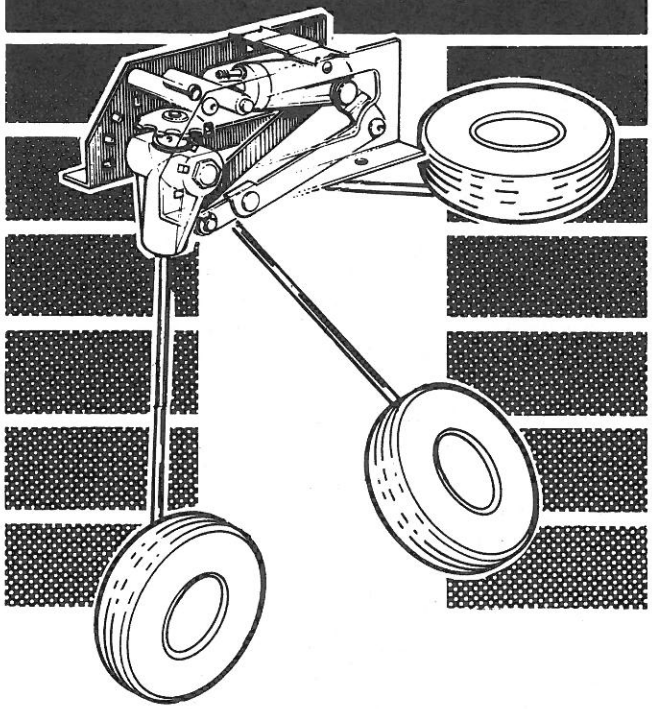
robart

PNEUMATIC ROTATING RETRACTS

(FOR .60-.90 SIZE GAS POWERED MODELS WEIGHING 6-12 POUNDS)

INSTALLATION INSTRUCTIONS



FEATURES:

- *STRONG STEEL CONSTRUCTION*
- *PNEUMATIC CYLINDERS INCLUDED*
- *3/16" TEMPERED STEEL GEAR LEGS*
- *LIGHT WEIGHT -6 OZ. PAIR*

INTRODUCTION

ROBART #615 Pneumatic Rotating Retracts are designed for use in model aircraft having wingspans of 52" to 72", weighing between 6 to 12 pounds. ROBART #615 Rotating Retracts are perfect for model aircraft requiring retracts that rotate 90° as they are retracted. Typical model aircraft include the F4-U Corsair, P-40 Warhawk, F6-F Hellcat, AD-1 Skyraider and other similar models.

The ROBART #615 Pneumatic Rotating Retracts are constructed with hardened steel side frames, lift links and gear sectors for dependable operation on grass or paved model fields. Tempered steel struts are also used, secured in a tough glass filled nylon trunion block. The #615 Rotating Retracts utilize a pneumatic air cylinder that smoothly operates the system.

Additional accessories required for operating the #615 Pneumatic Rotating Retracts are as follows: 1 pkg. ROBART #188 Air Control Kit, 1 pkg. ROBART #189 Air Line Restrictors (4/pkg.), 1 pkg. ROBART #190 Air Line Disconnects (2/pkg.). ROBART #650 ROBOSTRUTS (functional steel oleo struts) can be purchased separately for added realism and improved ground handling of your model.

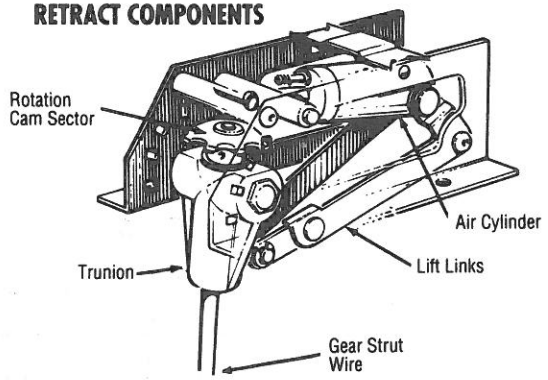
To pressurize the system, a ROBART #164G 100psi pump with gage will be required. System should be pressurized to 80psi.

INSTALLATION INSTRUCTIONS

NOTE 1: Prior to installing your #615 Retracts, place the scale 3-view drawing over wing planform and note the location of the landing gear frame. Determine your method of mounting (rail or plate) and mark on drawing the location of mounting supports. Mark any changes or additions to wing structure such as added ribs and formers.

