AGSE-E237-G01
(18C1601P01)

Engine Transport Stand

For General Electric Passport 20 Engine

ORIGINAL MANUAL DATED 05/07/2013
LATEST MANUAL REVISION LEVEL . . . . . 5/8/2023 (REV B)

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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.

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1.0 – Revisions

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

PAGE	REV	DESCRIPTION OF CHANGE	DATE
A	B	Added Notice	5/9/2023
2.0 - 2.1	B	Updated Figures 2.0-1 & 2.0-2	
4.1	B	Updated Section 4.4	5/9/2023
4.2	B	Added Section 4.5	5/9/2023
5.14	B	Updated Section 5.5	5/9/2023
5.15	B	Updated Figure 5.5-1	5/9/2023
6.0	B	Updated Section 6.1-6.2	5/9/2023
6.2	B	Updated EC Declaration of Conformity	5/9/2023
7.0	B	Updated Section 7.1	5/9/2023
8.0	B	Updated Section 8.1-8.2	5/9/2023
8.1	B	Added Item 6 & 7	5/9/2023
8.2	B	Updated Figure 8.1-1	5/9/2023
8.3	B	Updated Item 6 & 9 Part Number	5/9/2023
8.3	B	Updated Item 16 Quantity	5/9/2023
8.3	B	Added Item 18 & 19	5/9/2023
8.4	B	Updated Figure 8.2-1	5/9/2023
8.5 - 8.6	B	Updated IPB Figure 3	5/9/2023
8.7	B	Updated Figure 8.3-1	5/9/2023
8.8 - 8.9	B	Added IPB Figure 8.3-2 & 8.3-3	5/9/2023
8.10	B	Updated Item 4 & 8 Part Number	5/9/2023
8.11	B	Updated Figure 8.4-1	5/9/2023
8.12	B	Updated Figure 8.6-1	5/9/2023
8.16	B	Updated Figure 8.7-1	5/9/2023
8.19	B	Updated Item 1 Description	5/9/2023
9.0	B	Updated Figure 9.2-1	5/9/2023
9.1	B	Updated Figure 9.2-2	5/9/2023
9.2	B	Updated Figure 9.2-3	5/9/2023

2.0 Illustrations

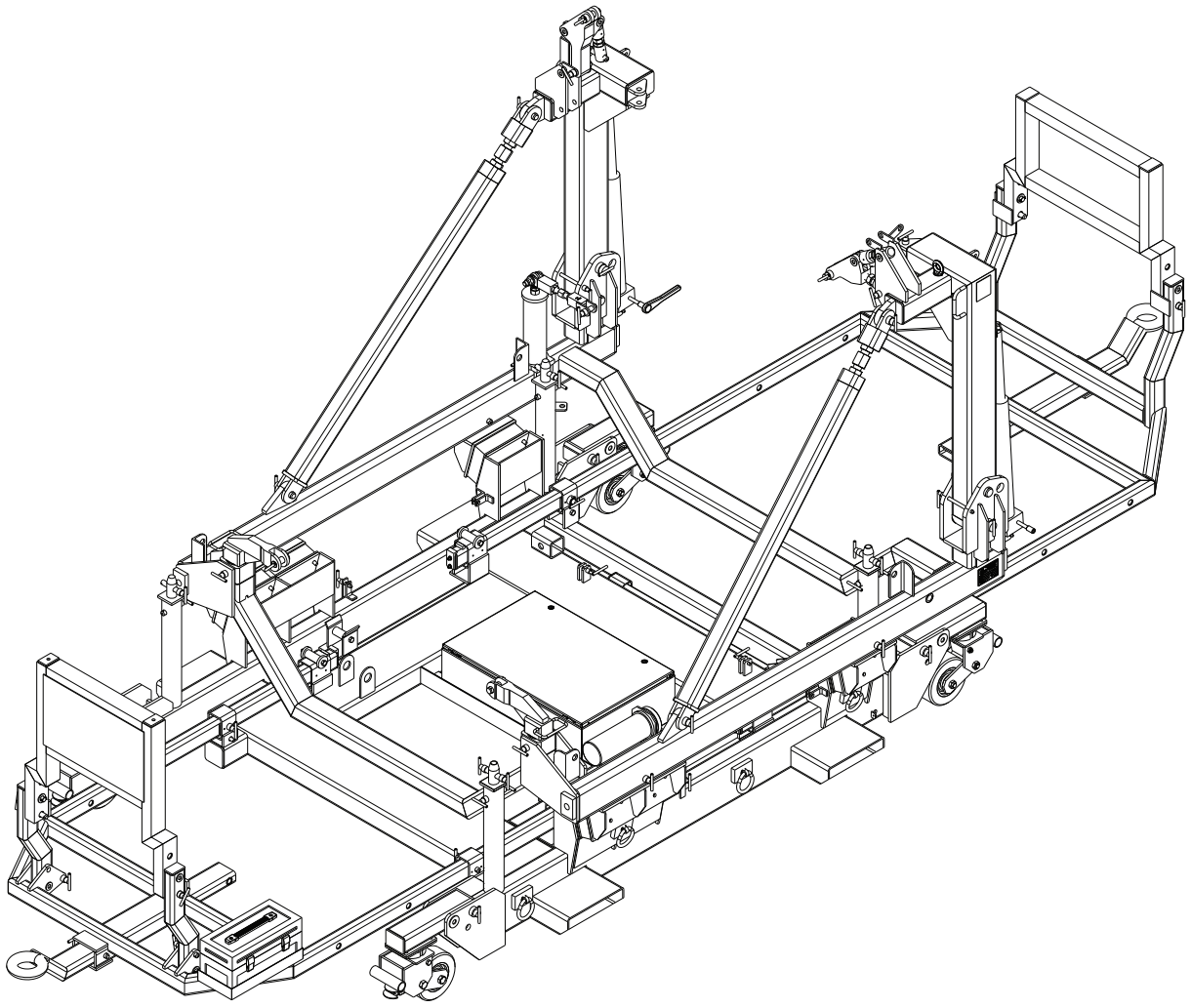


Figure 2.0-1 AGSE-E237-G01 Transport Stand

2.0 Illustrations (Continued)

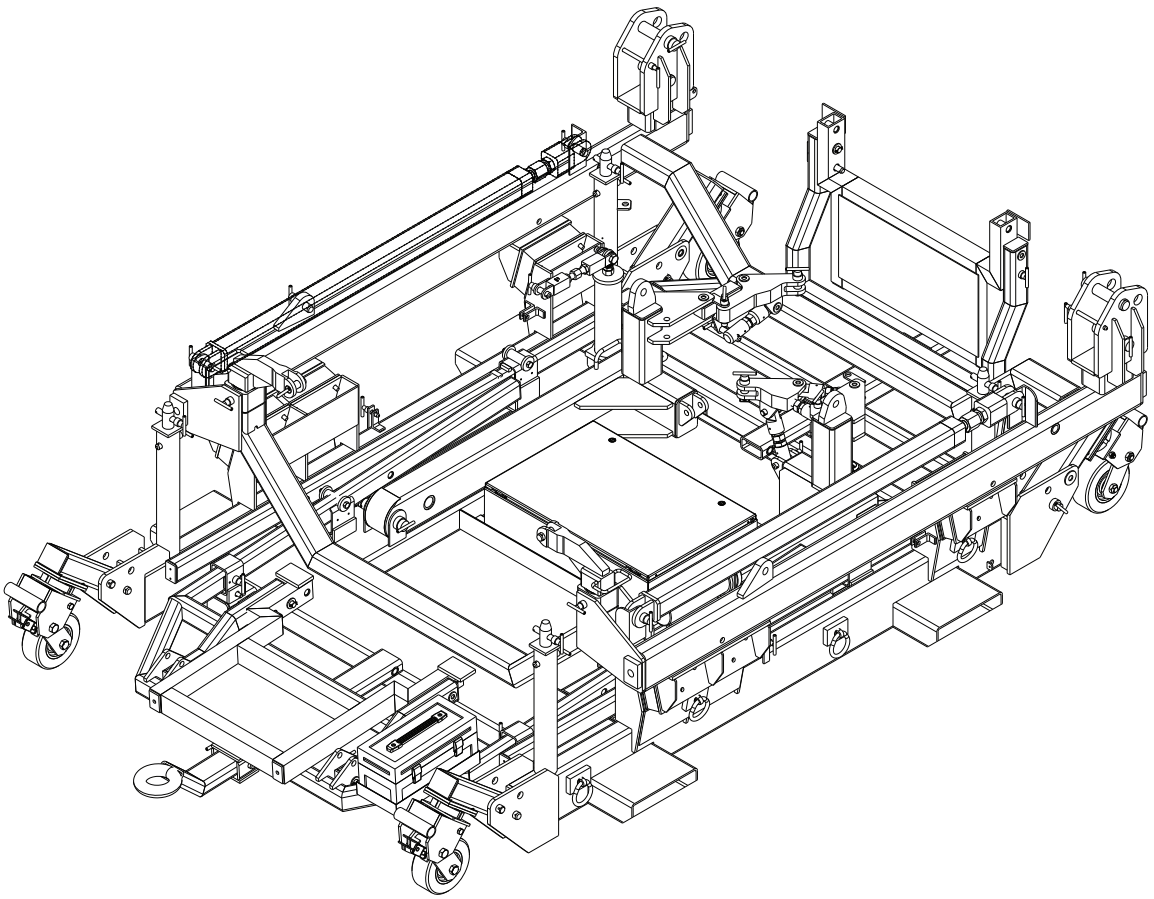


Figure 2.0-2 AGSE-E237-G01 Transport Stand Fully Collapsed

3.0 – Specification

3.1 General

The AGSE-E237-G01 Transport Stand.(Cradle/Base Assembly) is designed to store and/or transport the General Electric Passport 20 full engine in modified QEC configuration. The cradle can be separated from the base for engine storage. The engine can be installed on the stand from either left or right side and pins into place quickly and easily.

3.2 Design

The AGSE-E23704-S01 cradle consists of a steel welded frame with removable ground handling mounts compatible with General Electric Passport 20 engine in modified QEC configuration. Tubular arms support engine mount adapters. Caster assemblies can be stowed to attain the overall minimum height for air transport. Storage for unused AFT braces is provided on the cradle frame. Storage for AFT posts, caster steering bars, tow bars is provided on the base. A series of tie-down rings offer secure retainment during transportation of unit. Built-in shock absorbing mounts cushion all transport shocks and vibrations. 5-1/2” x 13-1/2” fork channels are provided to allow forklifting of the stand.

The AGSE-E23701-S01 base consists of a steel welded frame which supports the AGSE-E23704-S01 cradle on a shock-absorbing frame. The base frame is also equipped with FWD and AFT bumpers which can be retracted for storage.

3.3 Mobility

The AGSE-E23701-S01 base assembly has four (4) shock absorbing casters, bumpers and tow bars. The stand cradle and base can be towed from either end. The FWD tow bars (2) attach to the base for FWD towing and a single AFT tow bar attaches to the AFT bumper support for rear towing. The tow bars stow on the base frame when not in use. Maximum towing speed of the unit is 5 km/hr (3 MPH).

CAUTION

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

CAUTION

If unit is to be transported by truck and trailer, it is “MANDATORY” that both the truck and trailer be equipped with “air-ride” type suspension. The stand must never be tied down to the truck bed above the shock mounts height.

3.4 Fabrication And Finish

The stand is fabricated from structural steel shapes conforming to ASTM A500, A513, and A36 materials. All bolted connections use A325 structural bolts or grade 5 commercial hardware. Unit is primed and painted with high grade, Skydrol resistant, air dry enamel. Color is optional. Pins and miscellaneous hardware are CRES or plated as required.

3.5 Characteristics

3.5.1 Cradle

Cradle	
Length (In.)	94.5
Height (In.)	60
Width (In.)	92.5
Weight (Lbs.)	1,201

3.5.2 Base

Base	
Length with tow bars stowed (In.)	131.25
Length with tow bars deployed (In.)	266.5
Width (In.)	88
Height (In.)	53-5/16
Weight (Lbs.)	2,318

3.5.3 Combined Cradle/Base

Combined Cradle/Base	
Length with tow bars stowed (In.)	131.25
Length with tow bars deployed (In.)	266.5
Width (In.)	92.5
Height (In.)	85.5
Weight (Lbs.)	3,556

4.0 – Maintenance and Inspection

4.1 General

Life expectancy of this unit can be extended indefinitely, 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 cleaned with a soap and water solution and rinsed thoroughly.

WARNING

Re-lubricate all grease zerk fittings after cleaning stand.

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

4.3 Scheduled Service

All casters should be lubricated every 90 days with the following extreme pressure grease or equivalent grease:

Visual inspection of the swivel locks and brakes should occur with the scheduled lubrication. All

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

non-painted machined surfaces should have a light grade oil spray as required. Spray with aerosol lubrication WD-40 or equivalent.

4.4 Scheduled Inspection

CAUTION

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

Annual inspections of machined surfaces, pins, fasteners, structure and shock mounts are recommended. The machined surfaces (wheels, axles, pivots) 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 structure is to be visually inspected for damage, weld cracks, or corrosion.

CAUTION

AGSE recommends that shock mounts be replaced every five (5) years. Additionally, periodic inspections should be performed and any of the following conditions are proper cause for replacement of the shock mounts prior to their expiration:

1. **Visible evidence of cracks.**
2. **Discoloration: visible damage caused by solvents.**
3. **Permanent deformation.**
4. **Mount does not flex during engine loading/unloading.**
5. **Significant corrosion on shock attach-plate.**

The following exposures can reduce the life of shock mounts and it is recommended to avoid them where possible.

- High humidity and/or salty air
- Direct sunlight
- Solvent, corrosive liquids, and fumes
- Oils, jet fuel, or Skydrol hydraulic fluid
- Extreme temperatures
- Ozone or engine exhaust

4.5 General Maintenance Schedule

NOTE:

This Maintenance Schedule does not supersede the maintenance described 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 Mounts	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 Stand Preparation For Engine Installation

NOTE: The transport stand is assumed to be in the fully collapsed configuration.

1) Inspect stand for obvious damage.
2) Raise the stand off the ground using a forklift or an overhead hoisting system.
3) Deploy the four (4) casters by removing four (4) AM-91000-82T safety pins (IPB Figure 3 - Item 17). Secure with the same hardware. (Illustration Figure 5.1-1).
4) Lower the stand to the ground then set the caster brakes.

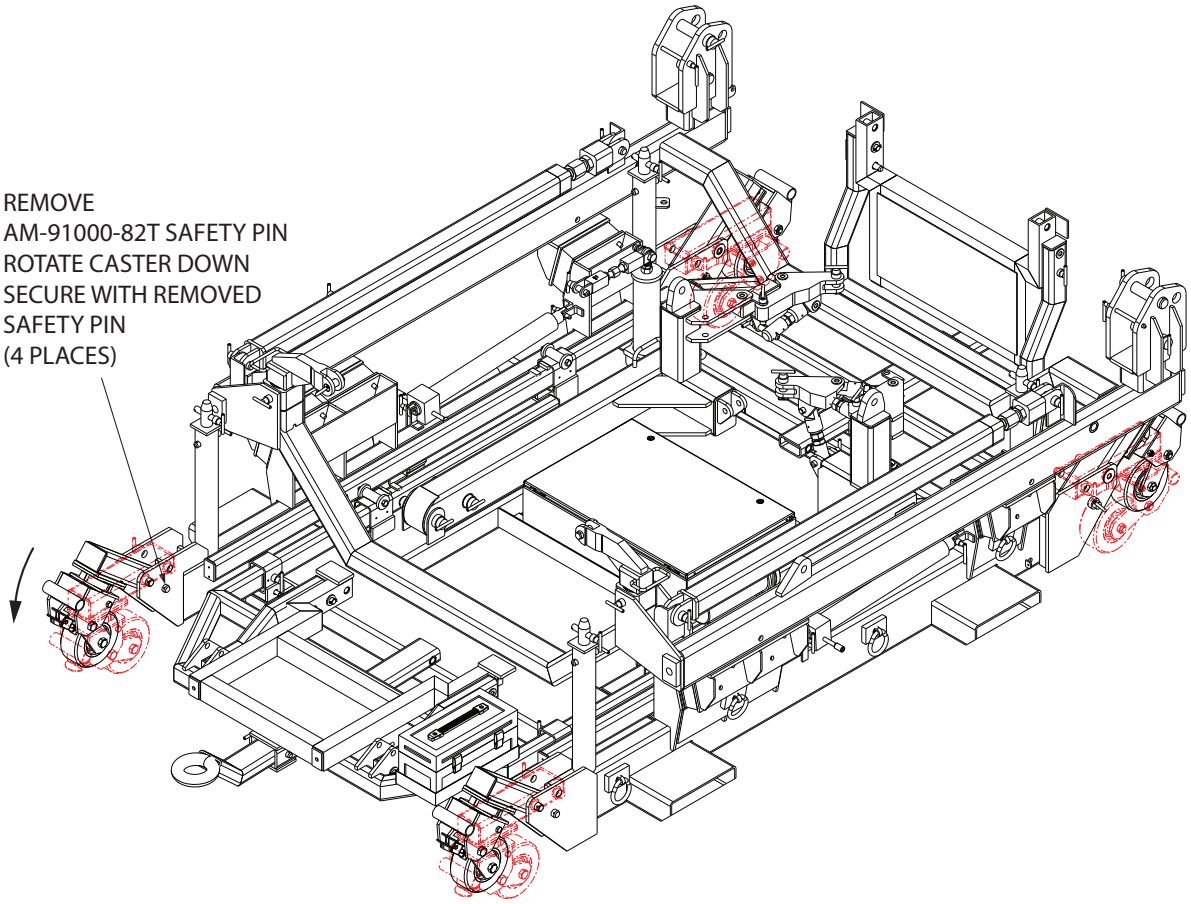


Figure 5.1-1

5) Remove the AGSE-E23706-S01 LH AFT post assembly and AGSE-E23706-S02 RH AFT post assembly (IPB Figure 2 - Items 2 and 3 respectively) from their storage on the base by removing four (4) AGSE-E23706-P03 clevis pivot pins (IPB Figure 2 - Item 4) and the hold-down pin.
6) Install the LH and RH AFT post assemblies on the cradle and secure with the hardware removed in Step 5. (Illustration Figure 5.1-2).

