

INSTRUCTION SHEET HYDRAFUSION STRUT (HFS) KIT PN'S: 22-79HA04K, 22-79HA10K, 22-79HA16K

COMPONENTS: - Note: Each kit comes with one HFS and one HYDRAFUSION Pump. See FIGURE-1

1. HYDRAFUSION STRUTS: 10 ton (9.1 metric ton) lift capacity with 2:1 Safety Factor **and** 20,000 lbs. (9072 kg) shoring capacity with 4:1 Safety Factor. Size dependent on stroke length. For use with Paratech LongShore, AcmeThread and LockStroke struts.
 - PN 22-79HA04 - 4" (10.2 cm) stroke HFS. Component weight, 18.7 lbs. (8.5 kg).
 - PN 22-79HA10 - 10" (25.4 cm) stroke HFS. Component weight, 28.3 lbs. (12.8 kg).
 - PN 22-79HA16 - 15.9" (40.4 cm) stroke HFS. Component weight, 37.2 lbs. (16.9 kg).
2. HYDRAFUSION PUMP, PN 22-790020G: Two stage, single acting, hydraulic pump with 10 foot (3.05 m) non-conductive hose, no-spill coupler, pump base and pressure gauge. Rated for 10,000 psi (689.5 bar). Assembly weight, 24.20 lbs (10.98 kg).

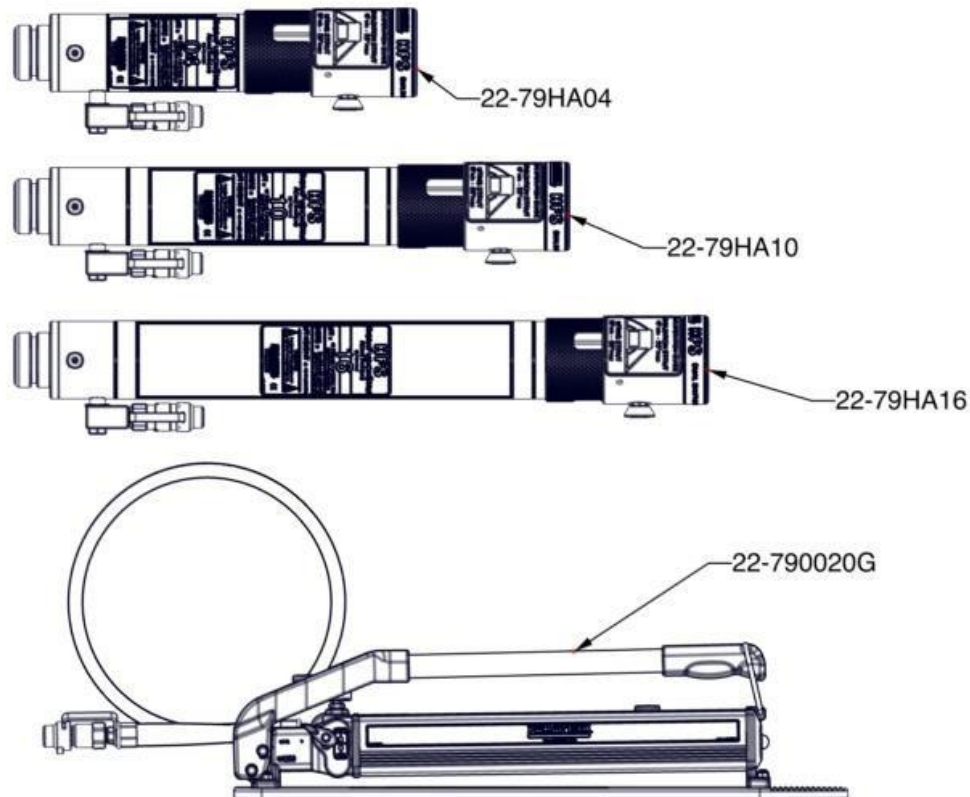
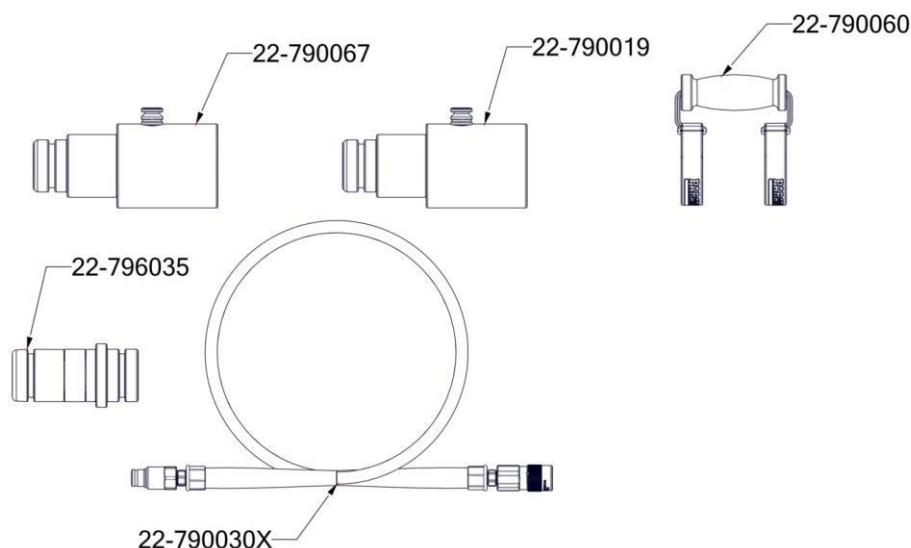


