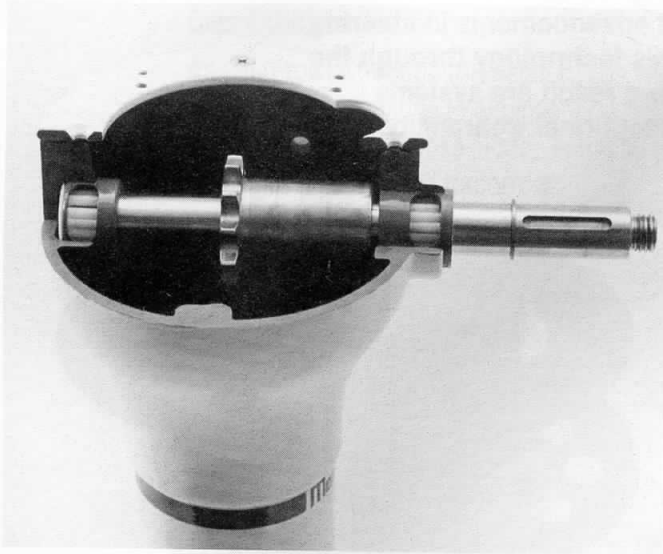




## steering quality and innovation

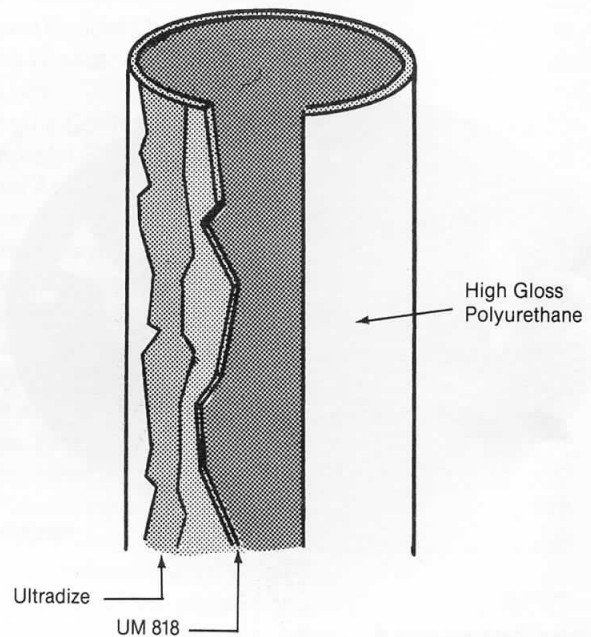


### WHEEL SHAFT BEARING SYSTEM

Through the use of high strength delrin materials we have engineered a system with virtually no wear on either the wheel shaft or the pedestal housing. We have avoided the problems that plague stainless roller systems — wearing on the aluminum race, shaft wear and constant lube maintenance. We utilize a delrin roller bearing running between an outer delrin sleeve and a stainless wheel shaft. In testing for tensile strength, we find they hold in excess of 8000 lbs. In cycle testing we find they run **three times** longer than the competition's. (Copies of this test are available on request.) Best of all, there is virtually no additional cost to the customer for this added feature.

### MATERIALS AND FINISHES

All die cast pedestals are now made with a new alloy, UM 818. This alloy flows well, producing strong, void-free castings and has greater tensile strength than permanent mold 356 alloy used by other manufacturers. It is also as corrosion resistant as 356A. Next we use a new proprietary process called Ultradize. This is a hard coat anodized process with a clear finish. It is 20 microns thick (which meets mill specification) and is eight times harder than any other clear finish. It has a Rockwell hardness of 50C. Salt water corrosion tests show it lasts five times longer than a conventional clear anodized process. It provides a superior substrate for optimal paint adherence. Long after the boat goes in the water a Merriman pedestal will retain a superb appearance to match the top quality materials that are used in its manufacture.



### CYCLE TESTING

Merriman has always been known for its quality products. Much of this quality is derived from extensive product testing. Pictured here is the test stand developed to put our new systems through their paces (as well as the competition's). From this we can further improve such things as idler design, bearing systems, chain and wire wear, and a host of other things as well. We feel it is this type of in-house testing and development that separates us from the competition. Of course, we don't expect this to replace actual hands-on, in the field, testing. We continually pursue that aspect as well, testing our gear on boats such as America II, Spirit of Los Angeles (Dan Byrne's latest round-the-world racer) and others.

# pedestals and bearings



## ROLLER AND JOURNAL BEARINGS

Merriman has the largest selection of pedestals available. We make three basic styles of pedestals, each available with two variations of shaft bearings. Our standard bearing is a delrin journal bearing that is low friction and has a low coefficient of friction. In 1985 we also introduced the delrin roller bearing system. After extensive field and in-

(See page 50 for parts list of Y101 and Y111 pedestal shafts.)

These bearings are available in three different pedestals —

**Y101** — Our journal bearing pedestal is appropriate for most applications. It has a seven inch diameter head and will accept our compass adapters (Y220-) or several styles of binnacle compasses.

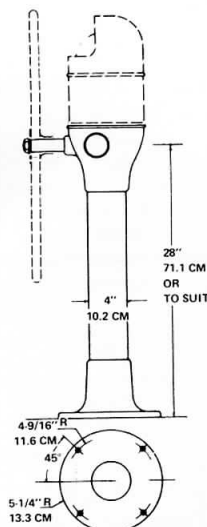
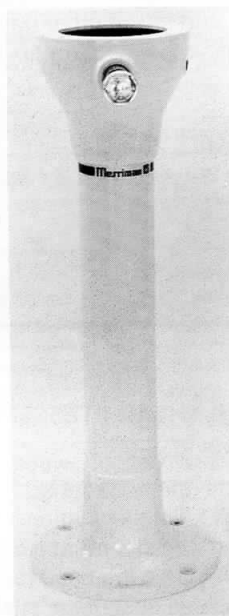
**Y111** — The same pedestal as our Y101 but with roller bearings.

**Y102** — This pedestal, with an eight inch diameter head, is specifically designed to accommodate large diameter binnacle compasses. It also takes our standard sprockets.

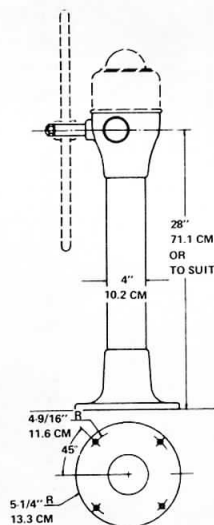
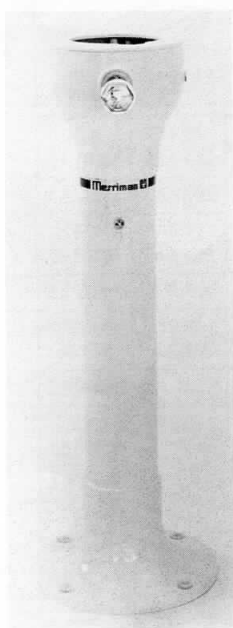
**Y112** — The same pedestal as our Y102 but with roller bearings.

**Y110** — This is a specialized, eight inch diameter head pedestal designed to take large diameter sprockets. This makes it especially well suited for racing boats where a minimum number of wheel turns is desirable.

