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AGSE-E175-G03 (11C4300P02)

Transport Stand

For GEnx-2B Production Engines

ORIGINAL MANUAL DATED......02/02/2009

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

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NOTE

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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 |
|------|-----|-----------------------|------------|
| 8.24 | J | Updated IPB 8 | 10/31/2023 |
| 8.25 | J | Updated IPB 9 | 10/31/2023 |

2.0 – Illustrations





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3.0 – Specification

3.1 General

The AGSE-E175-G03 (11C4300P02) Transport Stand is designed for truck and/or air transport of the GEnx-2B production engine and air transport only of the GEnx-2B propulsor. The stand consists of a base and an engine support structure, a cradle assembly. The cradle has two positions, raised for transport of a full engine or lowered for the Propulsor only. The cradle is raised/low-ered by an integral cable system operated by a manual or air-operated hydraulic pump. The base supports the cradle on elastomeric shock mounts to protect the engine from transportation and handling loads and vibrations. The base also has retractable shock absorbing casters, a hydraulic jacking leg system and tubes for fork lifting. The base also has provisions for storing forward and aft engine mounts and adapters. This stand also may be used for fan module separation from or mate to the Propulsor using the 11C4490 fan transfer dolly assembly. This is usually done for AOG Propulsor only change out situations.

3.2 Transportability and Handling

3.2.1 Towing

This stand may be towed when supported by the four shock absorbing casters. The casters also have wheel brakes and four position swivel locks and provisions for manual steering bars for greater maneuvering and positioning capability. Two telescoping tow bar assemblies are attached and stored on the aft end of the base. They may be attached to the forward end of the base. The stand may be towed from either end when supporting the Propulsor only or a full engine without the inlet installed. If the inlet is installed, the stand must only be towed from the aft end. Maximum towing speed is 3 MPH (5 Km/H). Before moving the stand be sure all caster wheel brakes have been released and the leading caster swivel locks have been unlocked. The trailing caster swivel locks should stay locked unless required for tighter maneuvering/positioning. The casters are to be retracted for truck and air transport.

CAUTION

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

3.2.2 Fork Lifting

The stand has two 13.5" (343 mm) x 5.5" (140 mm) (inside dimensions) tubes open to either side of the base for fork lifting. The tubes are spaced 76" (1.930 mm) on centers. For fork lifting a stand with the Propulsor only installed, the minimum fork tine length is 98" (2490 mm). The minimum fork lift capacity is 22,000 Lbs (10.000 Kg). Fork lifting the stand with a full engine is not recommended because the forward fork tube is open in the middle and unless extreme caution (plus spotters) is used, the fork tine could contact the fan case and/or low mounted cables and tubes. The minimum recommended fork tine length is 132" (3.356 mm) to have a minimum clearance to the engine and pass completely through the opposite side. The minimum recommended fork lift capacity is 25,000 Lbs (11.400 Kg).

3.2.3 Truck Transport

This stand with engine or propulsor installed may only be truck-transported on air-ride type suspension equipped tractor trailers. There are a total of 8 large 'D' rings located on the forward and aft ends and sides of the base to be used for securing the stand to the trailer. The cradle must NEVER be used for securing the stand to the trailer. See size chart in section 3.4.

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 MANDATORY.

3.2.4 Air Transport

The stand with a propulsor only installed and in the lowered position may be air-transported on MD-11, B747 and similar wide body aircrafts. The stand with a full engine, less inlet, may be air-transported on an Antonov AN124 or similar specialized large freighter aircraft.

The base of the stand has a lip edge that is the same as NAS3610-2R1P aircraft pallet edge. The size is 96" (2.438 mm) x 196" (4.978 mm). Because the casters overhang on both ends of the stand, the stand must be loaded axially and because the package is not an ULD, it must be lashed to the aircraft floor per the applicable weights and balace manuals. There are a total of 8 large 'D' rings on the ends and sides of the base for this purpose. The cradle is NEVER to be used for securing the stand to the aircraft floor. See the size chart in section 3.4.

3.2.5 Hoisting

The stand with Propulsor or engine installed may be lifted by a single point sling or two spreader bars attached to the large 'D' rings on the sides of the base. It is recommended that the hoisting system have an adjustable CG finder due to the large range of engine configurations that can be supported by this stand

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

Maximum envelope dimensions as noted.

| | With Propulsor (+ Exhaust Nozzle) | With Full Engine (Without Inlet) | Empty (Cradle raised) (Casters stowed) |
|---------------------|--------------------------------------|-------------------------------------|--|
| Height (Airship) | 99.7 in. | - | |
| Height (Truck ship) | - | 143.3 in. | 74 in. |
| Length | 295.5 in | 295.5 in. | 227 in. |
| Width | 101 | 143 | 101 |
| Engine and Height | 101.7 in. | - | - |
| Weight | 20,000 lbs. | 23,600 lbs. | 9,000 lbs. |

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 Company | 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.

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.

| Manufacturer | Product |
|--------------|-------------------|
| Commercial | Dextron III (ATF) |
| Commercial | SAE 5W |
| Commercial | DTE 25 |

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, 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 and structure 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 Hydraulic Jacking Legs Inspection and Maintenance

Before using the hydraulic Jacking Legs to raise the stand (either from off of the casters or off of the floor), visually inspect each Jacking Leg cylinder end to check if the stop ring is protruding beyond the end of the cylinder body (Illustration Figure 4.6-1). If the stop ring is more than one thread beyond the end of the cylinder body do not use the leg to lift the stand until the ring has been rethreaded back into the cylinder body. The stop ring has small grooves on the face, to allow the use of a spanner wrench type tool. Apply Loctite 222 (or equivalent) to the threads before threading the stop ring back into the cylinder body.





