



CAUTION: FILTER "IN" & "OUT" PORTS MUST BE CONNECTED WITH AN EXTERNAL CIRCUIT PRIOR TO OPERATING TRANSMISSION

S.A.E. STRAIGHT 1 $\frac{5}{16}$ -12 THREAD, "O" RING BOSS

TO FILTER
FROM FILTER

PROVIDE GAGE OR SIGNAL DEVICE TO LIMIT MAXIMUM CONTINUOUS TEMPERATURE TO 250°F.

#16 HOSE SIZE (S.A.E. NO. 7 $\frac{7}{8}$ "I.D.)

FILTER AND BASE ASSEMBLY AC DIV PART NO. 5575224 (OR EQUIVALENT) REF AS 00-004 FOR INSTALLATION DATA

COOLANT IN

COOLANT OUT

#16 HOSE SIZE (S.A.E. NO. 7 $\frac{7}{8}$ "I.D.)

OIL TO WATER TYPE COOLER

OIL FILTER

RECOMMENDED FILTER LOCATION EQUAL TO OR BELOW THE "OIL RETURN" PORT.

S.A.E. STRAIGHT 1 $\frac{5}{16}$ -12 THREAD, "O" RING BOSS

TO COOLER
FROM COOLER

COOLER CIRCUIT PRESSURE DROP MEASURED BETWEEN THESE POINTS.

COOLER CIRCUIT PRESSURE SPECIFICATIONS:

1. AT OPERATING TEMPERATURE & MAX. SPEED IN TRAVEL GEAR - MAX. ALLOWABLE CONVERTER OUT OIL PRESSURE 65 P.S.I. - MAX. ALLOWABLE EXTERNAL CIRCUIT PRESSURE DROP 40 P.S.I.
2. AT OPERATING TEMP. & FULL THROTTLE STALL, MIN. ALLOWABLE CONV. OUT OIL PRESSURE 40 P.S.I. CUSTOMER TO INSTALL RESTRICTION IN COOLER RETURN LINE IF NECESSARY.

REMOTE OIL FILTER - GENERAL SPECIFICATIONS

TYPE OF FLUID:
MAX. OIL FLOW
OPERATING OIL PRESS.

HYDRAULIC TRANS. FLUID TYPE "C-2"
26 & 32 G.P.M. AT 2000 & 3000 R.P.M.
COLD START SURGES DEPENDENT ON
FILTER AND CIRCUIT RESTRICTIONS,
OIL TEMP. AND ENGINE R.P.M.
REGULATED PRESS. AT VALVE BODY 165-190 P.S.I.

250°F. MAX. CONTINUOUS

OPERATING OIL TEMP.:

OIL PRESS. DROP:

- INITIAL (CLEAN ELEMENT) 5 P.S.I. MAX.
- MAX. PRIOR TO SERVICING 15 P.S.I.

BY-PASS VALVE INCORPORATED IN FILTER ASSEM.

- INITIAL BY-PASS PRESS. 10-15 P.S.I.
- FULL BY-PASS PRESS. 20-25 P.S.I.

DEGREE OF FILTRATION: 44 MICRONS MAX.

INTERVAL BETWEEN SERVICING: 500-1000 HRS. (DESIRABLE)

TYPE OF CONTAMINATE:

EARTH, IRON, STEEL, BRONZE, COPPER & ALUMINUM PARTICLES
ROCK, COAL & CEMENT DUST.

METHOD OF INSTALLATION:

INDEPENDENT MOUNTED WITH $\frac{3}{4}$ " MIN. PIPE TAP CONNECTIONS.

AS 42-003

PARTS SHOWN IN PHANTOM ARE FURNISHED BY CUSTOMER

REFERENCE:

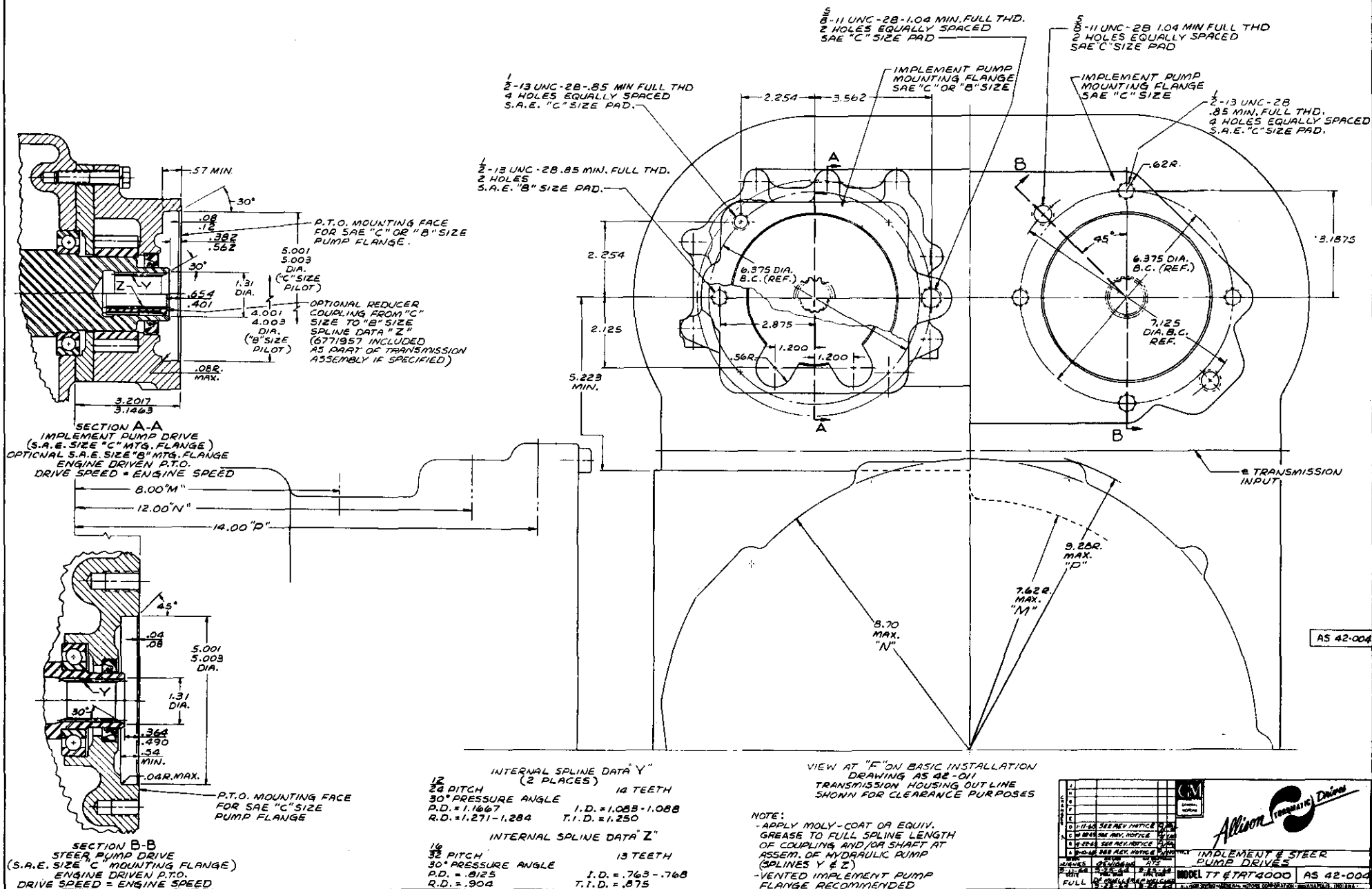
1. HOSE SPEC. : S.A.E. 100 R5 EXCEPT OPERATING TEMP. RANGE FROM -40°F. TO +275°F.
2. FOR COOLER OIL FLOW DATA SEE AS 00-051

REV.	DATE	BY	CHKD.	DESCRIPTION
1	11-24-76	ADD FILTER ASSY		
2	9-20-74	REV. REF. NOTE 2		
3	4-15-66	SEE REV. NOTICE		
4	5-18-66	SEE REV. NOTICE		
5	5-3-66	SEE REV. NOTICE		
6	5-22-66	SEE REV. NOTICE		
7	2-1-66	REVISED NOTE		
8	12-28-65	WAS 150 P.S.I.		
9	2-10-65	WAS TET. 4000		



EXTERNAL HYDRAULIC CIRCUIT REQUIREMENTS

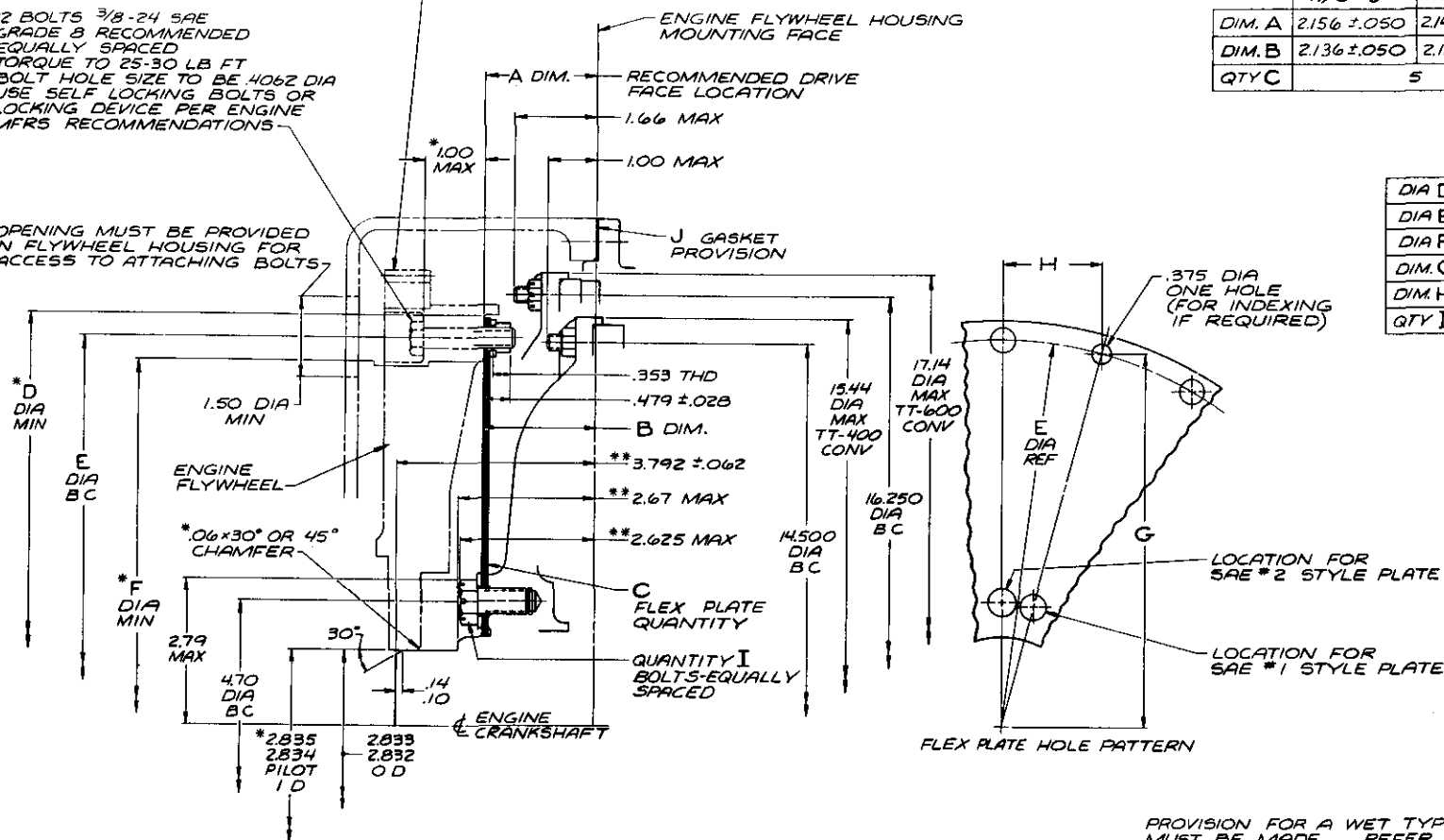
MODEL TT & TRT 4000 SERIES AS 42-003
ALLISON DIVISION - GENERAL MOTORS CORPORATION - INDIANAPOLIS, INDIANA



STARTER RING GEAR LOCATION IS DETERMINED BY ENGINE MANUFACTURER

12 BOLTS $\frac{3}{8}$ -24 SAE
GRADE 8 RECOMMENDED
EQUALLY SPACED
TORQUE TO 25-30 LB FT
BOLT HOLE SIZE TO BE .4062 DIA
USE SELF LOCKING BOLTS OR
LOCKING DEVICE PER ENGINE
MFRS RECOMMENDATIONS

OPENING MUST BE PROVIDED
IN FLYWHEEL HOUSING FOR
ACCESS TO ATTACHING BOLTS



ALL PHYSICAL ADAPTATIONS ARE SUBJECT TO DETROIT DIESEL
ALLISON DIVISION GMC TRANSMISSION ENGINEERING
DEPT REVIEW PRIOR TO INSTALLATION APPROVAL

* DENOTES RECOMMENDED DIMENSION

** DENOTES FUNCTIONAL DIMENSIONS FOR
CLEARANCE PROVISION ONLY

ENGINE FLYWHEEL HOUSING AND FLYWHEEL
PILOT DIAMETERS MUST MEET SAE
CONCENTRICITY REQUIREMENTS

MODEL

	TRT-4820		TT-TRT-4420 TRT-4621 TT-4720	
	W/O J	WITH J	W/O J	WITH J
DIM. A	2.156 ±.050	2.140 ±.050	2.134 ±.050	2.118 ±.050
DIM. B	2.136 ±.050	2.120 ±.050	2.114 ±.050	2.098 ±.050
QTY C	5		4	

FLYWHEEL BOLT PATTERN

	SAE #1	SAE #2
DIA D	17.14	15.49
DIA E	16.000	14.625
DIA F	14.58	13.74
DIM. G	7.932	7.063
DIM. H	1.044	1.892
QTY I	12	6

AS42-009

PROVISION FOR A WET TYPE FLYWHEEL HOUSING
MUST BE MADE. REFER TO BASIC INSTALLATION
DRAWING AS 42-011 OR AS 42-015 FOR DETAILS.
SPLITLINE GASKET SUPPLIED ON TRANSMISSION.
SEALED STARTER, DOUBLE SEAL ON CRANKSHAFT, AND
DRAIN BACK PROVISION MUST BE SUPPLIED ON ENGINE

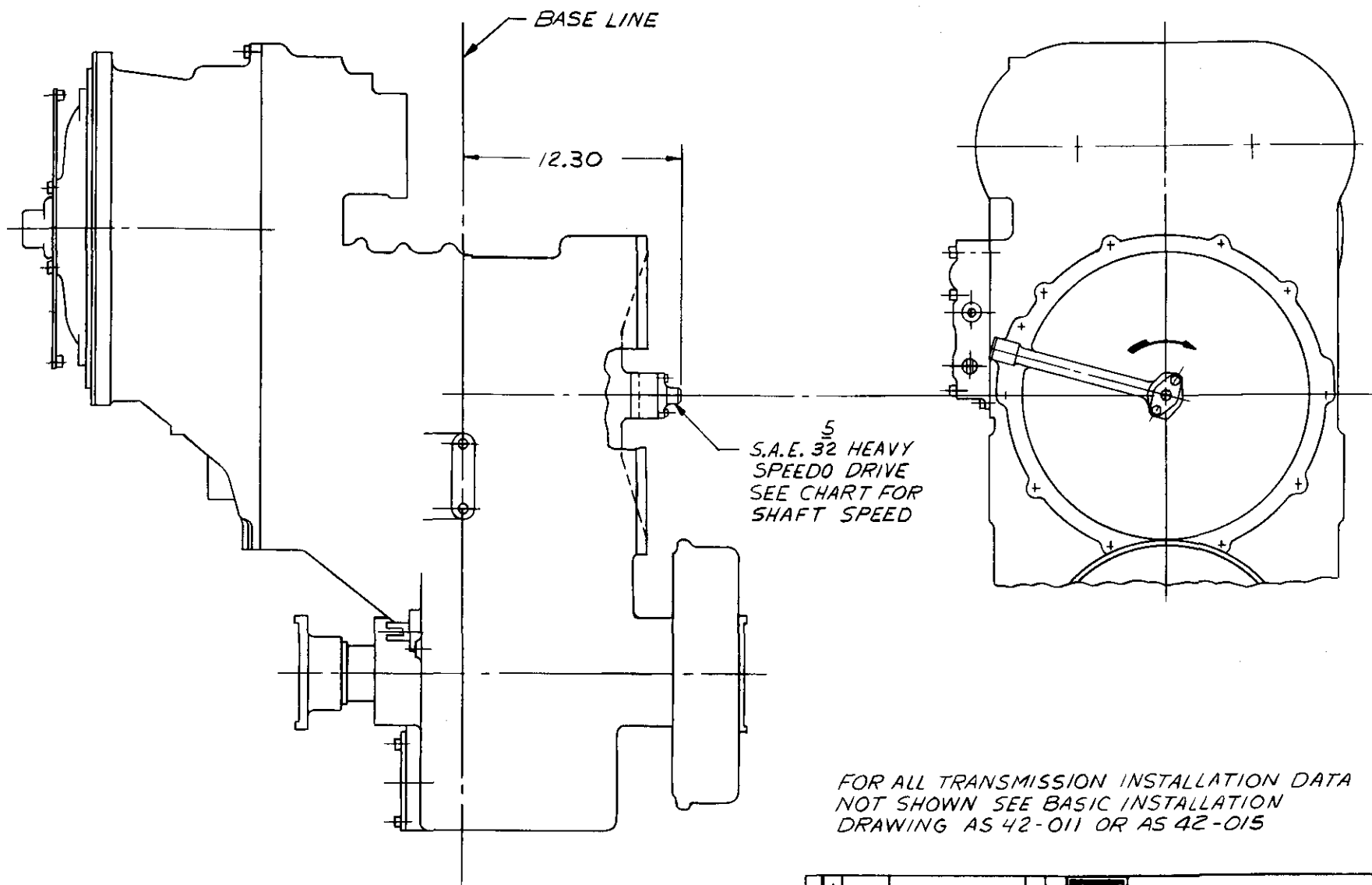
REVISION	DATE	BY	CHKD	FILE
1	10-1-79	ADD QTY I BOLTS		
2	10-1-79	REVISED FLEX PLATE		
3	10-1-79	REVISED FLEX PLATE		
4	10-1-79	REVISED FLEX PLATE		
5	10-1-79	REVISED FLEX PLATE		
6	10-1-79	REVISED FLEX PLATE		
7	10-1-79	REVISED FLEX PLATE		
8	10-1-79	REVISED FLEX PLATE		
9	10-1-79	REVISED FLEX PLATE		
10	10-1-79	REVISED FLEX PLATE		
11	10-1-79	REVISED FLEX PLATE		
12	10-1-79	REVISED FLEX PLATE		
13	10-1-79	REVISED FLEX PLATE		
14	10-1-79	REVISED FLEX PLATE		
15	10-1-79	REVISED FLEX PLATE		
16	10-1-79	REVISED FLEX PLATE		
17	10-1-79	REVISED FLEX PLATE		
18	10-1-79	REVISED FLEX PLATE		
19	10-1-79	REVISED FLEX PLATE		
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23	10-1-79	REVISED FLEX PLATE		
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25	10-1-79	REVISED FLEX PLATE		
26	10-1-79	REVISED FLEX PLATE		
27	10-1-79	REVISED FLEX PLATE		
28	10-1-79	REVISED FLEX PLATE		
29	10-1-79	REVISED FLEX PLATE		
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49	10-1-79	REVISED FLEX PLATE		
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53	10-1-79	REVISED FLEX PLATE		
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56	10-1-79	REVISED FLEX PLATE		
57	10-1-79	REVISED FLEX PLATE		
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80	10-1-79	REVISED FLEX PLATE		
81	10-1-79	REVISED FLEX PLATE		
82	10-1-79	REVISED FLEX PLATE		
83	10-1-79	REVISED FLEX PLATE		
84	10-1-79	REVISED FLEX PLATE		
85	10-1-79	REVISED FLEX PLATE		
86	10-1-79	REVISED FLEX PLATE		
87	10-1-79	REVISED FLEX PLATE		
88	10-1-79	REVISED FLEX PLATE		
89	10-1-79	REVISED FLEX PLATE		
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91	10-1-79	REVISED FLEX PLATE		
92	10-1-79	REVISED FLEX PLATE		
93	10-1-79	REVISED FLEX PLATE		
94	10-1-79	REVISED FLEX PLATE		
95	10-1-79	REVISED FLEX PLATE		
96	10-1-79	REVISED FLEX PLATE		
97	10-1-79	REVISED FLEX PLATE		
98	10-1-79	REVISED FLEX PLATE		
99	10-1-79	REVISED FLEX PLATE		
100	10-1-79	REVISED FLEX PLATE		



FILE FLEX PLATE INPUT DRIVE DATA

MODEL TT-TRT-4000
SAE #1
AS42-009

DETROIT DIESEL DIVISION, DIVISION OF GENERAL MOTORS CORPORATION, WARREN, MI 48090

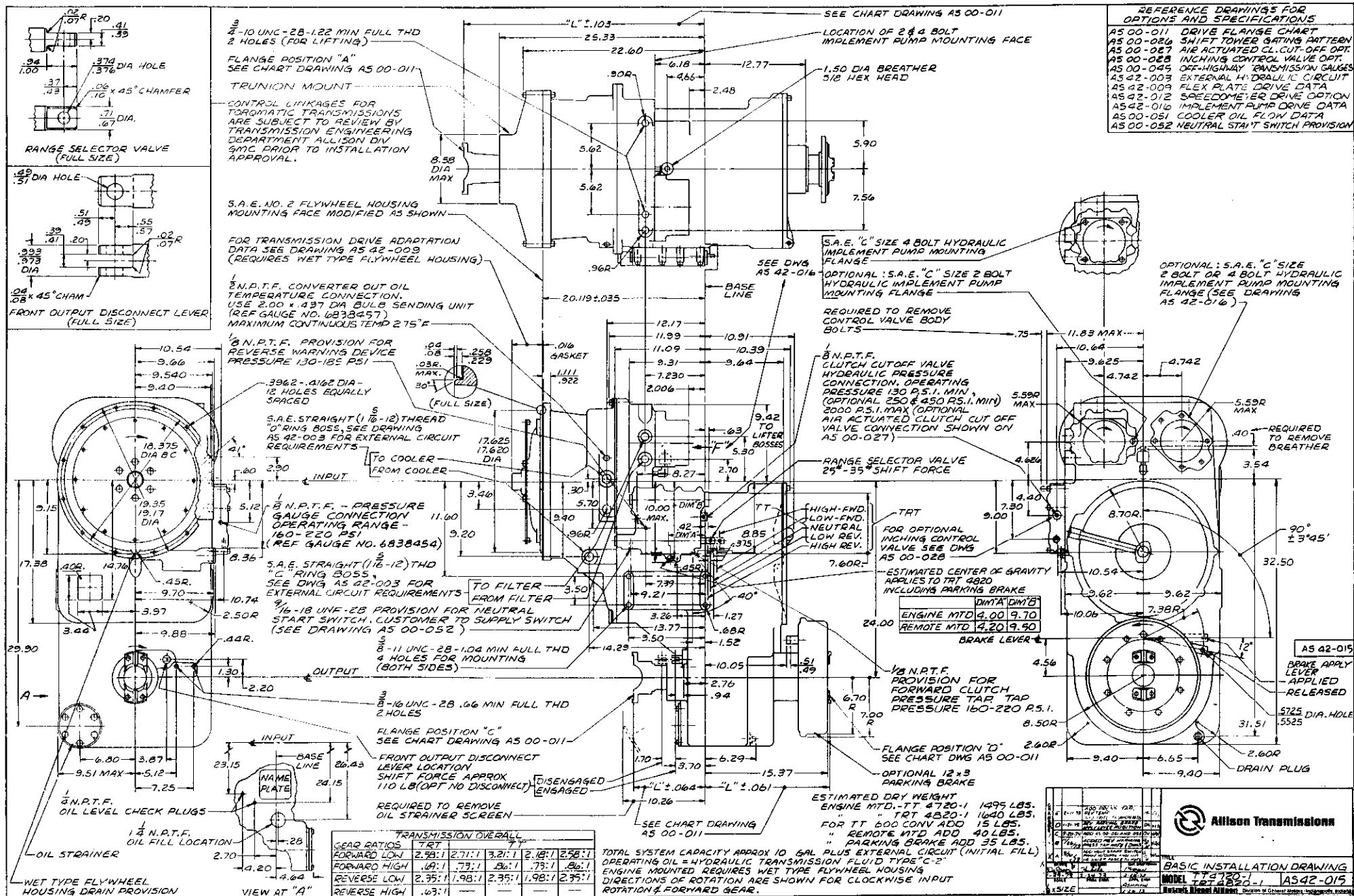


AS 42-012

FOR ALL TRANSMISSION INSTALLATION DATA
NOT SHOWN SEE BASIC INSTALLATION
DRAWING AS 42-011 OR AS 42-015

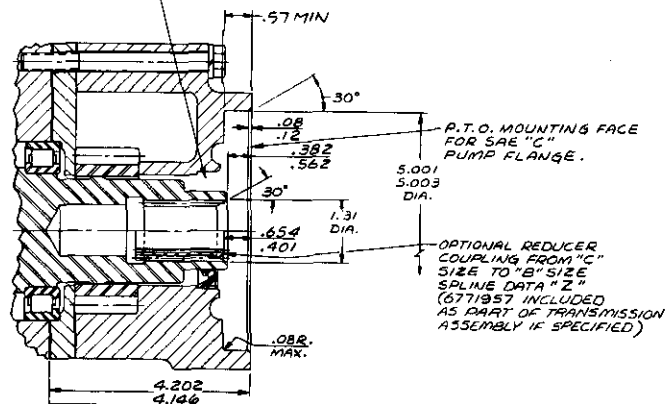
SHAFT SPEED TIMES OUTPUT SPEED	
TT MODEL	TRT MODEL
.86	1.02

CHANGES	J					GM GENERAL MOTORS	
	H						
	G						
	F						
	E						
D							
C							
B							
A	2-8-73	ADDED	AS 42-015	PL 24			
DATE	DESIGNED	CHKD	BY	DATE	TITLE		
11-21-69	ENLHANN		V.H. LEWIS	12-5-69	SPEEDOMETER DRIVE OPTION		
SCALE	PROJ. ENGR.			APPL. ENGR.	MODEL TT, TRT-4000		
1/2" = 1"	D.P. MOELLER			V.H. LEWIS	SERIES AS 42-012		
1/4" = 1"	11-27-74			11-27-74	ALL INFORMATION GENERAL MOTORS CORPORATION - INDIANAPOLIS, INDIANA		

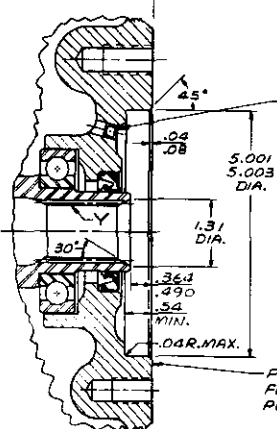


NO SEAL USED WITH 4 BOLT SAE "C" SIZE PAD WITH POSITIVE SPLINE LUBE. SEAL MUST BE PROVIDED IF NO PTO IS REQUIRED

PTO CAVITY PROVIDED WITH POSITIVE SPLINE LUBE. LUBE REQUIRES NON-VENTED IMPLEMENT PUMP AND CUSTOMER SUPPLIED GASKETS



SECTION A-A
IMPLEMENT PUMP DRIVE
(S.A.E. SIZE "C" MTD. FLANGE)
ENGINE DRIVEN PTO
DRIVE SPEED = ENGINE SPEED



SECTION B-B
STEER PUMP DRIVE
(S.A.E. SIZE "C" MOUNTING FLANGE)
ENGINE DRIVEN PTO
DRIVE SPEED = ENGINE SPEED

PLUG-6833947
USED ON NON-LUBED
CONFIGURATION ONLY

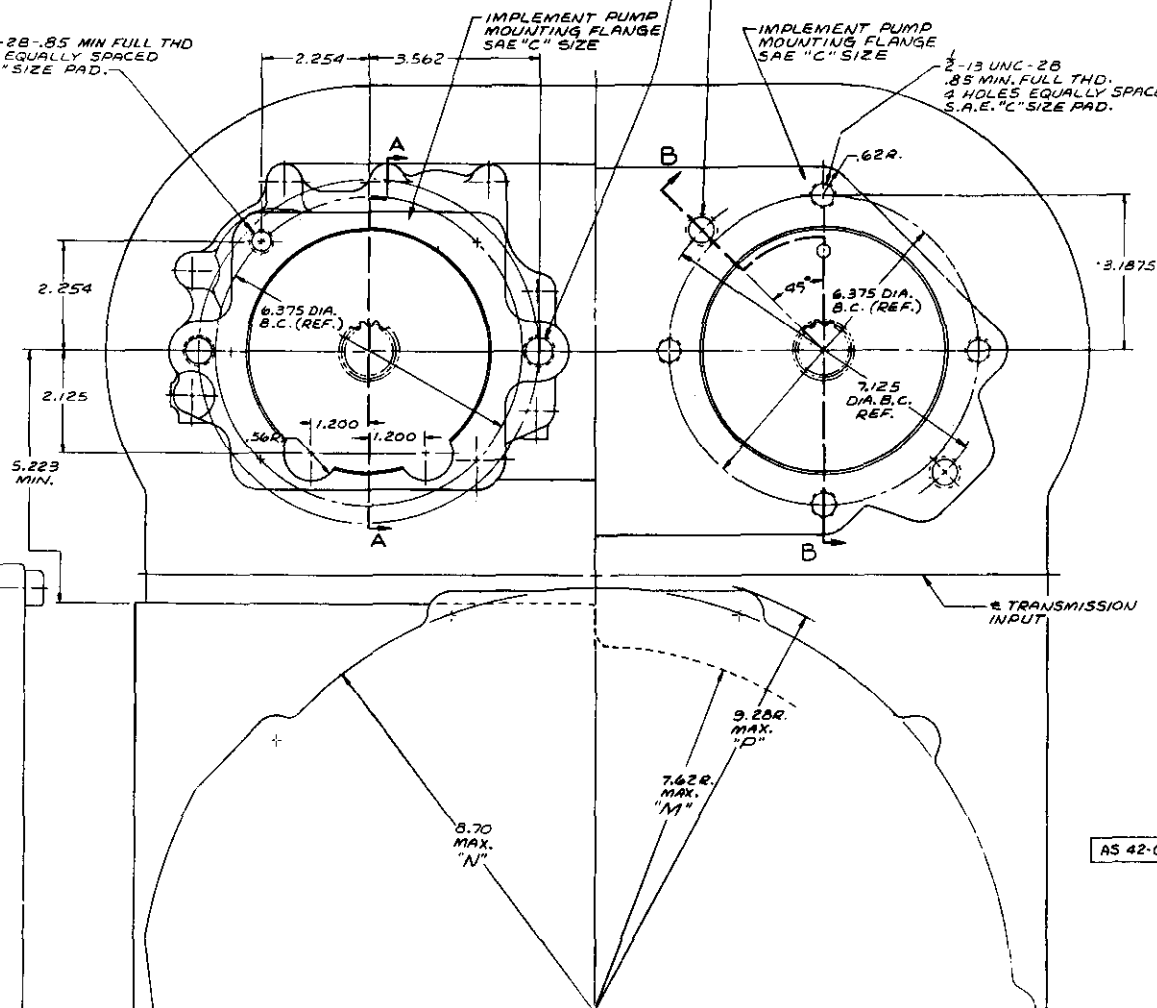
P.T.O. MOUNTING FACE
FOR SAE "C" SIZE
PUMP FLANGE

1/2-13 UNC-2B-.85 MIN FULL THD
4 HOLES EQUALLY SPACED
S.A.E. "C" SIZE PAD.

