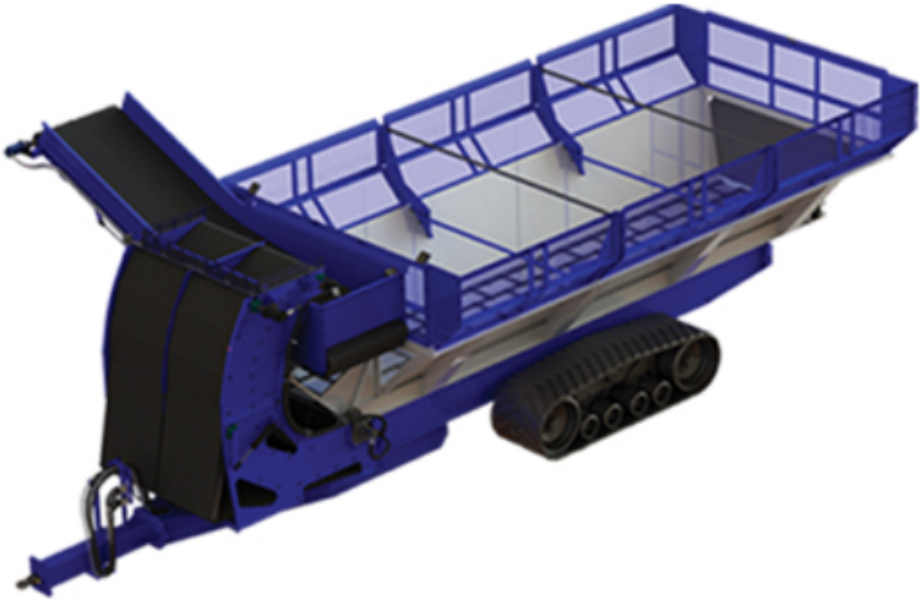
CROP Shuttle®

WIP



5600 SERIES

Owner’s Manual & User Guide

Safe-T-Pull Inc.

Contents

Copyright & Ownership Notice

Language note: The original version of these instructions was written in English. All other languages are translations of the original.

Printing location: U.S.A.

Welcome

Thank you for choosing a **Safe-T-Pull** product and for joining our worldwide community of operators, farmers, and field-service professionals. Visit `www.stpmfg.com` for the latest product announcements, support resources, company news, and career opportunities.

Each Safe-T-Pull unit is engineered, tested, and built to deliver reliable performance in demanding agricultural and industrial environments. Years of research and real-world feedback have shaped the design of your equipment so you can work safer, faster, and more efficiently.

To ensure safe operation and maximum uptime, follow the guidelines in this Owner's Manual. Routine maintenance procedures are included here; detailed service and overhaul information is provided in the *Safe-T-Pull Service Manual* and should be carried out by an authorized Safe-T-Pull technician.

Your local Safe-T-Pull dealer knows your equipment best and is committed to your complete satisfaction—during the warranty period and for the life of your machine.

Latest documentation: The most current version of this Owner's Manual is always available at `www.cropshuttle.com/resources`

Before You Begin

Disclaimer

The information and specifications contained in this document are subject to change without notice. Safe-T-Pull Inc. assumes no responsibility or liability for errors or omissions that may appear in this manual. Safe-T-Pull Inc. reserves the right to update the existing document or to issue a new document - to correct such errors or omissions. You can obtain the latest version by contacting your local dealer during business hours.

Unpacking Instructions

Immediately upon receipt, carefully unpack the product and check the packaging to verify that all parts are present and undamaged.

Claims

If the packaging or its contents appear damaged in transit, notify the carrier immediately - not SafeTPull Inc. Delay may invalidate your claim with the carrier. Keep the container and packing material for inspection and take photos of any damage.

For issues such as missing components, non-shipping damage, or concealed damage, file a claim with Safe-T-Pull Inc. immediately upon receipt, again documenting everything with photos.

Contact Us

- **Email:** sales@stpmfg.com
- **Mail:** Safe-T-Pull, P.O. Box 94, Park River, ND 58270
- **Phone:** 701-284-6100
- **Web:** `https://www.stpmfg.com`

Safety Information

Read these safety notes *before* installing, operating, or servicing the Crop Shuttle. All personnel working on, with, or near a Crop Shuttle must wear:

- Safety-toed shoes
- Safety glasses
- Reflective safety vest
- Protective gloves
- Hard hat

Rules for Safe Hydraulic Operation

1. Park hydraulic machinery where others cannot reach it.
2. If the pulling vehicle has flow control, reduce the flow to the minimum needed for operation.
3. Avoid servicing the hydraulic system while the machine is running.
4. Only remove cylinders once the component is securely supported on the ground, stands, or blocks, and the hydraulic power is off.
5. Relieve all hydraulic pressure before disconnecting the hoses.

   CAUTION: Always wear PPE

6. Ensure all hose connections are tight and hoses undamaged.

Three Common Hydraulic Hazards

1. Burns from very hot, high-pressure fluid
2. Injuries or illness from flailing hydraulic lines
3. Hydraulic fluid injection into the body

Ways to Prevent Hazards

1. Detect pinhole leaks by moving a piece of cardboard or wood along the hose while wearing appropriate PPE.

   CAUTION: Never use your hand to check for leaks

2. **Never** touch hydraulic hoses when they are under pressure.
3. Replacement hoses must meet OEM specifications
4. **Never** connect low-pressure hoses, cylinders, or aftermarket equipment to the Crop Shuttle.
5. Ensure that all hydraulic components of the pulling vehicle are in proper working condition.
6. Periodically inspect for oil leaks and worn hoses.
7. Keep contaminants out of hydraulic oil and replace filters regularly.
8. Lubricate cylinder rods with protective lubricant to prevent rust.

Warning Labels

If warning labels become damaged or unreadable for any reason, they must be replaced immediately. Replacement labels can be ordered from your authorized *Crop Shuttle* dealer.

Pinch Point Hazard

Pinch points occur when any part of the machine contacts or rubs against another part or surface. Pinch points can cause laceration and amputation. To prevent serious injury or death, **DO NOT** step or reach into pinch areas. If service must be done in these areas be sure the tractor is **OFF**.

Moving Part Hazard

Moving-part hazards occur anywhere a conveyor, chain, belt, or hydraulics are in motion. To prevent serious injury or death, close and secure guards and shields before operating. Keep hands, feet, hair, and clothing away from moving parts. **DO NOT** stand or climb on the machine when operating. If service must be done in these areas be sure the tractor is **OFF**.

Overhead Conveyor Hazard

Overhead-conveyor hazards occur anywhere a conveyor, chain, or belt is in motion. To prevent serious injury or death, close and secure guards and shields before operating. Keep hands, feet, hair, and clothing away from moving parts. **DO NOT** stand or climb on or under the machine when operating. If service must be performed in these areas, be sure that the tractor is **off**.

Track Operational Guidelines

Camso Key Elements

The track system offers many benefits that can be maximized by following recommended operational practices. This section explains how to gain those benefits.

- Follow track break-in procedures
- Verify and maintain alignment
- Understand ways to maximize tread life
- Use correct operational techniques

Understanding these rules helps achieve years of trouble-free service.

Track Break-In

Before any road transport, apply the manufacturer's recommended dry lubricant to the inside of the tracks and keep speeds low while breaking in new tracks.

Guide-lug life benefits from correct break-in. Proper break-in reduces initial guide-lug wear. Rolling components polish the steel-to-rubber interface, while dust acts as a dry lubricant to minimize heat and reduce rubber stickiness. New tracks lacking a coating of dust should be exposed to dry and dusty soil conditions as soon as possible. Do not road transport a new Trailed Track System without first exposing the inside of the track to soil, dirt, or other dry lubricant. Road transport of new rubber without dry lubricant will generate damaging heat and can cause guide lug damage/wear. If roading must be done, then a dry lubricant such as talc or floor-dry should be applied to the guide lugs periodically during roading until exposure to the field commences.

Track Alignment

Track alignment is the single most important periodic check.

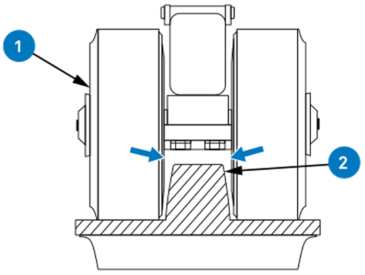
ALWAYS check alignment carefully before extended road transport. If track alignment can not be achieved using the alignment adjustment screws, center the arm and then refer to your owners manual on checking proper frame squareness (through proper turnbuckle adjustment) as mis adjustment can significantly affect track alignment.

Alignment can change due to component wear, track damage, operation on sloped surfaces, any component replacement or track replacement. Misalignment causes wear to guide lugs, so periodic alignment checks are important. By checking if there is significant difference in surface temperatures or wear between the inner and outer guide lug faces, you can determine if the track is in proper alignment.

One simple way to check alignment is to pull the implement with the trailed track system installed as straight as possible on a flat surface for at least 300 feet. After stopping,

observe if there is clearance with the front Mid-rollers (1) on both sides of the guide lugs (2).

[Figure 1]



If no clearance is evident on one side, the track may be out of alignment.

NOTICE: Narrow tracks are more difficult to align and may not always have clearance; minimizing inner/outer temperature difference is the best way to achieve alignment.

Maximize Tread Life

Use care during road transport; avoid conditions that cause high tread-wear rates.

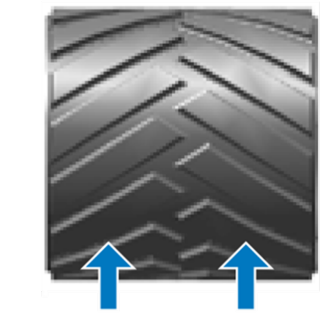
Key factors influencing tread wear:

- Amount of roading (roading increases wear)
- Track width (narrower wears faster)
- Field soil conditions (abrasive increases wear)
- Operating weight and distribution
- Operator techniques

Tread life decreases with higher percentages of roading. Tread wear rates can be minimized by staying off pavement, and reducing transport weight and speed. The greatest rate of tread wear occurs on a hot day with a poorly balanced or heavily, loaded system. Always transport during cooler parts of the day and at reduced travel speeds and weight, as this will lower temperatures of the treads, guide lugs, and rolling components.

Remember that frequent sharp turning of the trailed track system (i.e. skidding around a tight turn) especially if done on hard surfaces and fully loaded, dramatically increases tread wear, put high stresses on the mechanical components, and could cause the track to derail. Take wide turns whenever possible.

[Figure 2]



Tread wear occurs primarily in the wheelpath.

[Figure 2] — Tread wear occurs primarily in the wheel-path.

NOTICE: Refer to your Camso Trailed Track System operators manual to understand the maximum speed and duration limitations, as well as the maximum load limitations, while transporting your equipment. Always respect these limits.

Operational Techniques

Maintain correct track tension

Although the trailed-track system utilizes very minimal track tension, *proper tension is critical* for best performance. Tension can change during service—improper tension increases the potential for derailment or reduced life of bearings and rolling components.

Keep material out of the undercarriage

A trailed-track system will ingest some material and pass it through, but sharp non-compressible objects can cause localized loads that damage both track and wheels. Inspect and clean the undercarriage before starting work.

Use optimal track and wheel widths

Select the recommended track width for your application. Wide tracks and mid-rollers reduce ground disturbance, improve ride quality, and distribute ground pressure more evenly, extending component life.

Crossing ditches or diagonal transitions

When moving from sloped to flat terrain (or vice versa) the track ends may lose ground contact while the mid-section is unsupported. Avoid turning at this time to reduce the risk of derailment.

Limit sharp turns

Sharp turns or pivots cause tracks to skid, resulting in berming, road-surface damage, and excessive tread wear. Take wide turns whenever possible.

Most Up-to-Date Information

For the most current operation and maintenance details, refer to Camso's official manual: **Camso Operation & Maintenance Manual — TTS 70/80/100/110 Series**.

Setup

Recommended Hydraulic Port Selection

Port 1 *Boom Fold/Unfold*. Set the SCV to match the flow to the speed you want your boom to fold or unfold. Set time to 0.

Port 2 *Boom Fwd/Rev*. Set the SCV flow to achieve your desired boom belt speed. The boom must run fast enough to clear the crop from the discharging scrub tower to avoid plugging. Set the time to be constant.

> **NOTICE:** When stopping the belt, kick this port into float to avoid damage to the belt and drive components.

Port 3-4 *Inner and Outer Scrub tower*. Set the SCV flow to the desired unloading-belt speed and the timing to **constant flow**.

> **NOTICE:** When stopping the boom belt, kick this port into *float* to avoid damage to the drive motor.

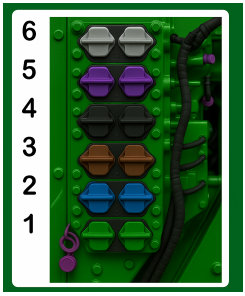
> **NOTICE:** Operate both towers simultaneously to prevent cavitation in the adjacent motor and avoid premature failure.

> **TIP:** Adjusting the SCV flow between Scrub 1 and Scrub 2 will result in greater cleaning action. During dry conditions, run these functions at the same speed.

Port 5 *Hopper Flow*. **Avoid plugging the scrub belts.** Use the in-cab toggle switch to operate the high-speed function (off = low speed, on = high speed). Do not run the hopper chain in high speed when fully loaded — damage to the chain and drive system can occur.

> **NOTICE:** Do not run 2-speed more than necessary to prevent premature failure.

Port 6 *Accessory* Use for any additional Crop Shuttle functions that may be installed, such as a hydraulic jack.



> **NOTICE:** Connect the case drain to the designated hydraulic port on the tractor.

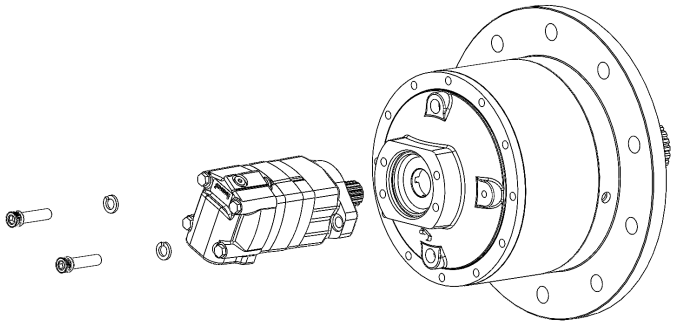
Assembly

Depending on how your Crop Shuttle was shipped, some components may need to be assembled before first use.

- ▷ Lifting device (forklift, skid steer, etc.)
- ▷ Chain or lifting strap
- ▷ Full set of sockets and wrenches
- ▷ Screwdriver set
- ▷ Pry bar/line-up punch

Step 1

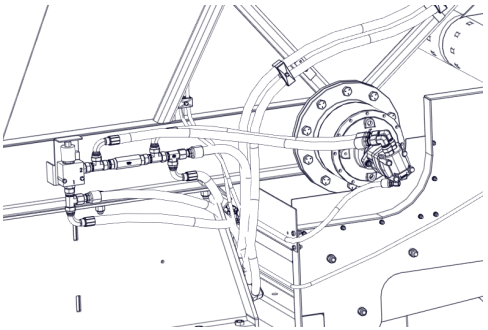
Install the orbital motor in the gearbox. Be sure the splines are clean and free of debris. Ensure the *O-ring* is not punctured or pinched. Tighten the bolts snug with a 3/4-inch wrench.



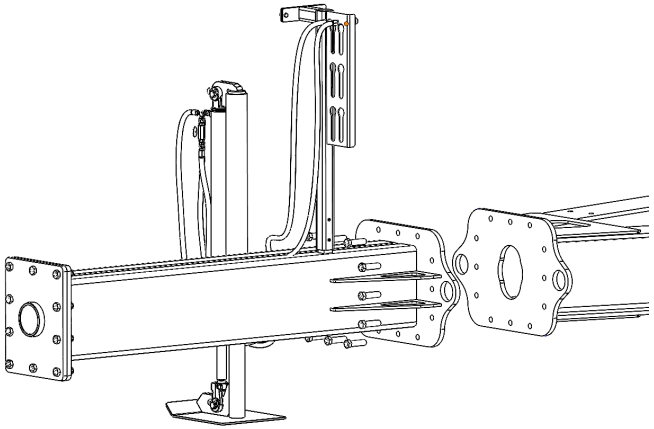
Step 2

Check and fill the gearbox oil after installing the orbital motor with GL5 80W-90 gear lube. Fill until oil begins coming out of the overflow port (210 ounces).

NOTICE: For cold climates, drain the oil and refill with 75w-90 synthetic.



Step 3
Route the wiring harness from the hitch to the junction box before installation. Carefully position and install the front hitch mount, then torque fasteners until secure.



Step 4
Set the Tensioner circuit to **300 psi** and adjust accordingly.

> **NOTICE:** Tightening increases pressure

Maintenance

First-Run Maintenance

After assembling your Crop Shuttle for the first time, perform the checks below. Doing so prevents costly mistakes and extends the life of your machine.

- ▷ Check gearbox oil (*see p. 23*)
- ▷ Check all grease points (*p. 22*)
- ▷ Check track alignment (*p. 20*)
- ▷ Verify Hopper Chain tension (*p. 23*)
- ▷ Ensure all hydraulic connections are secure and leak-free
- ▷ Confirm pressure / return hoses are connected in the correct sequence
- ▷ Re-check tractor hydraulic-fluid level after any repairs
- ▷ Tension on scrub tower 1 and 2
- ▷ Check that all belted chains are running with no rubbing on steel

Pre-Shift Maintenance

Before every shift — or every 12 hours of use — complete the following:

- ▷ Grease **all** grease points (*p. 22*)
- ▷ Inspect hydraulic lines for abrasion or leaks
- ▷ Check boom belt alignment and condition (*p. 23*)
- ▷ Verify hopper chain tension (*p. 24*)
- ▷ Inspect wear on moving parts (rollers, bearings, guide wheels, plastic slides)
- ▷ Check for frays, kinks, or cuts in electrical cables
- ▷ Re-check hydraulic fluid level in tractor
- ▷ Check track alignment (where on either side of the track lug) (*p. 20*)
- ▷ Clean track system; look for debris or oil leaks

TIP: After completing the above steps, briefly run all functions. Listen for any unusual noises that may indicate a failing bearing or roller. **Always run Scrub tower 1 and Scrub tower 2 simultaneously.** Failure to do so can cause cavitation and lead to motor failure.

Periodic Maintenance

The following table lists recurring inspections and service tasks.

Task	Every Shift or (12 h)	Weekly or (50 h)	Monthly or (100 h)	Annually or (500 h)	5 Years or (2000 h)
Grease all grease points	X				
Perform visual check of hydraulic lines	X				
Inspect wear on moving parts	X				
Check alignment and condition of boom belt	X				
Oil and check condition of hopper chains	X				
Check for frays, kinks, tears, or cuts in electrical cables	X				
Check hydraulic fluid level in tractor	X				
Check track alignment		X			
Inspect and clean track system		X			
Grease undercarriage and track system pivot points			X		
Check oil level of gear box			X		
Check condition of boom rollers and guide wheels			X		
Re-torque track wheels				X	
Change gearbox oil				X	
Replace all boom rollers (if necessary)					X
Replace track hub and pivot oil and set wheel bearing rolling torque					X

For complete track-system maintenance, refer to the *Track Owners Manual* supplied by Camso or vist `https://www.stpmfg.com`.

End-of-Season Maintenance

At the end of each harvest *or* any time the Crop Shuttle will sit unused for an extended period, complete the following "End-of-Season Maintenance" to prevent costly repairs and ensure longevity.

- ▷ Pressure-wash all dirt, mud, and debris
- ▷ Grease **all** grease points (*p. 22*)
- ▷ Coat any unpainted shaft or other bare metal with anti-seize
- ▷ Visual check of all hydraulic lines; repair leaks immediately
- ▷ Check condition of hopper chains; links should move freely without excess slop
- ▷ Check Plastic Slide on Boom to the floor of the Hopper
- ▷ Inspect wear on moving parts
- ▷ Check electrical cables for damage
- ▷ Track alignment (*p. 20*)
- ▷ Clean track system; remove debris
- ▷ Re-inspect for oil leaks on tracks; top up hubs if required
- ▷ Pressure-wash any excess dirt, mud, or debris
- ▷ Perform all periodic maintenance according to the chart above (*p. 17*)

Technical Information

Tracks

Following and performing the recommended maintenance procedures and transport limitation will dramatically prolong the life of the track system and avoid costly repairs.

The following list is a quick guideline to give you a basic understanding of the Camso Trailed Track System (TTS):

- Most personal injuries occurring during equipment operation, maintenance, or repair are caused by the failure to observe basic safety rules and precautions. In most cases, an injury can be avoided by recognizing hazardous situations before an injury occurs.
- A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.
- Improper operation and maintenance of this product can be hazardous and may result in injury or death.
- Do not perform any lubrication, maintenance or repair on this product, until you have read and understood the Operators Manual.
- Safety precautions and warnings are provided in the manual. If these hazard warnings are not heeded, bodily injury or death could occur to you or other persons.
- Any application differing from the ones prescribed in this manual is to be considered improper and potentially dangerous.
- Correct track tension is required for best performance and track life.
- Camso TTS can work in extreme conditions: for operator and machine safety, be sure to know your surroundings.
- Camso TTS is free to pivot around the main axle following ground contour. During transition over uneven ground terrain, check for interferences and move slowly to avoid over-oscillating the undercarriage.
- Camso TTS requires ground irregularities with suitable speed reduction and/or proper incidence angle. In particular, when high, sharp bumps are crossed move forward slowly to avoid shocks on the machine.
- Camso TTS moves like standard road-bed constructions. Operators must know and respect road traffic laws.
- Rubber tracks are not recommended for extended use on the road. Camso is not responsible for track and system damage resulting from extended road use. Long road periods and/or loading at higher than recommended maximum speeds may cause premature wear or failure of the tracks or wheels. To reduce damage during road driving decrease overall machine weight and decrease machine speed. See “Transport Limitations” section for further information.
- Long runs on side slopes increase the wear on the side of guide lugs and idlers.
- Keep material out of the undercarriage. Inspect undercarriage regularly and remove any material as necessary. In some conditions inspect more frequently.
- If a machine becomes stuck, clear away as much material from the undercarriage as

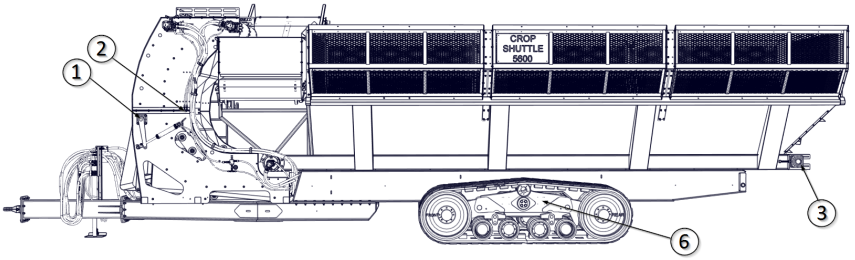
possible prior to pulling the machine out.

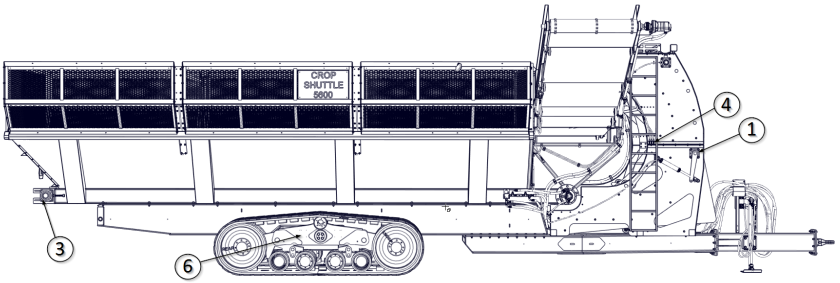
- Avoid short turning radiuses and operations especially when loaded. Spot turning creates debris ingestion and can also induce high torque loading in the system.
- Configure drawbar and hitch correctly during field operations.
- Use caution when operating track systems in loose, flowing material. Loose material can become trapped between track and idlers, resulting in track damage.
- Keep material out of the undercarriage. This may require scraping material out of tight places and in some conditions require frequent inspection and cleaning.

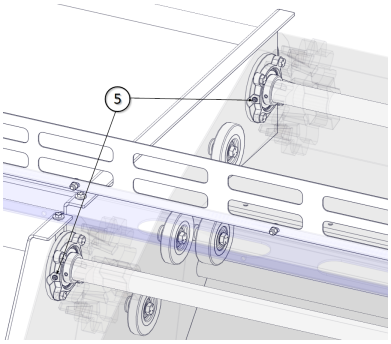
Grease points

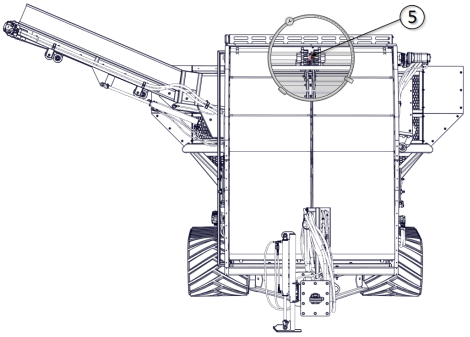
The following is a list of where all grease points are located on the Crop Shuttle. The number of grease points on your Crop Shuttle may vary depending on model and options. All grease points should be greased every 10 hours or before every shift.

1. Scrub tensioner both sides x2
2. Junction Block for grease points on driver side of scrub tower
3. Hopper belt bearing x2
4. Junction Block grease points on passenger side of scrub tower
5. Top Scrub Tower Bearing x2
6. Refer to Camso track System manual









Boom belt alignment

NOTICE: Boom belt alignment should be checked every 12 hours or before every shift.

1. Extend boom fully
2. Run the boom belt and check for excessive rubbing on either side
3. If misaligned, adjust the sprockets on the drive shaft

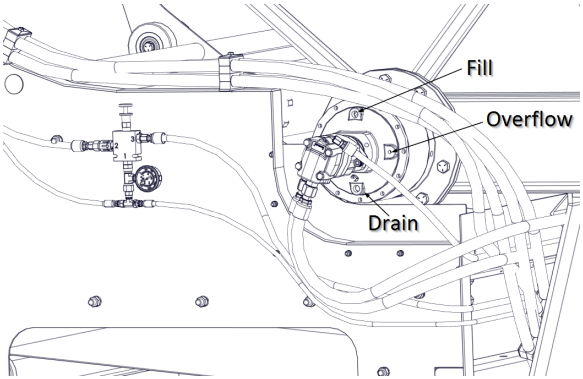
Hopper gear box fill

NOTICE: The hopper drive gearbox must never be run without a proper level of oil.

1. Remove the overflow plug
2. Remove the fill plug
3. Slowly fill with GL5 80W-90 gear lube until it runs out of the overflow port
4. Replace the overflow plug
5. Replace the fill plug

NOTICE: Check oil anytime the orbit motor is removed. Check weekly or every 50 hours. Change every 500 hours or annually, whichever comes first.

TIP: For colder temps, replace with 75w-90 synthetic.



Hopper chain tension

NOTICE: Always maintain proper hopper chain tension.

- Chain should sag slightly between return cross bars
- If too loose: risk of wrapping around head shaft
- If too tight: premature wear on bearings, gearbox, chain

NOTICE: Tighten by adjusting tail shaft jack bolts evenly to prevent misalignment.

Hopper chain alignment

NOTICE: Chains must run true. Misalignment causes excessive wear.

- Chains should be centered on sprockets
- Avoid wall contact
- Adjust by tightening/loosening head shaft jack bolts
- If repaired, ensure all 4 chains are equal length

In-Field Operation Instructions

The following is a basic explanation of how to unload the Crop Shuttle into a truck:

1. Unfold the boom.
2. Drive the tractor forward in a low gear to ensure an even load in the truck.
3. Engage the boom belt.
4. Engage both scrub towers simultaneously; avoid running them empty for longer than necessary.
5. Start the hopper. Use the two-speed function only when the crop does not fill the opening.

   NOTICE: Do not run in high speed when fully loaded to prevent damage.
6. When the truck is nearly full, stop the hopper chain. Use the remaining material on the boom belt to “top-off” the load if needed.
7. Slowly pull the tractor and Crop Shuttle away from the truck. Shut off the scrub towers and boom belt.

   CAUTION: Before pulling away, check the immediate area for bystanders.
8. Once clear of the truck, fold the boom, lower the hopper, and close the front door.
9. Shift back into a higher gear and return to the harvester for the next load.

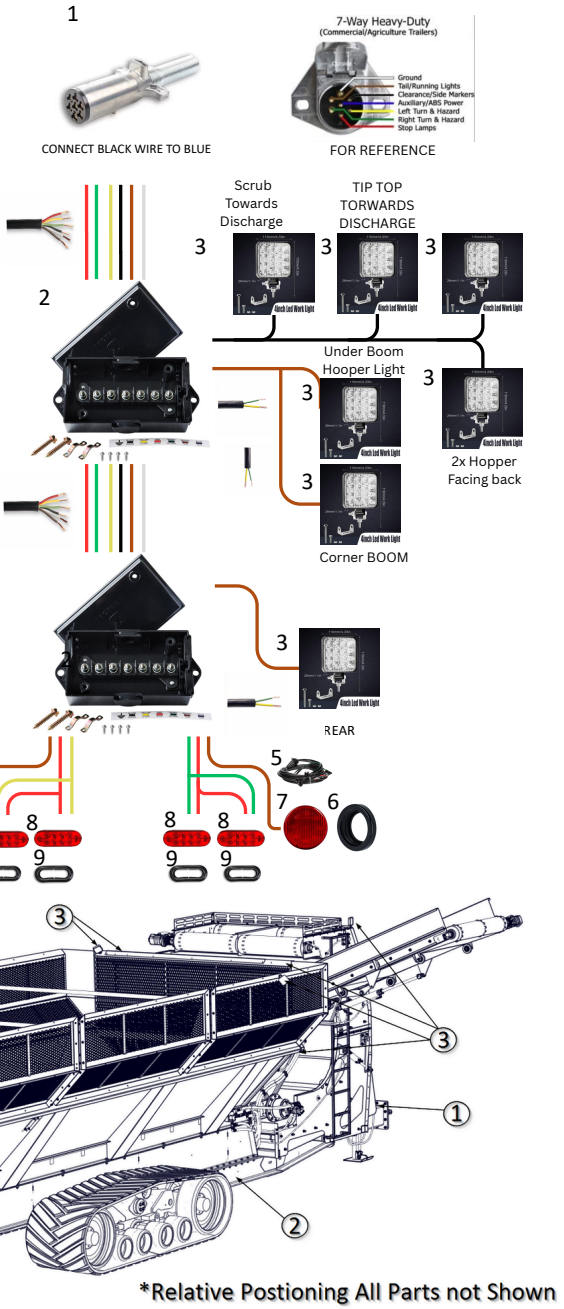
Tips for efficient use of your Crop Shuttle

The following tips will help you get the most out of every load:

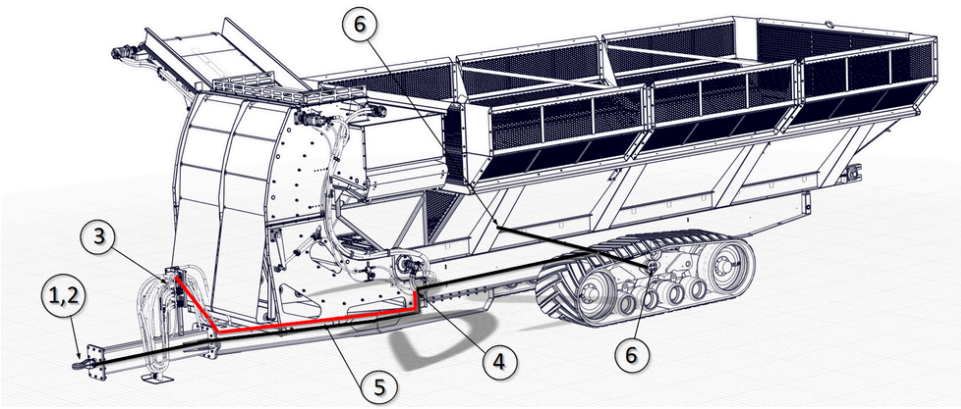
- ▷ If loading multiple trucks simultaneously, make sure the trucks are perfectly in line. This will prevent the need to “line up” a second time.
- ▷ If possible, stage the trucks on both sides of the field. The Crop Shuttle can then unload into whichever one is nearest.

Electrical Wiring

ITEM #	Description	PART	QTY
1	7 Way Plug With Spring Guard	670-71SG-1	1
2	JUNCTION BOX	6677040	2
3	LED FLOOD LIGHTS	N/A	7
4	14 Gauge 3 Plug LH Side 240 in. Marker Clearance and Stop/Turn/Tail Harness with S/T/T, M/C Breakout, Right Angle PL-3/PL-10 and Ring Terminal	50231-0240	1
5	Truck-Lite 50 Series 14 Gauge 3 Plug RH Side 84 in. Marker Clearance and Stop/Turn/Tail Harness with S/T/T, M/C Breakout, Right Angle PL-3/PL-10 and Ring Terminal	50230-0084	1
6	2" Round Grommet for Trailer Lights	GR-20	2
7	Side Marker Light - 2" Round	M5-R9	2
8	6" Stop / Turn / Tail Lights	PT-R10	4
9	6-1/2" Oval Grommet	GR-65	4

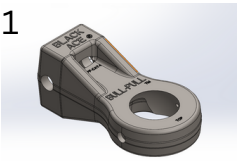


SCALE Wiring Diagram

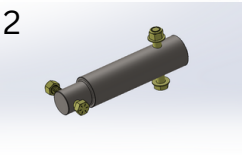


ITEM #	DESCRIPTION	PART	QTY
1	2-7/8" Scale Hitch w/Swivel	7000218	1
2	3.73" Hitch Weigh DT6 Plug	AWT27-500054DT6	1
3	Libra Cart 12V Scale System	M0014	1
4	Scale J-Box 7 POS AT-06 w/Plug	76009999	1
5	Scale J-Box Cord 30' DT6 Plug	7601178	1
6	5.5" Axle Weigh-Bar/DT6 Plug	AWT27-500193DT6	2

1



2



3

4

5

6

6

Libra Scale System

The Libra Scale System allows you to monitor and record load weights directly from your equipment using Bluetooth and a compatible mobile device. The system works with the Libra app to provide real-time weight readings, logging, and operational control.

