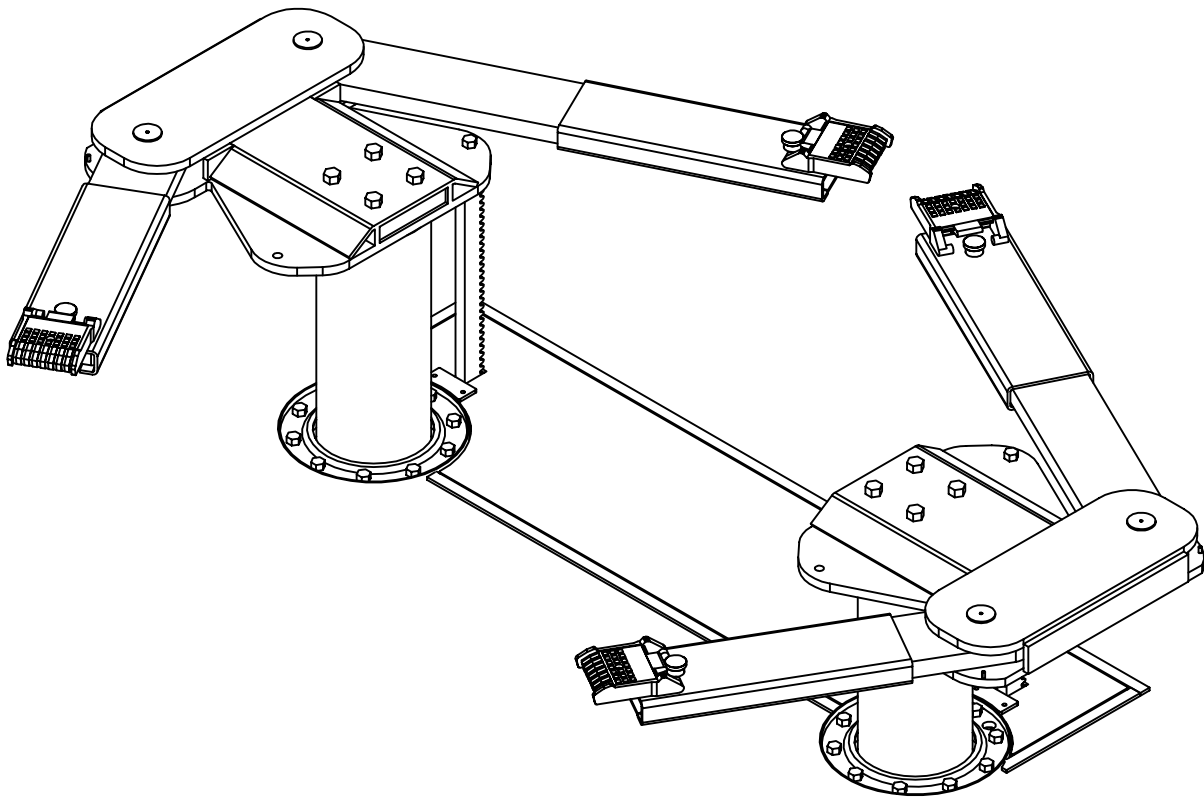




# INSTALLATION INSTRUCTIONS MAINTENANCE & OPERATIONS MANUAL



MODEL: SS-28HP-57-1/2-10C  
CAPACITY: 10,000 LBS.

**ISS** INNOVATIVE  
STEEL SYSTEMS INC.

35 Sinclair Avenue, Georgetown, ON L7G 1J3  
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www.issmfg.com ■ info@issmfg.com

## **SPECIFICATIONS**

Model: SS-28HP-57-1/2-10C.

Capacity: 10,000 lbs. – Max. 2,500 lbs per adapter/arm.

Height of Lift Pads, Lowered: 4-1/4”.

Height of Lift Pads, Raised: 6-1/4”.

Arm retracted length: 23-3/4”.

Arm extended length: 38-1/2”.

Stroke: 70”.

Superstructure: Frame Contact, Swivel Arm.

Air Supply Required: 70 psi.

Power Unit: See Spec Attached.

## **SAFETY INSTRUCTIONS**

1. Read all instructions.
2. Inspect lift daily. Do not operate if it malfunctions or problems have been encountered.
3. Never attempt to overload the lift. The manufacturer's rated capacity is shown on the identification label on top of the superstructure. Do not tie down the air control valve in either "intake" or "exhaust" side.
4. Only trained and authorized personnel should operate the lift. Do not allow customers or bystanders to operate the lift or be in the lift area.
5. Position the lift support pads to contact the vehicle manufacturer's recommended lifting points. Raise the lift until the pads contact the vehicle. Check pads for secure contact with the vehicle, then raise the lift to the desired working height.
6. Some pickup trucks may require an optional truck adapter to clear running boards or other accessories. Note: Always use all 4 arms to raise and support vehicle.
7. Caution! Never work under the lifts unless the mechanical safety locks are engaged.
8. Note that the removal or installation of some vehicle parts may cause a critical load shift in the center of gravity and may cause the vehicle to become unstable. Refer to the vehicle manufacturer's service manual for recommended procedures.
9. Always keep the lift area free of obstructions and debris. Grease and oil spills should always be cleaned up immediately.
10. Never raise vehicle with passengers inside.
11. Before lowering check area for any obstructions.
12. Before driving vehicle over the lift, position the arms to the drive-over position to ensure unobstructed clearance. Do not hit or run over as this could damage the lift and/or vehicle.
13. Before removing the vehicle from the lift area, position the arms to the drive-over position to prevent damage to the lift and/or vehicle.
14. Care must be taken as burns can occur from touching hot parts.
15. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
16. Adequate ventilation should be provided when working on operating internal combustion engines.
17. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
18. Use only as described in this manual. Use only manufacturer's recommended attachments.
19. Always wear safety glasses. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.

**SAVE THESE INSTRUCTIONS**

## **LIFTING THE VEHICLE**

Before you lift any vehicle, you have to know how to find its center of gravity. The center of gravity is the point between the front and rear of the vehicle where the weight is distributed equally.

Each vehicle you lift will have a different center of gravity due to:

- Wheel base.
- Location of drive train.
- And other factors.

In most cases, the center of gravity on rear wheel drive passenger cars is below the driver seat. On front wheel drive passenger cars the center of gravity is slightly in front of the driver's seat. The lifting pads should be positioned according to the vehicle manufacturer's instructions – if these instructions are not available, or if the designed lift points have been altered or damaged in any way, contact your supervisor or vehicle manufacturer's representative for instructions. Keep the center of gravity of the vehicle equally spaced between the lifting pads. Be aware that the center of gravity shifts if major vehicle components are removed.

## INSTALLATION OF HOIST

1. Prior to the initial excavation, determine the exact hoist location and make sure that proper working space and clearance is available. For suggested dimensions, see typical garage layout, refer to drawing 128179. Check for ceiling clearance, normally 11' 6" is adequate.

The excavation should be made to a depth of approximately 96 inches and about 36" wide by 88" long. Refer to drawings 128179.

A concrete footing approximately 36 inches by 88 inches and at least 6 inches thick should be poured at the bottom of the excavation. The top of the footing should be **88-1/2** inches minimum below the finished floor grade for the cassette models. See drawing 128179. Dig trench for conduits.

2. Fasten rope, cable or chain to the cylinder box and lower into the excavation. Set the top of the cylinder, 3/8" above the finished floor as shown on drawing 128179.

Block hoist in position. Using at least a 5 foot level, check for plumb at top of cylinder. Check in both directions, when satisfied with both plumb and blocking, pour at least 6 inches of concrete grout in the bottom of the hole. Allow the concrete to harden, re-check that the hoist is plumb and anchored firmly in the footing.

Remove shipping strap and install 2.0" ABS conduit.

3. Backfill excavation with clean, dry sand to a 12 inches minimum from the top of the cylinder.

**Note: Clean dry sand is recommended in order for the drains to work properly. If clay is used for backfill, optional flexible hoses are recommended to connect from 1" NPT couplings to infrastructure drains already existing in the garage/shop. See drawing 128179.**

Pour floor maintaining surface 3/8 of an inch below the plunger top. Allow floor to harden.

4. Connect the motor to the main power supply with the appropriate overload protection. Assemble hydraulic and air lines per drawings (128098).

## **OIL FILLING AND BLEEDING**

1. Fill the power unit reservoir with 7-1/2 litres (250 ounces) of ISO 32 hydraulic oil (10 weight hydraulic oil).
2. Connect both cylinders to power unit. See drawing 128098 for reference.
3. Turn on the power unit and run the cylinders up and down for approximately ten times to eliminate air trapped in cylinders as much as possible.

**NOTE:** If oil is very aerated or white, don't use it, replace it.

## **BOLSTER ASSEMBLY**

1. Bolt bolster to plunger with four 3/4" x 4" long hex head bolt.
2. Bolt safety and equalize rack to bolster with 5/8" x 2" long hex head bolt.
3. Lubricate arm support surface of bolster and arm. Slide it in recess of bolster and fasten it with arm pin. See drawing 128188.
4. Insert hex bolt, 1/2 x 1-1/2 into the outward end of the arm and slide sleeve onto arm with pad assembly facing outward of hoist. Hex bolt (Drop pin) prevents sliding of sleeve and pad from arm during adjustment of pad for car contacts.
5. Re-check the following:
  - A. Bolts are at 110 ft.lbs. torque.
  - B. Sleeves slide on arms freely.
  - C. Pads rotate in all directions.
  - D. Pads move in three upward positions.
  - E. Arms turn left and right.
  - F. Stabilizer racks do not bind.

## MAINTENANCE

- Remove rack cover and grease stabilizer bearings and teeth of rack **monthly**.
- Remove 1/8 NPT plugs located at top of bearing sleeves, add hydraulic oil through hole for plunger lubrication every **60 days**. See drawing 128194.

