

DIVERSIFIED METAL FABRICATORS



Parts & Service Manual Excavator Railgear



April 2018

SERIAL NUMBER (FRONT) _____

SERIAL NUMBER (REAR) _____

NOTE:

Please refer to the serial numbers when ordering parts or inquiring about warranty items.

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Parts (404) 607-1684 ♦ Parts Fax (404) 879-7888 ♦ parts@dmfatlanta.com
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ATLANTA

DIVERSIFIED METAL FABRICATORS, INC.

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ENGAGING THE RAIL (w/TRUCK HYDRAULICS)

GETTING ON THE RAIL

Lower rear guide-wheels first:

- At the track crossing, drive past the track, then back the vehicle onto the rails.
- Engage the truck's parking brake to prevent the truck from rolling.
- If the railgear has brakes, turn brake switch on.
- Engage the PTO or 12Volt electrical hydraulic pump.
- **Remove the safety pin-off pins (one each side).**
- Push / Pull valve handle to lower wheels to engage rail.
- When both wheels are fully down and properly engaging rail, **replace safety pin-off pins.**

Lower front guide-wheels:

- If necessary drive the truck into position to line up the front guide-wheels with the rail.
- Engage the PTO or 12Volt electrical hydraulic pump.
- **Remove the safety pin-off pins (one each side)** and stow in provided storage tubes.
- Check and make sure that the front guide-wheels line up with the rail, then engage wheels.
- **NOTE:** The front guide-wheel assembly is an over-center design and does not require safety pin-off pins engaged in the rail mode.

On the tracks:

- Do not exceed **30 MPH** while on the track. All railroad speed rules should be observed.
- Be aware that some high rail gear is insulated, and will not operate the crossing gate circuits.
- Reduce speed at all crossings, curves, branch lines, switches and frogs.
- Traction is reduced on the track. Tire damage may result from spinning wheels on track.
- Braking distance is increased on the track. Do not slide tires or guide-wheels on the tracks.
- **Do not exceed the maximum rated capacity of the equipment.**
- On newer trucks with Anti-Lock braking systems, the amber 'ABS' dash light may remain on with the front wheels elevated. This will not effect rear truck braking or rail wheel braking.

GETTING OFF THE RAIL:

Removing truck from track:

- Engage the PTO and the truck parking brakes.
- Leave the truck running and the transmission in neutral gear.
- Lift both sets of railgear (there is no preference for removal order).
- **Engage the safety pin-off pins in highway position.**
- Disengage the switch that controls the railgear brakes (if applicable).
- Disengage the PTO before moving the truck.
- If the amber 'ABS' dash light remains on during rail operation, the truck engine must be turned off and restarted after returning to highway operation. This will clear the 'ABS' after a few seconds. If the amber light remains on during road operation, the truck's brake system may have an active fault and should be checked out. Please refer to the truck's operation manual.

ENGAGING THE RAIL(w/MONARCH POWER UNIT)

GETTING ON THE RAIL

Lower rear guide-wheels first:

- At the track crossing, drive past the track, then back the vehicle onto the rails.
- Engage the parking brake to prevent the truck from rolling.
- Connect the electrical power for the rail gear hydraulic system. (the pump and electrical connector are located in the passenger side tool box on the lower half of the excavator.)
- **Remove the safety pin-off pins (one each side).** Note: In order to remove the pins, you may have to take the weight off the pins by slightly raising the rail gear (push button and pull valve handle briefly).
- Push the electrical button near the control valve to run the hydraulic pump while pushing the valve handle to lower the gear to engage rail.
- When both wheels are fully down and properly engaging rail, **replace safety pin-off pins.**

Lower front guide-wheels:

- If necessary drive the truck into position to line up the front guide-wheels with the rail.
- **Remove the safety pin-off pins (one each side).** Note: In order to remove the pins, you may have to take the weight off the pins by slightly raising the rail gear (push button and pull valve handle briefly).
- Push the electrical button near the control valve to run the hydraulic pump while pushing the valve handle to lower the gear to engage rail.
- Check and make sure that the front guide-wheels line up with the rail, then engage wheels.
- When both wheels are fully down and properly engaging rail, **replace safety pin-off pins.**
- Disconnect the electrical connection for the rail gear hydraulic pump and stow in the tool box.

On the tracks:

- Do not exceed **30 MPH** while on the track. All railroad speed rules should be observed.
- Be aware that some high rail gear is insulated, and will not operate the crossing gate circuits.
- Reduce speed at all crossings, curves, branch lines, switches and frogs.
- Traction is reduced on the track. Tire damage may result from spinning wheels on track.
- Braking distance is increased on the track. Do not slide tires or guide-wheels on the tracks.
- **Do not exceed the maximum rated capacity of the equipment.**
- On newer trucks with Anti-Lock braking systems, the amber 'ABS' dash light may remain on with the front wheels elevated. This will not effect rear truck braking or rail wheel braking.

GETTING OFF THE RAIL:

Removing truck from track:

- Engage the truck parking brakes.
- Connect the electrical power for the rail gear hydraulic system.
- Remove the safety pin-offs from the "on rail" position.
- Lift both sets of railgear (there is no preference for removal order).
- **Engage the safety pin-off pins in highway position.**
- Disengage the switch that controls the railgear brakes (if applicable).
- Disconnect the electrical power for the rail gear hydraulic system.
- If the amber 'ABS' dash light remains on during rail operation, the truck engine must be turned off and restarted after returning to highway operation. This will clear the 'ABS' after a few seconds. If the amber light remains on during road operation, the truck's brake system may have an active fault and should be checked out. Please refer to the truck's operation manual.

ROUTINE MAINTENANCE

INSPECTION AND MAINTENANCE

Daily:

- Visually inspect for hydraulic fluid leaks.
- Check and make sure that all threaded fasteners are secured. **NOTE:** all hex nuts are either nylon insert or slotted hex nuts with cotter pins.
- Check and make sure all tie straps that secure hoses from moving parts and exhaust systems are in place. Replace if cracked or worn.
- Inspect wheel flanges for excessive wear, primarily noting difference in wear between wheels on the same axle or diagonally. If abnormal pattern is noted, check railgear alignment (see alignment procedure).

Weekly:

- Grease and lubricate all grease fittings on front and rear railgear and guidewheel assemblies. **NOTE:** there are six (6) locations on front assemblies and fourteen (14) locations on rear assemblies.
- Check level of hydraulic oil and all other fluids.
- Check air pressure in tires and inflate to proper inflation pressure (if necessary).

Bi-annually:

- Remove the hubcaps from the railwheels and inspect for deterioration or loss of wheel bearing grease. Unless there is a problem, the cavity may be topped off with the recommended grease without removing and/or re-packing the bearings.
- Clean the hubcap and mating surfaces and apply a bead of silicone gasket and re-attach securely.
- Clean the strainer / filter in the hydraulic power unit tank.
- Inspect wheel flanges for excessive wear. If abnormal pattern is noted, check railgear alignment (see alignment procedure).
- Rail test for proper traction and braking. If abnormal, adjust properly (see traction procedure).

LUBRICATION SPECIFICATION

Wheel bearings / Grease Fittings:

- **Factory Standard:** Citgo Syndurance Premium Synthetic 460 #2
- **Warm Climates:** Mystik JT-6 Hi-Temp Multi-Purpose Grease #2 (or equivalent)

Hydraulic oil: Unax RX-46 hydraulic oil (or equal)

INSTALLATION of FRICTION DRIVE GUIDEWHEELS

APPLICATION: (Genie S-65 Manlift – ie.)

Pre-Installation:

- Review all supplied information before proceeding with the installation.
- Refer to the DMF RW1630 Installation Manual or call Diversified Metal Fabricators (404/875-1512) with any questions or concerns.

Carrier Modifications:

- Check that all tires are inflated to the manufacturer's recommended pressure.
- Install the tire wheel spacers, if needed or required.

Installing The Guidewheel Assemblies:

- On a firm level surface, check that the bottom of the Genie S-65 carrier frame has 15" Ground Clearance.
- Refer to main assembly Drawing 83300. The guidewheel assembly that has the articulation pin in the center of the guidewheel axle (assy. 83350) is to be mounted on the steering end of the carrier. The guidewheel assembly without articulation (assy. 83310) is to be mounted on the non-steering end of the carrier.
- Refer to Drawing 83300. The vertical mounting plate for each guidewheel assembly is designed to mount to the end of the carrier frame, between the towing lugs. The bottom edge of each vertical mounting plate is designed to mount even with the bottom edge of the frame and at 15" Ground Clearance. **The railgear must be mounted with the bottom edge of the vertical mounting plate at 15" off the ground.** Cutouts have been provided in the vertical mounting plates to clear the pinheads on each end of the frame for carrier articulation and lockout cylinder pins. Check that these pinheads are centered in the provided cutouts.
- Each guidewheel unit may be mounted to the end of the carrier frame by either bolting-on or welding-on. Each vertical plate has ten (10) 11/16" dia. holes drilled in it. These holes may be used for plug welding (using E-7018 stick) or match drilled for 5/8" dia. Grade 8 hex head cap screws (bolts). You may gain access to the majority of the holes by removing the upper cylinder mounting pins and swinging the cylinders down out of the way (Refer to Drawings 83310 and 83350).

Hydraulic Connection:

- Connect the hydraulics per Drawing 83380. The axle "limit" valves are to be mounted to the angles (drawing 83384) and located so that the valves are "tripped" when the axles are in the rail position. Mount one limit valve on each assembly and plumb in series per the drawing. One possible location for the limit valves is above the stop adjustment angle near the main pivot. This is roughly the area indicated by items 3 and 4 on Drawings 83310 and 83350.
- The majority of the hydraulic schematic concerns the interlock feature. This feature prevents the upper manifold functions from operating if the guidewheels are in the rail position. This is accomplished by "dumping" hydraulic pressure on the upper function manifold by opening a solenoid bypass valve plumbed between the pressure and tank ports of the upper manifold. None of the lower carrier functions are affected; but, the operator will not be able to swing, extend or raise the platform until the carrier tires are set on the ground.
- Hydraulic pressure for raising and lowering the guidewheels is to be manually diverted from the carrier lower function manifold and each guidewheel axle moved into position using the manual directional valve located at each end of the vehicle.

INSTALLATION of FRICTION DRIVE GUIDEWHEELS

(Continued)

Tire Pressure Adjustment and Alignment of the Guidewheels:

- Once the guidewheels are under hydraulic power and attached to the carrier the travel stops may be adjusted. With the guidewheels in the highway position, measure the tire deflection. Tire deflection is the difference between the unloaded tire radius and the loaded tire radius.
- This is how far we want the friction hubs to press into the tire when the guidewheels are in the rail position. On Drawings 83310 and 83350, items 3 and 4 are the stop adjusting bolts. The adjusting bolt head will contact the brace plate on each pivot arm and prevent further rotation of the axle assembly. Loosen the jamb nut and screw the bolt in or out to set the desired amount of carrier tire deflection when the guidewheels rotate into the rail position. When this adjustment has been made, re-secure the jamb nut. Although our "target" is to deflect the carrier tire by the original deflection amount, what we want to achieve may require less deflection than that. Ultimately, the goal is to propel the vehicle down the rail without the tire slipping on the drive hub (**this requirement is for Propulsion and Braking**).
- This adjustment will also be used to accommodate tire wear (to some degree).
- The adjustment bolts will also be used to align the guidewheel equipment. The adjustment bolts can be used to crank one wheel in or out to achieve these dimensions:
 - Measuring down each side of the machine (the distance from one railwheel to the opposite-end railwheel) the left-side dimension should be within 1/8" of the right-side dimension.
 - Measuring diagonally (i.e. Right front to Left rear), the dimensions should be within 1/4" of each other.

Final Points:

- Paint equipment as required.
- Install operating legends and warning plaques.
- Check that all fasteners are secure.
- Check that all hoses and wires are secured, clear of moving components, and have slack where required.
- Rail test the vehicle to be certain that it is:
 - Tracking straight and not "flanging"
 - Has proper tire to drive hub contact pressure to generate braking force.
 - Properly interlocked to disable operator functions other than travel when in the rail mode.

Friction Drive Railwheel Operation:

- **CAUTION: Read and understand operator's manual before use.**
- **CAUTION: Keep hands and feet clear of moving parts.**

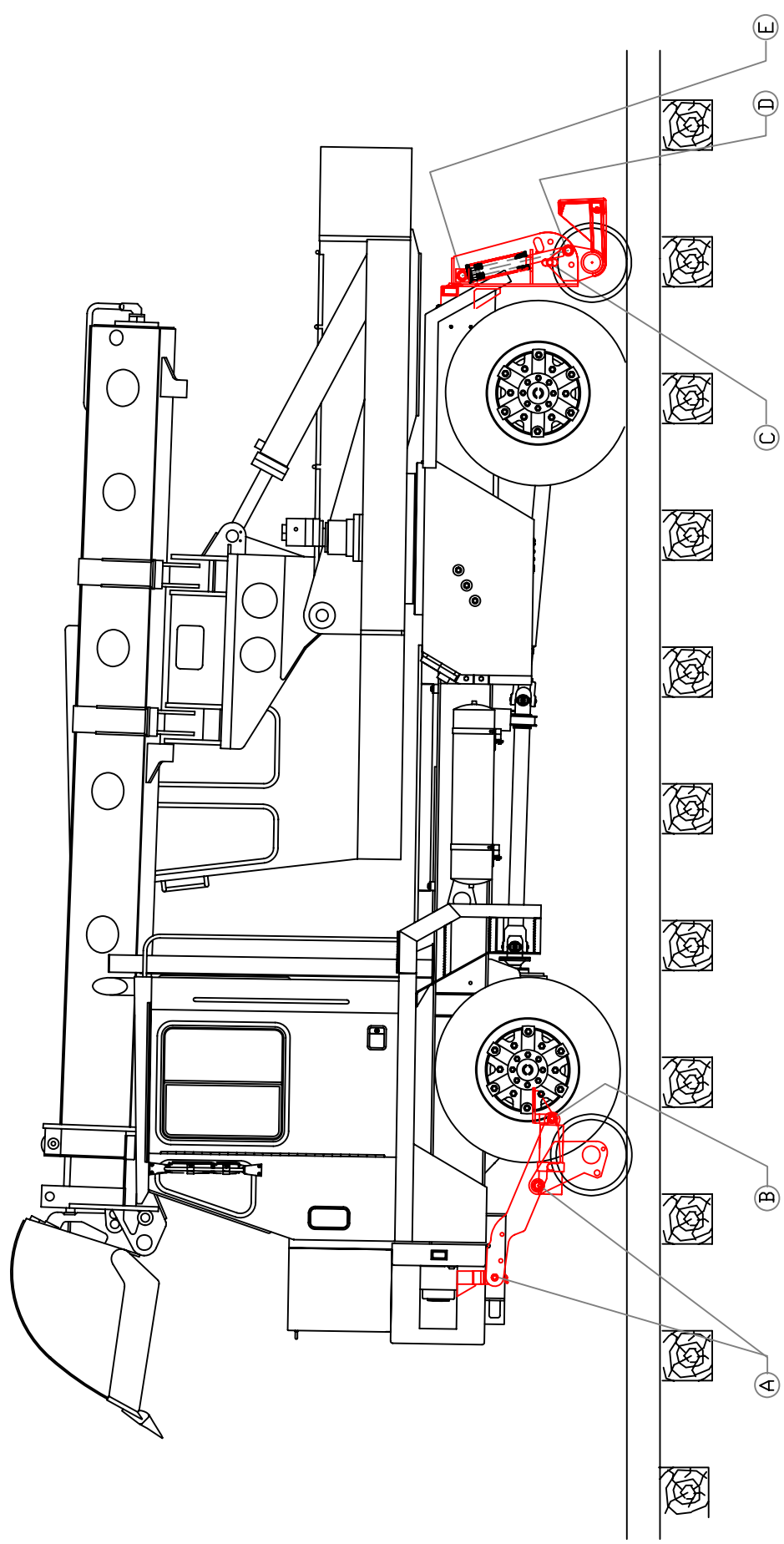
Engaging Railwheels:

- Align vehicle parallel with rails and straighten tires.
- Shift Diverter Valve to "Railwheels".
- Remove manual Pin/Off Pins from upper holes.
- Operate Railwheel Cylinders at Valves. Actuate front and rear Railwheels "IN" until fully extended.
- Replace manual Pin/Off Pins in lower holes.
- Safe operating speeds on track are governed by conditions and work equipment rules. Maximum speeds of this equipment is **twenty miles per hour**.
- Tire pressure should be maintained at the tire manufacturer's recommended levels.
- Shift Transmission into reverse to go forward.
- Use throttle and brake pedals to control vehicle speed in the normal manner.
- **NOTE:** All upper functions are disabled by interlock when Railwheels are in the "Rail" position.
- **Tires must be on the ground to work machine.**

Retracting Railwheels:

- Reverse sequence of operation for engaging Railwheels shown above.

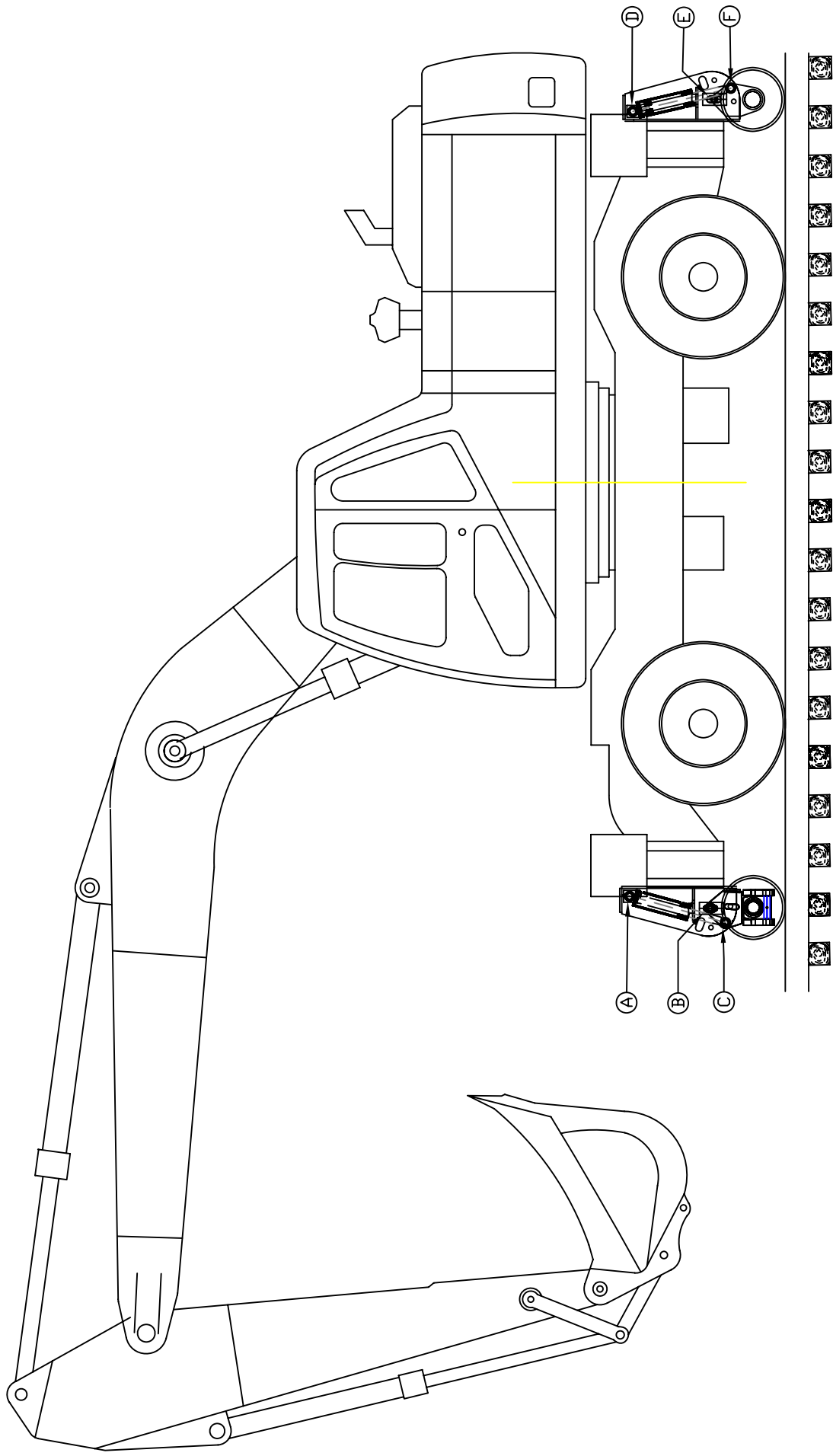
ITEM	PART NO.	PLCS.	DESCRIPTION
1	A	4	FRONT ARM PIVOT PINS, CENTER OF PIN HEAD.
2	B	2	FRONT CYLINDER ROD CROSS TUBES.
3	C	2	REAR LOWER ARM PIVOT PINS, CENTER OF CROSS SLEAVE.
4	D	2	REAR CYLINDER ROD CROSS TUBES.
5	E	2	REAR CYLINDER HEAD CROSS TUBES.



REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED: FRACTIONS: ± 1/32" DECIMALS: ± 0.005" ANGLES: ± 1/16" X: ± 0.005" XXX DR: ± 0.0008" DRILL SIZES: ± 0.015" ANGLE FINISH: ± 0.005" THREADS: UNF AND 2B FINISH: SEE S. & B. 3 OF 3		TITLE: GRADALL GREASE POINT LOCATIONS CW/RV-1630 FRONT & RV-1650 REAR RAILGEAR DIVERSIFIED METAL FABRICATORS, INC. 404875-1512 DATE: 12/10/98 DRAWN BY: WET APPD BY:	REV: # DRAWING NUMBER: EX1668A
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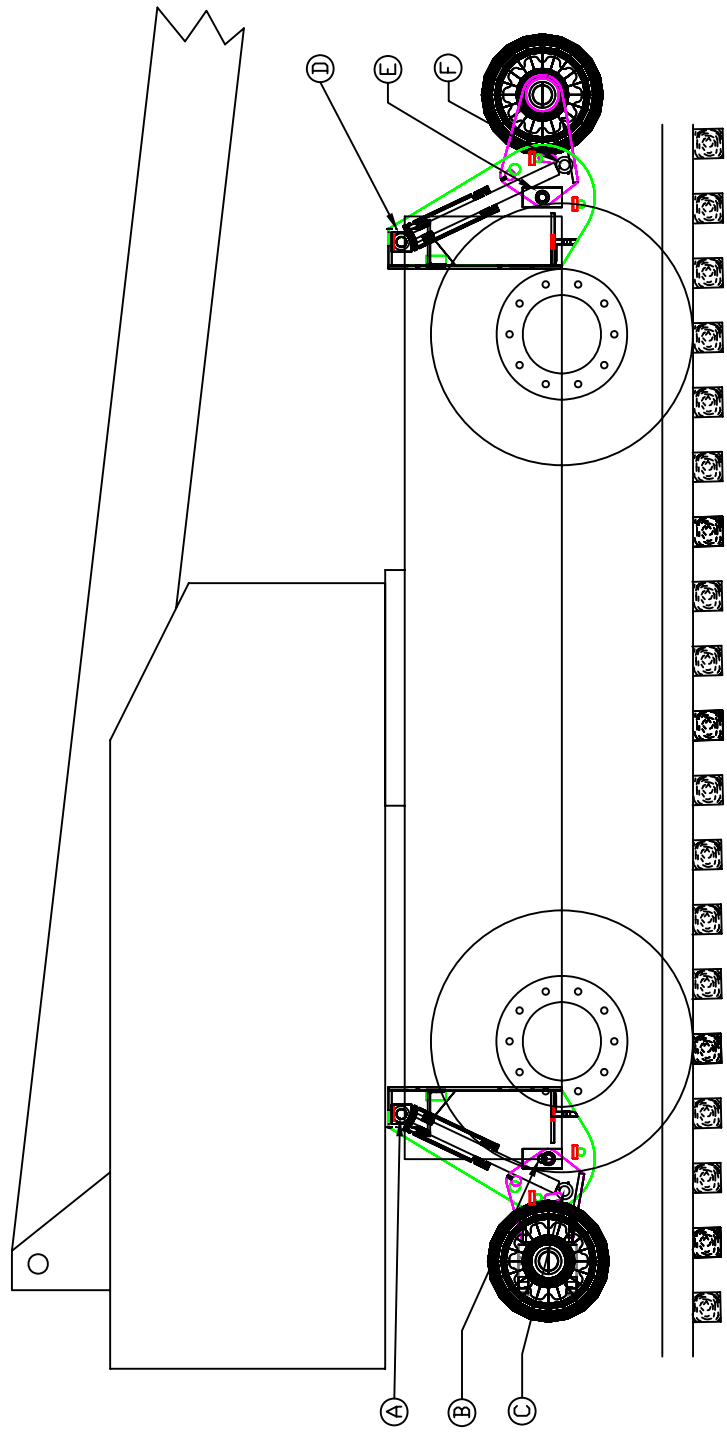
ITEM	PART NO.	PLCS.	DESCRIPTION
1	A	2	FRONT CYLINDER HEAD CROSS TUBES.
2	B	2	FRONT LOWER ARM PIVOT PINS, CENTER OF CROSS SLEAVE.
3	C	2	FRONT CYLINDER ROD CROSS TUBES.
4	D	2	REAR CYLINDER HEAD CROSS TUBES.
5	E	2	REAR LOWER ARM PIVOT PINS, CENTER OF CROSS SLEAVE.
6	F	2	REAR CYLINDER ROD CROSS TUBES.



REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED: FRACTIONAL DECIMALS ± 0.005 DECIMALS ± 0.005 ANGLES ± 0.015 HOLE SIZES ± 0.015 THREADS: UNF AND UNF ± 0.015 UNF AND UNF ± 0.015 UNF AND UNF ± 0.015		DRAWN BY: SEW APPD BY:
TITLE: GRADALL GREASE POINT LOCATIONS (W/RW-1630 FRONT & RV-1650 REAR RAILGEAR)		DATE: 8/12/02 DRAWING NUMBER: EX1668B
DIVERSIFIED METAL FABRICATORS, INC. (404875-1512)		REV: # EX1668B

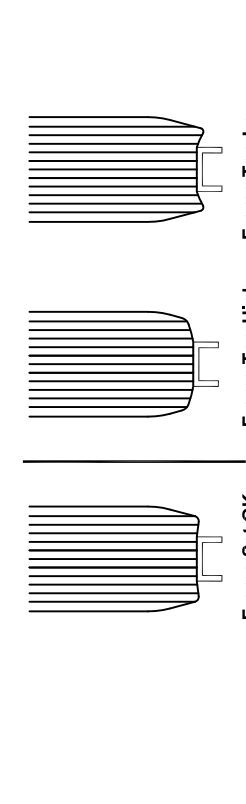
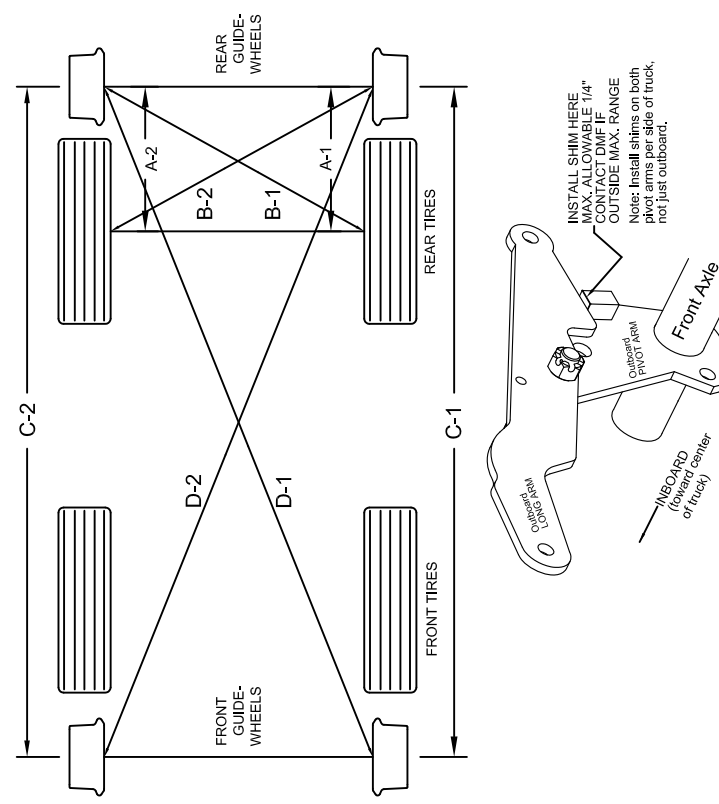
ITEM	PART NO.	PLCS.	DESCRIPTION
1	A	2	FRONT CYLINDER HEAD CROSS TUBES.
2	B	2	FRONT LOWER ARM PIVOT PINS, CENTER OF CROSS SLEAVE.
3	C	2	FRONT CYLINDER ROD CROSS TUBES.
4	D	2	REAR CYLINDER HEAD CROSS TUBES.
5	E	2	REAR LOWER ARM PIVOT PINS, CENTER OF CROSS SLEAVE.
6	F	2	REAR CYLINDER ROD CROSS TUBES.



REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED: DIMENSIONS: FRACTIONS 1/32" DECIMALS: .005 ANGLES: 30°, 45°, 60°, 90°, 120°, 150°, 180° THREADS: UN, UNF, UNR, ISO, AND 2B FINISH: AS SUPPLIED		TITLE: GENIE S-65 ASSEMBLY (w/RV-1650 FRONT & RV-1650 REAR RAILGEAR) DIVERSIFIED METAL FABRICATORS, INC. (404)875-1512 DATE: 08/12/02 DRAWING NUMBER: EX1668C #
DRAWN BY: SEW APPD BY:		REV:

INSPECTOR:		DATE:	
SPECIFICATION	S/E = to	SPECIFICATION	TOLERANCES
A-1	=	A-2	± 1/8"
B-1	=	B-2	± 1/4"
C-1	=	C-2	± 1/8"
D-1	=	D-2	± 1/4"



REV	DATE	DESCRIPTION	BY	APP
4/17/12		UPDATED AS PER 1630 MANUAL CHANGES	JDI	
9/14/09		UPDATED AS PER 1630 MANUAL CHANGES	JBG	
TITLE: ALIGNMENT PROCEDURE & TEAR SHEET & TRACTION ADJUSTMENT PROCEDURES				
DRAWN BY: TSH				
APPD BY:				
DATE: 12/20/91				
DRAWING NUMBER: M1630115				
REV: B				

ALIGNMENT PROCEDURE

- A) STEPS 1) and 2) must be completed in listed order and are assumed to be within specifications and should only be addressed, if after alignment of the railgear, excessive flanging occurs.
- 1) Frame should be square, to within 1/8" maximum, on the diagonal.
 - 2) Rear drive axle should be square to frame within 1-1/16" maximum on the diagonal to achieve 0° thrust angle. this should be checked by a qualified alignment shop.
- B) The following procedure applies to shop or field inspection.
- 1) Check air pressure in all tires. tires should be inflated to the minimum rating of the wheel or tire.
 - 2) Place vehicle on straight and level track, or 3" channel to simulate rail. Lower the railgear to the rail so that front to rear and diagonal measurements can be made. (Note: these measurements can be made from any convenient locations, as long as it stays consistent from side to side.
 - 3) If diagonal measurement is out of tolerance, adjustment of the front railgear must be made. The procedure for this is as follows (for D-1 & D-2 only): Place shim material between the stop block on the pivot arm (see dwg below) & where it comes into contact with the long arm. The location for the shim is most accessible from behind the front Railgear axle (example: shim on left side, it will push left axle forward). Once proper shimming has been obtained, weld the shim into place on the pivot arm. Max. allowable 1/4" - Contact DMF if outside the maximum range.

RAIL WHEEL LOAD ADJUSTMENT PROCEDURE

Tire traction varies w/ every truck based on several factors such as weight & tire design. It can also vary on the same truck as equipment is added or deleted. Thus, we recommend performing the traction adjustments after all equipment is installed or removed. Since every truck differs, there is no exact procedure. However, we have found the following two methods to be a good guide. The true test is how the vehicle performs on rail.

METHOD #1

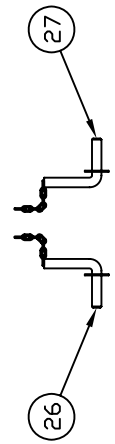
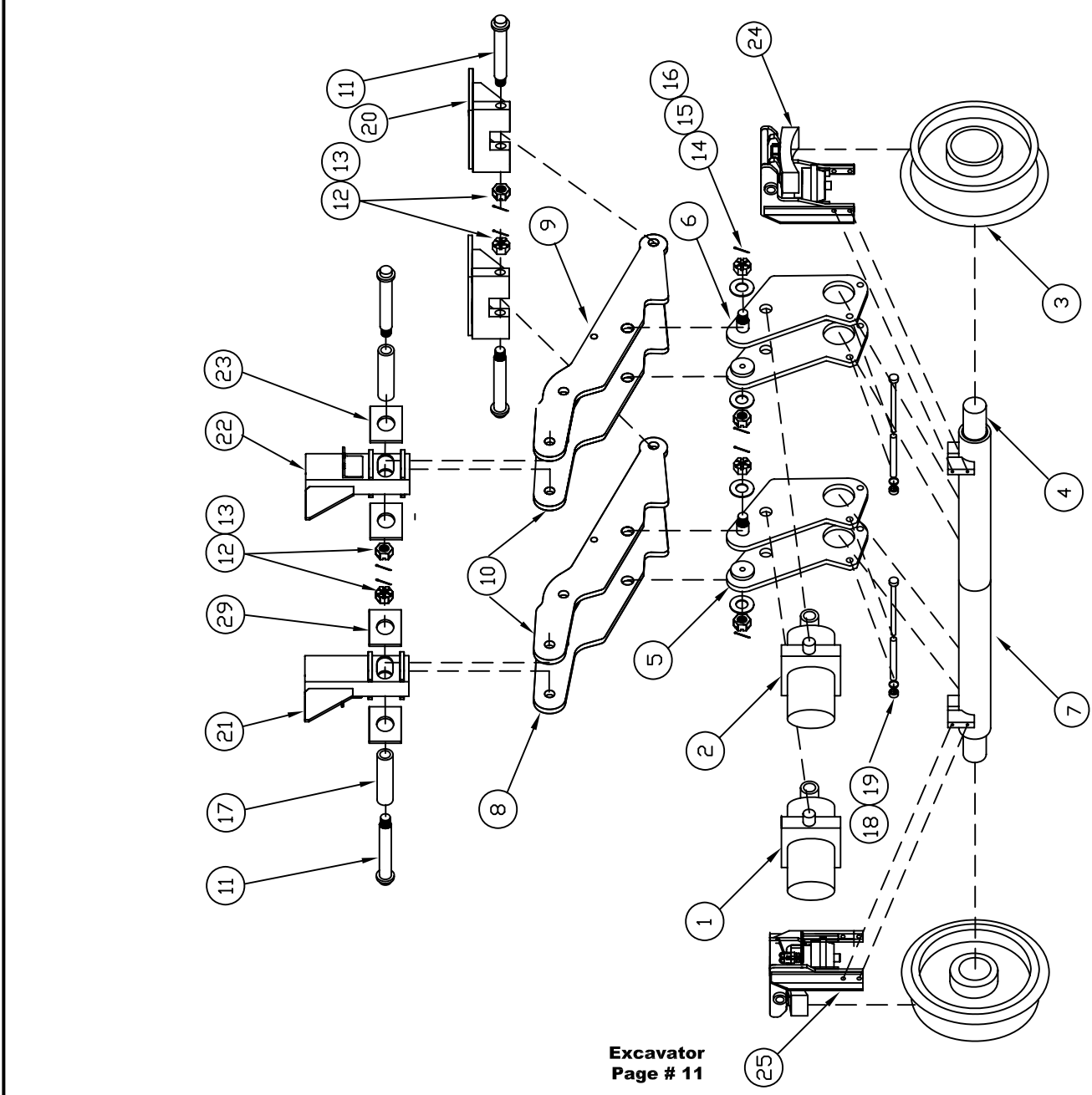
- Note: Method #1 is a visual procedure of the tire capping on rail.
- 1) Grind off the welds on the (2) four hole mounting plates at the rear mounting bracket.
 - 2) Loosen the (8) rear bracket mounting bolts.
 - 3) Lower the railgear supporting the railgear with a floor jack or with the unit itself.
 - 4) Remove or add spacer shim material located between the bottom of the truck frame and the shelf on the rear mounting bracket. Add shim to decrease traction and remove shim to increase traction (ref. side dwg. for illustration of proper tire capping).
 - 5) Raise Railgear once again to contact the bottom of the truck frame.
 - 6) Re-tighten the rear mounting bracket bolts to 154 ft/lb. torque and re-weld the mounting plates, and shims to the bracket (per rear install detail in section 5.1). If multiple spacers are used, remember to weld spacers to one another.

METHOD #2

- Note: Method #2 distributes the vehicles rear axle(s) weight(s) equally over all rear axles, including the Railgear.
- 1) If truck scales are available, weigh the vehicle's rear axle (if tandem, weigh both)
 - 2) With front and rear Railgear in the rail position, add or remove shims until rear Railgear axle weight is distributed equally between rear truck axle & Railgear. If truck has tandem axle, the weight should be equally distributed over all 3 axles (tandem & railgear axle - 1/3, 1/3, 1/3).
 - 3) Once weight is equally distributed, then raise Railgear to the highway position.
 - 4) Re-tighten the rear mounting bracket bolts to 154 ft/lb. torque and re-weld the mounting plates, and shims to the bracket (per rear install detail in section 5.1). If with multiple spacers, remember to weld spacers to one another.

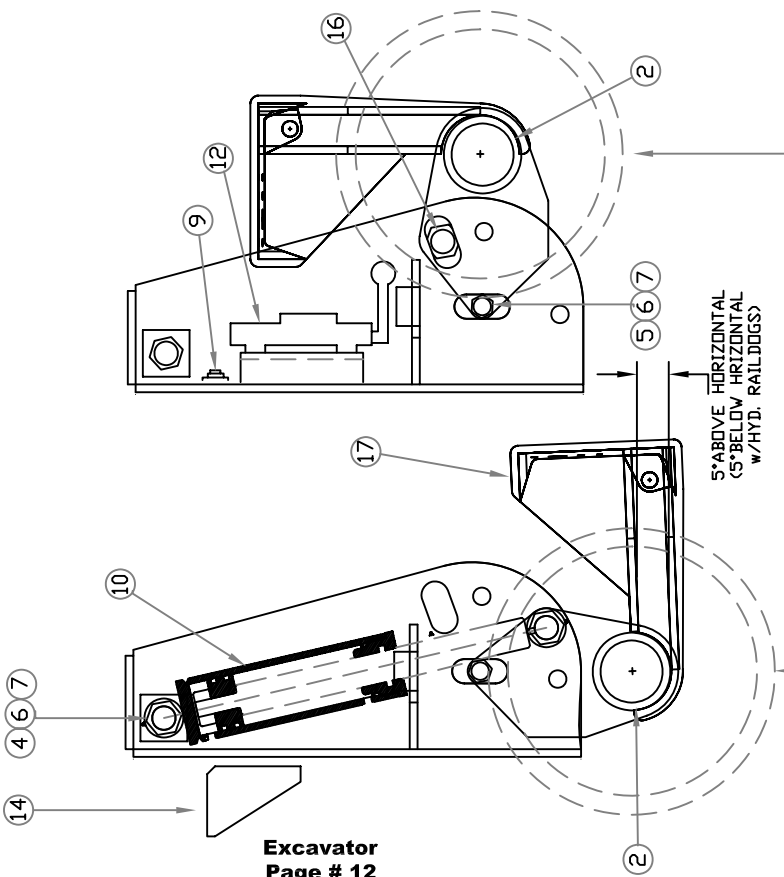
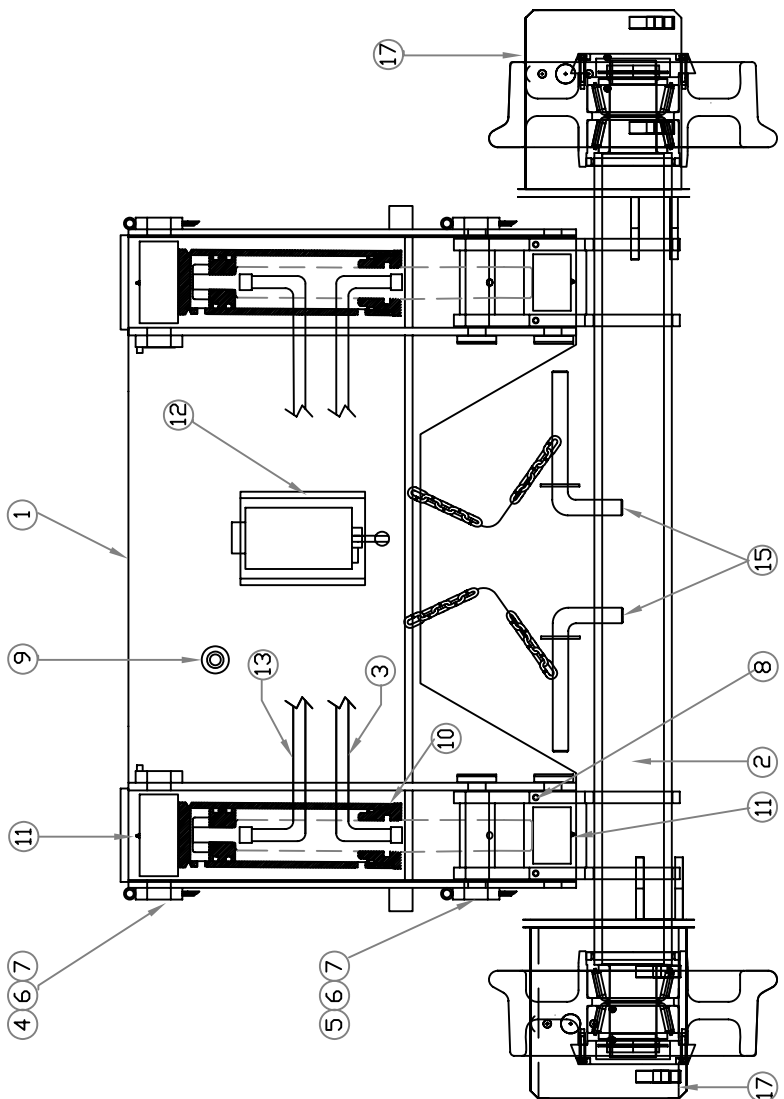
ITEM	PART NO.	QTY	DESCRIPTION
1	240400	1	HYDRAULIC CYLINDER ASSY., FRONT RH (5-1/2')
2	240415	1	HYDRAULIC CYLINDER ASSY., FRONT LH (5-1/2')
3	800052	2	RW-1630 WHEEL, INSULATED
4	818101	1	AXLE, STANDARD RW-1630 (3-1/4"OD)
5	818106	2	PIVOT ARM ASSY., FRONT RH
6	818107	2	PIVOT ARM ASSY., FRONT LH
7	818114	2	AXLE TUBE WELDMENT, FRONT (4"OD)
8	818117	1	LONG ARM ASSY., FRONT OUTER LH
9	818118	1	LONG ARM ASSY., FRONT OUTER RH
10	818119	2	LONG ARM DETAIL, FRONT INNER BOTH SIDES
11	818183	4	PIN ASSY., FRONT MOUNTING (1-1/4" x 13"L)
12	818127	4	NUT, SLOTTED HEX (1"-8)
13	818128	4	COTTER PIN (3/16" x 2')
14	818134	4	NUT, SLOTTED HEX (1-1/2" - 6)
15	818136	4	WASHER, FLAT (1-1/2")
16	818137	4	COTTER PIN (1/4" x 2-1/2')
17	818185	2	CROSS TUBE DETAIL, FRONT
18	818152	2	SPACER, PIVOT ARM (3/4" SCH-40 x 7-1/2')
19	818146	2	TIE PIN ASSY., PIVOT ARM (GHC 3/4"-10 x 10"Gr.5)
20	82872	2	SPRING BRACKET ASSY., FRONT
21	82875	1	MOUNTING BRACKET TUBE ASSY., FRONT RH (6x6)
22	82876	1	MOUNTING BRACKET TUBE ASSY., FRONT LH (6x6)
23	82922	4	FRONT BRACKET SPACER WASHER DETAIL
24	818396	1	COBRA AIR BRAKE ASSY., FRONT DRIVER'S SIDE
25	818397	1	COBRA AIR BRAKE ASSY., FRONT PASSENGER'S SIDE
26	818164	1	PIN-OFF ASSY., PASSENGER'S SIDE
27	818163	1	PIN-OFF ASSY., DRIVER'S SIDE

* NOTE: ITEM #'s 26 & 27 ARE COMPONENTS OF ITEM #'s 8 & 9 RESPECTIVELY.



