AGSE-E143-G01 (PWA107321)

Propulsor/Full Engine Transportation Stand

For GP7200 Series Engines

ORIGINAL MANUAL DATED. 06/30/08

LATEST MANUAL REVISION LEVEL. . . . . 11/20/2023 (Rev M)

ADVANCED GROUND SYSTEMS ENGINEERING LLC
10805 Painter Ave., Santa Fe Springs, CA, 90670 • PHONE: 562-906-9300 • FAX: 562-906-9308 • E-MAIL: agse@agsecorp.com

NOTICE

1. Alteration, Modification, Reengineering, or Reproduction of Equipment

The alteration, modification, reengineering, or reproduction of AGSE equipment and/or parts is not permitted without prior written authorization from AGSE.

These modifications include but are not limited to:

- Structural changes to AGSE-supplied parts
- Substitution of AGSE-supplied parts, including hardware, with an alternate source or supplier
- Reverse engineering of AGSE equipment and parts.

Requests for modifications should be submitted to AGSE for review – please send modification requests to **support@agsecorp.com**.

Once reviewed by our Engineering team, a Customer Support Letter (Subject: No Technical Objection) will be issued for any approved modifications.

NOTE

Modifications executed without prior authorization by AGSE may result in a non-compliant product that is unsafe for operation.

Unauthorized modifications void AGSE's and the OEM's (Engine and/or Airframer) approval and authority to use the product for its intended application.

INDEX

INDEX (Continued)

1.0 – Revisions

The following is an itemized record of all changes from previous revision.

PAGE	REV	DESCRIPTION OF CHANGE	DATE
8.4	M	Removed Item 24	11/20/2023
8.4	M	Updated Part Number Item 28, 29, 38, & 39	11/20/2023
8.5	M	Updated Part Number Item 42-58, & 60	11/20/2023
8.6	M	Updated Item 70	11/20/2023
8.6	M	Updated Part Number Item 72-77	11/20/2023
8.7	M	Updated Figure 8.2-1	11/20/2023
8.12	M	Added Item 6, 7, 8, & 9	11/20/2023
8.12	M	Removed Item 19-21	11/20/2023
8.13	M	Updated Part Number Item 28, 33-46	11/20/2023
8.13	M	Removed Item 41	11/20/2023
8.14	M	Updated Part Number Item 53, & 58-61	11/20/2023
8.15	M	Updated Figure 8.3-1	11/20/2023
8.16	M	Updated IPB 4	11/20/2023
8.17	M	Updated Figure 8.4-1	11/20/2023
8.18	M	Added Figure 8.4-2	11/20/2023
8.19	M	Updated Part Number Item 3-10	11/20/2023
8.19	M	Removed Item 12, & 14	11/20/2023
8.20	M	Updated Item 27-29 Quantity	11/20/2023
8.20	M	Updated Part Number Item 30	11/20/2023
8.20	M	Added Item 31, & 32	11/20/2023
8.22	M	Updated Figure 8.5-2	11/20/2023
8.23	M	Updated Part Number Item 6	11/20/2023
8.23	M	Updated Part Number Item 9-13	11/20/2023
8.26	M	Updated Part Number Item 5-19	11/20/2023
8.26	M	Updated Part Number Item 22-25	11/20/2023
8.27	M	Updated Figure 8.8-1	11/20/2023
8.28	M	Updated Part Number Item 11, 15-21, 25, & 26	11/20/2023
8.31	M	Updated Part Number Item 3, & 4	11/20/2023
8.34	M	Updated Part Number Item 9, & 10	11/20/2023
8.36	M	Updated Part Number Item 8, 10, 11, 12, 13, & 14	11/20/2023
8.38	M	Updated IPB Figure 14 Part Number	11/20/2023
8.38	M	Updated Part Number Item 10-14	11/20/2023
8.40	M	Updated Part Number Item 4, 5, 6, & 7	11/20/2023
8.41	M	Added IPB Figure 16	11/20/2023
10.1	M	Updated Part Number	11/20/2023

2.0 – Illustration (Cradle and Base)

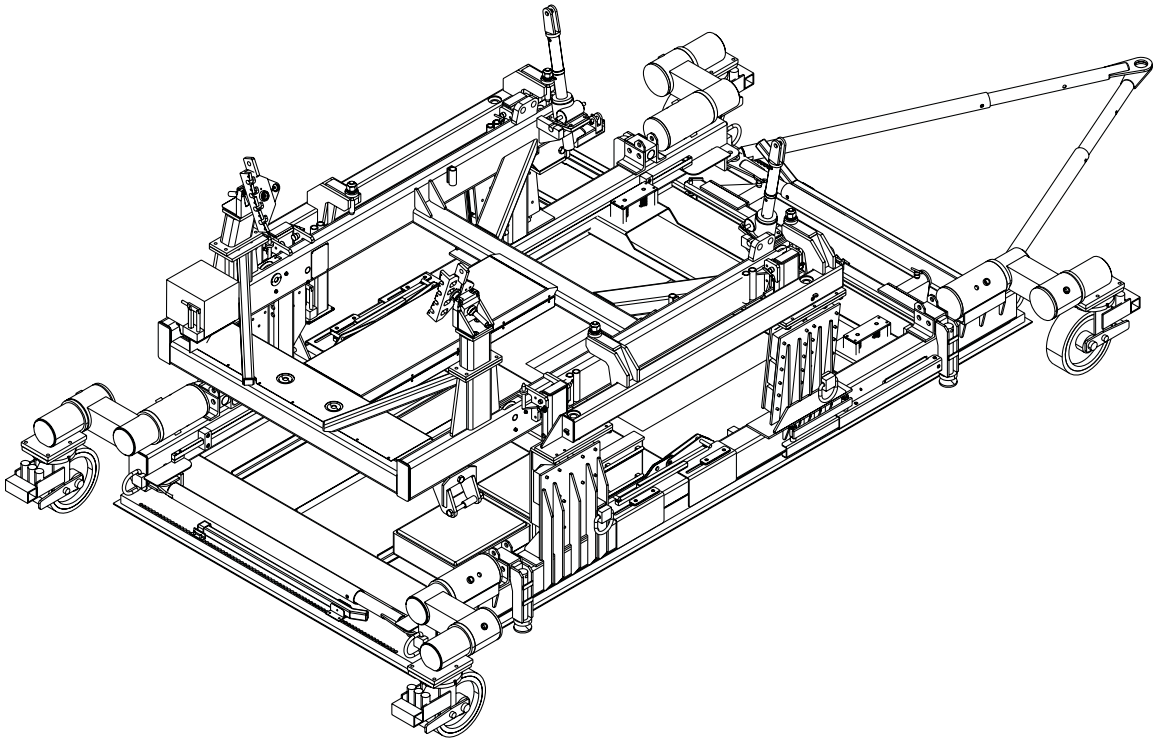


Figure 2.0-1 AGSE-E143 Transportation Stand

2.0 – Illustration (Cradle Detached From Base)

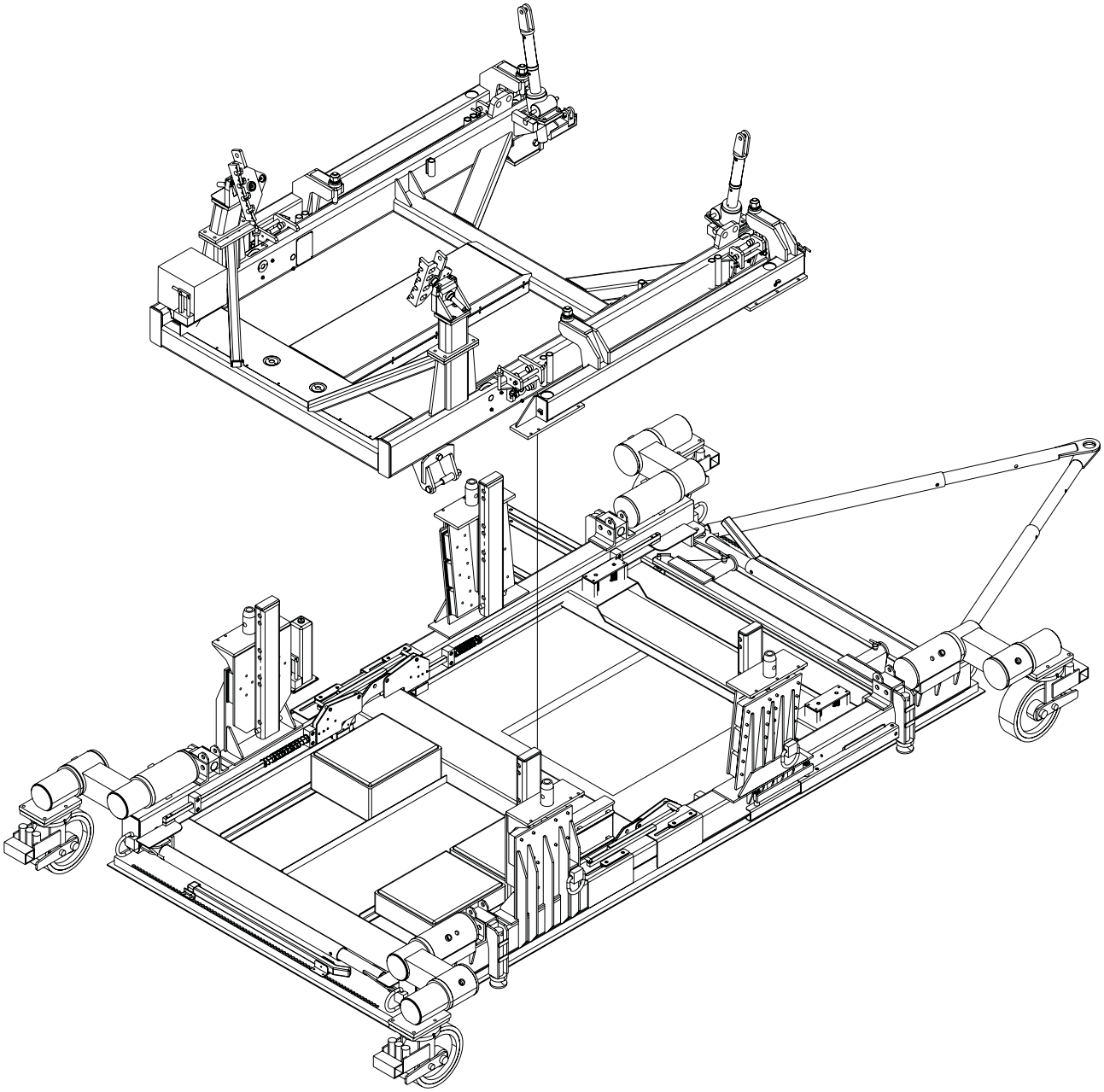


Figure 2.0-2 Cradle Detached From Base

2.0 – Illustration (Stand with Engine)

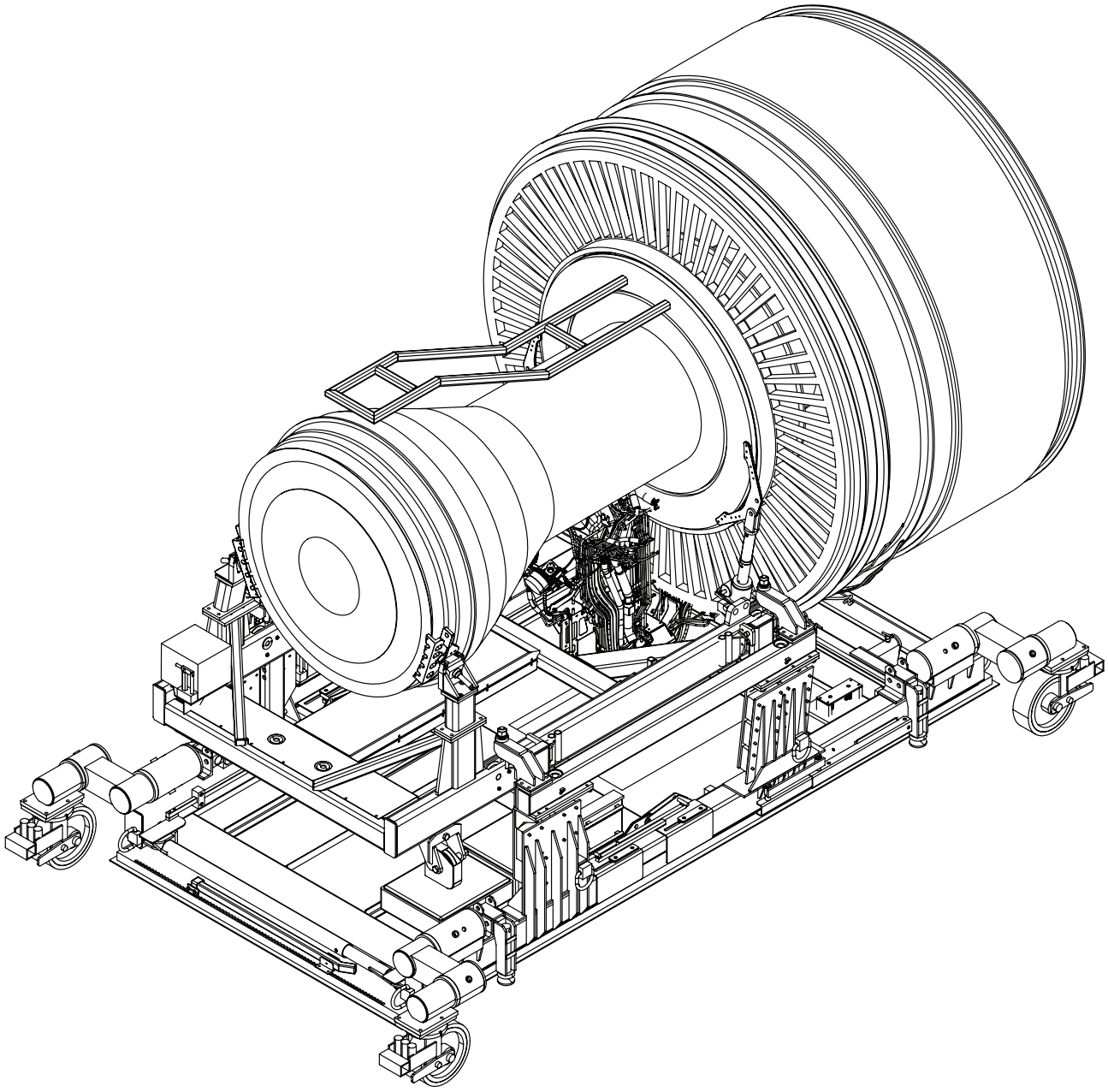


Figure 2.0-3 Propulsor Stand with Engine

3.0 – Specification

3.1 General

The AGSE-E143-G01 (PWA107321) Propulsor/Full Engine Transportation Stand is designed to Engine Alliance Ground Support Equipment Specification GSE-3019 and Statement of Work PWA105606 for transportation and storage of the GP7200 series engines (see section 3.2 below). The stand consists of a base and an engine support structure cradle. The cradle separates from the base for bootstrap quick engine change. The cradle may be raised or lowered to accommodate transport and or fan separation or install. The jacks are operated by manual hydraulic pump. Integral to the cradle is a hydraulic cable lift system operated by manual pump and/or optional air-operated hydraulic pump. The base includes 4 jacks for leveling, stabilizing and raising the stand to retract casters. The AGSE-E145 (PWA107324) Fan (Transfer) Installation/Removal Dolly is required for fan separation/install with the engine core.

3.2 Transportability:

The stand is supported by four shock absorbing caster assemblies with brakes and swivel locks and parking brakes. Towing of the stand may be from either end when empty, supporting only the propulsor, and the full engine without the inlet attached. The stand may be towed only from the aft (rear) end when the full engine with inlet is installed. A maximum towing speed is 5 Km/h (3 MPH) is allowed with any engine configuration installed. The casters are retracted when transported by truck or as air cargo.

CAUTION

Failure to unlock the lead casters (towbar end) during towing of the stand will result in flat spots being worn into the caster tread.

Truck transportation must be done on an air ride trailer with the full engine or propulsor only supported in the AGSE-E143 transportation stand. Shock mounts to cushion handling and transportation vibrations are an integral part of the stand, and must not be disabled when the stand is secured to a truck bed. Specific tie-down locations along with preferred securing method diagram placards are included on the stand.

The stand may be lifted with a suitable capacity forklift with the forward fork tube stop extensions deployed. Forklift tines must have a minimum extension length of 108 inches and capacity of 80-inch minimumload center. The forklift must have the capacity to lift the stand and full engine.

The stand is permanently attached to a 96” x 196”, NAS3610-2R1P certified pallet. A forward cutout section of the pallet provides clearance for lower engine bifi components of the fan case and propulsor. Air transport stand with only the propulsor is possible in a main deck freighter aircraft. The stand with the full engine less inlet may be transported by air on larger freighter aircraft.

Tie down lugs are located about the base to secure the stand to the truck trailer or aircraft deck during shipment.

CAUTION

The cradle must never be tied down to the truck bed. Truck shipment using a truck trailer equipped with an "air-ride" type suspension system is recommended.

3.3 Design

The main structure of the base and cradle are of ASTM A500B structural steel tube and ASTM A36 steel plate. Engine mount adapters are made from corrosion resistant steels or nickel plated steel. Heat-treated alloy steel is used for cradle and caster locking pins. The first-article stand assembly was proof load tested both statically and dynamically. All production cradle bootstrap hoist brackets are proof loaded to a minimum of 2 times working load.

3.4 Characteristics

Approximate maximum envelope dimensions as noted.

	With Propulsor	With Full Engine	Empty (Cradle Raised), (Cradle Stowed)
Height (Truck, Ship)	121 inches	160 inches	81 inches
Length	218 inches	269 inches***	218 inches
Width	106 inches	144 inches**	106 inches
Weight	22,600 lbs.	25,500 lbs.	10,100 lbs.

Add 6" for casters

** 165 inches with inlet

*** 327 inches with inlet

4.0 – Maintenance and Inspection

4.1 General

Life expectancy of this unit can be extended if it is properly maintained. By design, there is only minimal periodic servicing required. Annual inspections for damage, weld cracks, or corrosion are recommended. Prior to each use, the stand should be inspected for obvious signs of abuse or shipping damage. Observed damage should require complete inspection of the affected area to ensure stand integrity is not compromised.

4.2 Cleaning and Painting

The stand should be periodically cleaned with a soap and water solution and rinsed thoroughly.

CAUTION

Re-lubricate all grease zerk fittings after cleaning stand.

Damaged paint should be touched-up with Skydrol resistant high-grade enamel paint. Superficial scratches are expected during normal usage and will not affect function.

4.3 Scheduled Service

All zerk fittings on the casters and sheave axles should be lubricated every 90 days with the following extreme pressure grease or equivalent grease:

Manufacturer	Product
Mobil Oil Company	Mobilplex E.P. #1
Texaco Oil Company	Texaco E.P. #1
Gulf Oil Corporation	Gulf Crown E.P. #1
Shell Oil Company	Shell Alavania E.P. #1

Notice: Hydraulic reservoir level should be checked every 90 days, and refill as necessary. Hydraulic system should be flushed if different fluid is to be used.

Manufacturer	Product
Commercial	Dextron III (ATF)
Commercial	DTE-24 or DTE-25 Hydraulic Oil

The wire cables should be lubricated every 90 days with a Molybdenum Disulfide formula wire and cable lubricant as manufactured by ITW Fluid Co., or equivalent.

Visual inspection of the swivel locks and brakes on the casters should occur with the scheduled lubrication. All non-painted machined surfaces should have a light grade oil spray as required. Spray with rust inhibitor LPS-3 (MIL-C-16173D, Gr. 2) or equivalent.

4.4 Scheduled Inspection

CAUTION

Prior to each use, the stand should be inspected for obvious signs of abuse or shipping damage. Observed damage should require complete inspection of the affected area to ensure stand integrity is not compromised.

Annual inspections of machined surfaces, pins, fasteners, structure, and shock mounts are recommended. The machined surfaces (pivots, axles, mounts) are to be visually inspected for signs of wear or corrosion. Action is to be taken immediately if areas are determined to be potentially dangerous to operating personnel, or a detriment to the equipment. Pins and fasteners are to be visually inspected for cracks, damage, or corrosion. Loose fasteners should be tightened. The stand structure is to be visually inspected for damage, weld cracks, or corrosion. The shock mounts are to be visually inspected for date, deterioration, debond from the mounting plate, or permanent deformation. AGSE recommends that shock mounts be replaced within five (5) years of the date marked on shock mounts.

CAUTION

Periodic inspections should be made and shock mounts must be replaced when any of the following conditions exist:

1. **Shock mounts are more than five (5) years from the date marked.**
2. **There is visible evidence of cracks.**
3. **There are discolorations or deformations.**
4. **Mount does not move or adjust during loading/unloading.**
5. **There is debonding of the rubber mount from the shock attach plate.**

4.5 General Maintenance Schedule

NOTE:

This Maintenance Schedule does not supersede the maintenance described in the equipment manual or by Customers' Company Maintenance Policy. Intervals indicated are recommendations only and should be altered to take into consideration usage factors and environmental conditions.

Component	Task to be Performed	Maintenance Intervals			
		Monthly	3 Months	6 Months	Yearly
General	Inspect for missing parts	1*			
	Inspect paint/plating finish			I	
	Inspect exposed/bare metal for rust		H		
	Function check equipment				2*
	Inspect all stencils/placards/stamps			I	
Casters	Check wheel condition			I	
	Tighten mounting bolts			T	
	Check swivel lock/brake			I	
	Lubricate bearings			L	
Structure	Inspect frame for damage/cracked welds			I	
	Tighten all bolts		T		
	Lubricate/protect moving joints		H	L	
Pins	Inspect for damaged/bent/worn pins			I	
	Inspect for broken/cracked pin handles			I	
	Inspect for broken/cut lanyards			I	
Shock Mount	Check date				3*
	Inspect rubber for cracking/deformation			I	
	Inspect for permanent set/deformation			I	
Manual	Check manual is present/readable			4*	
	Check manual revision is current				5*

1* - Inspection for missing parts before every use.

2* - Carry out function test if equipment has not been used for extended period of time.

3* - AGSE recommends that shock mounts be replaced within five (5) years of the date marked on shock mounts.

4* - Check that manual is present before every use.

5* - Latest manuals are available from *www.agsecorp.com* or call (562) 906-9300.

Legend

I - Inspect/Check

T - Tighten

L - Lubricate

H - Spray with rust inhibitor

R - Replace

Recommended Lubricant: Chevron Dura-Lith Grease EP, NLGI2 or equivalent.

5.0 – Operation

5.1 Caster Storage and Deployment

The stand must be supported by the 4 jacking legs or a forklift before the casters may be deployed or retracted for storage and transport. The casters are very heavy, over 200 lbs, use extreme caution and the caster leverage bar when positioning the caster. Safely positioning of the casters requires at least two persons. The following diagrams show a recommended method for positioning the caster. The forward casters have three positions for towing, transport and storage; while the aft casters have two positions as shown in Figure 5.1-1. The caster mounts and supports are marked with arrows to assist in alignment of pinholes.

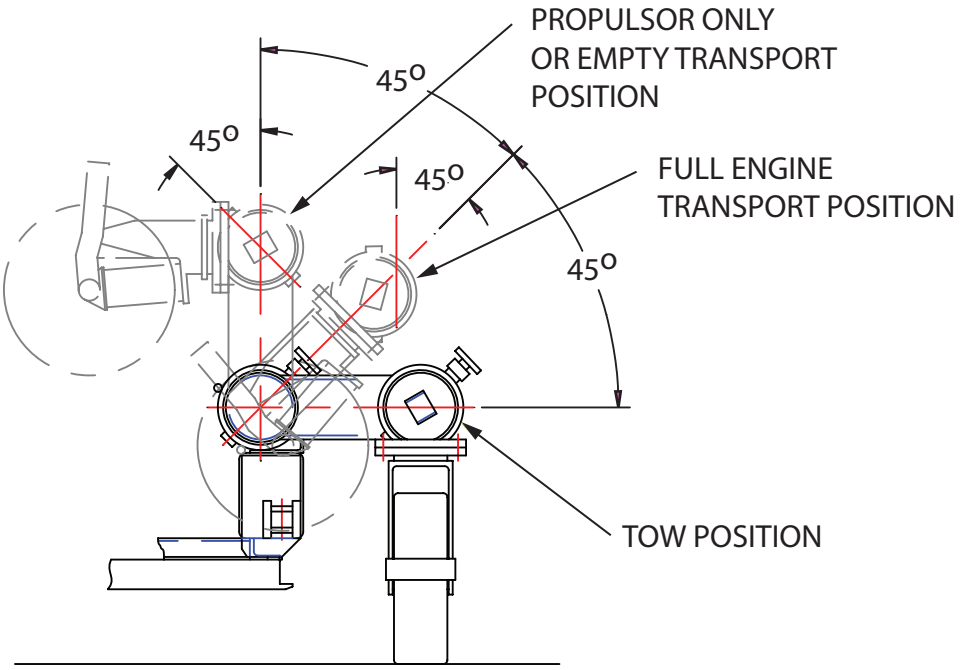
5.1.1 Jacking Leg Operation:

There are four hydraulically operated jacking legs located on the corners of the base. (See Figures 5.2-2, 5.2-3, 5.2-4 and 5.5-2). These legs are used to support the stand while positioning the casters and also to level and stabilize the stand as required during bootstrap and or fan stator separate/mate procedures. A manual hydraulic pump is secured to the base and is connected to the jacking legs through rigid mounted tubing and hose assemblies. Ball valves located near the pump are used to separate the forward two jacking legs from the back two jacking legs. The system will raise the stand approximately 9.5” off the ground. It is recommended that the stand be raised slowly, alternating from front to rear legs 3” at a time.

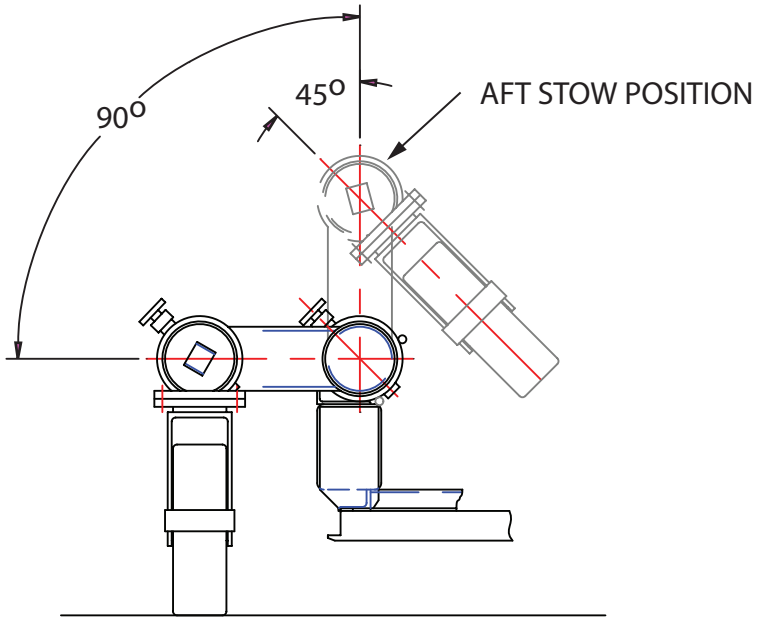
To deploy a jacking leg, pull the pin holding the leg in the stow position. Carefully and slowly swing the leg outward and down, reinstall the pin through the support bracket and leg. To operate the pump, close the pressure release screw. Use the handle provided to operate the pump mechanism. Caution, the pump is capable of producing very high pressure. When the handle effort increases or the jacking legs stop extending, stop pumping. To lower the stand after the Casters have been retracted, check the pressure release screw is closed, operate the pump to pressurize the system, open either the front or rear leg ball valve. Keep feet clear of the stand. Slowly open the pressure release screw, lower the stand evenly approximately 3” at a time alternating front to rear. Note: when the stand is empty or is loaded with the Propulsor only the rear of the stand is heavier and will lower quicker. When the stand is loaded with a full engine the forward end in heavier and will lower quicker.

5.2 Towbar Deployment

The two tow bar assemblies are secured and stowed at the front and rear of the stand. (See Figure 5.2-1). To extend the tow bar, pull the pin securing the inner section to the outer section and pull the inner section outward until the red band appears (See Figure 5.2-5). Reinstall the pin. Connect tow bars to a suitably sized tow vehicle.