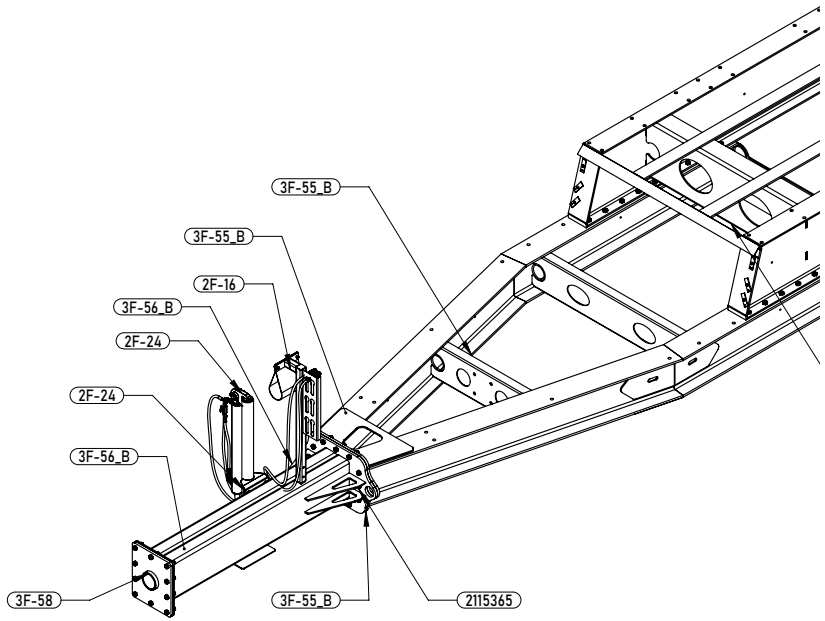
For step-by-step setup, calibration, and operation details, please refer to the official Libra manual and online support resources:

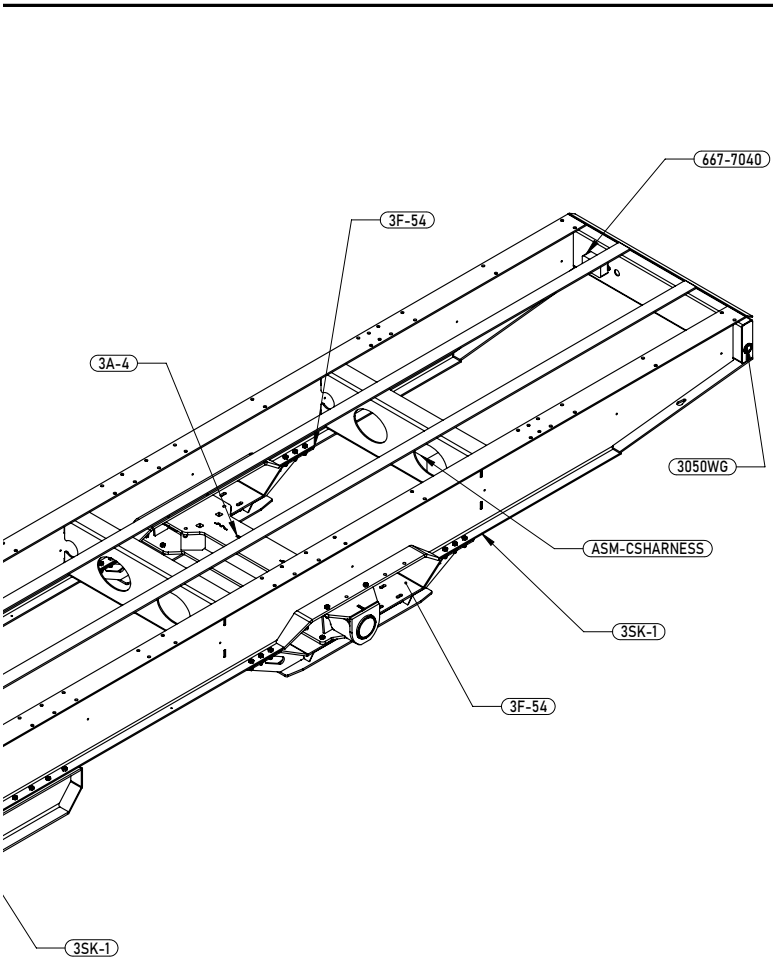
Libra Scale System — Getting Started Guide

System Drawings

Frame

QTY.	PART NUMBER	PROCESS	DESCRIPTION	MATERIAL	WEIGHT
1	2F-16	ASSEMBLED	ASSEMBLY, HOSE HOLDER		20.95
2	2F-24	ASSEMBLED	ASSEMBLY, JACK		105.81
2	3050WG	ELECTRICAL	SIDE MARKER, LIGHT, RED, 2"	PURCHASED	0.12
1	667-7040	ELECTRICAL	CROP SHUTTLE, WIRE JUCTION BOX	PURCHASED	3.33
1	ASM-CSHARNESS	ELECTRICAL	CROP SHUTTLE WIRING HARNESS KIT	PURCHASED	30.35
2	PT-R10	ELECTRICAL	RED, YELLOW OVAL 2" X 6"	PURCHASED	4.57
4	GR-65	ELECTRICAL	GROMMET, 2 X 6 LIGHT	PURCHASED	0.07
2	PT-A10	ELECTRICAL	LIGHT, YELLOW OVAL 2" X 6"	PURCHASED	4.57
78	15363	FASTENER	HHCS, 3/4"-10 X 2-1/2", PT, GRD 8	PURCHASED	0.06
20	2115365	FASTENER	HHCS, 3/4"-10 X 3", PT, GRD 8	PURCHASED	0.53
98	37533	FASTENER	HEX NUT, 3/4"-10, NYLOCK, GRD 8	PURCHASED	0.128
98	96059	FASTENER	FLAT WASHER, 3/4", GRD 8, SAE	PURCHASED	0.04
1	3A-4	WELDMENT	WELDMENT, AXEL, 2022 CROP SHUTTLE	STEEL	707.63
2	3F-54	WELDMENT	CS, LOWER AXLE SUPPORT	STEEL	200.60
1	3F-55_B	WELDMENT	CS, LOWER FRAME	STEEL	1655.08
1	3F-56_B	WELDMENT	WELDMENT, HITCH, FWD, 67.5"	STEEL	450.97
1	3F-58	WELDMENT	WELDMENT, RECIEVER, CS	STEEL	71.35
1	3SK-1	WELDMENT	MAIN, UPPER FRAME	STEEL	3200.44

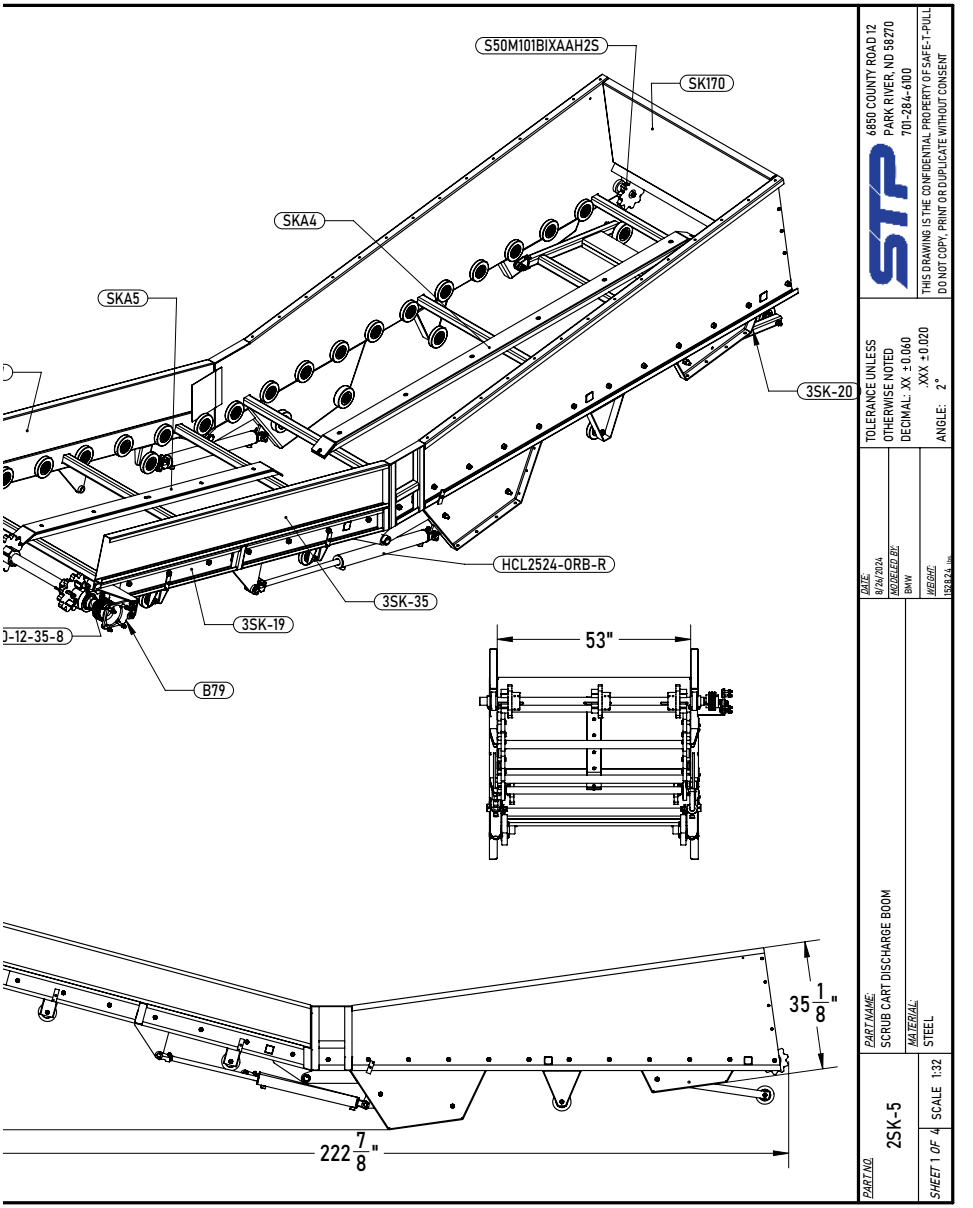




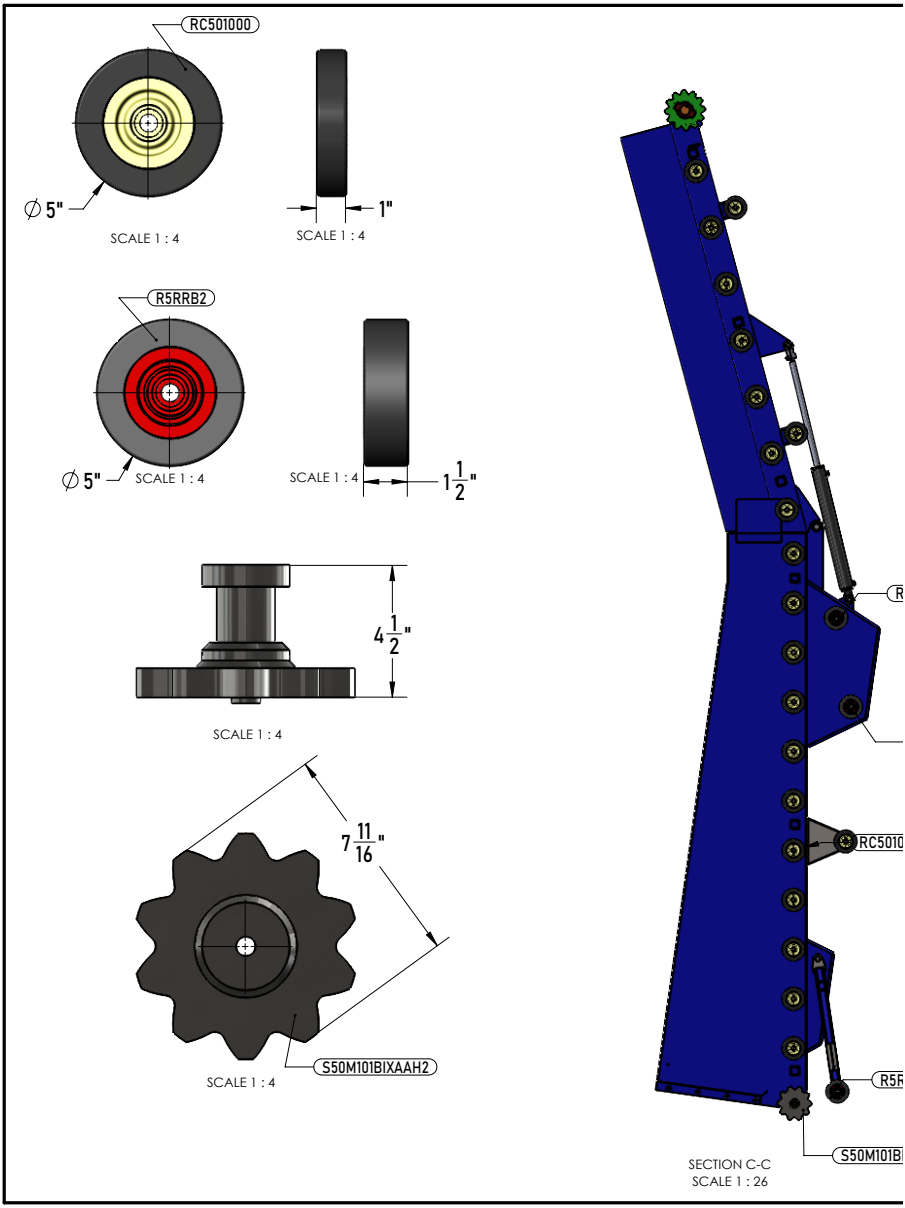
PART NO. 2SK-1
PART NAME:
MATERIAL:
SHEET 1 OF 1 | SCALE 1:128
DATE:
MODIFIED BY:
WEIGHT: lbs
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

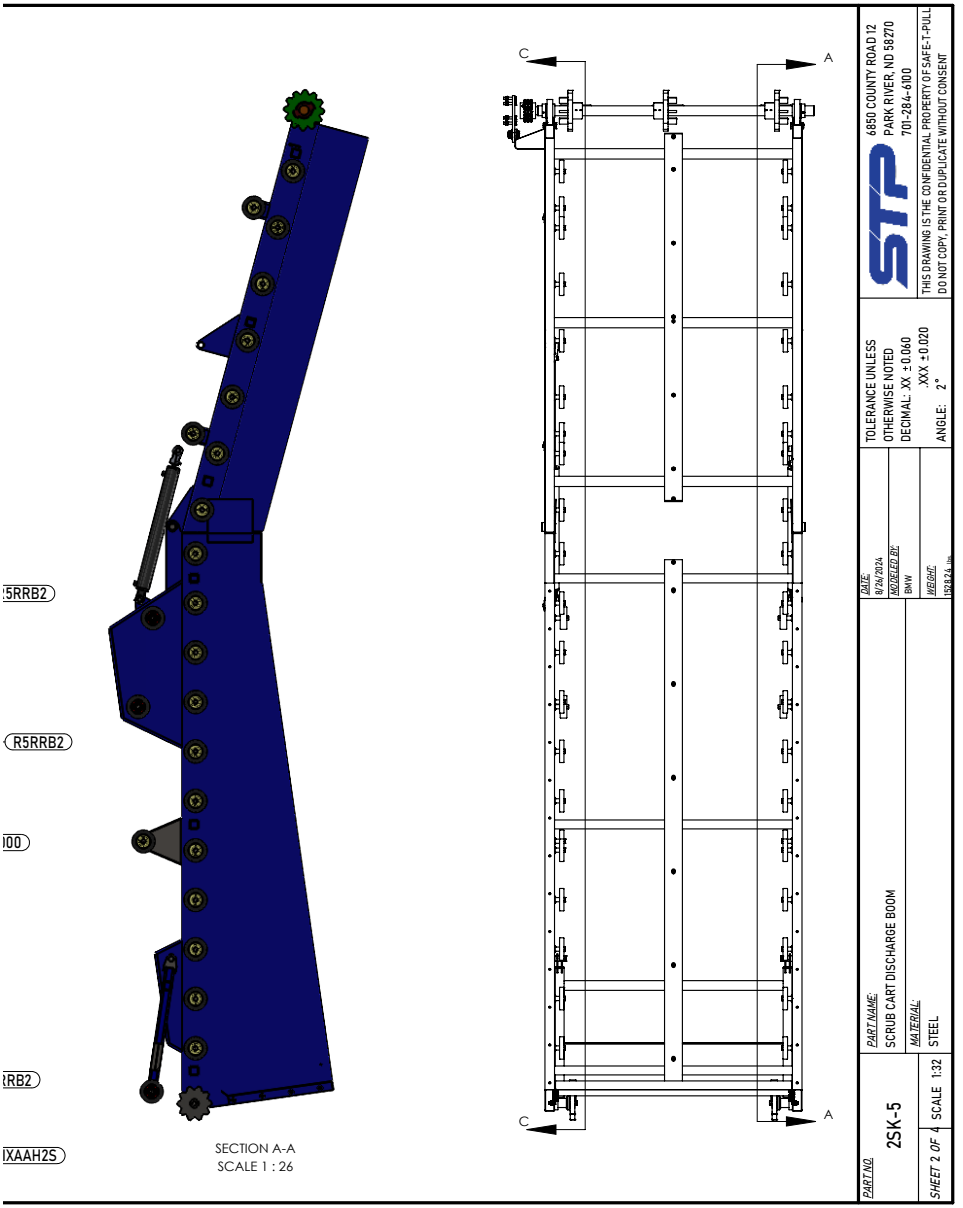
Standard PS Boom

QTY.	PART NUMBER	DESCRIPTION
1	TS-TWP-04-Z-56H-N	WELD ON HYDRALICS HOSE MOUNT BASE
1	SKA5	BOOM, SEC 2, PLASTIC SLIDE
1	SKA4	BOOM, SEC 1, PLASTIC SLIDE
1	SK170	BOOM, BASE TIN
2	S50M101BIXAAH2S	TOOTH RETURN ROLLER
42	RC501000	ROLLER, 5" X 1" STAMPED STEEL W/ RUBBER WHEEL 5/8" AXLE
6	R5RRB2	ROLLER, 5 X 1.5" STEEL W/ RUBBER WHEEL 5/8" AXLE DOUBLE
3	KS-5X5X112	KEY, 1/2" X 1/2" X 7"
1	KS-375X375X24	KEY STOCK, 3/8" X 3/8" X 1 1/2"
2	HCL2524-ORB-R	CYL, 2.5" BORE, 1.5" ROD, 24" STROKE, CLEVIS, WELDED
2	BHTD101S-UEL211-203-D1	2 BOLT FLANGE BEARING, TEARDROP STYLE
1	B79	CROP SHUTTLE, BOOM HYD DRIVE MOUNT
1	B300	HEAD SHAFT, 2-3/16" DIA, 52" BOOM
2	B100	CROP SHUTTLE BOOM, HINGE PIN
48	750	5/8" X 1 1/4" STAND OFF
1	6407K54	COUPLING CHAIN, #60, 5" O.D.
1	6407K448	COUPLING HUB, #60, 1 3/4" BORE
1	6407K446	SHAFT COUPLER, #60 1 1/2" BORE
3	50-12-35-8	50-12, BOOM SPROCKET 2 3/16" BORE, 1/2" KEYWAY
2	3SK-47	SK, RETURN ROLLER BRACKET
1	3SK-37	BOOM, SEC 2 UPPER TIN
1	3SK-35	BOOM, SEC 2 UPPER TIN
1	3SK-20	TENSIONER, BOOM
1	3SK-19	BOOM SECTION 2
1	3SK-14	MAIN BOOM SECTION
16	37341	FLANGE NUT, 3/8"-16, GRD 5
4	37036	NUT, 5/8"-11, NYLOC
4	36309	HEX NUT, 1/2"-13
23	36306	HEX NUT, 3/8"-16, GRD 5
52	33785	LOCK WASHER, 5/8"
4	33626	LOCK WASHER, 1/2"
23	33622	SPLIT LOCK WASHER, 3/8"
15	24286	SOCKET FLATHEAD SCREW, 3/8"-16 X 1"
4	11105863	HHCS, 5/8"-11 X 6", GRADE 5
2	0169783	NYLOCK NUT, 3/4 - 10, GRD 5
4	0159683	FLAT WASHER, 5/8", GR 5
8	0159679	FLAT WASHER, 3/8", GRD 5
52	0147970	HEX NUT, 5/8"-11
2	0137584	HHCS, 3/4"-10 X 4" X 1 3/4", GRD 5
4	0137571	HEX HEAD CAP SCREW, 5/8"-11 X 4 1/2" X 2", GRADE 5
42	0137566	HHCS, 5/8"-11 X 3", GRD 5
4	0137564	HHCS, 5/8"-11 X 2 1/2", GRD 5
2	0137562	HHCS, 5/8"-11 X 2", GR 5
4	0137549	HHCS, 1/2"-13 X 2 1/2", GRADE 5
24	0137514	HHCS, 3/8"-16 X 1", GRD 5
1	628999	


S50M101BIXAAH2S
SK170
SKA4
SKA5
3SK-20
HCL2524-ORB-R
3SK-35
3SK-19
B79
53"
35 1/8"
222 7/8"
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE: 8/24/2024
DRAWN BY: BWW
WEIGHT:
PART NO. 2SK-5
PART NAME: SCRUB CART DISCHARGE BOOM
MATERIAL: STEEL
SHEET 1 OF 4 SCALE 1:32

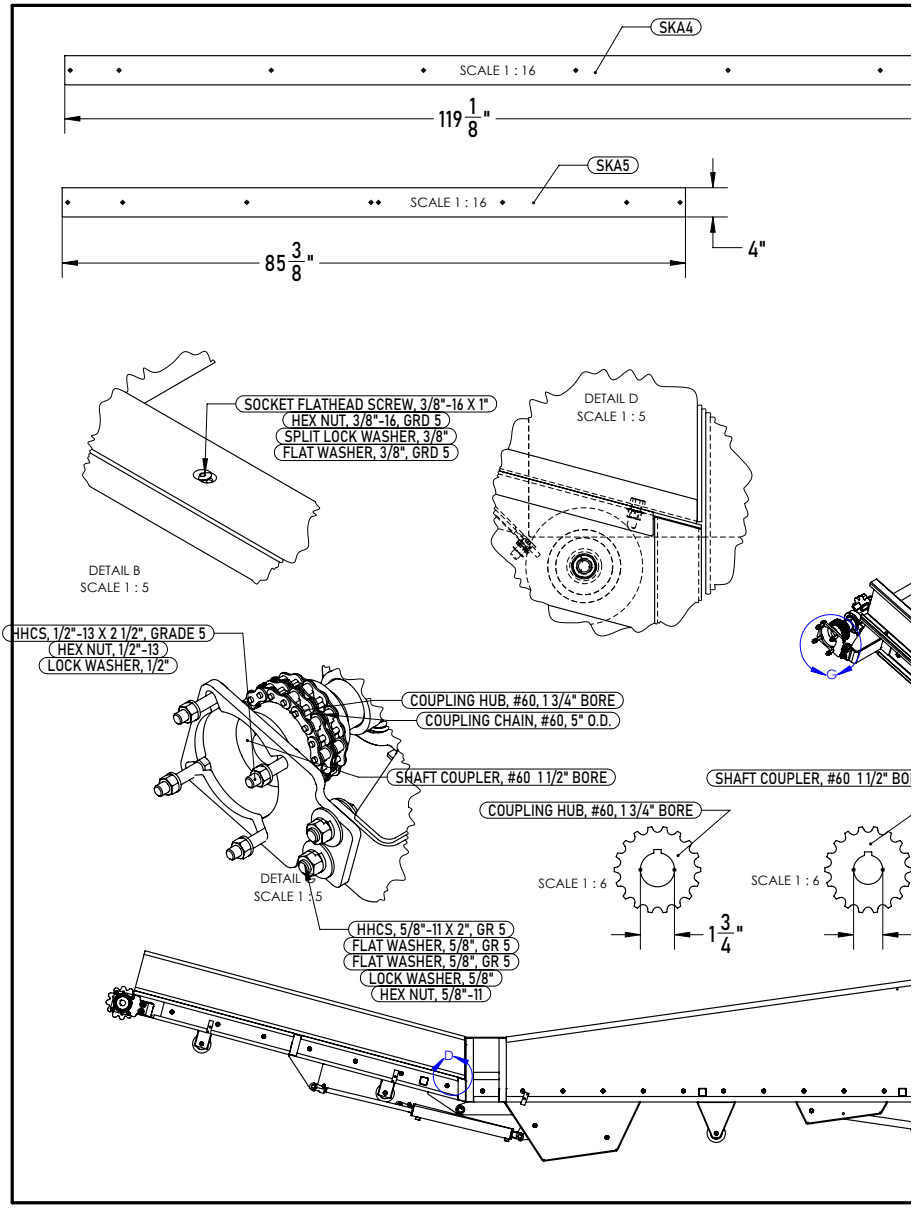
Standard PS Boom

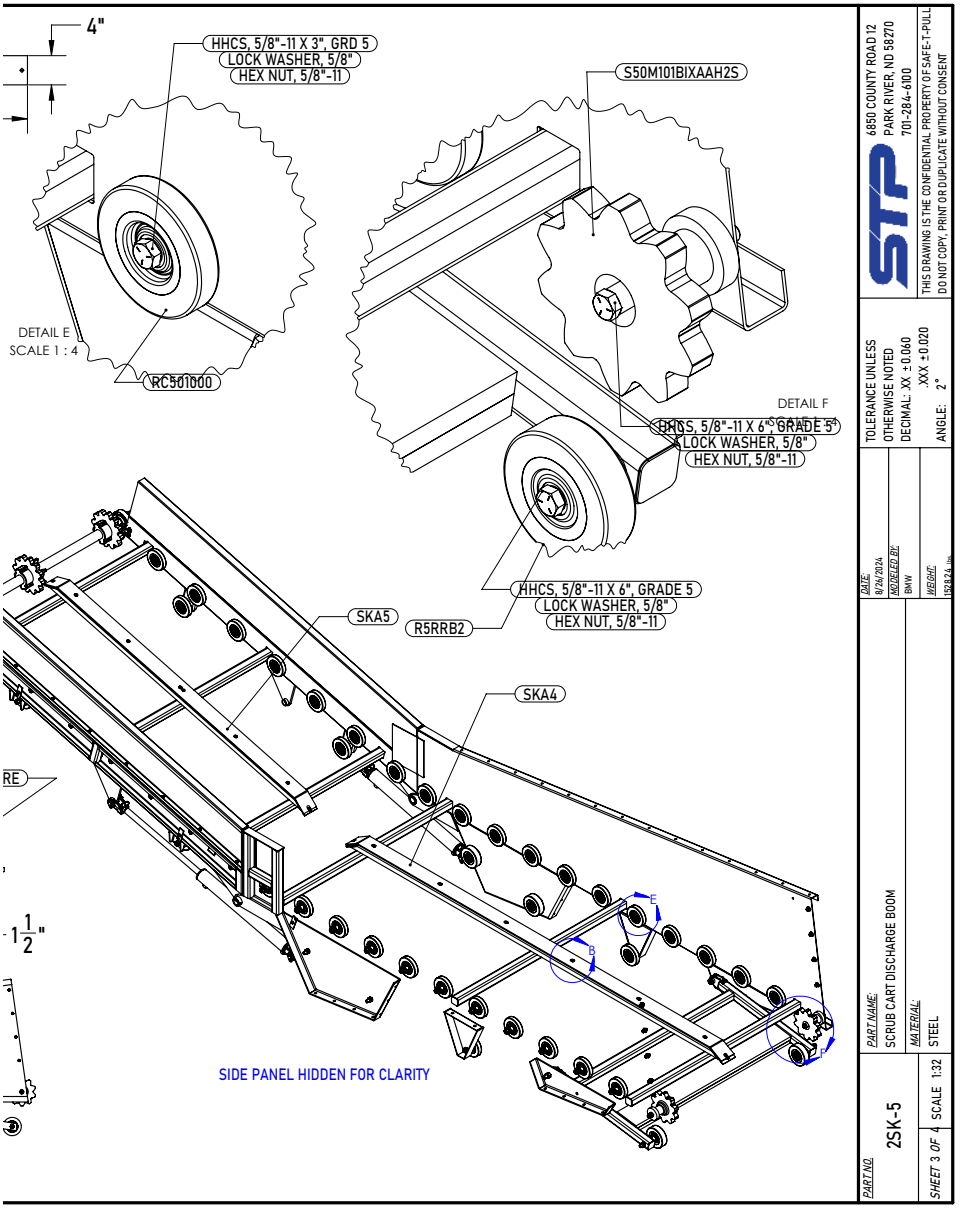



C
A
C
A
SECTION A-A
SCALE 1 : 26
PART NO.
2SK-5
PART NAME:
SCRUB CART DISCHARGE BOOM
MATERIAL:
STEEL
SHEET 2 OF 4
SCALE 1:32
DATE:
8/24/2024
DRAWN BY:
BWW
WEIGHT:
1523.2 lbs
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
.XXX ±0.020
ANGLE: 2°
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

