clutch failure will occur within moments if engine is run at partial throttle.

IMPORTANT: When changing crown or flatness of screed: Loosen the set screws on the drive shaft couplers before adjusting the turnbuckles to prevent clutch or bearing damage.

Slump & Roll: Concrete slump should be high enough for good workability, but stiff enough to hold crown. Normally this would require a slump of approximately 3" or less. As the screed moves forward, a minimum 1" roll of concrete should be maintained ahead of the front screed tube. A ½" roll of concrete should be kept in front of the rear finishing tube. Travel speed should be adjusted (see instruction below) according to concrete supply and finish.

Vibration: Vibration frequency and amplitude is preset at the factory. Winch speed should be used to control the duration of vibration seen by the concrete.

Hand Winch Operation:

1. Before the pour begins, extend the cables out by disengaging the winch ratchet lever. However, always keep three (3) wraps of cable around the spool drum.
2. Hook the cable to any stationary member strong enough to support the load. Make sure the cable is in-line with the winch.
3. Roll excess cable back on the winch by turning the winch handle, eliminating any "slack".
4. Review the engine operating and maintenance instructions.
5. Start engine, run at maximum throttle position. Operating the engine below maximum throttle position can result in malfunctioning clutch.
6. Crank speed forward with winches

Hydraulic winch operation:

1. Before the pour begins, extend the cables out by pulling the quick disconnect knob out and turning so that it sets in the grooves of the spool. However, always keep three (3) wraps of cable around the spool drum.
2. Hook the cable to any stationary member strong enough to support the load. Make sure the cable is in-line with the winch.
3. Roll the excess cable back on the spool, eliminating any "slack".
4. Review the engine operating and maintenance instructions.
5. Make sure speed control knob on hydraulic flow control valve (p/n 580-374) is turned all the way open (counter clockwise).
6. Start engine, run at maximum throttle position. Operating the engine below maximum throttle position can result in malfunctioning clutch.
7. With clutch engaged, travel speed may be varied by rotating each controller knob clockwise, to increase rate of travel, or counter-clockwise, to decrease the rate of travel.

Engine: Most engines will not operate properly when operated at angles of more than 20 degrees to the horizon. Always run the engine at 100% throttle position when not idling.

Clutch: The clutch is designed to provide load free idle of the engine and slippage under excessive overloading of the driven application. Clutch will overheat if not fully engaged. Failure will occur of clutch drum is overheated by not enough torque from engine. Clutch is bolted to crank shaft with 5/16"-24 UNF threads (14-19 ft.lbs).

OPERATING and SERVICING

Maintenance:

Before each use:	Spray form-release agent over entire machine.
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After each use:	Clean off entire machine using brush and water. Cleaning agents may be used, such as "CleanOff" liquid concrete remover.
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After every 20 hours of operation:	Grease main shaft bearings.
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On a Yearly Basis:	Drain and flush hydraulic oil reservoirs; Replace oil filter element
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(Further maintenance information is available on specification sheets covering engine, winches, pumps, and motors.)

OPERATING and SERVICING

Troubleshooting Hydraulics:

There are 5 main components to the hydraulic winching system:

1. Oil Reservoir
2. Integrated Hydraulic Control (IHC): speed control, filter, & relief valve
3. Pump
4. Motor with spool
5. Lovejoy coupler

Oil Reservoir: Having enough oil in the reservoir keeps the system from overheating. The fill cap on top also acts as a breather valve.

IHC: The IHC contains the flow control valve, the relief valve, and the oil filter. The flow control valve determines the winching speed. The relief valve is provided for your safety. The oil filter is provided to increase longevity of all the hydraulic components.

Pump: A different pump is used on each end of the screed, as one turns clockwise, and the other turns counter-clockwise.

Motor/Spool: The motor with quick-release spool attached to it contains a knob, spring, shaft, and set screws. See the hydraulic components diagram for replacement parts and assembly.

Lovejoy Coupler: The love-joy coupler has 3 components: 1) the shaft coupler, the pump coupler, and the spider. The spider works as a damper, and will eventually wear out and require replacement. The couplers secure with set screws. Ensure the set screws are installed with thread locking compound. If the spider fails, the couplers will likely need replacement as well.

OPERATING and SERVICING

Notes:

OPERATING and SERVICING

Belt Maintenance and Replacement:

1. Replacement Procedure for hand winch assembly:

Caution: *If belt(s) break while in operation, take extra care around motor.
It will be HOT*

1. Loosen belt guard.
2. Loosen engine mount bolts, and slide motor toward backbone to relieve belt tensions.
3. Remove bolts from bearing blocks. (see drawing – item “A”)
4. While lifting shaft assembly, pull belt(s) out.
5. Reverse procedure for assembling screed. See detail for proper belt tension.

2. Replacement Procedure for hydraulic winch assembly:

Caution: *If belt(s) break while in operation, take extra care around motor.
It will be HOT*

1. Loosen belt guard.
2. Loosen engine mount bolts, and slide motor toward backbone to relieve belt tensions.
3. Remove bolts from bearing blocks. (see drawing – item “A”)
4. Remove the hydraulic pump, but *do not* disconnect the hydraulic hoses.
5. While lifting shaft assembly, pull belt(s) out.
6. Reverse procedure for assembling screed. See detail for proper belt tension.

Note: Alignment of coupler to spider is ***extremely important***. It must be within 1/16”.

OPERATING and SERVICING

Figure 2: Belt Tension

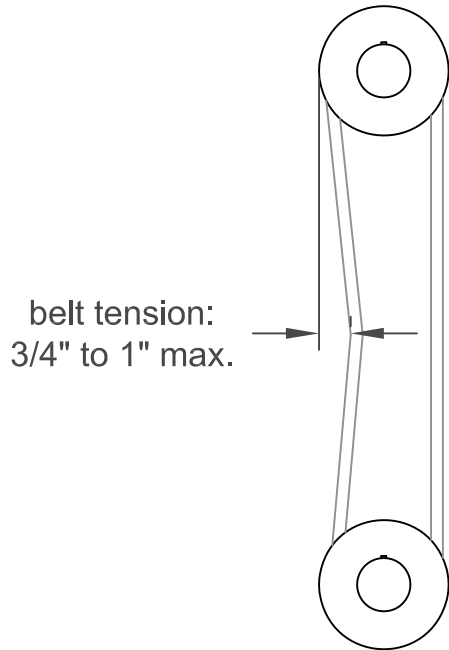
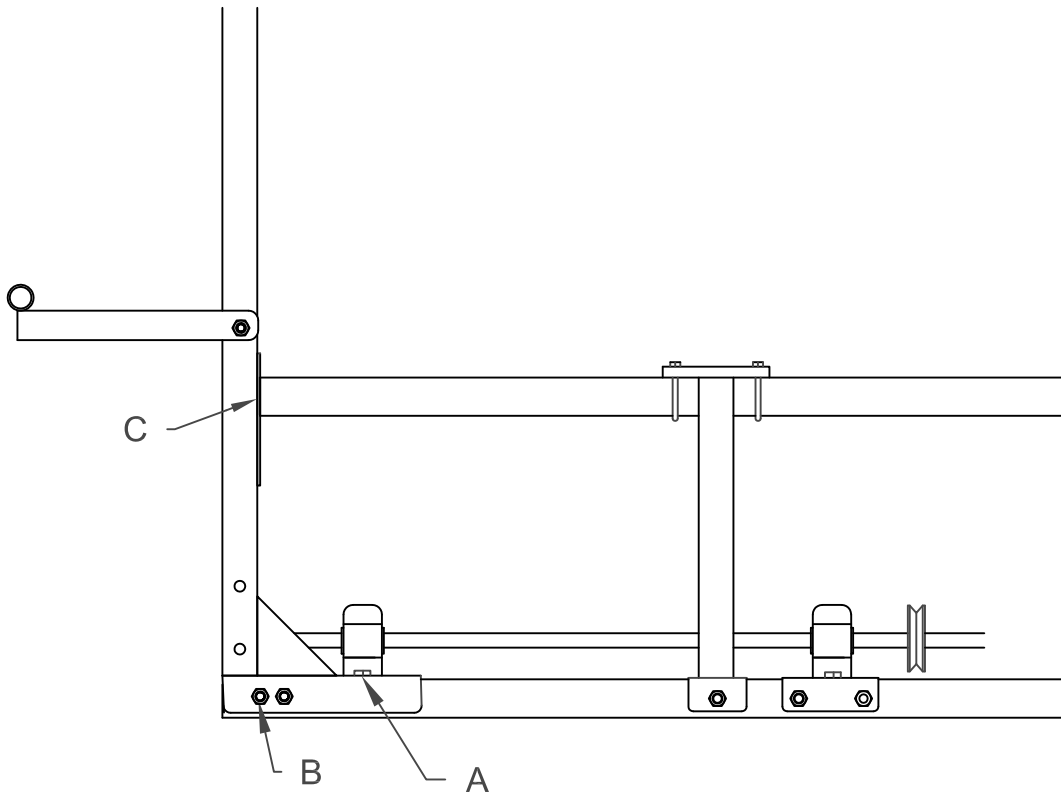


Figure 2: Belt Replacement



OPERATING and SERVICING

Motor Mount Components:

Table 1: Bill of Materials

ITEM	PART NO	DESCRIPTION	QTY
1	280-089 or 280-98	ENGINE MOUNT, 5 H.P. ENGINE MOUNT, 8 H.P.	1
2	280-52 or 580-049	CLUTCH ASSEMBLY, 5 H.P. CLUTCH ASSEMBLY, 8 H.P.	1
3	280-37 280-37	SHEAVE, 5 H.P. SHEAVE, 8 H.P.	1
4	280-53 or 280-106	V BELT B-44 (5 H.P.) V BELT B-46 (8 H.P.)	1 2
5	046-850	3/16" x 2" KEY	1
6	280-372	BELT GUARD	1
7	044-105	U-BOLT	3
8	044-136	U-BOLT	2
9	046-852	1/4" x 2-3/8" KEY	1
10	040-431	5/16" LOCKNUT	6
11	040-425	1/4" LOCKNUT	4

Figure 1: engine mount assy.