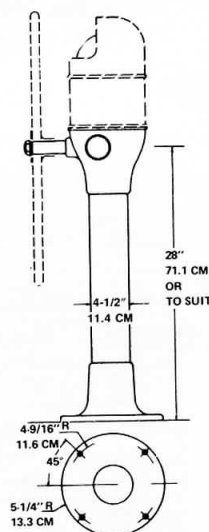
house testing, we have found this to be the best possible combination of materials. The delrin outer sleeve protects the pedestal from wear and the delrin rollers are then free to run between the shaft and the outer sleeve. A thrust bearing on the end of the shaft eliminates end plate friction.



Y102 Journal Bearing  
Y112 Roller Bearing



Y101 Journal Bearing  
Y111 Roller Bearing



Y110 Journal Bearing



## disc drive | cable system

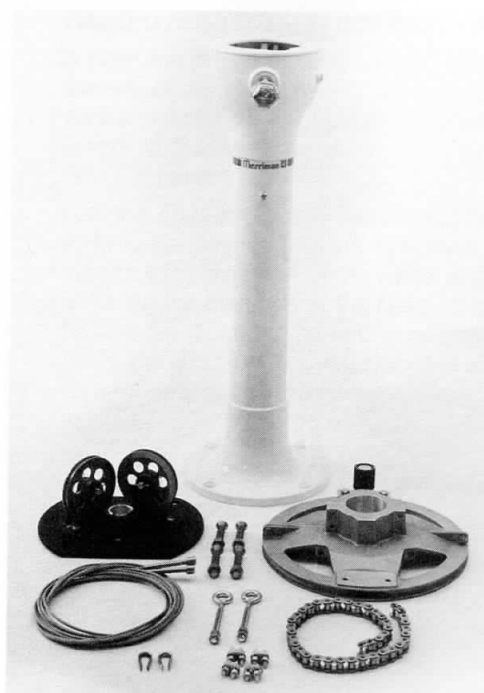
### Y505 DISC DRIVE

The disc drive is the most popular steering system sold today. Most modern designs have vertical rudder shafts which is the ideal situation for this unit. The disc is installed on the rudder shaft where a quadrant is normally installed. One big advantage of this system is that the "turning sheaves" are eliminated. Cables lead directly from below the pedestal to the groove in the rim of the disc drive.

The disc must be installed in precisely the right location on the rudder shaft so the cables will lead properly. If the rudder shaft is perpendicular or near so, the disc drive works well. For rake positive or negative to the rudder shaft use a quadrant system with Y411 or Y416 sheave assemblies.

Be sure there is room for this disc to be installed and there are no obstructions below deck between the rudder post and the idler. Depending on location of the rudder shaft, the pedestal may be located either forward or aft of the disc. If the pedestal is to be forward of the rudder shaft, Y412 lapping idler plate must be used below the pedestal. This unit allows for crossing the cables as they lead down the pedestal column. See details on this page. Our Y607-000 System uses this disc drive unit.

If pedestal is aft of rudder post, use Y410 idler.



### Y607-000 Standard Steering System Includes:

- |              |                         |              |           |
|--------------|-------------------------|--------------|-----------|
| 1 — Y101-511 | Pedestal w/#50 Sprocket | 1 — Y505-108 | 8" Disc   |
| 1 — Y412-104 | 4" Adj. Lapping Idler   | 1 — Y507-000 | Disc Stop |
| 1 — Y440-524 | Rigging Kit             |              |           |

Size of disc is variable. Specify wheel size.

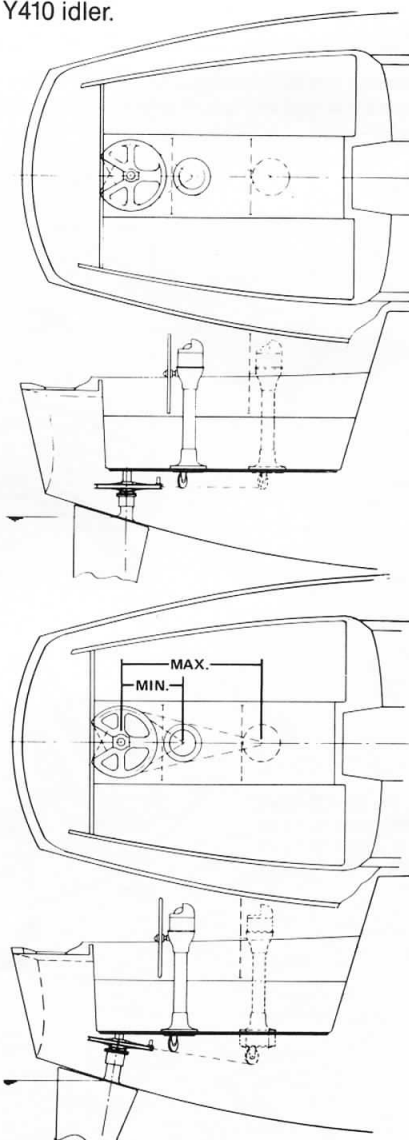
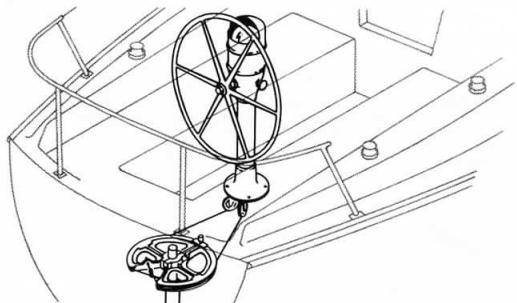
#### Specifications:

- Ht. to shaft center line 28"/71 CM;
- Total weight of system 45 lbs./20.2 KG;
- Turns of wheel, H.O. to H.O., 80° 2 turns.

When ordering give the following information: compass to be used, rudder shaft diameter, design or class of boat and type of engine and transmission.

#### DISC SIZE

SHEAVE SIZE		6" Y505-106	8" Y505-108	10" Y505-110	12" Y505-112
4"	min.	10" 25.4cm	12" 30.5cm	13½" 34.3cm	15" 38cm
	max.	36" 0.009M	48" 1.2M	60" 1.5M	72" 1.8M
6"	min.		13½" 34.3cm	15" 38cm	16½" 42cm
	max.		32" 0.8M	40" 1.0M	44" 1.1M





## accessories for steering systems



**Y422 FLAT STAINLESS STEEL  
PEDESTAL BOLTS W/NUTS**

1/2" dia. — for all other steerers  
See price sheet for lengths.



**Y422 ALUMINUM PEDESTAL  
MOUNTING BOLTS W/NUTS**

Y422-141 1/2" x 4" only

**Y422 NYLON COLLARS FOR  
1/2" MOUNTING BOLTS**

Y422-100 Pkgs. of 4 min.  
(Now included in all new pedestal  
orders).