FWD CASTER



AFT CASTER

Figure 5.1-1 AFT and FWD Caster Positions

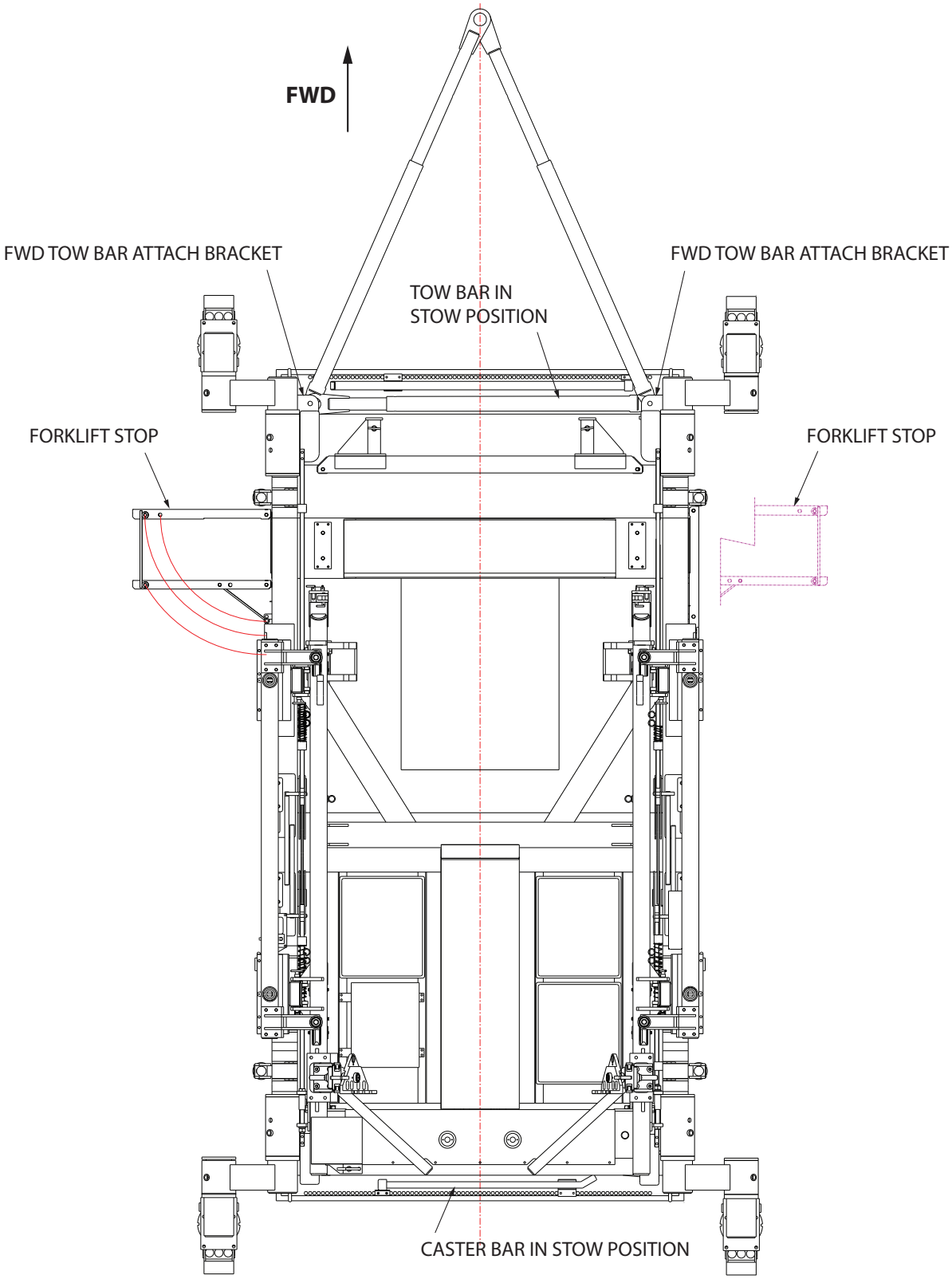


Figure 5.1-2 Towing

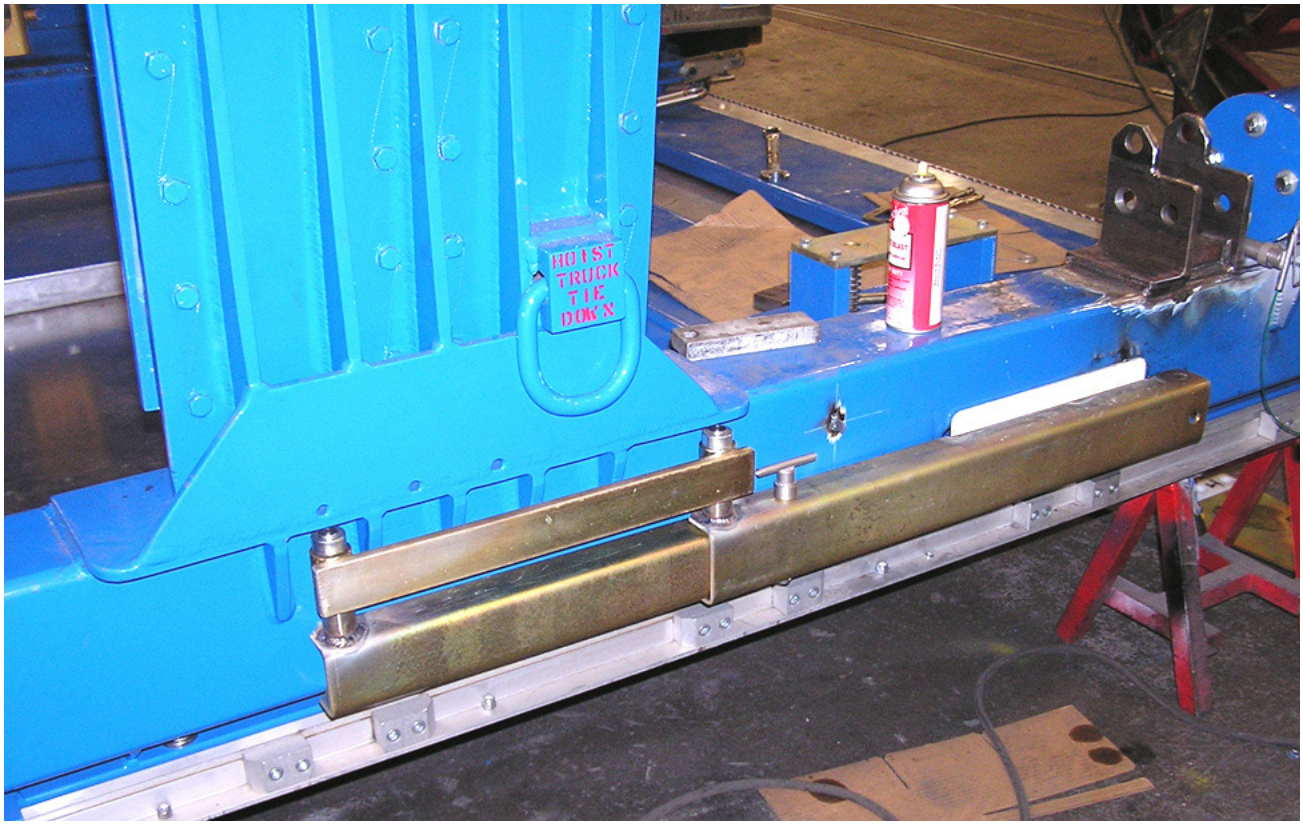


Figure 5.1-3 Forklift Stop - Stow position

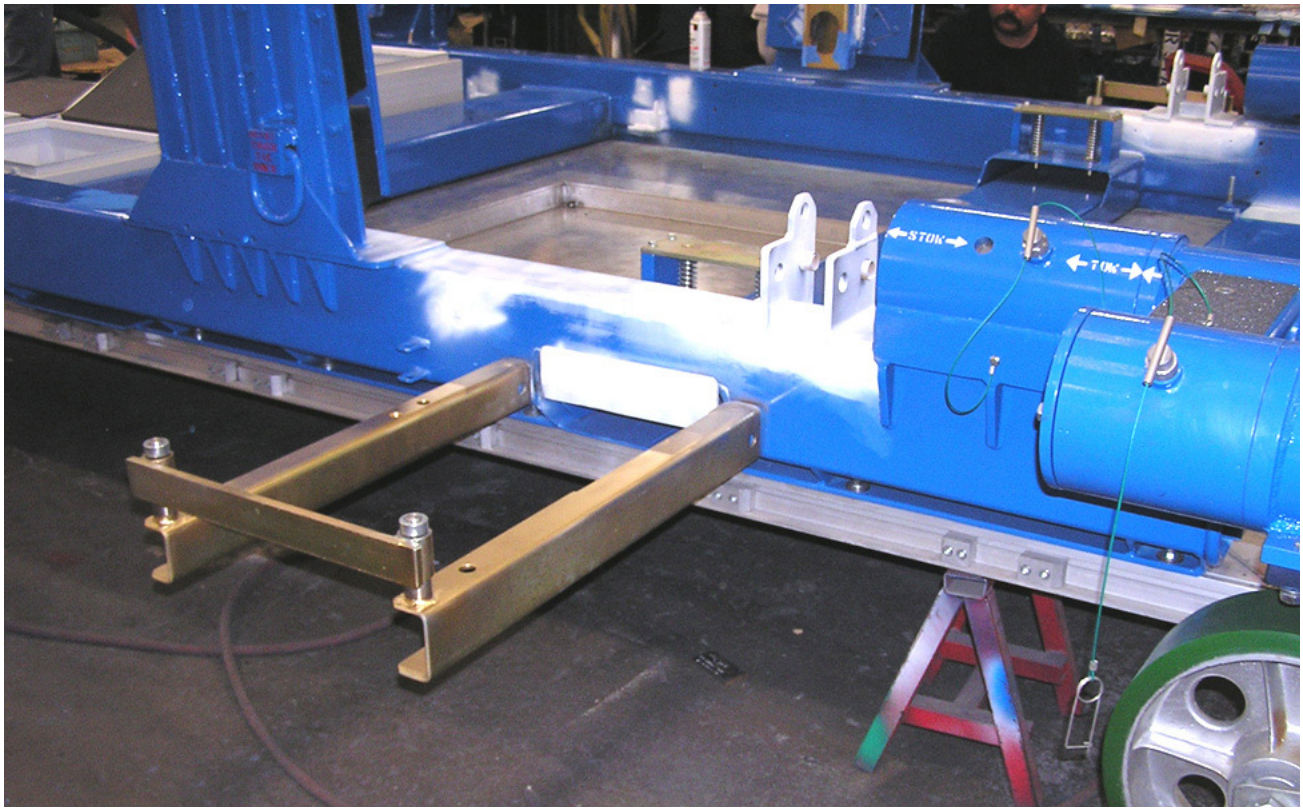


Figure 5.1-4 Forklift Stop - Deploy position

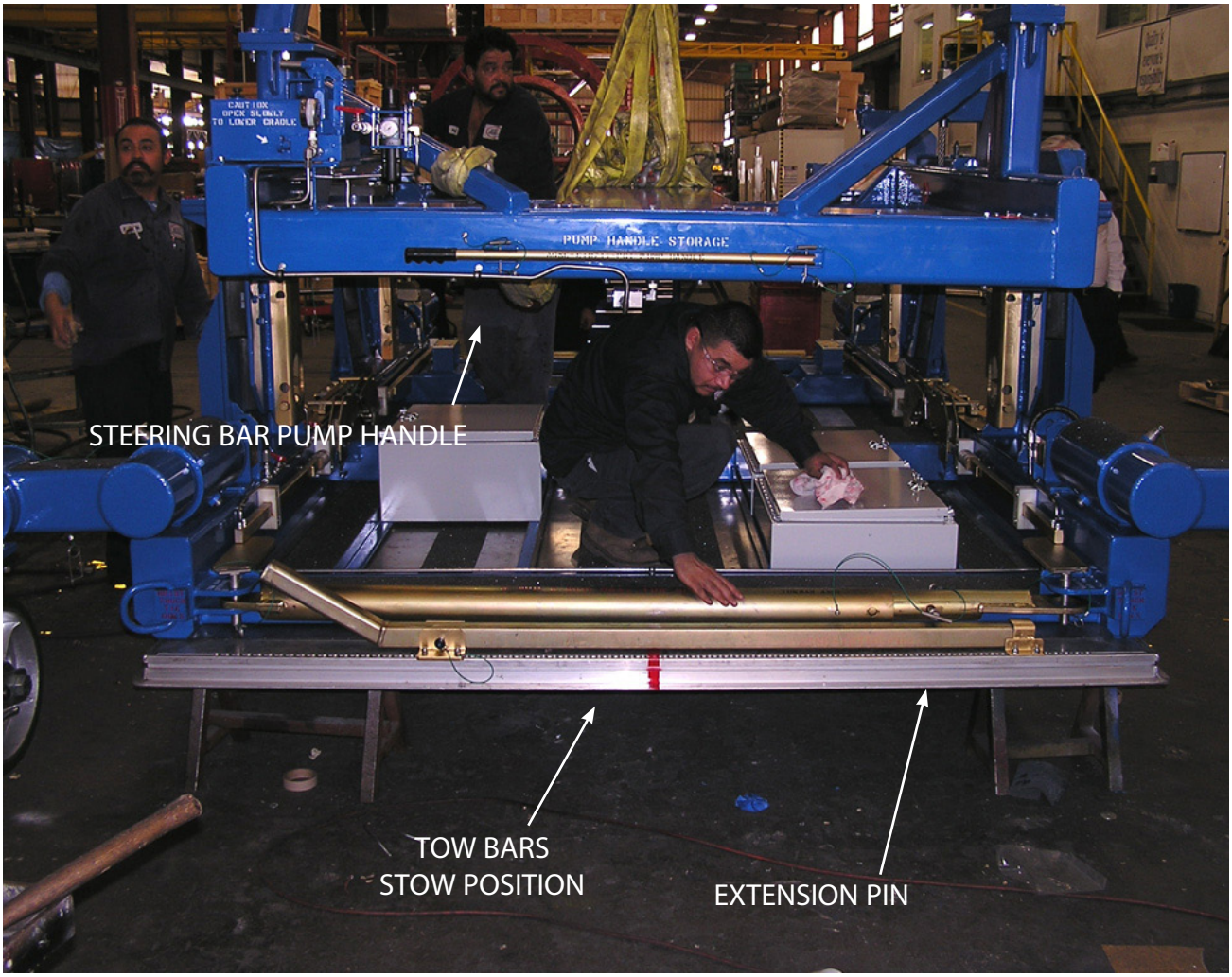


Figure 5.2-1 Tow Bars and Towing

Figure 5.2-2 Stand Raising/ Lowering Instructions

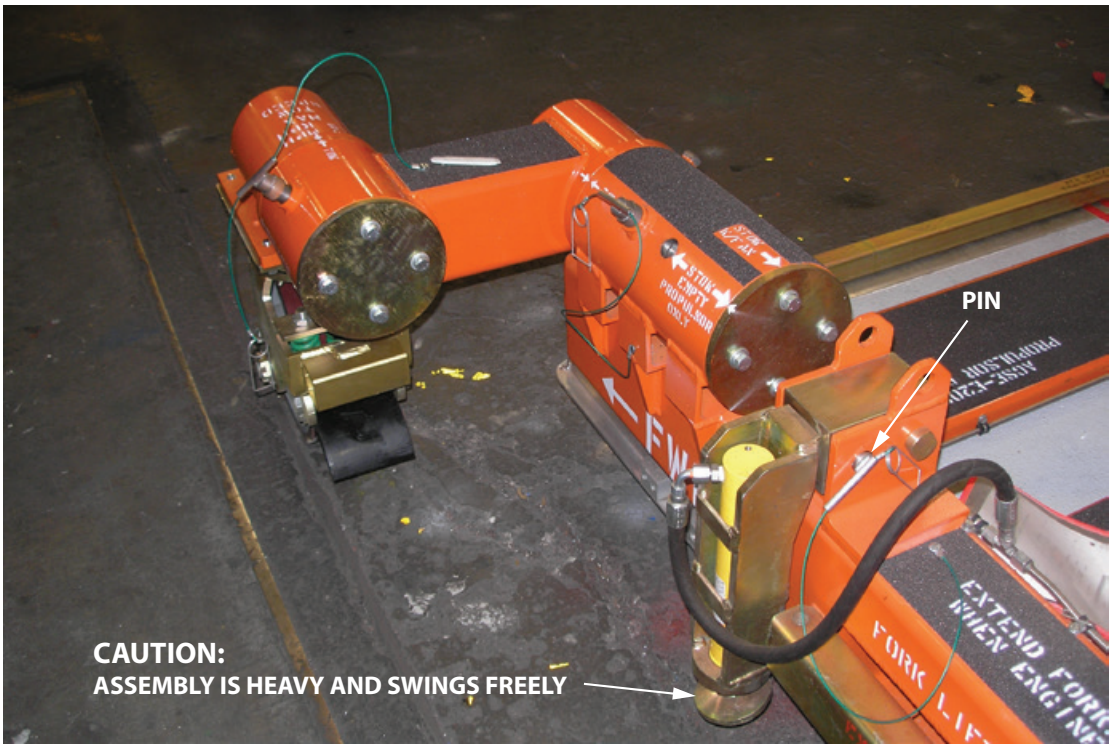


Figure 5.2-3 Jacking Leg-Deployed Position

Figure 5.2-4 Jacking Leg - Extended (for leveling and caster deployment/stow)

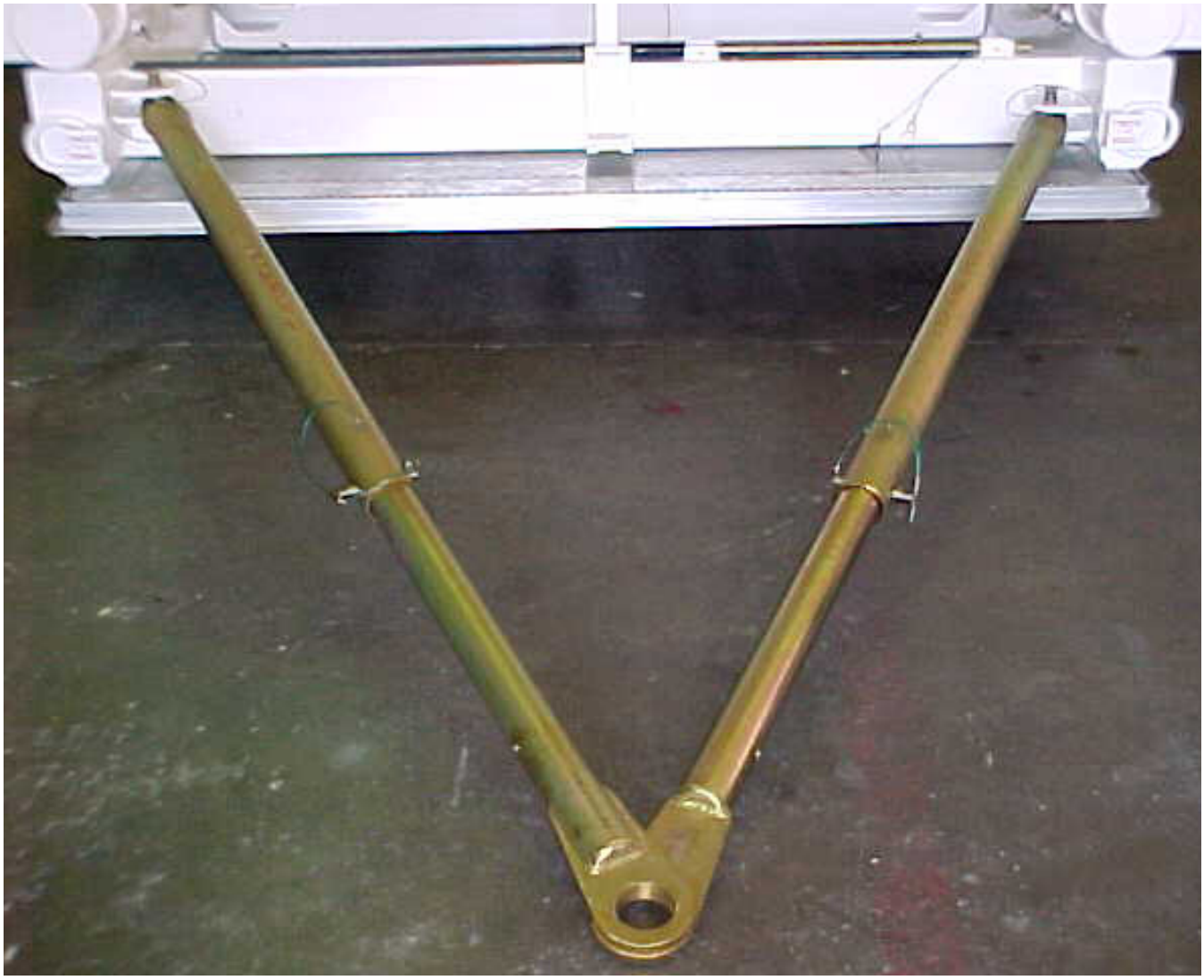


Figure 5.2-5 Tow Bars Deployed

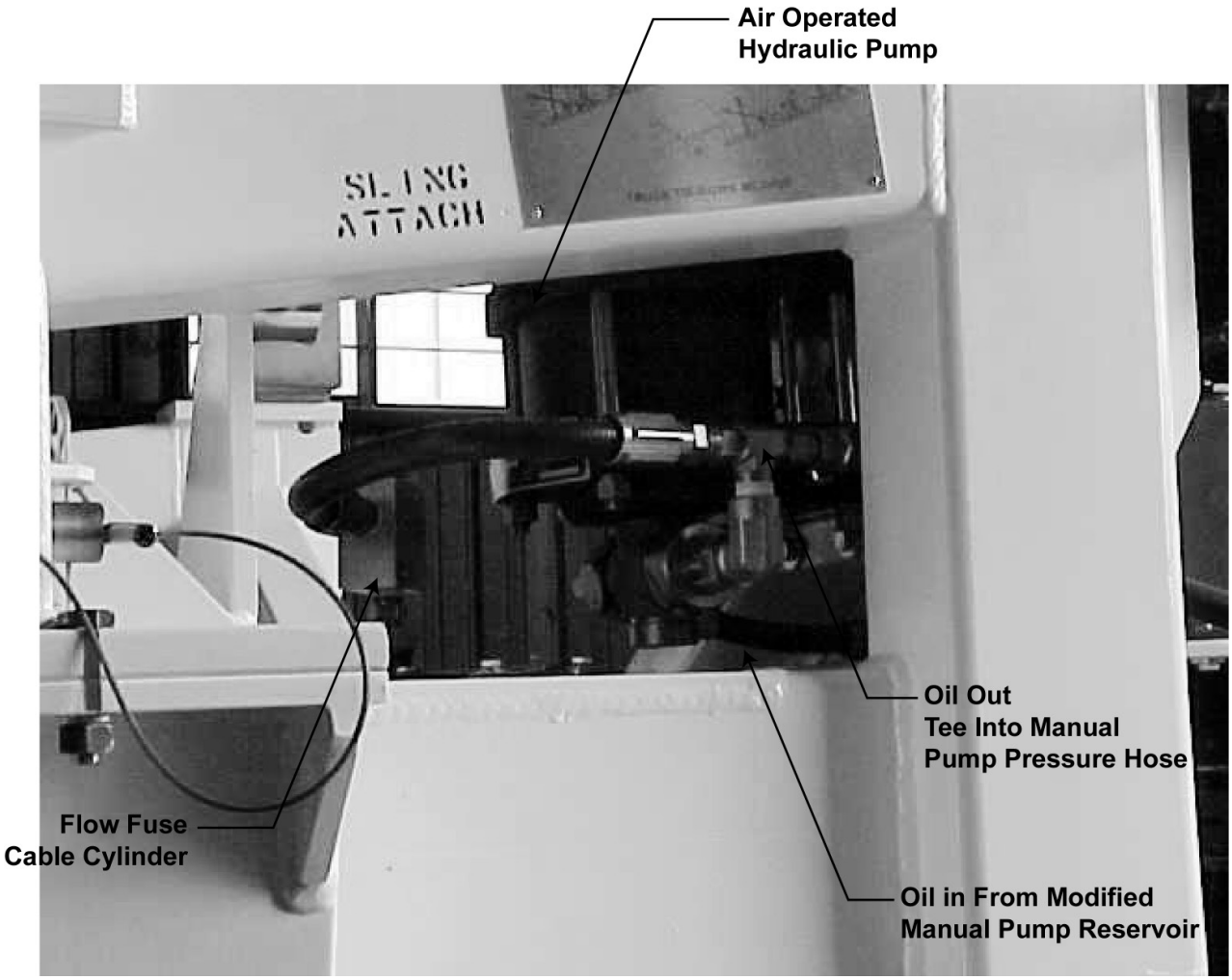


Figure 5.2-6 Optional Air Operated Hydraulic Pump Installation

When towing the stand, the casters closest to the tow vehicle must have the swivel lock released: the casters farthest from the tow vehicle must have the swivel locks engaged. All caster brakes must be released. Maximum towing speed is 5 KPH (3MPH). When positioning the stand under the aircraft pylon or in tight turning situations, the provided steering bar should be used to pre-swivel the casters. The steering bar is stowed on the base.

5.3 Cradle Lift System:

The cradle separates from the base for bootstrapping engines on or off the aircraft pylon. The stand has four engine support positions for transportation listed below. Each position has index support and locking pins to connect the cradle to the base shock mount guide structure.

Position 1 - Engine bootstrap and fan separation (cradle and engine at maximum height).

Position 2 - Fan separation and air shipment of the full engine in a suitable freighter aircraft.

Position 3 - Propulsor with lower bifurcation installed, air ship position for Boeing 747 freighter aircrraft.

Position 4 - Propulsor only with lower bifurcation removed flight mount brace installed (cradle and propulsor at minimum height), air ship position on MD-11 freighter aircraft.

Engine mounts and adapters are included to configure the cradle to support the engine for the following positions and functions.

Position 1 - Cradle with aft mount spacers installed and forward GSE fan case mounts. Configuration for full QEC engine with inlet for on wing bootstrap installation, inlet removal and fan case separation. (See Figure 5.3-3) (Optional configuration with aft mount spacers removed and forward mount spacers installed. Configuration for full engine with inlet removed, fan case separation, airfreight with full engine. Overhead lifting equipment required to remove and install spacers after engine removal from the aircraft). Truck or air freight position for full engine

Position 2 - Cradle with aft mount spacers installed and forward GSE fan case mounts installed. Configuration for full engine with inlet removed, fan case separation, airfreight with full engine (See Figure 5.3-4).

Position 3 - Cradle configured with forward QEC flange mounts and beam installed with aft mount spacers installed. Configuration for propulsor with flight mount and lower bifurcation installed, for truck transportation and Boeing 747 air freighter shipment (See Fig. 5.3.6).

Position 4 - Cradle configured with forward QEC flange mounts and beam installed, aft mount spacers and cross beam spacers removed. Configuration for propulsor transportation with and lower bifurcation removed, for truck transportation and MD-11 air freighter shipment (Fig. 5.3-7).

The stand must be as level as possible before operating the cradle lift system, use the stand jacking legs (See Figure 5.1-1) to level and stabilize the stand.

A hydraulically operated cable system integral to the cradle is used to move the cradle vertically from one position to the other. The cable system consists of two cable assemblies for the forward end of the cradle and one cable assembly for the rear end of the cradle. A two stage telescoping hydraulic cylinder powers the system through a manual hydraulic pump and valve, or optional air-powered pump.

To raise the cradle, close the pressure release knob and crack open the reservoir air vent shown in Figure 5.5-1. The cradle is secured to the base shock mount structure by eight pins located at the four guide tubes.

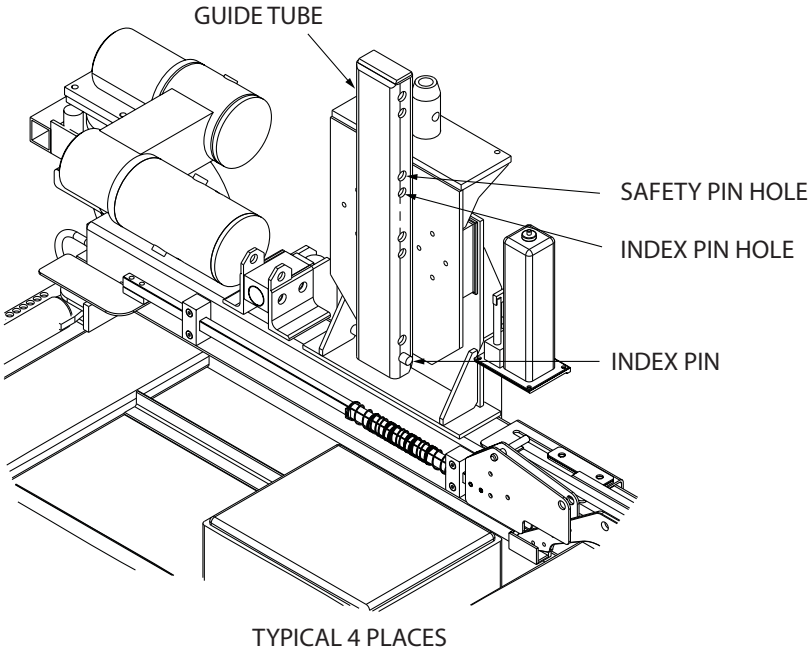


Figure 5.3-0 Safety Pin Locations for Securing the Cradle

Four upper pins secure the cradle once located on the four lower index pins to position and secure the cradle for transportation. To move the cradle from one position to another, remove the four upper securing pins and store in the tubes located on the cradle frame. Use the hydraulic pump to raise the cradle off the index pins. Locate the index pins in the next lower position or place in the storage tubes if the cradle is being raised to a higher position. Continue to operate the pump if the cradle is being raised to a higher position. Open the pressure release knob if it is to be lowered to a lower position. Note that when the second stage of the cylinder begins to extend the handle effort will increase suddenly. A gauge is mounted on the pump to indicate system pressure. If at any time the system pressure is 3000 PSI or more stop pumping and check that the cradle is not bound up on the base or shock mount structure (See Figure 5.5-2). The pump has an internal relief valve set at 3000 PSI; if the pump will not reach 3000 PSI the relief valve may be the cause. Refer to the maintenance section for adjusting the valve. When the cradle reaches the upper position, insert pins through the brackets on the base guide tubes. Some additional pumping may be required to insert all the pins. After the pins have been installed, slowly release the system pressure.(See Figure 5.3-2).

If all the pins cannot be installed, deploy and extend the stand jacking legs to level or stabilize the stand.

CAUTION

Never get under the cradle while supported only by the cable system.

If the cradle stops before reaching the low position, close the pressure release screw check for binding of the cradle with the base. The system has a cylinder-mounted safety valve that will close if the cradle lowers too fast. If this valve has closed, the system must be pressurized with the hand-operated pump to reset the valve. When the cradle reaches the low position insert the cradle pins through the base shock mount structure brackets. Leave the pressure release valve open.