FIGURE-1

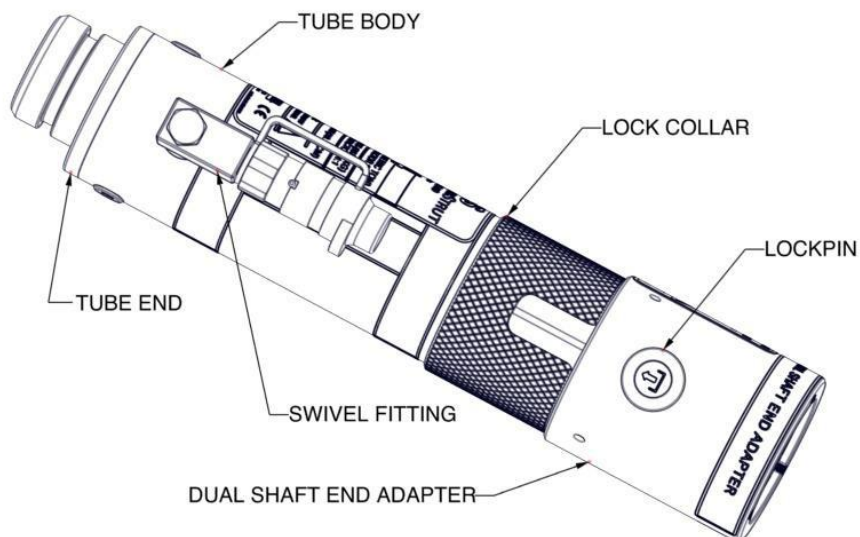
OPTIONAL COMPONENTS: See FIGURE-2

1. RSS Carrying Strap, PN'S 22-790060: Made from reinforced black ballistic nylon; features soft durable EPDM foam grip and Velcro strap-style attachment. Installs anywhere along the HFS body; best mounted at the HFS center of gravity to assist with easy transport. To adjust the position of the handle, simply loosen the Velcro strap and slide to the desired location. The strap should not block the product label when in use. Component weight, .4 lbs. (.2 kg).
2. Strut Converter, PN 22-796035: Used in the HFS Dual Shaft End Adapter with any compatible Paratech base. Component weight, 2.7 lbs. (1.2 kg).
3. 10' Hose extension w/No-Spill Couplers, PN 22-790030X: Used with HFS PUMP, component weight, 2.21 lbs (1 kg).
4. LongShore Screw Adapter, PN 22-790019: Used with LongShore screw end facing HFS 6.06 lbs (2.8 kg). See Figure 12
5. AcmeThread Screw Adapter, PN 22-79067: Used with AcmeThread screw end facing HFS 6.55 lbs (3.0 kg). See Figure 13