5/8-11 UNC-2B-1.04 MIN FULL THD.
2 HOLES EQUALLY SPACED
SAE "C" SIZE PAD

5/8-11 UNC-2B 1.04 MIN FULL THD
2 HOLES EQUALLY SPACED
SAE "C" SIZE PAD

1/2-13 UNC-2B
.85 MIN. FULL THD.
4 HOLES EQUALLY SPACED
S.A.E. "C" SIZE PAD.



TRANSMISSION
INPUT

AS 42-011a

INTERNAL SPLINE DATA "Y"
(2 PLACES)

12
24 PITCH 14 TEETH
30° PRESSURE ANGLE
P.D. = 1.1667 I.D. = 1.083-1.088
R.D. = 1.271-1.284 T.I.D. = 1.250

INTERNAL SPLINE DATA "Z"

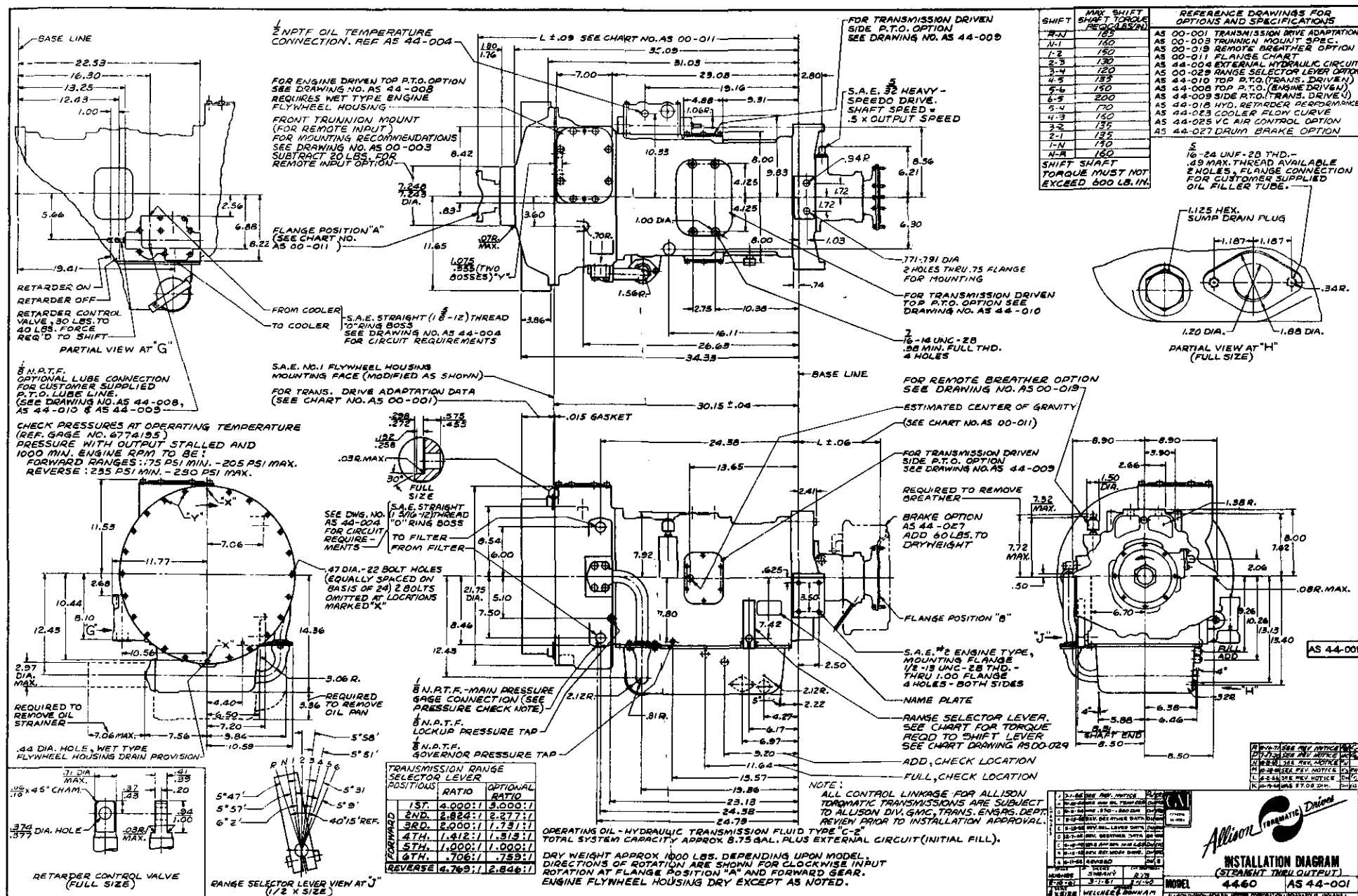
16
32 PITCH 13 TEETH
30° PRESSURE ANGLE
P.D. = .8125 I.D. = .763-.768
R.D. = .904 T.I.D. = .875

VIEW AT "F" ON BASIC INSTALLATION
DRAWING AS 42-015
TRANSMISSION HOUSING OUTLINE
SHOWN FOR CLEARANCE PURPOSES

NOTE:
-APPLY MOLY-COAT OR EQUIV.
GREASE TO FULL SPLINE LENGTH
OF COUPLING AND/OR SHAFT AT
ASSEM. OF HYDRAULIC PUMP
(SPLINES Y & Z)
-VENTED IMPLEMENT PUMP
FLANGE RECOMMENDED

Ailison Transmissions			
THIS IMPLEMENT AND STEER PUMP DRIVES			
Model	112-101	AS 42-011a	AS 42-011a
Part	112-101	AS 42-011a	AS 42-011a
Full	112-101	AS 42-011a	AS 42-011a





ASSEMBLY
AS 00-004
DATA

OIL
FILTER

TO FILTER

S.A.E. STRAIGHT 1 $\frac{1}{8}$ -12
THREAD, "O" RING BOSS

1 $\frac{1}{8}$ -12
BOSS

FILTER CIRCUIT
SIDE VIEW

USE 2.00 X .437 DIA BULB
SENDING UNIT
(REF. GAGE
NO. 6756665) TO
LIMIT MAXIMUM
CONTINUOUS
TEMPERATURE
TO 250°F ---
INTERMITTENT
TEMPERATURE OF
300°F ALLOWABLE
FOR ON-HIGHWAY
APPLICATIONS ONLY

COOLANT IN
(FROM RADIATOR)

OIL TO
WATER TYPE
COOLER

#20 MIN. HOSE SIZE
(S.A.E. NO. 1 1/8" I.D.)

-TO COOLER

--FROM COOLER

S.A.E. STRAIGHT 1 $\frac{3}{8}$ -12
THREAD, "O" RING
BOSS

COOLER CIRCUIT
TOP VIEW

AS 44-004

1. AT OPERATING TEMPERATURE
MAX. COOLER CIRCUIT PRESSURE
DROP 15 P.S.I. AT 30 G.P.M.

REFERENCE:
AS44-023 CURVE FOR COOLER OIL FLOW

PARTS SHOWN IN PHANTOM
ARE FURNISHED BY CUSTOMER

HOSE SPEC.-SAE 100R5 EXCEPT OPERATING
TEMPERATURE RANGE FROM -40°F TO +275°F

J									
H									
G									
F									
E									
D	10-4-66	SEE REV. NOTICE	P3						
C	5-27-66	ADDED GAGE NO.	3						
B	10-8-66	ADDED TEMP. NOTE	4						
A	3-20-66	SEE REV. NOTICE	W/IN						
DATA	ONE GAGE		GAS, SMOKE						
HUGHES	SWEENEY		BTS						
2-16-61	3-1-61		3-1-61						
SCALE	PROT. ENGR.		APPL. ENGR.						
NONE			BONHAM						
			2-1-61						

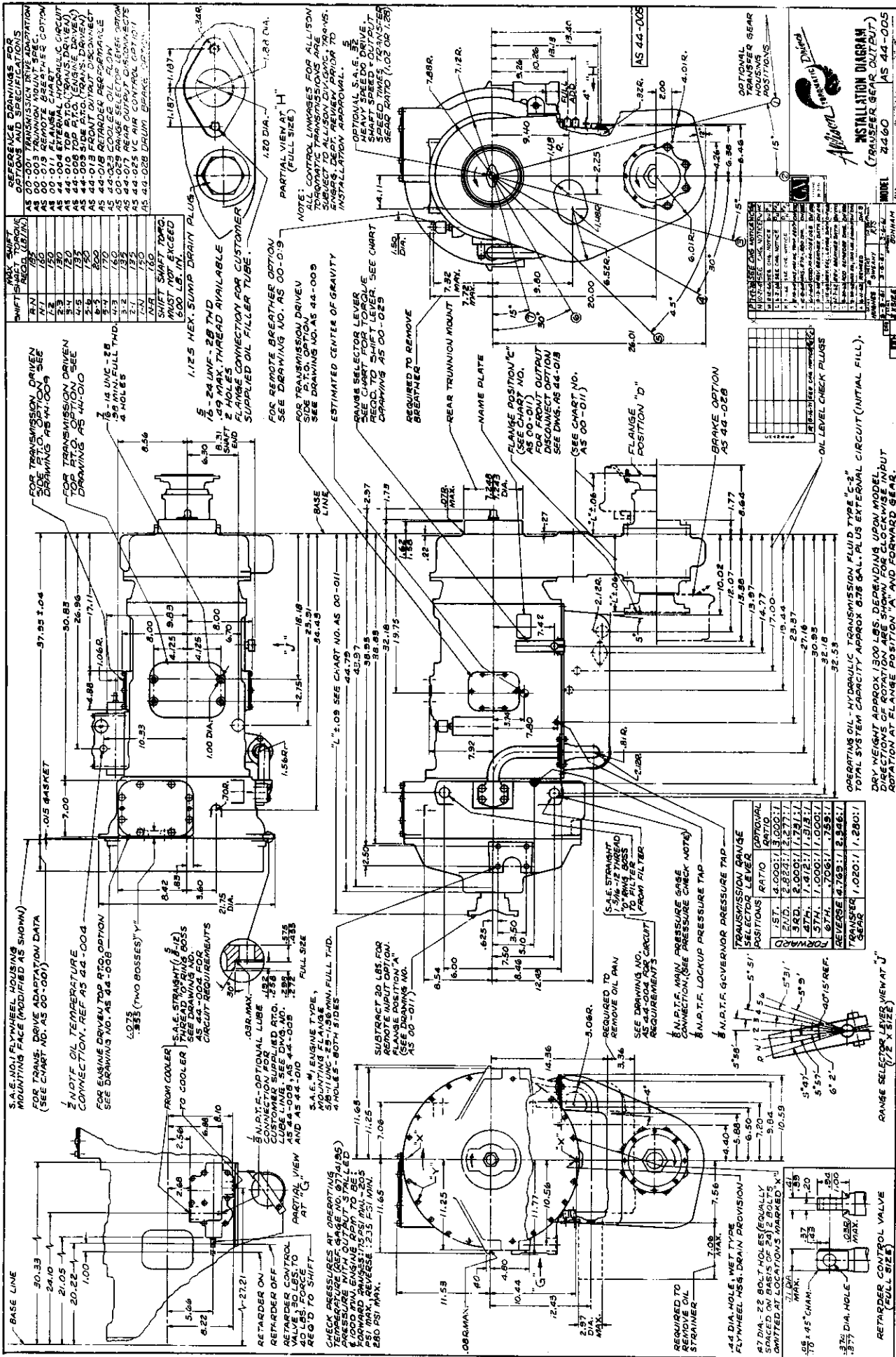


Allison TORQMATIC Drives

8 TITLE: EXTERNAL HYDRAULIC
CIRCUIT REQUIREMENTS

MODEL	4460	AS 44-004
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ALLISON DIVISION-GENERAL MOTORS CORPORATION-INDIANAPOLIS, INDIANA



INSTALLATION DIAGRAM
(TRANSMISSION GEAR OUTPUT)

MODEL 34-60 AS 44-005

OPERATING OIL - HYDRAULIC TRANSMISSION FLUID TYPE "C"
TOTAL SYSTEM CAPACITY APPROX. 0.18 GAL. PLUS EXTERNAL CIRCUIT (INITIAL FILL).
DRY WEIGHT APPROX. 1300 LBS. DEPENDING UPON MODEL.
DIRECTIONS OF ROTATION ARE SHOWN FOR CLOCKWISE INPUT
ROTATION AT FLANGE POSITION A AND FORWARD GEAR.

REAR TRUNNION MOUNT 7.32 MAX.
NAME PLATE
FLANGE POSITION "C" (SEE CHART NO. AS 00-011)
FOR FRONT OUTPUT DISCONNECT OPTION SEE DWS. AS 44-018
FLANGE POSITION "D" (SEE CHART NO. AS 00-011)
BRAKE OPTION AS 44-008
OIL LEVEL CHECK PLUGS
OPTIONAL TRANSMISSION GEAR POSITIONS

FOR TRANSMISSION, DRIVEN SIDE R.T.O. OPTION SEE DRAWING NO. AS 44-009
FOR TRANSMISSION, DRIVEN TOP R.T.O. OPTION SEE DRAWING NO. AS 44-010
FOR REMOTE BREATHING OPTION SEE DRAWING NO. AS 00-019
FOR REMOTE BREATHING OPTION SEE DRAWING NO. AS 00-019
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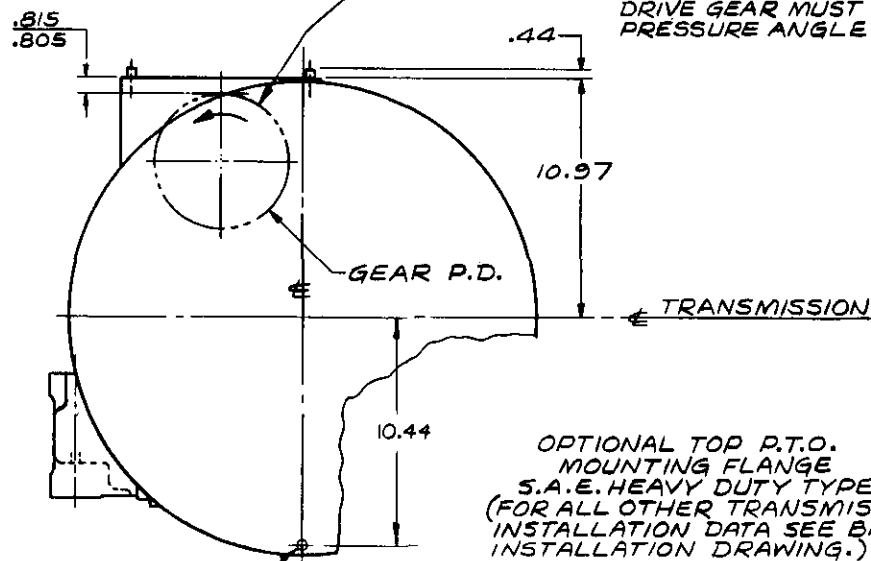
FOR REMOTE BREATHING OPTION SEE DRAWING NO. AS 00-019
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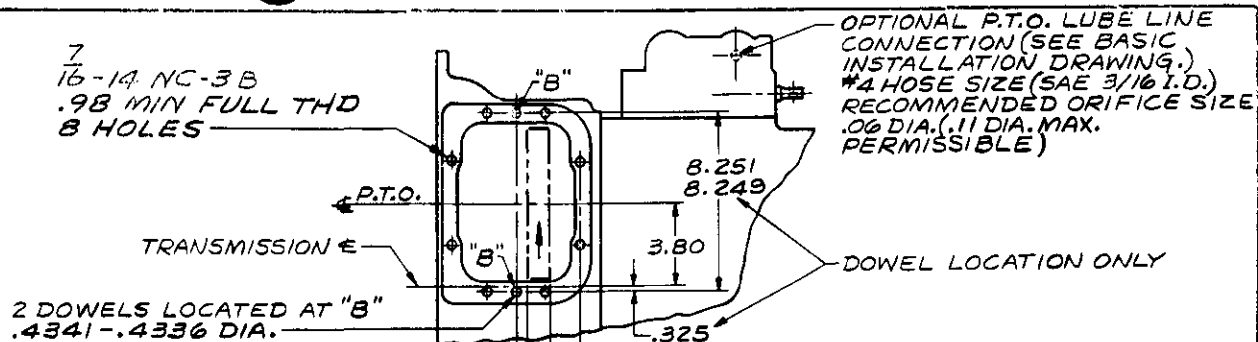
DRIVE GEAR DATA:
6 PITCH - 25° PRESSURE ANGLE
6.6666 P.D., 40 TEETH
1.35 X ENGINE SPEED.
AFTER P.T.O. INSTALLATION,
BACKLASH OF .005 TO .025
IS REQUIRED BETWEEN THIS
GEAR AND P.T.O. DRIVEN GEAR.



OPTIONAL TOP P.T.O.
MOUNTING FLANGE
S.A.E. HEAVY DUTY TYPE
(FOR ALL OTHER TRANSMISSION
INSTALLATION DATA SEE BASIC
INSTALLATION DRAWING.)
APPROX 40 LBS. ADDITIONAL WEIGHT

.44 DIA HOLE, WET TYPE
FLYWHEEL HOUSING DRAIN
PROVISION REQ'D

BASIC INSTALLATION DRAWING	DIM. "A"
AS 44-001	26.53
AS 44-005	34.33
AS 40-001	27.56
AS 40-014	34.33



OPTIONAL P.T.O. LUBE LINE
CONNECTION (SEE BASIC
INSTALLATION DRAWING.)
#4 HOSE SIZE (SAE 3/16 I.D.)
RECOMMENDED ORIFICE SIZE
.06 DIA. (.11 DIA. MAX.
PERMISSIBLE)

DOWEL LOCATION ONLY

DIM. "A" (SEE CHART)

BASE
LINE

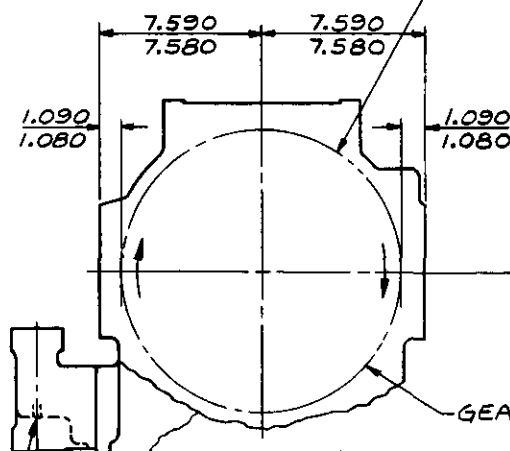
AS 44-008

J		GM		Allison <i>Automatic Drives</i>	
H		GENERAL MOTORS			
G					
F					
E		5-5-72 ADDED DIMS AS 44-001			
D		8-18-71 ADDED TAP NOTE			
C		12-14-66 WAS 10.998 - 10.988 DIM ON RH			
B		5-27-66 SEE REVISION NOTICE K580			
A		9-18-62 WAS APPROX 27 LBS. DIMEN			
HUGHES		S. SWANN		TITLE: TOP P.T.O. - ENGINE DRIVEN	
2-10-61		2-28-61		MODEL 4460 & HT-70 AS 44-008	
SCALE		G. WELCHER		APPROVED BY: BONHAM	
4 X SIZE		2-7-61		2-20-61	
ALLISON DIVISION - GENERAL MOTORS CORPORATION - INDIANAPOLIS, INDIANA					

4 HOLES MARKED "X" - $\frac{3}{8}$ "-16 UNC-2B-.86 MIN. FULL THREAD

2 HOLES MARKED "Y" - $\frac{3}{8}$ "-16 UNC-2B-.76 MIN. FULL THREAD

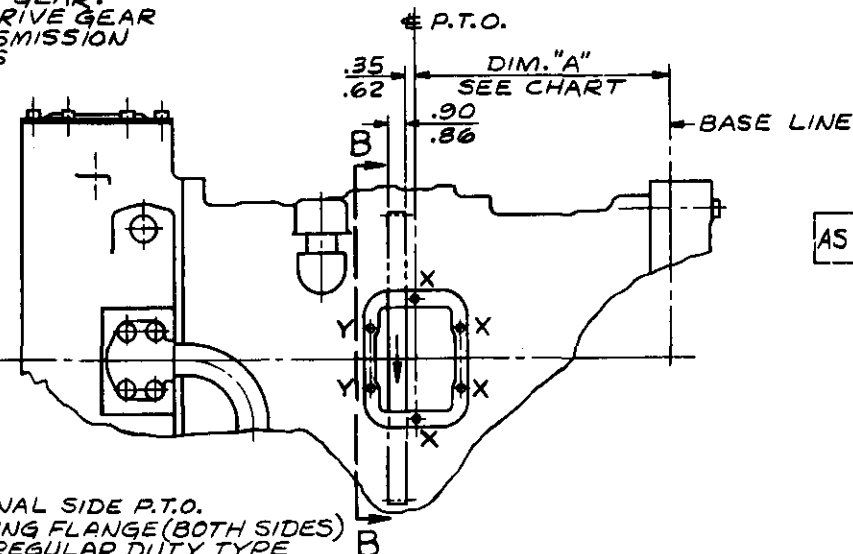
DRIVE GEAR DATA:
6/8 PITCH - 20° PRESSURE ANGLE
13.000 P.D. , 78 TEETH
AFTER P.T.O. INSTALLATION,
BACKLASH OF .005 TO .025 IS
REQUIRED BETWEEN THIS GEAR
AND P.T.O. DRIVEN GEAR.
SEE CHART FOR DRIVE GEAR
SPEEDS VS. TRANSMISSION
RANGE POSITIONS



VIEW B-B

OPTIONAL P.T.O. LUBE LINE CONNECTION
(SEE BASIC INSTALLATION DRAWING)
#4 HOSE SIZE (S.A.E. 3/16 I.D.) RECOMMENDED
ORIFICE SIZE .06 DIA. (.11 DIA. MAX. PERMISSIBLE)

OPTIONAL SIDE P.T.O.
MOUNTING FLANGE (BOTH SIDES)
S.A.E. REGULAR DUTY TYPE
(FOR ALL OTHER TRANSMISSION
INSTALLATION DATA SEE BASIC
INSTALLATION DRAWING.)



BASIC INSTALLATION DRAWING	DIM. "A"	P.T.O. DRIVE GEAR SPEED		
		1.0X TURBINE	1.32X TURBINE	1.42X TURBINE
AS 44-001	11.75	NEUT-REV-1-3&5		2-4&6
AS 44-005	19.55	NEUT-REV-1-3&5		2-4&6
AS 40-001	12.78	NEUT-REV-1-3&5	2-4&6	
AS 40-014	19.55	NEUT-REV-1-3&5		2-4&6

TRANSMISSION RANGE	DRIVE GEAR SPEED	DRIVE GEAR SPEED
1	1.0X TURBINE	1.32X TURBINE
2	1.32X TURBINE	1.42X TURBINE
3	1.42X TURBINE	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		



SIDE P.T.O.-TRANSMISSION DRIVEN
MODEL 4460 & HT-70 AS 44-009
ALLISON DIVISION-GENERAL MOTORS CORPORATION-INDIANAPOLIS, INDIANA

Technical drawing of a mechanical part, likely a bracket or housing, showing dimensions and annotations.

Annotations:

- 7** 16-14 UNC-2B
.98 MIN FULL THD
8 HOLES
- "B"**
- 3.00**
- 4.130**
4.120
- 8.251**
8.249 DOWEL LOCATION ONLY
- "B"**
- .35**
.62
- .90**
.86
- DIM. "A"**
SEE CHART
- LOCATED AT "B"**
36 DIA.
- BASE LINE**
- P.T.O.**

Technical drawing of a transmission housing, View C-C. The drawing shows a cross-section of the housing with various dimensions and assembly notes.