**Y424 CHAIN TO WIRE ROPE SWAGE  
FITTINGS**

PART NO.	WIRE SIZE	CHAIN SIZE	BREAKING STRENGTH POUNDS
Y424-2012	5/32	#40	2800
Y424-3012	3/16	#50	4200
Y424-4012	7/32	#50	5600
Y424-5012	1/4	#50	7000
Y424-5112	1/4	#60	7000
Y424-7012	5/16	#50	9800
Y424-7112	5/16	#60	9800



**Y425 STAINLESS STEEL CABLE  
SWAGE STUD**

PART NO.	OVERALL LENGTH	WIRE SIZE	THREAD SIZE	THREAD LENGTH
Y425-206	6 5/8"	3/16"	3/8-16	3 3/8"



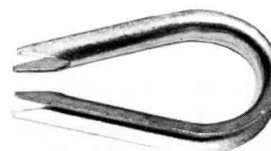
**Y425 STAINLESS STEEL CABLE ADJUSTING  
EYE BOLTS WITH NUT AND LOCKNUT**

PART NO.	OVERALL LENGTH	THREAD SIZE	THREAD LENGTH
Y425-212	5 1/2"	3/8-16	3 1/2"



**Y426 WIRE ROPE 7 x 19 CONSTRUCTION S/S**

PART NO.	SIZE	BREAKING POUNDS
Y426-206	3/16"	3900
Y426-207	7/32"	5200
Y426-208	1/4"	6600
Y426-210	5/16"	8200



**Y427 STAINLESS STEEL  
WIRE ROPE THIMBLES**

PART NO.	SIZE
Y427-206	3/16"
Y427-208	1/4"
Y427-210	5/16"



**Y428 CABLE CLAMPS GALVANIZED**

PART NO.	SIZE
Y428-206	3/16"
Y428-208	1/4"
Y428-210	5/16"



**Y423 WHEEL NUTS**

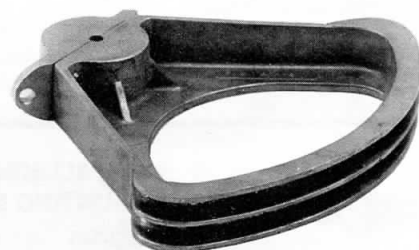
PART NO.	SIZE	THREAD	FINISH
Y423-0014	3/4"	10	Chrome



## Y500 QUADRANTS SMALL BORE

Cast of manganese bronze for maximum strength. When ordering state rudder shaft size. Price of quadrant includes finished bore to your size. Also state if keyway is desired and give location and size of key to be used.

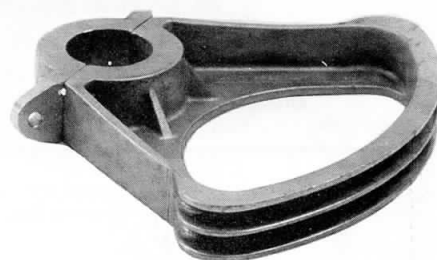
PART NO.	SIZE (QUADRANT RADIUS)	DISTANCE THRU HUB	MAXIMUM BORE	WEIGHT EACH
Y500-308	8"/20.3 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2"/5.08 CM	8 lbs./3.6 KG
Y500-310	10"/25.4 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2"/5.08 CM	10 lbs./4.5 KG
Y500-312	12"/30.5 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2"/5.08 CM	12 lbs./5.4 KG
Y500-314	14"/35.6 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2 <sup>1</sup> / <sub>2</sub> "/6.35 CM	16 lbs./7.3 KG
Y500-316	16"/40.6 CM	2 <sup>5</sup> / <sub>8</sub> "/6.67 CM	3"/7.62 CM	20 lbs./9.1 KG
Y500-318	18"/45.7 CM	2 <sup>5</sup> / <sub>8</sub> "/6.67 CM	4"/10.16 CM	24 lbs./10.8 KG



## Y501 QUADRANTS LARGE BORE

Manganese bronze quadrants made for large diameter pipe size rudder stocks as used on spade rudders. When ordering state rudder shaft size.

PART NO.	SIZE (QUADRANT RADIUS)	MINIMUM BORE	MAXIMUM BORE	WEIGHT EACH
Y501-308	8"/20.3 CM	2 <sup>3</sup> / <sub>8</sub> "/6 CM	2 <sup>7</sup> / <sub>8</sub> "/7.3 CM	11 lbs./5 KG
Y501-311	10"/25.4 CM	3"/7.62 CM	4"/10.16 CM	13 lbs./5.9 KG
Y501-312	12"/30.5 CM	2 <sup>3</sup> / <sub>8</sub> "/6 CM	2 <sup>7</sup> / <sub>8</sub> "/7.3 CM	14 lbs./6.4 KG
Y501-313	12"/30.5 CM	3"/7.62 CM	3 <sup>1</sup> / <sub>2</sub> "/8.89 CM	16 lbs./7.3 KG
Y501-314	14"/35.6 CM	3"/7.62 CM	3 <sup>1</sup> / <sub>2</sub> "/8.89 CM	20 lbs./9.1 KG
Y501-317	16"/40.6 CM	4"/10.16 CM	4 <sup>1</sup> / <sub>2</sub> "/11.43 CM	26 lbs./11.8 KG



## Y502 OFFSET QUADRANTS

Manganese bronze quadrants cast with an offset of 2". Solves installation problems where there is limited room below the cockpit on boats with excessive rake to the rudder shaft.

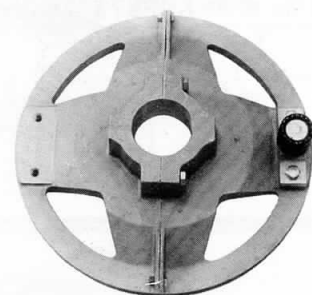
PART NO.	SIZE (QUADRANT RADIUS)	DISTANCE THRU HUB	MAXIMUM BORE	OFFSET IN/CM	WEIGHT EACH
Y502-308	8"/20.3 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2"/5.08 CM	1 <sup>1</sup> / <sub>2</sub> "/3.8 CM	8 lbs./3.6 KG
Y502-310	10"/25.4 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2"/5.08 CM	2"/5 CM	10 lbs./4.5 KG
Y502-312	12"/30.5 CM	1 <sup>5</sup> / <sub>8</sub> "/4.13 CM	2"/5.08 CM	2"/5 CM	12 lbs./5.4 KG
Y502-314	14"/35.6 CM	1 <sup>7</sup> / <sub>8</sub> "/4.76 CM	2 <sup>7</sup> / <sub>8</sub> "/7.3 CM	2 <sup>1</sup> / <sub>4</sub> "/5.7 CM	22 lbs./10 KG



## Y505 DISC DRIVE

Cast of corrosion-resistant aluminum alloy, this disc drive is made in two halves for easy assembly onto the rudder shaft. Be sure to order a disc stop. Eye bolts not included. Maximum keyway size is <sup>3</sup>/<sub>8</sub>".

PART NO.	SIZE	MINIMUM BORE	MAXIMUM BORE	OUTSIDE DIAMETER	WEIGHT
Y505-106	6"	0	2 <sup>7</sup> / <sub>8</sub> "/7.3 CM	12 <sup>5</sup> / <sub>8</sub> "/32.1 CM	7 lbs./3.2 KG
Y505-108	8"	0	2 <sup>7</sup> / <sub>8</sub> "/7.3 CM	16"/40.6 CM	9 lbs./4.1 KG
Y505-109	8"	0	3 <sup>1</sup> / <sub>2</sub> "/8.9 CM	16 <sup>7</sup> / <sub>8</sub> "/42.9 CM	13 <sup>1</sup> / <sub>2</sub> lbs./6.1 KG
Y505-110	10"	0	2 <sup>7</sup> / <sub>8</sub> "/7.3 CM	20 <sup>3</sup> / <sub>4</sub> "/52.7 CM	11 lbs./5 KG
Y505-111	10"	3"/7.62 CM	5"/12.7 CM	20 <sup>3</sup> / <sub>4</sub> "/52.7 CM	11 lbs./5 KG
Y505-112	12"	1 <sup>3</sup> / <sub>4</sub> "/4.45 CM	5"/12.7 CM	25"/63.5 CM	23 lbs./10.4 KG



## Y507 DISC STOP

One disc stop is needed on all disc drive units. If additional stops or special heights are needed, please specify. Standard sizes shown. Disc stop is made from extruded aluminum, lab tested for strength.

