ALC Installation Manual 2001 DB20

Determine All Locations:

Switch, Pump Box, Landing Position

Choose Reference Point =0= which is located on the side of the body where the front and bottom intersect

Determine front and back landing position:
(5" is recommended for the front landing position in front of the reference point)
(Closest to or on the tail gate if possible for the back landing position)

The (B) position is the measurement from the =0= Reference point to where the center of the Torsion Tube Assembly, (approx. 6" in diameter w/cover), rests on the front landing rubbers.

Note: (If front landing is ahead of =0= Ref. B is a positive number) (If front landing is behind =0= Ref. B is a negative number) Ex: (5" ahead of =0= Reference is standard, but (-3) or 3" behind =0= Reference is possible

The back landing point is where the center of the Torsion Tube Assembly (approx. 4" diameter at this point) rests on the back landing rubbers. Ex: (on the tail gate, center of hinge pin or just ahead of the hinge pin on top of the side board)

4 Key measurements to take from reference point: *(measurements are in "inches. Round to the nearest 1/8")

1. (A) Height of the front landing position
2. (B) Front offset Ex: (usually on the Cab shield)
3. (C) Height of the back landing point
4. (D) Rear offset Distance from =0= Ref. To the center of rear landing position

Note: Add 2" to the front/back landing height for Uni-body design. (**See Uni-body instructions**)

Enter measurements into the ALC program formula using a TI-85 calculator supplied. This will figure the Pivot Arm length and the Pivot Mount placement. Call (860) 738-8011 for further assistance.

Pivot Arm length is from center of pivot hole to the center of end block shaft hole. Cut arm to appropriate length and weld the end block on, centered on end of arm.

Pivot Mount measurement is from =0= Ref. Point to the back of the pivot mount. (The bulkhead fittings towards the front of the truck). The bottom of the pivot mount is flush with bottom of Ref. Point.

Unibody Installation Only:

Weld steel mount plates (1/2”x 2” x 12”) on unibody in place to support the pivot mounts.
Mount plates have three ½” holes.

*Make sure that pivot mount bolts align properly. Weld mount plates on bottom of body and flush with the outside of the body.

Measure for the crossover cut through.

Crossover hoses pass through the long members using a 1 ½” schedule 40 pipe (approx. 12” long). Cut through should be perpendicular to the center of the bulkhead unions on each pivot mount, 14” from back of mount. The cut through location on each long member should be approx. ¾” from the bottom of the body.

Cut out and weld pipe 100%. Weld ¼ - 20 x ¾” bolts for hydraulic hose clamp (2) on each side in line with the crossover pipe.

Also, weld bulkhead- T plate for T-fittings. (this can be done after the pivot mounts are installed to ensure proper alignment of crossover hoses)

PHOTOS

Align pivot mount into position, drill and bolt on. Repeat for other side.
PHOTO

Install hydraulic cylinder, bolt onto the mounts front bearing and tilt towards the back.

PHOTO

Attach Cylinder Hoses:
PHOTO

Short hose (25") goes from cylinder 90 * bottom fitting to the back bulkhead fitting on the pivot mount
Long hose (30") goes from cylinder 90* upper fitting to the front bulkhead fitting on the pivot mount
(Tighten hoses at the bulkhead only allowing for system bleeding) * see p 4 "Bleeding the system"

Attach Crossover Hoses:
PHOTO

Recommended Installation: 44" hoses to the pump unit side of vehicle, 56" hoses to the other
Connect crossover hoses to the bulkhead fittings on the bottom of each of the pivot mounts
Connect crossover hoses together using the bulkhead T fittings
Maintain consistency (forward hose to the upper) and (rear hose to the lower) Do not cross the lines.
choose a safe and secure path, use ½" loom clamps approximately every 2 ft.
drill and bolt to the cross member that best fits the crossover hoses
(for unibody, weld T– plate to the underbody)*see unibody installation

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Determine location of and Install remote toggle switch: (Ex: Vehicles instrument panel or center control tower) see photo

Installing the remote switch: (6 pole, 3 way, momentary toggle switch)
See diagram
Install in the desired area on the dash or console (½" hole) needed
Run 4-wire through the firewall (using an existing hole or drill a 9/16" hole, rubber grommet supplied

White wire……to the white wire piggy back/male spade
Red wire……to the red wire piggy back/male spade
Green wire……..to the male spade top
Black wire……to the male spade bottom
Switch groove faces down
Run the 4- wire back to the pump unit/box, follow existing harness if possible.

Determine location of and Install pump box:(Recommended installation- attach to outside frame, accessible and as close to the vehicles batteries as possible) using minimum (3) ½" –13 x 1 ½" flange bolts w/ ½ -13 locking flange nut

Install pump unit inside pump box:
unless specified otherwise (EX: In battery box or in an attached tool box)

Pump motor faces towards the mounting plate, pump tank reservoir faces out
Bolt the pump unit to the pump box using (2) 3/8" – 16 x ½" flange bolts supplied and tighten

In battery box, install the 90-amp circuit breaker
See diagram
Run 2 gauge Red battery cable from the breaker to a positive stud on the battery
Do Not connect the red positive cable to the battery until all wiring is safely completed

Run a 2 gauge Red battery cable from the circuit breaker to the pump unit solenoid 5/16 stud (use rubber grommet ¾" hole)
Follow existing wire harness and protect with split loom