Figure 4.5-1 Hydraulic Jack Inspection

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4.6 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 | N | Maintenance Intervals | | | |
|-----------|---|----|-----------------------|----------|--------|--|
| | Task to be 1 erior med | | 3 Months | 6 Months | Yearly | |
| General | Inspect for missing parts | 1* | | | | |
| | Inspect paint/plating finish | | | I | | |
| | Inspect exposed/bare metal for rust | | Н | | | |
| | Function check equipment | | | | 2* | |
| | Inspect all stencils/placards/stamps | | | Ι | | |
| Casters | Check wheel condition | | | I | | |
| | Tighten mounting bolts | | | Т | | |
| | Check swivel lock/brake | | | Ι | | |
| | Lubricate bearings | | | L | | |
| Structure | Inspect frame for damage/cracked welds | | | Ι | | |
| | Tighten all bolts | | Т | | | |
| | Lubricate/protect moving joints | | Н | L | | |
| Pins | Inspect for damaged/bent/worn pins | | | Ι | | |
| | Inspect for broken/cracked pin handles | | | Ι | | |
| | Inspect for broken/cut lanyards | | | Ι | | |
| Shock | Check date | | | | 3* | |
| Mounts | 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.

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

For this we will begin by retracting the caster from the tow position to the various storage positions. Before the casters can be retracted, 4 hydraulic jacking legs must be deployed and extended to support the stand and raise the casters off the ground (see section 5.2). The casters and caster mounts are very heavy and should only be moved by using the provided extension handle and at least two persons. Refer to Figure 5.1-1 that illustrates the recommended procedures for retracting the forward and aft casters and securing them in the safest positions for whatever configuration the stand is in. Each caster mount is stenciled with arrows to help with aligning pin holes. After the casters have been stowed, the 4 jacking legs must be retracted and stowed per the procedure in section 5.2. To deploy the casters reverse the procedure for stowing.



Figure 5.1-1 AFT and FWD Caster Positions

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5.2 Jacking Leg Operation (Figures 5.2-1 and 5.2-2)

The jacking legs are located next to the casters. The jacking legs also are used to level and stabilize the stand for raising/lowering the cradle and separation/mate of the fan module. To deploy/retract the casters, the legs must be fully extended. To level/stabilize the stand, extend the legs as required. The legs have dual pivoting points so that the operator must maintain a grip on the leg during the deployment movement. Each leg is held in position by a single pin. Remove the pin to deploy the leg by rotating the leg outward and down. Reinstall the pin. To extend the legs, use a manual hydraulic pump located in the middle of the base. Check the pressure release valve and the two red-handle ball valves are closed. Follow the procedure stenciled on the base next to the pump.

CAUTION

DO NOT COMPLETELY RAISE OR LOWER THE STAND AT ONE TIME. This will damage the jacking leg cylinder and foot pad.

To lower the stand, reverse the extension procedure. Always open the pressure release valve very slowly to control the speed of the stand when lowering.

NOTE: An empty stand or a stand loaded with only the Propulsor will be aft end heavy and will lower faster and will require more handle effort to raise the stand. A stand loaded with a full engine will be forward end heavy.

5.3 Tow Bar Operation (Figure 5.3-1)

The full Tow Bar Assembly consists of two sub-assemblies that are pinned and stowed on the aft end of the stand. Each sub-assembly consists of a two-piece telescoping assembly secured by a pin. Both bars must be deployed and extended to tow the stand. For towing an empty stand or a stand loaded with a Propulsor or full engine without the inlet installed, the bars may be unpinned from the aft attach point and repinned to the forward attach point. If the inlet is installed on the engine, the stand may not be towed from the forward end.



Figure 5.2-1 Jacking Leg Operation

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FOLLOW INSTRUCTIONS STENCILED ON THE BASE NEXT TO THE MANUAL HYDRAULIC PUMP

Figure 5.2-2 Jacking Leg Manual Hydraulic Pump





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CAUTION

- 1. Before raising or lowering the cradle, inspect the cradle cable connections, cables and cylinder connections for damage, leaks and/or missing parts.
- 2. Before raising or lowering the cradle, it is recommended that the stand be as level as possible and to deploy and extend the jacking legs to level and stabilize the stand (see Section 5.1.1).
- 3. Before lowering the cradle, the forward lower cradle support arms must be retracted and secured.
- 4. DO NOT LOWER THE CRADLE WITH A FULL ENGINE INSTALLED.

The cradle has two operating positions, raised for full engine transport and fan module separation or mate and lowered for Propulsor only transport. It is recommended that the cradle be in the raised position for empty transport. The cradle connects to the base by four (4) lock pins and four (4) cables. The cables connect to a cradle mounted hydraulic cylinder operated by either a manual hydraulic pump or an optional air-operated hydraulic pump. The cables are routed over pulleys inside the cradle structure and attached to the shock mounted cable support beams on either side of the base. The manual pump operating handle is stored on the aft end cross member of the base frame (it is the same handle used to operate the jacking legs pump). Be sure the pressure release valve is closed before operating the pump. Operate the manual pump to tension the cables to remove the four cradle lock pins. Usually all four pins will not loosen up at the same time. It is recommended that beside the pump operator, two additional persons be stationed on either side of the stand to feel when the pins become loose.

NOTE:

- Even if the stand has the optional air-operated pump, the manual pump should be used to install/remove the cradle lock pins.
- For stands with the optional air-operated pump, the manual pump reservoir has a manual air vent that must be opened to operate either pump and especially when lowering the cradle. Damage to the reservoir will occur if the vent valve is not open while operating either pump and when lowering the cradle.

Once the cradle lock pins are removed, continue to operate the manual pump or open the air supply to the air-operated pump to raise the cradle or slowly open the pressure release valve to lower the cradle.

After the cradle lock pins have been reinstalled, open the pressure release valve until the pressure gauge reads zero.

NOTE:

The air-operated pump air supply and connections to the pump air supply shut-off valve are to be supplied by the customer. The air supply pressure must be a minimum of 50 PSI. The air supply pressure regulator mounted on the cradle is set at 30 to 35 PSI.

For stand with only the manual pump, the pump reservoir has an auto air vent. If the pressure gauge on the manual pump reads 1200 PSI while raising the cradle, stop pumping and check that the cradle is not bound up on the base structure.