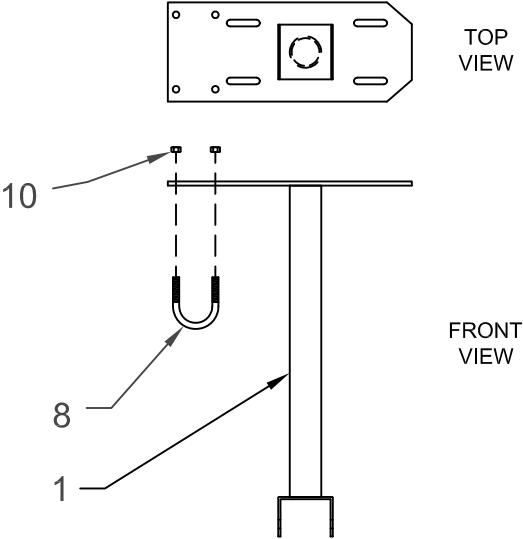
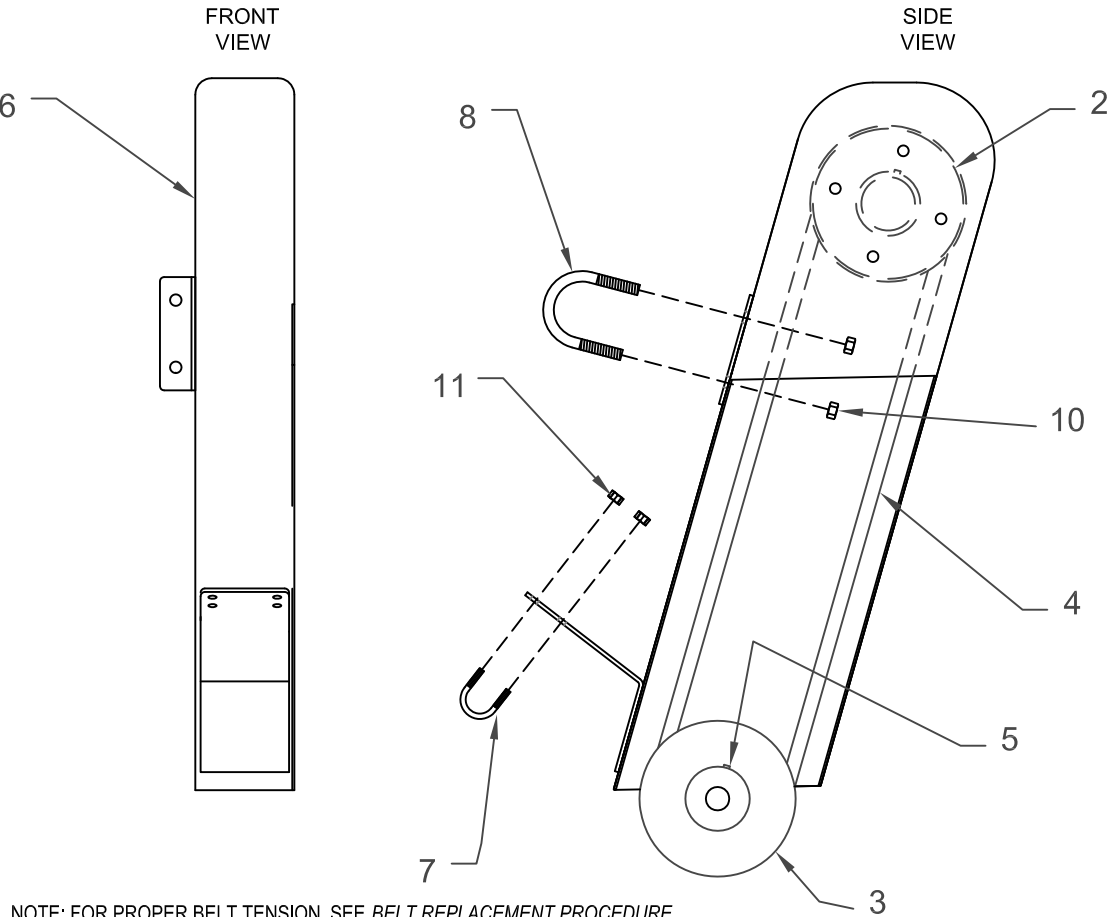


Figure 2: belt drive arrangement



NOTE: FOR PROPER BELT TENSION, SEE BELT REPLACEMENT PROCEDURE.

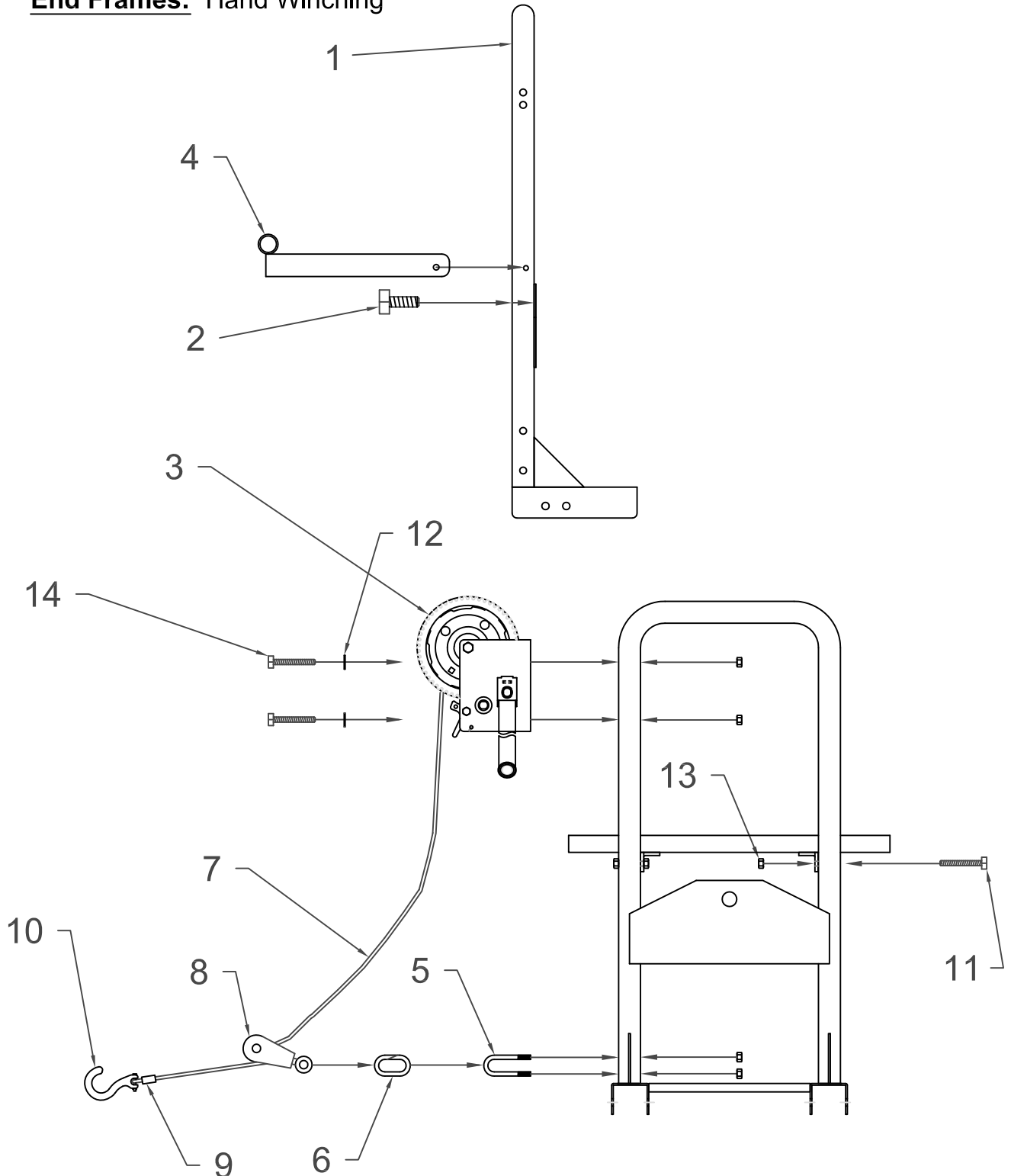
SPECIFICATIONS - STANDARD ITEMS

End Frames: Hand Winching

ITEM	PART NO	DESCRIPTION	QUANTITY
1	280-080	END FRAME (ENGINE END)	1
	280-081	END FRAME (EXTENSION END)	
2	020-797	CAP SCREW	1
3	580-67	HAND WINCH	1
4	280-439	LIFTING HANDLE	1
5	044-137	U-BOLT (5/16")	1
6	580-179	SAFETY LINK	1
7	580-180	1/8" DIA. AIRCRAFT CABLE	75'
8	580-48	SNATCH BLOCK	1
9	580-51	1/8" X 5/8" ALUMINUM CABLE CRIMP	1
10	580-50	CABLE HOOK	1
11	020-397	5/16" x 2" HEX HEAD CAP SCREW	2
12	041-131	5/16" FLAT WASHER	2
13	040-431	5/16" SELF LOCKING NUT	6
14	020-397	5/16" x 2" HEX HEAD CAP SCREW	2

SPECIFICATIONS - STANDARD ITEMS

End Frames: Hand Winching



SPECIFICATIONS - STANDARD ITEMS

EXTENSION SECTION:

ITEM	PART NO	DESCRIPTION	QTY. PER END FRAME
1	280-85	FRAME ASSEMBLY, 2 FT. 6 IN.	AS REQUIRED
	280-92	FRAME ASSEMBLY, 5 FT.	AS REQUIRED
	280-93	FRAME ASSEMBLY, 10 FT.	AS REQUIRED
2	580-304	SHRINK TUBE	AS REQUIRED
3	280-402	TURNBUCKLE W/ NUT	1
4	580-88	MAIN SHAFT ASSEMBLY, 2 FT. 6 IN.	1
	580-87	MAIN SHAFT ASSEMBLY, 5 FT.	1
	580-86	MAIN SHAFT ASSEMBLY, 10 FT.	1
5	580-75	BEARING SPACER	AS REQUIRED
6	580-44	BEARING	AS REQUIRED
7	020-594	1/2" X 1-1/2" HEX HEAD CAP SCREW	AS REQUIRED
8	020-499	3/8" X 2-1/2" HEX HEAD CAP SCREW	AS REQUIRED
9	280-32	FINISHING TUBE, 2 FT. 6 IN.	2
	280-31	FINISHING TUBE, 5 FT.	2
	280-29	FINISHING TUBE, 10 FT.	2
10	040-438	3/8" SELF LOCKING NUT	AS REQUIRED
11	280-28	LAP PLATE	2
12	280-016	SADDLE	2
13	028-226	1/4"-28 X 1/4" SET SCREW	AS REQUIRED
14	028-239	1/4"-28 X 3/8" SET SCREW	AS REQUIRED
15	028-450	3/8"-16 X 1/2 SET SCREW	1
16	580-74*	ECCENTRIC WEIGHT	AS REQUIRED
17	044-109*	U-BOLT	2 / WEIGHT
18	040-425*	1/4"-20 SELF LOCK NUT	4 / WEIGHT
19	280-14	LEFT HAND NUT	1
20	041-150	1/2" FLAT WASHER	2 / Bearing
21	040-450	1/2" LOCK NUT	2 / Bearing

*Encase weight, u-bolts, and nuts with shrink tube (item 2) BEFORE operating machine.