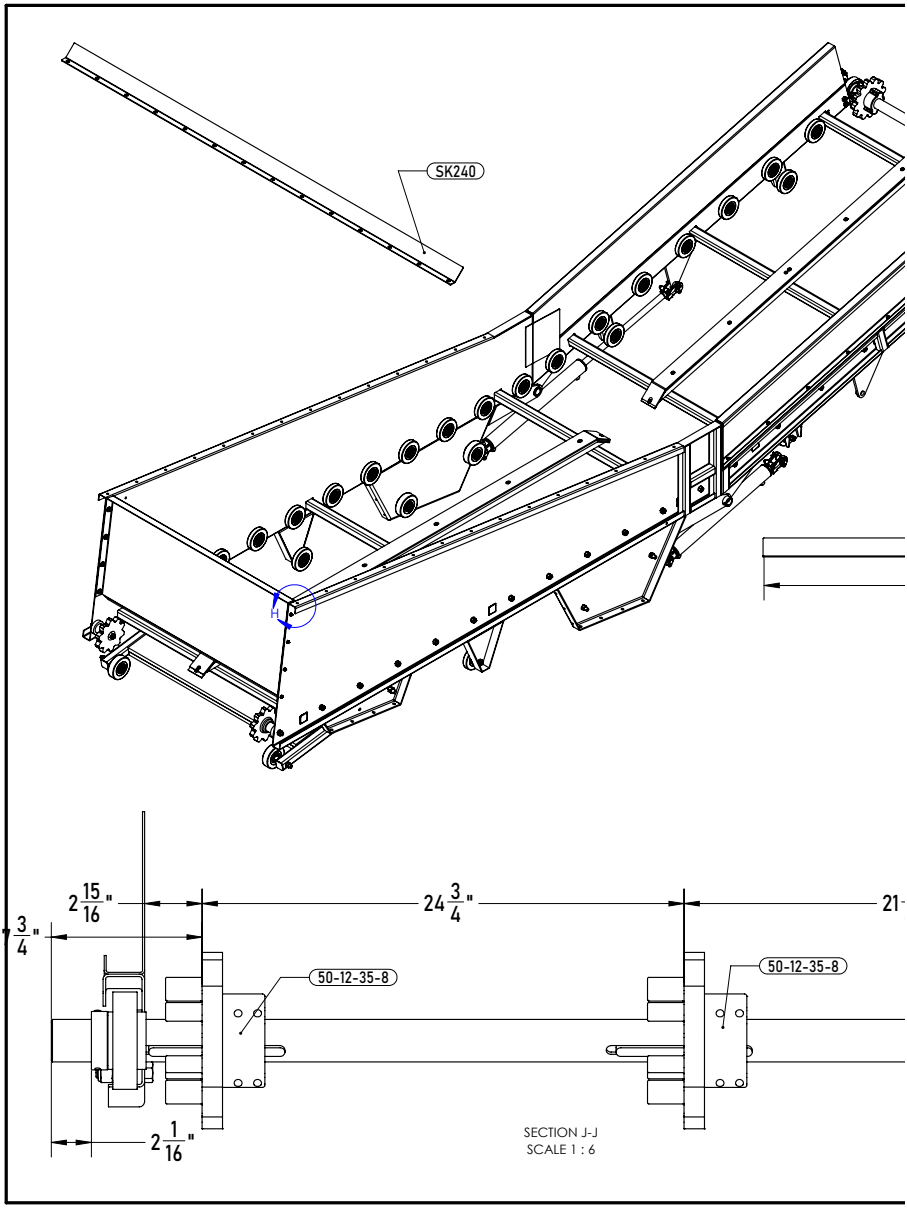
SCALE 1 : 26

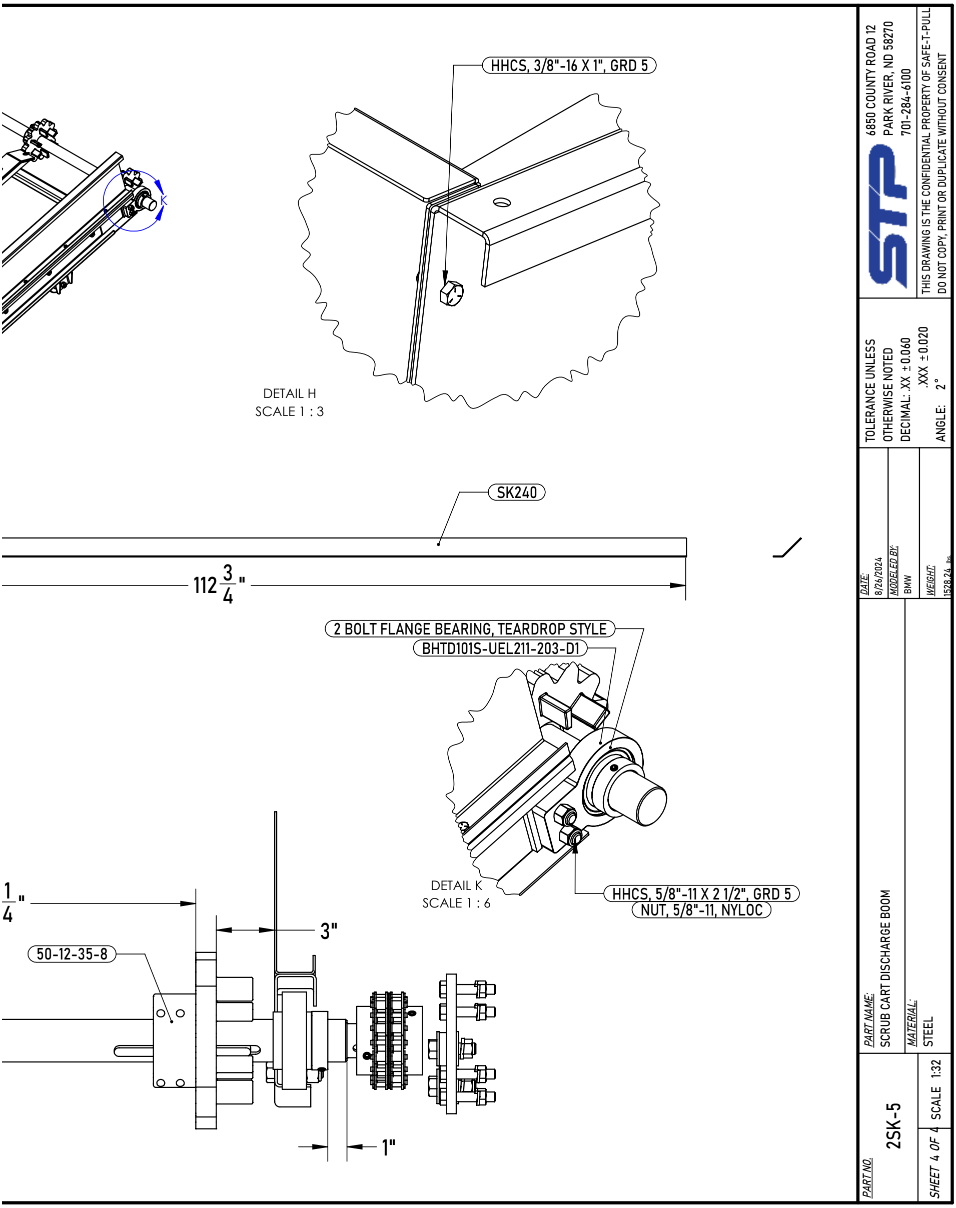
Standard PS Boom




4"
HHCS, 5/8"-11 X 3", GRD 5
LOCK WASHER, 5/8"
HEX NUT, 5/8"-11
S50M101BIXAAH2S
DETAIL E
SCALE 1 : 4
RC501000
DETAIL F
HHCS, 5/8"-11 X 6", GRADE 5
LOCK WASHER, 5/8"
HEX NUT, 5/8"-11
HHCS, 5/8"-11 X 6", GRADE 5
LOCK WASHER, 5/8"
HEX NUT, 5/8"-11
SKA5
R5RRB2
SKA4
RE
1 1/2"
SIDE PANEL HIDDEN FOR CLARITY
PART NO.
2SK-5
PART NAME:
SCRUB CART DISCHARGE BOOM
MATERIAL:
STEEL
SHEET 3 OF 4
SCALE 1:32
DATE:
8/24/2024
DRAWN BY:
BWW
WEIGHT:
152.3 A. lbs.
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

Standard PS Boom

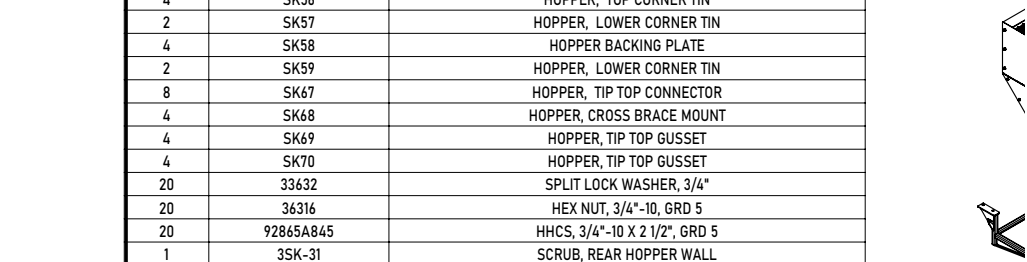


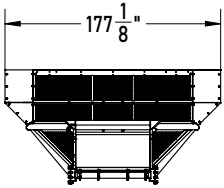


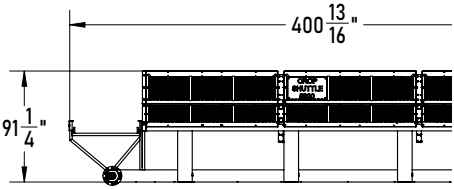
HHCS, 3/8"-16 X 1", GRD 5
DETAIL H
SCALE 1 : 3
SK240
112 3/4"
2 BOLT FLANGE BEARING, TEARDROP STYLE
BHTD101S-UEL211-203-D1
DETAIL K
SCALE 1 : 6
HHCS, 5/8"-11 X 2 1/2", GRD 5
NUT, 5/8"-11, NYLOC
1/4"
3"
50-12-35-8
1"
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: .XX ±0.060
.XXX ±0.020
ANGLE: 2°
DATE:
8/26/2024
MODELED BY:
BMW
WEIGHT:
1528.24 lbs
PART NAME:
SCRUB CART DISCHARGE BOOM
MATERIAL:
STEEL
PART NO.
2SK-5
SHEET 4 OF 4
SCALE 1:32

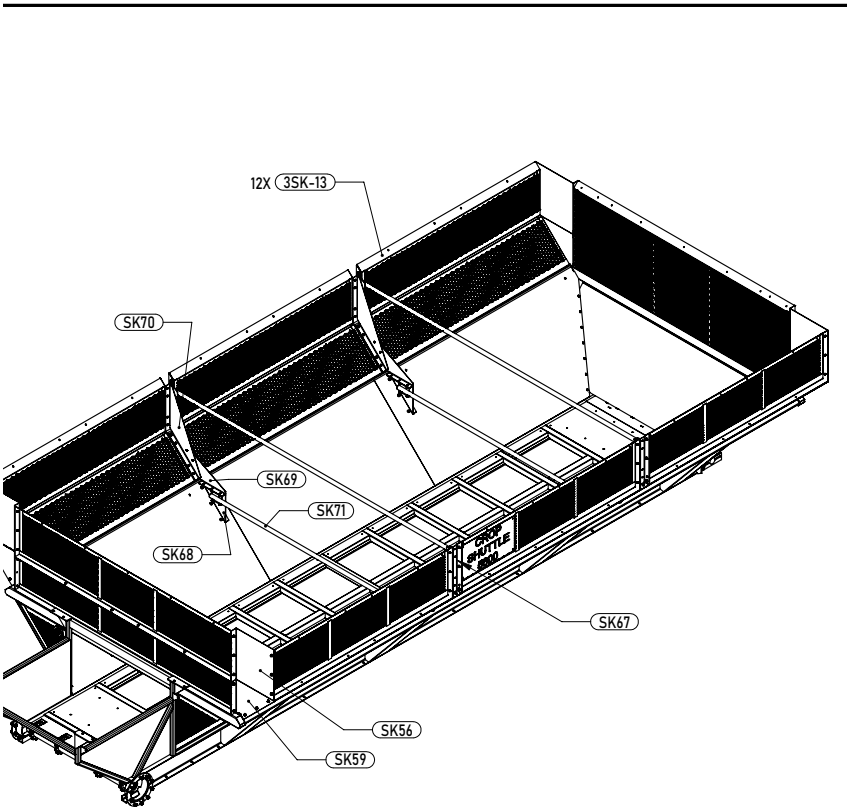
Hopper

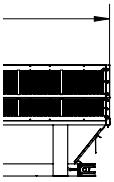
QTY.	PART NUMBER	DESCRIPTION
102	0137514	HHCS, 3/8"-16 X 1", GRD 5
8	0137545	HHCS, 1/2"-13 X 1-1/2", GRD 5
155	0159679	FLAT WASHER, 3/8", GRD 5
16	11543193	FLAT WASHER, 1/2", GRD 5
8	13226	HHCS, 1/2" - 13 X 6 1/2", GRD 5
60	21355	SNCB, 3/8"-16 X 1", GRD 5
162	33622	SPLIT LOCK WASHER, 3/8"
58	33626	LOCK WASHER, 1/2"
162	36306	HEX NUT, 3/8"-16, GRD 5
58	36309	HEX NUT, 1/2"-13
12	3SK-44	SK. TIP TOP, SIDE
1	3SK-21	SCB, TAILSHAFT
1	3SK-22	SK, HOPPER HEADSHAFT
2	3SK-3	SK, BEARING PUSHER
1	3SK-45	SK, HOPPER
2	3SK-5	HOPPER CROSS BRACE
40	90185A138	SNCB, 1/2 X 1 1/2"
2	91247A728	HHCS, 1/2"-13 X 4" , GRD 5
4	SK56	HOPPER, TOP CORNER TIN
2	SK57	HOPPER, LOWER CORNER TIN
4	SK58	HOPPER BACKING PLATE
2	SK59	HOPPER, LOWER CORNER TIN
8	SK67	HOPPER, TIP TOP CONNECTOR
4	SK68	HOPPER, CROSS BRACE MOUNT
4	SK69	HOPPER, TIP TOP GUSSET
4	SK70	HOPPER, TIP TOP GUSSET
20	33632	SPLIT LOCK WASHER, 3/4"
20	36316	HEX NUT, 3/4"-10, GRD 5
20	92865A845	HHCS, 3/4"-10 X 2 1/2", GRD 5
1	3SK-31	SCRUB, REAR HOPPER WALL
1	SK190	SCRUB CART, HEADSHAFT COVER
2	3SK-26	SCRUB, HOPPER TOP CROSS BAR
2	3SK-53	SK, TIP TOP, LOWER END
2	3SK-52	SK, TIP TOP, UPPER END
2	RC501000	ROLLER, 5" X 1" STAMPED STEEL W/ RUBBER WHEEL 5/8" AXLE
2	B14	STANDOFF, BOOM ROLLER, CS
2	SK288	SK, SIGN PLATE





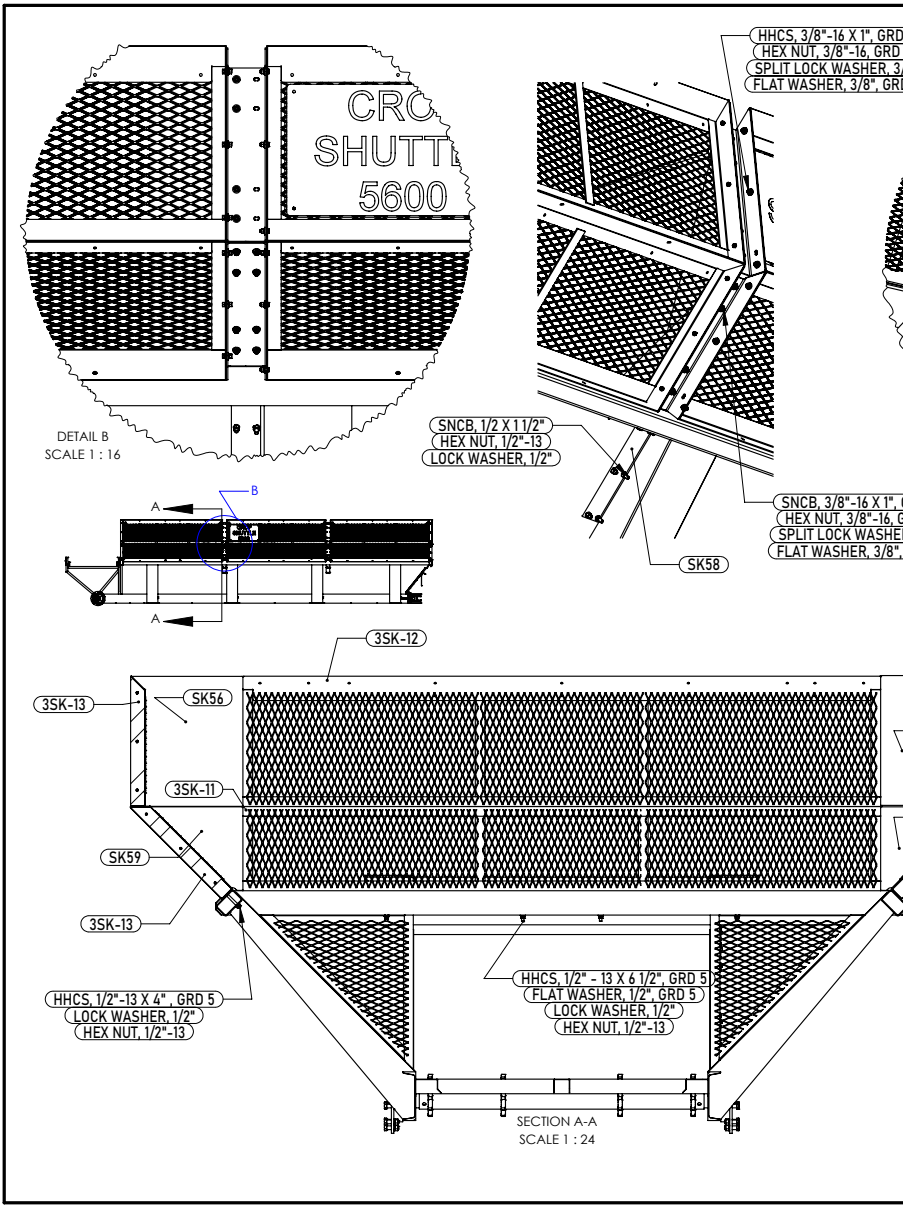


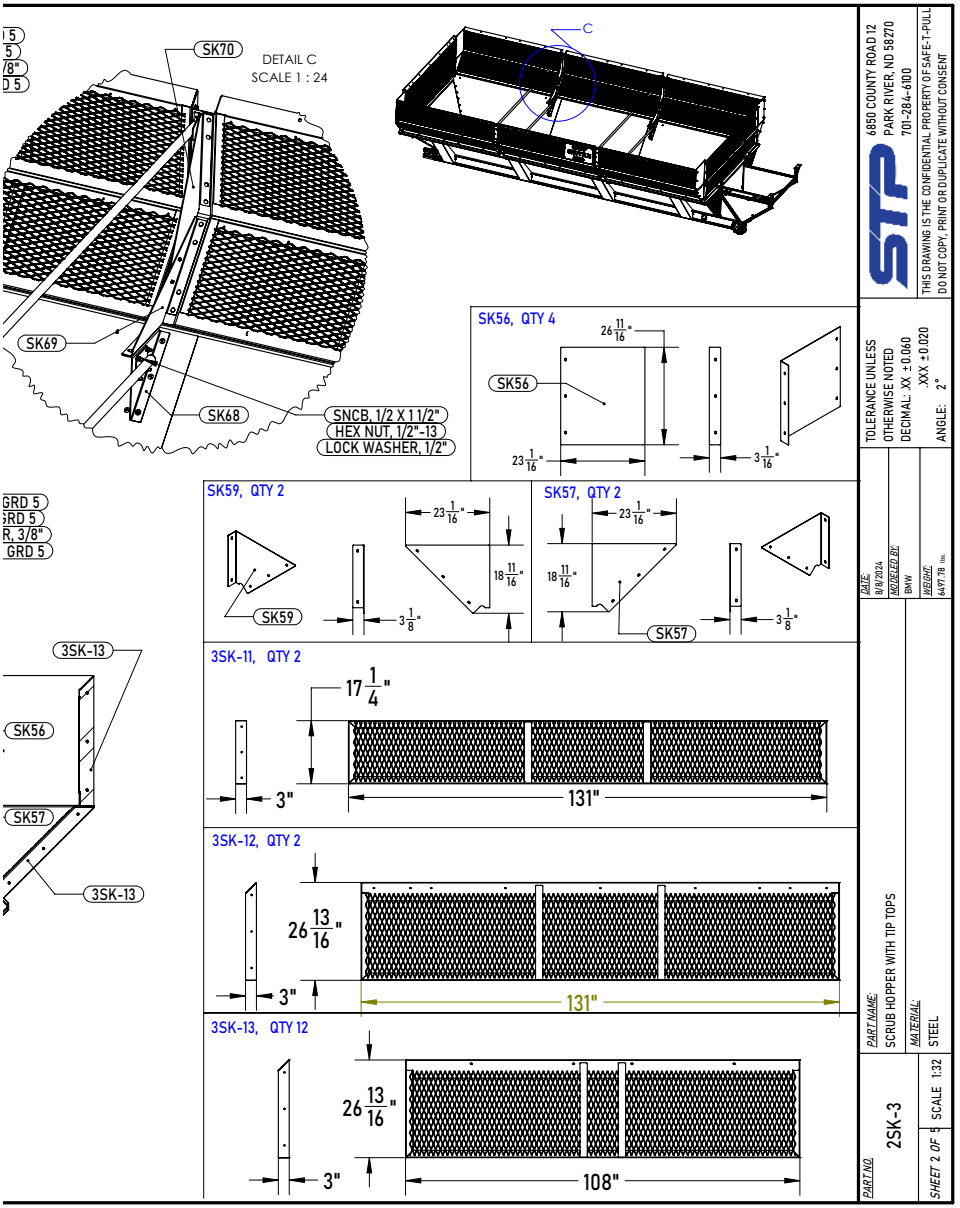




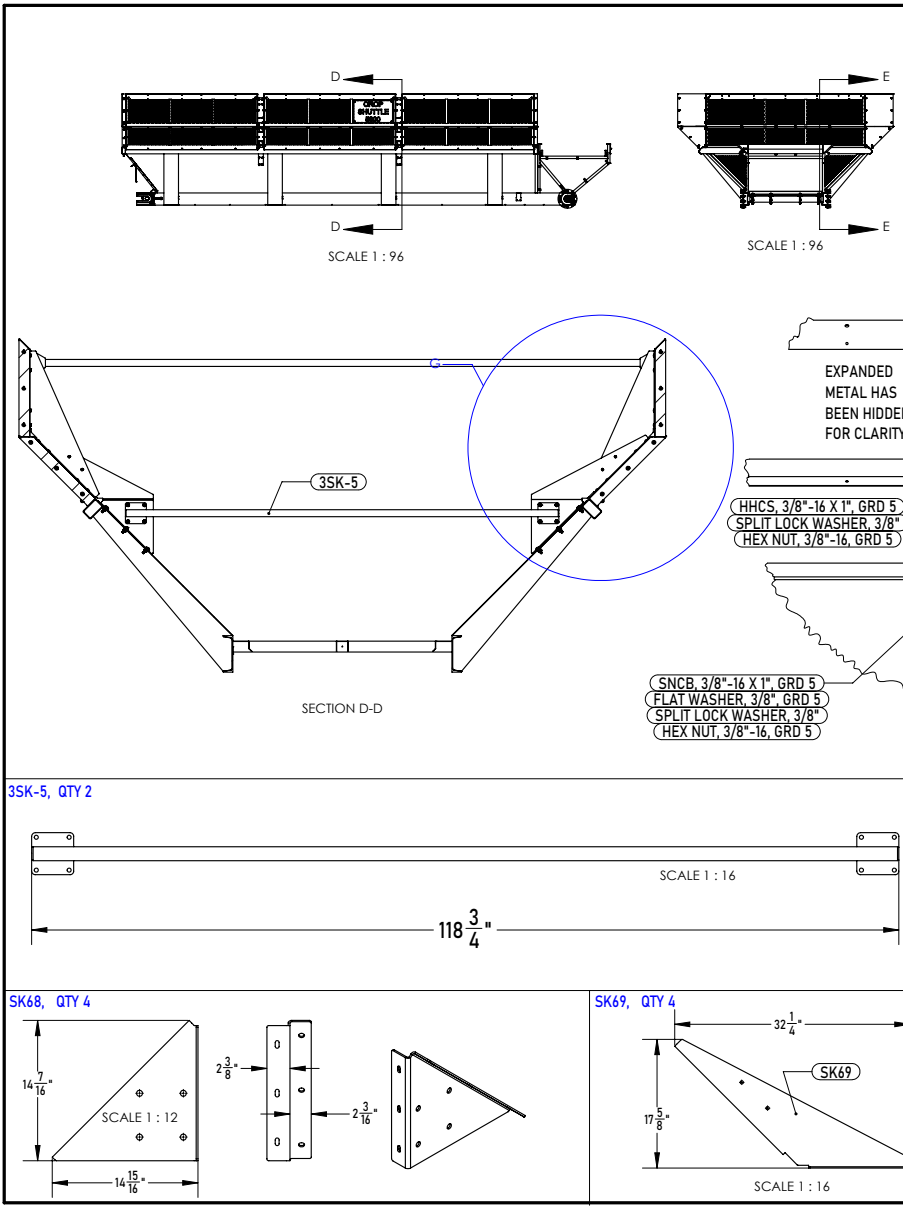
PART NO. 2SK-3	PART NAME: SCRUB HOPPER WITH TIP TOPS	DATE: 8/9/2024	TOLERANCE UNLESS OTHERWISE NOTED DECIMAL: XX ±0.060 .XXX ±0.020 ANGLE: 2°	STP	6850 COUNTY ROAD 12 PARK RIVER, ND 58270 701-284-6100
SHEET 1 OF 5 SCALE 1:96	MATERIAL: STEEL	DRAWN BY: BWW			THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
		WEIGHT: 6491.78 lbs.			

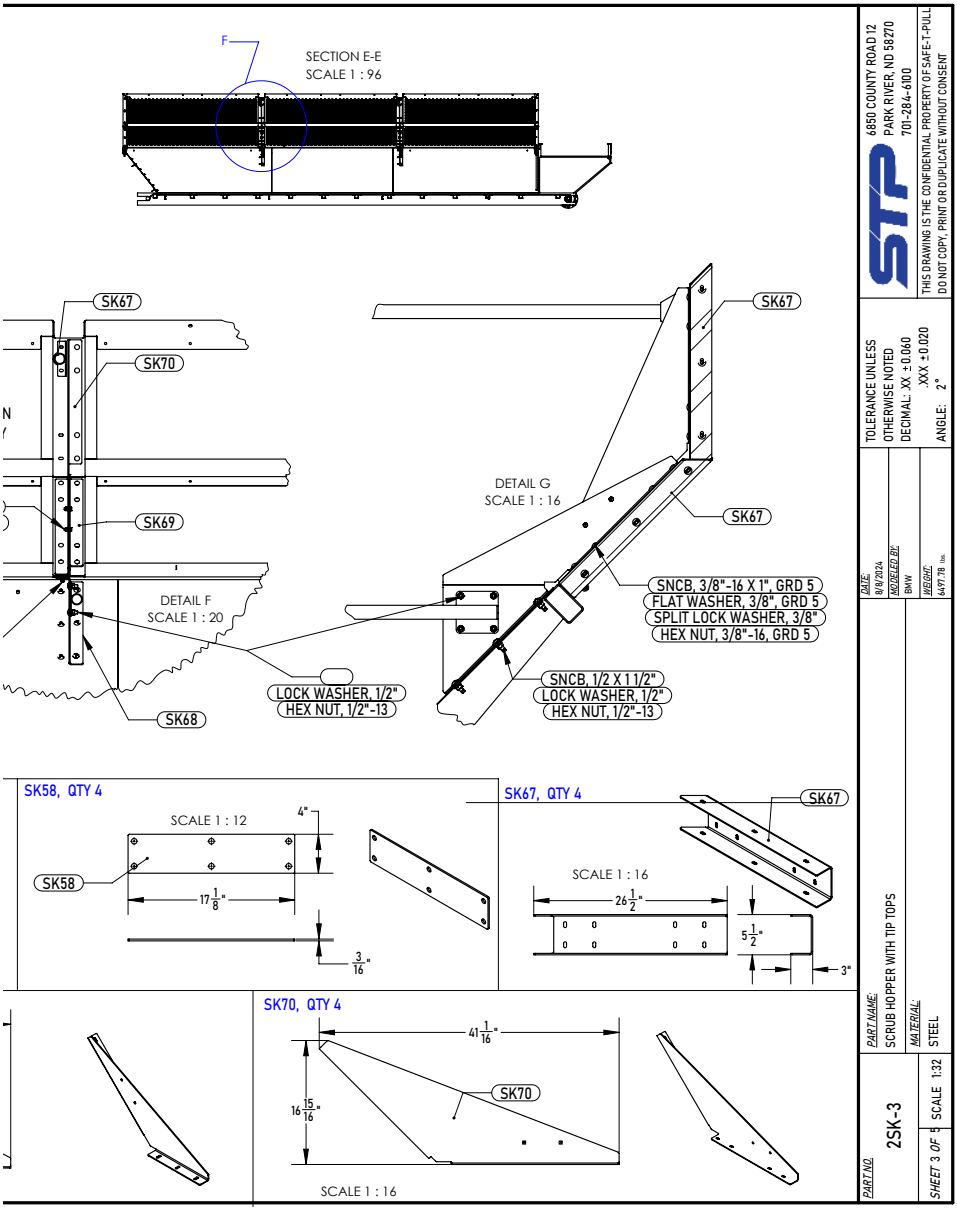
Hopper


HHCS, 3/8"-16 X 1", GRD
HEX NUT, 3/8"-16, GRD
SPLIT LOCK WASHER, 3/
FLAT WASHER, 3/8", GR
DETAIL B
SCALE 1 : 16
SNCB, 1/2 X 1 1/2"
HEX NUT, 1/2"-13
LOCK WASHER, 1/2"
SNCB, 3/8"-16 X 1",
HEX NUT, 3/8"-16, G
SPLIT LOCK WASHE
FLAT WASHER, 3/8",
SK58
A
B
A
3SK-12
3SK-13
SK56
3SK-11
SK59
3SK-13
HHCS, 1/2"-13 X 4" , GRD 5
LOCK WASHER, 1/2"
HEX NUT, 1/2"-13
HHCS, 1/2" - 13 X 6 1/2", GRD 5
FLAT WASHER, 1/2", GRD 5
LOCK WASHER, 1/2"
HEX NUT, 1/2"-13
SECTION A-A
SCALE 1 : 24

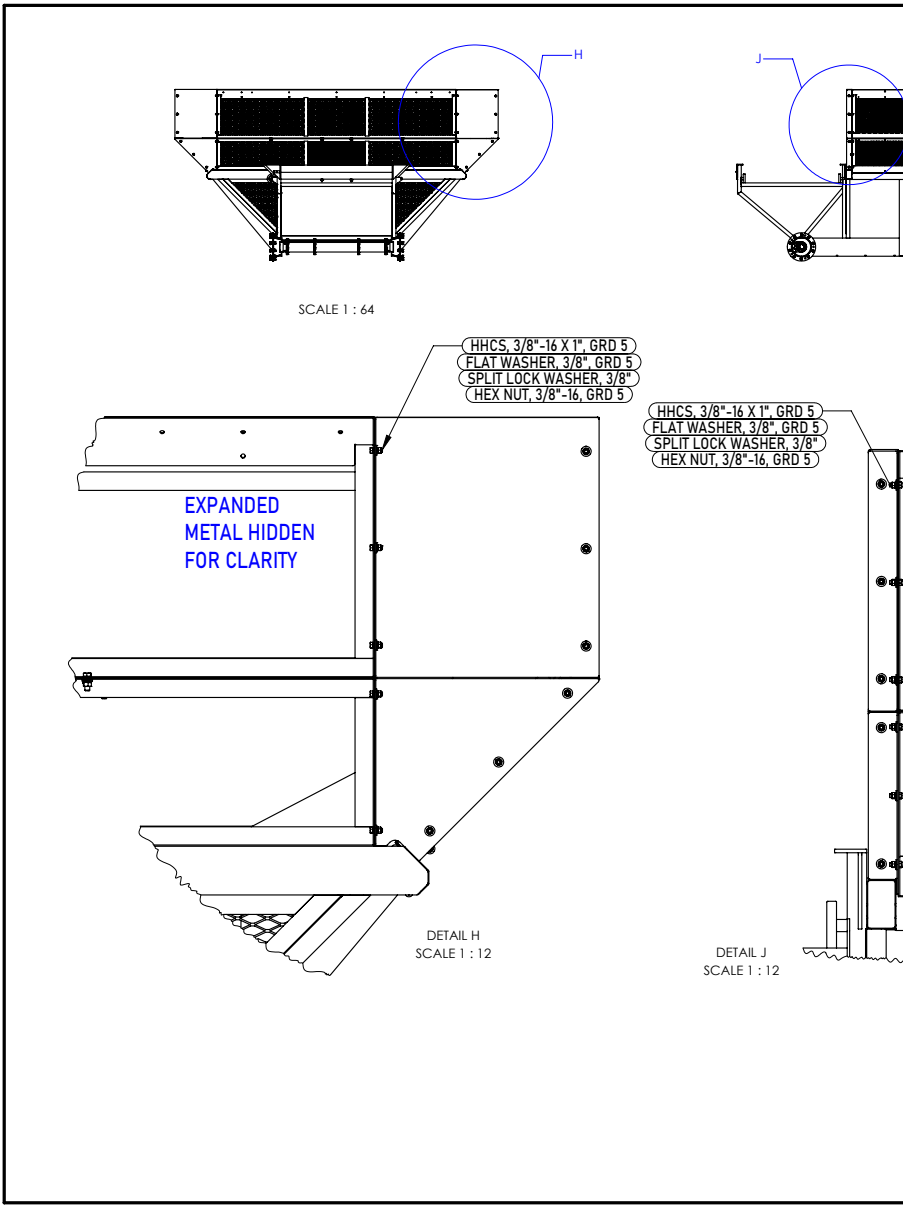

SK70
DETAIL C
SCALE 1 : 24
C
SK69
SK68
SNCB, 1/2 X 1 1/2"
HEX NUT, 1/2"-13
LOCK WASHER, 1/2"
SK56, QTY 4
SK56
SK59, QTY 2
SK59
SK57, QTY 2
SK57
3SK-11, QTY 2
3SK-12, QTY 2
3SK-13, QTY 12
3SK-13
SK56
SK57
3SK-13
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE
8/9/2024
MODIFIED BY
BWW
WEIGHT
6497.78 lbs.
PART NO.
2SK-3
PART NAME:
SCRUB HOPPER WITH TIP TOPS
MATERIAL:
STEEL
SCALE 1:32
SHEET 2 OF 5

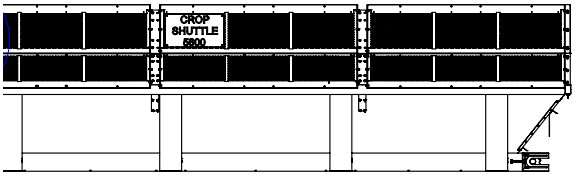
Hopper


D
D
SCALE 1 : 96
E
E
SCALE 1 : 96
3SK-5
SECTION D-D
EXPANDED
METAL HAS
BEEN HIDDE
FOR CLARITY
HHCS, 3/8"-16 X 1", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
SNCB, 3/8"-16 X 1", GRD 5
FLAT WASHER, 3/8", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
3SK-5, QTY 2
SCALE 1 : 16
118 3/4"
SK68, QTY 4
14 7/16"
SCALE 1 : 12
14 15/16"
2 3/8"
2 3/16"
SK69, QTY 4
32 1/4"
SK69
17 5/8"
SCALE 1 : 16

