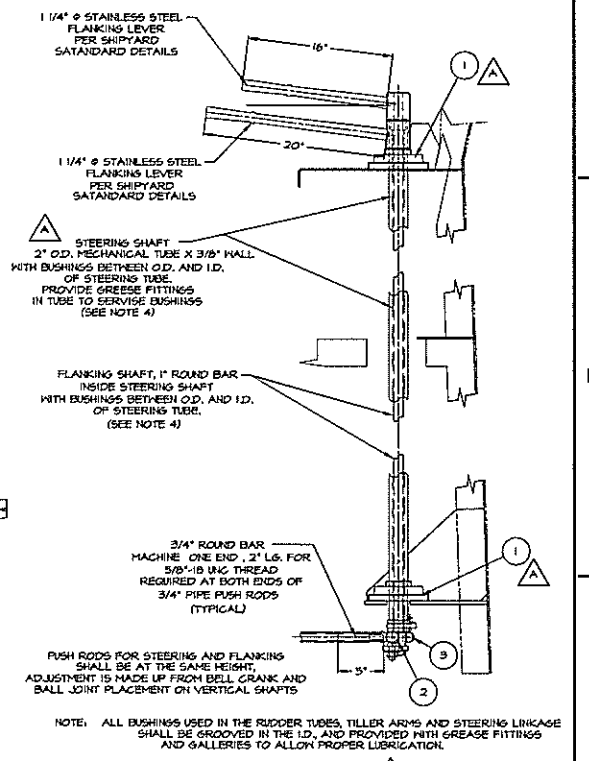


REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	9/20/99	
A	INCORPORATE BUILDER'S COMMENTS FROM 12/21/00, CHANGED OUTER STEERING SHAFT TO 2" O.D. X 3/8" WALL TO INCORPORATE A KEYWAY ON THE OUTER SHAFT AT THE HUB PER SHIPYARD DETAILS, DETAIL 1-D	01/04/01	
B	INCORPORATE BUILDER'S COMMENTS FROM 01/04/01, ADDED 3" X 3" X 1/4" ANGLES AT DECK LEVEL TO SUPPORT DROP SHAFT BEARING BRACKET OFF ENGINE ROOM VENT TRUNK	02/28/01	



DETAIL 1-D
STEERING LEVER ARRANGEMENT AT CONSOLE
1 1/2" x 1'-0"

- GENERAL NOTES**
- ALL STEEL USED SHALL BE ASTM A 36, UNLESS NOTED OTHERWISE.
 - SEE DRAWINGS 562-101 FOR RUDDERS, TILLERS AND TUBES.
 - ALL BOLTS USED TO ASSEMBLE AND MOUNT STEERING COMPONENTS SHALL BE GRADE 8.
 - ALL BUSHINGS USED IN THE RUDDER TUBES, TILLER ARMS AND STEERING LINKAGE SHALL BE GROOVED IN THE I.D., AND PROVIDED WITH GREASE FITTINGS AND GAL- LERIES TO ALLOW PROPER LUBRICATION.
 - LOCATE RUDDER STOPS TO SUIT (4 PLACES).
 - SEE DRAWING 556-101 FOR HYDRAULIC SYSTEM AND HOOP-UP.

QTY	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
10	1 1/4" DIA. COLD ROLLED STEEL SHAFT	VERTICAL DROP SHAFTS
20	1 1/2" DIA. BEARINGS, 1 1/4" SHAFT, 3-BOLT FLANGE	DODGE SLX PIN 12B150
7	FLAT BAR, 2" X 1/4" X 4" LG.	DELIRIN (PUSH ROD SLIDES)
5	SLEEVE, 1 1/8" O.D. X 3/4" I.D. X 4" LG.	DELIRIN
4	UNIVERSAL JOINT, 5/8" BORE, 1 1/4" JOINT	MEMMASTER-CARR # 6443KIT - OR EQ.
4	BALL JOINT, ROD END, FEMALE-5/8" I.H.	MEMMASTER-CARR # 6072K37 - OR EQ.
2	BALL JOINT, ROD END, FEMALE-5/8" I.H.	MEMMASTER-CARR # 6072K37I - OR EQ.
1	BEARINGS, 2" SHAFT, 5G NICKEL PLATED 4-BOLT FLANGED DODGE	- OR EQUAL

BILL OF MATERIALS	
OWN. C.J. BALESRIERI	TGMD, Inc. / Timothy Graul marine design
APPD.	naval architects marine engineers
DATE 20 SEPT. 1999	Sturgeon Bay, WI 54235
PROJECT	55'-0" X 18'-0" X 7'-0" BRUSSELS FERRY FUSHBOAT
PROJECT NO.	99005
SCALE	1/8" = 1'-0"
REV. B DATE 01/05/01	ILLINOIS DEPARTMENT OF TRANSPORTATION
DRAWING NO.	STEERING CONTROL & ACTUATION
	561-101

Proj. 562-101 Rev. B Title STEERING CONTROL & ACTUATION