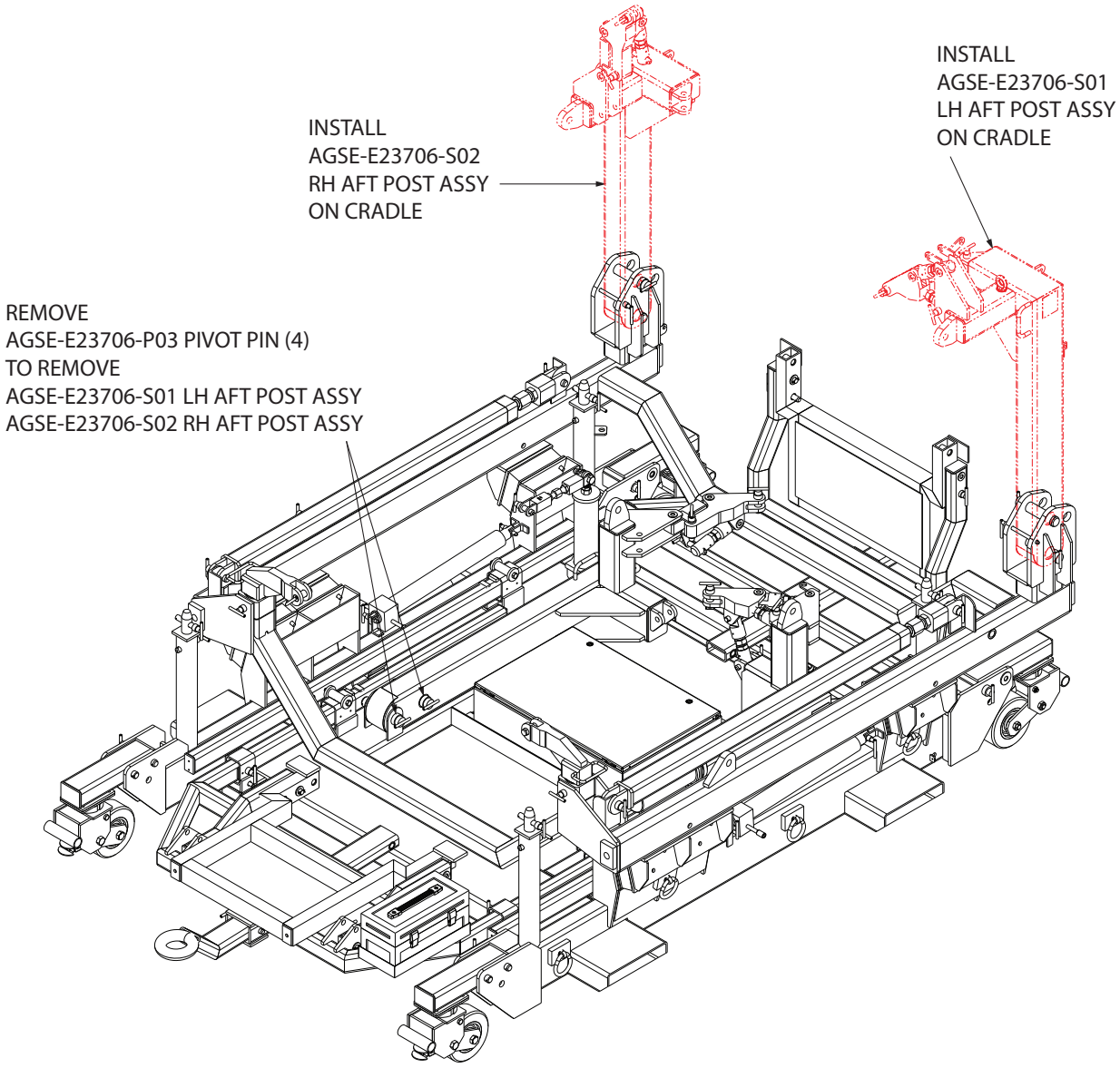


Figure 5.1-2

7) Remove four (4) AM-91000-34T safety pins (IPB Figure 2 - Item 13) to remove the two (2) AGSE-E23713-S01 adjustable AFT brace assemblies (IPB Figure 2 - Item 5) from their storage.

8) Attach the adjustable brace assemblies, one end to the AFT post assemblies, the other to the cradle. Secure with the hardware removed in Step 7.

9) Remove AGSE-E23721-S01 sway brace mount (IPB Figure 2 - Item 8) from storage by removing AM-91000-66T safety pin (IPB Figure 8 - Item 6). Install the sway brace mount on the cradle as indicated in Illustration Figure 5.1-3.

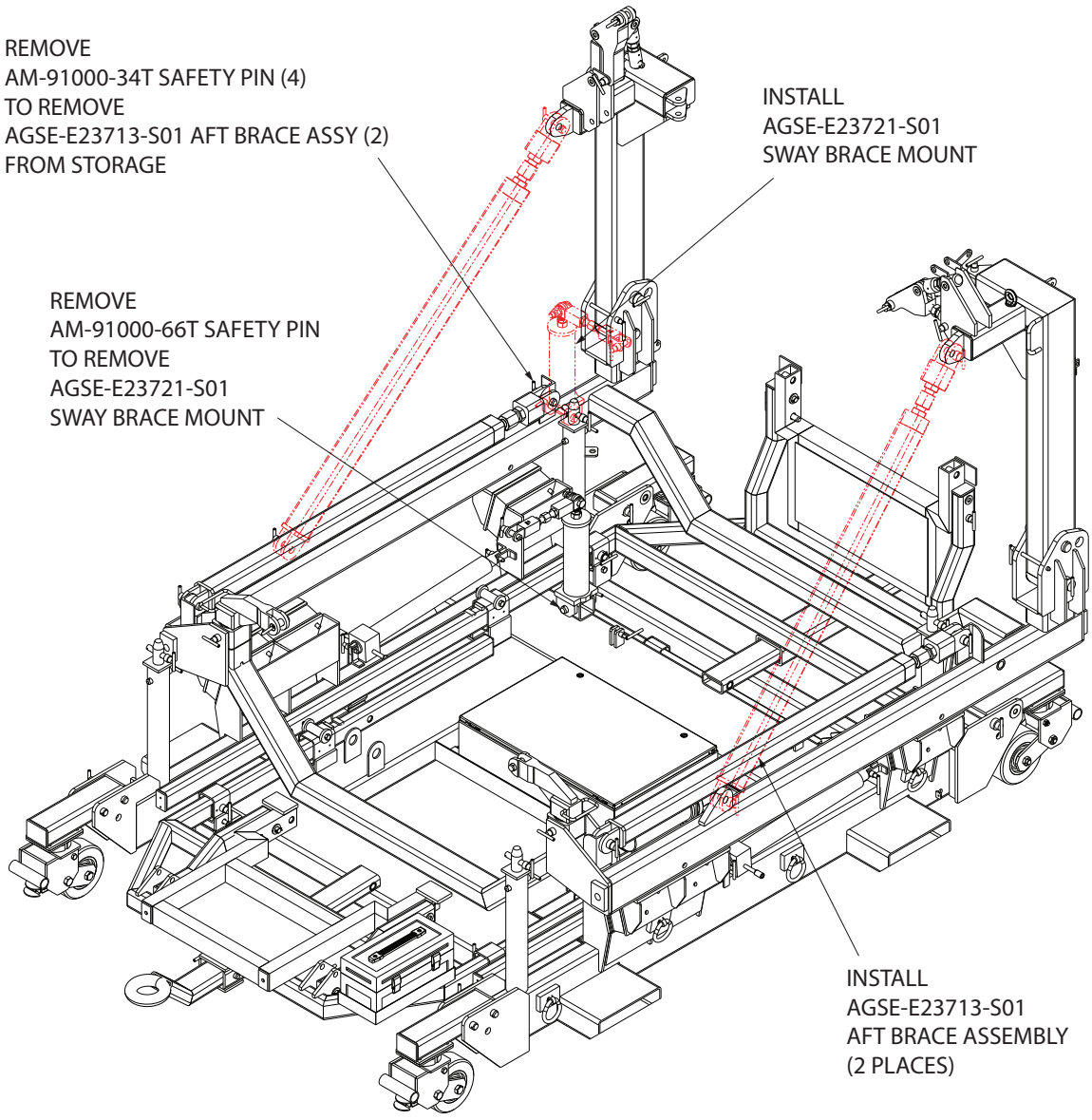


Figure 5.1-3

10) Remove AGSE-E23720-P01 cylinder jack (IPB Figure 2 - Item 16) from storage by removing two (2) AM-90500-16T safety pins (IPB Figure - Item 9). Determine which is the correct post, move AGSE-E23719-P01 cylinder mount (IPB Figure 2 - Item 7) to that post and attach with AM-90500-72T (IPB Figure 2 - Item 10) safety pin. Attach the cylinder jack to the cylinder mount and post using the removed hardware. (Illustration Figure 5.1-4).

11) Remove four (4) AM-90750-48T safety pins (IPB Figure 3 - Item 15) to extend the FWD and AFT bumpers (IPB Figure 3 - Items 5 and 4) from their storage positions. Extend the bumpers as needed for engine configuration. Secure with the same hardware.

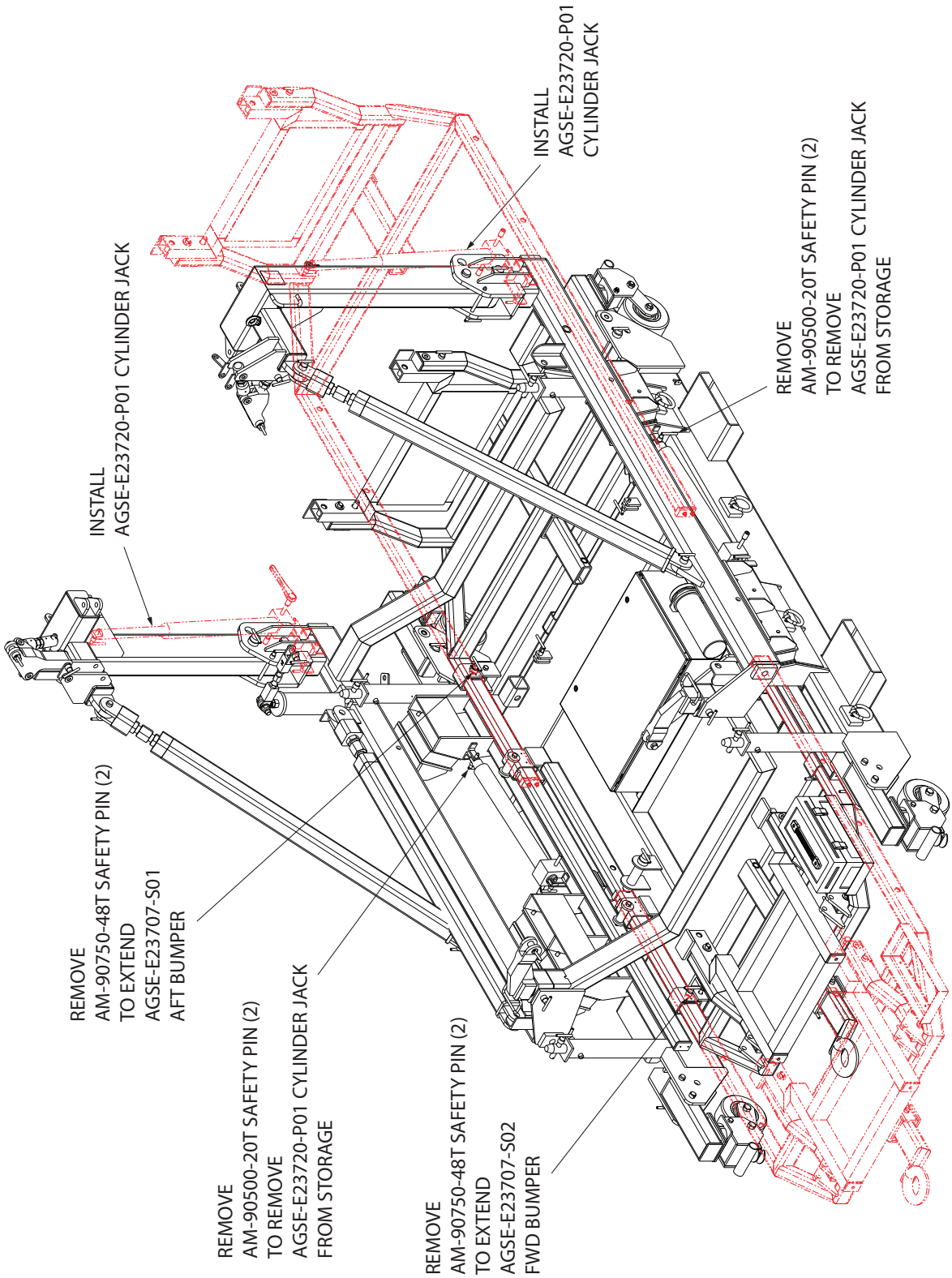

INSTALL
AGSE-E23720-P01 CYLINDER JACK
INSTALL
AGSE-E23720-P01
CYLINDER JACK
REMOVE
AM-90500-20T SAFETY PIN (2)
TO REMOVE
AGSE-E23720-P01 CYLINDER JACK
FROM STORAGE
REMOVE
AM-90750-48T SAFETY PIN (2)
TO EXTEND
AGSE-E23707-S01
AFT BUMPER
REMOVE
AM-90500-20T SAFETY PIN (2)
TO REMOVE
AGSE-E23720-P01 CYLINDER JACK
FROM STORAGE
REMOVE
AM-90750-48T SAFETY PIN (2)
TO EXTEND
AGSE-E23707-S02
FWD BUMPER

Figure 5.1-4

12) Remove two (2) AM-90750-48T and two (2) AM-90750-68T safety pins and rotate the FWD bumper into the upright position. Secure with the same hardware. Remove two (2) AM-90750-68T safety pins and rotate the AFT bumper into the upright position.

NOTE

Leave the FWD bumper in the flat condition when the testing bellmouth is installed on the engine.

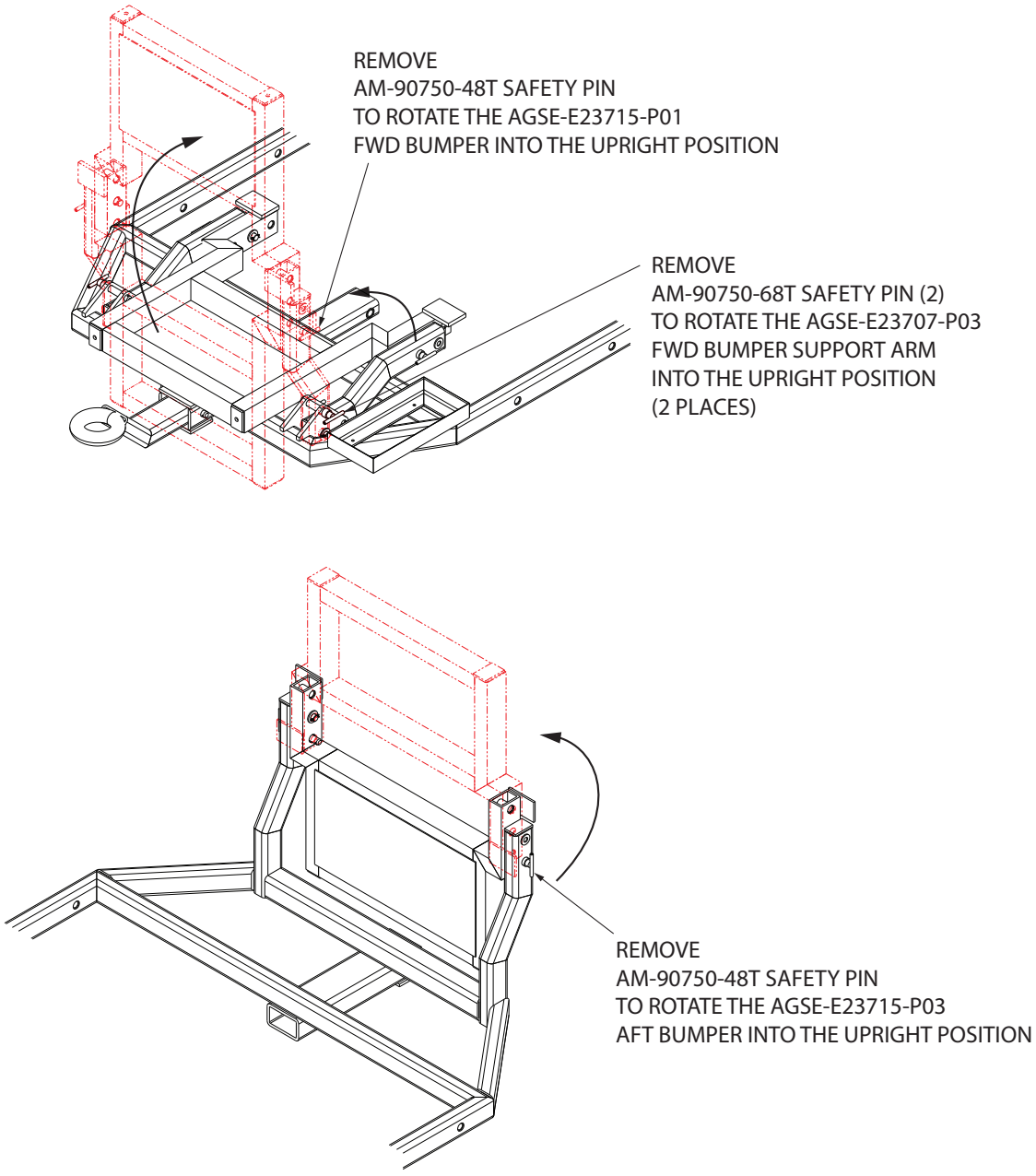


Figure 5.1-5

13) Remove AM-90250-32L safety pin (IPB Figure 3 - Item 13) to remove the two (2) AM-2228-D9 caster steering bars (IPB Figure 3 - Item 11) from their storage positions.