NOTE:

- The manual pump has an internal pressure relief valve set at 1200 PSI.
- If the pressure release valve is opened too quickly allowing the cradle to lower too fast, a flow fuse safety valve will close and stop the cradle movement. You must close the release valve and operate pump to pressurize the system to open the flow fuse safety valve. Then, SLOWLY open the release valve to continue to lower the cradle.
- With the optional air-operated pump, the manual pump reservoir is modified to add an extra connection to the air-operated pump.

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

5.4.1 Raising Cradle to Fan Split Position

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

CAUTION

The GEnx Propulsor Stand must be level 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.

- a) Level the stand using the hydraulic jacks described in section 5.2.
- b) Remove the four (4) lower position locking pins located near the base of the shock towers. This may require the cradle to be raised slightly to unload the locking pins.

- c) Turn the round hydraulic hand pump control valve clockwise to pressurize the system (see figure 5.3.1-1).
- d) Cycle the hand pump to raise the cradle.

CAUTION

Minimal clearance exists between the Propulsor 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

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 5.3.1-1).
 - c) Connect a 100 psi compressed air supply hose to the quick disconnect fitting located on the inlet side of the filter regulator.
 - d) 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.
 - 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 position, close the air supply valve by turning the handle up, clockwise.
- 3) Replace the safety pins removed from the lower position to lock the Propulsor and cradle into the shock system. Once one or two safety pins are installed additional adjustment maybe required to install the remaining pins. Use the hand pump and control knob to raise and lower the Propulsor and cradle as required.
- 4) Release all hydraulic pressure from system by turning the control knob on hand pump counter clockwise to allow locking pins to support entire weight of Propulsor or complete engine.



Figure 5.4-1 Cradle Lift System

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NOTE: CONVERTING EXISTING MANUAL PUMP SYSTEM TO DUAL AIR/HYDRAULIC SYSTEM REQUIRES MODIFICATION OF MANUAL PUMP RESERVOIR.

Figure 5.4-2 Cradle Hand Pump Operation

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Figure 5.4-3 Cradle Hand Pump Operation

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OPTIONAL



NOTE: Converting existing manual pump system to dual air/hydraulic system requires modification of manual pump reservoir

Figure 5.4-4 Cradle Hand Pump Operation

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Figure 5.4-5 Hydraulic Leg Hand Pump Operation

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CAUTION

The GEnx Propulsor Stand must be level 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: Empty cradle may not be lowered to shipping position. Empty cradle weight too light to sufficiently tension cables.

- 1) Inspect stand for obvious damage.
- 2) Configure the Propulsor for shipment in accordance with GE Engine Transportation Manual. This wil require the fan case assembly to be removed.
- 3) Level the base and cradle system with the hydraulic jacking legs as described in Section 5.4.
- 4) Pressurize the hydraulic system by turning the round knob controlling the valve at the hand pump completely clockwise.
- 5) Raise the cradle slightly to free the locking pins that support the cradle in the raised position.
- 6) Remove the four (4) safety pins holding the cradle in the up position.
- 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 it.

WARNING

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

- 8) Once the Propulsor and cradle have indexed on the lower stops, install the four (4) safety 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.

5.5 Installing Propulsor or Full Engine Into Stand

CAUTION

- 1. Cradle must be in the raised position. For full engine installation, the forward lower cradle support arms must be lowered and secured and the upper support arms folded back and secured.
- 2. If the engine/Propulsor is to be bagged, the lower half of the bag should be laid onto the cradle structure before installation.
- 3. Stand should be as level as possible. It is recommended that the jacking legs be used to stabilize the stand.
- 4. Engine/Propulsor should be in the shipping configuration as described in the GE engine transportation manual.
- 5. Forward casters must be in proper stowed position or deployed.
- 7. A minimum of 4 persons is required beside the hoist operator.

Position the engine/Propulsor 12" to 6" above and centered on the stand.

1. For a Production Engine/Propulsor, do the following:

The TRF mount adapter shaft and block assemblies are inserted into the cast-in socket on the TRF and manually held in place until the propulsor/engine is lowered into the mount saddles. The fixed adapter shaft/block assembly should go on the left and the adjustable shaft/block assembly should go on the right.

For a full engine, attach the small triangle-shaped adapters to the lower fan case GSE brackets with the offset facing forward.

For Propulsor only, attach fan hub frame brackets ONLY using bolts provided with the brackets.

CAUTION

- 1. DO NOT use the bolts removed from the cowl support as they are too short. Attach the index blocks so that the pins can only be installed from the aft side.
- 2. DO NOT reverse the blocks so that the pins are facing forward. They cannot be removed after the fan module is installed.

NOTE:

The cradle upper forward support arms should be in the upright position and secured. The large index pins should be pulled aft until flush with the support arms. The lower support arms must be retracted and secured.

After all the correct adapters have been attached/inserted, lower the engine/Propulsor into the cradle. Guide the aft shaft/block assemblies into the mount saddles first. The right side shaft/block may be adjusted if required for full engagement.

Make adjustments before the shaft assembly supports the engine/Propulsor weight. Secure the lock collars.

For full engine, guide the forward triangle adapters into the saddle blocks on the cradle lower forward support arms and pin.

For Propulsor only, guide the index blocks onto the support arms and push the large index pin forward through the block. Install the ball lock pin through the block and index pin. Adjust the outboard set screw tight against the index block and secure with the jam nut.

Prepare stand for transport.

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

- 1) Inspect dolly for obvious damage.
- 2) Cradle must be secured in raised position (reference section 5.4).
- 3) Configure engine for shipping in accordance with GE Engine Transportation Manual.
- 4) Remove the TRF mount adapter shaft and block assemblies from the engine stand and prepare to install on the engine TRF using the hardware provided. Loosen lock collars on the right shaft to allow adjustment as required.
- 5) Remove the triangle-shaped adapters from the engine stand and install on the engine using the attached pins provided. Install the safety pin clips after pins are inserted.

WARNING

DO NOT use bolts removed from cowl support. They are too short to use to attach the FWD support bracket.

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.