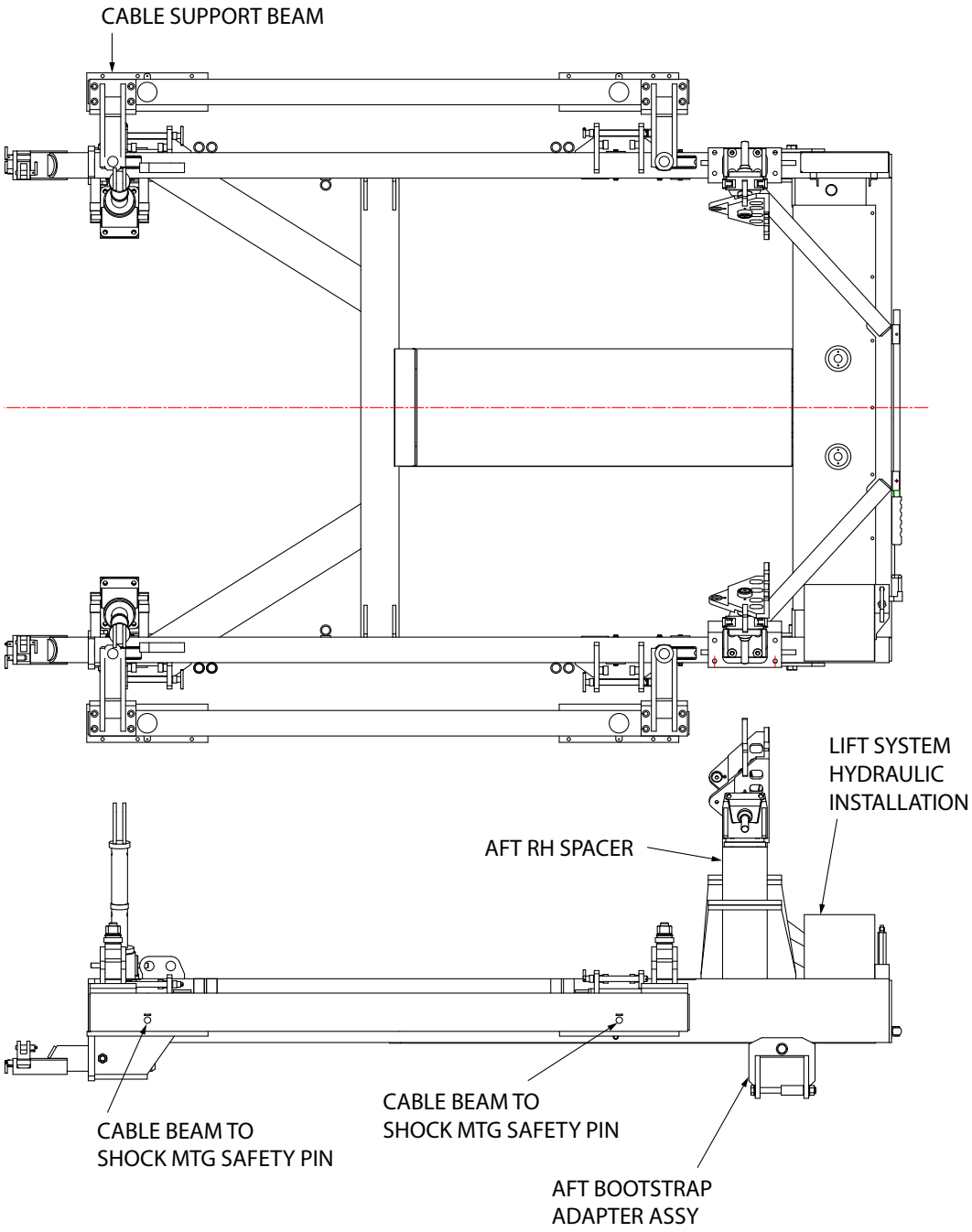


Figure 5.3-1 Cradle Lift System

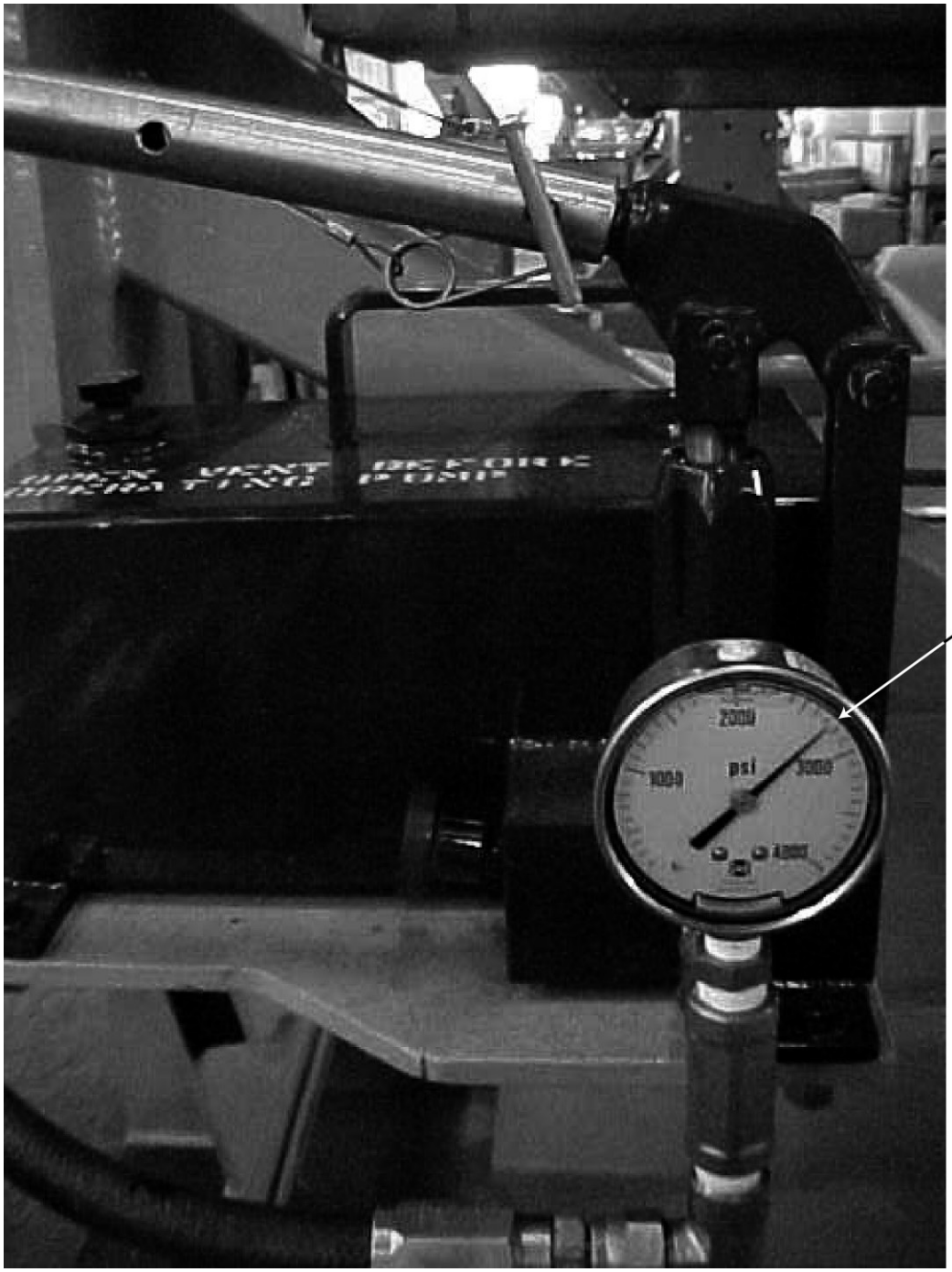


Figure 5.3-2 Cradle Lift System Photograph

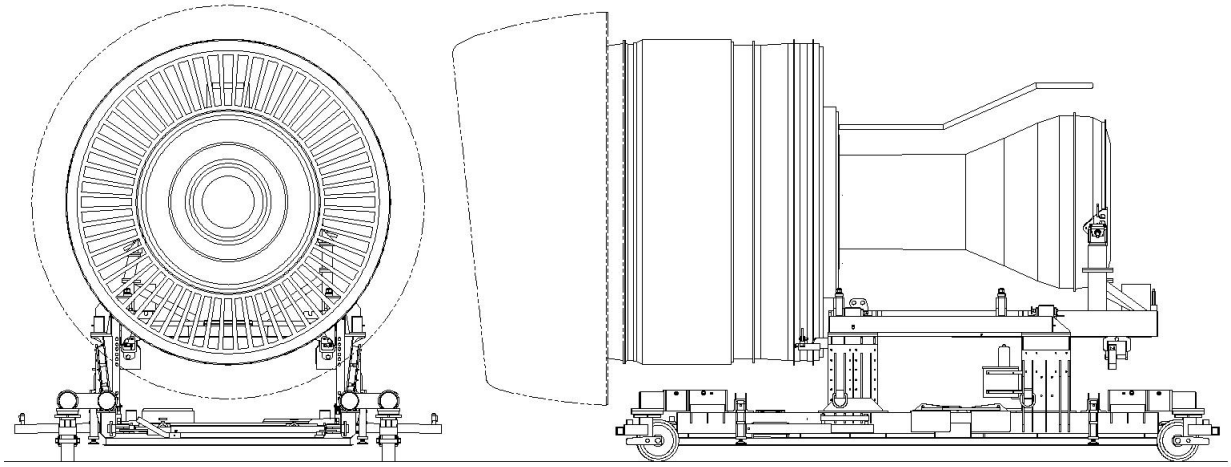


Figure 5.3-3 Position 1

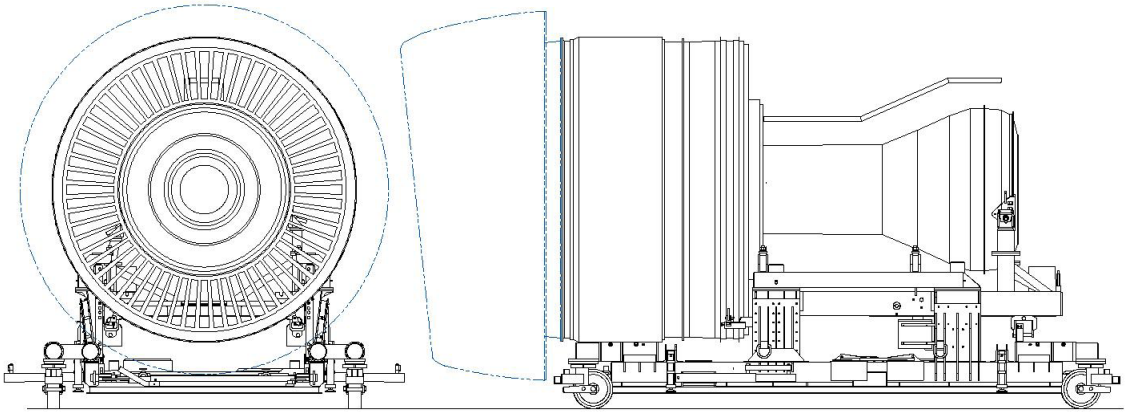


Figure 5.3-4 Position 2

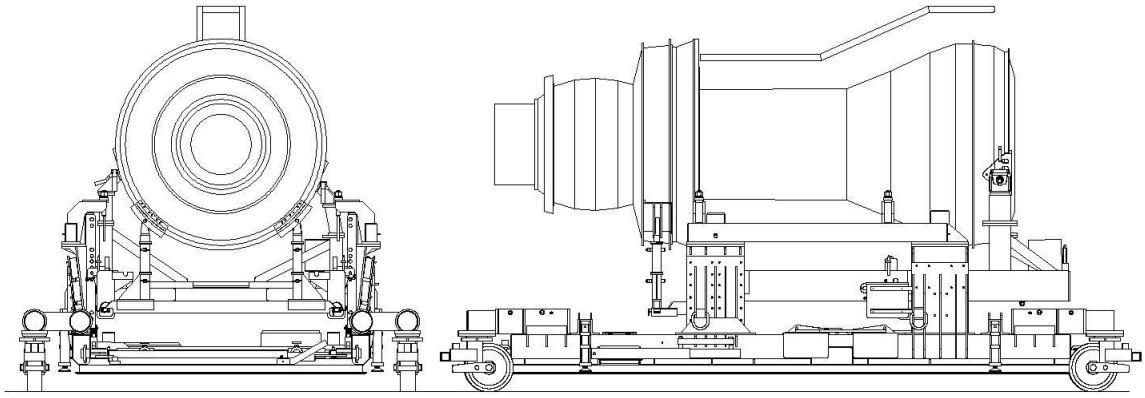


Figure 5.3-6 Position 3

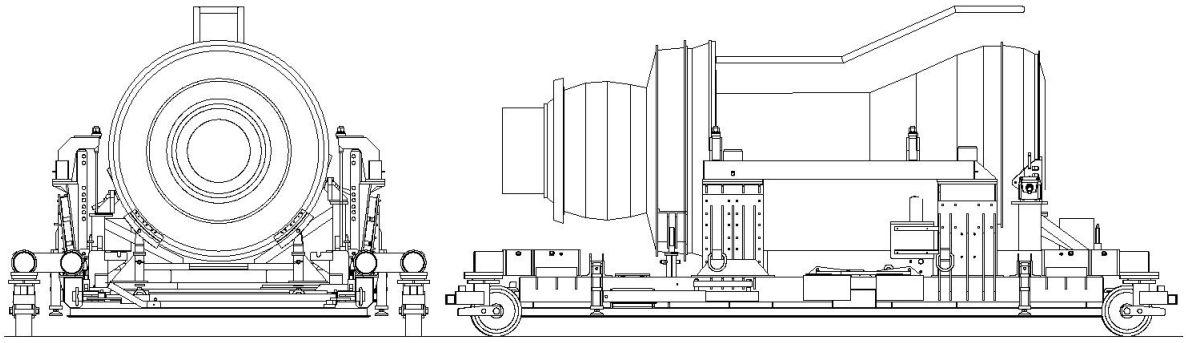


Figure 5.3-7 Position 4

5.4 Change of Hands Support Operation:

1) The change of hand supports 7C2019-G01 are designed to support the full engine at the aft flange of the propulsor hub. Fan separation may be performed with the cradle supporting the engine at positions 1 or 2. While the engine is supported by the brackets, the stand may not be towed of fork lifted. Use the AGSE-E145-G01 (PWA107324) dolly during the installation or removal of the fan module. Follow the Pratt & Whitney fan removal installation procedure.
2) Remove the E20303-S01/-S02 change of hands support jack assembly from the aft storage box and install on the supports located at the inside forward corners of the cradle frame. Configure the jack assembly with 10-inch spacers installed if the cradle aft mount spacers are installed (See Figure 5.4-1).

WARNING

Do not attempt to move the stand/engine by towing, forklift or other means while the engine or propulsor is supported by the 7C2019 change of hands brackets.

3) 7C2019-G01 bracket removal from storage
   a) Remove the tow bar storage pins at both ends of the tow bar.
   b) Unpin the 7C2019-G01 brackets and fork tube blocker brackets located at the aft fork tube.
   c) Slide the fork tube blocker brackets to the closed position covering the fork tubes.
   d) Remove the 7C2019-G01 brackets.
4) Install the 7C2019-G01 bracket set on the propulsor fan hub GSE support pads. Adjust the support jacks with a ½-inch drive ratchet until the connection holes are aligned and pins may be installed.
5) Raise the engine to unload the forward fan case GSE support pins for removal by adjusting both jacks simultaneously. Once the E20301-P01/-P03 mount pins are free remove both pins and mounts from the support saddles (See Figure 5.4-1).
6) The stand and engine are now configured to accept the fan module removal dolly. Follow the reverse order of operation to install the fan module on to the propulsor while in the stand.

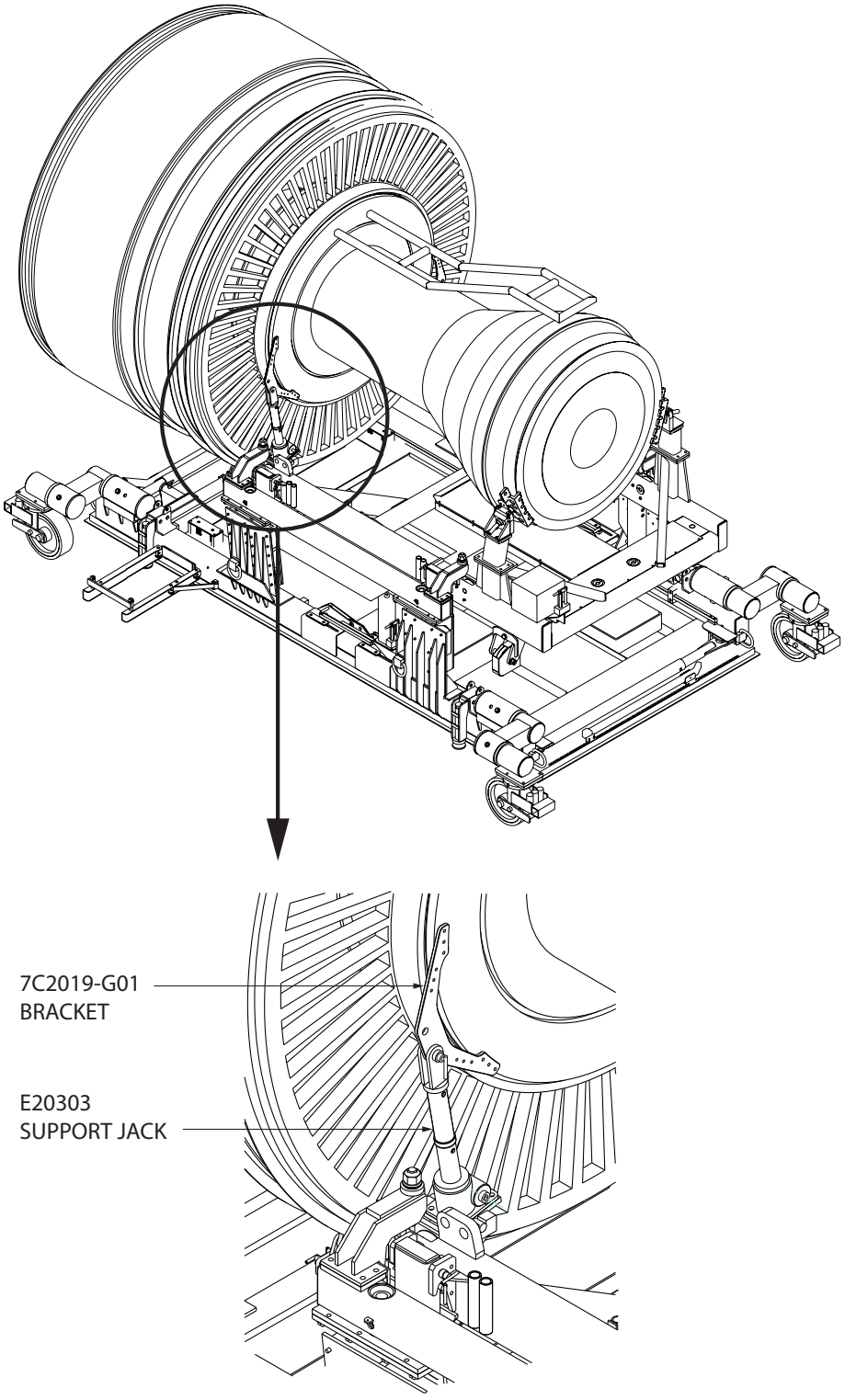


Figure 5.4-1 Change of Hands Support Operation

5.5 Raising Cradle to Fan Split Position

1) Using the hydraulic powered system (see step 2 for using the optional air powered system).

CAUTION

The GP7200 Transportation Stand must be level on casters before raising or lowering the engine to minimize cradle listing. The leveling jacks should be used in all cases for leveling and stabilizing the stand.

a) Level the stand using the hydraulic jacks described in section 5.2.

b) Remove the four (4) upper securing pins located at the four guide tubes of the shock towers. This may require the cradle be raised slightly to unload the locking pins. Stow pins in tube sockets on the cradle

c) Turn the round hydraulic hand pump control valve clockwise to close the return line. (See figure 5.5-1).

d) Raise the cradle to unload the index pins and place in the storage sockets on the cradle.

e) Cycle the hand pump to raise the cradle above the index pin location 1 or 2 specified as fan case split positions. Install the index pins stored on the cradle.

f) Lower the cradle to rest on the index pins by turning the pump control knob counter clockwise to release the hydraulic pressure.

g) Install the upper securing pins stored on the cradle.

CAUTION

Minimal clearance exists between the engine and stand. The operator is responsible to ensure the engine does not contact the stand. This may require the removal or adjustment of engine components.

WARNING

Stand clear when raising the cradle. Severe pinch may cause harm to personnel as the cradle is raised.

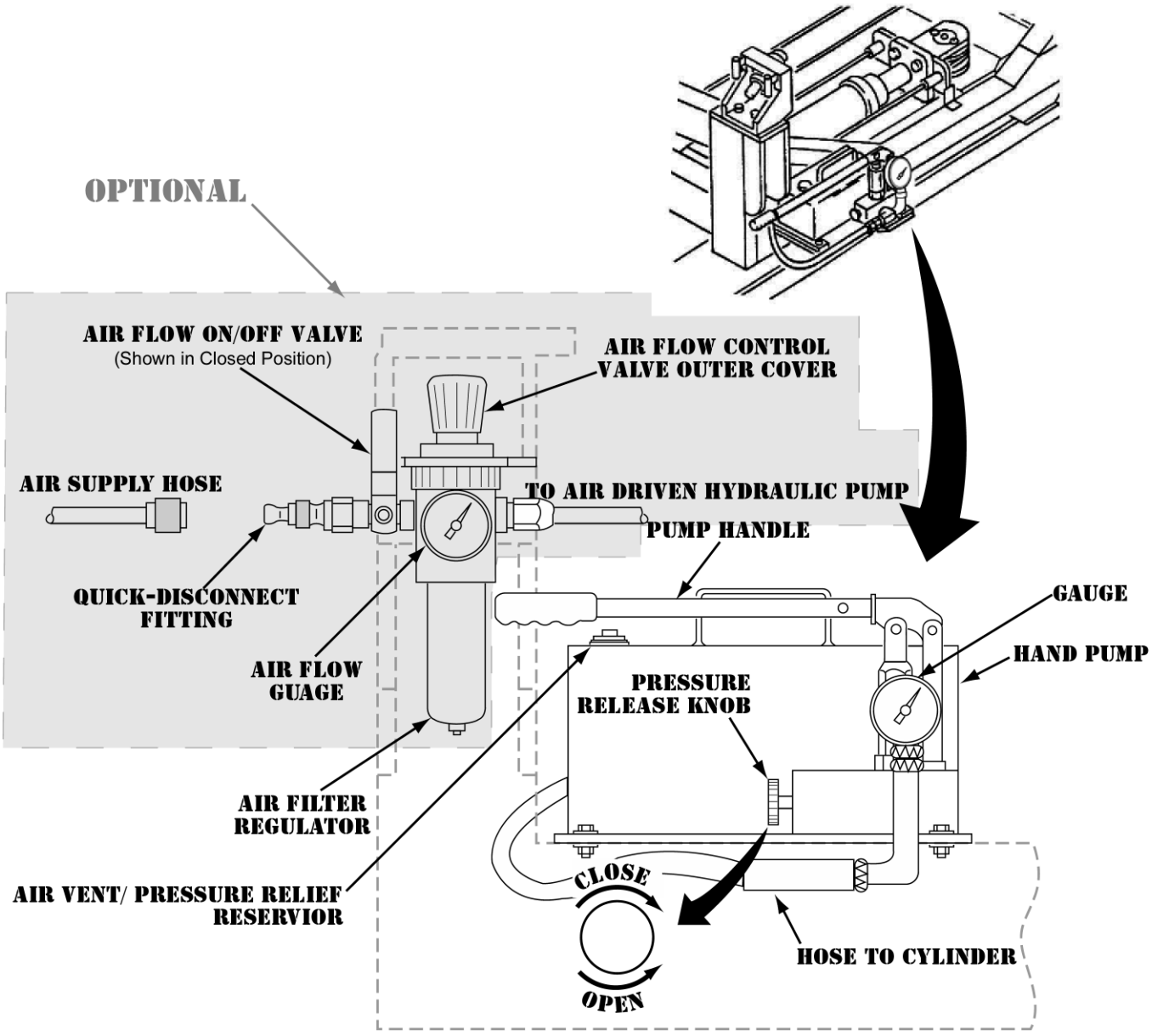
2) Using the optional air powered system (see step 1 for using the hand pump system).

a) Place the pump handle in the down position.

b) Close the compressed air inlet handle located at the filter regulator by turning the handle up, clockwise (see figure 5.5-1).

c) Connect a 100 psi compressed air supply hose to the quick disconnect fitting located on the inlet side of the filter regulator.

d) Remove the securing pins, stow and raise cradle by slowly turning the compressed air inlet handle down, counterclockwise. The air driven hydraulic pump will start and the cradle will begin to raise.



NOTE: To convert existing manual pump system to dual air/hydaulic system requires modification of manual pump reservior.

Figure 5.5-1 Cradle Hand Pump Operation

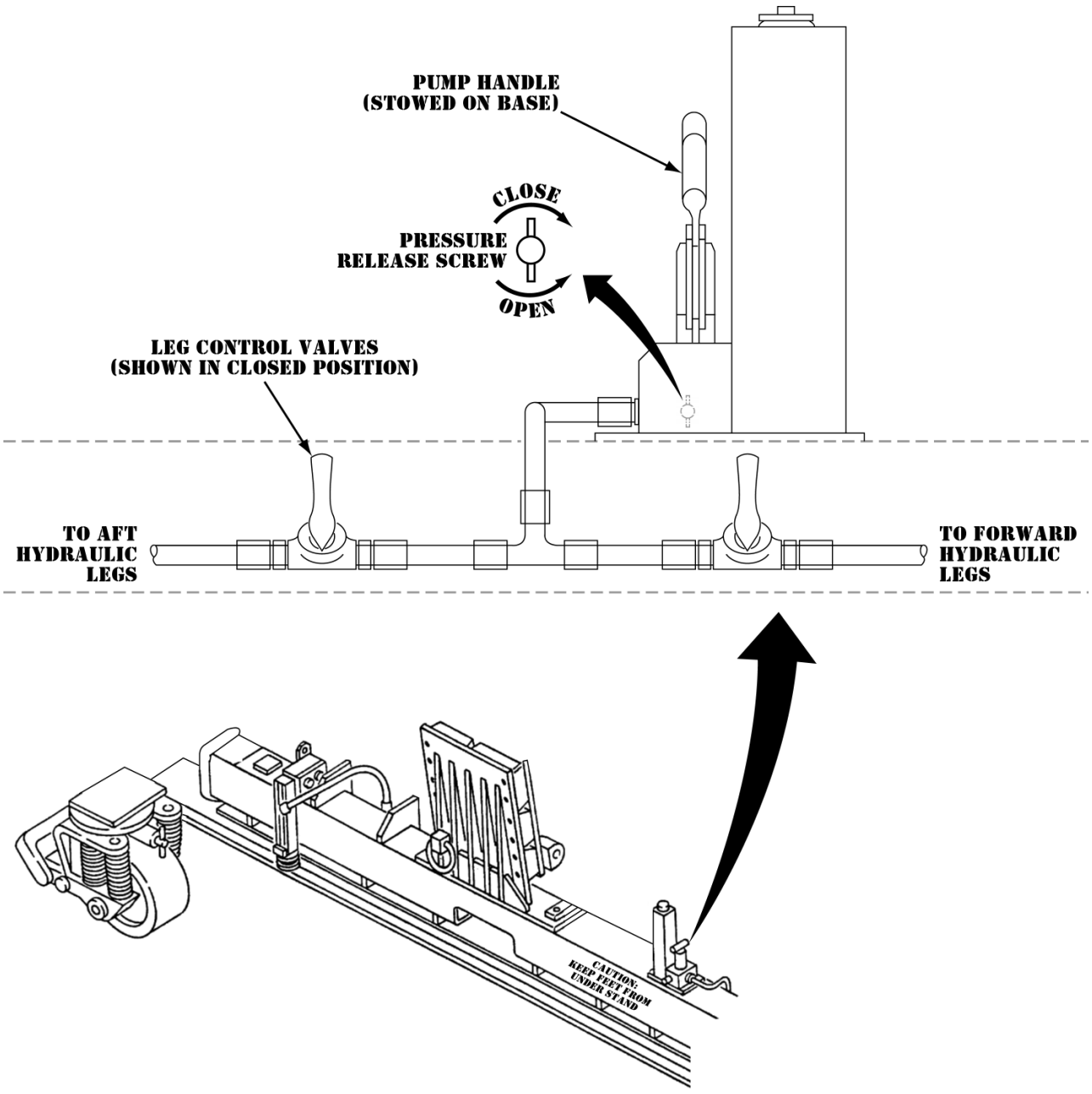


Figure 5.5-2 Hydraulic Leg Hand Pump Operation

e) Adjust the air flow at the filter regulator by lifting up on the outer cover on top, and turning to a maximum pressure of 85-90 psi. The gauge hand will fluctuate with the cycling of the air pump operation.

f) Once the cradle has reached the raised positions 1 or 2, close the air supply valve by turning the handle up, clockwise. Install the index pins stored on the cradle.

g) Lower the cradle to rest on the index pins by turning the pump control knob counter clockwise to release the hydraulic pressure.

h) Install the upper securing pins stored in the cradle. Once one or two of the safety pins are installed, additional adjustment may be required to install the remaining pins. Use the pump and control knob to raise and lower the cradle as required.

i) Release all hydraulic pressure from the system by turning the control knob on the hand pump counter clockwise to allow the index and securing pin to support the cradle.

5.6 Lowering Cradle to the Propulsor Shipping Position

CAUTION

The GP7200 Stand must be leveled on casters before raising or lowering the Propulsor to minimize cradle listing. If the Propulsor is to be raised or lowered on an inclined surface, the stand should be located such that the forward and aft ends are directed parallel with the incline slope. The leveling jacks should be used in all cases for leveling and stabilizing the stand.

Note: The empty cradle may not be lowered to shipping position.

Empty cradle weight too light to sufficiently tension cables.