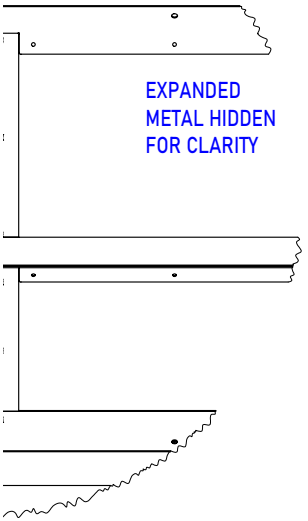

F
SECTION E-E
SCALE 1 : 96
SK67
SK70
SK69
SK68
DETAIL F
SCALE 1 : 20
LOCK WASHER, 1/2"
HEX NUT, 1/2"-13
DETAIL G
SCALE 1 : 16
SNCB, 3/8"-16 X 1", GRD 5
FLAT WASHER, 3/8", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
SNCB, 1/2 X 1 1/2"
LOCK WASHER, 1/2"
HEX NUT, 1/2"-13
SK58, QTY 4
SCALE 1 : 12
SK67, QTY 4
SCALE 1 : 16
SK70, QTY 4
SCALE 1 : 16
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
.XXX ±0.020
ANGLE: 2°
DATE
8/9/2024
DRAWN BY
BWW
WEIGHT
6497.78 lbs.
PART NAME:
SCRUB HOPPER WITH TIP TOPS
MATERIAL:
STEEL
PART NO.
2SK-3
SHEET 3 OF 5
SCALE 1:32

Hopper

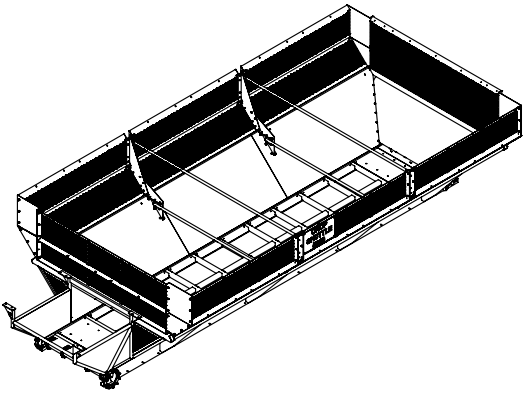

H
J
SCALE 1 : 64
HHCS, 3/8"-16 X 1", GRD 5
FLAT WASHER, 3/8", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
EXPANDED
METAL HIDDEN
FOR CLARITY
DETAIL H
SCALE 1 : 12
HHCS, 3/8"-16 X 1", GRD 5
FLAT WASHER, 3/8", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
DETAIL J
SCALE 1 : 12



SCALE 1 : 64



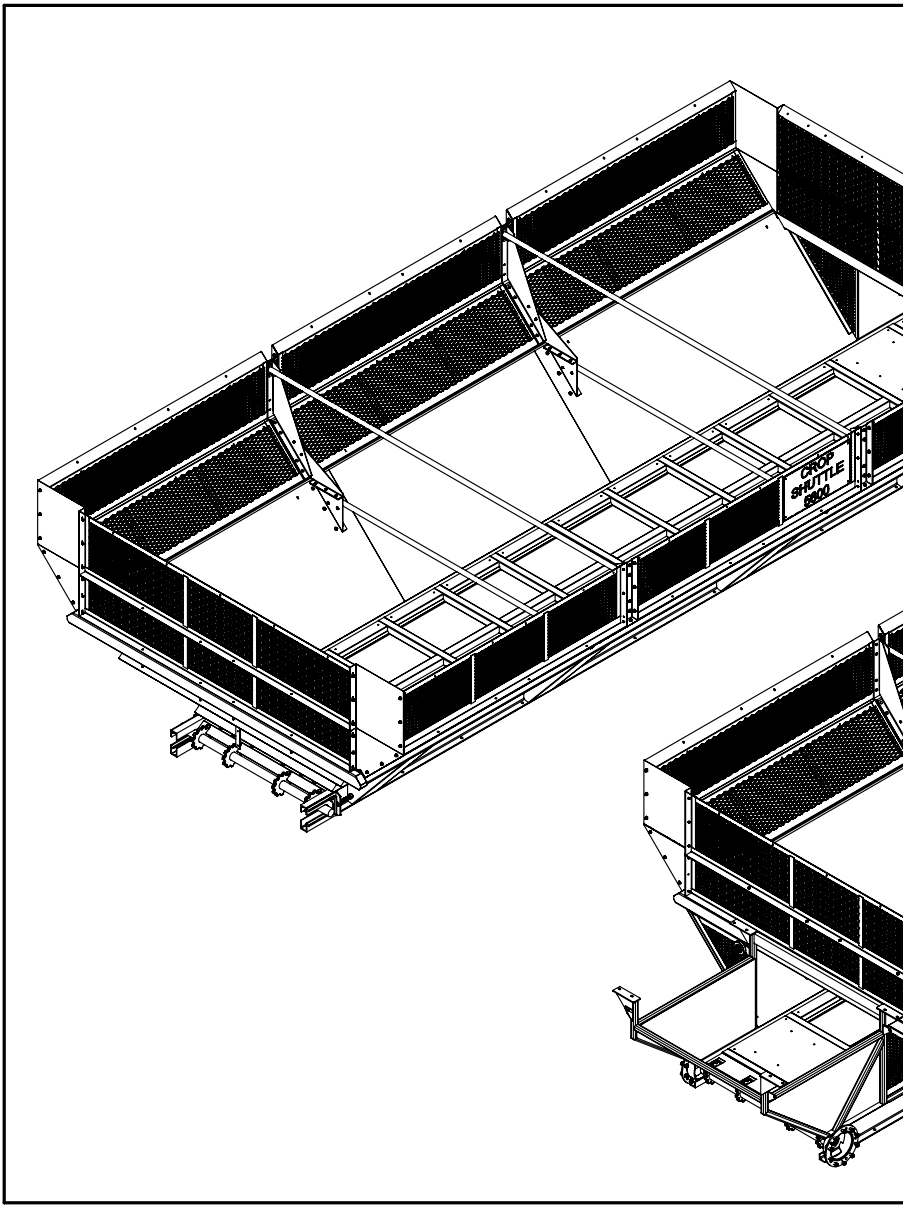
EXPANDED
METAL HIDDEN
FOR CLARITY

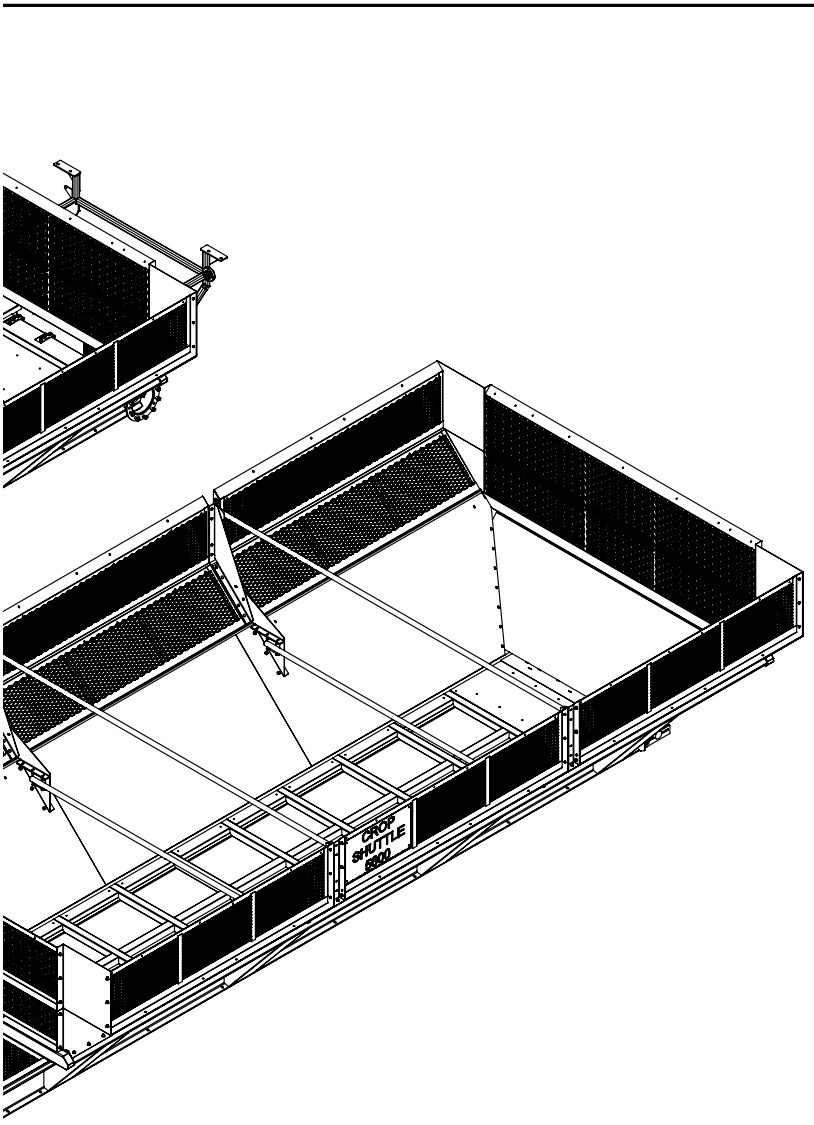


PART NO. 2SK-3	PART NAME: SCRUB HOPPER WITH TIP TOPS	DATE: 8/9/2024	TOLERANCE UNLESS OTHERWISE NOTED DECIMAL: XX ±0.060 .XXX ±0.020 ANGLE: 2°
SHEET 4 OF 5 SCALE 1:32	MATERIAL: STEEL	DRAWN BY: BWW	WEIGHT: 6497.78 lbs.

STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100

Hopper



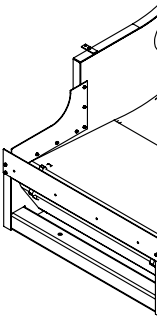


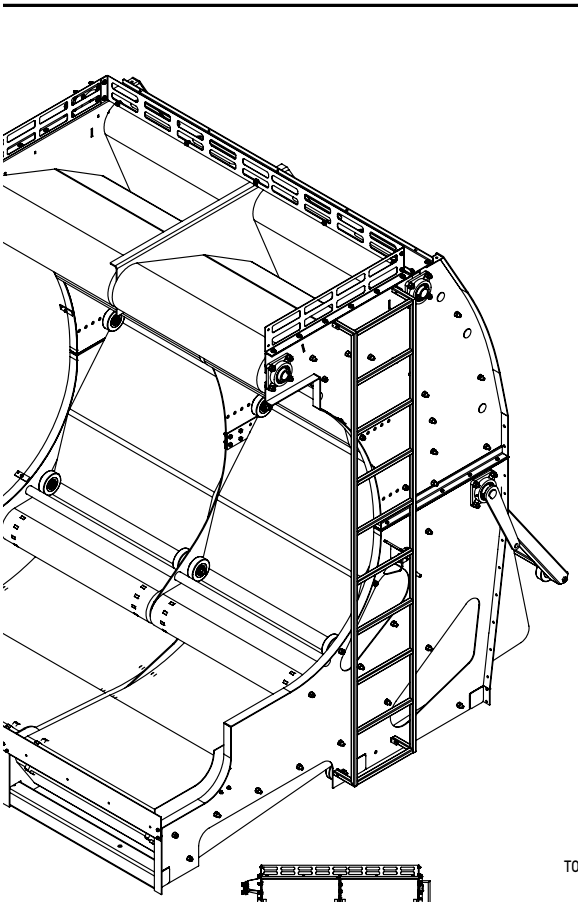
PART NO.	PART NAME:	DATE:	TOLERANCE UNLESS
2SK-3	SCRUB HOPPER WITH TIP TOPS	8/9/2024	OTHERWISE NOTED
	MATERIAL:	DRAWED BY:	DECIMAL: XX ±0.060
SHEET 5 OF 5	STEEL	BWW	.XXX ±0.020
SCALE 1:40		WEIGHT:	ANGLE: 2°
		6497.78 lbs.	

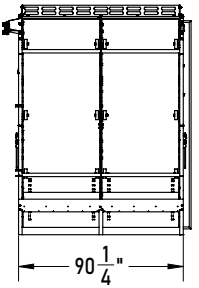
STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100

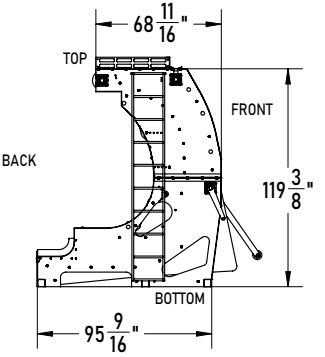
Scrub Towers

QTY.	PART NUMBER	DESCRIPTION
8	0137404	HHCS, 1/2"-13 X 2", GRD 5
14	0137498	HHCS, 5/16-18 X 1", FT, GRD 5,
44	0137514	HHCS, 3/8"-16 X 1", GRD 5
12	0137545	HHCS, 1/2"-13 X 1-1/2", GRD 5
8	0137549	HHCS, 1/2"-13 X 2 1/2", GRADE 5
8	0137554	HHCS, 1/2"-13 X 4" , GRD 5
28	0137562	HHCS, 5/8"-11 X 2", GR 5
48	0137568	HHCS, 5/8"-11 X 3 1/2", GRD 5
24	0137573	HHCS, 5/8"-11 X 5 1/2", GRD 5
14	0147965	5/16"-18, HEX NUT
107	0147970	HEX NUT, 5/8"-11
27	0159679	FLAT WASHER, 3/8", GRD 5
8	0159683	FLAT WASHER, 5/8", GR 5
8	11105863	HHCS, 5/8"-11 X 6", GRADE 5
12	13319	HHCS, 5/8"-11 X 4", GRD 5
10	13327	HHCS, 5/8"-11 X 7", GRD 5
2	13335	HHCS, 5/8"-11 X 11", GRD 5
44	33622	SPLIT LOCK WASHER, 3/8"
28	33626	LOCK WASHER, 1/2"
14	33781	5/16" SPLIT LOCK WASHER
111	33785	LOCK WASHER, 5/8"
44	36306	HEX NUT, 3/8"-16, GRD 5
28	36309	HEX NUT, 1/2"-13
8	37030	HEX NUT, 1/2"-13, NYLOCK, GRD 5, ZINC
24	37036	NUT, 5/8"-11, NYLOC
1	3SK-10	SCRUB TOWER BASE
2	3SK-15	TENSIONER ARM, OUTSIDE SCRUB
1	3SK-28	TOP SCRUB SECTION
1	3SK-29	SCRUB, TENSION SHAFT
1	3SK-30	SCRUB, TENSION SHAFT
2	B79	CROP SHUTTLE, BOOM HYD DRIVE MOUNT
28	R5RRB2	ROLLER, 5 X 1.5" STEEL W/ RUBBER WHEEL 5/8" AXLE DOUBLE
100	RC501000	ROLLER, 5" X 1" STAMPED STEEL W/ RUBBER WHEEL 5/8" AXLE
8	S50M101BIXAAH2	TOOTH RETURN ROLLER
2	SK233	SCRUB, MID BOLT PLATE
2	SK234	GEARBOX COVER
1	SK75	SCRUB TOWER, BASE COVER
2	SK90	UPPER SCRUB, SIDE PIECE
1	SK91	TIP TOP, SCRUB TOWER
1	SK92	SCRUB, TOP CHANNEL
3	UCF211-32	BEARING, 2", 4 BOLT, 5 1/8" BOLT PATTERN
2	628998	INNER SCRUB BELT
2	628997	OUTER SCRUB BELT
1	3SK-50	SK, SCRUB, LADDER
128	750	5/8" X 1 1/4" STAND OFF



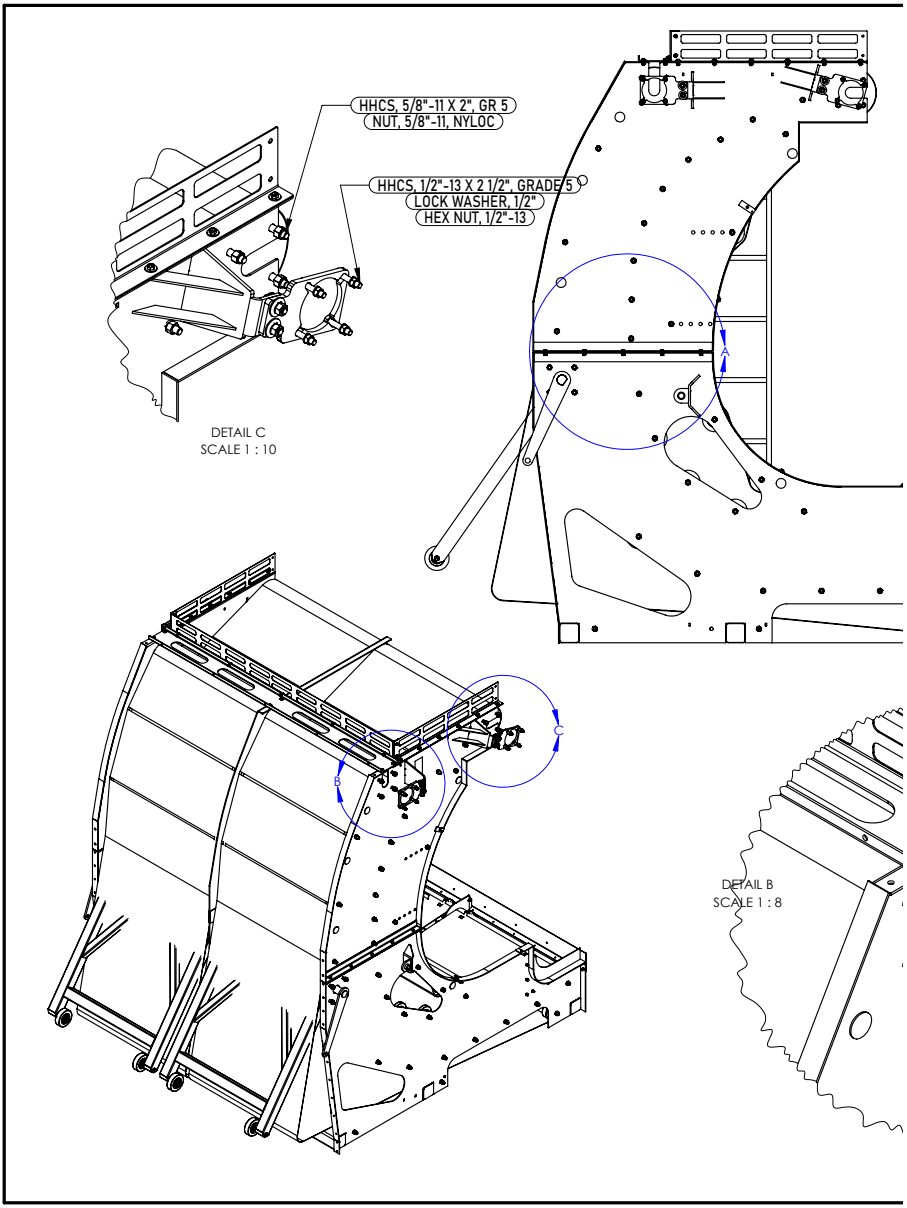


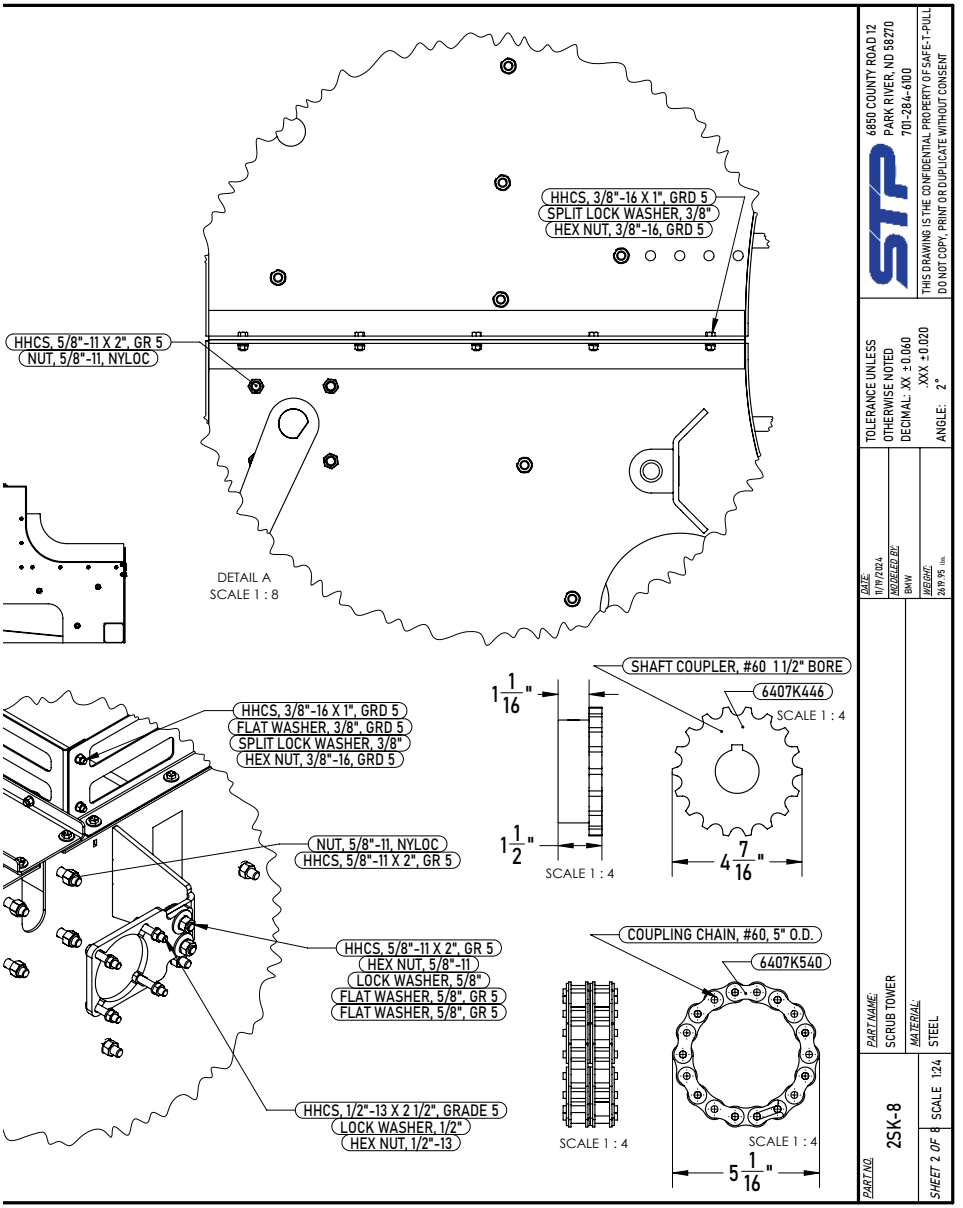




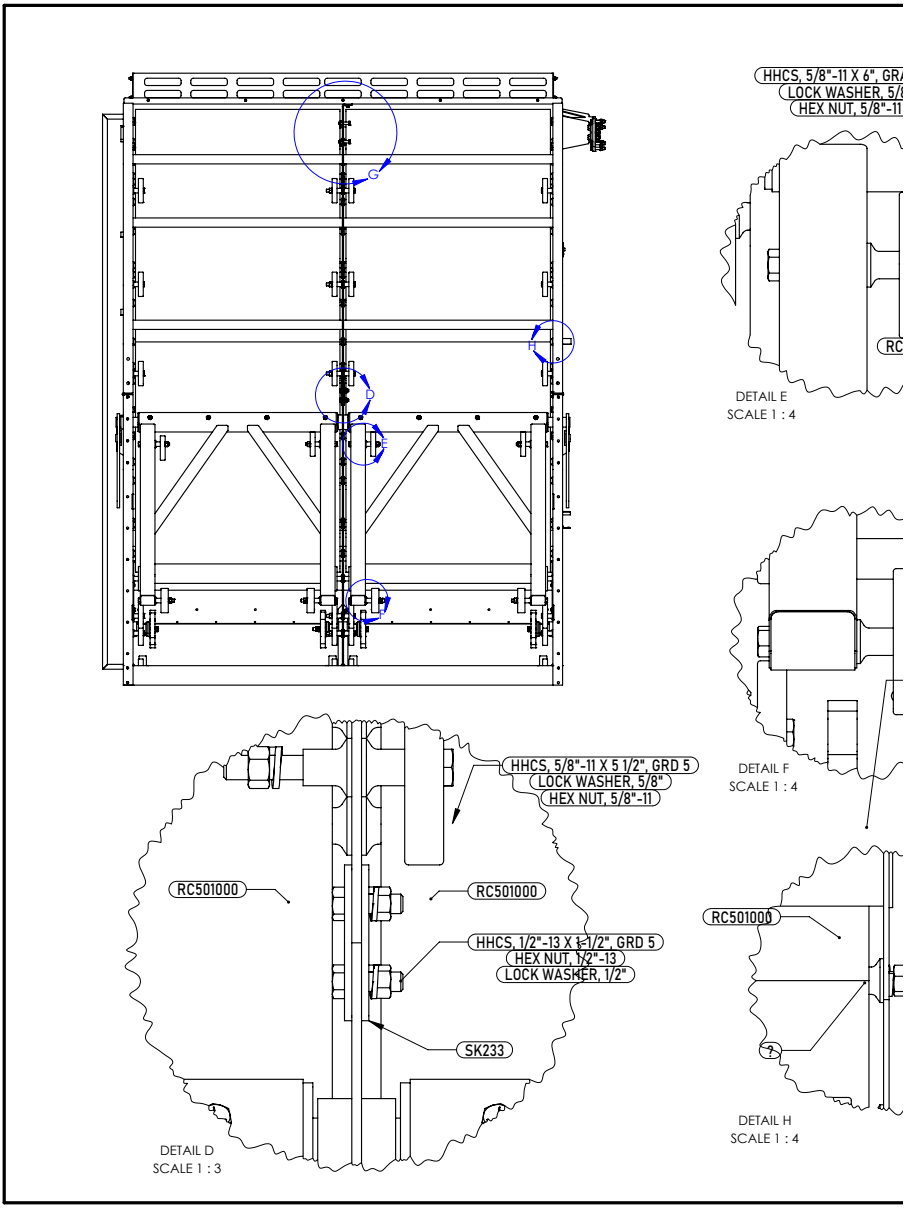
PART NO. 2SK-8	PART NAME: SCRUB TOWER	DATE: 1/19/2024	TOLERANCE UNLESS OTHERWISE NOTED DECIMAL: XX ±0.060 .XXX ±0.020 ANGLE: 2°	STP 6850 COUNTY ROAD 12 PARK RIVER, ND 58270 701-284-6100	THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
SHEET 1 OF 8 SCALE 1:24	MATERIAL: STEEL	DRAWN BY: BWW	WEIGHT: 2619.99 lbs.		

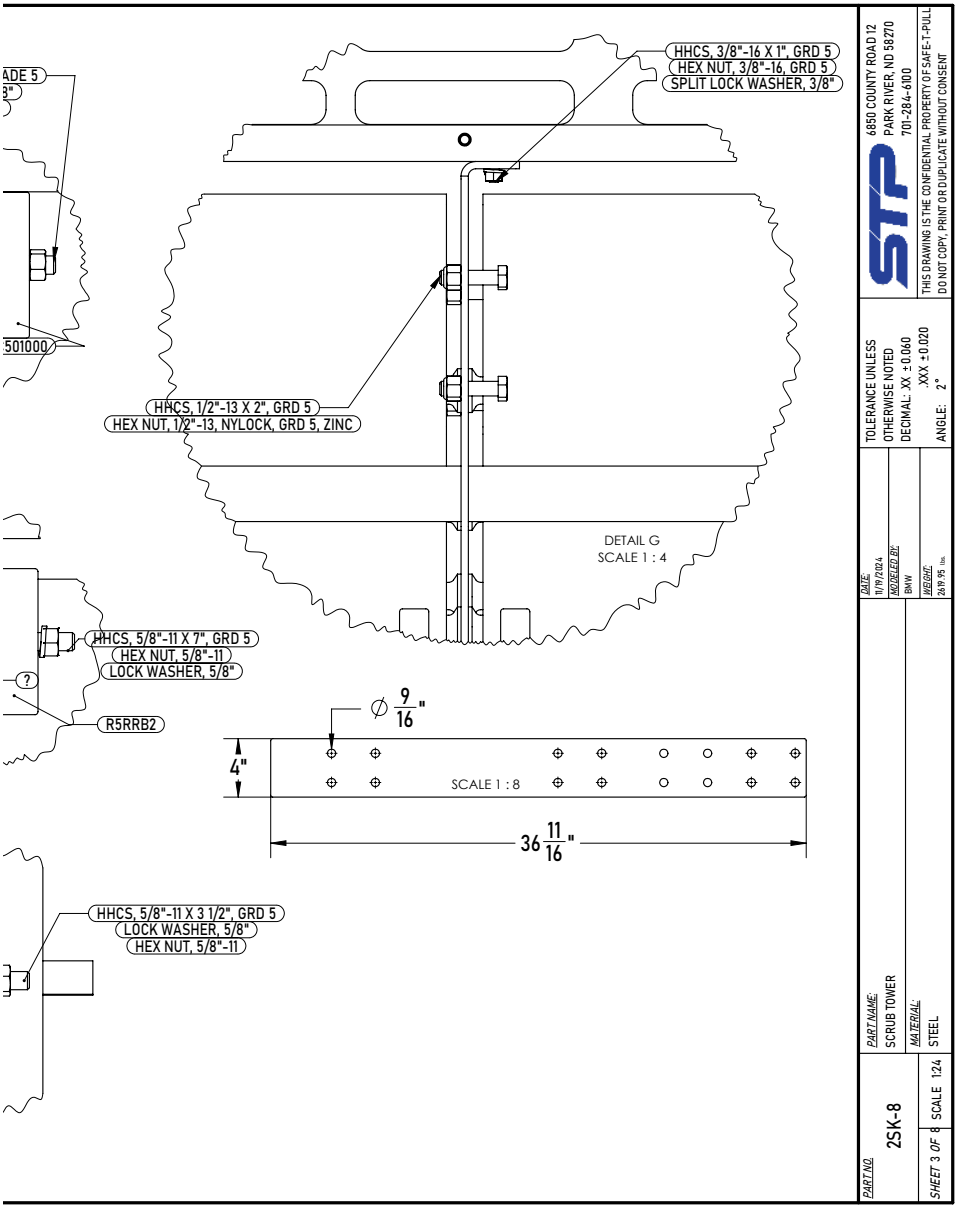
Scrub Towers



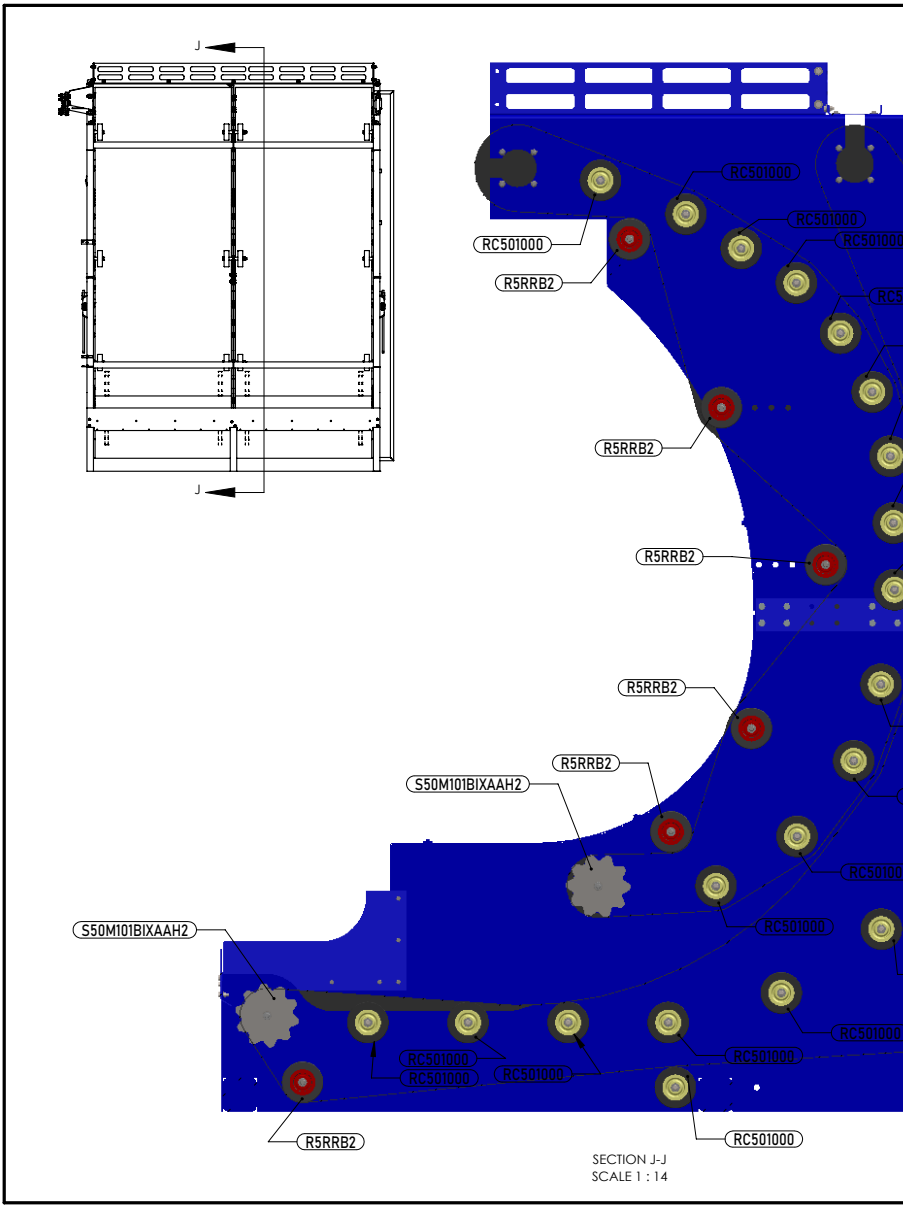

HHCS, 3/8"-16 X 1", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
HHCS, 5/8"-11 X 2", GR 5
NUT, 5/8"-11, NYLOC
DETAIL A
SCALE 1 : 8
HHCS, 3/8"-16 X 1", GRD 5
FLAT WASHER, 3/8", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
NUT, 5/8"-11, NYLOC
HHCS, 5/8"-11 X 2", GR 5
HHCS, 5/8"-11 X 2", GR 5
HEX NUT, 5/8"-11
LOCK WASHER, 5/8"
FLAT WASHER, 5/8", GR 5
FLAT WASHER, 5/8", GR 5
HHCS, 1/2"-13 X 2 1/2", GRADE 5
LOCK WASHER, 1/2"
HEX NUT, 1/2"-13
1 1/16"
1 1/2"
SCALE 1 : 4
SHAFT COUPLER, #60 1 1/2" BORE
6407K446
SCALE 1 : 4
4 7/16"
COUPLING CHAIN, #60, 5" O.D.
6407K540
SCALE 1 : 4
SCALE 1 : 4
5 1/16"
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE
1/19/2024
DRAWN BY:
BWW
WEIGHT
269.99 lbs.
PART NO.
2SK-8
PART NAME:
SCRUB TOWER
MATERIAL:
STEEL
SHEET 2 OF 8
SCALE 1:24