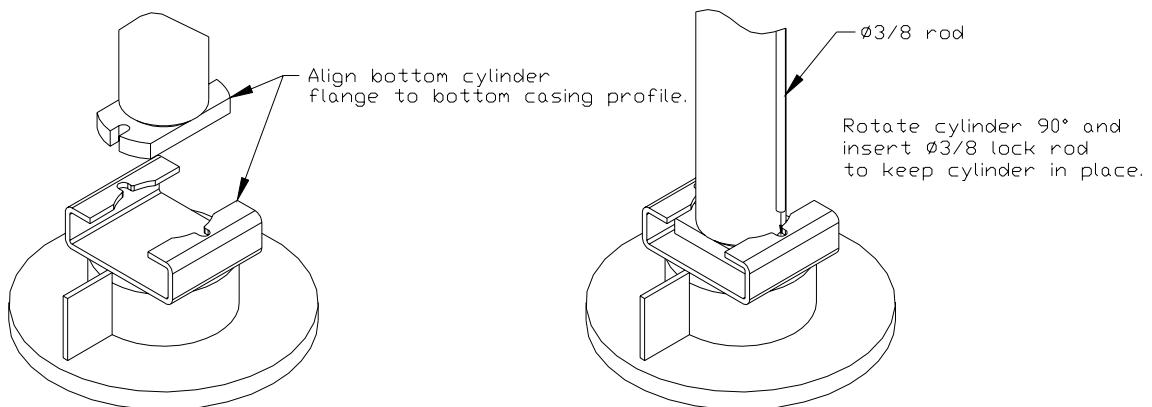
### Periodically:

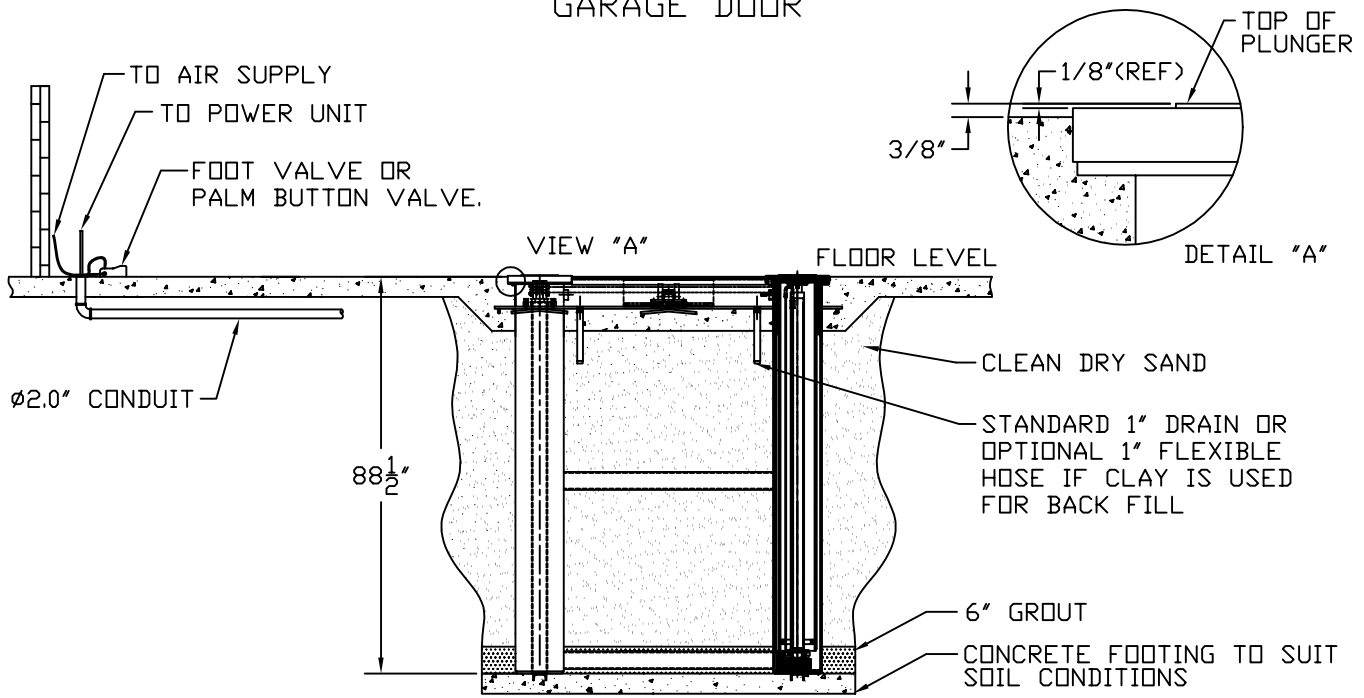
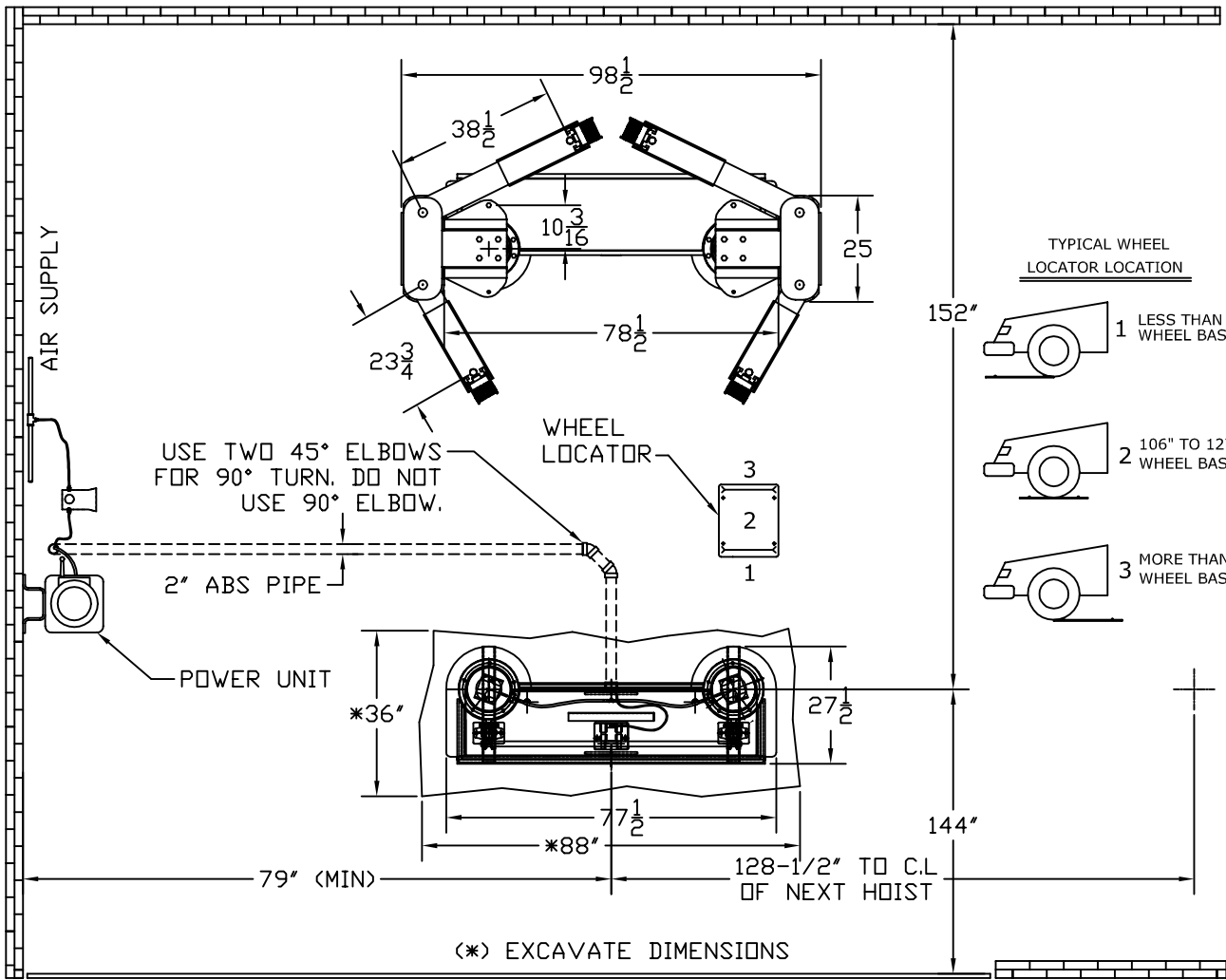
- A. Check oil level and refill if necessary.
- B. Lubricate tongue of bolster arms.
- C. If arms will not rotate freely, clean areas of contact between arm and bolster. Re-lubricate them and re-assemble. If necessary re-tighten bolts holding bolster to cylinder.

## HYDRAULIC CYLINDER REPLACEMENT/SERVICING

Hydraulic cylinder can be removed without removal of plunger for replacement or servicing. ( see drawing 219735 for the following. )

1. Un-bolt two F.H.C.S, 3/8 x 1-1/2 and 1/2 x 1-1/2 (item 11 & 28) and remove plunger cover. (item 9)
2. Un-bolt one 1/2" x 2" long hex head bolt and remove 1/2" washer and sleeve. (item 10,13,15)
3. Disconnect hydraulic hose located at the top of hydraulic cylinder. (item 23)
4. Remove 3/8" lock rod(item 25). This will allow the hydraulic cylinder to rotate freely.
5. Rotate hydraulic cylinder approximately 90 degree and lift cylinder up and out from plunger for replacement or servicing.
6. To install cylinder, lower cylinder slowly and carefully into the plunger and line up cylinder bottom flange to bottom casing profile. Once cylinder touched bottom plate, rotate cylinder approximately 90 degree. Insert 3/8 lock rod and lock cylinder in place. See drawing below.