Dimensions:

- Top flange thickness: $.05R \text{ MAX OR } .05\text{MAX} \times 45^\circ$
- Top flange outer radius: $3.00R \text{ MIN}$
- Top flange inner radius: $.10 \text{ MIN}$
- Top flange width: $.815$ and $.805$
- Top flange hole diameter: $.44$
- Top flange hole position: 7.315 and 7.305
- Top flange hole diameter: 7.00 and 6.94
- Top flange hole position: 7.00 and 6.94
- Top flange hole diameter: 7.00 and 6.94
- Top flange hole position: 7.00 and 6.94

Assembly Notes:

- RIB REMOVED TO THIS OUTLINE MIN OR THIS OUTLINE MAX
- TRANSMISSION AND P.T.O.
- 2 DOWEL .4341-.4
- TRANSMISSION

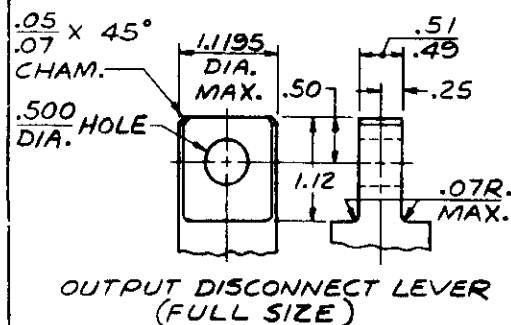
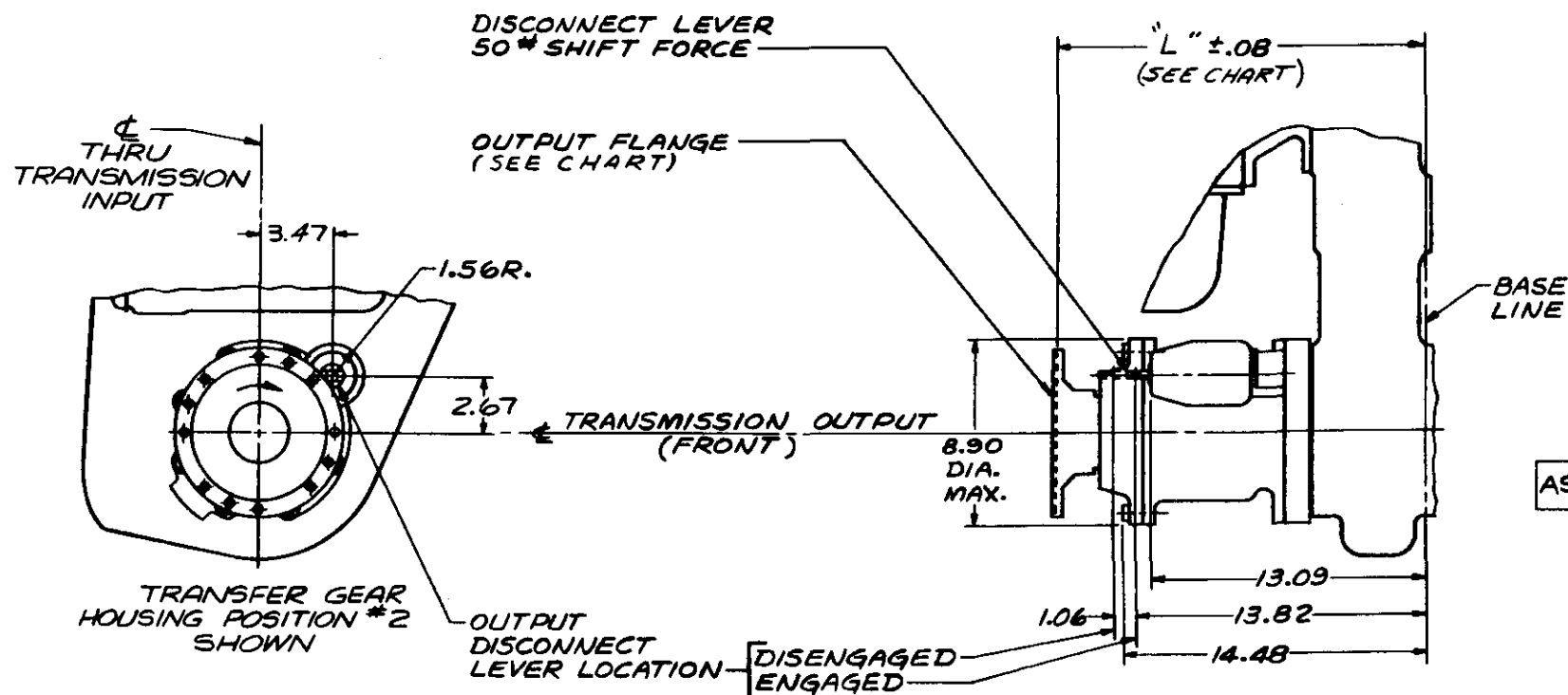
Optional Top P.T.O. Mounting Flange S.A.E Heavy Duty Type

[illegible]

BASIC INSTALLATION DRAWING	DIM. "A"	P.T.O. DRIVE GEAR SPEED		
		1.0X TURBINE	1.32X TURBINE	1.42X TURBINE
AS 44-001	11.75	NEUT-REV-1-3 & 5		2-4 & 6
AS 44-005	19.55	NEUT-REV-1-3 & 5		2-4 & 6
AS 40-001	12.78	NEUT-REV-1-3 & 5	2-4 & 6	

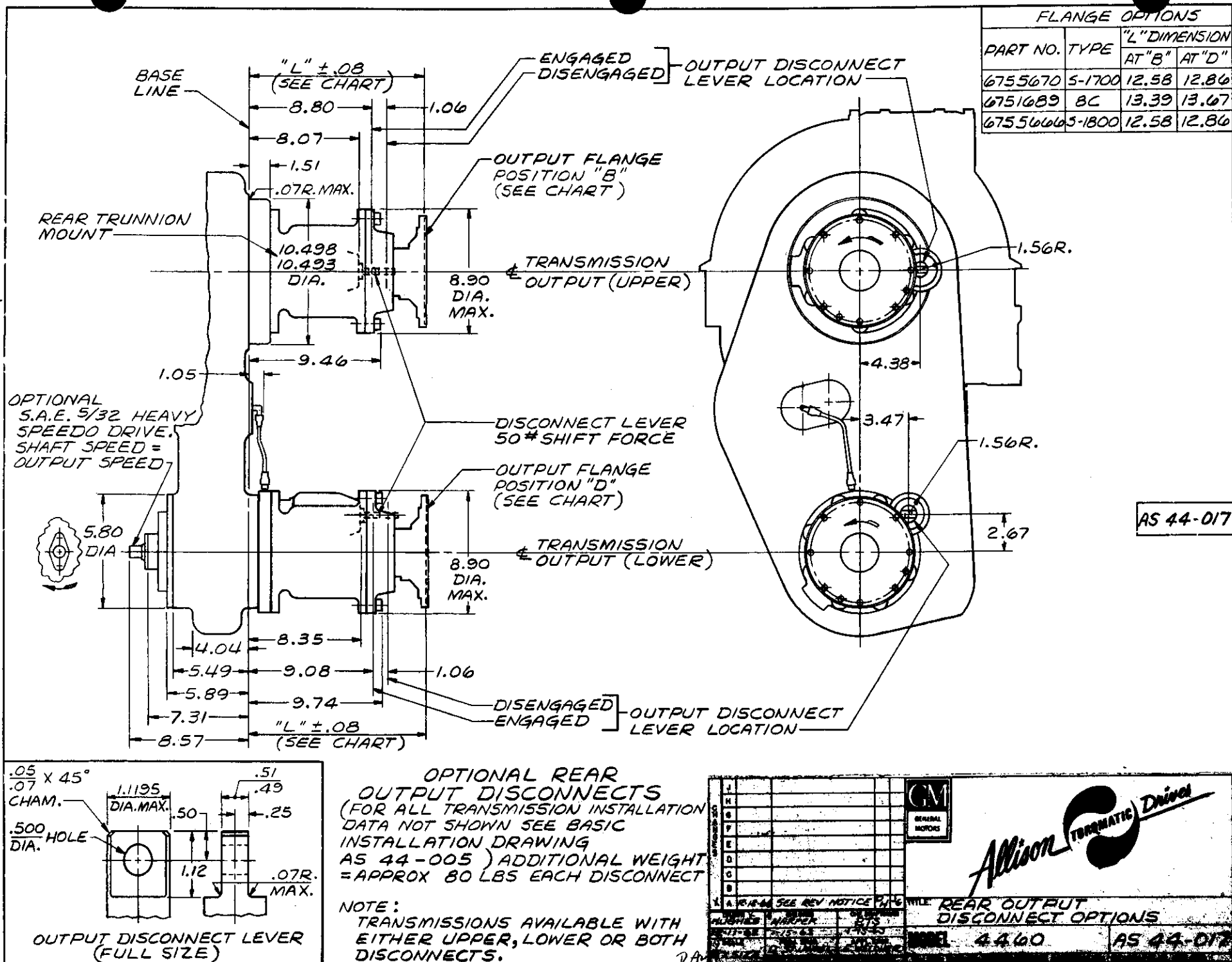
[illegible]

RANGE OPTIONS		
PART NO	TYPE	"L" DIMENSION
6755666	S-1800	17.60
6755670	S-1700	17.60
6751689	8C	18.41
6773820	7C	17.91



ADDITIONAL WEIGHT-APPROX 80 LBS.

[illegible]





DATE
3-5-63

BY
Ramsey

AS 44-018

TRANSMISSION ENGINEERING DEPARTMENT

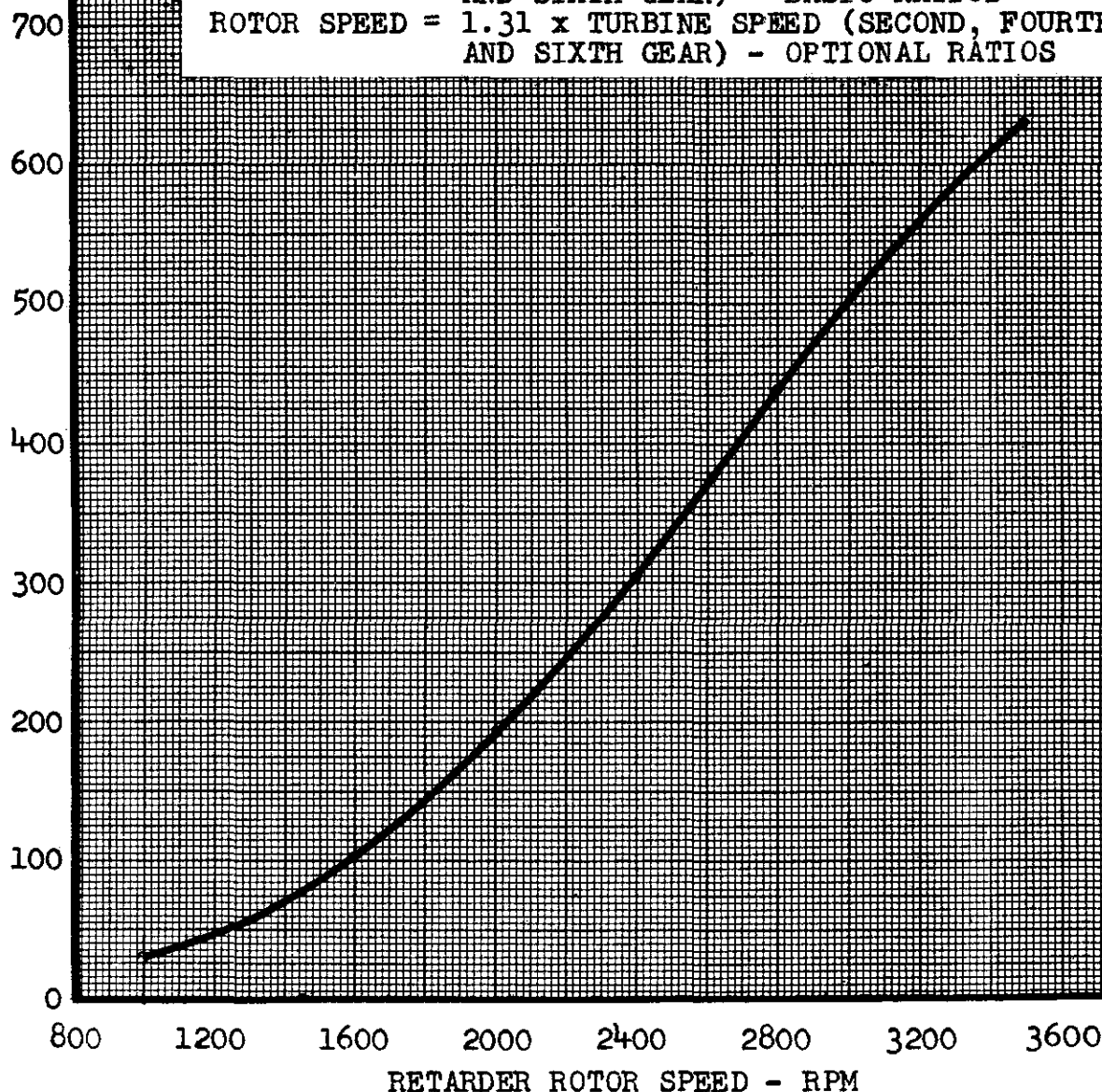
ALLISON CLBT-4460 INTEGRAL HYDRAULIC RETARDER
HORSEPOWER ABSORPTION CHARACTERISTICS
(FULL BRAKING PERFORMANCE)

ROTOR SPEED = TURBINE SPEED (FIRST, THIRD AND
FIFTH GEAR)

ROTOR SPEED = $1.41 \times$ TURBINE SPEED (SECOND, FOURTH
AND SIXTH GEAR) - BASIC RATIOS

ROTOR SPEED = $1.31 \times$ TURBINE SPEED (SECOND, FOURTH
AND SIXTH GEAR) - OPTIONAL RATIOS

HORSEPOWER





DATE
3-25-64
BY
RAMSEY

AS 44-023

TRANSMISSION ENGINEERING DEPARTMENT

COOLER OIL FLOW OF THE QLBT & VCLBT-4460 TRANSMISSION

NOTE: OPERATING PRESSURE
AT OPERATING TEMP. AND
MAX. SPEED - 6TH GEAR
• MAX. ALLOWABLE CONV. OUT
OIL PRESSURE, 65 PSI
• MAX. ALLOWABLE EXTERNAL
CIRCUIT PRESSURE DROP
15 PSI AT 30 GPM

COOLER OIL FLOW - GPM

60
50
40
30
20
10

RETARDER OIL FLOW

SECOND, FOURTH, AND
SIXTH GEAR

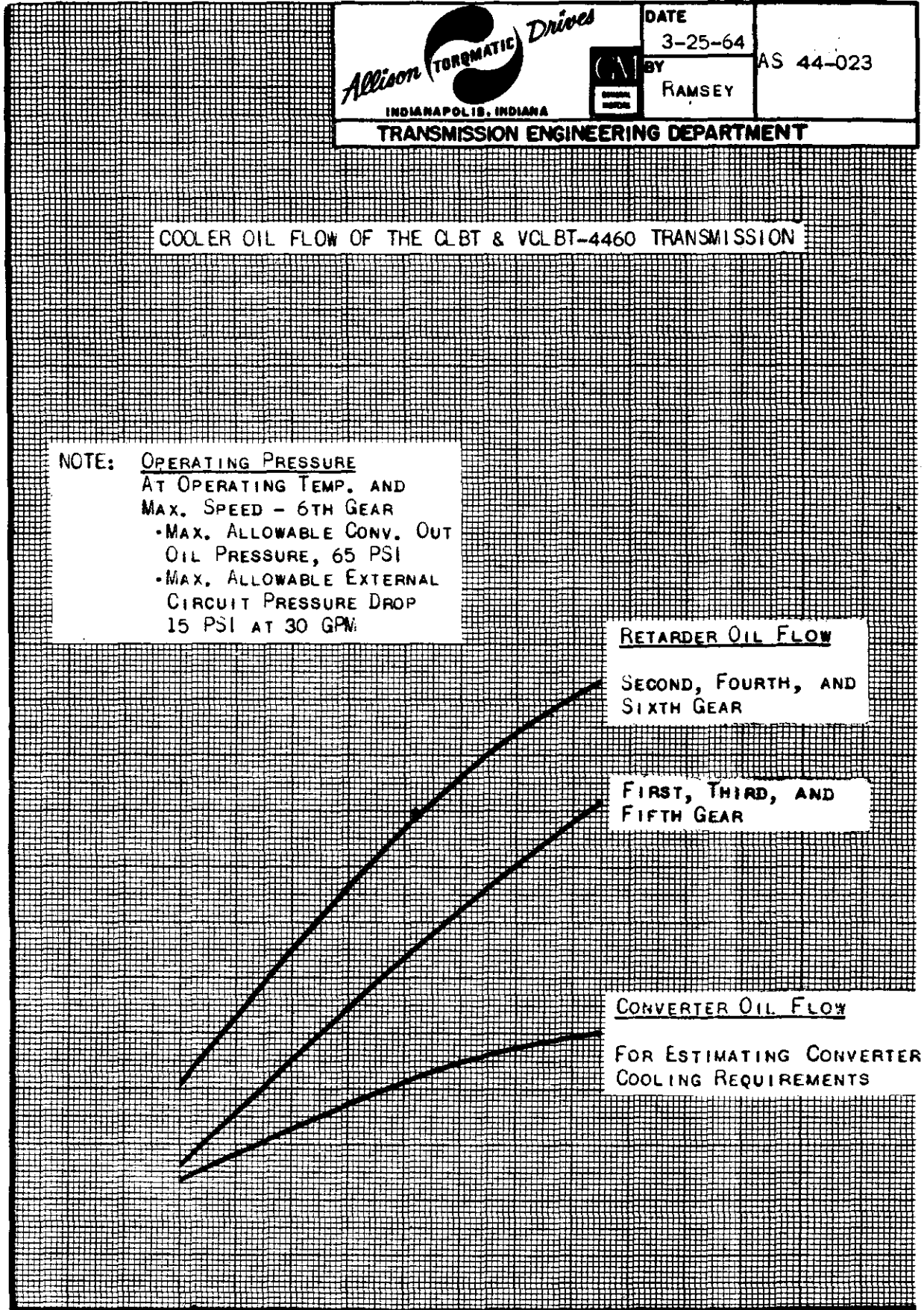
FIRST, THIRD, AND
FIFTH GEAR

CONVERTER OIL FLOW

FOR ESTIMATING CONVERTER
COOLING REQUIREMENTS

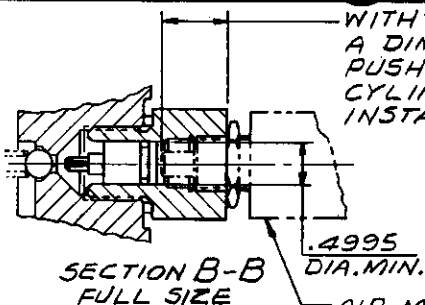
0 400 800 1200 1600 2000 2400 2800

TRANSMISSION INPUT SPEED - RPM



FOR HIGH CONVERTER CAPACITY:
"ZERO" CYLINDER FORCE.
PLUNGER IN RETRACTED POSITION

FOR LOW CONVERTER CAPACITY:
25 LB. MINIMUM AIR CYLINDER
FORCE REQUIRED. 1/2 INCH
MINIMUM AVAILABLE PLUNGER
TRAVEL REQUIRED.

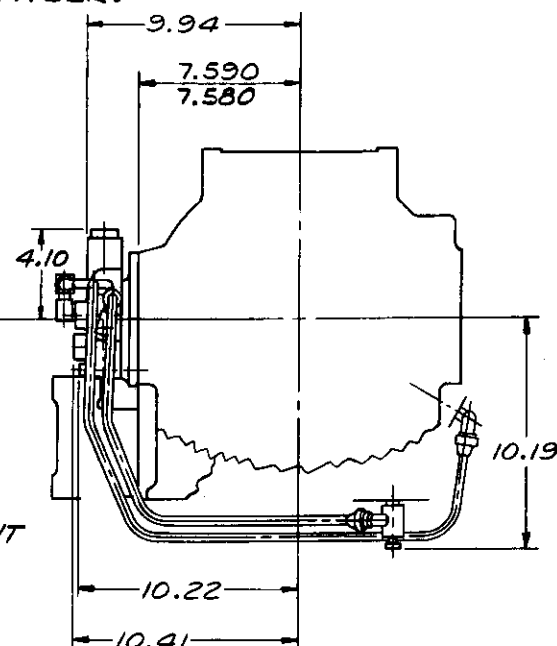
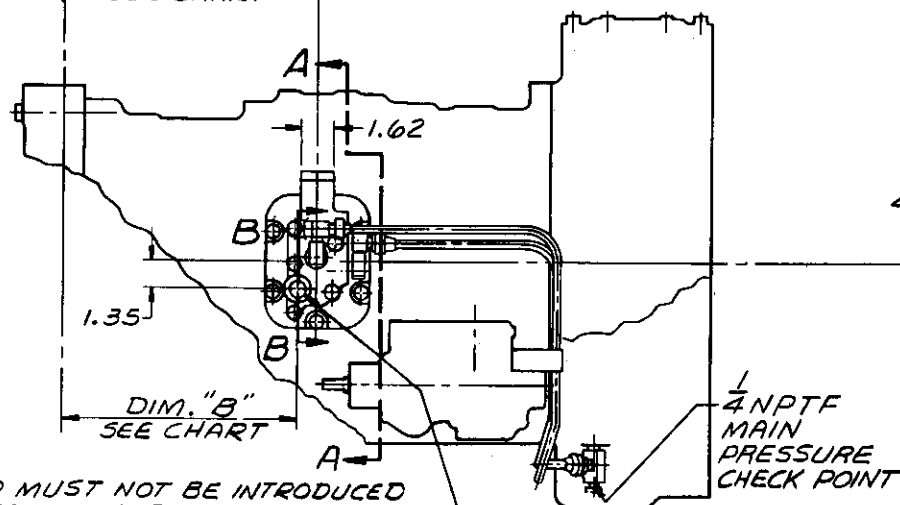


AIR MITE DEVICES
MICRO MODEL V-100-AC
OR EQUIVALENT AIR
CYLINDER.

BASE
LINE

DIM. "A"
SEE CHART

P.T.O.



SECTION A-A

AS 44-025

NOTE:

1. AIR MUST NOT BE INTRODUCED
INTO VALVE BODY

2. AIR CYLINDER TO ACTUATE
VALVE BY MEANS OF PUSH
ROD AND PROVIDE POSITIVE
RETURN FORCE.

3. TRANSMISSION ENGINEERING
DEPARTMENT'S APPROVAL IS A
PREREQUISITE TO USE OF
ACTUATING MECHANISM.

5
8-18 UNF-2B
.44 MIN FULL THREAD
OPENING FOR AIR VALVE
INSTALLATION

FOR ALL TRANSMISSION
DATA NOT SHOWN SEE BASIC
INSTALLATION DRAWING

PARTS SHOWN IN PHANTOM
ARE TO BE FURNISHED BY
CUSTOMER

BASIC INSTALLATION DRAWING	DIM. "A"	DIM. "B"
AS 44-001	11.75	10.81
AS 44-005	19.55	18.61
AS 40-001	12.78	11.84

J					
H					
G					
F					
E					
D					
C					
B	3-19-66	WAS .50-.79	UNDER		
A	4-15-65	REV. TUBES	2.4		
HUGHES	CHANGED	ERD	CH. 10/11/65		
2-12-65	2-17-65	2-17-65			
1	PROL. ENR.	APPL. ENR.			
1	2-15-65	2-15-65			

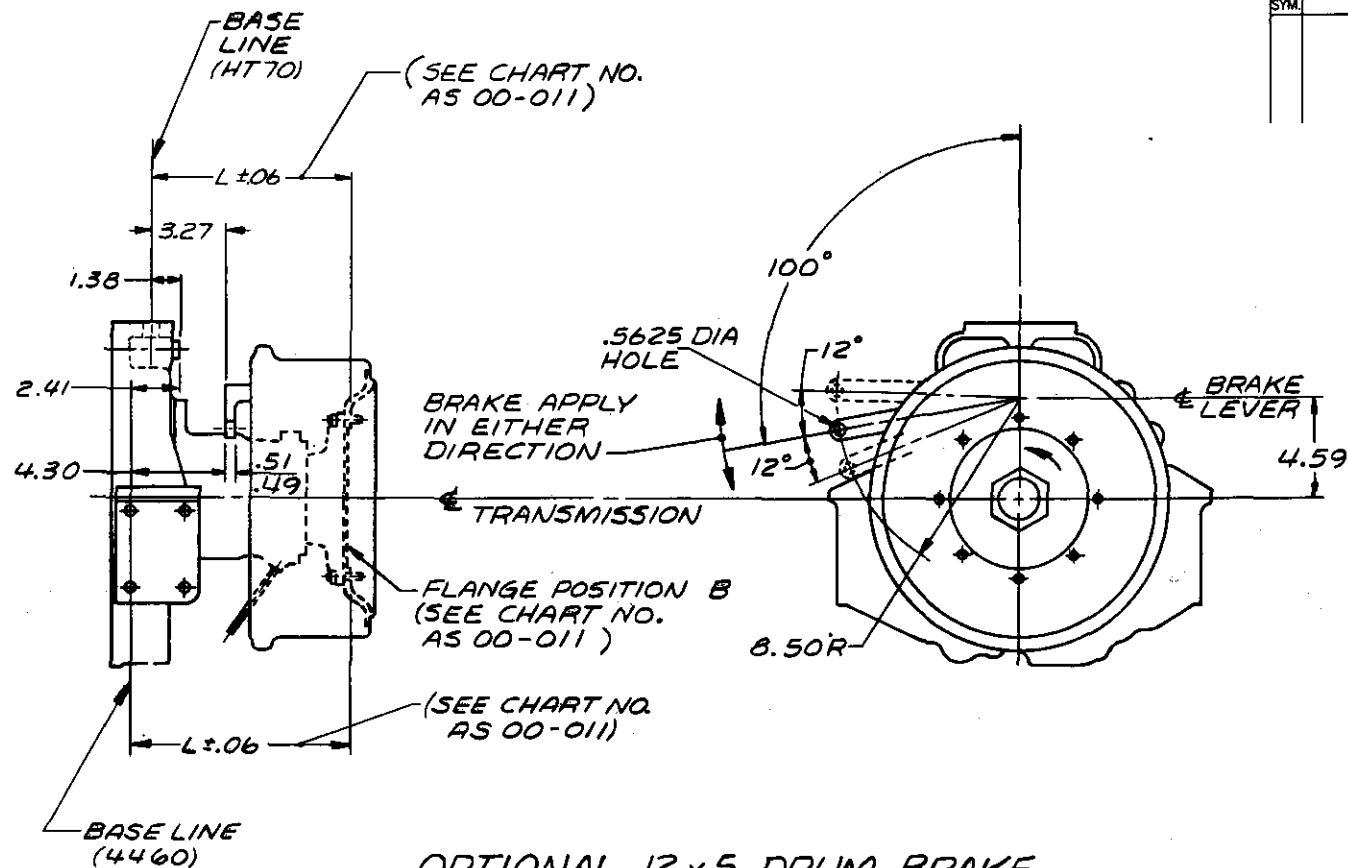


Allison TORQUEMATIC Drives

VARIABLE CAPACITY CONVERTER
AIR CONTROL OPTION

MODEL 4460 & HT-70 AS 44-025

ALLISON DIVISION - GENERAL MOTORS CORPORATION - INDIANAPOLIS, INDIANA



OPTIONAL 12 x 5 DRUM BRAKE
(FOR ALL TRANSMISSION DATA
NOT SHOWN SEE BASIC INSTALLATION
DRAWINGS AS 40-001 AND AS 44-001)
ADDITIONAL WEIGHT = 60 LBS.

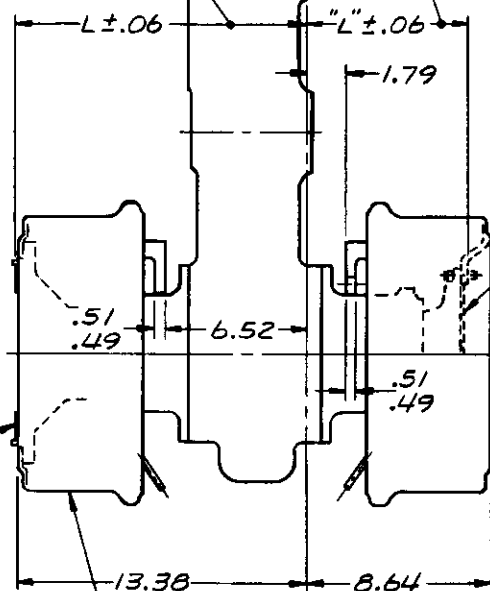
AS 44-027

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

J N G F E D C B A	DESIGNED	DORRIN	DATE	6-1-66
	PROJ. ENGR.	J. H. III.	DATE	6-21-66
	APPL. ENGR.	E. WELCHER	DATE	6-21-66
	SCALE	1/4" = 1"		

Allison  Drive	
TITLE: DRUM BRAKE OPTION	
MODEL HT-70 AND 4460	AS 44-027
ALLISON DIVISION - GENERAL MOTORS CORPORATION - INDIANAPOLIS, INDIANA	

(SEE CHART NO.
AS 00-011)



INBOARD BRAKE OPTION
AVAILABLE FOR TRANSFER
GEAR POSITIONS 5, 6, & 7 ONLY

FLANGE POSITION C
(SEE CHART NO. AS 00-011)

OPTIONAL
TRANSFER GEAR
HOUSING POSITIONS

FLANGE POSITION D
(SEE CHART NO.
AS 00-011)

BRAKE APPLY
IN EITHER
DIRECTION

OUTPUT

.5625
DIA. HOLE

8.50R

BRAKE
LEVER

6.41 R REF

7.00 R REF

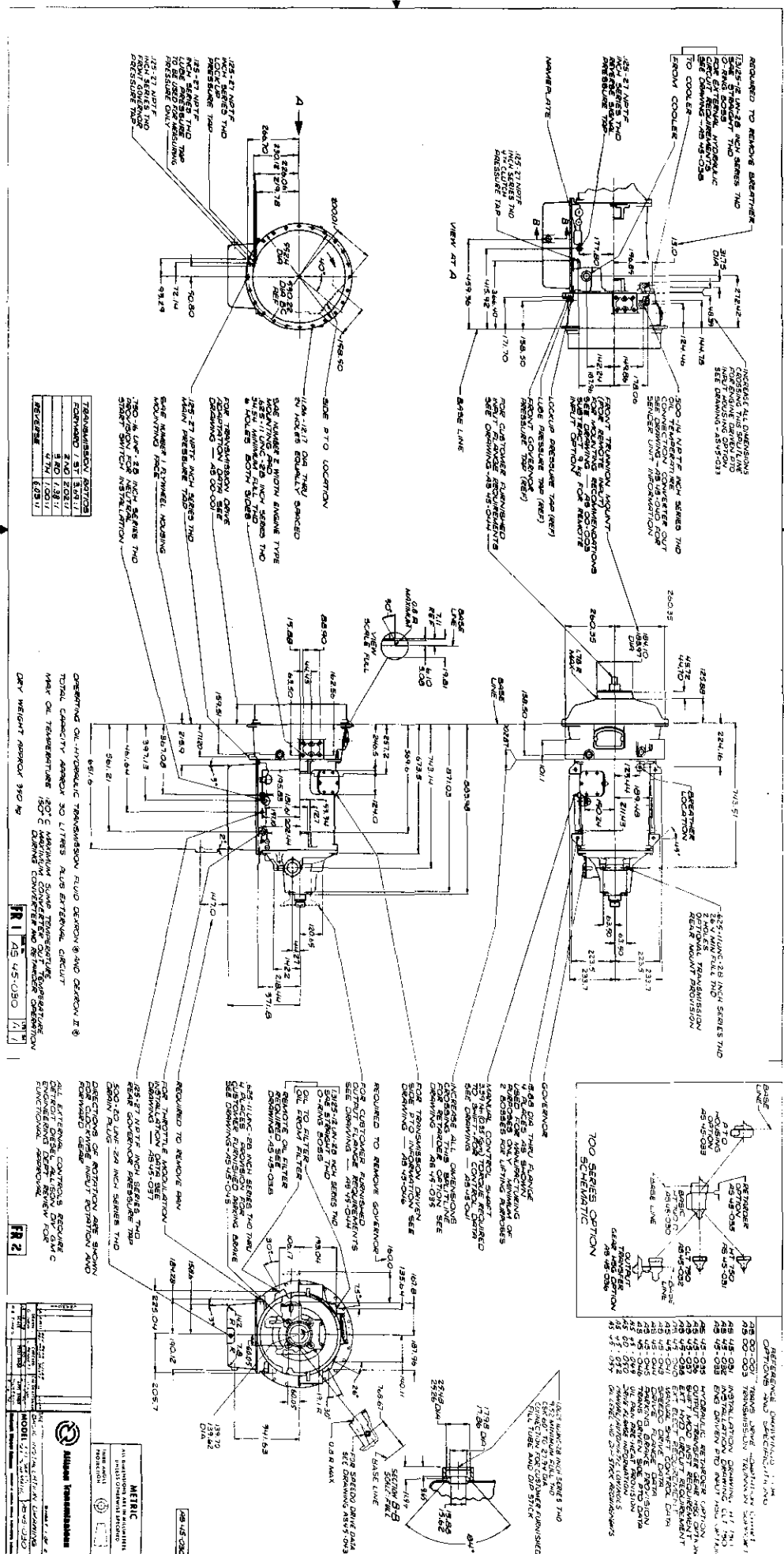
OPTIONAL 12 x 5 DRUM BRAKE
(FOR ALL TRANSMISSION DATA NOT
SHOWN SEE BASIC INSTALLATION
DRAWING AS 44-005 OR AS 40-014)
ADDITIONAL WEIGHT = 60 LBS PER BRAKE