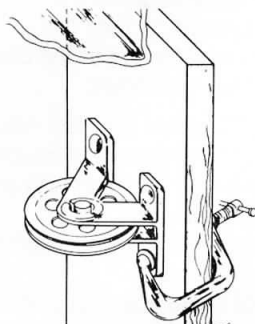






# installation instructions

Detail 11



If you now have suitable mounting surfaces, proceed as follows:

1. Temporarily mount the quadrant and idler plate.
2. Temporarily mount the outboard sheaves with a clamp as shown in Detail 11.
3. Take a spare line and adjust the idler sheaves and outboard sheaves to align correctly with the quadrant.
4. Mark and drill the sheave mount holes. We recommend that the sheaves be bolted, not screwed, and that a spreader bar be used.
5. Permanently mount the sheaves and quadrant.
6. Install a quadrant stop. (See page 47 for suggestions.)
7. Proceed to Step 5 — Final Installation.

Detail 12



## Step 5: Final Installation

With the alignment of the sheaves completed the pedestal may be installed. To facilitate installation of any accessories, such as engine controls or binnacle lights, it is best to install them now.

Proceed as follows:

1. Assemble the chain/wire rope steering cable assembly as shown in Detail 12.
2. Tie a piece of string around the center link so that you will be able to find the middle of the chain later. This will help with the final adjustment.
3. With the pedestal unattached from the deck, lead the steering cable assembly down the pedestal on either side of the chain sprocket shaft. Center the chain over the sprocket.
4. Drop leader lines down the pedestal for any accessory wires you may have to run. Pay careful attention that the leaders stay forward or aft inside the pedestal. This will prevent them from jamming in the chain/wire steering cable assembly.
  - For example, if the binnacle compass light wire

starts out down the aft side of the pedestal, keep it aft the entire length and have it exit through the aft hole in the idler plate.

- For engine control cables, refer to the appropriate instructions for your control.
5. Now, mount the pedestal to the cockpit floor and the idler plate. Be sure to use plenty of bedding compound and the plastic bolt insulators provided with your pedestal.
  6. If you have a disc system it is important that the cables cross in the pedestal as shown in Detail 13. It is also important that the port cable crosses aft of the starboard cable or the cables will rub because the sheaves are staggered.
  7. If you have a quadrant system, then the wires **do not** cross (see Detail 14).

**Note:** There are exceptions to #6 and #7 above:

Disc in front of pedestal	— Wires are uncrossed
Disc facing aft	— Wires are uncrossed
Quadrant in front of pedestal	— Wires are crossed
Quadrant facing aft	— Wires are crossed

Detail 13

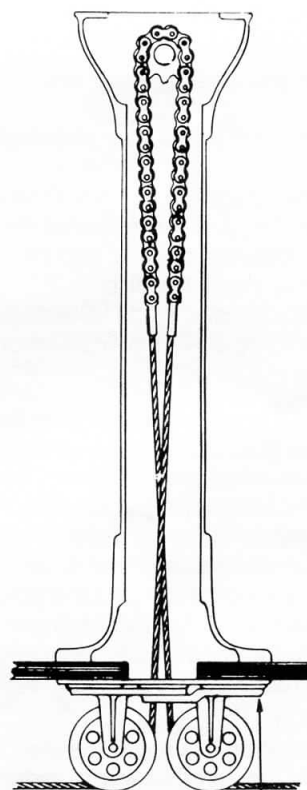


FIG. 412 LAPPING IDLER PLATE

# installation instructions



Detail 14

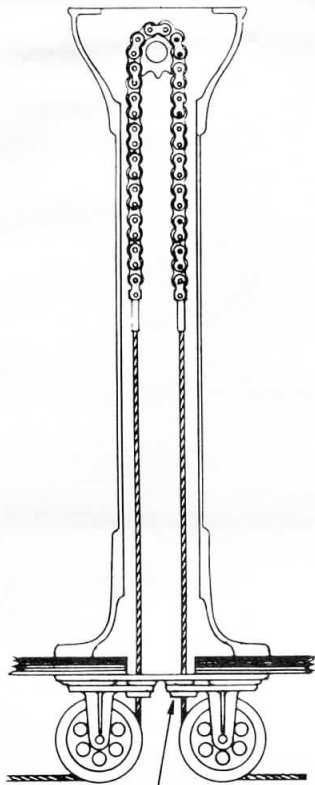
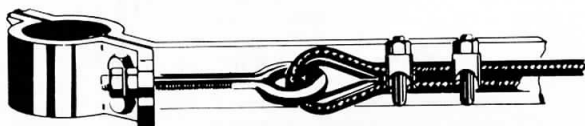


FIG. 410  
IDLER PLATE

8. Continue running the steering cable assembly through the appropriate sheaves to the disc/quadrant.
9. Thread the Y425-212 Eye Bolts through the disc/quadrant as shown in Detail 15. Allow enough room for adjustment of the cable later.
10. Lead the cable around the grooves in the disc/quadrant and through the Y425-212 Eye Bolts.
11. Install the Y427 Thimbles and the Y428 Cable Clamps.
12. With the center link of the chain resting on the sprocket in the pedestal, pull all the slack out of the cable assembly and tighten the Y428 Cable Clamps. Do not set the tension so tight as to make the steering stiff. We recommend 1" of flex per foot of cable with hand pressure applied. You should use the eye-bolts to make your final adjustment.
13. Be sure to tighten all nuts and bolts.

Detail 15



## Maintenance of the System

After use, the tension of the cables should be checked and adjusted and fastenings tightened if necessary. This should be done seasonally.

Shaft bearings in the pedestal have been lubricated at the factory. No particular damage can result from lack of lubrication but we recommend a light teflon spray at the front and rear bearings twice a season or as needed. This can be done by removing the compass and at the same time apply a light amount on the roller chain while turning the system from hard over to hard over. The sheave bearings are of prelubed type but should be oiled three to four times a season.

To maintain the appearance of your pedestal, we recommend that you wax once a year and rinse with fresh water after use in salt water. If your pedestal should chip, we have touch-up kits available.

## Engine Control Installation Instructions — Dual Lever

(See parts list and diagram on page 50.)