WARNING

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

- 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 extension of the pins to be adjusted). To adjust the aft pins loosen the threaded collars and rotate the pins. Continue to lower the engine until the forward triangle-shaped mount adapters are aligned with the index pins on the engine stand.
- 8) Install the forward index pins. Continue to lower the engine until the aft mounts are fully seated and the retainer on the aft mounts can be pinned closed. 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.

5.7 Engine Bootstrapping

CAUTION

This procedure is intended to supplement the Boeing 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.

5.7.1 Bootstrap Engine Into Stand

For the Boeing B747-8 series aircraft, the bootstrap system is attached directly to the engine. To remove an engine from the pylon, the empty stand would need to be positioned as closely centered as possible under the engine. It is recommended to use plumb bobs or equivalent to aid in positioning the stand. Greater care in positioning the stand will be required as the engine is lowered closer to the stand.

5.7.2 Bootstrap Engine From Stand

The bootstrap system will attach to three (3) places on the engine, two on the upper aft fan case and one (1) on the TRF. The engine/stand must be positioned as centered as possible to avoid undue side loading of the system and stand. After centering the engine/stand to the pylon, remove the aft mount saddle clamp bars and the pins that hold the lower aft fan case adapters. Begin to lift the engine manually guiding the aft mount shaft/block assemblies out of the engine and replace them into the saddle mounts. Remove the forward adapters and reinstall on stand. Continue to raise the engine, move stand clear.

5.8 Fan Separation

 \sim Refer to the GE Fan Separation Procedure \sim \sim Refer to 11C4348 Manual \sim

5.9 Tie-Down



Figure 5.9-1 Truck Tie-Down Method with Full Engine Installed

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Figure 5.9-2 Truck Tie-Down Method with Propulsor Installed

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6.0 – SAFETY

6.1 Stress

Design stress safety factors are compliant with applicable GE 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-E175-G03 (11C4300P02) Transport Stand is a commercial product designed specifically only to store and/or transport the GEnx-2B production engines. The equipment is to be used by trained mechanics free from physical impairment and who are familiar with this or similar transfer fixture. The equipment will not be used or 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 Fan Case Shipping Fixture 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 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.

CE



EC DECLARATION OF **C**ONFORMITY

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: Full Engine/Propulsor Stand, GEnx-1B Model: AGSE-E175 Part Number: AGSE-E175-G03 (11C4300P02) 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 Aircraft Engines, GSE SOW, 11C4300-P02 GEnx-2B Full-Engine Ground and Propulsor-Ground and Air Transport Stand, 2008/03/03 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 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. Order parts by "PART NUMBER" only.

8.2 Illustrated Parts Breakdown

IPB Figure 1 - AGSE-E175-G03 **Transport Stand**

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|-----------------|-----|-----------------------------------|
| | AGSE-E175-G03 | - | Transport Stand (Figure 8.1-1) |
| 1 | AGSE-E17501-S02 | 1 | Base Assy |

1 AGSE-E17501-S02

AGSE-E17503-S03

2

- Cradle Assy 1
- 2 P Ò

Figure 8.1-1 11C4300P02 (AGSE-E175-G03) Transport Stand

AGSE-E175-G03 (11C4300P02) Transport Stand

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IPB Figure 2 - AGSE-E17503-S03 Cradle Assembly

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|-----------------|-----|---|
| | AGSE-E17503-S03 | - | Cradle Assembly (Figure 8.2-1) |
| 1 | AGSE-E17504-P02 | 1 | Cradle Weldment |
| 2 | AGSE-E17505-P07 | 1 | Fwd Mount Support Weldment |
| 3 | AGSE-E17505-P08 | 1 | Fwd Mount Support Weldment |
| 4 | AGSE-E17505-P03 | 1 | Lower FWD Mount Support Weldment (S/N 105 Only) |
| 5 | AGSE-E17505-P04 | 1 | Lower FWD Mount Support Weldment (S/N 105 Only) |
| 6 | AGSE-E17505-P05 | 4 | Pivot Pin |
| 7 | AGSE-E17506-S01 | 1 | FWD Lift Cable Installation (See IPB Figure 4 for Details) |
| 8 | AGSE-E17506-S02 | 1 | AFT Lift Cable Installation (See IPB Figure 4 for Details) |
| 9 | AGSE-E17605-P01 | 2 | AFT Mount Adapter |
| 10 | AGSE-E17605-P02 | 2 | Retainer Cap |
| 11 | AGSE-E17505-P14 | 4 | Cradle Pin |
| 12 | AGSE-E17505-P12 | 2 | AFT Mount Block - 2B Engine |
| 13 | AGSE-E17605-P05 | 1 | Shaft - Fixed |
| 14 | AGSE-E17605-P06 | 1 | Shaft - Adjustable |
| 15 | AGSE-E17605-P07 | 1 | FWD Mount Support - LH |
| 16 | AGSE-E17605-P08 | 1 | FWD Mount Support - RH |
| 17 | AGSE-E17605-P09 | 2 | Index Pin |
| 18 | AM-90750-32TU | 2 | Safety Pin Assy |
| 19 | AM-90625-56L | 4 | Safety Pin Assy |
| 20 | AGSE-E10805-P03 | 2 | Cap |
| 21 | AGSE-E10805-P05 | 4 | Set Collar - Modified |