REV	DATE	DESCRIPTION	BY	APP
TOLERANCES: UNLESS SPECIFIED: FRACTIONS: ± 1/32" DECIMALS: ± 0.005" HOLE DRILLING: ± 0.005" ANGLES: ± 0.015" THREADS: PER ANSI B1.13-1 BREAK SHARP EDGES				
DRAWN BY: WET		APPD BY:	DATE: 12/10/98	
TITLE: GRADALL - FRONT ASSEMBLY (6x4 & 6x6) (RW-1630 WHEEL & AXLE ASSEMBLY)		DRAWING NUMBER: 4042875-1512		
DIVERSIFIED METAL FABRICATORS, INC.		REV:	#	
			EX1657	

ITEM	PART NO.	QTY	DESCRIPTION
1	81210	1	REAR WELDMENTS
2	81311	1	RW-1650 WHEEL & AXLE REAR ASSEMBLY
3	82623	2	LOWER CYLINDER HOSE ASSEMBLY
4	82803	2	UPPER PIN ASSEMBLY
5	82806	2	LOWER PIN ASSEMBLY
6	818256	4	NUT, SLOTTED HEX (SLHN 1-1/4"-7)
7	818258	4	COTTER PIN (3/16"x 2")
8	82730	(REF.)	SET SCREW
9	810730	1	SWITCH, PUSH BUTTON (SWITCHG-3)
10	240350	2	HYDRAULIC CYLINDER, REAR
11	240123	2	GREASE FITTINGS (1610-BL)
12	82600	1	VALVE ASSEMBLY (GRESEN SP-4-HP)
13	82617	2	UPPER CYL. HOSE ASSY.
14	82885	4	GUSSET BURN OUT
15	82828	2	PIN-OFF PIN ASSEMBLY
16	82808	2	CYLINDER ROD PIN, REAR
17	819000	1	COBRA BRAKE AXLE SET

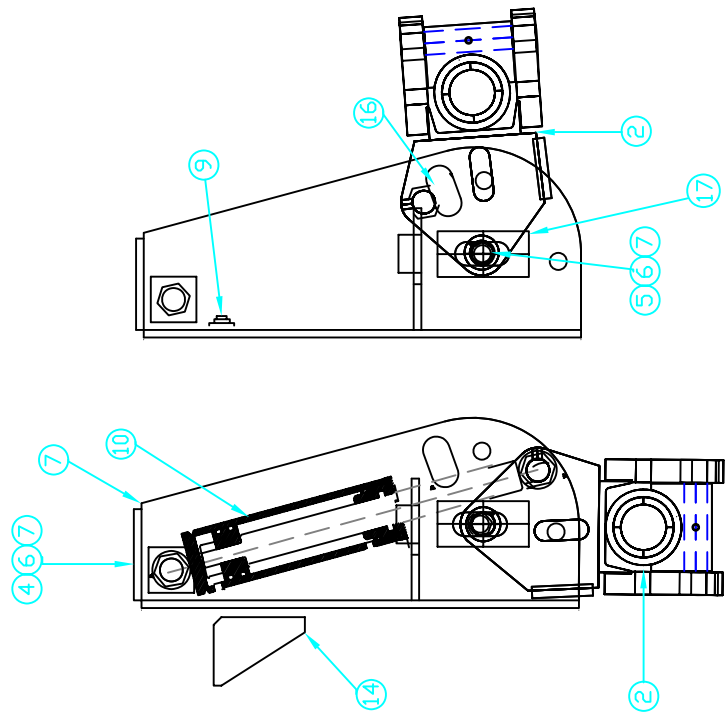
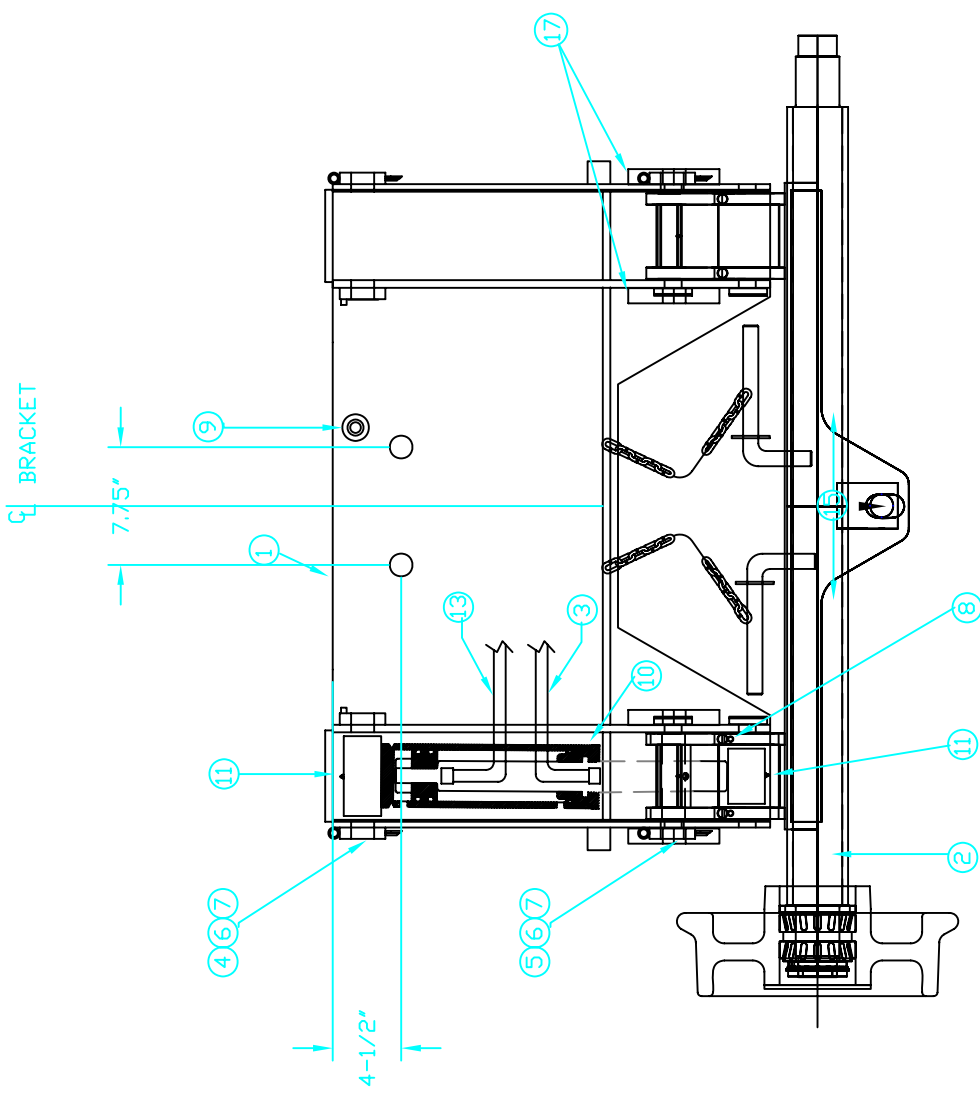


REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED: FRACTIONS: DECIMALS: DECIMALS: FRACTIONS: ANGLES: MINUTES: THREADS:		DRAWN BY: WET APP'D BY:
TITLE: GRADALL - REAR ASSEMBLY (RW-1650 WHEEL & AXLE ASSEMBLY)		DATE: 12/10/98 DRAWING NUMBER: EX1659
DIVERSIFIED METAL FABRICATORS, INC. (404)875-1512		REV: #

ITEM	PART NO.	QTY	DESCRIPTION
1	81210	1	REAR WELDMENTS
2	83414	1	1630 WHEEL / AXLE ASSY., ARTICULATING
3	82623	2	LOWER CYL. HOSE ASSY.
4	82730	(REF.)	UPPER PIN ASSY. (82803)
5	82730	(REF.)	LOWER PIN ASSY. (82806)
6	82730	(REF.)	SLHN 1-1/4"-7
7	82730	(REF.)	COITER PIN 3/16"x 2"
8	82730	(REF.)	SET SCREW

ITEM	PART NO.	QTY	DESCRIPTION
9	82730	(REF.)	PUSH BUTTON (SWITCH - G-3)
10	82730	(REF.)	CYLINDER (240350)
11	82730	(REF.)	GREASE FITTINGS
12	#	#	#
13	82617	2	UPPER CYL. HOSE ASSY.
14	82885	4	GUSSET BURN OUT
15	82730	(REF.)	PIN-OFF PIN
16	82730	(REF.)	CYL. ROD PIN (82808)
17	82826	(4)	REAR ADJ. BOSS



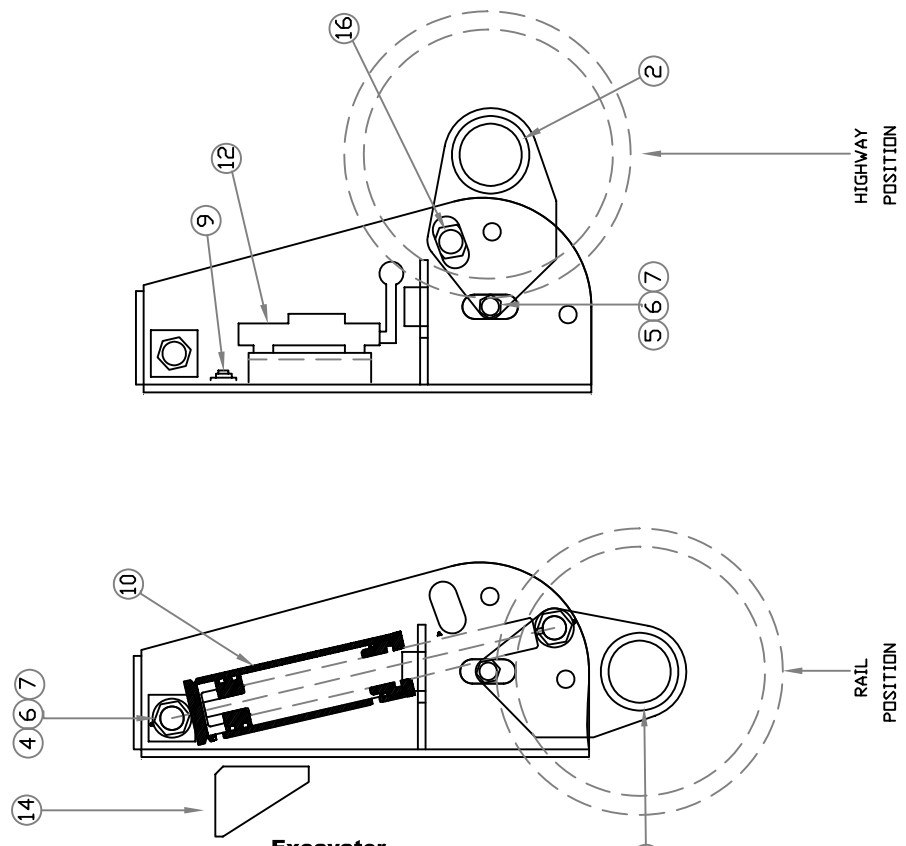
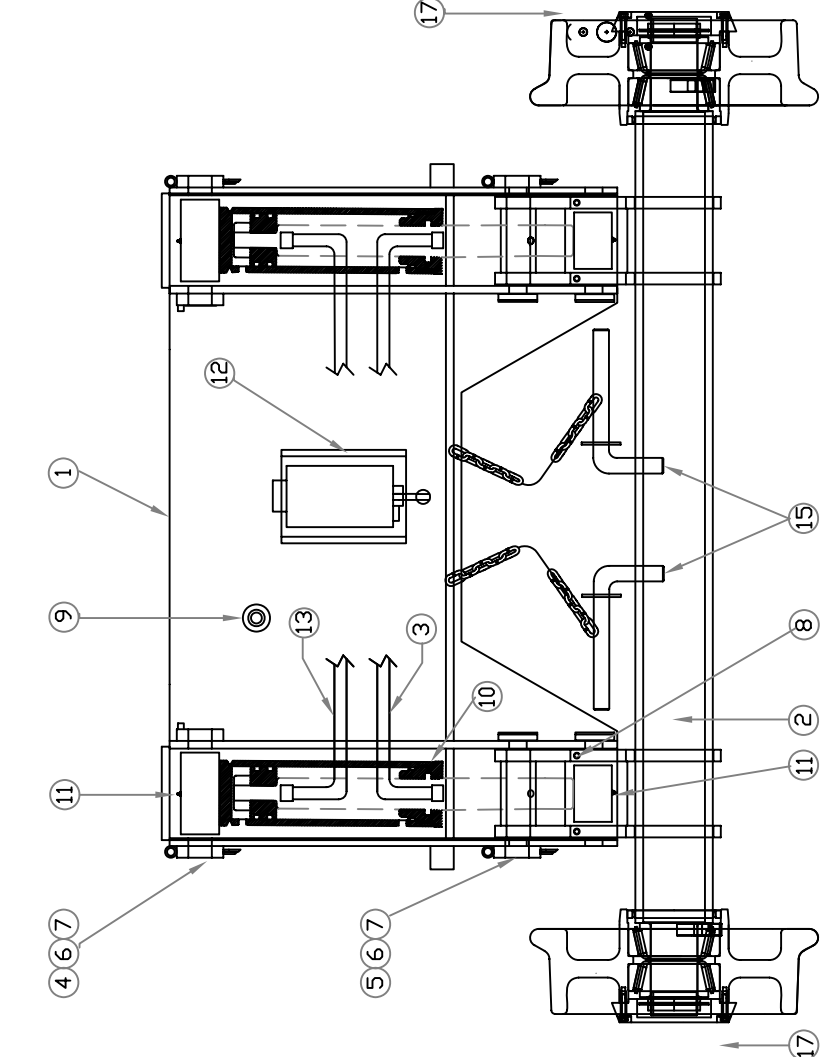
Excavator
Page # 13

REV	DATE	DESCRIPTION	BY	APP

TITLE:		DAEWOO WHEEL AND AXLE FRONT ASSY. RW-1630 W/REAR WELDMENTS	
DRAWN BY:	APPD BY:	DRAWING NUMBER:	REV:
SEW		EX81237	#
DATE:			
08/12/02			

TOLERANCES:		UNLESS SPECIFIED	
DIMENSIONS:		FRACTIONAL DECIMALS	
FRACTIONAL DECIMALS:		1/16" ± 0.005	
DECIMALS:		0.005 ± 0.001	
HOLE SIZES:		+0.015	
SHAFT SIZES:		-0.015	
THREADS:		UNC	
FINISH:		E6 AND E7	
MATERIAL:		S.A.E. 1045	

ITEM	PART NO.	QTY	DESCRIPTION
1	81210	1	REAR WELDMENTS
2	83412	1	RW-1630 WHEEL & AXLE REAR ASSEMBLY
3	82623	2	LOWER CYLINDER HOSE ASSEMBLY
4	82803	2	UPPER PIN ASSEMBLY
5	82806	2	LOWER PIN ASSEMBLY
6	818256	4	NUT, SLOTTED HEX (SLHN 1-1/4"-7)
7	818258	4	WASHER, LOCK W/ RIVET (3/16"x 2")
8	82730	(REF.)	SET SCREW
9	810730	1	SWITCH, PUSH BUTTON (SWITCHG-3)
10	240350	2	HYDRAULIC CYLINDER, REAR
11	240123	2	GREASE FITTINGS (1610-BL)
12	82600	1	VALVE ASSEMBLY (GRESEN SP-4-HP)
13	82617	2	UPPER CYL. HOSE ASSY.
14	82885	4	GUSSET BURN OUT
15	82828	2	PIN-OFF PIN ASSEMBLY
16	82808	2	CYLINDER ROD PIN, REAR
17			



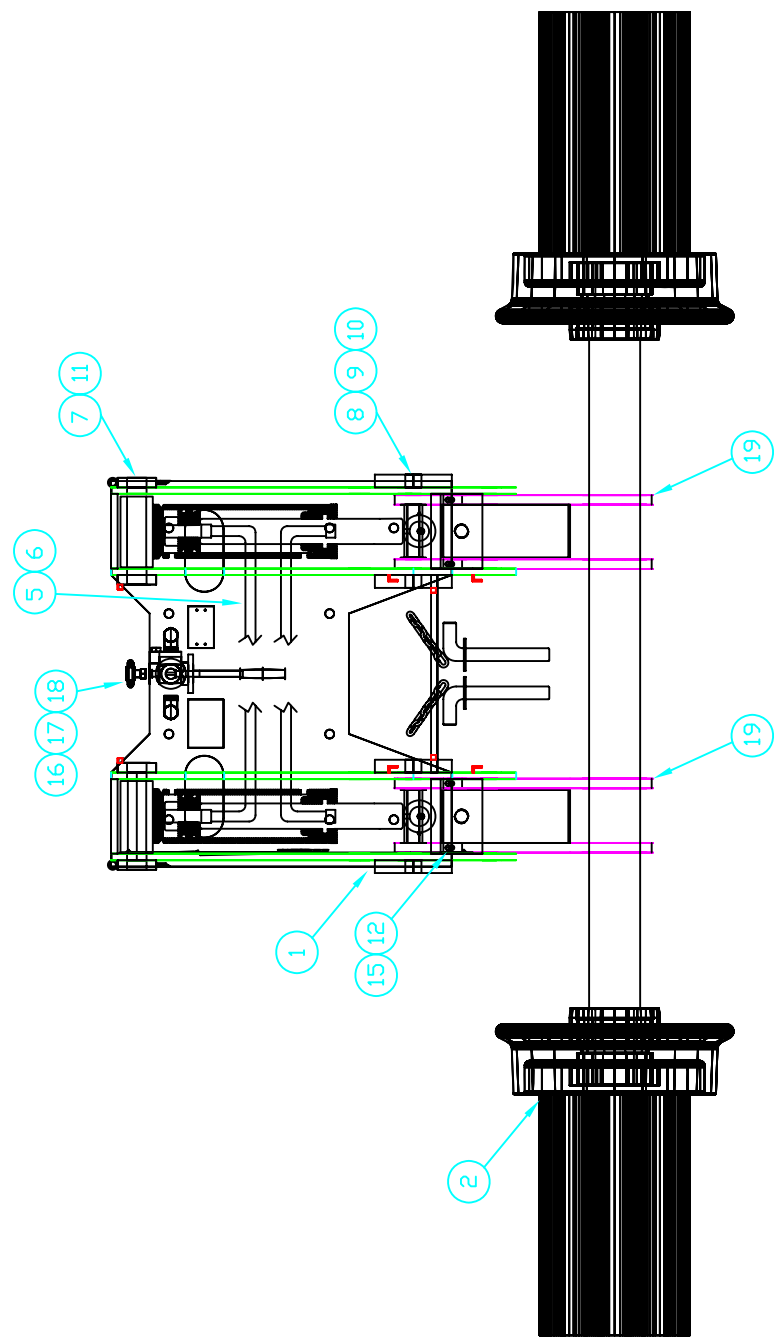
**Excavator
Page # 14**

REV	DATE	DESCRIPTION	BY	APP
		TITLE: DAEWOO WHEEL AND AXLE REAR ASSY. RW-1630 ASSEMBLY		
DRAWN BY: SEW		DIVERSIFIED METAL FABRICATORS, INC. 404875-1512	DRAWING NUMBER: REV: #	
DATE: 08/12/02			EX81239	

REV	DATE	DESCRIPTION	BY	APP
TOLERANCES: (UNLESS SPECIFIED) DIMENSIONS IN PARENTHESES FRACTIONS OTHER THAN 1/16" X XXX OR .XXX OR .005 DRILL SIZES + .015 ANGLE FINISHES IN MICRO THREADS: IN EX. AND 2B				