FIGURE-2



HFS FEATURES: FIGURE-3



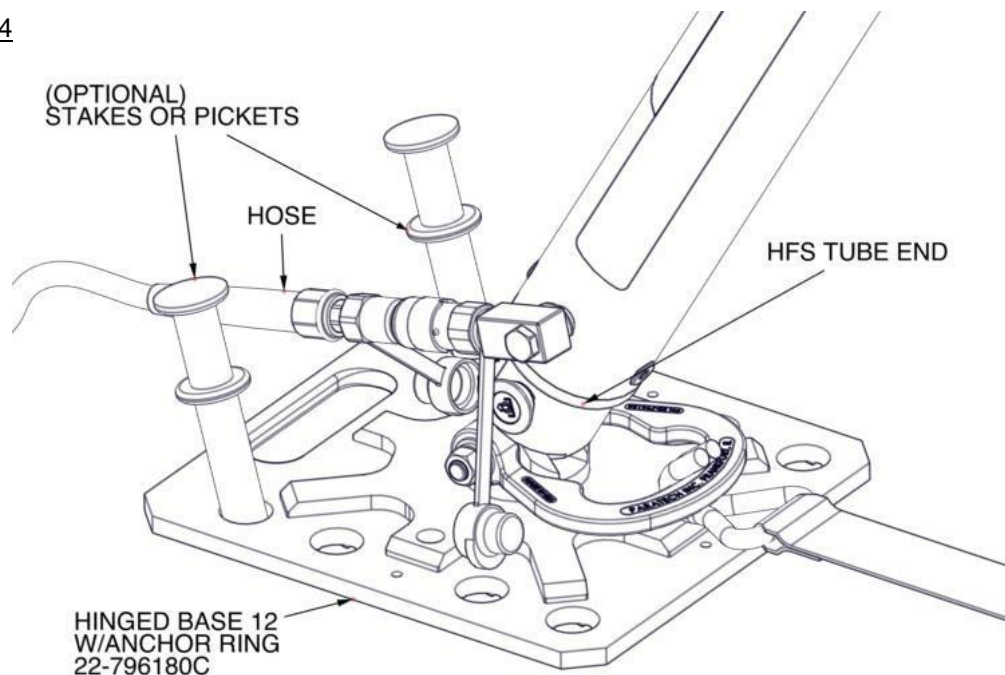
BASIC SAFETY PRECAUTIONS:

- ✓ Equipment operation must always be conducted by trained personnel.
- ✓ To avoid the possibility of serious injury or death, stay clear of the loads and keep others away.
- ✓ Do not exceed the rated capabilities of the HFS, pump, or hose. Excess pressure may result in personal injury.
- ✓ Control the load at all times with Stabilization Struts. *Always install Stabilization Struts first at a lower angle with respect to the ground and object being lifted; **45°- 75°** is optimal.
- ✓ Always perform a lift using the HFS at a **75°- 90°** angle or greater with respect to the ground and object being lifted. *Always install Stabilization Struts first at a lower angle with respect to the ground and object being lifted; **45°- 75°** is optimal.
- ✓ A vertical lift using the HFS directly under a load is acceptable at 90°. *Always install Stabilization Struts first at a lower angle with respect to the ground and object being lifted; **45°- 75°** is optimal.
- ✓ Make sure the HFS LockCollar follows the load at all times by adjusting the LockCollar down as *the HFS is extended. The LockCollar should never get more than 1" away from the tube body.*
- ✓ DO NOT rapidly drop a load supported by the HFS. Lower the load carefully by **SLOWLY** opening up the pump control lever.
- ✓ Before adding hydraulic fluid, fully retract the HFS to prevent overfilling of the pump reservoir. Overfilling may cause personal injury due to excess reservoir pressure created when an HFS is retracted.
- ✓ *To maintain optimal oil level in the pump, extend and retracted HFS's using the same pump assembly. Each pump assembly has the oil capacity to extend up to 26" of HFS travel.*
- ✓ Do not use the pump hose to move attached equipment. Stress may damage the hose and fittings which could cause personal injury and equipment failure.

HFS AND PUMP OPERATION:

1. Couple the HFS tube end down onto any compatible Paratech base plate and make sure the LockPin is secure. Note: The HFS can be used in any orientation; however, tube end down is preferred to facilitate LockCollar adjustment and eliminate trip hazards by keeping the hydraulic hose at ground level. See FIGURE-4.