REVISIONS			
SYM.	DESCRIPTION	DATE	APPROVED

AS 44-028

J		GM	
H		Allison TORQMATIC Drive	
G			
F			
E			
D			
C			
B			
A		5-5-72 SEE REV NOTICE	
DATE	DESIGNED	CHK'D	DATE
6-1-66	AS 44-028		
SCALE	PROJ. ENGR.	APPL. ENGR.	
1/2" = 1"			
TITLE		MODEL	
DRUM BRAKE OPTION		4460	
		AS 44-028	
ALLISON DIVISION • GENERAL MOTORS CORPORATION • INDIANAPOLIS, INDIANA			





MILLIMETRES TO INCHES							
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
7.8	0.8	.310	.03	167.18		6.606	
				171.420		6.740	
				171.420		6.740	
5.08	6.10	.20	.24	177.80		7.000	
7.11		.280		178.06		7.010	
9.52		.375		181.41		7.150	
9.45		.370					
11.86	12.17	.467	.479				
11.94		.470					
12.7		.50		183.97	186.10	7.243	7.248
13.0		.52					
				184.28		7.255	
14.2		.560		187.96		7.400	
15.62	15.88	.615	.625	189.48		7.440	
15.88		.625		190.12		7.445	
17.86	17.98	.703	.708	193.04		7.600	
19.1		.750		195.83		7.710	
19.81		.780		196.85		7.750	
				197.10		7.760	
25.26	25.48	.9948	1.0033	200.01		7.874	
27.94		1.100		202.44		7.970	
31.75		1.250		205.7		8.100	
34.54		1.360		211.43		8.324	
				215.9		8.499	
44.27		1.743		218.44		8.600	
44.45		1.750		219.78		8.653	
44.70	45.72	1.74	1.80	223.5		8.800	
50.80		2.000		224.16		8.825	
53.34		2.100		225.04		8.840	
60.05		2.364		226.06		8.900	
63.50		2.500		230.12		9.040	
				233.7		9.200	
72.14		2.840		244.5		9.705	
88.90		3.500		257.2		10.125	
93.29		3.675		260.35		10.250	
101.1		3.980		264.70		10.500	
102.87		4.050		272.42		10.725	
106.17		4.180					
123.44		4.860		361.63		13.450	
124.0		4.880		367.08		14.452	
126.46		4.990		371.8		14.640	
125.88		4.956		397.13		15.635	
135.66		5.340		415.92		16.375	
139.62	139.70	5.497	5.500	459.36		18.085	
140.11		5.516		461.66		18.175	
142.24		5.600		530.22		20.875	
144.78		5.700		552.4		21.750	
147.0		5.780		561.21		22.095	
149.86		5.900		569.6		22.425	
150.24		5.915		551.7		25.655	
158.50		6.240		673.5		26.517	
158.6		6.246		743.14		29.257	
159.51		6.280		768.67		30.262	
160.0		6.30		871.03		34.292	
162.56		6.400		883.98		34.802	

METRIC VALUES	EQUIVALENTS
9 kg	20 LB
3.39 Nm	30 LB INCH
30 LITRES	8 GALLONS
120° C	250° F
150° C	300° F
350 kg	775 LB

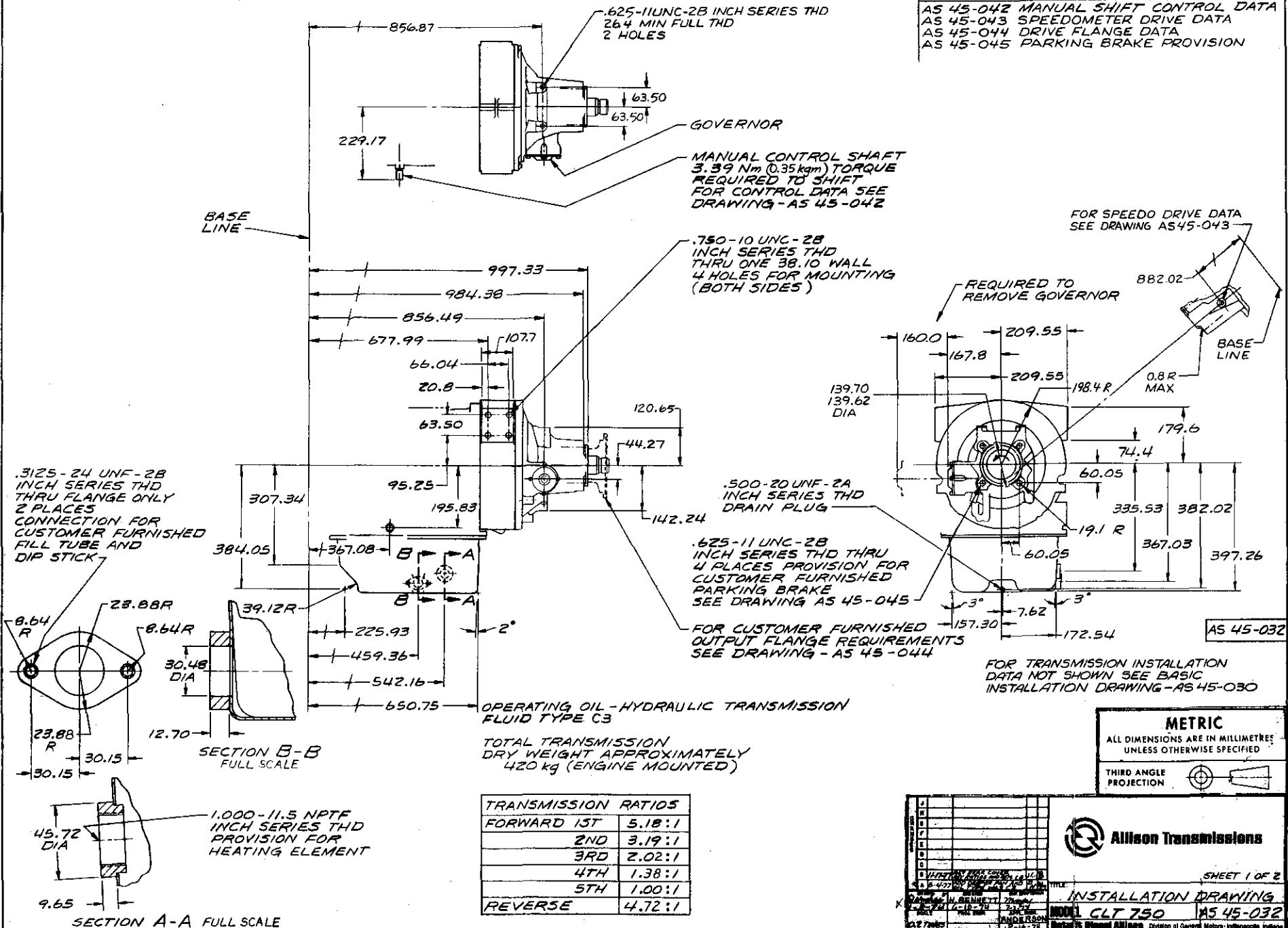
MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
26.4	1.78	1.04	.07
48.39		1.905	
120.65		4.750	
142.2		5.60	
366.40		14.425	
743.51		29.272	

15 45-020



REFERENCE DRAWINGS FOR OPTIONS AND SPECIFICATIONS

AS 45-042 MANUAL SHIFT CONTROL DATA
AS 45-043 SPEEDOMETER DRIVE DATA
AS 45-044 DRIVE FLANGE DATA
AS 45-045 PARKING BRAKE PROVISION

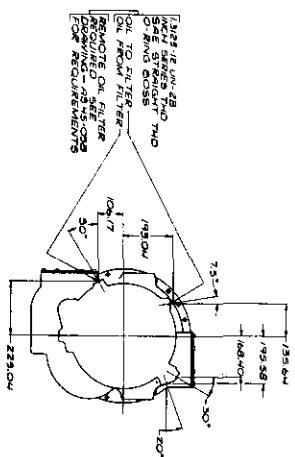


MILLIMETRES TO INCHES				MILLIMETRES TO INCHES				EQUIVALENTS	METRIC VALUES
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX		
8.64	0.8	.340	.03	459.36		18.085		925 LB 30 LB INCH	
9.65		.380		542.16		21.345			
12.70		.500		677.99		26.692			
19.1		.750		856.49		33.720			
20.8		.820		882.02		34.725			
23.88		.940		984.38		38.755			
24.8		.975		997.33		39.265			
30.15		1.187		7.62		.300			
30.48		1.200		26.4		1.04			
38.10		1.500		39.12		1.540			
44.27		1.743		45.72		1.800			
50.80		2.000		120.65		4.750			
60.05		2.364		157.30		6.193			
63.50		2.500		172.54		6.793			
66.04		2.600		225.93		8.895			
74.4	139.70	2.930	5.500	307.34		12.100		420 kg 3.39 Nm	
95.25		3.750		367.03		14.450			
107.7		4.240		382.02		15.040			
139.62		5.497		384.05		15.120			
142.24		5.600		397.26		15.640			
160.0		6.300		650.75		25.620			
167.8		6.606		856.87		33.735			
179.6		7.070							
185.42		7.300							
188.21		7.410							
195.83		7.710							
198.4		7.812							
209.55		8.250							
227.1		8.940							
229.17		9.022							
335.53		13.210							
341.62		13.450							
367.08		14.452							
399.3		15.720							


Allison Transmission

SHEET 2
INSTALLATION DRAWING
CLT 750 **1845-052**

1. DIMENSIONS
 2. MATERIALS
 3. FINISHES
 4. TOLERANCES
 5. NOTES
 6. LEGEND
 7. INDEX



403 45-0511

MILLIMETRES TO INCHES									
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	mm MIN/NOM	in. MAX
1.52	0.76	.06	.03	260.35	260.76	10.250	10.266		
2.5	2.79	.10	.11	266.70		10.260	10.266		
4.75		.187		276.1		10.50			
5.08	6.10	.20	.24	278.41	278.77	10.969	10.975		
7.11		.280		282.32		11.50			
8.26		.325		330.32		13.00			
11.013	11.026	.4336	.4341	555.75		21.88			
11.13		.438							
11.2		.44							
11.51	13.54	.453	.533						
11.86	12.17	.467	.479						
12.76	13.00	.502	.512						
15.88		.623							
18.00	19.81	.70	.78						
20.40	20.65	.803	.813						
20.45	20.70	.805	.815						
21.0		.825							
26.87	27.13	1.058	1.068						
36.56		1.36							
46.45		1.750							
56.30		1.995							
63.50		2.500							
76.20		3.000							
88.90		3.500							
91.44		3.600							
94.23		3.71							
96.52		3.800							
98.0		3.86							
106.17		4.180							
109.3		4.304							
122.02		4.804							
125.64		5.340							
135.44		5.35							
162.54		6.400							
168.40		6.63							
177.8		7.00							
180.34		7.10							
193.04		7.600							
196.06		7.64							
195.58		7.70							
206.34		8.065							
206.76		8.190							
207.00		8.165							
207.80		8.185							
209.59		8.250							
214.0		8.425							
219.96		8.660							
222.00		8.74							
223.52		8.80							
225.04		8.860							
226.77	226.81	8.9278	8.9298						
231.27		9.105							
235.0		9.25							
235.70		9.28							
ADDITIONS CHANGE A									
				51.24		2.017			
				72.57		2.857			
				94.28		3.712			
				222.11		8.745			
				228.56		8.998			
				232.62		9.158			

MS-V-033



Milliken Transmissions

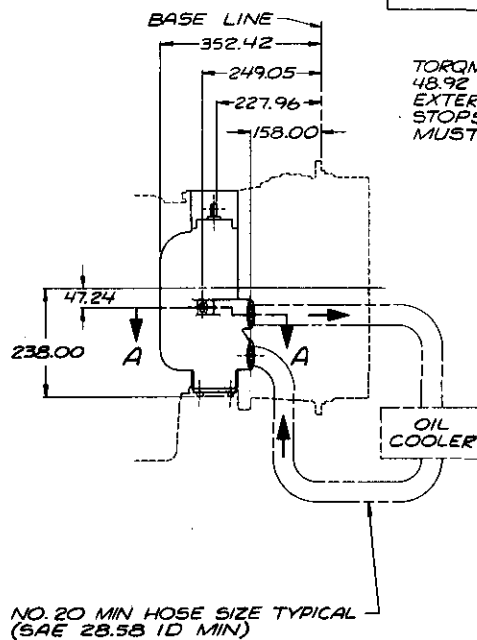
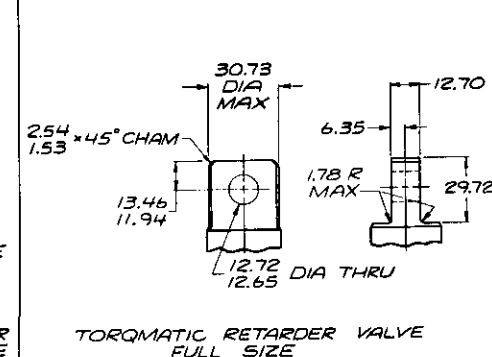
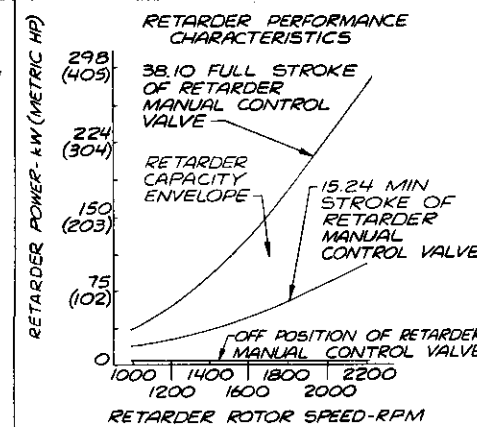
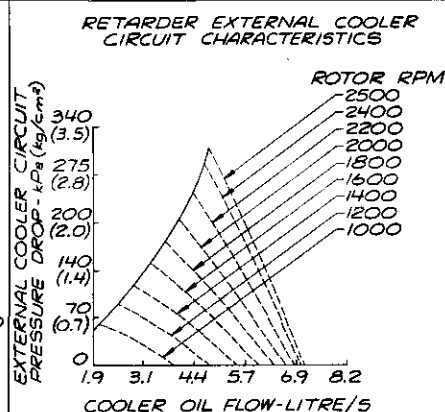
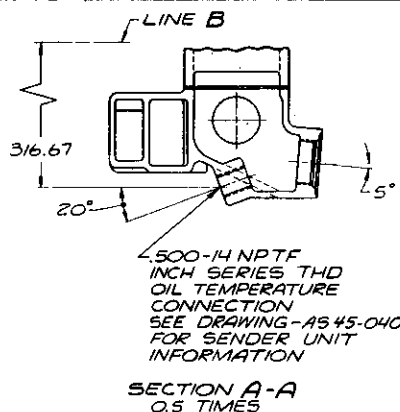
Sheet 2

DATE: 10/15/03

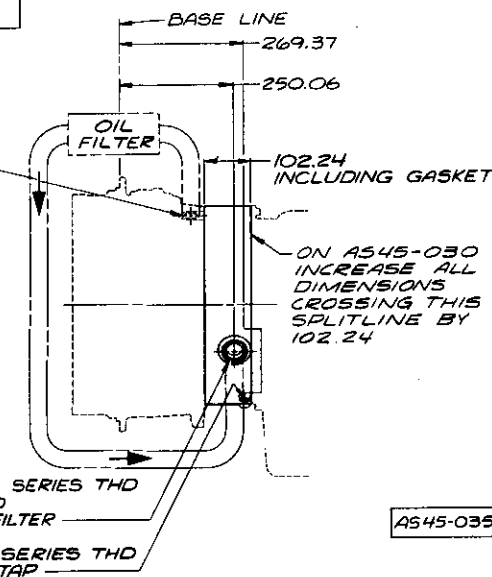
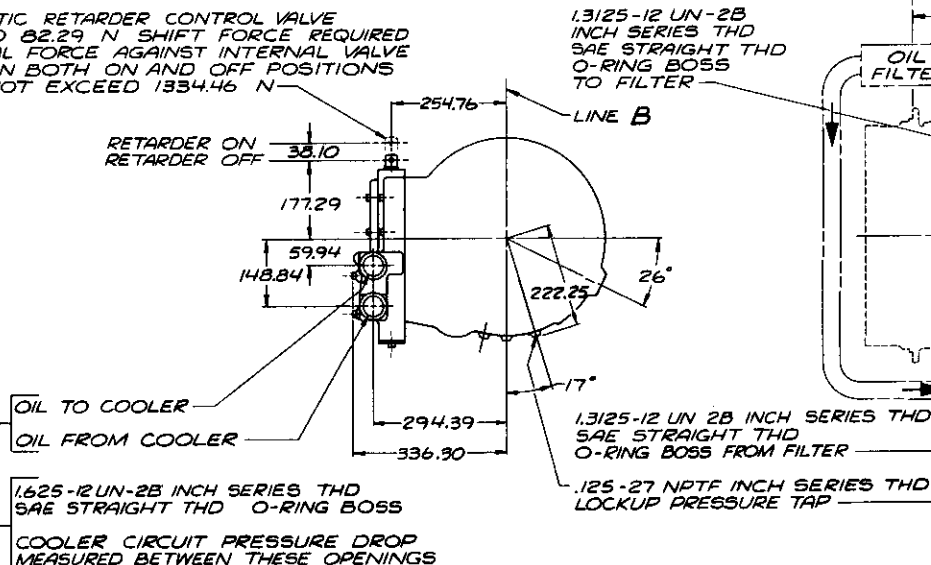
BY: J. J. J.

FOR: J. J. J.

10/15/03



TORQMATIC RETARDER CONTROL VALVE
48.92 TO 82.29 N SHIFT FORCE REQUIRED
EXTERNAL FORCE AGAINST INTERNAL VALVE
STOPS IN BOTH ON AND OFF POSITIONS
MUST NOT EXCEED 1334.46 N



AS45-035

HOSE SPEC:
SAE 100 R 5 EXCEPT OPERATING
TEMPERATURE RANGE FROM -40°C TO +165°C

AT OPERATING TEMPERATURE:
MAX COOLER CIRCUIT PRESSURE
DROP = 207 kPa (2.11 kg/cm²) AT 3.80 LITRE/S

RETARDER DRY WEIGHT APPROX 90 kg

PARTS SHOWN IN PHANTOM ARE
CUSTOMER FURNISHED

A RETURN SPRING OF SUFFICIENT FORCE TO
GIVE A POSITIVE RETURN OF LINKAGE AND
VALVE TO THE RETARDER OFF POSITION
MUST BE PROVIDED IN THE RETARDER
ACTUATING MECHANISM

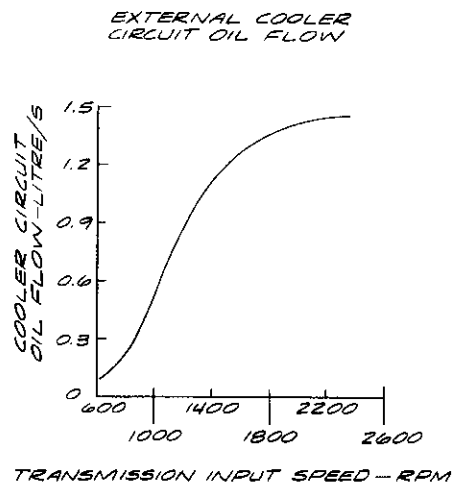
FOR TRANSMISSION INSTALLATION DATA
NOT SHOWN SEE BASIC INSTALLATION
DRAWING - AS 45-030

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

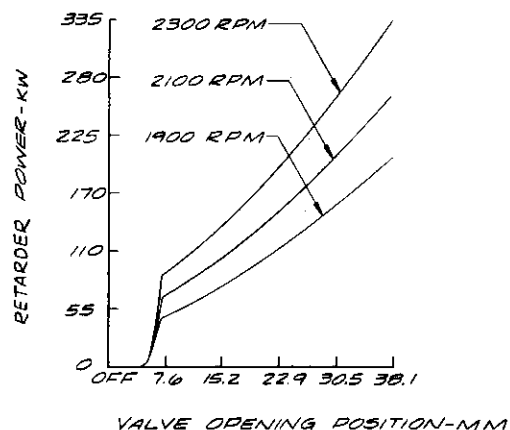
THIRD ANGLE
PROJECTION

Allison Transmissions

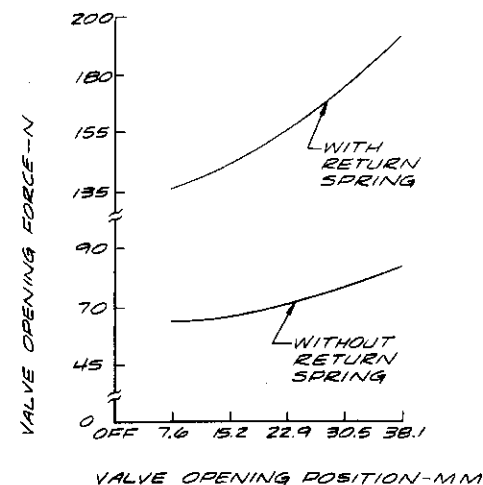
SHEET 1 OF 3	
HYDRAULIC RETARDER OPTION	
MODEL 100 D AND CLT 750	AS45-035



RETARDER CONTROL
CHARACTERISTICS
(POWER VERSUS VALVE POSITION)



RETARDER CONTROL
CHARACTERISTICS
(FORCE REQUIRED TO LIFT VALVE)



MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
1.53	2.54	.06	.10
6.35	1.78	.25	.07
11.94	13.46	.47	.53
12.65	12.72	.498	.501
12.70		.50	
28.58		1.125	
29.72		1.17	
47.24	30.73	1.86	1.21
59.94		2.36	
102.24		4.025	
148.84		5.86	
158.00		6.22	
177.29		6.98	
222.2		8.75	
227.96		8.975	
238.0		9.37	
249.05		9.805	
250.06		9.845	
254.76		10.03	
269.37		10.605	
294.39		11.59	
316.67		12.468	
336.3		13.24	
352.4		13.875	

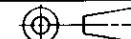
METRIC VALUES	EQUIVALENTS
207 KPA	30 PSI
3.8 LITRE/S	60 GPM
-40°C	-40°F
165°C	329°F
90 kg	200 LB
48.92 N	11 LB
82.29 N	18.5 LB
1334.46 N	300 LB

AS45-035

METRIC

ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

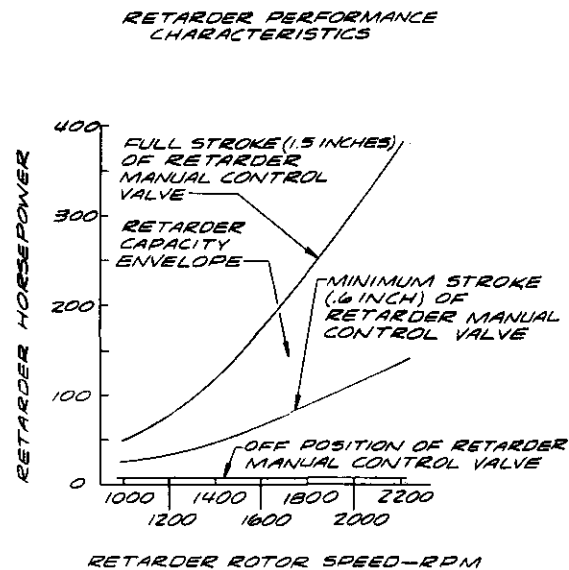
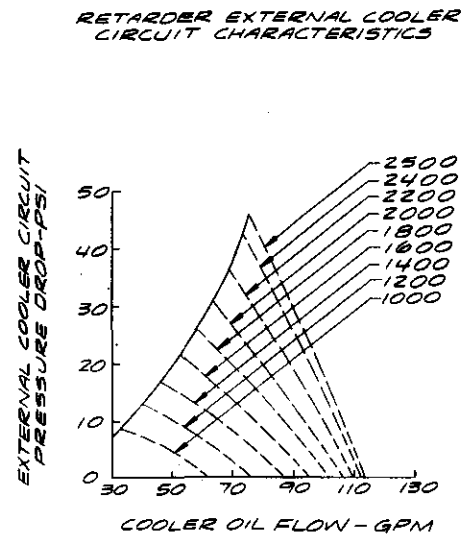
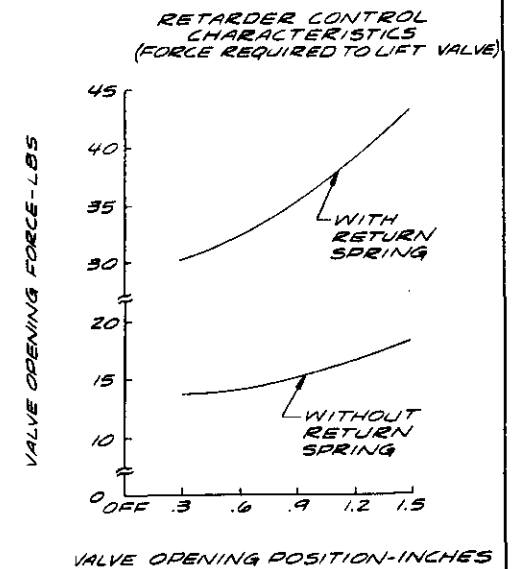
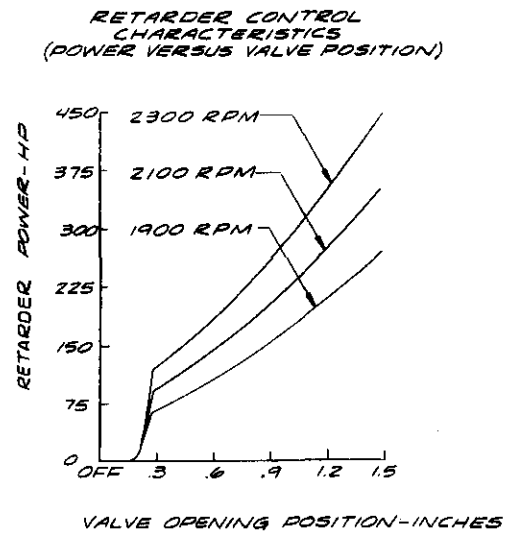
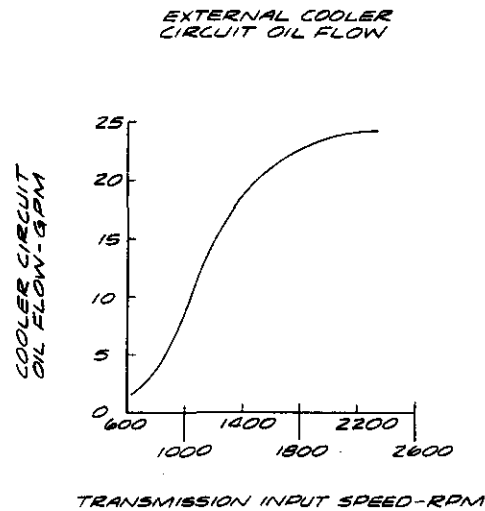
THIRD ANGLE
PROJECTION



Allison Transmissions

SHEET 2

AL-54 ADDED CHARTS 3/00		TITLE	
DESIGN	CHECKED	DATE	HYDRAULIC RETARDER OPTION
1-18-96	1-18-96	1-18-96	MODEL 700D AND CLT 750 AS45-035
82	82	82	82
TUNING		TUNING	



4545-035



Allison Transmissions

SHEET 3

DATE	1-18-78	BY	CLARK	CHKD	MAVER	TITLE	HYDRAULIC RETARDER OPTION
REV	1	DATE	2-1-78	BY	MAVER	MODEL	MODEL 7000 AND CLT 750
REV	2	DATE	4-18-78	BY	MAVER	4545-035	4545-035
REV	3	DATE	12-18-78	BY	MAVER	DETROIT DIESEL ALLISON	Division of General Motors - Indianapolis, Indiana

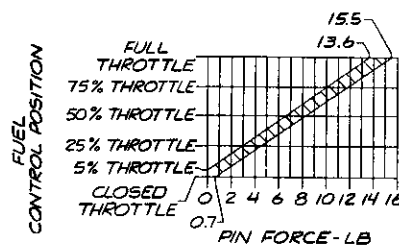
MILLIMETRES TO INCHES				MILLIMETRES TO INCHES				METRIC VALUES	EQUIVALENTS
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX		
1.27	1.77	.05	.07	270.15		10.635		222.40 N	50 LB
6.35	1.78	.25	.07	279.70		11.000		ADDITIONS - CHG B	
12.45	12.95	.49	.51					1 LITRE	1 QUART
12.70		.50		317.5		12.50		4 LITRES	4 QUARTS
19.05		.750		334.30		13.142		ADDITIONS - CHG C	
20.8		.82		336.63		13.253		670 Kg	1477 LB
26.92	28.43	1.06	1.12	335.18		13.183			
				376.7		14.83			
28.45		1.12							
30.99		1.22		480.06		18.90			
37.6		1.48		508.00		20.000			
39.6		1.56		938.46		36.946			
57.15		2.25		986.88		38.852			
60.05		2.364		1060.70		40.972			
62.2		2.45		1089.09		42.678			
63.50		2.5000		610.74		24.045			
66.04		2.6000		182.88		7.200			
67.73		2.6667		ADDITIONS - CHG B					
67.82		2.67		131.57		5.180			
79.80		3.142		202.44		7.970			
82.00		3.228		ADDITIONS - CHG C					
82.50		3.2500		8.64		.340			
88.14		3.47		9.65		.380			
95.25		3.750		12.70		.500			
100.20		3.9444		23.88		.940			
104.39		4.11		30.15		1.187			
111.25		4.38		30.48		1.200			
135.46		5.3333		50.80		2.000			
136.5		5.374		185.42		7.300			
148.08		5.83		188.21		7.410			
152.60		6.000		335.53		13.210			
157.5		6.20		341.62		13.450			
158.8		6.25		459.36		18.085			
160.0		6.30		542.16		21.345			
167.9		6.61		924.74		36.407			
169.81		6.686		973.13		38.312			
170.4		6.71		1026.98		40.432			
185.7		7.31		1075.37		42.337			
194.56		7.660							
203.20		8.0000							
207.3		8.16							
207.9		8.18							
209.55		8.250							
215.00		8.500							
225.31		8.890							
238.76		9.40							
240.02		9.40							
252.36		9.9355							
256.00		10.0000							