SPECIFICATIONS - STANDARD ITEMS

EXTENSION SECTION:

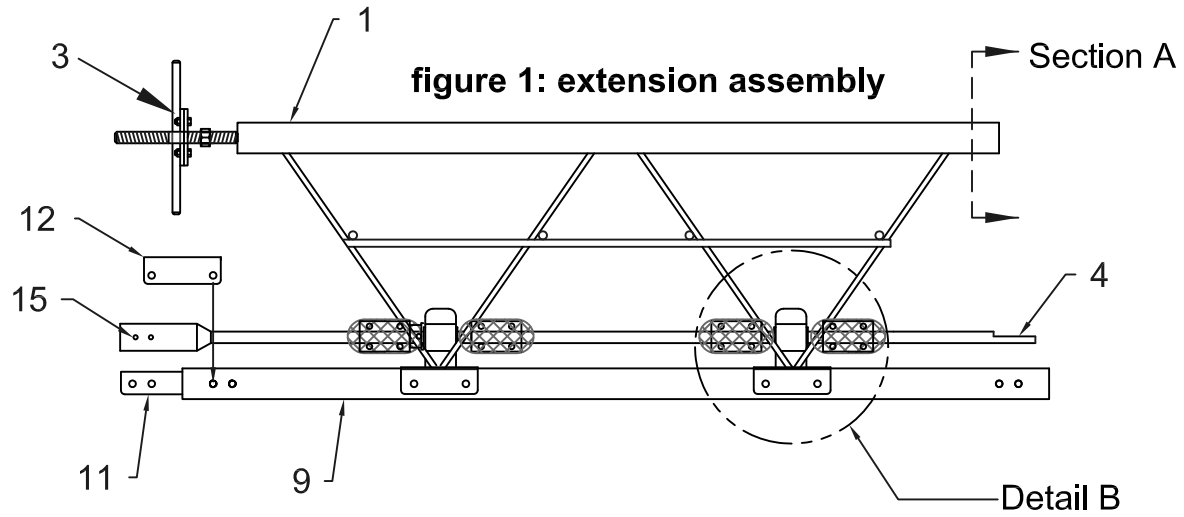
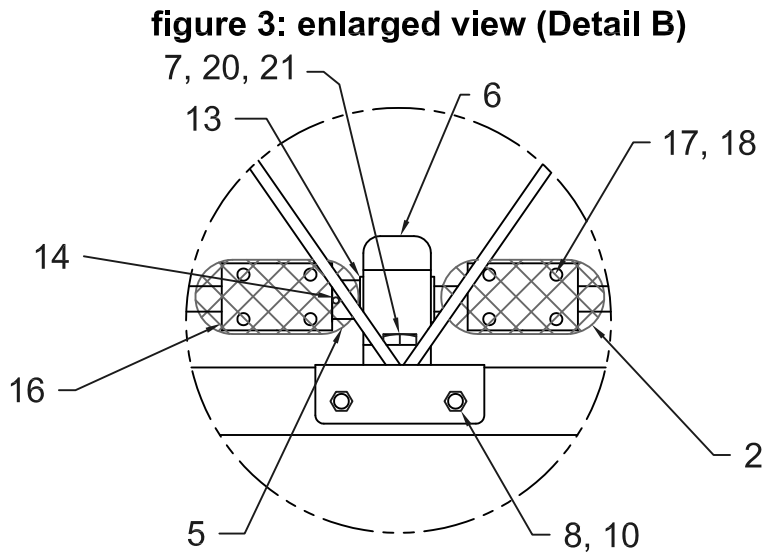
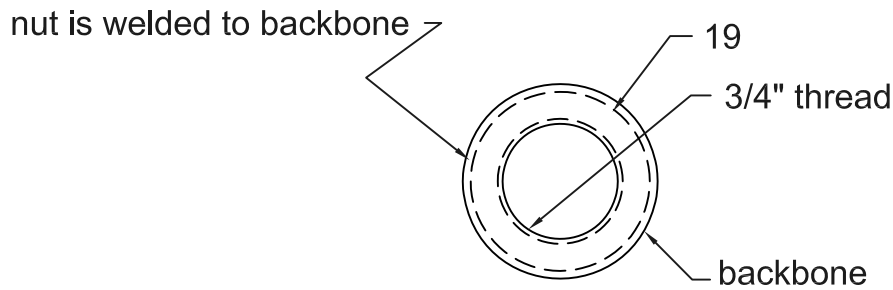


figure 2: enlarged view (Section A)



SPECIFICATIONS - STANDARD ITEMS

POWER SECTION:

ITEM	PART NO	DESCRIPTION	COMMENT
1	280-95	FRAME ASSEMBLY-10ft.-6in.	
	280-82	FRAME ASSEMBLY-5ft.-6in.	
2	280-46	FINISHING TUBE 10ft.-6in.	2 REQ'D
	280-30	FINISHING TUBE 5ft.-6in.	2 REQ'D
3	580-23	MAIN SHAFT 10ft.-6in.	1 REQ'D
	580-24	MAIN SHAFT 5ft.-6in.	1 REQ'D
4	580-75	BEARING SPACER	
5	580-44	BEARING	
6	020-594	HEX HEAD CAP SCREW 1/2"-13x1-1/2"	2 REQ'D / BEARING
	041-150	FLAT WASHER 1/2"	2 REQ'D / BEARING
	040-450	LOCKNUT 1/2"	2 REQ'D / BEARING
7	028-226	SETSCREW 1/4"-28x1/4"	1 REQ'D / BEARING
8	028-239	SETSCREW 1/4"-28x3/8	1 REQ'D / BEARING
9	020-499	HEX HEAD CAP SCREW 3/8"-16x2-1/2"	
10	040-438	LOCKNUT 3/8"	
11	580-74*	ECCENTRIC WEIGHT	
12	044-109	U-BOLT	2 REQ'D PER ECC. WT.
13	040-425	LOCKNUT 1/4"-20	2 REQ'D PER U-BOLT
14	280-13	RIGHT HAND NUT	2 REQ'D
15	580-304	SHRINK TUBE	1 REQ'D PER ECC. WT.

*ENCASE WEIGHT, U-BOLTS & NUTS WITH SHRINK TUBE (ITEM#15) BEFORE OPERATING MACHINE.

FINISHING TUBES:

PART NUMBER	DESCRIPTION	QUANTITY
280-46	10'-6" POWER SECTION	2
280-30	5'-6" POWER SECTION	2
280-29	10'-0" EXTENSION	2
280-31	5'-0" EXTENSION	2
280-32	2'-6" EXTENSION	2

SPECIFICATIONS - STANDARD ITEMS

POWER SECTION:

figure 1: power section assembly

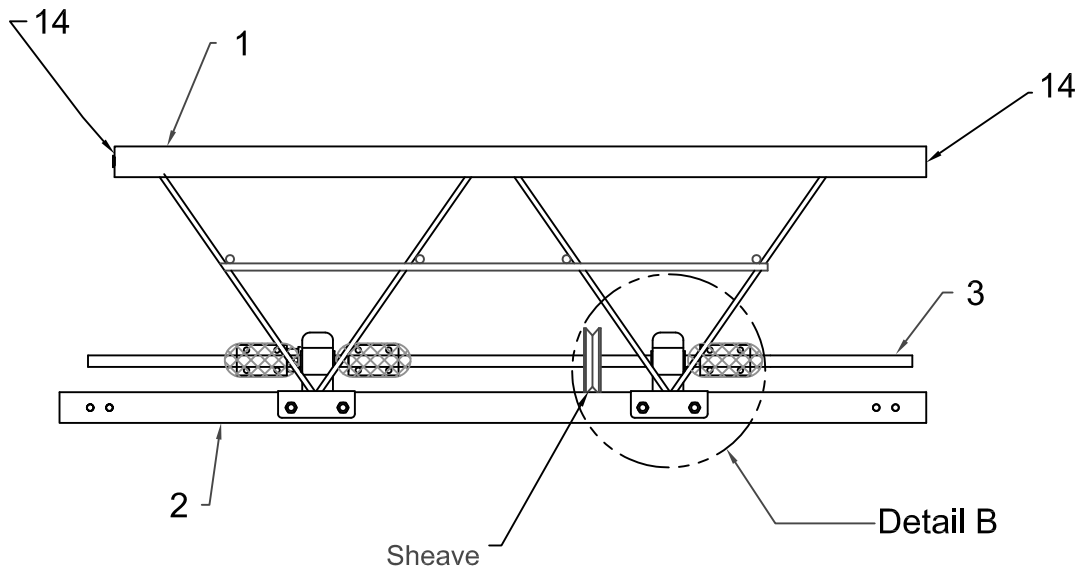
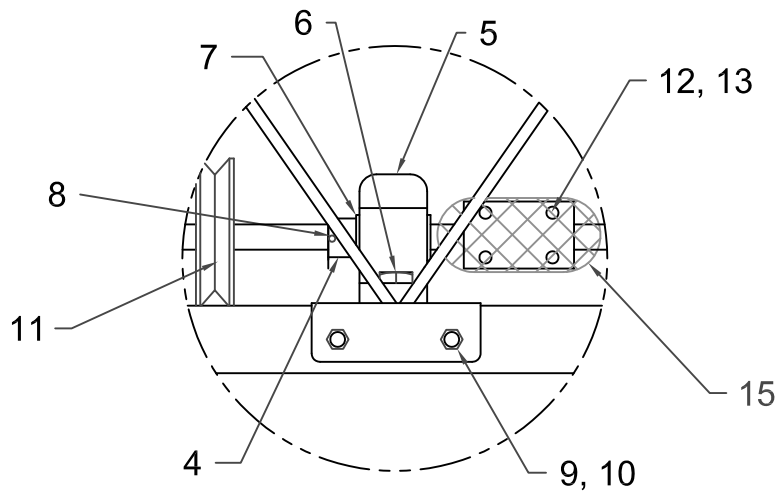