FIGURE-4

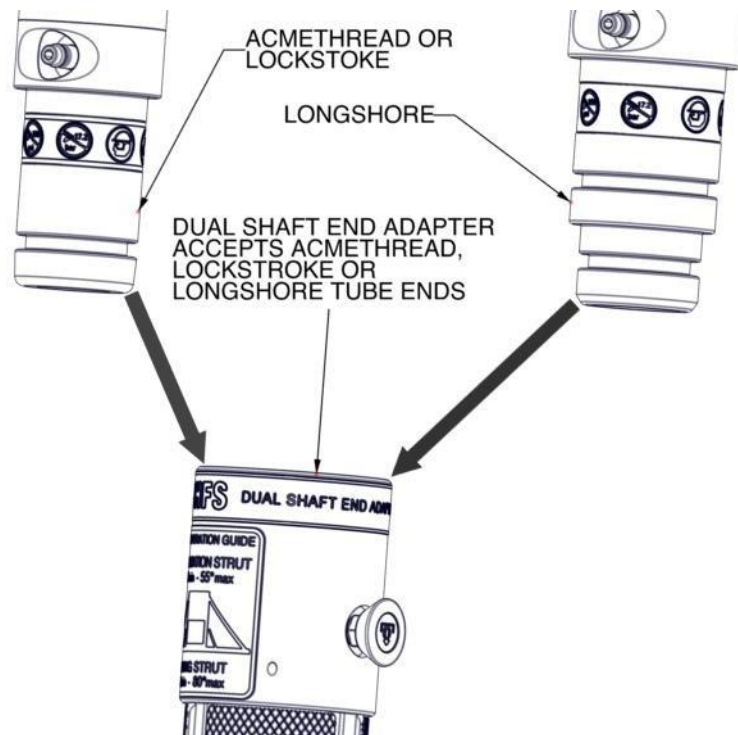


- To prevent movement and/or sliding, connect a ratchet belt or chain to an opposing base plate. An optional stake or picket to secure the base plate to the ground can be used where applicable otherwise refer to the officer in charge for alternate methods. See FIGURE-4.
- Select the appropriate Paratech strut, extension, or extension converter with base for the application and insert it tube end down into the Dual Shaft End Adapter. Make sure the LockPin is properly engaged. The Dual End Shaft Adapter was engineered to accept Paratech LongShore, AcmeThread, or LockStroke products.** Do not insert strut screw ends into the Dual Shaft End Adapter. Bases can be used on the Dual End Shaft Adapter with a Paratech Extension Converter, PN 22-796035. See FIGURE-5.

FIGURE-5

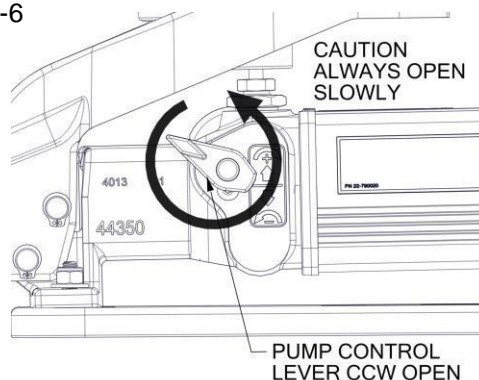
- * One HFS can be used in combination with the following:
- 1 Strut, 1 Extension maximum combined length 16 feet (4.9m).
- OR
- 2 Extensions having maximum combined length of 3 feet (.9 m).

** USING THE SCREW SIDE IN THE HFS DUAL SHAFT END ADAPTER WILL RESULT IN 10% LOWER CAPABILITY. See FIGURE-12 & 13



- To maximize the hydraulic lift efficiency and safety, **always position the HFS at a 75°- 90° angle** or greater with respect to the ground and object being lifted. Stabilization Struts should always be installed first and used for backup at **45°- 75°** with respect to the ground and object being lifted. See FIGURE-11
- Connect the pump to the HFS by first wiping clean the no-spill coupler ends. Relieve pressure on the hose before connecting by turning the pump control lever counter clockwise (CCW). See FIGURE-6

FIGURE-6



WARNING

CONNECTING THE HOSE TO THE PUMP OR STRUT UNDER PRESSURE WILL CAUSE COUPLING SEAL FAILURE

Push the no-spill couplers together until they lock and then turn the locking collar to prevent accidental disconnection. See FIGURE-7

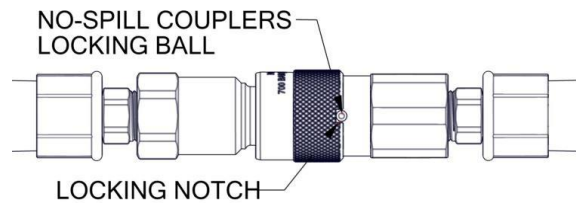


FIGURE-7

6. To unlock the pump handle, push handle down then slide yoke off handle grip. This places the handle in an open or working position. To lock the handle, push the handle down and push yoke onto the handle grip. See FIGURE-8

