



11 INDUSTRY DRIVE  
PALM COAST, FL 32137  
PHONE 877.900.7278  
FAX 386.445.1122

## INSTALLATION INSTRUCTIONS

### ADD ON INSIDE COMPONENTS USING BRAZIL VALVE

#### 1. Brazil valve adapter manifold installation

Begin by removing the two bolts attaching the stock Mercury outer steering cylinder housing to the directional priority valve. A certain amount of fluid loss will occur during this process. Once the steering cylinder housing is removed, replace it with the 135-1040 Brazil Valve Adapter Manifold. Proceed by properly seating the newly installed Brazil Valve and torque the bolts to 20-25 ft. lbs. Once the Brazil Valve is installed place the retaining nut and washer on the end of the now exposed steering rod.

#### 2. Internal hose installation

Now the internal hydraulic hoses can be installed according to the proper routing referenced in the following assembly print drawings:

Single Bravo/Single Cylinder Add-On System (assembly print drawing 137-9410 & 137-9413)

Single Bravo/Dual Cylinder Add-On System (assembly print drawing 137-9411 & 137-9414)

Dual Bravo/Dual Cylinder Add-On System (assembly print drawing 137-9412 & 137-9415)

#### Note:

For identification purposes, the Brazil Valve Manifold ports are marked P for (port) and S for (starboard)

#### General

All hydraulic hoses should be washed completely and blown out with compressed air before installing. Connect hoses to the hydraulic components according to the plumbing diagrams provided. Refer to STEP 2 for appropriate plumbing diagram.

## MAYFAIR MODULAR WING PLATE & ATTACHMENT HARDWARE

#### 1. Side link arms installation

Remove the 4 stock studs that hold the upper gear case to the gimbal housing. Apply red loctite to the threads of the longer supplied 7/16 studs and install into the same holes as the old style studs. On the fine thread side of newly installed studs, apply anti-seize. Slide the side link arms over the studs. Thread onto the studs the locking nuts with washers. **DO NOT TIGHTEN THE SIDE ARMS AT THIS TIME.**

#### 2. Rear load cap installation

Remove the 2 upper bolts of the outdrive end cap. Apply red loctite to the 3/8 bolts. Slide bolts with washers into the Mayfair rear load cap. On the back side of the end, slide the spacers onto the bolts. Install the Mayfair rear load cap into the outdrive end cap. Make sure the spacers are sitting properly into the outdrive end cap. **DO NOT TIGHTEN THE**



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### **BOLTS AT THIS TIME.**

**3. Side link arms to rear load cap installation**

Apply red loctite to the (4) 5/16 bolts. Install the bolts thru the side of side link arms to the rear load cap. **DO NOT TIGHTEN THE BOLTS AT THIS TIME.**

**4. Bolt torque specifications**

With all components attached. Torque the 7/16 nuts to 40 ft. lbs.. Now torque the 3/8 bolts to 30 ft. lbs. and the 5/16 bolts to 25 ft. lbs..

### **General**

Detailed instructions for the installation of the Mayfair Modular Wing Plate are supplied inside the kit 137-9443.

## **MAYFAIR STERNDRIVE STEERING CYLINDERS**

**1. Attaching the clevis to the Mayfair Modular Wing Plate**

Install steering cylinders to the Mayfair modular wing plate with provided 1/2 bolt, washers and nuts. Extend steering cylinder to 1/2 of the cylinders allowable stroke so that the hydraulic inlet/outlet ports are facing upward and so that the transom mounting bracket is horizontal to the transom assembly. Position the stern drive gear housing so that it is straight ahead, fore and, aft and trim the out drive to its normal operating position. This can be achieved by positioning or aligning the propeller shaft parallel to the bottom of the boat.