1) Inspect the stand for obvious damage.
2) Configure the Propulsor for shipment in accordance with Engine Alliance Engine Shipping Manual.
3) Level the base and cradle system with the hydraulic jacking legs as described in Section 5.2.
4) Pressurize the hydraulic system by turning the round knob controlling the valve at the hand pump completely clockwise.
5) Remove the cradle securing pins and raise the cradle slightly to free the index pins that support the cradle.
6) Remove the four (4) index pins holding the cradle in the current position. Install the pins at the proper lower position to stop cradle travel.

WARNING

The engine must be configured and certain parts removed before the engine is lowered.

7) Slowly open the round control knob on the pump and the Propulsor and cradle will begin to descend. Continue to control the start, stop, and speed with the round control knob.

CAUTION

Open the release valve slowly. If opened quickly, the flow fuse on the cylinder may activate and stop the cradle from lowering. If this occurs, close the release valve and raise the cradle slightly using the hand pump. This will release the back pressure on the flow fuse and reset.

WARNING

Stand clear when lowering the cradle. Severe pinch may cause harm to personnel as the cradle is lowered.

8) Once the Propulsor and cradle have indexed to the lower position, install the four (4) securing pins.
9) Fully open the pressure release knob at the hand pump.
10) Close the reservoir vent and hydraulic control valve.
11) The Propulsor is now in position for air/truck shipment.

5.7 Engine Installation into Stand (In Raised Position) Using Overhead Sling

1) Inspect the stand for obvious damage.
2) The cradle must be secured in raised position (reference section 5.3).
3) Configure engine for shipping in accordance with Engine Alliance Engine Shipping Manual.
4) Remove aft engine ground handling mounts from the engine stand and install in the PWA-106473 aft exhaust case mount using the hardware provided. Loosen lock collars to allow adjustment as required.
5) Installation a full engine or propulsor
   a) If installing a full engine (with fan), remove the forward lower fan case ground handling mounts from the engine stand and install on the engine using the pins provided for full engine. Install the safety pin clips after pins are inserted.
   b) If installing a propulsor (without fan), bolt the propulsor FWD QEC with flange mounts hardware stored in the aft storage. Install support adapters as on cradle.
6) Position the stand beneath the engine and set the caster brakes.

CAUTION

Minimal clearance exists between the engine and stand. The operator is responsible to ensure the engine does not contact the stand. This may require the removal or adjustment of engine components.

CAUTION

Care must be taken when working near suspended loads. Personnel should never stand beneath the suspended load.

7) Lower engine into stand while supporting the aft mount blocks by hand. Guide the aft mounting blocks into the saddles on the stand as required (this may require the adjustment of the threaded pins). To adjust the aft pins loosen the threaded collars and rotate the pins. Continue to lower the engine until the forward mount adapters are supported in the saddles.
8) Install the forward mount saddle pins. Continue to lower the engine until the aft mounts are fully seated and the retainer on the aft mounts can be pinned closed. With engine centered on stand, tighten threaded collars and lock with set screws. Install the safety clips.
9) Continue to lower the engine until the stand supports the full weight of the engine.
10) Remove engine sling.

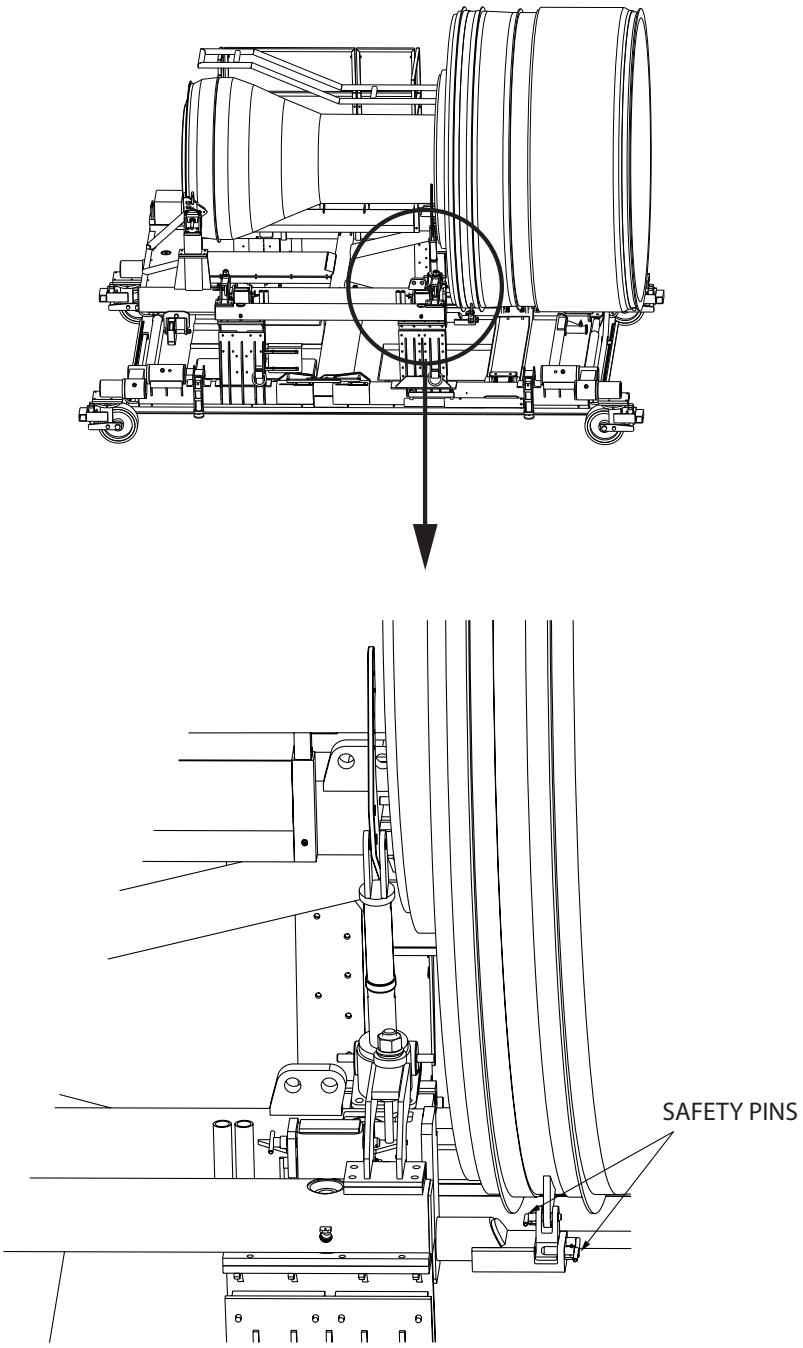


Figure 5.7-1 Securing Engine on The Stand

5.8 Engine Bootstrapping

CAUTION

This procedure is intended to supplement the Airbus Bootstrap Procedure. It identifies the required steps to configure and use AGSE equipment during engine bootstrapping. It shall not be used as a replacement for engine installation or removal.

1) The cradle must be in Position 1 or highest position with the cradle supported and secured to the cable beam.
2) Position the engine stand beneath the aircraft pylon with the stand centered about the pylon.
3) Assemble the engine bootstrap system per Engine Alliance procedures.(See Figure 5.8-2 and 5.8-3 for locations).
4) Raise stand slightly using the bootstrap system to center the stand under the pylon.

CAUTION

The rear casters must touch the ground first when lowering the stand.

5) Lower the stand until all the casters support the full weight of the engine.
6) Unbolt the forward and aft cable beam plates from the base shock towers. Pull beam-to-shock mount pins. Check cable system so that hydraulic pressure is zero.
7) Raise the cradle and engine, and secure engine to the aircraft pylon.
8) Release the engine handling mounts and lower the empty cradle using the bootstrap system.
9) Lower the cradle until the forward and aft cable beam plates can be bolted to the base shock towers. Torque the bolts to **40** Foot-Pounds. Install pins.
10) Remove the engine ground handling mounts from the engine and install them on the cradle.
11) Remove the bootstrap system from the aircraft and cradle.

5.9 Fan Separation

~ Refer to the Engine Alliance Fan Separation Procedures ~

~ Refer to PWA107324 Manual ~

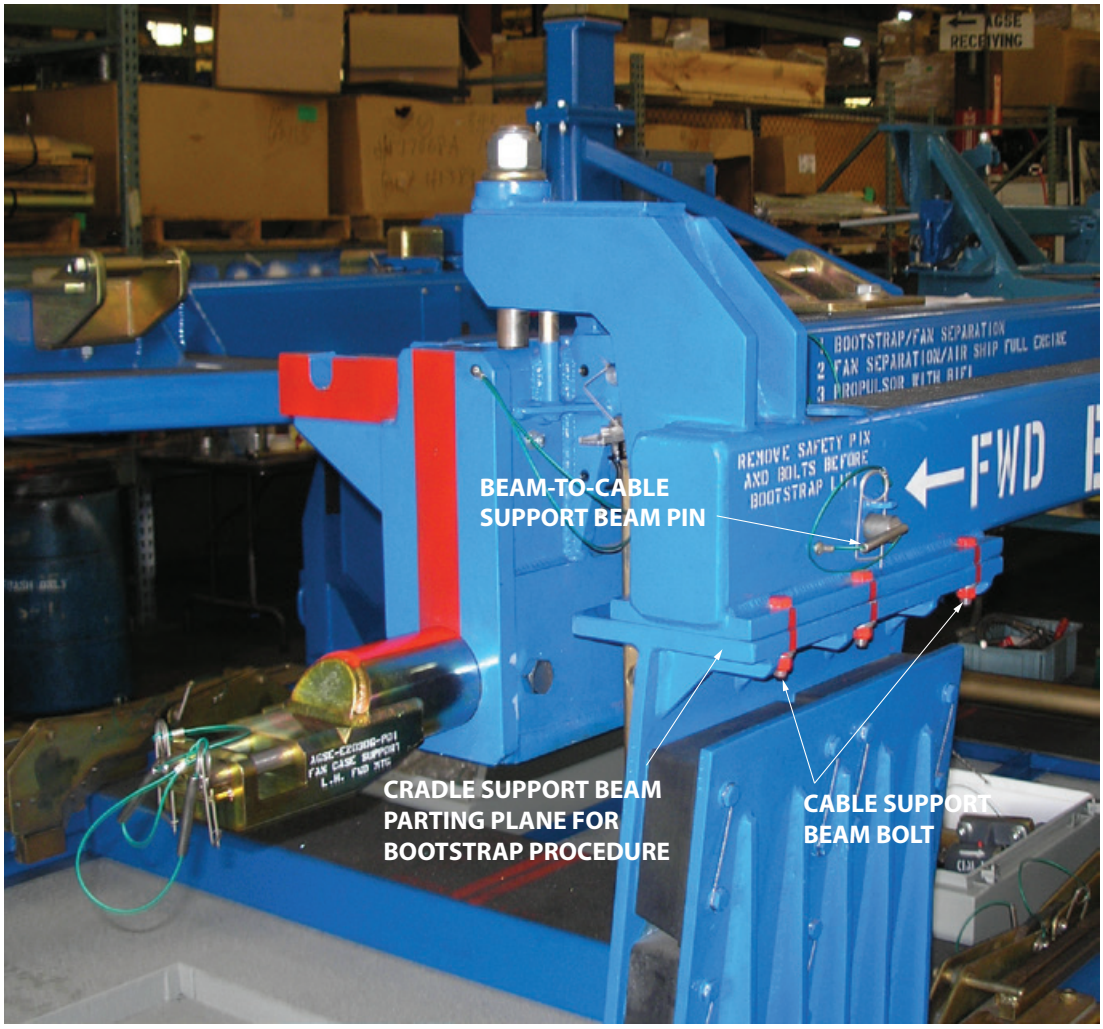


Figure 5.8-1 Bootstrap

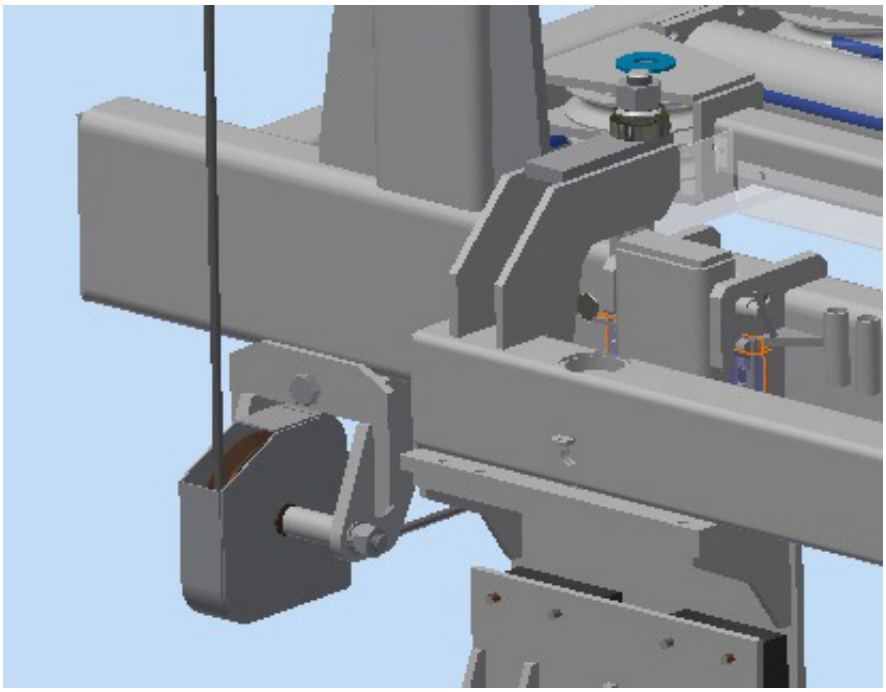


Figure 5.8-2 Aft Bootstrap Adapter

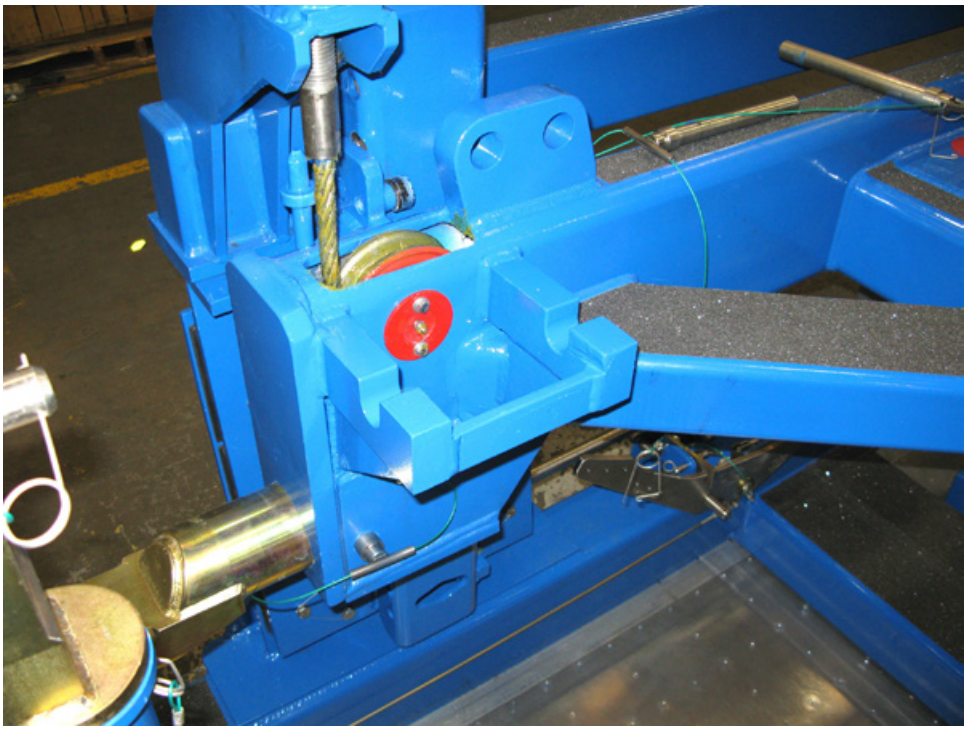


Figure 5.8-3 FWD Bootstrap Adapter

6.0 – SAFETY

6.1 Stress

Design stress safety factors are compliant with applicable Engine Alliance Specifications. The equipment is provided with safety devices and guards to properly operate the equipment.

6.2 General

Most accidents are the result of violating standard safety rules in operation or improper servicing and maintenance of equipment.

Many safety features have been incorporated into the design to assist in safe operation of this equipment. These items do not fool-proof the equipment nor do they replace the operator's responsibility to operate the equipment in a safe manner.

6.3 Prevention

A good preventative maintenance program should include periodic lubrication, adjustment, and immediate correction of defects revealed through inspections. Preventive maintenance will not only contribute to safe operation, but will also extend useful service life as well.

6.4 Risk Assessment

6.4.1 Limits of the Machinery

The AGSE-E143-G01 (PWA107321) Propulsor/Full Engine Transportation Stand is a commercial product designed specifically only to store and/or transport the Engine Alliance GP7200 engine. The equipment is to be used only by trained mechanics free from physical impairment and who are familiar with this or similar fixture. The equipment is not to be used or made available to the general public.

6.4.2 Risk Assessment and Residual Risk

The risk evaluation performed was based on objective observation based on the experience of AGSE with similar equipment. Necessary Warning and Caution Notes have been incorporated into the Operation Section of the GP7200 Propulsor/Full Engine Transportation Stand Operation Manual along with instructions. Stencils also have been put on the equipment to identify hazardous and/or potential risk areas.

The operation of the PWA107321 Propulsor/Full Engine Transportation Stand can be with medium risk of injury and is considered safe to use under supervision. Low residual risks include potential pinch points during operation of the equipment.

Equipment detailed in this manual has undergone stringent safety analyzing using methods and standards set forth within European Standard EN 1050 and is considered to be safe for its intended use. Reports on risk analysis and evaluation according to 2006/42/EC Machinery Directive (17 May 2006) are available upon request.

ADVANCED GROUND SYSTEMS ENGINEERING LLC

EC DECLARATION OF CONFORMITY

The machinery listed below fulfills all relevant provisions of the directives listed:

- 2006/42/EC Machinery Directive (2006/05/17)

Machinery covered by this Declaration:

Description:	Propulsor/Full Engine Transportation Stand, GP7200
Model:	AGSE-E143
Part Number:	AGSE-E143-G01 (PWA107321)
Serial Number:	_____

Harmonized Standards:

- ISO 12100:2010 Safety of Machinery - General Principles for Design - Risk Assessment and Risk Reduction
- ISO/TR 14121-2:2012 Safety of Machinery - Risk Assessment - Part 2: Practical Guidance and Examples of Methods

Standards and Specifications:

- GE and Pratt and Whitney Alliance, SOW for PWA105606, GP7200 Engine Shipping System, 2006/07/03 Rev 2
- GE and Pratt & Whitney Alliance, GSE Specification No. 3019, Engine Transportation System for the GP7200 Engine, Airbus Industrie A380, 09/19/2007
- AGSE Quality System Procedure Number QSP-006
- Aerospace Recommended Practice Standard, SAE ARP 1840, 2007/02 Rev B

Place: Santa Fe Springs, California, USA

Date: _____

Signed: _____

Quality Representative

Technical File: Pedro Fernandes
Advanced Ground Systems Engineering
Pct Ana Maria Bastos, N20
A-dos-Cunhados, Portugal 2560-005
+351-96-520-4851

7.0 – Statement of Warranty

7.1 Statement of Warranty

Advanced Ground Systems Engineering LLC (AGSE) warrants to original purchasers that it's products will be free of defects in material and workmanship under normal use and conditions for claims received within a period of one year from date of purchase (final billing date), and to the extent that if any AGSE product fails in operation because of such defect, the company will replace or repair, at its option, the defective article. Prior to the repair or replacement of any defective product, the company shall be notified in writing as to the nature of the defect. The company shall assume no liability for freight, disassembly, removal, refitting and installation charges on any article returned unless such charge(s) is approved by AGSE in writing prior to the return. On component items purchased by AGSE for incorporation into an AGSE manufactured product, only the component manufacturer's warranty (if any) shall apply to that component. Said manufacturers warranty shall be passed on to AGSE's customer to the extent permitted. This warranty is applicable only when AGSE products are operated for intended purposes within the recommended procedures, load limits, properly maintained, not damaged or abused, etc., including as indicated in company manuals, catalogs, and drawings. All warranty claims must be applied for within sixty days from when the defect becomes known. The foregoing warranty is in lieu of all other warranties, or liabilities, either expressed or implied, and AGSE expressly excludes all implied warranties of merchantability and fitness for a particular purpose and all non-infringement warranties as well as disclaims all liabilities to third parties. In no event shall AGSE be liable for any amounts in excess of the purchase price of the product.

NOTICE

Failure to conduct periodic inspections, routine maintenance, or improper operation will result in the voiding of the warranty.

8.0 – Parts Breakdown

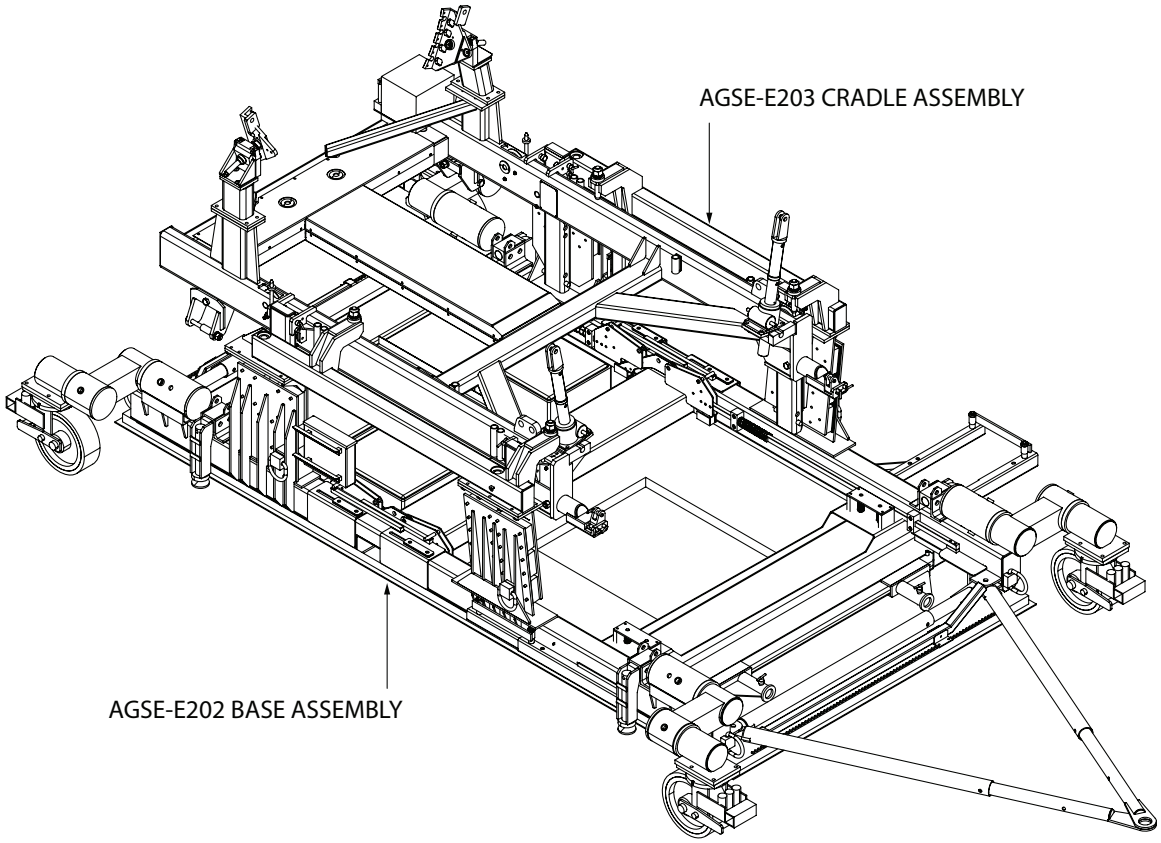
8.1 General

The following pages can be used in the identification of components used in the product described in this manual. Parts Lists are broken down by "ITEM," "PART NUMBER," "QTY," and "DESCRIPTION"

NOTICE

"ITEM" numbers are for reference to the Parts List only. Do not order replacement parts by "ITEM" number.

8.2 Illustrated Parts Breakdown



IPB Figure 1 - AGSE-E143-G01
GP7200 Transportation Stand Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E143-G01	-	GP7200 Transportation Stand Assy (Figure 8.1-1)
1	AGSE-E202-G01	1	Base Assy (See IPB Figure 3 for Details)
2	AGSE-E203-G01	1	Cradle Assy (Used on AGSE-E143-G01) (See IPB Figure 2 for Details)
3	AGSE-E14301	1	Stand Stencil Diagram (Non-Illustrated) (See Manual Section 9.0 for Details)
REF	AGSE-E20317-S01	1	Pneumatic Pump Kit (See IPB Figure 5 for Details)
4	AGSE-E203-G02	1	Cradle Assy (Used on AGSE-E143-G01-PPK) (See IPB Figure 2 for Details)
5	AGSE-E203-G03	1	Cradle Assy with Bolt On Cable Support (Used on AGSE-E143-G02) (See IPB Figure 2 for Details)

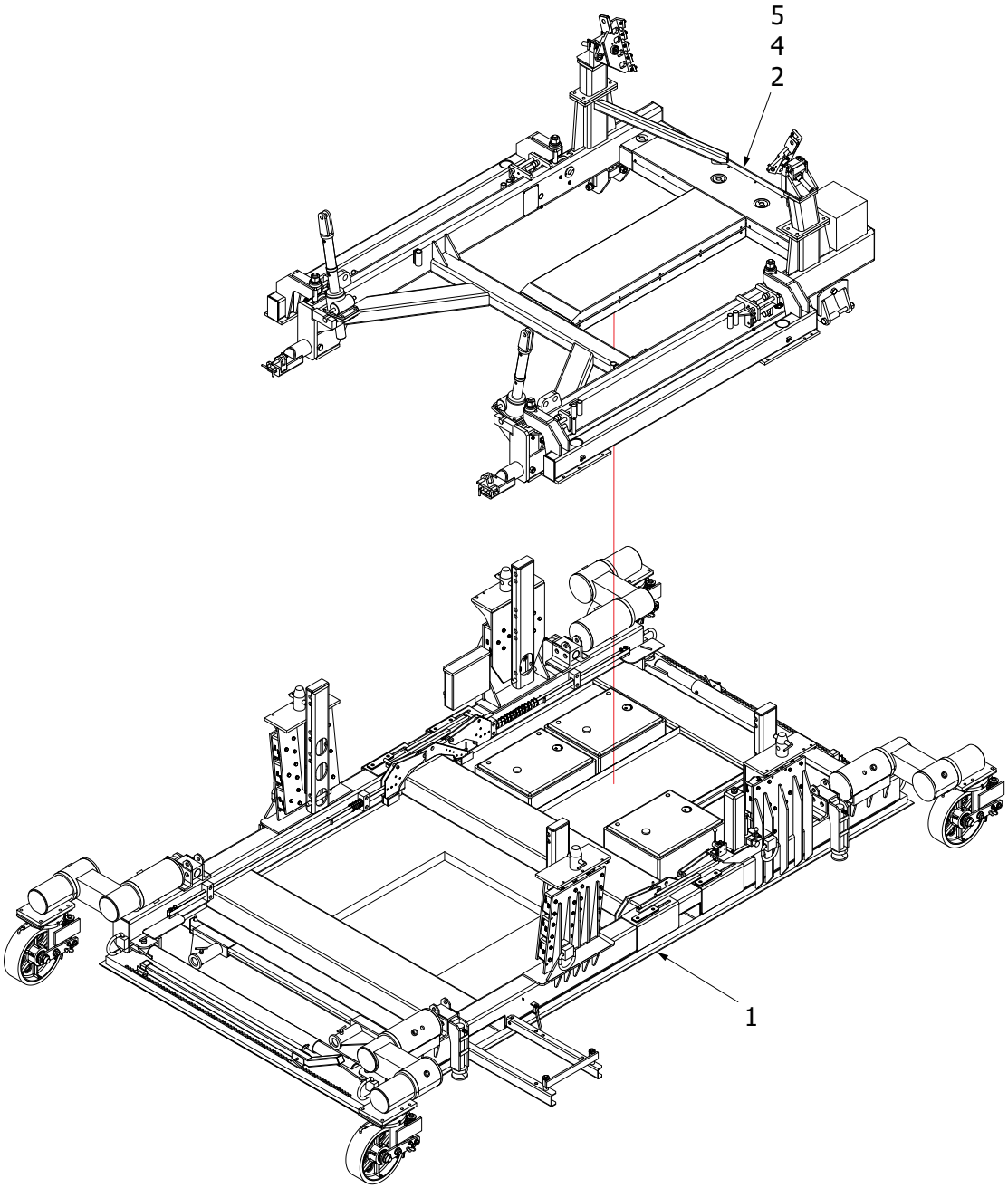


Figure 8.1-1

IPB Figure 2 - AGSE-E203 Cradle Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E203-G01	-	Cradle Assy (Figures 8.2-1 - 8.2-5)
	AGSE-E203-G02	-	Cradle Assy (Figures 8.2-1 - 8.2-5)
	AGSE-E203-G03	-	Cradle Assy (Figures 8.2-1 - 8.2-5)
1	AGSE-E20301-P01	1	FWD Fan Case Mtg
2	AGSE-E20301-P02	2	AFT Mtg Shaft
3	AGSE-E20302-P01	1	Cradle Weldment
4	AGSE-E20303-S01	1	Change of Hands Support (See IPB Figure 6 for Details)
5	AGSE-E20304-S01	1	Propulsor Support Frame (Used on -G01 and -G02) (See IPB Figure 7 for Details)
6	AGSE-E20305-P01	1	AFT LH Mount Adapter
7	AGSE-E20305-P02	1	AFT RH Mount Adapter
8	AGSE-E20306-P01	1	Fan Case Support - LH
9	AGSE-E20306-P02	1	Fan Case Support - RH
10	AGSE-E20306-P03	2	Fan Case Support FWD Spacer
11	AGSE-E20323-P01	2	Sheave Installation Cover Plate
12	AGSE-E20307-S01	1	QEC Propulsor Flange Mount - FWD
13	AGSE-E20321-S01	1	AFT Bootstrap Adapter Assy - LH (See IPB Figure 15 for Details)
14	AGSE-E20322-S01	REF	Guard Assy
15	AGSE-E10711-P01	1	Pump Handle
16	7C2019-G01	1	Propulsor Handling Bracket
17	AGSE-E20310-P01	1	AFT RH Spacer
18	AGSE-E20310-P02	1	AFT LH Spacer
19	AGSE-E20311-P01	1	Cable Support Beam (Used on -G02 only)
20	AGSE-E20311-P02	1	Cable Support Beam (Opposite) (Used on -G02 only)