ITEM	PART NO.	QTY	DESCRIPTION
1	83330	1	MAIN WELDMNT
2	83312	1	FRICTION DRIVE AXLE ASSY., NON-ARTICULATING
3	83348	2	HEX HEAD CAP SCREW (HHCS 1"-12 x 4" ALL THD, Gr.8)
4	83349	2	HEX NUT (HN 1"-12 Gr.8)
5	82623	2	LOWER HOSE ASSY
6	82617	2	UPPER HOSE ASSY
7	82803	2	UPPER PIN ASSY
8	83346	2	PIVOT PIN ASSY
9	818127	2	SLOTTED HEX NUT (SLHN 1"-8)

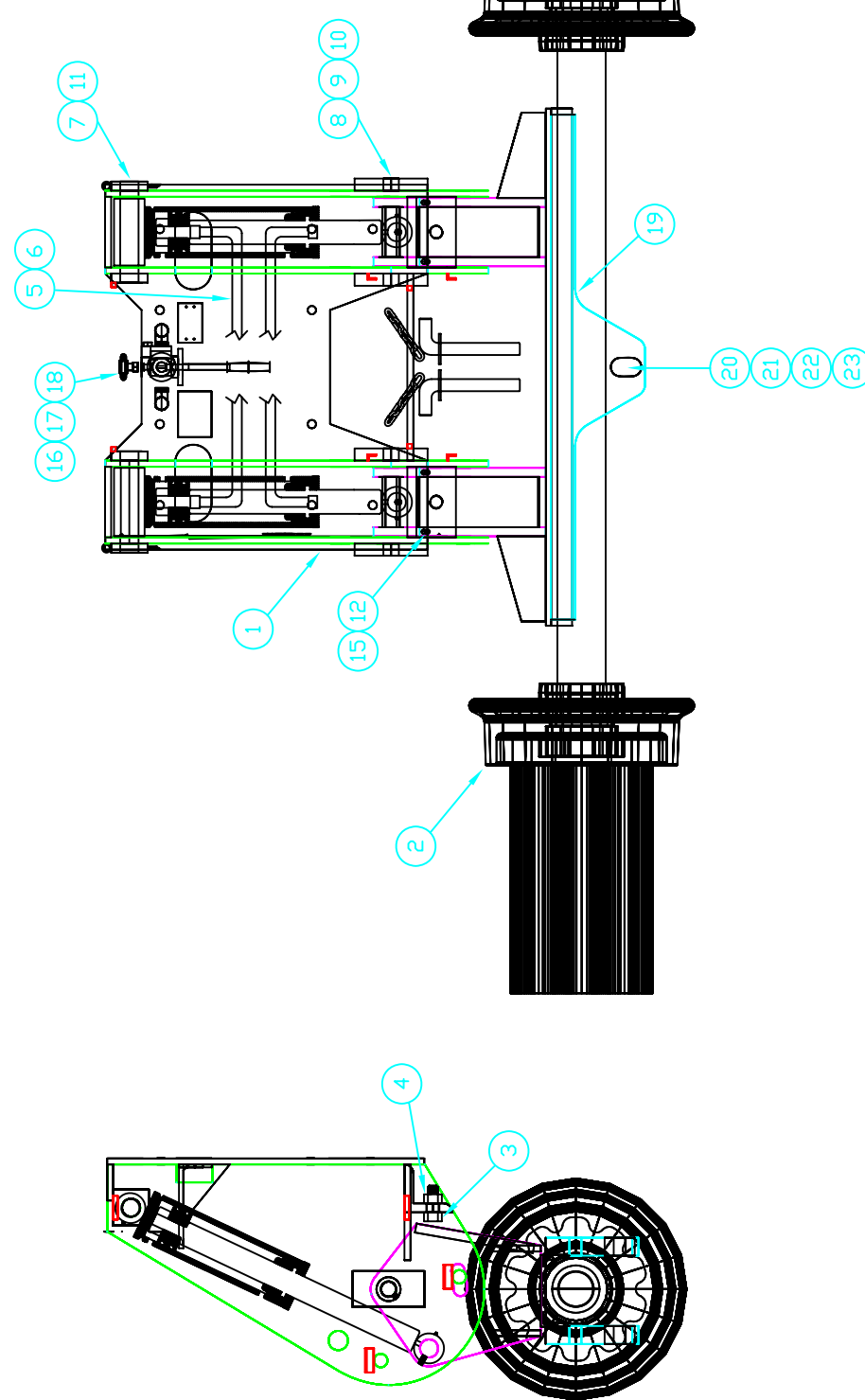
ITEM	PART NO.	QTY	DESCRIPTION
10	818128	4	COTTER PIN (3/16" x 2")
11	818127	2	SLOTTED HEX NUT (SLHN 1"-8)
12	102408	4	SET SCREW (3/8"-16 x 1-1/2")
13	241900	2	HYDRAULIC CYLINDER ASSEMBLY
14	818105	2	GREASE FITTINGS (1/8"-27 NPT)
15	82808	2	CYLINDER ROD PIN
16	810204	1	ENERGY VALVE
17	106102	4	HEX HEAD CAP SCREW (HHCS 3/8"-16 x 1")
18	81970	4	LOCK WASHER (L/W 3/8")
19	83315	2	PIVOT ARM WELDMNT (NON-ARTICULATING)



REV	DATE	DESCRIPTION	BY	APP
TOLERANCES: UNLESS SPECIFIED: FRACTIONAL DECIMALS DECIMALS ANGLES HOLE DRILL SIZES THREADS FINISHES UNLESS OTHERWISE SPECIFIED: FRACTIONAL DECIMALS: 1/16" DECIMALS: .005 ANGLES: 30° HOLE DRILL SIZES: +.015 THREADS: UNF AND UNF-2B FINISHES: EX AND 2B UNLESS OTHERWISE SPECIFIED: 1.000 2.000 3.000				
TITLE: FRICTION DRIVE ASSEMBLY (NON-ARTICULATING)				
DRAWN BY: LDR			APPD BY:	
DATE: 10/27/99			DRAWING NUMBER: EX83310	
REV:			#	

ITEM	PART NO.	QTY	DESCRIPTION
1	83330	1	MAIN WELDMENT
2	83352	1	FRICTION DRIVE AXLE ASSY., ARTICULATING.
3	83348	2	HEX HEAD CAP SCREW (HHCS 1"-12 x 4" ALL THD, Gr.8)
4	83349	2	HEX NUT (HN 1"-12 Gr.8)
5	82663	2	LOWER HOSE ASSY
6	82617	2	UPPER HOSE ASSY
7	82803	2	UPPER PIN ASSY
8	83346	2	PIVOT PIN ASSY
9	818127	2	SLOTTED HEX NUT (SLHN 1"-8)

ITEM	PART NO.	QTY	DESCRIPTION
10	818128	4	COTTER PIN (3/16"x 2")
11	818127	2	SLOTTED HEX NUT (SLHN 1"-8)
12	102408	4	SET SCREW (3/8"-16 x 1-1/2")
13	241900	2	HYDRAULIC CYLINDER ASSEMBLY
14	818105	2	GREASE FITTINGS (1/8"-27 NPT)
15	82808	2	CYLINDER ROD PIN
16	810204	1	ENERGY VALVE
17	81970	4	HEX HEAD CAP SCREW (HHCS 3/8"-16 x 1")
18	83315	4	LOCK WASHER (L/W 3/8")
19	83355	1	PIVOT ARM & CHANNEL WELDMENT
20	818257	1	REAR LOWER PIN, SLOTTED
21	818255	1	PIN HEAD, SLOTTED
22	818256	1	SLOTTED HEX NUT (SLHN 1-1/4")
23	818258	1	COTTER PIN (3/16"x 2")



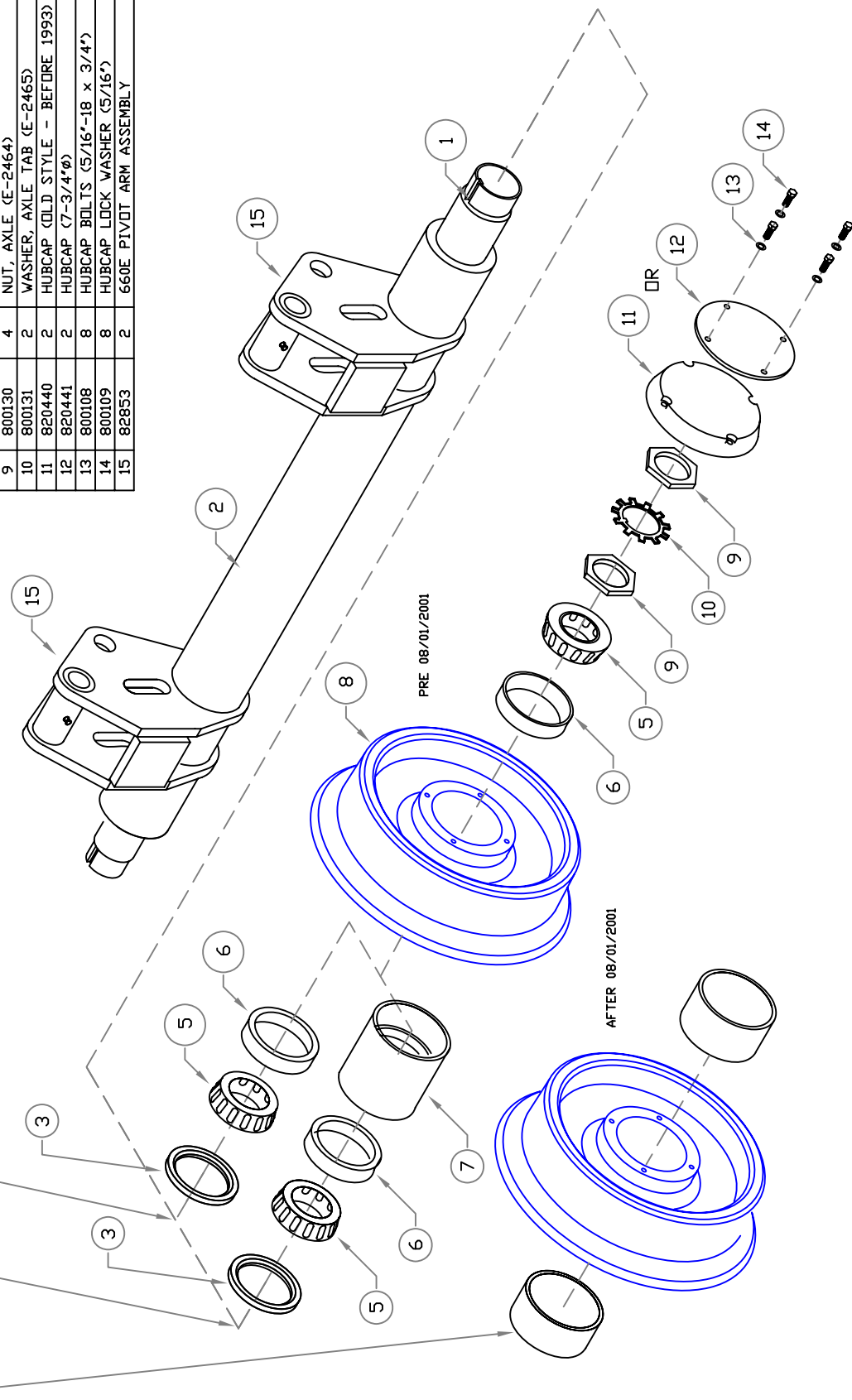
Excavator
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REV	DATE	DESCRIPTION	BY	APP
TOLERANCES: UNLESS SPECIFIED: FRACTIONAL DECIMALS ± 0.005 DECIMALS ± 0.005 ANGLES ± 0.015 THREADS: FINE & UNF AND UNF UNF AND UNF				
TITLE: FRICTION DRIVE ASSEMBLY (ARTICULATING)				
DRAWN BY: LDR APPD BY: LDR DATE: 10/27/99 DRAWING NUMBER: EX83350 REV: #				

ITEM	PART NO.	QTY	DESCRIPTION
1	820401	1	AXLE, RW-1650 (4"φ)
2	820402	1	AXLE TUBE (5"φO.D.)
3	800127	2	SEAL, STANDARD (CR49928)
4			
5	800125	4	BEARING CONE (TIMKEN-6420)
6	800126	4	BEARING RACE (TIMKEN-6466)
7	800018	1 or 0	PHENOLIC INSULATOR (INSULATED WHEELS ONLY)
8	(REF.)	2	WHEEL (see WHEEL IDENTIFICATION CHART)
9	800130	4	NUT, AXLE (E-2464)
10	800131	2	WASHER, AXLE TAB (E-2465)
11	820440	2	HUBCAP (OLD STYLE - BEFORE 1993)
12	820441	2	HUBCAP (7-3/4"φ)
13	800108	8	HUBCAP BOLTS (5/16" x 3/4")
14	800109	8	HUBCAP LOCK WASHER (5/16")
15	82853	2	660E PIVOT ARM ASSEMBLY

INSULATED (DRIVER'S SIDE ONLY, WHEN APPLICABLE)

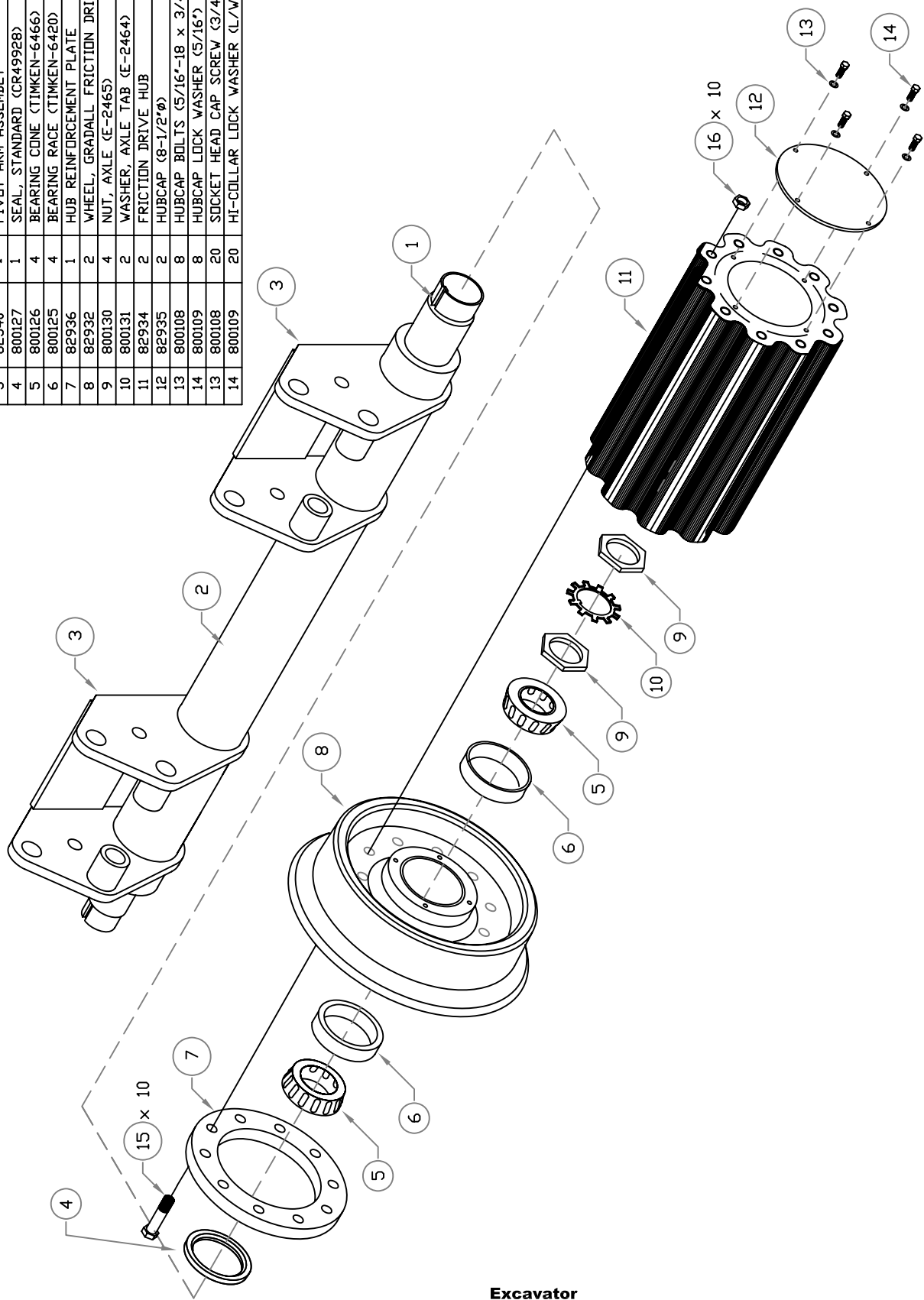
NON-INSULATED



REV	DATE	DESCRIPTION	BY	APP
		TITLE:		
		RW-1650 WHEEL & AXLE ASSEMBLY (EXPLODED)		
		DIVERSIFIED METAL FABRICATORS, INC. (404)875-1512		
		DATE:		REV:
		DRAWN BY:		DRAWING NUMBER:
		APPD BY:		#
		KLC		11/03/98
				EX81310

TOLERANCES:
UNLESS SPECIFIED:
DIMENSIONS: FRACTIONS
FRACTION: OTHER: 1/16"
X
XXX DR. XXXXX .005
DRILL SIZES: ± .015
ANGLE FINISH: EST. MICRO
THREADS: UNF AND UNF
FINISH: UNF AND UNF

ITEM	PART NO.	QTY	DESCRIPTION
1	820401	1	AXLE, RW-1650 (4"Ø)
2	820402	1	AXLE TUBE (5"ØO.D.)
3	82540	1	PIVOT ARM ASSEMBLY
4	800127	1	SEAL, STANDARD (CR49928)
5	800126	4	BEARING CONE (TIMKEN-6466)
6	800125	4	BEARING RACE (TIMKEN-6420)
7	82936	1	HUB REINFORCEMENT PLATE
8	82932	2	WHEEL, GRADALL FRICTION DRIVE WHEEL
9	800130	4	NUT, AXLE (E-2465)
10	800131	2	WASHER, AXLE TAB (E-2464)
11	82934	2	FRICTION DRIVE HUB
12	82935	2	HUBCAP (8-1/2"Ø)
13	800108	8	HUBCAP BOLTS (5/16" x 3/4")
14	800109	8	HUBCAP LOCK WASHER (5/16")
13	800108	20	SOCKET HEAD CAP SCREW (3/4"-10 x 3-1/2")
14	800109	20	HI-COLLAR LOCK WASHER (L/W 3/4")



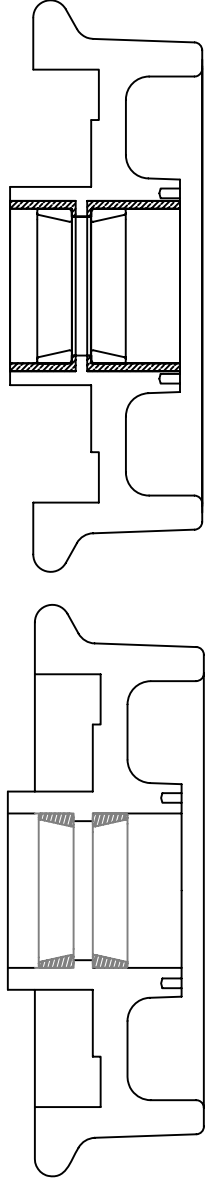
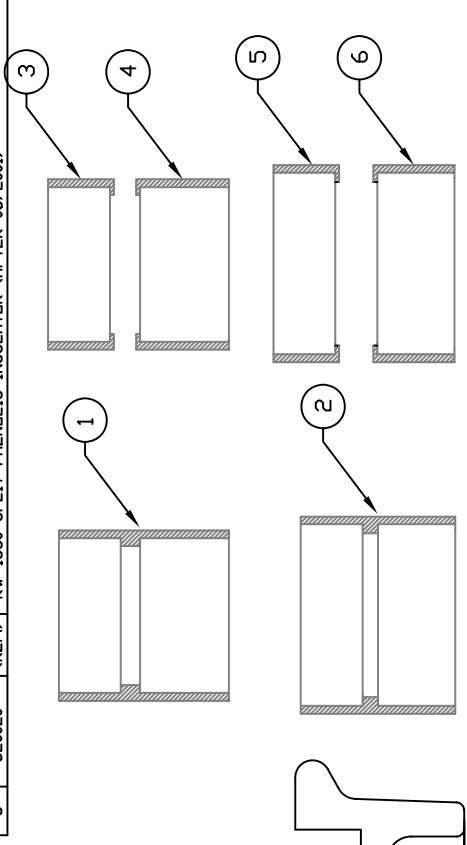
REV	DATE	DESCRIPTION	BY	APP
		TITLE: GRADALL FRICTION DRIVE AXLE ASSEMBLY		
		DIVERSIFIED METAL FABRICATORS, INC. (404)875-1512		
		DRAWING NUMBER: EX82518A		
		DATE: 11/03/98		
		DRAWN BY: KLC		
		APPD BY:		

TOLERANCES:
DIMENSIONS SPECIFIED UNLESS OTHERWISE NOTED
FRACTIONAL: 1/16, 1/8, 3/16, 1/2, 5/8, 3/4, 1, 1 1/2, 2, 3, 4
DECIMAL: .005, .015, .030, .063, .125, .250, .500, 1.000
DRAUGHTING: UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO BE TAKEN FROM THE UNFINISHED SURFACE UNLESS OTHERWISE SPECIFIED.
THREADS: UNLESS OTHERWISE SPECIFIED, ALL THREADS ARE TO BE TAKEN FROM THE UNFINISHED SURFACE UNLESS OTHERWISE SPECIFIED.