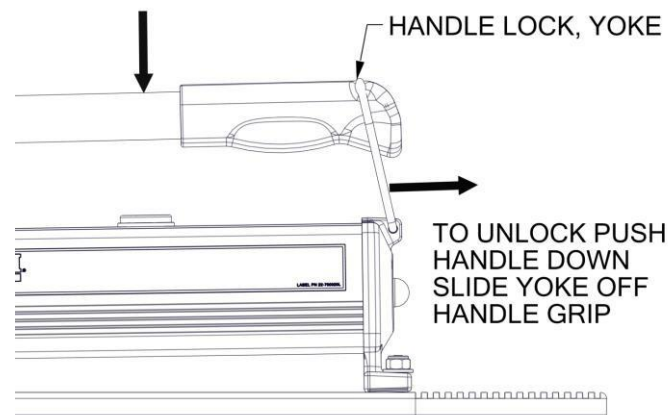
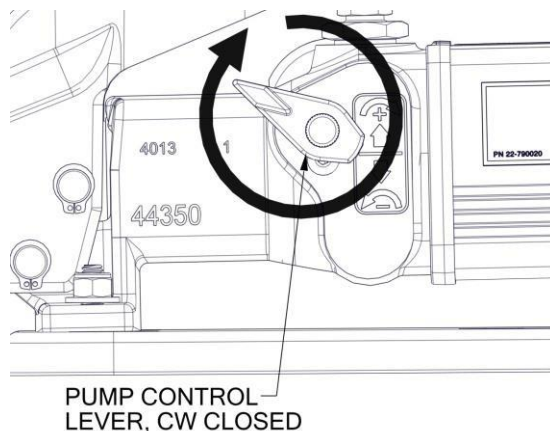


FIGURE-8

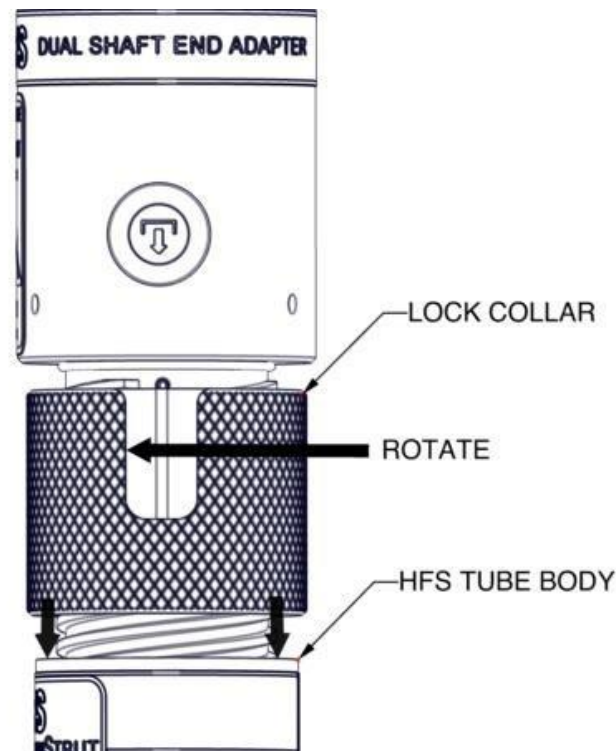
7. To extend the HFS, turn the pump control lever clockwise (CW) hand tight to the closed position and work the handle up and down to build pressure. See FIGURE-9. Note: the pump can be operated in a horizontal position or in a vertical position with head pointing downward.

FIGURE-9



8. To release pressure, open the pump control lever by **SLOWLY** turning CCW to control the load descent.
9. As the load is lifted, the LockCollar should be turned down to make contact with the HFS tube body, shoring the load. See FIGURE 10. Note: maximum lift height is slightly more than maximum stabilizing height to prevent system lockout in application. Once the maximum lift is hieved, open the pump control lever **SLOWLY** until the LockCollar is seated onto the HFS tube body.

FIGURE-10



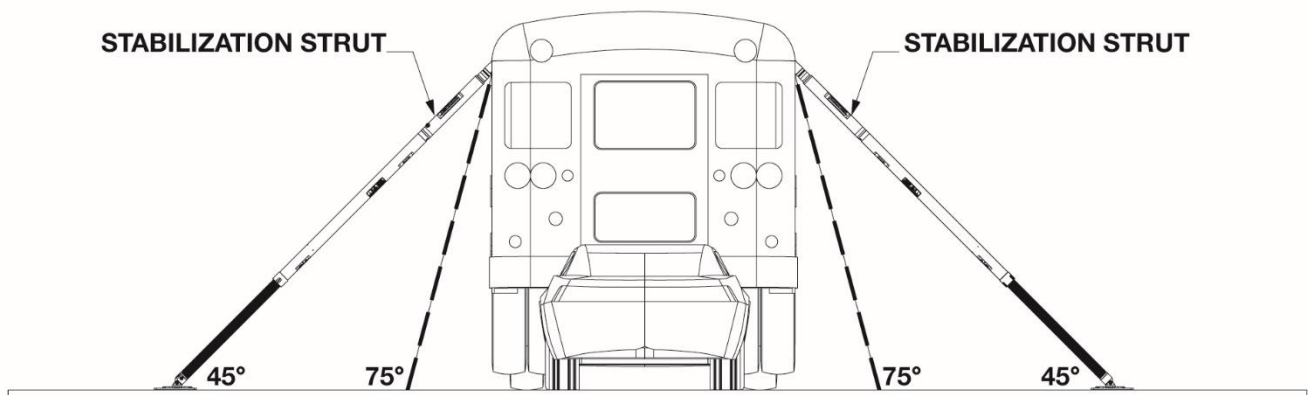
10. To retract the HFS, ensure the pump control lever is completely closed and use the pump to extend the HFS enough to take the load off the LockCollar.
11. **SLOWLY** open the pump control lever while rotating the LockCollar away from the HFS tube body. The LockCollar should never get *more than 1"* away from the tube body as the load is lowered for safety reasons.
12. After use or before disconnecting the hose from the pump or strut make sure to relief pressure from the system by turning the pump control lever CCW and allowing the strut to fully retract.