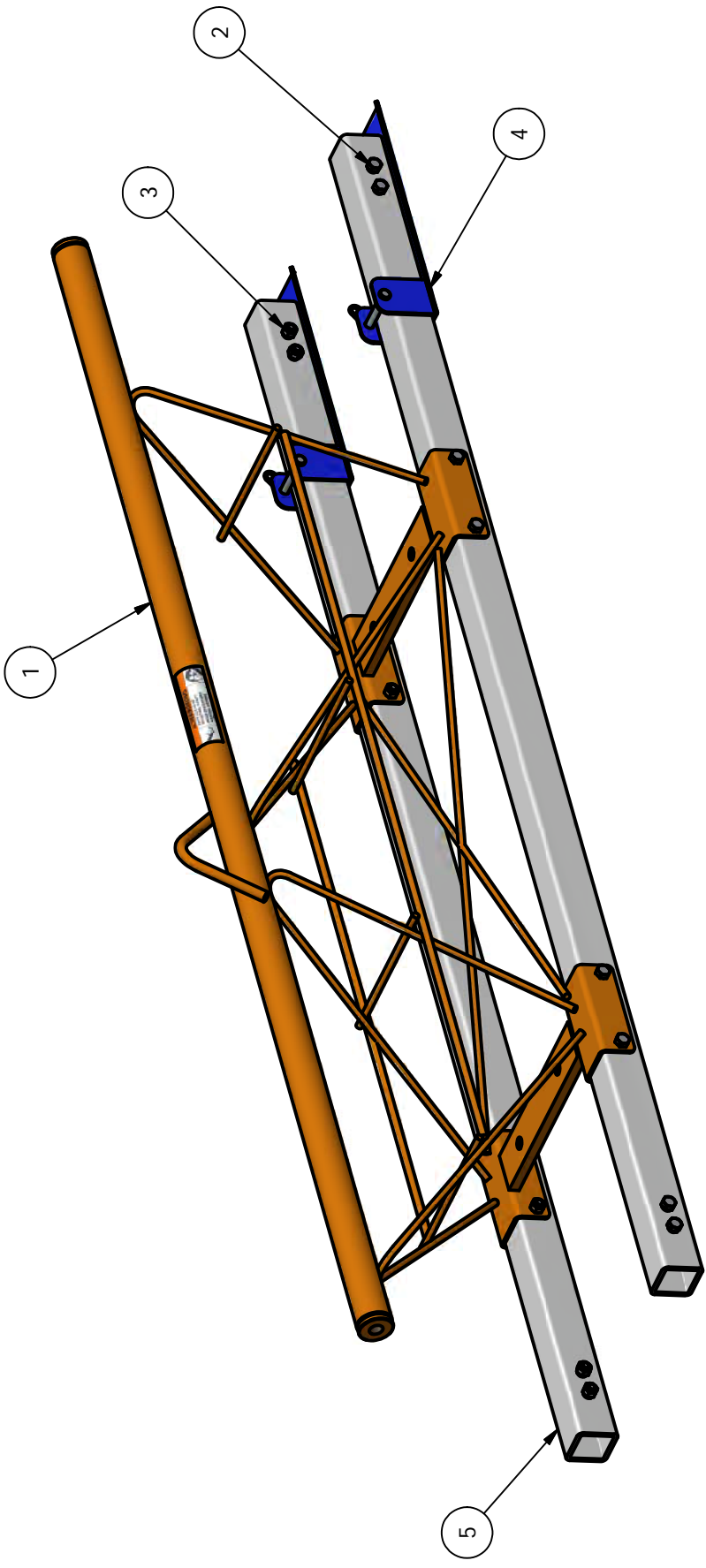
figure 2: zoomed in view of Detail B



1 2


ITEM	QTY	PART #	DESCRIPTION
1	1	280-82	POWER FRAME WELDMENT, 5'6"
2	16	020-427	SCREW, CAP, HEX HEAD, 3/8"-16 UNC X 2-3/4", ZPS
3	16	040-438	NUT, LOCK - 3/8"-16 UNC, ZPS
4	2	280-99	280 SKI ASSEMBLY
5	11'	019-322-66	ALUMINUM TUBE, SQUARE: 2"X2"X3/16"X66"

B B



A A

DRAWN BY jdau	DATE 4/30/2013
MATERIAL	WEIGHT 47.900 lbmass
Standard Tolerances Unless Otherwise Specified	
INCH DIMENSIONS	
FRACTIONAL	$\pm .1/16$
0.0	$\pm .003$
0.00	$\pm .001$
0.000	$\pm .0005$
ANGULAR	
$\pm .1$ DEGREE	
METRIC DIMENSIONS	
0	$\pm .5$
0.0	$\pm .2$
0.00	$\pm .1$
ANGULAR	
$\pm .1$ DEGREE	


METAL FORMS CORPORATION
 SINCE 1909

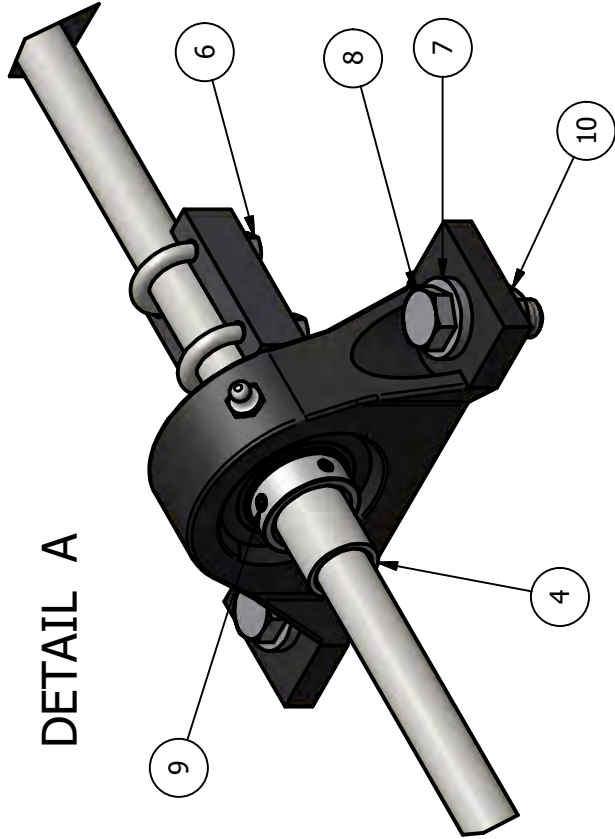
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POWER SECTION ASSEMBLY, 5'

SIZE DWG NO REV
A 280-204

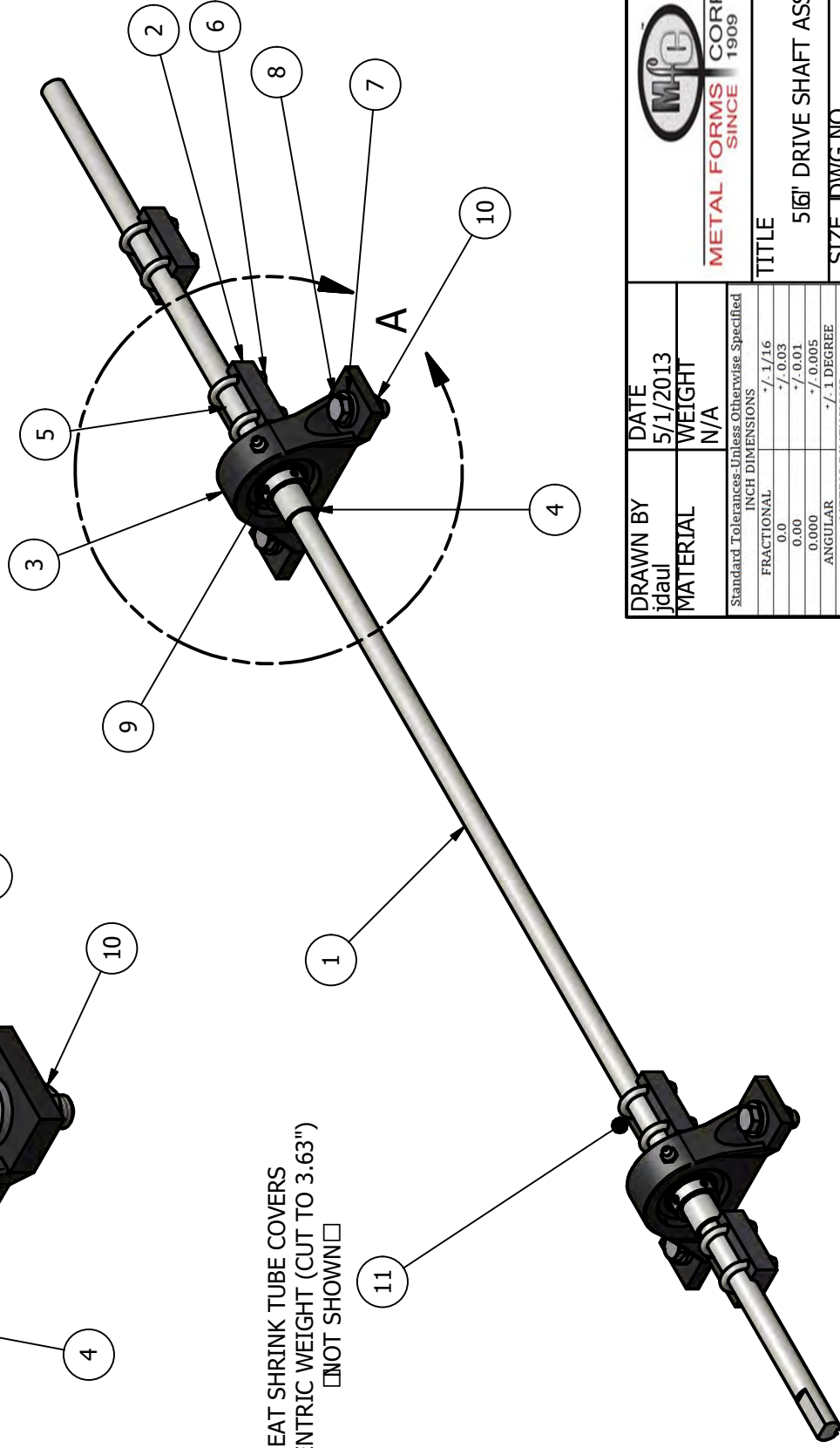
SHEET 1 OF 1

2 1 3-7

DETAIL A




HEAT SHRINK TUBE COVERS
ECCENTRIC WEIGHT (CUT TO 3.63")
□ NOT SHOWN □



ITEM	QTY	PART #	DESCRIPTION
1	1	580-24	MAIN SHAFT - 56"
2	4	580-74	ECCENTRIC WEIGHT
3	2	580-44	BEARING
4	2	580-75	BEARING SPACER
5	8	044-109	BOLT, U (SHAPED), 1/4"-20 UNC
6	16	040-425	NUT, LOCK - 1/4"-20 UNC, ZPS
7	4	041-150	WASHER, FLAT, 1/2" ZPS
8	4	020-549	SCREW, CAP, HEX HEAD, 1/2"-13 UNC X 1-1/2", FT, GR2, ZPS
9	2	028-239	SCREW, SET, SOCKET HEAD, 1/4"-28 UNC X 3/8", BHS
10	4	040-450	NUT, LOCK - 1/2" UNC, ZPS
11	4	580-304	HEAT SHRINK TUBE (NOT SHOWN)

DRAWN BY	DATE
jdau	5/1/2013
MATERIAL	WEIGHT
	N/A
Standard Tolerances Unless Otherwise Specified	
INCH DIMENSIONS	
FRACTIONAL	+/- 1/16
0.0	+/- 0.03
0.00	+/- 0.01
0.000	+/- 0.005
ANGULAR	
	+/- 1 DEGREE
METRIC DIMENSIONS	
0	+/- .5
0.0	+/- .2
0.00	+/- .1
ANGULAR	
	+/- 1 DEGREE

 METAL FORMS CORPORATION SINCE 1909	
TITLE	
56" DRIVE SHAFT ASSEMBLY	
SIZE	REV
A	280-227
SHEET 1	OF 1

SPECIFICATIONS - STANDARD ITEMS

WARRANTY:

Metal Forms Corporation warrants, solely to the original purchaser, its products to be free on the date of delivery from defects in material and workmanship. Metal Forms Corporation's obligation under this warranty is conditioned upon Metal Forms Corporation receiving notice of the defect within ten (10) days of discovery, and shall be limited to repairing or replacing, at its option, at its factory, any part or parts, which shall be returned to it with transportation charges prepaid, and which its examination shall disclose, to its satisfaction, to have been thus defective: PROVIDED that this limited warranty shall be effective only if such part or parts shall be so returned to Metal Forms Corporation not later than ninety (90) days after initial delivery of the products to the original purchaser. Metal Forms Corporation neither assumes or authorizes any other person or entity to assume for Metal Forms Corporation any other liability in connection with the sale of the products. No waiver, alteration, or modification of the foregoing conditions shall be valid unless made in writing, and signed by an executive officer of Metal Forms Corporation.