AS 45-036



MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
0.13		.005	
0.51	0.51	.020	.020
	1.27	.050	.050
3.48	3.81	.137	.150
4.75	4.76	.1870	.1875
4.78		.188	
6.10	6.86	.240	.270
10.93	13.64	.430	.537
15.88		.625	
17.50	17.55	.689	.691
21.64	21.69	.852	.854
22.86		.900	
28.0	27.58	1.10	1.086
46.23	47.24	1.820	1.860
82.55		3.250	
202.44		7.970	
561.21		22.095	

METRIC VALUES EQUIVALENTS
2.5 MICROMETRE 100 MICROINCH



PARTS SHOWN IN PHANTOM ARE TO BE FURNISHED BY CUSTOMER

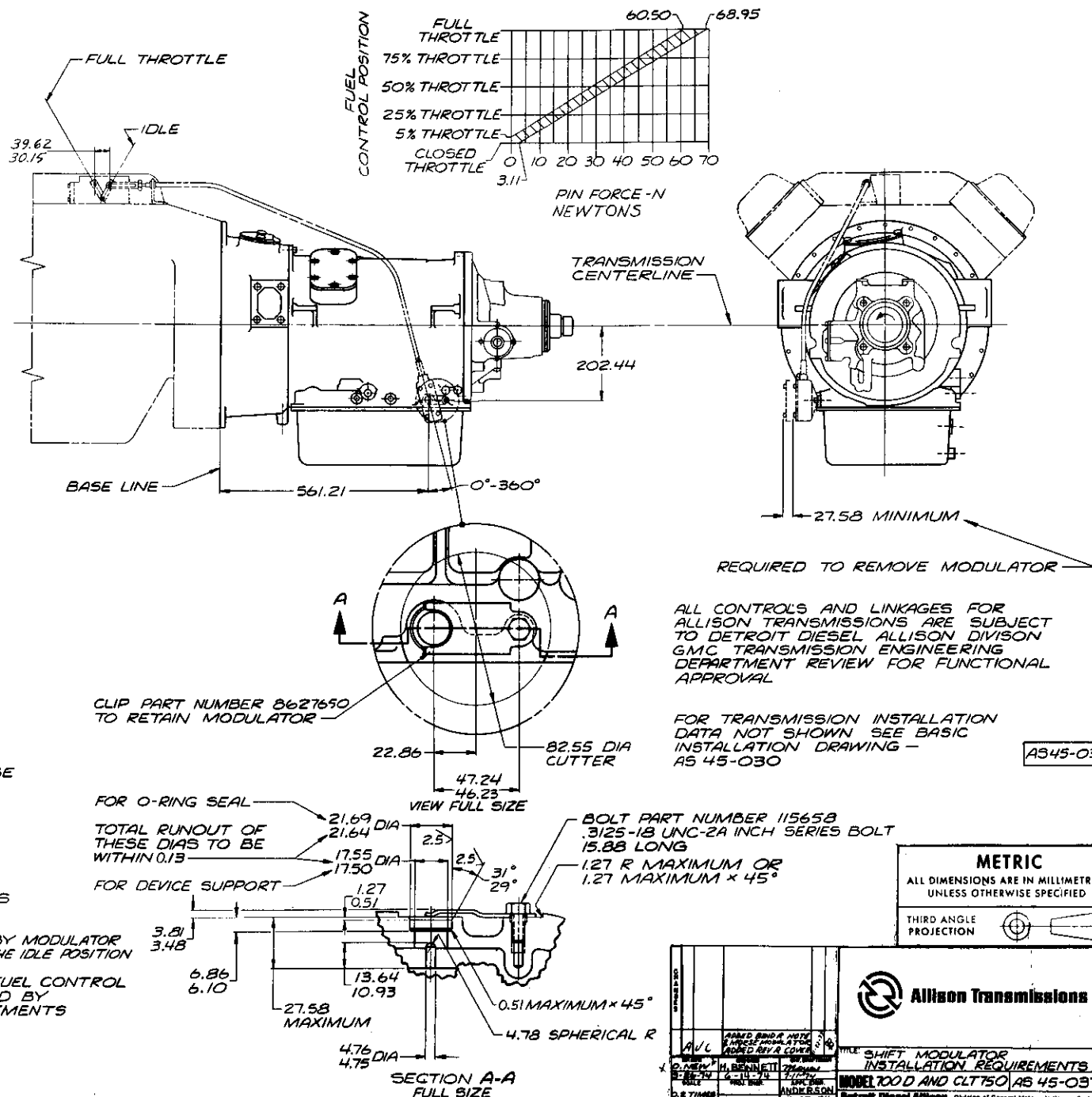
DESIGN AND INSTALLATION NOTES

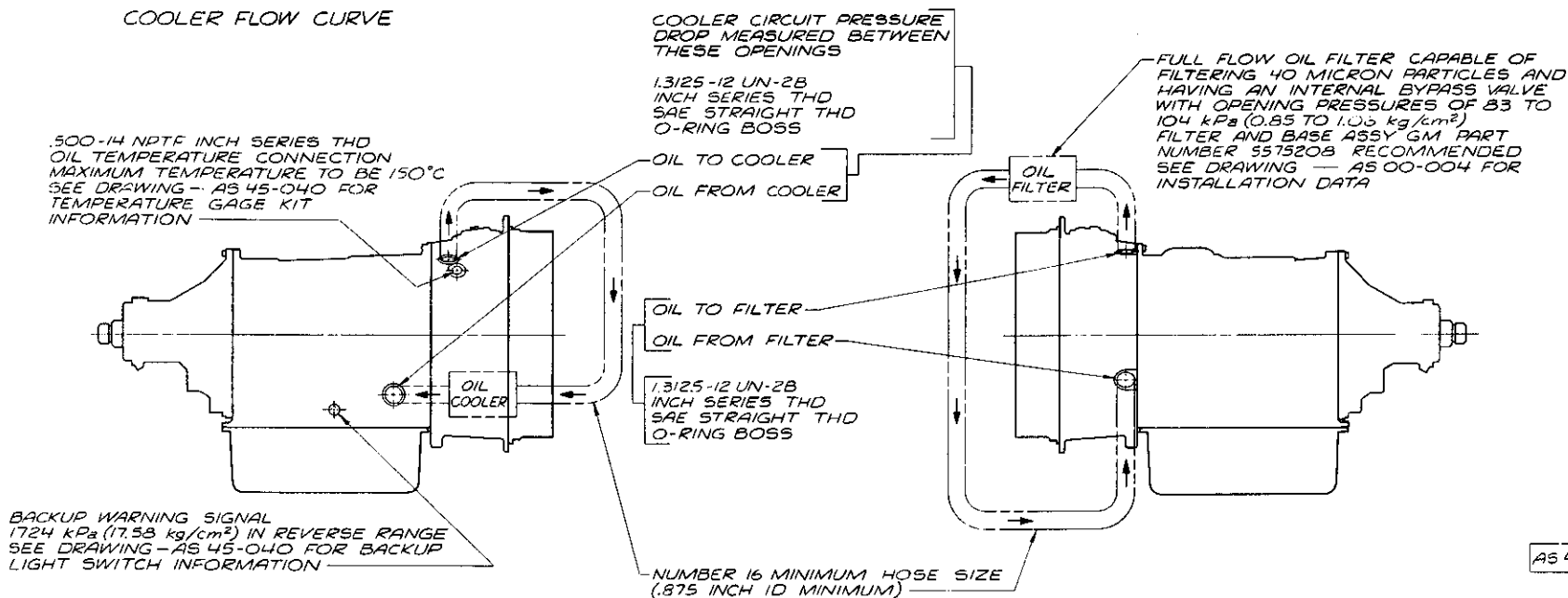
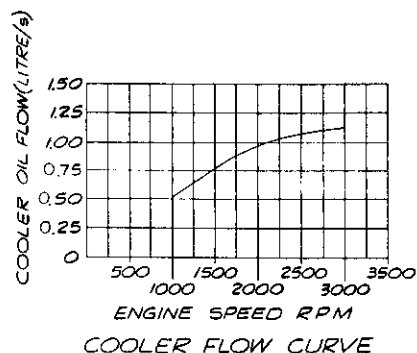
ENGINE THROTTLE MUST BE FREE TO RETURN TO IDLE POSITION REGARDLESS OF CABLE POSITION

A RETURN SPRING MAY BE REQUIRED BY MODULATOR VENDOR TO RETURN THE MODULATOR CABLE TO THE IDLE POSITION

MECHANICAL MODULATOR LINKAGE TO FUEL CONTROL LEVER ATTACHMENT POINT DETERMINED BY MODULATOR VENDOR STROKE REQUIREMENTS

ALL CABLE BEND RADII MUST EXCEED 203.2





AS 45-038

HOSE SPEC
MUST CONFORM TO SAE 100R5 AND SAE J1019 EXCEPT OPERATING TEMPERATURE RANGE FROM -40°C TO +150°C

AT OPERATING TEMPERATURE
MAXIMUM COOLER CIRCUIT PRESSURE DROP = 207 kPa (2.11 kg/cm²) AT 0.95 LITRE/s

PARTS SHOWN IN PHANTOM ARE CUSTOMER FURNISHED

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJECTION

Allison Transmissions

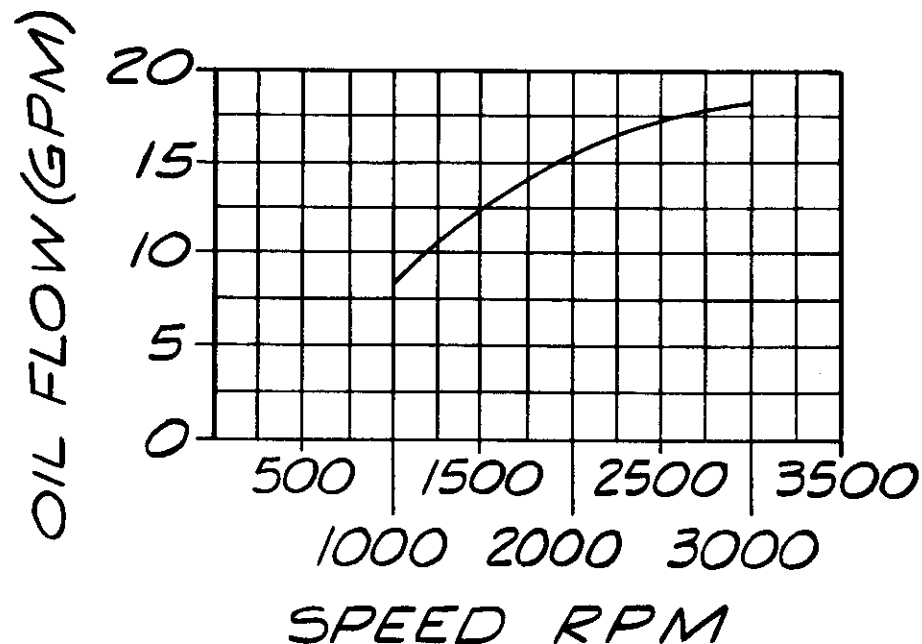
SHEET 1 OF 2	
EXTERNAL HYDRAULIC CIRCUIT REQUIREMENTS	
MODEL 700D AND CLT 750 AS 45-038	
Detroit Diesel Allison Division of General Motors, Indianapolis, Indiana	

METRIC VALUES

-40°C TO +150°C
 150°C
 83 TO 104 kPa
 207 kPa
 1724 kPa
 0.95 LITRE/s

EQUIVALENTS

-40°F TO +300°F
 300°F
 12 TO 15 PSI
 30 PSI
 250 PSI
 15 GALLON/MINUTE



AS 45-038

2. A. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.		 Allison Transmissions	
TITLE: EXTERNAL HYDRAULIC CIRCUIT REQUIREMENTS MODEL: 700D & CLT 750 AS 45-038		SHEET 2	

MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
11.10		.437	
14.10	14.35	.555	.565
20.07	20.57	.790	.810
38.10		1.50	
50.80		2.00	
52.83		2.08	
189.48		7.46	
235.46		9.27	

METRIC VALUES	EQUIVALENTS
5.42-6.78 N/m	4-5 LB FT
68-81 N/m	50-60 LB FT

SHELL-MALE, DOUBLE
PACKARD ELECTRIC
PART NUMBER 5297887

TERMINAL AND CLIP ASSY
PACKARD ELECTRIC
PART NUMBER
2965638

SLEEVE
PACKARD ELECTRIC
PART NUMBER 5297052

TYPICAL CONNECTOR
NO SCALE

MOLDED CK SLEEVE
418653 CI WITH TERMINAL
418645 CI (OPTIONAL ESSEX
NUMBER 302-1)

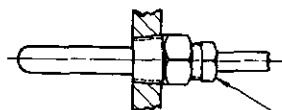
MOLDED CL SLEEVE 418654 CI
WITH TERMINAL 418647 CI
(OPTIONAL ESSEX NUMBER 103-1)

TRANSMISSION
CENTERLINE

189.48
38.10
REF
20.57
20.07
14.35
14.10

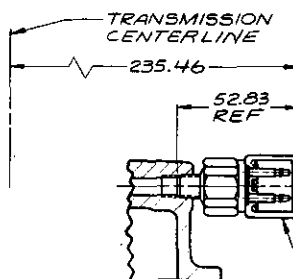
SECTION B-B
FULL SCALE

NEUTRAL START SWITCH
DOD PART NUMBER 6839527
TORQUE TO 68-81 N/m (6.91-8.29 kgm)
SWITCH IS CLOSED ONLY WHEN
RANGE SELECTOR LEVER ON
TRANSMISSION IS IN NEUTRAL
POSITION



SECTION C-C
FULL SCALE

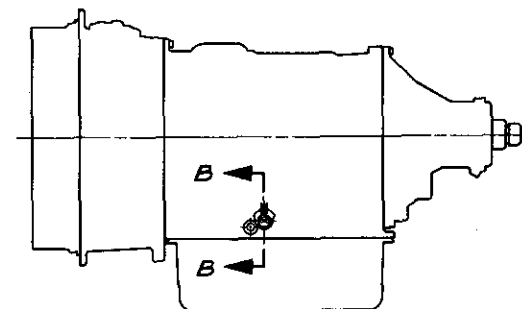
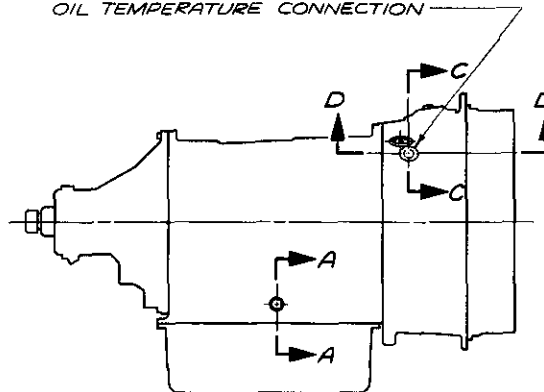
FOR CLT 750 USE 50.80x11.10
DIA BULB SENDING UNIT
REF GAGE NUMBER 6756665



SECTION A-A
FULL SCALE

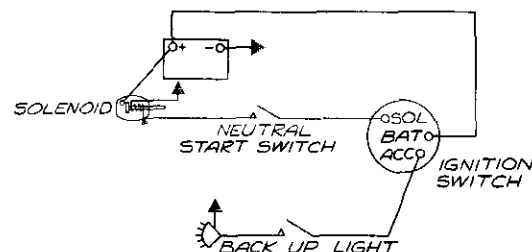
BACK UP LIGHT SWITCH
FASCO PART NUMBER S-1733-1500
TORQUE TO 5.42-6.78 N/m (0.55-0.69 kgm)

.500-14 NPT F INCH SERIES THD
OIL TEMPERATURE CONNECTION



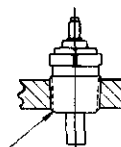
AS45-040

FOR INSTALLATION DATA NOT SHOWN
SEE BASIC INSTALLATION DRAWING-AS45-030



TYPICAL CIRCUIT 12 VOLT SYSTEM

ALL ELECTRICAL PARTS SHOWN
FURNISHED BY CUSTOMER



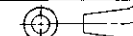
SECTION D-D
FULL SCALE

FOR HT 700 USE TEMPERATURE
SENDER ASSEMBLY 8992016 FROM
OPTIONAL TEMPERATURE GAGE
KIT 6880751

METRIC

ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

THIRD ANGLE
PROJECTION



Allison Transmissions

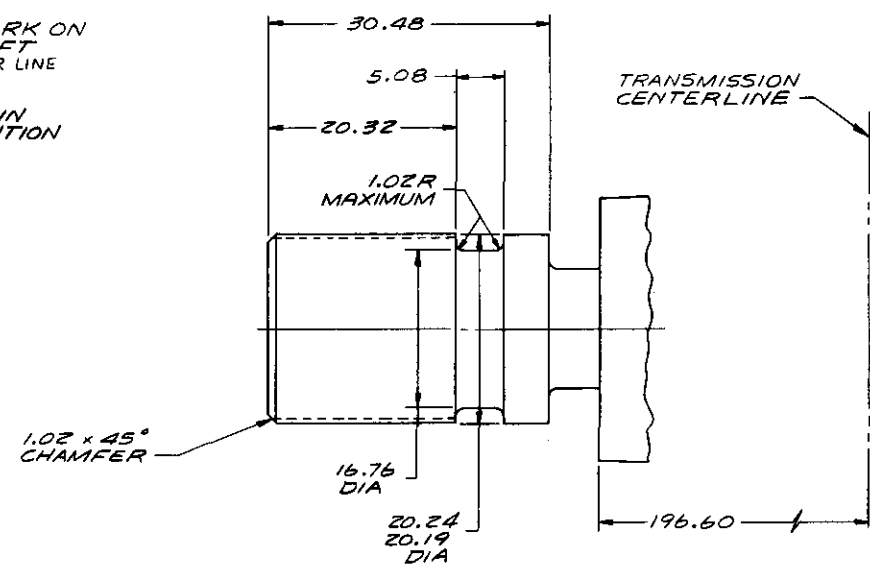
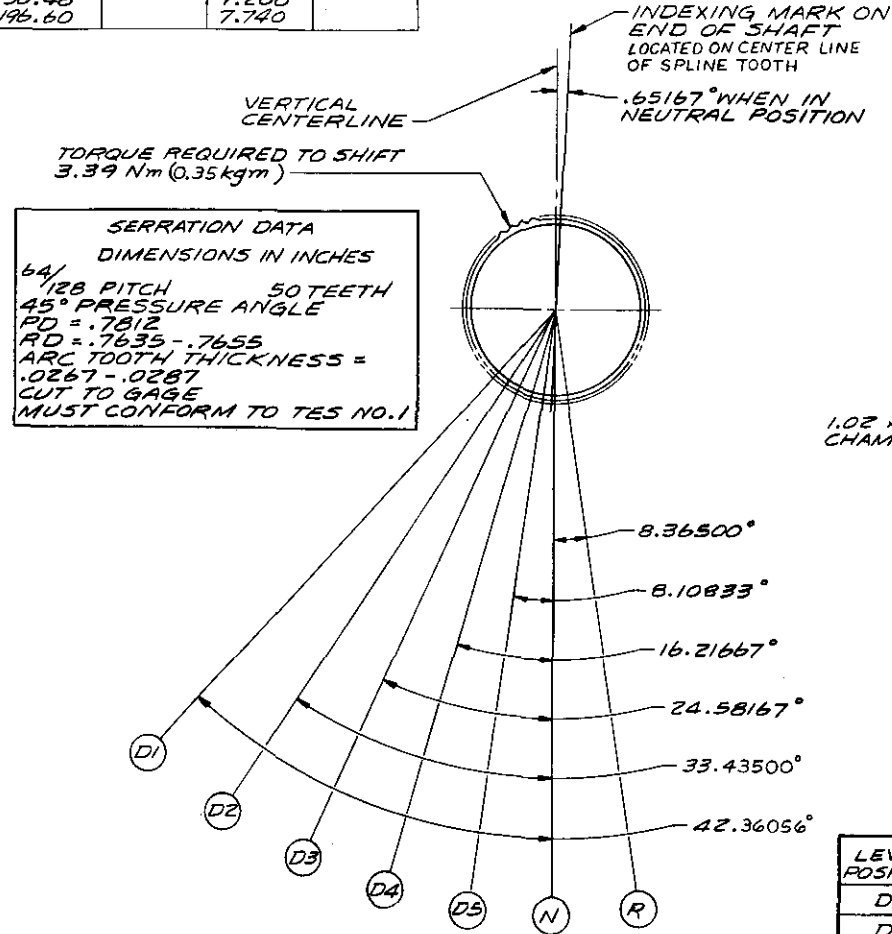
EXTERNAL ELECTRICAL
REQUIREMENTS

MODEL 700 SERIES AS45-040

DATE: 10/1/84 BY: J. BENNETT 22/24/84
CHECKED: 10/1/84 BY: J. BENNETT 22/24/84
SCALE: 1:1 DRAWN: J. BENNETT 22/24/84
0.2 TIMES APPROVED: J. BENNETT 22/24/84

MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
1.02	1.02	.040	.040
5.08		.200	
16.76		.660	
20.19	20.24	.7948	.7968
20.32		.800	
30.48		1.200	
196.60		7.740	

METRIC VALUES	EQUIVALENTS
3.39 N/m	30 INCH LB



LEVER POSITION	RANGE	
	CLT750	
D1	1	
D2	2	
D3	2-3	
D4	2-4	
D5	2-5	
N	N	
R	R	

TO PREVENT END LOADING OR DAMAGE TO SHAFT IT IS NECESSARY TO SPREAD ATTACHING LEVER DURING ASSEMBLY

ALL CONTROL LINKAGES ARE SUBJECT TO DETROIT DIESEL ALLISON DIVISION GMC TRANSMISSION ENGINEERING DEPARTMENT REVIEW FOR FUNCTIONAL APPROVAL

FOR TRANSMISSION INSTALLATION DATA NOT SHOWN SEE INSTALLATION DRAWING AS 45-032

AS 45-042

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJECTION

Allison Transmissions

MANUAL SHIFT CONTROL DATA
MODEL CLT 750
AS 45-042

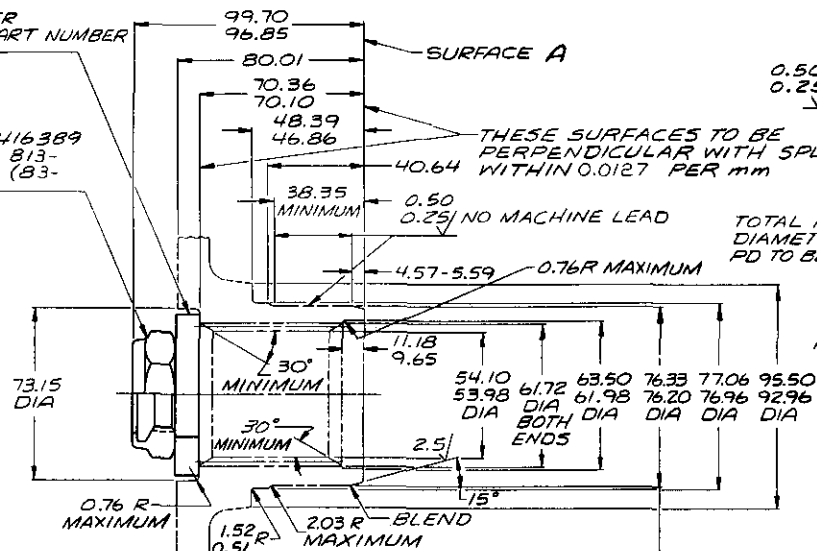
REVISIONS

NO.	DATE	BY	CHKD	DESCRIPTION
1	7-5-77	REVISOR	INDEX	NOTES
2	10-18-77	H. BENNETT	J. B. B.	REVISED
3	1-18-78	ANDERSON	ANDERSON	REVISED

DETROIT DIESEL ALLISON Division of General Motors, Indianapolis, Indiana

REF-WASHER
ALLISON PART NUMBER
6771612

REF-NUT
GM PART
NUMBER 9416389
TORQUE TO 813-
1085 Nm (83-
111 kgm)



INTERNAL SPLINE DATA
DIMENSIONS IN INCHES
8/16 PITCH 18 TEETH
30° PRESSURE ANGLE
PD = 2.250 TID = 2.335
RD = 2.3607-2.3637, CONCENTRIC WITH PD
WITHIN .002 TIR
CHORDAL SPACE WIDTH AT PL = .1961-.1981

CUSTOMER FURNISHED INPUT
FLANGE HUB REQUIREMENTS
SCALE FULL

TOTAL RUNOUT OF THIS
DIAMETER WITH SPLINE
PD TO BE WITHIN 0.13

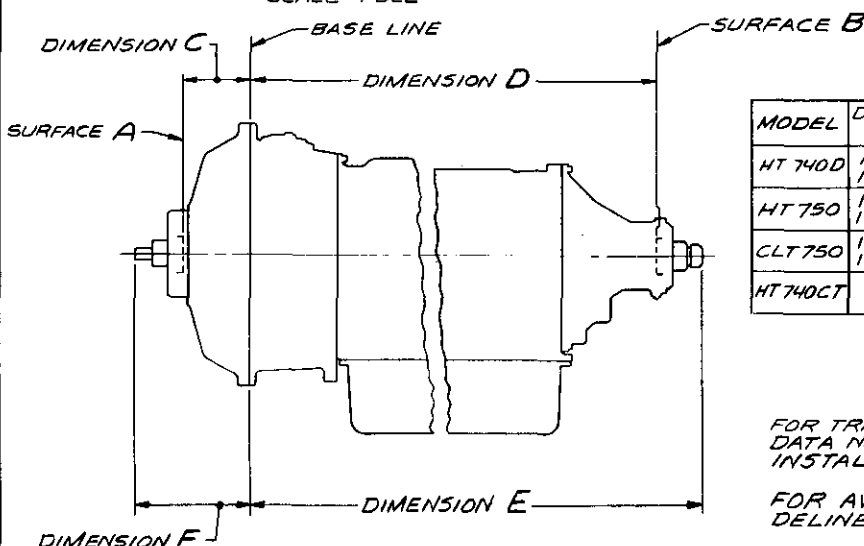
TOTAL RUNOUT OF THIS DIA
WITH SPLINE PD TO BE
WITHIN 0.13

SURFACE B

THESE SURFACES TO BE
PERPENDICULAR WITH
SPLINE PD WITHIN
0.0127 PER mm

INTERNAL SPLINE DATA
DIMENSIONS IN INCHES
8/16 PITCH 18 TEETH
30° PRESSURE ANGLE
PD = 2.250 TID = 2.335
RD = 2.3607-2.3637, CONCENTRIC WITH PD
WITHIN .002 TIR
CHORDAL SPACE WIDTH AT PL = .1961-.1981

CUSTOMER FURNISHED OUTPUT
FLANGE HUB REQUIREMENTS
SCALE FULL



MODEL	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F
HT 740D	143.74 140.57	835.39 833.67	951.19 947.33	246.71 243.67
HT 750	143.74 140.57	935.32 933.00	1051.11 1046.67	246.71 243.67
CLT 750	143.74 140.57	949.04 946.72	1064.83 1060.39	246.71 243.67
HT 740CT	—	779.51 777.79	895.31 891.45	—

FOR TRANSMISSION INSTALLATION
DATA NOT SHOWN SEE BASIC
INSTALLATION DRAWING AS 45-030

FOR AVAILABLE FLANGES AND
DELINEATION SEE DRAWING AS 00-050

AS45-044

METRIC

ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

THIRD ANGLE
PROJECTION



Allison Transmissions

SHEET 1 OF 2

DRIVE FLANGE DATA			
MODEL	700 SERIES	AS45-044	
DATE	10-12-70	10-12-70	
BY	W. B. THOMPSON	W. B. THOMPSON	
CHECKED	W. B. THOMPSON	W. B. THOMPSON	
APPROVED	W. B. THOMPSON	W. B. THOMPSON	

MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
0.0127		.0005	
0.13		.005	
0.51	1.52	.02	.06
	0.76		.030
	0.89		.035
1.02	2.03	.04	.08
1.27	3.30	.05	.13
1.52		.060	
	2.03		.080
4.57	5.59	.18	.22
5.08		.200	
9.65	11.18	.38	.44
33.53		1.320	
35.81		1.410	
38.35		1.510	
40.64		1.600	
46.86	48.39	1.845	1.905
46.99		1.850	
53.98	54.10	2.125	2.130
60.96		2.400	
61.72		2.430	
61.98	63.50	2.44	2.50
70.10	70.36	2.76	2.77
73.15		2.880	
75.95		2.990	
76.20	76.33	3.000	3.005
76.96	77.06	3.030	3.034
78.74		3.100	
80.01		3.150	
85.85		3.380	
88.90	89.03	3.500	3.505
92.96	95.50	3.66	3.76
	95.50		3.760
96.85	99.70	3.813	3.925
101.35		3.990	
	105.66		4.160
140.57	143.74	5.534	5.561
243.67	246.71	9.593	9.705
833.67	835.39	32.822	32.889
933.00	935.32	36.732	36.824
946.72	949.84	37.272	37.364
947.33	951.19	37.296	37.448
1046.67	1051.11	41.207	41.382
1060.39	1064.83	41.748	41.922
777.79	779.51	30.622	30.689
891.45	895.31	35.096	35.248