REV. C

This disclosure is to be maintained in confidence. All invention rights disclosed herein reserved by I.S.S.  
**ISS INNOVATIVE STEEL SYSTEMS INC.**

TITLE **INSTALLATION LAYOUT**  
 SS-28HP-57-1/2-10C

DATE **MAY 9 2006**

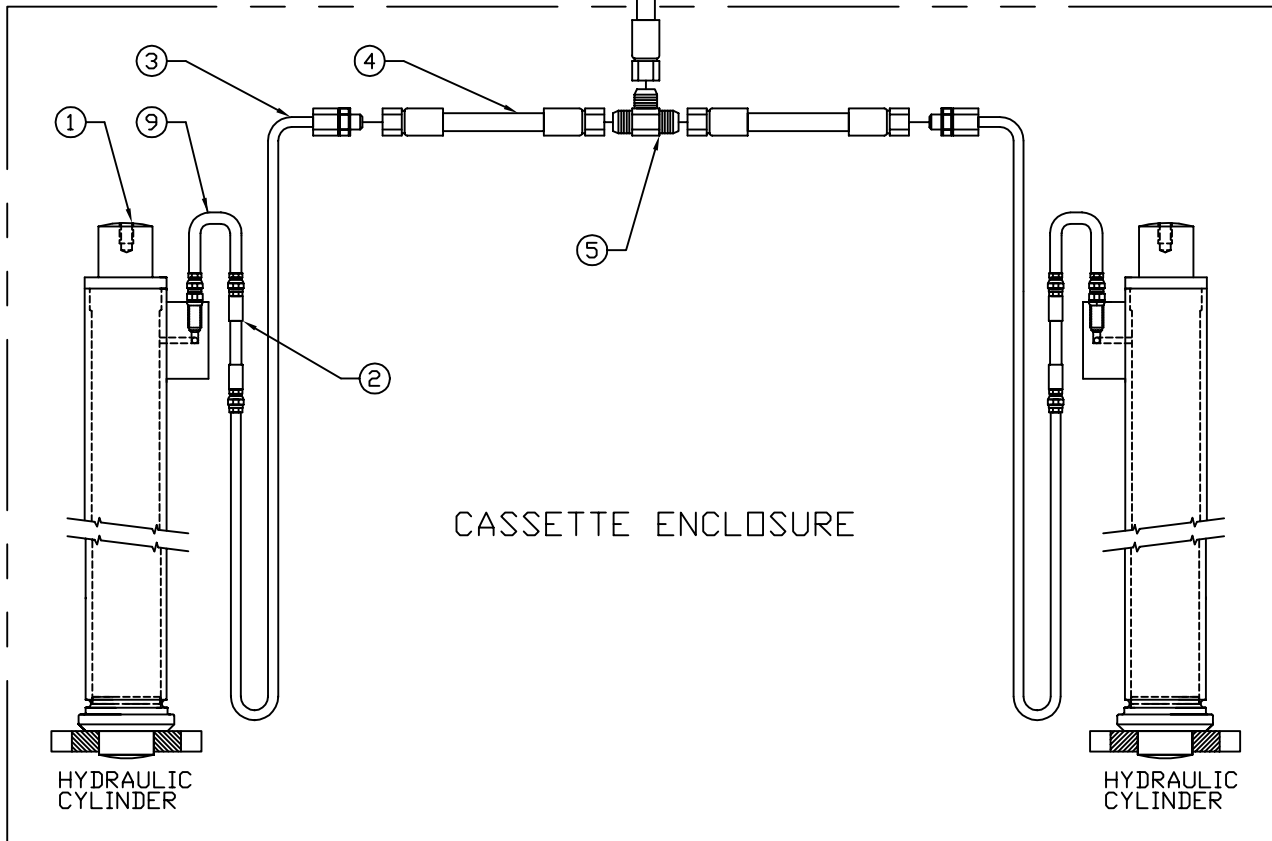
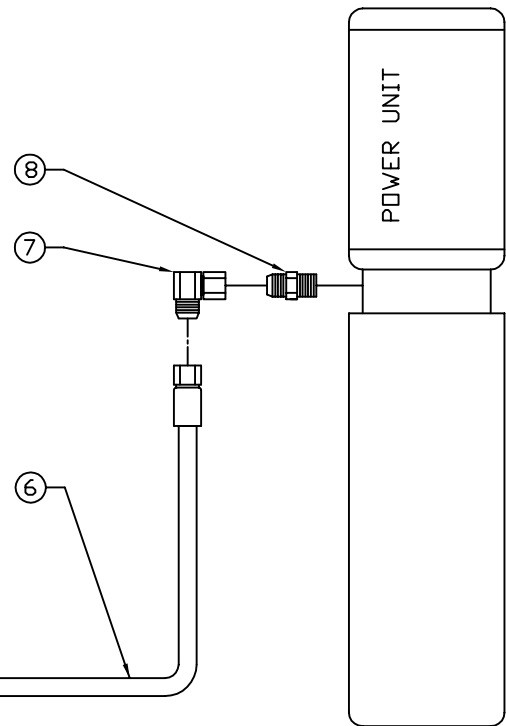
DWG. **128179**

# HYDRAULIC CIRCUIT

## SS-28/210HP

1. Connect all hydraulic lines as shown below.
2. Torque JIC hose fitting to 10-12 ft.lb.  
DO NOT OVER TIGHTEN.
3. Run hoist up and down approximate 10 times to get rid of air in cylinders.

ITEM	QTY	PART #	DESCRIPTION
1	2	218940	HYD CYLINDER (Ø2-1/2" RAM)
	2	218068	HYD CYLINDER (Ø2.0" RAM)
2	2	-	HOSE, #6JIC (M) to #6JIC (SW.F) (11')
3	2	-	HYD TUBING, 3/8 O.D
4	2	-	HOSE, #6JIC (SW.F) to #6JIC (SW.F)
5	1	-	TEE, #6 JIC (MALES)
6	1	-	HYD HOSE, 3/8-#6JIC (SW.F-BOTH ENDS) (20ft)
7	1	-	ELBOW, #6JIC (SW.F) to #6JIC (M)
8	1	-	ADAPTER, #6JIC (M) to #6SAE O-RING (M)
9	2	-	U CRIMP, #6JIC (F) BOTH ENDS



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**ISS INNOVATIVE**  
STEEL SYSTEMS INC.

TITLE

HYDRAULIC CIRCUIT  
SS-28/210HP

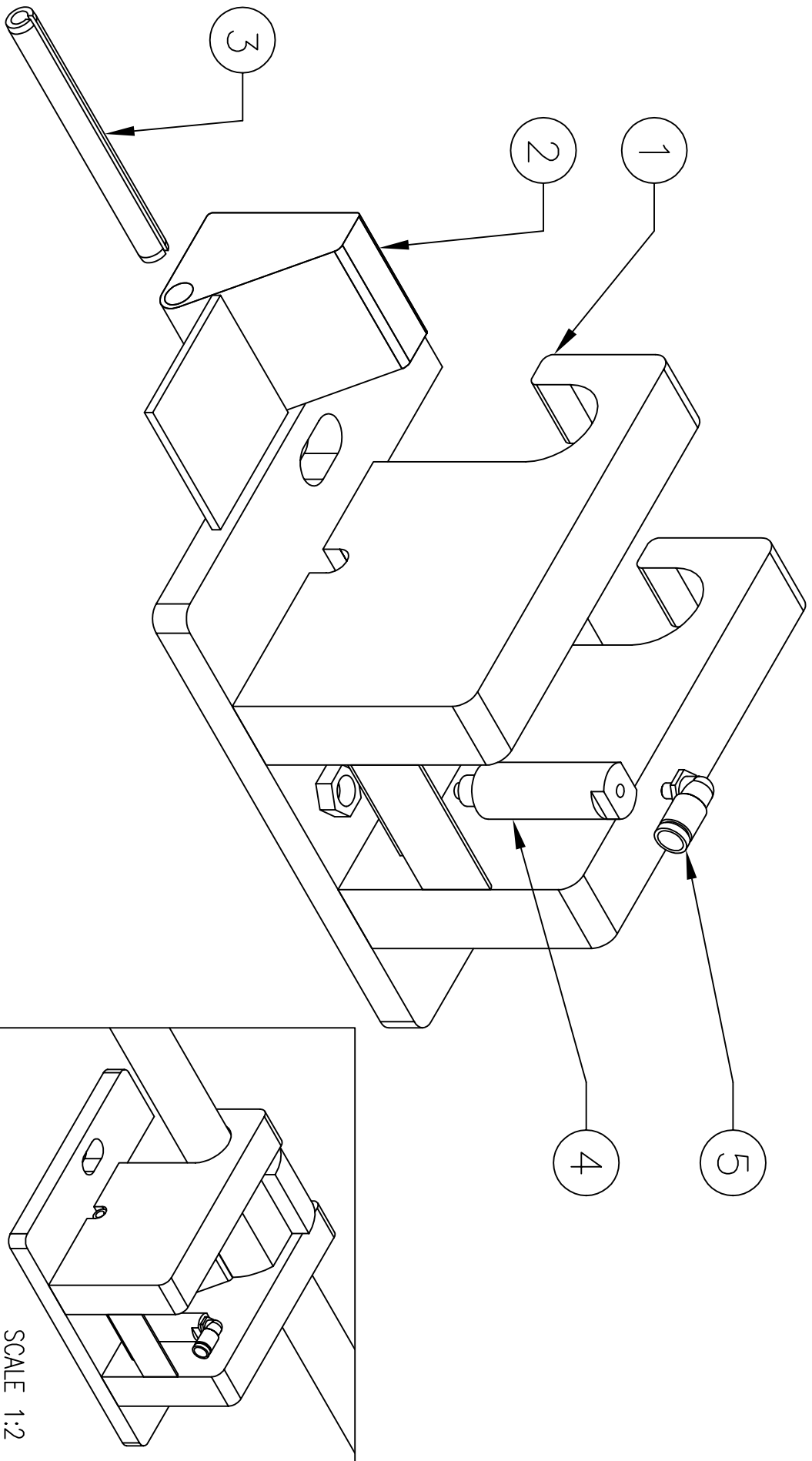
REV.

B

DWG.