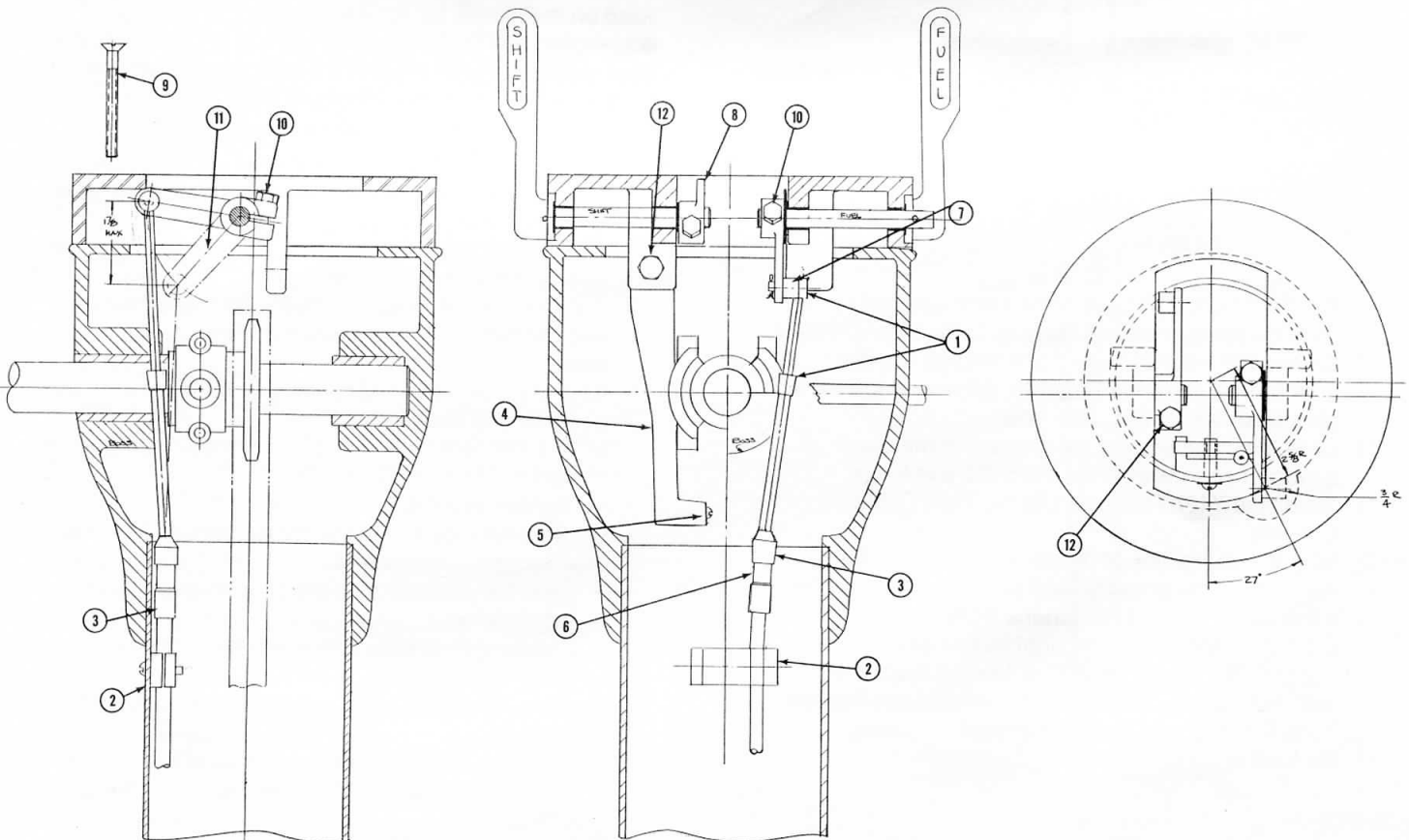
Merriman's fuel reversing engine control is designed to allow the fuel lever to be logically oriented, i.e. push forward on the handle for increased speed. In order to accomplish this the fuel control cable is routed down the back side of the pedestal and the shift cable down the front side. The following directions along with the diagram on page 46 will allow for a simple installation:

1. Begin by routing the control cables up the pedestal.
  - The fuel cable will come up the aft hole of the idler and remain on the aft side.
  - The shift cable comes up the front hole of the idler and remains on the front side.
2. Pull both cables as far up the pedestal as possible and remove the nuts and seals (1) from the cable ends.
3. Beginning with the fuel cable, attach the cable to the pedestal clip as shown (2).
  - The stainless steel end of the cable should butt up against the clip (3).
  - Tighten securely.
4. On the shift side attach the aluminum shift leg to the engine control housing (4).
  - Slide the shift cable up the hole on the bottom of the shift leg.
  - Secure with tension screw into the groove on the cable hub (5) (6).
5. Replace the rubber seals and nuts (1) on the control cable ends.
6. Remove the fuel and shift lever pivots (7) (8).
  - Be sure to keep them separate because they are different.
7. Screw the pivots onto their respective control cables.
  - Re-install the pivots on the levers.
  - The pivots and levers must be oriented as shown (1) with the fuel and shift pivots facing outward (see diagram 2).



## installation instructions

8. Lower the unit onto the pedestal and attach with  $\frac{1}{4}$ -20 x  $1\frac{1}{4}$ " R.H. machine screws (9).
9. The angle of the fuel and shift levers must be adjusted.
  - a. Beginning with fuel lever, loosen the tension screw.
    - With the lever loose on the fuel lever shaft, adjust the handle to a vertical position and push the fuel cable and lever down towards the bottom of the pedestal until it approximates the angle shown (11). Remember — the handle should still be in the vertical position.
    - Tighten the cap screw tightly (10).
  - b. On some models the angle of the shift lever is fixed by a keyway. However, if you have a Y321 control you must adjust the angle.
    - Loosen the tension screw on the shift lever.
    - Place the transmission in neutral.
    - Place the shift handle in the vertical position.
    - Tighten the tension screw.
10. Check all fasteners to insure they are tight.