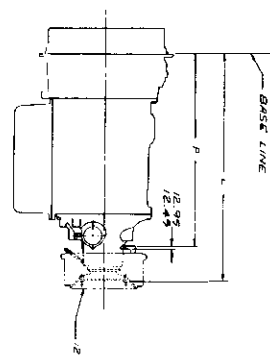
METRIC VALUES	EQUIVALENTS
0.25-0.50 MICROMETRES	10-20 MICROINCHES
2.5 MICROMETRES	100 MICROINCHES
813-1085 Nm	600-800 LB FT

MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
ADDITIONS CHG B			
32.53		1.281	
34.81		1.370	
45.99		1.811	
60.33	60.57	2.375	2.385
66.04		2.600	
84.85		3.341	
87.12		3.430	
123.95		4.880	
947.72	950.04	37.312	37.403

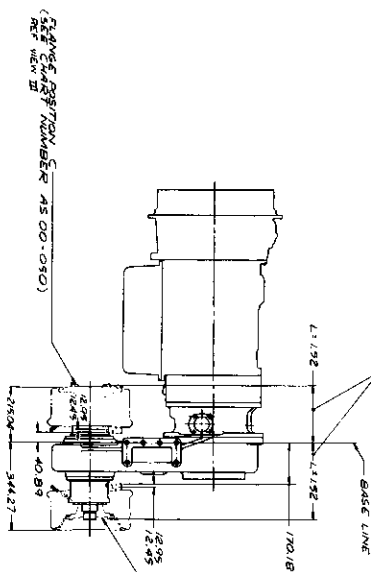
1645-044

Model	F
MTMO 0	786.07
MT 730	885.69
MT 750	899.40

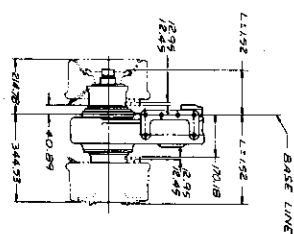
METRIC VALUES	EQUIVALENTS
27.22 kg	60 LB



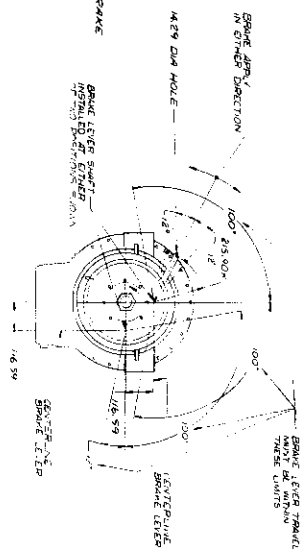
(SEE CHART NUMBER ASOO-050)



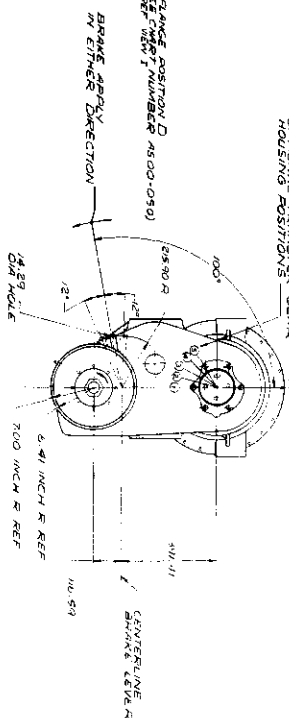
(SEE CHART NUMBER AS 00-050)
REF VIEW III



AUXILIARY VIEW
WITH DRUMS REVERSED



OPTIONAL TRANSFER GEAR HOUSING POSITIONS _____



CENTERLINE
BETTER & LONGER

OPTIONAL 12 INCH X 5 INCH PARKING BRAKE
(FOR TRANSMISSION INSTALLATION DATA NOT
SHOWN SEE BASIC INSTALLATION
DRAWING - AS 45-030 OR AS 45-036)

ADDITIONAL WEIGHT: 27.22 kg PER BRAKE

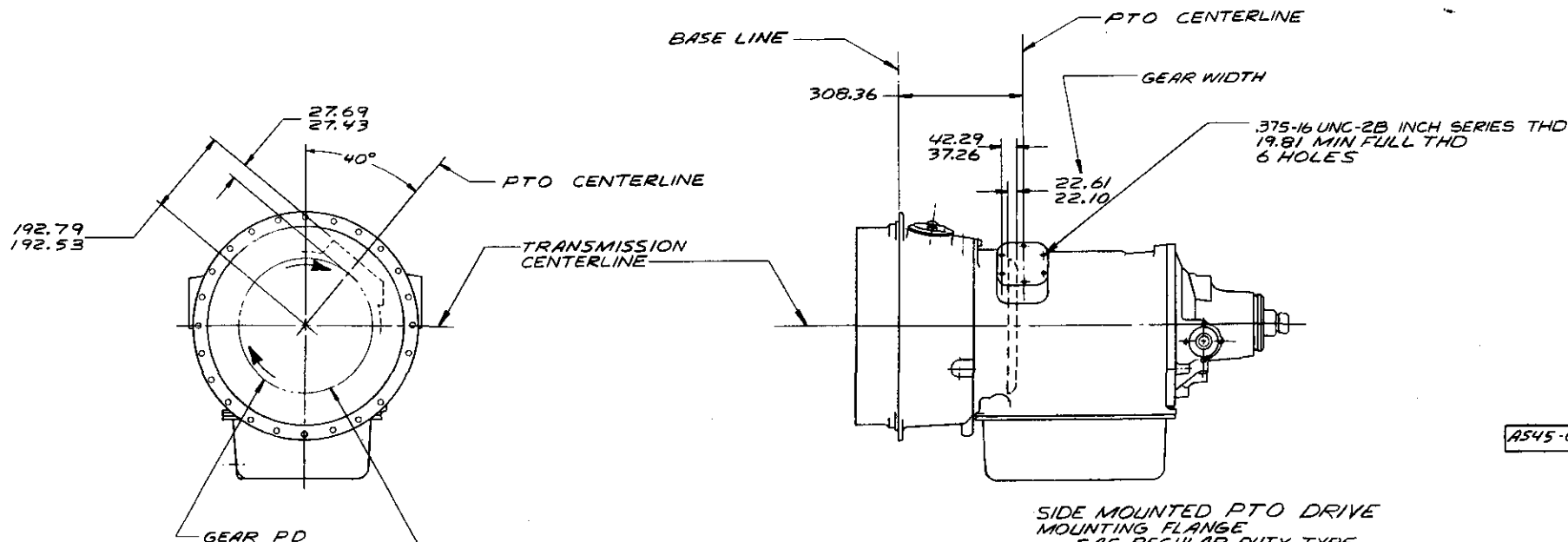
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																																																																														

MILLIMETRES TO INCHES

mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
19.81		.78	
22.10	22.61	.870	.890
27.43	27.69	1.080	1.090
37.26	42.29	1.467	1.665
192.53	192.79	7.580	7.590
308.36		12.14	
METRIC VALUES		EQUIVALENTS	
406.7Nm		300 LB FT	
542.3 Nm		400 LB FT	

LUBRICATION
IT IS PERMISSIBLE TO TAP INTO THE OIL LINE RETURNING TO THE TRANSMISSION FROM THE COOLER PROVIDED A FLOW RESTRICTION ORIFICE IS INCORPORATED. AN 0.81 MM (.032 IN.) DIAMETER ORIFICE WILL ALLOW THE NECESSARY OIL FOR P.T.O. LUBRICATION AND ALSO MAINTAIN THE PROPER FLOW FOR TRANSMISSION FUNCTION. THE PRESSURE IN THIS LINE IS NORMALLY 276-414 KPa (40-60 PSI).

NOTE: SOME P.T.O. MANUFACTURERS INCLUDE THE 0.81 MM (.032 IN.) DIAMETER ORIFICE INTERNALLY IN THE P.T.O.



AS45-046

DRIVE GEAR DATA DIMENSIONS IN INCHES

6/8 PITCH 20° PRESSURE ANGLE
13.000 PD 78 TEETH
AFTER PTO INSTALLATION, BACKLASH
OF .018-.024 IS REQUIRED BETWEEN
THIS GEAR AND PTO DRIVEN GEAR

DRIVE GEAR SPEEDS:
ARE EQUAL TO THE OUTPUT SHAFT
SPEED x THE GEAR RATIO

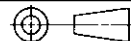
DRIVE GEAR RATING:
406.7Nm (41.47Kg m) TORQUE CONTINUOUS
542.3Nm (55.30Kg m) TORQUE INTERMITTENT

SIDE MOUNTED PTO DRIVE
MOUNTING FLANGE
SAE REGULAR DUTY TYPE
FOR TRANSMISSION INSTALLATION
DATA NOT SHOWN SEE BASIC
INSTALLATION DRAWING-
AS 45-030

METRIC

ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

THIRD ANGLE
PROJECTION



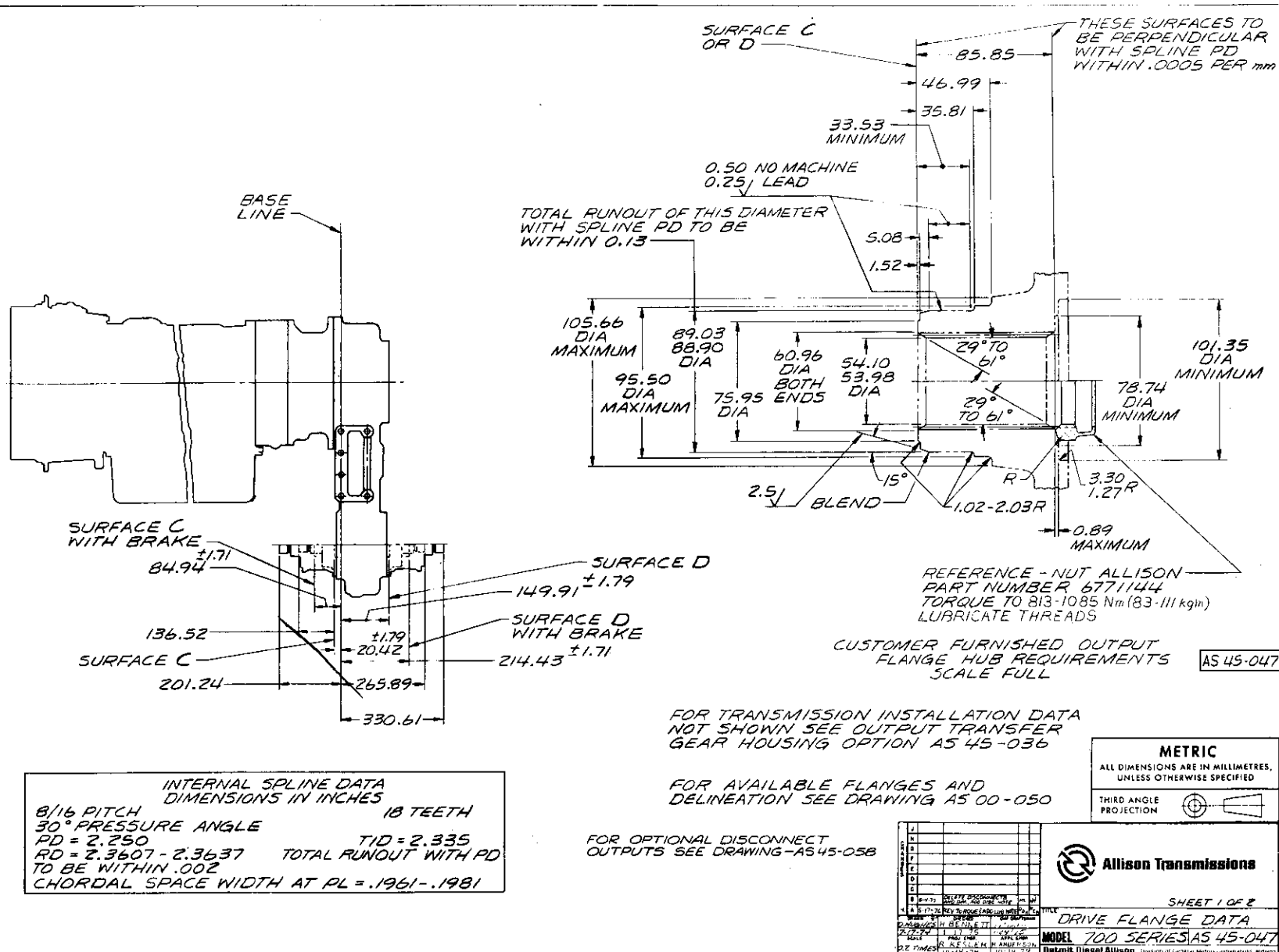
Allison Transmissions

REV	DATE	BY	CHKD	APPD
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

TRANSMISSION DRIVEN
SIDE PTO DATA

MODEL 700 SERIES AS45-046

Division of General Motors, Indianapolis, Indiana



MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
0.13		0.005	
1.02	0.08	0.04	0.003
1.52	2.03	0.06	0.03
1.71	3.30	0.07	0.13
1.79		0.07	
5.08		0.200	
20.42		0.804	
33.53		1.320	
35.81		1.410	
46.99		1.850	
53.98	54.10	2.125	2.130
60.96		2.400	
75.95		2.990	
78.74		3.100	
84.94		3.346	
85.85	89.03	3.580	3.505
89.50	95.50	3.500	3.762
101.35		3.990	
136.52	105.66	5.375	4.160
169.91		6.692	
201.24		7.923	
216.63		8.542	
265.89		10.468	
330.61		13.016	

METRIC VALUES	EQUIVALENTS
0.25-0.50 MICROMETRES	10-20 MICROINCHES
2.5 MICROMETRES	100 MICROINCHES
813-1085 Nm	600-800 LB FT

1.3125-12 UN-2B
INCH SERIES THREAD
SAE STRAIGHT THREAD
O-RING BOSS

1.3125-12 UN-2B
INCH SERIES THREAD
SAE STRAIGHT THREAD
O-RING BOSS

OIL FROM FILTER
OIL TO FILTER

MODE SELECTION VALVE (2 POSITION, 3 WAY)
MANUAL OPERATION-PORTS 1 AND 2 CONNECTED,
3 BLOCKED; AUTOMATIC OPERATION-PORTS
2 AND 3 CONNECTED, 1 BLOCKED

NUMBER 4 MINIMUM HOSE SIZE
(.250 INCH INSIDE DIAMETER)

NUMBER 16 MINIMUM HOSE SIZE
(.750 INCH INSIDE DIAMETER
MINIMUM)

EXHAUST

TO SUMP

OIL FILTER

1.25-27 NPTF INCH SERIES THREAD
GOVERNOR PRESSURE TAP

NUMBER 4 MINIMUM HOSE SIZE
(.250 INCH INSIDE DIAMETER)

CHECK VALVE
FULL SIZE

INSTALL CHECK VALVE ASSEMBLY,
DETROIT DIESEL ALLISON PART
NUMBER 6882811, PRIOR TO
CONNECTING HOSE

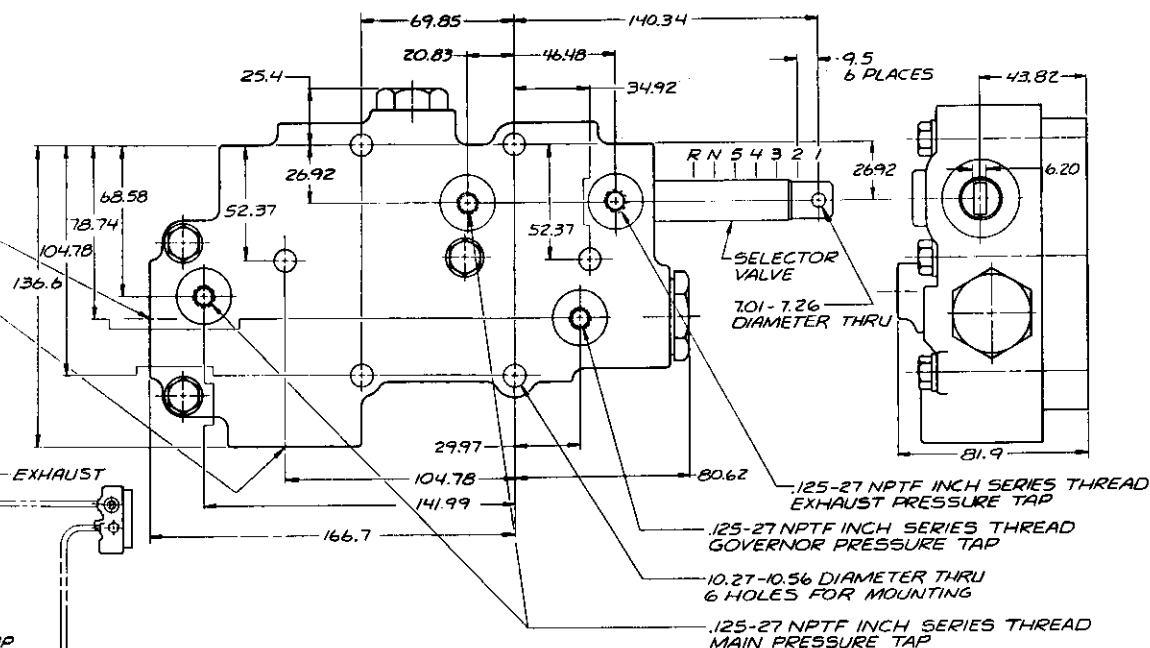
HOSE SPEC
SAE 100RS EXCEPT OPERATING TEMPERATURE
RANGE FROM -40°C TO +150°C

MODE SELECTION VALVE MUST SEAL AND OPEN
AGAINST 2068 kPa (21.09 kg/cm²)

AT OPERATING TEMPERATURE
MAXIMUM MODE SELECTION VALVE PRESSURE
DROP = 38 kPa (0.39 kg/cm²) AT 0.13 litre/s

MOVEMENT OF SELECTOR VALVE MUST OCCUR
SIMULTANEOUSLY WITH TRANSMISSION
SELECTOR LEVER PER CHART

PARTS SHOWN IN PHANTOM ARE CUSTOMER
FURNISHED



STEP GOVERNOR VALVE BODY
FULL SIZE

SELECTOR LEVER	D1	D2	D3	D4	D5	N	R
SELECTOR VALVE	1	2	3	4	5	N	R

SELECTOR VALVE
AND LEVER CHART

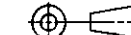
AS 45-052

FOR TRANSMISSION INSTALLATION
DATA NOT SHOWN SEE BASIC
INSTALLATION DRAWING-AS 45-030

METRIC

ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

THIRD ANGLE
PROJECTION



Allison Transmissions

SHEET 1 OF 2

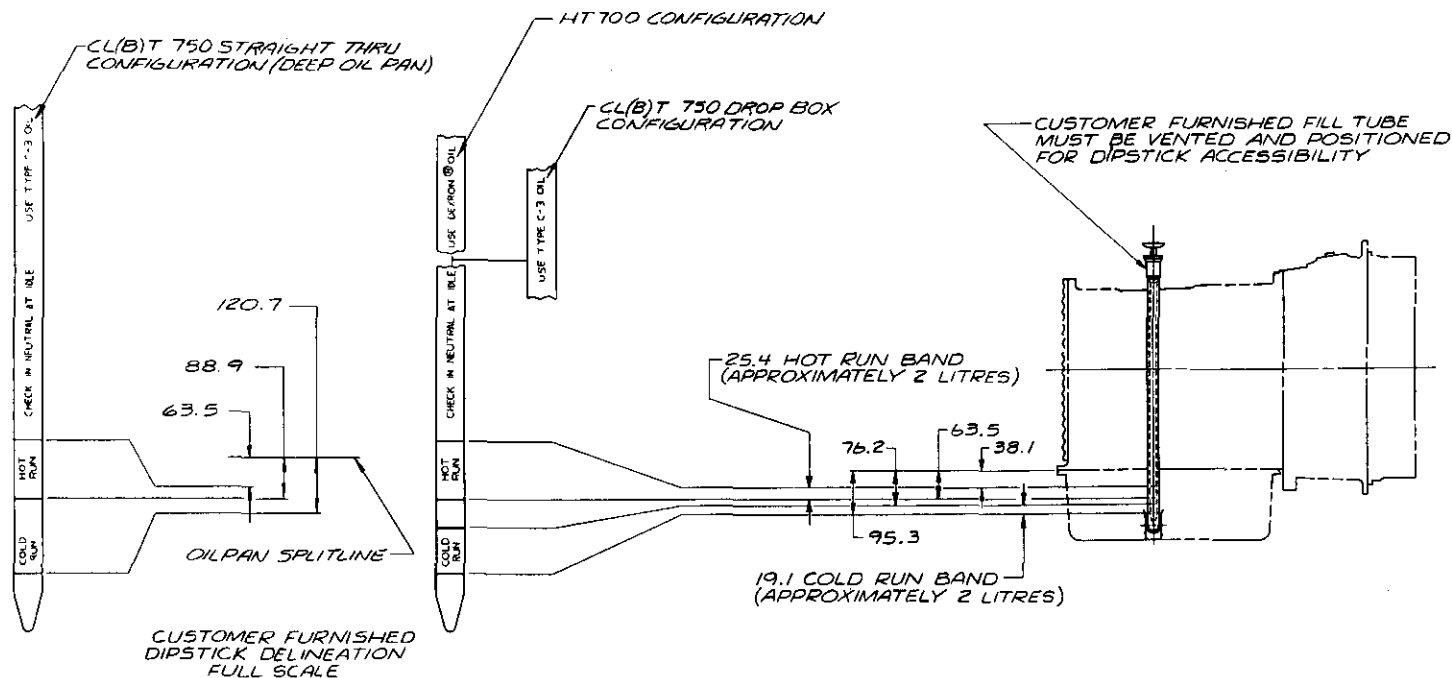
DATE	REVISED	BY	CHKD	DATE	TITLE
0-1-76	0-1-76	0-1-76	0-1-76	0-1-76	MANUAL / AUTOMATIC CONTROLS INSTALLATION
0-1-76	0-1-76	0-1-76	0-1-76	0-1-76	MODEL 700 SERIES
0-1-76	0-1-76	0-1-76	0-1-76	0-1-76	AS 45-052

DETROIT DIESEL ALLISON Division of General Motors - Indianapolis, Indiana

MILLIMETRES TO INCHES				METRIC VALUES	EQUIVALENTS
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	-40°C 150°C 2068 kPa 38 kPa 0.13 litre/s	-40°F 300°F 300 PSI 5.5 PSI 2.0 GPM
6.20	7.26	.244	.286		
7.01		.276			
9.50	10.56	.375	.416		
10.27		.404			
20.83		.820			
25.4		1.00			
26.92		1.060			
29.97		1.180			
34.92		1.3750			
43.82		1.720			
46.48		1.830			
52.37		2.0620			
68.58		2.700			
69.85		2.7500			
80.62		3.175			
81.9		3.22			
104.78		4.1250			
136.6		5.38			
140.34		5.525			
141.99		5.590			
166.7		6.56			

CHANGES				 Allison Transmissions		
					SHEET 2	
					TITLE MANUAL / AUTOMATIC CONTROLS INSTALLATION	
					MODEL 700 SERIES AS 45-052	
DRAWN D. NEW 8-4-76 SCALE NONE		CHECKED CLARK 8-26-76 PROJ. ENGR.		CHG DRAFTSMAN DRUM 8-26-76 APPL. ENGR. KOENIG 8-5-76		Detroit Diesel Allison Division of General Motors - Indianapolis, Indiana

MILLIMETRES TO INCHES				METRIC VALUES	EQUIVALENTS
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	15°C 49°C 93°C 2 LITRES	60°F 120°F 200°F .50 GALLON
19.1		.75			
25.4		1.00			
38.1		1.50			
63.5		2.50			
76.2		3.00			
95.3		3.75			
ADDITIONS - CHG A					
88.9		3.50			
120.7		4.75			



OIL LEVEL CHECKING PROCEDURE

COLD 15°C TO 49°C:
OIL LEVEL TO BE WITHIN COLD RUN BAND WITH ENGINE AT IDLE (500-800 RPM) AND TRANSMISSION IN NEUTRAL. WHEN MAKING THE COLD RUN CHECK IT IS NECESSARY TO RUN THE ENGINE FOR ONE MINUTE AT 1000-1500 RPM TO PURGE THE HEAT EXCHANGER OF AIR.

HOT 49°C TO 93°C:
OIL LEVEL TO BE WITHIN HOT RUN BAND WITH ENGINE AT IDLE AND TRANSMISSION IN NEUTRAL.

FOR TRANSMISSION INSTALLATION
DATA NOT SHOWN SEE BASIC
INSTALLATION DRAWING - AS 45-030

AS 45-054

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

THIRD ANGLE
PROJECTION



A 429 17 ADDED DEEP OIL PAN DIPSTICK		TITLE OIL LEVEL AND DIPSTICK REQUIREMENTS	
DESIGNED BY S. GEBBY	CHECKED BY	DATE	MODEL 700 SERIES AS 45-054
DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE
DATE	DATE	DATE	DATE

Detroit Diesel Allison Division of General Motors - Indianapolis, Indiana

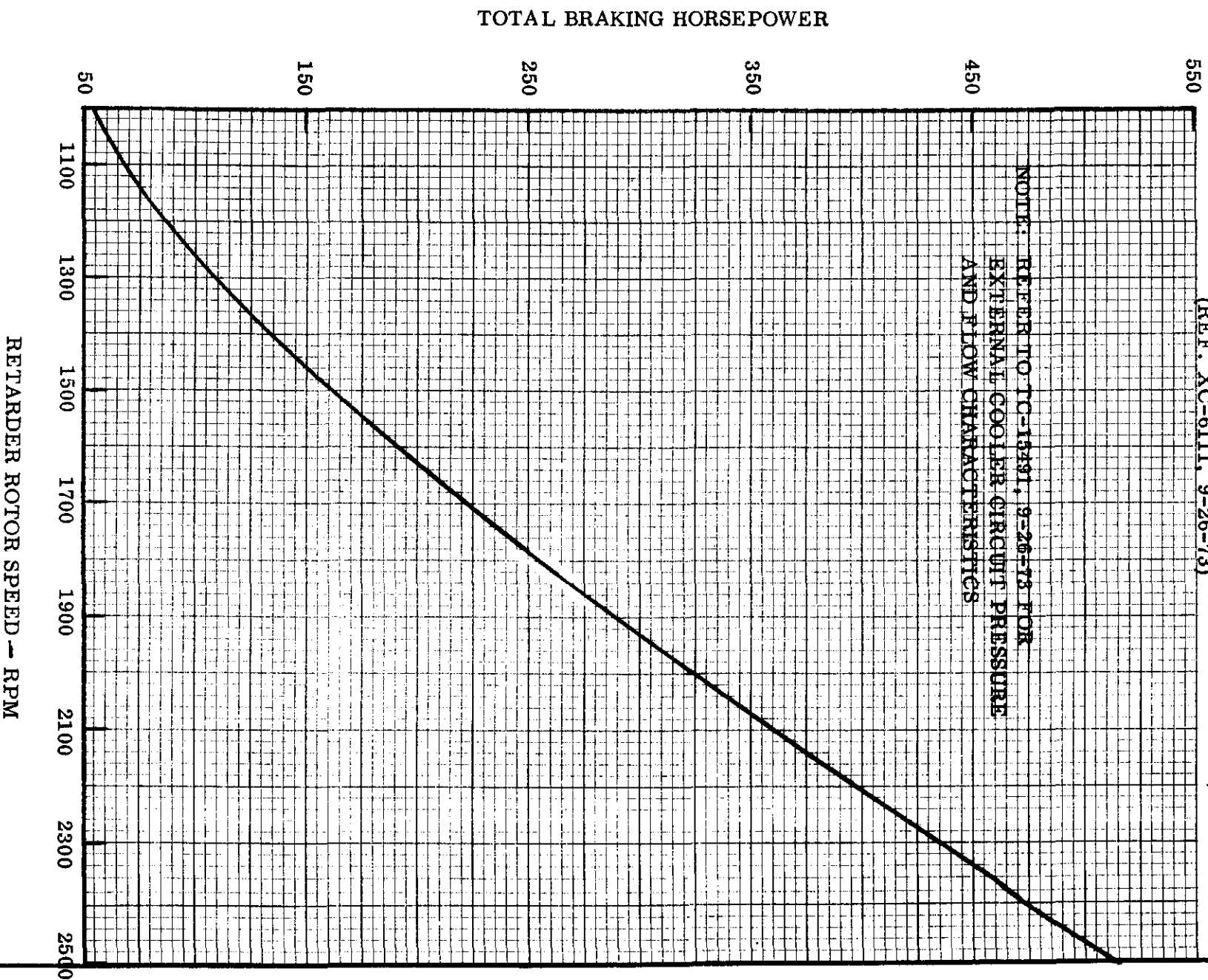
**Allison Transmissions**

ENGINEER	PERF. APPR.
J. White	JWS
9-26-73	9-27-73

TC-15490

ALLISON CLBT-750 TRANSMISSION ABSORPTION
DURING FULL RETARDER OPERATION

(REF. XC-6111, 9-26-73)





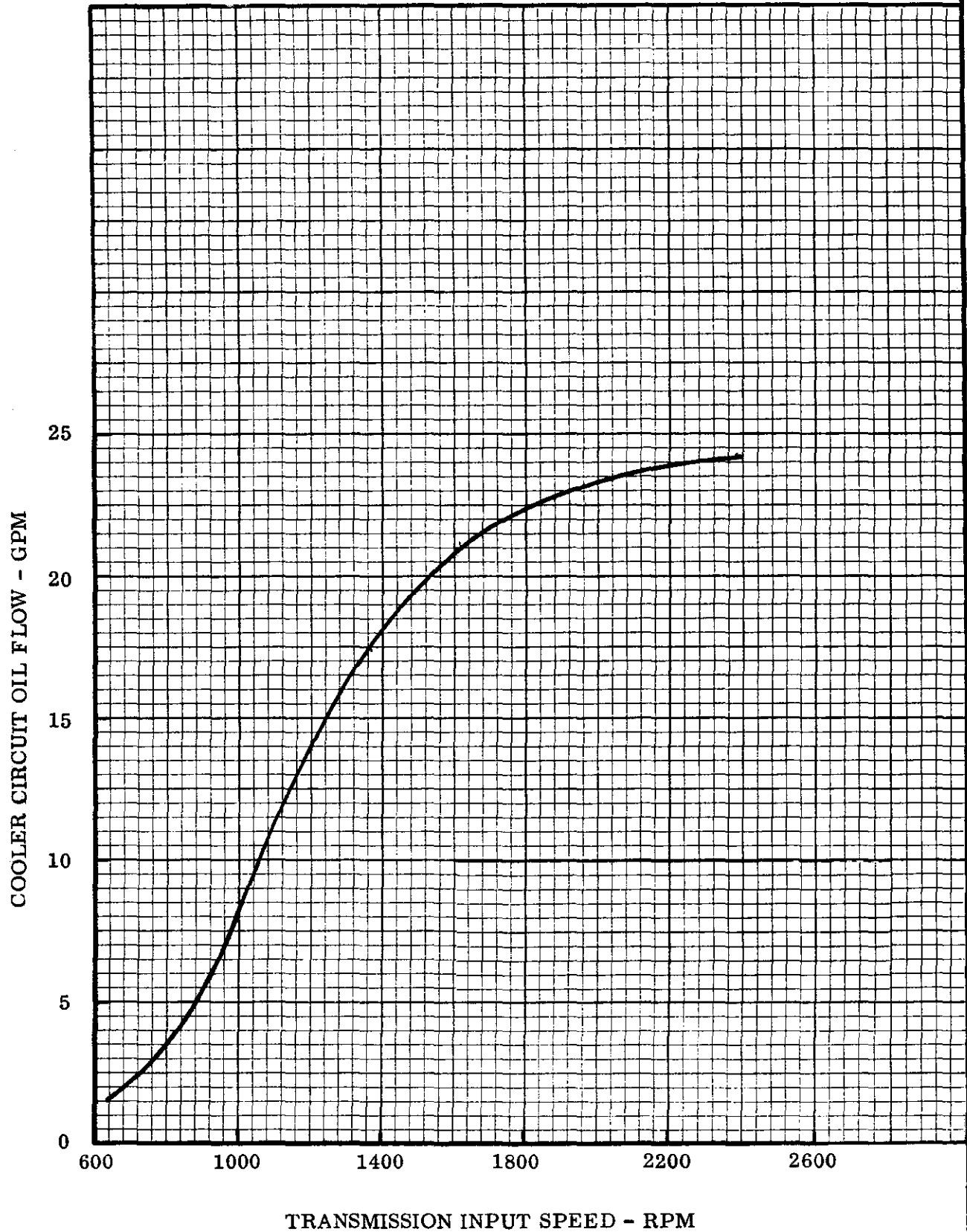
Allison Transmissions

ENGINEER
J. White
9-26-73

PERF. APPR.
[Signature]
9-27-73

TC-15491
Sht 1 of 2

ALLISON CLBT-750 TRANSMISSION
EXTERNAL COOLER CIRCUIT OIL FLOW





Allison Transmissions

ENGINEER

J. White

9-26-73

PERF. APPR.