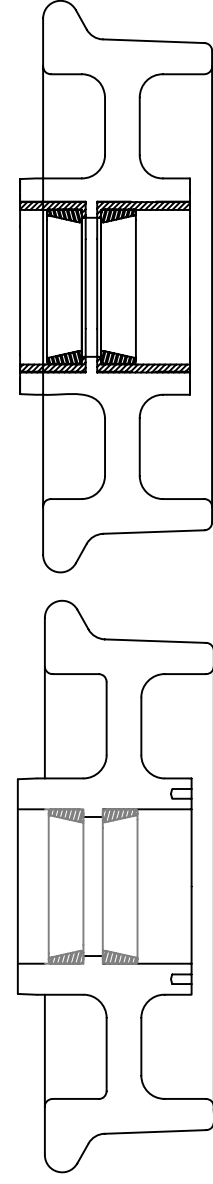


ITEM	PART NO.	QTY	DESCRIPTION
1	800007	(REF.)	RV-1630 PHENOLIC INSULATOR (PRIOR to 08/2001)
2	800018	(REF.)	RV-1650 PHENOLIC INSULATOR (PRIOR to 08/2001)
3	820008	(REF.)	RV-1630 SPLIT PHENOLIC INSULATOR (AFTER 08/2001)
4	820009	(REF.)	RV-1630 SPLIT PHENOLIC INSULATOR (AFTER 08/2001)
5	820018	(REF.)	RV-1650 SPLIT PHENOLIC INSULATOR (AFTER 08/2001)
6	820020	(REF.)	RV-1650 SPLIT PHENOLIC INSULATOR (AFTER 08/2001)

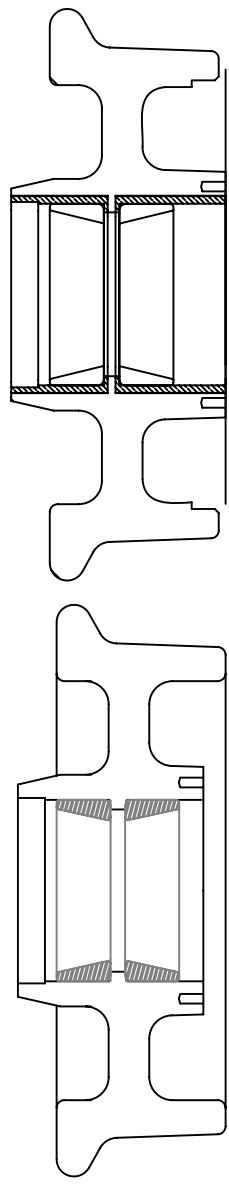
ITEM	PART NO.	QTY	DESCRIPTION
1	800027	(REF.)	CASTING FOR 1630 WHEEL W/INTERNAL DISC BRAKES
2	800001	(REF.)	CASTING FOR 1630 WHEEL W/INTERNAL ELECTRIC BRAKES
3	800049	(REF.)	CASTING FOR 1630 WHEEL W/EXTERNAL AIR BRAKES
4	800029	(REF.)	CASTING FOR 1650 WHEEL W/EXTERNAL AIR BRAKES
5	820491	(REF.)	CASTING FOR 1630 (2) PIECE WHEEL FLANGE
6	820489	(REF.)	CASTING FOR 1630 (2) PIECE WHEEL HUB



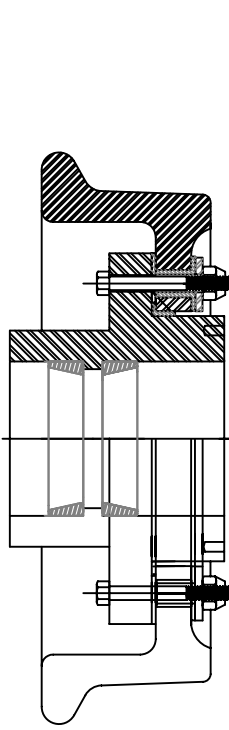
RV-1630 - P/N 800013
INSULATED - ELECTRIC BRAKES



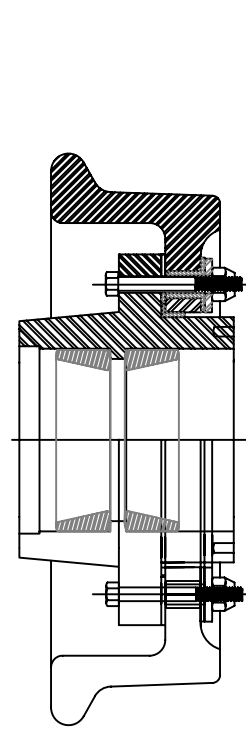
RV-1630 - P/N 800052
INSULATED - AIR BRAKES



RV-1650 - P/N 800016
INSULATED - NO BRAKES



RV-1630 - P/N 820494
(2) PIECE INSULATED



RV-1650 - P/N 820496
(2) PIECE INSULATED

REV	DATE	DESCRIPTION	BY	APP

STANDARD RAILWHEELS

ALL WHEELS INCLUDE BEARING RACES INSTALLED.
INSULATED WHEELS INCLUDE INSULATOR AND BEARING RACES INSTALLED.
BEARINGS, NUTS, WASHERS & ALL OTHER HARDWARE ARE EXTRA.

DM

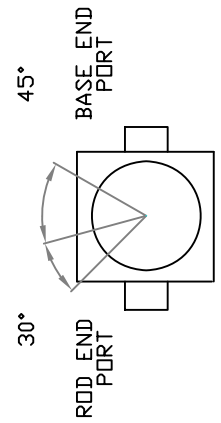
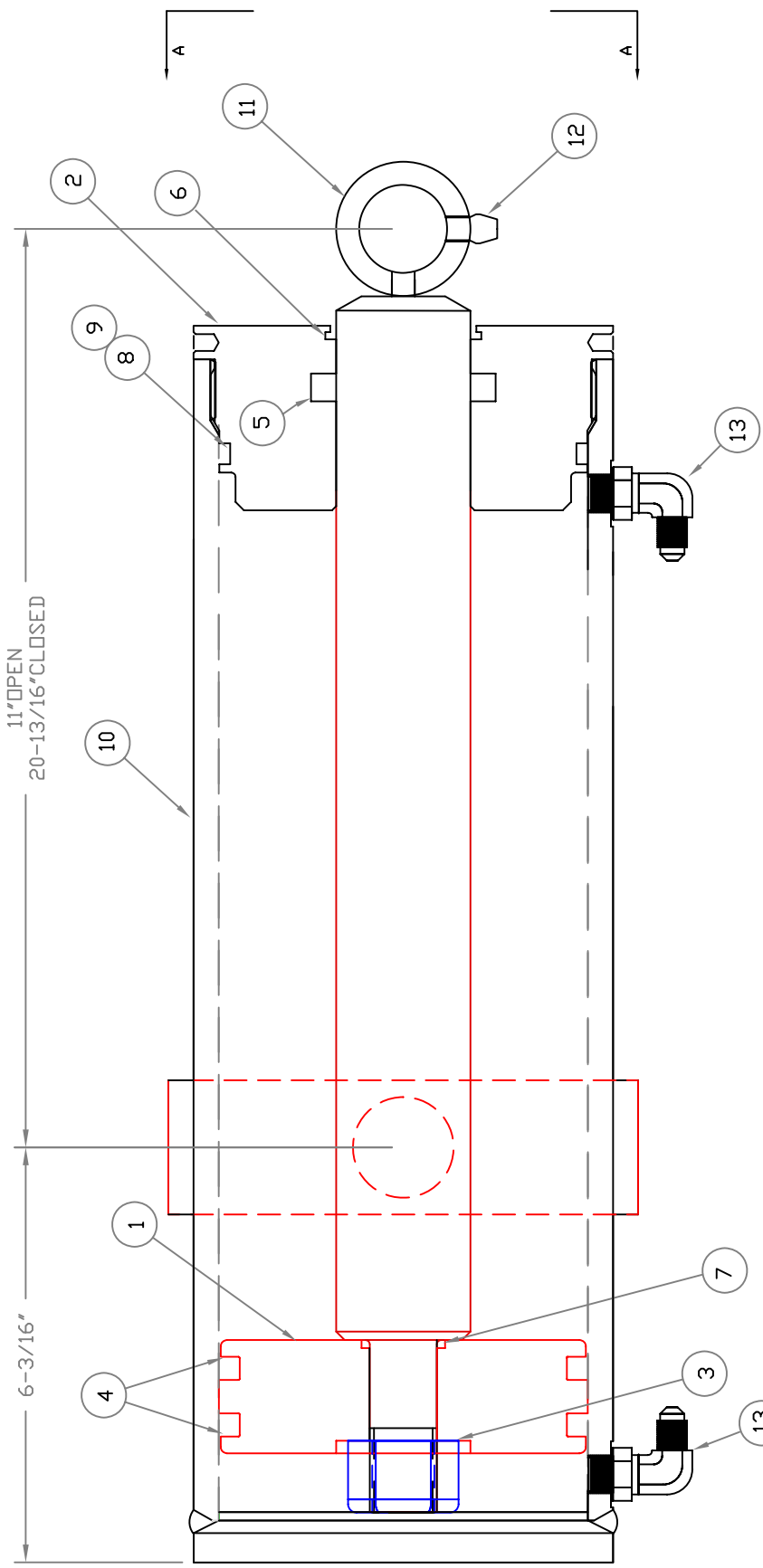
REV: 11/03/98
DRAWING NUMBER: EX1642
DATE: 11/03/98
DRAWN BY: KLC
APPD BY: KLC

TOLERANCES:
UNLESS SPECIFIED:
DIMENSIONS: ± 0.005
FRACTION: ± 1/16"
X: ± 0.003
XXX OR .XXX00 ± .005
DRILL SIZES: + .015
ANGLE FINISH: ± 1 MICRO
THREADS: ± 0.0005 DIA AND 2B
FINISH: ± 0.0005 DIA AND 2B

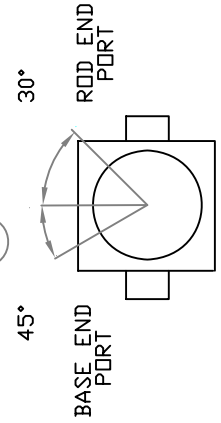
TITLE:
RV-1630/1650 16' WHEEL IDENTIFICATION CHART
DIVERSIFIED METAL FABRICATORS, INC. (404) 875-1512
REV: 11/03/98
DRAWING NUMBER: EX1642

ITEM	PART NO.	QTY	DESCRIPTION
1	240401	1	PISTON: 5-1/2"
2	240402	1	GLAND: 5-1/2"
3	240403	1	NUT, NYLOCK: 1-1/2"-12
4	240404	2	SEAL, PISTON: 3120-4875
5	240105	1	SEAL, ROD: 3750-2000
6	240106	1	WIPER, ROD: 959-21
7	240407	1	O-RING, PISTON: 2-222
8	240408	1	O-RING, GLAND: 2-354
9	240409	1	O-RING, GLAND BACK-UP: 8-354
10	240410	1 or	BARREL ASSEMBLY: 5-1/2" (PASSENGER'S SIDE)
11	240417	1	BARREL ASSEMBLY: 5-1/2" (DRIVER'S SIDE)
12	240420	1	ROD ASSEMBLY: 2"
13	241006	2	FITTING, ELBOW: 1/4" JIC x 9/16"-18; 6801-NW-4-6

NOTE:
DMF P/N 240425 - SEAL KIT
(SEAL KIT INCLUDES ITEM #'s 4,5,6,7,8 & 9)



DETAIL A-A
P/N EX240415
DRIVER'S SIDE



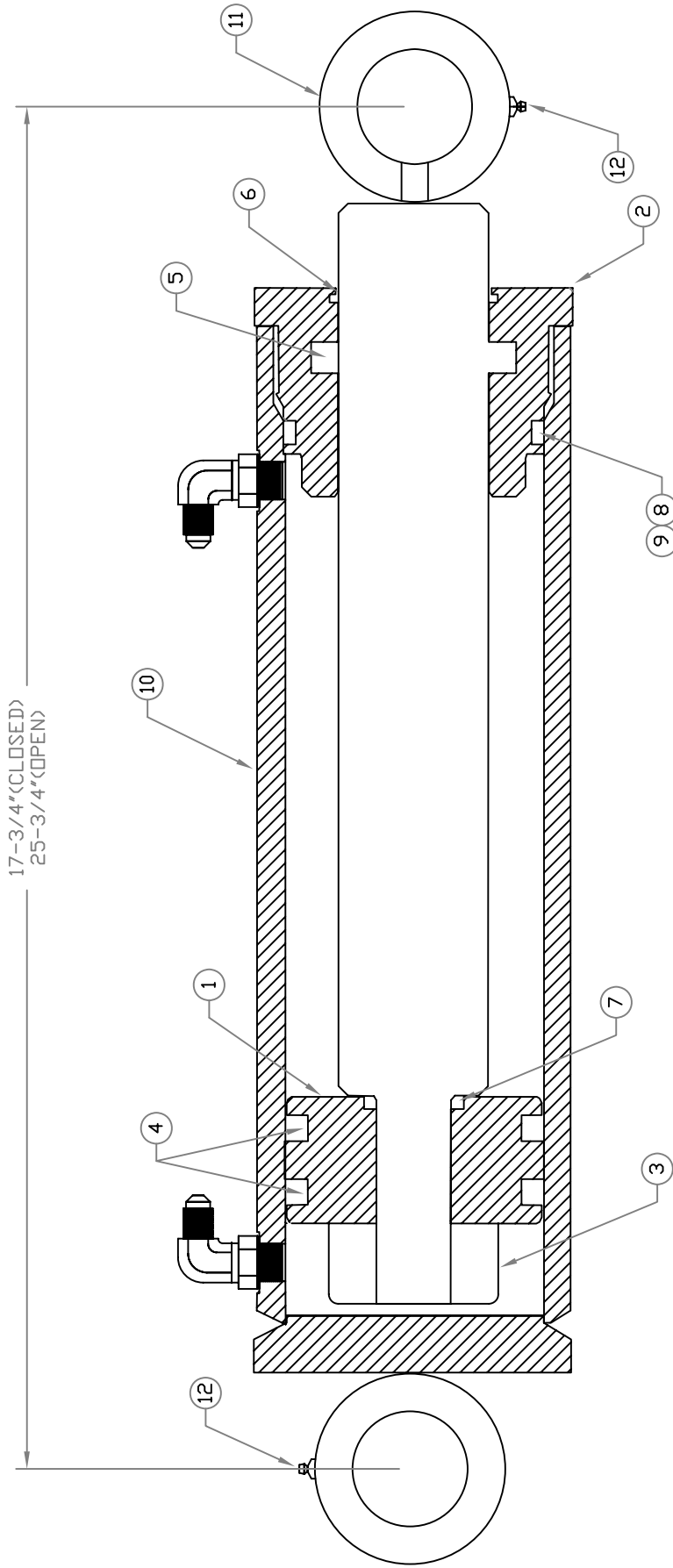
DETAIL A-A
P/N EX240400
PASSENGER'S SIDE

REV	DATE	DESCRIPTION	BY	APP

TITLE: FRONT HYDRAULIC CYLINDER ASSEMBLY (5-1/2" BORE x 2" ROD x 9-13/16" STROKE) (DRIVER'S SIDE - PASSENGER'S SIDE)	
DRAWN BY: WEG	APPD BY: WEG
DATE: 12/08/93	DRAWING NUMBER: EX240400/ EX240415

ITEM	PART NO.	QTY	DESCRIPTION
1	240301	1	PISTON: 3-1/2"
2	240302	1	GLAND: 3-1/2"
3	240103	1	NUT, NYLON: 1"-14
4	240304	2	SEAL, PISTON: 3120-2875
5	240105	1	SEAL, ROD: 3750-2000
6	240106	1	WIPER, ROD: 959-21
7	240107	1	O-RING, PISTON: 2-214
8	240308	1	O-RING, GLAND: 2-338
9	240309	1	O-RING, GLAND BACK-UP: 8-338
10	240360	1	BARREL ASSEMBLY: 3-1/2"
11	240370	1	ROD ASSEMBLY: 2"
12	240123	1	GREASE FITTING: 1/8" NPT

NOTE:
DMF P/N 240355 - SEAL KIT
(SEAL KIT INCLUDES ITEM #'s 4,5,6,7,8 & 9)



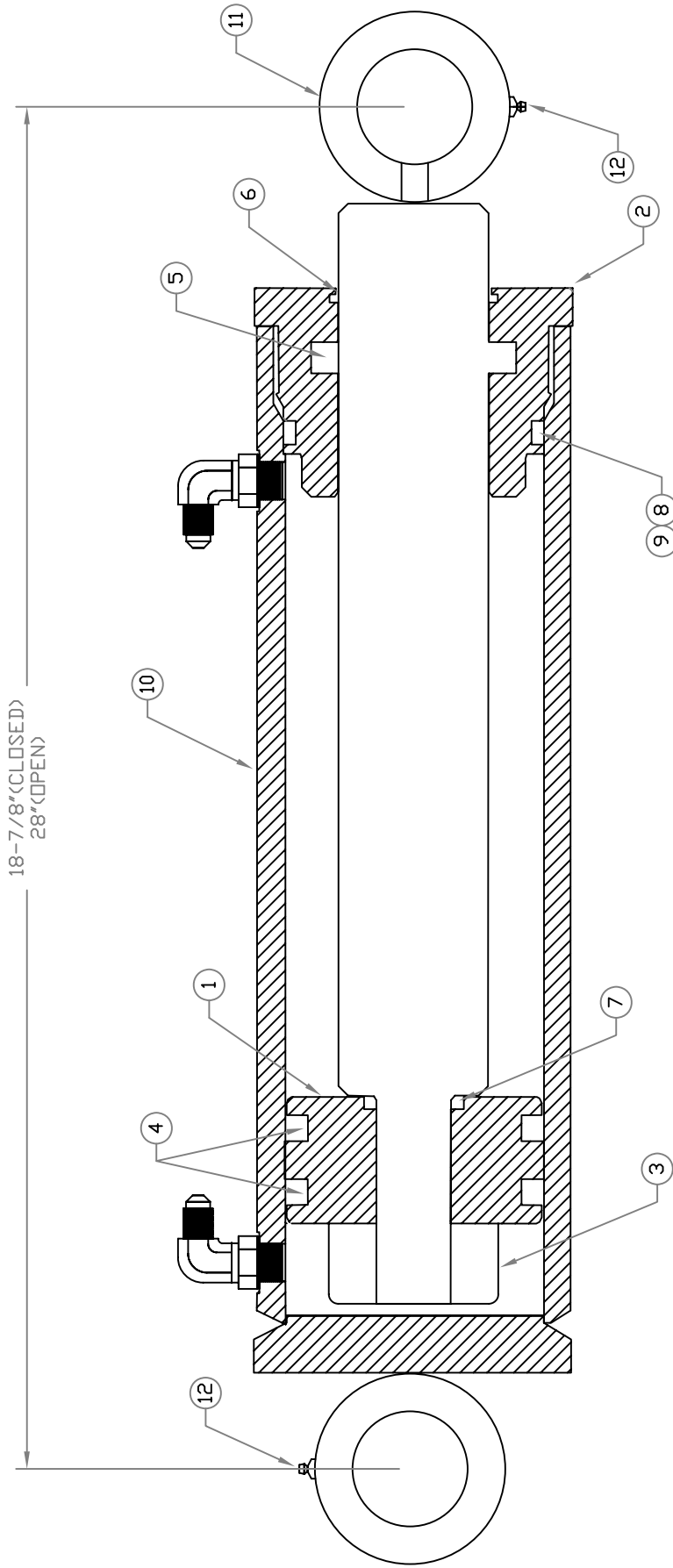
REV	DATE	DESCRIPTION	BY	APP

TITLE: REAR HYDRAULIC CYLINDER ASSEMBLY (3-1/2" BORE x 2" ROD x 8" STROKE) (DRIVER'S SIDE - PASSENGER'S SIDE)		REV: #
EXCAVATOR	DRAWN BY: TSH	DRAWING NUMBER: EX240350
DATE: 11/10/92	APPD BY:	REV: #
DIVERSIFIED METAL FABRICATORS, INC. (404875-1512)		

TOLERANCES:
UNLESS SPECIFIED:
DIMENSIONS: FRACTIONS: 1/16"
DECIMALS: .005
X .005 DR .0000E .015
ANGULAR FINISH: BEST MICRO
THREADS: EX AND 2B
FINISH: EX AND 2B

ITEM	PART NO.	QTY	DESCRIPTION
1	240201	1	PISTON: 3-1/2"
2	240202	1	GLAND: 3-1/2"
3	240103	1	NUT, NYLON: 1"-14
4	240304	2	SEAL, PISTON: 3120-2875
5	240105	1	SEAL, ROD: 3750-2000
6	240106	1	WIPER, ROD: 959-21
7	240107	1	O-RING, PISTON: 2-214
8	240308	1	O-RING, GLAND: 2-338
9	240309	1	O-RING, GLAND BACK-UP: 8-338
10	241910	1	BARREL ASSEMBLY: 3-1/2"
11	241920	1	ROD ASSEMBLY: 2'
12	240123	2	GREASE FITTING: 1/8" NPT

NOTE:
DMF P/N 240355 - SEAL KIT
(SEAL KIT INCLUDES ITEM #'s 4,5,6,7,8 & 9)