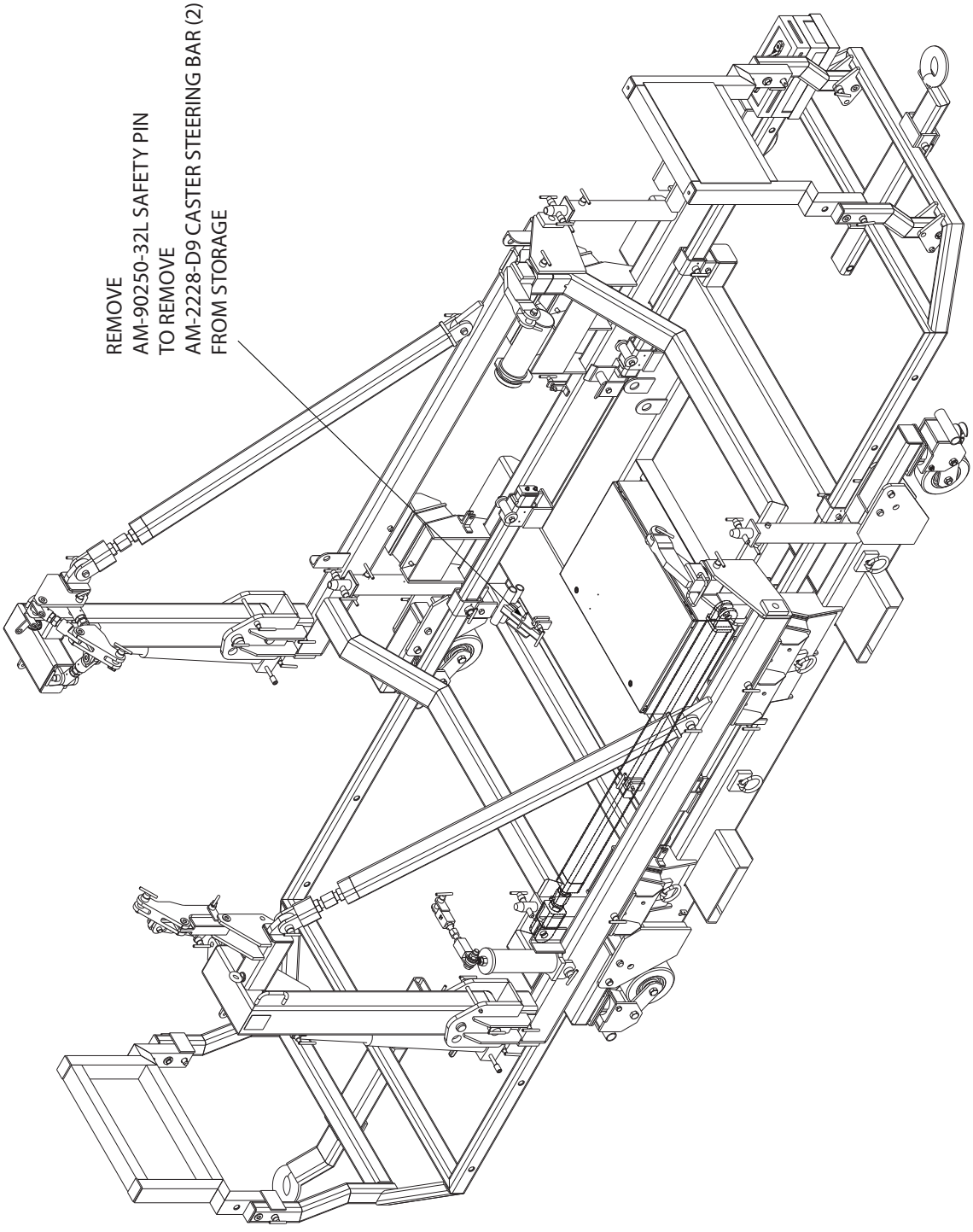


Figure 5.1-6

5.2 Engine Installation (Figures 5.2-1 and 5.2-3)

NOTE: The stand is assumed to be in the ready configuration as described in Section 5.1.

1) Inspect stand for obvious damage.
2) Configure engine for shipping in accordance with General Electric Engine Shipping Manual.
3) Set the caster brakes.
4) If the engine is to be installed from the LH side of the stand, remove the LH adjustable AFT brace by removing two (2) AM-91000-34T safety pins. Put the brace and hardware aside or store on the cradle frame.
5) Pull the 3 AM-90750-48T safety pins from each of the AFT post assemblies and rotate the AGSE-E23710-S01 & -S02 link assemblies to the upright stowed position and re-pin in place.
6) Remove the AM-91500-88T (IPB Figure 2 - Item 15) safety pin to pivot the AGSE-E23706-S01 LH AFT post to the rear until it is horizontal. This will require two men, an overhead crane or the use of the manual cylinder AGSE-E23720-P01.
7) Remove the FWD mount supports, AGSE-E23714-P01, and attach them to the LH & RH FWD brackets of the 189C1617G01 bracket set. Secure with AM-91000-41TNC safety pins.
8) Using an overhead hoisting system, lower the engine onto the stand from the LH side of the stand. Use the FWD mount supports to guide the engine into the stand and the FWD mount dork pins into their sockets in the cradle. Secure with AM-90750-80T Safety Pins.

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

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

9) Make necessary adjustments to align the upper RH AFT bracket of the 18C1619G02 bracket set with the AGSE-E23706-S02 RH AFT post's AGSE-E23710-S02 adjustable link assy (IPB Figure 4 - Item 4). Secure with the AM-91000-32T safety pin (IPB Figure 4 - Item 9).
10) Make necessary adjustments to the AGSE-E23721-S01 sway brace mount (IPB Figure 2 Item 8) to align the engine's lower RH AFT bracket with the AGSE-E23721-P02 sway bar (IPB Figure 8 - Item 2). Secure with the AM-90750-T20 safety pin (IPB Figure 8 - Item 3).
11) Pivot the AGSE-E23706-S01 LH AFT post assembly (IPB Figure 2 - Item 2) to the upright position AND PIN IN PLACE. Make necessary adjustments to the LH AFT post's AGSE-E23710-S01 adjustable link assembly (IPB Figure 4 - Item 3) to align with the engine upper LH bracket. Secure with the AM-91000-32T safety pin (IPB Figure 4 - Item 9).
12) Install the LH adjustable brace and secure with safety pins

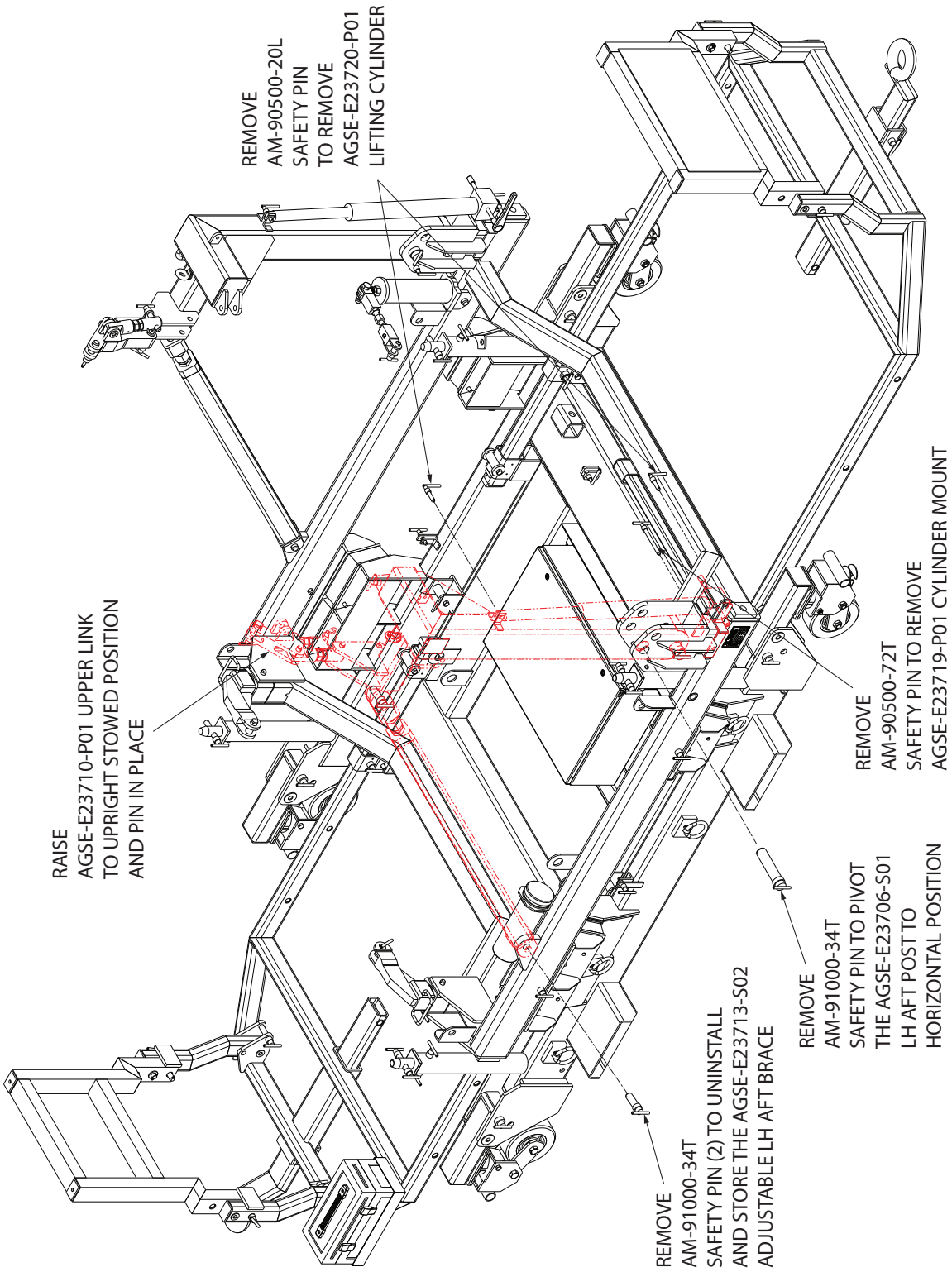

REMOVE
AM-90500-20L
SAFETY PIN
TO REMOVE
AGSE-E23720-P01
LIFTING CYLINDER
RAISE
AGSE-E23710-P01 UPPER LINK
TO UPRIGHT STOWED POSITION
AND PIN IN PLACE
REMOVE
AM-90500-72T
SAFETY PIN TO REMOVE
AGSE-E23719-P01 CYLINDER MOUNT
REMOVE
AM-91000-34T
SAFETY PIN TO PIVOT
THE AGSE-E23706-S01
LH AFT POST TO
HORIZONTAL POSITION
REMOVE
AM-91000-34T
SAFETY PIN (2) TO UNINSTALL
AND STORE THE AGSE-E23713-S02
ADJUSTABLE LH AFT BRACE

Figure 5.2-1

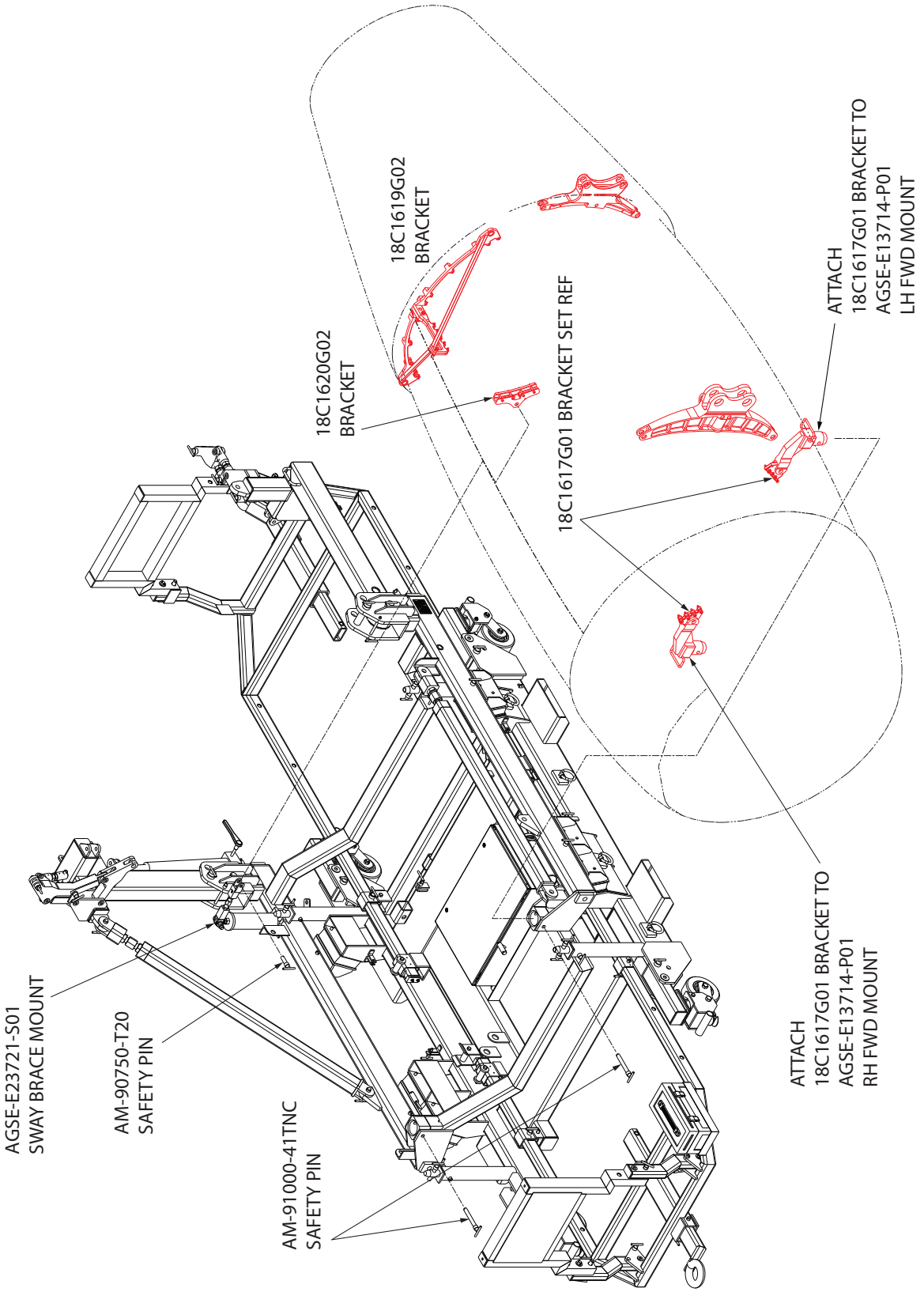

AGSE-E23721-S01
SWAY BRACE MOUNT
AM-90750-T20
SAFETY PIN
AM-91000-41TNC
SAFETY PIN
18C1620G02
BRACKET
18C1619G02
BRACKET
18C1617G01 BRACKET SET REF
ATTACH
18C1617G01 BRACKET TO
AGSE-E13714-P01
LH FWD MOUNT
ATTACH
18C1617G01 BRACKET TO
AGSE-E13714-P01
RH FWD MOUNT