NOTE 2: The 3/16" dia. landing gear wire supplied with the #615 Pneumatic Rotating Retracts has not been completed. The landing gear wire must be cut to the length and positioned correctly to operate properly. (Illustration #8A) Failure to follow these instructions may result in damage to the retracts and your aircraft.

RETRACT COMPONENTS



INSTALLING THE #615 RETRACTS

Refer to the illustration pertaining to your particular aircraft (i.e. Corsair, P-40, etc.). The installation methods are similar for any model requiring rotating retracts.

1. Epoxy 1/16" plywood doublers to the inside surface of each wing rib where the retracts are positioned, or cut new ribs from 1/8" plywood and glue in position.

2. Epoxy 1/16" plywood to both front and back sides, top to bottom, of the main spar, forming a web at the retract position.

3. Cut 3/8" square maple hardwood rails or 1/4" plywood plate to fit between the leading edge of the wind and spar. Epoxy rails to ribs, leading edge and spar making sure rails are parallel to each other and in the proper position.

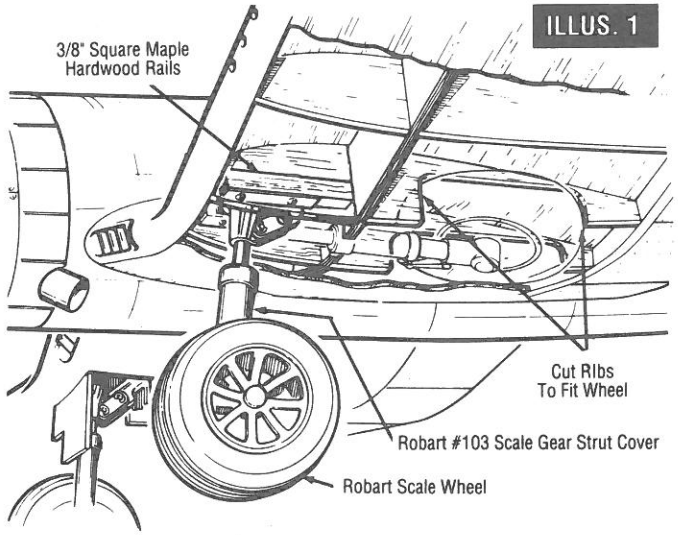
4. Cut a notch in the webbed spar to accommodate the landing gear wire when retracted. Also notch the inboard wing rib to fit the retract control arm. Trim the wing ribs as required to fit the wheel size. A Dremel Moto-Tool and ROBART Right Angle Drive attachment simplifies the notching of these parts.

5. Locate and drill the mounting holes for the retracts in the hardwood rails. Using a #6 sheet metal screw, mount the retracts in place.

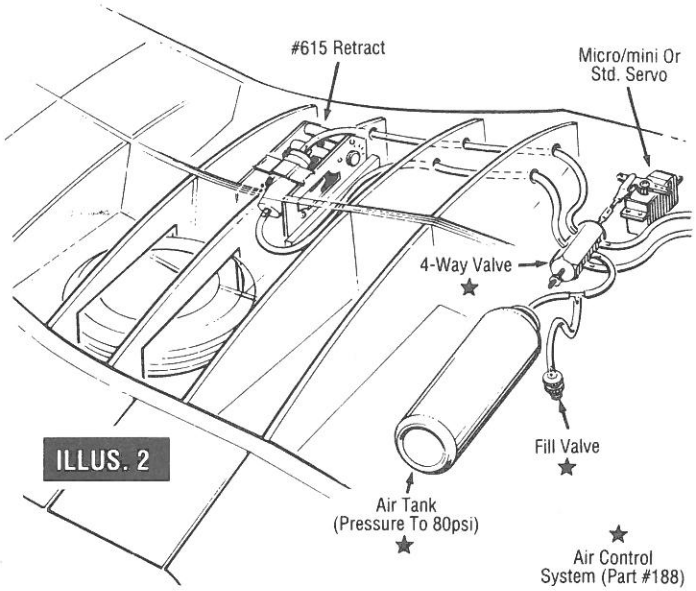
For foam wings; Mark position of landing gear frame on the wing. Hot wire cut a pocket to the size and shape of the retracts and wheels. Cut pocket 1/4" deeper than the height of retract frame. Using 1/4" plywood cut a piece to fit the retract frame and approximately 3/4" larger than that of the retract. Mark the plywood plate location on the foam wing and wire cut 1/4" deep area so the plate location on the foam wing and wire cut 1/4" deep area so the plate fits flush with the foam wing surface. Epoxy the plate in place and install controls.