**2. Drilling transom for bracket**

Next hold the steering cylinder mounting bracket against the transom of the boat maintaining a horizontal parallel mounting plane to the crankshaft centerline. At this point use the transom mounting plate and drilling template to identify and mark the location of the mounting holes that will be drilled in the next step. Refer to the drilling template for approximate distances in inches with the stroke of cylinder being installed. It may be helpful to use masking tape to reference the transom mounting plate location. A certain amount of variance is tolerated when necessary. The steering cylinder mounting flange area on the transom must flat, level, and solid. Always confirm that this area is free of any internal deterioration or dry rot. Always check the inside of the transom to make sure the area is free of any obstructions and proceed to drill the appropriate mounting holes.

**3. Installing the transom bracket**

Make sure and use a proper sealing material (3M 5200 sealant) when fastening the steering cylinder bracket to the transom. Slide the supplied 3/8 bolts and washers thru the bracket. Slide bolts thru the transom. Apply sealing material to the supplied backing plate. Slide backing plate over the bolt, make sure plate sits flat against the transom. Install the nuts and washers on the bolts. Torque to 30/35 ft. lbs..



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## BLEEDING AIR FROM POWER STEERING SYSTEM

### 1. Final inspection

Before filling the system with fluid check all hose connections for tightness and proper routing according to the plumbing diagrams referenced below:

Full Hydraulic, Single Bravo/Single Cylinder (assembly print drawing 137-9410 & 137-9413)

Full Hydraulic, Single Bravo/Dual Cylinder (assembly print drawing 137-9411 & 137-9414)

Full Hydraulic, Dual Bravo/Dual Cylinder (assembly print drawing 137-9412 & 137-9415)

### 2. Bleeding the system

Fill reservoir tank 3/4 full with GM high performance power steering fluid or Valvoline synthetic power steering fluid. **IMPORTANT:** Keep reservoir tank at least half full during the bleeding process to prevent air being reintroduced into the system.

The engine containing the power steering pump must be run to properly bleed the system. Check all hose and fitting connections for any leaks while running the engine at an idle. Keep the reservoir tank 1/2 full at all times during the bleeding process. Begin to cycle the steering wheel slowly from side to side until you start to feel a hard lock out. Repeat this process until a deliberate stop occurs in both directions.