128098

NO.	PART #	QTY	DESCRIPTION	DIMENSION	CUT LENGTH	MAT'L.	WT	OPERATION
01	219550	1	LATCH HOUSING(SS210)					SEE DWG.
	219133	1	LATCH HOUSING(SS28)					SEE DWG.
02	219131	1	LATCH WELDMENT			44W		SEE DWG.
03	N/A	1	SPRING PIN, 3/8 x 4 LG.					PURCHASE
04	13664	1	ELBOW,#10-32UNF(M)-1/4 O.D. TUBE					PURCHASE
05	219207	1	AIR CYL.					PURCHASE

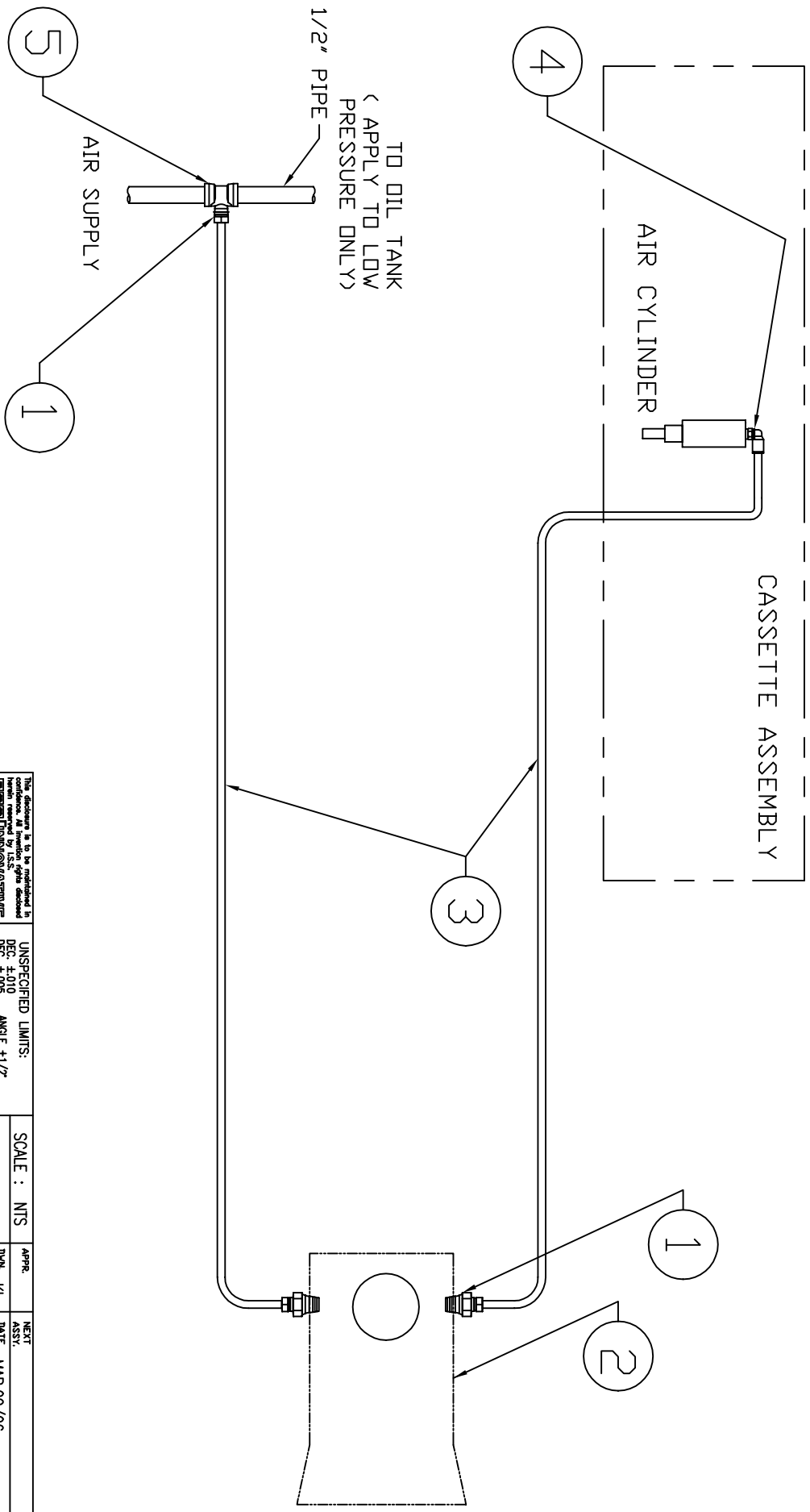


REV	ZONE	DESCRIPTION	E.C.N. NO.	DATE	BY	CHKD
C		DESIGN CHANGED		NOV 29/05	KL	WP
B		AIR CYL. CHANGED.		APR 12/05	KL	
		REVISION DESCRIPTION				

<small>This disclosure is to be maintained in confidence. All invention rights reserved herein are reserved by <b>INNOVATIVE STEEL SYSTEMS INC.</b></small>		<small>UNSPECIFIED LIMITS: DEC. ±.015 ANGLE ±1/2° FRC. ±1/16</small>
<b>LATCH ASSEMBLY</b>		<small>SCALE : NTS</small>
<b>SS-210/28</b>		<small>APPR. WP. DATE</small> <small>DWN. KL. DATE</small> <small>SFT. 1 DWG. 219552</small> <small>OF 1</small>

NO.	PART #	QTY	DESCRIPTION	DIMENSION	CUT LENGTH	MAT'L.	WT	OPERATION
01	N/A	3	THREAD FITTING	1/4 NPT (M) TO 1/4 O.D TUBE				PURCHASE
02	N/A	1	1/4" AIR FOOT VALVE					PURCHASE
03	N/A	1	1/4 O.D TUBE		25 FEET			PURCHASE
04	N/A	1	ELBOW	#10-32UNF(M) TO 1/4 O.D TUBE				PURCHASE
05	N/A	1	TEE	1/2" x 1/4" x 1/2"				PURCHASE

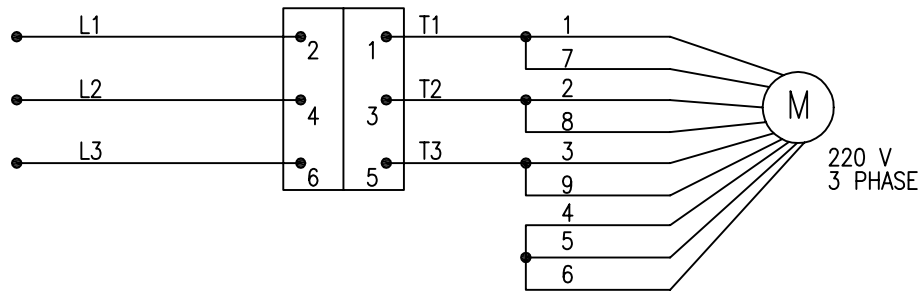
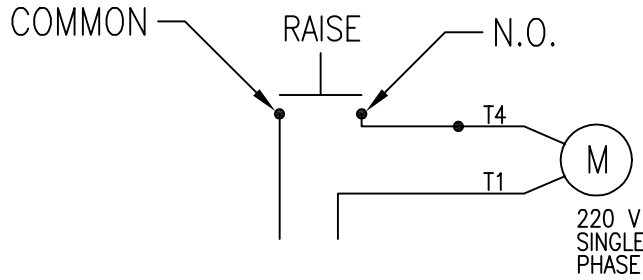


REV	ZONE	REVISION DESCRIPTION	E.C.N. NO.	DATE	BY	CHKD	TITLE	SCALE	APPR.	NEXT
							AIR LATCH KIT	NTS	DVN. KL	DATE
							SS 28/210 (LOW/HIGH PRESSURE)		SHT. 1	DWG. 219665

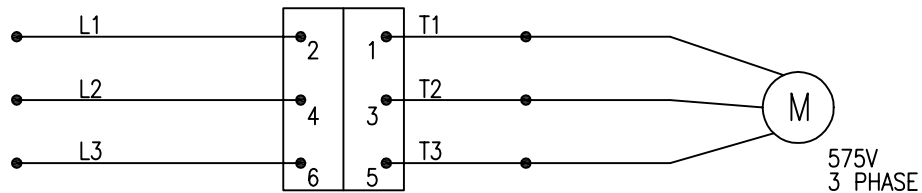
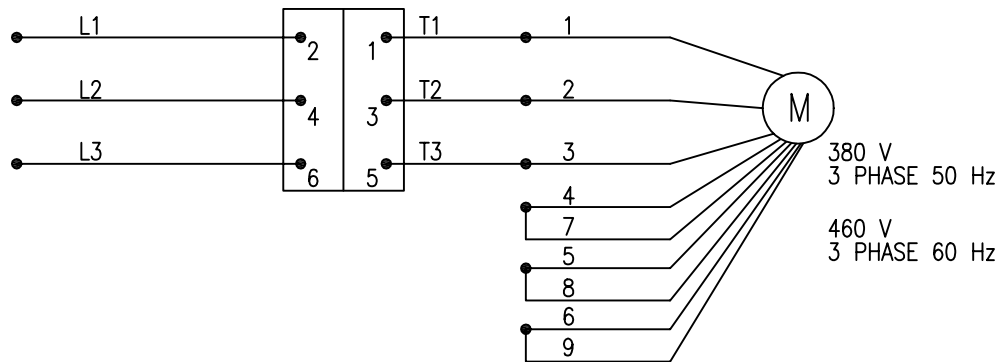
This document is to be reproduced in whole or in part without the written consent of ILS Innovative Steel Systems Inc.  
**ILS INNOVATIVE STEEL SYSTEMS INC.**  
 UNSPECIFIED LIMITS:  
 DEC. ±.010 ANGLE ±.1/2"  
 RMC. ±.1/16"