F4-U CORSAIR INSTALLATION

ILLUS. 1

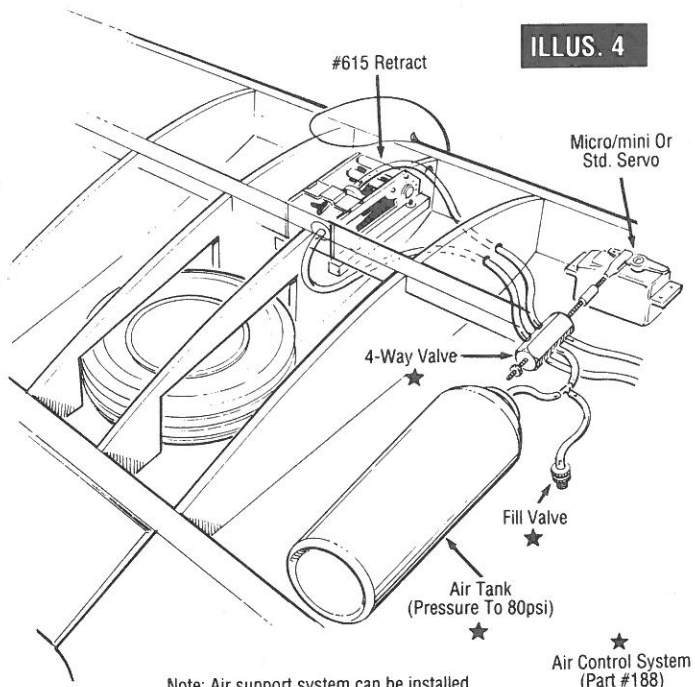


TYPICAL F4-U CORSAIR WING INSTALLATION



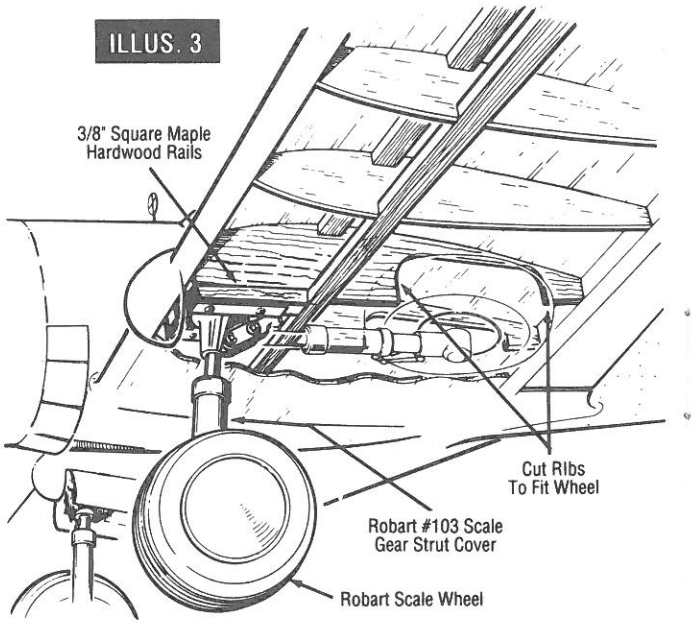
Note: Air support system can be installed in fuselage (ref. to illus. 6)

TYPICAL P-40 WING INSTALLATION



Note: Air support system can be installed in fuselage (ref. to illus. 6)

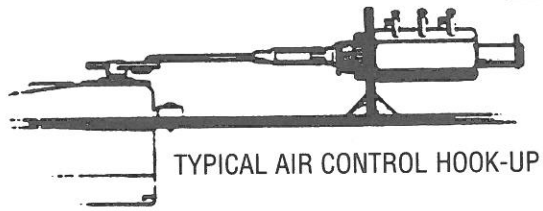
P-40 WARHAWK INSTALLATION



INSTALLING THE AIR CONTROL SYSTEM

■ INSTALLING THE CONTROL VALVE (REFER TO ILLUS. 5)