WARNING

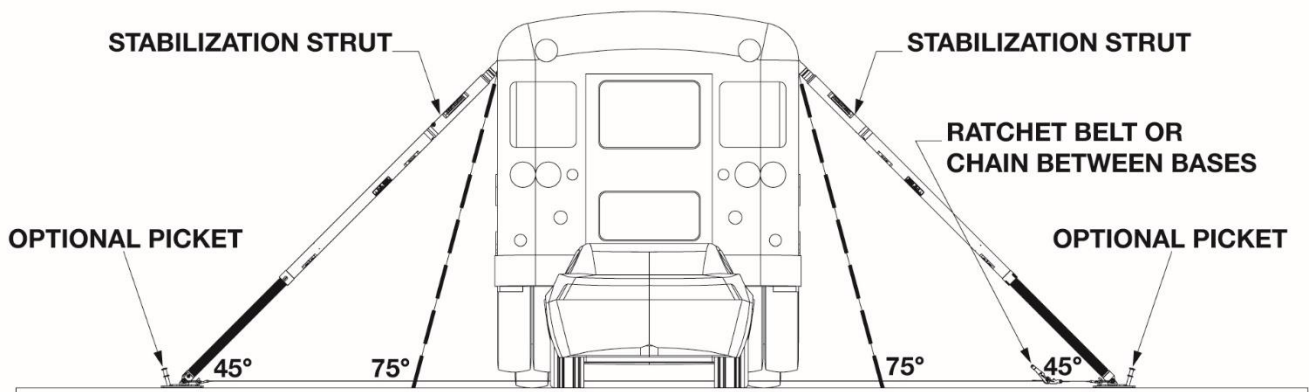
CONNECTING THE HOSE TO THE PUMP OR STRUT UNDER PRESSURE WILL CAUSE
COUPLING SEAL FAILURE

FIGURE-11: This is an illustration of an ideal vehicle lift and stabilization using the HFS. Note the optimal 75°-90° angle between the HFS, ground, and vehicle. Always use Stabilization Support Struts first, positioned at 45°- 75° with respect to the ground and vehicle during a lift.