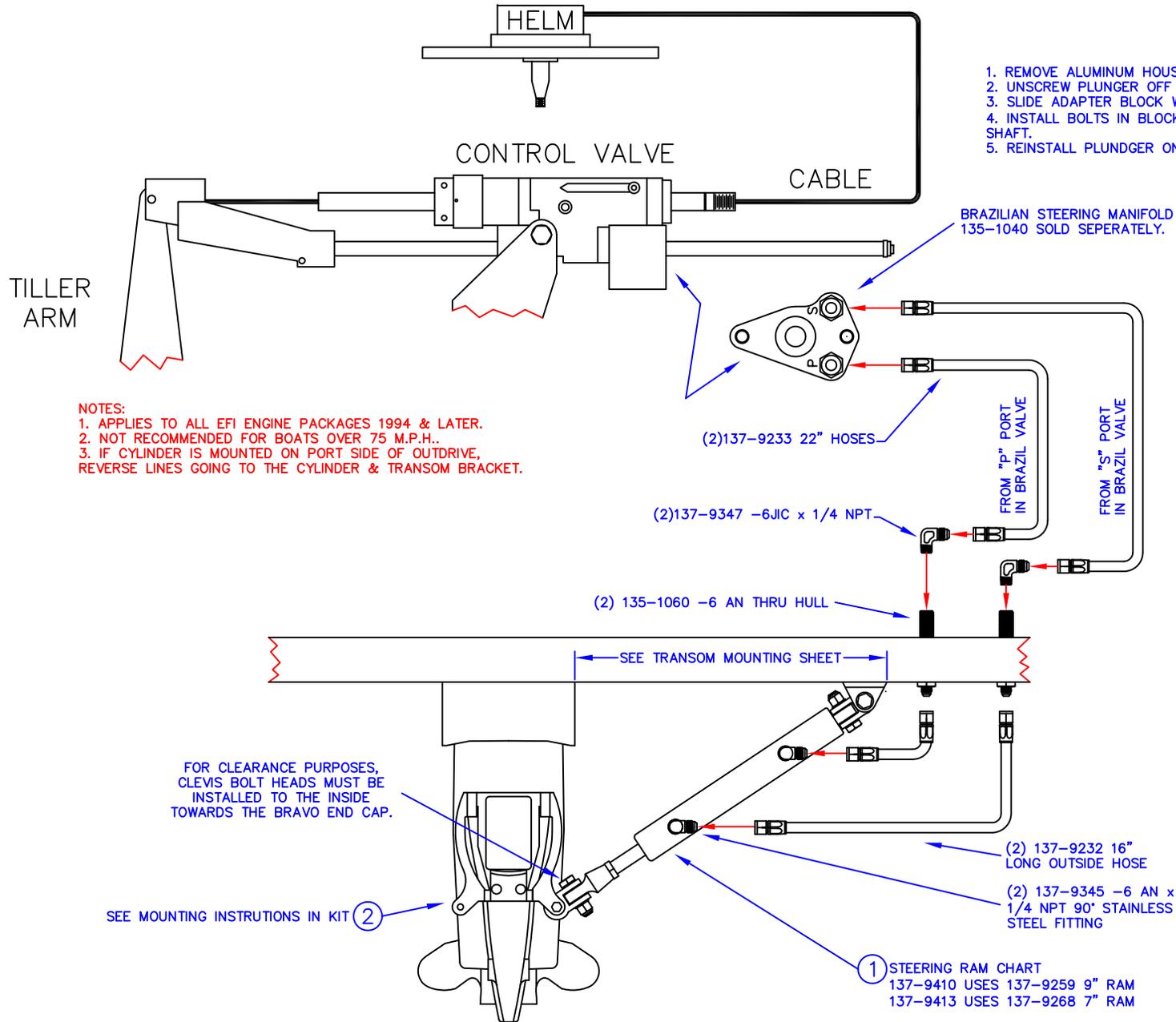
To check if the system is bled properly, align the sterndrive in the straight-ahead position and turn the engine off. Go behind the boat and manually try to move the sterndrive back and forth. If the cylinder rods move in and out, there is still air in the system. If a "slight" amount of air remains in the system this should be eliminated after the boat is run.

# HARDIN MARINE

PART NUMBER: 137-9410 & 137-9413

DESCRIPTION:  
SINGLE BRAVO/SINGLE CYLINDER ADD ON STEERING SYSTEM  
(BRAZIL VALVE SYSTEM)

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	SEE BELOW	COMPLETE STEERING CYLINDER ASSEMBLY
2	1	137-9443	BRAVO END CAP KIT
3	1	137-9266	SINGLE CYLINDER ADD-ON HOSE KIT



1. REMOVE ALUMINUM HOUSING.
2. UNSCREW PLUNGER OFF SHAFT.
3. SLIDE ADAPTER BLOCK WITH O-RING ON SHAFT.
4. INSTALL BOLTS IN BLOCK & 3/8 NUT/WASHER ON SHAFT.
5. REINSTALL PLUNGER ON SHAFT.

- NOTES:
1. APPLIES TO ALL EFI ENGINE PACKAGES 1994 & LATER.
  2. NOT RECOMMENDED FOR BOATS OVER 75 M.P.H..
  3. IF CYLINDER IS MOUNTED ON PORT SIDE OF OUTDRIVE, REVERSE LINES GOING TO THE CYLINDER & TRANSOM BRACKET.

FOR CLEARANCE PURPOSES, CLEVIS BOLT HEADS MUST BE INSTALLED TO THE INSIDE TOWARDS THE BRAVO END CAP.