Figure 5.2-2

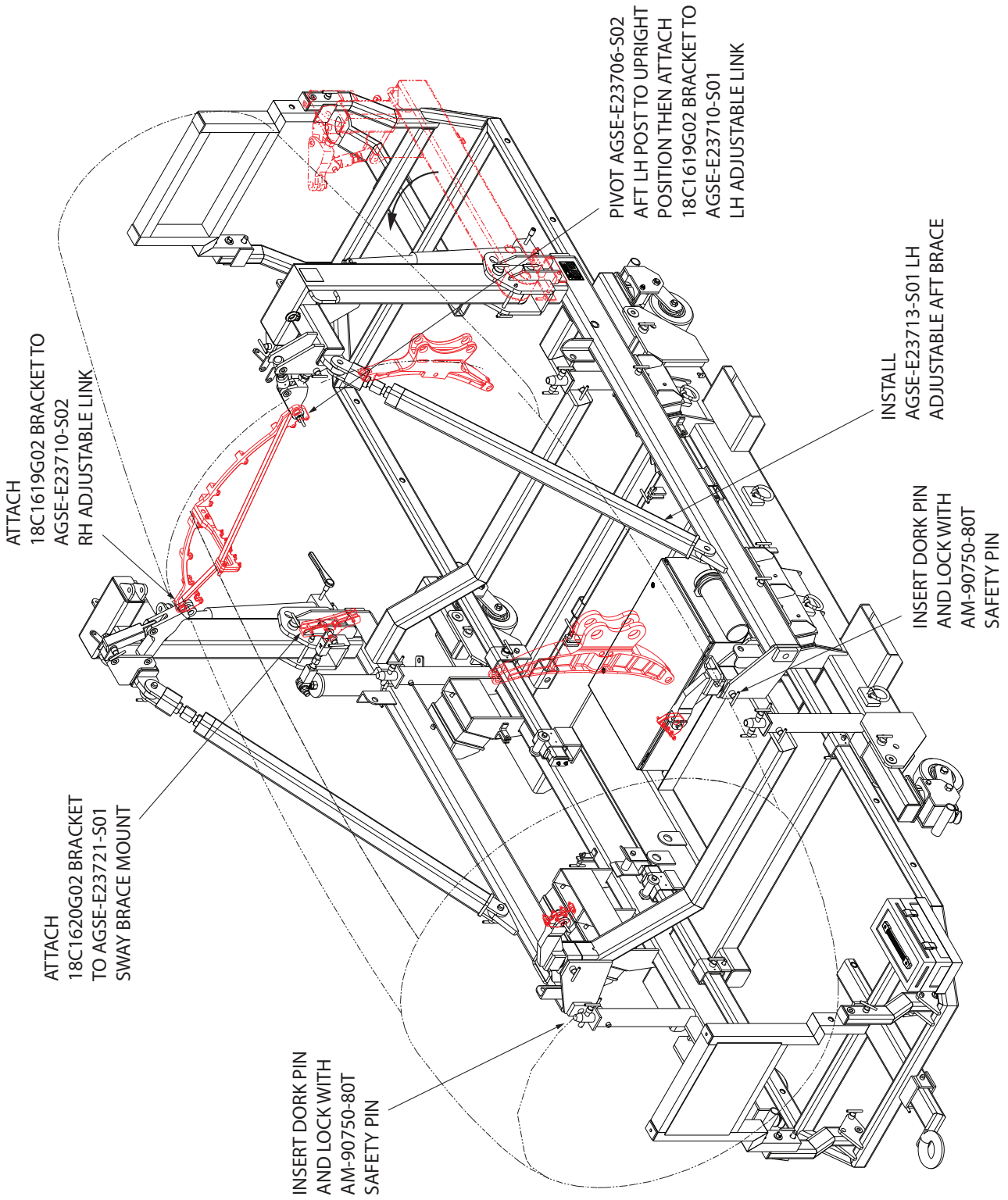

ATTACH
18C1619G02 BRACKET TO
AGSE-E23710-S02
RH ADJUSTABLE LINK
ATTACH
18C1620G02 BRACKET
TO AGSE-E23721-S01
SWAY BRACE MOUNT
INSERT DORK PIN
AND LOCK WITH
AM-90750-80T
SAFETY PIN
PIVOT AGSE-E23706-S02
AFT LH POST TO UPRIGHT
POSITION THEN ATTACH
18C1619G02 BRACKET TO
AGSE-E23710-S01
LH ADJUSTABLE LINK
INSTALL
AGSE-E23713-S01 LH
ADJUSTABLE AFT BRACE
INSERT DORK PIN
AND LOCK WITH
AM-90750-80T
SAFETY PIN

Figure 5.2-3

5.3 Engine and Stand Installation onto Mount Beam (Figure 5.3-1)

1) Using a forklift, place the engine and stand as close to the mount beam as possible.
2) Ensure that the sway brace AGSE-E23721-S01 is on the side opposite to the mount beam and attached to the engine.
3) Remove the diagonal brace closest to the mount beam and stow on the cradle
4) Raise the AFT link assembly closest to the mount beam and stow in the upright position.
5) Lower the AFT post assembly closest to the Mount Beam to the rear to clear the engine.
6) Use the caster steering bars to align the stand and engine with the mount beam.
7) Raise the engine with an overhead crane and attach the engine's side mount brackets to the mount beam's mounting brackets.

NOTE:

Two (2) AM-90500-88L safety pins (IPB Figure 3 - Item 11) are installed on the FWD side of the two AFT post mounting brackets on the cradle to prevent the AFT posts to fall forward. (Figure 5.2-4).

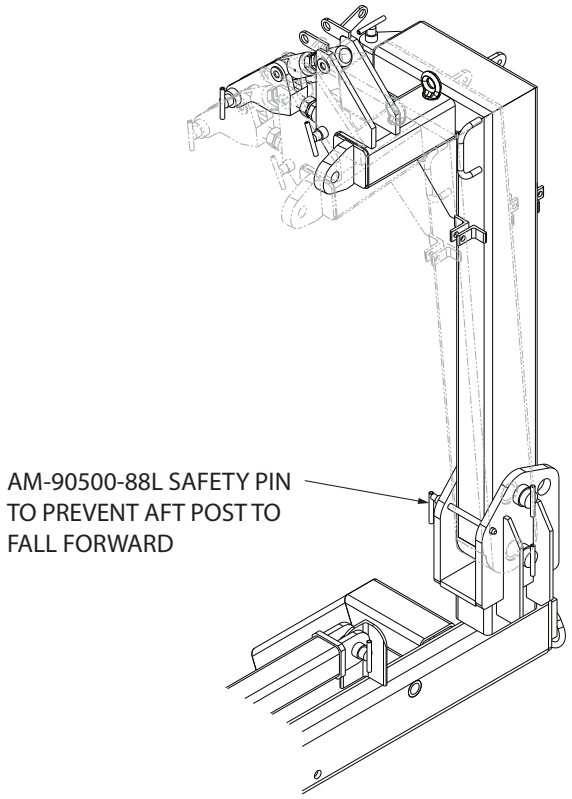


Figure 5.2-4

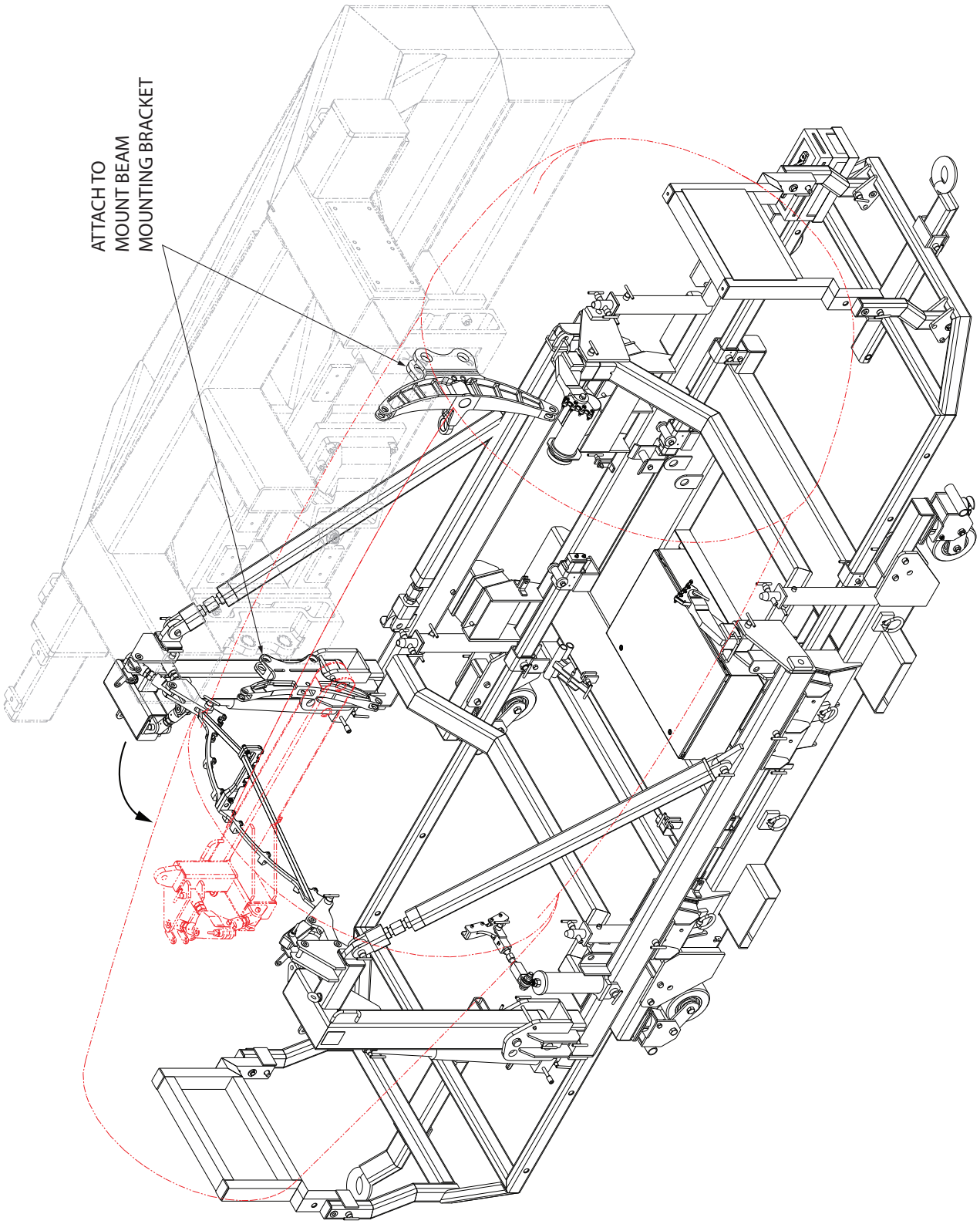


Figure 5.3-1

5.4 Caster Operations (Figure 5.4-1)

5.4.1 Caster Deploying and Stowing

The provided caster steering bar is designed to facilitate the stowing and deploying of the casters. The transport base must be off the ground for the stowing and deploying of the casters.

a. Insert the end of the caster lift bar fully into the caster's lift socket.
b. Remove safety pin securing the caster mount to the base.
c. Lift the caster mount by pushing the steering bar upward.
d. Continue pushing the steering bar until the caster mount's stow hole is aligned with the base's caster stow hole.
e. Insert safety pin.

5.4.2 Caster Steering

The provided steering bar is designed to facilitate the steering/turning of the casters.

a. Insert the end of the steering bar fully into the caster's steering socket on the outboard side.
b. Pull or push on the steering bar toward the desired direction.

CAUTION

Always use the provided lift bar and steering bar in stowing, deploying or turning casters to avoid potential back strain and pinching injuries.

WARNING

DO NOT leave steering bar inserted in caster when changing direction from towing to pushing. Caster will swivel, can possibly cause personnel injury and/or damage to engine or stand.

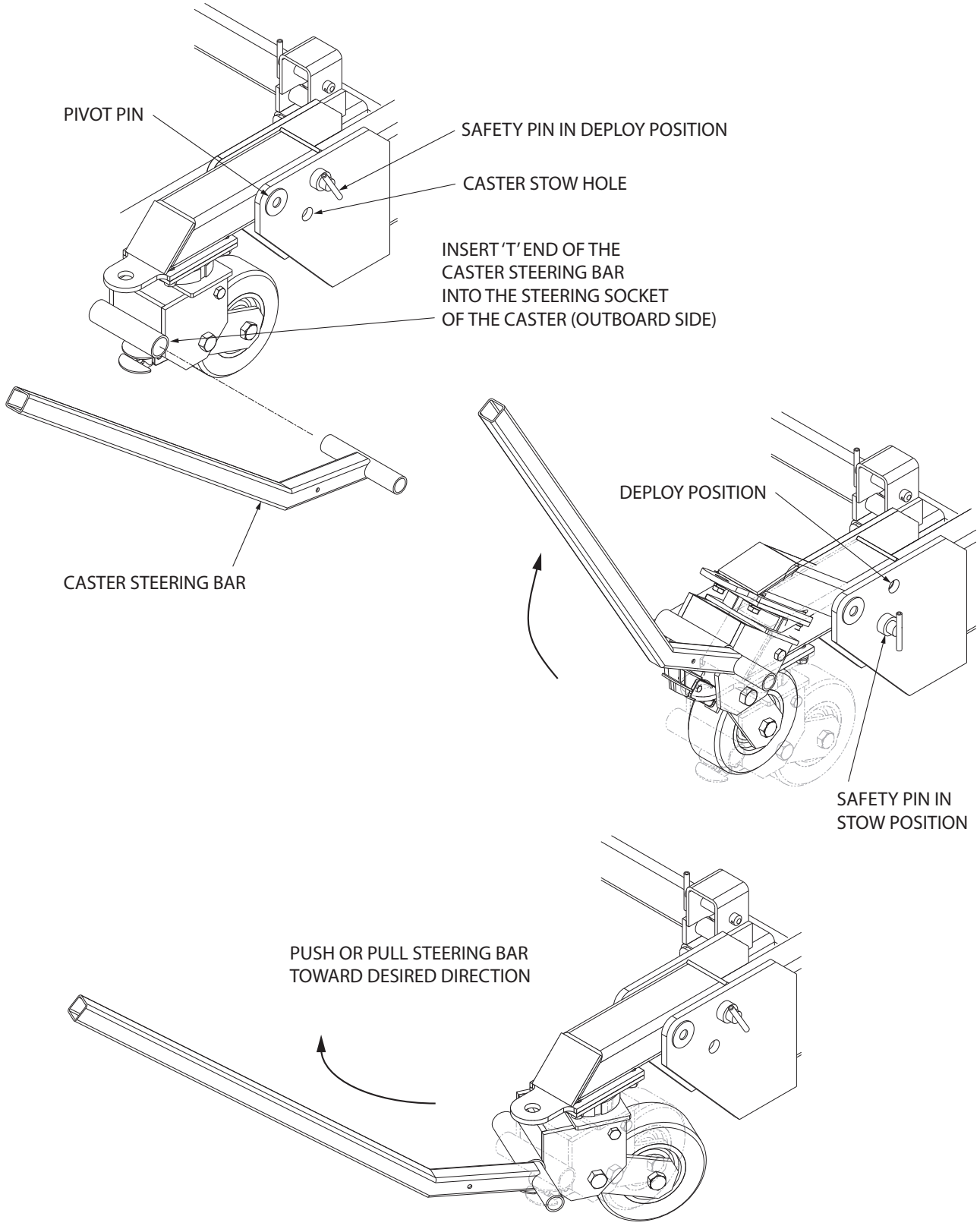

PIVOT PIN
SAFETY PIN IN DEPLOY POSITION
CASTER STOW HOLE
INSERT 'T' END OF THE
CASTER STEERING BAR
INTO THE STEERING SOCKET
OF THE CASTER (OUTBOARD SIDE)
CASTER STEERING BAR
DEPLOY POSITION
SAFETY PIN IN
STOW POSITION
PUSH OR PULL STEERING BAR
TOWARD DESIRED DIRECTION

Figure 5.4-1

5.5 Stand Towing (Figure 5.5-1)

CAUTION

Failure to unlock the lead casters (tow bar end) during towing of the unit will result in flat spots being worn into the caster tread. Maximum towing speed is 3 MPH.

The stand can be towed from either FWD or AFT end. When not in use, the tow bars are stowed on the bumper assemblies.

To deploy the tow bar (for both FWD and AFT end), remove the the AM-90750-80T safety pin then pull the tow bar outward. Secure with the removed safety pin. Attach the tow bar to the towing vehicle.