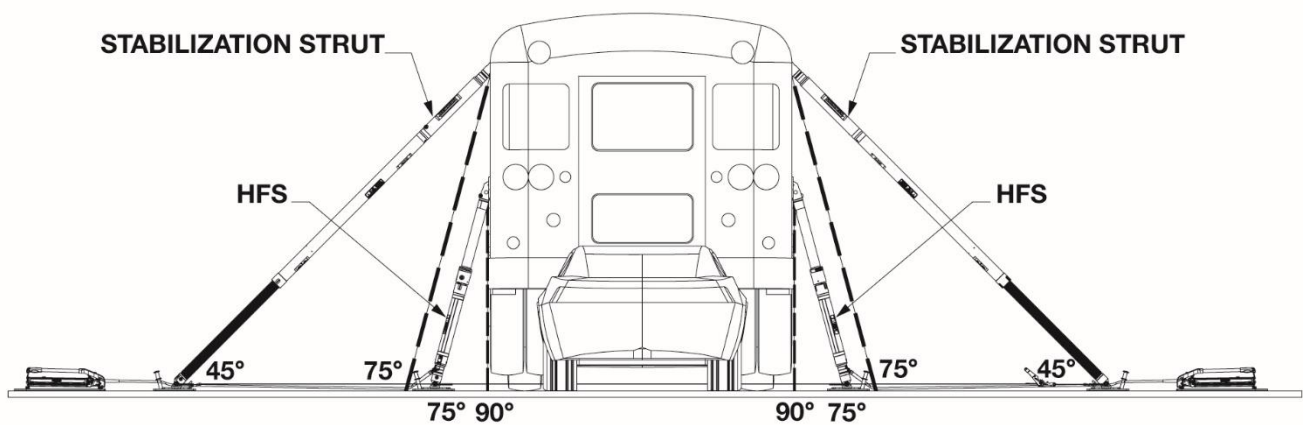
① STABILIZE THE LOAD



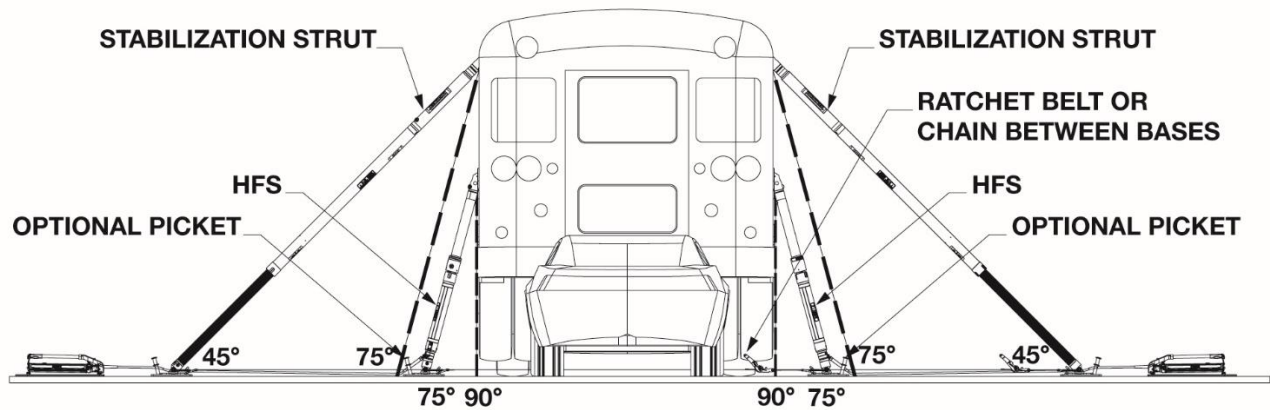
② ANCHOR STABILIZATION STRUTS



③ POSITION HFS FOR LIFTING



④ ANCHOR HFS STRUTS



NOTE: USING THE SCREW SIDE IN THE HFS DUAL SHAFT END ADAPTER
WITHOUT LONGSHORE SCREW ADAPTER PN 790019 OR ACME THREAD SCREW
ADAPTER PN 790067 WILL RESULT IN 10% LOWER CAPABILITY.

FIGURE 12

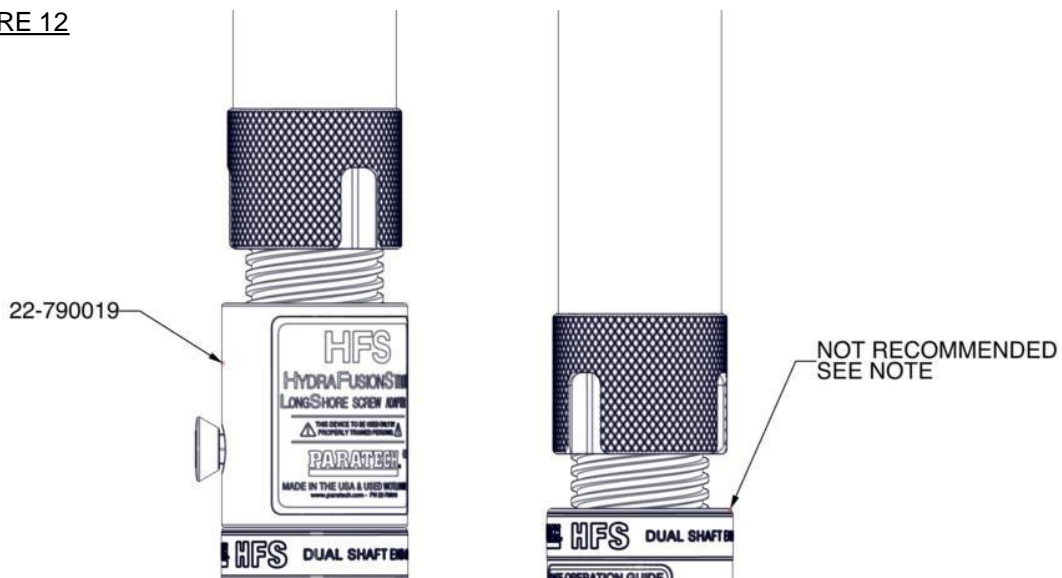
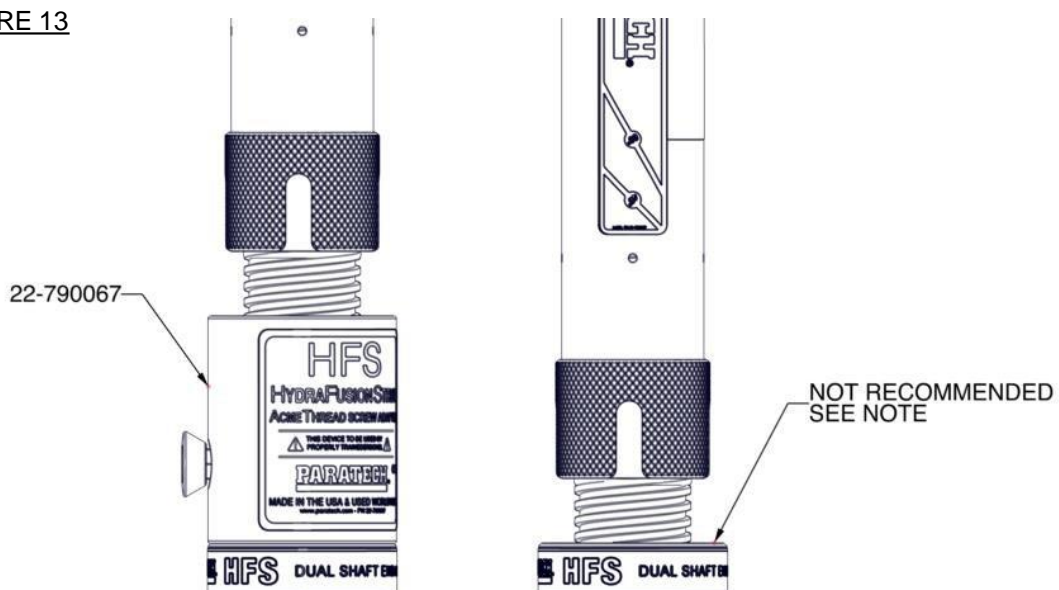