SEE MOUNTING INSTRUCTIONS IN KIT ②

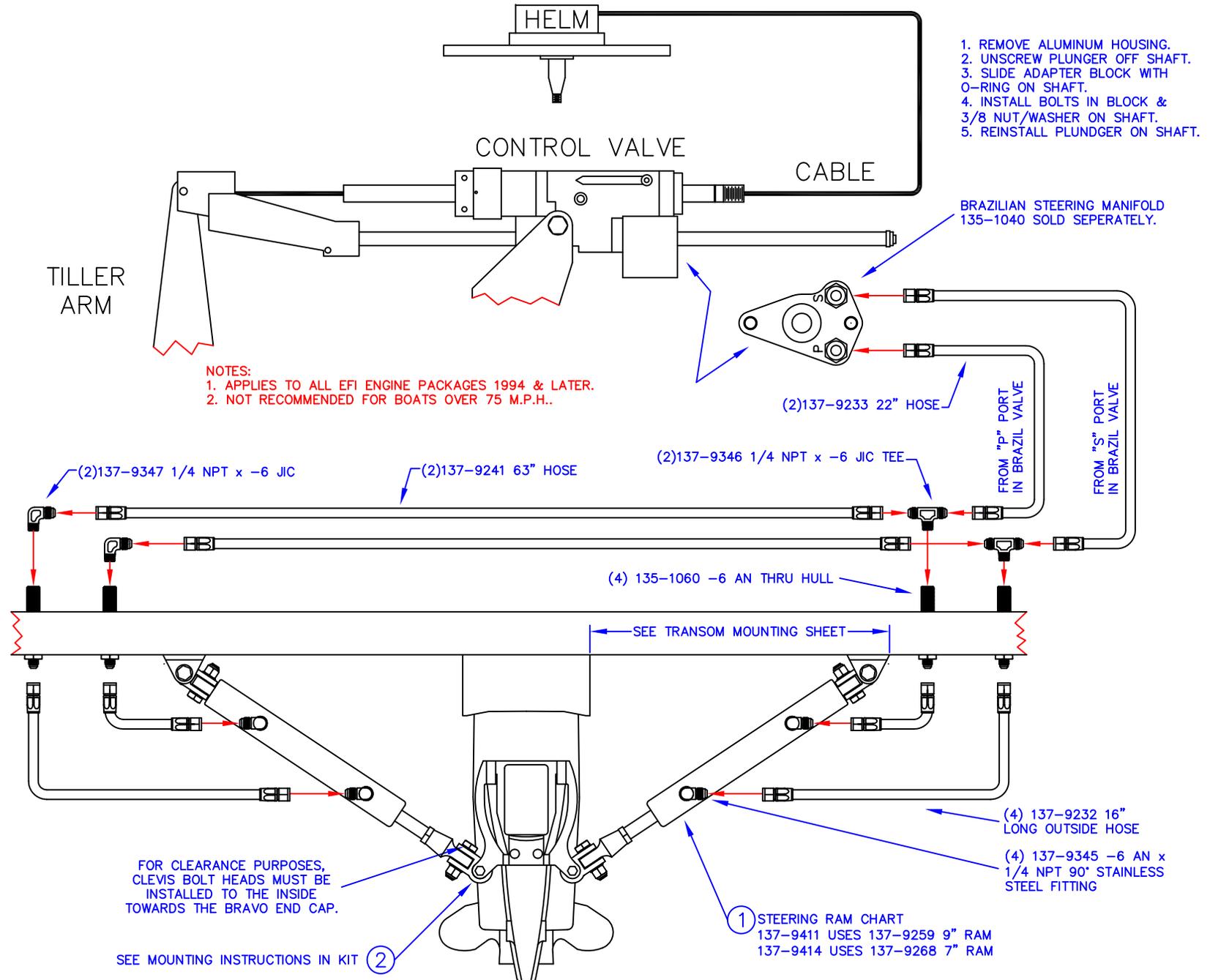
- ① STEERING RAM CHART  
137-9410 USES 137-9259 9" RAM  
137-9413 USES 137-9268 7" RAM