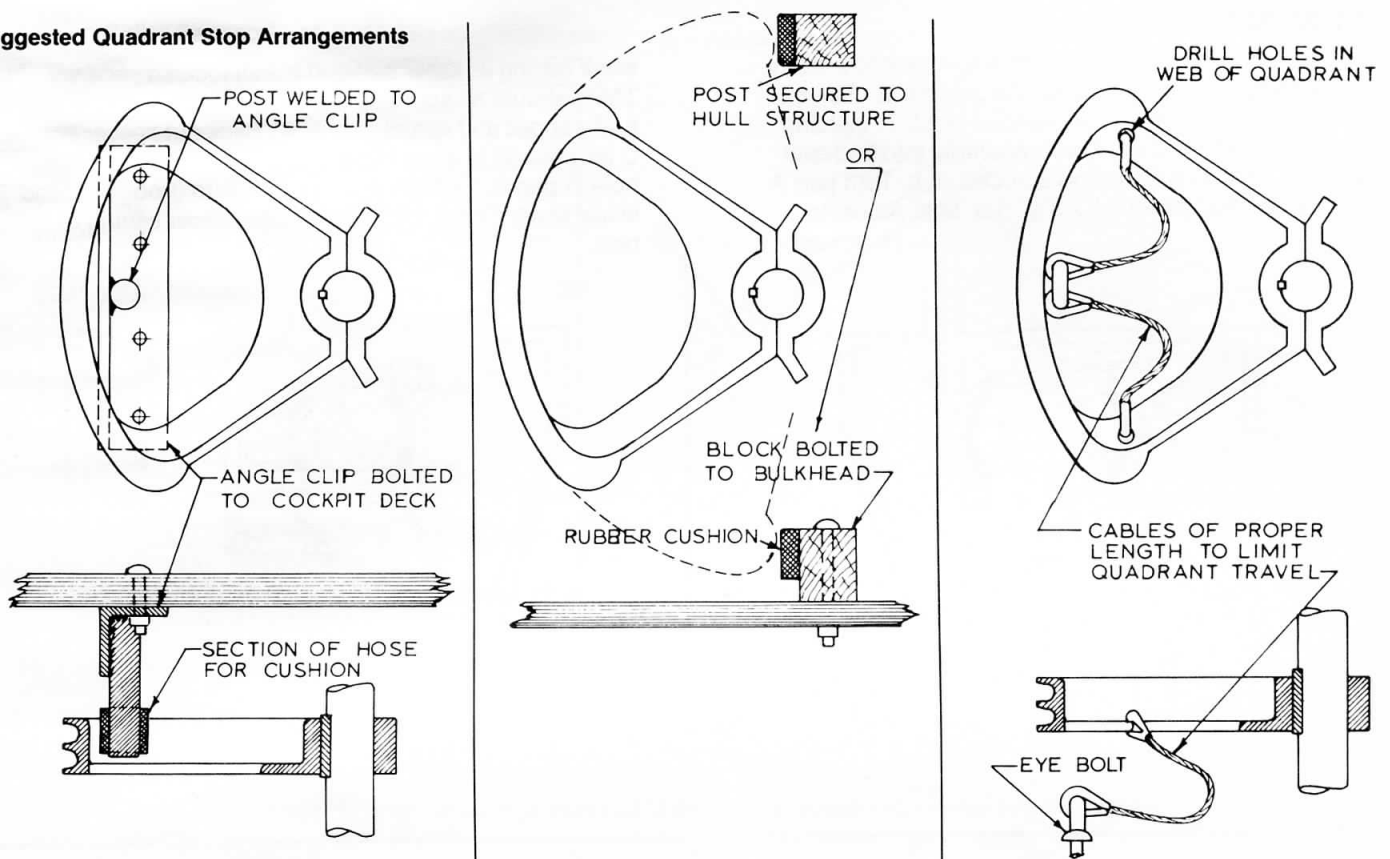




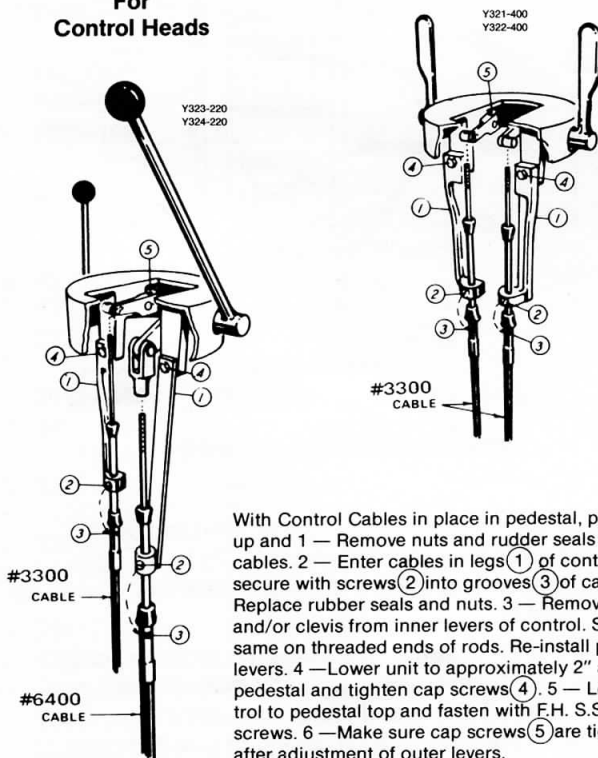
# installation instructions



## Suggested Quadrant Stop Arrangements

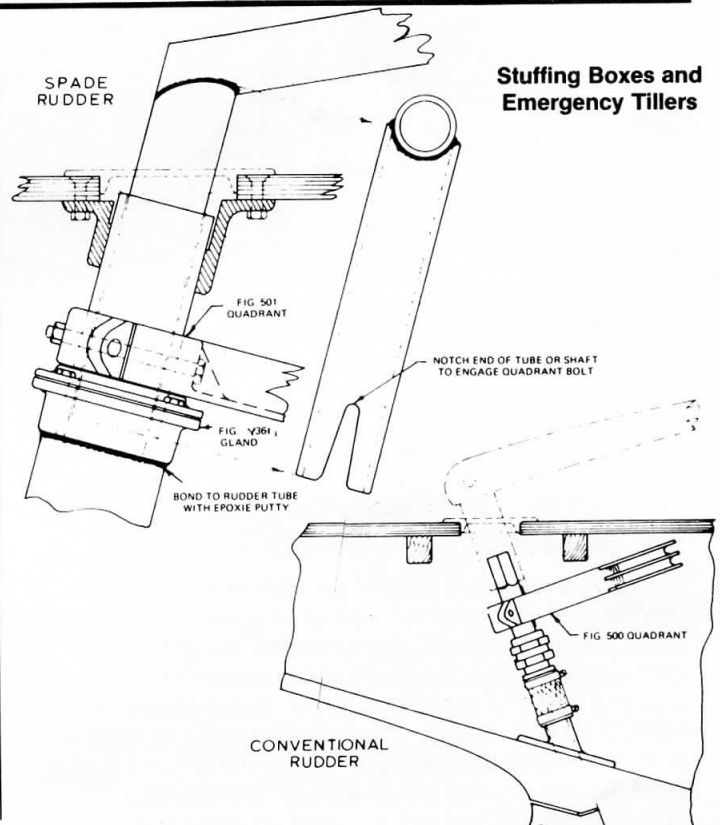


## Installation Instructions For Control Heads



With Control Cables in place in pedestal, pull cables up and 1 — Remove nuts and rudder seals from cables. 2 — Enter cables in legs (1) of control and secure with screws (2) into grooves (3) of cable hub. Replace rubber seals and nuts. 3 — Remove pivots and/or clevis from inner levers of control. Screw same on threaded ends of rods. Re-install pivots in levers. 4 — Lower unit to approximately 2" above pedestal and tighten cap screws (4). 5 — Lower control to pedestal top and fasten with F.H. S.S. machine screws. 6 — Make sure cap screws (5) are tightened after adjustment of outer levers.

## Stuffing Boxes and Emergency Tillers

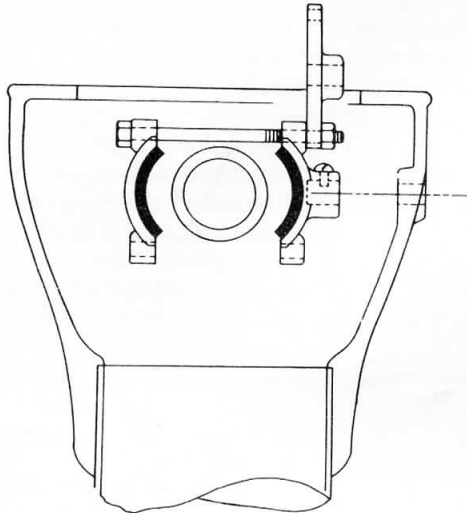




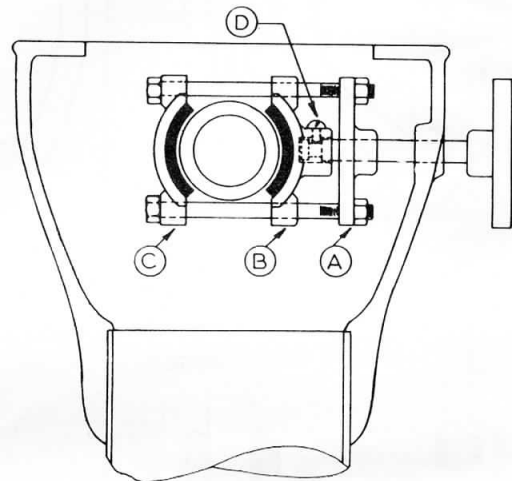
# installation instructions

## Y150-000 BRAKE ASSEMBLY

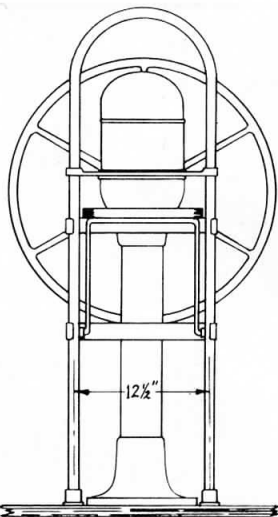
1. Stuff rags in pedestal head below sprocket to prevent loss of parts or tools down pedestal column. 2. Remove red rubber plug from side of pedestal head. 3. Holding part A in position shown, lower assembly into pedestal head with parts B & C around sprocket hub. Turn part A into position and install  $\frac{1}{4}$ " x  $3\frac{1}{4}$ " S.S. bolt. Adjust to



same setting as other bolt and install locknut securely. There should be approximately  $\frac{1}{16}$ " clearance between brake shoes and sprocket hub. 4. Back out keeper screw D far enough to allow hand wheel shaft to bottom into hole in part B. Tighten keeper screw into groove in hand wheel shaft. Check for freedom and proper setting of S.S. bolt.