FIGURE 13



TOOL MAINTENANCE:

- ✓ Bleeding air from the hydraulic system is recommended at initial set-up and after prolonged use. To remove the air, position the HFS at a lower level than the pump and with the Dual Shaft End Adapter down. Extend and retract the HFS several times without putting a load on the system. Air will be released into the pump reservoir and can be removed by loosening the pump filler cap.
- ✓ Check hydraulic fluid level in the pump reservoir periodically. The filler hole on the hydraulic oil reservoir is also used to check the level. Position the pump with the pump head facing downwards, and remove the filler plug. The level is correct when the oil reaches the bottom edge of the filler hole. The HFS should be fully retracted before checking the fluid level in the pump. Replenish fluid levels with Paratech hydraulic fluid PN 22-790051.
- ✓ Apply grade 10 motor oil or grease to all pivot and rubbing points on the pump regularly.
- ✓ Periodically lubricate the AcmeThread shaft, LockCollar, and Dual Shaft End Adapter with a high quality dry spray lubricant, such as DuPont Teflon Dry Lubricant, and keep free of dirt and debris.
- ✓ Replace worn, kinked, leaking, or cut hose as required.
- ✓ To clean, wipe all exposed surfaces with clean warm water and soft cloth.

HFS LIMITED WARRANTY

Each **HFS** or component thereof, manufactured by Paratech Incorporated, has been thoroughly inspected and properly adjusted before shipment to insure the highest quality and the greatest possible reliability.

Paratech Incorporated (hereinafter referred to as "Seller") hereby warrants the **HFS** or component thereof to the original retail buyer only against defects in material and workmanship under normal use and service for a period of five years from the date of purchase. This warranty shall constitute the sole warranty of the Seller with respect to the **HFS** or component thereof **THE SELLER HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The Seller neither assumes nor authorizes any other person to assume for it any other obligations or liabilities in connection with the sale or use of this product.

Should there be any defects in the material or workmanship of the **HFS**, buyer should return the defective product to the factory for inspection with shipping prepaid within five years from the date of purchase. If inspection shows that the **HFS** or a component thereof is defective and that such defects were not caused by negligence, misuse, accident or unauthorized service, the product sold hereunder will be repaired or replaced at the option of the Seller, without charge, FOB at the factory, Frankfort, Illinois.

THIS REMEDY SHALL BE THE EXCLUSIVE REMEDY FOR BREACH OF WARRANTY WITH RESPECT TO THE HFS OR COMPONENTS THEREOF. THE SELLER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY WITH RESPECT TO THE HFS AND COMPONENTS THEREOF FROM ANY DELAY IN THE PERFORMANCE OF THE REMEDY HEREUNDER.

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