# ELECTRICAL CONNECTION

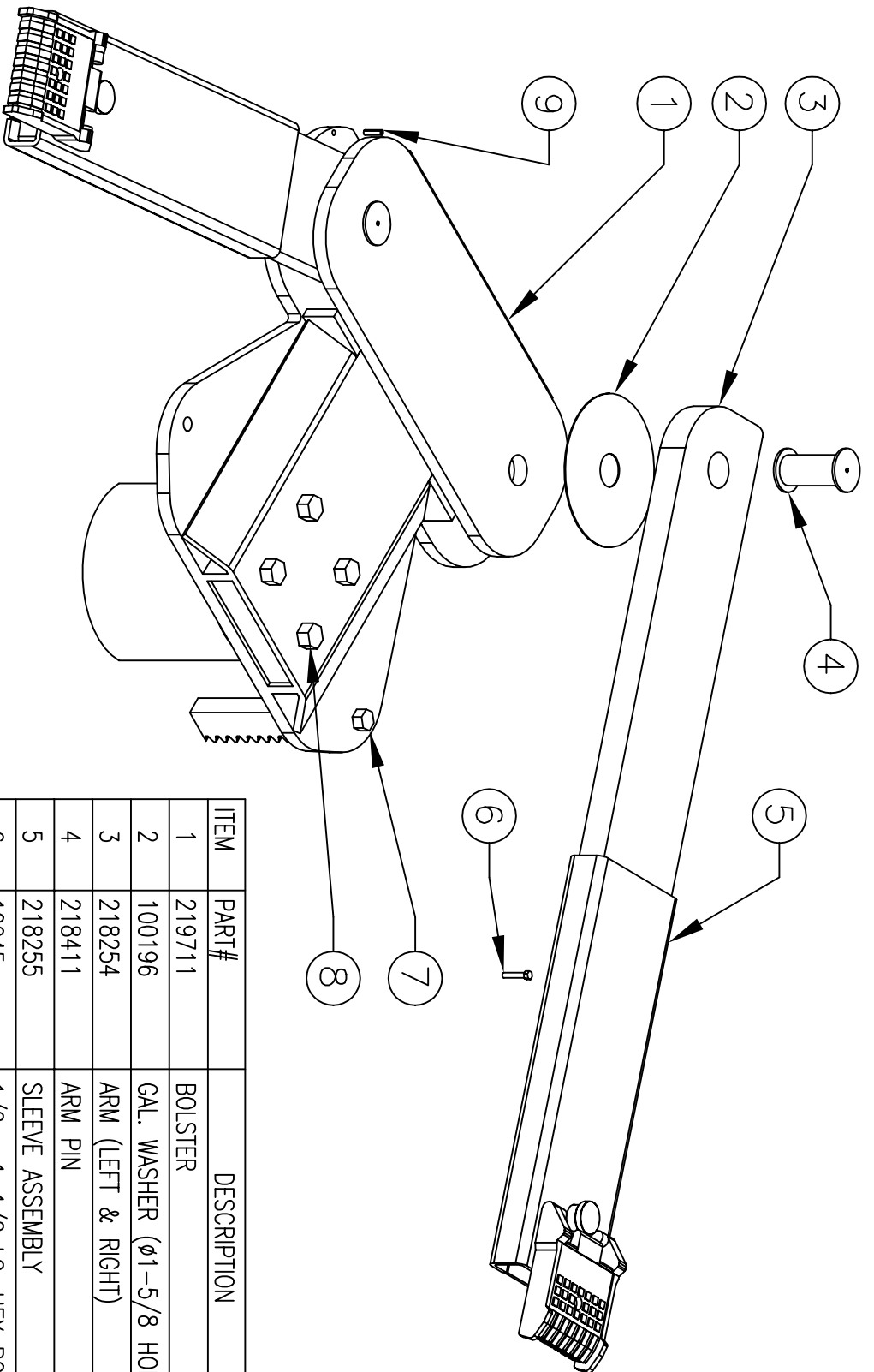
NOTE: WIRING FUSES AND DISCONNECTS MUST BE DONE IN ACCORDANCE WITH LOCAL CODES AND BY A CERTIFIED ELECTRICIAN.



NOTE:  
GROUND SCREW LOCATED  
IN MOTOR WIRING BOX



ELECTRIC CIRCUIT DIAGRAMS  
HYDRAULIC ELECTRIC POWER UNITS



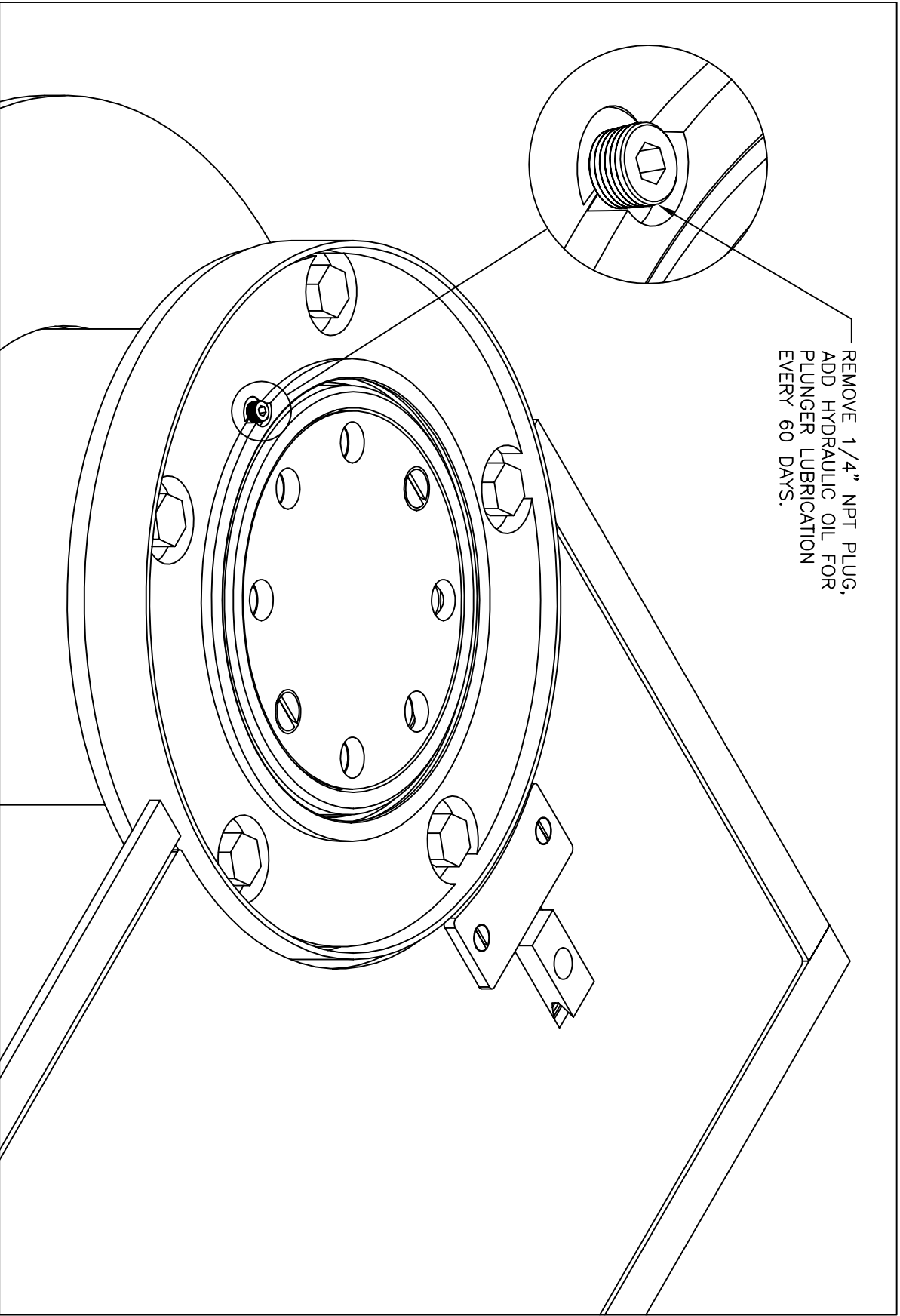
ITEM	PART#	DESCRIPTION
1	219711	BOLSTER
2	100196	GAL. WASHER (Ø1-5/8 HOLE)
3	218254	ARM (LEFT & RIGHT)
4	218411	ARM PIN
5	218255	SLEEVE ASSEMBLY
6	10045	1/2 x 1-1/2 LG. HEX BOLT
7	10060	HEX BOLT, 5/8 x 2
8	11169	HEX BOLT, 3/4 x 4
9	12527	ROLL PIN, 1/4 x 1

This document is to be maintained in confidence. All drawings to be released in accordance with the release schedule.

UNDESIGNED LIMITS:  
 DEC. ±.010 ANGLE ±1/2°  
 DEC. ±.005 ANGLE ±1/2°  
 FRAC. ±1/16

TITLE: BOLSTER & ARM ASSEMBLY  
 E.C.N. NO.: SS-28-57-1/2-10C  
 DATE: \_\_\_\_\_  
 BY: CHKD  
 SFT. 1 OF 1  
 DWG. 128188

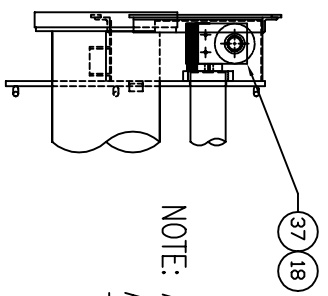
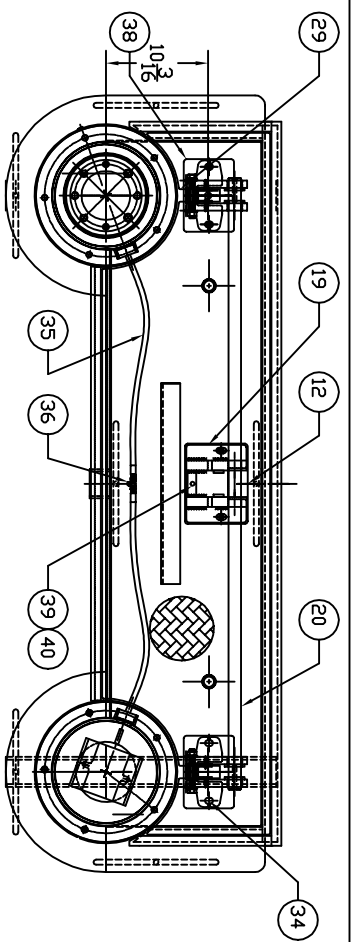
REMOVE 1/4" NPT PLUG,  
 ADD HYDRAULIC OIL FOR  
 PLUNGER LUBRICATION  
 EVERY 60 DAYS.