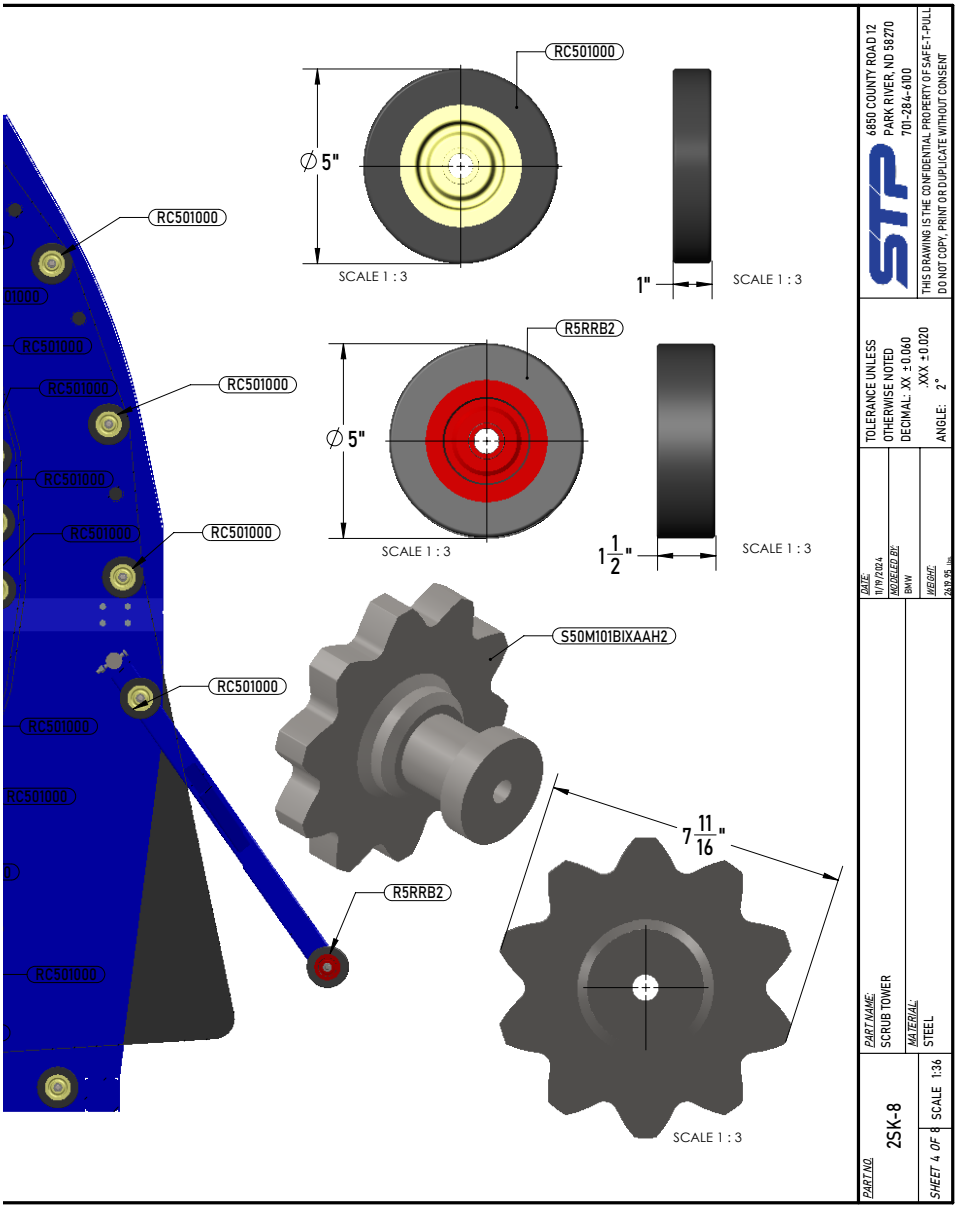
Scrub Towers



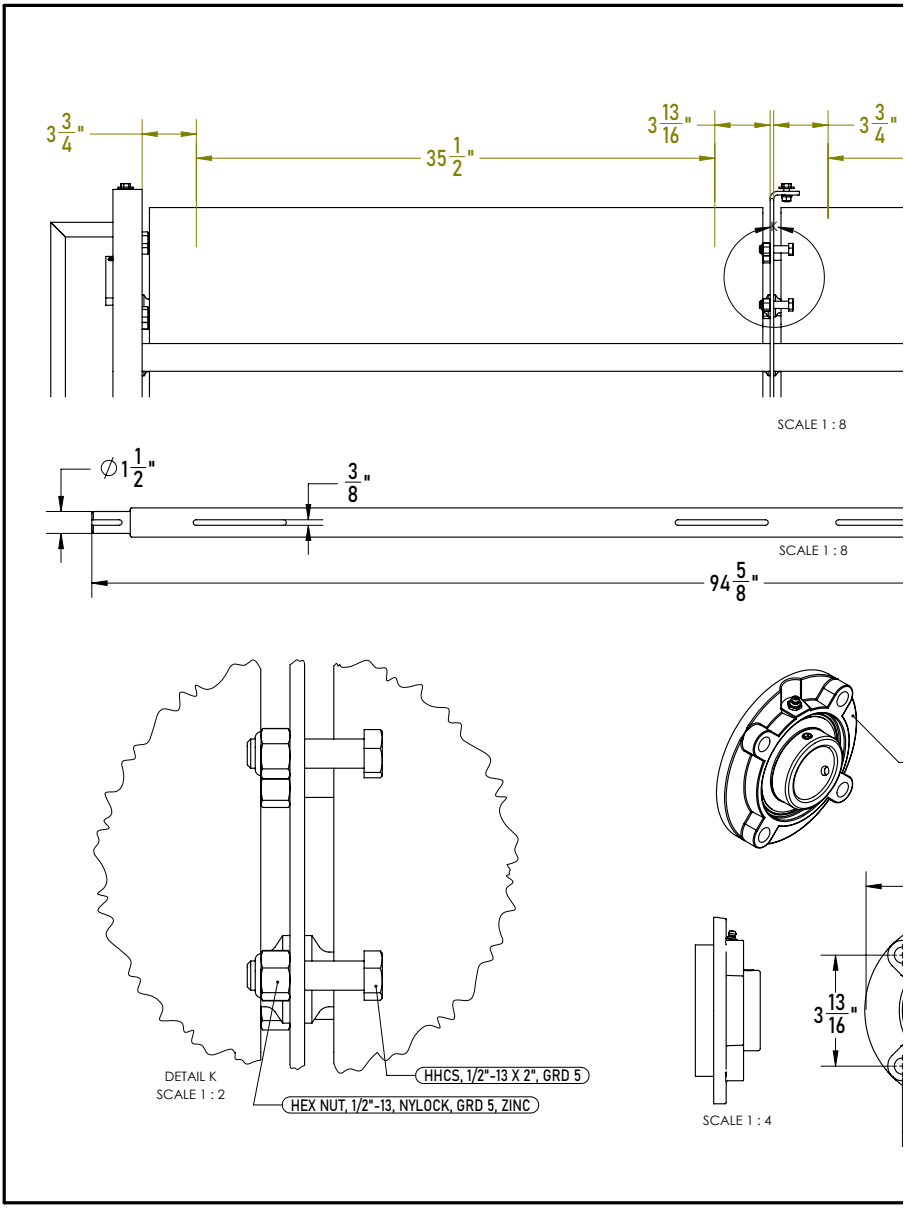

HHCS, 3/8"-16 X 1", GRD 5
HEX NUT, 3/8"-16, GRD 5
SPLIT LOCK WASHER, 3/8"
HHCS, 1/2"-13 X 2", GRD 5
HEX NUT, 1/2"-13, NYLOCK, GRD 5, ZINC
DETAIL G
SCALE 1 : 4
HHCS, 5/8"-11 X 7", GRD 5
HEX NUT, 5/8"-11
LOCK WASHER, 5/8"
R5RRB2
Ø 9/16"
4"
SCALE 1 : 8
36 11/16"
HHCS, 5/8"-11 X 3 1/2", GRD 5
LOCK WASHER, 5/8"
HEX NUT, 5/8"-11
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DRAWN BY: BWW
WEIGHT: 2619.95 lbs.
PART NO: 2SK-8
PART NAME: SCRUB TOWER
MATERIAL: STEEL
SHEET 3 OF 8
SCALE 1:24

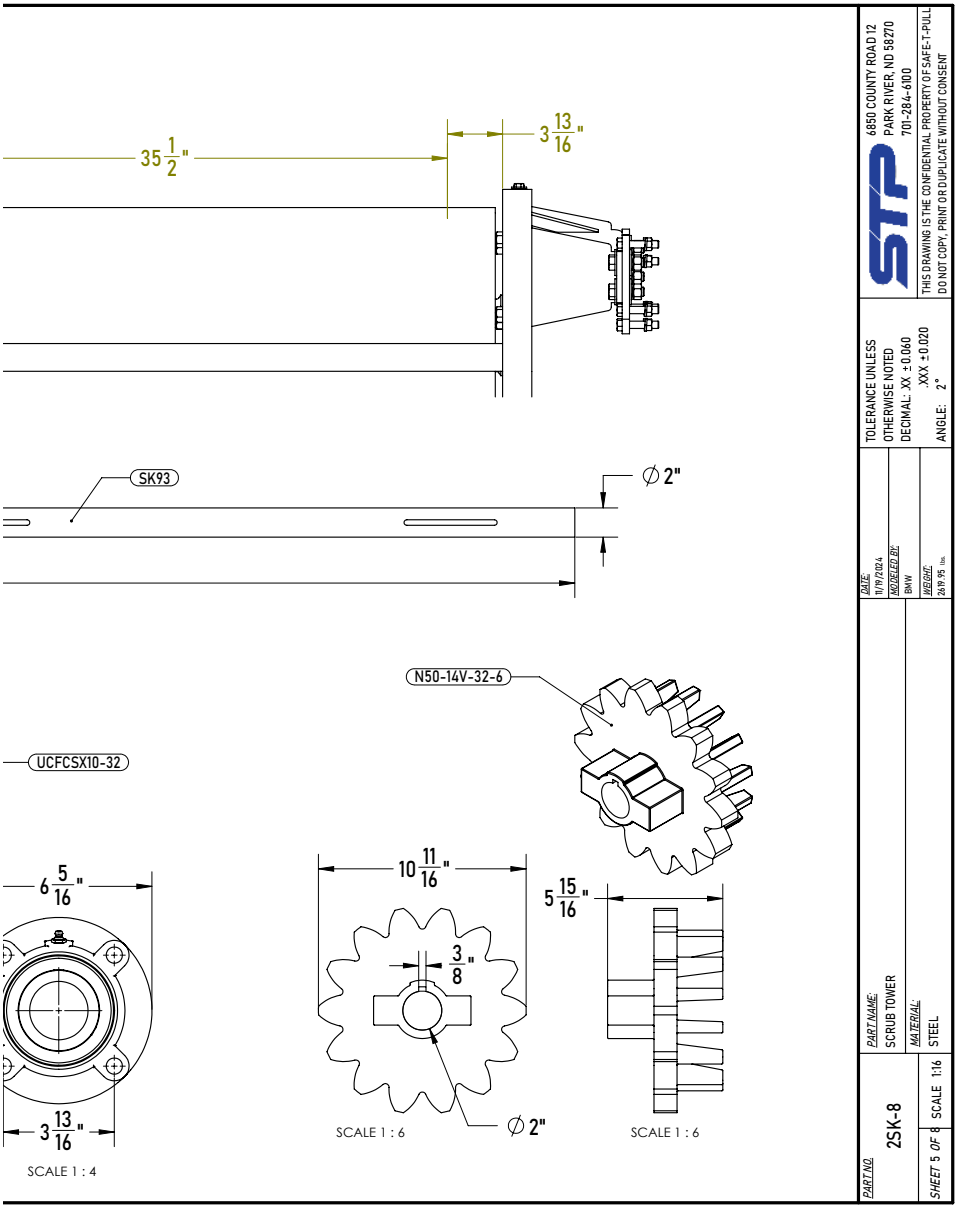
Scrub Towers



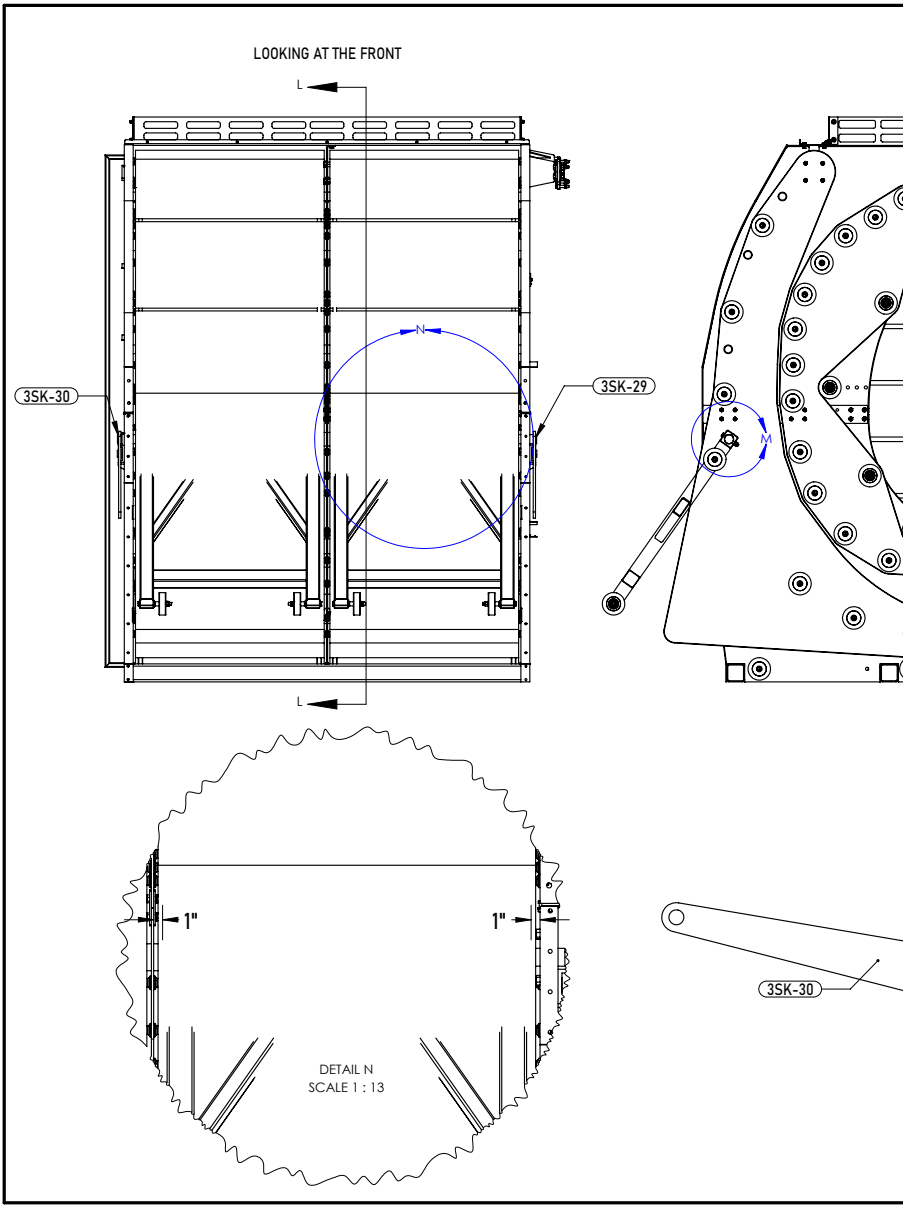

RC501000
∅ 5"
SCALE 1 : 3
1"
SCALE 1 : 3
R5RRB2
∅ 5"
SCALE 1 : 3
1 1/2"
SCALE 1 : 3
S50M101BIXAAH2
7 11/16"
SCALE 1 : 3
R5RRB2
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE: 1/19/2024
DRAWN BY: BWW
WEIGHT: 249.95 lbs
PART NO: 2SK-8
PART NAME: SCRUB TOWER
MATERIAL: STEEL
SCALE 1:36
SHEET 4 OF 8

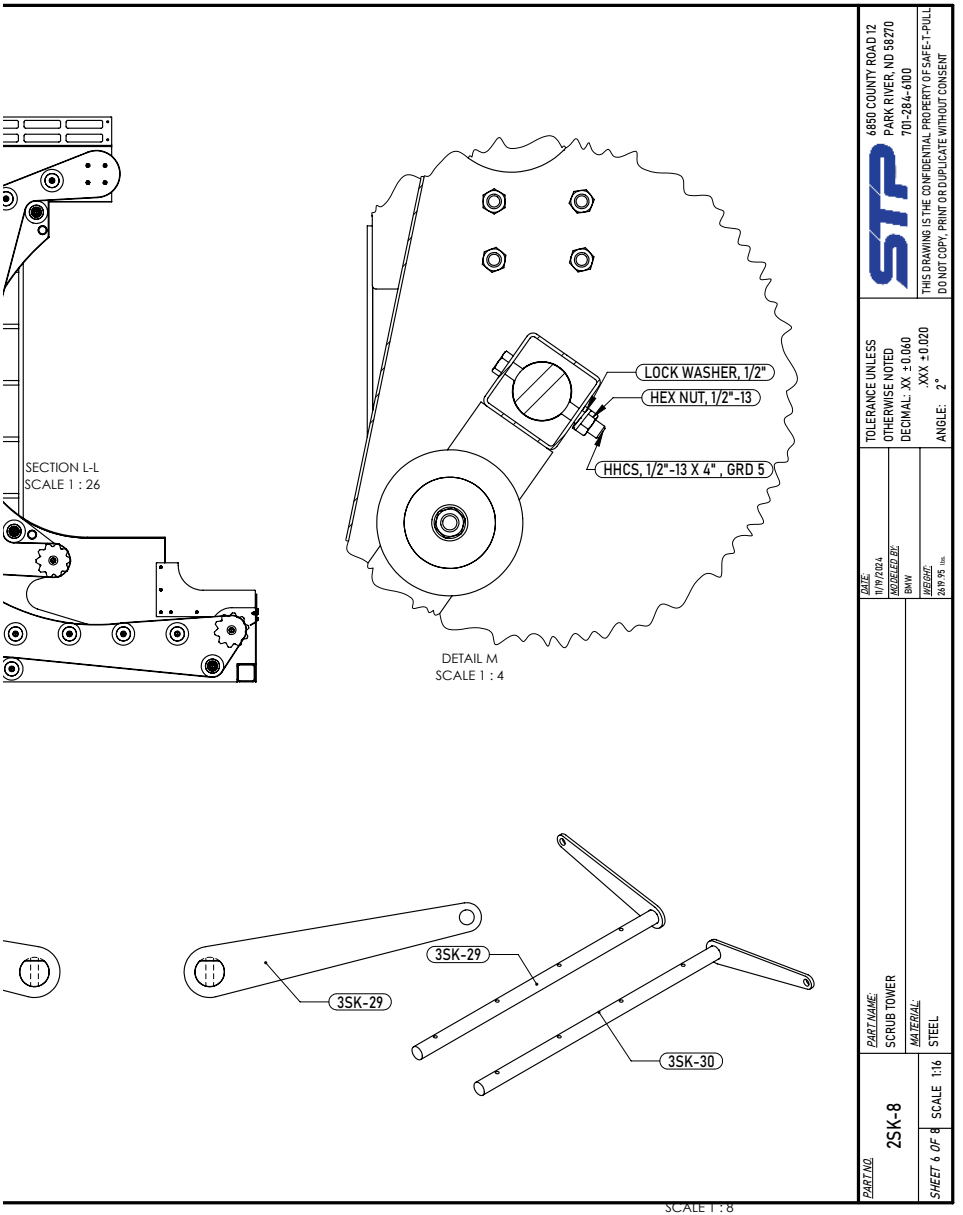
Scrub Towers



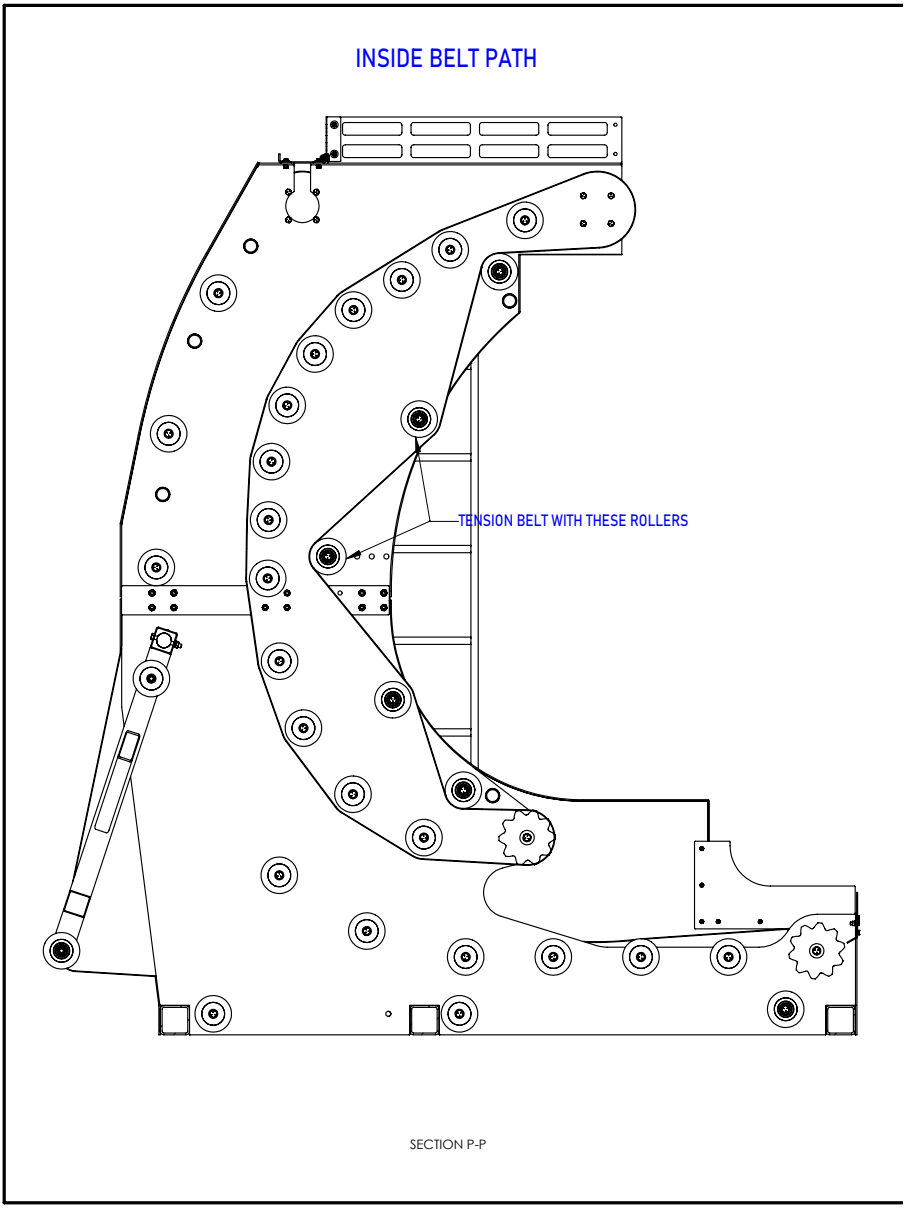

35 1/2"
3 13/16"
SK93
∅ 2"
N50-14V-32-6
UCFCSX10-32
6 5/16"
3 13/16"
SCALE 1 : 4
10 11/16"
3/8"
∅ 2"
SCALE 1 : 6
5 15/16"
SCALE 1 : 6
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
.XXX ±0.020
ANGLE: 2°
DATE
1/19/2024
DRAWED BY:
BWW
WEIGHT
2619.95 lbs.
PART NO.
2SK-8
PART NAME:
SCRUB TOWER
MATERIAL:
STEEL
SCALE 1:16
SHEET 5 OF 8

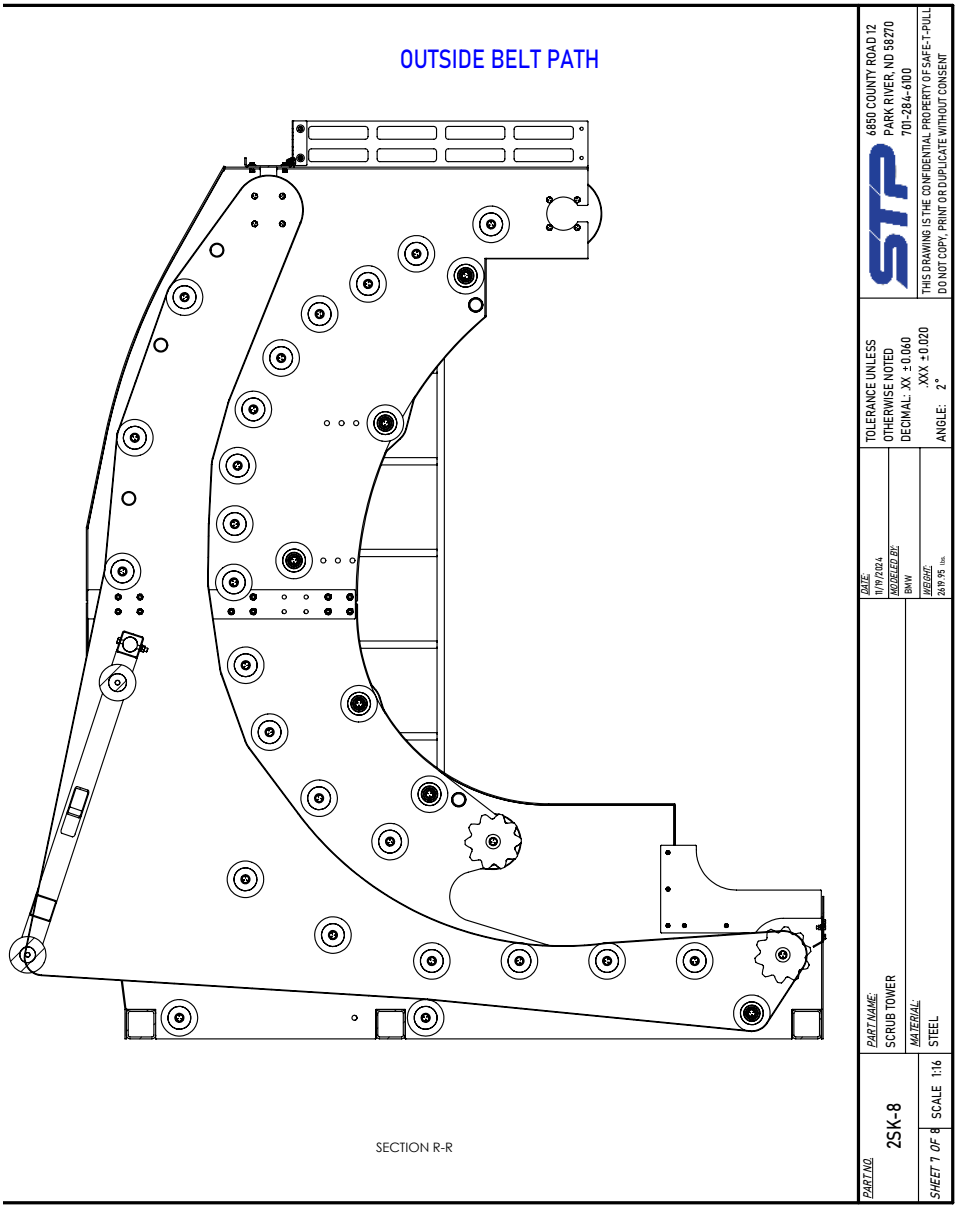
Scrub Towers



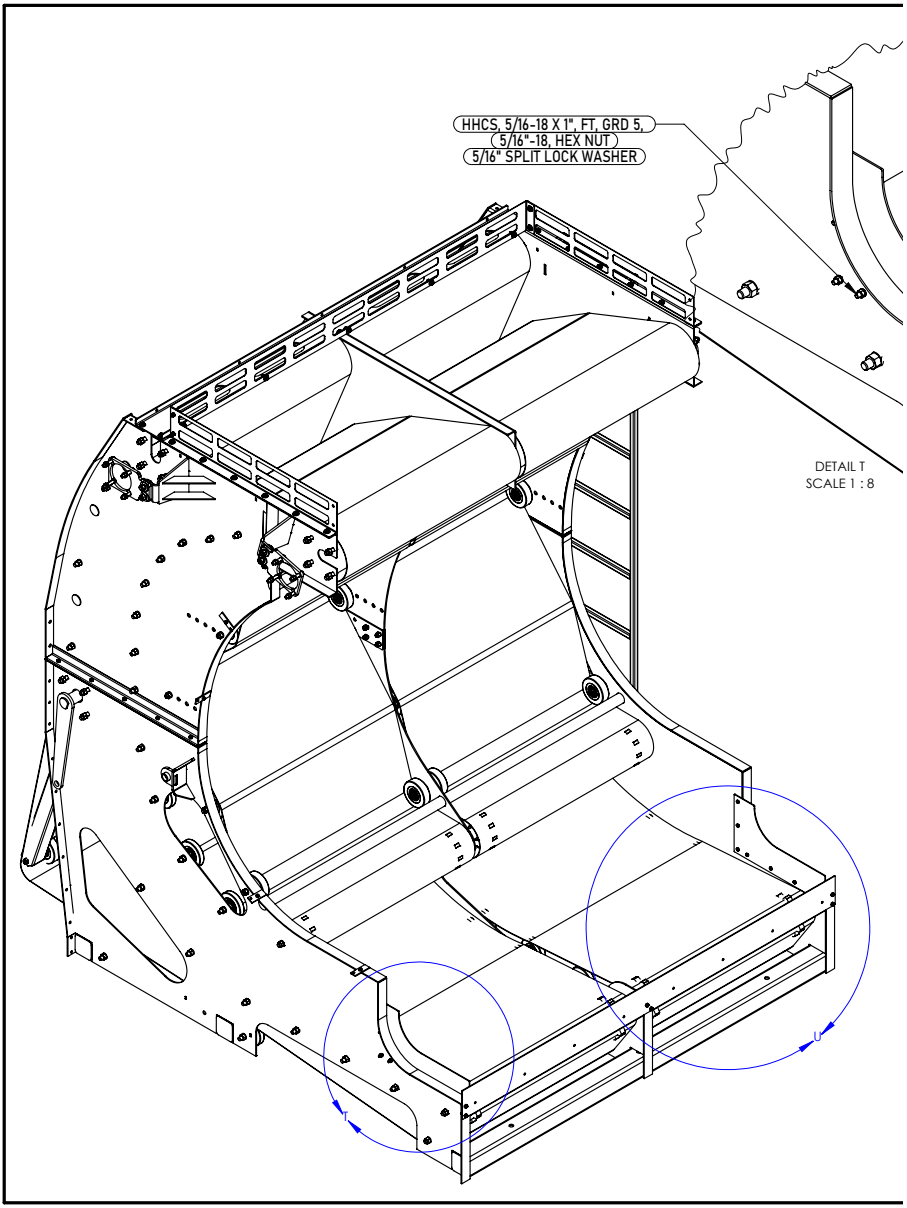

SECTION L-L
SCALE 1 : 26
LOCK WASHER, 1/2"
HEX NUT, 1/2"-13
HHCS, 1/2"-13 X 4" , GRD 5
DETAIL M
SCALE 1 : 4
3SK-29
3SK-29
3SK-30
SCALE 1 : 8
PART NO.
2SK-8
PART NAME:
SCRUB TOWER
MATERIAL:
STEEL
SHEET 6 OF 8
SCALE 1:16
DATE:
1/19/2024
MODIFIED BY:
BWW
WEIGHT:
2619.99 lbs.
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