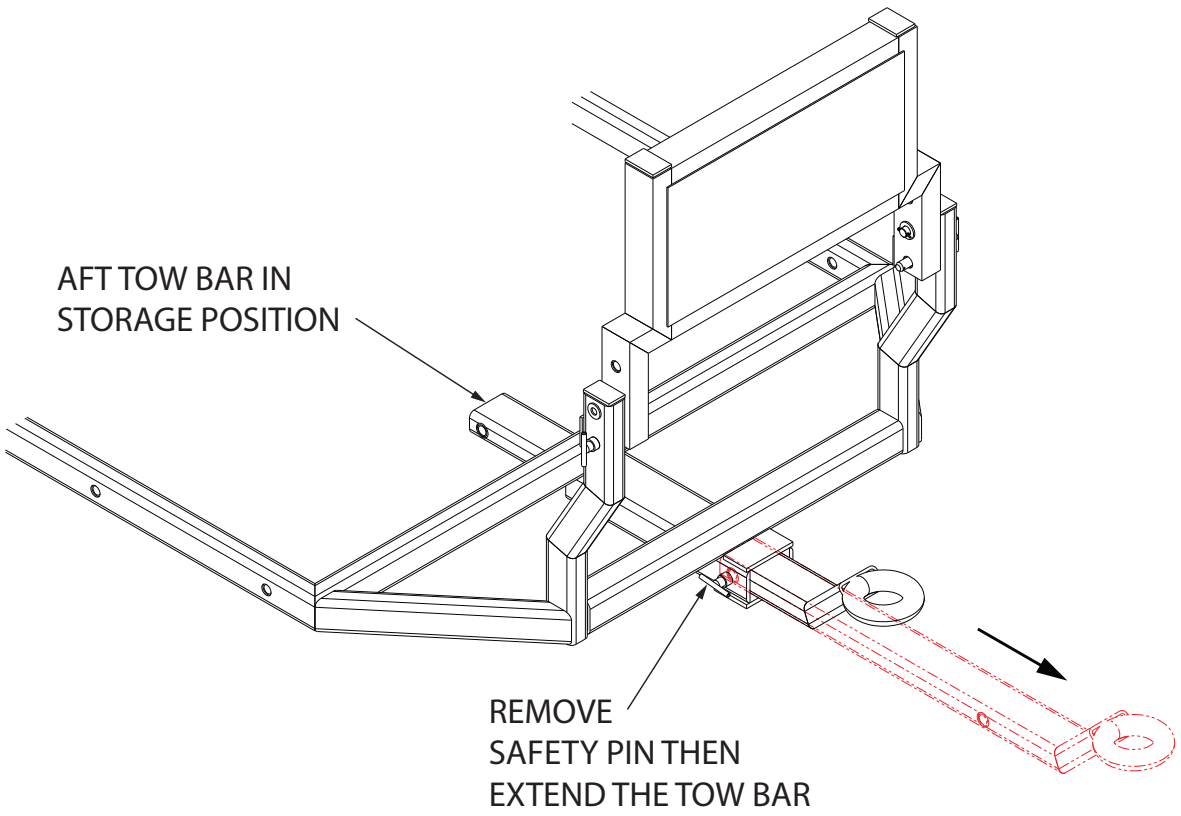


Figure 5.5-1 Tow Bar Installation

5.6 Bumpers Deploying/Stowing (Figure 5.6-1)

The FWD and AFT bumpers can be fully extended from their storage position by removing four (4) AM-90750-48T safety pins (IPB Figure 3 - Item 15) as shown in Figure 5.6-1.

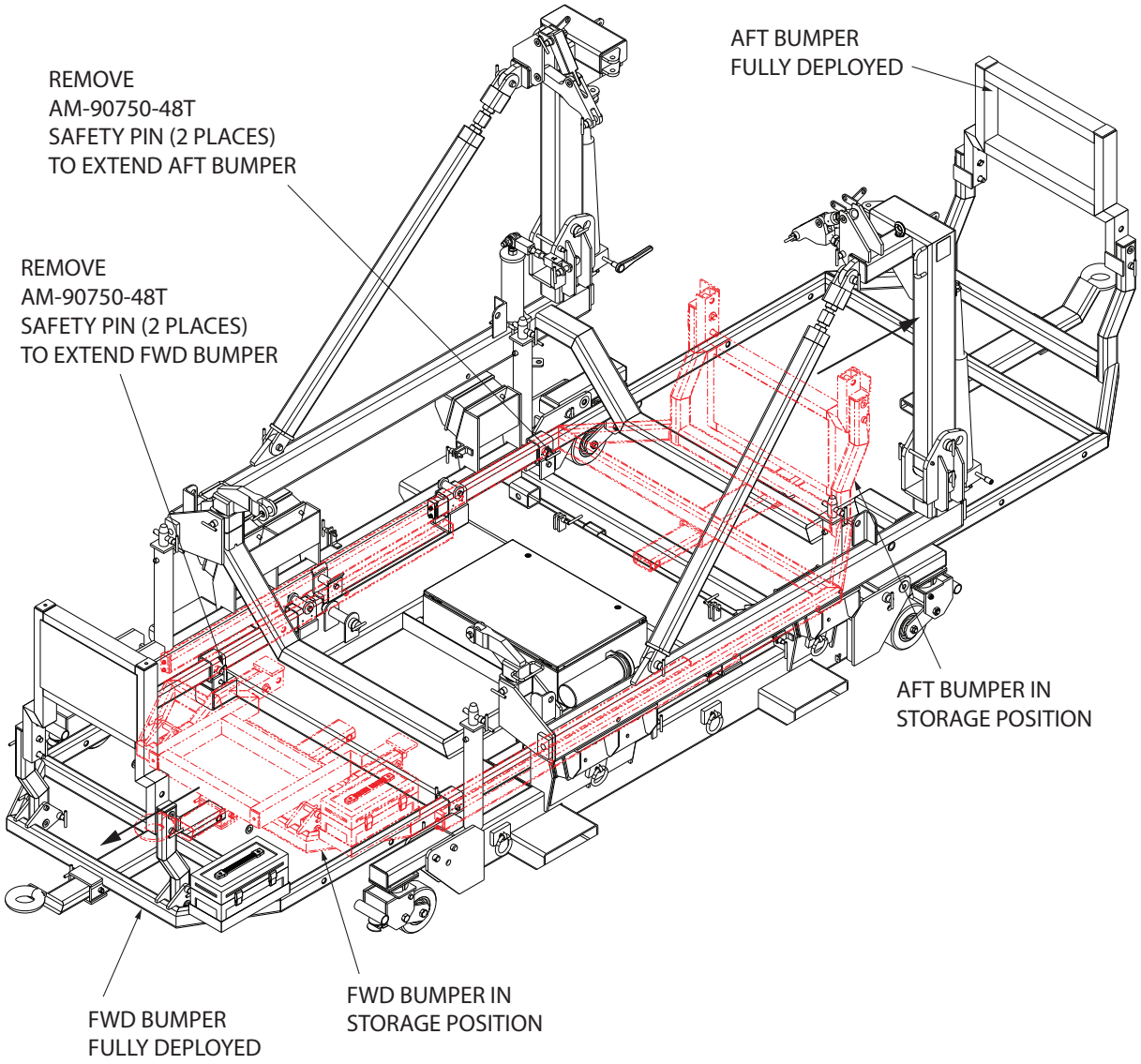


Figure 5.6-1 Bumper Deployment

6.0 - Safety

6.1 Stress

Design stress safety factors are compliant with industry standards (ASME B30.9-1990).

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.

CAUTION

Any deficiency revealed through inspection must be reported to supervisory personnel. A determination must be made prior to resuming operation, as to whether the deficiency constitutes a safety hazard to personnel or equipment.

It is the operator's responsibility to report any deficiencies, unusual noises, or operating conditions to supervisory personnel. It is also the responsibility of the user of this equipment to discontinue use until they are assured that the deficiency has been corrected.

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-E237-G01 Engine Transport Stand is a commercial product designed specifically only to store and/or transport the General Electric Passport 20 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 Passport 20 Engine Transport 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 AGSE-E237-G01 Engine Transport 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:	Engine Shipping Stand, Passport 20
Model:	AGSE-E237
Part Number:	AGSE-E237-G01 (18C1601P01)
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 Support Equipment SOW 18C1601P01, Tool: 18C1601P01 (Stand, Shipping – Engine), 2011/12/29 Rev A
- 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 its 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.

CAUTION

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 Illustrated Parts Breakdown (IPB) only. Do not order replacement parts by “ITEM” number. Order parts by “PART NUMBER” only.

8.2 Illustrated Parts Breakdown

IPB Figure 1 - AGSE-E237-G01 Transport Stand Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION
	AGSE-E237-G01	-	Transport Stand Assy (Figure 8.1-1)
1	AGSE-E23701-S01	1	Base Assy (See IPB Figure 3 for Details)
2	AGSE-E23704-S01	1	Cradle Assy (See IPB Figure 2 for Details)
3	AM-90750-48T	4	Safety Pin - 3/4” OD x 3” Grip
4	AM-2207	1	AGSE Placard
6	AGSE-CE	1	CE Placard
7	AGSE-N19801-P01	4	AGSE Logo Placard

Figure 8.1-1 AGSE-E237-G01 Transport Stand

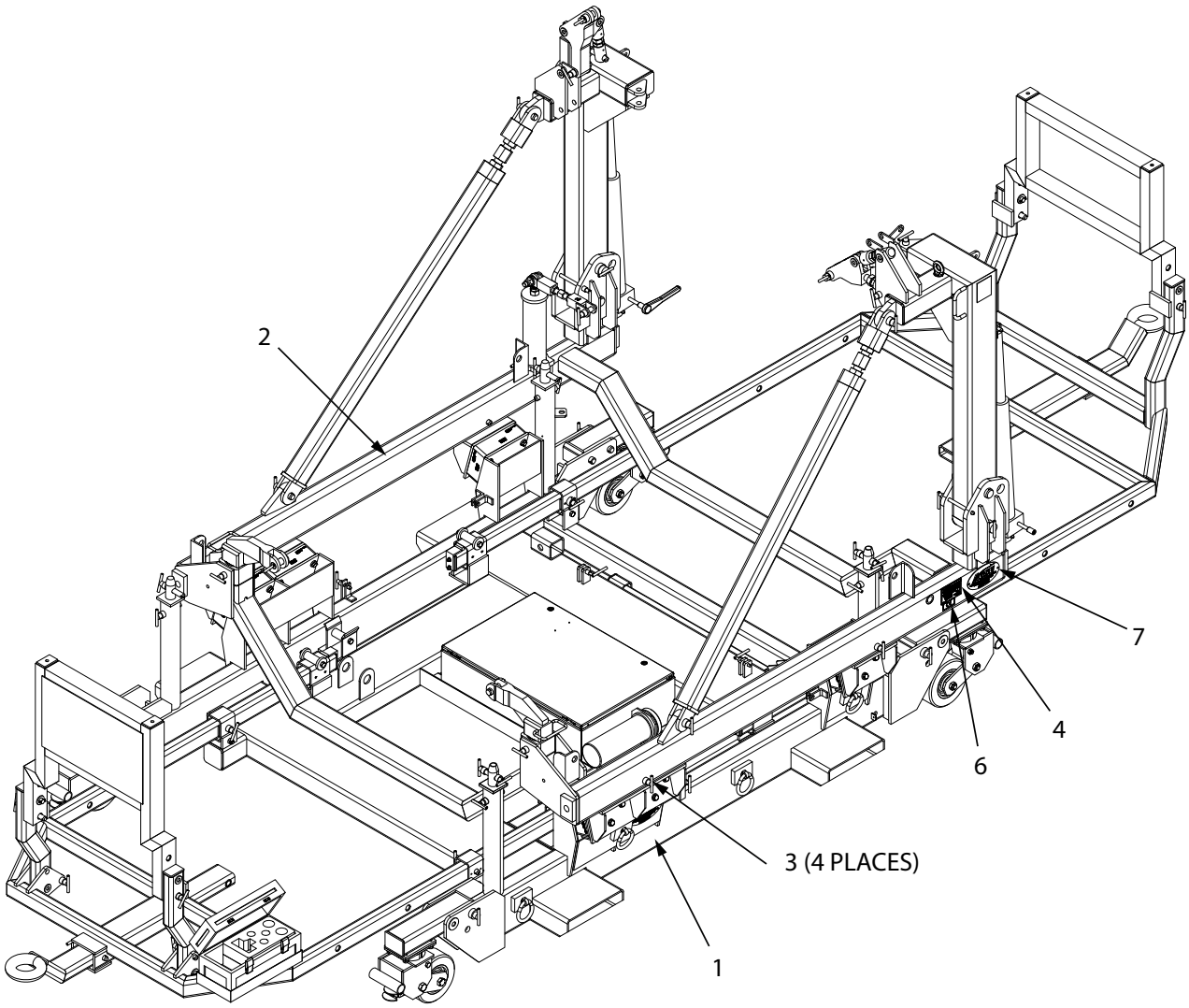


Figure 8.1-1 AGSE-E237-G01 Transport Stand

IPB Figure 2 - AGSE-E23704-S01
Cradle Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23704-S01	-	Cradle Assy (Figure 8.2-1)		
1	AGSE-E23705-P01	1	Cradle Weldment	-	-
2	AGSE-E23706-S01	1	AFT Post Assy - LH (See IPB Figure 4 for Details)	-	-
3	AGSE-E23706-S02	1	AFT Post Assy - RH (See IPB Figure 4 for Details)	-	-
4	AGSE-E23706-P03	4	Pivot Pin	-	-
5	AGSE-E23713-S01	2	AFT Brace Assy (See IPB Figure 5 for Details)	-	-
6	AGSE-E23732-P01	2	FWD Mount Support	-	-
7	AGSE-E23719-P01	1	Cylinder Mount	-	-
8	AGSE-E23721-S01	1	Sway Brace Mount Assy (See IPB Figure 8 for Details)	-	-
9	AM-90500-20L	4	Safety Pin - 1/2” Dia. x 1.25” Grip	-	-
10	AM-90500-72T	1	Safety Pin - 1/2” Dia. x 4-1/2” Grip	-	-
11	AM-90500-88L	2	Safety Pin - 1/2” Dia. x 5-1/2” Grip	-	-
12	AM-90750-80T	2	Safety Pin - 3/4” Dia. x 5” Grip	-	-
13	AM-91000-34T	4	Safety Pin - 1” Dia. x 2-1/8” Grip	-	-
14	AGSE-E23732-P03	2	FWD Mount Pin	-	-
16	AGSE-E23720-P01	2	Modified Lifting Cylinder Extended	-	-
17	5395A15	1	3/8” Ratchet Wrench	-	-
18	AGSE-E23726-P02	1	Placard	-	-
19	AGSE-E23726-P01	1	Placard	-	-

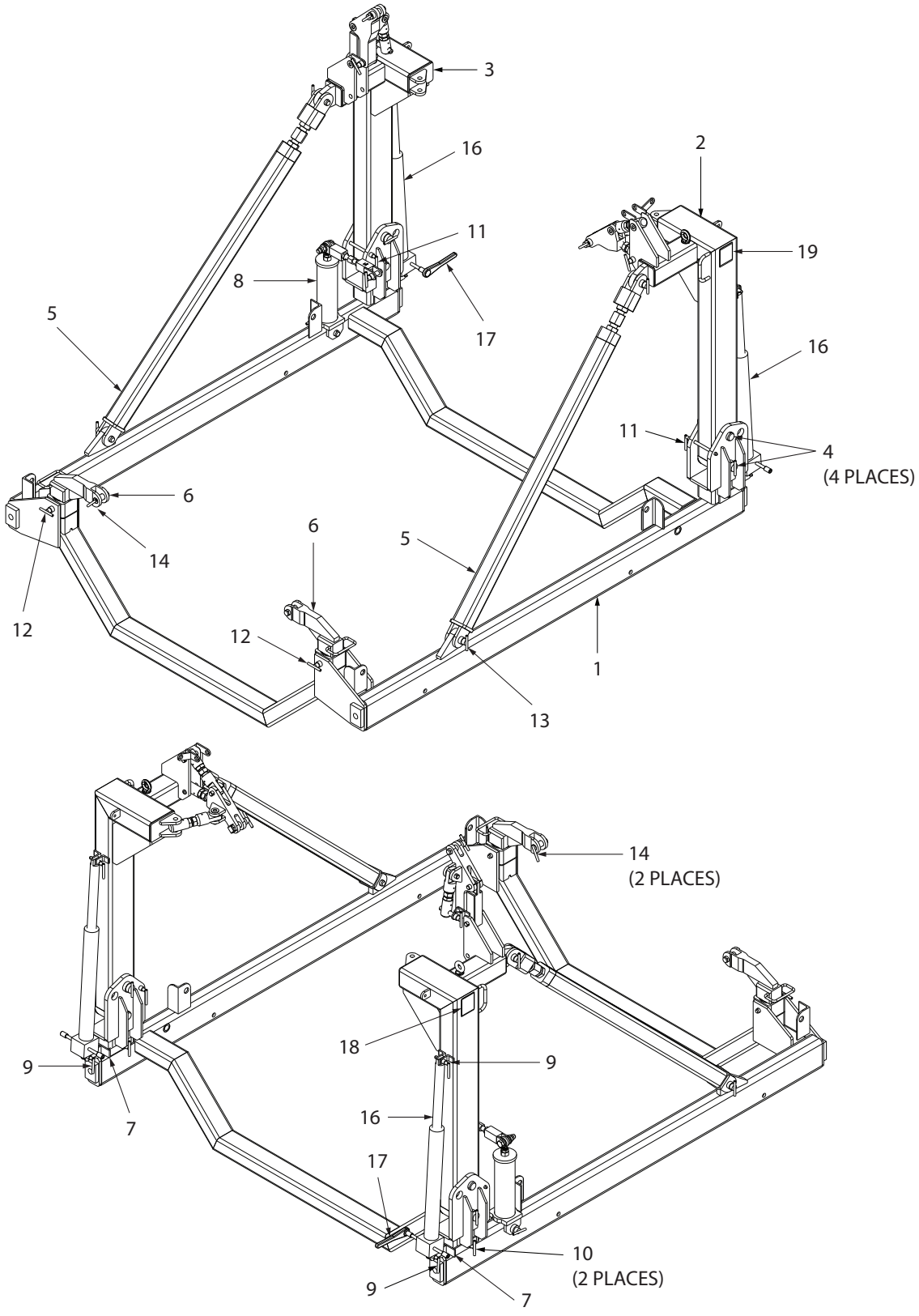


Figure 8.2-1 AGSE-E23704-S01 Cradle Assembly

IPB Figure 3 - AGSE-E23701-S01
Base Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23701-S01	-	Base Assy (Figure 8.3-1)		
1	AGSE-E23755-P01	1	Base Weldment	-	-
2	AGSE-E16904-P01	4	Modified Caster Assy	-	-
3	AGSE-E23707-S01	1	Rear Bumper Assy (See IPB Figure 7 for Details)	-	-
4	AGSE-E23707-S02	1	FWD Bumper Assy (See IPB Figure 8 for Details)	-	-
5	AGSE-E23723-S01	1	Storage Box Assy	-	-
6	AM-90250-32L	1	Safety Pin - 1/4” Dia x 2” Grip	-	-
7	AM-90375-20L	2	Safety Pin - 3/8” Dia. x 1-1/4” Grip	-	-
8	AM-90500-16T	2	Safety Pin - 1/2” Dia. x 1” Grip	-	-
9	AM-90750-48T	10	Safety Pin - 3/4” OD x 3” Grip	-	-
10	AM-90750-80T	2	Safety Pin - 3/4” Dia. x 5” Grip	-	-
11	AM-91000-82T	4	Safety Pin 1” Dia. x 5-1/8” Grip - S.S	-	-
12	AGSE-E16902-43	4	FWD Spacer	-	-
13	AGSE-E16902-45	4	AFT Spacer	-	-
14	AGSE-E23761-P01	4	Bumper Stop Bracket	-	-
15	AGSE-E18603-P06	10	Support Roller	-	-
16	AGSE-E18604-P02	4	Caster Pin 1” OD x 5-1/4” Grip - S.S	-	-
17	AGSE-E23703-P01	2	FWD Shock Mount Weldment	-	-
18	AGSE-E23703-P02	2	Rear Shock Mount Weldment	-	-
19	AGSE-E23708-P01	4	Caster Mount	-	-
20	AGSE-E23709-P04	2	Safety Pin - 3/4” OD x 3” Grip	-	-
21	AGSE-E23711-P01	2	Tow Bar Weldment	-	-
22	AGSE-E23725-S01	1	Storage Box Assy (See IPB Figure 9 for Details)	-	-
23	PMP10111	8	Tie Down Ring 10,000 Cap	-	-