IPB Figure 2 - AGSE-E203 Cradle Assembly (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION
21	AGSE-E20313-P01	2	FWD Mtg Safety Pin
22	AGSE-E20313-P02	2	FWD Mtg Safety Pin (Opposite)
23	AGSE-E10811-P01	4	Cable Beam to Shock Mtg Safety Pin
25	AGSE-E20315-S01	1	Lift System Hyd Installation (See IPB Figure 8 for Details)
26	AGSE-E20316-S01	1	Cable Assy (Used on -G01 only) (See IPB Figure 9 for Details)
28	AGSE-S00104-10C024A01	8	Screw, Hex Head (Used on -G01 and -G02)
28	AGSE-S00104-10C024A01	32	Screw, Hex Head (Used on -G03)
29	AGSE-S00135-10A17	8	Washer, Locking (Used on -G01 and -G02)
29	AGSE-S00135-10A17	40	Washer, Locking (Used on -G03)
30	AGSE-E20329-S01	2	AFT Mount Base Assy (See IPB Figure 9 for Details)
31	TCL24-12SS	4	Threaded Clamp Collar
33	91525A140	2	Flat Washer - 3/8” Dia. x 1-1/2” OD Stainless Steel
34	92360A510	2	Button Hd Cap Screw - 3/8”-16UNC x 3/4” Lg - Black Oxide
35	372888-1	2	Safety Pin - FWD Mtg
36	6461K48	16	Track - 1-3/8” Dia. x 3/4” Width
37	PWA-99982	1	AFT Mount Exhaust Case Mount (Two Brackets per Set)
38	AGSE-S00104-12C028A01	8	Screw, Hex Head
39	AGSE-S00135-06A17	8	Washer, Locking

IPB Figure 2 - AGSE-E203 Cradle Assembly (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION
40	AGSE-E20323-P02	4	Safety Pin
41	AGSE-E20319-S01	4	Cradle Vertical Index Pin
42	AGSE-S00159-14CA14	2	Nut, Hex
43	AGSE-S00118-08C040A01	12	Screw, Socket Head
44	AGSE-S00131-08A17	12	Washer
45	AGSE-S00135-08A17	12	Washer, Locking
46	AGSE-S00150-08CA01	12	Nut, Hex
47	AGSE-S00104-14C104A01	2	Screw, Hex Head
48	AGSE-S00104-04C010A01	8	Screw, Hex Head
49	AGSE-S00131-04A17	8	Washer
50	AGSE-S00135-04A17	8	Washer, Locking
51	AGSE-S00131-14A17	2	Washer
52	AGSE-S00131-06A17	10	Washer
53	AGSE-S00135-06A17	10	Washer, Locking
54	AGSE-S00104-06C080A01	10	Screw, Hex Head
55	AGSE-S00135-14A17	2	Washer, Locking
56	AGSE-S00153-06CA01	10	Nut, Locking
57	AGSE-S00104-10C048A01	8	Screw, Hex Head
58	AGSE-S00131-10A17	8	Washer (Used on -G01 and -G02)
58	AGSE-S00131-10A17	40	Washer (Used on -G03)
59	AGSE-E20327-P01	1	Cable Support Beam (Used on -G01 only)
60	AGSE-S00150-10CA01	8	Nut, Hex
61	AGSE-E20301-P03	1	FWD Fan Case Mtg
62	AGSE-E20303-S02	1	Change of Hands Support (See IPB Figure 6 for Details)

IPB Figure 2 - AGSE-E203 Cradle Assembly (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION
63	AGSE-E20316-S02	1	Cable Assy (Used on -G02 and -G03) (See IPB Figure 9 for Details)
64	AGSE-E20321-S02	1	AFT Bootstrap Adapter - RH (See IPB Figure 15 for Details)
65	AGSE-E20324-P01	1	Cable Support Beam (Used on -G03 only)
66	AGSE-E20324-P02	1	Cable Support Beam (Used on -G03 only)
67	AGSE-E20324-P03	4	Cable Support (Used on -G03 only)
68	AGSE-E20325-S01	1	Propulsor Support Beam (Used on -G03 only)
69	AGSE-E20327-P02	1	Cable Support Beam (Opposite Hand) (Used on -G01 only)
70	PWA107715	O/P	AFT Mount Adapters (Optional Equipment)
71	372224-1	2	FWD Bootstrap Clevis
72	AGSE-S00131-12A17	2	Washer
73	AGSE-S00153-12CA03	2	Nut, Locking
74	AGSE-S00104-12C064A03	2	Screw, Hex Head
75	AGSE-S00131-12A17	2	Washer
76	AGSE-S00153-12CA03	2	Nut, Locking
77	AGSE-S00104-12C072A03	2	Screw, Hex Head

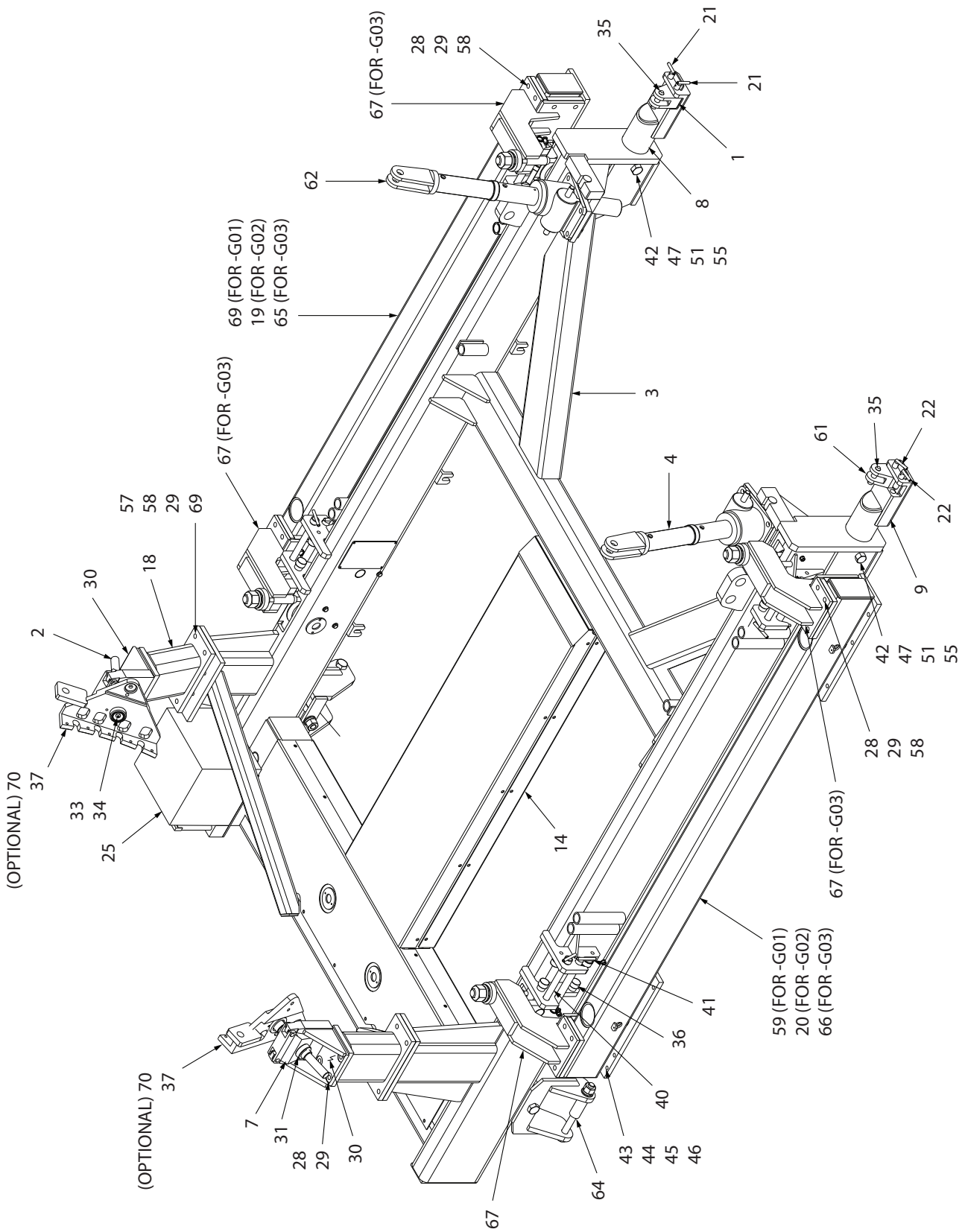


Figure 8.2-1 AGSE-E203 Cradle Assembly

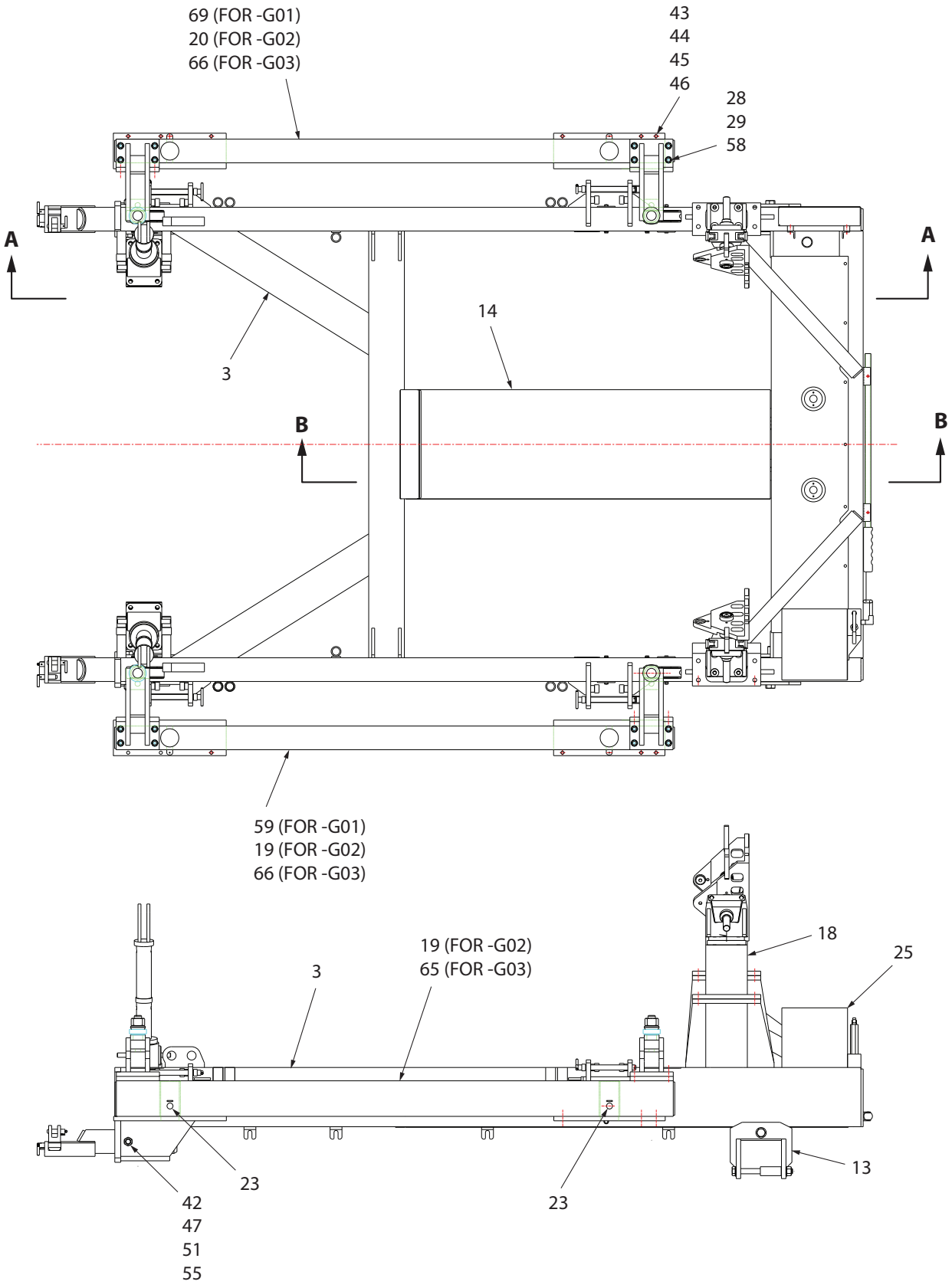


Figure 8.2-2 AGSE-E203 Cradle Assembly

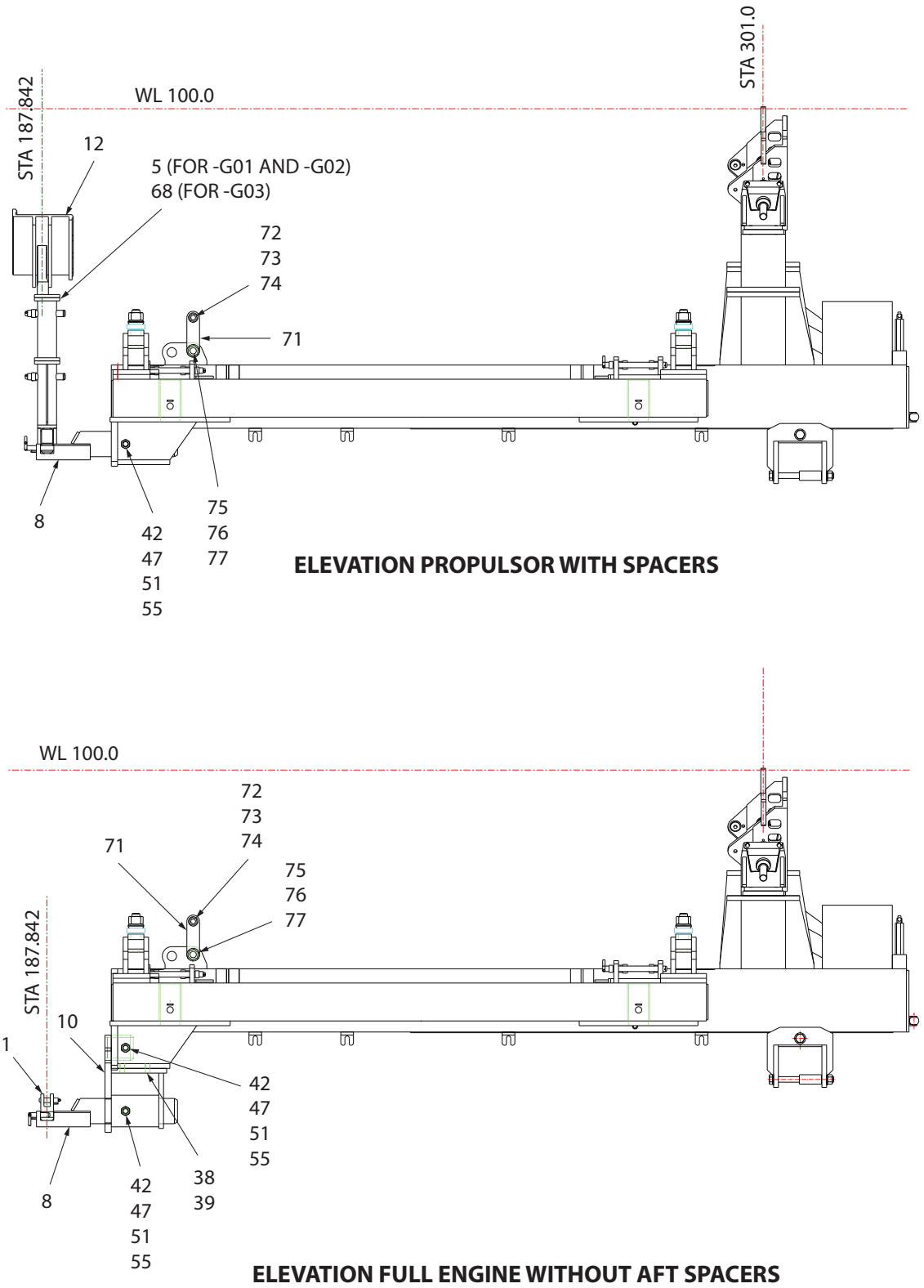
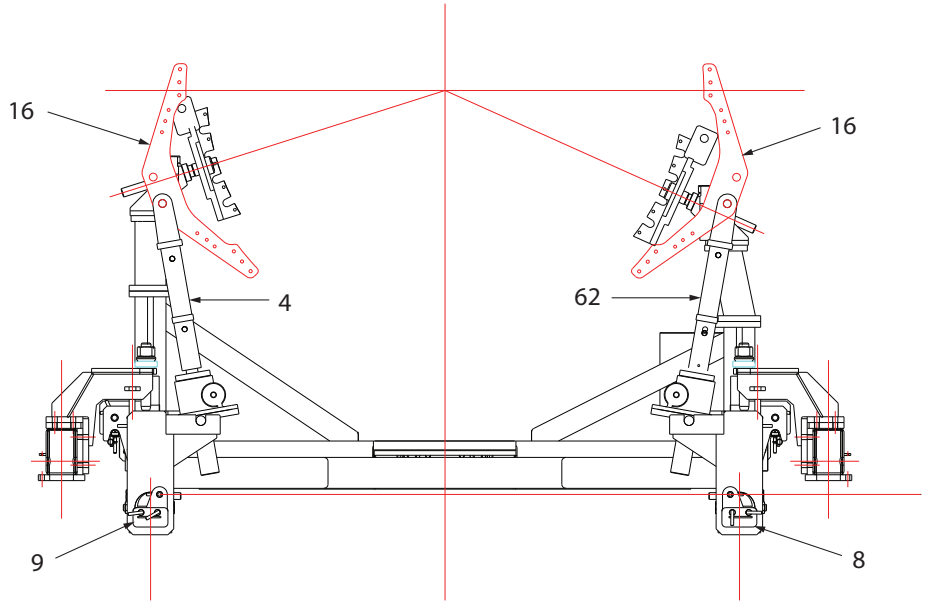
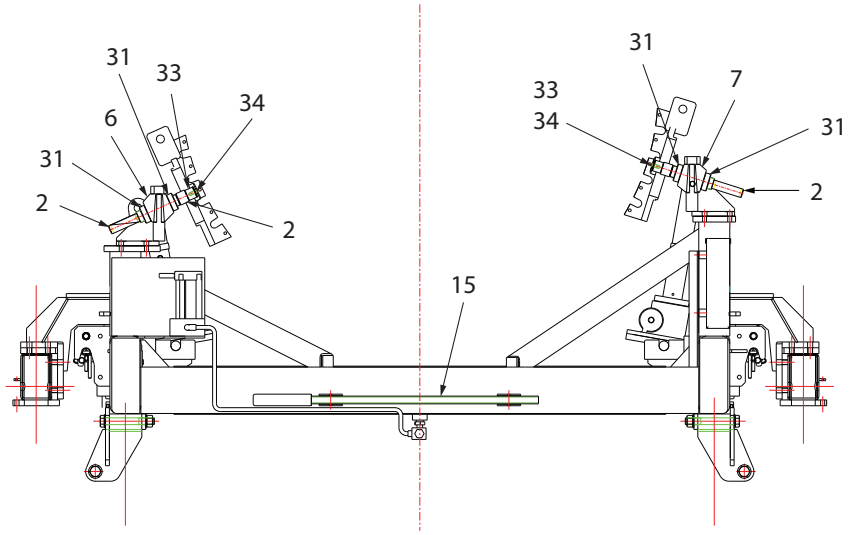


Figure 8.2-3 AGSE-E203 Cradle Assembly

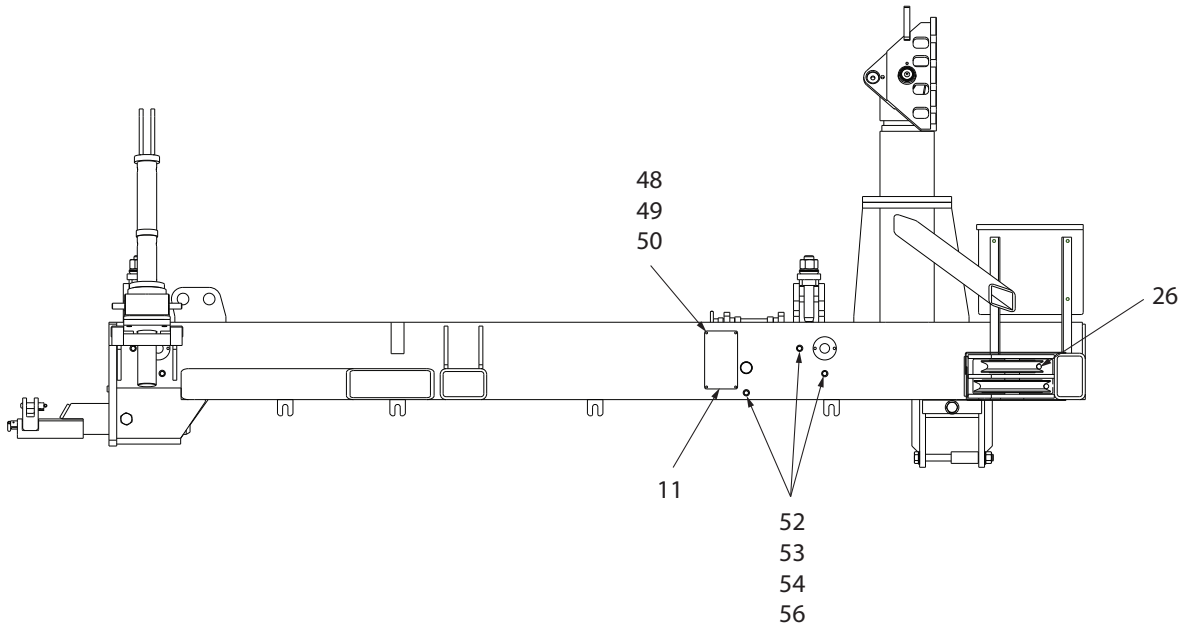


END VIEW WITH SPACERS

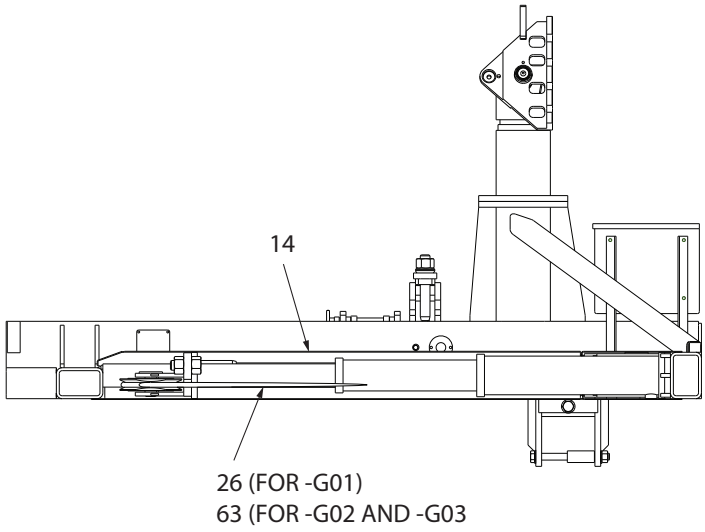


AFT END VIEW WITHOUT SPACERS

Figure 8.2-4 AGSE-E203 Cradle Assembly



SECTION A - A



SECTION B - B

Figure 8.2-5 AGSE-E203 Cradle Assembly

IPB Figure 3 - AGSE-E202-G01
Base Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E202-G01	-	Base Assy (Figure 8.3-1)
1	AGSE-E20202-S01	1	Hyd Jack Leg Installation (See IPB Figure 4 for Details)
2	AGSE-E20205-P01	1	Base Weldment
3	AGSE-E20206-S01	1	Tow Bar and Fork Tube Block Assy - RH (See IPB Figure 10 for Details)
4	AGSE-E20206-S02	1	Tow Bar and Fork Tube Block Assy - LH (See IPB Figure 10 for Details)
5	AGSE-C085-S01	1	Container for AGSE-E143 Transport
6	AGSE-E20204-S01	1	FWD Shock Mount Assy - LH (See IPB Figure 13 for Details)
7	AGSE-E20204-S02	1	FWD Shock Mount Assy - RH (See IPB Figure 13 for Details)
8	AGSE-E20203-S01	1	AFT Shock Mount Assy - LH (See IPB Figure 14 for Details)
9	AGSE-E20203-S02	1	AFT Shock Mount Assy - RH (See IPB Figure 14 for Details)
11	AGSE-E10707-P01	1	FWD Caster Mounting Weldment
12	AGSE-E10707-P02	1	FWD Caster Mounting Weldment
13	AGSE-E10707-P03	1	AFT Caster Mounting Weldment
14	AGSE-E10707-P04	1	AFT Caster Mounting Weldment
15	AGSE-E10707-P05	8	Cap
16	AGSE-E10708-P01	2	Caster Mount Weldment
17	AGSE-E10708-P02	2	Caster Mount Weldment
18	AGSE-E10709-S01	4	Jack Leg Assy (See IPB Figure 16 for Details)

IPB Figure 3 - AGSE-E202-G01
Base Assembly (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION
22	AGSE-E20216-S01	2	Tow Bar Assy
23	AGSE-E10710-P03	1	Steering Bar
25	AGSE-E10711-P03	18	Special Pallet Washer
26	P33160-513	1	Pallet - 96 x 196 x 2.78 Per SCD-1026
27	40191-12	18	Pallet Attach Fitting w/ Washer - P/N 40193-11
28	AGSE-S00104-10C040A01	8	Screw, Hex Head
30	AM-91000-74L	4	Safety Pin - 1” Dia. x 4-5/8” Grip
31	AM-91000-144T-H900	8	Safety Pin - 1” Dia. x 9” Grip
32	AGSE-E10710-P04	1	Caster Bar
33	AGSE-S00104-10C036A01	16	Screw, Hex Head
34	AGSE-S00135-10A17	16	Washer, Locking
35	AGSE-S00131-10A17	16	Washer
36	7C2019G01	1	Bracket Set FWD Propulsor
37	AGSE-S00153-06FA01	26	Nut, Locking
38	AGSE-S00131-06A17	54	Washer
39	AGSE-S00104-08C024A01	32	Screw, Hex Head
40	AGSE-S00135-08A17	32	Washer, Locking
44	AGSE-S00104-04C012A01	16	Screw, Hex Head
45	AGSE-S00135-04A17	16	Washer, Locking
46	AGSE-S00131-04A17	16	Washer
47	AGSE-E20219-S01	2	Container
48	40361-17	8	Pallet Attach Stud
50	AGSE-E20210-S01	2	Pallet Storage Bracket for Steering Bar
51	AGSE-E20210-P03	2	Pallet Storage Bracket for Steering Bar

IPB Figure 3 - AGSE-E202-G01
Base Assembly (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION
52	AM-90250-40L	REF	Safety Pin - 1/4” Dia. x 3-5/16” Grip
53	AM-2079-20	4	Caster Assy
57	AM-2211-101	1	Document Container
58	AGSE-S00104-04C012A01	4	Screw, Hex Head
59	AGSE-S00150-04CA01	4	Nut, Hex
60	AGSE-S00131-04A17	4	Washer
61	AGSE-S00135-04A17	4	Washer, Locking
62	AM-91000-25LNC	4	Safety Pin - 1” Dia. x 2” Grip
63	AGSE-E20219-S02	1	Container
64	AGSE-E20217-S01	1	Forklift Stop Assy (See IPB Figure 11 for Details)