IPB Figure 2 - AGSE-E17503-S03 Cradle Assembly (Continued)

| 22 | AGSE-E10805-P06 | 2 | Set Screw - Modified |
|----|-------------------|----|--|
| 23 | AM-90625-L-SPCL | 4 | Safety Pin Assy |
| 24 | AM-91000-32T-H900 | 2 | Safety Pin Assy |
| 25 | 9426M25P03 | 2 | Base |
| 26 | 9426M25P05 | 2 | Bar - Retainer |
| 27 | AM-92000-114L | 4 | Safety Pin Assy |
| 28 | Commercial | 20 | HHCS - 5/8"-11 UNC x 2" Lg Gr. 5 - Zinc Plt |
| 29 | Commercial | 4 | SHCS - 1/4"-20 UNC x 1/2" Lg - SS |
| 30 | Commercial | 8 | FSHS - #10 - 24 UNC x 5/8" Lg - SS |
| 31 | Commercial | 4 | Flat Washer - 2" Dia. Nom ID - Zinc Plt |
| 32 | Commercial | 2 | Lock Washer - 1" Nom ID - Zinc Plt |
| 33 | Commercial | 8 | Lock Washer - 5/8" Nom ID - Zinc Plt |
| 34 | Commercial | 4 | Lock Washer - 1/4" Nom ID - Zinc Plt |
| 35 | Commercial | 2 | Hex Jam Nut - 1"-8 UNC - Zinc Plt |
| 36 | CL-8-BLPT-4.0 | 2 | Ball Lock Pin T-Handle |
| 37 | 6438K94 | 3 | Thd Lock Collar - 1-1/2"-12UNF - SS |
| 38 | Commercial | 4 | Cotter Pin - 3/16" Dia. x 3" Lg |
| 39 | Commercial | 2 | Spring Pin - 1/8" Dia. x 1" Lg - SS |
| 40 | AGSE-E17611-S01 | 1 | Fwd Support Bracket Assy (See IPB Figure 8 for Details) |
| 41 | AGSE-E17602-P06 | 2 | Pivot Pin |
| 42 | AGSE-E17602-P07 | 2 | Lock Pin |
| 43 | 6438K95 | 4 | Thd Lock Collar Cres - 2"-12 UNF - SS |
| 44 | AGSE-E17605-P13 | 1 | Fan Case Mount - LH - 2B (S/N 102 and S/N 105) |
| 45 | AGSE-E17605-P14 | 1 | Fan Case Mount - RH - 2B (S/N 102 and S/N 105) |
| 46 | AGSE-E19503-P01 | 1 | AFT Mount Adapter - LH - 2B |

IPB Figure 2 - AGSE-E17503-S03 Cradle Assembly (Continued)

| 47 | AGSE-E19503-P02 | 1 | AFT Mount Adapter - RH - 2B |
|----|-----------------|----|--|
| 48 | AGSE-E17508-S01 | 1 | Hydraulic System (See IPB Figure 3 for Details) |
| 49 | AGSE-E17605-P18 | 1 | Fan Case Mount - LH - 2B |
| 50 | AGSE-E17605-P19 | 1 | Fan Case Mount - RH - 2B |
| 51 | AGSE-E17505-P12 | 1 | FWD Support Weldment |
| 52 | AGSE-E17505-P13 | 1 | FWD Support Weldment |
| 53 | AM-91000-100T | 2 | Safety Pin Assy |
| 54 | AGSE-E17629-P05 | 1 | AFT Mount Placard - LH - 2B |
| 55 | AGSE-E17629-P06 | 1 | AFT Mount Placard - RH - 2B |
| 56 | AM-2260 | 6 | Placard 'No Tie Down' |
| 57 | 90081A077 | 32 | Drive Screw - #2 x 1/4" Lg - Zinc Plt |
| 59 | AGSE-E17605-P21 | 1 | AFT Mount Block |
| 60 | TSP-24-12-SS | 1 | Threaded Lock Collar |
| | | | |





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DETAIL B



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Figure 8.2-3

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IPB Figure 3 - AGSE-E17508-S01 Hydraulic Installation

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|-------------------|-------|--|
| | AGSE-E17508-S01 | - | Hydraulic System Installation (Figure 8.3-1) |
| 1 | AGSE-S00340-P05 | 1 | Hydraulic Cylinder |
| 2 | 101111 | 1 | Hand Pump - Auto Vent Cap |
| 3 | 171731A | 1 | Gauge - P1555 Series - 2.5" - 0-1500 PSI SS - 1/4"-18 NPT Low Male Stem Fitting |
| 4 | RDDA-LAN-FAB1200 | 1 | Relief Valve w/Body Set 1200 PSI |
| 5 | FDBA-LAN-GCB | 1 | Flow Control Valve w/Body |
| 6 | FQCA-XAN-GCB/6GPM | 1 1 | Flow Fuse Valve w/Body Set 6 GPM |
| 8 | 10343-6-6 | 2 | Male JIC Hose Fitting |
| 9 | 10643-6-6 | 2 | JIC Swivel Hose Fitting |
| 11 | 3/8MMO-S | 1 | 3/8" NPT Fem Pipe Tee |
| 12 | 6-6-CBTX-S | 3 | Male Elbow - 3/8Px3/8T |
| 13 | 3/8x1/4PTR-S | 1 | Pipe Thrd Reducer - 3/8P x 1/4P |
| 15 | 3/4x3/8PTR-S | 2 | Pipe Thrd Reducer - 3/4P x 3/8P |
| 16 | 6JBTX-S | 1 | 3/8" NPT Male Pipe Tee |
| 17 | 3/8MRO-S | 1 | 3/8" NPT Male Run Tee |
| 18 | 6-BTX-S | 2 | Nut |
| 19 | 3/8FF-S | 2 | 3/8" NPT Pipe Nipple |
| 20 | 3/8CD-S | 1 | 3/8" NPT Street Elbow |
| 21 | 6-TX-S | 2 | Sleeve |
| 22 | Commercial | 10 Ft | Tubing - 3/8" OD x .035 WL Cres 304 - Cond. A |
| 23 | 3225T24 | 5 | 1/2" Cushion Tubing Clamp - Modified |
| 43 | 991004 | 2 | Tamper Resistant Cap |
| 47 | 6-6 FBTX-S | 3 | Connector - Male 3/8"T x 3/8"P |
| 48 | 302/301-6 x 25" | 1 | Hose - 3/8" ID |
| 49 | 302/301-6 x 22" | 1 | Hose - 3/8" ID |



Figure 8.3-1 Hydraulic Lift System Installation

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IPB Figure 4 - AGSE-E17506 FWD and AFT Lift Cable Installations