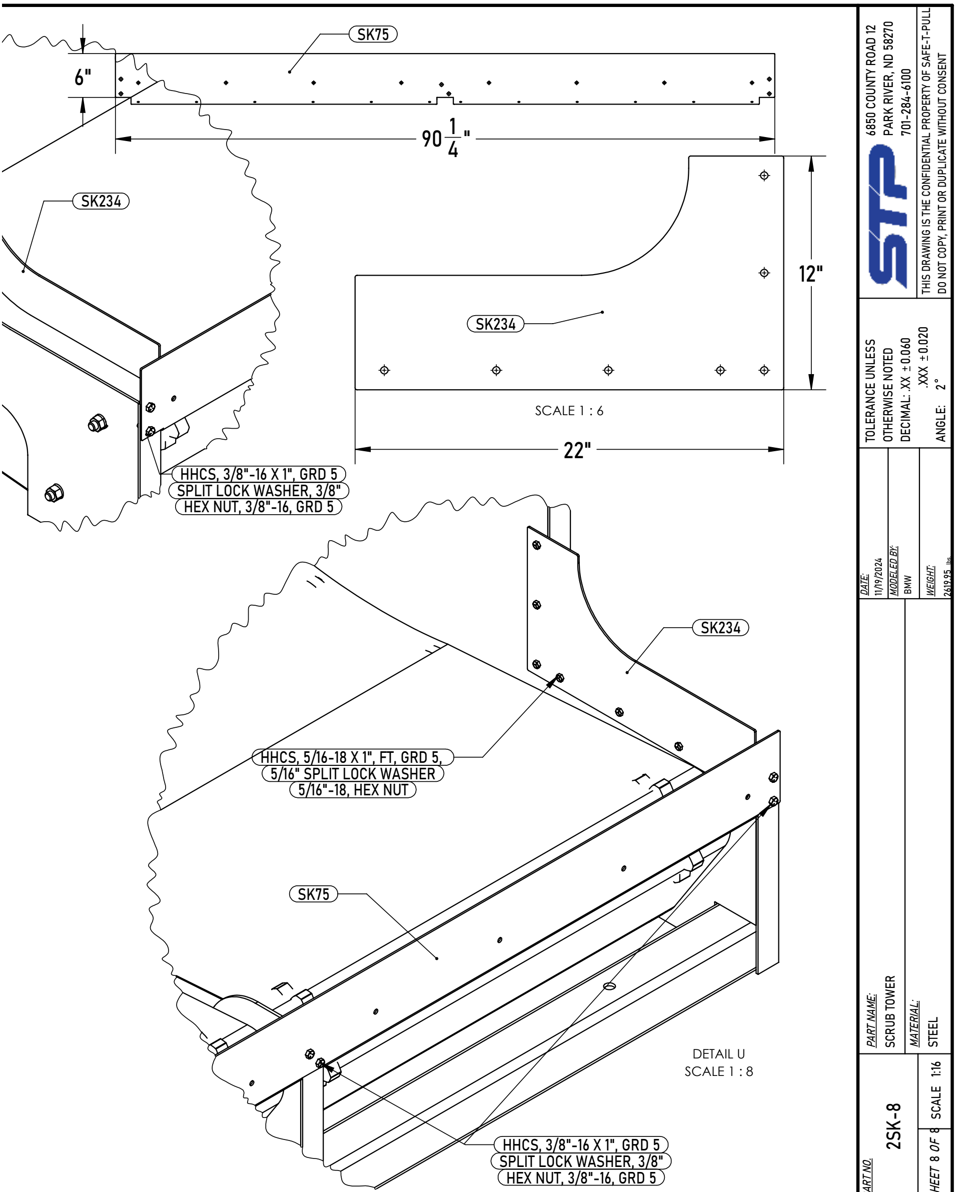
Scrub Towers




OUTSIDE BELT PATH
SECTION R-R
PART NO.
2SK-8
PART NAME:
SCRUB TOWER
MATERIAL:
STEEL
SHEET 1 OF 8
SCALE 1:16
DATE
1/19/2024
DRAWED BY:
BWW
WEIGHT
2619.99 lbs.
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
.XXX ±0.020
ANGLE: 2°
STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

Scrub Towers




SK75
6"
90 1/4"
SK234
12"
SK234
SCALE 1 : 6
22"
HHCS, 3/8"-16 X 1", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
SK234
HHCS, 5/16-18 X 1", FT, GRD 5,
5/16" SPLIT LOCK WASHER
5/16"-18, HEX NUT
SK75
DETAIL U
SCALE 1 : 8
HHCS, 3/8"-16 X 1", GRD 5
SPLIT LOCK WASHER, 3/8"
HEX NUT, 3/8"-16, GRD 5
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: .XX ±0.060
.XXX ±0.020
ANGLE: 2°
DATE:
11/19/2024
MODELED BY:
BMW
WEIGHT:
PART NAME:
SCRUB TOWER
MATERIAL:
STEEL
PART NO.
2SK-8
SHEET 8 OF 8
SCALE 1:16

Grease Point Extensions

102021"A" 2SK-16

QTY.	PART NUMBER	DESCRIPTION
1	2SK-16V	2SK-16 VENDOR SUPPLIED KIT
1	3SK-27	SK, DOUBLE GREASE LINE HOLDER
1	3SK-36	SCRUB, GREASE LINE HOLDER
5	GF-.125	1/8 NPT GREASE FITTING
4	TS-CLH-02-P-050	DOUBLE 1/4" PLASTIC CLAMP
2	TS-TCP-02-Z	CAP FOR DBL CLAMP 1/4" AND 3/8"

2SK-16V BOM

QTY.	PART NUMBER	DESCRIPTION	HOSE
1	2SKA-32	SK, GREASE LINE FRONT SIDE BOOM PIVOT	
1	2SKA-31	SK, GREASE LINE, INNER SCRUB PS BEARING	
1	2SKA-30	SK, GREASE LINE, OUTER SCRUB PS BEARING	
1	2SKA-33	SK, GREASE LINE, INNER SRUB PS BEARING	
1	2SKA-29	SK, GREASE LINE, OUTER SCRUB DS BEARING	
1	2SKA-34	SK, GREASE LINE BACK SIDE BOOM PIVOT	
2	5502-02-02	2MP-2FP90	
6	1404-02-02	2MP-2FPX	

6850 COUNTY RD 12
PARK RIVER, ND 58270
701-284-6100

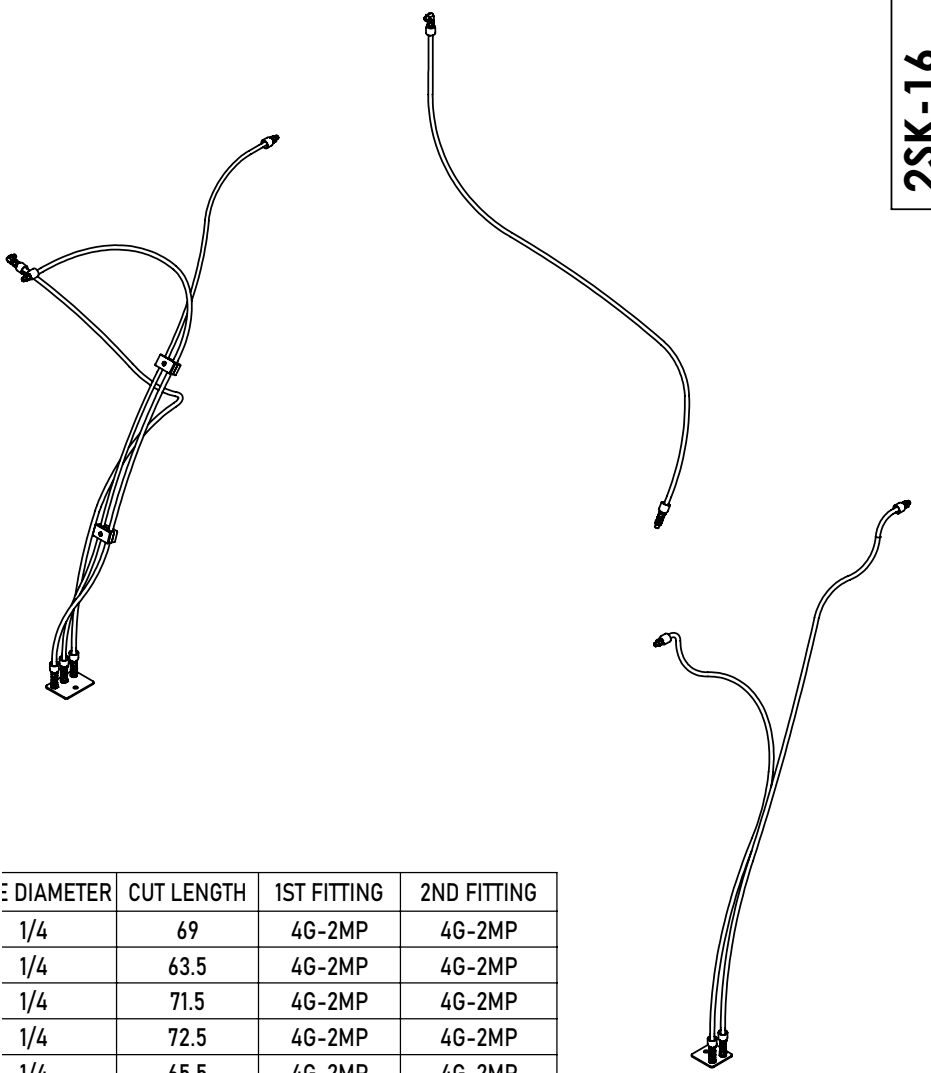
TOLERANCES UNLESS OTHERWISE NOTED
DECIMAL .XX±0.060
.XXX±0.020
ANGLES ±2°

PART NAME: SK, GREASE LINE ASSEMBLY

MATERIAL: HYD COMPONENT

R:\04-SCRUB CART\

2SK-16



E DIAMETER	CUT LENGTH	1ST FITTING	2ND FITTING
1/4	69	4G-2MP	4G-2MP
1/4	63.5	4G-2MP	4G-2MP
1/4	71.5	4G-2MP	4G-2MP
1/4	72.5	4G-2MP	4G-2MP
1/4	65.5	4G-2MP	4G-2MP
1/4	84	4G-2MP	4G-2MP

DATE: 2/17/2025
MODELED BY: BMW
CHECKED BY:

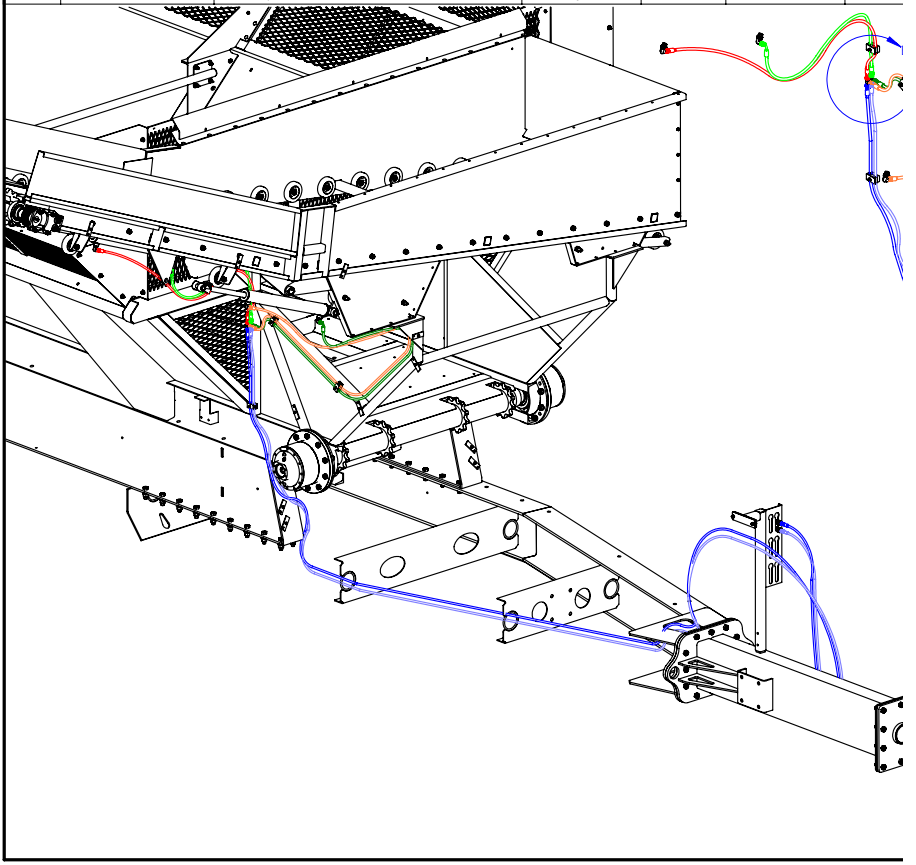
PART NO. **2SK-16**

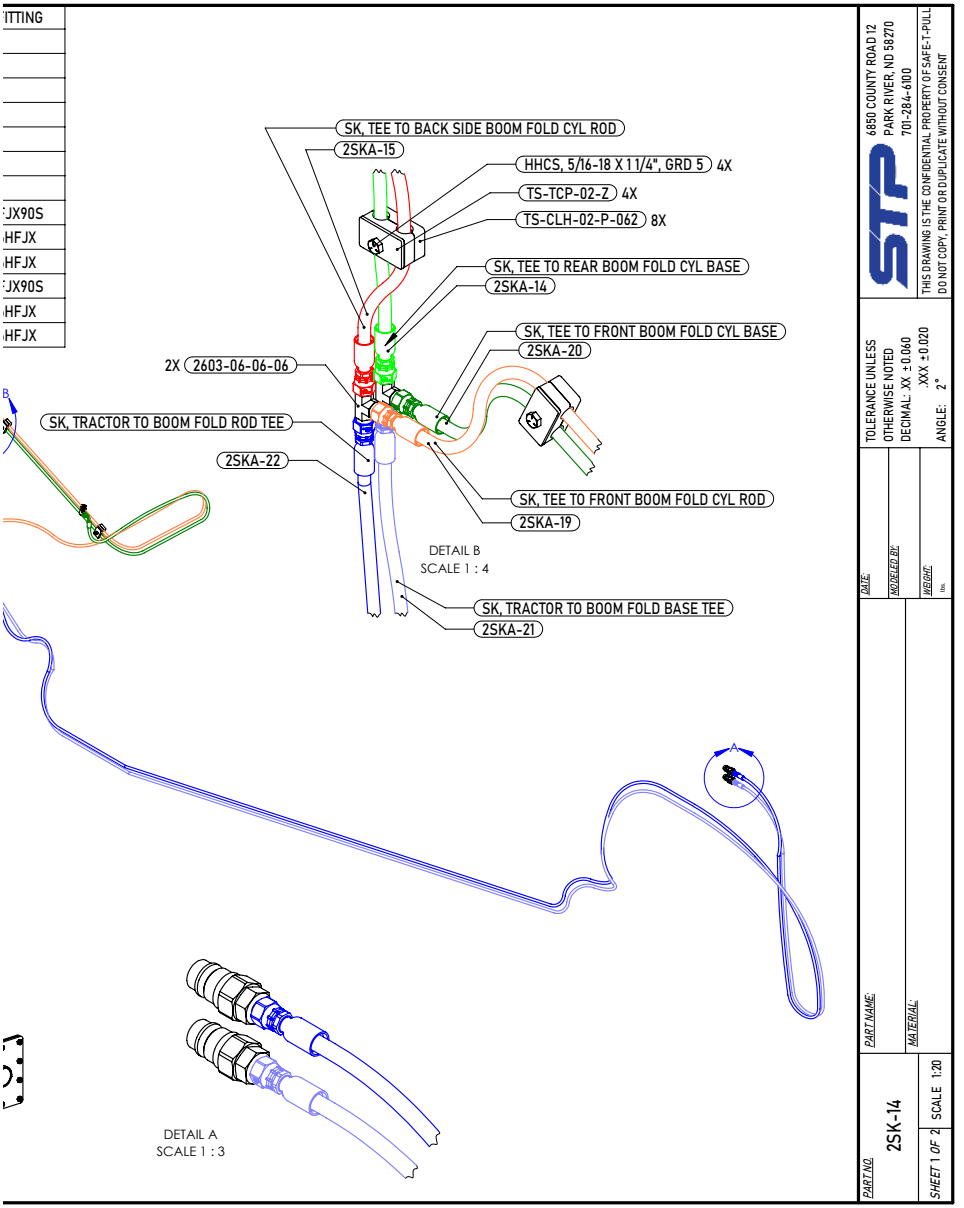
WEIGHT: 2.62 *lbs.*

SHEET: 1 OF 1 | SCALE 1:18

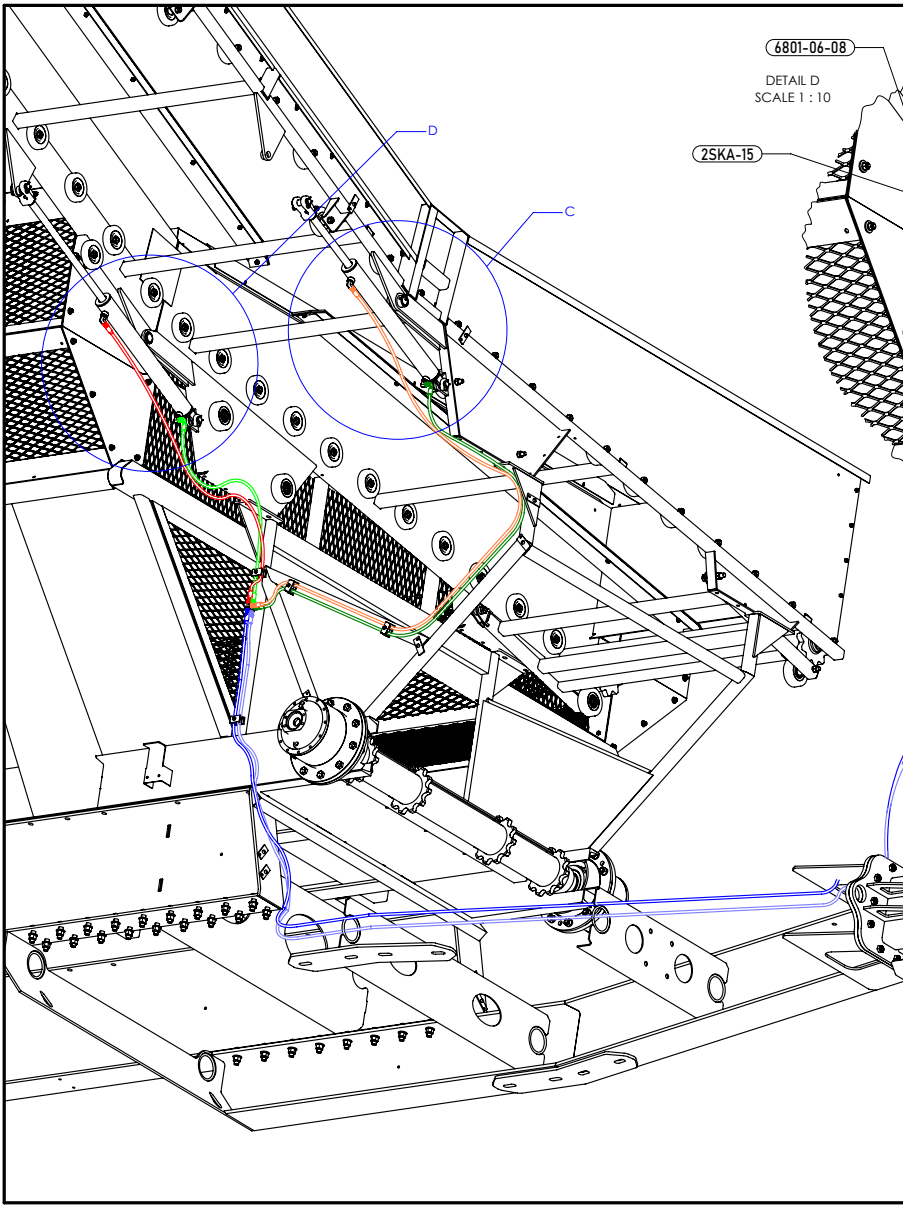
Hydraulic – Boom Raise

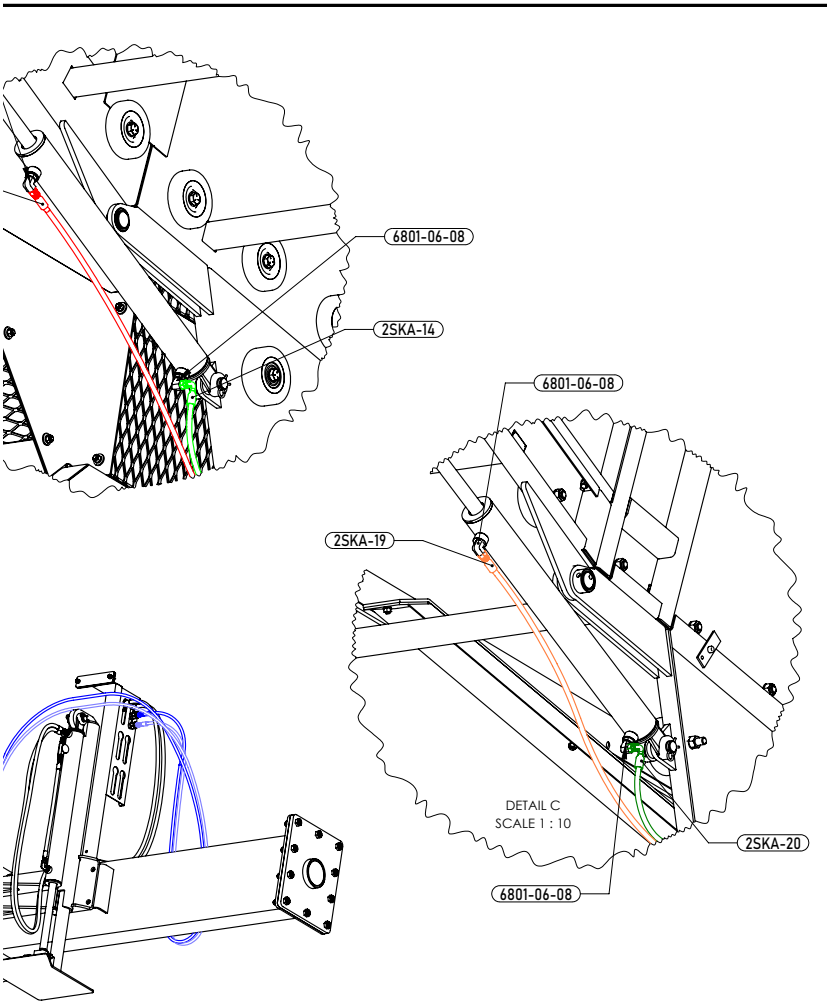
QTY.	PART NUMBER	DESCRIPTION	HOSE DIAMETER	LENGTH	1ST FITTING	2ND F
2	2603-06-06-06	06MJ-06MJ-06MJ TEE				
2	6400-06-08	06MJ-08MORB STRAIGHT				
4	6801-06-08	06MJ-08MAORB 90 ELBOW				
4	92865A585	HHCS, 5/16-18 X 1 1/4", GRD 5				
2	IA12-M-08S	PIONEER QUICK CONNECT, 1/2" FNPT				
8	TS-CLH-02-P-062	PLASTIC HALVES FOR DBL 3/8" HOSE CLAMPS				
4	TS-TCP-02-Z	CAP FOR DBL CLAMP 1/4" AND 3/8"				
1	2SKA-14	SK, TEE TO REAR BOOM FOLD CYL BASE	1/4	53	4P-6HFJX	4P-6F
1	2SKA-15	SK, TEE TO BACK SIDE BOOM FOLD CYL ROD	1/4	71	4P-6HFJX	4P-6
1	2SKA-19	SK, TEE TO FRONT BOOM FOLD CYL ROD	1/4	125	4P-6HFJX	4P-6
1	2SKA-20	SK, TEE TO FRONT BOOM FOLD CYL BASE	1/4	112	4P-6HFJX	4P-6F
1	2SKA-21	SK, TRACTOR TO BOOM FOLD BASE TEE	1/4	338	4P-6HFJX	4P-6
1	2SKA-22	SK, TRACTOR TO BOOM FOLD ROD TEE	1/4	338	4P-6HFJX	4P-6




ITTING
JX90S
HFJX
HFJX
JX90S
HFJX
HFJX
SK, TEE TO BACK SIDE BOOM FOLD CYL ROD
2SKA-15
HHCS, 5/16-18 X 1 1/4", GRD 5 4X
TS-TCP-02-Z 4X
TS-CLH-02-P-062 8X
SK, TEE TO REAR BOOM FOLD CYL BASE
2SKA-14
SK, TEE TO FRONT BOOM FOLD CYL BASE
2SKA-20
2X 2603-06-06-06
SK, TRACTOR TO BOOM FOLD ROD TEE
2SKA-22
SK, TEE TO FRONT BOOM FOLD CYL ROD
2SKA-19
DETAIL B
SCALE 1 : 4
SK, TRACTOR TO BOOM FOLD BASE TEE
2SKA-21
DETAIL A
SCALE 1 : 3
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE
MODIFIED BY
WEIGHT
lbs.
PART NO.
2SK-14
PART NAME
MATERIAL
SHEET 1 OF 2
SCALE 1:20

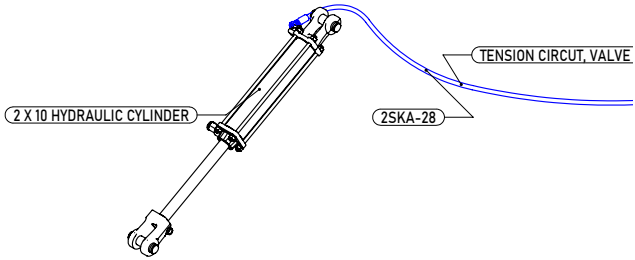
Hydraulic – Boom Raise




6801-06-08
2SKA-14
6801-06-08
2SKA-19
DETAIL C
SCALE 1 : 10
2SKA-20
6801-06-08
PART NO.
2SK-14
PART NAME:
MATERIAL:
SHEET 2 OF 4
SCALE 1:20
DATE:
DRAWED BY:
WEIGHT:
lbs.
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

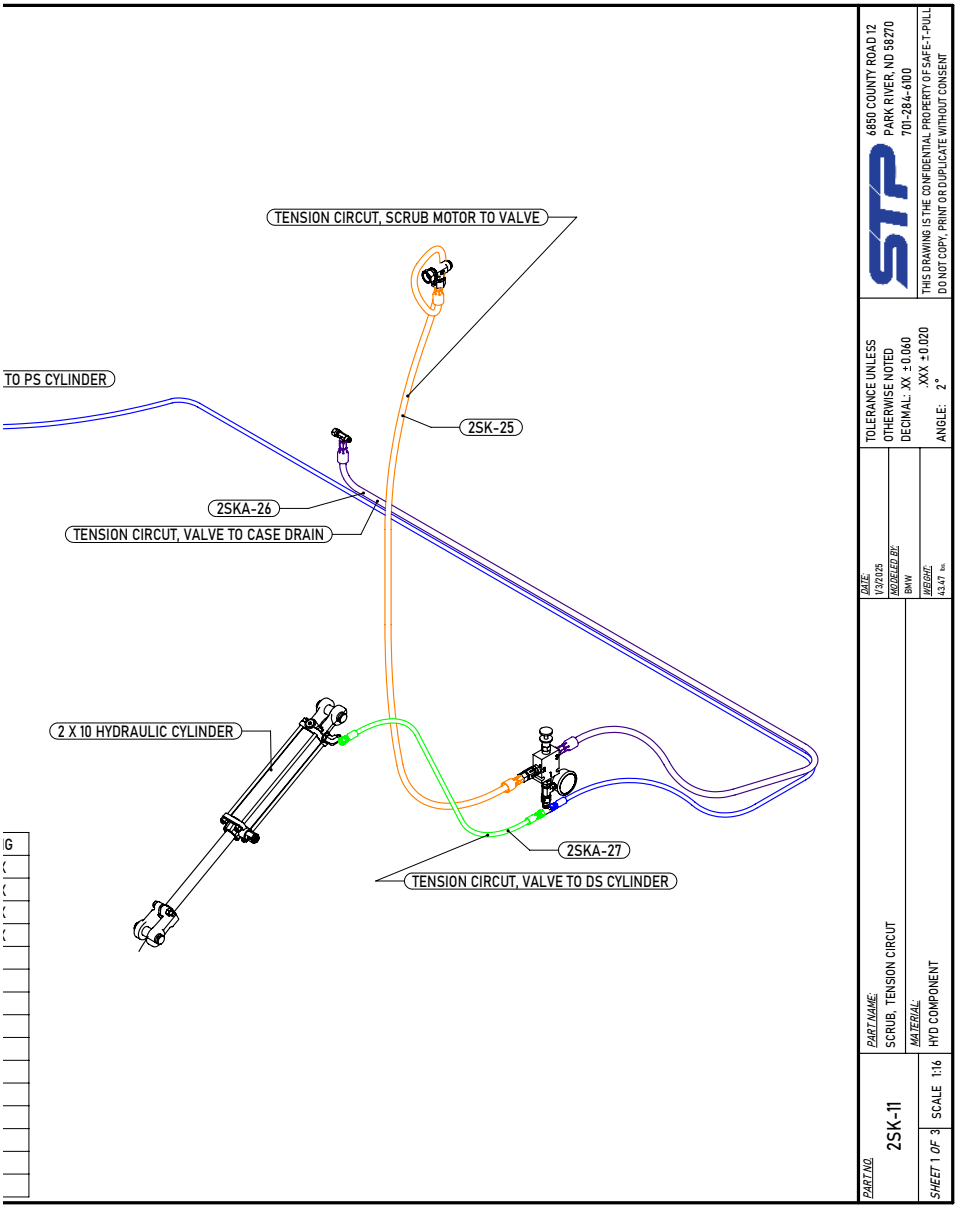
Hydraulic – Tensioner

QTY.	PART NUMBER	DESCRIPTION
1	2SK-11V	2SK-11 VENDOR SUPPLIED KIT
2	9833K23	BREATHER/VENT 3/8" NPT
1	CF1P-100A-SAE	2 1/2" PRESSURE GAUGE, 0-1500 PSI
2	HTR2010-ORB	2 X 10 HYDRAULIC CYLINDER
1	PR50-38B-8T-N-15/01.50	TENSIONING VALVE