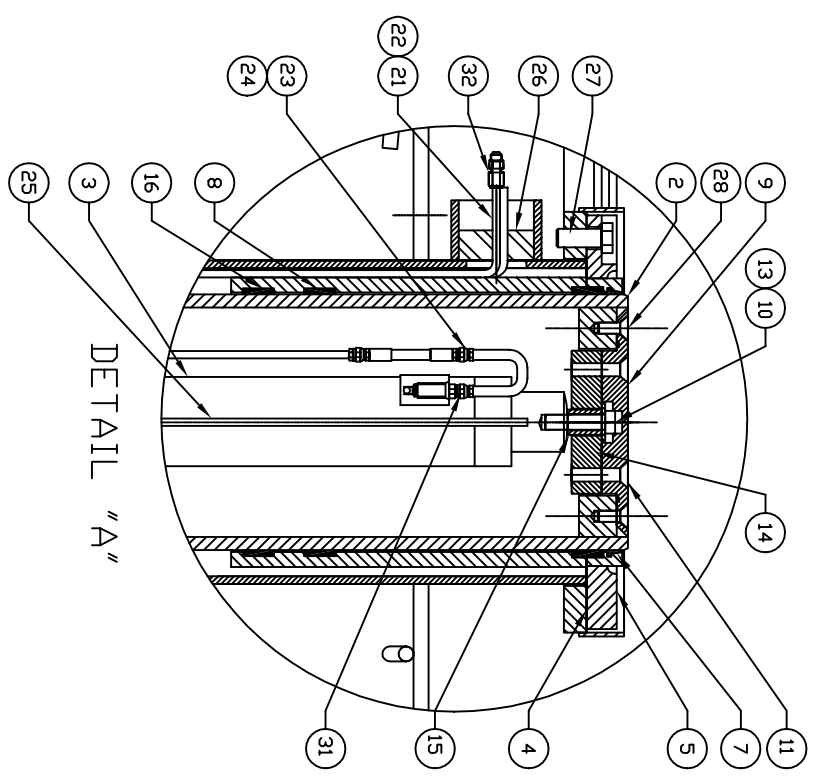
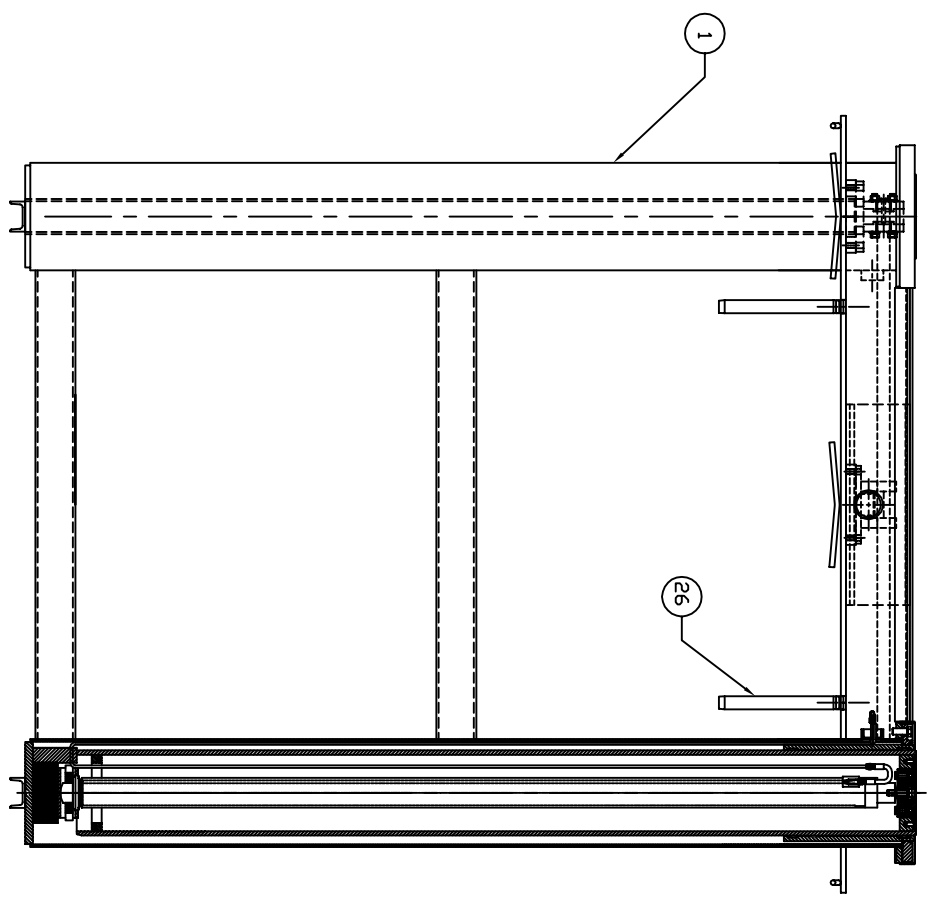
NOTE: MODEL SHOWN IS SS-28HP-57-1/2-10C

REV. ZONE	REVISION DESCRIPTION	E.C.N. NO.	DATE	BY	CHKD	TITLE	UNSPECIFIED LIMITS:	SCALE :	APPR.	ASST.
						PLUNGER LUBRICATION	DEC. ±.010 DEC. ±.005 FAC. ±1/16	NTS	DMT. KL	DATE
						ALL HIGH PRESSURE MODEL	ANGLE ±1/2		SHT. 1	AUG 16/05
									1	128194

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 North America only. It is not to be  
 distributed outside of the U.S.A.  
**TIERS INNOVATIVE**  
 STEEL SYSTEMS INC.



NOTE: ASSEMBLE STABILIZER ASSEMBLY,  
ALIGN AND WELD SPACER BLOCKS  
TO BASE PLATE.



DETAIL "A"

REV	ZONE	REVISION DESCRIPTION	E.C.N. NO.	DATE	BY	CHKD

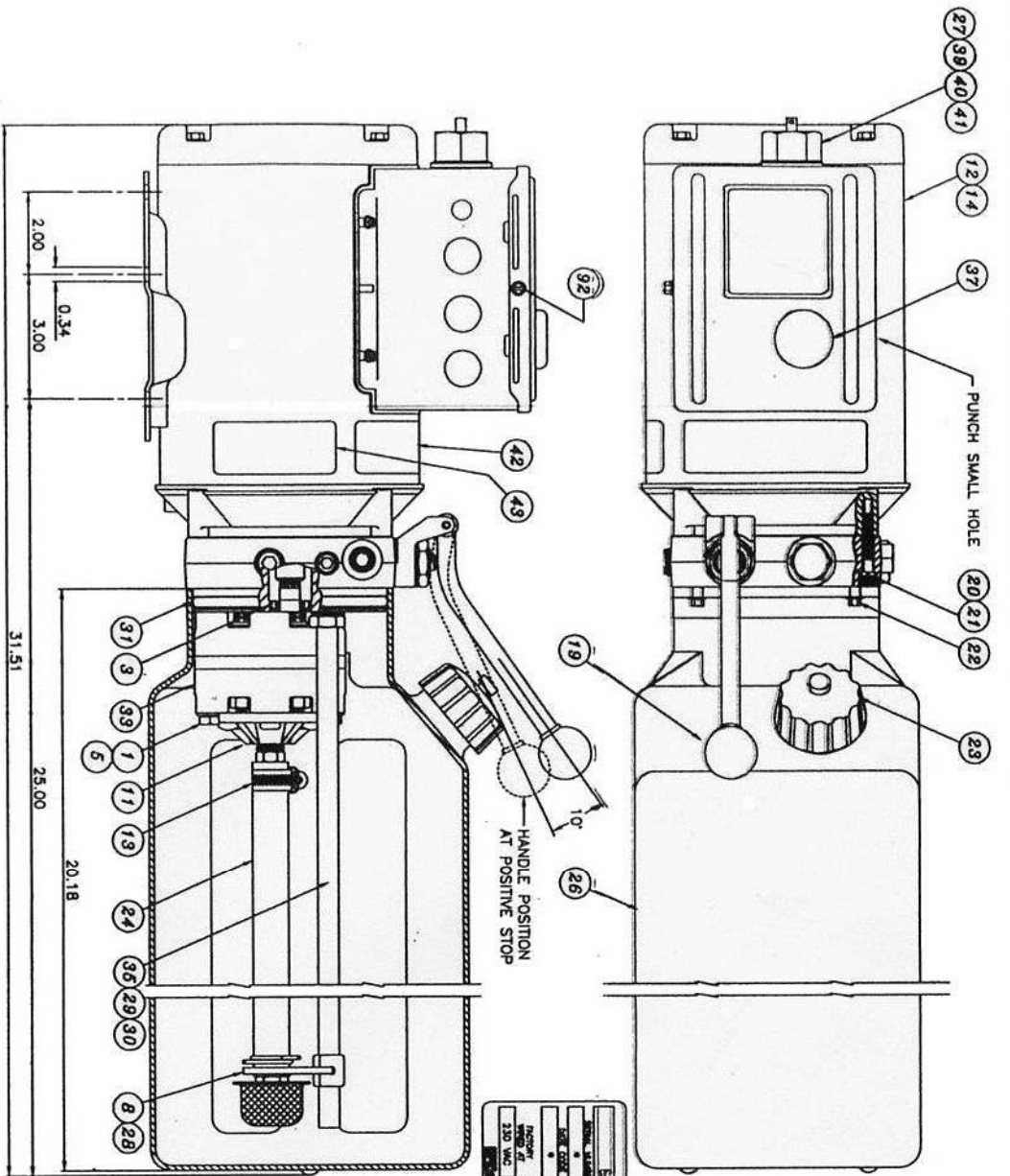
This disclosure is to be maintained in confidence. All invention rights reserved by USS.		UNSPECIFIED LIMITS: DEC. ±.010 ANGLE ±1/2° DEC. ±.003 RND. ±1/16		SCALE : N.T.S.	APPR.	NEXT ASSY.
<b>INNOVATIVE</b> STEEL SYSTEMS INC.		TITLE CYLINDERS ASS'Y		DATE	DWG.	DATE
SS-28HP-57-1/2		SH. 2		MAY 1/06	219735	MAY 1/06

