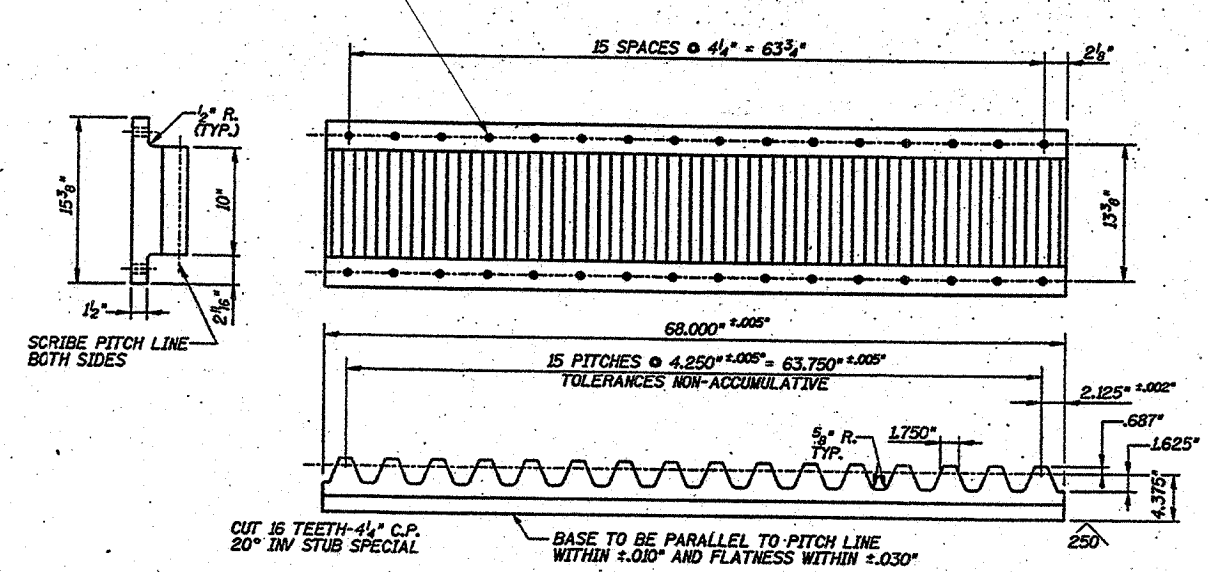
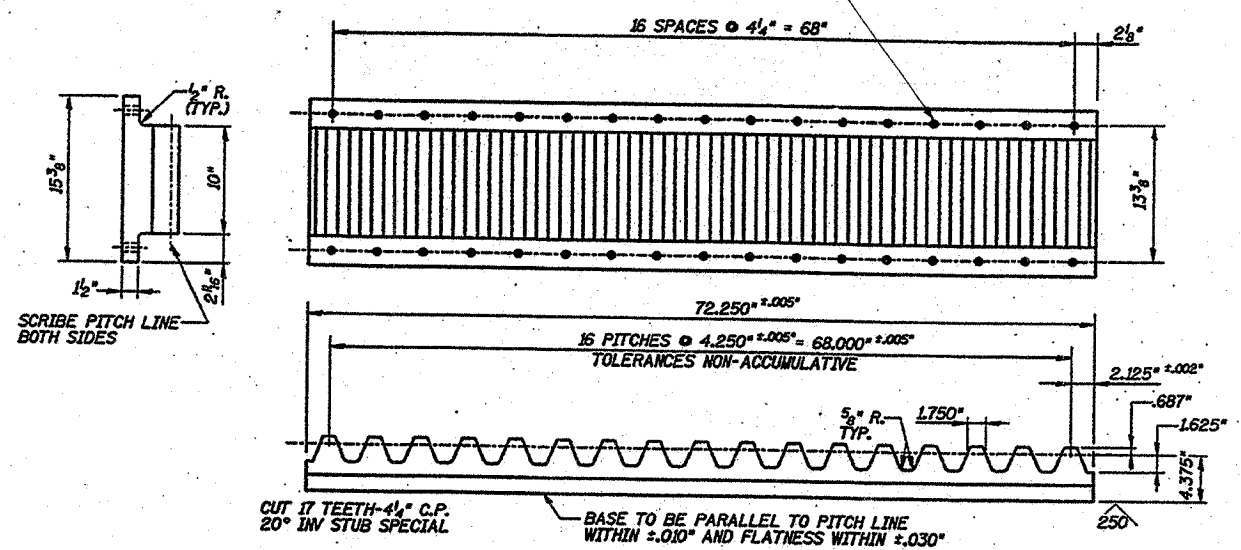