ILLUS. 5

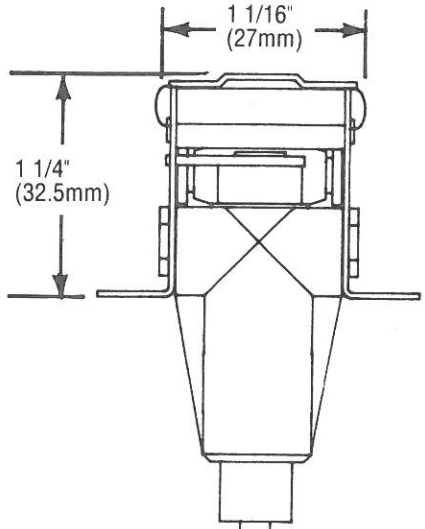


TYPICAL AIR CONTROL HOOK-UP

1. Position and mount the servo and 4-way Air Control Valve in aircraft fuselage or wing center section.

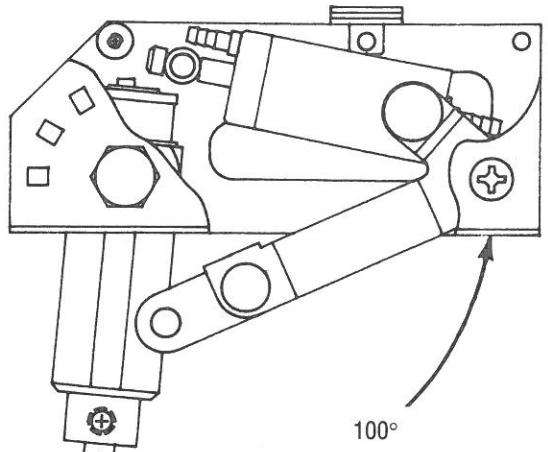
2. Connect the Air Control Valve to the servo as shown above.

3. Connect clevis to the nearest hole toward the center of the servo arm. Operate the servo (retract switch or button on your transmitter) and adjust the travel by moving the clevis on the servo arm. The valve spool should move to each stop without binding servo.



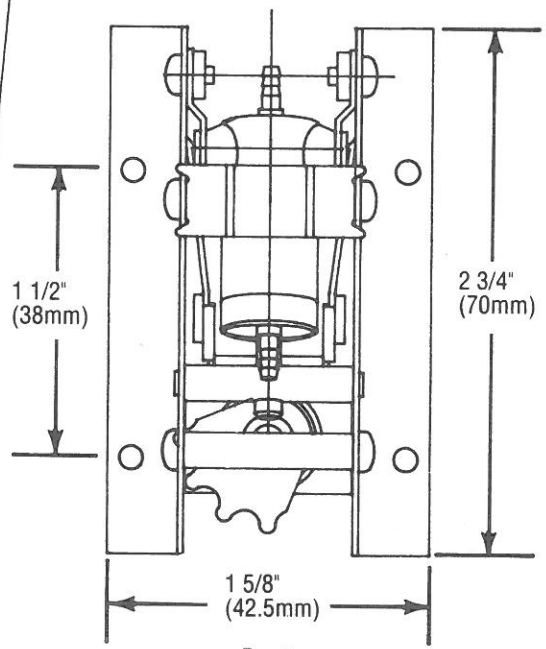
Front View

Side View



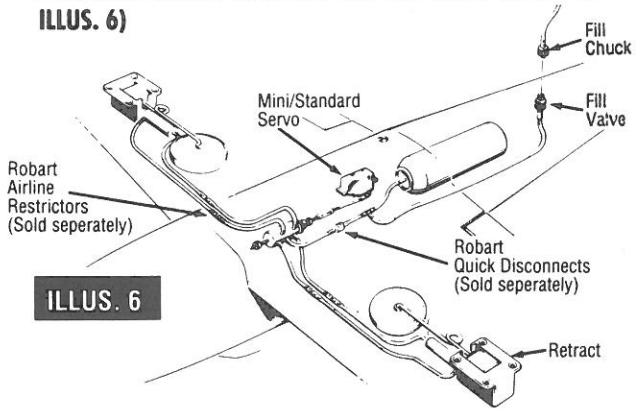
FULL SIZE THREE VIEW

Top View



Front

■ INSTALLING AIR TANK AND AIR FILL VALVE (REFER TO ILLUS. 6)