NO.	PART #	QTY	DESCRIPTION
01	219732	1	CASSETTE WELDMENT
02	218407	2	PLUNGER
03	218068	2	HYD. CYL
04	212015	2	CYL. FLANGE GASKET
05	218215	2	CYL. BEARING SLEEVE
06	219705	1	COVER PLATE
07	15839	2	WIPER
08	212021	4	BEARING STRIP
09	218248	2	PLUNGER COVER
10	-	2	HEX HD BOLT, 1/2 x 2
11	-	4	F.H.C.S, 3/8 x 1-1/2
12	219720	1	LATCH SPACER BLOCK
13	-	2	WASHER, 1/2
14	218249	2	PLUNGER MOUNT PLATE
15	218261	2	PLUNGER SLEEVE
16	218447	2	FELT RING(STRIP) 1/4 x 1
17	218409	2	RACK
18	101867	2	GEAR
19	219552	1	LATCH ASS'Y
20	219708	1	SHAFT WELDMENT
21	218432	2	HYD TUBING
22	218433	2	BLEEDER TUBE
23	-	2	HYD HOSE, 3/8 - #6JIC (S.FEM) TO #6JIC (MALE)
24	-	2	CRIMP FITTING U #6 JIC SW BOTH ENDS
25	-	4	ROUND BAR ø3/8
26	-	2	NIPPLE (GAL.) 1" NPT x 12" LONG
27	-	10	HEX BOLT, 5/8x1-1/2
28	-	4	F.H.C.S, 1/2 x 1-1/2
29	219706	2	RACK COVER
30	-	4	FLAT HD COUNTER SUNK BOLT, 1/4 x 1
31	-	2	ADAPTER, #6SAE-#6JIC (BOTH MALES)
32	-	4	ADAPTER FLARELESS 3/8 O.D TUBE-#6JIC-M
33	-	2	KEY 3/8"
34	-	4	HEX HEX BOLT, 1/2 x 1-1/4
35	-	2	HYD HOSE #6JIC SWIVEL FEMALE
36	-	1	TEE, MALES #6 JIC
37	218413	2	STABILIZER BEARING
38	219721	2	STABILIZER SPACER BLOCK
39	-	1	AIR CYLINDER 5/8" BORE, 1/2" STROKE
40	-	1	ELBOW 10-32UNF

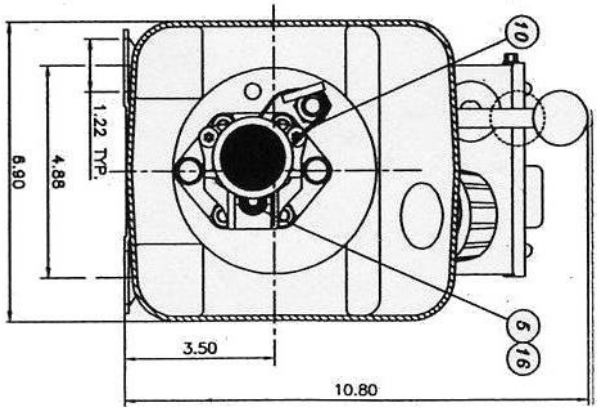
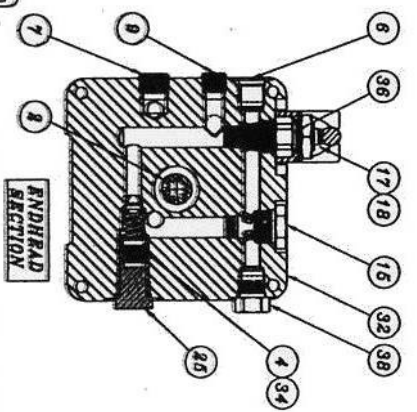
B	B.O.M UPDATE	JAN 17/07	KL
A	UPDATE HOSE LENGTH	DEC 6/06	KL

REV	ZONE	REVISION DESCRIPTION	E.C.N. NO.	DATE	BY	CHKD
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<small>This disclosure is to be maintained in confidence. All invention rights disclosed herein reserved by I.S.S.</small> <b>I S S INNOVATIVE STEEL SYSTEMS INC.</b>	UNSPECIFIED LIMITS: DEC. ±.010 DEC. ±.005 ANGLE ±1/2" FRAC. ±1/16	SCALE : N.T.S	APPR. DWN. KL	NEXT ASSY. DATE MAY 1/06
	TITLE CYLINDERS ASS'Y SS-28HP-57-1/2		SHT. 1 OF 2	DWG. 219735

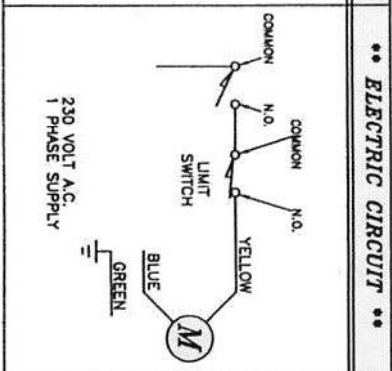
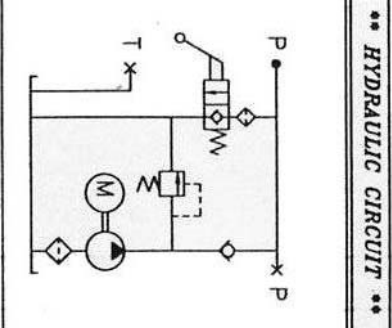


DIMENSIONS	
UNIT NUMBER	AB-1295
DATE CODE	030328A
REVISION	18
DATE OF MANUFACTURE	021014A
DATE OF INSPECTION	021014A
DATE OF WELDING	021014A
DATE OF PAINTING	021014A
DATE OF SHIPPING	021014A



**\*\* UNIT SPECIFICATION \*\***

MOTOR	208-230 VOLTS AC 3450 RPM, 1PH, 60HZ, MOTOR
TEST	DIELECTRIC STD. 2.16:15
PUMP	AFC 2.0 CC/REV. (122 CU. IN/REV.)
RELIEF	RS-21 FINED AT 3050 PSI NOMINAL
ENDHEAD	CAST IRON "N" SERIES WITH 3/8 NPT AUX. PORT (PLUGGED), 9/16 SAE PRESSURE-RETURN PORT (BLACK PLASTIC 4.0 GAL. (700 CU. IN. USABLE) VERTICAL TANK DOWN) MOUNTING
TANK	MANUAL RELEASE VALVE (CARTRIDGE STYLE) CHECK VALVE (CARTRIDGE STYLE)
VALVING	230VAC DIRECTLY TO MOTOR MOMENTUM ON AND PULL-TYPE ACTUATING, SEALED LIMIT SWITCHES OF U1201 AND CSA-C22220
WIRING	UNIT INDIVIDUALLY PACKED ONE PER CARTON
PACKING-SHIPING	SHIP CAUTION TAG LOOSE IN CARTON



**WARNING**

THIS POWER UNIT DOES NOT CONTAIN DEVICES WHICH PROTECT USERS FROM THE DANGERS OF SLOOD LOSS OF PRESSURE IN HYDRAULIC CIRCUITS.

THIS UNIT IS LOANED SUBJECT TO RETURN AT ANY TIME AND WITH THE UNDERSTANDING THAT IT WILL NOT BE USED IN ANY WAY DETERMINATIONAL TO THE INTERESTS OF SPS FLUID POWER.

03-AUG-03	030309F	MDP	PEL	13
08-JUN-03	030328A	WMT	MDP	11
18-OCT-02	021014A	WMT	MDP	12
DATE	ECO	DRAWN	CHECK	REV

**\*\* UNIT PERFORMANCE \*\***

FASTENER TORQUES 2.11, 01  
AUTO HOIST TEST STD. 2.16, 01

1.67 G.P.M. AT 2750 P.S.I.  
AT 18 AMPS & 230 VOLTS AC  
AT 45 CENTSTOKES (200 SSU)  
3150 P.S.I. MAXIMUM AT NO FLOW


THIS AC UNIT (THE FLUID POWER HOUSE)  
NONE  
Drawing No. AB-1295

Innovative Steel Systems

REF:219729

NO.	PART #	QTY	DESCRIPTION	DIMENSION	CUT LENGTH	MAT'L.	WT	OPERATION
01	219735	1	CYL ASS'Y					SEE DWG.
02	219711	2	BOLSTER					SEE DWG.
03	218254	4	ARMS					SEE DWG.
04	218255	4	SLEEVE & PAD ASS'Y					SEE DWG.
05	219737	1	HOIST KIT					SEE DWG.
06	100199	1	WHEEL STOP					SEE DWG.
07	-	1	POWER UNIT PER SALES ORDER					PURCHASE

REV	ZONE	REVISION DESCRIPTION	E.C.N. NO.	DATE	BY	CHKD
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 UNSPECIFIED LIMITS:  
 DEC. ±.010 ANGLE ±1/2"  
 FRAC. ±1/16

TITLE: \_\_\_\_\_  
 SCALE: NTS  
 APPR. \_\_\_\_\_  
 DWG. KL  
 SH. 1 OF 1  
 NEXT ASSY. DATE: OCT 26/06  
 DWG. 219882

G/A  
SS28HP-57-1/2-10C

## LIFT WILL NOT RAISE

<b>POSSIBLE CAUSE</b>	<b>REMEDY</b>	<b>INSTRUCTION</b>
1, Air in oil (A,C,J,K)	A. Check for proper oil level.	The oil level should be up to the bleed screw in reservoir with lift all the way down.
2, Cylinder Biding (M)	B. Remove check valve and inspect for contamination.	Wash check valve in solvent and blow out with air. Re-install check valve.
3, Cylinder leaks internally (M)	C. Bleed the cylinders.	See manual.
4, Motor runs backwards under pressure(B)	D. Flush release to get rid of possible contamination.	Hold release handle down and start unit allowing it to run for 15 seconds.
5, Lowering valve leaks(D,E,H,N,O)	E. Dirty oil.	Replace oil with clean oil
6, Motor runs backwards(I,O)	G. Tighten all fasteners.	Tighten fasteners per Engineering Specification #2.11.0 1.
7, Pump damaged(M,N,O)	H. Check for free movement of release handle.	If handle does not move freely, replace bracket or handle assembly.
8, Pump wont prime (A,J,K,M,O,P)	I. Check motor is wired correctly.	Compare wiring of motor to electrical diagram on unit.
9, Relief valve leaks (L,M,N,O)	J. Check inlet tube length	Replace inlet hose assembly.
10, Voltage to motor incorrect (I,M)	K. Oil seal damaged or cocked.	Replace oil seal around pump shaft.
	L. Relief valve hung up on cap.	To remove relief valve and free up valve.
	M. See installation manual	
	N. Replace with new part.	
	O. Return unit for repair.	
	P. Check pump mounting bolts.	Bolts should be 15 to 18 ft lbs.