62859

ROUTE NO.	SECT.	COUNTY	SHEET NO.	TOTAL SHEETS
FAP607	*	WILL	4	10
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

*G-R-I-4

SHOP DRILL 13/16" DIAMETER HOLES FOR TEMPORARY 3/4" DIAMETER BOLTS; DRILL AND REAM AFTER FINAL ALIGNMENT FOR 7/8" DIAMETER ASTM A449 TYPE 2 OR ASTM A325 TYPE 3 TURNED BOLTS (TURNED BOTH SIDES). BOLTS SHALL HAVE MACHINE CUT THREADS, AND BE WELL OILED. BOLT TORQUE SHALL BE DETERMINED BY TORQUING 7/8" BOLT TO 70% OF PROOF LOAD, WHICH IS 39,000 LBS FOR ASTM A449 BOLTS AND 27,500 LBS FOR ASTM A325 BOLTS, IN AN APPROVED TORQUE-TESTING MACHINE. IF TAPERED SHIMS ARE USED TO OBTAIN PROPER ALIGNMENT OF THE RACK, SELF-ALIGNING SPHERICAL WASHERS AND NUTS MUST BE USED FOR ALL RACK ATTACHMENT TURNED BOLTS.



NEW RACK
125 F.A.O. EXCEPT AS NOTED

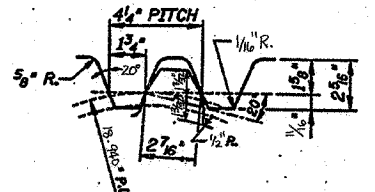
2 REQ'D MATERIAL STEEL ASTM A516 GRADE 70
149-180 BHN, 25 FT-LBS @ 40°F MIN. AVG. CVN TOUGHNESS REQUIRED.

NOTE: RACK HEIGHT SHALL BE ADJUSTED WITH USE OF TAPERED AND/OR FLAT SHIMS SO THAT PINION MESHES PROPERLY WITH RACK AT ALL POSITION ANGLES OF THE BASCULE LEAF.

NEW RACK
125 F.A.O. EXCEPT AS NOTED

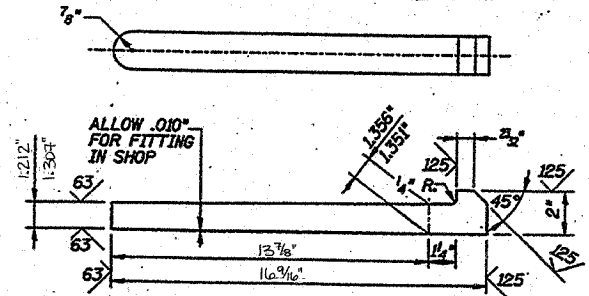
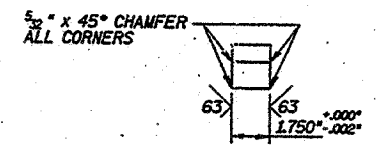
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NOTE: RACK HEIGHT SHALL BE ADJUSTED WITH USE OF TAPERED AND/OR FLAT SHIMS SO THAT PINION MESHES PROPERLY WITH RACK AT ALL POSITION ANGLES OF THE BASCULE LEAF.



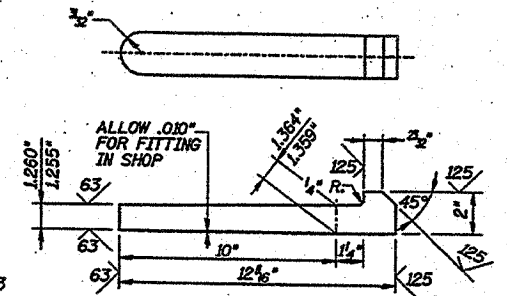
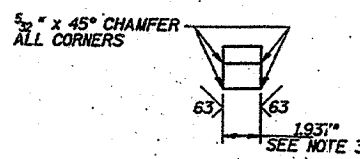
SPECIAL TOOTH FOR RACK & PINION
4 1/4" CIRCULAR PITCH 20° INVOLUTE

*** RACK AND PINION TOOTH DETAIL**



NEW GIB KEY FOR PINION
125 F.A.O. EXCEPT AS NOTED

2 REQ'D MATERIAL STEEL ASTM A29 GRADE 8620
80 KSI TENSILE AND 50 KSI YIELD STRENGTH, 24% ELONGATION MIN; 15 FT-LBS @ 40°F MIN. AVG. CVN TOUGHNESS REQUIRED.