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|-----------------|-----|--|
| | AGSE-E17506-S01 | - | Fwd Lift Cable Installation (Figure 8.4-1) |
| | AGSE-E17506-S02 | - | Aft Lift Cable Installation (Figure 8.4-1) |
| 1 | AGSE-E17506-P01 | 1 | Cable Assy (Used on AGSE-E17506-S01) |
| 2 | AGSE-E17506-P02 | 1 | Cable Assy (Used on AGSE-E17506-S02) |
| 3 | AGSE-E17506-P03 | 1 | Cable Assy (Used on AGSE-E17506-S02) |
| 4 | AGSE-E10808-P01 | 1 | Threaded Shaft (Used on AGSE-E17506-S01) |
| 5 | AGSE-E10808-P02 | 2 | Sheave Shaft (Used on AGSE-E17506-S02) |
| 6 | AGSE-E10808-P03 | 2 | Sheave Shaft (Used on AGSE-E17506-S01) |
| 7 | AGSE-E10808-P04 | 1 | Sheave Shaft (Used on AGSE-E17506-S01) |
| 8 | AGSE-E10808-P05 | 2 | Sheave Shaft (Used on AGSE-E17506-S01) |
| 9 | AGSE-E17507-P01 | 1 | Cyl/Cable Adapter Plate Weldment (Used on AGSE-E17506-S01) |
| 10 | 472697 | 4 | Wire Rope Sheave 5-7/8" Dia. x 1-1/2"Dia. Bore (Used on AGSE-E17506-S01) |
| 10A | 472697 | 2 | Wire Rope Sheave 5-7/8" Dia. x 1-1/2"Dia. Bore (Used on AGSE-E17506-S02) |
| 11 | 473268 | 5 | Wire Rope Sheave 8" Dia. x 1-1/2" Dia. Bore (Used on AGSE-E17506-S01) |
| 12 | 6438K94 | 2 | Threaded Split Set Collar - 1-1/2"-12 UNF (Used on AGSE-E17506-S01) |

- SS

IPB Figure 4 - AGSE-E17506 FWD And AFT Lift Cable Installations (Continued)

| 13 | TT-2008 | 11 | Bronze Thrust Bearing 1-1/2" ID x 2" OD x 1/8" Thick (Used on AGSE-E17506-S01) |
|-----|-----------------|----|--|
| 14 | AGSE-E10811-P03 | 2 | Spherical Washer |
| 15 | 3088K16 | 6 | 1/8" NPT Grease Fitting (Used on AGSE-E17506-S01) |
| 15A | 3088K16 | 2 | 1/8" NPT Grease Fitting (Used on AGSE-E17506-S02) |
| 16 | Commercial | 10 | HHCS - 1/4"-20 UNC x 3/4" Lg - Zinc Plt (Used on AGSE-E17506-S01) |
| 16A | Commercial | 8 | HHCS - 1/4"-20 UNC x 3/4" Lg - Zinc Plt (Used on AGSE-E17506-S02) |
| 17 | Commercial | 6 | Flat Washer - 1-1/4" Nom ID - SAE (Used on AGSE-E17506-S02) |
| 18 | Commercial | 10 | Lock Washer - 1/4" Nom ID - Zinc Plt (Used on AGSE-E17506-S01) |
| 18A | Commercial | 8 | Lock Washer - 1/4" Nom ID - Zinc Plt (Used on AGSE-E17506-S02) |
| 19 | Commercial | 2 | Lock Nut - 1-1/4"-7UNC - Zinc Plt (Used on AGSE-E17506-S01) |
| 19A | Commercial | 4 | Lock Nut - 1-1/4"-7UNC - Zinc Plt (Used on AGSE-E17506-S02) |
| 20 | Commercial | 2 | Hex jam Nut - 1-1/4"-7UNC - Zinc Plt (Used on AGSE-E17506-S02) |
| 21 | Commercial | 10 | Flat Washer - 1/4" Nom ID - Zinc Plt (Used on AGSE-E17506-S01) |
| 21A | Commercial | 8 | Flat Washer - 1/4" Nom ID - Zinc Plt (Used on AGSE-E17506-S02) |



Figure 8.4-1 AGSE-E17506-S01 FWD Lift Cable Installation

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IPB Figure 5 - AGSE-E17501-S02 Base Assembly

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|--------------------|-----|---|
| | AGSE-E17501-S02 | - | Base Assembly (Figure 8.5-1) |
| 1 | AGSE-E17502-P04 | 1 | Base Weldment |
| 2 | AGSE-E10704-P02 | 1 | Clamp Bar |
| 3 | AGSE-E10704-P05 | 1 | Pin |
| 4 | AGSE-E17512-P06 | 4 | Pin |
| 5 | AGSE-E17512-P05 | 4 | Spacer |
| 6 | AGSE-E17512-P03 | 1 | AFT Caster Mount Support Weldment |
| 7 | AGSE-E17512-P04 | 1 | AFT Caster Mount Support Weldment |
| 8 | AGSE-E17512-P01 | 1 | FWD Caster Mount Support Weldment |
| 9 | AGSE-E17512-P02 | 1 | FWD Caster Mount Support Weldment |
| 10 | AGSE-E10707-P05 | 8 | Сар |
| 11 | AGSE-E10709-P01 | 4 | Jack Leg Weldment |
| 12 | AGSE-E10709-P02 | 4 | Pivot Block |
| 13 | AGSE-E10709-P03 | 8 | Pivot Pin |
| 14 | AGSE-E10709-P04 | 4 | Leveling Pad |
| 15 | AGSE-E10710-S01 | 2 | Towbar Assy |
| 16 | AGSE-E17502-P03 | 1 | Steering Bar |
| 17 | AGSE-E10710-P04 | 1 | Caster Bar |
| 18 | AGSE-E10711-P01 | 1 | Pump Handle |
| 19 | AGSE-E10711-P04 | 2 | Safety Pin - 1/4" Dia. |
| 20 | AM-91000-144T-H900 | 4 | Safety Pin - 1" Dia. x 9" Lg. Grip Lg |
| 21 | AM-91000-74L | 4 | Safety Pin - 1" Dia. X 4-5/8" Grip Lg |
| 22 | AM-90375-64LNC | 1 | Safety Pin 3/8" Dia. x 4" Lg. Grip |
| 23 | AM-2079-7 | 4 | 16" Dia. x 5" W Urethane Caster - 6500 Lb Cap (See IPB Figure 6 for Details) |
| 24 | AGSE-S00304-P04 | 20 | Shock Mount |