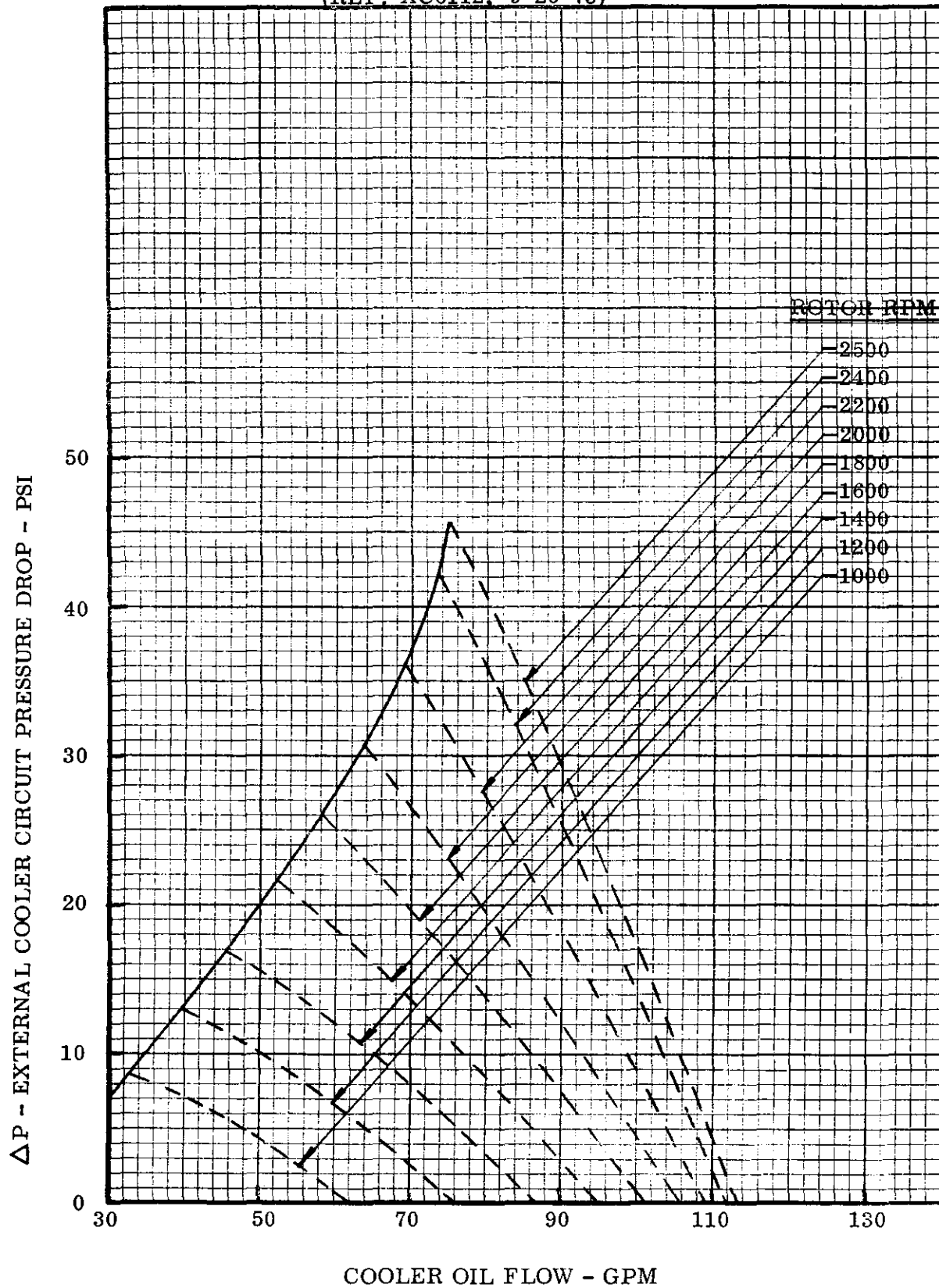
RDR

9-27-73

TC-15491

Sht 2 of 2

ALLISON CLBT-750 EXTERNAL CIRCUIT
CHARACTERISTICS FOR RETARDER OPERATION
(REF. XC6112, 9-26-73)



MILLIMETRES TO INCHES				METRIC VALUE	EQUIVALENT
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX	111.0 N	25 POUNDS
12.68	20.0	.4995	.79		
12.7		.500			
17.3		.68			
192.66		7.585			
272.77		10.74			
280.0		11.00			
284.48		11.20			
293.0		11.50			
308.36		12.14			
310.0		12.18			
332.87		13.10			
356.75		14.04			
386.72		15.22			
410.60		16.16			
435.12		17.13			
459.0		18.07			

WITH PUSH ROD IN RETRACTED POSITION,
A DIMENSION OF 17.3-20.0 FROM END OF
PUSH ROD TO LOCKNUT OR FACE OF
CYLINDER MUST BE MAINTAINED AT
INSTALLATION OF CYLINDER

AIR MITE DEVICES
MICRO MODEL V-100-AC
OR EQUIVALENT AIR
CYLINDER

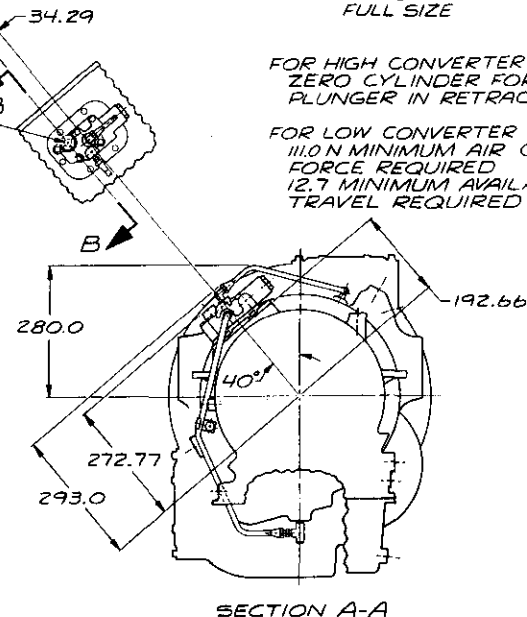
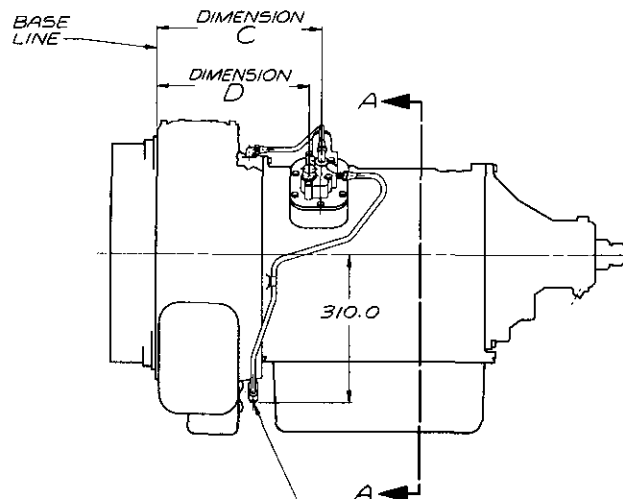
12.68 DIAMETER
MINIMUM

SECTION B-B
FULL SIZE

FOR HIGH CONVERTER CAPACITY
ZERO CYLINDER FORCE
PLUNGER IN RETRACTED POSITION

FOR LOW CONVERTER CAPACITY
111.0 N MINIMUM AIR CYLINDER
FORCE REQUIRED
12.7 MINIMUM AVAILABLE PLUNGER
TRAVEL REQUIRED

.625-18 UNF-2B
INCH SERIES THREAD
11.18 MINIMUM FULL THREAD
OPENING FOR AIR VALVE
INSTALLATION



SECTION A-A

AIR MUST NOT BE INTRODUCED
INTO VALVE BODY

AIR CYLINDER TO ACTUATE VALVE
BY MEANS OF PUSH ROD AND
PROVIDE POSITIVE RETURN FORCE

ALL ACTUATING MECHANISMS FOR
ALLISON TRANSMISSIONS ARE SUBJECT
TO DETROIT DIESEL ALLISON DIVISION
GENERAL MOTORS CORPORATION
TRANSMISSION ENGINEERING DEPARTMENT
REVIEW PRIOR TO INSTALLATION
APPROVAL

PARTS SHOWN IN PHANTOM ARE
CUSTOMER FURNISHED

DIMENSION	WITHOUT RETARDER OPTION		WITH RETARDER OPTION	
	WITH ENGINE DRIVEN POWER TAKE-OFF	WITHOUT ENGINE DRIVEN POWER TAKE-OFF	WITH ENGINE DRIVEN POWER TAKE-OFF	WITHOUT ENGINE DRIVEN POWER TAKE-OFF
C	356.75	308.36	459.00	410.60
D	332.87	284.48	435.12	386.72

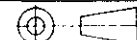
FOR TRANSMISSION INSTALLATION
DATA NOT SHOWN SEE BASIC
INSTALLATION DRAWING - AS 45-030

AS 45-056

METRIC

ALL DIMENSIONS ARE IN MILLIMETRES,
UNLESS OTHERWISE SPECIFIED

THIRD ANGLE
PROJECTION



Allison Transmissions

TITLE VARIABLE CAPACITY CONVERTER			
MODEL 700 SERIES AS 45-056			
Detroit Diesel Allison Division of General Motors - Indianapolis, Indiana			

MILLIMETRES TO INCHES			
mm MIN/NOM	mm MAX	in. MIN/NOM	in. MAX
0.21	0.13 0.30 0.76	.008	.005 .012 .030
1.02	2.03	.040	.080
1.27	1.77	.050	.070
	2.2		.09
	6.3		.25
6.35	7.11	.250	.280
12.45	12.95	.490	.510
	12.70		.500
	26.92		1.060
	28.48		1.1195
	28.45		1.120
	39.6		1.56
	40.89		1.610
	53.34		2.100
57.15	57.27	2.250	2.255
	65.02		2.560
	66.04		2.600
	67.73		2.6664
	69.60		2.740
	71.4		2.81
	76.20		3.000
	88.26		3.4749
89.31	89.50	3.516	3.524
88.78	88.90	3.495	3.500
	105.6		4.16
	111.25		4.380
	207.3		8.16
	222.30		8.752
224.03		8.820	
	266.39		10.488
	298.07		11.735
	317.5		12.50
	332.56		13.093
334.32		13.162	
	336.6		13.25
	351.66		13.845
353.99		13.913	
	376.66		14.829
	395.73		15.580
	408.33		16.076
	427.43		16.828

METRIC VALUES	EQUIVALENTS
130-156 Nm	96-115 LB FT
220.0 N	50 LB
0.25-0.50 MICROMETERS	10-20 MICROINCHES

AS 45-058

 Allison Transmissions	
SHEET 2 OF 2	
OUTPUT DISCONNECT OPTION	
MODEL CLT 750	AS45-058
Allison Transmissions Division of General Motors Corporation, Detroit, Michigan 48216-3000	





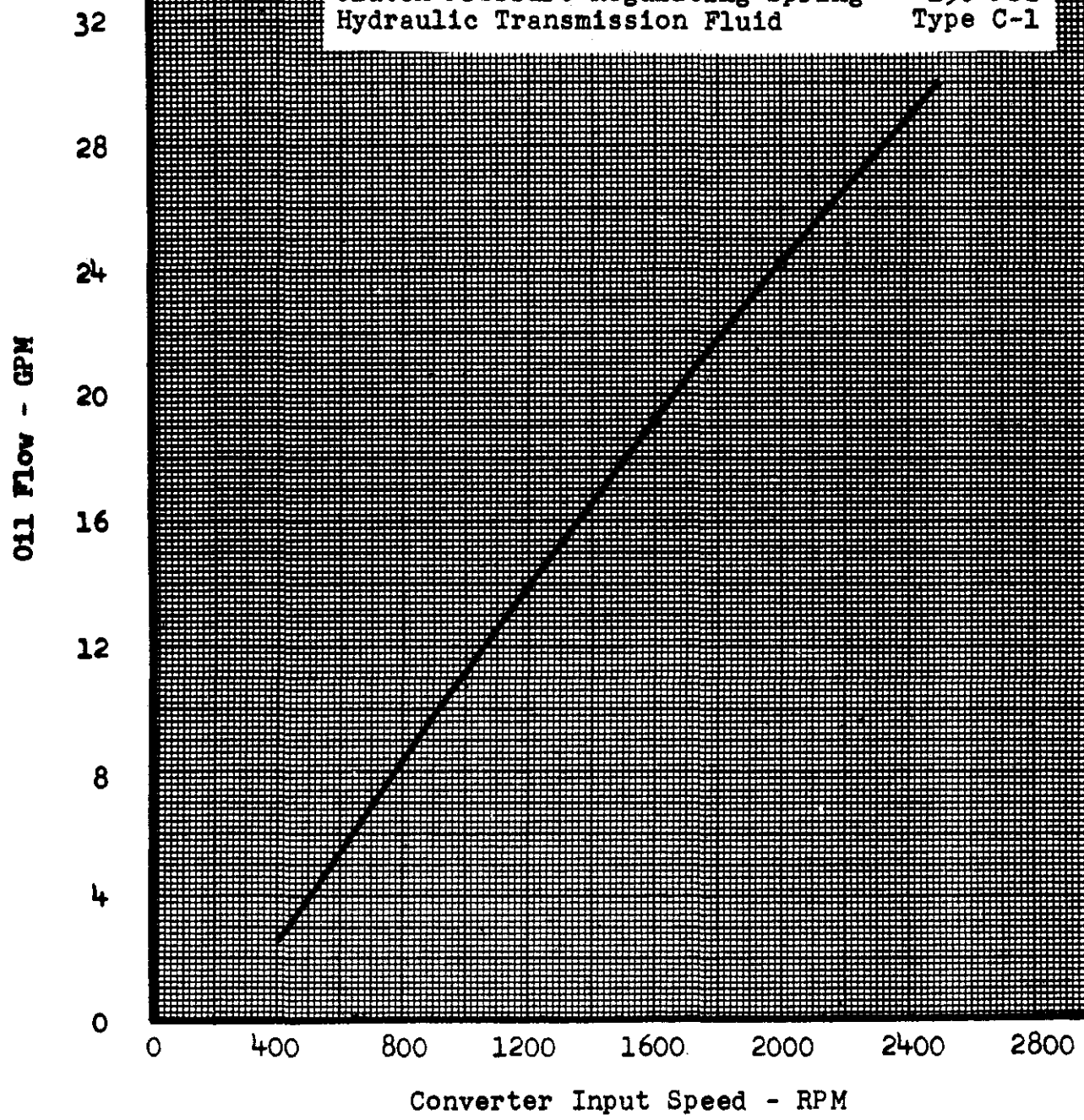
DATE
2-23-61
BY
Ramsey

AS 51-001

TRANSMISSION ENGINEERING DEPARTMENT

COOLER OIL FLOW OF THE ALLISON TC-500 SERIES TORQMATIC CONVERTERS

Step-up Drive Ratio to Pump 1.057:1
Oil Temperature 200°F
Converter Inlet Pressure 75 PSI
Pump Inlet Pressure 4 In. Hg.
Clutch Pressure Regulating Spring 150 PSI
Hydraulic Transmission Fluid Type C-1

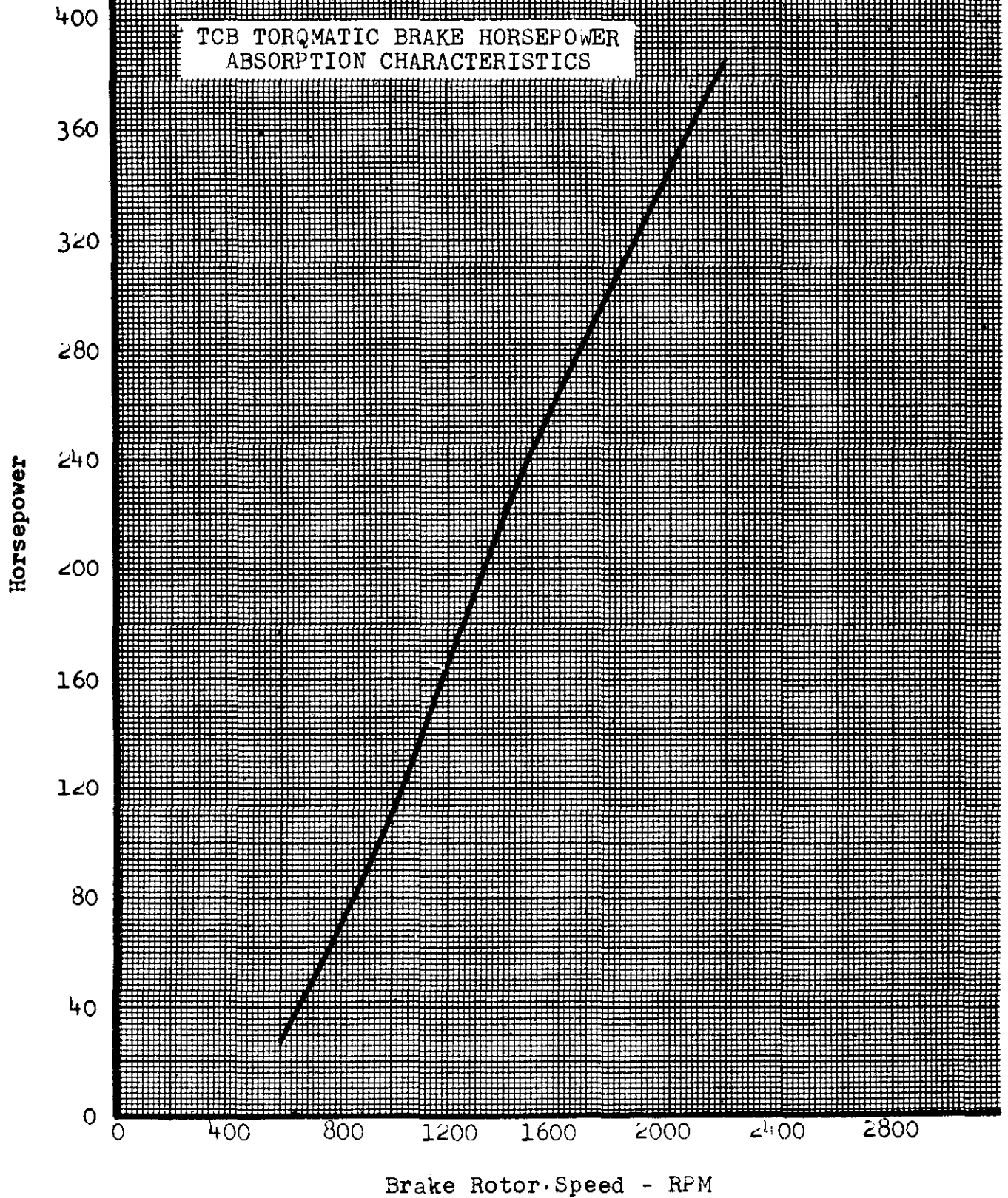




DATE
8-15-60
BY
Ramsey

AS-51-002

TRANSMISSION ENGINEERING DEPARTMENT



CLUTCH ADJUSTMENT
AND LUBE INSTRUCTIONS
ON COVER PLATE

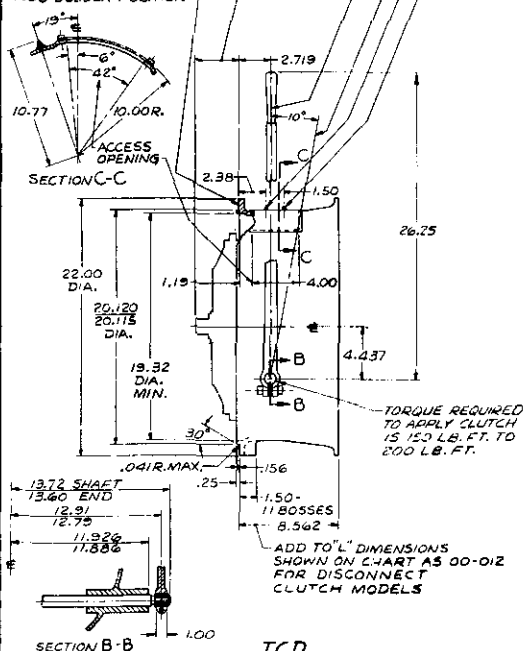
SHAFT BEARING LUBE FITTING
CLUTCH BEARING LUBE FITTING

LEVER MAY BE POSITIONED
ON CROSS SHAFT TO SUIT
INSTALLATION REQUIREMENTS
(28 S.A.E. SERRATIONS ON
BOTH ENDS OF SHAFT INDEXED
IDENTICALLY WITHIN $\pm 1^\circ$)

CLUTCH DISENGAGED
LEVER POSITION
CLUTCH ENGAGED
LEVER POSITION

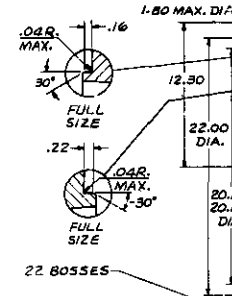
FOR CLUTCH DRIVE ADAPTATION DATA
SEE DRAWING AS 51-008

4.687 DIA. (20.875 DIA. B.C. REF.)
11 HOLES EQUALLY SPACED
ON BASIS OF 12 HOLES.
ONE HOLE OMITTED AT
1:00 O'CLOCK POSITION



TCD
OVER CENTER
FRONT DISCONNECT
CLUTCH OPTION
(APPROX. ADDED WEIGHT = 134 LBS.)

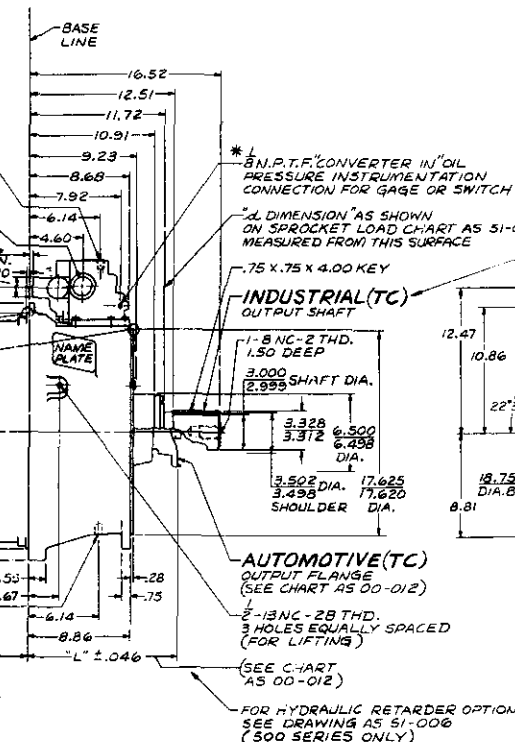
- * 3 N.P.T.F. DRAIN WHEN PUMP IS BELOW HORIZONTAL
- * 1 N.P.T.F. OIL PUMP INLET CONNECTION (PUMP SECTION)
- * 3 N.P.T.F. (OPPOSITE SIDE) FOR CLUTCH PRESSURE SUPPLY OPTION



- * 3 N.P.T.F. DRAIN WHEN PUMP IS ABOVE HORIZONTAL
- * 3 N.P.T.F. CONVERTER IN OIL PRESSURE INSTRUMENTATION CONNECTION FOR GAGE OR SWITCH
- * 1 N.P.T.F. (OPPOSITE SIDE) FOR CLUTCH PRESSURE SUPPLY OPTION

FOR CONVERTER DRIVE ADAPTATION DATA SEE DRAWING AS 00-001

* FOR EXTERNAL HYDRAULIC CIRCUIT REQUIREMENTS SEE DRAWING AS 51-004



RIGHT HAND ROTATION (VIEWED FROM INPUT) ONLY
OPERATING OIL-HYDRAULIC TRANSMISSION FLUID TYPE "C-1"
EXTERNAL PUMP REQUIREMENT - 10 GALLONS MINIMUM
CONVERTER CHARGING PRESSURE 50 TO 80 P.S.I. AT STALL (FULL THROTTLE) 20 P.S.I. MAX.
MAXIMUM CONVERTER OIL TEMPERATURE 250°F.
APPROXIMATE DRY WEIGHT =

AUTOMOTIVE MODEL
TC - 420 LBS.

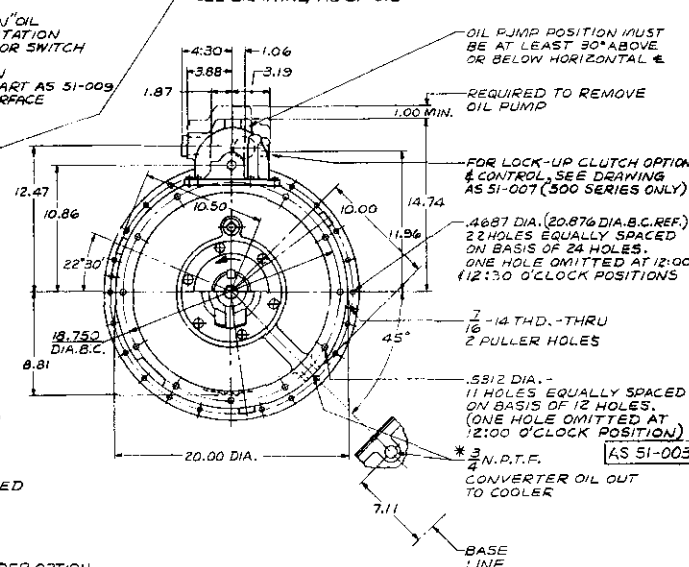
INDUSTRIAL MODEL
442 LBS.