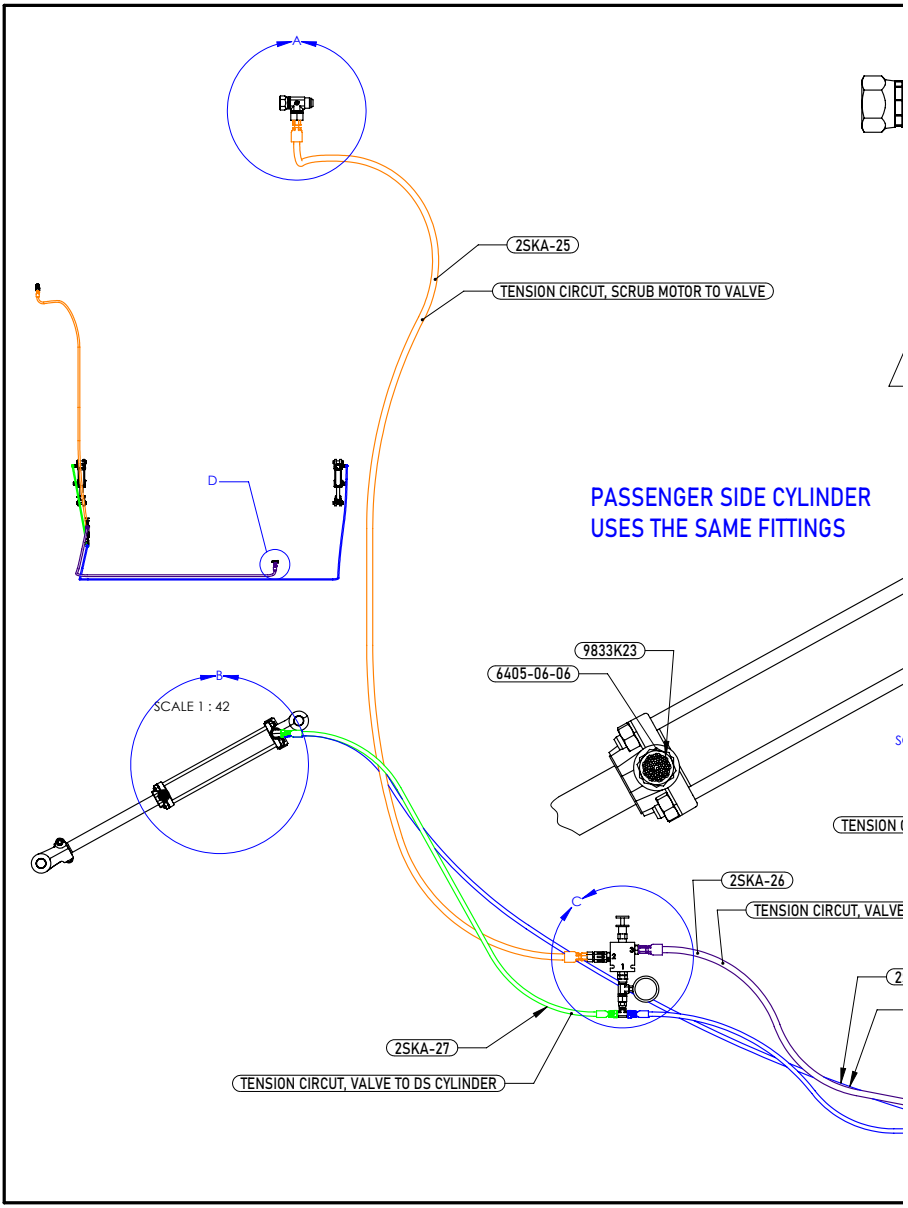


BOM FOR 2SK-11V

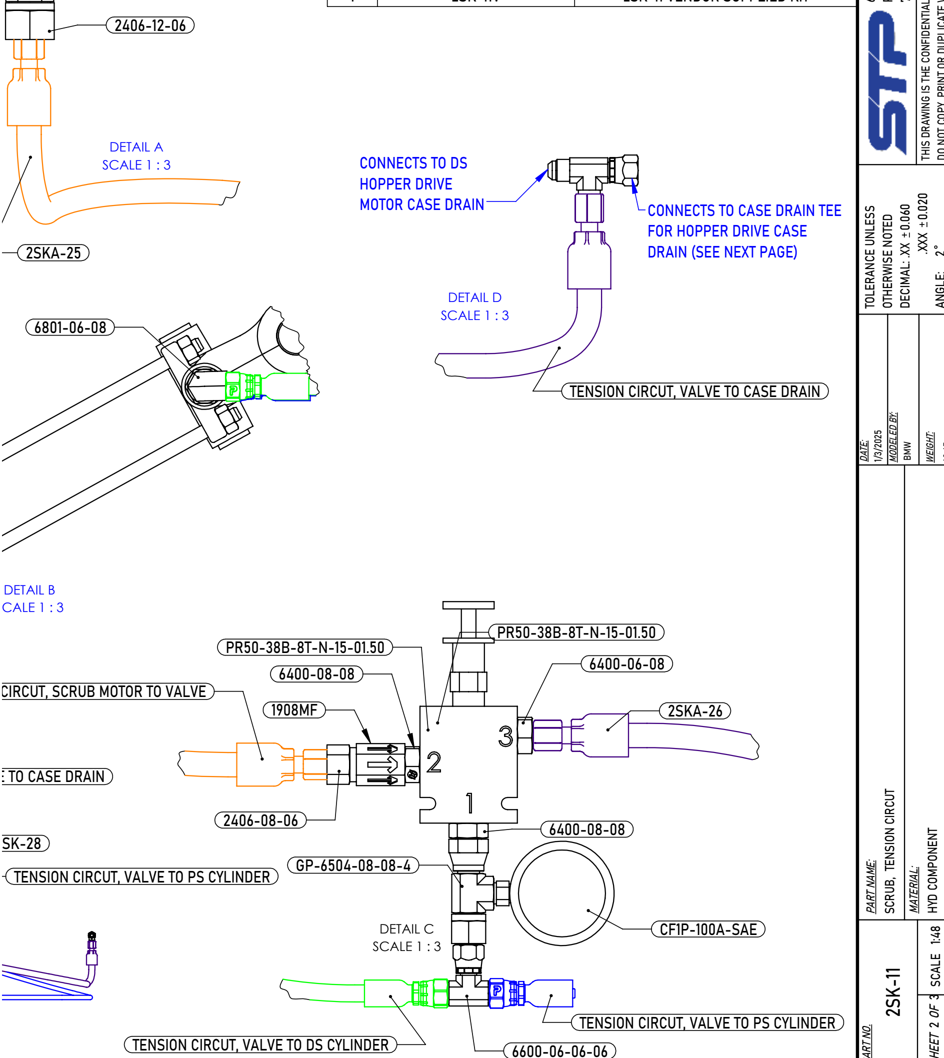
QTY.	PART NUMBER	DESCRIPTION	LENGTH	HOSE DIAMETER	1ST FITTING	2ND FITTIN
1	2SKA-27	TENSION CIRCUT, VALVE TO DS CYLINDER	48	1/4	4P-6HFJX	4P-6HFJX
1	2SKA-28	TENSION CIRCUT, VALVE TO PS CYLINDER	230	1/4	4P-6HFJX	4P-6HFJX
1	2SKA-26	TENSION CIRCUT, VALVE TO CASE DRAIN	120	3/8	6P-6HFJX	6P-6HFJX
1	2SKA-25	TENSION CIRCUT, SCRUB MOTOR TO VALVE	107	3/8	6P-6HFJX	6P-6HFJX
1	6400-06-08	06MJ-08MORB STRAIGHT				
1	6600-06-06-06	6MJ-6MJ-6FJX				
1	6602-06-06-06	6MJ-6FJX-6MJ				
1	6602-12-12-12	12MJ-12FJX-12MJ				
1	1908MF	CHECK VALVE				
1	2406-12-06	12FJ-06MJ STRAIGHT REDUCER				
1	GP-6504-08-08-4	GUAGE PORT, T-FITTING				
2	6400-08-08	8MJ-8MB				
2	2406-08-06	8FJ-6MJ				
2	6405-06-06	6MB-6FP				
2	6801-06-08	06MJ-08MAORB 90 ELBOW				


TENSION CIRCUT, SCRUB MOTOR TO VALVE
TO PS CYLINDER
2SK-25
2SKA-26
TENSION CIRCUT, VALVE TO CASE DRAIN
2 X 10 HYDRAULIC CYLINDER
2SKA-27
TENSION CIRCUT, VALVE TO DS CYLINDER
G
PART NO.
2SK-11
SHEET 1 OF 3
SCALE 1:16
PART NAME:
SCRUB, TENSION CIRCUT
MATERIAL:
HYD COMPONENT
DATE:
1/3/2025
DRAWED BY:
BWW
WEIGHT:
43.47 lbs
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
STP
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT

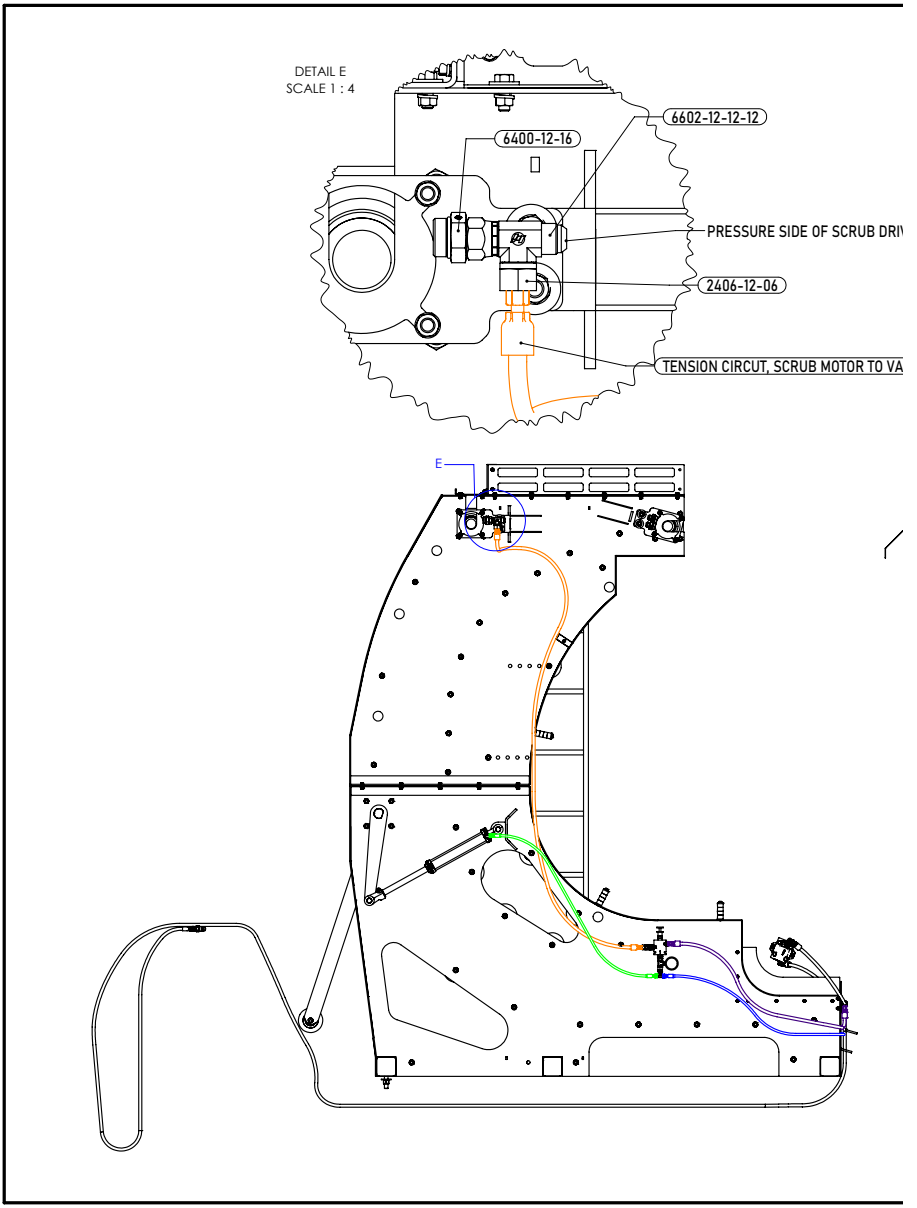
Hydraulic – Tensioner

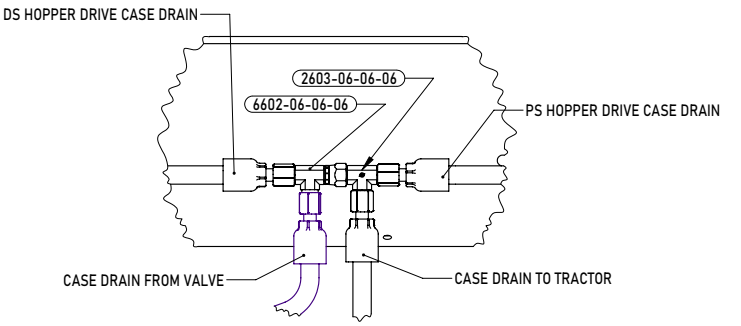


QTY.	PART NUMBER	DESCRIPTION
1	PR50-38B-8T-N-15/01.50	TENSIONING VALVE
2	HTR2010-ORB	2 X 10 HYDRAULIC CYLINDER
1	CF1P-100A-SAE	2 1/2" PRESSURE GAUGE, 0-1500 PSI
2	9833K23	BREATHER/VENT 3/8" NPT
1	2SK-11V	2SK-11 VENDOR SUPPLIED KIT

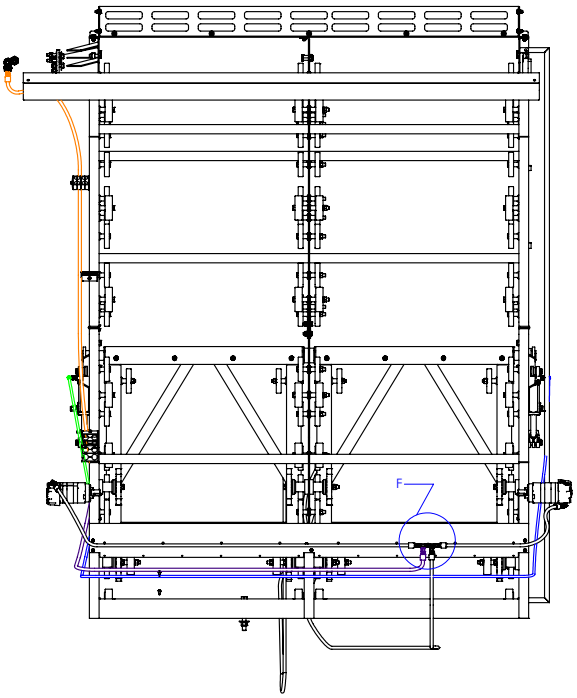

6602-12-12-12
2406-12-06
DETAIL A
SCALE 1 : 3
2SKA-25
6801-06-08
DETAIL B
CALE 1 : 3
CONNECTS TO DS
HOPPER DRIVE
MOTOR CASE DRAIN
CONNECTS TO CASE DRAIN TEE
FOR HOPPER DRIVE CASE
DRAIN (SEE NEXT PAGE)
DETAIL D
SCALE 1 : 3
TENSION CIRCUT, VALVE TO CASE DRAIN
PR50-38B-8T-N-15-01.50
PR50-38B-8T-N-15-01.50
6400-08-08
6400-06-08
CIRCUT, SCRUB MOTOR TO VALVE
1908MF
2SKA-26
TO CASE DRAIN
2406-08-06
SK-28
6400-08-08
TENSION CIRCUT, VALVE TO PS CYLINDER
GP-6504-08-08-4
CF1P-100A-SAE
DETAIL C
SCALE 1 : 3
TENSION CIRCUT, VALVE TO PS CYLINDER
TENSION CIRCUT, VALVE TO DS CYLINDER
6600-06-06-06
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: .XX ±0.060
.XXX ±0.020
ANGLE: 2°
DATE:
1/3/2025
MODELED BY:
BMW
WEIGHT:
PART NAME:
SCRUB, TENSION CIRCUT
MATERIAL:
HYD COMPONENT
PART NO.
2SK-11
SHEET 2 OF 3
SCALE 1:48

Hydraulic – Tensioner





DETAIL F
SCALE 1 : 4



6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100

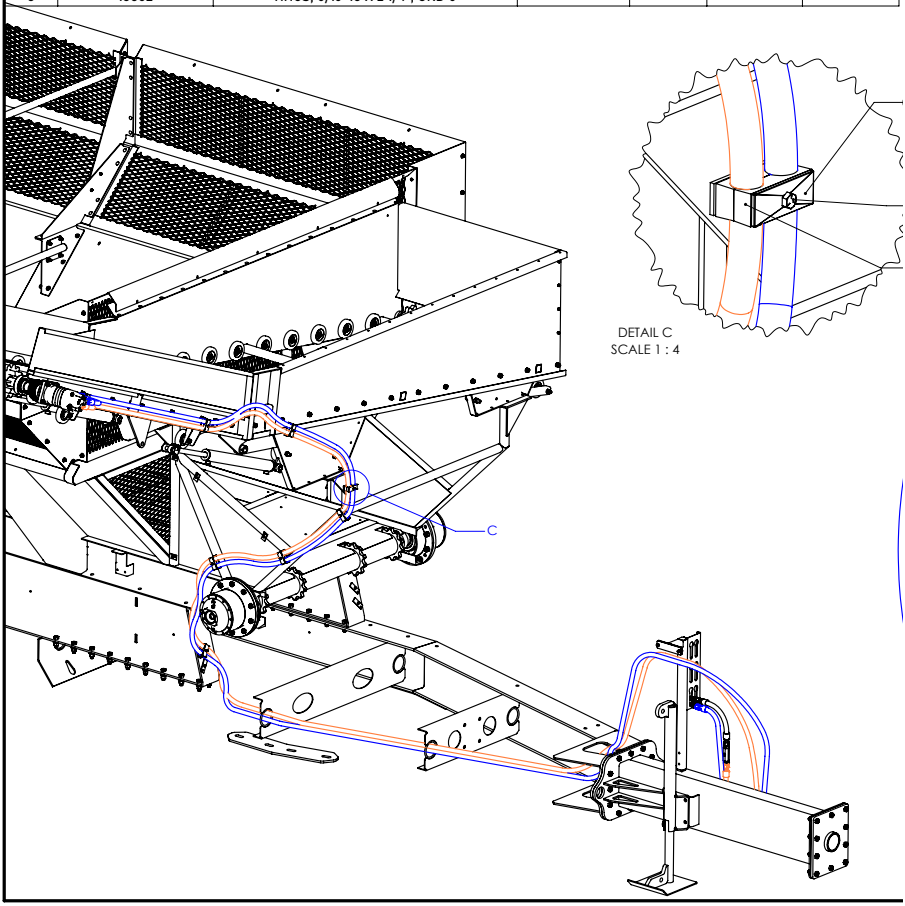
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°

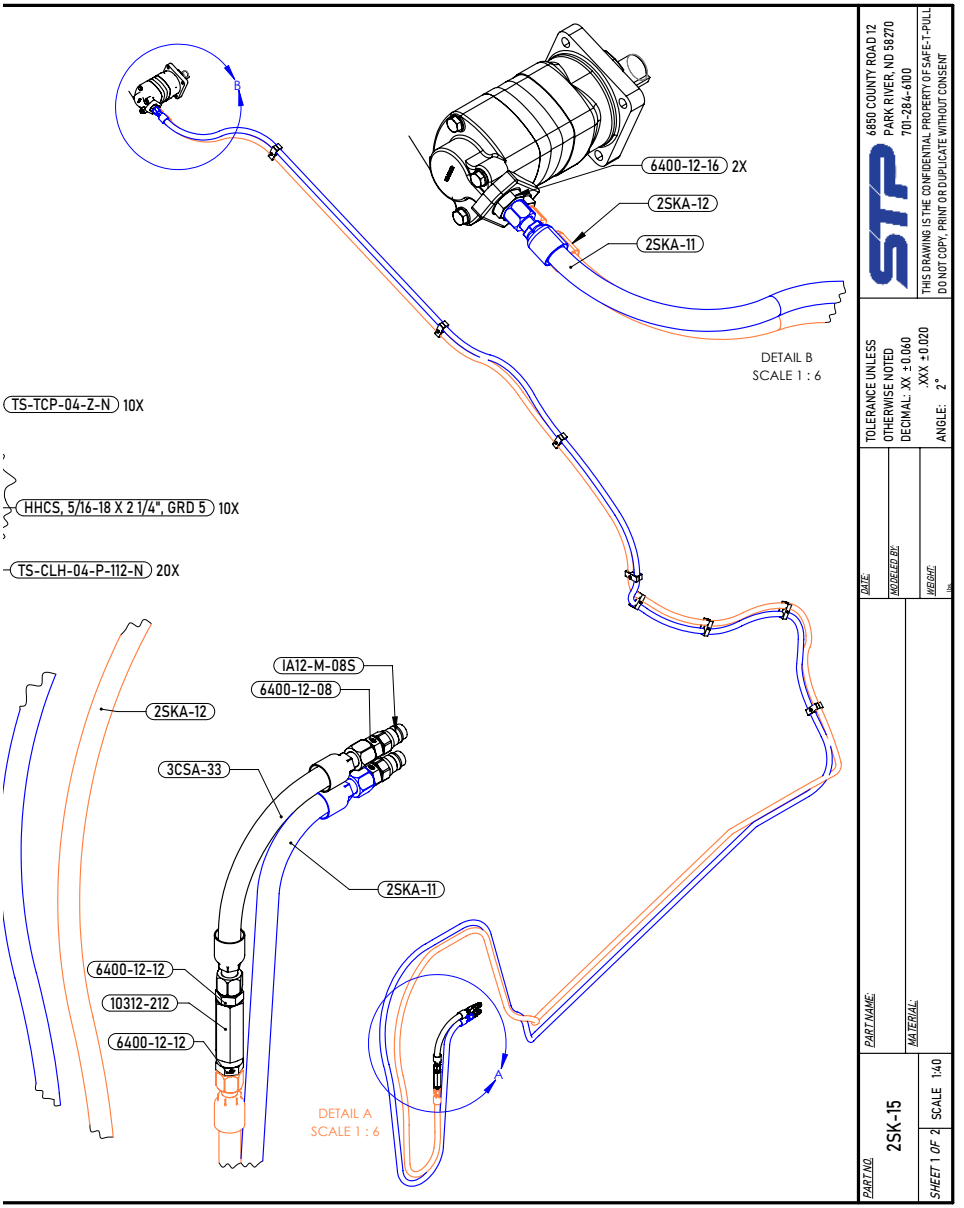
DATE: 1/3/2025
DRAWED BY: BWW
WEIGHT: 43.47 lbs

PART NO. 2SK-11
PART NAME: SCRUB, TENSION CIRCUIT
MATERIAL: HYD COMPONENT
SHEET 3 OF 3 SCALE 1:24

Hydraulic – Boom Drive

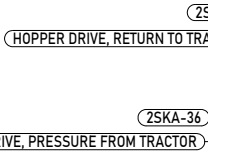
QTY.	PART NUMBER	DESCRIPTION	HOSE DIAMETER	LENGTH	1ST FITTING	2ND FITTING
1	10312-212	CHECK VALVE, POPPET, 12MB				
1	112-1067-006	6000 SERIES, 23.9CUBIN				
2	6400-12-08	12MJ-08MORB STRAIGHT				
2	6400-12-12	12MJ-12MB				
2	6400-12-16	12MJ-16MB				
2	IA12-M-08S	PIONEER QUICK CONNECT, 1/2" FNPT				
16	TS-CLH-04-P-112-N	PLASTIC HALVES FOR DLB 3/4" HOSE CLAMPS				
8	TS-TCP-04-Z-N	CAP FOR DBL CLAMP 3/4"				
1	2SKA-11	SK, BOOM DRIVE PRESSURE	3/4	539	12P-12HFJX	12P-12HFJX
1	2SKA-12	SK, BOOM DRIVE RETURN	3/4	510	12P-12HFJX	12P-12HFJX
1	3CSA-33	COMMON, SHORT HOSE AFTER CHECK VALVE	3/4	24	12P-12HFJX	12P-12HFJX
8	13062	HHCS, 5/16-18 X 2 1/4", GRD 5				




6400-12-16 2X
2SKA-12
2SKA-11
DETAIL B
SCALE 1 : 6
TS-TCP-04-Z-N 10X
HHCS, 5/16-18 X 2 1/4", GRD 5 10X
TS-CLH-04-P-112-N 20X
IA12-M-08S
6400-12-08
2SKA-12
3CSA-33
2SKA-11
6400-12-12
10312-212
6400-12-12
DETAIL A
SCALE 1 : 6
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE
MODIFIED BY
WEIGHT:
PART NO.
2SK-15
PART NAME:
MATERIAL:
SHEET 1 OF 2
SCALE 1:40

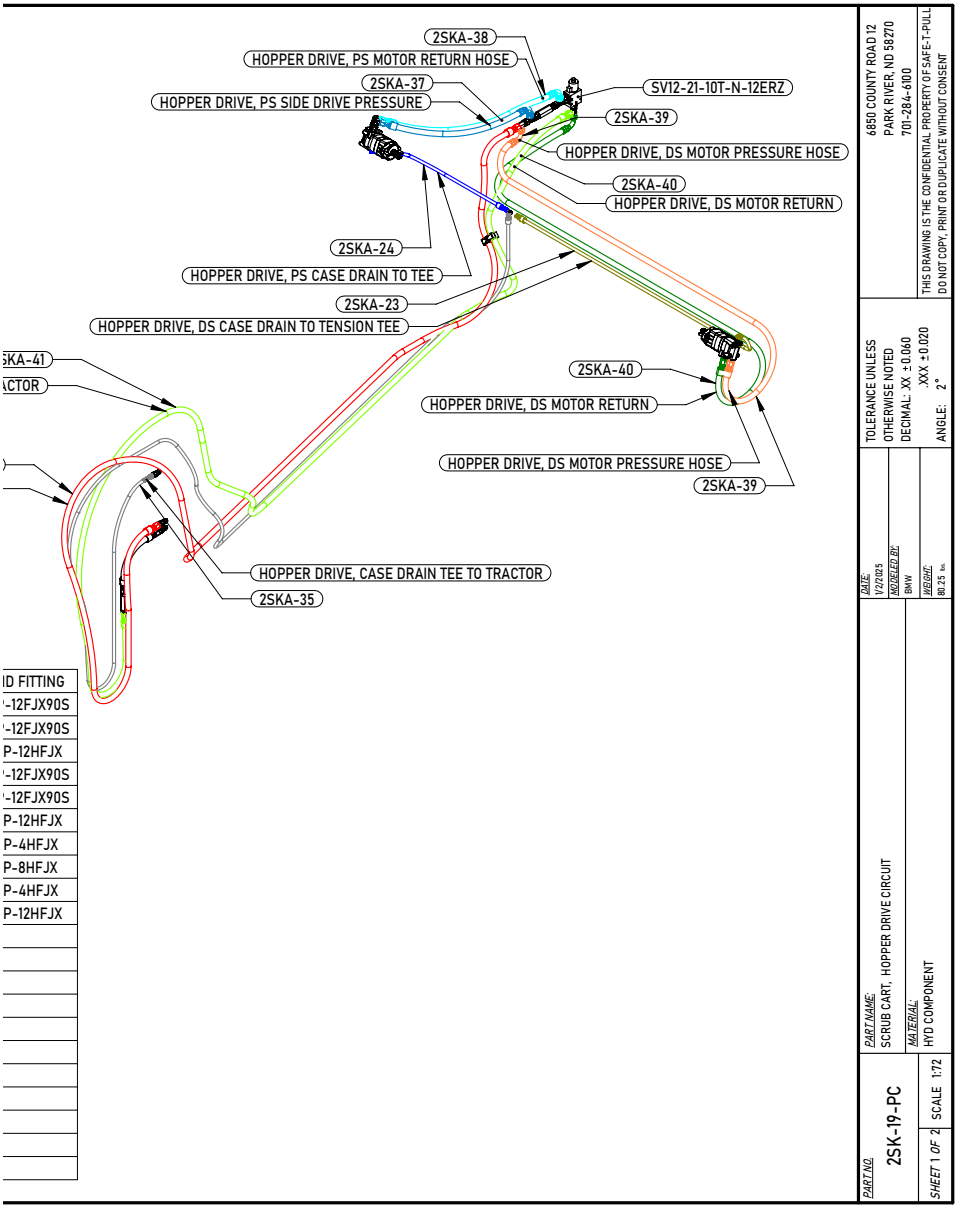
Hydraulic – Hopper Drive

QTY.	PART NUMBER	DESCRIPTION
2	104-1031-006	HYD MOTOR, 2000 SERIES, 7.97 CU.IN
1	2SK-19V	2SK-19 VENDOR SUPPLIED KIT
1	SV12-21-10T-N-12ERZ	2 SPD HYDRAULIC VALVE
2	TS-CLH-04-P-112-N	PLASTIC HALVES FOR DLB 3/4" HOSE CLAMPS
1	TS-TCP-04-Z-N	CAP FOR DBL CLAMP 3/4"
4	33626	LOCK WASHER, 1/2"
4	23411	SHCS, 1/2"-13, 2", A574

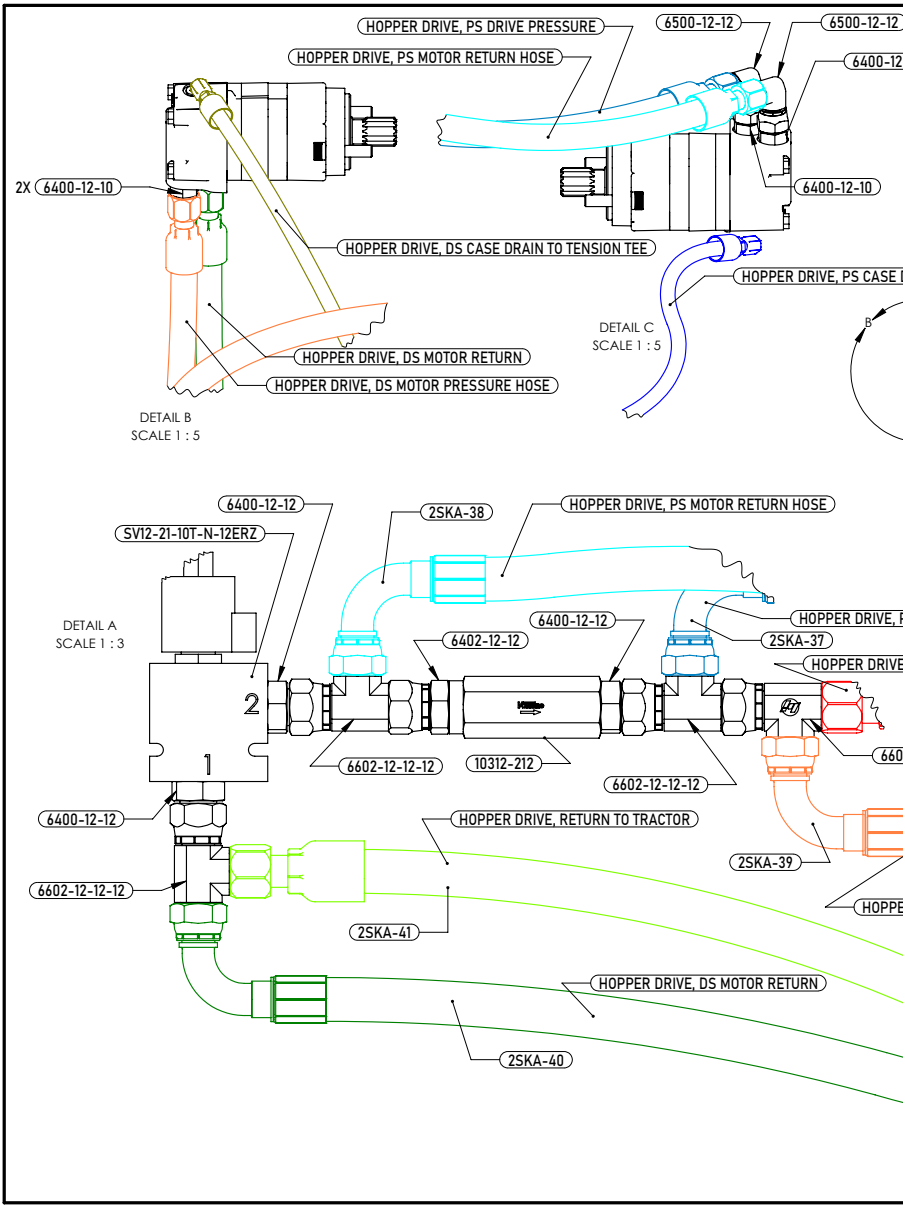


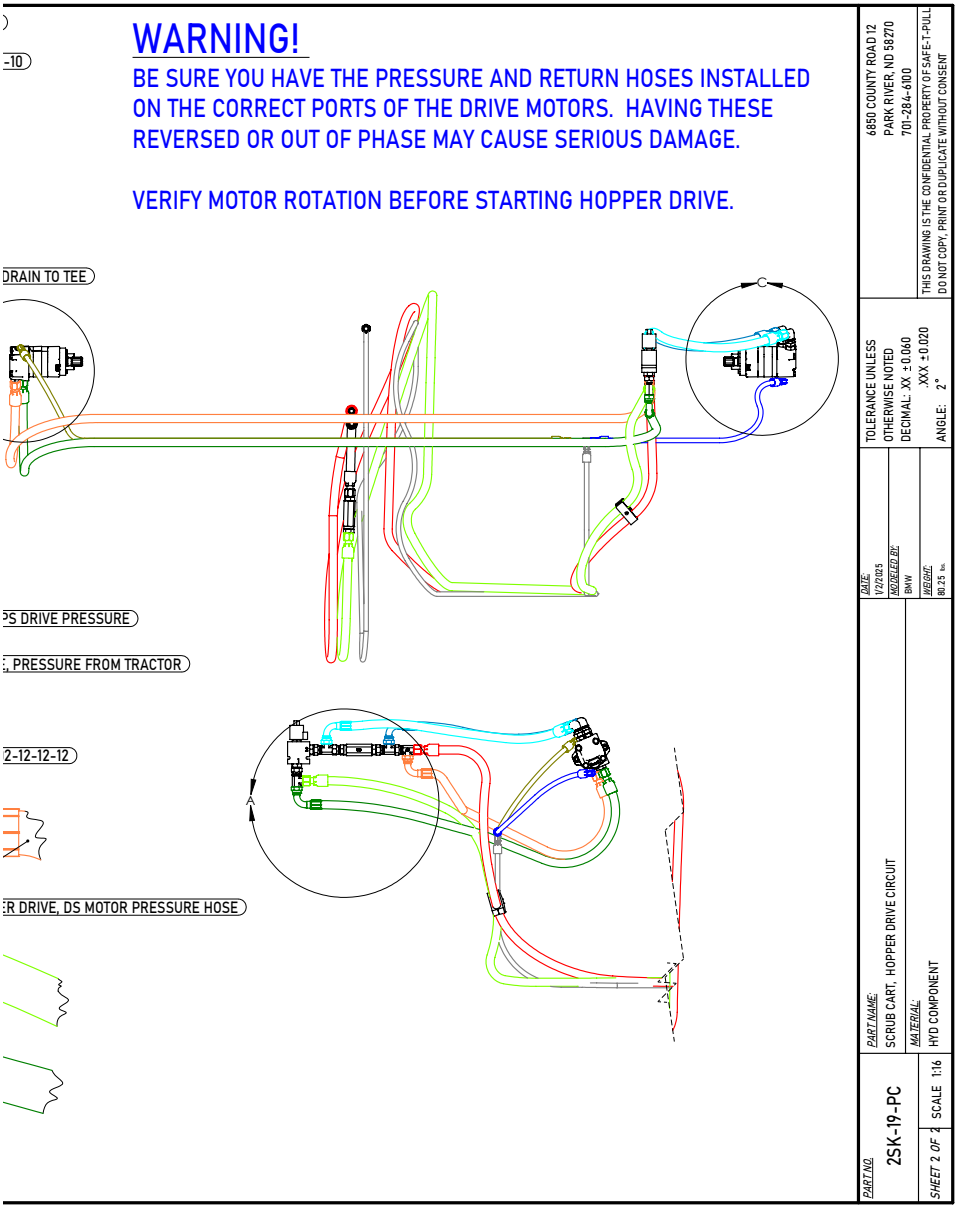
2SK-19V BOM

QTY.	PART NUMBER	DESCRIPTION	HOSE DIAMETER	LENGTH	1ST FITTING	2N
1	2SKA-39	HOPPER DRIVE, DS MOTOR PRESSURE HOSE	3/4	130	12P-12HFJX	12P
1	2SKA-40	HOPPER DRIVE, DS MOTOR RETURN	3/4	139	12P-12HFJX	12P
1	2SKA-41	HOPPER DRIVE, RETURN TO TRACTOR	3/4	300	12P-12HFJX	12
1	2SKA-38	HOPPER DRIVE, PS MOTOR RETURN HOSE	3/4	35	12P-12HFJX	12P
1	2SKA-37	HOPPER DRIVE, PS DRIVE PRESSURE	3/4	27	12P-12HFJX	12P
1	2SKA-36	HOPPER DRIVE, PRESSURE FROM TRACTOR	3/4	324	12P-12HFJX	12
1	2SKA-23	HOPPER DRIVE, DS CASE DRAIN TO TENSION TEE	1/4	114.5	4P-4HFJX	4
1	2SKA-35	HOPPER DRIVE, CASE DRAIN TEE TO TRACTOR	3/8	308	6P-6HFJX	6
1	2SKA-24	HOPPER DRIVE, PS CASE DRAIN TO TEE	1/4	40	4P-4HFJX	4
1	3CSA-33	COMMON, SHORT HOSE AFTER CHECK VALVE	3/4	24	12P-12HFJX	12
5	6400-12-12	12MJ-12MB				
4	6602-12-12-12	12MJ-12FJX-12MJ				
1	6402-12-12	12FJIC-12MB				
2	10312-212	CHECK VALVE, POPPET, 12MB				
2	6500-12-12	12MJ-12FJX90				
4	6400-12-10	12MJ-10MB				
1	2603-06-06-06	06MJ-06MJ-06MJ TEE				
1	6400-08-08	8MJ-8MB				
1	0303-050	FLAT FACE CASE DRAIN FITTING				
2	6400-12-08	12MJ-08MORB STRAIGHT				
2	IA12-M-08S	PIONEER QUICK CONNECT, 1/2" FNPT				