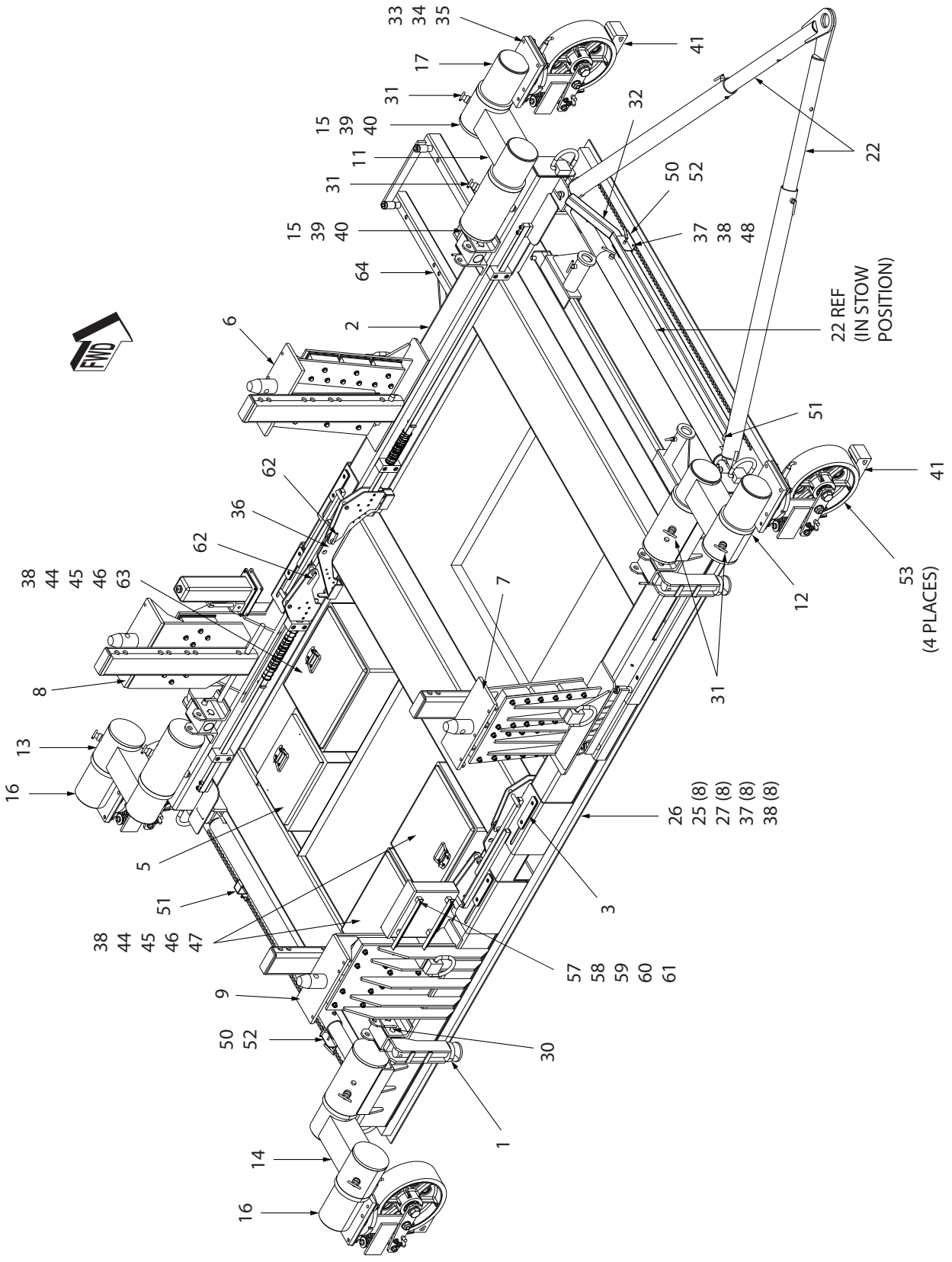


Figure 8.3-1 AGSE-E202 Base Assembly

IPB Figure 4 - AGSE-E20202-S01
Hydraulic Jack Leg Installation

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20202-S01	-	Hydraulic Jack Leg Installation (Figures 8.4-1)
2	Commercial	A/R	Tube - 3/8” OD x .035 w
3	6-6FBTX-S	4	Adapter 3/8 NPT x 3/8 JIC
4	6JBTX-S	2	Union Tee - 3/8T
5	E10712-P02	2	Hose Assy, LH
6	E10712-P03	2	Hose Assy, RH
7	6-BTX-S	4	Tube Nut
8	700154	1	Control Valve
9	6-CBTX-S	3	Elbow
10	6-TX-S	4	Tube Sleeve
11	AGSE-S00208-P02	4	Hyd Cylinder - 10” Stroke
12	3225T23	24	Tube Clamp - Cushioned
13	AGSE-S00104-04C016A01	24	Screw, Hex Head
14	AGSE-S00104-06C016A01	2	Screw, Hex Head
15	AGSE-S00135-06A17	7	Washer, Locking
16	100966	1	Pump & Reservoir- Self Contained
17	6-6CBTX-S	1	Elbow, Male
18	3/8-FF-S	1	Pipe Nipple
19	FDBA-LAN-GAB	1	Flow Control Valve
21	E21522-P01	1	Valve Mounting Bracket
22	AGSE-S00114-06C020A27	3	Screw, Flat Head
23	AGSE-S00104-06C024A01	2	Screw, Hex Head
24	AGSE-S00153-06CA01	3	Nut, Locking
25	AGSE-S00131-06A17	5	Washer
26	S00118-03C016A05	4	Screw, Socket Head
27	AGSE-S00135-03A05	4	Washer, Locking
28	AGSE-S00131-03A05	4	Washer

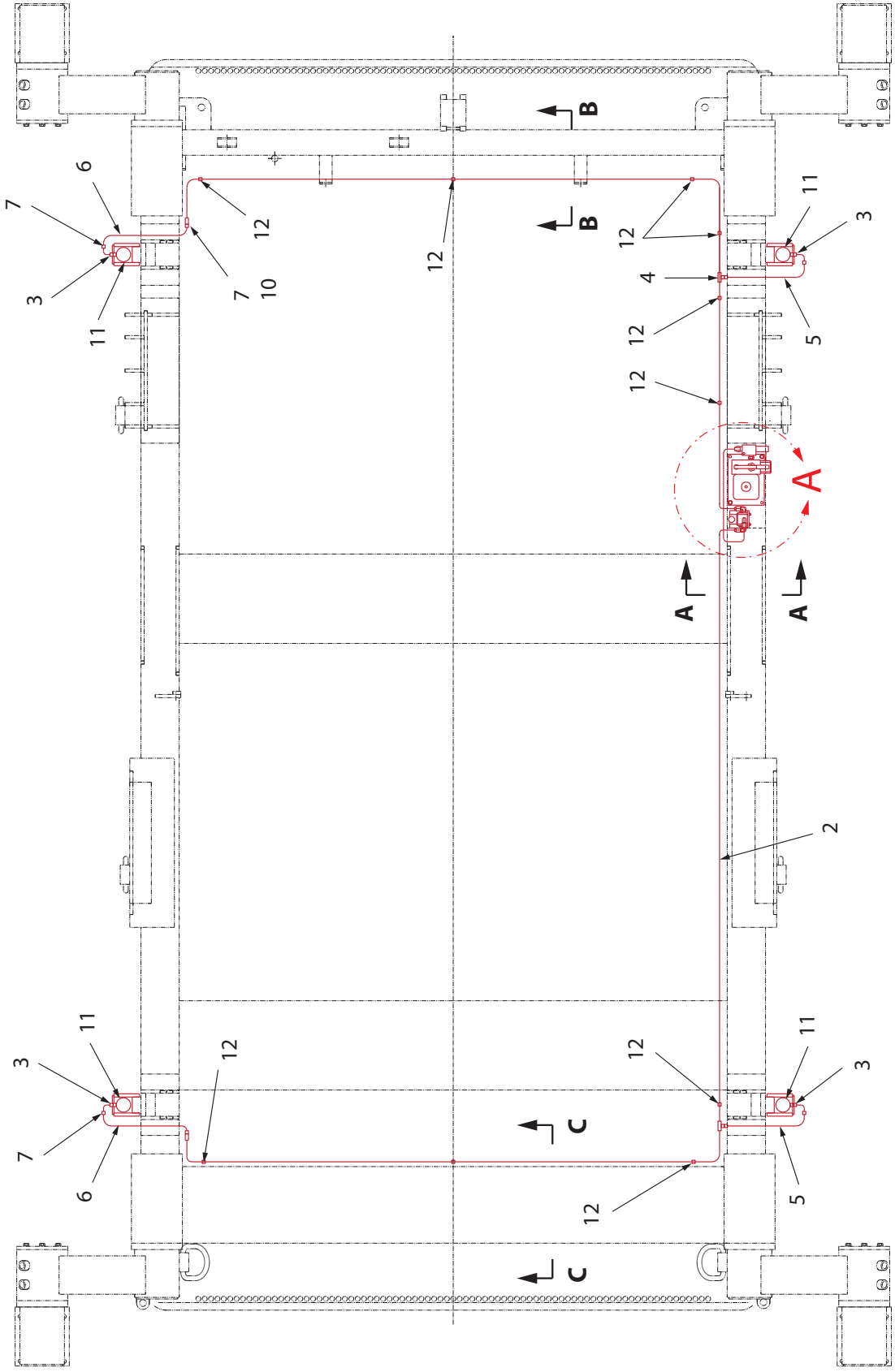
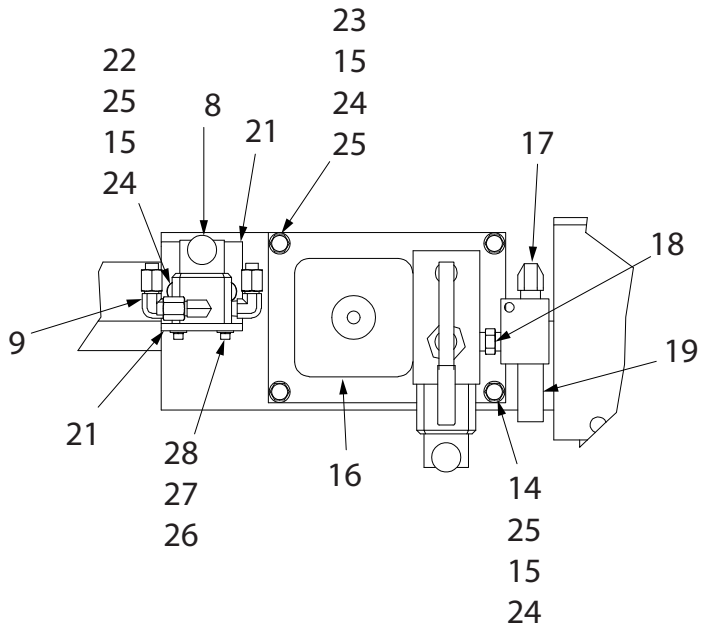
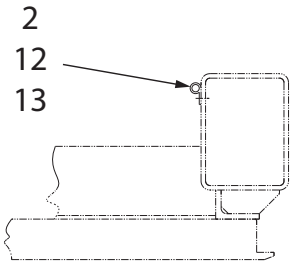


Figure 8.4-1

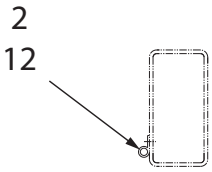


DETAIL A

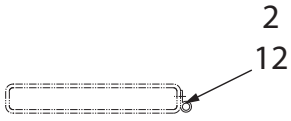


SECTION A - A

ROTATED 90° CCW



SECTION B - B



SECTION C - C

Figure 8.4-2

IPB Figure 5 - AGSE-E20317-S01
Pneumatic Pump Kit

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20317-S01	-	Pneumatic Pump Kit (Figures 8.5-1 and 8.5-2)
A	AGSE-E20317-P02	1	Hydraulic Hose Modification
B	AGSE-E20317-P03	1	Hydraulic Hand Pump Modification
C	AGSE-E20317-P04	1	Regulator Bracket
1	5L-SS-30	1	Pneumatic Pump Assy (Modified)
2	Commercial	A/R	TS - 3/8” OD x 0.065 WL - Seamless (Approx. 6 Feet) - Stainless Steel 304/316
3	S00104-06C016A01	4	Screw, Hex Head
4	AGSE-S00131-06A17	4	Washer
5	AGSE-S00135-06A17	4	Washer, Locking
7	AGSE-S00131-04A17	8	Washer
8	6-8FTX-S	5	Male Connector - 3/8”- 37^{o}
9	AGSE-S00104-04C064A01	4	Screw, Hex Head
10	AGSE-S00153-04CA01	4	Nut, Locking
11	AGSE-E20315-1	1	Hyd Hand Pump (Detail of Item B)
13	HOSE	1	Hyd Hose Assy (From AGSE-E20315-S01) (Detail of Item A)
15	20630-8-8	1	Hose Fitting (Detail of Item A)
16	1/2 CD-S	2	1/2 NPTF Street Elbow
17	6BTX-S	6	37^{o} Flare Nut
18	6TX	6	37^{o} Flare Sleeve (3/8)
19	8-3/8 AEOG-S	1	Female 90^{o} Elbow (O-Ring)
20	8-8-8STX-S	1	Male Branch ‘T’ - 3/8 37^{o}/3/8 37^{o}/1/2 NPTF

IPB Figure 5 - AGSE-E20317-S01
Pneumatic Pump Kit (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION
21	9C6025-PPK-P07	1	Filter Regulator Support
22	3/8 FF-S	1	Pipe Nipple
23	3/8 MMO-S	1	Pipe Tee
24	6-6CBT-S	1	Elbow
25	3/8 GG-S	1	Pipe Coupling (Detail of Item B)
26	8-6TRBTX-S	1	Reducer
27	6-8CTX-S	3	Elbow
28	8 BTX-S	2	37° Flare Nut (1/2)
29	8 TX	2	37° Flare Sleeve (1/2)
30	1/2 FF-S	1	Pipe Nipple
31	PTR 3/8 x 1/4	1	NPT Reducing Bushing
32	SCD-1046-2	1	Liquid Filled Gauge

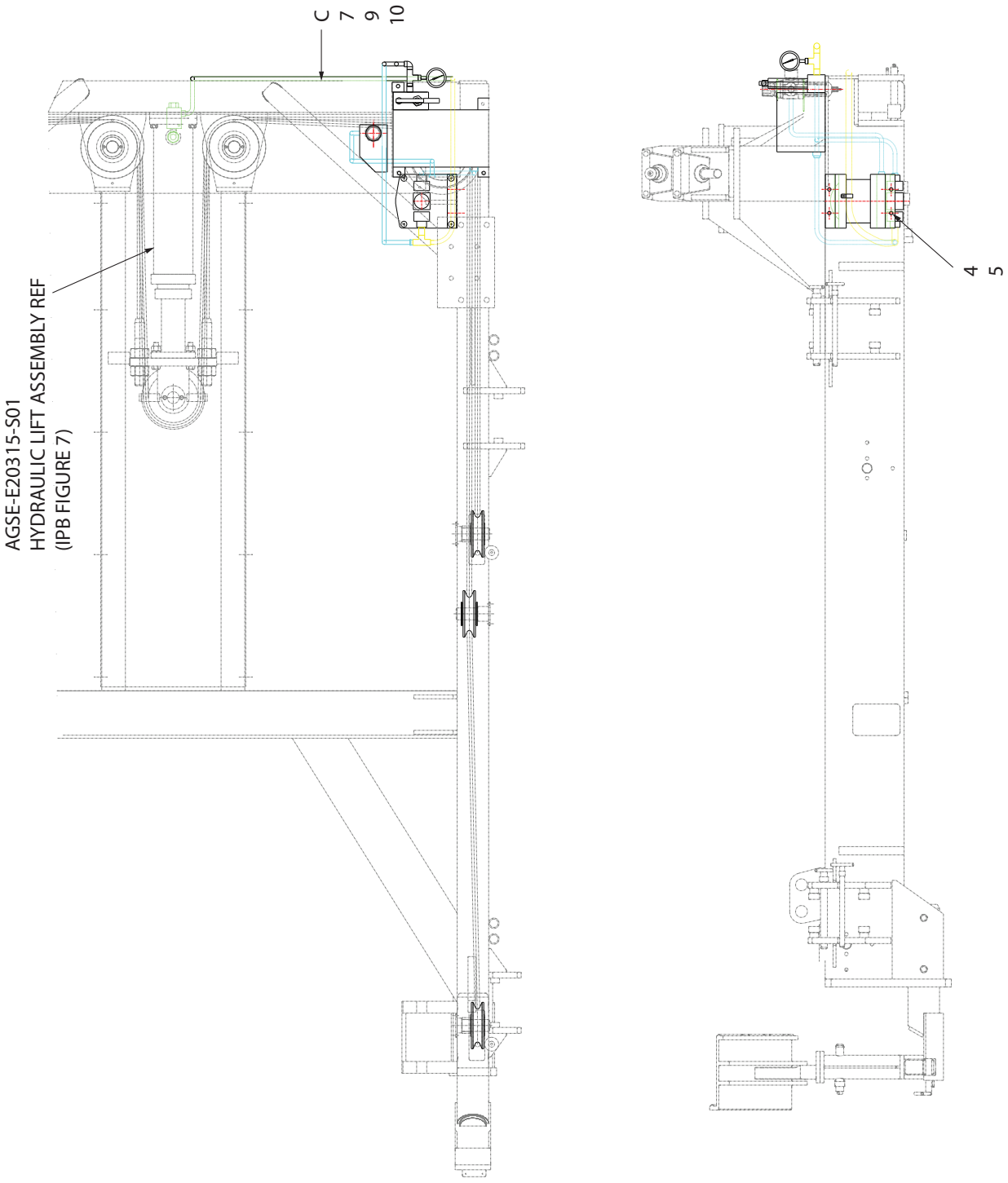


Figure 8.5-1 AGSE-E20317-S01 Pneumatic Pump Kit

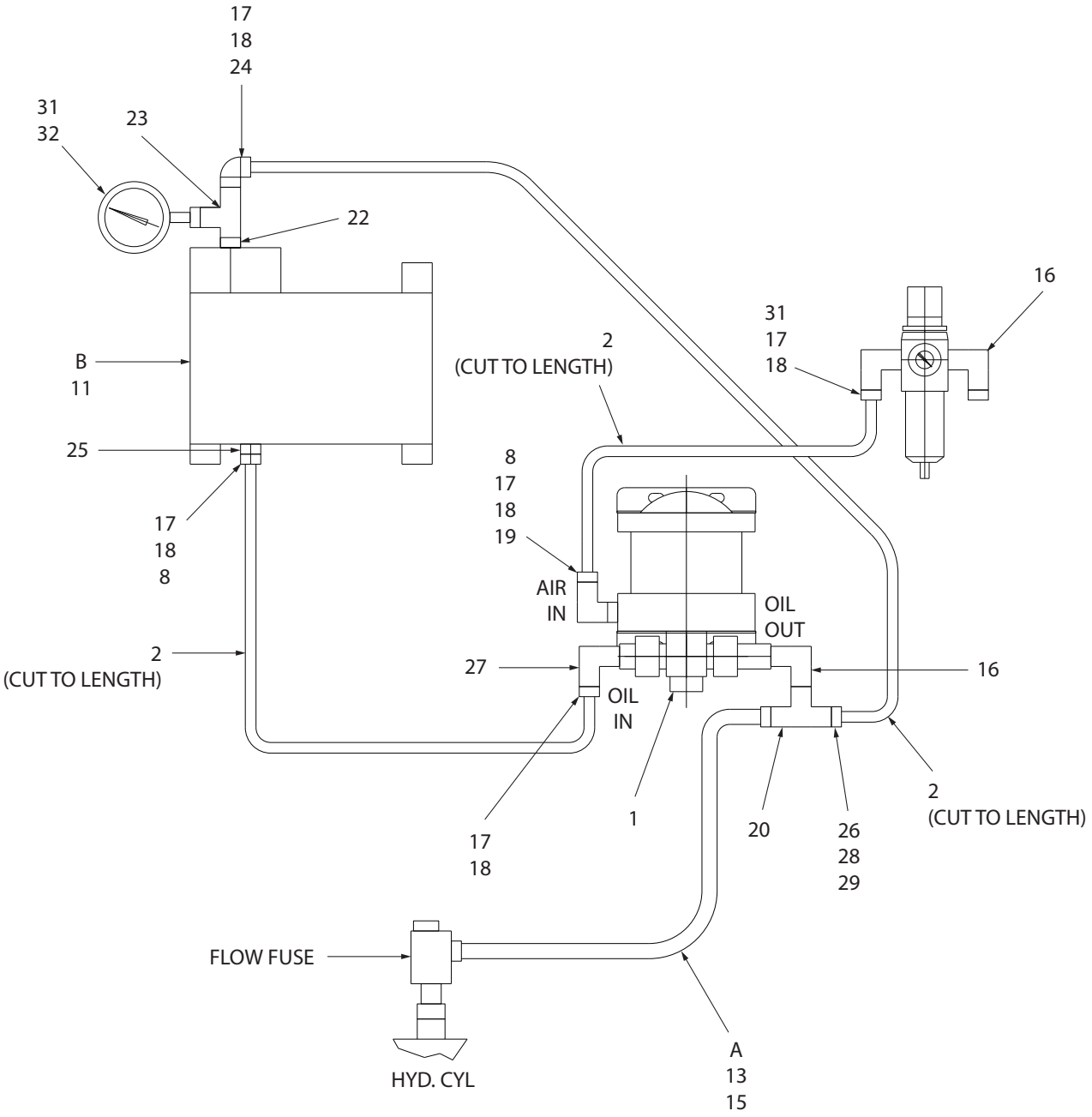


Figure 8.5-2 AGSE-E20317-S01 Pneumatic Pump Kit

IPB Figure 6 - AGSE-E20303-S01/S02
Change of Hands Support Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20303-S01	-	Change of Hands Support Assy (Figure 8.6-1)
	AGSE-E20303-S02	-	Change of Hands Support Assy (Opposite) (Figure 8.6-1)
1	AGSE-E20303-P01	1	Base Support
2	AGSE-E20303-P02	1	Spacer
3	AGSE-E20303-P03	1	Bracket Support
4	AM-90625-46T	2	Safety Pin
5	AM-91000-32L	1	Safety Pin
6	98380A552	1	Dowel Pin - 1/4” Dia. x 2-1/2” Lg
7	62255K453	1	Machine Screw Jack - Rear Flg Mtg - 6 to 1 - 1”-14UNR Threaded End - 8 Travel - 5-Ton Capacity
8	AGSE-20318-P01	1	Screw Jack Support
9	AGSE-S00150-10CA01	4	Nut, Hex
10	AGSE-S00135-10A17	4	Washer, Locking
11	S00104-10C040A01	4	Screw,Hex Head
12	AGSE-S00131-10A17	4	Washer
13	Commercial	1	Keystock - 3/16” Sq x 1-1/4” Lg (C1090/C1095)
14	AGSE-E20303-P04	1	1/2” Drive Shaft Driver

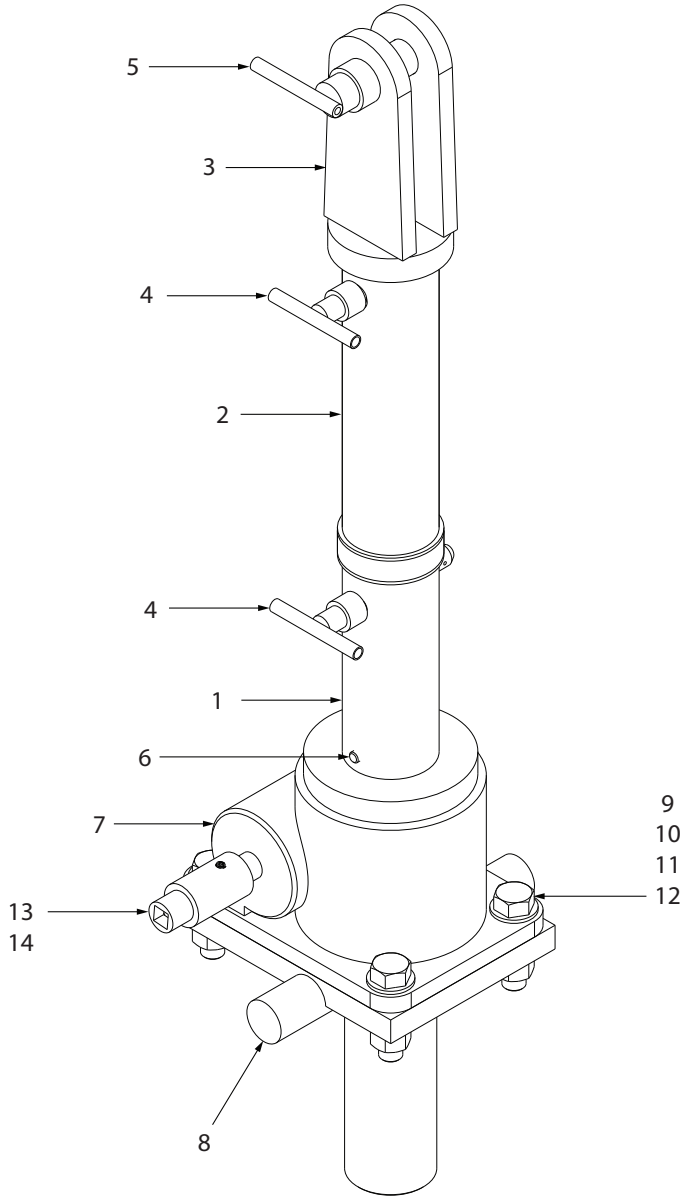


Figure 8.6-1 AGSE-E20303 Change of Hands Support Assembly

IPB Figure 7 - AGSE-E20304-S01
Propulsor Support Frame Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20304-S01	-	Propulsor Support Frame Assy (Figure 8.7-1)
1	AGSE-E20309-P03	1	Support Beam
2	AGSE-E20309-P02	2	Mount Spacer
3	AGSE-E20309-P01	2	Mount Support
4	AM-90625-52T	4	AGSE Safety Pin
5	AM-91000-52T	2	AGSE Safety Pin

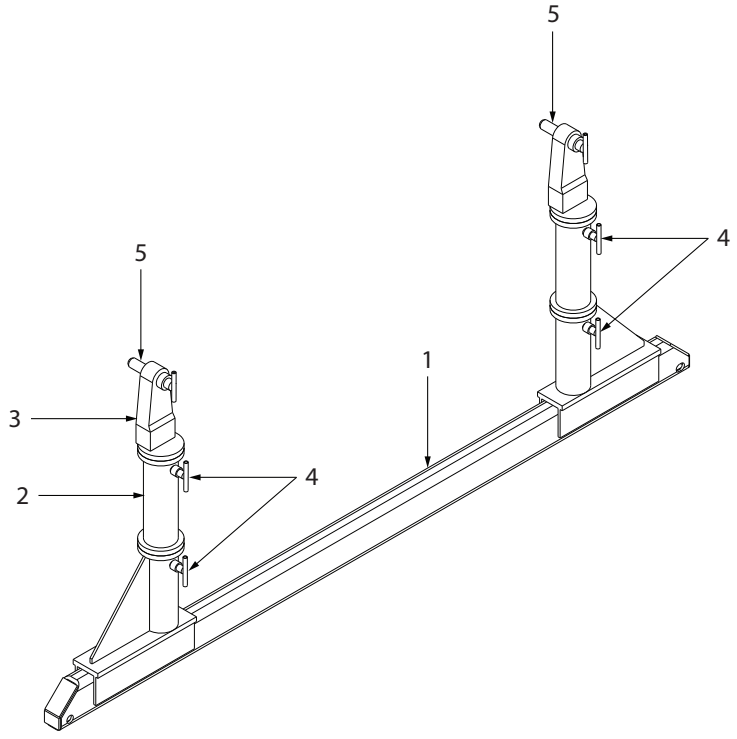


Figure 8.7-1 AGSE-E20304 Propulsor Support Frame

IPB Figure 8 - AGSE-E20315-S01
Lift System Hydraulic Installation

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20315-S01	-	Lift System Hydraulic Installation (Figure 8.8-1)
1	101097	1	Hydraulic Pump - 3000 PSI
2	D-4785	1	Hydraulic Cylinder - Two-Stage - Single-Acting
3	FQEA-XAN-DAC		
	2.5 GPM	1	Flow Fuse Valve w/ Aluminum Body - 90 Dia. (2) 1/2NPTF Ports
4	PTR 1 X 1/2	1	Reducing Bushing - 1 NPT x 1/2 NPT
5	CR 1/2	1	Elbow 90^{o} - 1/2MPT x 1/2MPT
6	8-8-FBTX-S	1	Tube - 1/2” - 37^{o} Flare x 1/2 MPT
7	3/8-FF-S	1	Nipple - 3/8 MPT x 3/8 MPT
8	8CCBTX-S	1	Tube - 3/8 MPT x 1/2 x 37^{o}
9	AGSE-S00104-10C048A01	4	Screw, Hex Head
10	AGSE-S00135-10A17	4	Washer, Locking
11	AGSE-S00150-10CA01	4	Nut
12	AGSE-S00104-08C024A01	4	Screw, Hex Head
13	AGSE-S00131-08A17	4	Washer
15	AGSE-S00131-06A17	4	Washer
16	AGSE-S00135-06A17	4	Washer, Locking
17	AGSE-S00104-06C024A01	2	Screw, Hex Head
18	AGSE-S00104-06C012A01	2	Screw, Hex Head
19	AGSE-S00150-06CA01	2	Nut, Hex
20	HOSE	A/R	TS1/2 OD x 0.065 wl - Seamless
21	PTR 3/8 x 1/4	1	Reducing Bushing - 3/8 NPT x 1/4 NPT
22	3/8-MMO-S	1	Female Tee - 3/8 NPT
23	SCD-1046-2	1	Liquid Filled Gauge
24	6 FNTX-S	1	Female JIC Cap
25	6-6 FBTX-S	1	Tube Fitting