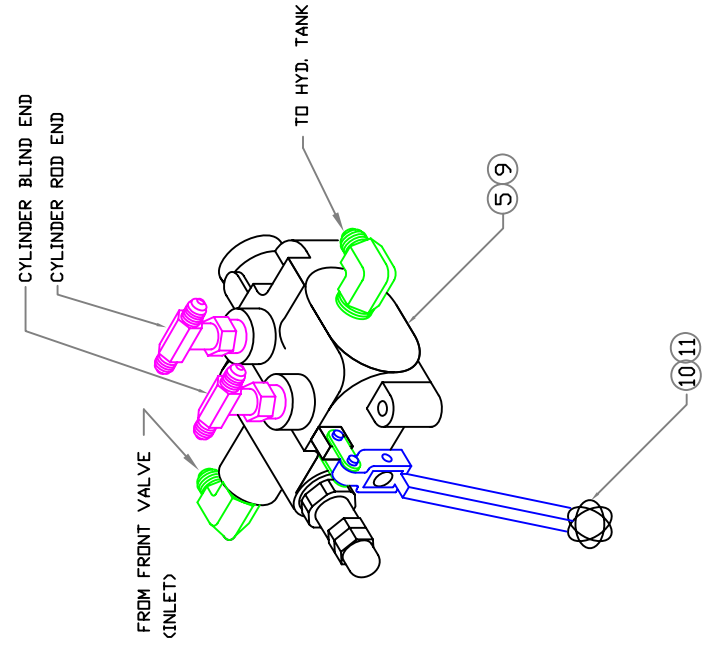
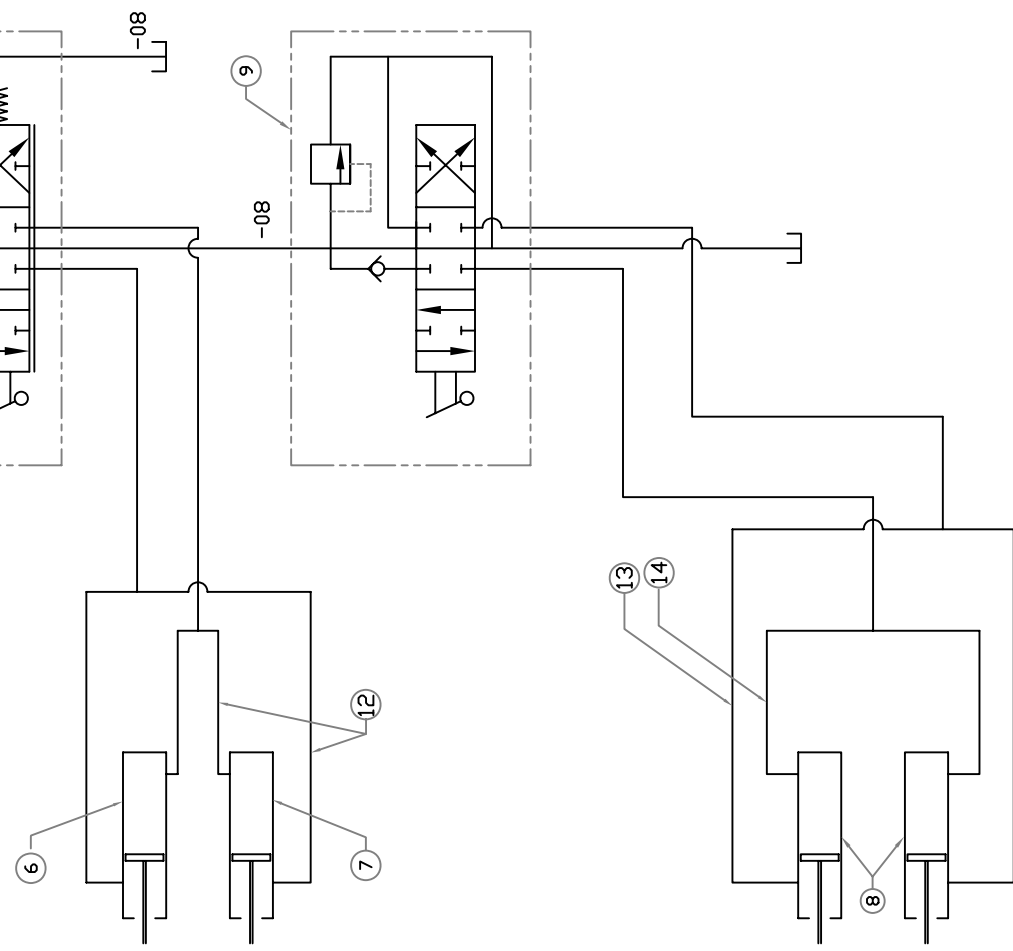
REV	DATE	DESCRIPTION	BY	APP

TITLE: REAR HYDRAULIC CYLINDER ASSEMBLY (3-1/2" BORE x 2" ROD x 10" STROKE) (DRIVER'S SIDE - PASSENGER'S SIDE)	
DRAWN BY: WET	APP'D BY:
DATE: 09/15/99	DRAWING NUMBER: EX241900
REV: 	#

TOLERANCES:
UNLESS SPECIFIED:
FRACTIONAL DIMENSIONS ± 0.005
DECIMAL DIMENSIONS ± 0.005
HOLE DIMENSIONS ± 0.015
ANGULAR DIMENSIONS ± 0.015
THREADS: UNF AND 2B
FINISH: AS SUPPLIED

ITEM	PART NO.	QTY	DESCRIPTION
1	82900	1	EXISTING G3VD STR/G PUMP w/VICKERS RELIEF SPDDL 233020
2	82900	1	HYDRAULIC TANK ASSEMBLY
3	810202	1	FILTER, SUCTION (VICKERS DFSS-10-P-25M-10)
4	810202	1	VALVE, ELECTRIC DIVERTER (FPS-8-10-3-12VDC)
5	810202	1	VALVE, FRONT CONTROL (GRESSEN SPYTE-4-HP)
6	240400	1	HYDRAULIC CYLINDER ASSY., FRONT PASSENGER'S SIDE
7	240415	1	HYDRAULIC CYLINDER ASSY., FRONT DRIVER'S SIDE
8	240350	2	HYDRAULIC CYLINDER ASSY., REAR
9	810222	1	VALVE, REAR CONTROL (GRESSEN SP-4-HP)
10	810214	1	GRESSEN VALVE REPLACEMENT HANDLE w/LINK KIT
11	810217	1	GRESSEN VALVE REPLACEMENT HANDLE (ONLY)
12	810630	1	HYD. HOSES, FRONT 38" qty.4 (#04 w/#04JIC SWIVEL)
13	82617	1	HYD. HOSES, REAR UPPER 21" qty.2 (#04 w/#04JIC SWIVEL)
14	82629	1	HYD. HOSES, REAR LOWER 29" qty.2 (#04 w/#04JIC SWIVEL)

NOTES: PRESSURE AND RETURN LINE 1/2" (-08) SAE100R1 HYDRAULIC HOSE w/08 JIC FEMALE SWIVEL ON EACH END.



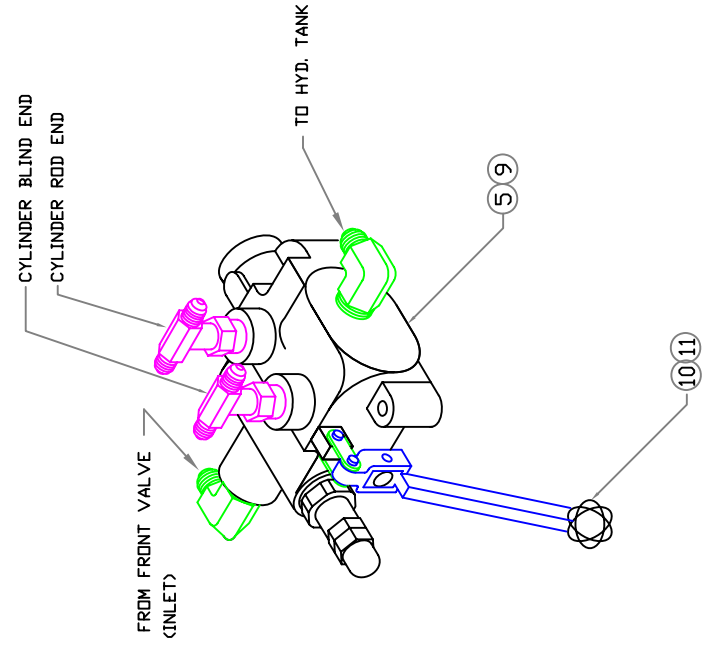
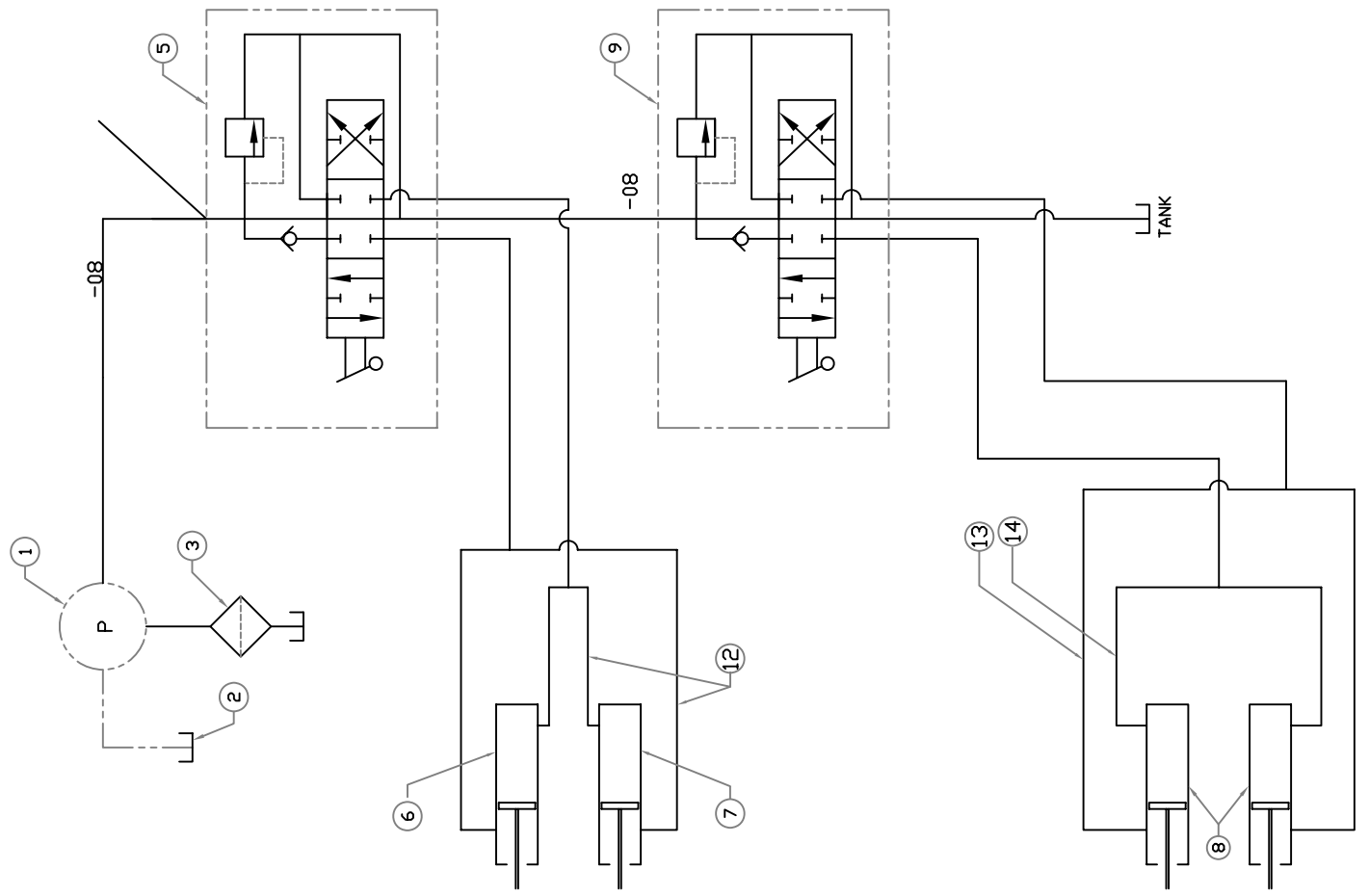
REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED	
FRACTIONAL	FRACTIONAL
DECIMAL	DECIMAL
ANGLES	ANGLES
THREADS	THREADS
BREAK SHARP EDGES	BREAK SHARP EDGES

TITLE:	GRADALL G3VD HYDRAULIC SCHEMATIC
DRAWN BY:	TSH
APPD BY:	
DATE:	12/14/98
DRAWING NUMBER:	EX1662
REV:	#

ITEM	PART NO.	QTY	DESCRIPTION
1	M326	1	MONARCH M326 W/ 08120 24V MOTOR
2	82900	1	HYDRAULIC TANK ASSEMBLY
3	ITEM #	1	FILTER, SUCTION (VICKERS DFSS-10-P-25M-10)
4			
5	810202	1	VALVE, FRONT CONTROL (GRESSEN SP-4-HP)
6	240400	1	HYDRAULIC CYLINDER ASSY., FRONT PASSENGER'S SIDE
7	240415	1	HYDRAULIC CYLINDER ASSY., FRONT DRIVER'S SIDE
8	240350	2	HYDRAULIC CYLINDER ASSY., REAR
9	810222	1	VALVE, REAR CONTROL (GRESSEN SP-4-HP)
10	810214	1	GRESSEN VALVE REPLACEMENT HANDLE W/LINK KIT
11	810217	1	GRESSEN VALVE REPLACEMENT HANDLE (ONLY)
12	810630	1	HYD. HOSES, FRONT 38" (Qty.4) (#04 w/#04JIC SWIVEL)
13	82617	1	HYD. HOSES, REAR UPPER 21" (Qty.2) (#04 w/#04JIC SWIVEL)
14	82629	1	HYD. HOSES, REAR LOWER 29" (Qty.2) (#04 w/#04JIC SWIVEL)

NOTES: PRESSURE AND RETURN LINE 1/2" (-08) SAE100R1 HYDRAULIC HOSE w/08 JIC FEMALE SWIVEL ON EACH END.



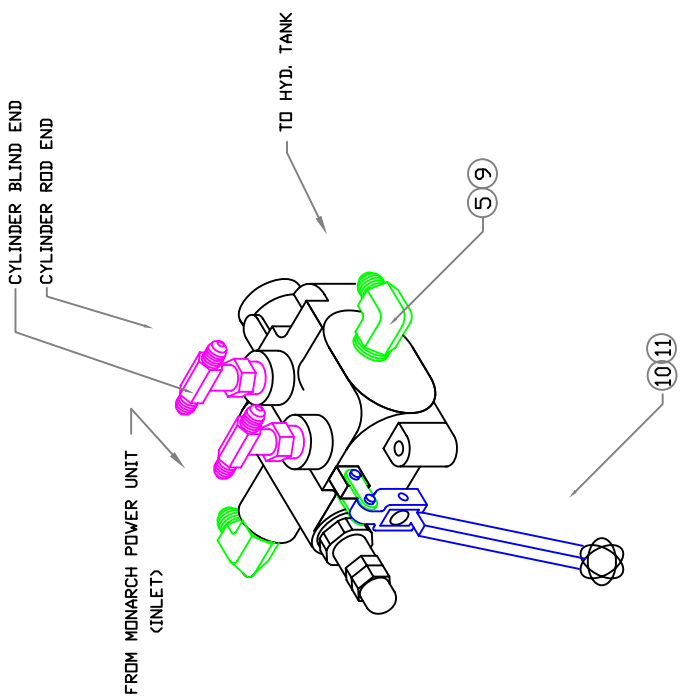
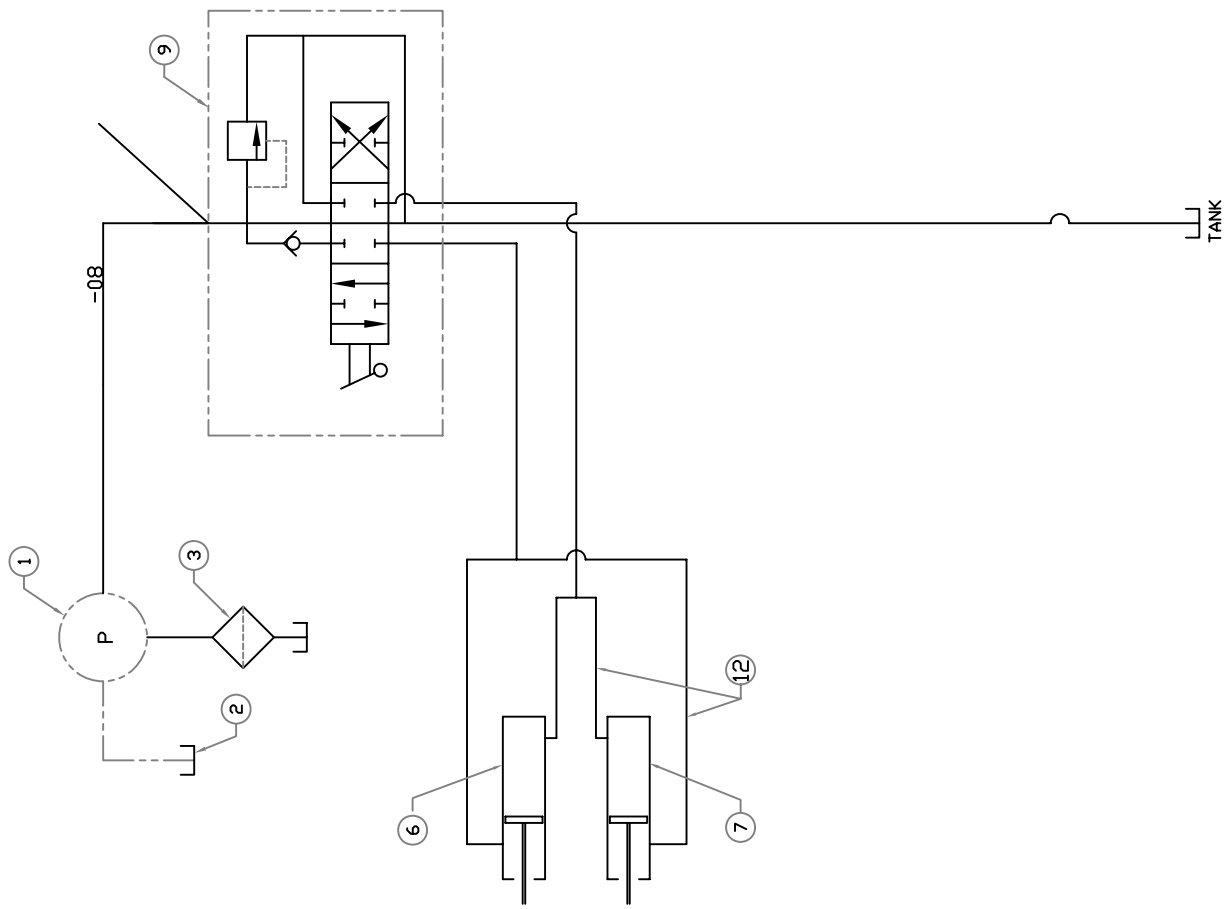
REV	DATE	DESCRIPTION	BY	APP

TITLE: DAEWOO EXCAVATOR HYDRAULIC SCHEMATIC		DRAWING NUMBER: EX1665	REV: #
DRAWN BY: SEW	APPD BY: #	DATE: 08/14/02	DIVERSIFIED METAL FABRICATORS, INC. (404) 875-1512

TOLERANCES: UNLESS SPECIFIED: FRACTIONAL DECIMALS: ±.005 DECIMALS: ±.001 ANGLES: ±1° HOLE DRILLING: ±.005 THREADS: BREAK SHARP EDGES	
--	--

ITEM	PART NO.	QTY	DESCRIPTION
1	M326	1	MONARCH M326 W/ 08120 24V MOTOR
2	82900	1	HYDRAULIC TANK ASSEMBLY
3	ITEM #	1	FILTER, SUCTION (GRESEN FSP107-1LBNH)
4			
5	810202	1	VALVE, FRONT CONTROL (GRESEN SP-4-HP)
6	240400	1	HYDRAULIC CYLINDER ASSY., FRONT PASSENGER'S SIDE
7	240415	1	HYDRAULIC CYLINDER ASSY., FRONT DRIVER'S SIDE
8	240350	2	HYDRAULIC CYLINDER ASSY., REAR
9	810222	1	VALVE, REAR CONTROL (GRESEN SP-4-HP)
10	810214	1	GRESEN VALVE REPLACEMENT HANDLE w/LINK KIT
11	810217	1	GRESEN VALVE REPLACEMENT HANDLE (ONLY)
12	810640	1	HYD. HOSES, FRONT 62" (Qty:4) (#04 w/#04JIC SWIVEL)
13			
14			

NOTES: PRESSURE AND RETURN LINE 1/2" (-08) SAE100R1 HYDRAULIC HOSE w/08 JIC FEMALE SWIVEL ON EACH END.