This warranty shall not apply in the event the products shall have been repaired or altered outside of Metal Forms Corporation, or if the products have been subject to abuse, misuse, negligence, or accident.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE AND ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART. BUYER ACKNOWLEDGES THAT THERE ARE NO WARRANTIES THAT WILL EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, UNLESS IN WRITING AND SIGNED BY BOTH SELLER AND PURCHASER.

The Buyer acknowledges that (s)he is not relying on Metal Forms Corporation's skill or judgment to select or furnish machines or equipment suitable for any particular purpose.

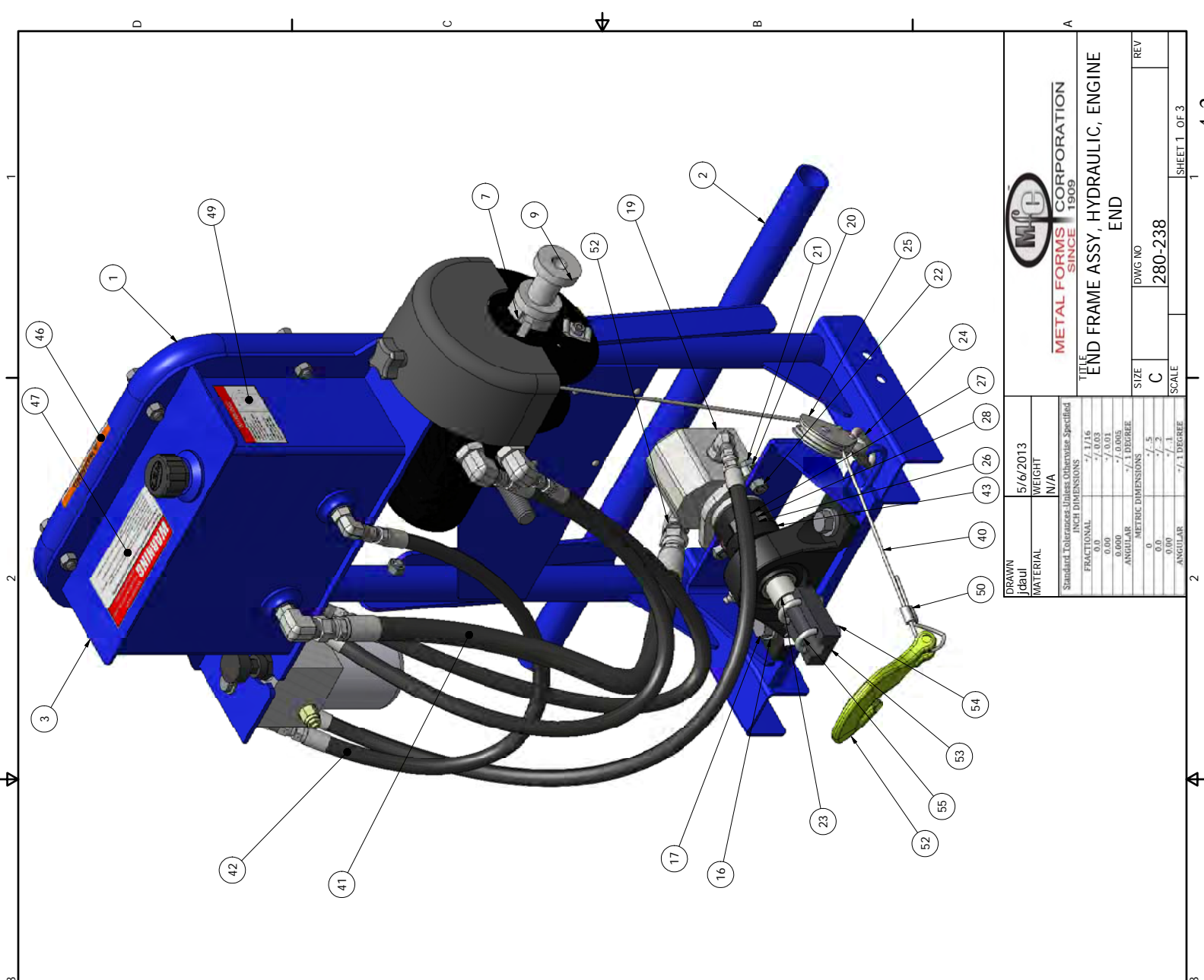
METAL FORMS CORPORATION MAKES NO WARRANTIES OR REPRESENTATIONS AND ASSUMES NO RESPONSIBILITIES IN RESPECT TO PARTS OR COMPONENTS NOT MANUFACTURED BY METAL FORMS CORPORATION.

NOTWITHSTANDING THE PROVISIONS OF ANY APPLICABLE STATUE, THE REMEDIES AVAILABLE TO THE BUYER AS SET FORTH IN THIS AGREEMENT, ARE EXCLUSIVE REDEDIES, AND ALL OTHER REMEDIES, STATUTORY OR OTHERWISE, ARE HEREBY EXPRESSLY WAIVED BY THE BUYER. METAL FORMS CORPORATION SHALL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS WARRANTY OR BREACH THEREOF.

SPECIFICATIONS - ACCESSORY ITEMS

Options and Accessories:

HYDRAULIC WINCHING:	END FRAMES CONTAIN HYDRAULIC OIL TANKS, MOTORS, PUMPS, HOSES, FLOW CONTROL VALVES, AND RELIEF VALVES. ALLOWS MACHINE TO BE WINCHED THROUGH USE OF THE SAME MOTOR ALREADY RUNNING THE VIBRATING SHAFT.
INSIDE & OUTSIDE GUIDE PLATES:	AVAILABLE FOR SPECIAL APPLICATIONS SUCH AS PAVING ON SUPER ELEVATIONS AND PAVING CURB TO CURB OR SLAB TO SLAB.
OFFSET PLATE:	ADJUSTABLE ADAPTOR PLATE MOUNTS ON END FRAME(S) FOR RECESS PAVING OR POURING AGAINST WALLS.
SCREED EXTENDERS:	AN 8" EXTENSION, MADE OUT OF FINISHING TUBE MATERIAL, EXTENDING FROM BACK SIDE OF THE END FRAME ASSEMBLY. WITH THE USE OF FOUR (4) EXTENDERS THE OVERALL SCREEDLENGTH WILL INCREASE BY 16 INCHES.
TRANSPORT WHEEL ASSEMBLY:	TRANSPORTATION UNIT FOR MANEUVERING SCREED ON JOBSITE.
WINCHING FROM ONE END:	FOR SITUATIONS THAT REQUIRE A ONE-MAN OPERATION, THIS IS SET-UP WITH BOTH HAND WINCHES ADAPTED TO ONE END FRAME.



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	280-080	END FRAME ASSY, HYDRAULIC, ENGINE END
2	1	280-439	LIFT HANDLE WELDMENT
3	1	280-274	HYDRAULIC ASSY WELDMENT (ENGINE END)
4	1	185-715	VIBRATION ISOLATION RUBBER MOUNT
5	1	580-077	HYDRAULIC MOTOR W/ ORB-10 INLET/OUTLET
6	4	021-439	SCREW, CAP, SOCKET HEAD, FLAT, 3/8"-16 UNC X 7/8" O.L., BHS
7	1	580-301	WINCH SHAFT, QUICK RELEASE
8	1	028-351	SCREW, SET, SOCKET HEAD, 5/16"-18 UNC X 1/2" DOG POINT BEARING
9	1	580-135	KNOB, QUICK RELEASE WINCH
10	1	021-431	SCREW, CAP, SOCKET HEAD, 3/8"-16 UNC X 3-3/4"
11	1	048-830	SPRING, COMPRESSION, 7/16" O.D. X .035 WIRE X 1-1/2" O.L.
12	1	580-305	SPOOL WELDMENT
13	1	025-402	KNOB, CLAMPING - 4 ARM W/ TAPED INSERT - PLASTIC, 1/4"-20
14	1	028-239	SCREW, SET, SOCKET HEAD, 1/4"-28 UNF X 3/8" BHS
15	1	580-44	BEARING
16	2	041-150	WASHER, FLAT, 1/2" ZPS
17	2	020-594	SCREW, CAP, HEX HEAD, 1/2"-13 UNC X 1-1/2" FT, GR2, ZPS
18	2	040-450	NUT, LOCK - 1/2"-13 UNC, ZPS
19	1	580-107	PUMP, HYDRAULIC, RH
20	3	042-138	WASHER, LOCK, SPLIT (SPRING), 3/8" ZPS
21	2	020-485	SCREW, CAP, HEX HEAD, 3/8"-16 UNC X 1", FT, ZPS
22	9	040-438	NUT, LOCK - 3/8"-16 UNC, ZPS
23	1	580-121	BEARING SPACER
24	1	046-935	QUICK-LINK (THREADED CONNECTOR) 1/4" DIA., 1-3/4" ID, 875 LB.
25	1	580-48	SWIVEL EYE BLOCK - 2" SHEAVE
26	1	580-104-1	PUMP DRIVE COUPLING, SHAFT END, 3/4"
27	1	580-104-2	PUMP DRIVE COUPLING, PUMP END, 1/2"
28	1	580-104-3	PUMP DRIVE COUPLING, SPYDER
29	1	580-374	INTEGRATED HYDRAULIC CONTROL UNIT (ORB-6)
30	1	580-374-1	FILTER, HYDRAULIC SYSTEM
31	2	580-111	ELBOW, 90 DEG. ORB-10 MALE TO JIC-6 MALE
32	6	580-375	ELBOW, 90 DEG. ORB-6 MALE SWIVEL TO JIC-6 MALE
33	1	028-338	SCREW, SET, SOCKET HEAD, 5/16"-18 UNC X 3/8" BHS
34	1	580-127	HYD WINCH BRKT CABLE KEEPER (ROUND)
35	1	580-930	SERIAL NUMBER PLATE
36	7	020-425	SCREW, CAP, HEX HEAD, 3/8"-16 UNC X 2", ZPS
37	2	020-475	SCREW, CAP, HEX HEAD, 3/8"-16 X .75
38	4	047-215	RIVET - BLIND - 1/8" DIA. X .126-187 LG. SS
39	1	020-797	SCREW, CAP, HEX HEAD, 3/4"-10 UNC X 2", ZPS
40	1	580-180	CABLE - AIRCRAFT 1/8" DIA. X 75' LONG
41	1	580-309	HOSE, 1/2", WITH JIC-8 SWIVEL FEMALE ENDS, 26" LONG
42	4	580-308	HOSE, 1/4", WITH JIC-6 FEMALE SWIVEL ENDS, 30" LONG
43	1	046-853	3/16" SQ. KEY X 1/2"
44	1	580-137	CABLE GUARD, HYDRAULIC WINCH
45	3	041-138	WASHER, FLAT, 3/8" ZPS
46	1	017-001	DECAL: WARNING-ROTATING SHAFT (4.25 X 1.50)
47	1	580-917	DECAL: SPEED SCREED HYDRAULICS WARNING
48	1	580-919	DECAL: WINCH KNOB DIRECTION
49	1	580-918	DECAL: WINCH SPOOL DIRECTION
50	1	580-51	CABLE CRIMP, ALUMINUM, 1/8" X 5/8", HOUR GLASS SLEEVE
51	1	580-818	DECAL: 3.25" X 10" SPEED SCR LOGO
52	1	580-54	CABLE HOOK, 5/16" SLIP W/ CLEVIS PIN
53	1	580-74	ECCENTRIC WEIGHT
54	4	040-425	NUT, LOCK, 1/4"-20, ZPS
55	2	044-109	BOLT, U (SHAPED), 1/4"-20 UNC
56	1	580-304	HEAT SHRINK TUBE, ECCENTRIC WEIGHT
57	1	580-109	ELBOW, 90 DEG. ORB-6 MALE SWIVEL TO JIC-8 MALE
58	1	580-112	ELBOW, 90 DEG. ORB-8 MALE
59	1	580-384	FILLER BREATHER CAP, 3/4" NPT (2008-ON) P562503