IPB Figure 3 - AGSE-E23701-S01
Base Assembly (Continued)

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
24	TA485-12	1	Document Container	-	-
25	AGSE-E23716-P01	4	Inner Post	-	-
26	AGSE-S00304-P04	6	Shock Mount W/O Studs	-	-
27	S00105-08F016A01	48	HHCS - 1/2”-20 UNF x 1” W/ Nylon Patch - Zinc Plt	-	-
29	AGSE-E16911-P01	2	Steering Bar Weldment Assy.	-	-
30	Commercial	10	HHB - 1/2”-13 UNC x 4-1/2” Lg	-	-
31	Commercial	16	CFHS - 1/4”-20 UNC x 1/2”	-	-
32	Commercial	7	Split Lock Washer - 3/8” ID	-	-
33	Commercial	7	HHCS - 3/8”-16 UNC x 5/8”	-	-
34	Commercial	7	Flat Washer - 3/8” Dia.	-	-
35	Commercial	16	Hex Bolt - 1/2”-13 UNC x 1” Lg	-	-
36	Commercial	8	Flat Washer - 1/4” ID	-	-
37	Commercial	8	Lock Washer - 1/4” Dia.	-	-
38	Commercial	8	SHCS - 1/4”-20 UNC x 3/4” Lg.	-	-
39	Commercial	16	Lock Washer - 1/2” ID	-	-
40	Commercial	64	Flat Washer - 1/2” ID	-	-
41	Commercial	10	Lock Nut - 1/2”-13 UNC	-	-

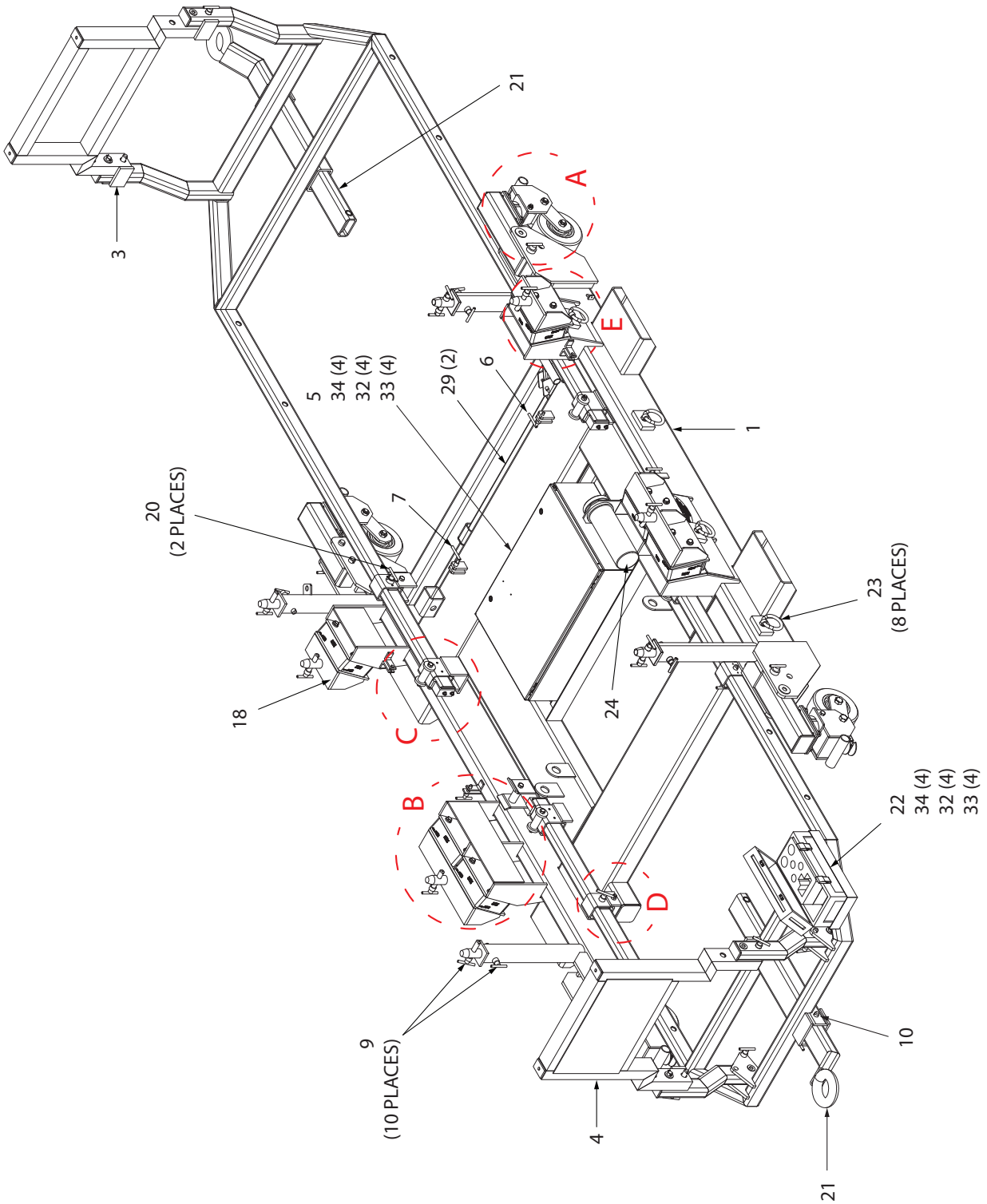
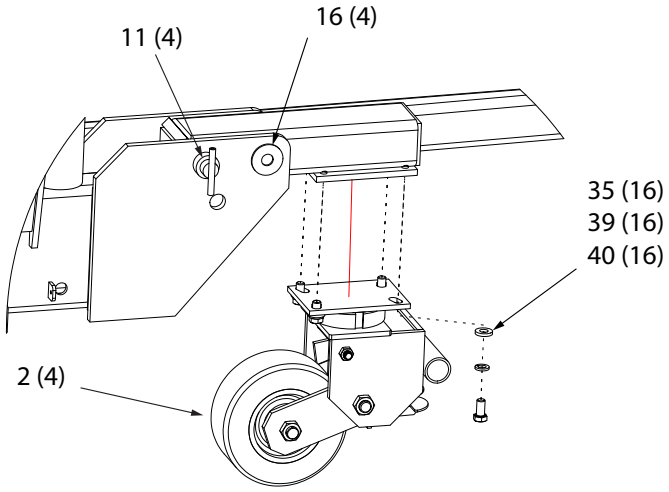
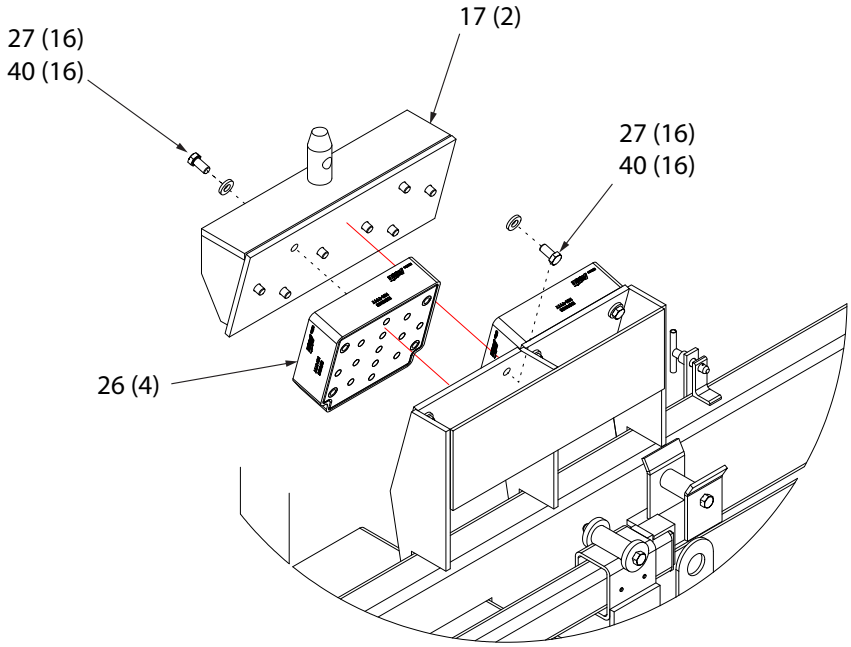


Figure 8.3-1 AGSE-E23701-G01 Base Assembly

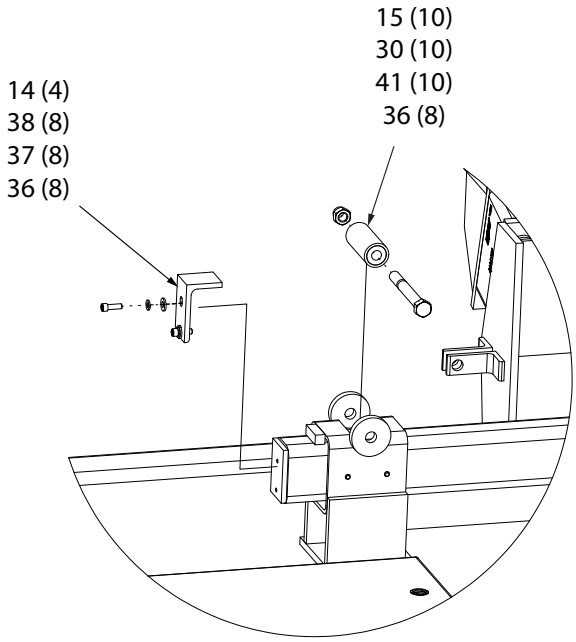


DETAIL A

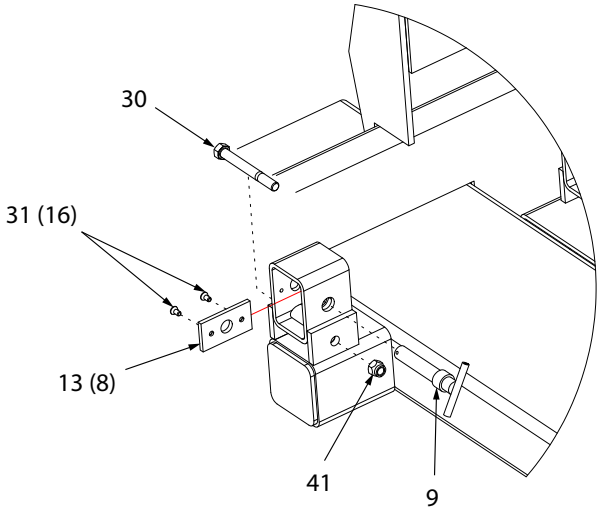


DETAIL B

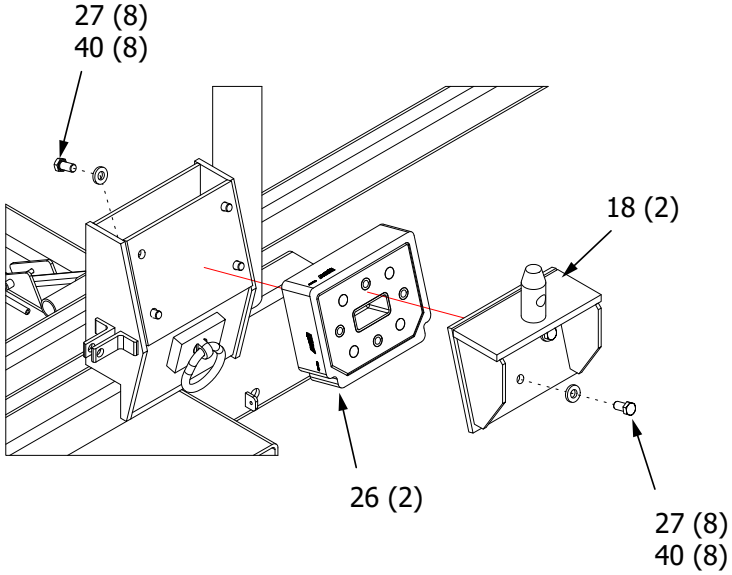
Figure 8.3-2 AGSE-E23701-G01 Base Assembly



DETAIL C



DETAIL D

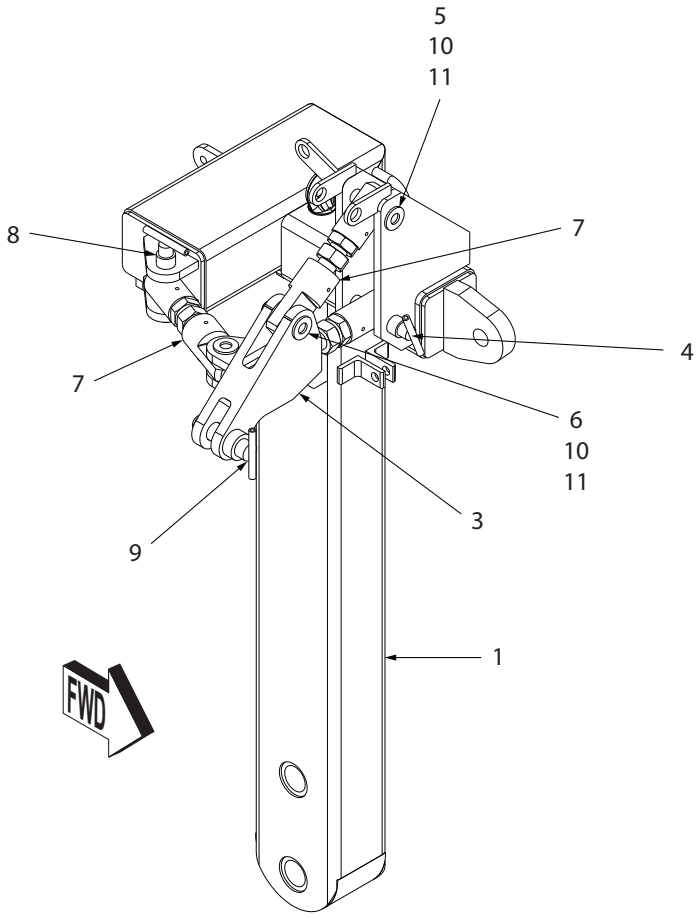


DETAIL E

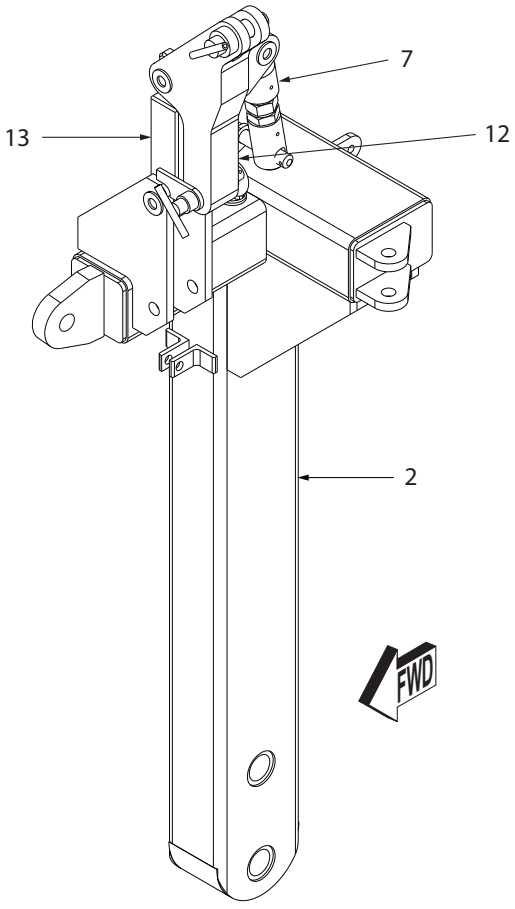
Figure 8.3-3 AGSE-E23701-G01 Base Assembly