IPB Figure 5 - AGSE-E17501-S02 Base Assembly (Continued)

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|------------------|-----|---|
| 25 | 8448K23 | A/R | Firm Blended Sponge Rubber Sheet |
| 27 | Commercial | 8 | HHCS - 5/8"-11 UNC x 2-1/4"- Zinc Plt |
| 28 | S00105-08F016A01 | 160 | Screw, Hex Head |
| 29 | Commercial | 32 | HHCS - 1/2"-13 UNC x 1-1/2" - Zinc Plt |
| 30 | Commercial | 16 | Lock Washer - 5/8 Nom I.D Zinc Plt |
| 31 | Commercial | 16 | Flat Washer - 5/8" Nom ID - Zinc Plt |
| 32 | Commercial | 160 | Flat Washer - 1/2"ID x .032 Thk - Zinc Plt |
| 33 | Commercial | 32 | Lock Washer - 1/2" Nom ID - Zinc Plt |
| 35 | Commercial | 1 | Roll Pin - 1/8" Dia. x 3/4" Lg |
| 36 | AGSE-E10708-P01 | 2 | Caster Mount |
| 37 | AGSE-E10708-P02 | 2 | Caster Mount |
| 38 | AGSE-E17505-P01 | 1 | Cable Support Beam - LH |
| 39 | AGSE-E17505-P02 | 1 | Cable Support Beam - RH |
| 40 | Commercial | 4 | Flat Washer - 3/4" Nom. ID - Zinc Plt |
| 41 | Commercial | 4 | Hex Lock Nut - 3/4"-10 UNC - Gr 5 - Zinc Plt |
| 43 | Commercial | 4 | FSHS - 1/4"-20UNC x 3/4" Lg - Zinc Plt |
| 44 | Commercial | 4 | Hex Jam Nut - 1/4"-20 UNC - Gr 5 - Zinc Plt |
| 45 | Commercial | 4 | Fender Washer - 1/4" ID x 1-1/2" OD x .04 Thk Gr. 5 |
| 46 | Commercial | 8 | HHCS - 5/8"-11 UNC x 2-1/2" Lg Gr. 5 - Zinc Plt |
| 47 | AGSE-E17526-S02 | 1 | Storage Container |
| 49 | AGSE-E17510-S01 | 1 | Jack Leg Hyd System |
| 50 | AGSE-E17531-P01 | 4 | Mounting Bracket Spacer |



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DETAIL A



DETAIL B



AGSE-E175-G03 (11C4300P02) Transport Stand

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IPB Figure 6 - AGSE-E17508-S02 Hydraulic Installation (Air Pump Assist)

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|--------------------|------------|--|
| | AGSE-E17508-S02 | - | Hydraulic Installation Air Pump (Figures 8.6-1 and 8.6-2) |
| 1 | AGSE-S00340-P05 | 1 | Hydraulic Cylinder |
| 3 | 171731A | 1 | Gauge - P1555 Series - 2.5" - 0-1500 PSI SS - 1/4"-18 NPT Low Male Stem Fitting |
| 4 | RDDA-LAN-FAB/1200 | 1 | Relief Valve |
| 5 | FDBA-LAN-GCB | 1 | Flow Control Valve w/Body |
| 6 | FQCA-XAN-GCB-/6GPM | 1 1 | Flow Fuse Valve w/Body Set 6 GPM |
| 8 | 10343-6-6 | 2 | Male JIC Hose Fitting |
| 9 | 10643-6-6 | 2 | JIC Swivel Hose Fitting |
| 11 | 3/8MMO-S | 1 | 3/8" NPT Fem Pipe Tee |
| 12 | 6-6-CBTX-S | 3 | Male Elbow - 3/8Px3/8T |
| 13 | 3/8x1/4PTR-S | 1 | Pipe Thrd Reducer - 3/8P x 1/4P |
| 15 | 3/4x3/8PTR-S | 2 | Pipe Thrd Reducer - 3/4P x 3/8P |
| 16 | 6JBTX-S | 1 | 3/8" NPT Male Pipe Tee |
| 17 | 3/8MRO-S | 1 | 3/8" NPT Male Run Tee |
| 18 | 6-BTX-S | 2 | Nut |
| 19 | 3/8FF-S | 2 | 3/8" NPT Pipe Nipple |
| 20 | 3/8CD-S | 1 | 3/8" NPT Street Elbow |
| 21 | 6-TX-S | 2 | Sleeve |
| 22 | Commercial | 10 Ft | Tubing - 3/8" OD x .035 WL Cres 304 - Cond. A |
| 23 | 3225T24 | 5 | 1/2" Cushion Tubing Clamp - Modified |
| 26 | HIHP-S5L-30224 | 1 | Pump Assembly Modified |
| 27 | B18-04-FK00 | 1 | Filter/Regulator Std Unit w/ Manual Drain |
| 28 | AGSE-E17508-P01 | 1 | Pump Mounting Plt |
| 29 | Commercial | 4 | HHCS - 3/8"-16 UNC x 5/8" Lg - Zinc Plt |

IPB Figure 6 - AGSE-E17508-S02 Hydraulic Installation (Air Pump Assist)