ILLUS. 6

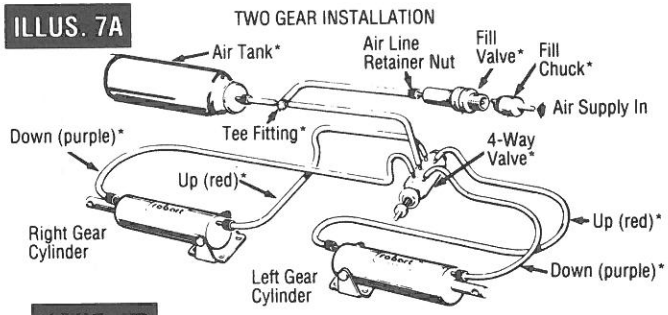
1. Install air tank in fuselage using servo mounting tape or rubber bands. Use a foam cushion if tank is to be secured with rubber bands. *HINT:* For better adhesion of mounting tape to balsa or plywood, first coat the wood with ZAP CA or Z-POXY FINISHING RESIN.

2. Drill or cut a 5/16" hole in a convenient location on the fuselage and mount the fill valve with the knurled nuts provided (keep fill valve out of engine exhaust area).

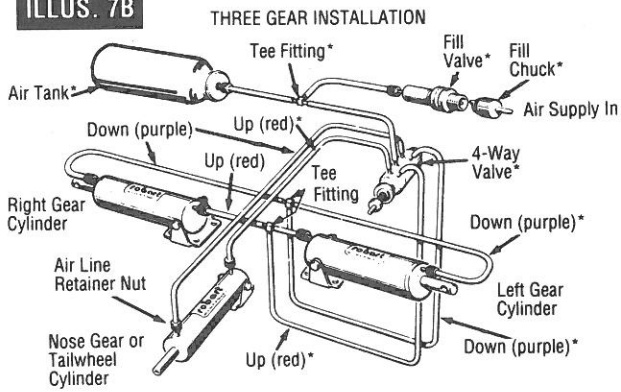
■ CONNECTING THE AIR SYSTEM (REFER TO ILLUS. 6, 7A AND 7B)

NOTE: All items with * shown are included in ROBART #188 Air Control Kit

ILLUS. 7A



ILLUS. 7B



1. With Retracts, 4-way valve, air tank and fill valve installed, connect the air line tubing as shown in ILLUS. 7A for the main gear only installation or as shown in ILLUS. 7B for a tri-gear installation. *HINT:* To make it easier to install the air line tubing on nipples, nibble on the ends of the air line to soften line before pushing on to nipple.

2. Fill air tank with clean dry air to a maximum of 80 psi. Operate system through entire cycle and check operation.

■ LANDING GEAR WIRE INSTALLATION (REFER TO ILLUS. 8A AND 8B)

1. Install your #615 Rotating Retracts as per installation drawings.

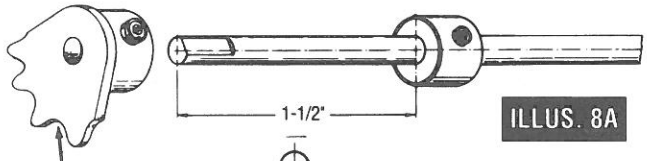
2. Once your gear is installed, measure and mark the landing gear wire for the correct length to the center line of the axle.

3. Remove the landing gear from the wing. Loosen the set screw of the gear sector and remove gear wire from retracts. (See Illus. 8A)

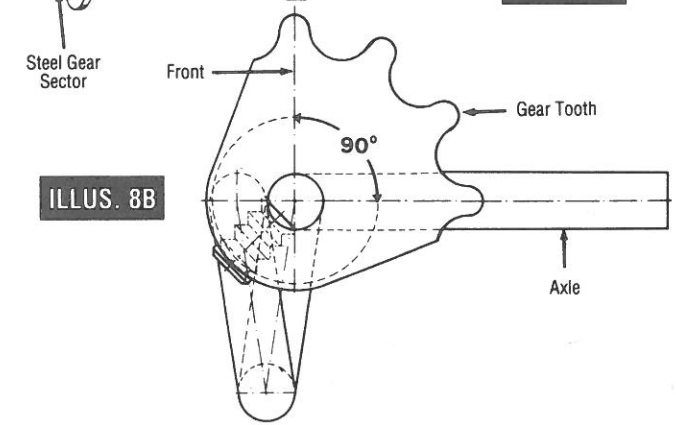
4. With a torch, carefully heat the area to be bent for the axle to a dull red color, place in a vise and bend the axle 90° to the coil spring. (See Illus. # 9A, 9B, 9C and 9D)
NOTE: be sure to bend the axles for both a right and left gear leg! An adjustable axle can be used instead of bending wire. See your local hobby shop to purchase this adjustable axle.