DRAWN: jdaul

MATERIAL: 5/6/2013

WEIGHT: N/A

Standard Tolerances Unless Otherwise Specified

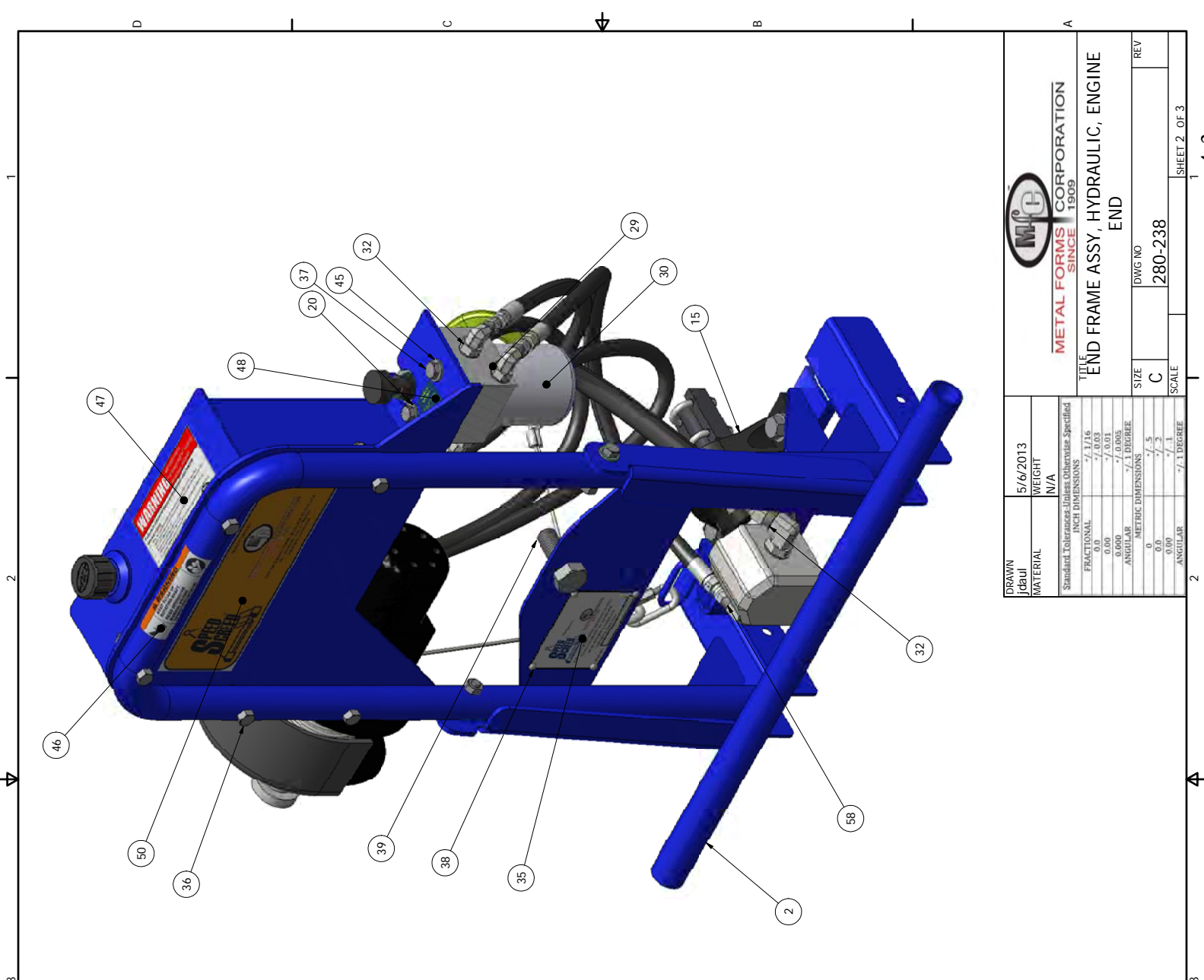
FRACTIONAL	+/- .125
DECIMAL	+/- .003
ANGULAR	+/- .001
ANGULAR	+/- .0005
ANGULAR	+/- .1 DEGREE
METRIC DIMENSIONS	+/- .5
METRIC DIMENSIONS	+/- .3
ANGULAR	+/- .1 DEGREE

MFC
METAL FORMS CORPORATION
SINCE 1909

TITLE
END FRAME ASSY, HYDRAULIC, ENGINE
END

SIZE: C
DWG NO: 280-238
SCALE: 1 OF 3

REV: 4-2



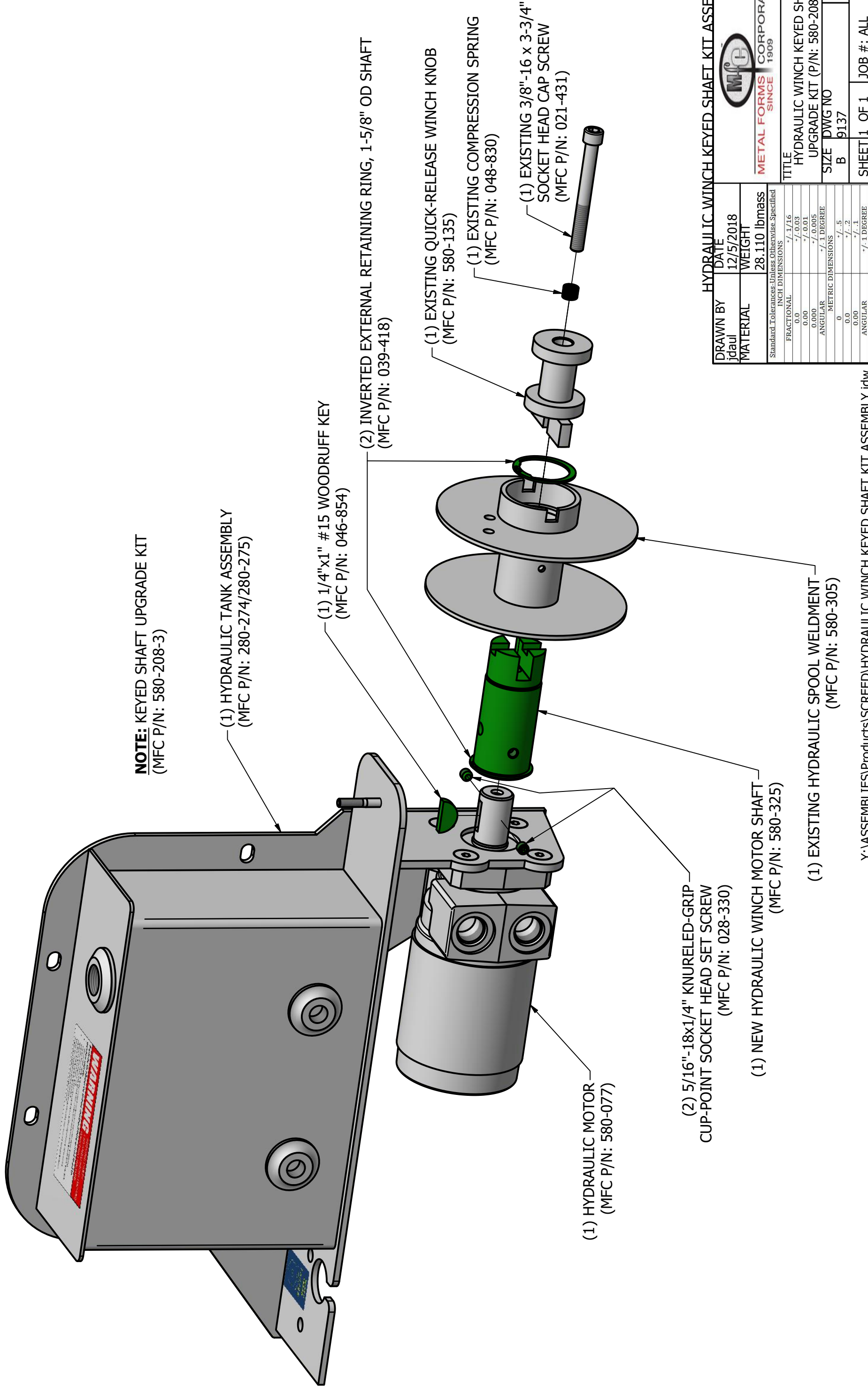
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	280-080	END FRAME ASSY, HYDRAULIC, ENGINE END
2	1	280-439	LIFT HANDLE WELDMENT
3	1	280-274	HYDRAULIC ASSY WELDMENT (ENGINE END)
4	1	185-715	VIBRATION ISOLATION RUBBER MOUNT
5	1	580-077	HYDRAULIC MOTOR W/ ORB-10 INLET/OUTLET
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7	1	580-301	WINCH SHAFT, QUICK RELEASE
8	1	028-351	SCREW, SET, SOCKET HEAD, 5/16"-18 UNC X 1/2" DOG POINT
9	1	580-135	KNOB, QUICK RELEASE WINCH
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12	1	580-305	SPOOL WELDMENT
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15	1	580-44	BEARING
16	2	041-150	WASHER, FLAT, 1/2" ZPS
17	2	020-594	SCREW, CAP, HEX HEAD, 1/2"-13 UNC X 1-1/2" FT, GR2, ZPS
18	2	040-450	NUT, LOCK - 1/2"-13 UNC, ZPS
19	1	580-107	PUMP, HYDRAULIC, RH
20	3	042-138	WASHER, LOCK, SPLIT (SPRING), 3/8" ZPS
21	2	020-485	SCREW, CAP, HEX HEAD, 3/8"-16 UNC X 1", FT, ZPS
22	9	040-438	NUT, LOCK - 3/8"-16 UNC, ZPS
23	1	580-121	BEARING SPACER
24	1	046-935	QUICK-LINK (THREADED CONNECTOR) 1/4" DIA., 1-3/4" ID, 875 LB.
25	1	580-48	SWIVEL EYE BLOCK - 2" SHEAVE
26	1	580-104-1	PUMP DRIVE COUPLING, SHAFT END, 3/4"
27	1	580-104-2	PUMP DRIVE COUPLING, PUMP END, 1/2"
28	1	580-104-3	PUMP DRIVE COUPLING, SPYDER
29	1	580-374	INTEGRATED HYDRAULIC CONTROL UNIT (ORB-6)
30	1	580-374-1	FILTER, HYDRAULIC SYSTEM
31	2	580-111	ELBOW, 90 DEG. ORB-10 MALE TO JIC-6 MALE
32	6	580-375	ELBOW, 90 DEG. ORB-6 MALE SWIVEL TO JIC-6 MALE
33	1	028-338	SCREW, SET, SOCKET HEAD, 5/16"-18 UNC X 3/8" BHS
34	1	580-127	HYD WINCH BRKT CABLE KEEPER (ROUND)
35	1	580-930	SERIAL NUMBER PLATE
36	7	020-425	SCREW, CAP, HEX HEAD, 3/8"-16 UNC X 2", ZPS
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46	1	017-001	DECAL: WARNING-ROTATING SHAFT (4.25 X 1.50)
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48	1	580-919	DECAL: WINCH KNOB DIRECTION
49	1	580-918	DECAL: WINCH SPOOL DIRECTION
50	1	580-818	DECAL: 3.25" X 10" SPEED SCR LOGO
51	1	580-51	CABLE CRIMP, ALUMINUM, 1/8" X 5/8", HOUR GLASS SLEEVE
52	1	580-54	CABLE HOOK, 5/16" SLIP W/ CLEVIS PIN
53	1	580-74	ECCENTRIC WEIGHT
54	4	040-425	NUT, LOCK, 1/4"-20, ZPS
55	2	044-109	BOLT, U (SHAPED), 1/4"-20 UNC
56	1	580-304	HEAT SHRINK TUBE, ECCENTRIC WEIGHT
57	1	580-109	ELBOW, 90 DEG. ORB-6 MALE SWIVEL TO JIC-8 MALE
58	1	580-112	ELBOW, 90 DEG. ORB-8 MALE
59	1	580-384	FILLER BREATHER CAP, 3/4" NPT (2008-ON) P562503