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|-----------------------|-----|--|
| 30 | Commercial | 4 | Flat Washer - 3/8" NOM ID - Zinc Plt |
| 31 | Commercial | 4 | Lock Washer - 3/8" NOM ID - Zinc Plt |
| 32 | AGSE-E17508-P02 | 1 | Filter Regulator Mounting Plt |
| 33 | AGSE-E17508-P03 | 1 | Filter Regulator Support Plt |
| 34 | AGSE-S00104-04C056A01 | 14 | Screw, Hex Head |
| 36 | Commercial | 4 | Flat Washer - 1/4" ID - Zinc Plt |
| 37 | 6 JBU-S | 1 | Hydraulic Fitting - Union T |
| 38 | 6 R6X-S | 1 | Hydraulic Fitting Swivel Nut - Run Tee |
| 39 | 6-8 CBTX-S | 3 | Male Elbow - Triple Lock |
| 41 | 6-8 C50X-S | 1 | Straight Thread Elbow - Triple Lock |
| 42 | 1/2 CD-S | 1 | Street Elbow |
| 43 | 991004 | 2 | Tamper Resistant Cap |
| 44 | 1/2 FF-S | 1 | Pipe Nipple |
| 45 | AGSE-E10812-P03 | 1 | Filter/Regulator Cover |
| 46 | 101301 | 1 | Hydraulic Hand Pump w/Manual Vent Cap |
| 47 | 6-6 FBTX-S | 3 | Male Connector |
| 48 | 302/301-6 x 25" | 1 | Hose 3/8" |
| 49 | 302/301-6 x 22" | 1 | Hose 3/8" |



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IPB Figure 7 - AGSE-E17611-S01 FWD Support Bracket Assembly

| ITEM | PART NUMBER | QTY | PART DESCRIPTION |
|------|-----------------|-----|---|
| | AGSE-E17611-S02 | - | Support Bracket Assy - LH (Figures 8.7-1) |
| | AGSE-E17611-S03 | - | Support Bracket Assy - RH (Figures 8.7-1) |
| 1 | AGSE-E17614-P01 | 1 | Support Bracket - RH (Used on AGSE-E17611-S03) |
| 2 | AGSE-E17614-P02 | 1 | Support Bracket - LH (Used on AGSE-E17611-S02) |
| 3 | AGSE-E17615-P01 | 1 | Bushing - 1.19" ID |
| 4 | AGSE-E17615-P02 | 1 | Bushing - 1.005" ID |
| 5 | AGSE-E17615-P03 | 1 | Bushing - 0.75" ID |
| 6 | 91590A141 | 2 | External Snap Ring - 1-3/4" Shaft |
| 7 | 91590A139 | 1 | External Snap Ring - 1-1/2" Shaft |
| 8 | MS14102-10 | 1 | Bearing - Self-Lubricating |
| 9 | 5008-118 | 1 | Internal Snap Ring - 1.19" ID Bore |
| 10 | 3AJ1.250-12CLF | 14 | Flg Hd Cap Scr - 12 Pt 3/8"-24 UNF x 1-1/4" Lg - Gr 8 - SS |
| 11 | GEZ 010 ES | 1 | Plain Spherical Bearing |
| 12 | 5008-106 | 1 | Internal Snap Ring - 1.06" ID Bore |
| 13 | AGSE-E17630-P02 | 1 | 2B Tag |
| 14 | Commercial | 4 | Drive Screw - 1/16" Dia. x 1/4" Lg |



AGSE-E17611-S03

Figure 8.7-1

AGSE-E175-G03 (11C4300P02) Transport Stand

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IPB Figure 8 - AGSE-E17605-S05 LH AFT Mount Shaft Assembly

ITEM **PART NUMBER**

QTY PART DESCRIPTION

AGSE-E17605-S05

AGSE-E17605-P12

- LH AFT Mount Shaft Assembly Fixed (Figure 8.8-1)
- 1 AFT Mount Block

1

1

LH Shaft - Fixed

- 2 AGSE-E17605-P05
- 3 AGSE-E17605-P01
- 4 AGSE-E17605-P02
- AGSE-S00114-03C010A05 4
- 5
- 6 6438K94

1

- 1 AFT Mount Adapter 1 Retainer Cap
 - Flat Socket Head Screw
 - Threaded Lock Collar 1-1/2"-12 UNF

3 5 2 1 6

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IPB Figure 9 - AGSE-E17605-S06 **RH AFT Mount Shaft Assembly**

ITEM **PART NUMBER**

QTY PART DESCRIPTION

AGSE-E17605-S06

AGSE-E17605-P21

- RH AFT Mount Shaft Assembly Adjustable (Figure 8.9-1)
- 1

1

- 2 AGSE-E17605-P06
- 3 AGSE-E17605-P01
- 4 AGSE-E17605-P02
- 5 AGSE-S00114-03C010A05 4
- 6 6438K94

1

7 TSP-24-12-SS

- AFT Mount Block
- 1 RH Shaft - Adjustable
- 1 AFT Mount Adapter
- 1 Retainer Cap
- Screw, Flat Head
- Threaded Lock Collar 1-1/2"-12 UNF
- Threaded Lock Collar 1-1/2"-12 UNF 1



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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.

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.

| Cradle | Assembly | 7 |
|--------|----------|---|
| | | |

| Part Number | Qty | Description |
|-------------------|-----|-------------------------------------|
| AM-90750-32TU | 2 | Safety Pin Assy (.745) |
| AM-90625-56L | 2 | Safety Pin Assy |
| AM-90625-L-SPCL | 2 | Safety Pin Assy |
| AM-91000-32T-H900 | 2 | Safety Pin Assy |
| AGSE-E10805-P05 | 2 | Set Collar - Modified |
| AGSE-E10805-P06 | 2 | Set Screw - Modified |
| AGSE-E17602-P07 | 2 | Lock Pin |
| 6438K94 | 2 | Threaded Lock Collar - 1-1/2"-12UNF |
| 6438K95 | 2 | Threaded Lock Collar - 2"-12UNF |
| CL-8-BLPT-4.0 | 2 | Ball Lock Pin T-Handle |

Base Assembly

| Part Number | Qty | |
|--------------------|-----|--|
| AGSE-E10711-P04 | 2 | |
| AM-91000-144T-H900 | 2 | |
| AM-91000-74L | 2 | |

| Description |
|--------------------------------------|
| Safety Pin - 1/4" |
| Safety Pin - 1" Dia. x 9" Grip Lg |
| Safety Pin - 1" Dia. x 4-5/8" Grip L |