MOUNTING FOR S.A.E. #1 ENGINE FLYWHEEL HOUSING (MODIFIED AS SHOWN)

REFERENCE DRAWINGS FOR
OPTIONS AND SPECIFICATIONS

- AS 00-001 CONVERTER DRIVE ADAPTATION
- AS 00-008 RECOMMENDED SUPPORT CONSTRUCTION
- AS 00-012 DRIVE FLANGE CHART
- AS 51-004 EXT. HYDRAULIC CIRCUIT SPEC.
- AS 51-006 HYDRAULIC RETARDER OPTION
- AS 51-007 LOCK-UP CLUTCH OPTION
- AS 51-008 CLUTCH DRIVE ADAPTATION
- AS 51-009 SPROCKET LOAD CHART
- AS 51-005 EXT. HYDRAULIC CIRCUIT WITH TRANS
- AS 51-012 GOVERNOR DRIVE OPTIONS

FOR GOVERNOR DRIVE OPTION
SEE DRAWING AS 51-012



OIL PUMP POSITION MUST BE AT LEAST 30° ABOVE OR BELOW HORIZONTAL

REQUIRED TO REMOVE OIL PUMP

FOR LOCK-UP CLUTCH OPTION & CONTROL, SEE DRAWING AS 51-007 (500 SERIES ONLY)

4.687 DIA. (20.875 DIA. B.C. REF.)
22 HOLES EQUALLY SPACED ON BASIS OF 24 HOLES.
ONE HOLE OMITTED AT 12:00 O'CLOCK POSITIONS

7-14 THD. THRU 16 PULLER HOLES

.5312 DIA. 11 HOLES EQUALLY SPACED ON BASIS OF 12 HOLES. (ONE HOLE OMITTED AT 12:00 O'CLOCK POSITION)

* 3 N.P.T.F. CONVERTER OIL OUT TO COOLER

BASE LINE

INSTALLATION DIAGRAM

MODEL 400 & 500 SERIES

TORQUE CONVERTER AS 51-003

"CONVERTER IN" PRESSURE TAP $\frac{1}{8}$ N.P.T.F.
 PROVIDE PERMANENT PRESSURE GAGE.
 OPERATING PRESSURE CONTROLLED
 BY COOLER CIRCUIT RESTRICTION
 (COOLER, FILTER, LINES, AND ORIFICE
 RESTRICTORS AS REQUIRED.)
 PRESSURE SPECIFICATIONS

(AT OPERATING TEMPERATURE 200°F - 250°F)
 50 TO 80 P.S.I. AT FULL THROTTLE STALL,
 120 P.S.I. MAX. FULL THROTTLE NO LOAD
 (HIGH IDLE)

$\frac{3}{8}$ N.P.T.F.
 SEAL DRAIN (WHEN PUMP IS BELOW HORIZONTAL ϵ)

NOTE:
 PUMP MUST BE LOCATED AT LEAST
 30° ABOVE OR BELOW HORIZONTAL ϵ

$\frac{3}{4}$ N.P.T.F. - FOR CLUTCH PRESSURE
 SUPPLY OPTION, 140 - 170 P.S.I.

#12 MIN. HOSE SIZE
 (S.A.E. $\frac{5}{8}$ I.D.)

FULL FLOW FILTER WITH
 SUITABLE BYPASS
 RECOMMENDED
 (A-C DIVISION PART NO.
 5574784 OR EQUIVALENT)

$\frac{1}{4}$ N.P.T.F.

PUMP SUCTION LINE.
 #20 MIN. HOSE SIZE
 (S.A.E. $1\frac{1}{8}$ I.D.)
 MAX. ALLOWABLE VACUUM
 10" MERCURY AT PUMP INLET

SEAL DRAIN LINE
 (WHEN PUMP IS ABOVE HORIZONTAL ϵ)
 #8 MIN. HOSE SIZE
 (S.A.E. $\frac{13}{32}$ I.D.)
 FREE OF SHARP BENDS.
 RETURN BELOW SUMP OIL LEVEL

HOSE SPECIFICATION:
 S.A.E. 100 R5 EXCEPT
 OPERATING TEMPERATURE
 RANGE FROM -40°F. TO +275°F.

8.00
 MIN.

BREATHER
 (ALLISON 6774565 OR
 EQUIVALENT IS
 RECOMMENDED)

PUMP SUCTION SCREEN
 REF. AS 00-013 FOR SPECIFICATIONS
 AND RECOMMENDATIONS.
 MUST BE ACCESSIBLE
 FOR PERIODIC CLEANING

AIR SPACE

SUMP

10 GAL.
 MINIMUM

$\frac{3}{4}$ N.P.T.F. "CONV. OUT"
 250°F MAX.
 PROVIDE PERMANENT
 TEMPERATURE GAGE
 (REF. ALLISON PART NO.
 6756665). RETURN
 BELOW SUMP OIL LEVEL

DIPSTICK OR OIL LEVEL CHECK PLUGS
 CHECK OIL LEVEL WITH ENGINE IDLING

REF. AS 51-001 FOR COOLER
 OIL FLOW INFORMATION AND AS 51-003
 BASIC INSTALLATION DRAWING.

PARTS SHOWN IN PHANTOM
 ARE FURNISHED BY CUSTOMER

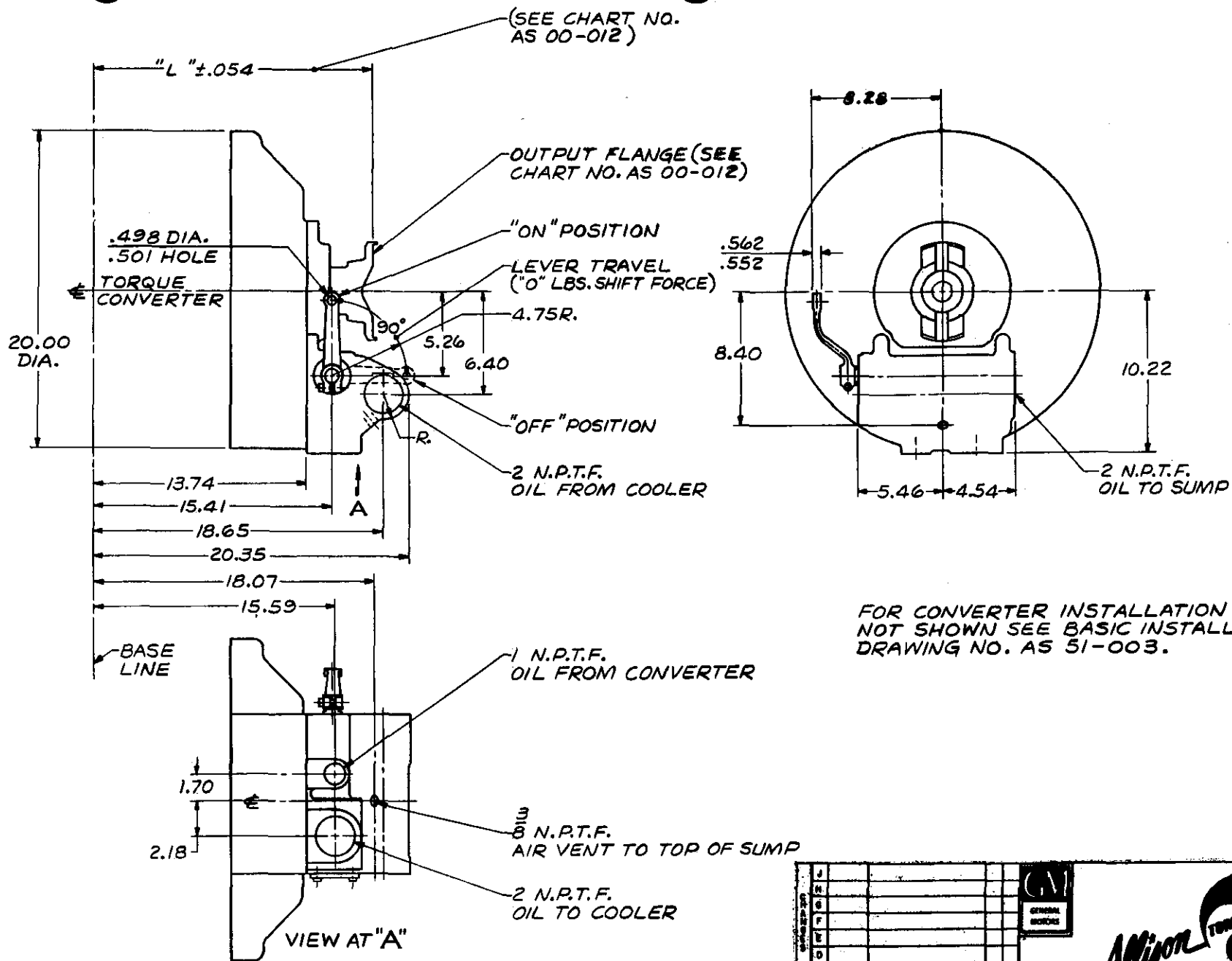
AS 51-004

NOTE:
 REQUIREMENTS SHOWN
 ARE FOR INDEPENDENT
 POWER UNIT CONVERTER
 INSTALLATIONS.

DESIGNED BY	DATE	BY	DATE
DRAWN BY	DATE	BY	DATE
CHECKED BY	DATE	BY	DATE
APPROVED BY	DATE	BY	DATE
TITLE: EXTERNAL HYDRAULIC CIRCUIT REQUIREMENTS (CONV. ONLY) MODEL 400 & 500 SERIES TORQUE CONV. AS 51-004			

GM GENERAL MOTORS

Allison TORQMATIC Drive



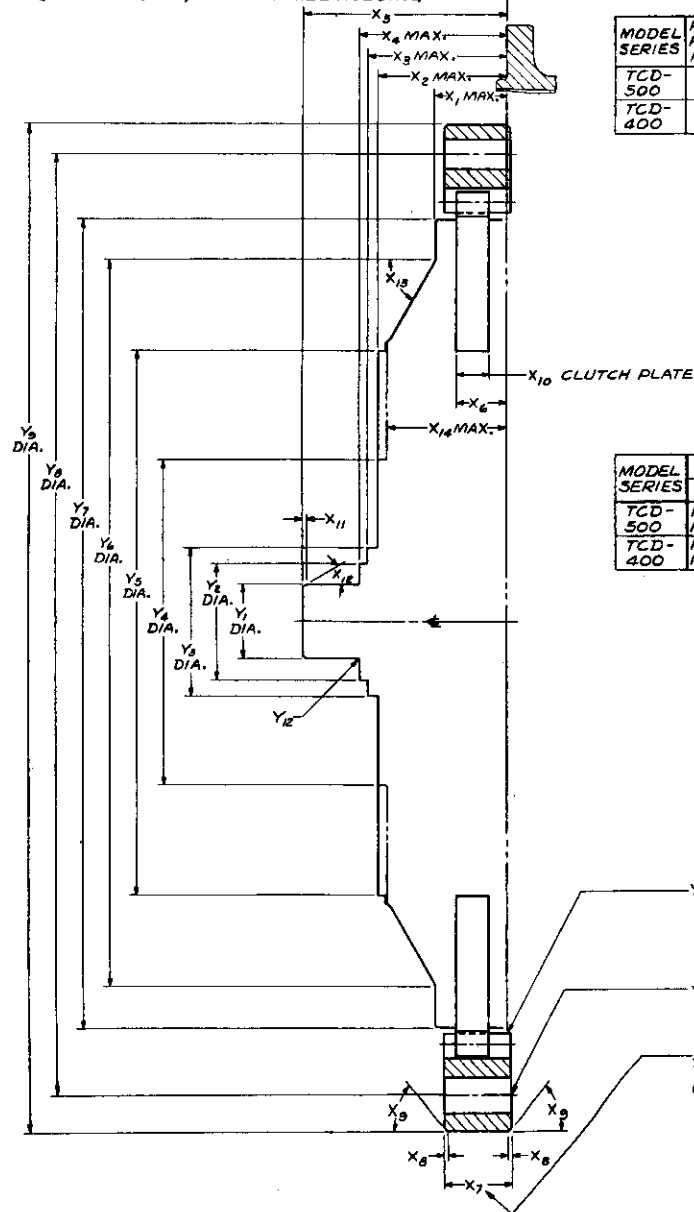
AS 51-006

FOR CONVERTER INSTALLATION DATA
NOT SHOWN SEE BASIC INSTALLATION
DRAWING NO. AS 51-003.

TCB
HYDRAULIC RETARDER
(SEE DRAWING NO. AS 06-002
FOR HYDRAULIC CIRCUIT REQUIREMENTS)
DRY WEIGHT APPROX. 177 LBS.

GENERAL NOTES	GM GENERAL NOTES			ALLISON TRANSMATIC Drives	
	HYDRAULIC RETARDER OPTION			MODEL TCB-500 AS 51-006	
	HYDRAULIC RETARDER OPTION			MODEL TCB-500 AS 51-006	
	HYDRAULIC RETARDER OPTION			MODEL TCB-500 AS 51-006	
	HYDRAULIC RETARDER OPTION			MODEL TCB-500 AS 51-006	

MOUNTING FACE FOR ENGINE FLYWHEEL HOUSING



MODEL SERIES	FOR S.A.E. FLYWHEEL HSG. SIZE	REF. BASIC INSTALLATION DRAWING NO.	DIMENSIONS													
			X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁	X ₁₂	X ₁₃	X ₁₄
TCD-500	1 MOD.	AS 51-003	1.362	2.415	2.595	2.760	3.880	.977	1.260	.06	45°	.625	.03	30°	60°	
TCD-400	1 MOD.	AS 51-003	1.300	2.415	2.595	2.760	3.880	.977	1.260	.06	45°	.625	.03	30°	73°	2.238

MODEL SERIES	DIAMETERS & RADII											
	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉	Y ₁₀	Y ₁₁	Y ₁₂
TCD-500	1.3772	2.17	2.75		10.00	13.40	14.89	17.250	18.375	.5312	62	.03R
TCD-400	1.3762	MAX.	MAX.				MAX.	B.C.	18.370		TEETH	MAX.

ENGINE FLYWHEEL AND FLYWHEEL HOUSING CONCENTRICITY AND FLATNESS SPECIFICATIONS MUST BE EQUIVALENT TO THE SAE STANDARD RECOMMENDED PRACTICE FOR "ENGINE FLYWHEEL HOUSINGS" AND "FLYWHEELS FOR INDUSTRIAL ENGINES USED FOR DRIVE-RING-TYPE OVERCENTER CLUTCHES AND TORQUE CONVERTERS."

AS 51-008

NOTE:
ALL PHYSICAL ADAPTATIONS ARE SUBJECT TO ALLISON DIVISION G.M.C. TRANSMISSION ENGINEERING DEPARTMENT REVIEW PRIOR TO INSTALLATION APPROVAL.

Y₁₁ SPLINE 4 PITCH
20° PRESSURE ANGLE
P.D. = 15.500
R.D. = 16.000
I.D. = 15.100 - 15.110

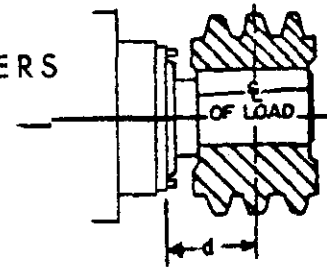
Y₁₀ DIA. - 8 HOLES EQUALLY SPACED.

DRIVE RING MUST BE LOCATED TO PROVIDE FULL WIDTH CONTACT ON CLUTCH PLATE TEETH.

Allison Transmission Division	
DISCONNECT CLUTCH ADAPTATION	
MODEL	SEE CHART AS 51-008

POWER TAKE-OFF SPROCKET CHART
TC-400 AND TC-500 SERIES ALLISON CONVERTERS
WITH HEAVY DUTY OUTPUT SHAFT

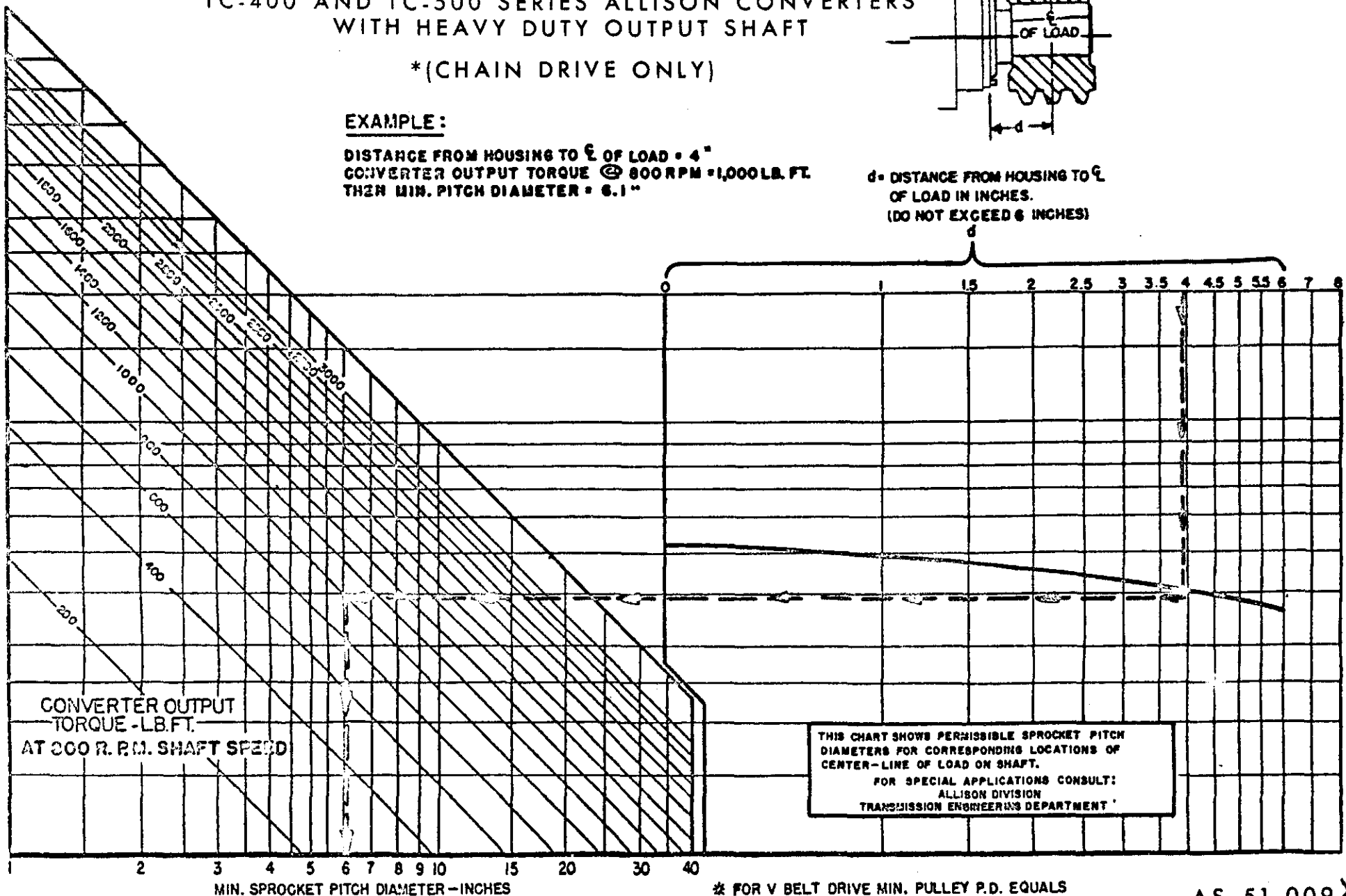
*(CHAIN DRIVE ONLY)



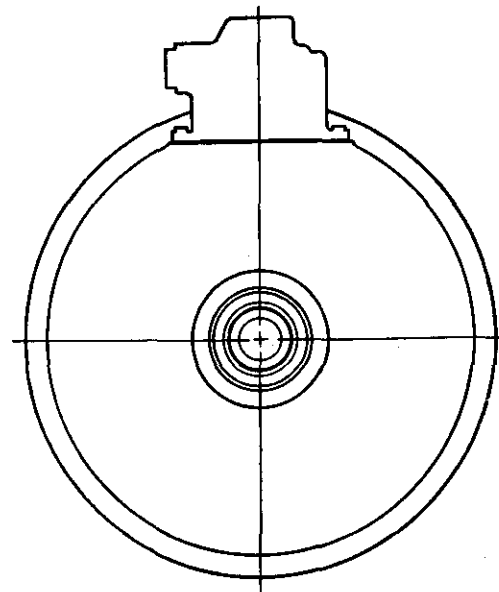
EXAMPLE:

DISTANCE FROM HOUSING TO $\odot$ OF LOAD = 4"
CONVERTER OUTPUT TORQUE @ 800 RPM = 1,000 LB. FT.
THEN MIN. PITCH DIAMETER = 6.1"

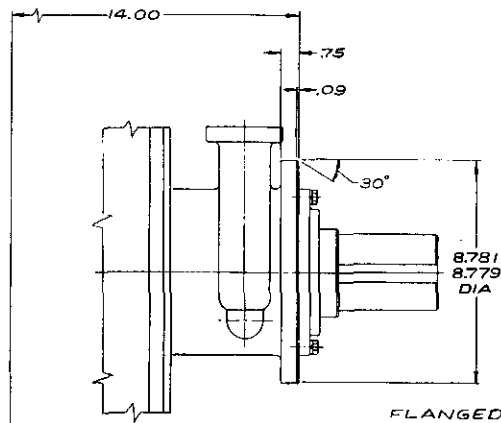
d = DISTANCE FROM HOUSING TO $\odot$
OF LOAD IN INCHES.
(DO NOT EXCEED 6 INCHES)



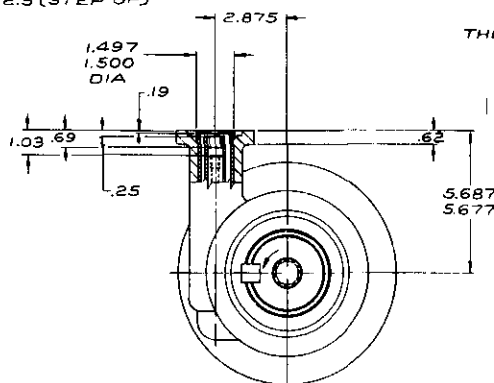
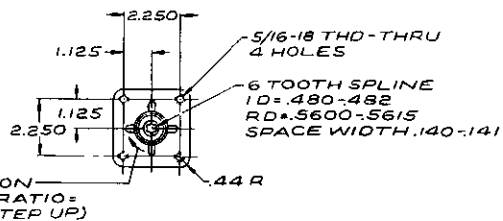
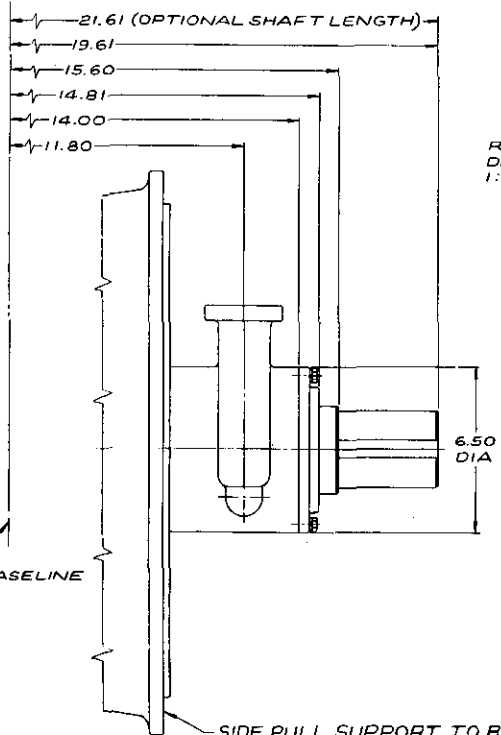
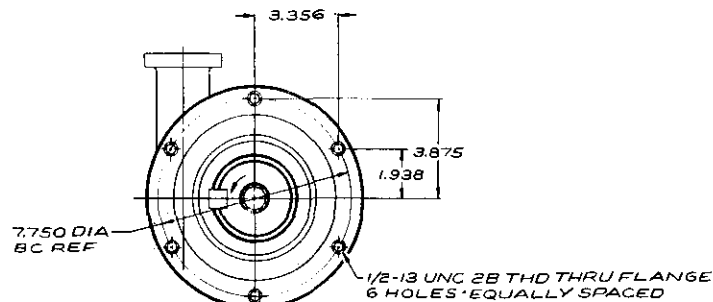
* FOR V BELT DRIVE MIN. PULLEY P.D. EQUALS
1.5 TIMES MIN. SPROCKET P.D.



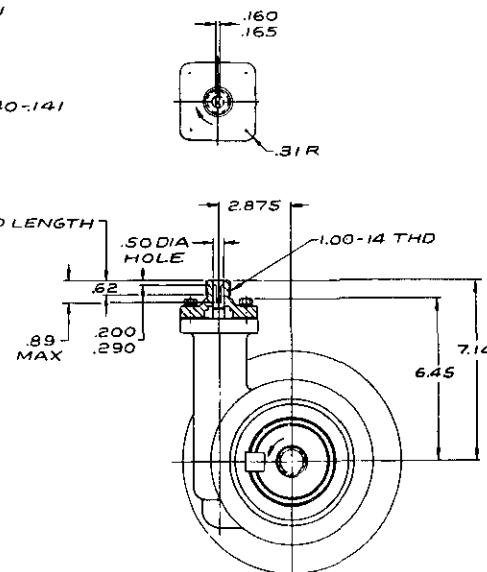
ALLISON DIVISION - GENERAL MOTORS CORPORATION - INDIANAPOLIS, INDIANA.



FLANGED BEARING HOUSING



FOR DIRECT MOUNTED TAILSHAFT GOVERNOR



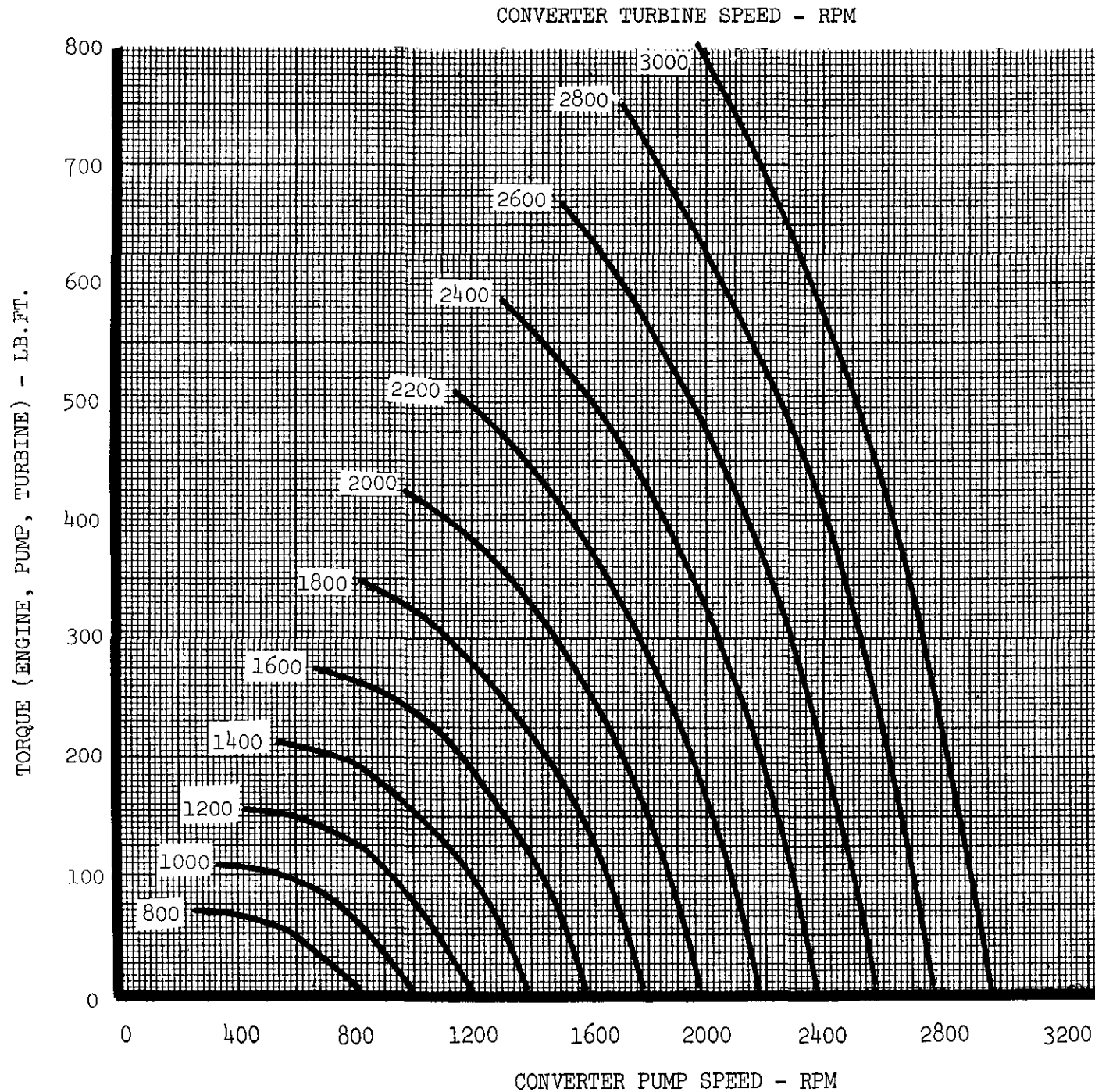
CABLE ADAPTER DRIVE FOR REMOTE MOUNTED TAILSHAFT GOVERNOR

TCA
SPEEDOMETER OR
GOVERNOR DRIVE OPTION
(APPROX ADDED WEIGHT= 27 LBS)
FOR CONVERTER INSTALLATION DATA NOT SHOWN
SEE BASIC INSTALLATION DRAWING AS 51-003

AS51-012

ALLISON		GOVERNOR DRIVE OPTION	
MODEL TC 400 & 500		AS51-012	
SIZE 2-17-2		2-17-2	

ALLISON TC-500 AND 600 SERIES CONVERTER FEEDBACK PERFORMANCE



		DATE 1-23-70
INDIANAPOLIS, INDIANA TRANSMISSION ENGINEERING DEPARTMENT		BY POLLOCK
		AS-51-014