DRAWN	5/6/2013
MATERIAL	WEIGHT
	N/A
Standard Tolerances Unless Otherwise Specified	
FRACTIONAL	+/- .1/16
	-/- .003
	-/- .001
DECIMAL	+/- .0005
ANGULAR	-/- .1 DEGREE
METRIC DIMENSIONS	
	+/- .5
	-/- .3
ANGULAR	-/- .1 DEGREE

MFC
METAL FORMS CORPORATION
SINCE 1909

END FRAME ASSY, HYDRAULIC, ENGINE END

SIZE	DWG NO	REV
C	280-238	
SCALE		SHEET 2 OF 3

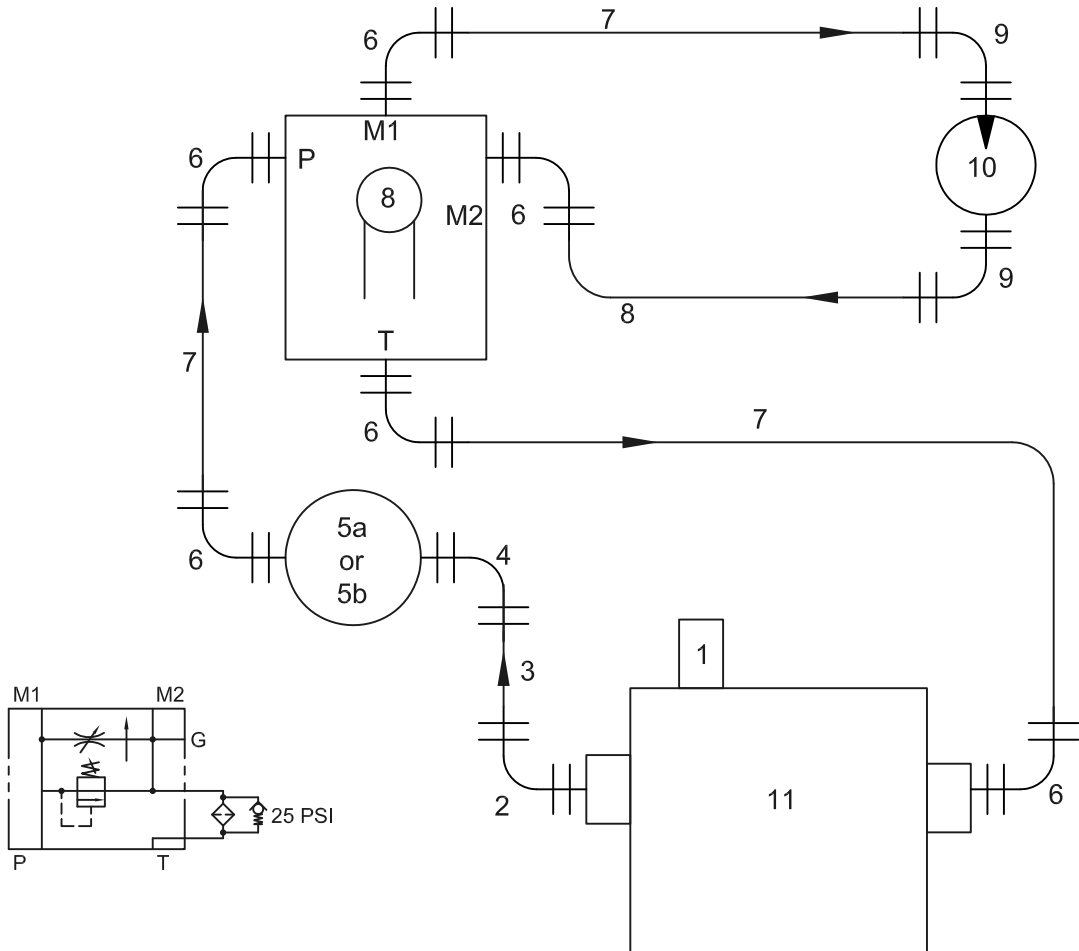


HYDRAULIC WINCH KEYED SHAFT KIT ASSEMBLY	
DRAWN BY	DATE
jdaul	12/5/2018
MATERIAL	WEIGHT
	28.110 lbmass
Standard Tolerances-Unless Otherwise Specified	
INCH DIMENSIONS	
FRACTIONAL	+/- 1/16
0.0	+/- 0.03
0.00	+/- 0.01
0.000	+/- 0.005
ANGULAR	+/- 1 DEGREE
METRIC DIMENSIONS	
0	+/- .5
0.0	+/- .2
0.00	+/- .1
ANGULAR	+/- 1 DEGREE
TITLE	
HYDRAULIC WINCH KEYED SHAFT UPGRADE KIT (P/N: 580-208-3)	
SIZE	DWG NO
B	9137
REV	
SHEET 1 OF 1	
JOB #: ALL	



SPECIFICATIONS - ACCESSORY ITEMS

End Frames - Hydraulic Winching



Item #	Desc.	p/n	Qty.
1	Fill/Breather cap -3/8 NPT	580-330	1
2	90° Elbow (ORB-6 male to JIC-8 male)	580-109	1
3	Hose: 1/2" x 26" (with JIC-8 swivel female ends)	580-309	1
4	90° Elbow (ORB-8 male to JIC-8 male)	580-112	1
5a or 5b	Pump, 5000 psi -CCW (ORB-8 female inlet; ORB-6 female outlet) Pump, 5000 psi - CW (ORB-8 female inlet; ORB-6 female outlet)	580-107 580-108	1 1
6	90° Elbow (ORB-6 male to JIC-6 male)	580-375	6
7	Hose: 1/4" x 30" (with JIC-6 swivel female ends)	580-308	4
8	Integrated Hydraulic Control (ORB-6)	580-374	1
9	90° Elbow (ORB-10 male to JIC-6 male)	580-111	2
10	Motor (ORB-10)	580-077	1
11	Oil reservoir - Engine End Oil reservoir - Extension End	280-274 280-275	1 1

SPECIFICATIONS – ACCESSORY ITEMS

Spare parts kit # 280-900 (for hand winch units)

Parts Included:	<u>p/n</u>	<u>qty.</u>
turnbuckle w/ lock nut	280-402	1
lap plate	280-28	2
saddle	280-016	2
safety link	580-179	2
hex head cap screw	020-499	8
set screw	028-450	4
lock nut, 3/8"	040-438	8

Spare parts kit # 280-901 (for hydraulic winch units)

Parts Included:	<u>p/n</u>	<u>qty.</u>
turnbuckle w/ lock nut	280-402	1
lap plate	280-28	2
saddle	280-016	2
safety link	580-179	2
hex head cap screw	020-499	8
set screw	028-450	4
lock nut, 3/8"	040-438	8
pump drive coupling, 3/4" bore	580-104-1	1
pump drive coupling 1/2" bore	580-104-2	1
pump drive spider	580-104-3	1