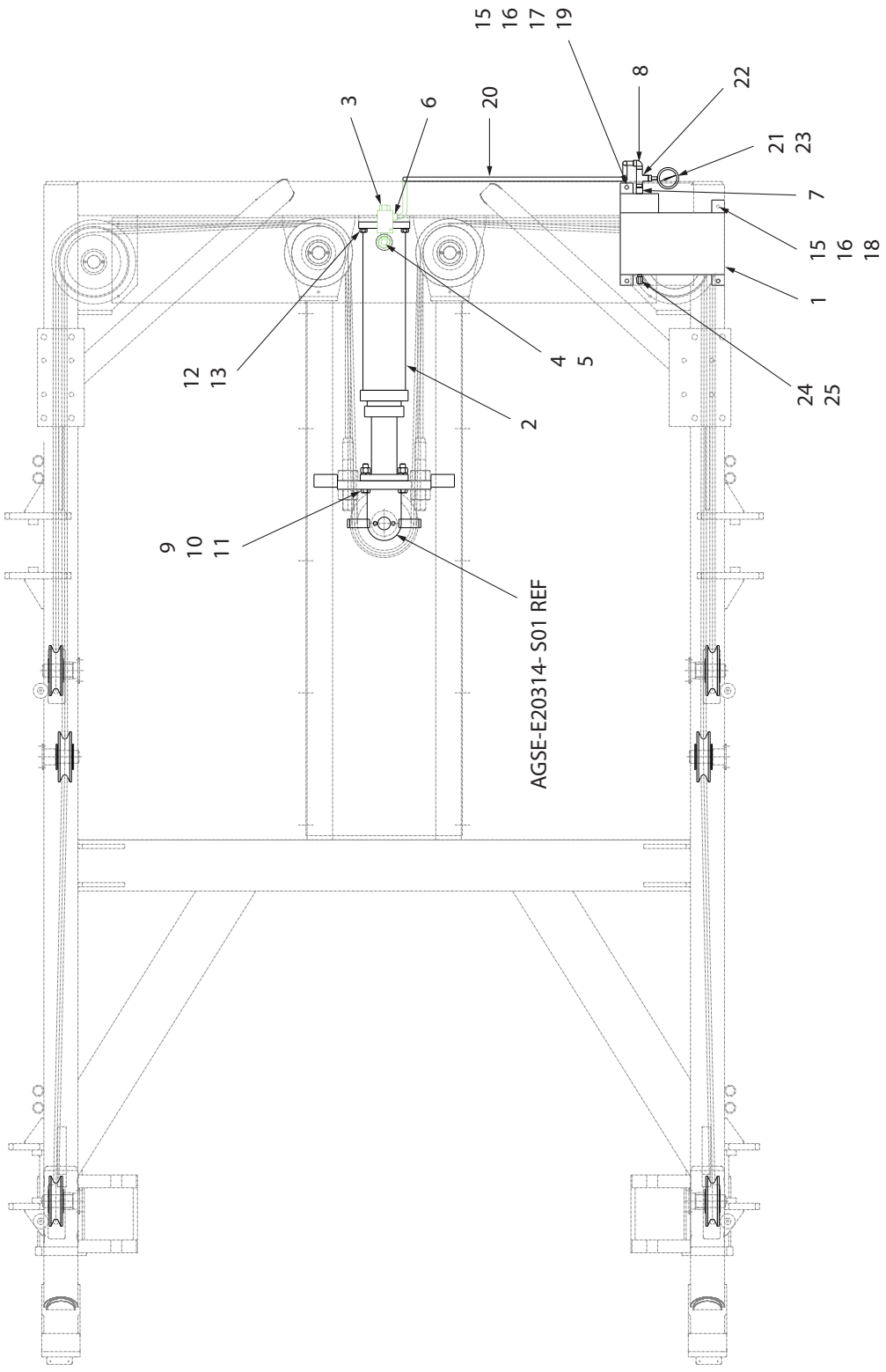


Figure 8.8-1 AGSE-E20315 Lift System Hydraulic Installation

IPB Figure 9 - AGSE-E20316-S01/S02 Cable Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20316-S01	-	Cable Assy (Figures 8.9-1 and 8.9-2)
	AGSE-E20316-S02	-	Cable Assy (Figures 8.9-1 and 8.9-2)
1	AGSE-E20312-P01	2	FWD Cable Assy
2	AGSE-E20312-P02	1	AFT Cable Assy
3	AGSE-E20314-S01	1	Cyl/Cable Adapter Assy
4	AGSE-E20308-P06	6	Sheave Shaft
5	AGSE-E20308-P02	2	Sheave Shaft
6	AGSE-E20308-P03	2	Sheave Shaft
8	5906K526	21	Thrust Bearing - Bronze - 1-1/2” Shaft Dia. x 2-1/2” OD x 1/8” Thk
9	473767	2	Wire Rope Sheave - 9-7/8” Dia. with 1-1/2” Dia. Bore
10	AGSE-E20308-P07	1	Sheave Shaft
11	AGSE-S00153-20CA01	8	Nut, Locking
12	05003-003	4	Spherical Washer - Flexible Hanger
13	422697	6	Wire Rope Sheave - 5-7/8” Dia. with 1-1/2” Dia. Bore
14	473268	7	Wire Rope Sheave - 8” Dia. with 1-1/2” Dia. Bore
15	AGSE-S00131-20A03	4	Washer
16	AGSE-S00104-04C012A01	22	Screw, Hex Head
17	AGSE-S00135-04A17	34	Washer, Locking
19	AGSE-S00104-06C076A01	9	Screw, Hex Head
20	AGSE-S00150-06CA01	9	Nut, Hex
21	AGSE-S00131-06A17	9	Washer
22	AGSE-E20322-S01	1	Guard Assy
25	AGSE-S00104-04C008A01	12	Screw, Hex Head
26	AGSE-S00131-04A17	12	Washer

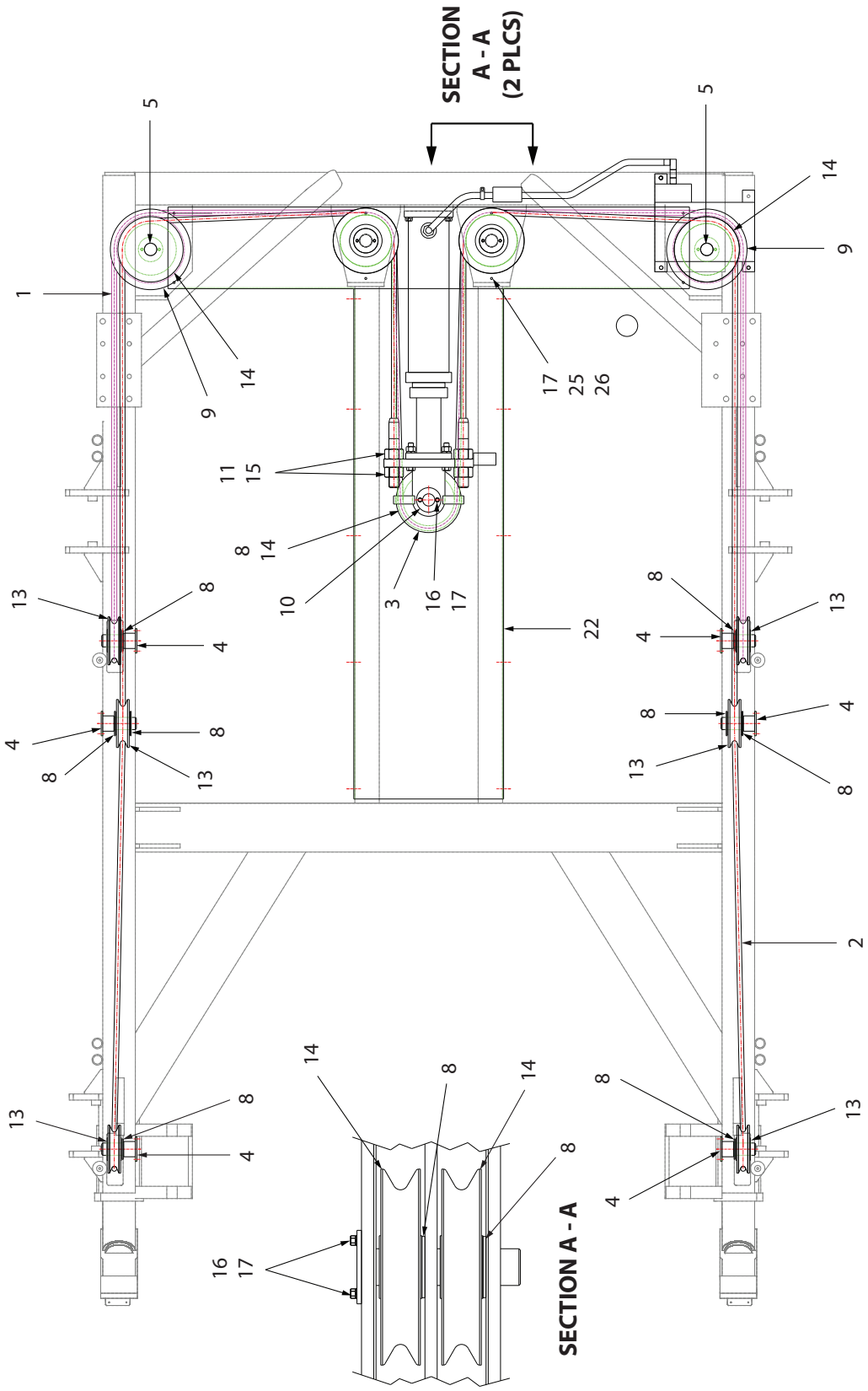


Figure 8.9-1 AGSE-E20316 Cable Assembly

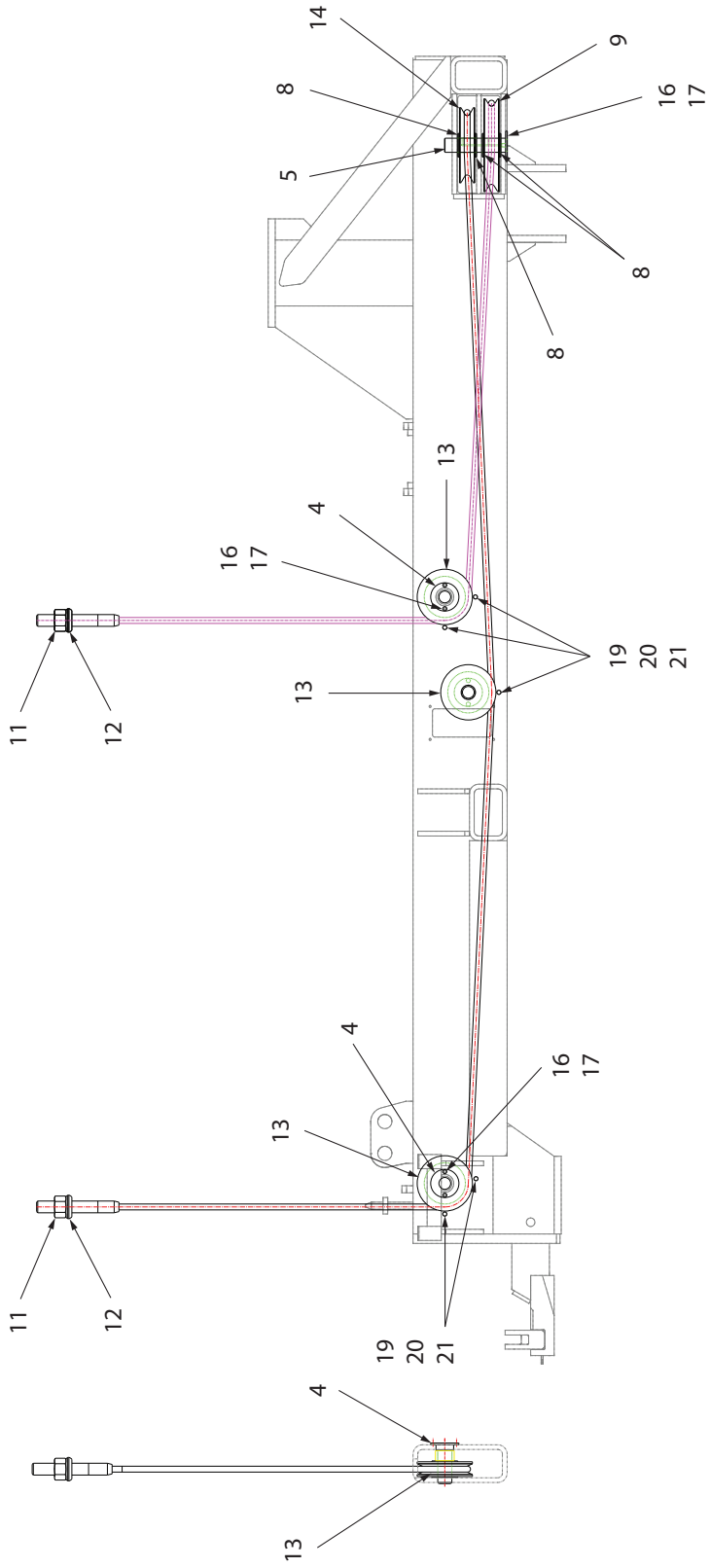


Figure 8.9-2 AGSE-E20316 Cable Assembly

IPB Figure 10 - AGSE-E20329-S01
AFT Mount Base Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20329-S01	-	AFT Mount Base Assy (Figure 8.10-1)
1	AGSE-E20329-P01	1	Base Weldment
2	AGSE-E20329-P02	1	Cap - Rear Mount
3	AM-90625-L-SPCL	2	Safety Pin
4	AGSE-S00102-03C008A17	1	Screw, Pan Head

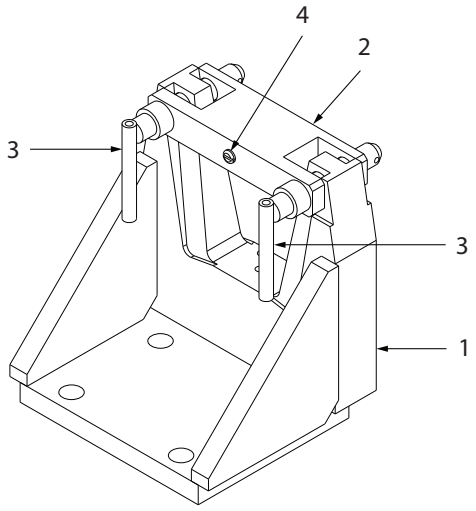


Figure 8.10-1 - AGSE-E20329 AFT Mount Base Assembly

IPB Figure 11 - AGSE-E20206-S01/S02
Tow Bar and Fork Tube Block Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20206-S01	-	Tow Bar and Fork Tube Block Assy - LH (Figure 8.11-1)
	AGSE-E20206-S02	-	Tow Bar and Fork Tube Block Assy - RH (Figure 8.11-1)
1	AGSE-E20212-P01	1	FWD Push Rod
2	AGSE-E20212-P02	1	Rear Push Rod
3	AGSE-E20214-P01	2	Interlock Weldment
4	AGSE-E20214-P02	2	End Plate
5	AGSE-E20215-P01	1	Fork Tube Cover
6	AGSE-E20215-P02	1	Fork Tube Cover
7	AGSE-E20215-P03	4	Guide
8	AGSE-E20215-P04	4	Slide Pad
9	AGSE-E20215-P05	4	Retainer
11	AGSE-S00170-500D024A17	4	Slotted Spring Pin
12	AGSE-S00126-10C12S16A28	4	Shoulder Screw
13	3124	4	Compression Spring - 2” OD x 1.75” ID x 11.1” Lg
14	AGSE-S00118-08C032A07	8	Screw, Socket Head
15	AGSE-S00135-08A17	12	Washer, Locking
16	AGSE-S00118-08C044A07	4	Screw, Socket Head
17	AGSE-S00150-08CA01	4	Nut, Hex

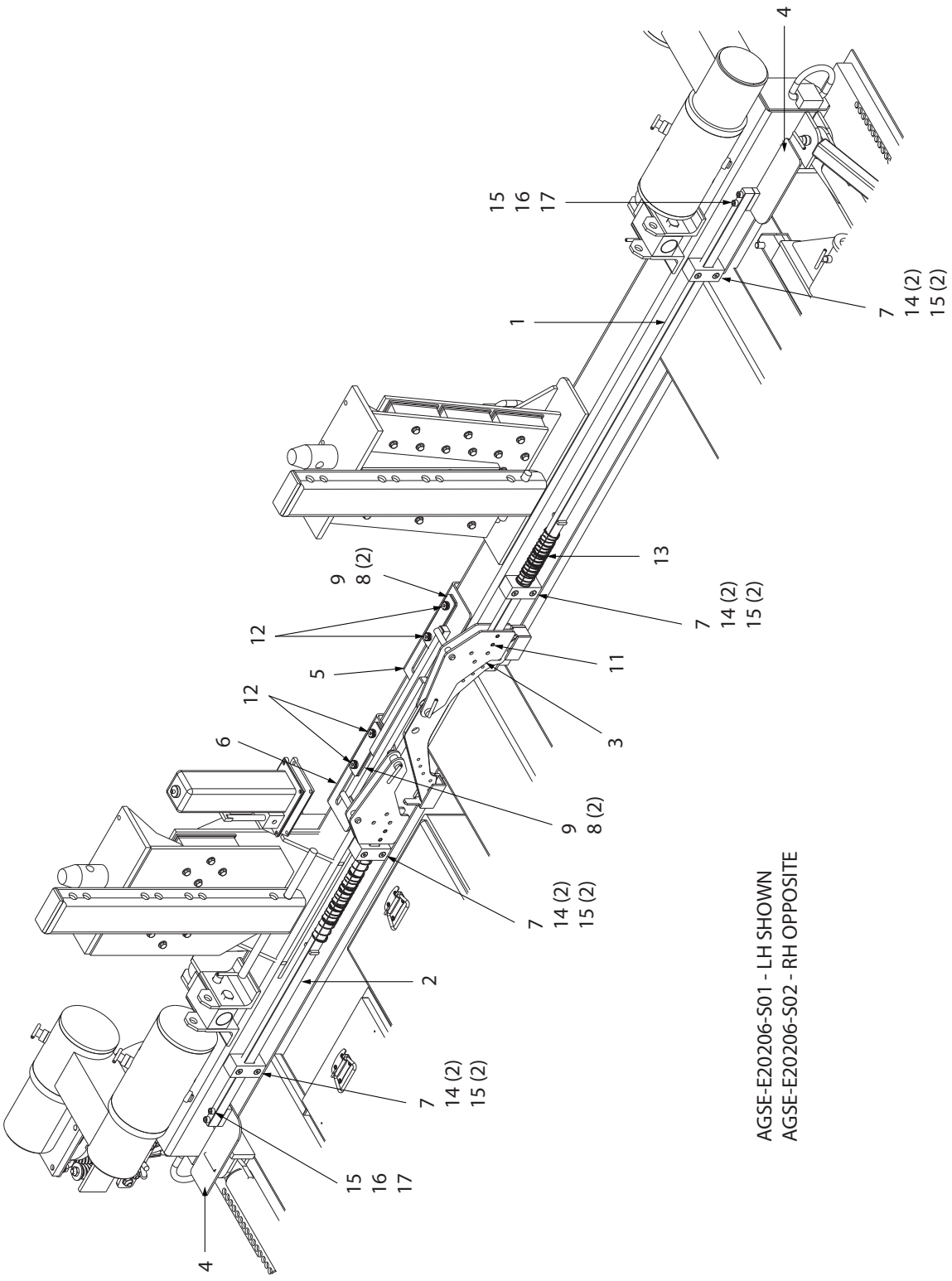
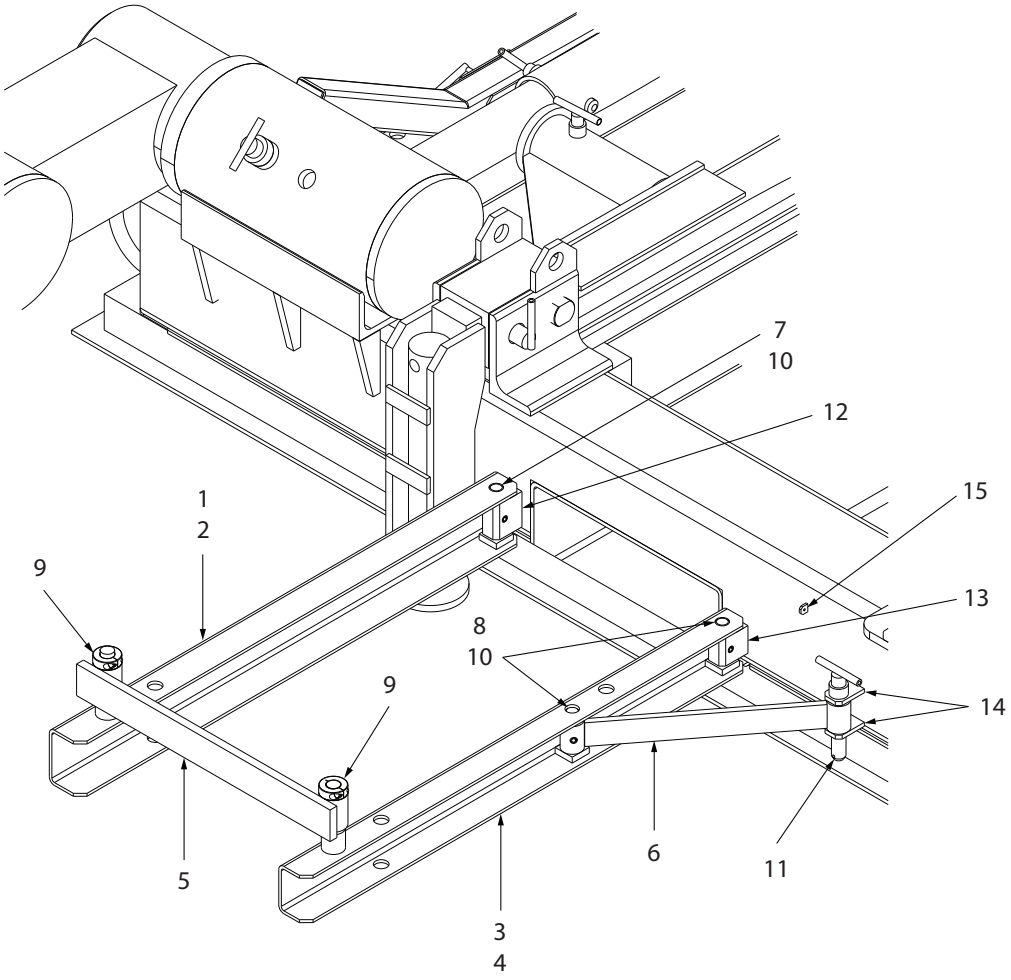


Figure 8.11-1 AGSE-E20206 Tow Bar and Fork Tube Block Assembly

IPB Figure 12 - AGSE-E20217-S01/S02 Forklift Stop Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20217-S01	-	Forklift Stop Assy (Figure 8.12-1)
1	AGSE-E20218-P01	1	Support
2	AGSE-E20218-P02	1	Support (Opposite Hand)
3	AGSE-E20218-P03	1	Support
4	AGSE-E20218-P04	1	Support (Opposite Hand)
5	AGSE-E20218-P05	2	Bumper
6	AGSE-E20218-P06	2	Brace
7	AGSE-E20218-P10	2	Pin
8	AGSE-E20218-P11	4	Pin
9	AGSE-S00348-P02	2	Clamping Collar
10	AGSE-S00170-375D020A21	6	Slotted Spring Pin
11	AM-90750-56T	2	Safety Pin Assy
	AGSE-E20217-S02	-	Fork Bumper Weld Sub-Assy
12	AGSE-E20218-P07	2	Hinge Block
13	AGSE-E20218-P08	2	Hinge Block
14	AGSE-E20218-P09	4	Lug
15	AGSE-E20218-P12	2	Lanyard Clip



LH SHOWN - RH OPPOSITE

Figure 8.12-1 AGSE-E20217 Forklift Stop Assembly

IPB Figure 13 - AGSE-E20204-S01/S02 FWD Shock Mount Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20204-S01	-	FWD Shock Mount Assy - LH (Illustration Figure 8.13-1)
	AGSE-E20204-S02	-	FWD Shock Mount Assy - RH (Illustration Figure 8.13-1)
1	AGSE-E20204-P01	1	FWD Shock Mtg Support - LH (Used on AGSE-E20204-S01)
2	AGSE-E20203-P02	1	FWD Shock Mtg Support - RH (Used on AGSE-E20204-S02)
3	AGSE-E20204-P03	1	FWD Shock Mount Base - LH (Used on AGSE-E20204-S01)
4	AGSE-E20204-P04	1	FWD Shock Mount Base - RH (Used on AGSE-E20204-S02)
5	AGSE-E20204-P05	1	Guide Tube (Detail of AGSE-E20204-P01)
6	AGSE-E20204-P06	1	Guide Tube (Detail of AGSE-E20204-P02)
7	AGSE-V047	1	Ring Mtg Block (Detail of Items 3 and 4)
8	DR-209Z	1	D-Ring (Detail of Items 3 and 4)
9	AGSE-E10705-21	1	Dork Pin (Detail of Items 1 and 2)
10	AGSE-S00304-P04	12	Shock Mount
11	AGSE-S00105-08F016A01	84	Screw, Hex Head
12	AGSE-S00175-08A17	96	Washer
13	AGSE-S00118-08F020A07	12	Screw, Socket Head
14	AGSE-S00135-08A17	12	Washer, Locking

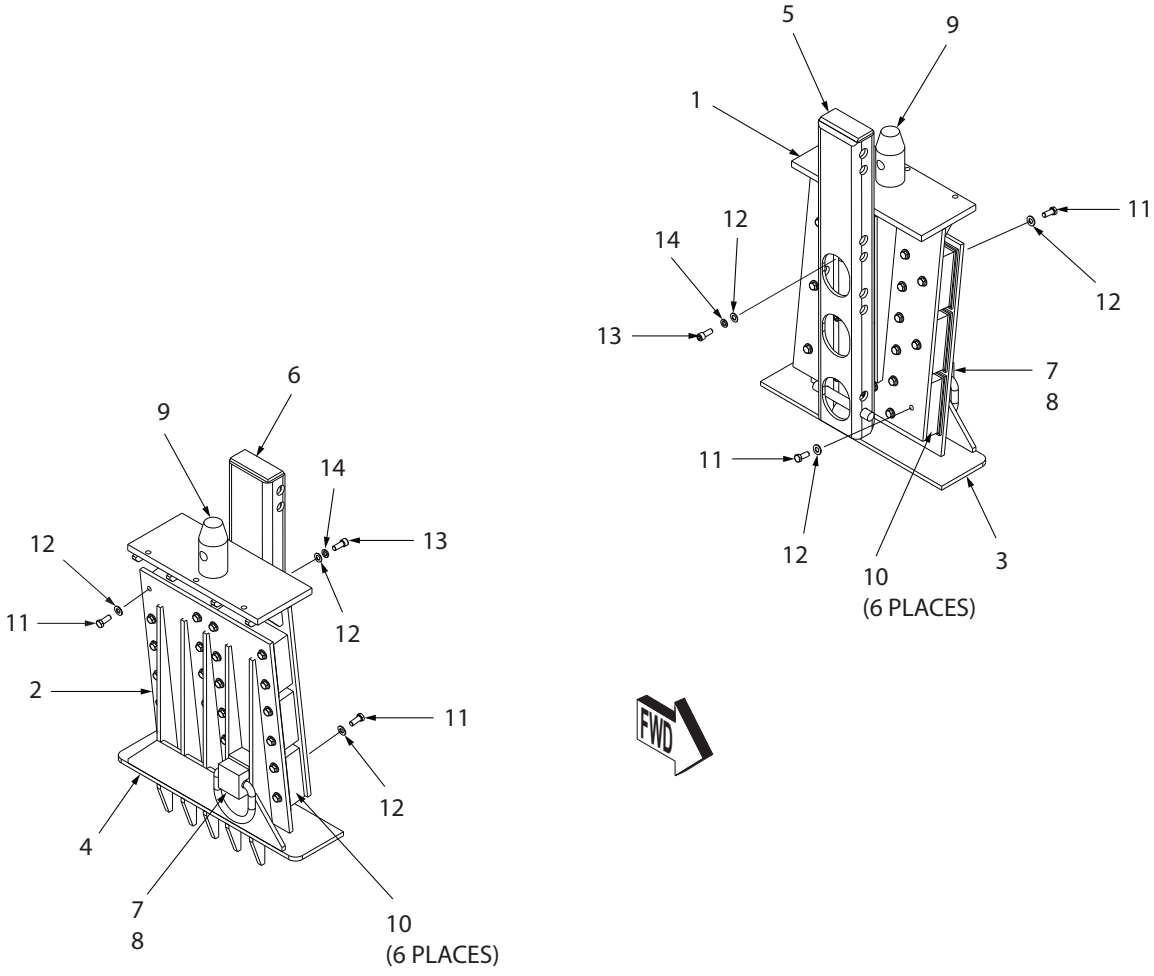


Figure 8.13-1 AGSE-E20204-S01/S02 FWD Shock Mount Assembly

IPB Figure 14 - AGSE-E20203-S01/S02 AFT Shock Mount Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20203-S01	-	AFT Shock Mount Assy - LH (Illustration Figure 8.14-1)
	AGSE-E20203-S02	-	AFT Shock Mount Assy - RH (Illustration Figure 8.14-1)
1	AGSE-E20203-P01	1	AFT Shock Mtg Support Assy - LH (Used on AGSE-E20203-S01)
2	AGSE-E20203-P02	1	AFT Shock Mtg Support Assy - RH (Used on AGSE-E20203-S02)
3	AGSE-E20203-P03	1	AFT Shock Mount Base - LH (Used on AGSE-E20203-S01)
4	AGSE-E20203-P04	1	AFT Shock Mount Base - RH (Used on AGSE-E20203-S02)
5	AGSE-E20203-P05	1	Guide Tube (Detail of Item 1)
6	AGSE-E20203-P06	1	Guide Tube (Detail of Item 2)
7	AGSE-V047	1	Ring Mtg Block (Detail of Items 3 and 4)
8	DR-209	1	D-Ring (Detail of Items 3 and 4)
9	AGSE-E10705-21	1	Dork Pin (Detail of Items 1 and 2)
10	AGSE-S00304-P04	6	Shock Mount
11	AGSE-S00105-08F016A01	40	Screw, Hex Head
12	AGSE-S00175-08A17	40	Washer
13	AGSE-S00118-08F020A07	8	Screw, Socket Head
14	AGSE-S00135-08A17	8	Washer, Locking