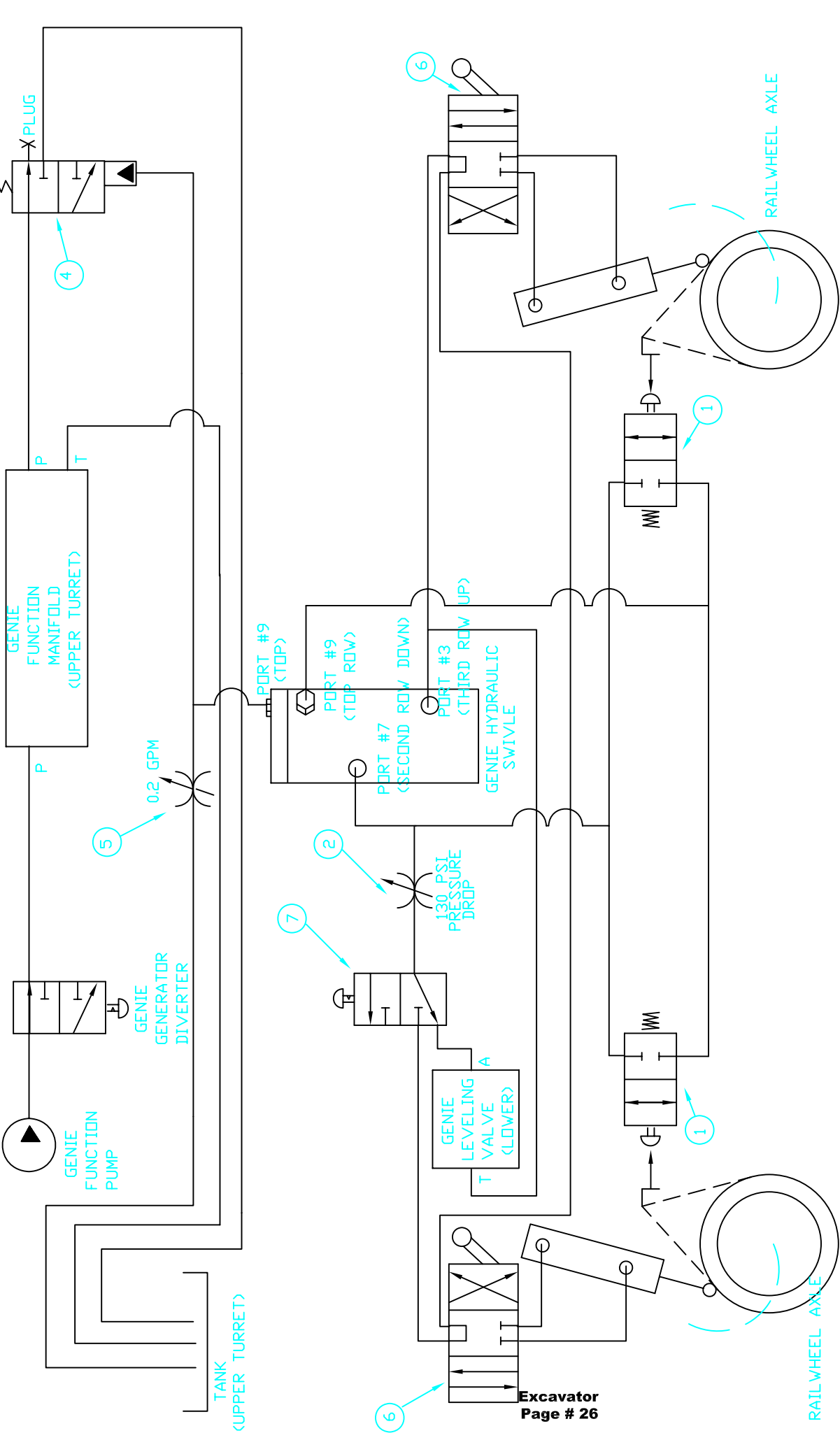
REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED	
FRAC.	FRACTIONAL
DEC.	DECIMAL
ANGULAR	ANGULAR
THREADS	PER ANSI B1.1
BREAK	BREAK SHARP EDGES

TITLE:	
VOLVO EXCAVATOR HYDRAULIC SCHEMATIC	
DRAWN BY:	APPD BY:
SEW	
DATE:	DRAWING NUMBER:
08/14/02	EX1666
REV:	#

ITEM	PART NO.	QTY	DESCRIPTION
1	83382	2	LIMIT VALVE DELTROL (POV 30S)
2	83383	1	FLOW CONTROL (3/4")
3			
4	18703	1	PILOT DIVERTER HYDRAFORCE (PDI2-40-10T-N-110)

ITEM	PART NO.	QTY	DESCRIPTION
5	18943	1	NEEDLE VALVE PARKER (F400S)
6	10288	1	MANUAL VALVE ENERGY (CV200-1/2)
7	810232	1	MANUAL DIVERTER GRESEN (S-75)



REV	DATE	DESCRIPTION	BY	APP
1	12/8/99	REVISED FOR ALL HYD. CIRCUIT	TSH	

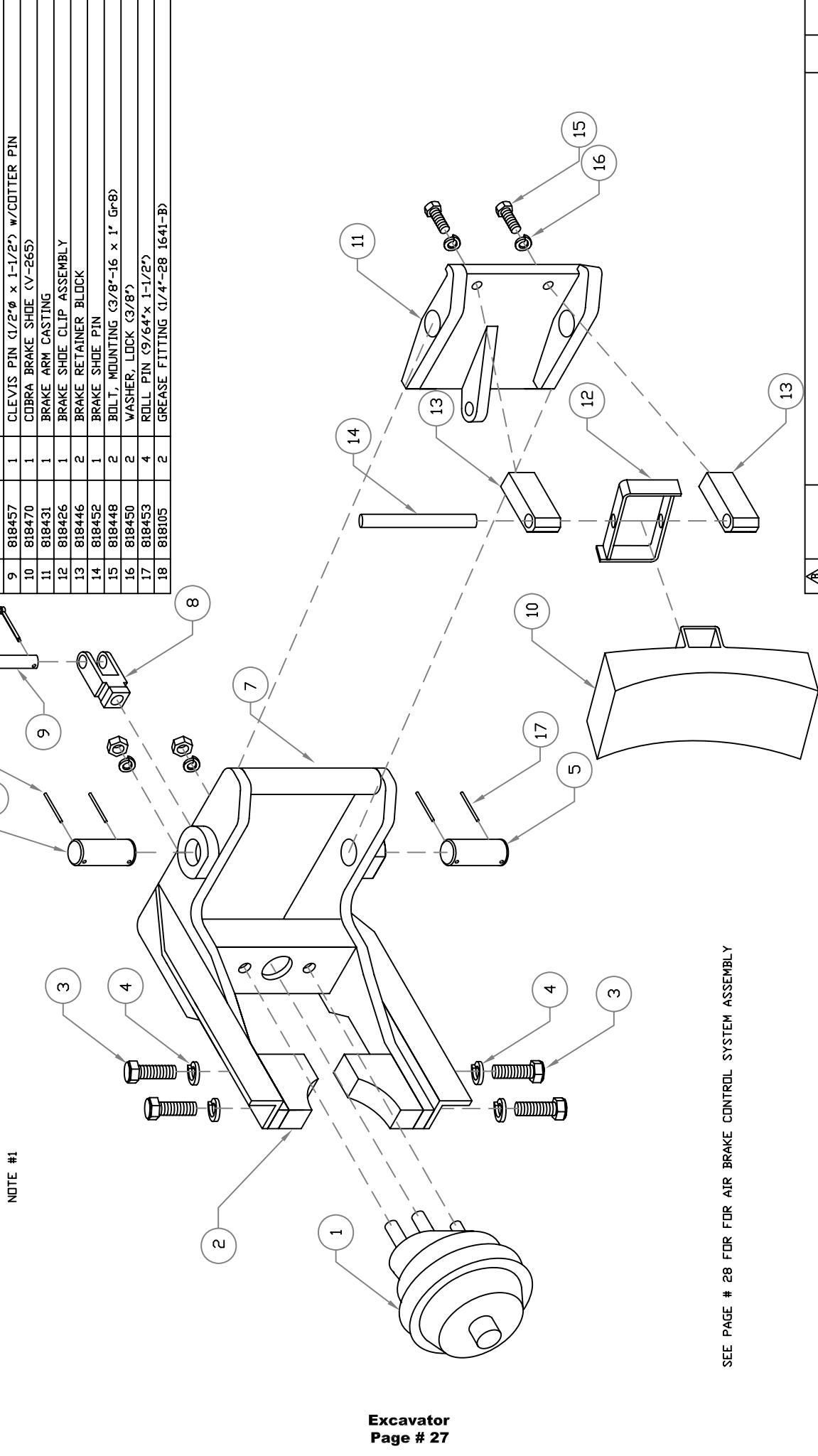
TITLE: GENIE S-65 HYDRAULIC SCHEMATIC	
DRAWN BY: LOR	APPD BY:
DATE: 11/11/99	REVISION NUMBER: EX83380
REV: A	

TOLERANCES:
UNLESS SPECIFIED—
DIMENSIONS ARE IN INCHES
FRACTIONS: OTHER THAN 1/16"
X
XXX DR. XXXXX .005
DRILL SIZES: +.015
ANGLES: FINISH ±.000
THREADS: EX. AND 2B

HYD-SEE GENIE MANUAL 34476
PAGE 6-16

ITEM	PART NO.	QTY	DESCRIPTION
1	NOTE #2	1	AIR BRAKE CHAMBER, FRONT (SEE NOTE #2)
2	818462	2	BRAKE SADDLE 16" (MOUNTS ON AXLE TUBE)
3	818466	4	BOLT, MOUNTING (1/2"-13 x 1-1/2" Gr-8)
4	818468	4	WASHER, LOCK (1/2")
5	818454	2	BRAKE SHOE PIVOT PIN
6	818456 (REF.)		COTTER PIN (1/8"x 1-1/2") (USE ROLL PIN # 17)
7	818407	1	BRAKE BRACKET WELDMENT
8	818455	1	CLEVIS DETAIL
9	818457	1	CLEVIS PIN (1/2"Ø x 1-1/2") w/COTTER PIN
10	818470	1	COBRA BRAKE SHOE (V-265)
11	818431	1	BRAKE ARM CASTING
12	818426	1	BRAKE SHOE CLIP ASSEMBLY
13	818446	2	BRAKE RETAINER BLOCK
14	818452	1	BRAKE SHOE PIN
15	818448	2	BOLT, MOUNTING (3/8"-16 x 1" Gr-8)
16	818450	2	WASHER, LOCK (3/8")
17	818453	4	ROLL PIN (9/64"x 1-1/2")
18	818105	2	GREASE FITTING (1/4"-28 1641-B)

ITEM	PART NO.	QTY	DESCRIPTION
1	818396	1	COBRA AIR BRAKE ASSEMBLY, FRONT DRIVER'S SIDE
2	818397	1	COBRA AIR BRAKE ASSEMBLY, FRONT PASSENGER'S SIDE
3	818398	1	COBRA AIR BRAKE ASSEMBLY, REAR DRIVER'S SIDE
4	818399	1	COBRA AIR BRAKE ASSEMBLY, REAR PASSENGER'S SIDE
5	818410	1	COBRA AIR BRAKE ASSEMBLY, FRONT RETRO-FIT KIT
6	818411	1	COBRA AIR BRAKE ASSEMBLY, REAR RETRO-FIT KIT
7	818417	1	COBRA AIR BRAKE ASSEMBLY, COMPLETE RETRO-FIT KIT (F&R)



NOTE #1

NOTE #2

SEE PAGE # 28 FOR AIR BRAKE CONTROL SYSTEM ASSEMBLY

REV	DATE	DESCRIPTION	BY	APP

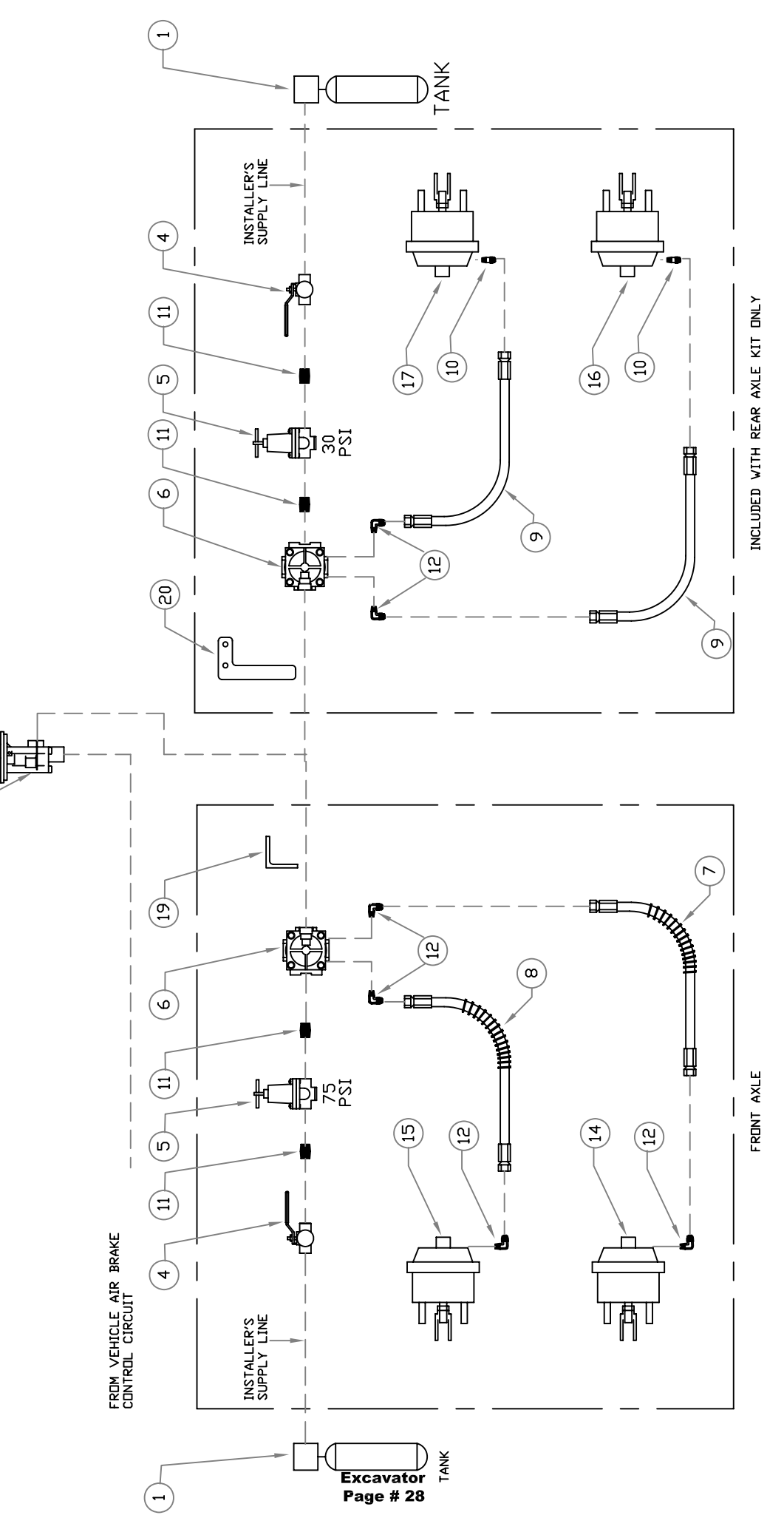
ITEM	PART NO.	QTY	DESCRIPTION
1	818458	1	AIR BRAKE CHAMBER, FRONT DRIVER'S SIDE
2	818459	1	AIR BRAKE CHAMBER, FRONT PASSENGER'S SIDE
3	818460	1	AIR BRAKE CHAMBER, REAR DRIVER'S SIDE
4	818461	1	AIR BRAKE CHAMBER, REAR PASSENGER'S SIDE

TITLE: COBRA AIR BRAKE ASSEMBLY (SEE NOTE #1)	
DRAWN BY: KLC	APPD BY:
DATE: 09/14/01	DRAWING NUMBER: EX1646

TOLERANCES: (UNLESS SPECIFIED) FRACTIONAL: ±0.005 DECIMAL: ±0.005 HOLE: ±0.005 SHAFT: ±0.005 ANGLES: ±0.5° THREADS: PER ANSI B1.13-1 WELDING: PER AWS A5.1	
DIVERSIFIED METAL FABRICATORS, INC. (SEE NOTE #1)	

ITEM	PART NO.	QTY	DESCRIPTION
11	818498	4	FITTING, NIPPLE (215PN-6)
12	818499	6	FITTING, 90° (2104-6-6B)
13			
14	818458	1	AIR BRAKE CHAMBER, FRONT DRIVER'S SIDE
15	818459	1	AIR BRAKE CHAMBER, FRONT PASSENGER'S SIDE
16	818460	1	AIR BRAKE CHAMBER, REAR DRIVER'S SIDE
17	818461	1	AIR BRAKE CHAMBER, REAR PASSENGER'S SIDE
18			
19	818491	1	VALVE MOUNT, FRONT AIR BRAKE
20	818493	1	VALVE MOUNT, REAR AIR BRAKE

ITEM	PART NO.	QTY	DESCRIPTION
1	818483	2	VALVE, PRESSURE PROTECTION (BW103976)(SPL PR-4)
2	818485	1	VALVE, TOGGLE AIR (VE032037)
3	818486	1	LEGEND PLATE (ON-OFF FOR TOGGLE AIR VALVE)
4	818488	2	VALVE, BRASS BALL (3/8" - PBV500P-6)
5	818489	2	REGULATOR, AIR (MIDLAND KN31070)
6	818490	2	VALVE, AIR RELAY (MIDLAND KN28500)
7	818492	1	HOSE, AIR LINE, FRONT LH w/SPRING GUARD (H06906 x 62')
8	818494	1	HOSE, AIR LINE, FRONT RH w/SPRING GUARD (H06906 x 75')
9	818496	2	HOSE, AIR LINE, REAR (H06906 x 59')
10	818497	2	FITTING, STRAIGHT (0104-6-6B SAE)



REV	DATE	DESCRIPTION	BY	APP
A	11/28/94	ADDED TANKS	MSM	

TOLERANCES:		UNLESS SPECIFIED	
FRACTION	DECIMAL	FINISH	THREADS
1/16"	0.0625	FREE	SAE
1/32"	0.03125	FREE	SAE
3/32"	0.09375	FREE	SAE
1/8"	0.125	FREE	SAE
3/16"	0.1875	FREE	SAE
1/4"	0.25	FREE	SAE
5/16"	0.3125	FREE	SAE
3/8"	0.375	FREE	SAE
1/2"	0.5	FREE	SAE
5/8"	0.625	FREE	SAE
3/4"	0.75	FREE	SAE
7/8"	0.875	FREE	SAE
1"	1.0	FREE	SAE
1 1/8"	1.125	FREE	SAE
1 1/4"	1.25	FREE	SAE
1 3/8"	1.375	FREE	SAE
1 1/2"	1.5	FREE	SAE
1 3/4"	1.625	FREE	SAE
2"	2.0	FREE	SAE
2 1/4"	2.375	FREE	SAE
2 1/2"	2.5	FREE	SAE
2 3/4"	2.625	FREE	SAE
3"	3.0	FREE	SAE
3 1/4"	3.375	FREE	SAE
3 1/2"	3.5	FREE	SAE
3 3/4"	3.625	FREE	SAE
4"	4.0	FREE	SAE
4 1/4"	4.375	FREE	SAE
4 1/2"	4.5	FREE	SAE
4 3/4"	4.625	FREE	SAE
5"	5.0	FREE	SAE
5 1/4"	5.375	FREE	SAE
5 1/2"	5.5	FREE	SAE
5 3/4"	5.625	FREE	SAE
6"	6.0	FREE	SAE
6 1/4"	6.375	FREE	SAE
6 1/2"	6.5	FREE	SAE
6 3/4"	6.625	FREE	SAE
7"	7.0	FREE	SAE
7 1/4"	7.375	FREE	SAE
7 1/2"	7.5	FREE	SAE
7 3/4"	7.625	FREE	SAE
8"	8.0	FREE	SAE
8 1/4"	8.375	FREE	SAE
8 1/2"	8.5	FREE	SAE
8 3/4"	8.625	FREE	SAE
9"	9.0	FREE	SAE
9 1/4"	9.375	FREE	SAE
9 1/2"	9.5	FREE	SAE
9 3/4"	9.625	FREE	SAE
10"	10.0	FREE	SAE

SEE PAGE # 27 FOR AIR BRAKE DETAILS

DRAWING NUMBER: 09/14/01
REV: #

TITLE:
COBRA AIR BRAKE CONTROL SYSTEM ASSEMBLY

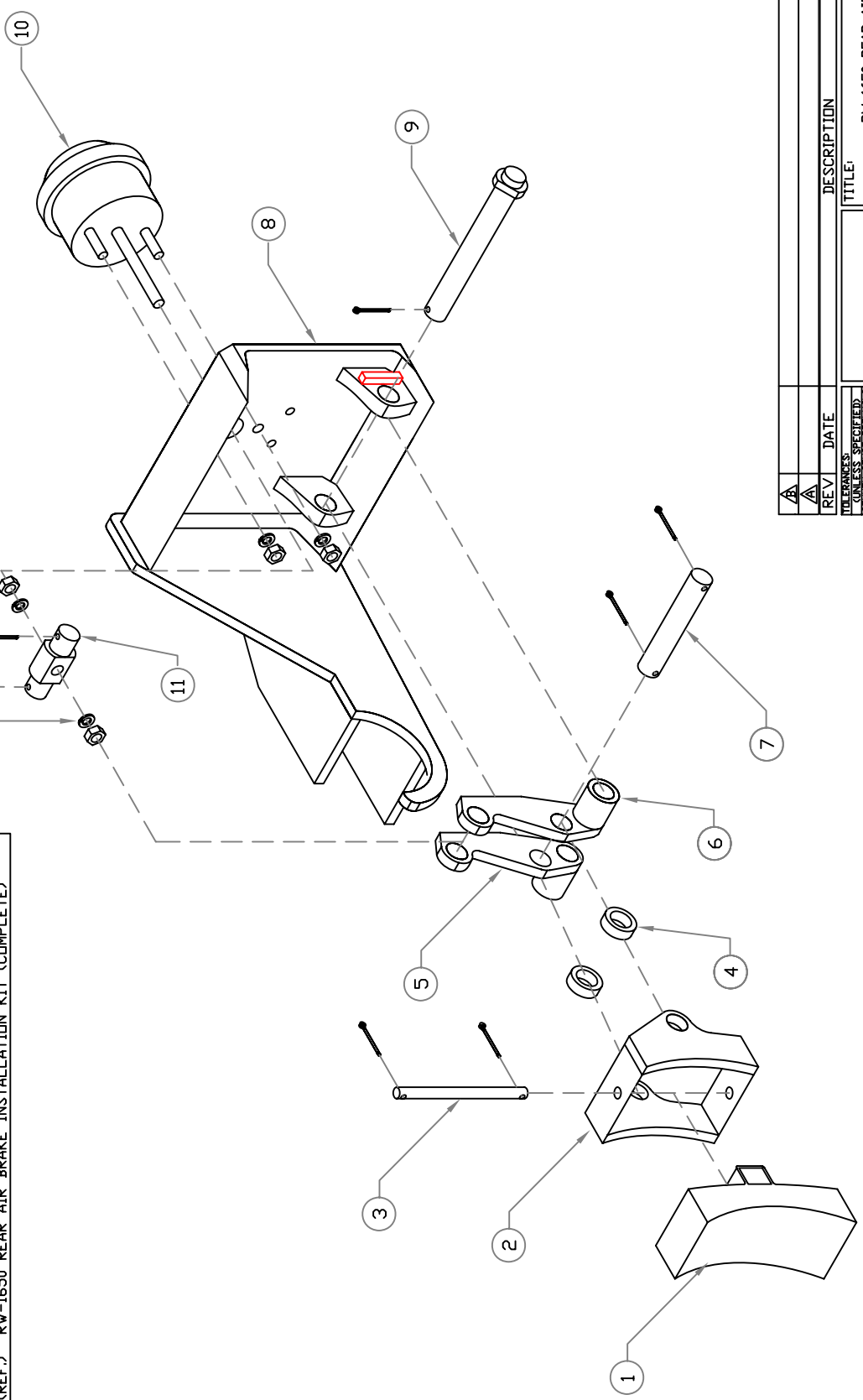
DIVERSIFIED METAL FABRICATORS, INC. (404) 875-1512
DATE: 09/14/01
DRAWN BY: KLC
APPD BY:

EXB18400

ITEM	PART NO.	QTY	DESCRIPTION
1	818470	1	CDBRA BRAKE SHOE (V-265)
2	78721	1	BRAKE SHOE HOLDER ASSEMBLY
3	78749	1	BRAKE SHOE HOLDER PIN
4	819014	2	BRAKE SHOESPACERS
5	819007	1	BRAKE ARM WELDMENT, LEFT SIDE
6	819012	1	BRAKE ARM WELDMENT, RIGHT SIDE
7	78746	1	BRAKE SHOE PIVOT PIN
8	819015	1or0	BRAKE MOUNTING WELDMENT, DRIVER'S SIDE
9	819025	0or1	BRAKE MOUNTING WELDMENT, PASSENGER'S SIDE
10	78740	1	BRAKE MOUNTING PIVOT PIN
11	819003	1	BRAKE AIR CHMBER DETAIL
12	819006	1	TRUNNION DETAIL
13	819005	4	WASHER, LOCK (1/2")
14	819004	4	NUT, JAM (1/2)
14	78797	7	COTTER PIN (3/16"x 2")

ITEM	PART NO.	QTY	DESCRIPTION
1	818488	1	VALVE, BRASS BALL (3/8" - PBV500P-6)
2	818489	1	REGULATOR, AIR (MIDLAND KN31070)
3	818490	1	VALVE, AIR RELAY (MIDLAND KN28500)
4	818493	1	VALVE MOUNT, REAR AIR BRAKE
5	818496	2	HOSE, AIR LINE, REAR (201-6 x 59')
6	818497	2	FITTING, STRAIGHT (0104-6-6B SAE)
7	818498	2	FITTING, NIPPLE (215PN-6)
8	818499	2	FITTING, 90° (2104-6-6B)
9	819001	1	RW-1650 REAR AIR BRAKE ASSY., DRIVER'S SIDE
10	819002	1	RW-1650 REAR AIR BRAKE ASSY., PASSENGER'S SIDE
11	818421	4	CAP SCREW, HEX HEAD (5/16"x 3/4')
12	818423	4	WASHER, LOCK (5/16")
13	818424	4	MACHINE SCREW, ROUND HEAD (#10-24 x 3/4')
14	818425	2	WASHER, LOCK (#10)
15	818427	2	NUT, HEX (#10-24)

NOTE: 819000 (REF.) RW-1650 REAR AIR BRAKE INSTALLATION KIT (COMPLETE)



REV	DATE	DESCRIPTION	BY	APP

TOLERANCES: UNLESS SPECIFIED: DIMENSIONS: FRACTIONS ± 1/32" DECIMALS: ± 0.005" ANGLES: ± 0.005" DRILL SIZES: ± 0.015" FINISH: AS MANUFACTURED THREADS: PER ASME B1.13-1		DRAWN BY: KLC APPD BY:
TITLE: RW-1650 REAR AIR BRAKE ASSEMBLY DRIVER'S SIDE (SHOWN) & PASSENGER'S SIDE		DATE: 09/18/01 REV: EXB19001/9002
DIVERSIFIED METAL FABRICATORS, INC. (404)875-1512		DRAWING NUMBER: EXB19001/9002

ITEM	PART NO.	QTY	DESCRIPTION
1	800190	1ea.	P/N's 800113, 800114, 800116, 800118, 800119 & 800122
2		2ea.	P/N's 800117 & 800135

CAUTION!

SECURE RAILDOGS BEFORE OPERATING DUMP

RELEASE BEFORE TRAVEL

800122

SAFETY

FIRST

A CAREFUL WORKER IS THE BEST SAFETY DEVICE

THINK

FIRST 800113

SAFETY INSTRUCTIONS

Lock front wheels straight ahead for on-rail travel. 800119

CAUTION!

RELIEF VALVE SETTINGS: 2000 PSI FRONT
1500 PSI REAR
DO NOT exceed: 2500 psi, front valve
DO NOT exceed: 2000 psi, rear valve
DO NOT BOTTOM-OUT RELIEFS, IF ADJUSTED

800135

INSTRUCTIONS-

- REMOVE SAFETY PINS
- ACTIVATE VALVE
 - PUSH- RAIL POSITION
 - PULL- HIGHWAY POSITION
- REPLACE SAFETY PINS IN PROPER LOCATION.

800117

HI-RAIL VEHICLE COMPLETED BY: _____

WITH APPLICATION OF HI-RAIL AND FINISHED BODY THIS VEHICLE HAS POUNDS OF AVAILABLE PAYLOAD.

DATE OF COMPLETION OF HI-RAIL EQUIPPED VEHICLE: no _____ yr _____

CAUTION: THIS MULTIPURPOSE VEHICLE HAS SPECIAL DESIGN AND EQUIPMENT FEATURES FOR OFF-ROAD USE. IT HANDLES DIFFERENTLY FROM AN ORDINARY PASSENGER CAR IN DRIVING CONDITIONS WHICH MAY OCCUR ON STREETS, HIGHWAYS, AND OFF-ROAD.

WEIGHT AND LOCATIONS OF AVAILABLE PAYLOAD MAY ALSO AFFECT THE HANDLING OF THIS VEHICLE. DRIVE WITH CARE AND WEAR SAFETY BELTS AT ALL TIMES.

FOR PRECAUTIONS, READ THE VEHICLE OWNER'S GUIDE AND HI-RAIL OPERATOR'S SERVICE AND PARTS MANUAL. 800118

INSPECTION AND MAINTENANCE OF D.M.F. GUIDE WHEEL SYSTEM

DAILY:
Visually inspect rail gear for hydraulic leaks, loose fasteners, and excessive wear. Spin all four wheels noting any bearing noise or resistance. Check level of hydraulic oil. Compare left and right wheels for wear (particularly diagonal flanges).

WEEKLY:
Grease all fittings on rail and front assembly. Fourteen (14) on rear assembly.

Inspect the bearing grease every 2,000 miles or 6 months (whichever comes first). Inspect bearings and grease cavity by removing hubcaps. Unless bearing problem is suspected, the bearings do not need to be removed or repacked. If repacking is required, the grease cavity should be only 80% filled with suitable grease. Replace hubcaps using a bead of Form-A-Gasket (or equal).

ANNUALLY:
Change hydraulic oil filter element.

ATLANTA, GA 800114
DIVERSIFIED METAL FABRICATORS, INC.(404) 875-1512

OPERATION OF D. M. F. GUIDE WHEEL SYSTEM

TO PLACE VEHICLE ON RAIL

- Drive vehicle on crossing, centering it over tracks.
- Once centered over tracks, remove front and rear safety pins.
- Lower rear wheels first.
 - If rear is not completely centered (within 4"), rear rail wheels will center truck on rail.
 - With rear wheels fully extended and properly seated on rail, install safety pin into lower hole on both sides.
- Center front rail wheels over rail.
 - If front is not completely centered over rail, maneuver truck so that it is.
 - Front vehicle wheels must be straight ahead.
 - Lower front rail wheels until cylinders are fully retracted. Front rail wheels incorporate overcenter design and do not require safety pins in rail position.
- Double check all flanges to assure they are seated properly on rail and safety pins are installed.
- Engage steering wheel lock if equipped.

Safe operating speeds on rail will be governed by track conditions and existing railroad rules and regulations. Under no conditions should vehicle be operated over 30 MPH on track.

ATLANTA, GA 800116
DIVERSIFIED METAL FABRICATORS (404) 875-1512

REV	DATE	DESCRIPTION	BY	APP
		TITLE: INSTRUCTION & SAFETY DECALS		
		DIVERSIFIED METAL FABRICATORS, INC.(404)875-1512		
		DATE: 10/12/98		
		DRAWN BY: KLC		
		APPD BY:		
		DRAWING NUMBER: EX1652A		
		REV: #		

TOLERANCES:
UNLESS SPECIFIED:
FRACTIONAL DIMENSIONS: ±.005
DECIMAL DIMENSIONS: ±.015
HOLE DIMENSIONS: ±.015
THREADS: PER ANSI B1.13-1
FINISH: AS MANUFACTURED

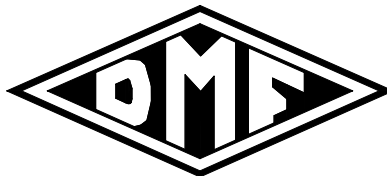
DMF Limited Warranty Policy

Diversified Metal Fabricators (DMF) products are designed to provide the utmost service and reliability. Competent workman, guided by stringent quality standards, manufacture the products from high-grade material. **DMF** warrants products of its manufacturer to be free of defects in material and workmanship, under normal use and service, for a period of **ONE CALENDAR YEAR**. **DMF's** obligation under this warranty is limited to repairing or replacing at its factory, or other location designated by us, any part or parts there-of which shall, within 30 DAYS of the date of failure or notice of defect, be returned, and which upon examination shall appear to **DMF's** satisfaction to have been defective. Such repair or replacement does not include the cost of installing the new part or any other expenses incident thereto; however, the outbound direct ground freight on the part will be prepaid to locations within the continental United States and Canada. **DMF** shall not be liable for other loss, damage, or expense directly or indirectly arising from the use of its products.

Ordinary wear and tear, abuse, misuse, neglect, or alteration is not covered by this warranty. **DMF** assumes no liability for expenses or repairs made outside its factory except by written consent. Warranty is null and void if instructions and operating procedures specifically referring to warranty coverage are not followed.

Equipment or parts not manufactured by this company, but which are furnished in connection with **DMF** products are covered directly and solely by the warranty of the manufacturer supplying them.

This warranty is in lieu of other warranties, expressed or implied, including any implied warranties of merchantability or fitness for a particular purpose and any liability for special or consequential damages.



Diversified Metal Fabricators, Inc.

665 Pylant St. Atlanta, GA 30306

(404) 875-1512

Mounting Instructions for Bulkhead Guide Wheel Railgear

Monarch Power Unit & Reservoir

- Locate a section of the main body where the Monarch power unit and 5 gallon hydraulic fluid tank can be mounted. It should be along the side of the excavator that has the batteries. A toolbox or other enclosure makes an excellent location for the pump. Mount power unit and tank to excavator frame.

Electrical

- Take one section of electrical jumper system and mount the quick disconnect to underside of the top (rotating) section of the excavator. It should be near where the power unit is located.
- Run cable into battery box and connect lugs to batteries (Monarch power unit is 24V)
- The other half of the jumper should be wired to the Monarch power unit.
- To raise or lower rear railgear, make the electrical connection between the batteries in the upper section and the power unit. At all other times the jumper should remain disconnected.

Mount Rear Railgear Assembly.

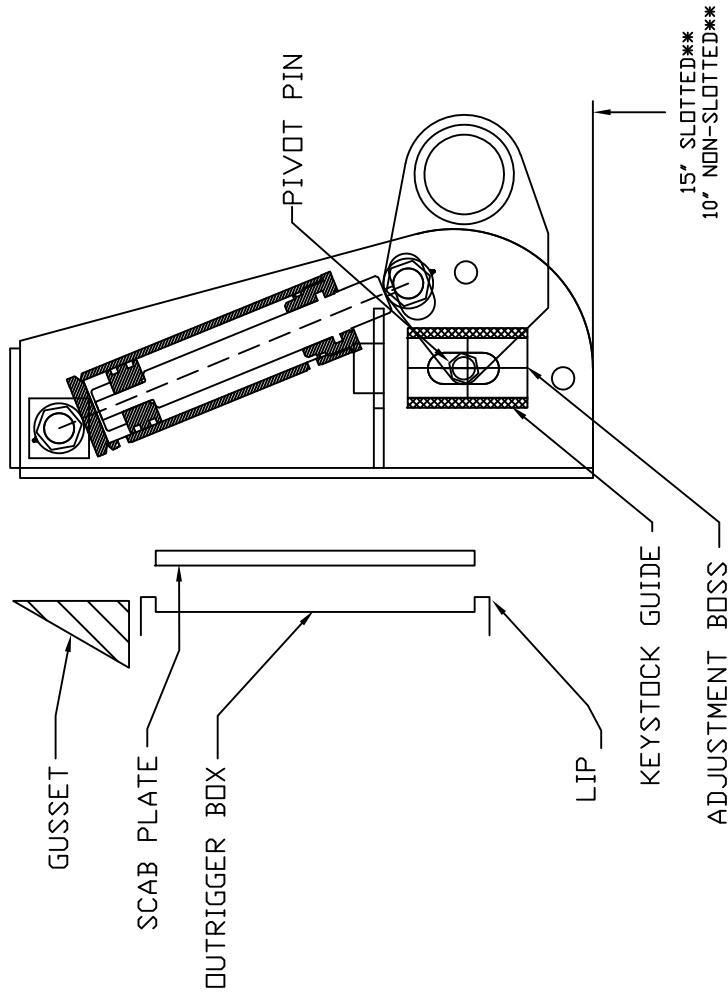
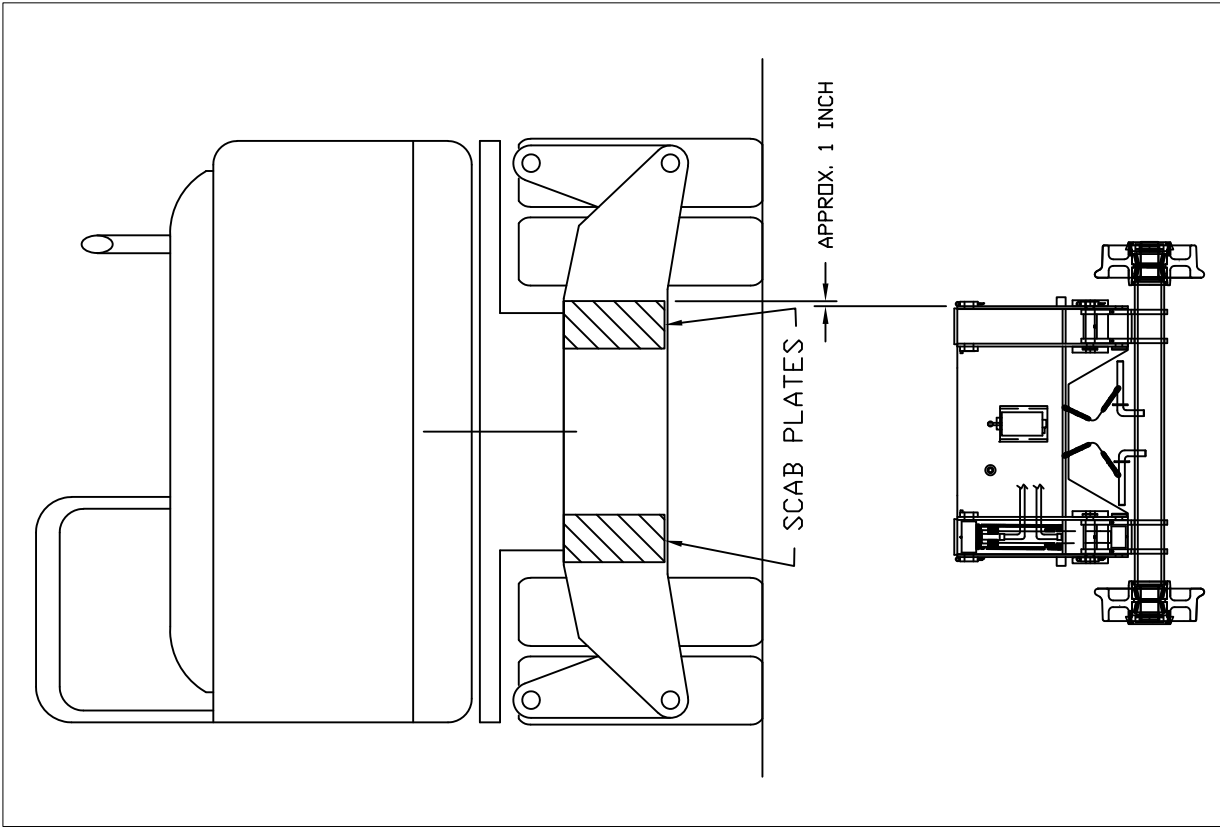
- Prior to mounting any railgear ensure that all inner tires are of the same make and model and are inflated to recommended pressure.
- Obtain two 20' sections of 3" wide channel (or four sections at least 4' long) and place on shop floor 56.5" apart in order to mimic rail during installation. Drive excavator up onto the 3" channel so that inner tires are up on channel and outboard tires are not.
- Weld on scab plates. Plates are welded to the outrigger box and form a flat surface to which the railgear can be welded. The plates should fit between the lips at the bottom and top of the out rigger box and should be thick enough that an even plane is formed with the plate and outer face of the lip. Plates should be about 8" wide and spaced so that they extend approximately 1" beyond the outer side edges of the railgear's back plate (outside edge of scab plates about 44").
- Make sure pivot pin and adjustment boss are centered in the vertical adjustment slot and TACK weld the boss to the keystone located along the side.
- TACK weld the back plate of the rail gear onto scab plates above the track (channel) at the height shown on the drawing on the following page. NOTE: At this point only tack the unit into place. If you have to make an adjustment after the next step, there will be far less weld to remove.
- Mount valve and connect hydraulics to railgear and lower rail wheels to track (3" channel). Verify that the inner tires of the excavator still have the appropriate cap over the "rail" (channel).
- Align the rear railgear to the machine as shown on drawing M1630115.

Mount Front Railgear Assembly

- Mount rear Railgear first.
- Remove bulldozer blade from front swing arms.
- Pin Railgear assembly in same location as blade, reusing the same pins.
- With excavator on track or 3" channel, lower REAR railgear.
- Lower front railgear to rail and just begin to take weight off of the front tires.
- Inspect the cap formed between all four inner tires and the rail (or 3" channel) to ensure that they are all relatively uniform. Adjust height of front railgear as necessary to achieve proper tire cap.
- Once proper tire – rail contact has been established, attach the 4"x9" stop shims to the front railgear where the lower arms meets the gear, or paint a mark to indicate the correct swing arm position.
- Align the front railgear to the machine as shown on drawing M1630115. Adjust the brake alignment as needed and then tack weld the axle tube in place.

Rail Test & Final Weld-Out

- Test drive the machine on rail going forward and backward as well as testing the braking distance. Adjust weight settings and alignment as needed.
- Once the alignment procedure and rail test is complete, fully weld the back plate of the gear to the outrigger box and scab plates.
- Weld the adjustment bosses to the keystone guides and fully weld keystone guides to the cylinder side plate.
- If the back of mounting plate extends above the top of the outrigger box then triangular gussets should be added. They should be welded between the top of the outrigger box and the backing plate located directly behind the hydraulic cylinders.
- Fully weld the front axle tube to the front swing arms.



** NOTE: ADD 2" TO HEIGHT IF FRONT MACHINE TIRES WILL BE LIFTED IN THE AIR DURING USE ON RAIL, EXAMPLE: GRADALL XL-4100

REV	DATE	DESCRIPTION	BY	APP
A	4/16/18	M1650G01 WAS EX81230; CORRECTED MOUNTING HEIGHT	BJF	
TOLERANCES UNLESS SPECIFIED:		TITLE:		
DIMENSIONS IN PARENS		MANUAL, EXCAVATOR, MOUNTING DRAWING FOR		
FRACTIONAL DECIMALS		BULKHEAD GUIDE WHEEL RAILGEAR		
FRACTIONAL DECIMALS		DIVERSIFIED METAL FABRICATORS, INC. (404)875-1512		
FRACTIONAL DECIMALS		DATE:		
FRACTIONAL DECIMALS		10/28/02		
FRACTIONAL DECIMALS		DRAWING NUMBER:		
FRACTIONAL DECIMALS		M1650G01		
FRACTIONAL DECIMALS		A		
FRACTIONAL DECIMALS		DRAWN BY: APPD BY:		
FRACTIONAL DECIMALS		SEW		
FRACTIONAL DECIMALS		RV-1650G		
FRACTIONAL DECIMALS		M1650G01		