# HARDIN MARINE

PART NUMBER: 137-9411 & 137-9414

DESCRIPTION:  
SINGLE BRAVO/DUAL CYLINDER ADD ON STEERING SYSTEM  
(BRAZIL VALVE SYSTEM)

ITEM	QTY.	PART NO.	DESCRIPTION
1	2	SEE BELOW	COMPLETE STEERING CYLINDER ASSEMBLY
2	1	137-9443	BRAVO END CAP KIT
3	1	137-9267	DUAL CYLINDER ADD-ON HOSE KIT



NOTES:  
1. APPLIES TO ALL EFI ENGINE PACKAGES 1994 & LATER.  
2. NOT RECOMMENDED FOR BOATS OVER 75 M.P.H..

1. REMOVE ALUMINUM HOUSING.
2. UNSCREW PLUNGER OFF SHAFT.
3. SLIDE ADAPTER BLOCK WITH O-RING ON SHAFT.
4. INSTALL BOLTS IN BLOCK & 3/8 NUT/WASHER ON SHAFT.
5. REINSTALL PLUNGER ON SHAFT.

BRAZILIAN STEERING MANIFOLD  
135-1040 SOLD SEPERATELY.

FOR CLEARANCE PURPOSES,  
CLEVIS BOLT HEADS MUST BE  
INSTALLED TO THE INSIDE  
TOWARDS THE BRAVO END CAP.

SEE MOUNTING INSTRUCTIONS IN KIT 2

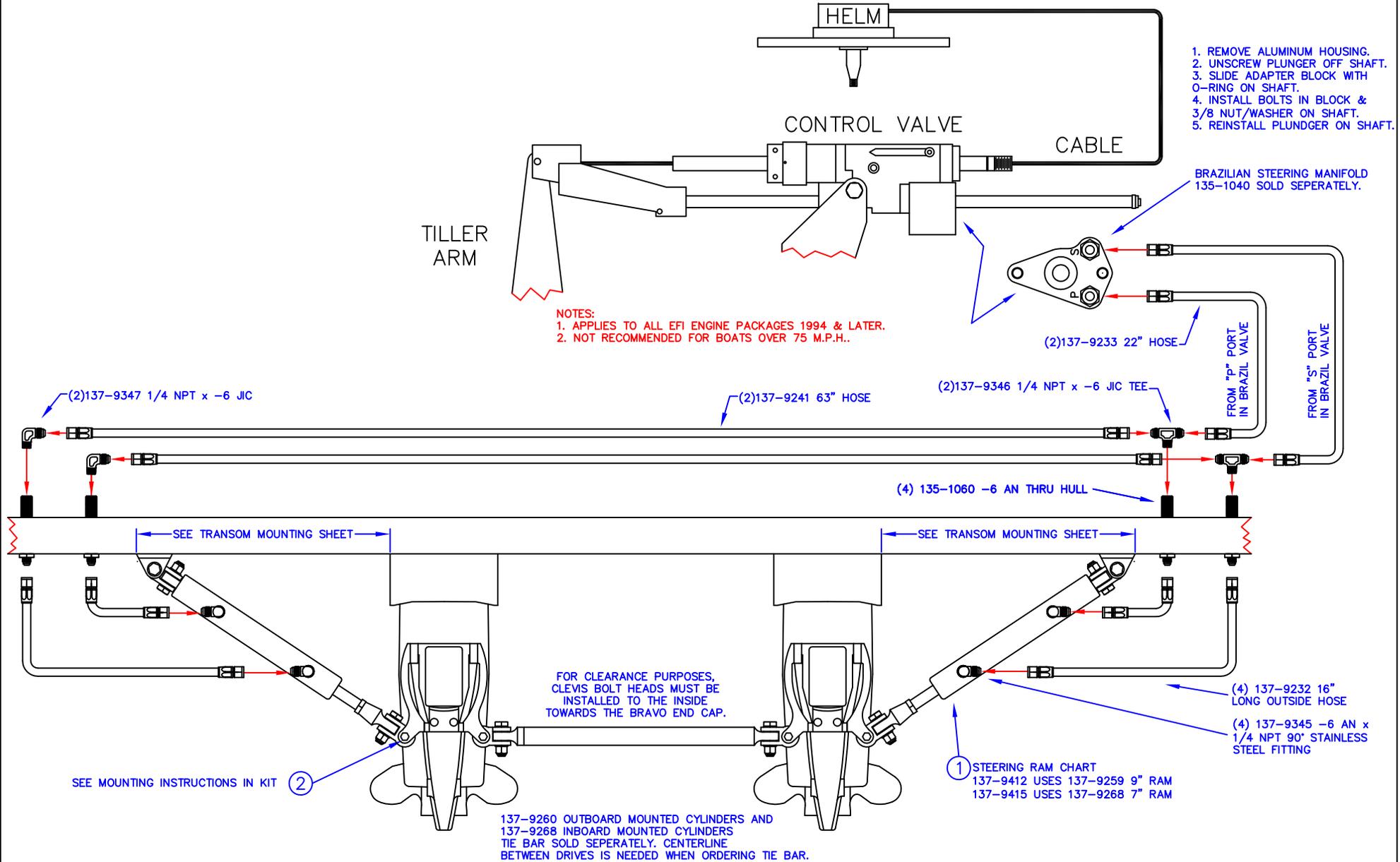
1 STEERING RAM CHART  
137-9411 USES 137-9259 9" RAM  
137-9414 USES 137-9268 7" RAM