IPB Figure 4 - AGSE-E23706-S01/S02
AFT Post Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23706-S01	-	AFT Post Assy - LH (Figure 8.4-1)	-	-
	AGSE-E23706-S02	-	AFT Post Assy - RH (Figure 8.4-1)	-	-
1	AGSE-E23706-P01	1	Rear Support Post - LH (Used on AGSE-E23706-S01)	-	-
2	AGSE-E23706-P02	1	Rear Support Post - RH (Used on AGSE-E23706-S02)	-	-
3	AGSE-E23710-S01	1	Link Assy - Adjustable - LH (Used on AGSE-E23706-S01)	-	-
4	AM-90750-52T	2	Safety Pin 3/4” Dia x 3-1/4” Grip - SS	-	-
5	AGSE-E23710-P03	1	Pivot Pin - Clevis 3/4” OD x 3.44” Grip - SS	-	-
6	AGSE-E23710-P04	2	Pivot Pin - Clevis 3/4” OD x 2” Grip - SS	-	-
7	AGSE-E23718-S01	2	Link Assy - Adj 7-1/8” +/- 1/4” CL-CL (Used on AGSE-E23706-S01)	-	-
7	AGSE-E23718-S01	1	Link Assy - Adj 7-1/8” +/- 1/4” CL-CL (Used on AGSE-E23706-S02)	-	-
8	AM-90750-48T	1	Safety Pin - 3/4” OD x 3” Grip	-	-
9	AM-91000-32T	1	Safety Pin	-	-
10	Commercial	3	Flat Washer - 3/4” ID - SS	-	-
11	Commercial	3	Cotter Pin - 3/16” x 1-1/2” - SS	-	-
12	AGSE-E23710-P05	1	Upper Link - Fixed - RH (Used on AGSE-E23706-S02)	-	-
13	AGSE-E23718-S02	1	Fixed Link (Used on AGSE-E23706-S02)	-	-



AGSE-E23706-S01



AGSE-E23706-S02

Figure 8.4-1 AGSE-E23706-S01/S02 AFT Post Assembly

IPB Figure 5 - AGSE-E23713-S01 Adjustable AFT Brace Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23713-S01	-	Adjustable AFT Brace Assy (Figure 8.5-1)	-	-
1	AGSE-E23713-P01	1	AFT Brace - RH Thd	-	-
2	AGSE-E23713-P02	1	Short Brace - LH Thd	-	-
3	AGSE-E23713-P03	1	Adjusting Screw	-	-
4	Commercial	1	Hex Jam Nut - 1-1/4”-12 UNF	-	-
5	Commercial	1	Jam Nut - 1-1/4”-12 UNF - LH	-	-

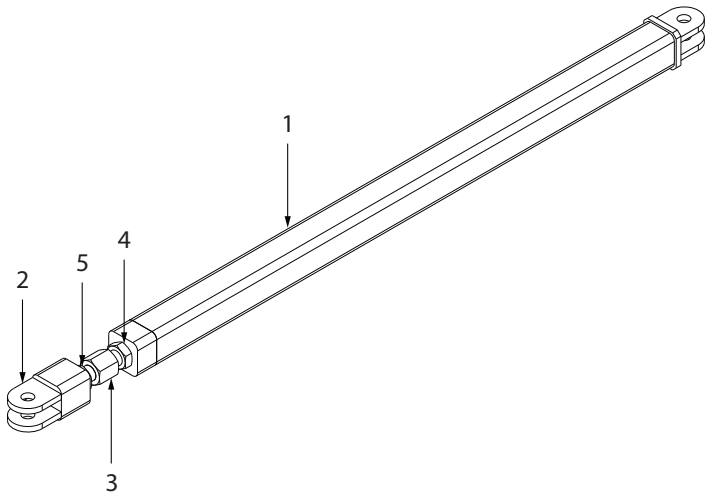


Figure 8.5-1 AGSE-E23713-S01 Adjustable AFT Brace Assembly

IPB Figure 6 - AGSE-E23707-S01
AFT Bumper Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23707-S01	-	AFT Bumper Assy (Figure 8.6-1)	-	-
1	AGSE-E23707-P01	1	AFT Bumper Support	-	-
7	AGSE-E23715-P03	1	AFT Bumper	-	-
8	AGSE-E23715-P04	2	Pivot Pin - Bumper 3/4” OD x 4-1/4” Grip - SS	-	-
10	AM-90750-68T	2	Safety Pin - 3/4” Dia. x 4-1/4” Grip	-	-
11	Commercial	2	Flat Washer - 3/4” ID - Zinc Plt	-	-
12	Commercial	2	Cotter Pin - 1/8” x 1”	-	-
13	Commercial	4	HHCS - 1/4”-20 UNC x 3/4” Lg Zinc Plt	-	-

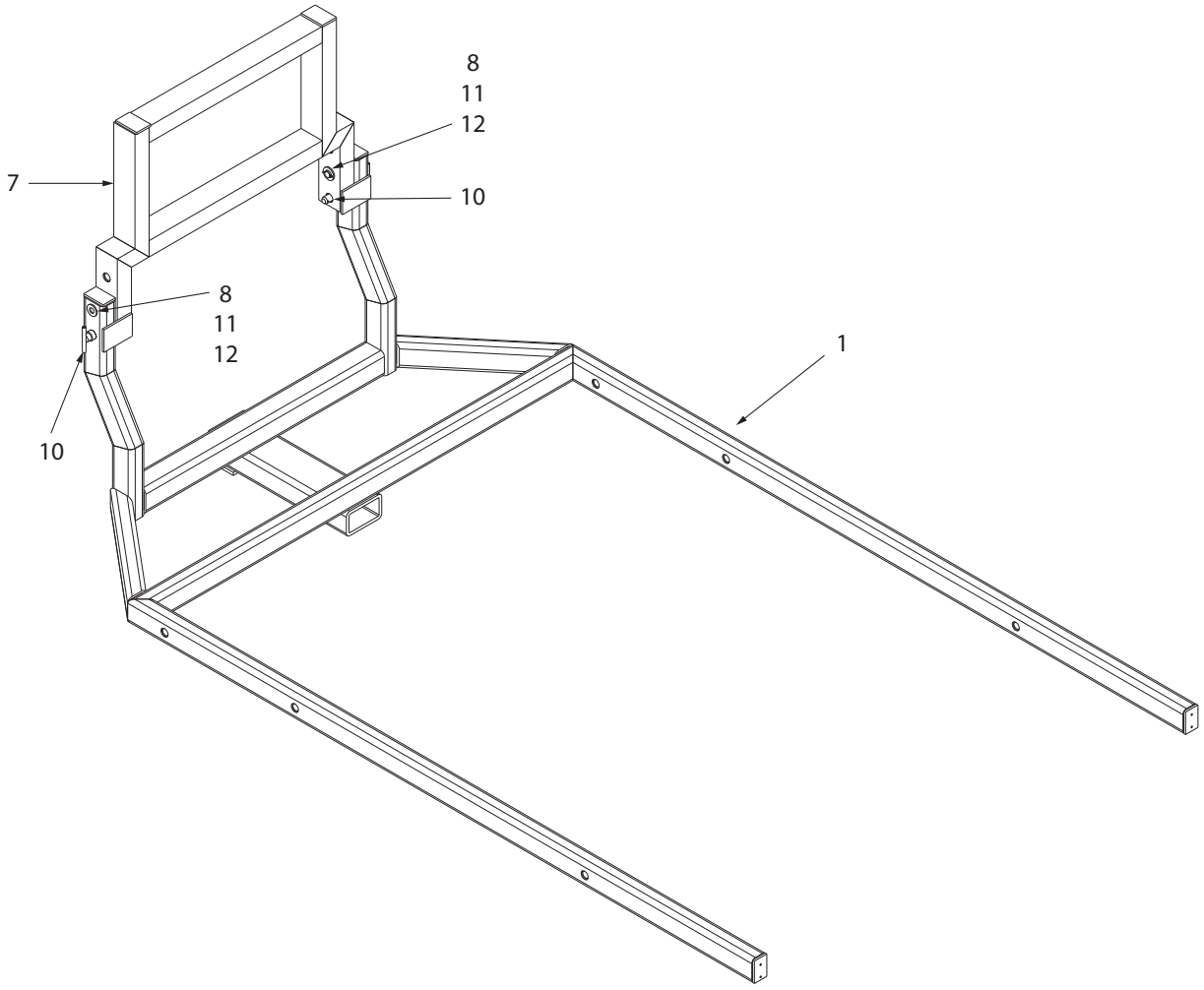


Figure 8.6-1 AGSE-E23707-S01 AFT Bumper Assembly

IPB Figure 7 - AGSE-E23707-S02
FWD Bumper Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23707-S02	-	FWD Bumper Assy (Figure 8.7-1)	-	-
2	AGSE-E23707-P02	1	FWD Bumper Support	-	-
3	AGSE-E23707-P03	2	FWD Bumper Support Arm	-	-
5	AGSE-E23715-P01	1	FWD Bumper	-	-
6	AGSE-E23715-P02	2	Pivot Pin - Bumper 3/4” OD x 3-1/4” Grip - SS	-	-
8	AGSE-E18603-P07	2	Pivot Pin - Bumper 3/4” OD x 4-1/4” Grip - SS	-	-
9	AM-90750-48T	2	Safety Pin - 3/4” Dia. x 3” Grip	-	-
10	AM-90750-68T	2	Safety Pin - 3/4” Dia. x 4” Grip	-	-
11	Commercial	4	Flat Washer - 3/4” ID - Zinc Plt	-	-
12	Commercial	4	Cotter Pin - 1/8” x 1”	-	-
13	Commercial	4	HHCS - 1/4”-20 UNC x 3/4” Lg Zinc Plt	-	-

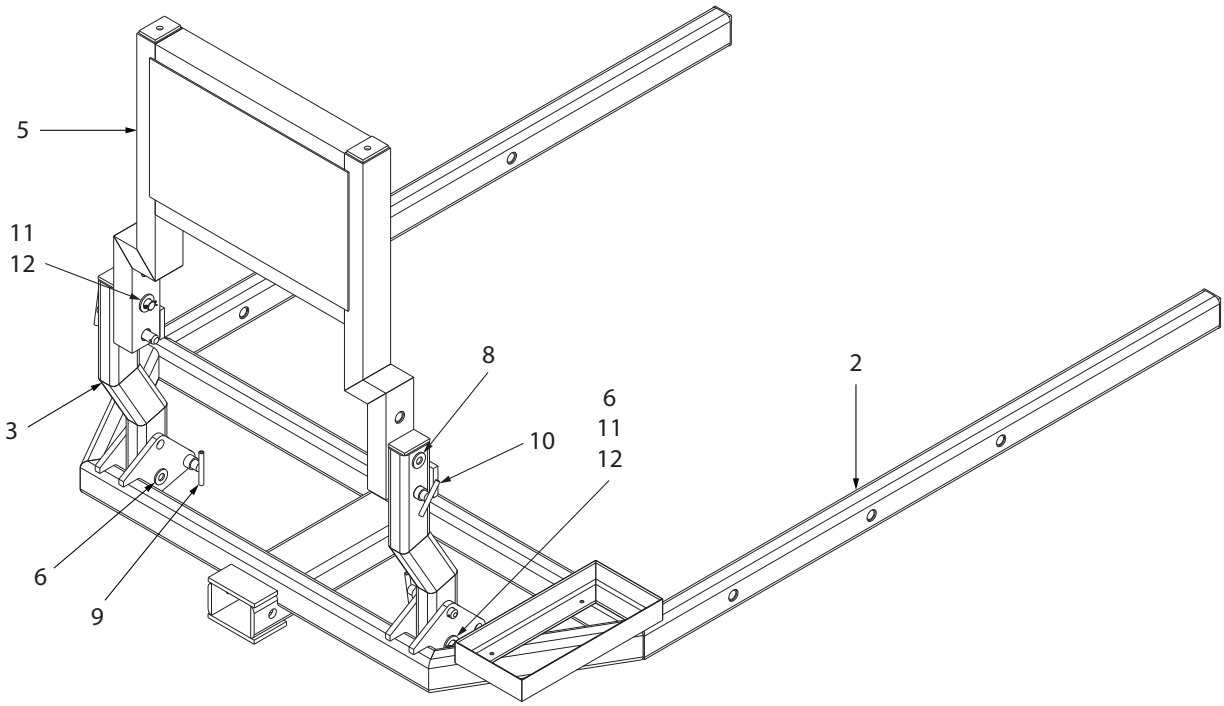


Figure 8.7-1 AGSE-E23707-S02 FWD Bumper Assembly

IPB Figure 8 - AGSE-E23721-S01
Sway Brace Mount Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23721-S01	1	Sway Brace Mount Assy (Figure 8.8-1)	-	-
1	AGSE-E23721-P01	1	Sway Brace Support	-	-
2	AGSE-E23721-P02	1	Sway Bar - RH	-	-
3	AGSE-E23721-P03	1	Sway Bar - LH	-	-
4	AGSE-E23721-P04	1	Adjusting Screw - 3/4-16	-	-
5	AM-90740-26T	1	Safety Pin 0.740 OD x 1-5/8” Grip - SS	-	-
6	AM-91000-66T	1	Safety Pin - 1” OD x 4-1/8” Grip	-	-
7	HM12C	1	Rod End - 3/4” Dia. x 2-7/8” Lg HSS ZP & CRM PL	-	-
8	Commercial	1	Flat Washer -3/4” ID - Zinc Plt	-	-
9	Commercial	1	HHCS - 3/4”-10 UNC x 3” Lg Zinc Plt	-	-
10	Commercial	2	Hex Jam Nut - 3/4”-16 UNF Zinc Plt	-	-
11	Commercial	1	Lock Nut - 3/4”-10 UNC Zinc Plt	-	-
12	Commercial	1	Jam Nut - 3/4”-16 UNF- LH - SS	-	-

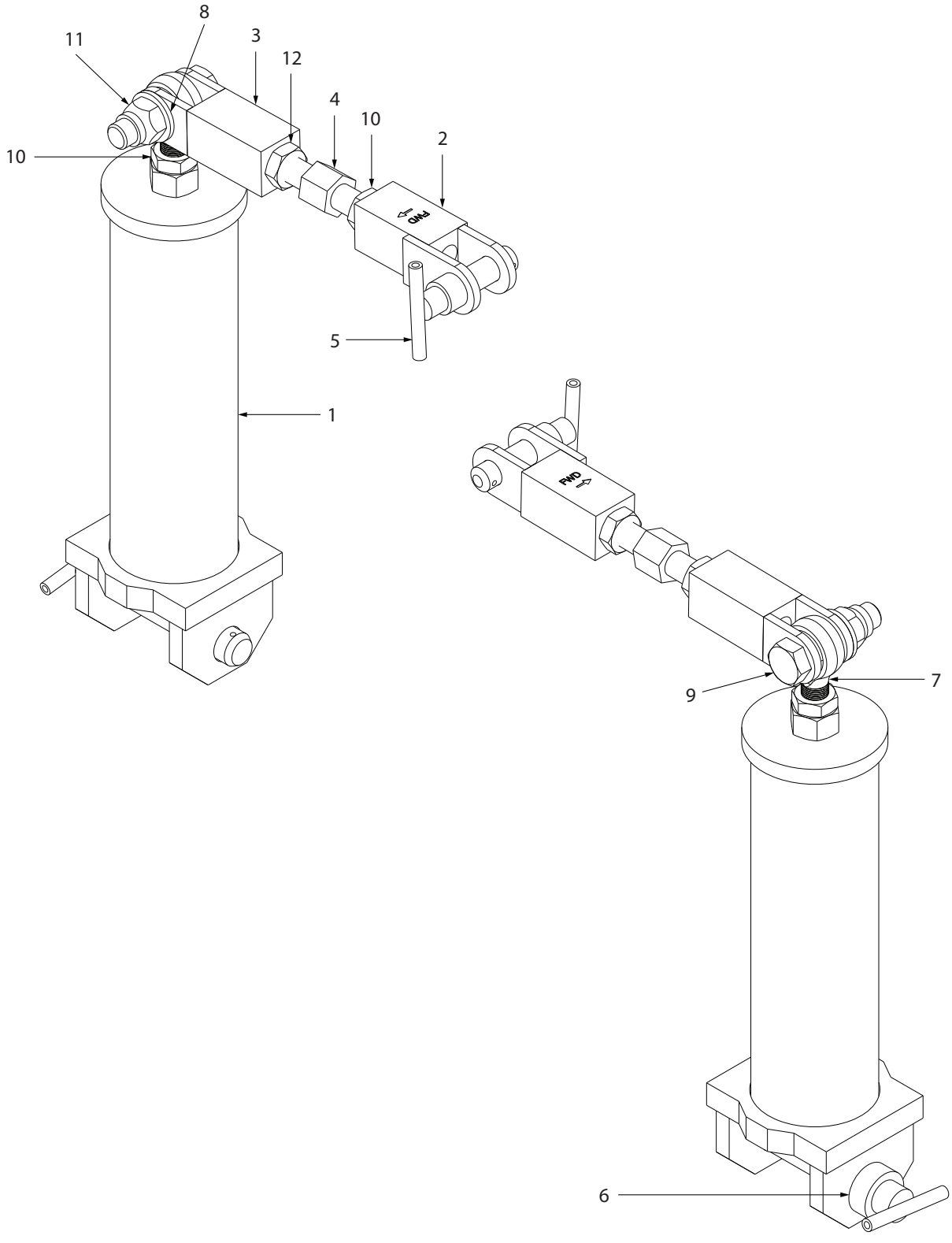


Figure 8.8-1 AGSE-E23721-S01 Sway Brace Mount

IPB Figure 9 - AGSE-E23723-S01
Storage Box Assembly

ITEM	PART NUMBER	QTY	PART DESCRIPTION	SPARES	RECOMMENDED REPLACEMENT
	AGSE-E23723-S01	1	Storage Box Assy (Figure 8.9-1)	-	-
1	AGSE-E23723-S02	1	Foam Assy	-	-
2	AGSE-E23723-P01	1	Sheet - Foam Rubber 1” x 19-7/8” x 29-7/8” (Detail of AGSE-E23723-S02)	-	-
3	AGSE-E23723-P02	2	Sheet - Foam Rubber 1” x 6-3/4” x 29-7/8”	-	-
4	AGSE-E23723-P03	2	Sheet - Foam Rubber 1” x 6-3/4” x 17-7/8”	-	-
5	AGSE-E23723-P04 a/b	1/1	Sheet - Foam Rubber 1” x 15-7/8” x 23-3/4” (Detail of AGSE-E23723-S02)	-	-
6	AGSE-E23723-P05 a/b	1/1	Sheet - Foam Rubber 2” x 13-7/8” x 23-3/4” (Detail of AGSE-E23723-S02)	-	-
7	AGSE-E23723-P06 a/b	1/1	Sheet - Foam Rubber 2” x 13-7/8” x 23-3/4” (Detail of AGSE-E23723-S02)	-	-
8	CSD30208	1	Enclosure - NEMA 4 30” x 20” x 8”	-	-