NOTE: PARTS MAY BE ORDERED SEPERATELY

SPECIFICATIONS - ACCESSORY ITEMS

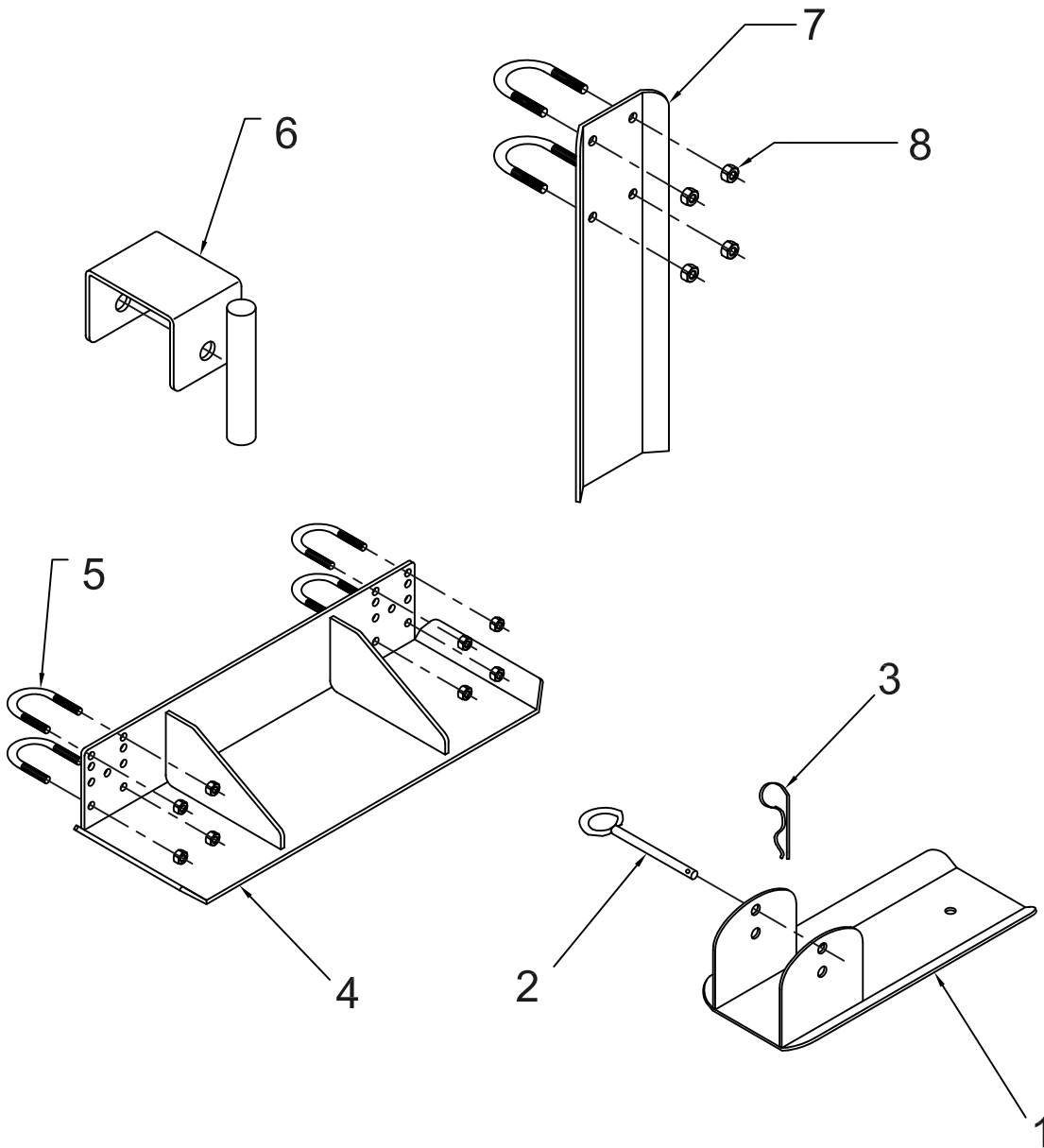
Offset Plates & Guide Plates:

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	280-99	SKI (WITH CLEVIS PIN)	2
2	046-630	CLEVIS PIN (W/ COTTER PIN)	2
3	046-225	HAIR PIN COTTER PIN	2
4	280-062	OFFSET PLATE	AS REQUIRED
5	044-137*	U-BOLT	AS REQUIRED
	040-431	SELF LOCK NUT	AS REQUIRED
6	280-148	INSIDE GUIDE PLATE	AS REQUIRED
7	280-122	OUTSIDE GUIDE PLATE	AS REQUIRED

***U-bolts and locking nuts are included with offset plate**

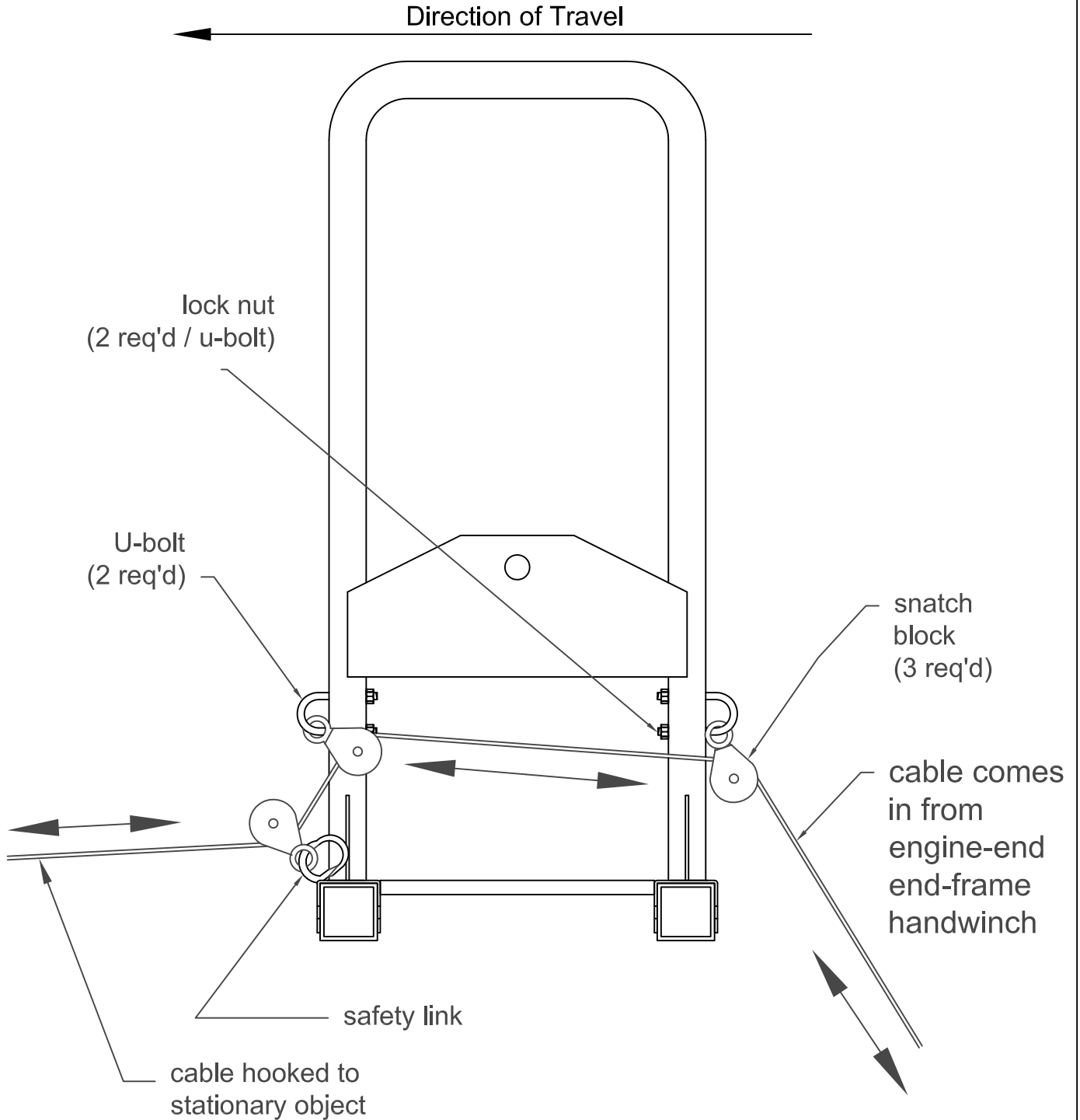
SPECIFICATIONS - ACCESSORY ITEMS

Offset Plates & Guide Plates:



SPECIFICATIONS - ACCESSORY ITEMS

Winching from One End: hand winches



SPECIFICATIONS – ACCESSORY ITEMS

Hydraulic Winch Assembly

WARNING

Failure to observe these instructions could lead to severe injury.

General Safety:

- Take time to fully read and understand all instructions regarding the hydraulic winch.
- Always use factory-approved switches, controls, accessories, and installation components.
- Always keep loose clothing away from operating winch.
- Never modify the cable hook by welding or attaching to it.
- Never obscure warning or instruction label.
- Never use cable as a ground for welding.
- Always turn off engine before performing any maintenance or repair, or before working around winch spool.
- Never work on or around winch spool when winch is under load.
- Always refer repairs to qualified technicians.
- Never machine or weld any part of winch.
- Never use winch to hold loads.
- Never use as a hoist for lifting, supporting, or transporting people, or over areas where people are present.
- Always use Grade 5 or better hardware.
- Never weld bolts and never use longer bolts than those supplied from factory.

Installation Safety:

- Always take your time when rigging for a winch pull.
- Always wear heavy gloves when handling cable. Do not allow cable to slide through hands.
- Never put finger through hook. If fingers should become trapped in hook, they can be lost.
- Always choose a stationary object as an anchor.
- Always choose an anchor that is sufficiently strong to withstand the maximum pulling capacity of your winch.
- Never winch with less than 3 wraps of cable around the spool. The cable could come loose from the spool.
- Always hook the cable as low as possible.
- Always be certain the hook will not slip.
- Always lay a heavy blanket or tarp over cable near hook end, when operating winch under heavy loads. If cable or hook failure should occur, cloth will help prevent rope whipping.
- Always, prior to using winch, remove any obstacle that may interfere with safe operation.
- Always pre-stretch cable and re-spool under load before use.
- Never step over cable or allow anyone else to do so.

Winch Safety:

- Always require operator and bystanders to be aware of cable during winch operation.
- Always inspect winch installation and cable condition before operating winch. If cable has a fray, kink, or other damage, it must be replaced immediately. Loose or damaged winch installation must be corrected immediately.
- Never hook cable back onto itself. This damages the cable.
- Never exceed winch, cable, or accessory's rated capacity.
- Always keep the cable in close alignment with the spool.
- Always keep others away from cable, hook, and spool while winch is in operation.
- Never operate with wet or oily hands.
- Never guide wire rope onto drum with hands.
- Never allow shock loads to be applied to winch or cable.
- Never leave the winch controls unattended while in operation.
- Never touch the cable or hook while in tension or under load.
- Always stand clear of cable and spool during winch operation.
- Never operate this winch when under the influence of drugs, alcohol, or medication.