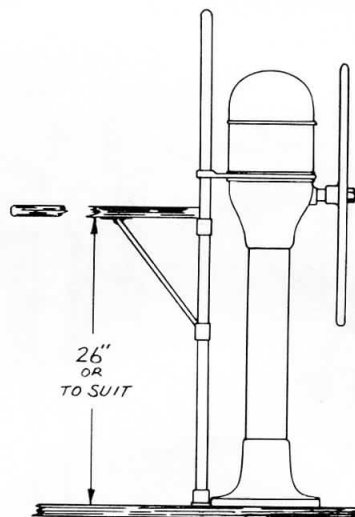


**Caution! Do Not Remove Or Change Setting Of S.S. Bolt Holding Parts "A" "B" & "C" Together.**



## Y230-000 FOLDING COCKPIT TABLE

1. Lift pedestal guard out of deck sockets and slide bracket with table attached up legs of guard. 2. Slide lower bracket up legs of guard and reinstall guard into deck sockets. 3. Lift table with upper bracket up guard legs to a height of approximately 26" above cockpit deck. Holding table in a horizontal position, make sure there is ample clearance between top corner of table and pedestal head. 4. Drill pedestal guard with  $\frac{9}{64}$ " drill and secure table bracket to guard with the #8 sheet metal screws.



5. Raise table to horizontal position. Drill and tap for lower bracket and secure to guard. 6. To lower table, spring support legs inward to release them from farrels on lower bracket.

**Note:** Pedestal guard sockets must be properly spaced so that table bracket will fit properly around guard legs. When installing guard and table at the same time, use lower table bracket to gauge spread of guard sockets.

# installation instructions



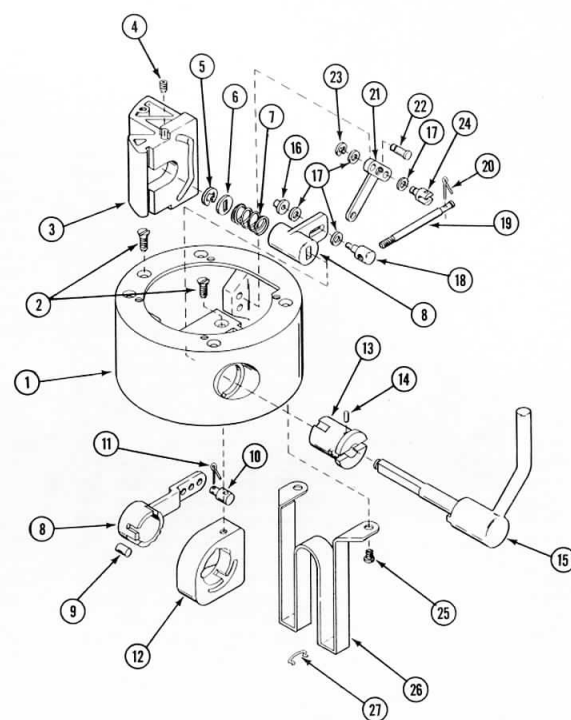
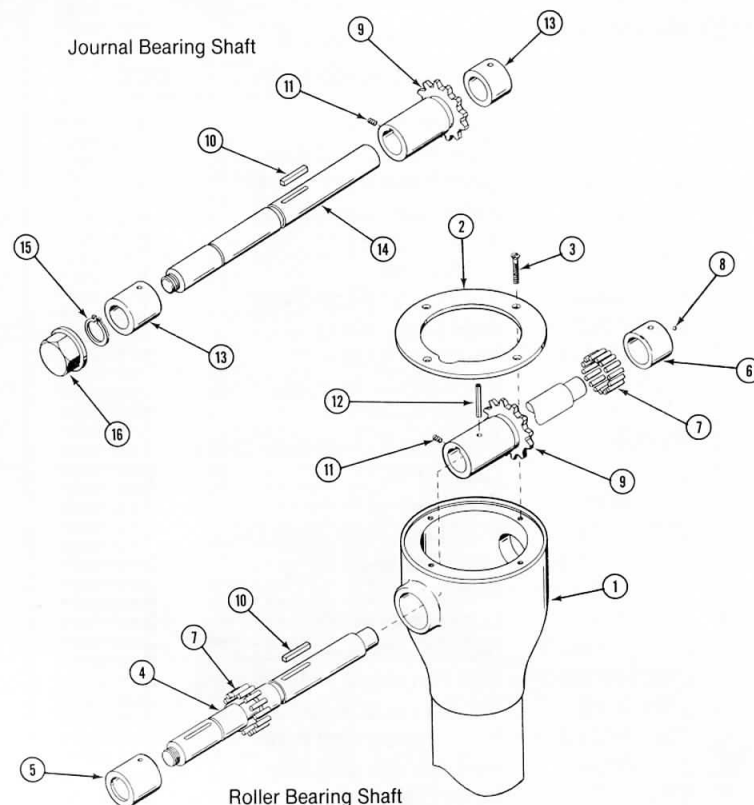
## Journal and Roller Bearing Shaft Pedestals

ITEM	PART NO.	DESCRIPTION	QTY.
1	Y100-0111	Head	1
2	Y100-0141	Mounting Plate	1
3	E302114040-2	Flat Hd. Phillips 1/4-20 x 1 1/4	4
4	Y100-0252	Shaft (Roller Brg.)	1
5	Y100-0280	Rear Race (Roller Brg.)	1
6	Y100-0200	Front Race (Roller Brg.)	1
7	Y100-0210	Rollers (Roller Brg.)	30
8	Y415-0050	Thrust Ball (Roller Brg.)	1
9	Y430-0123	Sprocket	1
10	Y100-0092	1/4" Key	2
11	E11105-024-2	Roll Pin	1
12	E331130500-2	Socket Set Screw	1
13	Y100-0180	Bushing (Journal Brg.)	2
14	Y100-0152	Shaft (Journal Brg.)	1
15	Y100-0102	Retaining Ring	1
16	Y423-0014	Wheel Nut	1