5. Looking from the top of the landing gear wire, position the gear sector on the wire so that the first gear tooth falls in line with the axle. Mark the gear sector set screw position on the wire and file or grind a flat on the wire to secure gear. NOTE: Be sure that you make a right and left set of landing wire. (See Illus. 8B)

6. Reinstall the landing gear wire into the retracts and install in wing.



ILLUS. 8A



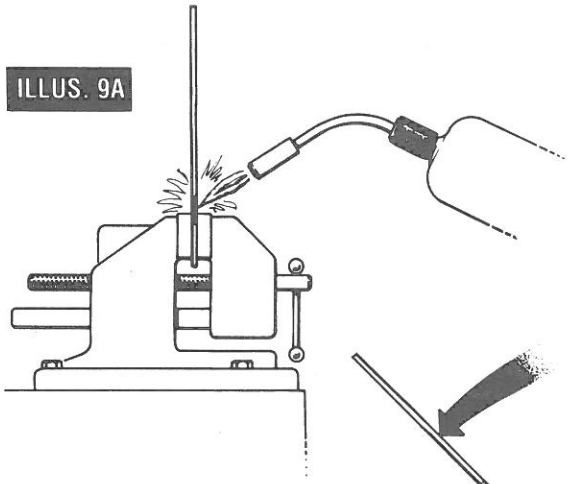
ILLUS. 8B

■ BENDING STRUTS FOR AXLE (REFER TO ILLUS. 9A, 9B, 9C AND 9D)

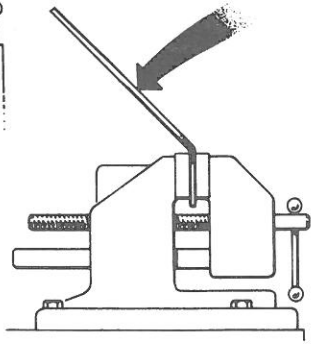
NOTE: ROBART Retracts are supplied with straight, tempered steel 3/16" dia. struts. Each strut must be cut and bent to form the strut and axle for your particular aircraft. The following illustrates how to bend the struts.

1. Mark the strut where bend is to be made and clamp in a vise. (Illus. 9A).

ILLUS. 9A

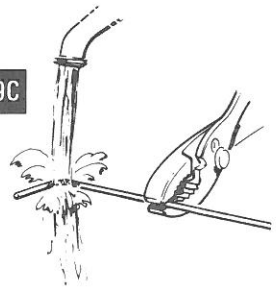


ILLUS. 9B



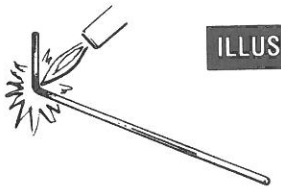
2. Using torch, heat the area where the bend will be **red hot**. Continue heating while bending strut 90°. (The wire should bend easily at red heat. If not, keep heating until bright red color and/or use a small peening hammer to hammer a bend in place (Illus. 9B).

ILLUS. 9C



3. When satisfied with the bend, remove from vise and quench in water. CAUTION: STRUT WILL BE EXTREMELY HOT, USE CARE IN HANDLING! (Illus. 9C).

ILLUS. 9D



4. After quench, reheat bend to **FIRST** color change (grayish blue color) and let cool. **DO NOT QUENCH AGAIN** or get red hot! (Illus. 9D).

5. Using a cut off wheel, cut the axle to the proper length for your appropriate wheel.

ADDITIONAL NOTES:

1. Retractable tailwheels are available from ROBART. Order part #121. These units can be operated with a standard servo or pneumatically using ROBART #165 Air Cylinder (Pneumatic installation, refer to illus. #7B).

2. Functional oleo struts are also available from Robart. #650 Robostruts can be used with retracts, replacing the wire gear strut provided. (See illus. 10).

TYPICAL ROBOSTRUT INSTALLATION

ILLUS. 10