Run a 2 gauge Black battery cable from a negative stud on the battery to the pump unit (use rubber grommet ¾" hole)
This Black negative cable connects to a 5/16" – 18 x ½" flange ground bolt on the pump unit

Run the switch 4 wire through the 9/16" hole with rubber grommet in the pump box and connect it to the pump unit
Red wire…….to the pump mini circuit breaker stud
Black wire……..to the #3 inner coil
Green wire……..to the #2 outer coil
White wire……..to the top of the solenoid stud

Apply protection coating to all electrical connections

Hydraulic Hoses: (See diagram)
All hydraulic hoses have a #4 JIC female swivel fitting
From the pump unit the HP- 18 upper hose goes to the upper 7/16" hole (B)
The HP- 18 lower hose goes to the lower 7/16" hole (A)
Attach the bulkhead 90* fitting to each and tighten on the pump box w/bulkhead nut and washer supplied
Box-to-T hoses are additionally supplied with a 90* drop tube on one end
Cut the Box-to-T hoses to the proper length and crimp on #4 jic female swivel fittings
Run the long hoses down the chassis to the hinge area, leaving some slack to allow for body dumping movement. Secure as needed.
Connect the 90* drop tube fittings to the outside of the pump box
Connect straight female end to the bulkhead T and tighten (Be sure not to cross lines)
Secure lines as needed with ½ " loom clamps

Now you are ready to bleed the system:
Check all connections (electrical and hydraulic)

Bleeding the system:
Place cylinder hoses (upper and lower on both sides) into an overflow bucket before bleeding the system
Fill the pump tank reservoir with automatic transmission fluid
Hold switch in the down position until there is a steady flow of fluid from both lower cylinder hoses

Release the switch, then connect and tighten the lower cylinder hoses
*tighten cylinder hoses so that they are away from the body

Refill the Reservoir
Hold switch in the down position, extending the cylinder piston rods out completely. Let off on switch

Again Refill the tank reservoir
Hold switch in the up position until there is a steady flow of fluid from both upper cylinder hoses and the tank reservoir is approximately ¼ full (this will allow fluid to return back into the tank)
Release the switch then connect and tighten the upper cylinder hoses
tighten cylinder hoses so that they are away form the body
tie wrap both upper and lower hoses together
PHOTO
Tilt the cylinders towards the front
Hold switch in the up position until the cylinder piston rods are all the way in
Release the switch and check fluid level. Reservoir should be 7/8 full (top off to 7/8 if necessary)

Check for leaks: Retract and Extend the cylinders a couple of times
Check for leaks: Retract cylinders and close the pump box

The Torsion Tube Assembly:
Place TTA with the cover and hold down bar on the front landing point (usually on the cab shield)
The ¾" hex side is on the drivers side of the vehicle

Install the pivot arms: bolt onto the mounts back bearing and tilt forward (arm cylinder plate faces down)
Install but do not tighten the 5/16"x 2 ½ bolts into end blocks

Pin the cylinders to the pivot arms: (using ½ x 2" clevis pins with cotter pins)

Hold Down Bar:
Attach the hold down bar to the cab shield with 2 (two) CF8Z (rod ends)
Center the hold down bar on the body/cab shield and as close as possible, but behind the TTA
Allow for some slight side to side movement between the CF8Z

Remove the 5/16" end block bolts, while holding the hex side of the TTA with a breaker bar and ¾" socket
…. Torsion Tube Spring has tension. BE CAREFUL.
Turn the shaft 8 times counter clockwise
Replace the 5/16" end block bolts and tighten with the lock nuts supplied

Now tighten all pivot arm/mount and cylinder/mount bolts and lock nuts

Front Landing points:
Place a 2" x 4" landing rubber centered under the TTA on both sides of the vehicle
Attach each using (2) 5/16"x1" self-tapping screw. Use a 9/32" drill.

Repeat for the back landing points

Note: An angle iron or flat plate may be required for the attachment of the front/back landing rubbers

Wedges: (UHMW) PHOTO

With the pivot arms in the forward position, center the system on the upper rails of the body.
Install the appropriate size 1 ft. tapered wedges with the 3/8" self-tapping screws by drilling a 21/64" hole
Allow a 1/8" gap between the wedge and the back side of the pivot arm
Place wedges at an angle so as to not collect deposits of dirt or other materials being hauled

Repeat in the back position: (Install the appropriate size 1 ft tapered wedges)

Guides: (UHMW)
The guiding system is attached to the uprights of the body. The hydraulic cylinders ride along these lengths of UHMW, while the system is covering and uncovering the load, allowing for constant tracking of the pivot arms. The guides are supported by a 1/4x1 ½" aluminum strip cut to length.

Measure the distance from the backside of each cylinder to the nearest upright on each side of the body centered.

See guide diagram
Cut the aluminum support strips to length
Align guide hole measurements on the support strips, pre-punch and drill 21/64" holes
Pre-drill UHMW guides for accurate placement on the uprights of the body, 1" hole to ½"
from bottom drill through 3/8"
Attach the support strips to the guides with 5/16 – 18 – 1 ½" bolt and nut
Attach the guides and support strips to the body's uprights with the 3/8" self-tapping screw, approximately 10" above and parallel to the base of the pivot mount

Run the system a few times to check for proper installation and operation of the system.