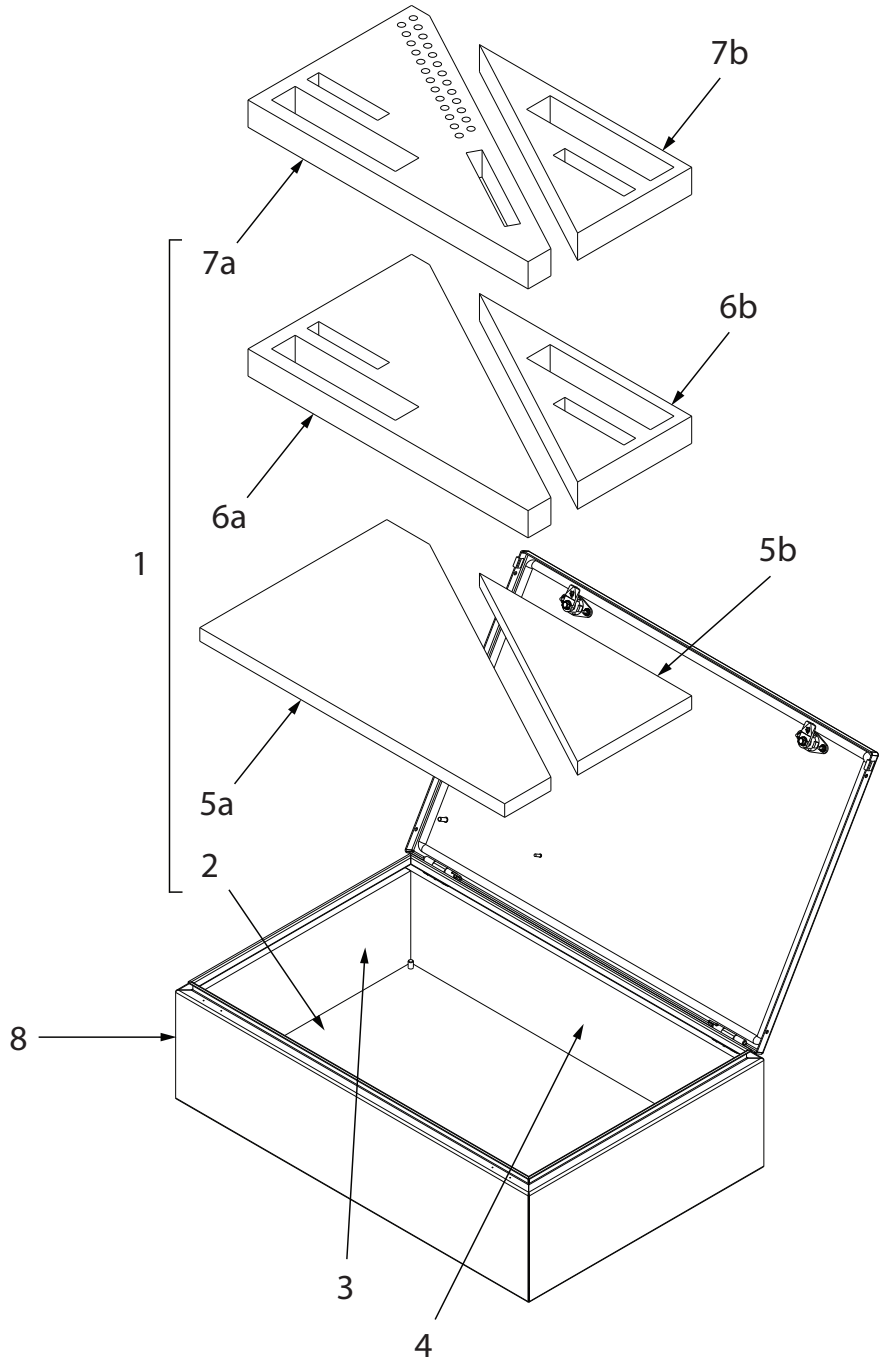


Figure 8.9-1

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 assembly drawings in section 8.0 should identify and define all stencils, decals, and placards.

9.2 Stencils and Placards

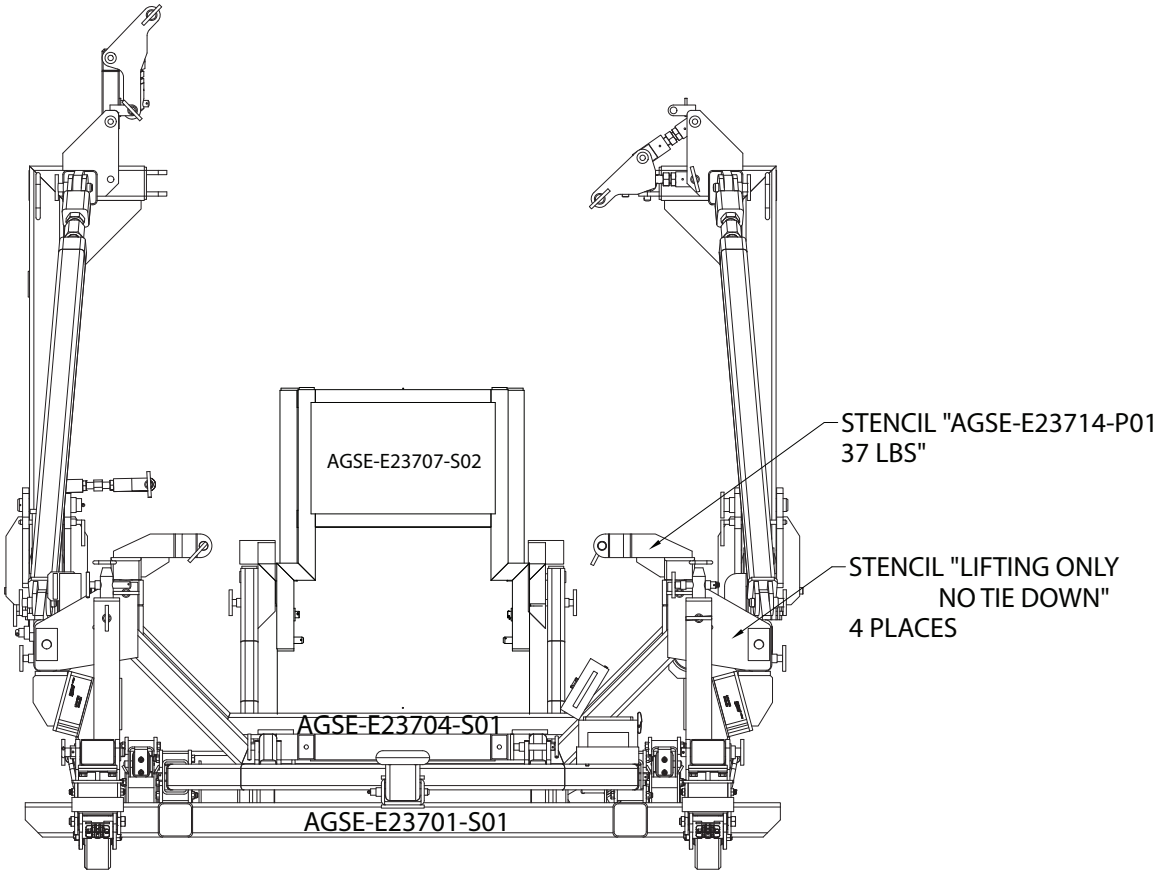


Figure 9.2-1

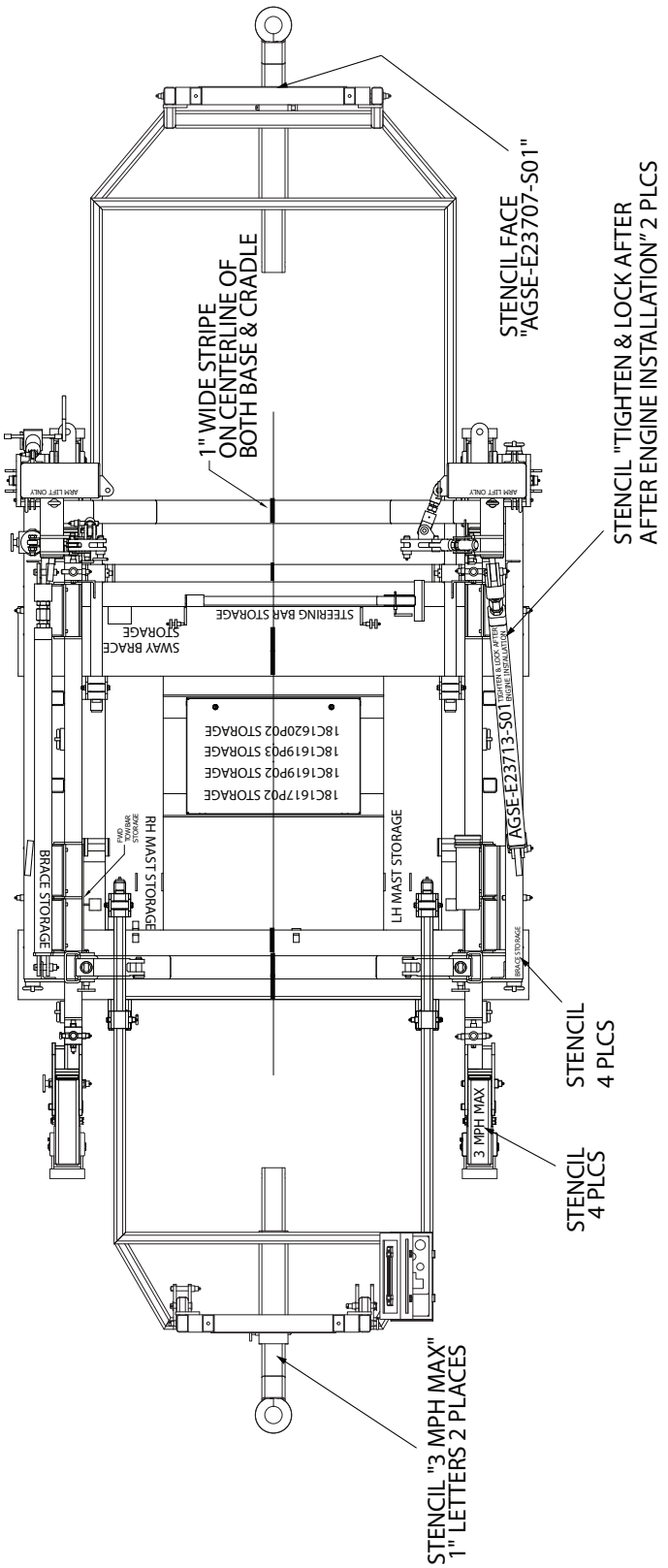

STENCIL FACE
"AGSE-E23707-S01"
1" WIDE STRIPE
ON CENTERLINE OF
BOTH BASE & CRADLE
STENCIL "TIGHTEN & LOCK AFTER
AFTER ENGINE INSTALLATION" 2 PLCS
ARM LEFT ONLY
ARM LEFT ONLY
STEERING BAR STORAGE
SWAY BRACE
STORAGE
18C1620P02 STORAGE
18C1619P03 STORAGE
18C1619P02 STORAGE
18C1617P02 STORAGE
AGSE-E23713-S01
TIGHTEN & LOCK AFTER
ENGINE INSTALLATION
RH MAST STORAGE
LH MAST STORAGE
BRACE STORAGE
BRACE STORAGE
STENCIL
4 PLCS
3 MPH MAX
STENCIL
4 PLCS
STENCIL "3 MPH MAX"
1" LETTERS 2 PLACES

Figure 9.2-2

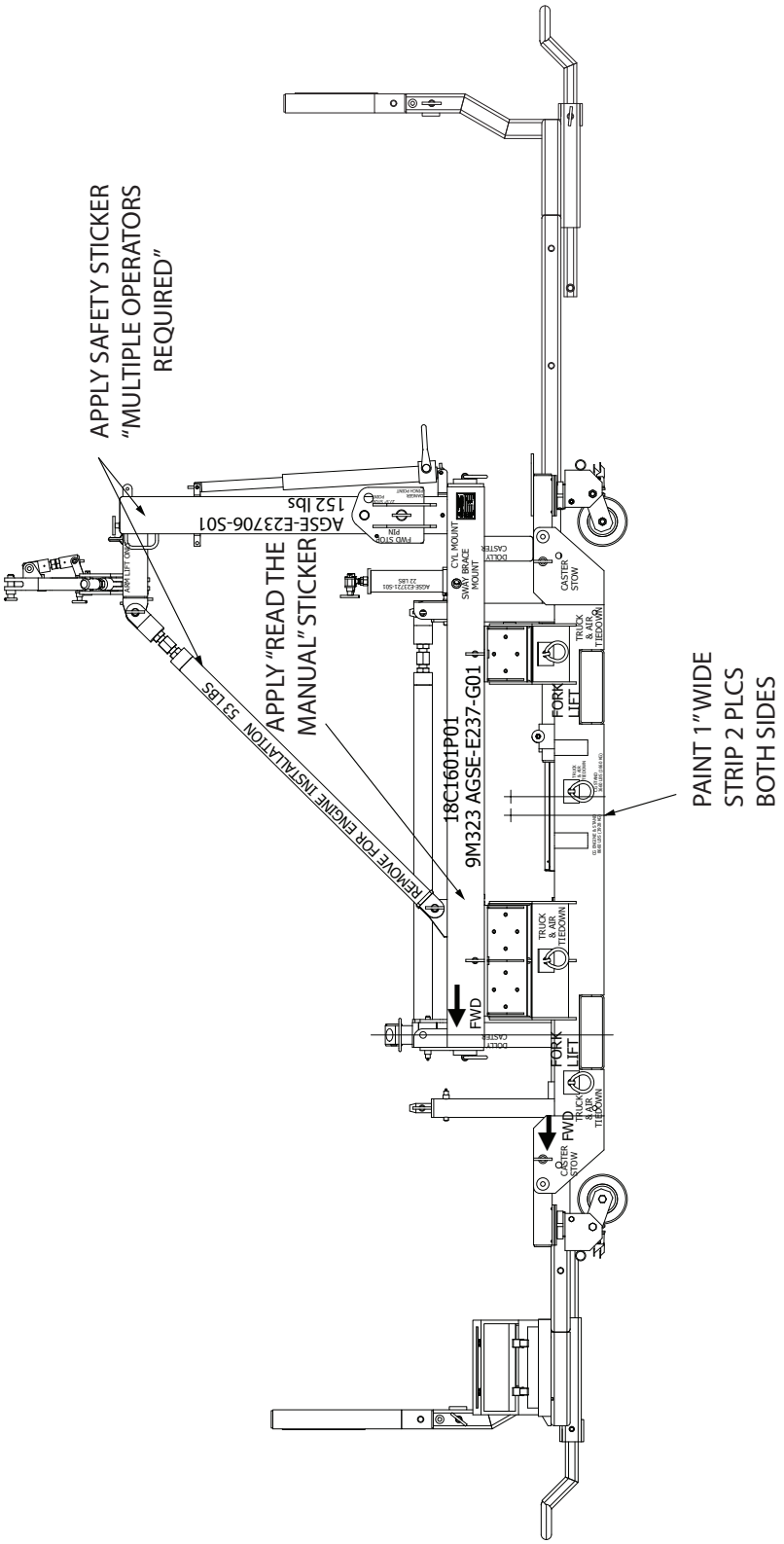

APPLY SAFETY STICKER
"MULTIPLE OPERATORS
REQUIRED"
AGSE-E23706-S01
152 lbs
APPLY "READ THE
MANUAL" STICKER
REMOVE FOR ENGINE INSTALLATION 53 LBS
18C1601P01
9M3323 AGSE-E237-G01
PAINT 1"WIDE
STRIP 2 PLCS
BOTH SIDES
FWD
FORK
LIFT
TRUCK
& AIR
TIEDOWN
CASTER
STOW
CYL MOUNT
SWAY BRACE
MOUNT

Figure 9.2-3