**WILL NOT RAISE LOADED LIFT**

<b>POSSIBLE CAUSE</b>	<b>REMEDY</b>	<b>INSTRUCTION</b>
1, Air in oil (A,B,D,F)	A. Check for proper oil level.	The oil level should be up to the bleed screw in reservoir with lift all the way down.
2, Cylinder Biding (G)	B. Check/Tighten inlet tubes.	Replace inlet hose assembly and suction cover.
3, Cylinder leaks internally (G)	D. Oil seal damaged or cocked.	Replace and install oil seal.
4, Lift overloaded (G,H)	E. Remove check valve and inspect for contamination.	Wash check valve in solvent and blow out with air. Re-install check valve.
5, Lowering valve leaks(I,J,K,A,G)	F. Bleed cylinders.	See manual.
6, Motor runs backwards(E,K,L)	G. See installation manual	
7, Pump damaged(G,J,K)	I. Flush valve.	Hold release handle down and start unit allowing it to run for 15 seconds.
8, Pump won't prime (A,B,D,F,G,K)	J. Replace with new part.	
9, Relief pressure incorrect (G,J,K)	K. Return unit for repair.	
10, Relief valve leaks (M,J,K,G)	L. Check motor is wired correctly.	Compare wiring of motor to electrical diagram on unit drawing.
11, Voltage to motor incorrectly (L,G)	M. Relief valve hung up.	Remove cap and free up, blow out with air.

### LIFT WILL NOT STAY UP

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1, Air in oil (A,D,F)	A. Check for proper oil level.	The oil level should be up to the bleed screw in reservoir with lift all the way down.
2, Check valve leaks (E,H,I,J)	D. Oil Seal damaged or cocked.	Replace oil seal around pump shaft.
3, Cylinder leaks internally (J)	E. Remove check valve and inspect for contamination.	Wash check valve in solvent and blow out with air. Re-install check valve.
4, Lowering valve leaks (G,H,I,A,J)	F. Bleed cylinders.	See manual.
5, Leaking fittings (K)	G. Flush valve.	Hold release handle down and start unit allowing it to run for 15 seconds
	H. Replace with new part	
	I. Return unit for repair.	
	J. See installation manual.	
	K. Check complete hydraulic system for leaks.	

### MOTOR WILL NOT RUN

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1, Fuse blown (E,B,A,C,D)	A. Check for correct voltage.	Compare supply voltage with voltage on motor name tag. Check that wire is sized correctly. N.E.C. table 310-12 requires AWG 10 for 30A.
2, Limit switch burned out(A,B,C,D)	B. Check motor is wired correctly on unit.	Compare wiring of motor to electrical diagram.
3, Microswitch burned out(A,B,C,D)	C. Don't use extension cords.	According to N.E.C. section 210-6 paragraph D: "The size of conductors...should be such that the voltage drop would not exceed 3% to the farthest outlet for power...".
4, Motor burned out (A,B,C,D,F)	D. Replace with new part.	
5, Voltage to Motor incorrect (B,A)	E. Reset circuit breaker/fuse.	

### EXTERNAL OIL LEAK

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1, Breather element full of oil(A,B,C,D)	A. Check for proper oil level.	The oil level should be up to the bleed screw in reservoir with lift all the way down.
2, Allen plugs loose(E)	B. Replace with new part.	
3, Loose tank(K)	D. Use clean Dextron II ATF only.	
4, Oil comes out breather(A,D,B,C,F)	E. Tighten all plugs.	Tighten plugs per engineering specification #2.11.01.
5, Oil comes out from tank(E)	F. Return unit for repair.	
6, Hoses/fittings loose(C,G)	G. Tighten all hydraulic fittings.	
7, Air in oil(H,I,J)	H. Check/Tighten inlet tube and cover.	Replace inlet hose assembly and/or suction cover.
	I. Oil seal leaks.	Replace oil seal around pump shaft.
	J. Bleed cylinder.	See manual.
	K. Tighten tank mounting bolts.	Tighten per engineering specification #2.11.01

### LIFT LOWERS SLOWLY OR NOT AT ALL

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1, Cylinder binding(A))	A. See installation manual.	
2, Release valve screen clogged(E,B,D,C)	B. Replace with new part.	
	C. Return unit for repair.	
	D. Use clean oil to specifications.	Purge system and replace oil.
	E. Clean release valve screen.	Wash release valve in solvent and blow out with air.

## UNUSUAL NOISE

<b>POSSIBLE CAUSE</b>	<b>REMEDY</b>	<b>INSTRUCTION</b>
1, Air in oil(A,B,D,F)	A. Check for proper oil level.	The oil level should be up to the bleed screw in reservoir with lift all the way down.
2, Lift overloaded(G,H)	B. Check/tighten inlet tubes.	Replace inlet hose assembly all the way down.
3, Motor burned out(K,L,M,I,J)	D. Oil seal damaged or cocked.	Replace oil seal around pump shaft.
4, Motor mounting bolt loose(N)	E. Remove check valve and inspect for contamination.	Wash check valve in solvent and blow out with air. Re-install check valve.
5, Motor runs backwards(L,E,J)	F. Bleed cylinders.	See manual.
6, Pump damaged(H,I,J)	G. Check vehicle weight.	Compare weight of vehicle to weight limit on the lift.
7, Pump won't prime(A,B,D,F,H,J,P)	H. See installation manual.	
8, Relief valve leaks(H,I,J,O)	I. Replace with new part.	
9, Voltage to motor incorrect(L,H)	J. Return unit for repair.	
	K. Check for correct voltage.	Compare supply voltage with voltage on motor nametag. Check that the wire is sized correctly. N.E.C. table 310-12 requires AWG 10 for 30A.
	L. Check motor is wired correctly.	Compare wiring of motor to electrical diagram on unit drawing.
	M. Don't use extension cords.	According to N.E.C. section 210-6 paragraph D: "The size of the conductors...should be such that the voltage drop would not exceed 3% to the farthest outlet for power..."
	N. Tighten all fasteners.	Tighten fasteners per engineering specification #2.11.01.
	O. Relief valve hung up.	Remove relief valve and free up, blow relief valve out with air.
	P. Pump bolts loose.	Tighten pump bolts per engineering specification #2.11.01.



## WARRANTY ACTIVATION INFORMATION

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Lift Model: \_\_\_\_\_

Cylinder Serial Number(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date of Installation: \_\_\_\_\_

Name & Address of Installer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name & Address of Purchaser: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name of Authorized Signer: \_\_\_\_\_

Authorized Signer Signature: \_\_\_\_\_

*Lift warranty period begins on date of invoice until Warranty Activation Information is completely filled out and returned to Innovative Steel Systems Inc. Upon receipt of Warranty Activation Information, the beginning date of warranty period will be changed to date of installation.*



## WARRANTY POLICY

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Innovative Steel Systems Inc. (“ISS”) warrants, only to the original end-user, against defective material and/or workmanship for a period of one year from date of invoice. Provided that the warranty activation card has been received by ISS within 30 days of the date the product is first installed and/or used by the original end-user, the one year warranty period will be deemed to have started on the date of installation rather than the date of invoice. ISS further warrants fiberglass coated cylinder casings, fiberglass coated tanks and fiberglass coated lift components (“Coated Products”) against damage due exclusively to corrosion or electrolysis (excluding damage which occurs during shipping or installation or from air or fluid piping) for an additional nine year period beginning one year after the date of invoice. All warranties are subject to the following standard terms.

This warranty is limited to repairing or replacing, at the sole option of ISS, any Product returned to us at our facility in Georgetown, Ontario, within the warranty period, transportation prepaid, which ISS determines to have been defective. ISS shall pay for reasonable costs based on the ISS Flat Rate Schedule for replacement of the Product only during the portion of the warranty period (excluding labor and transportation costs for the Coated Products after the first year from invoice). This warranty shall not apply unless the Product is at all times installed, used and maintained according to ISS’s specifications as set forth in ISS’s installation, operation and maintenance instructions and under normal operating conditions and is not transferable or assignable. This warranty applies only to ISS Products installed within the boundaries of continental North America.

This warranty does not cover (a) normal maintenance, consumable items, adjustments, damage, corrosion or malfunction caused by improper handling, installation, abuse, misuse, negligence, carelessness of operation, accident or normal wear and tear or (b) Products which have been (or have attempted to have been) repaired or altered by others without our prior authorization.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH IMPLIED WARRANTIES ARE EXPRESSLY EXCLUDED. No employee, agent, representative, dealer or other person is authorized to give any warranties of any nature on behalf of ISS and purchaser acknowledges no other representations or warranties were made to or relied on by purchaser.

The remedies described are exclusive and in no event shall ISS be liable for special, consequential or incidental damages including without limitation “downtime” for breach of or delay in performance. Any action for breach of this warranty shall be commenced within one (1) year after the cause of action has occurred. The prevailing party of litigation shall be entitled to recover from the other party, all litigation costs including reasonable attorney’s fees. The exclusive jurisdiction for any legal action shall be the Province of Ontario, Canada.