**Note:** Parts common to both types of shaft unless otherwise stated.

## Y325-400 Assembly/Parts List

ITEM	PART NO.	DESCRIPTION	QTY.
1	Y325-0010	Control Head	1
2	E302112400-2	Flat Hd. Mach. Screws 1/4-20 x 3/4	3
3	Y325-0030	Fuel Drive Guide	1
4	Y321-0122	Nylon Tip Set Screw 1/4-20 x 1/4	1
5	Y325-1142	Retaining Clip	1
6	Y325-1041	Washer	1
7	E60348-2	Spring	1
8	Y325-0071	Shift Arm	1
9	Y325-1060	Locking Roller	4
10	Y321-0073	Pivot Pin	1
11	E10101-2	Cotter Pin	1
12	Y325-0060	Stationary Shift Housing	1
13	Y325-0050	Moving Shift Housing	1
14	Y325-1050	Shift Lock Rod	1
15	Y325-0041	Shift Handle	1
16	Y325-1283	Fuel Drive Connector 2	1
17	Y325-1380	Delrin Washer	4
18	Y325-1183	Fuel Drive Connector (THD)	1
19	Y325-1082	Connecting Rod	1
20	E10101-2	Cotter Pin	1
21	Y325-0091	Fuel Lever	1
22	Y325-1092	Fuel Axle	1
23	Y325-1142	Retaining Clip	1
24	Y325-1193	Fuel Drive Connector Pin Slot	1
25	E303112400-2	Rd. Hd. Slot — 1/4-20 x 3/4	2
26	Y325-2012	Cable Holder	1
27	Y325-2022	Control Cable Retaining Clip	2
—	Y325-1162	Leaf Spring	4
—	E302111520-2	Mounting Bolts 1/4-20 x 4 3/4	3



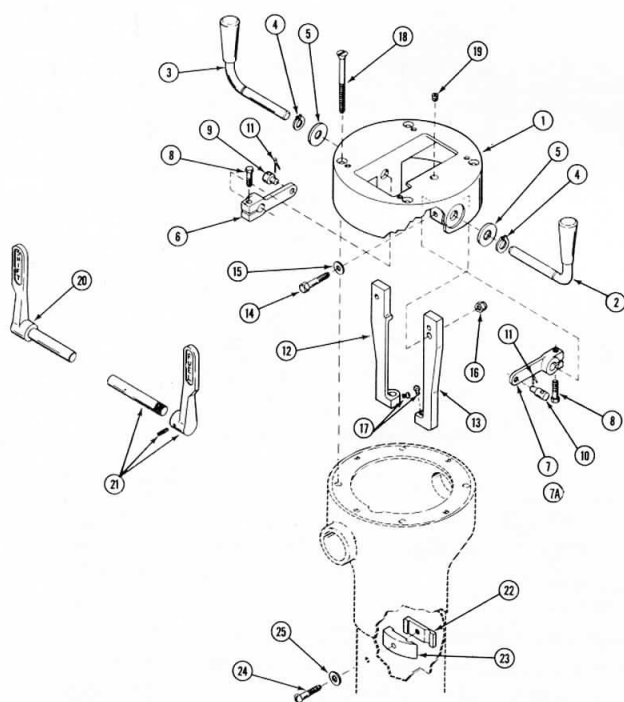
Y325-400



# installation instructions

## Y321-100/102, -400/402 Assembly/Parts List

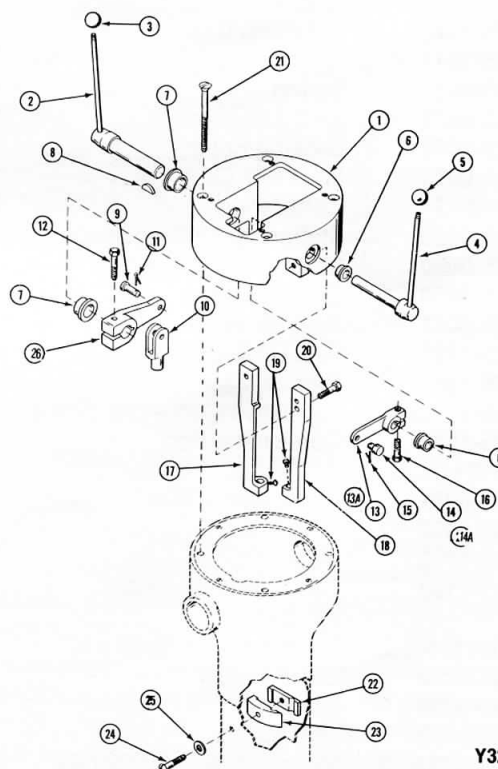
ITEM	PART NO.	DESCRIPTION	QTY.
1	Y321-0110	Control Head	1
2	Y321-0030-8	Fuel Handle and Arm	1
3	Y321-0020-8	Shift Handle and Arm	1
4	Y321-0142	Retaining Ring (Std.)	2
5	Y321-0132	Washer (Std.)	2
6	Y321-0053	Shift Lever	1
7	Y321-0063	Fuel Lever (Push Type)	1
7A	Y321-0083	Fuel Lever (Std.)	1
8	E301011414-2	Hex Cap 1/4-20 x 7/8	2
9	Y321-0073	Pivot Pin — Shift and Fuel (Push Type)	2
10	Y321-0173	Pivot Pin — Fuel Side (Std.)	1
11	E10101-2	Cotter Pin	2
12	Y321-0081	Shift Leg	1
13	Y321-0091	Fuel Leg (Push Type Only)	1
14	E301012020-2	Hex Cap 1/4-20 x 1 1/4	2
15	E40205-2	Washer	2
16	E22101-2	Locknut — 1/4-20	2
17	E303031000-2	Slot Rd. Head — #6-32 x 5/16	2
18	E302118080-2	Slot Flat Head — 1/4-20 x 2 1/2	4
19	Y321-0122	Set Screw w/Nylon Tip	1
20	Y321-0024-8	Shift Handle and Arm	1
21	Y321-0034-8	Fuel Handle and Arm	1
22	Y100-0071	Inner Clamp	1
23	Y100-0061	Outer Clamp	1
24	E305114040-2	R.H. Mach. Sc. 1/4-20 x 1 1/4	1
25	Y101-0150	Nylon Washer	1



Y321-100/102, -400/402

## Y323-210/211 Assembly/Parts List

ITEM	PART NO.	DESCRIPTION	QTY.
1	Y323-0111	Control Head	1
2	Y323-1122-*	Shift Handle and Arm	1
3	Y323-0040	Shift Knob — Black	1
4	Y323-0152-*	Fuel Handle and Arm	1
5	Y323-0070	Fuel Knob — Red	1
6	Y323-0120	Nyliner — Fuel Side — 7/16"	2
7	Y323-0110	Nyliner — Shift Side — 3/4"	2
8	Y323-0182	Woodruff Key	1
9	E13103-026-2	Clevis Pin	1
10	Y323-0303	Jaw	1
11	E10102-2	Cotter Pin	1
12	E301032000-2	Hex Cap 5/16-18 x 1 1/4	1
13	Y321-0063	Fuel Lever (Push Type)	1
13A	Y321-0083	Fuel Lever (Std.)	1
14	Y321-0073	Pivot Pin (Push Type)	1
14A	Y321-0173	Pivot Pin (Std.)	1
15	E10101-2	Cotter Pin	1
16	E301011616-2	Hex Cap 1/4-20 x 1	1
17	Y323-0191	Shift Leg	1
18	Y321-0091	Fuel Leg (Push Type Only)	1
19	E303031000-2	Slot Rd. Hd. #6-32 x 5/16	2
20	E301031600-2	Hex Cap 5/16-18 x 1	2
21	E302111120-2	Slot Flat Hd. 1/4-20 x 3 1/2	4
22	Y100-0071	Inner Clamp	1
23	Y100-0061	Outer Clamp	1
24	E305114040-2	R.H. Mach. Screw 1/4-20 x 1 1/4	1
25	Y101-0150	Nylon Washer	1
26	Y323-0083	Shift Lever	1



Y323-210/211