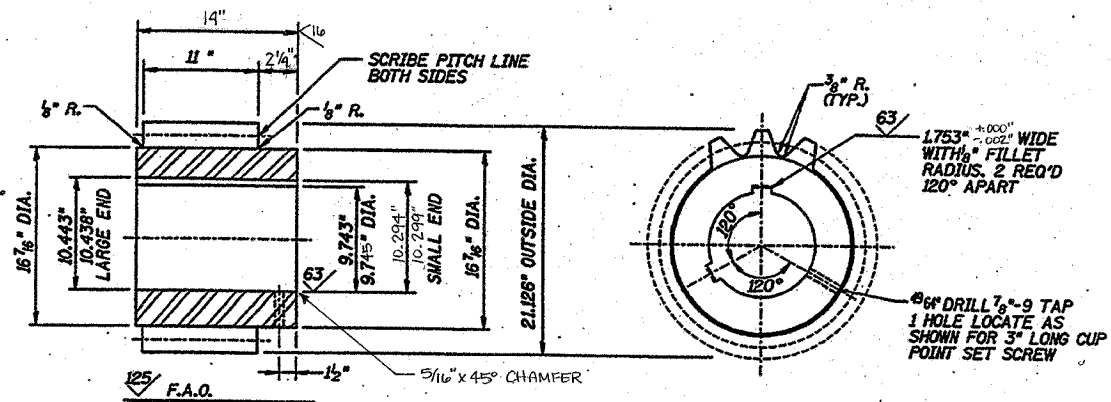


NEW GIB KEY FOR EXISTING GEAR
125 F.A.O. EXCEPT AS NOTED

2 REQ'D MATERIAL STEEL ASTM A29 GRADE 8620
80 KSI TENSILE AND 50 KSI YIELD STRENGTH, 24% ELONGATION MIN; 15 FT-LBS @ 40°F MIN. AVG. CVN TOUGHNESS REQUIRED.

NOTES:

1. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH DETAILED DRAWINGS OF THE PROPOSED TURNED BOLTS USED TO BOLT THE RACK SECTIONS TO THE EXISTING STRUCTURAL STEEL FOR APPROVAL PRIOR TO FINAL ASSEMBLY.
2. FIELD VERIFY EXISTING HOLE DIMENSION BEFORE MACHINING O.D. OF BEARING.
3. KEY WIDTH TO PROVIDE LC-4 FIT WITH EXISTING KEYWAY IN GEAR AND WITH NEW KEYWAY IN SHAFT



*** NEW PINION**
125 F.A.O. EXCEPT AS NOTED

1 REQ'D ASTM A668 CLASS H
* ALL TOLERANCES SHALL BE 1/4 0.001" EXCEPT AS NOTED.

25 FT-LBS @ 40°F MIN. AVG. CVN TOUGHNESS REQUIRED AT 1/4 RADIUS POSITION OF PROLONGATION TEST SAMPLES.

GEAR DATA	
NO. TEETH	14
PITCH DIA.	18.939"
PITCH	4 1/4" C.P.
P.A.	20° INV. STUB SPEC.
ADD.	1.0937"
CHORD THK.	2.4375"
FULL DEPTH	2.3125"

Designed by: ED
Checked by: JOK
Drafted by: SA
Checked by: ED

REVISION	DATE	DESCRIPTION
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		
RACK AND PINION DETAILS		
CASS STREET BRIDGE OVER DESPLAINES RIVER U.S. 30 (WESTBOUND) CITY OF JOLIET, WILL COUNTY STRUCTURE NUMBER 099-0101		
DRAWING NO. C-02	SCALE	DATE 2-05-2001
		SHEET NO. 2 OF 7