2SKA-38
HOPPER DRIVE, PS MOTOR RETURN HOSE
2SKA-37
HOPPER DRIVE, PS SIDE DRIVE PRESSURE
SV12-21-10T-N-12ERZ
2SKA-39
HOPPER DRIVE, DS MOTOR PRESSURE HOSE
2SKA-40
HOPPER DRIVE, DS MOTOR RETURN
2SKA-24
HOPPER DRIVE, PS CASE DRAIN TO TEE
2SKA-23
HOPPER DRIVE, DS CASE DRAIN TO TENSION TEE
2SKA-40
HOPPER DRIVE, DS MOTOR RETURN
HOPPER DRIVE, DS MOTOR PRESSURE HOSE
2SKA-39
HOPPER DRIVE, CASE DRAIN TEE TO TRACTOR
2SKA-35
ID FITTING
-12FJX90S
-12FJX90S
P-12HFJX
-12FJX90S
-12FJX90S
P-12HFJX
P-4HFJX
P-8HFJX
P-4HFJX
P-12HFJX
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE: 1/27/25
MODIFIED BY: BWW
WEIGHT: 80.25 lbs
PART NAME: SCRUB CART, HOPPER DRIVE CIRCUIT
MATERIAL: HYD COMPONENT
PART NO. 2SK-19-PC
SHEET 1 OF 2
SCALE 1:72

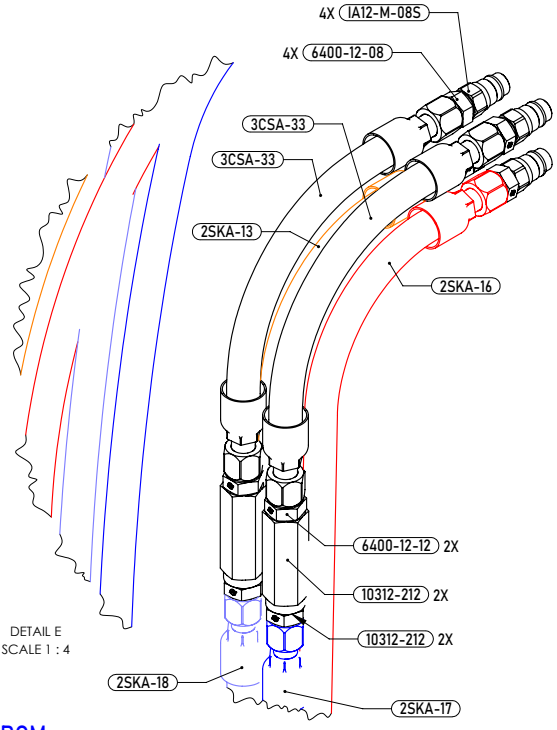
Hydraulic – Hopper Drive




WARNING!
BE SURE YOU HAVE THE PRESSURE AND RETURN HOSES INSTALLED ON THE CORRECT PORTS OF THE DRIVE MOTORS. HAVING THESE REVERSED OR OUT OF PHASE MAY CAUSE SERIOUS DAMAGE.
VERIFY MOTOR ROTATION BEFORE STARTING HOPPER DRIVE.
-10
DRAIN TO TEE
S DRIVE PRESSURE
, PRESSURE FROM TRACTOR
2-12-12-12
R DRIVE, DS MOTOR PRESSURE HOSE
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE: 1/27/25
DRAWED BY: BWW
WEIGHT: 80.25 lbs
PART NAME: SCRUB CART, HOPPER DRIVE CIRCUIT
MATERIAL: HYD COMPONENT
PART NO: 2SK-19-PC
SHEET 2 OF 4
SCALE 1:16

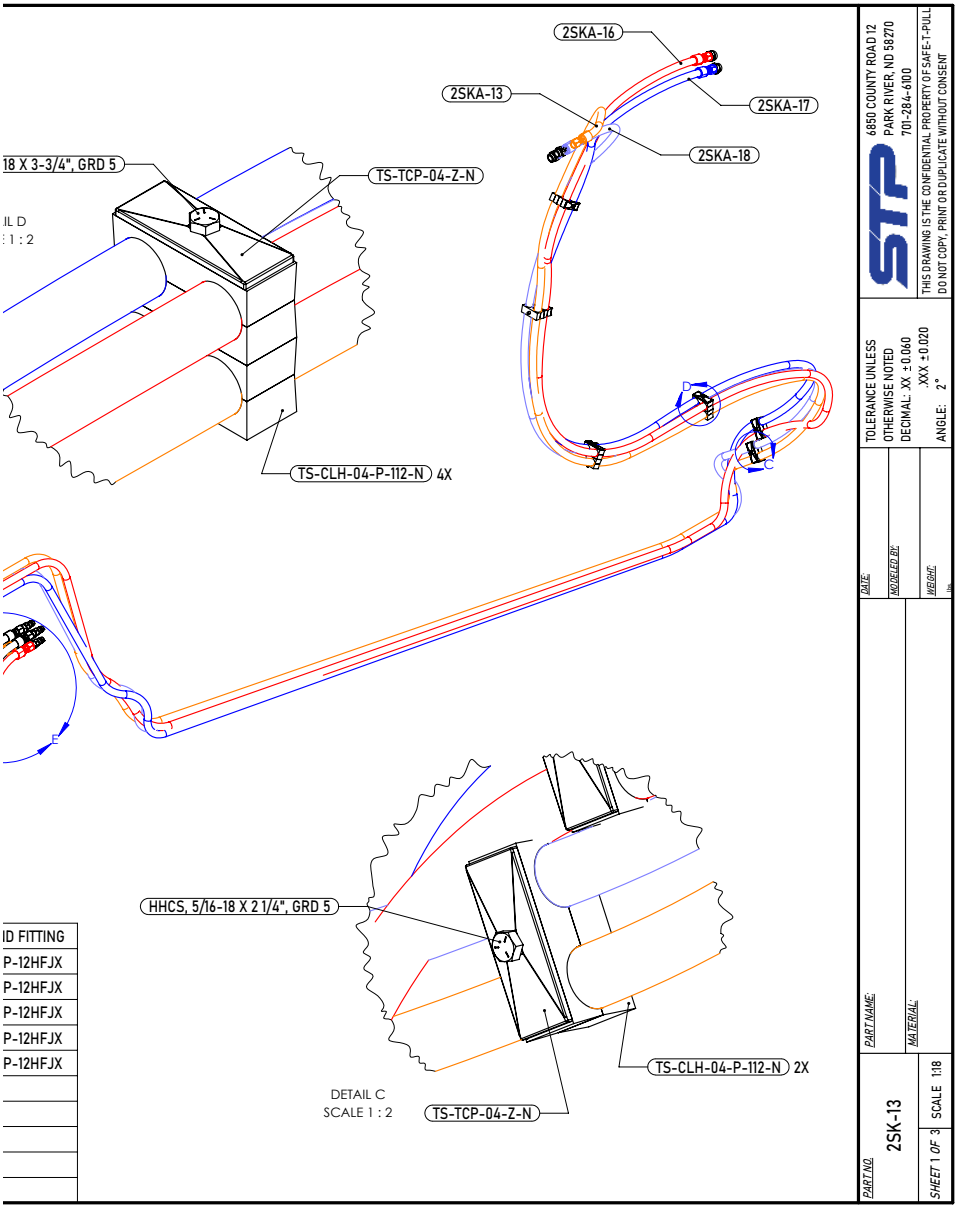
Hydraulic – Scrub Towers Drive

QTY.	PART NUMBER	DESCRIPTION
2	13062	HHCS, 5/16-18 X 2 1/4", GRD 5
4	13068	HHCS, 5/16"-18 X 3-3/4", GRD 5
20	TS-CLH-04-P-112-N	PLASTIC HALVES FOR DLB 3/4" HOSE CLAMPS
6	TS-TCP-04-Z-N	CAP FOR DBL CLAMP 3/4"
1	2SK-13V	2SK-13 VENDOR SUPPLIED KIT

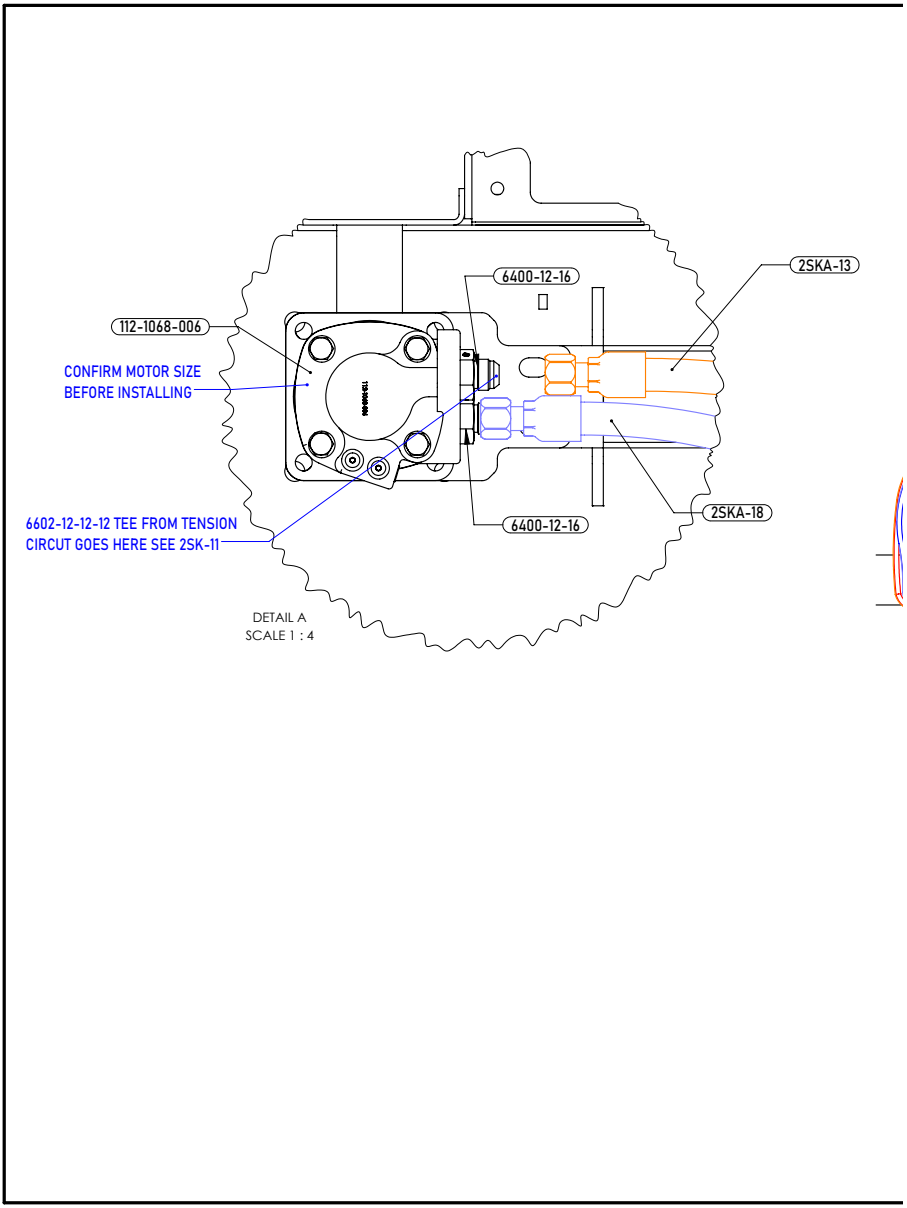


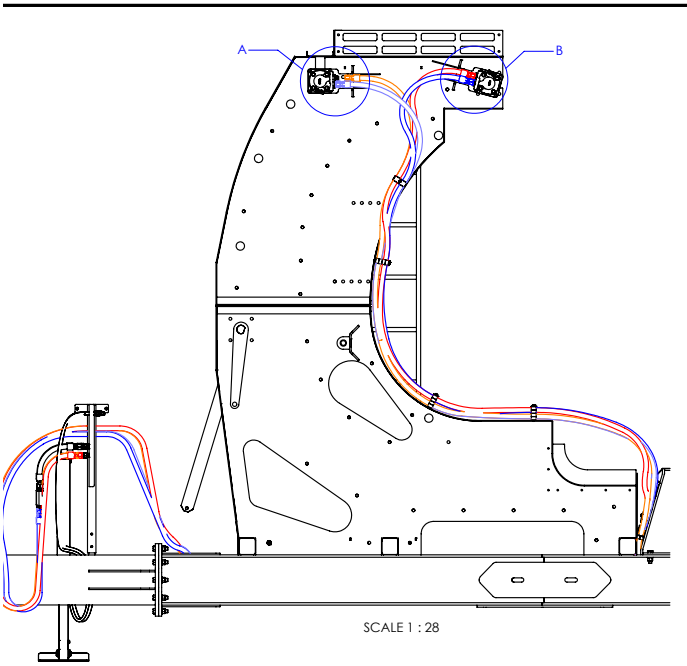
2SK-13V BOM

QTY.	PART NUMBER	DESCRIPTION	HOSE DIAMETER	LENGTH	1ST FITTING	2N
1	2SKA-17	SK, INNER SCRUB MOTOR RETURN	3/4	445	12P-12HFJX	12
1	2SKA-16	SK, INNER SCRUB MOTOR PRESSURE	3/4	471	12P-12HFJX	12
1	2SKA-18	SK, OUTER SCRUB MOTOR RETURN	3/4	440	12P-12HFJX	12
1	2SKA-13	SK, OUTER SCRUB MOTOR PRESSURE	3/4	468	12P-12HFJX	12
2	3CSA-33	COMMON, SHORT HOSE AFTER CHECK VALVE	3/4	24	12P-12HFJX	12
4	1A12-M-08S	PIONEER QUICK CONNECT, 1/2" FNPT				
4	6400-12-08	12MJ-08MORB STRAIGHT				
2	10312-212	CHECK VALVE, POPPET, 12MB				
4	6400-12-12	12MJ-12MB				
4	6400-12-16	12MJ-16MB				

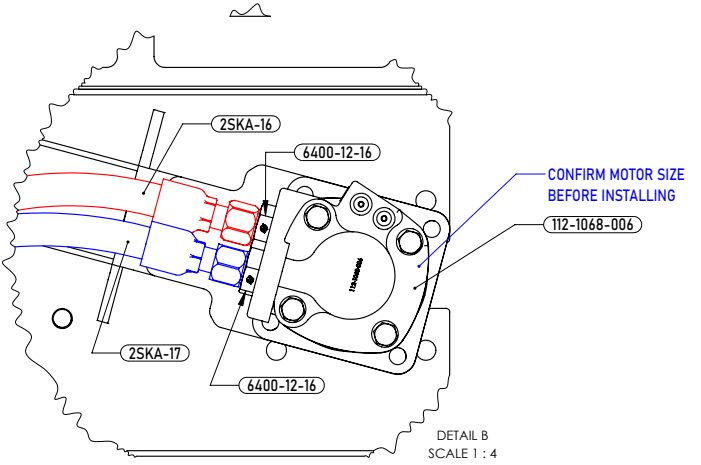

2SKA-16
2SKA-13
2SKA-17
2SKA-18
18 X 3-3/4", GRD 5
TS-TCP-04-Z-N
IL D
: 1 : 2
TS-CLH-04-P-112-N 4X
HHCS, 5/16-18 X 2 1/4", GRD 5
TS-CLH-04-P-112-N 2X
DETAIL C
SCALE 1 : 2
TS-TCP-04-Z-N
ID FITTING
P-12HFJX
P-12HFJX
P-12HFJX
P-12HFJX
P-12HFJX
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE
MODIFIED BY
WEIGHT:
PART NAME:
MATERIAL:
PART NO.
2SK-13
SCALE 1:8
SHEET 1 OF 3

Hydraulic – Scrub Towers Drive





SCALE 1 : 28



DETAIL B
SCALE 1 : 4

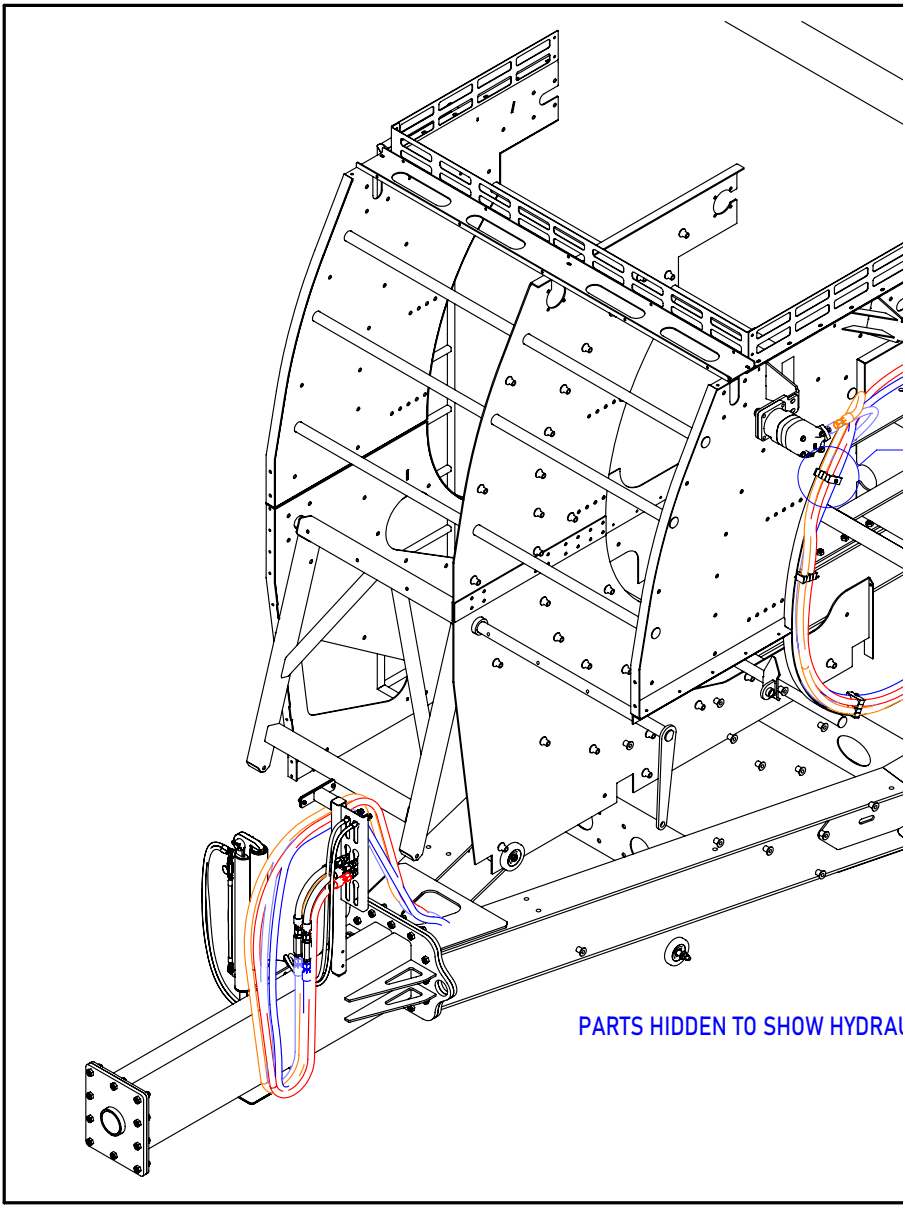
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100

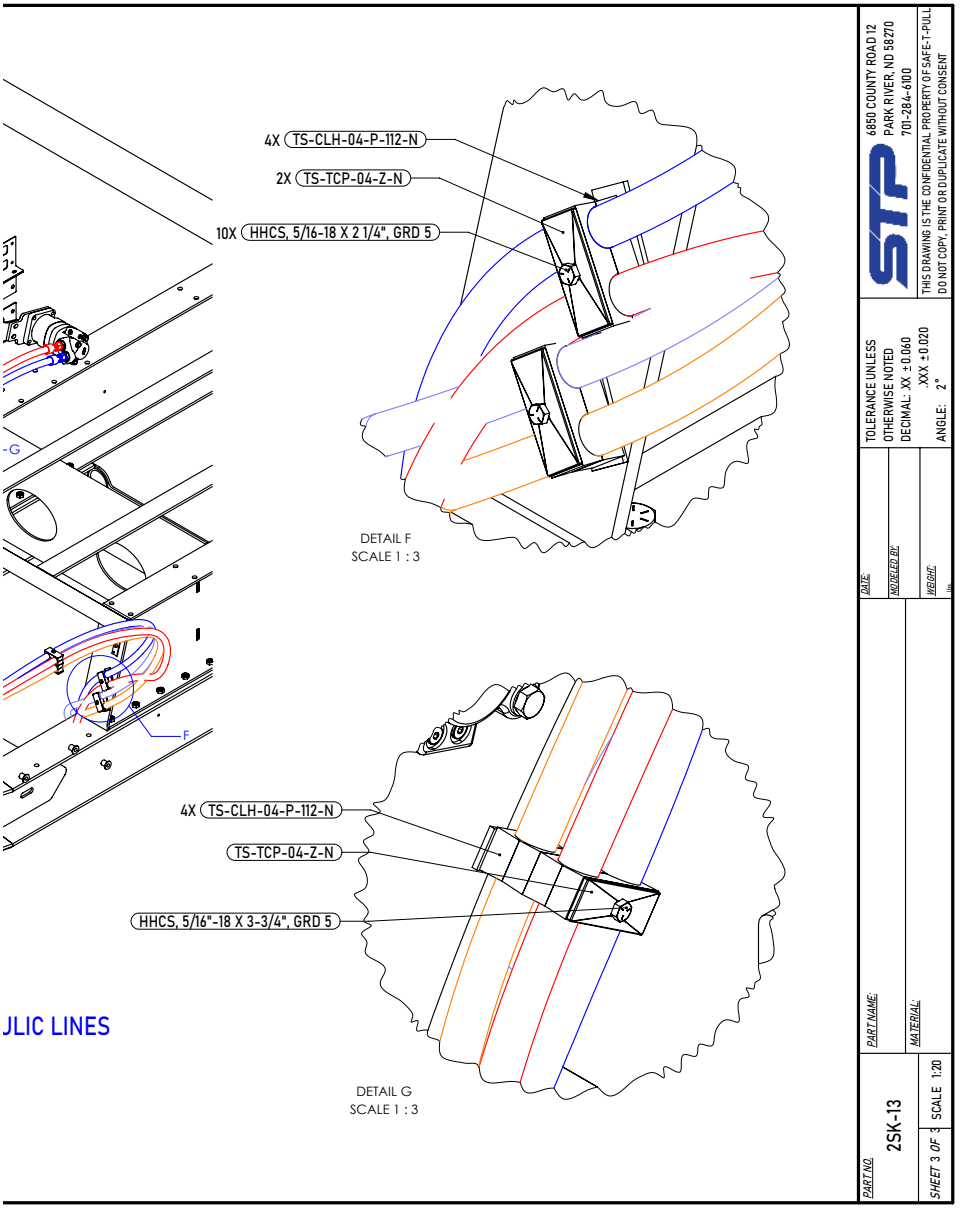
TOLERANCE UNLESS OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°

DATE
DRAWED BY
WEIGHT lbs.

PART NO. 2SK-13
PART NAME:
MATERIAL:
SHEET 2 OF 3 SCALE 1:64

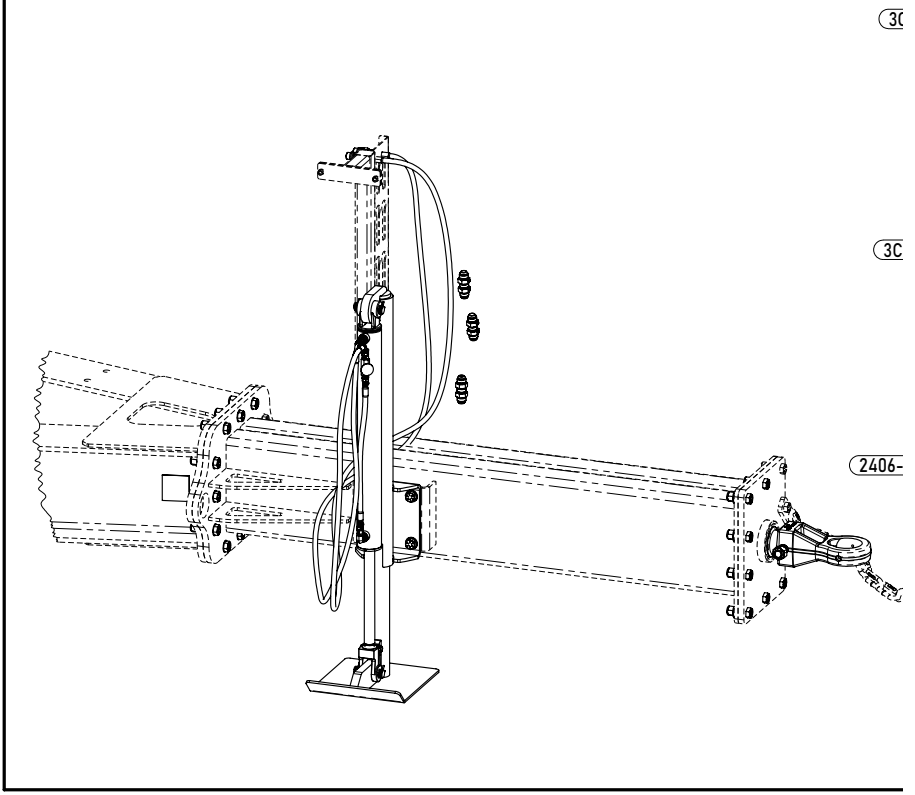
Hydraulic – Scrub Towers Drive



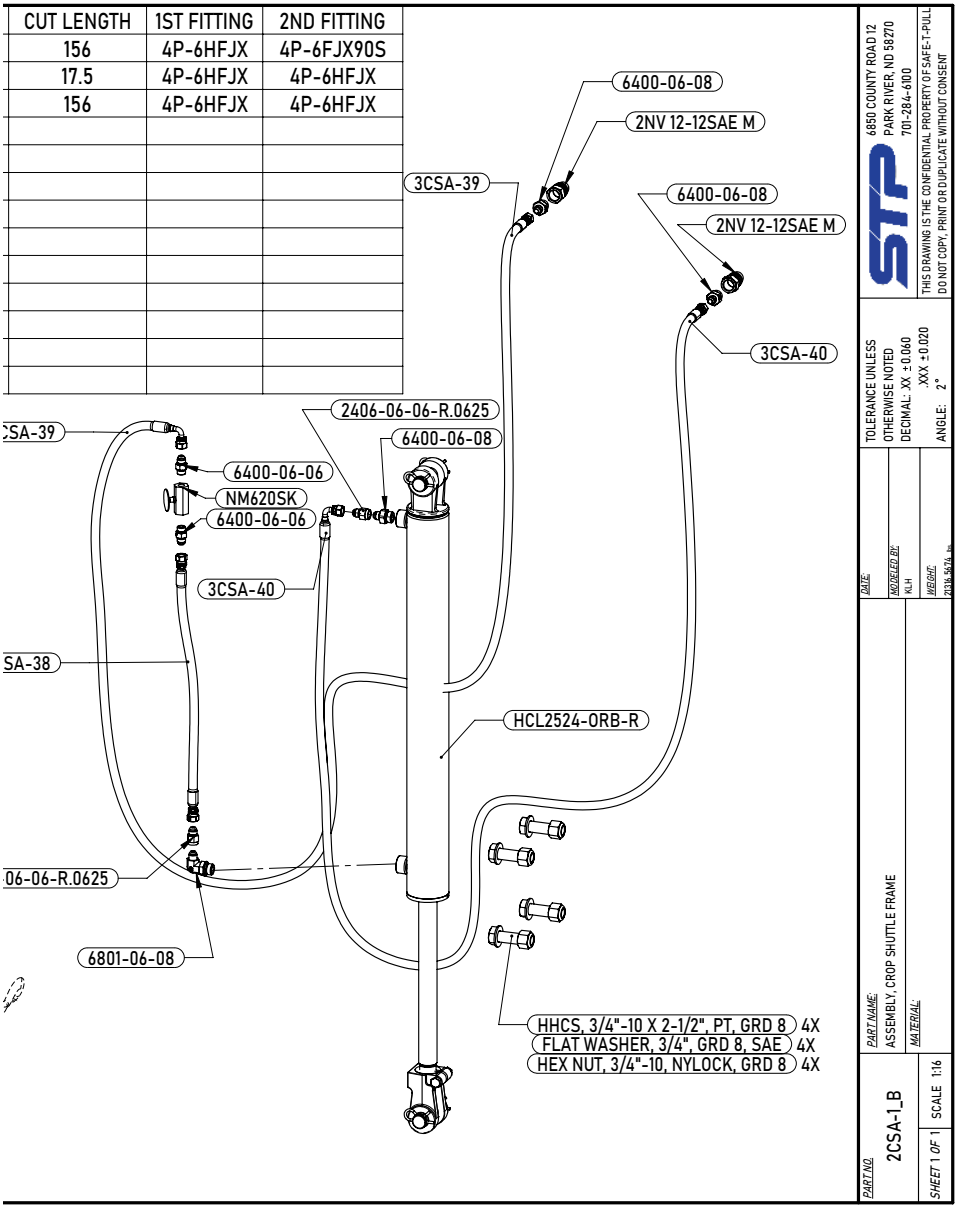

4X TS-CLH-04-P-112-N
2X TS-TCP-04-Z-N
10X HHCS, 5/16-18 X 2 1/4", GRD 5
DETAIL F
SCALE 1 : 3
4X TS-CLH-04-P-112-N
TS-TCP-04-Z-N
HHCS, 5/16"-18 X 3-3/4", GRD 5
DETAIL G
SCALE 1 : 3
JLIC LINES
6850 COUNTY ROAD 12
PARK RIVER, ND 58270
701-284-6100
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SAFE-T-PULL
DO NOT COPY, PRINT OR DUPLICATE WITHOUT CONSENT
TOLERANCE UNLESS
OTHERWISE NOTED
DECIMAL: XX ±0.060
XXX ±0.020
ANGLE: 2°
DATE
MODIFIED BY
WEIGHT:
PART NO.
2SK-13
PART NAME:
MATERIAL:
SHEET 3 OF 3
SCALE 1:20

Hydraulic – Accessory

QTY.	PART NUMBER	DESCRIPTION	HOSE DIAMETER
1	3CSA-39	HOSE, HYDRAULIC	1/4
1	3CSA-38	HOSE, HYDRAULIC	1/4
1	3CSA-40	HOSE, HYDRAULIC	1/4
4	96059	FLAT WASHER, 3/4", GRD 8, SAE	
4	15363	HHCS, 3/4"-10 X 2-1/2", PT, GRD 8	
4	37533	HEX NUT, 3/4"-10, NYLOCK, GRD 8	
2	2406-06-06-R.0625	6FJ-6MJ-R.0625	
1	NM620SK	NEEDLE VAVE, SAE 9/16-18 UNF, 1/4", STEEL, KNOB	
2	2NV 12-12SAE M	HYD FITTING, 1/2" PINONEER TIP - 8010-4	
1	HCL2524-ORB-R	CYL, 2.5" BORE, 1.5" ROD, 24" STROKE, CLEVIS, WELDED	
3	6400-06-08	06MJ-08MORB STRAIGHT	
1	6801-06-08	06MJ-08MAORB 90 ELBOW	
2	6400-06-06	06MJ-06MORB STRAIGHT	



CUT LENGTH	1ST FITTING	2ND FITTING
156	4P-6HFJX	4P-6FJX90S
17.5	4P-6HFJX	4P-6HFJX
156	4P-6HFJX	4P-6HFJX



Maintenance Log

Use the following chart to record periodic maintenance.

DATE	HOURS	TECHNICIAN	SERVICE PERFORMED / COMMENTS