# HARDIN MARINE

PART NUMBER: 137-9412 & 137-9415

DESCRIPTION:  
DUAL BRAVO/DUAL CYLINDER ADD ON STEERING SYSTEM  
(BRAZIL VALVE SYSTEM)

ITEM	QTY.	PART NO.	DESCRIPTION
1	2	SEE BELOW	COMPLETE STEERING CYLINDER ASSEMBLY
2	2	137-9443	BRAVO END CAP KIT
3	1	137-9267	DUAL CYLINDER ADD-ON HOSE KIT



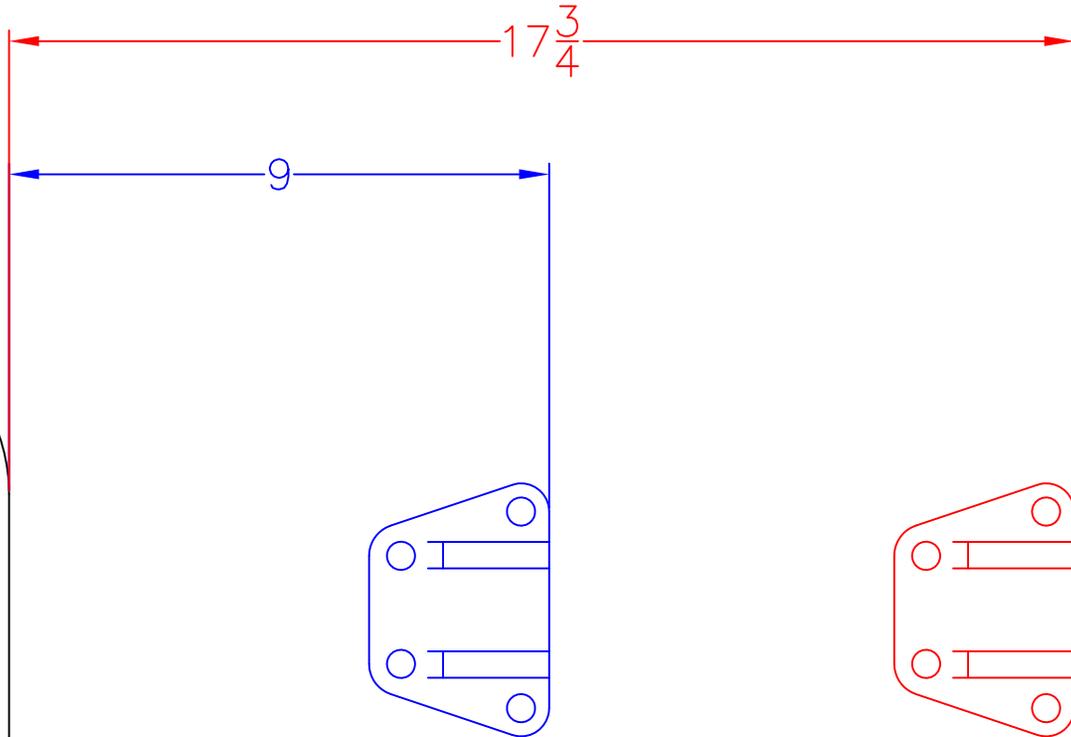
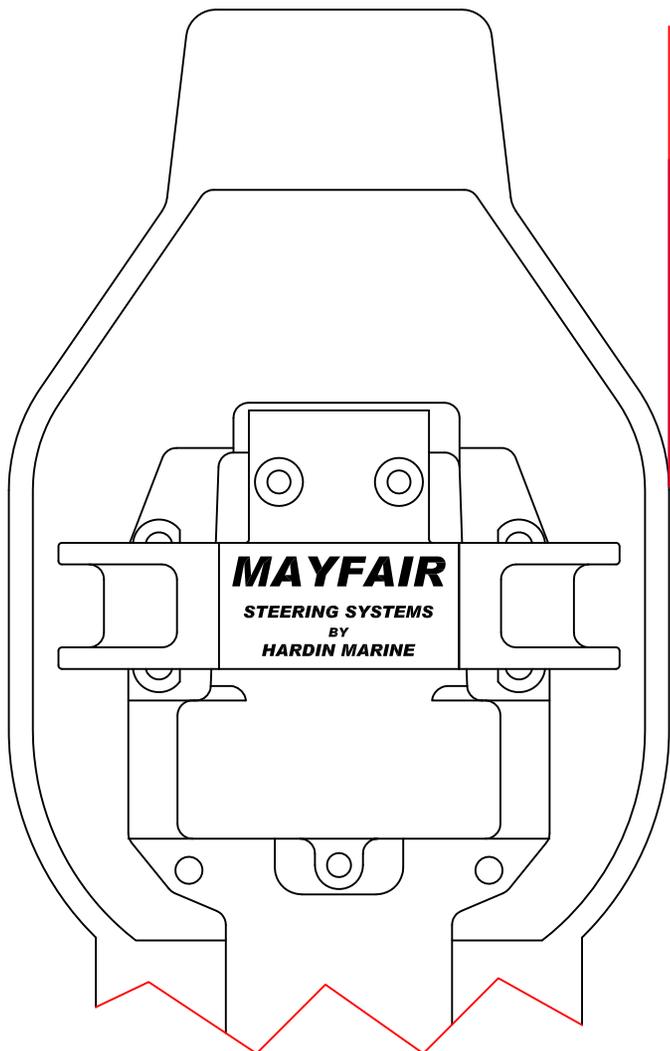
# HARDIN MARINE

PART NUMBER: TRANSOM BRACKET

DESCRIPTION:  
MAYFAIR MODULAR WING PLATE TRANSOM BRACKET MOUNTING  
LOCATION

## NOTE:

THIS PRINT IS TO SHOW THE DISTANCE THAT EACH TRANSOM BRACKET IS TO BE MOUNTED. USE THE TRANSOM BRACKET DRILL TEMPLATE & INSTALLATION INSTRUCTION SHEET THAT IS SUPPLIED IN THE STEERING RAM KIT FOR MOUNTING INSTRUCTIONS.



TRANSOM BRACKET  
LOCATION FOR  
137-9268 7"  
STROKE RAM

TRANSOM BRACKET  
LOCATION FOR  
137-9259 9"  
STROKE RAM