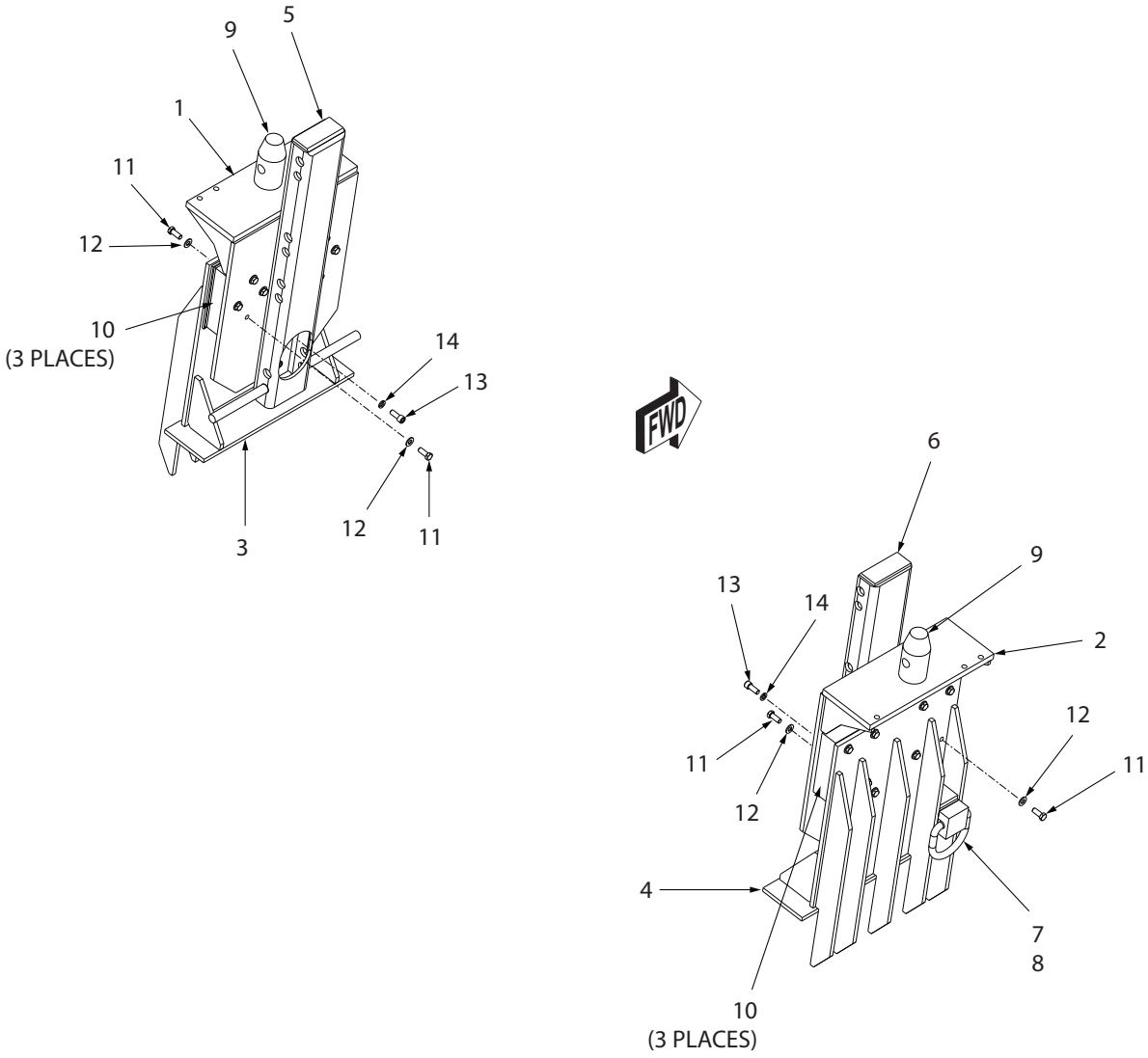


Figure 8.14-1 AGSE-E20203-S01/S02 AFT Shock Mount Assembly

IPB Figure 15 - AGSE-E20321-S01/S02 AFT Bootstrap Adapter

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E20321-S01	-	AFT Bootstrap Adapter Assy - LH (Illustration Figure 8.15-1)
	AGSE-E20321-S02	-	AFT Bootstrap Adapter Assy - RH
1	AGSE-E20321-P01	1	AFT Bootstrap Adapter - LH (Used on AGSE-E20321-S01)
2	AGSE-E20321-P02	2	Spacer
3	AGSE-E20321-P03	1	AFT Bootstrap Adapter - RH (Used on AGSE-E20321-S02)
4	AGSE-S00104-14C104A01	2	Screw, Hex Head
5	AGSE-S00104-14C160A03	2	Screw, Hex Head
6	AGSE-S00150-14CA01	4	Nut, Hex
7	AGSE-S00131-14A17	8	Washer

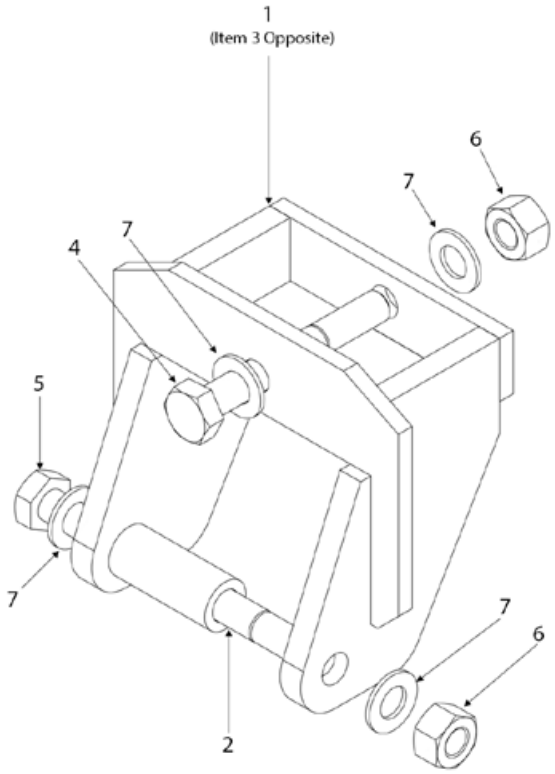


Figure 8.15-1 AGSE-E20321-S01/S02 AFT Bootstrap Adapter

IPB Figure 16 - AGSE-E10709-S01 Hydraulic Jack Leg

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E10709-S01	-	Jack Leg Assy (Illustration Figure 8.16-1)
1	AGSE-E10709-P01	1	Jack Leg Weldment
2	AGSE-E10709-P02	1	Pivot Block
3	AGSE-E10709-P03	2	Pivot Pin
4	AGSE-E10709-P04	1	Leveling Pad

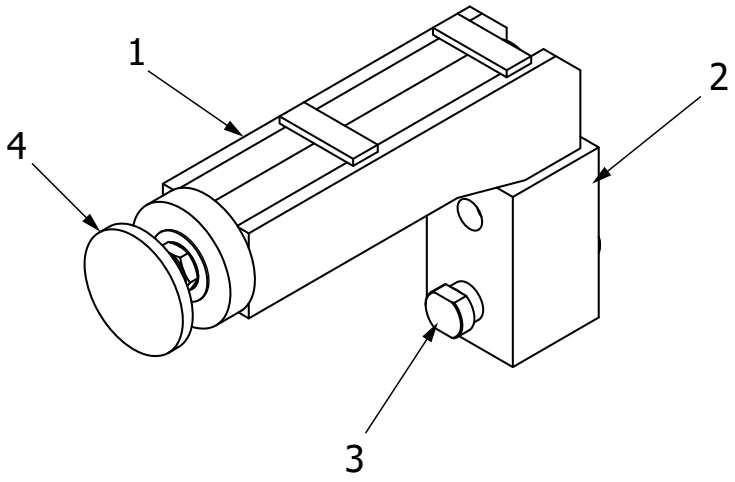


Figure 8.16-1 AGSE-E10709-S01 Hydraulic Jack Leg

9.0 – Stencils, Decals, and Placards

9.1 General

Various stencils, decals, and placards are added to the equipment to provide warnings, cautions, and general information. These items should be reviewed and understood by maintenance and user personnel. The preceding drawings in section 8.0 identify all stencils, decals, and placards used on this equipment.

9.2 Stencil Details

ITEM	STENCIL CONTENT	HEIGHT	PLCS
1	CUSTOMER NAME (W/Arrow)	3”	2
2	CRADLE ONLY C.G. TBD LBS	3/4”	2
3	REMOVE SAFETY PIN AND BOLTS BEFORE BOOTSTRAP LIFT (Paint Bolt Heads and Hex Nuts Red - Match Mark Location Points Red)	1/2”	2
4	AFT MOUNT	3/4”	2
5	OPEN VENT BEFORE OPERATING PUMP OR LOWERING CRADLE (Top of Pump)	1/2”	
6	AFT BOOTSTRAP	3/4”	2
7	STOW (With arrow and matching stow position arrow) (AFT only)	1/2”	2
8	AUTOMATIC VENT	1/2”	1
9	CAUTION	1/2”	
	OPEN SLOWLY TO LOWER BASE	1/2”	1
10	STAND C.G. 10,000 LBS	3/4”	2
10A	BASE ONLY C.G. 7,100 LBS	3/4”	2
10B	ARROW POINTING DOWN		4
11	AM-1928 TIE DOWN Placard	----	1
12	HOIST/TRUCK TIE DOWN	1/2”	4
13	FWD (With Arrow)	2”	2
14	STOW (With Arrow and 2 maching stow position arrows) (Fwd Only)	1/2”	2

ITEM	STENCIL CONTENT	HEIGHT	PLCS
15	1 - BOOTSTRAP/FAN SEPARATION 2 - FAN SEPARATION/AIR SHIP FULL ENGINE 3 - PROPULSOR WITH BIFI 4 - PROPULSOR WITHOUT BIFI	3/4”	2
16	REMOVE SAFETY PIN AND BOLTS BEFORE BOOTSTRAP LIFT Paint Bolt Heads and Hex Nuts Red	1/2”	2
17	FWD (With arrow)	2”	2
18	3 MPH 5 Km/H MAX TOW SPEED	3/4”	4
19	CENTER LINE And Stripes	1”	2
20	3 MPH MAX TOW SPEED	1”	2
21	PROPULSOR BEAM E20309-P03 STOWAGE	1”	2
22	AFT BOOTSTRAP STORAGE	1	2
23	PWA-106473 AFT MOUNTS E20307-S01 FWD PROPULSOR MOUNTS	1/2”	1
24	E20306-P03 FWD SPACER E20301-P01/-P02 FWD FAN CASE SUPPORTS AFT MOUNT ASSEMBLIES E20301-P01/-P02 SHAFT E20305-P01 AFT LH MTG ADAPTER E20305-P02 AFT RH MTG ADAPTER	1/2”	1
25	STEERING BAR STOWAGE	1	2
26	NO STEP	2”	3
27	STOW (With Arrow and Matching Stow Position Arrow)(Aft Only)	1/2”	2
28	E20303-S01/-S02 SCREW JACKS E20304-S01 PROPULSOR ADAPTERS AND SPACERS	1/2”	1
29	FWD BOOTSTRAP	1/2”	2
30	INBD/OUTBD (With Arrows)	1/2”	2
31	EXTEND FORKLIFT BARRIERS WHEN ENGINE IS IN STAND	1/2”	2

ITEM	STENCIL CONTENT	HEIGHT	PLCS
32	TOW (With Arrow and Matching Tow Position Arrow)	1/2”	4
33	PWA107715 AFT MOUNT ADAPTERS	3/4”	1
34	Numbers “1, 2, 3 and 4”	1-1/2”	8
35	INSTALL BOLTS WITH NUTS OUTBOARD	1/2”	4

9.3 Stencil Locations

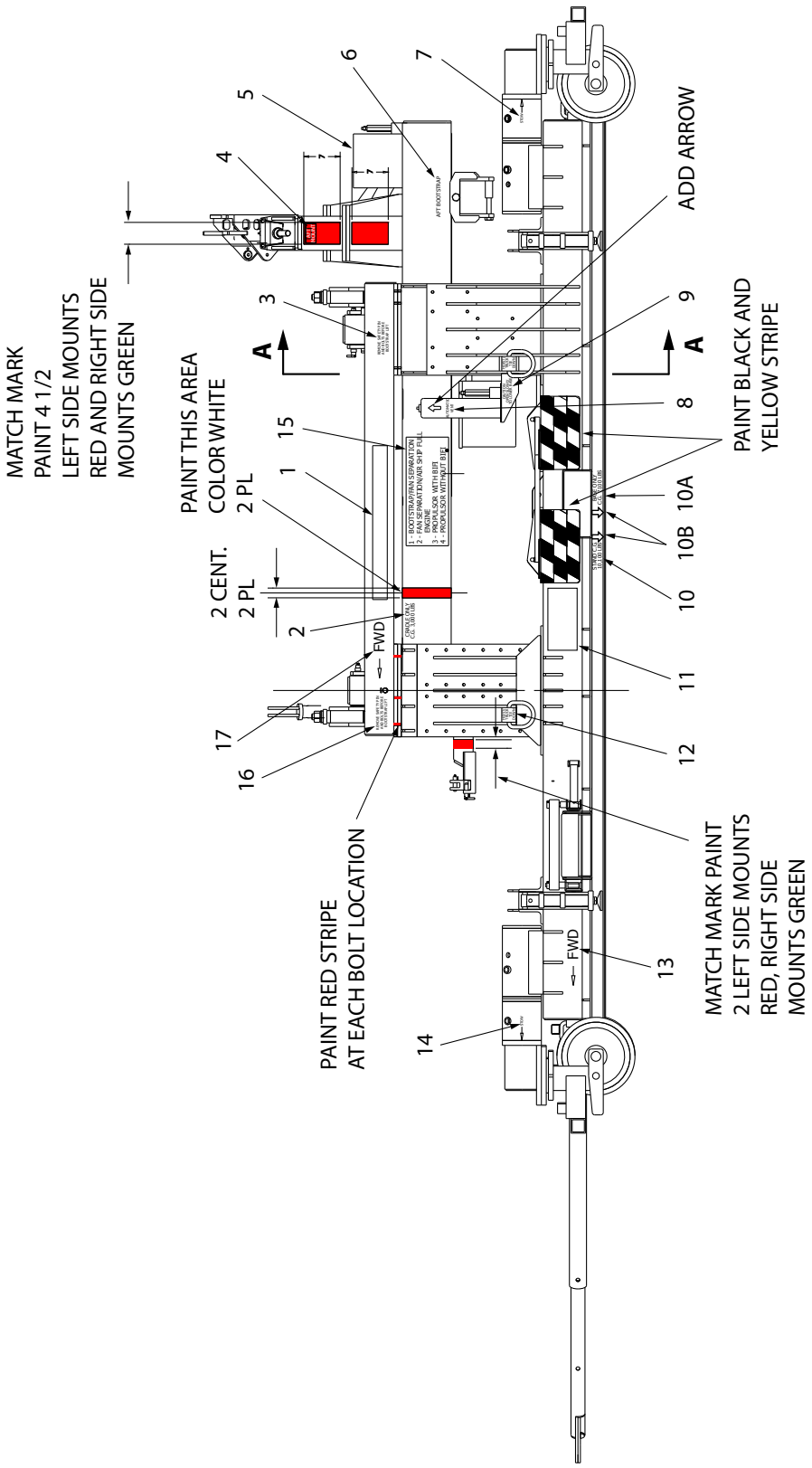

MATCH MARK
PAINT 4 1/2
LEFT SIDE MOUNTS
RED AND RIGHT SIDE
MOUNTS GREEN
PAINT THIS AREA
COLOR WHITE
2 CENT.
2 PL
2 PL
ADD ARROW
PAINT BLACK AND
YELLOW STRIPE
PAINT RED STRIPE
AT EACH BOLT LOCATION
MATCH MARK PAINT
2 LEFT SIDE MOUNTS
RED, RIGHT SIDE
MOUNTS GREEN
FWD
FWD
A
A
1
2
3
4
5
6
7
8
9
10
10A
10B
11
12
13
14
15
16
17

Figure 9.3-1

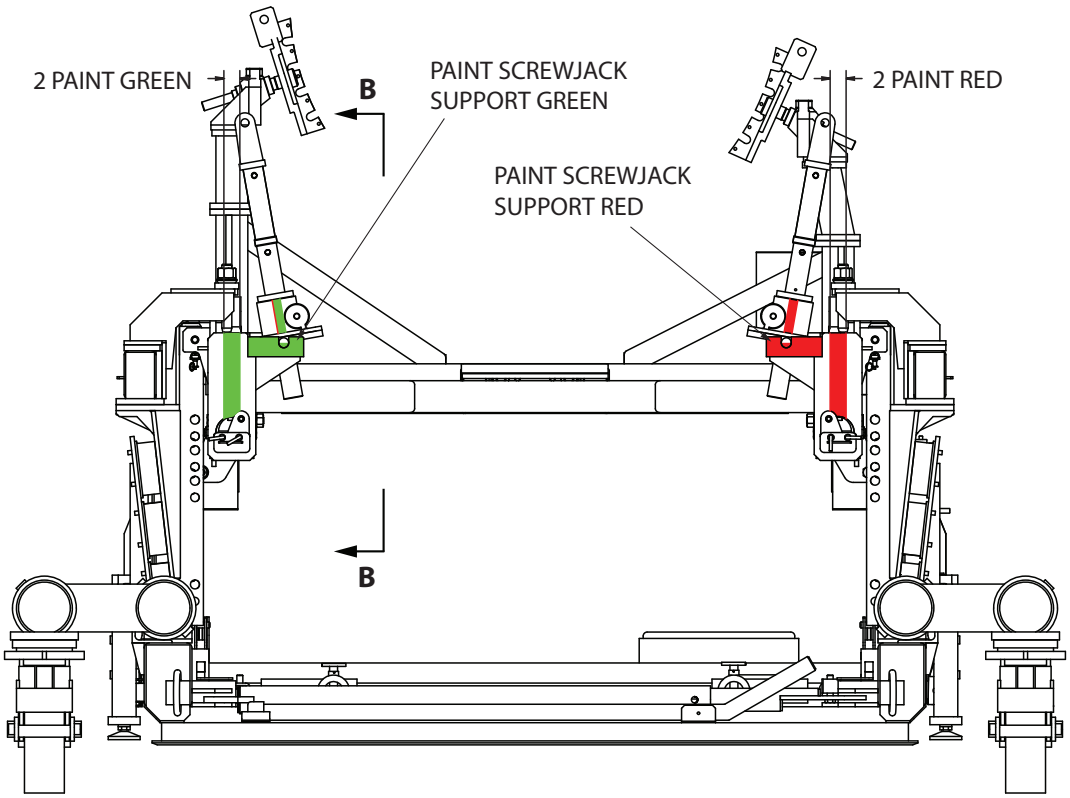
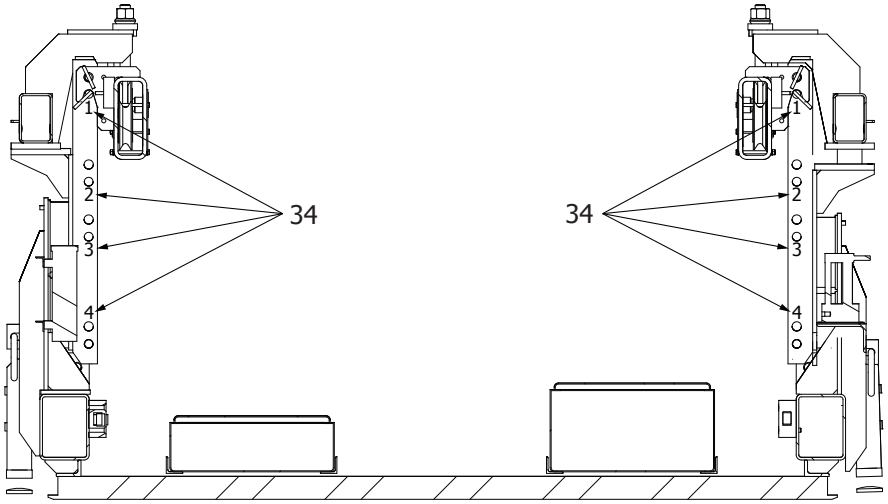
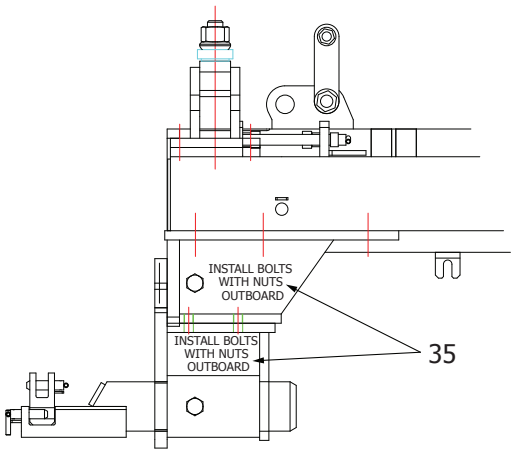

2 PAINT GREEN
B
PAINT SCREWJACK
SUPPORT GREEN
PAINT SCREWJACK
SUPPORT RED
2 PAINT RED
B

Figure 9.3-2



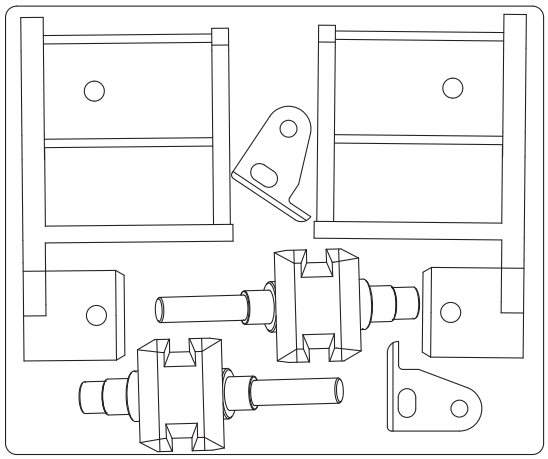
SECTION A - A



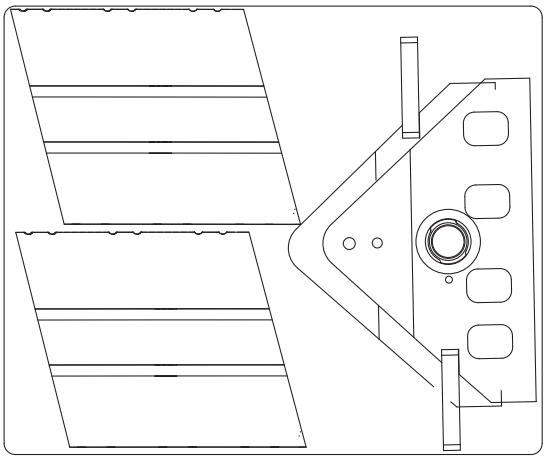
SECTION B - B

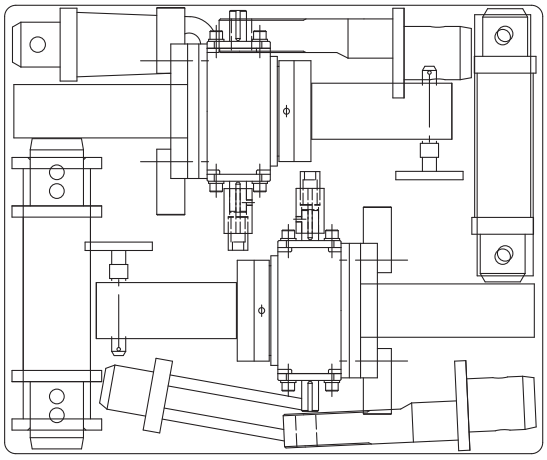
Figure 9.3-2A

E20306-P03 FWD SPACER
E20301-P01/-P02
FWD FAN CASE SUPPORTS
AFT MOUNTS ASSEMBLIES
E20301-P01/-P02 SHAFT
E20305-P01 AFT LH MTG ADAPTER
E20305-P02 AFT RH MTG ADAPTER

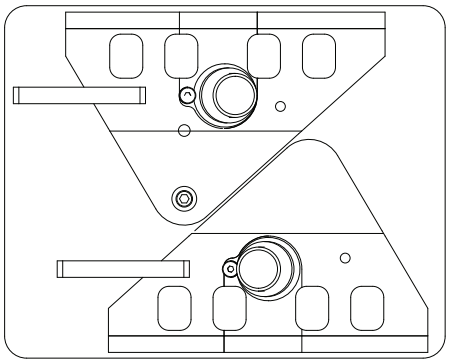


PWA-106473 AFT MOUNTS
E20307-S01 FWD PROPULSOR
MOUNTS STORAGE





E20303-S01/-S02 SCREW JACKS
E20304-S01 FWD PROPULSOR BEAMS
ADAPTERS AND SPACERS



PW07715 AFT MOUNT ADAPTERS

STORAGE BOX LAMINATED PACKAGING DIAGRAMS ON INSIDE DOOR OF EACH CONTAINER

Figure 9.3-3

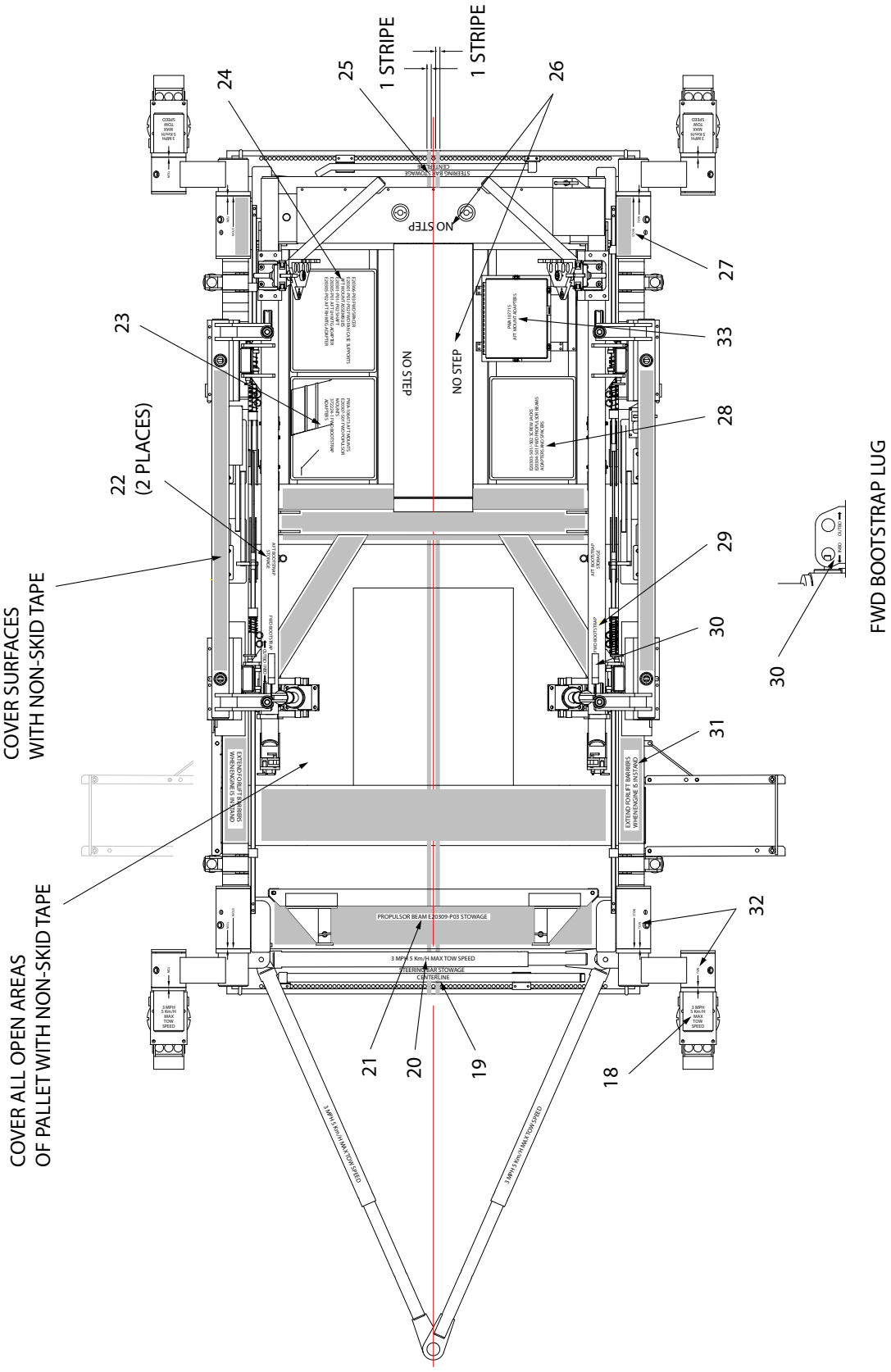

COVER SURFACES
WITH NON-SKID TAPE
COVER ALL OPEN AREAS
OF PALLET WITH NON-SKID TAPE
22
(2 PLACES)
23
24
25
1 STRIPE
1 STRIPE
26
27
28
29
30
31
32
33
FWD BOOTSTRAP LUG
NO STEP
NO STEP
PROPULSOR BEAM E20309-P03 STOWAGE
3 MPH 5 Km/H MAX TOW SPEED
STEERING GEAR STOWAGE
CENTERLINE
21
20
19
18

Figure 9.3-4

10.0 – Recommended Spares

10.1 Critical Items

AGSE defines “critical” items as those items, if broken or missing, that would render the equipment inoperable or severely impair equipment operation. Since most of these items are also long leads, it is AGSE’s recommendation that such items be identified, purchased, and stocked by the customer. In the remote event of “critical” item failure, the equipment can be quickly repaired and placed back in service with minimal down time.

AGSE does not typically stock all components used with the equipment, so immediate shipment of “critical” items may not always be possible. AGSE will respond to customer requests for quotation on any spare parts, and expedite orders for spare parts as required. The customer should never assume immediate delivery is always possible.

It is the responsibility of the operator of the equipment to review the recommended spares list and balance costs against equipment down-time. The list can be adjusted by the operator based on the actual service life of components experienced during equipment usage.

PART NUMBER	QTY	DESCRIPTION
422697	2	6” OD Sheave (Wire Rope)
473268	2	8” OD Sheave (Wire Rope)
Commercial	1	5/8” ø 6 x 36 IWRC Type 304 ‘B’ Dim.= 6”, 343” Length
Commercial	2	5/8” ø 6 x 36 IWRC Type 304 ‘B’ Dim.= 6”, 225” Length

10.0 – Recommended Spares (Continued)

PART NUMBER	QTY	DESCRIPTION
FQEA-XAN-DAC	1	Flow Fuse Cartridge Set
TCL24-12SS	2	Lock Collar
10SF16	2	Spherical Bearing
AGSE-S00153-20CA01	8	Nut, Locking
SK-3897	1	Main Cylinder Seal Kit
RC102K	4	Jacking Leg Cylinder Seal Kit
AGSE-S00304-P04	18	Shock Mount